INSIDE

In Depth — Tips for battling guru hoodoo. Page 103.

Don’t count out a role for central information systems in this century. Page 14.

Hospitals slow to apply computer technology to patient-care systems. Page 140.

What’s a teraquad? It may be the future’s supercomputer benchmark. The Pentagon contracted with Thinking Machines for a prototype of a system 1,000 times more powerful than anything available today. Page 16.

International ISDN video link demonstrated, tying Chicago to Tokyo. Page 6.

IBM Unix effort seen as pouring millions into third-party software development. Page 4.

Straight talk on OS/2? Users struggle with vendors’ directions on what is an adequate platform. Page 41.


That’s gold in them there boards! Silicon Valley firm stacks up gold and silver bars from reclamation operations. Page 113.

HP rides New Wave into office
Ties interface to plans for multivendor world
BY JEAN S. BOZMAN CW STAFF
CUPERTINO, Calif. — Hewlett-Packard Co. handed IS professionals the keys to its New Wave graphical interface last week, announcing 15 software packages that use the Windows-based system on a wide array of office services and industry-standard database formats.

New Wave Office, the suite of integrated products, extends software services typically found on HP 3000 minicomputers to industry-standard operating systems: Unix, MS-DOS and OS/2.

Among these services are electronic mail, shared data resources and access to remote databases, including IBM’s DB2.

Hopes are high
There are few early New Wave Office sites outside HP, but some customers who have recently signed on to the interface have high hopes for the system.

At Houghton Mifflin Co., a Boston-based publishing firm, New Wave Office could extend existing HP 3000 downlinking capabilities, said Edward Collins, manager of planning and technical consulting.

“Our HP 3000 provides an SNA gateway to our IBM
Continued on page 6

Justice aims database at gun sales
BY MITCH BETTS CW STAFF
WASHINGTON, D.C. — The U.S. Department of Justice has decided to build a complete, computerized database that lists convicted felons so that local firearms dealers throughout the country will be able to check out the criminal histories of gun buyers at the point of sale.

However, as Attorney General Richard L. Thornburgh put it in a letter to Congress late last month, the database “cannot be created overnight.”

First, the Federal Bureau of Investigation and state authorities will have to fully automate and standardize their criminal-history records and make the data much more accurate and complete.

Thornburgh said the FBI will be in charge of building an integrated database of convicted felons and establishing standards that states will be able to follow when reporting data. The Justice Department will dole out $27 million in grants during the next three years to help states comply with the FBI data standards. A federal task force reported that there is a mixture of companies raise prices to help pay for the costs of the acquisition, Matsey added.

“I’m concerned about less competition in the software marketplace,” said Richard Lester, vice-president of corporate development at Associated Grocers, Inc. in Seattle. “If this keeps up, there aren’t going to be a lot of choices left.

“CA has already cornered the market in some areas of systems software. I am dramatically concerned about this,” Lester noted.

EDS cuts diamond out of the rough and tumble of GM nets
BY ELISABETH HORWITZ CW STAFF
DETROIT — Hoping to simplify its role as systems integrator for General Motors Corp., Electronic Data Systems Corp. is in the prototype phase of a strategy that will migrate all the systems at its parent company to two internal networking standards: Open Systems Interconnect and IBM’s Systems Network Architecture.

The advantages of such a migration were made abundantly clear during a multiyear EDS project to link some 70,000 electronic mail users and 16 different E-mail systems at General Motors.

Dubbed Diamondnet because of its multifaceted ability to translate disparate protocols, the project began in 1984 “when GM wanted to use E-mail instead of an overnight pouch that took four days,” according to Michael Flynn, division manager of special program support.

The system became functional in late 1986 and now connects up to 12 types of E-mail systems. EDS did not find it necessary to link all GM users and systems, connecting only those groups that needed to communicate, according to Peter Kugel, account manager for technical services product support.

“We would have liked to get it down to one (E-mail) system, but the present mix is necessary,” Flynn said.

EDS came up with Diamondnet, a shell for providing translation between whatever electronic mail systems need to
Continued on page 141
IN THIS ISSUE

NEWS
4 IBM Unix family tree sprouts a new branch.
4 All Sikesed: Big telecoms go 0-2 against FCC. Chairman Alfred Sikes.
6 International videoconferencing delights suitors by being a cheap date.
6 GE has got the whole world in its net.
8 Darwis Kingman, director of University of Texas' graduate IS management program, dies at 45.
10 DEC dredges out weeds of contention clogging sales channels.
14 Surveyed IS executives say that information technology is still central to companies. And some people still think in terms of unbundled OS/2 edition.
16 Thinking Machines gets megcontract to develop supercomputer.
140 Ailing hospitals should try some IS as a cure for their headaches.
140 Stardent looks to be a major piece of the puzzle.
141 Can MSA and M&D leave behind the bitterness of the past?

MANAGER'S JOURNAL
71 IS restyles for a new look at Helene Curtis.

COMPUTER INDUSTRY
113 Rip van Patents: 29 years later, Texas Instruments finally gets an integrated circuit patent from Japan.

SYSTEMS & SOFTWARE
23 Visa Visa repeats itself when it comes to IS planning.
25 Distributed database could be a major piece of the software growth action.

DEPARTMENTS
8 News Shorts
20 Editorial
76 Calendar
121 Computer Careers
130 Marketplace
137 Training
139 Stocks
142 Trends

IN DEPTH
103 A literary treatise containing four key principles to help you get the most from technical experts. By John Esep and Jim Howe.

EXECUTIVE REPORT
79 Top executives are starting to discover that computers have redeeming qualities.

UPDATE

T

he bit is mightier than the sword. In a recent address, former Secretary of State George Shultz argued that the revolution in information technology is reshaping the sovereignty of nations, causing national boundaries to blur. "Borders are becoming porous, almost irrelevant, in more and more areas of sovereignty: money, ideas, information, missiles," he said. The kind of confederation of states defined by the U.S. is now applicable worldwide because of technology. And some people still think information systems just processes the payroll and pumps out reports.

Quotable

"For us, it is still small. We have to do something." - ROBERT METCALFE 3COM

Talk simple to me, working with experts.

A fully automated warehouse is part of a new look for IS at Helene Curtis Industries. Page 71.

EXECUTIVE BRIEFING

Despite notable exceptions such as Kendall Co., Fortune 500 firms will retain strong centralized information systems control, according to forthcoming Index Group survey results. A solid 82% of surveyed IS executives in the U.S. are confident that their firms will continue centralized IS oversight throughout the 1990s. The company may be highly decentralized, but corporate IS has the final say on issues such as technology standards and volume purchase agreements. Page 14.

Global networking strategies take center stage at three corporate giants. At General Electric, EDS will attempt to standardize all of its parent's far-flung networks on OSI and IBM's SNA. Page 1. General Electric's private international voice, data and video network is up and running, with bandwidth provided by carriers in the U.S., UK and France. Page 6. Aetna Life & Casualty became one of the largest organ donors by taking the Tariff 12 plunge, inking a three-year deal for AT&T to manage its inbound voice transmission services. MCI remains the carrier for Aetna's outbound voice traffic. Page 56.

High-level executive computing is far from commonplace, but some functions are catching on in the corner office. Electronic mail is the most popular, but many executives are dipping into corporate databases to find new business insights and emerging trends. Failure of executive support systems usually results from poor requirements definition and poor estimation of necessary development resources. Page 79.

Understanding your business is only the beginning. The successful IS executives of the 1990s will be leaders who are able to inspire change within their companies, with information technology as the enabler. Page 75.

Bigger is not necessarily better in the software industry, many customers believe. Many IS executives are concerned about fewer choices, less vendor creativity and higher prices in the wake of MSA/McCormack & Dodge, Computer Associate/Cullinet and other recent consolidations. Page 1. Former MSA and M&D executives say they believe that the two amalgams can overcome their contentious past but expect major staff and product-line consolidations for the merger to succeed. Page 141.

DEC moved to reduce conflicts with its third-party resellers over sales commissions, which should result in better prices and services for DEC customers. A top DEC executive admitted that the No. 2 vendor has erred in biting the hand that feeds it. Page 10.

Users writing their own network management systems may be wasting time, says the founder of 3Com. An interview with outspoken Robert Metcalfe touches on product hype, networking standards and "the morass of OSI." Page 53.

On-site this week: Redundancy and flexibility are the gospel at Visa USA, where 100% uptime is critical for credit authorization transactions. Duplicate mainframes, network gateways, terminals, power supplies and data centers help keep Visa humming through earthquakes and Christmas shopping seasons. Page 23. While Visa accounts load up with money-spenders, the U.S. Customs Service is keeping a sharp eye peeled for money-launderers — with help from an Apollo workstation-based expert system. "The Customs Artificial Intelligence System uses a series of rules to emulate investigators and spot suspicious transaction activity. Page 39.
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IBM's Unix plan going to RIOS

BY AMY CORTESE
CTO/WANP

While IBM's next-generation reduced instruction set computing (RISC) systems remain hidden behind closed doors, industry observers said it is clear that this time IBM is making a serious Unix offensive.

The successors to the slow-selling RT workstations will represent a leap in sophistication from current Unix-based workstations, according to industry observers.

IBM has indeed made a major effort to ensure that the software is available when the new systems debut. "They want to make a big splash with this," said Rick Martin, an IBM watcher with Prudential-Bache Securities, Inc.

IBM has lined up literally hundreds of software developers to provide AIX applications, by some estimates. Moreover, observers said that IBM is essentially subsidizing the development and porting work of software vendors.

According to Brian Jeffery, managing director at International Technology Group in Los Altos, Calif., IBM has shelled out at least $2 million to avert any antitrust charges, in effect "reversing the normal dynamics of the software market." Other analysts have speculated that IBM has paid as much as $5 million to a developer for one port.

"When it comes to third-party software, IBM tends to subsidize," agreed Martin, a former IBM product manager. These subsidies can take the form of free equipment, loops, prepaid royalties and, as witnessed over the past year, direct investments in third-party development.

The family of systems is expected to be based on an expandable, modular architecture using a new chip design and IBM's Micro Channel Architecture bus design.

The multiprocessor configuration will allow overall performance rates of as much as 100 million instructions per second and "the potential to go way beyond," Jeffery predicted.

Jeffery said IBM will also introduce a DB2-like relational database management system, LU6.2 cooperative processing capabilities, a compact disc/read-only memory storage.

The systems, dubbed RIOS by analysts, will run a new version of AIX, Unix-based operating system that is optimized for the architecture, observers said.

That optimization might have been a factor in the Open Software Foundation's (OSF) decision to turn to the Mach kernel provided by Carnegie-Mellon University as a replacement for AIX. Jeffery said that IBM, an OSF member, had agreed to provide the group's version of Unix.

Sources close to OSF confirmed that AIX was tuned to an IBM architecture and was not as portable as had been expected. In particular, AIX's virtual memory manager hindered portability less than thrilled with AIX." AIX presents a dual problem for OSF, Martin said, because while it is optimized for a specific architecture, at the same time its performance is suboptimized because it must scale such a broad range of platforms, from the IBM Personal System/2 to the 3909 mainframe.

Nonetheless, many believe IBM's Unix family will be successful, particularly with commercial applications, in which IBM has unrivalled draw.

IBM has indicated that the new systems will debut in the first quarter; observers and sources close to IBM have variously pegged the date for as early as the first week of January to mid-February. IBM staffers in the RIOS project's Austin, Tex., headquarters are working around the clock and shooting for a January announcement, according to one source.

In the face of IBM's characteristic reticence, there has been widespread speculation on reasons behind the delay of the RIOS systems. Explanations center around two theories: internal conflict between IBM's Application System/400 group and the RIOS project, or IBM is simply holding out for a full selection of third-party software.

High-RISC stakes

Personal workstations — RISC systems at PC prices — are projected to increase market share from low levels in 1988 to challenge Intel-based PCs.

Worldwide shipments of U.S.-based vendors (in thousands)

<table>
<thead>
<tr>
<th>Year</th>
<th>1988</th>
<th>1992</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel</td>
<td>1,077</td>
<td>1,150</td>
</tr>
<tr>
<td>RISC</td>
<td>1,075</td>
<td></td>
</tr>
<tr>
<td>Proprietary</td>
<td>268</td>
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</tr>
</tbody>
</table>

By Mitch Betts

WASHINGTON, D.C. — Users are on a roll at the new Federal Communications Commission (FCC). Since Alfred C. Sikes took over as chairman, the FCC has upheld Tariff 12 and last week ordered the former Bell operating companies (BOC) to stop inflating the price of private-line services.

The FCC ruled that so-called "strategic pricing," loathed by big telecommunications services users, is no longer justified and private-line rates should be based on costs. Furthermore, the commission ordered refunds of $75 million for past abuses of its strategic pricing guidelines.

With strategic pricing, local carriers raised the price of high-capacity private lines to discourage big users from bypassing the local telephone network.

Brian R. Moir, counsel to the International Communications Association (ICA), said the FCC agreed with users that the strategic pricing tariffs "were obnoxious high." He also praised the FCC for embracing a concept long favored by users — cost-based pricing.

"That was refreshing and was long overdue," Moir said.

"Chairman Sikes and his team view all public policy issues from the point of view of user benefit," said ICA's Alan Pearce, president of Information Age Economics, Inc. in Bethesda, Md. "He is a friend of the user community," Pearce said.

In October, users hailed the FCC decision in favor of AT&T's Tariff 12 for custom private networks, which has created fierce competition among the three major long-distance carriers for user business [CW, Nov. 13].

As a practical matter, the FCC's ruling on strategic pricing was a reversal from previous policy, which gave the BOCs the flexibility to base private-line rates on noncost factors such as bypass [CW, Oct. 17, 1988].

According to the FCC, some limited instances of strategic pricing were justified from 1985 to 1986, but that is no longer the case. Reductions in the common-carrier line charge for businesses have reduced the incentive for large users to bypass the local telephone network, the FCC reasoned.

From now on, an FCC statement said, the commission "expects local telephone companies to refrain from filing strategically priced rates."

The justification for changing policy was designed to protect the order from being overturned in court. In reality, "the biggest change is that we have some new blood" at the FCC, Moir said.

In a related order, the FCC directed some BOCs to refund amounts, which exceeded a set of cost guidelines that the FCC established for strategic pricing in 1988.

The exact amount of the refunds, which will go to long-distance carriers and large business users of private lines, will be determined after the BOCs file detailed reports in late January of next year.

The BOCs making refunds include units of Ameritech, Bell Atlantic Corp., BellSouth Corp., Pacific Telesis Group, Northwestern Bell Corp. and US West, Inc. Moir noted that ordering refunds is a very rare event at the FCC.

The FCC's investigation of strategic pricing had languished for three years until the ICA filed suit to force its resolution and lobbied for legislation setting deadlines for tariff investigations [CW, Aug. 15, 1988]. The previous commission refused to deal with this issue," Moir said.
In 1978, IBM drafted the specification for a new relational database technology called Structured Query Language, or SQL. Then, in 1979, two years before IBM delivered SQL/DS, Oracle Corporation delivered the first commercial implementation of SQL and has since become the largest database company in the world.

In 1988, IBM again produced a blueprint for the future of heterogeneous computing: Systems Application Architecture, or SAA. Oracle more than endorses this innovative vision. Oracle is delivering it. Today.

IBM's goals for SAA: "Applications that can be ported with less effort; applications that can span systems; user access to these applications that is simpler and more uniform; and programming skills that have broader applicability."

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The price is right for video ISDN

BY ELLIS BOOKER
CW STAFF

CHICAGO — At these prices, maybe it will be video, not voice or data services, that makes the Integrated Services Digital Network (ISDN) a commercial winner.

As expected, Andersen Consulting, Illinois Bell and AT&T last week demonstrated the first ISDN-based international video connection. The videoconference link, which combined two ISDN Basic Rate Interface (BRI) lines into a 112K bit/sec. video channel, connected Andersen’s Chicago world headquarters with its Tokyo, Japan, offices.

Pricing for the service, which requires ISDN Centrex from Illinois Bell for the local connection as well as Switched Digital International (SDI) service from AT&T for the leg between Chicago and Tokyo, works out as follows: For a 50-line ISDN system from Illinois Bell (the American ISDN Centrex Service is, for now, only sold in blocks of 50 lines), the videoconferencing application over one ISDN line costs $16.96 per month with a $146.50 installation fee. The cost of AT&T’s SDI service, which comes with a minimum $95 monthly usage charge, is $3.05 for the first minute and $2.50 for each additional minute.

Lyne Ginsburg, a partner at Andersen Consulting’s telecommunications group who is helping to set up its firm’s Asian Pacific telecommunications consulting practice, hopes the video link proves popular and cost-effective.

New Wave
FROM PAGE 1

mainframe that could be used in conjunction with New Wave,” Collins said. “We’d like to make mainframes more accessible to every user and we’d also like to encapsulate out existing MS-DOS applications into the New Wave interface.”

New Wave Office will allow HP 3000 users to seamlessly integrate applications running under the MS-DOS, OS/2, Unix and proprietary HP MPE operating systems.

HP’s plan to transform standard minicomputers into servers, just in time for the distributed computing architecture of the 1990s, was praised by some as inventive. “I think HP is being very clever in finding a way to get client-server computing out of a minicomputer,” said George Colony, president of Forrester Research Inc. in Cambridge, Mass. “It [the minicomputer] may not be as elegant as a modern server, but the user is getting a full graphical interface and New Wave’s object-oriented data management system.”

Other users will be able to generate their own integrated office systems on servers that run Unix or OS/2, as well as local area networks, with software made by Novell, Inc. or 3Com Corp., according to HP executives.

“New Wave Office is really a tool that will provide the manager that can harness all those PCs out on people’s desks and integrate them with the operational databases on which the company’s business is based,” said Doug Chance, executive vice-president, Networked Systems Sector.

The New Wave interface, based on Microsoft Corp.’s Windows, provides a way to “encapsulate” MS-DOS applications, such as Lotus Development Corp.’s 1-2-3 spreadsheet, into its icon-oriented screen format. New Wave Office will allow users to incorporate data gathered from the corporate network into a Lotus spreadsheet on their desktop and to distribute the new report to co-workers on the corporate network.

New Wave’s advantages, however, will have to be balanced by new responsibilities for users.

Prices for New Wave Office systems software for HP’s MPE computers range from $14,000 to $84,000, while system software prices for HP-UX Unix systems range from $14,000 to $65,000. New Wave Office is priced to the server, but the SDI service will be priced separately.

An initial offering of 15 New Wave applications will be supplemented by software written by 65 third-party firms, including Adobe Systems, Inc., Micrografx, Inc. and Sema Corp.

Analysts said New Wave Office is the designated rate of a single channel on an ISDN line. Each channel on an ISDN line costs $2.50 for each additional minute.

New Wave developed in conjunction with New Wave, its icon-oriented screen format. New Wave Office will allow users to incorporate data gathered from the corporate network into a Lotus spreadsheet on their desktop and to distribute the new report to co-workers on the corporate network.

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Analysts said New Wave Office...
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Novell sets sights on the elite
Novell, Inc. is aiming in on the Fortune 500. Last week, the network software supplier said it will expand and resell its national sales organization, creating a new arm to target major accounts. It will provide pre- and post-sales support needed by large corporate customers, Novell said. There are now three corporate sales groups: major user market support; integrated software sales; and marketing for distribution and retail.

Sun plans gallium arsenide chip
Sun Microsystems, Inc. has signed an agreement that will result in a gallium arsenide implementation of Sun's Scalable Processor Architecture (Sparc) microprocessor design. Austin, Texas-based Systems & Processes Engineering Corp. will develop the chip from the compound, which is considered an alternative to silicon. The Sparc chips will be used by the National Aeronautics and Space Administration on a variety of aerospace platforms.

Pentagon upgrades self-destruct
A study of eight computer system upgrades at the U.S. Department of Defense showed that they were roughly $1 billion over budget and often took three to seven years behind schedule, according to the U.S. House Committee on Government Operations. The committee's report cited "an almost total lack of accuracy in cost estimates" and said "schedule slippage is a way of life."

Kodak cuts jobs in imaging group
The ongoing corporate restructuring of Eastman Kodak Co. — part of an overall Kodak game plan aimed at giving the company a $1 billion cash flow for the coming year — last week caused the cutting of an estimated 4,500 to 5,000 U.S.-based employees. According to Kodak, the number is exclusive of work force reductions stemming from the divestitures that are also a part of the revamping of the company announced in August.

Covia looks to the East
Covia last week added Japan Air System (JAS) to its Apollo travel information and reservation on-line system. The interface will enable the 16,000 travel agent locations on the Apollo system to make reservations for JAS or Japan's two other major airlines, Japan Airlines and All Nippon Airways.

Quickmail users gain gateway
Personal computers running CE Software's Quickmail electronic mail software may get more chatty when an X.400 messaging system gateway supporting it rolls out sometime next year. Under an agreement recently announced by the software vendor and Touch Communications, Inc., Touch will develop and market the gateway. According to Touch, the gateway will provide a way for Apple Computer, Inc. Macintosh users, a large Quickmail market, to become integrated into corporate messaging schemes.

Section 1706 repeal bill introduced
U.S. Rep. Richard T. Schlueter (R-Pa.) has introduced a bill that would repeal Section 1706 of the Tax Reform Act of 1986, which redefined the tax status of independent contractors. The bill (H.R. 3741) was introduced at the request of L.J. Fast, a consultant in Westchester, Pa. The bill was referred to the House Ways and Means Committee.

Technology agreement inked
Tandem Computers, Inc. and Nixdorf Computer Corp. last week announced an agreement between the two companies under which Tandem will supply Nixdorf with Unix-based fault-tolerant systems, and Nixdorf will provide Tandem with Unix applications.

Texas U. works to overcome IS loss
AUSTIN, Texas — One of the nation's leading information systems management graduate programs last week named a new director to replace its founder, who died recently at the age of 45.

Darwin Klingman, director of the MBA/IS management concentration at the University of Texas College of Business Administration, died Oct. 27 of a brain tumor.

He will be succeeded by Andrew B. Whinston, a professor of IS, economics and computer science who joined the Texas faculty last year from Purdue University.

Klingman pioneered the IS concentration at Texas' MBA program, a track that began in 1985 and has since graduated some 500 students.

Texas was one of 13 universities to receive grants from IBM for information systems studies in 1985 (CW, July 8, 1985), but was the only one to create a separate track within its MBA program with separate admission requirements.

The university's IS program was rated eighth in the U.S. in CompuServe's recent survey of the top 10 graduate programs for IS studies (CW, Oct. 30).

"Darwin took the program from ground zero to a level of really getting a lot of national attention," said Robert Sullivan, the business school's associate dean for research and academic affairs. "He wrote the original proposal that won the grant from IBM, then he implemented the program down to a T."

Corporate sponsors
Klingman helped line up several corporate partners for the program, including IBM, American Airlines, Conoco, Inc. and Andersen Consulting.

Some companies offer IS internships for students, as well as financial support to the program.

The IS concentration has greatly increased the awareness of computer technology issues throughout the university's business school, which grants some 400 MBAs per year, according to Sullivan.

"Our marketing MBAs should be better versed than most in the use of scanning information or the implications of a centralized database," Sullivan said.

Educating for the future
Among the highlights of the IS concentration in Classroom 2000, a futuristic teaching facility in which instruction is done exclusively on 24 networked workstations. The university is currently replacing the original IBM Personal Computer AT720s with Personal System 2/470s.

Klingman, a nationally recognized expert on network optimization, taught at Texas for 20 years. He was a recipient of the university's outstanding faculty award and other faculty prizes.

The business school has established the Darwin Klingman Memorial Scholarship Fund in his honor.

IBM eyes employee cost cutting
ARMONK, N.Y. — Officials at IBM last week confirmed reports that it is trying to reduce employee-related costs but will stand firmly by its 40-year-old policy of no forced layoffs.

IBM's traditional cutback strategies of early retirement packages, redeployment and nonreplacement of exiting employees are likely to continue in 1990, one company analyst said. The company refused to speculate on such moves.

"All you have to do is look at IBM's financials," said Sanjiv Hingorani, a computer industry analyst at Salomon Brothers, Inc. in New York. "IBM's earnings peaked in this decade at $10.77 per share in 1984, and their stock is at its lowest level since 1985."

Hingorani said that IBM is fina1izing its 1990 budget, and any cost-cutting action the company takes will be taken for speculation, because without the budget in place, the company cannot say exactly what measures will be necessary.

Hingorani does not see any basis for recent Wall Street rumors that the company is planning to cut its 387,000-person work force by as many as 15,000 jobs.

However, reports of such a cutback — possibly occurring this week — persisted.
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Products Licensed In Over 40 Countries
User gains likely as DEC seeks to halt turf wars

BY MARYFRAN JOHNSON
CW STAFF

ORLANDO, Fla. — In a move designed to cut conflicts within its own sales channels, Digital Equipment Corp. last week announced a program that offers customers greater negotiating power and broader choices when buying DEC equipment.

The new sales program, introduced at DEC's 1989 Complementary Solutions Organizations Executive Seminar, is a share-the-wealth deal intended to end the turf wars between DEC's direct sales force and third-party vendors. The cease-fire should mean "good news to end users," said Fred Koehne, president of McLean, Va.-based PRC Public Management Services, the largest vendor of criminal justice and emergency dispatching systems in the U.S. and Canada.

"When both sales reps get 100% credit [for a sale], they're not working against each other," Koehne explained. "They're working for the customer instead."

Whether customers buy directly from DEC or from a third-party vendor, under the new sales plan, the credit for that sale — in the form of future discounts — will be equally shared by both companies. Under the old system, whoever made the final sale got all the credit.

During the annual meeting, DEC officials apologized for the second-class treatment of their resellers in the past. An estimated 40% of DEC's annual sales come through third-party channels.

"Did we bite the hand that fed us? You bet your life we did," said Jack Smith, senior vice-president of engineering, manufacturing and product marketing at DEC.

Resellers and DEC officials stressed that customers will be the ultimate beneficiaries of improved sales force relationships in the form of better service. No promises of big discounts were forthcoming, however.

Bad news

There was bad news from the reseller's point of view in what some saw as a growing trend toward customers buying unbundled systems — shopping around for the cheapest hardware to pair with customized software.

"This has the potential of a serious threat to our revenue," Koehne said. "We've had four customers in the last year who went unbundled, and we ended up losing money."

Both DEC officials and resellers complained about having to "rescue" customers who had botched their own systems integration projects. Smith said DEC is about to start charging extra fees to customers who call them in for help.

Several business executives also grumbled about a $1 million "cap" that DEC is slapping on the sales credits they can accrue toward future discounts. The cap was taken by some as a message that large corporate customers are out of bounds for third-party vendors.

Smith responded that the dollar limit was still "under review." However, he emphasized that the complexity of large corporate sales called for direct handling by DEC.

In private sessions with DEC officials, the business partners and resellers asked for more timely competitive sales information, quicker access to DEC sales representatives and stronger support in the field.

Barbara Dotson, president of DWC Computer Solutions, Inc. in Lexington, Ky., said software vendors selling DEC-based products have come to expect little help from company sales representatives.

"Those IBM people are in there fighting with their resellers, showing that software on their machines," Dotson said. "With DEC, you're lucky if you can get the machine fixed after it breaks down during the demo."
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Central IS role not likely to fade soon

BY CHARLES VON SIMSON CW STAFF

Information systems directors nervous about the recent elimination of a central IS function at Kendall Co. are best advised to relax. A few notable examples notwithstanding, the trend in major organizations is for a strong central IS presence, even in the most far-flung organizations.

A survey of 243 U.S. IS executives and 92 of their European counterparts to be published at the end of this month by Index Group, Inc., a Cambridge, Mass., consultancy, indicates that few are worried about the dissolution of their responsibilities.

Eighty-two percent of the Americans and 73% of the Europeans felt strongly that their organizations will continue to have a central IS function through the year 2000. Only 9% of the Americans and 10% of the Europeans thought it likely that their organizations would eliminate the central function.

"Most of the Fortune 500 have at least one corporate mainframe center," said Leonard Bergstrom, a principal at Darien, Conn.-based Real Decisions Corp., an IS cost consultant to Fortune 250 companies.

"If anything, they are moving toward consolidation to get increased economies rather than the other way. Any company eliminating central IS is bucking a strong trend." Kendall became a dramatic exception last month, however, when the firm eliminated its central IS function and contracted out the remaining central IS functions to a start-up consulting firm headed by outgoing corporate IS director Ron Cipolla [CW, Nov. 13].

Observers contend that a centrally managed IS organization is important for more than simply keeping track of network installations.

"If you believe there is any point to being a corporation, rather than just spinning off all units into legally separate companies, it must be due to some synergy in the lines of business," said Michael Packer, vice-president and IS specialist at the MAC Group, a Boston-based management consultancy. "Information is part of that. I would be amazed at a company that would not have some kind of centralized group maintaining standards and volume purchase agreements."

Pepsi's standards

One such company maintaining corporate standards in a decentralized environment is PepsiCo, Inc. MIS director Allen Deering coordinates corporate volume purchase agreements and helps autonomous business units such as Taco Bell and Kentucky Fried Chicken arrive at standards. Deering, however, enjoys no veto power over any unit's plans and has direct responsibility only for the data processing function of the administrative center in Purchase, N.Y.

"You have seen the notable exceptions that have dropped off the face of the earth," Bergstrom said. "With increased acceptance of outsourcing and other distribution options, there may be more of it in smaller organizations. The disappearance of central IS puts the burden on the profit centers, which can be attractive from a cost point of view."

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Among the notable exceptions are some big names in the industry.

Restructuring at Fidelity Investments, Inc. two years ago handed virtually all systems development down to the operating units and caused the departure of then-IS chief Michael Simmons, who ultimately became MIS director at the Bank of America.

Within the last year, Richard Koeller, former MIS director at TRW, Inc., left the company, reportedly over disagreements about the role of a central IS director, and is now head of IS at Whirlpool, Inc. Both Simmons and Koeller declined to be interviewed.
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Military contracts for ‘teraops’ system

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — The U.S. Defense Advanced Research Projects Agency (DARPA) last week awarded Thinking Machines Corp. a $12 million contract to develop a working model of a supercomputer roughly 1,000 times more powerful than those currently available.

The system, code-named Mega, will use Thinking Machines’ massively parallel architecture and will be capable of peak speeds greater than one trillion operations per second. (That speed, known as 1 teraops, is equal to 1,000G floating-point operations per second, or FLOPS.)

Under the DARPA contract, the Cambridge, Mass.-based firm will “scale up” its Connection Machine 2 (CM-2) to produce a one-tenth scale version of the teraops machine, according to Danny Hillis, co-founder and chief scientist at Thinking Machines. The final demonstration of the working components will be in 1992.

Hillis declined to discuss the exact architecture of the proposed teraops supercomputer, except to hint that there is an opportunity to speed up the CM-2 processors. He stressed that the teraops system will run all of the software written for the CM-2, which typically runs at 8G FLOPS.

“As it turns out, CM-2 was a scale model for teraops,” Hillis said at a press conference here. Thinking Machines will be matching the DARPA contribution of $12 million and has already spent $10 million on the preliminary designs. Hillis said the biggest remaining technical challenge is designing the teraops machine with fault-tolerance capabilities.

DARPA and Thinking Machines officials emphasized that the goal of developing a teraops supercomputer was endorsed by the Bush administration’s report on high-performance computing [CW, Sept. 18]. The report said high-performance supercomputers are needed to solve some of the nation’s most pressing “grand challenges,” including research on superconductivity, global climate changes and automatic speech recognition by computers. DARPA officials suggested there will be more supercomputer contracts with other vendors forthcoming but declined to identify them.

EDI firms forge global alliance

BY JOANIE M. WEXLER
CW STAFF

EL SEGUNDO, Calif. — More business forms could wind up in circular files around the globe as a result of an alliance announced today between international services provider Infonet and six worldwide suppliers of electronic data interchange (EDI) products and services.

EDI is the computer-to-computer communication of business documents, such as purchase orders, via standardized electronic message formats. The process allows companies to conduct business with suppliers and other trading partners without producing or transporting paper documents.

Allied with Infonet are Railinc, a Washington, D.C.-based supplier of EDI links to the North American transportation industry; Supply Tech, Inc., a Southfield, Mich., vendor of EDI translation software; Telecom Australia; Hong Kong’s Cable and Wireless; Singapore Network Services; and Telefonica Spain.

