IBM offers tiered pricing relief
Software could help shift to usage-based model

BY THOMAS HOFFMAN
CW STAFF

THE NEWSPIPER OF INFORMATION SYSTEMS MANAGEMENT
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UNIONDALE, N.Y. — A family
Monitor IBM MVS/ESA system
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software firm, is said to be nego-
called Software Meter, into their
ling to. He did, however, hint:
which companies his firm is talk-
cluding to Computer Associates
landia, N.Y.

called a gradual shift away from
Big Blue participation

WASHINGTON, D.C. — A Fed-
Proposal would require public, private networks to have call interception
FBI seeks right to tap all net services

BY MITCH BETTS
CW STAFF

FBI seeks other office partners.

WASHINGTON, D.C. — A Fed-

BY GARY H. ANTHES
CW STAFF

The Pentagon's advanced
The DOD's expected savings during the

Seven-year savings
The DOD's expected savings during the next seven years from various
productivity improvements is $70 billion. About half of that will come
from CIM initiatives:

- Direct savings via CIM: $56B.
- Indirect savings via CIM: $30B.
- Expected annual savings in software
could reach $30B by 2007.

Continued on page 16

Pentagon wields IS strategic weapon

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The Pentagon's Corpora-
tion Technology Re-
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ning such intercepts,
so legislation is re-
pleased that many
in the LAN office market, which
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Vision host users who had been
Maryland, the Pentagon's director of de-
to do-list kept by CIM exec
Paul A. Strassmann.

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Standing tall
Observers said this latest move
likely boost IBM's standing in the
LAN office market, which
has been poor. And it will finally
provide a LAN option for Office-
Vision host users who had been
planning to include LANs in their
office strategy but who have not
had a robust offering from IBM.

"We were highly skeptical
that they could ever deliver on
the LAN," said John Roberts,
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Apple seeds pen capability
Hospital group tries outsourcing medicine. Page 6.
Dell notebook breaks 4-pound barrier. Page 8.
Prime floats rescue plan to split firm in two. Page 12.
Oracle names top consultant to head U.S. sales group. Page 12.
Product Spotlight — MRP II software undergoes major overhaul. Page 73.
**EXECUTIVE BRIEFING**

- IBM officially named Lotus' Notes and CC:Mail the strategic components of its LAN office strategy and acknowledged that it just couldn't cut it when it came to delivering its own LAN office platform. Observers consider it a good move for IBM in the LAN office market, although it may not whip up much new interest in the overall OfficeVision concept. Page 1.

- Outsourcing vendors "will end up eating your lunch" if you don't manage them correctly, one CIO from a food processing company says. Recent interviews with 19 IS chiefs revealed advice — for example, ensure compatibility between client and vendor, take advantage of technology transfer and be prepared to take over at any time — for making outsourcing a success. Page 89.

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  - WHITEHALL CO.
  - On whether he will abandon Prime mix of computers. See story page 12.

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**IN DEPTH**

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**Quotable**

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IF IT WERE GREASED, IT WOULD BE ALMOST AS FAST AS SYNCSORT.

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<th>Task</th>
<th>CPU Time</th>
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SyncSort Incorporated
201-930-8200
Apple to offer pen functions across Mac line

San Francisco — Apple Computer, Inc. plans to give pen input capabilities to its entire Macintosh personal computer line within 18 months, according to customers briefed last week’s Management Apple Computers in Information Systems show.

The capability will most likely be added by means of a snap-on extension to its System 7.0 operating system and allow users to enter data into any Macintosh application by means of a stylus. Microsoft Corp. has recently introduced Windows for Pen Computing platform follows a similar strategy, where Microsoft’s Windows 3.1 graphical user interface provides a pen input function to MS-DOS users.

Reading between lines

Atop Conferences, California-based Apple has hinted that the firm may use elements of Newt

The full commercial availability is expected by year’s end.