Infonet, which offers value-added, standards-based network services in 34 countries, is majority-owned by the Postal Telephone and Telegraph authorities (PTT) of major European and Asia Pacific countries.

The agreement allows the customers of all the allied EDI providers to exchange documents with one another via the Infonet network.

“It’s becoming common for companies using EDI, such as Ford Motor Co., to refuse to do business with suppliers who don’t have EDI capabilities,” said Vic Wheatman, program director for interenterprise systems at Gartner Group, Inc.’s Santa Clara, Calif., office.

Translation key

Supply Technology’s translation software is a key component of Infonet’s global EDI network, converting “flat files” of straight data created by a user’s applications software, such as a purchase order system, and putting it into an agreed-on format that is sent via communications software to the trading partner.

The software can be installed on the users’ computers, or the translation can take place on the network, for a service fee ranging from 5 to 30 cents per document, according to Laura Andrus, Infonet’s director of marketing.

Andrus added that the company is encouraging users to install their own translation software, which she said ranges in price from $20,000 to $40,000 for mainframes, $8,000 to $30,000 for minicomputers and $500 to $8,000 for microcomputers.

For more information, contact Supply Technology at 22 Westaberry Drive, Rockwood, Vt. 05066-0001; 802-435-2200.

COMPUTERWORLD DECEMBER 4, 1989
Morris seeks classified data

BY MICHAEL ALEXANDER
CW STAFF

SYRACUSE, N.Y. — The trial of Robert T. Morris Jr., the young hacker alleged to have launched a worm into Internet last year, was postponed last week after his lawyer notified the court that he needs access to classified information he claimed is critical to the case.

Additionally, Morris’ lawyer, Thomas Guidoboni, charged that the government had not responded quickly enough to requests for a list of computer sites allegedly struck by the worm.

"The trial was postponed at my request over government opposition because we needed more time to prepare," Guidoboni said.

In a motion filed Nov. 21 for a continuance, Guidoboni said that the defense had filed a motion under the Classified Information Procedures Act (CIPA) requesting classified information important to the case. In the same motion, Guidoboni said the government had failed to provide him with a complete list of institutions that the government intended to prove had been affected by the worm and a list of witnesses it intended to call.

"I have been told that some information that is useful to my defense is classified," Guidoboni said. "It may or may not be. I don't want to either overplay it or belittle it, but we needed some time to get that worked out.

"Less than two weeks before the trial [on Nov. 20], the government added new names to the list that were not mentioned in the indictment as well as filed a motion to withdraw one of the original names mentioned," Guidoboni said. "I wanted time to look into that.

In opposition to the motion for a continuance, government lawyers said that the national security issues raised in the CIPA motion were being resolved and would have no effect on the defense's ability to proceed or on the timing of the trial. Responding to the issue of not having responded in a timely manner to the defense's requests for a list of victims or witnesses that it intended to call, "the government has complied with all court orders to provide discovery," said Mark Rasch, trial attorney for the Justice Department. In addition, the defense has had ample opportunity to request and receive additional information related to the case, he said. The government is seeking in a motion to remove the U.S. Air Force Logistics Command at Wright Patterson Air Force Base in Dayton, Ohio, from a list of four computer sites mentioned in its July indictment as having been allegedly hit by the worm.

Rasch declined to comment on why the government desires to remove this particular site from its list of victims, while adding that it intended to offer evidence on security issues raised in the CIPA motion were being resolved and would have no effect on the defense's ability to proceed or on the timing of the trial.

Guidoboni filed an objection to that motion last week, and a decision is pending.

Last week, U.S. District Judge Howard Munson agreed to continue the case to the week of Jan. 8. A new trial date has not been set.

Security experts snipe at military guidelines

BY JAMES DALY
CW STAFF

PALM SPRINGS, Calif. — Information systems managers who steer their security plans by the document considered the beacon of the computer security community may in fact be heading for the shoals of disaster.

Experts at last week’s Infosec '89 conference came down hard on the deficiencies of the Department of Defense’s "Trusted Computer System Evaluation Criteria," commonly known as the Orange Book, which serves as the de facto guideline for the computer security community.

"As good as it is, it is fundamentally flawed," said Peter Neumann, a member of the computer science laboratory at SRI International in Menlo Park, Calif.

Neumann criticized the Orange Book for making short shrift of vital areas such as virtual integrity.

Last week, U.S. District Judge Howard Munson agreed to continue the case to the week of Jan. 8. A new trial date has not been set.

The Orange Book divides computer systems into four hierarchical categories of security protection, ranging from D at the low end to A at the high end. Each level is further subdivided and given a numerical equivalent.

Although the criteria are clearly spelled out, analysts said vendors often play fast and loose with their supposed adherence to the guidelines. "It is what we like to call criteria creep," said Stephen Walker, president of Trusted Information Systems, Inc. in Glenwood, Md.

Government officials said it is important that users do not get caught up in these muddy waters. "There is no assurance that products advertised as 'C-2-like,' 'designed to meet C-2 requirements,' or 'targeted at C-2' actually provide the features and assurances of that level of trust," said Thomas Malarkey, deputy chief of the National Computer Security Center's product evaluation division, which awards Orange Book ratings after a lengthy evaluation process.

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There is a better way.
Editorial

Warm fuzzies

Few things can inspire more angst in a user than hearing these three little words from a key software supplier: "We've been sold." A multitude of nightmares leap to mind: loss of support, less frequent enhancements, bureaucratic and, worst of all, outright cancellation of the product.

IS managers with large mainframe installations have been hearing those three little words a lot over the last six years. From Computer Associates' often ruthlessly efficient cost-cutting to the benign equity investments of IBM, consolidation in the mainframe software industry has been fast and furious, taking many of the major players of the early 1980s with it.

So it is surprising that Dun & Bradstreet's acquisition of Management Science America last month did not arouse more nervousness among MSA users. Three years ago, the sale of such a large and important vendor would have had the industry buzzing with anticipation of layoffs and butchering research and development budgets. But the users we talked to seemed positively unexcited about the whole thing. Why?

One explanation is that the industry has learned a lot about itself in the six years since D&B kicked off the mega-merger craze with its acquisition of McCormack & Dodge. The industry has learned that host software is not a commodity. Scraping a mainframe database management system takes customer companies down with it, and increasingly militant users are less inclined to stand for that kind of neglect. CA learned as much two years ago when it proposed to discontinue a mainframe security system and had to withdraw the plan quickly in the face of user outrage. In contrast, D&B took pains last month to stress that the MSA acquisition would have no effect whatsoever on product lines.

The industry has also learned that the nature of vendors' software company's relationship with its customers is unusual — almost personal. Time after time, users tell us that what they like about small software companies is the individual level of service and support they get.

The big players are evidently aware of that fact. Legent typically trundles the executives of acquired companies around the country to stress the union in front of customers and the press. D&B learned that the best way to treat its M&D subsidiary is to leave it alone. IBM has apparently given up on big-ticket buyouts and seems content to invest in small vendors that meet with its approval rather than overwhelm customers with bureaucracy and blue suits.

Finally, users are realizing that vendor stability is in their best interest. Software is no longer a garage shop industry, and a vendor's alternatives to being bought out are often financial hardship or worse. A cash injection from a well-run suitor can be a welcome relief to vendor and customers, as long as the acquiring firm understands that users chose to do business with the company being bought, not the buyer. Increasingly, the goal of the would-be acquirer is to keep customers feeling warm and fuzzy.

Letters to the Editor

The danger in viewing the hacker as scapegoat

As a member of the data processing community and a loyal reader of Computerworld for the past 11 years, I feel that I must comment on "The hacker as a scapegoat" (CW, Oct. 23).

The issue of how to deal with hackers does, in fact, need to be addressed by our industry. However, Steven Levy seems to think that gaining access to a computer is a personal freedom and that we as an industry owe him and the likes of Robert Morris a hearty "Thank you!" for showing us any possible weaknesses in our network security systems. I liken this to me thanking the person who breaks into my home for showing me that my windows can be broken or that my alarm system can be circumvented.

The fact of the matter is that hackers have absolutely no right to gain access to any computer system without the express consent of the owner(s) of that system. Anything else is trespassing at least and, at most, felony.

It seems that publishing such tripe borders on irresponsible journalism, considering all the man-hours that hackers have caused DP professionals to spend guarding their systems against viruses and worms, and the resultant impact on budgets, schedules and so on.

Welcome to the bandwagon! In an otherwise helpful and informative issue, you just had to publish "The hacker as scapegoat," an interview justifying (and glorifying) the hacker.

If, as Steven Levy implies, system managers are to blame for hacker intrusions because their systems security is less than complete, then I assume he would also blame me for any assault committed upon me because I chose not to arm myself and confine myself to a steel box.

Using phrases like "never stop to malicious methods to practice the darkest sides of their art" and "Honour is something that is alive in hacker communities," Levy demonstrates that writing fiction often has difficulty understanding reality. The reality is that entering a computer system without authorization is against the law, and the people who do so are criminals — just as people who enter your home without authorization are criminals.

Now, while I have no sympathy for security practitioners who fail to take basic steps to protect their systems, I would no more blame them for getting hacked than I would blame the victim of a burglary for failing to bar the windows on his home.

Levy also demonstrates his difficulties with reality in his definition of a hacker — "a person whose devotion to something is near total and who has a deep-seated desire to do what's impossible to do."

In the real world, those of us confronted with the problems caused by hackers have a different definition. Any person who deliberately gains unauthorized access to a computer system is a criminal and ought to be viewed as one and treated as one.

Finally, leave the glorification and romantic portrayal of criminals to works of fiction. It has no place in industry journals or news publications.

John A. Blackley
Security Administrator
Capital Holding Corp.
Lenoir City, Tenn.
Words brew anti-Japan typhoon

CHARLES P. LECHT

We're going through a period where everyone and his brother, in trying to look like the Japa-

ese, seems to be offering advice on how to do

business in Japan. In the world-

wide computer industry, the ad-

vice giving may be stronger than

wide computer industry, the ad-

vice giving may be stronger than

the Japanese industry would still have lit-

tle choice but to continue to buy

foreign-made systems. Except in

the Japanese marketplace? I say no.

The foreign cries of "foul

trade practice," needless to say,

bring out the worst in Japanese

politicians and businessmen.

The most unwise of the local ex-
perts seem to be advocating Ja-

pan's independence of foreign markets — kind of like killing

appear to want to shut the doors

of the factories they helped build

and the destruction that may bring.

The opinions of these Japan "experts" cannot help but ap-

pear to me as the bought and paid-

for smirks of an insincere waiter. The most vociferous of

these advice-givers seem to be

Japanese executives who have

been watching the in-

fluence of off-

shore firms with a growing sense of unease. On the one hand, I am a child of lais-

sez faire, I drive foreign cars and be-

lieve that the best product should always win. On the other hand, I am concerned that the U.S.

computer companies are irrev-

cably falling behind.

As the computer industry rolls into a recession, this con-

cern takes on new dimensions.

Clearly, our industry is down-

sizing, and every participant is be-

ing affected. Automation is elimi-

nating jobs in manufacturing.

The march of price/performance

means that fewer people are needed to market, sell and ser-

vice less expensive computers. In fact, many pundits believe the

computer sector is entering a pe-

riod of maturity analogous to the

automobile industry. In this fu-

ture scenario, there will be a

handful of giants supported by a

plethora of small companies that

specialize in market niches.

The question is, of course, who

will be the giants of the next

computer era? Look at the classi-
fied ads today and you might get

a clue. While U.S.-based comput-
er suppliers are supported off sales by the thousands, Japanese-held companies are notfor their hiring activity. Recent employ-

ment advertisements by Hitachi, Toshiba and NEC all point to their continued investments in the U.S. market. Given the lay-

offs by U.S. companies, they will have a long roster of first-rate people from which to choose.

The challenge for U.S. com-

puter manufacturers is further underscored when one observes the quiet revolution taking place in the venture capital communi-

ty. Sources indicate that rather

than retreating from new invest-

ments, venture capitalists are con-

tinuing to fund high-technol-

ogy start-ups. However, much of

this capital hail from Japanese and Asian companies, which are

investing in fledging start-ups

developing technologies that will be intrinsic to success in the next
decade. They are not only mak-

ing the investments necessary to

become the powerhouse of the

computer industry in the future, they are willing to make them in the worst of times.

Three little culprits

So we must ask this question:

Why are U.S. computer compa-
nies finding it so difficult to com-

pete? One reason is governmen-
tal policies that do not protect U.S. businesses from unfair com-

petition and a lack of cooperation between government and indus-

try that is typically found in oth-

er countries. Our tax laws also do little to foster computer invest-

ment. However, there is a third culprit that is also responsi-

ble. It is Wall Street, which

makes the computer industry dance to its collective tune.

Face it — Wall Street runs on

smart money, and sales and earn-

ings are the name of the

game. When computer compa-
nies report successively higher sales and earnings, Wall Street

applauds by raising the value of the stock, and management and employees feel that they win.

When there are shortfalls, how-

ever, investors unload the stock

with a vengeance and recrimina-

tions are swift and sure. Consid-

er the applause that surrounded

industry stars such as DEC, Ap-

ple and Sun Microsystems. Then

look at the response when they

hit bumpy roads and quarter-to-

quarter windfall sales gains could

not be sustained.

When U.S. computer manu-

facturers dance to the tune of

Wall Street, an insidious problem occurs. Quarterly performance

takes the place of the long-term view, and companies are loath to report reversals while new strat-

eyes go into effect. To "make the numbers," vendors throw

sales forces into a frenzy at the end of each quarter to prevent self-defeating price wars to gain

market share. In the worst case, we have situations such as Mini-

scribe's, in which management is

alleged to have cooked the books to make the numbers add up. In the best case, we have firms such as

Data General, which have set their stakes in new products and strategies that the

companies are loath to take their lumps while Wall Street fumes.

And what about Wall Street and Japanese competitors? Unlike their U.S.

contemporaries, Asian competi-
tors can largely ignore Wall Street. They draw from a well-
spring of management and in-

vestment philosophies that value long-term success over whimsi-
cal performance. These firms' long-term orientation is support-

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gle to make a profit amid the an-

othing recession.

In the final analysis, there is a

lot more wrong with the comput-
er business than down-sizing and the effects of price/performance.

To be competitive, the U.S. computer industry needs to make more long-term investments that will be neces-

sary to be competitive over the long term.

What we need are more pragmatic partners in the government and in the financial community. Wake up and smell the coffee, folks.

New day dawns in age of U.S. foreign competition

MARTY GRUHN

Like many peo-

ple in the com-

puter industry, I have been watching the in-

fluence of off-

shore firms with a growing sense of unease. On the one hand, I am a child of lais-

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What we need are more pragmatic partners in the government and in the financial community. Wake up and smell the coffee, folks.
Software AG announces the Data Center Management Series.

If you're tired of managing your high-tech data center with low-tech, antiquated tools, you need the Data Center Management Series™ from Software AG.

Why consider 4th Generation technology for data center management? Because you need it. You need powerful, integrated software to automate the three key areas of your data center:

- Job preparation/scheduling
- Console management
- Network control

Together, NATURAL OPERATIONS, NATURAL CONSOLE, and NATURAL NETWORK deliver advanced solutions for each of these areas.

More importantly, all Software AG technology works together, within one coherent architecture (ISA: The open, Integrated Software Architecture). This integration maximizes productivity, minimizes training time, and increases the overall performance of your data center.

And that's just the beginning of what integrated, 4th Generation technology can do to automate data center management.

The Data Center Management Series. From the world's leading software manufacturer: Software AG.

There's a new player in the data center: Software AG's Data Center Management Series provides a 4th Generation approach to data center automation. For more information, call toll-free: 1-800-843-9534.
Visa finds success in redundancy

BY J. A. SAVAGE
CW STAFF

SAN MATEO, Calif. — Visa USA, Inc. claims it has a formula for success in information systems planning — and that formula is "n + 1".

The "n + 1" formula means that redundancy is built into Visa's entire credit authorization and clearing network. It means there are duplicate mainframes, duplicate network pathways, duplicate network terminals and duplicate power supplies. There is also a duplicate data center in McLean, Va., that handles half of all Visa transactions and acts as an emergency backup to the primary data center here.

Visa is critical to Visa, which provides credit-authorization services to 19,500 member banks around the world and competes with services provided by American Express Co., among others. Last year, Visa, with more than 200 million cardholders, cleared more than $20 billion in transactions stemming from sales at more than seven million retail outlets worldwide. Visa says its credit-card clearinghouse, which is owned by its member banks, represents nearly half of the global credit-card market.

This year, overseas sales volumes outstripped those in the U.S., forcing Visa's IS to expand its base of data centers in London, Hong Kong, Singapore and Sydney, Australia. "In the next three to five years, we will be seeing more computer centers located outside the U.S.," said Rosalind Fisher, executive vice-president at Visa USA, who directs VisaNet IS. "That means our architecture will have to be flexible enough to provide the kind of availability we now get from our two U.S. data centers."

Redundancy and flexibility go together at Visa, since the network work may have to be reconfigured on the fly, as it was during the Oct. 17 California earthquake. The McLean center took over control of VisaNet for several hours, while the San Mateo center was checked for earthquake damage. Then, San Mateo took over for McLean the next day when thunderstorms threatened East Coast communications lines.

To protect against damage from earthquakes, Visa's processing center here is anchored to bedrock 40 feet beneath the surface.

The center happens to be located, after all, just a short distance from California's infamous San Andreas Fault.

The Bay Area earthquake

Continued on page 29

Amdahl drops entry point for MDF multiprocessor

BY J. A. SAVAGE
CW STAFF

SUNNYVALE, Calif. — Amdahl Corp. recently lowered the price point to access its 14-subset Multiple Domain Feature with the introduction of a new multi-processor that is scheduled for February availability.

The company also said it would increase the density of its static random-access memory (SRAM) chips to double main memory on its high-end series, the 5990.

The ability to partition a multiprocessor into 14 separate working units "can save a ton on software costs," in comparison with running copies of software on several machines, according to Tom Moore, Amdahl's 5990 marketing manager.

While that degree of partitioning has been available on two higher level machines, which are priced beginning at $9.6 million and $11.8 million, the new 5990-790 will start at $7.5 million, Amdahl said.

Reduced overhead

Amdahl also claimed to have reduced overhead tied to the company's Multiple Domain Feature with a "scheduler" to simplify allocation of processing time between partitioned CPUs relative to changing work loads.

This extension to the Multiple Domain Feature will be available at no extra charge at the end of next year.

The expanded memory would be able to make better use of the IBM MVS/ESA operating system in its storage-management capacity, according to a spokesman for the company.

The new mainframe is slated for availability in February, according to the company.

At that time, Amdahl will also provide a 10% performance boost on its 5990-500 dual processor.

The basic configuration of the 5990-790 will feature 128M bytes of main storage and 64 channels, and with the SRAM addition, its memory capacity could double to 1G byte. Amdahl currently uses SRAM chips, but the new chip board will be four times as dense. The additional memory will be offered at the same incremental cost as current memory, according to Moore.

Options grow

Amdahl's new mainframe, the 5990-790, offers performance similar to the 5990-700 but more configuration flexibility.

<table>
<thead>
<tr>
<th>Option</th>
<th>Price (MIPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5990-790</td>
<td>5990-500</td>
</tr>
<tr>
<td>3-way multiprocessor</td>
<td>49</td>
</tr>
<tr>
<td>3-way multiprocessor</td>
<td>62</td>
</tr>
<tr>
<td>3-way multiprocessor</td>
<td>63</td>
</tr>
<tr>
<td>3-way multiprocessor</td>
<td>91</td>
</tr>
<tr>
<td>4-way multiprocessor</td>
<td>114</td>
</tr>
</tbody>
</table>

Price: $4000, $2000/yr, or $200/mo.

PROBLEMS: The DOS/VSE Label Area is a performance bottleneck. Slow disk, relative to CPU, limits performance.

SOLUTION: BIM-VIO—The DOS/VSE 'VIRTUAL' Disk Drive and Resident Label Area Product.

BIM-VIO creates a "Virtual" Disk Drive in the VIO area of DOS/VSE/RIP. Since this area is in virtual storage, references to it are satisfied at CPU speeds and no actual disk I/O takes place. The net result is a potentially significant performance improvement of programs using disks files that have been moved to this area.

A built-in feature of the product is that the DOS/VSE Label Area is relocated to the virtual disk. This area is one of the most frequently accessed in most DOS sites, so moving it to the virtual disk should result in significant performance improvement to the overall system, regardless of any other specific use of the virtual disk capability.

Call for full documentation or free 30-day trial. Price: $4000, $2000/yr, or $200/mo.

Call for full documentation or free 30-day trial. Price: $4000, $2000/yr, or $200/mo.

BIM-VIO, a virtual disk drive for DOS/VSE, is report to improve performance. BIM-VIO creates a "virtual" disk drive in the VIO area of DOS/VSE/RIP, allowing references to files in that area to be satisfied at CPU speeds rather than disk I/O times.

Visa's Fisher seeks flexible architecture

In the next three to five years, we will be seeing more computer centers located outside the U.S.," said Rosalind Fisher, executive vice-president at Visa USA, who directs VisaNet IS. "That means our architecture will have to be flexible enough to provide the kind of availability we now get from our two U.S. data centers."

Redundancy and flexibility go together at Visa, since the network...
### A Comparison Chart of the Major Cooperative Processing Software Products:

**Functions:**

<table>
<thead>
<tr>
<th>Processing Topologies Supported</th>
<th>SUPER-LINK®</th>
<th>EasySAA™</th>
<th>Mozart™</th>
<th>Arbor®</th>
<th>IBM's APPC™ or CON-C™</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAA/CUA Interfaces for existing 3270 applications</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Under PC/DOS</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Under OS/2</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Terminal sessions from PC/DOS to OS/2</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>3270 Communications</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Peer-to-Peer Communications:</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>for extending existing 3270 applications</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Custom applications</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Maintenance of PC applications &amp; data from a central library</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Background file transfer in PC/DOS</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Background peer-to-peer processing in PC/DOS</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Object Orientation</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>CASE/Application Generation</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**SAA/CUA Support:**

- All functions supported on PC/DOS:
  - Action Bar
  - Pull-down menu
  - Pop-up menu
  - Message and Prompts
  - Dialog Boxes
  - Forms
  - Direct support for multiple levels of action bars and pull-downs
  - Action bars and pull-downs in a form
  - Single and multiple selection menus
  - Menus and Lists within a form
  - CUA defined help
- Development System Features: available without programming:
  - Field-level context-sensitive help
  - Optional learning mode
  - Embedded User Assistance (pop-up selection list)
  - Dictionary for storage and re-use of definitions & documentation
  - Data Editing/Validation:
    - Data types/key checking
    - Range/limit checking
    - Validation against database files
    - Required fields
    - "Must Fill" fields
    - Zero not valid fields
  - Multiple validation points during PC processing of transaction form
  - Complete local application testing, database maintenance, interface testing, and mainframe communications simulations
- Language Objects Available Without Low Level Programming
  - Display and selection from:
    - In-memory lists
    - File lists
    - Database lists
    - Multi-key and selection
  - Help at all levels (Panel, Action bar, Menu, Form, & Field)
- Error Processing
  - Add/update/delete/locate on:
    - Sequential files
    - Database files
    - Host logon sequence
  - Determining 3270 screen identification
  - Read/write all fields on 3270 screen with a single command
  - Dynamic 3270 field attribute changes
  - Dynamic modification of field attributes based on form entries
  - Initial values displayed
  - Protected/unprotected fields
- Development Environment Comparison
  - Object Generation
  - Dictionary and documentation
  - Panel/Font painter for Creation/Maintenance
  - 3270 screen capture: Picture and attributes
  - Application Generation (CASE)
  - Intelligent editor (language sensitive)
  - System/user defined templates
  - Integrated compiler/test/debug
  - Keyboard re-mapping
  - Compiled environment
  - Execution-time source debugging
  - Host Environments Supported for Peer to Peer
    - MVS/CICS
    - MVS/IMS/SDC
    - MVS/TSO
    - DOS/VSE/CICS
    - VM/CMS
    - DEC VAX/VMS
- Minimum PC Hardware Requirements: IBM XT/XT, 640K

---

**Multi Soft's SUPER-LINK® Family delivers SAA/CUA on DOS platforms Now!**

Multi Soft's SUPER-LINK product family represents the leading edge of cooperative processing technology. It allows the development of SAA/CUA-compatible interfaces on standard low-cost 640K DOS PCs. It provides the full peer-to-peer cooperative processing capabilities of IBM's APPC/CON-C (Background Communications Facility) product for PC/host applications. However, instead of requiring the use of LU6.2 SNA sessions, it works over the LU2-based networks that are already in place. Both standard, LU2-based SNA links, as well as asynchronous communications are supported. Not even IBM offers that kind of support now. ALL SUPER-LINK based applications port without change to IBM's OS/2™, PM, and LU6.2 strategic platforms.

### Multi Soft Introduces: EasySAA™!

EasySAA is an advanced Object Oriented CASE tool for developing SAA/CUA-compatible interfaces and cooperative processing applications with many features including:

- CUA 89 support on character-based PC DOS platforms
- Integration of program creation, editing, compiling, testing, and mainframe communications simulation
- Support for specific Objects: Forms, Panels (Windows), Menus, Procedures, Libraries, Help, data files, and 3270 & Peer-to-Peer Communication
- Object type sensitivity
- Automatic generation of CUA-compatible interfaces
- Support for Multiple Views and Representations of Objects
- And much much more!

Now you can create SAA/CUA-compatible interfaces in minutes and integrate them into existing mainframe applications.

In addition to EasySAA, Multi Soft's SUPER-LINK family also includes:

- **INFRONT/DS™** (Development System) is a PC-resident developer's toolkit which includes: screen/window management, a 4GL with an object orientation specifically designed for cooperative processing, communications, and local file & database access. INFRONT/DS allows the developer to add new functions and SAA/CUA-compatible PC interfaces to any host application through either peer-to-peer or 3270 data stream interactions.
- **INFRONT/RT™** (Run-time) is the run-time software that allows the developer to deliver the PC portion of the peer-to-peer or 3270 data stream applications developed using INFRONT/DS.
- **INFRONT/HPO™** (Host Processing Option) provides peer-to-peer communications between a PC and a host. INFRONT/HPO applications on the PC use INFRONT/HPO message protocols to communicate directly to host applications written in standard 3GLs. INFRONT/HPO takes care of interfacing to the low level communications channels, allowing the developer to concentrate on the functional requirements of the application rather than on the complex mechanics of communications.
- **INFRONT/SDF™** (Software Distribution Facility) automates the distribution and maintenance of PC software and files. INFRONT/SDF ensures that users always have the correct version of their PC applications and editing tables.
- **INFRONT/BCF™** (Background Communications Facility) allows PC programs to communicate to an IBM host on a file-by-file or record-by-record basis in either foreground or background mode. When running in background mode, any non-communicating PC program can be running in the foreground.

Call for a free demo disk!

The Experts in Cooperative Processing:

Multi Soft, Inc.
123 Franklin Corner Rd.
Lawrenceville, NJ 08648
800-888-4973
609-896-4100
Fax # 609-895-0072

---

*Easel does not support the SAA/CUA style interface under PC/DOS only under OS/2.*

Every effort to present an accurate chart has been made, however no guarantee can be made (8/7/89). Super-Link® is a registered trademark of Multi Soft, Inc., Lawrenceville, NJ.

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*U.S. Only. Canada $110, Central/South America $130, Europe $195, all other countries $295. Foreign orders must be prepaid in U.S. dollars.

Please complete the information to the right to qualify for this special rate.

"YOU KNOW, WHEN I ASKED TO BORROW YOUR COMPUTERWORLD, I SORT OF HOPED I'D GET THE WHOLE THING AT ONCE."
Database sector slated for growth

BY MARYFRAN JOHNSON  
CW STAFF

NEWTON, Mass. — The concept of distributed database—moving data out from the mainframe and closer to the information systems group's clients—may not be a reality yet, but it could fuel a special industry segment's growth by 1993, a recent study said.

After surveying 100 IS departments in the banking, finance and insurance industries, market research firm Business Research Group concluded that revenue from distributed database software will grow from $150 million in 1988 to more than $1.2 billion by 1993.

The main beneficiaries of this growth will be those software companies with products geared to distributed environments and hardware companies selling platforms that support multiuser distributed architectures, said Kevin O'Neill, vice-president of research at BRG.

"The whole trend, which will be prominent in the 1990s, is for information technology to be used as a competitive weapon rather than a back-room number-cruncher," O'Neill said.

Databases will move "a lot closer to where business is being conducted," he added. That will allow companies to generate new sources of revenues and increase market share by offering faster turnaround, new services and broader options.

Although the study addressed both client/server databases and distributed databases, O'Neill said truly distributed databases are still more fantasy than reality. Of the estimated 630,000 client/server systems now in use in banks, finance and insurance companies, the BRG study found that 8,359 can be considered client/server systems while only 25 are "true" distributed systems.

Yet, by 1993, client/server databases in these industries are expected to grow to 63,000 and true distributed database systems to 1,600. "The wave of products enabling the creation of these databases is just becoming available," O'Neill said.

Some of the missing links, however, are a common data dictionary across multivendor platforms and the inability of these systems to change or update the database in a distributed fashion.

The lack of appropriate standards for communications and protocols of distributed databases also poses a hurdle for heterogeneous distributed databases, the researcher said.

### Chicago firm makes CASE for IBM system

BY ROBERT MORAN  
CW STAFF

CHICAGO — Systems Software Associates, Inc. recently announced a computer-aided software engineering (CASE) tool specifically designed for the IBM's Application System/400.

According to the Chicago-based firm, the software called AS/SET, generates structured, modifiable RPG/400 code for batch and on-line programs and generates applications compliant with IBM's System Application Architecture and SAA's Common User Access (CUA).

"With AS/SET, if you want to do something that is not SAA standard, you have to tell it to do that," said Roger Covey, president of the company.

Covey said that the software's data modeling techniques permit developers to extract relationships from existing AS/400 applications and relational databases. In addition, he said the company has reduced the high-level complexity of action diagrams—with which users interact when building applications with CASE tools—to an intermediate level that enables the software to be more useful in the AS/400 environment.

Beta-test user Tom Knapp, manager of information technology consulting at Touche Ross & Co., is using AS/SET to convert a system from the IBM 370 architecture onto the AS/400. According to Knapp, AS/SET permits the organization to control data in an efficient, structured way for applications development.

### Standards gains

In addition to productivity gains, Knapp said that the software will implement standards.

"The structure of the system requires an adherence to standards in the way we treat data, create documentation and move through the development process," he said.

After the initial learning curve of three to six weeks, users will be able to put screens to gather and develop menus and processes, Knapp said.

Despite productivity gains, AS/SET is not as well developed as the Synon CASE tool from Synon, Inc. in Larkspur, Calif., Knapp said. Nevertheless, he said that AS/SET has been good for the conversion application. He further praised AS/SET's ability to permit developers to interact with users and quickly build prototypes of applications.

Michael Sicilian, director of systems at Marsh and McLennan Group Associates, New York, a large AS/400 user, said CASE will be important for the AS/400 because of the increased productivity and better quality control it brings to software development. Nevertheless, Sicilian is waiting to see a trend toward one methodology before he installs a tool within the six shops for which he has responsibility.

AS/SET will be available at the end of January and will cost between $25,000 and $70,000, depending on the size of the AS/400 and the number of users.

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DECEMBER 4, 1989
COMPUTERWORLD 25
M&D tests inventory control module

BY ROBERT MCRAN
CW STAFF

NATICK, Mass. — McCormack & Dodge Corp. recently announced that it will integrate an inventory control module into an application for the banking, health care and insurance industries.

The module, called IC:Millenium, will enable organizations to track in real time which supplies to order, when and in what quantities, and it will yield sufficient savings to pay back the investment within a year, the company said.

Beta-test user Stephen Wallis, manager of purchasing services at Lee Memorial Hospital in Fort Myers, Fla., said the IC:M system will pay for itself in a few years by giving the hospital better control of the $2.75 million worth of annual inventory it maintains to meet the immediate needs of physicians. Wallis said the inventory is a critical and difficult-to-manage part of its $25 million annual inventory budget.