Potential users said they would welcome the addition of handwriting recognition to the Macintosh. “I don’t think I’d want a machine that only recognized handwriting, but as an addition to a Mac’s capabilities, it would be very exciting,” said Ted Toler, an applications ana

The roll-out of pen-capable Macintoshes will coincide with the arrival of Apple’s Newton, a handheld electronic organizer that uses an object-based handwriting recognition system.

Apple’s Newton product manager, developers will be able to design in customized responses to many events.

While a Borland and many de

For example, while tapping into Windows graphical user interface, developers and users can more quickly create boxes on a form than they can through DOS more laborious character-based techniques.

The database’s object-based form components also permit developers to place one box or circle inside another and to move them together — a feature known as containment.

Also key, according to developers, is the system’s event-driven orientation, which allows one “event” — a set of keystrokes or mouse commands — to trigger certain operations.

A Windows environment will provide more interior space, provide more possibilities for events than does a character-based DOS environment.

According to Krist Kelsey, a developer for Windows’ product manager, developers will be able to design in customized responses to many events.

While Borland and many developers tout the object orientation of Paradox for Windows, the firm responded to developer inquiries by acknowledging that the program does not provide what some under definitions would be considered full object orientation.

For example, while Paradox for Windows includes a slew of visual and visual programming objects, it does not allow developers to create their own objects. It also does not include a full inheritance feature, in which a change in one set of objects translates into the same change in other sets of the same objects located elsewhere in the program.

However, Paradox includes inheritance within forms but not from form to form. For Windows, Paradox provides a variation of that feature, known as delegation, which is a subset of inheritance.

Kelsey added that future versions will let developers create their own objects. “We are putting boundaries on it now to make it simpler, to let people get used to it,” she said, claiming that there are so many predefined objects that “developers won’t know they want to change them for years.”

Waiting in line

Developers of dBase, like their Paradox brethren, were impressed with the features Borland demonstrated last week for a forthcoming Windows version of the dbase personal computer database management system, but they worried over an uncertain delivery schedule.

Borland’s Windows development for dBase began relatively recently, following Borland’s acquisition last summer of Ashton-Tate Corp. By comparison, Borland has been working on Paradox for Windows for about two years. Borland executives said last week that Windows for dBase will not be available until the end of this year.

As for the product’s potential usefulness, Jan Schofield, a developer for dbase for Windows, said dbase will have enough graphical capabilities that he will no longer have to use a third-party program such as AutoCAD or Intergraph Corp.’s Microstation.

Foster Wheeler uses dbase to help design incinerators, furnaces and other plants for clients in the petrochemical and other industries. Schofield, who says dbase has to manually program a database into a background image.

“We won’t have to pay a guy $25 an hour to sit at a machine and dumbly hit a button,” he said.

Computerworld
WHAT HAVE
BILL GATES,
SCOTT MCNEALY,
JOHN SCELLEY,
JOHN YOUNG
AND LARRY ELLISON AGREED TO COOPERATE ON?
Court upholds AT&T’s winning bid

A federal appeals board last week upheld a $1.4 billion award to AT&T that covers up to 3,200 minicomputers and 50,000 workstations. The ruling rejects the second round of protests from AT&T competitors IBM and Lockheed Corp., which bid $500 million to $700 million below AT&T. The Treasury Multi-User Acquisition Contract is to support the Internal Revenue Service’s $8 billion tax system modernization. The IRS said the higher price to be paid to AT&T and its major subcontractor, Pyramid Technology Corp., was justified by the technical superiority of AT&T’s proposal.

Next loses key executive

Guy L. “Bud” Tribble, one of the key engineers behind Next, Inc.’s innovative software, is leaving the firm to work at its biggest competitor, Sun Microsystems, Inc. Tribble, who was a close confidante of Next co-founder Steve Jobs, will be vice president of end-user software at SunSoft, Inc., a Sun subsidiary. Jobs downplayed the announcement, saying Tribble left in bitterness because the company’s leading software engineers did not want Tribble to be general manager of the firm’s newly formed software division. Meanwhile, of the five people who founded Next with Jobs in 1986, only two engineers remain.

Hamiton to head Banyan

Banyan Systems, Inc. last week appointed A. Peter Hamilton president and chief operating officer. A spokeswoman said no substantial strategic changes are expected with the addition of Hamilton, who had been general manager of Hewlett-Packard Co.’s Colorado networks and systems management division. Starting next month, Hamilton will pick up the day-to-day duties previously performed by David Mahoney, chief executive officer and board chairman.

Oracle delivers secure database

Oracle Corp., said last week that it was shipping a developer’s copy of the long-awaited Trusted Oracle relational database management system Version 1.0. Trusted Oracle provides multilevel security by allowing restricted access to specific database tables, rows and columns. Initial copies will be available for HP and Digital Equipment Corp. platforms, Oracle said.

RBOCs boost ISDN plans

The regional Bell operating companies’ (RBOC) Integrated Services Digital Network (ISDN) deployment plans got a boost last week from the signing of the Northern Bell Access line in 1984 will support ISDN. At the end of 1991, 22% of regional Bell access lines supported ISDN, according to Bellcore.

Short takes

Mipitas, Calif.-based hard drive maker Quantum Corp. and Tandon Corp. in Moorpark, Calif., have settled their outstanding patent disputes. . . . The Object Management Group (OMG) named Software AG of North America, Inc., Peter Page as a member of OMG’s management board. . . . Xerox Imaging Systems has named John Seeley Brown to its board of directors. Brown, chief scientist and a corporate vice president at Xerox Corp., is also director of the company’s Xerox Palo Alto Research Center. . . . The U.S. Army has commissioned Northern Telecom, Inc. to design, deliver, install and test an ISDN that will link five Army sites. The award, totaling $50.3 million, will cover a 10-year period for control and communications systems contract with GTE Government Systems Corp., of which Northern is a team member. . . . LDCC Communications, Inc. and Advanced Telecommunications Corp. (ATC) announced a definitive agreement to merge last week. LDCC Communications, based in Jackson, Miss., provides long-distance service in 27 states. ATC provides domestic and international long-distance to residences and businesses.

ISSC scores healthy contract

Hospital group forecasts $3 million savings under outsourcing plan

BY JOHANNA AMBROSIO

TARRYTOWN, N.Y. — A group of hospitals last week opted against a Band-Aid approach to its network infrastructure. Instead, they handed IBM’s Integrated Systems Solutions Corp. (ISSC) its first outsourcing deal in the health care field.

The $20 million, five-year contract, which kicks in on Aug. 1, will save the five hospitals involved some $8 million over the life of the contract, according to Les Vetter, manager of finance at Health Dimensions, Inc. (HDI) in San Jose, Calif., which manages four of the hospitals involved in the deal. The $8 million savings refers to the cost of going in-house, said Vetter, to run the hospitals’ data center.

“aritalis environment by allowing others to plug their products into the Solaris environment,” said David Smith, an analyst at International Data Corp. in Framingham, Mass. “We’re watching for some other software to convert over and stabilize before we jump in,” said George Aragonico, systems manager at Cordis Corp., a medical equipment manufacturer in Miami. Some other users have adopted Solaris 2.0 as a reference platform. . . . Sun has cause for wariness in the information services market. Along with NetWare, DCE does not have well-defined interface to reach more services through point-and-click access.

Short takes

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She's transferring data from Paris and L.A., processing it in New York, then sending reports back to the field. And she's not dreaming.

But she is asleep.

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That's because Network DataMover is the only program that automates data transfer between applications. Others can get your data from point A to point B. But with DataMover, you can send data from a field application to a host application, process it, then send data back to the field—automatically.

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So if managing your distributed applications is keeping you up nights, call 1-800-533-5128 and ask about Network DataMover. It's not just data transfer; it's peace of mind.
IBM, Microsoft battle rages on

BY CHRISTOPHER LINDQUIST and ROSEMARY HAMILTON CW-STAFF

The high-water mark for fear, uncertainty and doubt — higher recently with the latest controversy — this one concerning licensing — to surface between Microsoft Corp. and IBM.