With the software package, organizations can create account specifications before transaction time, and the system will search through the specifications to debit or credit the appropriate accounts. A feature called autoreplenishment automatically searches for requested items at each warehouse and acts “as the transfer of goods between locations. Another feature, called summarized pick lists, consolidates requests for materials to reduce the manual search for stock.

IC:M is also integrated with M&D’s materials management software, which includes general ledger, purchase order and accounts payable modules.

When integrated with the materials management software, the company said that IC:M’s autoreplenishment feature, for example, will be extended.

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PC Magazine Editor’s Choice, April 25, 1989

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PC Week, February 20, 1989

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With the integrated software, if a requested stock item is not available, the system will automatically generate a purchase order. Once the item is received and the invoice matched, the accounts payable module generates payment to the supplier, the company said.

Wallis said the hospital purchased a complete materials management system, in part, because it was customizable.

The hospital has been running an online, real-time system for about five years from another vendor that Wallis declined to identify, but it was looking for a system that it could grow with.

“We were looking for a system that would give us access to programming modules,” he said. “We couldn’t customize the former package to our needs.”

Although the other vendor offered to make the changes, Wallis said he did not want to have to communicate those changes back and forth with the vendor.

The hospital will bring the system online in March and is in the midst of writing its applications. “We will start with the system as it is now and modify it as we go along,” he said.

IC:M, which will be available in March, costs $125,000 and requires M&D’s Purchase Order:Millenium, which costs $105,000.

HARD BITS

Matsushita cites advance

Matsushita Electric Industrial Co. Ltd. in Osaka, Japan, said recently that it has produced a Josephson Junction that will enable high-speed switching for next-generation computers. The company presented a paper on the device at the International Superconducting Materials Symposium held late last month in Tsukuba, north of Tokyo.

IBM pioneered Josephson Junction technology in the late 1970s and early 1980s, but in more recent years it has eased off its development efforts because results appeared elusive.

Josephson Junctions create a current between two superconductors in close proximity. Kentaro Setsune, head of Matsushita’s research team, said in Japanese press reports that his lab had confirmed the presence of the current across a non-conducting material sandwiched between two superconductors made of bismuth, strontium, calcium, copper and oxide. He added that bismuth-based superconductors are more stable than the more common yttrium thin films used to produce the Josephson Junction current transmission effect.

Although Thomson SA of Paris recently announced that IBM France acquired a 49% interest in its Thomson Digital Image (TDI) subsidiary, TDI makes software for three-dimensional design and animation.

Data General Corp. said Lynx Real-Time Systems has agreed to develop a version of its LynxOS real-time operating system for the IAC Avion line of workstations. The operating system has been targeted at factory automation, high-speed simulation and signal processing applications.
Kodak workstation ships microfilm images

BY ELLIS BOOKER
CW STAFF

ROCHESTER, N.Y. — Eastman Kodak Co. late last month announced a digital workstation for transmitting microfilm images. In June, the company had announced the first of its Imagelink products, which it offers to integrate micrographic and digital imaging systems.

Although Kodak is not the first company to offer such a workstation, its move is noteworthy because the company has a large installed micrographic base and is in the forefront of linking microfilm and electronic systems, industry analysts said.

Kodak's Imagelink workstation scans and digitizes a microfilm image for transmission over computer networks or phone lines. Output can be made to a laser printer, facsimile machine or optical disc. Additional features include the ability to scale, correct or merge the digitized image with ASCII text files.

Kodak said the workstation will be available in January at prices ranging from $25,000 to $40,000 and will initially support image transmission to local printers or faxes. Connections between workstations over Token-Ring and Ethernet networks are planned in 1990.

Despite inroads by fully digital storage systems, microfilm continues to be a popular medium and is growing in the U.S. by around 9% annually, according to a report by the Association for Information and Image Management (AIIM) in Silver Springs, Md.

AIIM represents hardware and software vendors involved in image technologies such as microfilm and optical storage. The trade group said it believes that electronic imaging products, which represented only 24% of the computer market last year, will far outpace micrographic systems, growing at a compound annual rate of 54% to reach $6.6 billion by 1993. AIIM predicted that electronic storage will represent more than half of the $12.7 billion U.S. imaging market by 1993.

SOFT NOTES
Federal users get guarantee

On-Line Software International, Inc. recently launched a Lifetime Software Trade-in Guarantee for its customers in the government. The guarantee allows government users to return any On-Line software purchased after Oct. 1, 1989 under the company's maintenance program for full credit toward the acquisition of another On-Line product.

Sybase, Inc. and Smartstar Corp. recently announced a joint marketing and technology agreement as part of the Sybase Synergy Program. Under terms of the agreement, Smartstar said that it will develop an interface to the Sybase SQL server from its fourth-generation language development environment for Digital Equipment Corp. VAXs. Sybase said the Smartstar:Sybase Connection is scheduled to be available in the second half of 1990.

DEC recently announced several new cooperative marketing agreements. The Maynard, Mass.-based firm has teamed up with Disc, Inc., a Nynex company headquartered in Baltimore, to sell its Access banking software. DEC also arranged for Metier Management Systems, Inc. in Houston, Texas, to market its Artemis project management family of software for VAX computers.

Sun Jose, Calif.-based Arix Corp. has contracted with Mindcraft, Inc. in Palo Alto, Calif., to test and verify conformance of its Arix System 90 multiprocessor Unix systems to the federal government's Posix standard, required for government bids.

Natural Language, Inc. (NLI) and Intergraph Corp. have signed an OEM and joint marketing agreement under which NLI will port its Natural Language and NLI Connector database access products to Intergraph's Unix-based Clipper workstations. The products are slated for availability by the end of 1989.

Meta Software Corp. in Cambridge, Mass., announced that it has selected distributor Micro- match, based in England, to exclusively market its computer-aided software modeling tools in England and Ireland.

Neuron Data, the maker of the Nexpert Object expert system shell, is the latest firm to join the Object Management Group. The OMG was founded last spring to promote standards for an object-oriented application environment.

The Open Software Foundation recently identified the candidates for two published requests for technology (RFT). Seventeen organizations, including Hewlett-Packard and Software Engineering Associates, qualified for the architecture-neutral distribution format RFT, which is intended to allow software applications to run on any computer architecture.

An RFT for distributed computing technology drew 28 qualifying computer and software vendors, including DEC, Microsoft Corp., HP and Sun Microsystems, Inc. Decisions on the proposals are expected to be made next year.

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4. Is your application development backlog over 6 months? Over 1 year? Over your head?

5. Are you feeling insecure about your PC LAN security?

6. Is the performance of your network going down as the number of users goes up?

7. Do your computing vendors spend more time pointing fingers at each other than pinpointing problems?

8. Is it impossible to expand your computer system the same way you add users...incrementally?

9. Is Engineering having trouble communicating with Marketing? Is Building 2 difficult to reach from Building 6? Is the second floor not talking to the seventh?

10. Are your users wasting time trying to communicate with uncommunicative hosts?

11. Is your computing system unable to run both DOS and OS/2 programs? How about the new SQL database applications?
Visa
CONTINUED FROM PAGE 23

hardly disturbed operations here, said Janice Vandenbrink, who oversees Visanet installations. "All our CPUs are on rubber pads," Vandenbrink said. "They do better if they're allowed to move around during an earthquake."

The data center is housed in a $10 million "earthquake-proof" building, designed to withstand a magnitude 8.1 earthquake — equivalent to the April 1906 earthquake that nearly destroyed San Francisco.

San Mateo's primary CPUs include an Amdahl Corp. 5990, an IBM 3090 and an IBM 4381 and are duplicated by comparable systems at the McLean, Va., center. They are also protected from power failure by several backup systems. "Each device is connected to two power units, so if one fails, there's always another to take it on," Vandenbrink explained. A roomful of chemical batteries carries the systems through the switchover to a diesel generator if necessary.

At the network's 350 end points — most of them at data centers in large banks — pairs of IBM Series/1s are used to transmit credit authorization requests to Visa's host systems. The pair of Series/1 machines ensures uptime in case one fails, and each device can transmit to San Mateo or McLean using a two-way "soft-switch" programmed in 1983 by Visa developers.

Recently, some large Visanet sites have installed IBM System/88 fault-tolerant computers, built by Stratus Computix, Inc. "The System/88 offers more capacity at the high end, so it gives us growth for the very largest end points in our network," Fisher said. The System/88s offer something else — the chance to place one system at a bank site instead of two without sacrificing uptime.

Visa's San Mateo center has four System/88s — a System/88 in each of the center's mainframes. So far, six more System/88s have been deployed in Canada, and several more have been installed at member banks. Even more are on the drawing boards, Fisher said.

For cost reasons, many of the aging System/1s — first installed in the late 1970s — are being replaced with IBM Personal System/2 Model 80s. The total cost is lower, since two PS/2s average $20,000, while each Series/1 costs $30,000 to $40,000, Fisher said. "For the small Visa member banks, that pair of PS/2s means that if something fails, they won't be dead in the water," Fisher said. "They've still got a box." That is especially important in Latin America, the Middle East and Africa, where service calls are more difficult to make.

Significantly, the PS/2 runs Unix, so they can handle multiple applications simultaneously. Visa began writing Unix applications in the mid-1980s as a multi-tasking alternative to PC-DOS. "There are periods of time at night when these machines run our clearing and settlement applications, even as new transactions are being dialed into our host systems for credit authorization," Fisher said.

Visa's PC applications, written in C, are now being run on the System/88s with little change, Fisher noted. "That proves that C code is reasonably portable," she said. "It wasn't like you could run the PC code without change, but it was close enough so that you could make changes to about 20% of the code as you ported it over."

Looking ahead to the 1990s, Fisher thinks Visa will retain its central-site computing centers but adds that there will be more of them. The overall design, she said, will continue to look like a series of concentric rings with the hosts at central sites, an expanding pool of network nodes or end points, and a growing population of automatic dial-up terminals, beyond the one million already at retail stores worldwide.

"This architecture has a ring around the host systems that allows us to make changes to our central sites but not affect our member banks' processing centers," Fisher said. "That gives us the freedom to move about inside the ring and gives our members the freedom to move to new systems, as long as they maintain our standards for interfacing to Visanet."

**Within the comfort zone**

When Visa USA was set up as an industry clearinghouse for credit card regulation in the early 1970s, the new organization was largely in place to promote the card, to set up the rules and to develop new products and services, recalls Visa spokesman Dan Brigham.

In the 1970s, Visa was using Digital Equipment Corp. PDP-11s to process transactions, and just 13% of all those clearing and settlement transactions were handled electronically. The rest were processed manually, requiring store clerks to check a Visa publication that listed "bad" credit cards. Today, nearly 80% of the 3.2 billion transactions processed by Visa annually are handled by computer.

Visa now spends roughly half its operating budget — estimated at more than $100 million — on IS operations.

At peak holiday buying periods, Visa exceeds 1,500 transactions per second, which is nearly top speed for the IBM TPF transaction-processing system that runs on IBM MVS on mainframes in Visa's San Mateo, Calif., and McLean, Va., data centers. To minimize system downtime, Visa "freezes" system changes such as system upgrades and the addition of connections from November through January, IPL, Jan. 30. But most times, Visa is well within its comfort zone in terms of transaction volume, says Visa's Rosalind Fisher, while not ruling out IBM system upgrades.

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Cortese  
FROM PAGE 23 
cussions are unprecedented, 
and they underscore the chang-
ing environment in which com-
puter companies operate. 
Using the "Cola wars" anal-
ogy, it's like inviting Sprite, 
Fanta and Seven-up, along with 
Pepsi, to run Coca-Cola.

But what is the likelihood 
that these negotiations will come 
to fruition? And is a jointly 
owned, bipartisan Unix Software 
Operation necessarily what the 
industry needs?

Opening up the Unix Soft-
ware Operation to outside own-
ership is a complex proposition 
raising many issues that are like-
ly to drag negotiations on for 
several months. First on many 
potential investors' list of con-
cerns is setting a fair value for 
AT&T's Unix business. That is 
no easy chore. Financially, it has 
not been profitable. But based 
upon one's assumptions, its at-
tractiveness varies widely.

If one believes that AT&T's 
Unix is the only game in town, 
as some do since the heralded ar-
ival of Unix System V, Release 
4, then that value is potentially 
much higher. If, on the other 
hand, one is optimistic that the 
Open Software Foundation will 
successfully introduce its own 
competitive Unix implementa-
tion, then that value may be 
lower.

As one vendor involved in 
the negotiations said, "Almost 
always when you have a seller 
and a potential buyer, they have 
different views." After all, an-
other said, this is first and fore-
most a business deal.

An opening obstacle is how such a deal would be structured. There's no telling how many potential investors may show up at AT&T's door. But while AT&T has said it 
would like to keep ownership 
limited to those with a stake in 
open systems, there are ques-
tions as to whether it can legally 
deny an interested investor.

Legal issues aside — even if 
investors could be limited to the 
major players currently em-
broiled in the Unix crusades — 
there is significant potential for 
problems. Those companies 
most interested would essen-
tially be the same firms that are 
on the board of X/Open.

Are we talking about X/ 
Open II?

Fast on its feet X/Open is 
not. Decisions seem to drag on 
terminably as board members 
toe the party line (in this case, 
the parties being OSF and UI) 
on issues ranging from a graphi-
cal user interface (GUI) to the 
Portability Guide. For some rea-
son, the group's latest Portabil-
ity Guide, a published set of 
specifications, was released 
several months later than prom-
ised.

And the GUI issue has been 
mired in politics from the start, 
with still no decision nearly a 
year after the group announced 
it would specify a GUI stan-
dard. Yes, there are technical 
factors to be resolved, but the 
handling of the GUI specification 
had all the elements of a dirty 
political campaign.

And these are the sharehold-
ers who would presumably elect 
a board of directors?

These are only a few of the 
issues that will have to be ham-
ered out. And there are still 
the all-important decisions to be 
made about logos and public re-
lations announcements — deci-
sions that somehow consume 
an amazing amount of time and 
energy. All of which leads me to 
the conclusion that perhaps the 
time and energy is best put to 
more productive use.

Collaboration is needed, but 
may not require merging the 
two groups (OSF and UI/USO) 
or spreading ownership of USO. As long as OSF and 
UI/USO agree to follow common 
standards, such as those speci-
fied by X/Open, a high degree of 
compatibility can be ensured.

After all, end users (who stand to 
benefit by all this) have said 
that they welcome the competi-
tion. Competition accelerates 
the pace of development and 
gives users a choice. A Unix 
collective may just serve to slow 
down progress.

Besides, DEC's Ken Ol-
sen reminds us, if there was no 
conflict, what would we journal-
ists write about?

Cortese is Computerworld's Mid-At-
lantic correspondent.

---

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COMPUTERWORLD
DECEMBER 4, 1989
NEW PRODUCTS — SOFTWARE

Training

Computer Associates International, Inc. has announced Release 2.0 of CA-Uniservice II, the company's extended service support and education system for IBM MVS, VSE and VM operating systems.

The latest release includes an IBM Personal Computer hardware configuration upgrade and extended accessibility to the CA-Uniservice II PC from IBM 3270 terminals. The user can also install software through the mainframe link, the company said.

CA-Uniservice II Release 2.0 costs $20,000.

CA
711 Stewart Ave.
Garden City, N.Y. 11530
516-227-3300

Applications packages

Information Dimensions, Inc. has revised its text information management system. Basisplus is an integrated electronic repository that provides retrieval, storage and other large document management functions. The software reportedly offers an enhanced user interface. It also is said to support compound document architecture, including full-text, structured data, graphics and photographs.

A first-copy license is priced from $5,000 to $179,000, depending on CPU size and number of users.

Information Dimensions
655 Metro Place S.
Dublin, Ohio 43017
800-328-2648

Michael-Delia, Inc. has announced the release of a multiuser software program that incorporates a task database designed for targeting employee performance areas that merit more attention.

Called Performa, the program runs in a mainframe environment to track individual and work-group activities by defined work tasks. According to the company, the software can assist in budget and schedule planning and time-efficiency training of end users. It is leased with one- or two-year licensing agreements.

Based on the number of users, annual license fees are priced from less than $25,000 per year.

Michael-Delia
12526 High Bluff Drive
Del Mar, Calif. 92130
619-792-3524

A software package designed to monitor accounts payable functions in an IBM mainframe environment has been announced by the Financial Information Systems Corp.

Called The Tax Manager, the system controls and contains sales and use taxes and complies with individual state jurisdictional requirements, the firm said. It monitors accounts payable payments without modification to the actual system to determine whether sales and use taxes are applicable or not.

The Tax Manager runs under DOS, VM and MVS and is priced at $50,000.

Financial Information Systems
Suite 150
341-1 E. Center St.
Manchester, Conn. 06040
203-646-9548

A manufacturing software package for the IBM Application System/400, Models B20 through B70, is now available from J. D. Edwards & Co.

Called MRPX, the system includes a Product Data Management module for bills of material, routing and product costing functions, as well as modules for shop floor control, master production scheduling and material requirements planning. A capacity requirements planning module has been scheduled for delivery in the second quarter of 1990.

MRPX costs from $100,000 to $650,000, depending on hardware configuration.

J.D. Edwards
4949 S. Syracuse St.
Denver, Colo. 80237
303-773-3732

No matter how you store your important documents, 3M Document Management Software (DMS) can help you manage those files more efficiently. Because unlike some automated filing systems, DMS can process paper, microfilm and digital files. And it will work even if you store your documents in more than one medium. Or convert from one storage medium to another. So you can plan for changes in your storage media more easily.

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Better service? Everyone salutes the idea. But in the real world, how do you make it fly? For the airline industry, the answer comes from their local telephone company. Using AT&T Network Systems Automatic Call Distribution (ACD) equipment, local telephone companies can provide airlines with a better way to answer their customers' calls. The incoming calls of their most important customers fly non-stop to their most experienced agents. And calls from less frequent flyers? They're answered quicker too. ACD programs can help airlines land more customers. See how they can help your business take off. Call your local telephone company.
**NEW PRODUCTS — SYSTEMS**

**Data storage**

American Digital Systems, Inc. has announced a rewritable optical disc storage system for Digital Equipment Corp. Q-bus, Unibus, 3100 family and Unibus-adapted BI Bus systems.

According to the company, Master Disk Optical can store up to 594M bytes of formatted data on one double-sided 5¼-in. disc.

The Master Disk system has a reported average seek time of 95 msec and a sustained data transfer rate of 925K bytes/sec.

Prices for the Master Disk Optical storage system begin at $5,795 for a 3100 family system drive and disc.

Additional preformatted discs are available for $295 each.

American Digital Systems
490 Boston Post Road
Sudbury, Mass. 01776
508-443-7711

Advanced Graphic Applications, Inc. has announced the Discus for Xenix Rewritable Optical Disk Subsystem for multiuser, multitasking environments.

The product offers plug-and-play installation and a device driver that allows Xenix users to interchange data between optical and magnetic media in the same manner in which files are copied from one disc to another, the company said. It is especially suited for computer-aided design, computer-aided engineering and computer-aided manufacturing applications.

The subsystem can also be connected to a stand-alone workstation and a network file server.

An external unit, which includes a proprietary small computer system interface host adapter, device driver software and a 650M-byte erasable optical disc, is priced at $6,495.

AGA
90 Fifth Ave.
New York, N.Y. 10011
212-337-4200

Locom Corp. has announced memory upgrade boards for the IBM Application System/400 B10 and B20 processors.

Locom memory cards plug into the same slots as the IBM storage cards and are recognized by the system's autoconfiguration sequence. Also available are 4M-byte and 12M-byte versions. The 4M-byte and 12M-byte cards are available for $4,000 and $10,500, respectively.

Locom
2350 Bering Drive
San Jose, Calif. 95131
408-435-1414

Mountain Computer, Inc. has announced an 8mm tape system designed for Digital Equipment Corp. workstations and servers.

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Even your most important data is worthless if you can't get to it—which is why you need NetWare® SQL™.

Nothing serves your DBMS needs better than NetWare SQL. That's because NetWare SQL performs all data management processing at your network server to significantly reduce the network's traffic and improve its performance.

NetWare SQL is Novell's relational database engine that provides powerful back-end database services to popular software applications and tools. It allows NetWare® users to access shared database resources using a wide variety of spreadsheet programs, accounting packages, 4GLs, database managers, program generators and many other applications.

Placing NetWare SQL at the server strengthens the integrity of your database. It provides fault tolerance through NetWare's highly acclaimed Transaction Tracking System. NetWare SQL even gives you con-
I/O devices

Iris Graphics, Inc. has unveiled the second product in its line of continuous-flow color ink-jet printers.

According to the company, the Iris 3047 applies variable-dot-size color printing technology to a variety of functions, including graphic arts, printing, publishing, computer-aided design and manufacturing, industrial design, and seismic and aerial mapping. The large-format printer can produce photo-realistic, full-color images in any format up to 43 by 47 in. It is priced from $120,000.

Iris Graphics
6 Crosby Drive
Bedford, Mass. 01730
617-275-8777

A family of midrange display stations aimed at IBM Application System/400 and System/34, 36 and 38 users has been introduced by I-O Corp.

The Series 2000 consists of five twin-axial terminals: the seven-color four-session 2477C; the monochrome 2477DF, with the same features in amber, green or white; the 2476C, with a three-session seven-color display and its monochrome 2476D version; and an entry-level 2196 single-session display model. Pricing is from $765 to $5,985, the company said. The products are reportedly compatible with IBM 5294/5394 remote control units.

I-O
2256 S. 3600 W.
Salt Lake City, Utah 84119
801-973-6767

A multiresolution 32-bit VME-based graphics display controller has been introduced by Metheus Corp.

Christened the Omega 4700MR, the unit reportedly operates with 60 Hz or higher non-interlaced red-green-blue color monitors and provides viewable resolutions from 1,280 by 1,024 dot/in. up to 2,048 by 2,560 dot/in.

The product is targeted toward OEMs and systems integrators whose applications require high-resolution and up to 24-bit planes of image memory. It is available to developers and will be shipped in February.

The unit is available in two versions: the 8-bit Omega 4700MR, which sells for $29,950; and the Omega 4720MR, which incorporates a graphics processor and lists for $40,950.

Metheus
OGC Office Park
1600 N.W. Compton Drive
Beaverton, Ore. 97006
503-690-1550

A 940 line/min. shuttle matrix line printer has been introduced by C. Itoh Electronics, Inc.

Targeted for high-volume multitasking printing applications, the CI-1000 prints at 940 line/min. in high-speed draft mode, 700 line/min. in data processing mode and 200 line/min. in letter-quality mode, the vendor said.

The 16-in. carriage permits the user to output as many as 233 columns for wide data processing reports, spreadsheets and large graphics. The product will print an original plus five copies and costs $9,995.

C. Itoh
2505 McCabe Way
Irvine, Calif. 92714
800-347-2484

Univision Technologies, Inc. has introduced a VME-based display controller family designed to support multiple resolutions.

According to the company, the UDC-500 series of graphics controllers can display resolutions from 640 to 480 dot/in. and 1,280 to 1,024 dot/in., depending on memory configuration. Frame buffer memory can reportedly be set at 2,048 by 1,024 to allow large images to be panned, zoomed and scrolled at display resolutions.

The firm has also introduced a software development support library for the series, which includes a C language interface that allows graphics and image processing applications to be ported quickly to the board by users.

The controllers are priced at $7,850 in single-unit quantities, depending on memory configuration.

Univision
12 Cambridge St.
Burlington, Mass. 01803
617-273-5388

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The strength of a team is its depth.

Winning players usually have a system. Which means Wyse is way ahead of the game. Because we have a full range of systems.

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From simple single-user set-ups, to power-hungry applications like DTP and CAD/CAM, on up to the most sophisticated multi-user systems and local area networks.

Wyse systems make for smart solutions. Because all Wyse components are designed for full compatibility and ease of connectivity with each other. As well as with any industry standard you may already be using.

And wherever you choose to use Wyse hardware, you’re assured of a thoroughly professional performance.

That’s why it makes sense to make Wyse part of your game plan. Call our toll-free number today (1-800-438-9973). We’ll send you full information. In depth.

Because with Wyse, you have all the makings of a winning team.
Unhitching OS/2 Extended

IBM dropped a potential bombshell at Comdex/Fall ’89, but it is hard to predict the extent of any fallout since the firm provided little in the way of details.

IBM derailed its move toward a proprietary desktop by announcing plans to unbundle the three components that make up its OS/2 Extended Edition — LAN Requestor, Database Manager and Communications Manager — to make those pieces available somehow at some point to any OS/2 user who wants them.

“It is seen as a significant sign that they are moving away from a proprietary operating system strategy. Using system software as a competitive tool was causing more problems than it was solving,” claimed J. Paul Grayson, chairman and chief executive officer of Micrografx, Inc., developer of graphical software.

“Unbundling is always good for the customer — period,” said Robert Berger, vice-president of administration at Home Express, Inc., retailers of accessories and wares for the home in Hayward, Calif.

Given that many analysts view IBM’s Micro Channel Architecture and the bundled Extended Edition as a defensive reaction to the beating its desktop market share suffered at the hands of AT clone makers, this backpedaling could be viewed as a major concession to OS/2 development partner Microsoft Corp. It is true that Microsoft has a competing product, but it got into the database business mainly to provide OEMs with an alternative to a closed IBM offering.

Exactly how the unbundling will be done — the critical question for developers and users — remains unanswered. Will IBM unbundle the proprietary pieces and allow users to buy only what they need, thereby cutting down on system overhead; or is IBM planning to license its proprietary extensions to third parties for resale?

IBM won’t say — at least not yet. A spokeswoman said IBM felt compelled at Comdex to say what little it did to show its willingness to accommodate large customers who are trying to plan for the future around a multivendor hardware base.

Customs’ expert system targets laundered cash

WASHINGTON, D.C. — Big cash transactions that look suspiciously like illegal money-laundering activity are being uncovered by an expert system at the U.S. Customs Service.

The Customs Artificial Intelligence System (CAIS) emulates the trained investigator in determining suspicious activity and then produces “alert” lists of suspicious targets for in-depth field investigation, according to Earl Combs, the system administrator.

The $1.2 million system runs on five Series 4000 workstations from Apollo Computer, a division of Hewlett-Packard Co. The workstations are connected by an Apollo local-area network for distributed processing.

The prime contractor, Grumman Data Systems Corp. in Woodbury, N.Y., used a software development tool called the Knowledge Engineering System from Software Architecture and Engineering, Inc. in Arlington, Va.

The Customs intelligence office is being reorganized and will become the core of a new, interagency Financial Crimes Enforcement Network. Customs expects to add five more Apollo workstations to the 3-year-old CAIS network.

Combs said that CAIS investigators previously had to sort by hand the thousands of currency transaction reports that banks file under the Bank Secrecy Act. Agents found that manual process to be very inefficient and laborious four years ago, when the agency received about 750,000 filings, but it became untenable as the volume of reports rose dramatically. Last year, the volume exceeded six million filings, Combs said.

At the same time, money launderers were becoming experts in evading detection. “The bad guys got the hang of what we were doing and became more sophisticated in obfuscating their work,” Combs said. “Therefore, the glaring things that showed up previously were no longer showing up.”

For those reasons, Combs said, Customs developed the rules-based expert system to spot unusual patterns of transactions, multiple transactions to one account, unusual occupational classifications and other clues to suspicious activity. Combs declined to provide more details, saying the system’s profile of what makes a transaction suspicious is secret.

He did say that the field agents, who check out the suspects identified by CAIS, use “feedback forms” to report whether the computer-generated alerts were accurate and useful.

That way, the rules in the expert system can be fine-tuned based on the feedback, he explained.

Micro Focus brings 370 Assembler to the PC!

The Micro Focus 370 Assembler is a tool which helps maximize the productivity of both the mainframe Assembler programmer as well as the COBOL programmer whose application calls Assembler subroutines.

Micro Focus 370 Assembler allows PC development and maintenance of host-based assembler and mixed COBOL/370 Assembler applications when used with Micro Focus COBOL/2 Workbench. The full featured Assembler programming environment includes:

- Macro Processor
- Assembler
- Linkage Editor
- Run Time Facility
- Interactive Debugging Facility

For more information about the Micro Focus 370 Assembler or about other Micro Focus products call 1-800-872-6265 or 415-856-4161.
TRW has combined its massive homeowner database with direct mail marketing for small businesses. The secret of its success is a 1392 printing system from Kodak.

TRW’s Real Estate Market Information group in Colton, California, is offering a new personalized direct mail marketing service for local businesses. Using TRW’s powerful new homeowner data and a Kodak Ektaprint 1392 printing system, they’re doing things that “just wouldn’t have been possible a few years ago,” according to marketing services manager Rodger Cosgrove. “We can deliver a product which is professional and cost-effective, yet highly personalized. We can give the local business person more bang for the buck.”

TRW combines text and graphics on the system’s “WYSIWYG” screen, and prints at up to 92 impressions per minute on the 1392 printer. “It gives blacker text images, better definition and crisper line edges,” says Cosgrove, “and in direct mail, that’s important.” For a complete package of information, call 1-800-255-3434, Ext. 551. In Canada, call 1-800-465-6325.

TRW CREDITS COMPATIBLE PRINTERS BY KODAK

The new vision of Kodak
Call me stingy, but if I peel off a couple of thousand for a PC setup, I expect a little more than the taillight guarantee. You remember the fastback you just bought is fully warranted until, well, they can promise that the dealers, who promise that the pens in the unscrupulous underbelly of the automotive industry, guess again. A quick look around reveals that most computer manufacturer warranties that seem about as long as the shelf life of cut flowers. Most offer the basic terms: one year, two years, three years, and Apple execs do everything they can to sell you a wad of cash on a system or two, given the latest and greatest OS/2 or, the thing will perform as promised, they ain't cheap), what do you do now? A slap on the back and the promise that seeing ends casts in concrete, and Espinosa may have been just throwing a 1M-byte DOS machine with a 30M-byte hard drive. If you figure $500 per megabyte of hard drive, that's $15,000.

Chuck Wanosky, vice-president of office systems at Metropolitan Life Insurance Co. in New York, agrees. "You are fighting the wrong battle to make the database on a more powerful server such as a workstation or minicomputer. "But for us, now . . . PC LAN technology is critical," he said.

Klaus is also building an inter-active system based on a PC database from Emerald Bay to serve as an "international informational hub." The database will process queries interactively with remote databases from different parts of the world. Currently, WRF's database must be customized for searches among non-standard medical practices such as acupuncture, magnetic therapy, and homeopathy. "It is essentially a service for people, including physicians, who do not have the time to do this kind of research," said Dr. Robert Milne, a physician at Omni Medical Center in Las Vegas. "The value for us is that they bother to continually update their indexes with the latest in medical discoveries using these computer connections," he said.

On the other end of the connections are 72 doctors worldwide who volunteer their expertise, time and PCs to help WRF with this time-consuming task in return for their own informational queries.

"Unfortunately, as a nonprofit organization, we cannot make the database so efficient that it will cut WRF's present storage requirements in half," Klaus said. "None of this would be possible without today's computer technology," said Chuck Klaus, president of Klaus International and WRF's IS consultant. WRF now uses an IBM-compatible Personal Computer AT as a server to run the Novell, Inc. Netware LAN operating system and seven other PCs. It normally takes about a week for WRF to compile a package of 25 articles.

**Designs on more power**

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CONTINUED FROM PAGE 39

OS/2 Extended today requires users to have IBM's OS/2 LAN Server and IBM hardware. This means buyers of hardware and OS/2 from Compaq were locked out of Extended Edition, "unless you wanted to buy all those copies of Extended Edition and unbundle it yourself with no guarantee that it will work," said David Flaxman, vice-president of advanced technology at Goldman Sachs & Co. "We've been banging on IBM about that since the day they announced [bundled] Extended Edition."

Once unbundled, it means that your entry point into IBM's Systems Application Architecture doesn't have to be an IBM desktop with Extended Edition and OS/2 LAN Server," said Lee Doyle, an analyst at International Data Corp. in Framingham, Mass.

Flaxman is not so sure. He said Extended Edition pieces do not reliably run on non-Personal System/2 boxes.

Doyle said IDC estimates OS/2 Extended's penetration of the desktop at considerably less than 1%.

"That's not good," he observed, adding that LAN Manager-based servers, such as OS/2 LAN Server, have not done much better, capturing about 5% of the installed base of network nodes.

All there?

Also delaying sales was a perception that the initial release of OS/2 LAN Server was less than complete. "They haven't had the full product [available]. The key is getting the product out and doing what it is supposed to do," said Chuck Wanosky, vice-president of office systems at Metropolitan Life Insurance Co., an all-IBM shop.

As such, "it was generally not cost-justifiable to run 8M bytes per user on a 386," Doyle said.

The unbundling is also expected to fuel what has been very poor developer support. "There was a lot of fear that developers would have to write two different versions of [OS/2 LAN-compatible] software," Doyle explained.

However, it could dampen efforts by developers of alternatives to Extended Edition. Faced with the prospect of IBM going its own way with proprietary extensions, Microsoft teamed up with several partners to provide alternatives to IBM's database and communications managers.

Analysts seem to agree that the SQL Server co-developed with Ashton-Tate and Sybase, Inc. is on safe ground. It is shipping and has garnered significant developer support.

However, Trina Grossman, manager of computer operations for Home Express, said that although she's already using SQL Server, she will look at an unbundled Database Manager if it offers a better cost or performance standard.

More up in the air is the future of the as yet unshipped Select Communications Server co-developed with Digital Communications Associates, Inc. (DCA). Doyle and John Dunkle, vice-president at Workgroup Technology, Inc. in Hampton, N.H., noted the product is late and sug-
gested there is an opening here for Micro-
soft to back away.

"[Unbundling Extended] may not kill it, but it certainly isn't helping. If you can license Communications Manager from IBM, why get it from DCA?" Doyle said.

OS/2 Extended

Sun adds 486 board onto its 386I line

Analysts feel product could set standards for low-end workstations, strengthen PC efforts

BY JAMES DALY
CW STAFF

MOUNTAIN VIEW, Calif. — Intel Corp.'s 80486 microprocessor added another notch to its belt last week when Sun Microsystems, Inc. announced a 486 upgrade board said to offer quadruple the performance of some models of Sun's 386I line. Separately, the workstation maker also chopped prices on 386I systems by 7% to 10%.

Sun officials said they hope to use the 25-MHz 486 upgrade board to attract users who are looking for an easy bridge between DOS and Unix desktop environments.

With the board, users can execute up to 12 million instructions per second (MIPS), compared with the 3- to 5-MIPS range of 386I models, according to Sun.

The 486 has cultivated a crossover strategy in which it has not only built up steam among personal computer makers — IBM, Compaq Computer Corp. and Hewlett-Packard Co. are among its fans — but also could make the 25-MHz 486 machine the standard for low-end workstations, analysts said.

The upgrade board costs $4,990 and will be available in the second quarter of next year. Sun officials said they blamed the delay in delivery on extra testing spurred by the discovery of architectural glitches in early versions of the 486 chip.

Price reductions for 386I systems are effective immediately, ranging from a $2,000 cut for the 386I/250 to a $1,000 decrease for the 386I/150.
SCOTTS VALLEY, Calif. — Borland International recently backed away from its Turbo Basic compiler and transferred future development rights for the product to the original developer, Robert Zale of— Software, located in Sunnyvale, Calif.

Turbo Basic has not had an upgrade in more than two years, and the transfer of development rights reflected Borland's realization that the organization did not have the resources to continue development of a project that fell largely outside the organization's strategic product directions.

Zale was retained by Borland in 1985 to develop the high-speed Basic compiler that became Turbo Basic in 1987.

"There were a limited number of projects that Borland could concentrate on, and we wanted to keep the product moving for its large and loyal customer base," Zale said. "It is a valuable product if the publisher can support it." The product has sales to date of more than 100,000 copies.

Spectra Software will market the product as Power Basic and will offer an upgrade in December.

CONTINUED FROM PAGE 41

We've got an early warning system that can keep your network out of trouble.

You have trouble in your network, but your biggest problem is you don't know about it.

The solution is IBM Network Support.

We can install equipment in your network that senses trouble and automatically alerts our support team for you.

While some problems can't be prevented, IBM Network Support can detect many problems early enough to keep them from affecting your network.

If a problem does occur, we have a staff skilled in every aspect of problem diagnosis, for both data and voice, available 24 hours a day, 7 days a week.

And we'll even take responsibility for your non-IBM equipment.

If you'd like further information, well be happy to send you some literature. Just call 1 800 IBM-2468 ext. 173.

IBM Network Support. Start using your resources to manage your business instead of your network.

Daly

CONTINUED FROM PAGE 41

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Bug found in personnel disk

Knowledgepoint, makers of personnel software, have discovered a glitch in Personnel Policy Expert Version 2.0 or later. Users are affected by the bug only if they have created Policy 201 — Employment Categories since receiving or installing the affected versions. Users can call Knowledgepoint at 707-762-0333 for a correction disk.

Mips Computer Systems, Inc. has unwrapped a service agreement with Tandem Computers, Inc. under which Tandem will provide on-site service to Mips customers. Mips will still administer all service contracts. The pact will enable Mips to expand service coverage to seven days a week, 24 hours a day.

Dell Computer Corp. recently slashed system prices on its memory expansion products by as much as 63% and cut systems prices up to 16%. The clone maker is hoping the cuts will spur customers to buy more robust systems.

While exhibiting at a recent OS/2 show in London, IBM demonstrated a Personal System/2 Model 80 with multiple screens running Presentation Manager. This treat as many as five screens as though they were one very wide screen.
Microsoft expects to ship 11 million units of its only rival to the title of Microsoft's success story. The AAA epee's caused a read/write cycle on either shaping industry standards with its competitors. But wouldn't Lotus be better served by a different effort to outdoing the competition?

CONTINUED FROM PAGE 39

Microsoft claims to have shipped through July. That's a megadose of DOS. Also note that much of Lotus' installed base continues to cling to DOS.

So, it shouldn't take an accountant to figure out where the bucks are to be made here with a Windows version of 1-2-3. And it doesn't take too much effort to find Lotus users who'd appreciate a little support for Windows -- "neutered" or not. "I think Windows is a good opportunity," said David Bayer, a software analyst at Montgomery Securities.

Users who want Windows can always switch to Excel, as some have already. The danger here for Lotus is that once started down that path, users are more likely to stick with Excel under OS/2. As one user pointed out recently, it would be too hard to jump back to 1-2-3/OS/2. Yet Lotus has been so bell-bent on charging into the uncertain future that it has neglected to protect its flanks. After all, when and to what extent will OS/2 and Unix blanket the desktop in the next few years? DOS, faults and all, has staying power.

Lotus isn't totally blind to all this. Company officials have said they will offer Windows if enough customers want it, which is sort of the software equivalent of Compaq saying they'd be fools not to offer Micro Channel Architecture if users yell for it. Believe it when you see it.

Manzi says this may be soon. He reportedly has said that Lotus will offer a "resolution" on its Windows dilemma in about a month. Meanwhile, the spreadsheet kingpin is said to be surveying users on the subject. Having squared away the future, perhaps Lotus feels it can take less of a hard line toward the present.

Instead, Lotus is beginning to reap a fair amount of abuse back from fellow developers who feel compelled to defend Microsoft. These have even included Oracle, I'm told, which is not exactly best buddies with the boys in Redmond.

Lotus is to be congratulated for serving as the lightning rod that sparked (as in pushed) IBM and Microsoft into getting their acts together and straightening out the Windows vs. OS/2 mess. "[Lotus'] intent was to shake up some action and get something demonstrable and meaningful going on with OS/2, then I think it achieved what it wanted," Bayer said. "If you are just doing I/O spooling using 2 megs of memory, then I think it achieved what it wanted." Bayer said. "I think a lot of the right things, [e.g., killing PM Lite], came out of this." Some might say the end justifies the means, but couldn't this have been accomplished with a bit less vitriol?

Keefe is Computerworld's senior editor, PCs and workstations.

Mitron's STD 6250 provides an efficient method for sending and receiving data anywhere in the world. STD 6250s communicate with each other and with other companies' bisynchronous terminals and computers.

The STD 6250 solves machine compatibility problems. It transfers data reliably without mailing tapes. It can communicate off-line to relieve an overworked computer.

STD 6250s transfer data at speeds up to 256KB. Double-buffering eliminates delays caused by read/write cycle times.

The STD 6250 can be leased or purchased.

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The STD 6250 can be leased or purchased.

T1 USERS

TRANSFER
6250 DATA AT
256KB
OFF-LINE
TAPE-TO-TAPE

Since 1969, Mitron's magnetic tape systems have been used in a wide variety of data communication applications. For more information on how the Mitron STD 6250 can be used to send or receive magnetic tape data files, call 800 638-9665 (in Maryland, 301 992-7700)

Mitron Systems Corporation
2000 Century Plaza, Columbia, MD 21044

Over 100 Megabytes per hour at 256KB

platform

CONTINUED FROM PAGE 41

Some users, such as Mark Teflian, vice-president for and chief information officer at Covia Partnerships in Rosemont, Ill., take a more qualified approach. "It really depends on what you are doing on the desktop," he said. "If you are just doing I/O spooling using 2 meg of memory, then 286 is fine. If I need remote operability, I won't have enough memory [under that setup]."

Then again, he said there are some applications where a user may want to run Windows 3.0 on a 286, such as doing sophisticated caching on a file server with images on CD-ROM.

David Bayer, a software analyst at Montgomery Securities, Inc., suggests that the confusion over whether to run OS/2 on a 286 may go all the way back to the initial design of the operating system. "Microsoft repeatedly couldn't hold off for the 386, but IBM wanted backwards compatibility for the 286. IBM's point of view prevailed," he said. "Being a Monday morning quarterback, a lot of people think the 386 should have won."
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a Toshiba.
After years of building PCs that go anywhere, we've harnessed that technology to make a different kind of personal computer. One that stays put. Known as the T8500, it's everything a small, powerful desktop PC ought to be. And then some.

With a 386 microprocessor running at 25MHz, a 100MB hard disk and a full 2MB of RAM, it's extremely powerful. With 4 industry standard expansion slots, 3 memory slots, and 6 interface ports (including SCSI), it's also extremely flexible. So you can connect it to peripherals, servers and other PCs.

And being a Toshiba, all that performance is packed into a streamlined unit that takes up less space than practically anything in its class. In fact, some people are already calling our decision to make a desktop PC a stroke of genius. We, on the other hand, just call it the T8500.

In Touch with Tomorrow

TOSHIBA

Toshiba America Information Systems, Inc., Computer Systems Division
Colorful solution to stripping

Workstation package saves steps in color separation for hefty price tag

BY RICHARD PASTORE CW STAFF

Stripping may soon be a term confined to shady clubs in red-light districts. Eliminating this time-consuming step from the printing preparation process is the goal of both prepress shops and their customers. A new workstation-based conversion system from Hell Graphics Systems, Inc. is designed to do so without sacrificing quality.

However, the trade-off will be a steep price for users in the prepress industry, which comprises firms that handle preliminary processing of artwork and pages for magazines and newspapers. Available in January, Hell’s Scriptmaster takes design files created with desktop publishing systems and converts them to files readable by Hell’s Chromacom color separator. The conversion allows files to go from creation on the personal computer through to the final steps of color separation and page make-up without any intervening stripping.

Stripping is the tedious process of cutting and fitting layers of color film that make up the full-color elements of a page design. Scriptmaster takes over this job, converting the image colorization, positioning and cropping instructions into commands that are readable by Chromacom. The Chromacom machine then processes these commands to produce fully integrated page mechanicals that are ready for the presses.

Limited applications

The system consists of proprietary software bundled with a Hewlett-Packard Co. Apollo workstation running Unix. The system sits between the Chromacom machine and Apple Computer, Inc. Macintosh and/or IBM-compatible PCs, which act as front ends for desktop-designed layouts.

New York-based color-separation shop Imaging International, Inc. has added a beta-test version of Scriptmaster to its Hell installation. The firm is using smaller client jobs to test and coordinate Scriptmaster’s capabilities.

Steve Messner, the firm’s desktop specialist, said the system does bypass stripping without sacrificing color-reproduction quality. However, it is not well suited to processing the very complex graphical special effects of the type that adorn the pages of computer magazines, he said.

The good, the bad

According to Imaging President Jeffrey Randazzo, the system’s key advantages are time savings and increased productivity. It will halve the time necessary to produce high-definition color separation jobs complete with text and graphics, he said.

Scriptmaster will not likely save on costs, however. “Unfortunately, the equipment cost jumps from that of a $500 light table to a half-million-dollar digital system,” Randazzo said.

Yet Scriptmaster, to his knowledge, is the only technology on the market that accepts files based on the open standard of Adobe Systems, Inc.’s Postscript. Scitex Corp.’s Visionary is similar, but it is a closed system that accepts files only from a modified version of Quark, Inc.’s Xpress, he noted.

Imaging staff were trained to operate Scriptmaster in less than a day, Messner said. “A day’s familiarity with file-naming procedures and a few Unix commands were all that was necessary,” he said.
**NEW PRODUCTS**

**Systems**

Epson America, Inc. has introduced an Intel Corp. 80386SX-based system. According to the company, the Equity 386SX operates at 16 MHz and includes a security system that requires users to enter a password when the CPU is turned on.

The system is available in three configurations. Each comes with a 3½-in. 1.44M-byte floppy drive and the choice of no hard drive, a 40M-byte hard drive or a 100M-byte drive.

The announced pricing for these systems is $2,399, $3,299 and $4,299, respectively.

Epson
23530 Hawthorne Blvd.
Torrance, Calif. 90505
213-839-9140

Memorex Telex Corp. has announced an Intel Corp. 80286-based IBM Personal Computer AT-compatible system.

The 7025 Intelligent Workstation uses a 12.5-MHz Intel 80286 processor and comes with 512K bytes of random-access memory. An IBM Video Graphics Array adapter, fixed disk interface, two serial ports, one parallel port and a mouse interface are incorporated on the motherboard. Two expansion slots, one 16-bit and one 8-bit, are available.

The price for the standard configuration with a 3½-in., 1.44M-byte floppy disk drive and an 8- or 101-key keyboard is $1,995.

Memorex Telex
4343 S. 118th East Ave.
Tulsa, Okla. 74146
918-624-4100

**Software utilities**

Commtech International, Inc. has announced a terminate-and-stay resident software utility designed to work with personal computer facsimile boards compatible with the Digital Communications Associates/Intel Communicating Applications/Standard.

PC Quickfax allows the user to fax a file from an application anywhere on a disk or on-screen. The program is accessed through the use of a "hot key" and consumes 32K bytes of memory.

The price for PC Quickfax is $49.

Commtech
Suite 150
2580 Cumberland Pkwy.
Atlanta, Ga. 30339
404-438-9999

Inner Media, Inc. has unveiled the latest version of Collage Plus Publishing Utilities.

According to the company, Collage Plus allows users to capture screen images from any application for import into publications, and it provides a means of organizing collections of images. The program supports Lotus/Intel/Microsoft Expanded Memory Specification 4.0 memory, which allows Snap to reside in 16K bytes of system memory.

The program is available at a retail price of $89.95.

Inner Media
60 Plain Road
Hollis, N.H. 03049
603-465-3216

---

**Peripheral**

**Mouse Systems Corp.** has introduced a high-end optomechanical mouse that offers a base resolution of 350 char./sec., the company said.

Called The White Mouse, the device is bundled with a proprietary power-panel utilities software package designed to enhance the interface to IBM Personal Computers, Personal System/2s and compatible machines. An applications tool kit is also included for creating personalized menus for custom applications. The output device retails for $119.

Mouse Systems
47505 Seabridge Drive
Fremont, Calif. 94538
415-856-1117

The Hedman Co. has announced a checkwriting protection system designed to protect against possible forgeries.

The Hedman Co. has announced a compact unit designed to interface with microcomputers and dot-matrix printers to produce complete, microcomputer-generated checks, the company said. The product can accommodate as many as four different types and sizes of checks or documents. It features an executive lock and key, an automatic void function to protect against missing or exceeding dollar amounts.

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Technical Training, PO Box 1000, Dept KD, Hopewell, NJ 08525-9988

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Continued from page 49

A desktop scanner for use with both IBM Personal Computers and compatibles and Apple Computer, Inc. Macintosh machines is now available from Dest Corp.

Dubbed the PC Scan 3000, the product provides a 300 dot/in. scanning resolution with up to 256 levels of gray-scale capture, the company said. An optional text processor board is available for converting fonts directly into ASCII or word processing formats, and the product is offered with the vendor's Text Pac application support software.

The scanner is priced from $1,595.

Dest

1015 E. Brokaw Road
San Jose, Calif. 95131
408-438-2700

Board-level devices

Deico Electronics, Inc. has introduced an 8-bit IBM Video Graphics Array adapter board.

The DVGA is reportedly a half-slot, IBM Personal Computer XT-style card that works with most digital and analog monitors. It is BIOS- and register-level compatible with all popular graphics standards and offers high-resolution text modes of up to 132 columns by 60 lines for displaying large spreadsheets and word processor documents, the company said.

The board is priced at $395.

Deico Electronics

2500 Bayview Drive
Fremont, Calif. 94537
408-651-7800

Sigma Information Systems has announced a 12M-byte memory board for Sun Microsystems, Inc. Sun-3/E computers.

The SM-12MB/3E reportedly allows a user to expand the computer's base memory of 4M bytes to 16M bytes using one expansion slot. A 4M-byte version of the board is also available.

The list price of the 12M-byte board is $6,795. The 4M-byte board is priced at $2,975.

Sigma

3401 E. LaPalma Ave.
Anaheim, Calif. 92806
714-830-6883

Imaging Technology, Inc. has introduced a high-resolution version of its Series 151 image processing subsystem that provides 1,024 by 1,024-pixel image acquisition, the company said.

The High-Resolution Series 151 image processor operates with IBM Personal Computer ATs, Personal System/2s or Sun Microsystems, Inc. workstations. Packaged as a subsystem of Series 150 modular image processing boards, the

The World Of Information Management Has Changed For Good.

In the next 24 hours, businesses and government organizations in America will generate over 900 million pages of information. They will have stored approximately 1.3 million documents. And misfiled about 39 million.

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that's more meaningful and easier to apply. BASISplus stands at the frontier of established document interchange standards support. It eases the loading of any information or documents that conform to these accepted standards.

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You have to see BASISplus in action to appreciate its potential for accelerating your organization's success. For more information or to arrange a demonstration, call toll-free 1-800-DATA-MGT (in Ohio, call 614/761-7300 collect).

DECEMBER 4, 1989

PCs & WORKSTATIONS

The product is priced at $1,795 and quantity discounts are available. New Media Graphics 780 Boston Post Road Billerica, Mass. 01821 508-663-6678

Unix software

Tronix International Data Corp. has announced a Unix/Xenix kernel debugger that runs on The Santa Cruz Operation's V/386 and Xenix/386, Interactive System's 386/IX, Everex Systems, Inc.'s Enix and AT&T Unix System V, Release 3.2.

The Tronix Kernel Debugger reportedly allows the system software engineer to control the execution and environment of software within the Unix/Xenix operating system and includes display information and execute function call capabilities within the Unix/Xenix kernel. It sells for $475.

Tronix International Suite 216 10601 S. DeAnza Blvd. Cupertino, Calif. 95014 408-973-8550

Software applications packages

Deerfield Systems, Inc. has announced an update to its Displayform form-processing software.

According to the company, Displayform II Version 5.0 includes data compression, on-line help and the ability to look at enlarged sections of a form or the complete form.

The announced list price of the package is $495.

Deerfield 211 Elizabeth St. Utica, N.Y. 13501 315-797-1805

An escrow account management software package has been introduced by Real-Time Computer Services, Inc.

According to the vendor, The Escrow System was designed to help banks attract and retain law firms' escrow accounts. The product reportedly allows law firms to produce comprehensive accounting of client escrow funds, including complete auditable trails and ledgers. An MS- or PC-DOS environment and a hard disk are required.

The package costs $249.

Real-Time Computer Services 475 Ashford Ave. Airdale, N.Y. 10502 914-693-7000

Vycor Corp. has announced the release of three new software tools intended to help manage data processing assets.

The products are LAN Mapper, for creating computer-aided design (CAD) layouts of local-area networks; Configuration Planner Lite, for creating CAD layouts of data space center; and Library Manager, for archiving computer files and their storage media.

According to the company, LAN Mapper has a price of $995, Library Planner Lite is priced at $495, and Configuration Planner Lite is priced at $995.

Vycor 8201 Corporate Drive Landover, Md. 20785 800-888-9997

Corporate Business Software has announced a software package that combines business graphics and mapping in one program.

Demografx includes 16 graph types, U.S. state, county and three-digit ZIP code maps, as well as a world map with national borders. The software runs on IBM Personal Computers and compatibles and is designed to eliminate the need for separate graphics and mapping packages.

Corporate, site and local-area network licenses are available for $15,000, $10,000 and $6,000, respectively.


Reference Software International has announced the latest version of its personal computer-based proofreading package.

Grammatik IV works with 33 word processors and desktop publishing programs to check documents for errors in grammar, style, usage, punctuation and spelling.

Users can customize the program to ensure consistency in correspondence from specific groups, departments or businesses.

The retail price of Grammatik IV is $99.

Reference Software Suite 123 330 Townsend San Francisco, Calif. 94107 415-541-0222

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"FINALLY, A SOLUTION INSTEAD OF ANOTHER BLACK BOX."
Networking enters adulthood

By JOANIE M. WEXLER
CR STAFF

NORTH BILLERICA, Mass. — If the crusade of the recently formed SMT Development Forum is successful, the emerging Fiber Distributed Data Interface (FDDI) standard will include specifications for managing an entire FDDI ring — and this week's standards committee meeting in San Diego will be one of the last.

The forum aims to incorporate additional functionality into the Station Management (SMT) component of the FDDI standard to allow multi-vendor interoperability among FDDI implementations and accelerate the close of the long-debated standard.

Ten companies currently belong to the forum: Advanced Micro Devices, Inc.; Apple Computer, Inc.; CERN, the European Laboratory for Particle Physics; IBM; Interphase Corp.; Lawrence Berkeley Laboratory; National Semiconductor Corp.; SBE, Inc.; and Synertex, Inc.

The SMT portion of the FDDI standard controls the physical connection of a station to the 100M bit/sec. dual counterrotating ring, and the currently used version — SMT 5.2 — allows network stations to be managed through their entire seven-layer Open Systems Interconnection (OSI) protocol stacks. A network management system running in layer 7 — the application layer — on a host continually polls through all seven data layers to the management process of each station and back through the host's protocol stack. This method therefore:

Continued on page 56

Networks of buzzwords

Integrated Services Digital Network (ISDN) has gotten a lot of attention because of its promise to dramatically increase the number of channels available to users to communicate. With reliable digital communication at higher rates than modem now support. But ISDN is one of many buzzwords tied to the next generation of the information environment; others include "Sonet," "frame" and "ATM.

The carrier communications environment today supports two kinds of information flow. Packet switching offers low information transfer costs and is insensitive to distance, but in an environment characterized by the intermittent nature of the information flow. Circuit switching is insensitive to distance, but in an environment characterized by the intermittent nature of the information flow. Circuit switching is insensitive to distance, but in an environment characterized by the intermittent nature of the information flow.

There are two winning strategies. One is to just use IBM; the other is implementing multivendor network strategies. In multivendor environments, four standards are important: CMIP (Common Management Information Protocol), CMOT, SNMP (Standard Network Management Protocol) and Netview.

Given the clear direction, why is it taking so long for standards to emerge?

That question leads directly into the morass of OSI. When CMIP-based network management products are available, they will solve the problems most users have. Today there are not enough CMIP products. Users are not rushing to them, and so there is not enough user commitment to get vendors moving quickly. It is not a technological dilemma; it is a critical mass phenomenon. We are getting there.

What signs tell you that you are getting there?

For the longer term, people would attack the Corporation for Open Systems, of which I am the chairman, saying that committee standards such as OSI were ridiculous and that de facto standards driven by the marketplace were the only solution. The attacks are different now; people are saying they don't need any more educational efforts on OSI, they need more products. The critics are moving toward OSI being inevitable. Even Novell, one of the most vocal critics, has joined the Corporation for Open Systems. If 3Com and Novell can agree, it's got to be true.

Why is there a growing trend among users to 'grow their own' network management systems?

People out writing their own systems are possibly wasting a lot of energy they could save by waiting for vendor solutions.

Continued on page 61
Every 500 years or so, comes

**Johannes Gutenberg, 1454.**

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**We just advanced the art of laser printing a full 25%**. The new IBM LaserPrinter gives you state-of-the-art print quality a full 25% faster than its main competitor.

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<table>
<thead>
<tr>
<th>IBM LaserPrinter</th>
<th>HP LaserJet Series II</th>
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<td>Speed</td>
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*HP envelope tray replaces standard paper tray. **With paper-handling options. ***Approximate.

ample storage capacity.

See history in the making by having your IBM Authorized Dealer or IBM marketing representative demonstrate the exceptional new IBM LaserPrinter. Locate your nearest dealer by calling 1-800-IBM-2468, ext. 194.

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It also takes the lead in paper-handling options by offering automatic collating of letterheads, second sheets and envelopes. Plus more...
Aetna eyes benefits of Tariff 12

BY ELISABETH HORWITT
CW STAFF

HARTFORD, Conn. — Aetna Life & Casualty recently signed a $30 million, three-year contract that keeps its data and inbound voice transmission services with AT&T but moves them under the carrier's customized Tariff 12 offering.

Aetna expects to benefit from the move by recording significant savings to its annual telecommunications budget, and through added value that AT&T offers to make Tariff 12 attractive, according to Aetna Assistant Vice-President of Telecommunications John Donovan.

Tariff 12 provides unique opportunities for the customer to get exactly what it wants in areas such as accounting and network management, Donovan said. For example, Aetna will be able to tell AT&T just how it wants its bills prepared and specify the frequency and level of reporting that AT&T provides on network traffic and error levels, Donovan said.

In terms of the network services themselves, "We will wind up using just about any digital offering AT&T has," including full and fractional T1, dedicated and switched connections, Donovan said. However, AT&T will provide those services under different tariff names, "even though if you looked down from the air, you would say we were using Accunet Spectrum or Digital Services" or whatever the equivalent was in a regular tariffed service, Donovan said.

Aetna had not decided beforehand to divide its network traffic between two vendors, Donovan said. AT&T won Aetna's data and inbound voice traffic in a competitive bid, just as MCI Communications Corp. won the outbound voice traffic approximately a year ago, he added. MCI and AT&T will have about a 50-50 share of Aetna's budget for long-distance networking services, Donovan said.

Other vendors were competitive in terms of cost, but AT&T "was more satisfactory in terms of meeting our requirements, particularly in terms of network features and functions," Donovan said.

While network management offerings will be a part of Aetna's deal with AT&T, the insurance company has not yet determined whether it will use AT&T's Accumaster Integrator, Donovan said.

"We're a fairly large IBM-based shop, with a fairly large number of Netview users," he said. "We have a lot of non-IBM minis. We need a network management scheme to handle it all, and Accumaster is apparently a slick way of doing it, but we haven't jumped into that pond yet."

Forum

CONTINUED FROM PAGE 53

In the data business, sometimes it's better to mix and match.

At GTE, our data sales specialists and engineering specialists have researched, planned, designed, and implemented literally hundreds of data systems, large and small. Many times, we've found it more efficient to design a network by selecting state-of-the-art components from a variety of manufacturers. We MIX products and MATCH protocols, to meet your needs.

And when you finally make your purchases, our loyalties are with you — not to any particular brand name.

Besides knowledge and experience that span the entire telecommunications industry, GTE offers one distinct advantage. We'll stand behind any data system we sell with our highly trained service staff.

When you're ready to select a data communications system, or upgrade the one you have, do two things:

Forget everything you know about shopping.

And call your GTE Account Manager. GTE; the data communications systems integrator.

GTE

THE POWER IS ON

DECEMBER 4, 1989
We’ve made a name for ourselves in connectivity but you don’t know it. Yet...
Though we have an installed base of more than 70,000 connectivity devices in more than 38 countries, a worldwide distribution and service system, and are the second-largest manufacturer of 3174 compatible cluster controllers, McDATA is not a familiar name in the industry. Until now, our controllers and other products have gone by many names, sold under private label to widely known vendors.

Now we are stepping forward. Twenty new LinkMaster® products, sold under our own name, will change the way the information networking industry thinks and acts about connectivity.

McDATA raises network communications to a new plane of efficiency, going beyond plug-compatibility to a sophistication in connectivity which represents a value in itself, not just a workaday necessity.

For example, for bulk file transfers between hosts, the LinkMaster 6100C network processor allows files on a host to be sent quickly and effectively to not just one, but multiple hosts in multiple locations.
Using the LinkMaster 5000 series of channel extenders, disaster recovery backup tapes can be made offsite whenever they are needed, eliminating the time and expense of manual tape transportation.

LinkMaster 4174 controllers interconnect 3270 terminals, ASCII terminals and PCs to multiple hosts, either DEC or IBM. And LinkMaster products enhance network management with direct NetView interface.

These are just a few highlight examples of McDATA’s LinkMaster network solutions at work.

LinkMaster goes beyond compatibility to the next stage of the network communications evolution, a comprehensive multivendor connectivity which, in high-speed, long-distance channel communications, represents the next significant horizon to be crossed.

The new standard in managing large systems involves faster, more economical, more rational channeling of data across communications barriers which previously could not be spanned. McDATA is establishing that standard.

We span the gaps in network communications. McDATA
Timeplex offers soup-to-nuts service

BY JOANIE M. WEXLER
CW STAFF

WOODCLIFF LAKE, N.J. — The "we do chicken right" philosophy is one that apparently does not pervade the corridors of Timeplex, Inc. In addition to its core business of manufacturing and marketing networking products, the company recently did some field-service reshuffling and created a formal in-house consulting group to embrace the gamut of networking activity — from administrative network planning to corporate headhunting.

Users of Timeplex and other vendors' products can mix and match the planning and headhunting services with three other network optimization for designing network topology and choosing products, network "staging" for testing network equipment before it is installed and 24-hour monitoring performed by the company's existing Comwatch service.

Timeplex has offered all five services to some degree for the last two to three years. The company decided to officially form the Timeplex Professional Services group because of growing customer demand for the network consulting expertise, according to Ron Weiger, manager of service marketing at Timeplex.

Weiger said customers of "all sizes and experience levels" are likely to call on Timeplex for consulting. "We are seeing more medium-size and small owners of private networks that are brand new to the industry as desperateately needing a vendor to guide them," he said. "Even some of our larger accounts are looking at controlling expenses and turning over more of the technology planning process to an expert."

The Net-Search recruitment component is the most divergent contributor to the company's one-stop-shopping orientation. Timeplex taps the channels it uses for recruiting its own engineers to locate Help desk operators, supervisory personnel, network managers and other employees for its clients, according to Weiger.

Timeplex screens applicants with networking backgrounds and presents finalists to the customer, who makes the ultimate selection. Timeplex will then "fine-tune" the employee into the customer's environment, which includes recommending a Timeplex training program.

For employees placed in networking environments that do not include Timeplex equipment, according to Weiger, the training programs would be generic in nature, covering such topics as Integrated Services Digital Network (ISDN) and taffling issues in a tutorial manner.

"We really have not found another vendor who provides a recruitment service," said Weiger, who describes the offering as the "backbone" of the two on-site programs — administrative network planning and network optimization. He said the company has provided consulting services to nearly 50 different customers during 1988 and 1989, and, currently, 10 to 15 customers are using the Comwatch service, introduced in early 1989.

The second Enterprise Networking Event has been scheduled for May 21-23, 1991, in Baltimore. Like the first Event in June 1988, it is designed to demonstrate multivendor interoperability using industry standards such as the Open Systems Interconnect. The Society of Manufacturing Engineers is sponsoring the event.

Wang Laboratories, Inc. subsidiary Intecom, Inc. successfully completed an ISDN field trial in which its Integrated Business Exchange system sent simultaneous voice and data over Primary Rate Interface ISDN connections via AT&T's 4ESS switch.