Yet customers seem increasingly determined to carry on with whatever their established game plan might be, despite the vendor disputes.

At issue is a licensing agreement between Microsoft and IBM that allows each company rights to the other's respective operating systems, but it can only be a transitional platform for several operating systems rather than as a transition platform. "Should all that come to be, you would have a major impact," said Bill Higgs, director of software research at Cybernetics, Inc. in Santa Clara, Calif. "But right now, it's mostly fear, uncertainty and doubt."

That feeling was echoed by at least one user. "If this were the last of '93 and there was something going to happen soon that said IBM couldn't ship OS/2 with Windows support, then I'd be concerned," said Bob Holmes, a computer technology research analyst at Southern California Gas Co. "But if OS/2 is as successful as it looks like it might be, then by the time [the deal expires], there may be little need to have Windows support under OS/2/2.0."

As both Windows and OS/2 establish themselves, users should move to native applications to receive maximum benefits from the environment, diminishing the need for cross-licensed technology, said David Waibel, systems support manager at IBM's International Division in Framingham, Mass. He said Epson would likely have two to five-month lead time.

The Wingine Accelerator improves graphics speed in direct proportion to the speed of the microprocessor. It supports resolutions as high as 1,024 by 768 pixels and costs $18 in units of 1,000 chips. It will also support OS/2.

Epson will begin shipping the 4/64/W Ringine PC in the third quarter. The system uses 4M bytes of random-access memory and supports up to five expansion slots and two hard drives. The hard drive could help vendors develop graphics applications to a standard level.

The Box will be available until the third quarter, but before the end of the year. The Box, which is a single chip microprocessor, prices are expected to be about $1,300 for a base system.

Dell offers 3.6-pound, 386SL-based notebook

BY CAROL HILDERBRAND CW-STAFF

AUSTIN, Texas — Dell Computer Corp., today will break the 4-pound notebook barrier with the 320SLI, a 20-MHz 386SL on systems in the late third or fourth quarter. The system uses 4M bytes of random-access memory and supports 30% of its drives. The 320SLI is the first notebook to have a PCM/CIA interface. The system uses 4M bytes of random-access memory and supports 30% of its drives. The system uses 4M bytes of random-access memory and supports 30% of its drives.

The box comes standard with 2M bytes of random-access memory, expandable to 10M bytes. Dell's executive vice president for the Worldwide Sales and Support Group, stated publicly that the term of the contract would end sometime next year and that Microsoft was perhaps not interested in renewing licensing agreements for its strategic operating systems.

IBM first accused Microsoft of being in violation of the contract by discussing it publicly and then suggested that the company was simply trying to stir up trouble among users.

When asked why he had made public remarks about the deal, Ballmer said he is trying to make decisions about what to do. "I'm glad that the facts are clear now," he said.

Those facts may not have much overall impact on the market for either Windows or OS/2, however. "I don't care — I really don't," said Larry Wallin, systems support manager at IBM's Automated Revenue Collection Group in San Diego. Whatever Microsoft has said in the past, they have changed when it suited them. With the dominant power they have in the market, they do what they say they would do.

IBM, Microsoft battle rages on

BY MICHAEL FITZGERALD CW-STAFF

TORRANCE, Calif. — Epson America, Inc. today will become the first personal computer vendor to offer a video controller that boosts the performance of graphical user interfaces, such as Microsoft Corp.'s Windows, by as much as six times.

Epson said it will put the 64/200 Wingine Windows Accelerator from Chips and Technologies, Inc. in its 486/Wingine PC. Accelerator is a single chip that goes on a PC motherboard, as opposed to typical accelerators, which are put in expansion slots, or the local bus designs some PC manufacturers use to improve graphics performance.

"The Wingine Accelerator improves graphics speed in direct proportion to the speed of the microprocessor. It supports resolutions as high as 1,024 by 768 pixels and costs $18 in units of 1,000 chips. It will also support OS/2.

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The architects of software confront the same challenge as the architects of steel and glass: the constant of change. Changes in business. And changes in technology.

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“AN ARCHITECTURE OF POSSIBILITIES IS ROOTED IN THE CONSTANT OF CHANGE.”

SYBASE

CLIENT/SERVER ARCHITECTURE FOR THE ON-LINE ENTERPRISE
The FBI wants remote access because it fears that monitoring on-site would be too obvious and dangerous for its agents, but getting remote and undetectable access to LAN traffic may prove difficult.

Byron Comp, a LAN specialist at retailer Marshalls, Inc. in Andover, Mass., said a protocol analyzer such as Network General Corp.’s Sniffer could monitor the traffic between one network address and the server, but he said he was not sure how to provide remote access.

Similarly, Lori Young, LAN consultant at Baxter Healthcare Corp. in Deerfield, Ill., said it is conceivable that a LAN administrator could monitor the traffic of a particular workstation address and its E-mail.

The FBI proposal has left many technical questions unanswered, especially in the data communications field, said John Podesta, a Washington, D.C.-based attorney who specializes in electronic communications. For example, would a LAN administrator have to add another port to accommodate the FBI intercept? "They haven’t thought that through," he said, because the FBI is focusing most of its attention on maintaining the ability to intercept voice traffic.

Podesta, retained as a lobbyist for the Electronic Frontier Foundation (EFF) on this issue, said he hopes the FBI will drop the data portion of its proposal, but the agency has shown no signs of "throwing in the towel" on that section yet, he said.

The main thrust of the FBI proposal is to ensure that old and new technologies deployed in the public switched network do not impede the FBI's ability to undertake court-ordered wiretaps [CW, March 16].

FBI officials said wiretaps have been thwarted by technologies such as call forwarding and speed dialing.

Heavy opposition

At a privacy conference last week, civil liberties groups including the EFF, the American Civil Liberties Union and Computer Professionals for Social Responsibility (CPSR) opposed the FBI proposal on the grounds that it might encourage overly broad government surveillance.

The FBI wants carriers and equipment vendors to embed this intercept capability in their products and services, but the industry is balking at paying the cost of the FBI-requested modifications.

"We’re scratching our heads as to why new legislation is needed," said Jeff Ward, legislative counsel for Nynex Corp. "Digital telephony can be intercepted at the switch now." He said the FBI proposal could force telephone companies to withdraw services such as call forwarding that frustrate FBI wiretappers.

Dzubeck and Marc Rotenberg, Washington, D.C., director of CPSR, said they were concerned about the legality of giving the FBI built-in intercept capability across the board before any crime is committed or a court order is obtained.

"That’s putting the cart before the horse," Dzubeck said. He predicted that the issue will wind up before the U.S. Supreme Court.

Digital snooping

The following are the major provisions of the FBI’s draft proposal on "digital telephony":

* "Providers of electronic communications services and private branch exchange operators shall provide within the U.S. [the] capability and capacity for the government to intercept wire and electronic communications when authorized by law."

* Intercepts must be made in real time, undetectable by the suspect and routed to a remote government monitoring site.

* Carriers within the public switched network (including cellular) must comply within 18 months. Other providers of electronic communications services (including PBX operators) must comply within three years. Some exceptions can be granted.

* "Enforced by the U.S. attorney general. Penalty is a fine of $10,000 per day."
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And you’ll never look at your IBM® Basic Assembler Language applications the same again, thanks to Micro Focus 370 Assembler with ANIMATOR/370™

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Micro Focus 370 Assembler with ANIMATOR/370 also offers a Probe facility that allows programmers to quickly dissect a 370 Assembler Instruction. All screen dumps can be displayed in one or two windows with new DUMP utilities and a complete list of 370 Assembler instructions (sorted by mnemonic name) is included in ANIMATOR/370’s new online reference system. In addition, a built-in hex adder/converter allows for quick calculation of index/base/displacement addresses or adding other hex values.