U.S. carriers will not begin to install broadband ISDN in volume until 1998, according to a recent study by Trans-Formation, Inc. The broadband version of the telecommunications standard, which will support transmission rates of 155M bit/sec., is not due to be finalized until 1992, according to the Tulsa, Okla., research firm. In addition, full deployment will have to wait for local telephone companies to implement fiber-optic cabling all the way to users' premises, Trans-formation said.

Siemens AG has entered an agreement to manufacture, market and distribute high-speed metropolitan-area networking (MAN) products from QPSX Communications Ltd., with emphasis on Europe and North America. The Australian company's products are said to transmit voice, data and video at up to 140M bit/sec. Its technology is being incorporated into the IEEE 802.6 MAN standard, which eventually will migrate to the Broadband ISDN standard.

Rivals Pictutrel Corp. and Videotelecom Corp. successfully demonstrated interoperability between their respective videoconferencing systems complying with the Px64 protocol. The Px64 is scheduled to be formally adopted as an international protocol by CCITT next July.

On January 10th, we had the first party.
Networking
FROM PAGE 53

Keep in mind three choices: Wait and do nothing, buy what the vendors have today, or do it yourself. I am arguing that to do it yourself is a waste of time. (Given that it is) so hard a problem, why does Goldman Sachs or Union Carbide or any company think they can do it faster?

Look at the 802.4 MAP token bus standard developed by General Motors. It is the biggest failure of this century. They took bad advice and went out and built their own standard, and now they have to live with the problem. The design was silly and very expensive.

In addition, I don’t think there are really that many people building their own systems — writing their own code. A lot of people who say they are doing it are just doing floor layouts — a server here, a station there, building a logistical plan.

In your most recent set of announcements, you said that 3Com will have a network multiprocessing product by summer 1990, but there is no development effort or buy-build decision in place yet. When will customers begin to see announcements closer to shipment dates?

It is only going to get worse. The complexity of all products is only going to go up. Most customers also want to know product plans a year or two in advance.

There are also aspects that are competitive. When you watch Novell beat you with announced products, you have got to react. In the multiprocessing area, we saw this technology was possible and said we were going to do it. We don’t want to be punished by not announcing early. In fact, the announcement was earlier than I would have liked, but it has become a competitive necessity.

Could you have made the announcement without the existence of Parralad (the multiprocessing board start-up founded by Charlie Bass)?

No. We had to be able to know that it was possible to deliver. We have not made any decision on whether to develop in-house or go out and buy the technology. But you have to be careful not to jump the gun on the usefulness of multiprocessing. No one has actually bought it yet; the technology has not been useful to anyone. A lot of this multiprocessing stuff is a pig in a poke.

It is hard for anyone to actually deliver on their multiprocessing promise, and a lot of people have broken their picks on the problem of actually delivering any value. It is really a large technical problem to get processors to cooperate. A lot of the claims are snake oil.

For us, it is sizable. We have stopped to delivering a sideways.

How did 3Com’s competitive position change based on the recent announcements by IBM and Microsoft on the convergence of LAN Manager and LAN Server?

I do not know much about the specifics of their announcement. But we will play to the same strengths in selling against IBM that have worked for us in the past — multivendor connectivity with environments such as the Macintosh and TCP/IP.

In addition, there is a basic transition under way for us and the software base. In the DOS world, Novell won, but in OS/2 you see an operating system designed from the ground up for networks.

We went along with that, figuring networking was no longer an afterthought. We decided to throw in with Microsoft.

Are network hardware products such as bridges, routers and adapters commodity products, where customers should simply look for the lowest price?

“Commodity” is an overused word. Prices are coming down, and for most vendors, gross margins are coming down. Even with competition increasing, our gross margins are not coming down. But prices are so low that the raw price of the hardware and the cost of shipping are as much as the cost of installation.

The low-cost suppliers want you to believe it is a commodity market because then they win. We are never going to be the price leader. But when you look at the price bombers like Western Digital, keep in mind that the difference in price is typically less than the cost of a service call. When people look at it that way, they aren’t as price-sensitive.

When you were developing Ethernet and thinking about allowing computers to communicate efficiently, did you envision how this part of the industry would grow?

I made the classic mistake. I was optimistic in the short term and pessimistic in the long term. I declared 1982 to be the year of the LAN. It didn’t really take off until later.

At the same time, I did not realize how MIPS per dollar would explode. That was what generated the demand for LAN MIPS, and it will dissolve the slower LANs. There is ever-increasing appetite for data from faster processors.

I have been predicting that Ethernet would be obsolete in 1993; now I think it will be the late 1990s. FDDI will be mainstream in 1995; that is attributable to MIPs and the things that come with MIPs.

DECstation 3100 workstation

It was a day for celebrating.

Because that was the day we broke with the news of our DECstation™ 3100 workstation, the first of Digital’s family of UNIX®-based RISC workstations, systems and servers.

Shortly thereafter, we added to the family with the announcement of our DECsystem™ 3100 multi-user computer.

January 10th was also a day we broke something else — the $1,000 per MIPS price/performance barrier. Something no one else had ever done.

The cheering you probably heard came from users whose applications always have them looking for more power at their desks. At last, a full 14 integer MIPS UNIX-based workstation was available at a price they could afford.

But the reasons for celebrating didn’t stop there. While its unmatched price/performance put it in a class by itself, the DECstation 3100 workstation fit perfectly into our integrated approach to computing. It includes the ability to share with VAX/VMS systems, Apple® Macintosh, MS-DOS® PCs and, of course, other UNIX systems.

No wonder January 10th was a day everyone celebrated.
SANTA CLARA, Calif. — The dual-purpose brouter, which provides concurrent bridging and network protocol routing, will reportedly make its way into 3Com Corp.'s internetworking product line next March.

The company is touting price/performance of the $5,495 BR/2000 local Ethernet brouter, which is based on the Motorola, Inc. 68020 processor, in addition to combining both functions by bridging certain protocols and routing others.

Bridges, which are protocol-independent, function at layer 2 — the data link layer — of the OSI reference model to filter out network segments. Brouters combine both functions by bridging certain protocols and routing others.

In addition to combining the features available on 3Com bridges with the ability to route multiple protocols, the 3Com brouter supports both Simple Network Management Protocol and Common Management Information Protocol over TCP/IP network management agents, "so we're able to accommodate both our own network management strategy — OMA [Open Management Architecture] — and industry-standard managers," Ramsay said. He added that 3Com plans to announce a graphical network management system in 1990.

3Com plants the seeds for spring brouters

BY JOANIE M. WEXLER CW STAFF

BY ELLIS BOOKER CW STAFF

ATLANTA — Scientific-Atlanta's C-band VSAT line

Firm adds C-band VSAT line

Unlike higher frequency Ku-band satellites used in the U.S., C-band systems operate at 3.7 to 4.2 GHz. Satellites supporting this standard include Intelsat, Pan American Satellite, Palapa, Morelos, Brazilsat, Eutelsat and Arabsat.

Scientific-Atlanta's agreement with Perumtel, Indonesia's ministry of telecommunications, call-for it to provide a VSAT network to link the archipelago's 13,000 islands. The network will offer batch and interactive voice, data and direct-broadcast video services to the region, including the Philippines, Republic of China and other Southeast Asian countries.

One of the first applications for the Indonesian network will be to link hotels and travel agents throughout the 13,000 islands. The initial shipment for the network hub went to Scientific-Atlanta's partner in the region, Citra Sari Makmur, a private Indonesian firm that will own and operate the VSAT network. Five VSATs were shipped along with the hub, according to Scientific-Atlanta.

In another major C-band announcement, Scientific-Atlanta said last month at the ITU-COM '89 electronic media exhibition in Geneva that it would deliver a 100-site VSAT interactive data network for Chile.

Compania de Telefones de Chile, S.A., a privately held telephone company based in Santiago, will provide the service to Chilean industry. According to Scientific-Atlanta, the Chilean network could grow to more than 2,000 sites.

"It's safe to say that C-band will be half of our business in the near term," said Scientific-Atlanta spokesman Randall L. Blevens.

Scientific-Atlanta's Skylink.25 C-band VSAT system uses a master earth station acting as a hub, plus small terminals.

The master station antenna sizes range from 7 to 11 meters; the remote terminal antennas range from 1.8 to 2.4 meters. Like its other VSATs, these use an X.25 networking scheme and feature a network management system, which resides in a packet switch at the master earth station.

On July 11th, we had the second party.
DECstation 2100 workstation

Almost 6 months to the day, there was another reason to celebrate.

Because that was when we announced the DECstation™ 2100 workstation, the latest member of Digital's family of UNIX-based RISC workstations, systems and servers. In fact, on July 11th, the breadth of our offerings extended from the DECstation 2100 all the way up to the DECsystem™ 5800 multi-user system—the industry's broadest range of compatible UNIX-based computers.

In the family tradition, the DECstation 2100 workstation broke new price/performance ground, too. It gave users the most powerful entry-level UNIX-based workstation available in the industry—10 integer MIPS for under $8,000. The power of a RISC workstation for the price of a PC.

Besides sharing price/performance leadership, our two UNIX-based workstations shared a lot more. For example, the way they adhered to industry standards like the X Window System™, OSI/Motif, TCP/IP, NFS™, IEEE POSIX 1003.1, X/Open XPGII, among others.

The DECstation 3100 workstation on January 10th.

The DECstation 2100 workstation on July 11th.

Party. Party.
Links

Harris Corp. has introduced the Anamix i, a multinode video teleconferencing system that is a personal computer-based network capable of multimedia operations, including video, voice, data, and graphics.

According to the company, the unit can be configured to support as many as eight nodes. Pricing ranges from $85,000 for a starter system to $200,500 for an eight-node version. The product has a six-month warranty.

Harris
P.O. Box 37
Melbourne, Fla. 32902
703-739-1723

Ultra Network Technologies, Inc. has expanded its networking options for Cray Research, Inc. supercomputer users with the announcement of a network processor designed to interface with the 12.5M bit/sec Cray low-speed channel.

The LSCNP allows user to connect a variety of computers to a Cray supercomputer via the Ultrarnet network on the low-speed channel, the company said. The product resides in the Ultrarnet 1000 Hub and is supported by Ultrarnet's Unix 4.3 BSD sockets application interface under the UNICOS operating system on the Cray-2, X/MP and Y/MP computers.

Scheduled for delivery in the second quarter of 1990, LCSNPs cost $45,000.

Ultra Network
101 Daggett Drive
San Jose, Calif. 95134
408-922-0100

Metacomp's VMConnect can link 256 asynchronous devices

Metacomp, Inc. has unveiled an asynchronous device connectivity subsystem capable of connecting eight to 246 asynchronous devices to Motorola, Inc. VMEbus systems.

VMConnect utilizes a single slot in the VMEbus chassis, the company said, and a typical subsystem includes a single-board VME host adapter, one or more eight- or 16-channel intelligent Remote Asynch Concentrators and a single R45 twisted pair cable which is 1,000-plus feet in length. OEM pricing for a 16-port VMConnect is $2,206, and a 32-port system is $2,865.

Metacomp
Building A
15175 Innovation Drive
San Diego, Calif. 92128
619-673-0800

Chipcom Corp. has announced a fiber module designed for use with its LAN-to-LAN Multime dia Hub and 3Com Corp.'s Multiconnect Repeater.

The LAN-to-LAN Fiber Module, a two-port fiber-optic Ethernet module, is said to be compatible with the firm's Omnet fiber-optic Ethernet products and reportedly provides fault tolerance capabilities for connection to fiber backbones. The product permits network diameters to extend to 2.5 km, with as much as 2 km between any two hubs or Multiconnect Repeaters. A single unit costs $1,095.

Chipcom
195 Bear Hill Road
Waltham, Mass. 02154
617-890-6844

A wireless personal computer-to-peripheral communications product has been introduced by Hillier Technologies Limited Partnership.

Called Airlink 1, the product uses low-power spread-spectrum packet radio to send data to peripherals up to 150 feet away. It can transmit through walls and is not limited to line of sight. The product can also accommodate as many as 99 peripheral connections.

Scheduled to ship by year's end, the Airlink 1 will carry an introductory suggested retail price of $259 per node and $499 per link set.

Hiller Technologies
500 Alexander Park
Princeton, N.J. 08543
609-520-0144

Share Communications, Inc. has introduced a software package designed to convert any networked, IBM-compatible personal computer to a facsimile machine.

Called Faxshare, the product does not require a dedicated PC or an electronic mail system for fax delivery and notification. It allows network users to create customized faxes directly on their individual workstations. The faxes may be transmitted to any Group III fax machine or directly to facsimile machines.

The device is priced at $799 for the hardware and $295 for the support software for a Microsoft Corp. Windows environment.

Ricoh
5 Dedrick Place
W. Caldwell, N.J. 07006
201-882-2000

Evaluation Software

UNIX/RISC Applications:

- Aspen Technology, Inc.
- Cadence Design Systems, Inc.
- Dynamic Graphics, Inc.
- Engineering Mechanic Research Corp.
- Engineering Mechanic Research Corp.
- Engineering Mechanic Research Corp.
- Engineering Mechanic Research Corp.
- Engineering Mechanic Research Corp.

- Adven
- Aspen Plus
- PRANCE GT
- Opus
- Design Framework
- DSM
- POWERFrame
- NISA II
- DISPLAY II
- ENDURE

Now look at the third parties.

While all this celebrating was going on, it's clear that some people have been hard at work.

The software developers.

In an amazingly short time, they've already developed an impressive list of applications that run on all our UNIX-based RISC workstations and systems. And the list is rapidly growing. For the complete list of applications, as well as performance data, call 1-800-842-5273, ext. 300.

UNIX/RISC Applications:

- Adven
- Aspen Plus
- PRANCE GT
- Opus
- Design Framework
- DSM
- POWERFrame
- NISA II
- DISPLAY II
- ENDURE

Now look at the third parties.
The enhanced gateway supports AppleTalk Phase 1 and 2, Digital Equipment Corp.'s Decnet and Transmission Control Protocol/Internet Protocol environment.

The list price for an AppleTalk Phase 2 configuration is $2,795. Current users of Fastpath 4 can upgrade to an SNMP version for $85. Excelan 2180 Fortune Drive San Jose, Calif. 95131 408-434-2300

Shiva Corp. has announced an Ethernet-based product to provide routing between LocalTalk and Ethernet networks, serial sharing over Ethernet and LocalTalk and wide-area networking between remote LocalTalk/LocalTalk inter-networks.

Called Ethergate, the combination hardware and software product also facilitates dial-in network access from a remote Apple Computer, Inc. Macintosh, IBM Personal Computer or compatible, the company said. Ethergate incorporates a modular design and uses battery backed-up random-access memory. The product carries a list price of $2,399.

Shiva 155 Second St. Cambridge, Mass. 02141 800-458-3550

Emerging Technologies, Inc. has announced a T1 interface for the company's Ethernet bridge and router product, E7/Bridge.

The T1 product incorporates a V.35 interface and supports line speeds up to 1.544 Mbit/sec., the vendor said, and each bridge unit can accommodate as many as four T1 interface devices. A single-line T1 bridge includes one Ethernet interface, one T1 interface and one asynchronous interface. It is priced at $3,695.

Emerging Technologies P.O. Box 1525 Mineola, N.Y. 11501 516-742-2375

Micro-to-host Csoftware, Inc. has announced a personal computer-to-mainframe program interface for users of IBM Personal Computers and compatible systems.

Called Across-the-Boards, the product reportedly permits access to local and mainframe applications, provides a gateway to LocalTalk networks, bisynchronous and synchronous data link control communications and most protocol converters. It interfaces with programs written in COBOL, C, Basic, Pascal and assembler and is priced from $2,500.

Software Suite 201 2454 E. Dempster Des Plaines, Ill. 60016 312-824-7180

Adrem, Inc. has enhanced its online data entry system for microcomputers and mainframe machines.

Adders Version 4.11 provides direct interactive personal computer-mainframe-mainframe communication and offers full data validation on batches of data transferred from the PC to the mainframe, the firm said. The latest release supports IBM's SCL/DS on the mainframe and runs on Novell, Inc.'s local-area network products. Pricing is from $14,000 to $30,000, depending on configuration.

Adrem 1 Hollis St. Wellesley, Mass. 02181 617-235-2223

Adacom Corp. has introduced an intelligent IBM 3270 port expander designed to accommodate the addition of type "A" terminals, personal computers and printers to an existing IBM 3174 and 3274 controller without utilizing another controller port.

Adasat allows each controller port to communicate with as many as five simultaneous users for a maximum of 160 devices per unit. The product does not degrade response time, and micro-to-mainframe file transfer is supported. The maximum coaxial cable distance from the controller to the terminal can be extended to 10,000 feet.

Adasat costs $1,005, and the company offers a 15-day free trial period.

Adacom Suite 3001 200 Friberg Pkwy. Westboro, Mass. 01581 508-896-9600

Aspen Research, Inc. has enhanced its Mozart micro-to-mainframe applications development software.

According to the company, the enhancements allow developers using personal computers to build IBM CUA/SA-compliant PC-style interfaces for mainframe applications within days, rather than months. The product offers support for IBM Application System/400 platforms and Hewlett-Packard Co., Digital Equipment Corp. and Prime Computer, Inc. machines.
Asynchronous terminal support has also been added.

Mozart Opus 1.1 is now shipping, and free upgrades are available to registered users of Version 1.0.

Aspen Research
Suite 630
1350 Bayshore Highway
Burlingame, Calif. 94101
415-340-1588

Local-area networking software

Micro Decisionware, Inc. has announced that its end-user access program, PC/SQL-link, has recently been upgraded to allow DOS-based personal computer users to access IBM's OS/2 Extended Edition Version 1.2 Database Manager over standard Netbios-compatible local-area networks. Scheduled for release early in 1990, pricing for Version 3.3 will range from $300 to $5000 per user depending on quantity.

Micro Decisionware
Suite 205
75 Manhattan Drive
Boulder, Colo. 80303
303-443-2796

Indigo Software Ltd. has announced an electronic forms software package that allows multiple users and applications to use electronic forms on networks or mini-computers. Called Jetform-Server, the program utilizes a client/server software architecture and will process simple data streams produced by client applications.

Advanced Software Technologies, Inc. has released Version 4.0 of Magix, the company's multiuser database software. Advanced Software Technologies, Inc.

Indigo Software
Suite 400
560 Rochester St.
Ottawa, Ont., Canada K1S SK2
613-594-3026

Magix 4.0, available in both development and runtime versions, and pricing for runtime modules range from $1250 to $134000, depending on the number of workstations supported.

Advanced Software
Suite 297
2041 Rosecrans Ave.
El Segundo, Calif. 90245
213-322-4440

Local-area networking hardware

Samsung Information Systems has announced two local-area network hardware systems, each designed to operate with Novell, Inc.'s 386 networking software.

The 33-MHz 386A3 file server allows the user to boot Novell's Netware directly from IBM's disk coprocessor board and carries a suggested list price of $6495, the firm said.

The PCTerminal/386SX diskless LAN workstation incorporates four expansion slots and will run DOS with Microsoft Corp.'s Windows and other Intel Corp. 80386-specific software applications.

The workstation lists at $2195. Both products are scheduled for shipment in the first quarter of 1990.

Samsung
3655 N. First St.
San Jose, Calif. 95124
408-434-5400

An adapter designed to attach IBM's 6262 line printer products to personal computers has been announced by Barr Systems, Inc.

The Barr/DPI adapter implements the Dataproducts Corp. printer interface in IBM Personal Computers, XTs, ATs and compatibles, as well as IBM Personal System/2 25 and 30. Compatible with both DOS and BIOS, the product appears to the PC as a parallel printer adapter.

Barr/DPI is priced at $400.

Barr Systems
4131 N.W. 28th Lane
Gainesville, Fla. 32606
904-371-3050

OS/2 networking

A print server program that allows users to attach multiple shared printers to any MS-DOS workstation running an OS/2 network has been announced by Lan Systems, Inc.

According to the vendor, Lanspool for OS/2 Networks works with the network operating system print queues so that memory is not used at the local workstation.

The program utilizes 2K bytes of random-access memory overhead per shared printer when operating in background mode and uses no memory at the printing personal computer.

Lanspool for OS/2 Networks requires an IBM Personal System/2 or 100%-compatible system and is priced at $395 per single server with an unlimited user license.

Lan Systems
300 Park Ave. S.
New York, N.Y. 10010
212-995-7700
PostScript laser printers used to be expensive, large and shared by an entire office.
Until now.
microLaser™ from Texas Instruments: the affordable PostScript printer users can call their own.

Finally, for less than $3,000* users can have a PostScript laser printer right at their desks. TI introduces its new microLaser, with the features users want — now and in the future.

Small size. Lots of value.
At only 13.4 inches wide and 14.2 inches deep, microLaser may be the small kid on the block, but it packs plenty of punch. This printer takes full advantage of powerful PC software. That's because it uses the Adobe® PostScript printer language and is compatible with the HP LaserJet® Series II — allowing the user to switch between them easily. With that kind of flexibility, the six-page-per-minute microLaser is ideal for word processing, spreadsheet and desktop publishing applications.

Because microLaser features the PostScript language, it prints fonts in a variety of type styles and sizes. Plus, it can print them tall-ways, long-ways, all kinds of ways. It even prints complex pages of integrated text and graphics.

Capabilities that grow as their needs grow.
One of the best things about microLaser is that users only buy what they need. So if they're not ready for PostScript language, they can buy the standard microLaser for less than $2,000** and add PostScript software and other powerful features later.

Users can upgrade microLaser without tools or technicians by simply adding upgrade boards. These boards include up to four 1 Mb increments of memory, serial and AppleTalk® interfaces, and a PostScript interpreter. All they have to do is to plug optional microCartridges into two credit card-size slots.

Superior paper handling.
Part of what makes microLaser a truly personal, desktop laser printer is its paper drawer, which slides inside. Because microLaser holds 250 sheets standard (it holds 500 with an optional paper drawer), users spend less time refilling paper and more time creating superb-looking documents.

The printer also handles a variety of paper sizes and types — from letter, legal and executive to transparencies, labels and envelopes. For those times when users face a large mail merge task, they can just plug in an optional envelope feeder to easily alternate between letters and envelopes.

The affordable PostScript printer is a call away.
To find out more about how your users can have affordable PostScript printing right at their desks, call TI today: 1-800-527-3500.

FREE! Adobe typefaces from TI.
What could be more affordable than that?
When users purchase a TI microLaser with a PostScript interpreter, they get their choice of an Adobe Publishing Pack for their PC or Macintosh® (up to a $475 retail value).
Selected by publishing experts, each Pack features three high-quality Adobe typefaces proven to work well together in a specific application, such as newsletters, forms and schedules or presentations.

Not only that, they get an expert-written "How To" booklet so they can get started quickly and easily.

Call TI at 1-800-527-3500 for details! This offer ends March 31, 1990.

*TI suggested list price is $2,999.
**TI suggested list price is $1,999.

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Front ends, multiplexers

Racal-Milgo has introduced its Omnix/ MICS family of T1 intelligent channel service units. The product line comprises four units—each designed to promote network uptime and reliability by giving operators both local and remote administrative and management control. This includes alarming, configuration control and full diagnostic management capabilities. Pricing starts at $3,488.

Racal-Milgo
1601 N. Harrison Pkwy.
Sunrise, Fla. 33323
305-475-1601

Network management

An Ethernet traffic monitor has been introduced by Network Application Technology, Inc. The Ethermeter Model Lain/150 monitors all traffic in an Ethernet segment and reports statistics to monitoring stations through the network itself, according to the firm. Ethermeters can be placed throughout an internetwork and accessed through a central network management station.

The product is available in two configurations: an IBM Personal Computer AT-compatible card, installable in any full-length slot and priced at $1,295, and a self-contained enclosure with power supply, priced at $1,495.

Spider Networks, Inc. has announced an Ethernet local-area network remote monitoring software package, designed for use with the company’s Spidermonitor 220 and Spideranalyzer 320 products. The software runs directly over the network without a serial line or terminal server connection, and the master station can access a slave located in another building, state or country while maintaining network speed, the vendor said. Spiderremote software sells for $950, and each remote segment is priced at $295. It is scheduled for delivery in January.

Spider Systems
12 New England Executive Park
Burlington, Mass. 01803
617-270-3510

Racal-Interlan has announced a network management product created specifically for use in extended local-area network environments.

Lancentral allows network managers to perform a variety of network tasks, including network management, topology mapping, configuration control and device management. All performance analysis and fault determination operations are centralized, the vendor said, and each can be initiated from a dedicated Intel Corp. 80386-based IBM Personal Computer AT. The hardware platform also includes the company’s NIS210-16 controller.

Priced at $1,495 and scheduled for mid-December delivery, Lancentral is compatible with Ethernet IEEE 802.1 and Thin Ethernet/IEEE 802.3 networks.

Racal-Interlan
155 Swansea Road
Boxborough, Mass. 01719
908-263-9929

Electronic mail

An electronic mail server developed for use with Novell, Inc. Netware local-area networks has been announced by Cubix Corp.

Designated the QL 1001, the server board consists of an IBM Personal Computer XT-compatible processor with 768K bytes of random-access memory and COM ports. The unit plugs directly into the bus of the file server and reports data to Novell’s Message Handling Service and several other mail packages. The server retails for $645.

Cubix
2800 Lockheed Way
Carson City, Nev. 89450
702-883-7611

The Top Division of Sun Microsystems, Inc. has unveiled two electronic mail products aimed at work-group, enterprise-wide and global networks.

Inbox 3.0 allows both IBM Personal Computers and Apple Computer, Inc. Macintosh users to share files with one another’s mail, and Inbox Plus was designed to provide an upgrade path to enterprise-wide or global E-mail systems.

Both products are scheduled for delivery in January. The products are priced at $329 and $995, respectively.

Sun Microsystems

Tops Division
950 Marina Village Pkwy.
Alameda, Calif. 94501
415-769-9669

Alisa Systems, Inc. has expanded its Mailmate electronic mail integration product line to include Microsoft Mail.

Mailmate/MM is an Apple Computer, Inc.-based bridge for Microsoft Mail that provides a two-way exchange of E-mail with Vmsmail, Digital Equipment Corp.’s Decnet-based mail product. Mailmate includes Alias Disk font Decnet drivers and network control program. It costs $950 to $9,750, depending on number of users.

Alisa Systems
211 E. Walnut St.
Pasadena, Calif. 91101
818-792-9474

Why Experienced Computer Users Don’t Think Very Much About Modems

Our research shows that knowledgeable MIS managers, PC coordinators, and end users simply don’t want to think of modems at all.

Not exactly what modem makers relish hearing! But it’s hardly surprising that you want to save your thinking for bigger and more important things.

Modems are a lot like plumbing. As long as the data is flowing, they’re practically invisible. However, when something goes wrong, those little boxes are just lashed with attention.

By then, you’ve lost data, time, money, and perhaps an opportunity. Both senders and receivers are dismayed and disarrayed.

Fortunately, there are simple ways to limit this aggravation. Our research suggests a few points to keep in mind.

The cost of the modem is not the modem’s cost.

The fixed price of the modem is relatively insignificant. Ongoing costs matter far more.

In the long run, for example, a high-speed modem can save you a small fortune on phone bills. More data sent in less time means less money to the phone company.

You can also save with more reliable and robust modems that communicate over a wide range of telephone line conditions.

Resending data costs both time and money. The less time you spend transmitting data, the more time you have to spend on your business.

Downtime and adaptation time can also cost you dearly.

Be sure to ask if the modems are compatible with those in other generations. You don’t want to start with suppliers who refuse to adapt to your own products, or who don’t offer you an upgrade path.

“Modem support can be a real hassle with the wrong vendor.

Setting up and installing your modem can affect both your budget and your sanity. Many manufacturers forget to make their modems easy to use!

This becomes expensive when you want to start up fast or need to support a large number of users.

Dip switches, on-line help screens, and easy-to-use manuals should be demanded. It also helps to have a quick-reference guide printed on the bottom of the case.

In sticky situations, it’s vital to have toll-free support and applications engineering.

Bottom line:
The data must get through.

A bit of data traveling from your computer is converted by your modem and sent to your local telephone office.

From there, it is exposed to the vagaries of phone lines, various transmission media, and weather patterns.

They all conspire to corrupt your data and slow down your throughput.

All modems are not created equal; some are less sensitive to noise and have better error-correcting protocols.

Some are simply more robust and have better filters.

Modems are more than mere commodities—technology does count.

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OFFER EXPIRES DECEMBER 4, 1989
EXECUTIVE TRACK

Jeffrey J. Robinson has been named director of information resources at Tredeger Industries, Inc., in Richmond, Va.

Robinson has 20 years of experience in information systems management, including planning, development and operations. He was most recently assistant director of the information resources department at Ethyl Corp. in Richmond, which spun off its plastics, aluminum and energy businesses earlier this year to form Tredegar.

Robinson holds a bachelor’s degree in accounting and an MBA, both from Louisiana State University. He is a certified public accountant and a certified systems professional.

Joseph S. DeBlasi has been named executive director of the Association for Computing Machinery, a New York-based educational and scientific society representing 75,000 professionals.

DeBlasi recently retired from IBM, where he was corporate director of standards. His 25-year IBM career included positions in standards, marketing, financial planning and government IS.

He is chairman of the U.S. Committee for the International Standards Organization’s Joint Technical Committee for Information Technology.

DeBlasi holds a bachelor’s degree in mathematics from Virginia Polytechnic Institute. Before joining IBM, he served as a captain in the U.S. Air Force. He and his family live in New Canaan, Conn.

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Helene Curtis’ IS makes waves

IS director Gildea wins kudos for systems makeover at hair-care firm

BY MARYFRAN JOHNSON CW STAFF

When Tom Gildea applied for the director’s job in business information systems at Helene Curtis Industries, a corporate headhunter warned him, “No one stays there more than a year.”

But rumors about the hostile climate for IS at the family-owned hair-care products company only served to intrigue Gildea, an intense, energetic man who relishes a challenge. Three years after he accepted the top IS job, the 45-year-old Gildea boasts of having “the best job in the city of Chicago.”

With strong backing from Ronald Gidwitz, chief executive officer and son of Helene Curtis’ founder, Gildea spearheaded a computer systems and software makeover designed to keep pace with a $725 million company growing at 30% per year.

His IS department now plays a crucial role in business planning throughout the company — from coordinating a new fully automated warehouse to arming sales representatives with laptop computers loaded with information from the corporate database.

Although the brutally competitive consumer products field is dominated by giants Procter & Gamble, Inc., and Johnson & Johnson, Helene Curtis manages to have three of its shampoos — Suave, Finesse and Salon Selectives — among the Top 10 best sellers.

In the early 1980s, the company began moving out of its niche as a staid salon supplier with aggressive marketing of existing and new products.

Yet all of this began without much thought to technology.

“This company was well into the 1980s with an old batch-oriented system driven by an IBM mainframe,” Gildea recalls. “There was no appreciation, early on, for the potential of IS as a competitive tool.”

Worst of all was the limited automation in Helene Curtis’ main warehouse, which had no integrated system to manage inventory, orders or distribution.

“We literally didn’t know where anything was,” says Howard Wagner, director of traffic and distribution and a nine-year company veteran. “We would send people into the warehouse to search for a case of Finesse.”

Today, a gleaming new $32 million distribution center in northwest Chicago bears testimony to the company’s determination to make customer service its trademark (see story page 76).

Gildea began in 1986 with a disconnected set of technology “islands” throughout the 2,500-employee company. There were a few dozen personal computers and a central data center with one IBM 3083 and three VAX midrange machines from Digital Equipment Corp.

One of Gildea’s first major tasks was to derail company plans to purchase an IMS-based order-entry mainframe package. He convinced the executive committee that the system was a “potential recipe for disaster” because its database was not relational and it

Del Monte’s independent IS unit a plum

BY CHARLES VON SIMSON CW STAFF

An information systems autonomy be the ticket to corporate freedom? At Del Monte Foods USA in San Francisco, it certainly hasn’t hurt.

By the end of this month, executives at Del Monte expect the RJR Nabisco, Inc., subsidiary to be independent after a leveraged buyout (LBO) by Del Monte senior management and a group of other investors. And they believe that the creation of an independent IS utility within the past year has greatly simplified the process.

“Having a large part of the data center intact allows senior management to concentrate on managing the change taking place in the company, not the infrastructure,” said David A. MacPherson, Del Monte’s vice-president of MIS.

A year ago, Kohlberg, Kravis, Roberts & Co. executives were touring RJR subsidiaries, looking for pieces to cut to trim debt incurred from the record $25 billion LBO of the company. From the beginning, Del Monte Foods appeared ripe for a self-help.

At the time, the company shared all computing resources with other RJR-owned companies through a number of common data centers and a tightly interwoven telecommunications network. Last December, however, RJR decreed that Del Monte would form its own stand-alone IS capability.

While there was no link made to a possible sale, the unit was clearly being prepared to be independent from corporate MIS. “The IS restructuring began before the LBO was even

Continued on page 76

DECEMBER 4, 1989
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My job is to listen — to IS executives, consultants, academics and end users. In the 10 months since I became management editor, there has been a subtle but fundamental change in what I'm hearing about the optimum role of IS in the corporation of the 1990s.

Boiled down to its simplest form, the chorus of opinion has shifted from, "The IS executive must become part of the business" to "The IS executive must be a force for changing the business."

A recent Manager's Journal was very telling on this score. The section contained three main stories: an interview with MIT Sloan School of Management Dean Lester Thurow, a speech by IS consultant Michael Treacy at John Hancock's technology awareness day, and a piece on the General Accounting Office's rather jaundiced view of some federal IS projects. Although the three stories were very different, they all sounded the same chord that I'm hearing all over the executive offices and conference hotels: that simply computerizing most existing business processes is a long-range prescription for disaster.

Instead, the IS executive must heed the words of the late Robert F. Kennedy in the early 1960s. "Some men look at the things that are and ask why," Kennedy said. "Others look at the things that never were and ask why not?"

The technology is here today to enable a lot of things that never were in business, and the IS executive must play a leading role in getting their companies to look at them. Of course it isn't easy. The old chorus about understanding and becoming part of the business is truer than ever; it is an absolute requirement for achieving the stature necessary to be a force for change. The surest way for IS to lose credibility with senior management is to try and sell systems based on the corporate powers-that-be as outsiders.

Terrific! Then who's better qualified to bring a fresh perspective to the business? Decades of staid, insular corporate leadership have stifled innovation, stamped out flexibility and slowed market response time in hundreds of U.S. corporations. Being an "outsider" should be a blessing, not a curse — particularly an outsider armed with knowledge about the potential of information technology.

But I don't mean how many potential MIPS can dance on the head of a pin — I mean the potential of technology as an enabler of business change.

Much of that technology is here now. Electronic data interchange, LAN-based applications, laptop computers, high-speed data networks — moving the data is the easy part. Deciding what data, to whom, where and when is the challenge. As Thurow points out, the key to using information competitively means usually being able to reduce the amount of data, weeding out the irrelevant and the redundant.

If you have a strong track record, can communicate in business rather than technical terms and understand your companies' markets and customers, it's time to speak up. Be political, and most important, find an executive sponsor who agrees with the kinds of changes you'd like to make.

If your firm's management still won't listen, update that resume. Corporate America is going to need your leadership for necessary changes in the 1990s. Find a company whose senior management team already understands that.

Wilder is Computerworld's senior editor, management.
Curtis
FROM PAGE 71
had no functionality for the warehouse. "I still had the halo of the new kid on the block," he says, grinning. His division got the green light to revamp the data center and warehouse distribution systems.

The IS division wrapped up the first part of the makeover last summer with the new warehousing systems. The finishing touches came today, as the company went on line with its new order entry system in DB2.

"I view my role as two things: creating a vision and refreshing it as needed, and getting the resources for the people doing the work," says Gildea, former director of applications at G. D. Searle & Co., a pharmaceuticals firm in Skokie, Ill.

Today, the heart of the company "data hub" is an IBM mainframe, a Teradata Corp. Data Base Computer and a DEC Vaxcluster, interconnected through an Ethernet backbone and an IBM Systems Network Architecture network. Gildea toys with the notion of calling the company network "Hairnet."

But the real lifeline is the relational technology that links a variety of customized applications, enabling all company divisions to use the main database and share key information about manufacturing, distribution and sales.

Secret entry
Intelligence work during the Vietnam War drew Gildea onto the IS career path some 20 years ago, when a top-secret data processing project called for someone with his security clearance level. His bachelor's degrees in biology and philosophy apparently gave his commanding officers no pause. He spent 18 months in Southeast Asia and another 18 months at Strategic Air Command in Omaha, Neb.

Gildea later fleshed out his credentials with two master's degrees in management, analysis work in children's rehabilitation services and management of a Fortran-based expert system for the University of Nebraska's computer network.

The changes set in motion by Gildea have had "a very positive impact," says Charles Cooper, chief operating officer and Gildea's boss. "Our business information systems department is very customer-oriented, and very understanding of the demands of the users, which keep increasing," Cooper said.

Although computer technology has been available to consumer-products companies and their customers for years, Cooper notes, the willingness of people to use the technology is "just exploding now."

The most recent innovation is the Sales Information System, launched last month. Eventually, up to 300 sales representatives will plug in their laptop computers at night and download the most current sales and scheduling information off the corporate database. They will also have access to the company's electronic mail and to competitive intelligence from other field reps.

"It's going to knock their socks off," Gildea says, his face lighting up with pride.

Smells, looks, works like paradise
In any other location, the tropical aroma of coconuts and berries in the air might lure the senses with dreams of paradise.

Not so here in northwest Chicago, in the massive new $32 million warehouse that serves as Helene Curtis Industries' distribution center.

"This is such a luxury for me," says Howard Wagner, director of traffic and distribution for Helene Curtis, as he conducts a brisk tour of the 4-month-old distribution center. "We were able to start with a clean slate and decide what our goals were."

"Next time you look at a CASE product, ask if it delivers more than promises."

Paradise in this 376,000-square-foot behemoth means an inventory count approaching 100% accuracy. It means daily shipments of 150,000 cases of shampoo, conditioner and lotions — all arriving at the moment customers expect them and in the amounts they ordered.

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Two years of planning for the distribution center encompassed facilities, computer systems and employee issues.

"The technology in this building is not unique, or even cutting edge," Wagner says. "But in designing the system and the building at the same time, we were able to use the best proven technology to get the job done."

The center was designed with a priority on customer service rather than on minimizing shipping costs. A fully integrated manufacturing, ordering and inventory system is now managed by a fault-tolerant Stratus XA2000 computer, connected via Ethernet and IBM Systems Network Architecture to the data hub in corporate headquarters downtown. The Stratus system also controls the on-board computer terminals in each forklift, assigning optimal delivery and pickup routes to each driver.

"A work force that 10 years ago was oriented toward physical labor is today oriented toward information," Wagner points out. "The actual movement of material is hardly given any thought anymore. It's how and when and why it's being moved that matters."

In one cavernous room, floor-to-ceiling "push-back" racks — the largest such installation in the country — provide dense storage of four pallets deep per section. Each pallet holds 150 bread-box-sized cases.

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WHO SAID ATLANTIC IS THE NUMBER 1?

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WHO SAID ATLANTIC IS THE NUMBER 1?
Philip B. Fletcher, president of Conagra, Inc., would not think of hitting the road without his laptop computer. "I carry it with me when I travel and do my electronic mail from my hotel room each night so it doesn't get ahead of me," says Fletcher, chief operating officer of the Omaha-based conglomerate whose activities span the food chain from fertilizer to frozen TV dinners.

Even at corporate headquarters, Fletcher is seldom far from his keyboard. Although he and Conagra Chairman Charles M. (Mike) Harper sit in adjoining offices, many of their most productive conversations take place via computer.

"We communicate with one another on the tube, so we don't have to try to find the time when we can both break from another meeting and talk. If [either of us] has a thought, we just put it on the tube right away, and it's there," Fletcher says.

This kind of regular contact with computers is still the exception among senior executives. "There are the occasional executive success stories, but I don't believe that at this point, those represent a trend," says Fred Collopy, assistant professor in the management information and decision support department at Weatherhead School, a business school at Case Western Reserve University in Cleveland.

Theories abound to explain the lack of computer use by senior executives. Citing Henry Mintzberg, author of The Nature of Managerial Work, Collopy says, "We know from Mintzberg's work that executives spend an awful lot of their time communicating, walking around and looking at things. It's very hard to see that being substituted for currently, even by Williamson, a technical journalist based in Warwick, Mass., wrote the Seybold Office Computing Group report, "Executive Support Systems: Concepts, Tools, Techniques."
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As Alexander tells it, when James Orr, the company's chairman, arrived near the end of 1986, "He was accustomed to a pretty avant-garde technology and organizations that closed their books on a daily basis. One of the first things he said was, 'I'd really like to see what's going on in Unum on a daily ba-sis.'"

The first database tapped was human resources, Alexander recalls, "because it was both available and critical to some business objectives we were trying to accomplish at the time." Specifically, the company was trying to reduce hiring levels, and access to personnel records gave the chairman the ability to track new-hire activity.

However, it is not only vice-presidents who find daily access to data important. According to Drinkard, the president of the company also spends roughly a quarter of his time "turning the data, modifying it, trying to make sense out of the information and trying to forecast where we're going."

Sometimes the information that top executives most need to know are the kinds of things that they least want to share, and that is when an executive support system can be particularly handy, says Joan Dixon, internal information technology consultant at Mutual Benefit Life Insurance Co. in Newark, N.J. According to Dixon, the president and most of the vice-presidents at Mutual Benefit make regular use of a system consisting of Comshare's Commander EIS and the Intellect natural language product from AI Corp. in Waltham, Mass. The system gives them access to more than 28 different company databases. "They have business analysts," she says, "but a lot of the time the information they want is of an extremely sensitive nature. They wouldn't want to let anyone know they were asking the question."

Information in hand also means increased power to effect desired changes, as is demonstrated in the way that Richard Crandall, chairman of Comshare in Ann Arbor, Mich., chooses to use his own company's product. When he wanted to convey the importance of rapid response to customer inquiries, Crandall began using Commander EIS to track the percentage of incoming calls that are responded to and "cleared off the docket" in one day.

Twice a week, Crandall looks at a compilation of calls logged in and calls resolved and sees it to that the rest of Comshare's executives receive the same information. After collecting data for 18 months, the company established a corporate goal for that measurement, "with agreement from everyone that we want to get better and better at it," he says. "It motivated us to look at those calls that didn't get resolved in one day. We used that for guidance in how to improve our track record."

Although nobody claims that executive computing leads senior managers to a "Bure-like" and fire off a volley of brilliant new directives to their subordinates, there is general agreement that a well-thought-out business information system can help executives spot and react to trends more quickly.

**IS recognizes role as teacher**

*Promoting technology awareness among top management ranks high in a list of 240 senior IS executives' most important concerns*

Using IS for competitive advantage

Aligning IS and corporate goals

Educating senior management on IS potential and role

IS strategic planning

Developing an information architecture

**Follow the leader**

The chief executive officer wields strong influence on technology directions, according to a survey of 608 IS managers

**PERCENT OF RESPONDENTS**

- 42%
- 18%
- 18%
- 16%

"It's difficult to quantify how an executive information system can contribute to an executive decision, and it's equally difficult to determine how an executive arrives at a decision," says Rick Bowman, senior systems analyst at Chevron Corp. in San Ramon, Calif. "But an EIS takes the executive's current organization and gives a clear model of it via pictures and graphs. It can help contribute to strategic decision making or policy making."

The Chevron system, that Bowman supports went on-line in June 1988 and now serves 57 oil executives, including a vice-chairman and the chief financial officer.

The move to put an EIS in place was spearheaded by Martin Klitten, senior vice-president of finance. Today, Klitten says he spends at least an hour a day, usually in increments of five minutes, looking at earnings reports, stock prices and personnel data. "I'm sure I could say that I look at things any differently," he says, "but I now have access to information in ways that I didn't have before."

Although Klitten says computers are not essential to his managerial capabilities, he believes they give him a competitive edge. In fact, he says "it would be just fine" with him if executives at other oil companies decide not to bother with computers.

Often, the point for executives in using computers is not improving the decision process itself but simply expanding their ability to see more space and time. By carrying personal computers with them, as Fletcher at Conagra does, executives can stay in touch with everything that is happening from the road or from home. Many, for example, keep personal computers at home and check in on weekends for the latest sales figures.

Conversely, with more businesses operating in multinational modes and competing in a climate of fast-paced international competition, the ability to send and receive information outside the normal constraints of business hours is a significant incentive for many executives to adopt computer use.

Collopy, who recently studied computer use among executives at IBM, found considerable use of electronic mail for "time shifting," using the computer as a means of communicating with subordinates, colleagues and business partners in other time zones around the world. "They are much more prone to act at 6:00 in the evening their time," he says, "if they know they will be received when the other person gets to work in the morning."

Some companies also find that when executive use of computers takes the shape of a

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**COMPUTING IN THE EXECUTIVE SUITE**

**EXECUTIVE REPORT**

**Viewing data**

FROM PAGE 79

staff people to massage the data, organize it, interpret it and send it to where it was needed," he says. If the company was going to keep operating in an efficient and informed manner, there was no choice: Executives would have to learn to fend for themselves.

What started as a make-do proposition has turned into something of a crusade for Wallace, who now spends much of his time talking with individuals and management groups about spearheading development of what he calls an "integrated business system." What he discovered in working with the Phillips 66 system, which was based on IBM's Professional Office System, he says, is that an information-rich computing system is a must in the executive suite.

"Participative management is nothing unless you delegate authority," he says, "and you can't delegate authority if you don't have the information."

Another reason that hands-on use of computers is becoming more crucial for top executives, Wallace says, is the increasing burden of responsibility for protection of shareholder assets.

The time-honored executive defense that says, an executive is not responsible for things he does not know about is no longer acceptable, according to Wallace. "Executives can no longer hide behind the statement that they didn't know and were not informed," he says.

**Unum's Alexander**

In order to meet these rising expectations, Wallace explains, top management needs to be able to monitor performance at any or all levels on a much more regular basis.

Reliance on information is a major motivator for most executives who become involved in direct interaction with computers.

At Unum Life Insurance Co. in Portland, Maine, for example, John J. Alexander, vice-president and chief information officer, says top management is "using an executive information system as a vehicle for changing the way we view the business, from a quarterly perspective to a daily perspective.

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**DECEMBER 4, 1989**

**COMPANY WORLD**

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**COMPUTERWORLD**

**83**
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formal EIS, the very act of developing the system uncovers and helps to demolish some internal barriers.

Because executives are most interested in data aggregated from the entire portfolio of operating units, a considerable amount of work goes into clarifying terminology. Each operating unit tends to develop its own vocabulary. Fisher-Price's Drinkard points out. Thus, a term such as gross sales means something different to every organization within the company. Drinkard explains, "Just defining the vocabulary and the terminology to be used adds structure that had never been there before."

At Hewlett-Packard Co.'s Information Systems Group in Palo Alto, Calif., where an EIS product called Executive Insight was first developed for internal use, Robert J. Frankenberg says that one major benefit the company derived from its own use of the product was internal agreement. "We used to spend an incredible amount of time [on questions such as] 'Is that right? Has this been confirmed? That's your data; my data says the real or- derers have been this.'" Now, Franken- berg says, the data always come from the computer system; it has been audited and is available to everyone. "We don't spend time arguing about my data vs. your data. We go after the problems, rather than figuring out who is right."

Encouraging executives to accept comput- ers in their offices is not as difficult as the mythology surrounding executive com- puting would suggest. Universal's Alexander says, "In some cases, we have a demand situation where some of the more aggres- sive executives are pulling technology that's your data; my data says the real or- ders have been this." Also, Rahmquist expects that this, too, will turn out to be a short-term inter- est to executives. Once production of graphics becomes routine, he says, execu- tives will probably turn that job over to assistants as well.

Seeing really is believing

Sometimes seeing the results of delegat- ed inquiries is enough to convince execu- tives that they should do some exploring themselves. That's what happened at Mutual Benefit Life, according to Dixon. "The information [that] executives were receiving was getting to be of better and better quality," she says, and, as a result, "many of them became willing to do [in- formation searches] on their own."

Many executive systems use a mouse or touch screen to get around the com- mon reluctance to use a keyboard, but sooner or later, the executive who wants to communicate electronically or go be- yond seeing what other people think he wants to see will have to do some typing.

Conagra's Fletcher did not exactly rush to embrace the new technology. "It took about a year before I really realized the value of staying current by using the computer myself," he says. "I had been accustomed to having a secretary take the correspondence and respond to it, and if she would be so much faster than I would be at typing. That was the rationale I used to avoid it. Now, I find it very helpful."

"Once the computers are installed in a CEO's of- fice, they tend to prolifer- ate downward through management with little re- sistance," Conagra's Petty says. "Top execu- tives of the company are using it, if you want to communicate and be sure you all know the same thing, that's the vehicle to do it. It's much easier to go downhill than to go uphill."

At Fisher-Price, Drinkard says, "We adopted the strategy of creating demand for the product that we were going to de- liver. We started by providing the presi- dent of the company first access to the system. Because he had it, he was able to make demands on senior-level staff, and now the demand has cascaded down into the organization rather than up from the bottom. People couldn't wait to get their hands on the product." At Chevron, one of the more recent implementors of a computing system for executives, about half of its potential us- ers are on-line. Kiffin explains, "We have a slow growth policy, if anyone is interested in it, we will install it. It is not mandatory. We kind of let the system sell itself.

At Phillips 66, Wallace took a hands-off approach, too, but with teeth in it. "There was no directive," he says. "From the very inception of the program, I took the position that I would not dictate its use." However, when restructurings increased the number of vice-presidents reporting directly to him from two to nine, he put each one on the system.

"I didn't tell them they had to use the system," Wallace says. "I was going to give them all the information I had on my system. That meant they had, for the first time in their careers, all of the information they need to make deci- sions. If you were in marketing, you had not only marketing information but manufactur- ing, sales, distribution, people corpo- rate identity right on your computer."

Today, Wallace says, all but one of the company's senior managers uses a com- puter.

It is reasonable to wonder what, if anything, executive use of comput- ers has brought about. Answers vary from the ability to inspect operating re- sults untainted by the opinions and preju- dices of others, to realignment of person- nel, to sweeping alterations in company culture.

"There's no question that computers have changed things," Conagra's Fletch- er says. "I can't say anyone "don't really do it themselves. It's such a simple process that the secretaries always do it for them." The exception, he says, is that "sometimes, over weekends, they dial in to our computer to receive the information searches on their own." Whether executive systems use a mouse or touch screen to get around the common reluctance to use a keyboard, but sooner or later, the executive who wants to communicate electronically or go beyond seeing what other people think he wants to see will have to do some typing.

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INTERVIEW

Standing on the shoulders of technology

Computers can aid executive vision and boost careers, says George Hatsopoulos, who credits them with an assist in gaining the top post at the Boston Federal Reserve Bank.

George Hatsopoulos is one of the rare chief executives who takes a hands-on approach to his own software for business and economic modeling. Hatsopoulos, who is the chairman and president of Thermo Electron Corp. and also currently serves as chairman of the Federal Reserve Bank of Boston, helped pioneer the use of computers for decision support in the late 1970s.

Formerly a professor of thermodynamics at MIT in Cambridge, Mass., Hatsopoulos writes programs in APL that run on an IBM mainframe at Thermo Electron, a maker of high-tech instruments and industrial equipment with sales of $501 million last year. Computerworld Senior Writer David Ludlum spoke with him recently about what computers can do for top executives.

What prompted you to start using a computer for business analysis? In the late 1970s, it occurred to me that I could get a much better understanding of what was going on in the firm, and also receive very quick updates, by getting most of the financial data on-line. That capability was particularly important for me at that time because I was trying to create some five-year business plans and strategic plans for the company.

Having access to past results, as well as profit projections and investment requirements for all the divisions, made it possible for me to develop a planning model. Access to that information also let me run the company on a hands-on basis.

What value have you found in doing this kind of work yourself? As a result of having done this on a computer myself, I know what can be done, and I also know what kind of information I want. One of the problems I find that CEOs have is that they are not very familiar with computers or the way that the planning models are created, and as a result of that lack of understanding, they are not really getting as much out of their staff as they could.

Do you think that other chief executives should use a computer in this way? I believe that all chief executives should use a computer in this way, because you can get a much better understanding of what is going on in the firm, and also receive very quick updates, by getting most of the financial data on-line.

Is there anything specific about working directly with a computer that makes this hands-on approach particularly valuable? Yes, working with the computer itself gives you the ability to think up and respond to your questions in such a short term that it opens up your inquiries into the data. If you look at data and say, "Wouldn't it be nice to calculate, say, what return our acquisitions have had over the years," and then you give it to a subordinate and it comes back two days later — two days later you've forgotten your train of thought, why you asked that.

But if you can get the results immediately, then immediately you can go on to ask another question and another question, and it develops ideas. You start thinking, "How about looking at it this way? How about segregating by the people that ran the acquisitions or by the type of business? How about the acquisitions before the 1982 recession?" How about reading the book that you'd read in the library? The more answers you get, the more questions and ideas you generate. That is one of the most important aspects of working with the computer.

Is it important for top executives to play some role in designing the applications they use? Designing applications gives you a lot more insight into the capability you have for manipulating data and the limitations. You know which things are difficult and which are simple.

But that's true with a lot of things. You also get more value if you understand the work of your legal department or your accounting department or your search and development department. So it depends on how much of that you can do as a CEO. But you can do a lot because you don't have to do [everything] at the same time. Some years you may concentrate on this and that and some other year another function.

You said you once spent two hours a day at the computer. How much time do you spend on it now? For the last 12 months or so, I have probably averaged two hours a day doing something on the computer. It may be analysis of our business or financial form.
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Of Client/Server Computing.
Common and avoidable causes of EIS failure

BY HUGH WATSON and HARRY GLOVER

If at first you don't succeed with an executive information system, you are in good company. A close look at the foundations of currently successful EIS projects frequently reveals traces of earlier efforts. For example, an adapted version of a commercial EIS is now in regular use by 140 executives and managers at a major railroad company. However, an earlier system that was developed entirely in-house "withered and died on the vine."

In fact, of 50 firms with a successful EIS recently surveyed by the University of Georgia, 21 indicated that they had experienced a previous failure. Although this failure rate appears high, it may actually underestimate reality. Many respondents may have been unaware of prior attempts or reluctant to admit a setback; there may also be firms that, having tasted failure, never pursued the idea of an EIS any further.

Intrigued by the high fatality rate, we decided to investigate further by contacting 21 organizations that we knew had experienced an EIS failure to find out what had happened and why.

One fact that emerged quickly was that failure was a word that could have many shades of meaning. The examples cited included systems that were never completed, systems that were used for a while and then discarded, and systems that are still in place but used by people other than the original target audience.

Combinations of problems
A total of 23 reasons for failure were mentioned in the interviews. In nearly all the firms, several factors had combined to cause the demise of the system. Some of the problems most frequently mentioned include the following:

- Inadequate or inappropriate technology.
- Failure of the system to meet users' expectations.
- Executive resistance to technology.
- Lack of executive commitment.
- Executive resistance to technology.
-Some of the most common manifestations of inadequate or inappropriate technology are executives who find the system too difficult to use, systems that are not capable of delivering information in an appealing format, and systems that are too difficult to maintain.

These types of problems are most likely to surface with custom-built systems as opposed to commercial products.

At the railroad mentioned earlier, for example, the initial homegrown EIS provided only textual output for executives. Navigation through the system was performed using function keys, which was considered too difficult by users. It was also difficult to automatically feed data into the system, which made it hard to maintain.

Several of the firms interviewed reported that they had developed their unsuccessful EIS around a decision support system (DSS) product; they said that these systems were not well received.

While DSS software is good for analysis purposes, its command language syntax is not sufficiently user-friendly for the vast majority of executives.

It is conventional wisdom that an EIS requires an executive sponsor. One supporter, however, no matter how highly placed, is not enough to guarantee a system's acceptance, especially in the face of political resistance or economic hard times. Besides, there is turnover even at the top; if the sole sponsor leaves the organization, an EIS project is not likely to survive.

In at least one instance we know of, even CEO support

Watson is chairman of the MIS program at the University of Georgia in Athens. Glover is an associate professor at Georgia College in Milledgeville.
could not save an EIS when other executives turned their thumbs down. This was a common reaction. There were a number of fairly autonomous operating units; the CEO had directed the IS staff to build an EIS linking him to several of the important users of the information. The system, built according to the CEO's vision, was not useful because of communication problems.

Another possibility is that the executive users do not take the time and effort to communicate their specific information requirements to the EIS staff. The resulting EIS is based on a combination of input from support personnel and guesswork; this combination may not result in a system that meets the executives’ needs.

The EIS developed at one large Midwestern firm, for example, provided an excellent graphic presentation of which customers contributed the most to corporate revenue. The sales department knew that the customers they had missed the mark, however, when the CEO said, “I want to use the power of this system to ferret out details to them. Officials are still deciding where to put them.”

At another company, a large textile concern, an EIS was developed in response to a CEO’s request but without clear articulation from him of his exact objectives. EIS implementers did not know what information was needed, and no one else was able to tell them. When the CEO viewed the system for the first time, his comment was that the system gave him about 1% of what he was looking for.

Executive technophobia

Vendors and consultants like to imagine a CEO sitting at a terminal happening browsing through screens of relevant information and occasionally performing drill-downs to ferret out details when problems are detected. Although there are executives who are willing to embrace technology to that degree, they are still outside the norm. In fact, in many instances, computer technology is held in very low esteem by the executive ranks. This was clearly the case at one company interviewed, where executives spent thousands of dollars on office furniture to hide the personal computers that accessed the EIS. Having a computer on the desk was not considered congruent with executive status.

There is good news in these stories of EIS failure. Some of the companies described learned from their failure and later found an eventual path to success. By avoiding the problems discovered in our study, EIS developers can decrease their chances of experiencing a similar failure.

Executive support systems are not always just for executives. In fact, Clint Kreitner, president and chief executive officer of Reading Rehabilitation Hospital in Reading, Pa., prefers to call the hospital’s decision support system an “enterprise information system.” The reason: When fully implemented, the system now provides decision support data to Kreitner and other senior managers, will be available to workers throughout the hospital. “We want to use the power of information to direct the behavior of the staff toward desirable outcomes,” Kreitner says.

The hospital plans to place several personal computers — terminals developed with a mouse, at locations where staff members will have access to them. Officials are still deciding where to put the PCs.

Kreitner says he has three responsibilities as a chief executive: creating a strategic plan, designing an organizational structure, and implementing a resource allocation plan. “We have lots of information,” he adds. “The problem is delivering it to people in an accessible form.”

The decision support system classifies information by five functional areas — patient care, customer service, finance, human resources, and marketing. These categories are further subdivided, and at the end of each branch of the menu is a graph, table or report illustrating what Kreitner calls “outcome indicators” that show whether intended results are being realized.

The system, which was implemented at a cost of about $4,000, is basic computer technology and is held in very low esteem by the executive ranks. This was clearly the case at one company interviewed, where executives spent thousands of dollars on office furniture to hide the personal computers that accessed the EIS. Having a computer on the desk was not considered congruent with executive status.

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**Executive Report**

David Ludlum

**Executive Report**

Not for executives only

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**Education before implementation**

Computing in the Executive Suite

Executive Report

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Kreitner says he has three responsibilities as a chief executive: creating a strategic plan, designing an organizational structure, and implementing a resource allocation plan. “We have lots of information,” he adds. "The problem is delivering it to people in an accessible form.

The decision support system classifies information by five functional areas — patient care, customer service, finance, human resources, and marketing. These categories are further subdivided, and at the end of each branch of the menu is a graph, table or report illustrating what Kreitner calls “outcome indicators” that show whether intended results are being realized.

The system, which was implemented at a cost of about $4,000, is basic computer technology and is held in very low esteem by the executive ranks. This was clearly the case at one company interviewed, where executives spent thousands of dollars on office furniture to hide the personal computers that accessed the EIS. Having a computer on the desk was not considered congruent with executive status.

There is good news in these stories of EIS failure. Some of the companies described learned from their failure and later found an eventual path to success. By avoiding the problems discovered in our study, EIS developers can decrease their chances of experiencing a similar failure.
Why settle for a single player,
Our report for this year begins on an optimistic note. The Northeast region is a prime target for the sale of band equipment on the retail level. Musical equipment stores and private instructors are the largest revenue sources for orchestral instruments in this region. Schools and universities are already highly saturated on both the band and orchestral fronts.

The Southeast region has its main revenue potential in college bands and orchestras, with some demand trickling down to high schools. Recent increases in the popularity of college football in this part of the country and the resulting television coverage have placed additional emphasis on the quality sound and appearance of band equipment of schools with football teams. Orchestra instruments, however, are very weak in this particular region.

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System purchase price is just the down payment

BY DAVID LUDLUM

Executive information systems come in different sizes and different prices. You can spend as much as a million dollars for a sophisticated system or something in the neighborhood of a thousand dollars for a simple one based on a personal computer. Whichever route you choose, though, there is one thing that doesn’t change: The total expense will far surpass the initial investment in hardware and software. The biggest hidden costs in implementing an EIS stem from the need to restructure data and modify systems so that previously unrelated information can be brought together and presented on an executive’s desk. “Ninety percent of the effort is the data side,” says Alan Paller, a consultant in McLean, Va., who specializes in computer graphics and EIS.

Costs can also flow from customizing systems for executives. The time that executives spend helping to design and learning to use the systems must be considered. There are also ongoing operating costs. “If you’re going to go into this, think about it hard,” says John Rockart, director of the Center for Information Systems Research at MIT. “It’s not just buying a quarter of a million dollars’ worth of software or assigning people to build software for six months.”

Even if the scale of the effort is smaller, says David Nees, a consultant in Reading, Pa., the same rule applies. Supporting an executive who has purchased a PC can cost several thousand dollars.

Whatever the scope and cost of an EIS, the need to “get your ducks in a row” can be relatively expensive, says David De Long, a research associate at Harvard Business School. Those costs might start with the need to link an EIS to existing systems or to overcome incompatibility among computers that will feed data to the EIS. “You suddenly want lots of different kinds of information to flow to one spot,” Ness says.

TASTE of information access creates a growing appetite, necessitating additional development and integration.

Data structures also have to be reconciled. Lockheed Aeronautical Systems Co., for example, had to reconcile three incompatible definitions of an expected sale in channeling revenue information into its EIS. According to George Houde- shel, manager of the Management Information and Decision Support System (MIDS), Lockheed invested 10 man-years of programming and systems analysis as well as $350,000 for hardware when it developed MIDS 11 years ago.

The system, which the company is now considering replacing, is unusually comprehensive in providing executives with decision-making information on production as well as financial and market data.

With systems that are not quite as complex, integration issues are of less concern. In some cases, particularly when the support system is simple and geared mostly toward individual use, you can avoid integration expenditures by drawing reports from disjointed systems and rekeying data if necessary, Ness says.

Taste treat

What often happens, however, is that a taste of information access creates a growing appetite, necessitating additional development and integration. “There is a whole family of supporting information systems often created because top management starts to look at data,” Paller says. “If you figure that into the cost, you could put any number on it.”

As the number of applications and the number of people using a system grow, so do expenses. For a sophisticated EIS, Rockart estimates that ongoing costs of operation can be up to $2 million per year. These figures reflect computer time, software maintenance and the gathering of internal and external data.

Lockheed Aeronautical proves that point. The firm devoted 15 man-years to creating screens and updating its system during the first five years of use, Houde- shel says, restructuring data is “an ongoing process.”

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COMPUTERWORLD DECEMBER 4, 1989
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A literary treatise in which our authors argue that technical 'experts' should seek to enlighten, not confuse

BY JOHN ESPY
and JIM HOWE

Editor's note: Sadly, the practice of using jargon and specialized technical knowledge to obscure rather than illuminate darkens many disciplines. While our authors, who work for a computer course development firm, chastise so-called subject matter experts (SME) — hired brains who provide expert know-how in a specific field — they assure us that their indictments (and prescriptions) apply equally well to other speakers of such techno-babble. Purveyors of legalese, governmentese, business-speak and the dozens of other pseudo-English variations that daily pollute our professional lives — take note.

Want to know an easy way to chase away late-staying party guests this year? Just walk into the middle of the room and, with your most innocent expression, ask loudly: "Hey, why doesn't everyone stick around a little bit longer? The Cobol 85 experts will be here any minute now, and they're just dying to talk with you!"

Chances are you won't see too many blissful smiles. In fact, you probably won't see any smiles, because the room will soon be empty. Few things can scatter folks like the promise of long-winded, jargon-packed spewings from a technical expert.

Of course, partygoers who are brave (or angry) enough to stick around even after being warned may offer some zesty comments.

"He didn't deliver anything close to what we wanted!"

"She tried to completely take over the project!"

"He acts like he's the only one who knows anything!"

"I'll kill her!"

Sound familiar? If so, chances are that you've dealt with a technical expert.

At some point, most IS professionals must communicate or receive detailed technical knowledge. Often a necessary evil, such subject matter experts can drive others crazy with endless, pedantic recitations of technical jargon.

Must well-meaning professionals suffer the confusion and intimidation of so-called experts without a whimper? Conversely, can these experts continue to be exempt from the rules that normally govern decent, clear communications? We say, "Nay."

All of us must consider ourselves warriors in the never-ending battle between the forces of clear thinking and clear expression and the gurus who use knowledge to hamper — rather than facilitate — understanding. The following is a literary examination of the problem and some solutions.

Role of the expert

Once upon a midnight rotten, working on a course forgotten, wondering why my adjectives came after nouns and not before.

While I pondered, weak and weary, wishing I were Gloria Gery — suddenly there came an eerie knocking at my office door.

"'Tis some idiot," I muttered, "looking for the package store. Only this and nothing more."

Then, unseemly and unshaven, whistling "'Ain't Misbehavin'," in there stepped a DP maven, whom I knew to be a bore.

Not the slightest greeting gasped he; not my outstretched fingers grasped he; not the least rasperry rasped he as he perched above my door — Perched upon a bust of Elvis just above my door. Perched and sat, nothing more.

"You're my SME!" I realized —

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not the image I'd idealized, as he sat with little steel eyes drilling through my cranial pan.

"Help me! Questions grow like cancers on this course for neophytes: I am stuck, and I need answers — give me answers, if you can! Cause my course to come across concisely, cursed little man."

Quoth the Maven, "PC LAN."

There he sat, his big head leaning, face demented and demeaning, though his answer little meaning — scant illumination threw. Yet the Maven, sitting queerly on the algal butt, spoke merely.

That one word, as if it carefully uttered everyth- ing he knew. And when I said, "What?"—esidence, had no clue.

Quoth the Maven, "DBZ." "Fool!" I cried, "I don't need buzzwords! Do I need ambiguous words? Do not cause me to use buzzwords till they carry you, and your meaning is dimming; with frustration I am brimming; Do not sit there acronyming till the acrid cause me to use cusswords till they carry ing — give me answers, help me, earn a CRT that's shorting, and the light be lifted — DOA!"

"The Maven," by Edgar Conron Pone.

Just having an expert's information is not enough. Most authors have at least one war story to tell about the time they were pitted against an esoterican, indiscernible, undependable and generally unintelligible SMEs. This brings us to the first of four princi- ples regarding SMEs:

Principle No. 1: The expert should be involved in all aspects of the training process. In practice, the most common arrangement is still the one that makes a sweeping concession: "As long as okay." The main problem with this ap- proach: repeated questions to elicit addi- tional contact with the subject matter in its natural habitat? Does he have access to all important information sources? Do you receive real answers to your questions?

Principle No. 3: The expert must be available before and after development, quality control, internal presenta- tion and finds it stimulating. Communication or not, can be far more useful to you than the brain of a genius. The presence of the potential expert's professional credentials and experience. A less experienced person who is excited about the subject but still has things to learn will always be better than a graz- zled know-it-all.

Principle No. 5: Your success depends on your ability to think like your audience. Much of the work of communica- tion is creating empathy, identifying, em- pathy and yet they must supply the structure.

This, then, brings us to the final prin- ciple:

Principle 4: Your success depends on your ability to think like your audience. Much of the work of communica- tion is creating empathy, identifying, em- pathy and yet they must supply the structure.

Your relationship with an expert con- tains a built-in paradox: You have to draw out the information that you need, and yet they must supply the structure.

That you wish to do with TSO? STERNO: Besides wrapping it around your neck? Why, to log on to it. I know it's a pain, but is there no way you can...? Socrates: Well very, then, we have the command verb. Now, does the verb usually end in an "in" or in some other position? STERNO: The beginning. Socrates: Then let us place it there. In the second place, let us inquire: Is it one or many that will be logging on? STERNO: Just one, Socrates.

Socrates: Then presumably we must identify this one.

Socrates: "Oh, so "logon used"... Socrates: There you have it, Sire. Notice that you applied the command yourself, out of your own head.

Socrates: You knew it, even though we said a moment ago that you did not know it.

Socrates: True.

Socrates: We conclude, then, that your soul was able to recollect this knowl- edge from the previous existence; indeed, that understanding of TSO is a gift to the soul in its new body."

"Ben," from The Dialogues of Plato.

The ideal expert would be someone like Socrates, meeting students at their own levels of knowledge and experience. Chal- lenging them to meet particular objec- tives. Guiding them through a highly in- teractive, highly personalized exchange. Digressing, necessary to examine in detail their preconceptions and miscon- ceptions. And, like Socrates, dying before royalties are collected (just kidding).

Unfortunately, most experts are more soporific than Socratic. Frequently, they lack the imagination to put themselves in the shoes of their students — to keep in mind what a novice does and does not know.

Your relationship with an expert con- tains a built-in paradox: You have to draw out the information that you need, and yet they must supply the structure.

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IN DEPTH: STRATEGIC TRAINING

Training wheels in motion

'Strategic training' can move your organization toward its goals

BY MARK DUNCAN

Training is rarely mentioned as a way to improve systems development productivity or as a way to boost an organization's competitive advantage. Fity. Training is a viable way of accomplishing both these objectives — and may be the cheapest alternative.

As defined here, IS training does not refer to routine instruction about how to use a product or other everyday technical skills. Strategic training means an intense, honest scrutiny of the IS department's collective repertoire of skills. This inventory produces an objective assessment of how close to 100% effectiveness the staff really is.

Once you have derived an effectiveness matrix, a plan to annihilate any deficiencies can be prepared. The goal is to bring as many staff members as possible to 100% competency in several key areas, including software tool usage, methodology comprehension and business acumen. The overall objective is for the various parts of the IS department to work in concert and with precision.

Strategic IS training begins by examining an organization's short-term and long-range plans. Matching these projects and the environment with available skills will reveal any gaps that must be remedied by specific, appropriate and timely training. As long-range plans change, so must the training curriculum.

If training vendors are used, they must be apprised of the company's goals and customize courses accordingly. (Most vendors will do this quite willingly.)

A secondary goal from the firm's perspective is to "train a trainer." This involves identifying individuals who, once trained, can apply their knowledge and teach it effectively to others, minimizing subsequent training costs.

Sealing the light

Focusing on a "training solution" rather than a "technology solution" may have another benefit: It can bring to light the inadequacies or deficiencies of a training function. Organizations can embark on a technological change — wisely acknowledge that training is an essential element of that change — only to find themselves ill-equipped to establish and administer the required training. Dollar losses can be great from software tools that nobody is trained to use or from training that is off-target and untimely.

A technology solution — or even a massive technological revolution — may actually be critical to an organization's continued viability. But even in such cases, training is an essential accompaniment to change.

For better for an organization is to have an established training function. A critical success factor for technological change is "organizational readiness." A training function that can kick into gear on demand is key to that readiness.

An example: Company A unwittingly found itself in a race with longtime rival Company B for a huge new market. Richer and larger Company B began deploying its wealth in technology solutions. Company A could not compete on that basis and began to look for alternatives.

Brainstorming revealed that a quickly built "throwaway" system was required. Company A had an unused fourth-generation language (4GL), and a staff skills search uncovered one expert and one near-expert user. Consultation verified that the 4GL was ideal but that more programmers would be needed. The expert and almost-expert were commissioned to select and intensively train a team of programmers in the 4GL using classroom and on-the-job training. Though the resulting system was not of the quality of a system developed by more experienced programmers, it still gave Company A a commanding lead over Company B.

In this case, training extended the skills of several staff members by teaching them fluency in a new language and cut the costs for external training consultants. The example shows that a company

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should not overlook its existing resources when searching for automation solutions. This five-year, $5 million research study focused on managing information technology. A summary of the report shows that implementing changes depends in part on knowing how to perform effectively in the new environment.

In the future

One final example illustrates the significance of training. McDonnell-Douglas Computer Systems Co.'s software and consulting organization recently published a booklet called "Nine Proven Methods to Increase System Developer Productivity." A key recommendation is "invest in training."

It is evident from these examples and many others that training must be a key element of any organization's strategy for success. Vendors seek to bedazzle IS with technology. For its part, IS yearns for the new, improved, the faster, the better. Both behaviors are acceptable and necessary and push forward the boundaries of technology. But success hinges on the intelligent use of technology.

Ultimately, technology and human skills are inseparable. Paul S. Colahan, president of Walker Associates, Inc., a Boston-based consultancy specializing in the health care industry, says, "Doing the job properly while continuing to expand the client list forces us to rely on two things: people and technology." Colahan advocates using this formula: "First, hire quality people and train them to be expert in what they do. Show them why their job is relevant, and we help them understand why they should take pride in them. With automation, we gain a tremendous competitive advantage. But our dialogue must remain true to successfully marrying people and technology."

It makes good sense to explore new technology, but that good sense must extend to include the training necessary to master that technology. If it does not, many a new software tool and method will suffer early failure. Organizations that ignore training as a key part of their strategy will discover that vogue technological solutions often turn out to be simply rogue technological solutions.
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Back up to the top of the page

Postponed patent pulls pay dirt

BY ELLIS BOOKER
CW STAFF

DALLAS — It took 29 years, but the Japanese government's patent office finally acknowledged Texas Instruments, Inc.'s rights to the integrated circuit. The patent covers virtually all production and use of ICs in Japan — the world's leading producer and consumer of ICs and semiconductors — and could mean billions of dollars in royalty payments to TI over the next 12 years, according to analysts. TI officials, however, would not speculate on the worth of the patent award except to say it would be a significant, ongoing source of royalty income. Several weeks ago, TI officials confirmed that the Japanese Patent Office had issued the award on Oct. 30. TI originally applied for the patent in February 1960, two years after TI engineer Jack Kilby first demonstrated an IC. TI's U.S. patent for ICs was granted in 1964 and expired in 1981. Intel Corp. co-founder Robert N. Noyce, now chairman of the Sematech consortium, is credited with having invented the method of interconnecting devices on an IC. Effective immediately, the long-awaited Japanese patent runs through Nov. 27, 2001. Analysts said the Japanese Patent Office takes, on average, five to seven years to process a claim and that the length of delay in the TI award was highly unusual. Royalty licenses are based on a percentage of sales — usually less than 1%, according to Paine Webber, Inc. Vice-President John Lazlo. Assuming a 0.5% to 1.5% royalty rate, Lazlo calculated that TI could see between $2.5 billion and $7.5 billion over the patent's 12-year term. Paine Webber estimated that Japanese makers will account for $15 billion of the $40 billion worldwide IC market this year. However, the Japanese royalties, which are not retroactive, may be cold comfort to TI, which recently announced it would take a $55 million pretax charge against earnings and lay off 1,500 people because of sliding dynamic random-access memory chip prices [CW, Nov. 27].

Continued on page 116

Mining gold from computers

BY J. A. SAVAGE
CW STAFF

SAN JOSE, Calif. — If the desire to smash your computer has ever gotten the better of you, consider Tim Descamps — he gets to smash them every day.

Old boxes, bad batches of silicon chips and obsolescent circuit boards are all fodder for Descamps' operation — turning the finished product back into its essential elements of gold, silver, copper and plastic.

Descamps, president of Micro Metallics Corp., has revealed a safe piled with gold and silver bars, the most profitable part of the business. "It's an above-ground mine," he said.

Located in the Silicon Valley, Micro Metallics — or Micromet, as it is more commonly known — feeds off computer companies with a waste problem. It not only takes the computers themselves a solid waste problem — but also recycles the hazardous sludge that is a byproduct of manufacturing. Like the boxes, the sludge contains both precious metals and toxicics.

Computer companies leverage their waste, Descamps said. They expect a return on their garbage. "The companies normally retain ownership of the materials," he said.

Micromet determines the materials' value after initial processing and fixes the price of the metals on the spot market. Then Micromet will buy the computer from customers.

Computer firms get cash from their trash — between $10 and $15 per pound, Descamps estimated.

Continued on page 114

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DECEMBER 4, 1989

113
Planned defense cuts stun industry

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — U.S. Defense Secretary Richard B. Cheney's early November call for $180 billion in defense budget cuts over six years sent shock waves that continue to ripple through the defense electronics and computer industries.

While precise budget cuts have not been set, spending on new U.S. Department of Defense (DOD) information systems and high-tech projects at the Defense Advanced Research Projects Agency (DARPA) could be hard hit, analysts said.

DARPA's funding for Sematech, a chip manufacturing consortium, and grants for high-definition television (HDTV) projects are already vulnerable to budget cutting because of opposition from the White House Office of Management and Budget, according to Alton Marsh, founder of "Advanced Military Computing," a newsletter based in Arlington, Va.

The defense cuts may be a mixed bag for new and upgraded information systems will "come under the microscope," according to Warren H. Suss, a federal market consultant in Jenkintown, Pa. The defense cuts may be a mixed bag for new and upgraded information systems will "come under the microscope," according to Warren H. Suss, a federal market consultant in Jenkintown, Pa.

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Meanwhile, troubled defense contractors such as Lockheed Corp. and General Dynamics Corp. are expected to accelerate their forays into systems integration in the civilian side of government. "Those companies see the systems integration arena as a way to offset some of the cutsbacks on the weapons side, but it's not clear their hopes are going to be realized," said Warren H. Suss, a federal market consultant in Jenkintown, Pa.

The defense cuts may be a mixed bag for IS managers in the DOD. Proposals for new and upgraded information systems will "come under the microscope," according to Warren H. Suss, a federal market consultant in Jenkintown, Pa.

However, the Sematech and HDTV projects could be saved by Congress, where they are very popular. Sen. Albert Gore Jr. (D-Tenn.) said that cutting those programs would encourage the "complete and irrevocable demise of the American consumer electronics industry."

Cheney asked the military services to come up with $180 billion in cuts in advanced weapon systems and other areas because of the U.S. budget deficit and the diminished threat of war in Europe. Defense stocks plummeted 5% to 10% after Cheney's announcement, and analysts predicted a new round of mergers, acquisitions and layoffs in the defense industry.

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Despite the use of vats of boiling cyanide in one process that allows the gold to sink to the bottom, Descamps claims he has the edge in environmental quality with a new scrubber on the firm's incinerator. "The air that comes out is cleaner than the air that goes in," Descamps said.

However, the downturn in the electronics industry spells hard times for Micromet. To cut costs, companies are using less gold in their components, and manufacturers have become more efficient about it, according to Descamps.

"Computer companies are facing more costly investments in environmental and safety issues. We're betting that as the process becomes more expensive, we'll be the only [salvager] left," Descamps said.

If Micromet's Tim Descamps despair's over the possibility that hard times are tempting computer manufacturers to turn to baser basic components, he might get a rush out of knowing that, at least at V.I.P.C., there's still gold in them there PCs.

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NELL MARGOLIS
As Global Competition Intensifies, Information Systems Must Change From A Service Function To A Competitive Weapon.

High times ahead for Unix in Taiwan

BY LORI VALIGRA
DIGITAL SERVICE

TAIPEI, Taiwan — Unix is about to enter a boom period in Taiwan, sparked by the impending release of specifications for a Chinese Unix operating environment that includes an operating system, workstation and networking standard that could eventually create an export market as large as the current outflow of IBM clones from the island.

Taiwan’s Institute for Information Industry (III), which is partially government sponsored, plans to release the specifications for the standard next month, although they were originally due Oct. 1. The association’s so-called Software Engineering Environment Development (SEED) project is a four-year cooperative effort by III, local industry and university research groups to create a common software development environment to help establish the infrastructure for Taiwan’s software industry.

The effort can be likened to Japan’s Sigma project, which is aimed at relieving that country’s critical shortage of software programmers. Both projects are based on the Unix operating system. The SEED project, which began in July 1988, is also working on a Chinese OS/2 standard.

According to Vera Cheng, deputy director of III’s systems engineering division and head of the project, III is still negotiating with the government over pricing for the source code and hardware specifications.

To date, 20 engineers from 20 local vendors are participating in the project, which has also drawn outside technical expertise from the Open Software Foundation, Unix International and X/Open Unix standards groups. The key focus for making a Chinese Unix operating system is support for up to 4-byte characters. The standard will also support an X Window System interface, Open Look and OSF Motif. It is based on Unix System V, Release 3.2 and uses AT&T’s multinational language-support definitions.

In addition, the group is devising a Unix workstation standard, initially based on the Intel Corp. 80386 and 80486 processors. It will eventually include Sun Microsystems, Inc.’s Scalable Processor Architecture reduced-instruction set computing technology.

According to Cheng, the project will enable local vendors, whose margins have eroded to almost zero in the PC-compatible market in Taiwan, to add software value to their systems for both export and domestic sales. Cheng said she believes that Unix system exports could equal those of PC clones in approximately two years.

In the home market, national products such as a residential information system, a type of computerized census system, will also stimulate demand for Unix systems. The government has two other programs — one to automate hospitals and another for telephone directory assistance — that are likely to use Unix systems as well.

Nurturing a SEED

The SEED plan calls for building the SEED workstation, software and network prototypes by the end of this year, testing and promoting them next year, and enhancing them and marketing them in 1991. The total budget for SEED, including the OS/2 portion, is $78.84 million during the four years.

All major Unix vendors in Taiwan, including U.S.-based suppliers, are waiting for the SEED standard to be released because that gives them the chance to bid on large government contracts. To date, only English-language Unix operating systems have been available, although Chinese programs can run on them using international character sets in the English system program. The availability of SEED specifications is expected to get the Unix market off to a running start, market participants here said.

Patent

CONTINUED FROM PAGE 113

While downplaying the potential financial windfall, TI welcomed the patent award as a victory for intellectual property rights.

“We believe the long-term trend supporting enforcement of intellectual property rights is now in place,” spokesman Stan Victor said.

Many licenses

TI currently has licensing agreements with many Japanese technology concerns, including U.S.-based suppliers, are waiting for the SEED standard to be released because that gives them the chance to bid on large government contracts. To date, only English-language Unix operating systems have been available, although Chinese programs can run on them using international character sets in the English system program. The availability of SEED specifications is expected to get the Unix market off to a running start, market participants here said.

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IN BRIEF

Vanderslice resumes
Thomas A. Vanderslice, former chief executive officer of the former Apollo Computer, Inc. — since last spring, a division of Hewlett-Packard Co. — last week turned up at the helm of struggling Bedford, Mass.-based defense contractor M/A-Com, Inc. whose last CEO, Thomas Burke, was killed in an auto accident earlier this fall. According to a prepared statement, M/A-Com is counting on Vanderslice’s "demonstrated...ability to identify new market opportunities and grow existing businesses." Analysts, on the other hand, recalled Vanderslice as the CEO who let Apollo’s market lead slip through his fingers.

Heightened recognition
Within hours of its late November acquittal on all charges of conspiracy to obtain U.S. Postal Service contracts for scanning equipment, Recognition Equipment, Inc. announced the formation of an independent business unit to provide mail processing systems to commercial and postal services.

The Softselling of Microamerica
Microcomputer products distributor Microamerica, Inc. and a subsidiary of competitor Softsel Computer Products, Inc. last week proposed to merge. Softsel President and CEO Michael Pickett is also chairman of Microamerica. Gordon Hoffman, also a member of the Microamerica board, will become CEO of the combined company, with Microamerica Chairman and CEO Gordon Hoffman as chief operating officer.

And now, Andersun Consulting
With several joint projects already in the works and a projected $10 million worth of workstation sales on the horizon, Andersun Consulting last week signed on to market Sun Microsystems, Inc.'s entire line of computers and software. The Chicago-based consulting firm's newly created unit, dubbed New Age Systems Group, will handle Sun-centered commercial integration projects.

Twice as safe
Consilince Disaster Recovery Services, Inc. and UK-based disaster recovery company Istel Failsafe Ltd. have joined forces to launch Failsafe ROC Ltd. to provide disaster recovery services to more than 550 UK customers. Istel will hold a controlling interest in the joint venture, while both partners said they believe will be a stepping stone to pan-European disaster-recovery services.

A call for U.S.-Soviet tech openness

Soviet computer expert proposes give-and-take between East and West computer industries

MOSCOW — Eugene N. Voeikov is vice-president of the Academy of Sciences of the USSR, a physician and a permanent member of the Soviet summit delegation. He is responsible for computerization policy in the Soviet Union and is recognized internationally as the best-known authority on the Soviet computer industry. He was interviewed recently in Moscow by PC World USSR.

What is your view of the present situation in Soviet information technology? Western experts consider that we have been lagging in this field for five to 10 years because of the previous monopoly situation and orientation toward defense priorities. We are lagging behind in electronics for several reasons. In the West, computers have been developed not only at big firms like IBM but from the bottom as well. Small companies that were ready to take risks contributed their ideas and provided for technological breakthroughs. For example, personal computers were developed despite the then-prevailing view of some leading firms and experts.

The Informatic and Computer Science branch of the Soviet Academy of Sciences was established anew in 1983, as previously all computer and information technology research institutions had been transferred from the Academy of Sciences to economics. This was a big mistake.

The scientific and technological perspective and infrastructure were neglected. We established institutions that produce computers, but we lack the equipment manufacturing base.

Before we shifted focus to IBM clones, we had a rather efficient computer, the BESM-6. This was not bad, but it requires a certain microelectronics base which was yet to be developed.

Secondly, we should buy licenses rather than engage in R&D. To do otherwise means throwing away three to five years. The greedy pay twice.

How would you describe the situation in producing and buying PCs?
Our own computer production is an iceberg. On the top is the assembly. On the bottom are hardware, components and material. We begin to erect the iceberg from the top. We are producing obsolete personal computers because of very weak basic electronic components and outdated peripherals.

However, we are capable of producing individual high-tech units. Today, the Academy of Sciences produces PCs that were highly regarded at the Hannover Fair. The volume will be some several thousands. Our base for success is several dozen centers that have been set up in the Soviet Academy of Sciences.

We started from scratch, from the basics. Nowadays, we are producing VLSI [very-large-scale integration], both hardware- and application-specific.

Many Western scientists and experts are very interested in our software. How can you explain this?
If we use our own components that are two generations behind and develop our own computer, which is already three generations behind, then software for the computer would be three or four generations behind, save for immense effort.

However, we do have reliable computer systems that produce and produce about 100 per month. We could have a chance of moving to the world market in the area of the program software with application software.

And what about the most powerful computers? We are lagging seriously behind the West in this area. But this year we'll make computers that will be close to one billion operations per second in capacity. I refer to the Elbrus, which will use assembly line processes.

What, in your opinion, should the West send to us, and how has the embargo affected this field? The impact of the Western embargo is twofold. On the one hand, it has accelerated our development and, on the other hand, it has impeded it. The West has to be interested in cooperation with us. We would like to jointly develop hardware-based submicron technology and have a free exchange of chips. We can provide program software, algorithms and mathematical models. What we need is greater openness of the West and lifting of restrictions.

What’s your opinion of artificial intelligence? We have certain practical results in application expert systems [in areas such as] science and medicine. Further development has been hampered by the same old factor of obsolescence. The second aspect concerns philosophy — that is, research into the process of thought computerization.

Are there any prospects in the field of patent rights? Soon we will have a new law on inventions. In my view, its last version is quite acceptable, as the inventor has all rights, just as they do in the U.S., Japan and other countries. We need to have a law regarding program software, as at present it is protected not by a patent but by copyrights.

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Computerworld 117
IBM readies two-pronged plan to ensure DRAM supply

ANALYSIS

BY JEAN S. BOZMAN
CW STAFF

SAN FRANCISCO — Is IBM hedging its bets as it tries to re-establish dynamic random-access memory (DRAM) chip technology in the U.S.? A growing number of vendors and industry analysts think so.

IBM appears to have adopted a two-pronged strategy to ensure that it will have a steady supply of DRAM chips. It plans to license its 4M-bit DRAM chip technology to other firms, plus it is looking into ways to get a better business deal out of its other licensees.

"One agreement does not exclude the other," an IBM spokesman said recently. "The goal is to ensure that there are sources of supply for components in the U.S. — in this case, the 4M-bit DRAM. Last month, IBM announced a first-of-its-kind agreement to license its 4M-bit DRAM chip technology to Micron Technology, a $300 million Boise, Idaho, chip maker. But the Micron deal has not prevented IBM from talking to $200 million Cypress Semiconductor Corp. in San Jose, Calif., about doing the same thing."

"We are seeing a flurry of licensing activity stop," said IBM and said it will not go much further — for now. Michael Attardo, president of IBM's General Technology Division, recently noted that the Micron deal was the "first-ever" licensing agreement on IBM chip technology. So far, he said, IBM is only committed to supplying its own chip business with DRAMs. He has set an aggressive timetable for Micron and U.S. Memories. Cypress is considering the terms and conditions of a similar arrangement proposed by IBM last month. "Other than these, Attardo said, "there are no other efforts to license out 4M-bit DRAMs."

Attardo said that IBM's talks with its potential licensees have extended to future DRAM generations. "We're currently piloting the 16M-bit DRAM, and we have 64M-bit DRAM under development," Attardo said. "Those are the next two generations. We'd like to see a strong domestic supplier of DRAMs, along with a strong semiconductor infrastructure, and this [licensing effort] is one of the ways we see of generating it."

IBM's dual approach — to get chip projects going in both the private sector and through an industry consortium — is the company's way of ensuring a steady supply of chips for its own high-end mainframe computers. Domestic semiconductor manufacturers are the only source of commercial DRAMs other than IBM, the computer giant is worried. Just two days after the Micron agreement was announced on Nov. 10, Cypress Chief Executive Officer T. J. Rodgers met with Attardo. Rodgers, who requested the meeting, said he wanted to convince IBM that small, entrepreneurial firms like Cypress could help optimize IBM's technology — that is, help American DRAM manufacturers compete with Japanese manufacturers.

"It's a way to get a good business deal, says Attardo. "We have 64M-bit DRAM under development. I don't think it makes sense, does it?"

Cohen is executive director and a founder of the American Society of Computer Dealers and a founder of the Computer Dealers Association.
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For further information about turning your present computer into a better one, call us, toll free, at 1-800-222-EMC2, Ext. C9570. In Massachusetts call 508-435-1000. In Canada call 1-800-543-4782.

EMC² The System Enhancement Company.
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YES, I want to receive my own copy of COMPUTERWORLD each week. I accept your offer of $44.00* per year—a savings of 57% off the single copy price. In addition, I'll receive special bonus sections of COMPUTERWORLD Integration.

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City _______ State _______ Zip _______

Address Shown: O Home O Business
Basic Rate: $48 per year

* U.S. Only. Canada $110, Central/South America $130, Europe $195, all other countries $295. Foreign orders must be prepaid in U.S. dollars.

Please complete the information to the right to qualify for this special rate.

COMPUTERWORLD
What's a job offer worth?

It pays to tally up bonuses — and costs — from benefits and perquisites actually ends up in your pocket. Much as $6,000 per year in what nominal salary may differ by as is that a company's benefits plan years, you may be unprepared for the serious erosion in the quality of benefits that has taken place at many large employers. In response to rising insurance that the employee make a hefty been increasing by as much as 50% per year. In 1990, for example, employees at one large employer does not provide do not question how they spend their time during the week as on deadline. Others report that for their employers give them the freedom to take occasional comp or "sanity days" — days off not included in the standard vacation count. Because such policies can greatly cut down the number of hours that highly productive programmers need to work to earn their salaries, they significantly raise the programmers' hourly income.

If you have not changed jobs in the past three years, you may be unprepared for the serious erosion in the quality of benefits that has taken place at many large employers.

Some popular perks are the result of a relaxed work environment. For example, a number of programmers work for companies that let them come to work dressed in T-shirts and sandals instead of traditional business garb. With business outfits costing $200 or more, to say nothing of dry-cleaning costs, the free-
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Entergy Services, Inc., the technical service subsidiary of the Middle South Electric System, currently has a vacancy for a Supervisor, Data Center Operations.

This position will be responsible for managing the computer operations function in a large scale multi-CPU environment on a rotating shift basis. The position also manages and ensures work plans related to Help Desk, network control, print, type, and multiple online/batch computer systems/applications.

Preferred requirements are a bachelor's degree in data processing (or the equivalent) plus at least 8 years of work experience in data processing. Supervisory experience is desirable. Work experience must include training in supervisory techniques, work planning in a large-scale computer system environment, utilizing state-of-the-art hardware and software technologies. A working knowledge of the various software used as productivity aids is recommended.

Entergy Services, Inc. offers an exceptional relocation package including a relocation allowance (one month's salary), paid moving expenses, paid job hunting trip, mortgage interest, differential, interim living, full medical benefits, and paid relocation expenses. The company provides a competitive salary and opportunity for advancement.

Interested candidates should send their resumes to:

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Entergy Services, Inc., P.O. Box 59002
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FAX (704) 777-1295

SECURITY ADMINISTRATOR

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The Idaho Department of Health and Welfare has recently established a Cyber Security Analyst position to lead state government computer systems security and disaster recovery planning and implementation. Current Environment:

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- NET/WORK
- SOLARIS
- UNIX

Experience required includes mainframe security systems and requirements, disaster recovery planning and system documentation and testing, and security system administration.

Salary is $60,000-

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Jim Kool
Idaho Department of Health & Welfare
Boise, ID 83720-0869
(208) 334-6894
Jim.Kool@idaho.gov
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Business Title
Company
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City, State ZIP
Phone Number
Fax Number
Email Address

A Terrific Opportunity

Computer Consulting Group offers a highly competitive salary and benefits package including access to a wide range of industry leading software. We are looking for professionals who are passionate about software development and have a proven track record of delivering successful projects. If you are a driven professional with the ability to work in a team environment and deliver high quality results, please apply.

Required Skills:
- Solid experience with [list of specific technologies or programming languages]
- Proven track record of delivering successful projects
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Responsibilities:
- Collaborate with cross-functional teams to design, develop, and implement solutions
- Ensure project scope is met within schedule and budget constraints
- Participate in the project planning and execution phases

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- Proven track record of delivering successful projects
- Excellent communication and problem-solving skills

Responsibilities:
- Collaborate with cross-functional teams to design, develop, and implement solutions
- Ensure project scope is met within schedule and budget constraints
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Requirements:
- Solid experience with [list of specific technologies or programming languages]
- Proven track record of delivering successful projects
- Excellent communication and problem-solving skills

Responsibilities:
- Collaborate with cross-functional teams to design, develop, and implement solutions
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If you’re interested in joining our dynamic team, please submit your resume along with a cover letter outlining your experience and qualifications. We look forward to hearing from you.

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1. USA’s total assets top $40 billion
2. The USA organization includes 35 subsidiaries, 19 affiliates, and 25-plus satellite offices
3. USA employees now number 11,000
4. USA is the nation’s largest mail order business in terms of sales and volume
5. USA is one of San Antonio’s largest private employers
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FAC T IS, USA is a very impressive organization, and we’re very proud of our achievements. Our goal is for the future to be no less impressive. We plan for more of the same — success that results from a dedication to quality in products and services through employees who share our commitment to excellence. We are currently seeking candidates who have strengths in the following areas:

DATA BASE MANAGEMENT
- Requires 5 years experience in IMS application programming
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- Experience with DB2/TELON or CSP

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- Requires 2 years IMS systems programming experience
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- IMS dump debugging skills and use of IBM Support Center
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- Requires 2 years experience installing purchased packages with:
  - Software installation using SMPE
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- Experience supporting programmers, operators, and end users

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- Requires minimum of 4 years experience in IBM’s Systems Network Architecture
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SYSTEMS PROGRAMMING CONSULTANT DEC/VAX

As a result of our increased business activity and corporate growth, more opportunities are developing in Tulsa, Oklahoma, for imaginative motivated M.L.S. Professionals. A review of our long-range staffing needs indicate need for a Systems Programming Consultant. Candidates will be considered based on the following:

- 8-10 years DEC/VAX experience in systems management and programming.
- Experience with exploitation systems in an oil and gas environment desirable.
- Supervision of Systems Programmers desired.
- Experience in installing, interfacing and maintaining software packages.
- Knowledge of VAX based relational data base, UNIX/UXTRIX and Engineering Work stations is a plus.
- Bachelor degree in an appropriate discipline required.

Amerada Hess offers an excellent compensation and benefits program. If interested, please send resume to:

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- CICS and/or IMS - new development opportunities for financial applications.
- IBM Systems 38, MAPECS, RIG-RI programming to work on new development applications.

Other opportunities exist nationally and internationally for individuals with experience in the following:
- SYBASE
- IDS
- HP 3000
- INGRES
- IMS
- DB-2
- CICS
- C
- DBC/VAX
- ORACLE
- FOCUS

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You don't pay for readers you don't want. Gone are the days when you have to worry about paying for waste circulation. The Computer Careers Network puts you in touch with qualified computer professionals - and only those qualified computer professionals you need to reach.

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**WASHINGTON, D.C.:** Professional Software Hill Drive, Fairfax, VA 22031; Patricia Powers, Regional Manager; 312-927-4433; Ellen Casey, Account Executive; 800-343-6474.

**CHICAGO:** 10400 West Higgins Road, Suite 300, Rosemont, IL 60018; Patrick Powers, Regional Manager, 312-927-4433; Ellen Casey, Account Executive; 800-343-6474.

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**NCR**

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You can reach our FAX at ext. 739 or 740 at
either of the above numbers.

The following information will help you determine the size ad you'd like to run and when
you'd like to run it.

CLOSING DATES: To reserve space, you need to
call us by 5PM (all continental U.S. time zones),
6 days prior to the Monday issue date. We need
your ad materials (camera-ready mechanical or
copy for pub-set ad) by 5PM, 5 days prior to the
weekly issue.

AD COPY: We'll typeset your ad at no extra
charge. You can give us copy via phone, U.S.
mail, or FAX. To typeset an ad for you, we need
clean, typewritten copy. Figure about 30 words
to the column inch, not including headlines.
(There are seven columns on each page.)

LOGOS AND SPECIAL ARTWORK: Any logos
or special artwork should be enclosed with your
ad copy. For best reproduction, please send us
either a stat of your logo or a clean sample on
white bond paper.

COLUMN WIDTHS AND MINIMUM DEPTHS:
Your ad can be of seven different widths.

NUMBER OF COLUMNS WIDTH 
1 column 1-1/4" 
2 columns 2-5/8" 
3 columns 4-1/16" 
4 columns 5-9/16" 
5 columns 6-15/16" 
6 columns 8-3/8" 
7 columns 9-3/4" 

MINIMUM DEPTH 2" 2" 3" 4" 5" 6" 7"

RATES: Your rate will depend on the size of your
ad and whether you choose to run regionally
or nationally. The national rate is $13.50 per
line or $189.00 per column inch. The regional
rate (Eastern, Midwestern or Western editions) is
$9.00 per line or $126.00 per column inch. You
can run your ad in any two regions for $11.60 per
line or $162.40 per column inch. In all cases,
you can earn volume discounts.

The minimum ad size is two column inches
(1-1/4" wide by 2" deep) and costs $378.00 if run
nationally. A sample of this size appears below.
You can run larger ads in half-inch increments at
$94.50 per half inch. Box numbers are available
and cost $25 per insertion ($50 if foreign).

| SAMPLE AD SIZES AND PRICES: To assist you
| in planning your recruitment advertising, the
| following shows common ad sizes and their
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<th>respective costs.</th>
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PAYMENT: If you're a first-time advertiser or if
you haven't established an account with us, we
need your payment in advance (or with your ad)
or a purchase order number. Once you have
established an account with us, we'll bill you for
any ads you run as long as your payment record
is good.

COMPUTER CAREERS NETWORK BUYS:
You can take advantage of special rates that
let you run your ad in Computerworld and
Computerworld's sister newspapers at special
rates. Choose from Computerworld Focus on
Integration, Network World, InfoWorld, Digital
News and Federal Computer Week. Call for
details.
It's the efficient way to recruit qualified computer professionals

Now you can target your recruitment advertising to the qualified computer professionals you want to reach - where you want to reach them. All you need is the new IDG Communications Computer Careers Network. Here's how it can work for you:

You choose the newspapers. Depending on who you're looking for, you can select the combination of five newspapers that best suits your needs - Computerworld, InfoWorld, Network World, Digital News, and Federal Computer Week Editions.

You choose the region. If you wish to recruit within a specific area, you can advertise in the regional editions of the newspapers you choose - East, West, or Midwest. Of course, national buys of individual newspapers or various combinations are also available when you need to extend your reach.

You don't pay for readers you don't want. Gone are the days when you have to worry about paying for waste circulation. The Computer Careers Network puts you in touch with qualified computer professionals - and only those qualified computer professionals you need to reach.

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SAN FRANCISCO: 18008 Sky Park Circle, Suite 145, Irvine, CA 92714; Barbara Murphy, Regional Manager, 714-250-0164; Chris Glenn, Account Executive, 800-343-6474.
Software supplier insolvency

Escrow agents can help a firm keep afloat while its vendor sinks in debt

BY RAYMOND T. NIMMER

SOFTWARE SUPPLIER INSOLVENCY gone bankrupt is not a new phenomenon. In fact, it happened many years ago, only creditors needed to worry whether the companies they were dealing with would become insolvent or go out of business. All that changed in 1978, when Congress enacted a new bankruptcy code. Now, whenever you contract for software, you have to think about how long your supplier will stay in business.

The list of companies whose software developers have gone bankrupt is probably shorter than many people suspect. However, their stories are often traumatic: A company licenses a program and builds or operates its business around it. Then one day, without warning, the vendor is out of business. Consequently, the user must negotiate continued support and perhaps the right to keep using the program.

What problems confront the licensee? First, it is necessary to face the facts. If the vendor closes its offices and disappears, all promises of future support, upgrades and advice are essentially meaningless. One cannot get blood from a turnip.

Can the licensee find someone else to make modifications and provide advice as the vendor goes under? Sometimes the solution is simple. If the basic program has numerous end users, there may be many in-house experts who can fill the breach and supply the support no longer available from the vendor.

In other cases, however, the answer will depend on whether the licensee has access to the information that a new service provider needs in order to deliver support. Here, the reference is to physical access to information that is accurate, current and usable. End users need clear manuals, complete and understandable documentation and source code from which corrections or adjustments can be made. It is often too late to get this information once the vendor is out of business: Where does one call if phones are disconnected and the office is closed?

For starters, a software contract should require that these materials be created. If it can, the licensee should take possession of the materials when the software is delivered. However, in many cases, developers will consent to providing them; there are risks of losing trade secrets and control over copyrighted material. Because of this risk, many large contracts include this provision. However, in many cases, the provisions are not sufficient. Consequently, the licensee is willing to pay for them, however.

Concern over quality

There are also questions of quality: How can one ensure that the information that goes into escrow is adequate and continuously updated, without being able to review it? There is no good solution to this problem beyond reliance on the vendor and the escrow agent.

Even if the vendor does not disappear, as it encounters financial problems, creditors may be at its door, demanding whatever of value they can get. The licensee may face a content with these creditors for the right to document, code and other important information. An escrow arrangement will avoid this situation.

Alternatively, a licensee may take a security interest in copyrighted code. This will give it a right to the code that supersedes the rights of unsecured creditors. Once again, however, there are problems. Not all licensees will agree to this option. It requires a public filing that can affect their future access to credit.

Bankruptcy risks

Now, we come to the risk that the vendor will file for bankruptcy. Since many businesses in bankruptcy continue to operate largely as they did before filing, the vendor may not disappear, but the license may do so. Technology licenses are what bankruptcy lawyers describe as "executory contracts." The licensor or its trustee can assume and enforce the license or, if preferred, cancel it.

Prior to 1988, this possibility exposed licensees to the risk that their software rights would simply be taken away or that the vendor would threaten to take them away to negotiate a larger royalty.

In 1988, Congress changed the law. The vendor can still reject a license, but the licensee can refuse to accept this choice. It can retain its rights in the software and any agreement supplemental to its license. The licensee must continue providing royalties or other payments, but it can enforce any agreement under which it has the right to receive intellectual property, such as code, from the licensor or a third party.

Life, however, is never perfect. These new rules do not require the vendor to maintain the software or provide support services. Also, the bankruptcy law does not create a right to receive intellectual property; that must be done in the contract.

As with many contract problems, the risks in this area can be reduced if licensees recognize them and deal with them early in the process. But they often do not do so. Once again, the moral of the story is to be cautious and plan carefully: Don't walk cautiously into a dark alley.

Nimmer is Foundation Professor of Law at the University of Houston, counsel to the law firm Sheinfeld, Maley & Kay and author of The Law of Computer Technology (Warren, Gorham & Lamont, New York).

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<table>
<thead>
<tr>
<th>PC Model</th>
<th>Closing Price</th>
<th>Recent High</th>
<th>Recent Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM 176</td>
<td>$950</td>
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<td>$700</td>
</tr>
<tr>
<td>XT Model 086</td>
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<td>$950</td>
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<tr>
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<td>$1,400</td>
<td>$950</td>
</tr>
<tr>
<td>AT Model 099</td>
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<td>$2,500</td>
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<td>Portable II</td>
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<td>Portable III</td>
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<td>S12E</td>
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</tr>
<tr>
<td>Plus</td>
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<tr>
<td>Apple IIGS dual floppy</td>
<td>$1,200</td>
<td>$1,475</td>
<td>$1,100</td>
</tr>
</tbody>
</table>

INDEX

Marketplace...130
Buy/Sell/Lease...130
Software...134
Peripherals/Supplies...134
Computers/Depot/Pub...134
Bid Proposals/Real Estate...108
Time/Services...135
Training...137
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BY NAOMI KARTEN
Special to CW

The selection of a vendor to deliver training can be a subjective process. The result is that sometimes the business goes to the vendors who are best at selling their service... rather than the ones most qualified to deliver those services.

One way to make the selection more objective is through a request for proposal (RFP) procedure, which lets an organization methodically gather and evaluate proposals from vendors. However, while organizations may be methodical in preparing and sending out RFPs, some of them are considerably less organized in evaluating the results. Their selection of a vendor is better than the others.

To ensure that the evaluation is objective, organizations should prepare a list of the criteria that will guide the evaluation. These criteria revolve around the items in the RFP, such as the vendor's experience, course offerings, training materials, instructors, financial stability, costs and schedules. Each of these items may be further subdivided. For example, cost information may be split into course fees, payment schedules, discounts and cancellation penalties. Similarly, instructor qualifications may be broken down by instructor background, training experience, formal credentials, breadth of computer knowledge and ability to stay technically current. The complete list of criteria serves as a checklist against which proposals can be evaluated.

The evaluation should reflect a weighting factor for each criterion indicating its relative importance. The simplest approach is to use a three-point scale with 1 indicating minimal importance and 3 maximum importance. Regarding instructor qualifications, for example, an organization may view training experience as key and assign it a weight of 3. Formal credentials may be viewed as much less important and be assigned a 1. To ensure objectivity, the group should assign these weights before reviewing proposals.

The rating of proposals should also be based on a scale of perhaps five or seven points. The evaluation team's rating for each criterion indicates the degree to which a proposal matches the organization's needs. The score for each criterion is then the product of the rating and weighting factor. A vendor's total is the sum of these scores, and the highest-scoring organization gets the business.

Judging and scoring proposals can be tedious and time-consuming, and personnel limitations often cause the process to end up being the responsibility of one person. Because training can have such a significant impact, however, the evaluation should be a team effort. In addition to the value of their feedback, the participation of employees from areas that will be affected by the training can help ensure their support of the final decision.

Depending on the type of training under consideration, it may be appropriate to include representatives from user departments, the information center or the human resources organization. In addition, people from accounting and legal departments may help evaluate certain criteria. Each person can be assigned to the section pertaining to their expertise.

Although the entire RFP process is designed to eliminate personal bias, subjectivity does have its place. For example, if a particular proposal departs significantly from the required format or content, the evaluation team may be concerned about the vendor's ability to conform to standards and eliminate it.

Another aspect of the evaluation that inevitably involves personal bias is a meeting with the vendor. Interviews with representatives of the vendor, as well as observation of one of its classes, can have a significant impact on the final decision, either positively or negatively. For example, an instructor who smoked two cigarettes simultaneously, read each projected foil to the class without adding anything to it and made disparaging remarks about his company — an actual occurrence — would not be invited back. High ratings on other criteria could not compensate for this unprofessional behavior.

Any deviations from the evaluation process are permissible provided the team agrees to them and documents them as they happen. However, documentation is not for exceptional situations only. It is important to document the entire process, especially if it will lead to a vendor winning a lucrative contract.

Evaluating the qualifications of training vendors in an objective manner can help ensure that an information systems organization will select the vendor that will most effectively support its needs.

Karten is president of Karten Associates in Randolph, Mass., and editor of the monthly newsletter "Managing End-User Computing."


Gobble gobble

Tech investors sidestep stuffing, cut loose before they close 1989

The turkeys came out a little bit late this year. As Thanksgiving signaled the beginning of the end of the 1980s, investors grew wary of holding on to their high-technology shares. Technical issues generally failed to follow the upswing of the Dow Jones industrial average. Unisys Corp. led the way in the wrong direction, closing Thursday at 14% down 1% points. Lotus Development slid 3% points to end at 40%. Digital Equipment Corp. approached its 1989 low of 84/4 high-growth rate, dropping 2% points to close 90%.

Lotus Development Corp. fell 1% points to 29%, and Compaq Computer Corp., which two weeks ago told analysts that it expected the personal computer market to retain its high-growth rate, also off 2%. Commodore International Ltd. closed at 8%, cutting measures two weeks ago, appearing to approve the move; TI climbed 1% points to end at 31%. Texas Instruments, Inc. slid 1% points to 86%. IBM finished at 97% points. Cray Research, Inc. added 2% points to finish at 35%. Commodore International Ltd. closed at 8%, cutting measures two weeks ago, appearing to approve the move; TI climbed 1% points to end at 31%. Texas Instruments, Inc. slid 1% points to 86%. IBM finished at 97% points. Cray Research, Inc. added 2% points to finish at 35%. Commodore International Ltd. closed at 8%, cutting measures two weeks ago, appearing to approve the move; TI climbed 1% points to end at 31%. Texas Instruments, Inc. slid 1% points to 86%. IBM finished at 97% points. Cray Research, Inc. added 2% points to finish at 35%. Commodore International Ltd. closed at 8%, cutting measures two weeks ago, appearing to approve the move; TI climbed 1% points to end at 31%. Texas Instruments, Inc. slid 1% points to 86%. IBM finished at 97% points. Cray Research, Inc. added 2% points to finish at 35%. Commodore International Ltd. closed at 8%, cutting measures two weeks ago, appearing to approve the move; TI climbed 1% points to end at 31%. Texas Instruments, Inc. slid 1% points to 86%. IBM finished at 97% points. Cray Research, Inc. added 2% points to finish at 35%. Commodore International Ltd. closed at 8%, cutting measures two weeks ago, appearing to approve the move; TI climbed 1% points to end at 31%. Texas Instruments, Inc. slid 1% points to 86%. IBM finished at 97% points. Cray Research, Inc. added 2% points to finish at 35%. Commodore International Ltd. closed at 8%, cutting measures two weeks ago, appearing to approve the move; TI climbed 1% points to end at 31%. Texas Instruments, Inc. slid 1% points to 86%. IBM finished at 97% points. Cray Research, Inc. added 2% points to finish at 35%. Commodore International Ltd. closed at 8%, cutting measures two weeks ago, appearing to approve the move; TI climbed 1% points to end at 31%. Texas Instruments, Inc. slid 1% points to 86%. IBM finished at 97% points. Cray Research, Inc. added 2% points to finish at 35%.
Health care needs IS injection

BY J.A. SAVAGE
CW STAFF

Anyone who has ever been charged $10 for two generic aspirins in a hospital knows there are serious efficiency and cost-overrun problems in the health-care industry. A simple aspirin transaction can cost hospital staff up to 50 minutes of paper and several hours' wait.

However, while health-care costs are a national problem and hospitals are saddled with declining revenues, the health-care industry has shown little interest in applying information technology for relief.

An Ernst & Young Accounting Firm International report to the U.S. Health and Human Services Department following a committee hearing last year said: "Without sophisticated means to process [patient] data, neither the nursing profession nor the [health-care] industry and the public it serves are likely to achieve all the benefits of contemporary health care. Nor are hospitals likely to fulfill all their potential as health-care businesses."

Mark Gross, national director of health care information services at Ernst & Young in Cleveland, estimates that 500-bed hospitals spend only about 2.5% of their operating budget on information systems devoted to patient care. "It's a paradox; hospitals are an information-intensive business, and a similar size manufacturing plant spends eight to 15 times more money on systems," Gross said.

Hospitals that have implemented patient-care technology can command higher quality care for less money. The other benefits they cite include the following:

- Retaining nurses in an era of nursing shortages.
- Keeping beds occupied in competition.
- Accurately entering doctors' prescriptions and flagging negative drug interactions and allergies.
- Speeding patient access to medicine, lab tests or therapy.
- Because it costs less to practice at computerized hospitals, doctors say they are more likely to schedule patients there.
- The average hospital, one-third of nursing money goes to indirect patient care [paperwork]," said David Kimball, vice-president of information systems at Pacific Presbyterian Medical Center in San Francisco. "When you're looking at nursing shortages and expensive resources, it's an amazing way to spend money." Kimball is betting that a new patient-care system being installed at Pacific Presbyterian will make the hospital more attractive to physicians and help fill beds.

Nurses agree that computerized patient care moves them "away from handling papers and back to the bedside," said Marilyn Davis, director of IS systems at El Camino Hospital in Mountain View, Calif. Davis was head nurse during the time El Camino's patient-care system was installed.

No hard statistics exist on how many hospitals have computerized patient care. According to the American Hospital Association, there are 2,091 U.S. hospitals with more than 200 beds. But the largest supplier of hospital systems TDS Healthcare Systems Corp. in Atlanta — has only 120 installations, because they can function without them. The Mayo Clinic in Rochester, Minn., is currently designing new information systems, but a patient-care system will be installed only after administration and accounting systems are in place — sometime in the late 1990s, according to Walter Menning, vice-chairman of information systems.

The federal government has shown little interest in pushing information technology onto the hospital floor, despite its emphasis on cost reduction, according to Richard Covert, director of health-care information and management systems at the American Hospital Association in Chicago. Most large hospitals have computerized billing and payment through Medicare or other federal systems. Little incentive, however, has been offered in other areas such as patient care. "The federal government seems to be preoccupied with paperwork," Covert said.

Compounding the lack of technology choices is hospital information technology that avoids or does not understand computers. "We talked with CEOs and found they were less than fully familiar with what technology can do," said Carolyn Davis, an Ernst & Young analyst who chaired last year's Health and Human Services committee meeting.

"CEOs of hospitals have not embraced technology to any degree vis-a-vis other institutions," Gross added.

Paperweight

Hospital automation gives nurses more time at the bedside and less at a desk.

For instance, to give a patient a painkiller, a nurse would typically transcribe a doctor's prescription to an order sheet, have it taken to a pharmacist and then back to the nurses' station. There, the nurse would have to fill out more paperwork to have the medication added to the patient's history and cross-check that history for drug allergies before administering the drug. With the automated system, a doctor types in the order at a terminal, where the software cross-checks for the patient's drug allergies and any potential synergistic problems with other medications. The order pops up on the pharmacist's terminal, and it is sent to the nurses' station for direct administration.

El Camino Hospital in Mountain View, Calif., saves about $20 per patient per day through the use of an automated system, according to Chief Executive Officer Neilson Buchanan. For a 500-bed hospital, that totals $10,000 per day. El Camino, the oldest computerized hospital in the country, has used a TDS Healthcare Systems Corp. system for 17 years.

J.A. SAVAGE

Stardent takes a swing at midrange market

BY JAMES DALY
CW STAFF

SUNNYVALE, Calif. — The first fruits of the Stellar Computer, Inc. and Ardent Computer Corp. merger ripened last week with the rollout of a machine that looks to grab new markets by shifting the combined company's focus upward from the desktop to the midrange.

Stardent Computer, Inc.'s 3000 series graphics supercomputer, when fully configured with its 32-MHz Mips Mbot System, Inc. chips, can process up to 192 million floating-point operations per second, which it squares off against the Convex Computer Corp. C2 and

Digital Equipment Corp. VAX 9000 line.

"The end of the VAX is in sight; they've given it their best shot, and it just ain't good enough," claimed Gordon Bell, Stardent's chief scientist. As a researcher at DEC, Bell was one of the principal designers of the VAX architecture.

Stardent officials said they intend to go beyond the scientific market that the VAX targeted in the past and aggressively pursue customers in commercial sectors such as medical imaging.

While the phenomenal graphics and muscular processing power of the Stellar and Ardent lines made them a hit in the engineering and scientific worlds, a lack of wide-ranging software and high price tags stemmed inroads into the commercial sector.

The 3000 series, which was first sketched out on Ardent's drawing board 18 months before the merger was completed in October, attempts to patch up part of that problem with entry-level models that begin at $89,000. Similar Convex and DEC machines top $500,000, Stardent officials said.

No easy task

While analysts said the re-focusing could succeed, it will be a tough sell. "Anytime you take a specialty tool and place it head-to-head with entrenched competitors, you're talking about a very competitive market," said Sandy Grist, an analyst at Santa Clara, Calif.-based Incofop.

Stardent officials said future models will emphasize the re-spective strong points of both the Stellar and Ardent products. Stellar's proprietary computational engine will be placed out in favor of the Mips chip, but Stellar's edge in its ability to de-sign high-bandwidth parallel/vector architectures will be maintained.

The Stardent 3000 is also the first machine to use the 32-MHz R3000 Mips chip set, which includes a reduced instruction set computing processor and floating-point processor that together provide performance of up to 32 million instructions per second.

DECEMBER 4, 1989

Computerworld
An uncertain future together

After years of bitter battles, can MSA and M&D work as one company?

BY NELL MARGOLIS CW STAFF

Justice

FROM PAGE 1

automated and manual criminal-history systems at the federal and state levels. One of the automated systems show arrests but not convictions or other final dispositions. The task force estimated that only 40% to 60% of conviction records are automat-
ed.

The lack of readily accessible conviction records is the greatest obstacle to an immedi-
ate and accurate felon identification sys-
tem," Thornburgh said.

The eventual goal is to have local firearms dealers place a telephone call to a state police of-

Unhappy

However, Thornburgh’s deci-
sion did not please the interest-
group Handgun Control, Inc.,
because the screening system will not be implemented until some indefinite time in the fu-
ture. In the meantime, Congress should enact legislation setting a seven-day waiting period before purchase of a handgun, the group said in a statement.

Creation of a felon identifica-
tion system was mandated in the Anti-Drug Abuse Act of 1988 in an amendment that was supported by the National Rifle Association (NRA) as an alterna-
tive to a waiting period. The NRA supported Thorn-
burgh’s conclusions and said that the first order of business is to solve record-keeping problems. With existing systems, checking for felons at the point of pur-
chase is as accurate as a coin toss," said a statement by James Jay Baker, director of federal af-
sairs at the NRA.

The point-of-sale system se-
lected by Thornburgh is estimated to cost up to $44 million to de-
velop and up to $70 million a year to operate. The attorney general chose the least costly of the technical options offered by the Task Force on Felon Identif-
ication in Firearms Sales, which also considered preapproval sys-
tems using smart cards, finger-
print scanning and biometric scanning.

MERGER FROM PAGE 1

and personnel do not differ greatly. “There are some differ-
etiating features, but more and more it’s becoming a price-orien-
ted market,” Lester ex-
plained.

Most accounting and personel-
nal applications are “pretty plain vanilla,” said Michael Jones, di-

cutive Officer Robert K. Weiler, who headed up M&D’s sales and marketing effort during the mid-
1980s, said the rivalry was at its peak. “All we thought about, all day, every day, was MSA: What are they doing? How can we beat them? We didn’t have a meeting at which they were not mentioned.”

It didn’t stop at talk, said a former M&D employee. He de-
scribed not just ferocious sales competition but extensive ad ho-

munication and a panoply of dirty tricks. Because of

For all observers believe the compa-
nies would be maintained, sup-
ported and en-

What may be irreconcilable, many observers noted, are con-

Hammer and the grittier realities of

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DECEMBER 4, 1989

COMPUTERWORLD

More human

The merger will give MSA and McCormack & Dodge a sizable chunk of the human resource application market

Percent of market share by year (total 1989

U.S. market: $296 million)

Cormack & Dodge

McCormack & Dodge

More than $600 million

More than $500 million

More than $400 million

More than $300 million

More than $200 million

More than $100 million

More than $50 million

More than $0 million

Frank Dodge

John Imlay

Frank Dodge

John Imlay

Frank Dodge

John Imlay

TRENDS

Integrated Services Digital Network is slowly making its way into the real world. In a survey of 4,500 U.S. sites conducted by Computer Intelligence, only 23 had installed ISDN, but 184 indicated that it is on their list of things to do.

<table>
<thead>
<tr>
<th>Process manufacturing</th>
<th>13%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discrete manufacturing</td>
<td>24%</td>
</tr>
<tr>
<td>Medical/education</td>
<td>19%</td>
</tr>
<tr>
<td>Banking/insurance</td>
<td>13%</td>
</tr>
<tr>
<td>Information systems</td>
<td>7%</td>
</tr>
<tr>
<td>Other</td>
<td>18%</td>
</tr>
</tbody>
</table>

Among the sites planning ISDN, AT&T dominated the PHS installations with 35%. Cencom is in use at 17% of the sites.

<table>
<thead>
<tr>
<th>Northern Telecom</th>
<th>16%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bell</td>
<td>11%</td>
</tr>
<tr>
<td>Fuji/CTC</td>
<td>7%</td>
</tr>
<tr>
<td>Other</td>
<td>16%</td>
</tr>
<tr>
<td>Cencom</td>
<td>17%</td>
</tr>
</tbody>
</table>

Although 15 of the sites with ISDN installed use Basic Rate Interface, 80 of those planning ISDN moves intend to install Primary Rate Interface lines.

NEXT WEEK

S

cie quality is gos-

pel at Florida Power & Light Co., the first U.S. winner of Japan's coveted Deming Prize for corporate quality. Because execu-
tives such as Jack
Gomm base most deci-
sions on quantified quality indicators, information sys-
tems serves as the back-
bone of the firm's quality efforts. In Depth takes a
look at this IS leader.

INSIDE LINES

All in the genes?
About 30 years before Robert T. Morris Jr. was charged with being the alleged progenitor of the worm that shut down Inter-
et last year, Robert T. Morris Sr. was among the first pro-
grammers to actually concoct a virus. Morris Sr., along with H. Douglas McIlroy and Victor Vysotsky, all young comput-
er scientists at AT&T's Bell Laboratories, invented "Core Wars," a game that pitted self-replicating programs called "organisms" against one another. The winner was the player whose program replicated abundantly and consumed the oth-
er player's program and its offshoots.

Crying wolf
It seems some people have it in for Allan Loren, president of Apple Computer's Apple USA division. Rumors that Loren
may get pruned from the Apple executive tree or moved to a
lower branch continue to be whispered on both coasts. The
evidence? His office has been moved from the "executive
row" in Apple's DeAnza building to the City Center building
in Cupertino, Calif. A company spokeswoman vehemently de-
 nied the rumors, saying Loren wants to be with the people
who report to him but that he still maintains an office in DeAnza.

An objective expert
Some major players are getting a few of their network man-
agement problems solved by tiny start-up Objective Systems
Integrators. The firm's founders left another small network
management firm, Telwatch, to produce an expert system for
network fault management called Netexpert. The package is
showing up in interesting places, such as American Express
and Nynex's soon-to-be-announced management platform.
"We are under nondisclosure to a lot of telcos, computer manu-
facturers and Ti mux vendors who don't want people to know
our software is embedded in their systems," says Objective
Systems co-founder Dick Vento. The company is also work-

ing on a "super Netview/PC," a Unix-based system that will
handle more devices and can be operated by a non-telecom-

unications expert, Vento said.

Just read the label
Unix, long faulted as one of the least secure operating sys-
tems around, is actually quite secure, provided it is used "ac-
cording to the instructions on the label," said H. Douglas
McIlroy, now a top computer scientist and Unix guru at Bell
 Labs. "Security is loose because of administrative errors and
lack of vendor documentation," McIlroy said. "Unix stacks up
at least as well as its competitors and better than some of the
bigger-name ones."

International . . . to a point
IBM executives were reported to be uneasy at the prospect of
Perkin-Elmer Corp.'s semiconductor tools operations being
sold to the Japanese. IBM, a user of Perkin-Elmer equipment
for 20 years, recently installed a key Perkin-Elmer "stepper"
called Tool X for use at its Burlington, Vt., chip factory. Per-
klin confirmed that its two semiconductor operations
are still on the block as part of a downsizing scheme an-
nounced last April.

Get out your notebooks
Busy week next week for micro software vendors: Lotus will
roll out Notes, along with several strategic alliances, while Bor-
land is expected to introduce its Paradox engine and detail its
strategy for open systems. Novell is also making a database
announcement.

These guys use a database? At least one Computerworld re-
porter got a neatly typed letter recently from Ingres, formerly
known as Relational Technology. Everything was hunky-
dory: the writer's proper name, title and address — down to the
9-digit ZIP code. Then came the salutation: Dear Shirley.

Date: There are no Shirleys here. Well, that was forgivable.
But the line that read "Please include the related announce-
ment in the appropriate issue of the New York Daily News" wasn't. Shirley you jest. We're storing up bloopers for the end
of the year, so call them in to News Editor Pete Starr at 800-
343-6474, cause it's almost here.
How’re you going to do it?

Information that goes flying around the office, but is out of reach when you need it, can’t help you compete. An IBM Personal System/2™ that lets you network effortlessly can.

The IBM PS/2: Unbeatable Networking Tool.
A high-performance PS/2™ can act as a network server or a gateway to a host, in either a DOS or OS/2® environment. With a PS/2, you can connect the personal computers you already have to an IBM Token-Ring or PC Network, and share information and resources with incredible power and speed. The PS/2’s Micro Channel™ architecture was designed to make the most of OS/2’s full-function multitasking. It enables your PS/2 to act as a server while also running your workstation or PC applications. That’s when the cost benefits of your PS/2 really add up. And Micro Channel’s advanced interrupt handling capability lets you run multiple programs with incredible reliability. So the PS/2 is ideal to meet the demands of the busiest network, even during peak-load conditions. The bottom line is this: networking with an IBM PS/2 can help your productivity soar.

The Solution Is IBM. If you want advanced technology you can start with and stay with, the PS/2 with Micro Channel and OS/2 on a network are for you. See your IBM Authorized Dealer or IBM marketing representative for all the details. For a dealer near you, call 1 800 IBM-2468, ext. 182.
Some of our best ideas come out of the blue.

IBM has spoken.

And what they've said can be summarized in three simple but highly important letters: SAA (Systems Application Architecture).

SAA is a set of standards that finally allows for integration of computer systems. And as IBM goes, so goes MSA. Therefore we are proud to be the first major software company committed to delivering the most extensive line of SAA-compliant software in the industry. BrightView™ applications software already complies with SAA's most advanced component, Common User Access.

By harnessing the power of cooperative processing, BrightView allows intelligent work stations to be something they never truly were before: intelligent. It does this by unleashing the power and potential within the work station, freeing you from dependence on valuable mainframe time, and dramatically increasing the efficiency of all application users.

This efficiency is further heightened by BrightView's CUA compliance, which yields a friendly, consistent look and feel to work stations, maximizing your investment in personnel and hardware. All of which makes it a rather brilliant idea to call Robert Carpenter at 404-239-2000.

IBM believes SAA is the future. We recommend our software to anyone intending to spend some time there.