Call 800-872-6265 and learn how Micro Focus 370 Assembler with ANIMATOR/370 will change the way you look at Assembler applications and discover: "A Better Way of Programming™"
Plan considered to split debt-laden Prime in two

BY KIM S. NASH
CW STAFF

NATICK, Mass. — Prime Com-puter, Inc. may call psychics out of speculators: Plans are un-der way to take public Compu-terVision, its profitable comput-er-aided design and manufactur-ing (CAD/CAM) subsidiary, to the public.

The plan is not finalized and is subject to change. It reportedly would enable internal managers to buy the unprofitable Prime hardware side of the business.

undisclosed number of Compu-terVision shares as a way to pay off part of Prime's $1.29 billion debt, the source said.

Prime's Computer Systems Business Unit, home to propri-etary and Unisys minicomputers, contributed just 12% of 1991 sales. Its systems integra-tion business contributed 2%.

But Prime and HIP officials declined to comment on the matter.

In the dark

Attendees at the National Prime Users Group conference held last week in San Francisco were no doubt surprised by the news, but they evidently were not privy to any more details than the rest of the estimated 9,700-site installed base. A Prime spokesman said that despite the presence of those "in-the-know," users in San Francisco "are getting no comment."

Though some minicomputer customers interviewed last week were unmov ed by the potential sale, some users were disturbed and confused about what the move might mean for the future of Prime hardware.

"This possibility makes me even more uneasy about future enhancements," said George Bailey, vice president and direc-tor of MIS at Whitehall Co., a major customer in Norwood, Mass.

Whitehall's Prime 9955 mini-computer runs a 65-user ware-house distribution system, the co-re of the firm. But Bailey is evaluating the best route off of PrimeOS and onto a more open operating system, probably Unix. He said there is "no question" that Whitehall will leave Prime hardware, which has far fewer software applications available for it than Unix does.

"It's like saying we're going to have to convert from horsed to wagons again. We may love the horses and he may have done a marvelous job for us, but he's being driven off the high-ways," Bailey said.

Oracle hires consultant to steer sales

BY JEAN S. BOZMAN
CW STAFF

Redwood City, Calif. — Oracle Corp. last week hired a con-sultant’s consultant to head its Oracle USA sales division.

The announcement of Raymond J. Lane, coming on the eve of Ora-clé’s Version 7.0 announcement set for June 15, signals an under-standing that Oracle’s sales force needs to inte-grate all of the $1 billion firm’s products and services under one umbrella, indus-try analysts said.

Lane joins Or-a-cle from Booz Allen & Ham-il-ton Inc.’s Infor-mation Systems Group, a worldwide consultancy based on Government Systems Group and a senior associate at Compu-ter Intelligence/Informs Corp. in Santa Clara, Calif. "People are quite happy to get going with client-server applications," he said.

Oracle’s Lane: Packag-ing of services ineffective

‘Prime time’

ComputerVision might find Wall Street a bumpy road just now.

Financial analysts were divided on how well the new shares might fare. Although the Dow Jones industrial average has jumped 7% to record highs since January, some technology firms are anticipating a more subdued climate. For example, Sterling Software, Inc. late last month canceled a planned secondary offering of 2 million shares "due to weak market conditions." And software and services firm PRC, Inc. postponed its planned initial public offering (IPO) indefinitely for the same reason (see story page 109).

Other observers were more optimistic. "This is absolutely a good time to make a move. The market is high right now. People are buying," said Scott Greiper, editor of The Spinoff Report and managing analyst at Institutional Research Services, Inc., an equity research firm in New York.

The number of computer-related IPOs is expected to skyrocket this year, according to Dick Shaffer, head of Technologic Partners, Inc. He predicted that almost 60 computer companies will go public this year, up 30% from 1991 (CW, March 23).

Should ComputerVision take the IPO plunge, its shares will compete with those of Parametric Technology, Inc. and Struc-tural Dynamics Corp.

ComputerVision’s products already fare well against those companies, according to Gisella Wilson, a CAD/CAM analyst at International Data Corp.

"Oracle has all the pieces — signals an under-standing that Oracle’s sales force needs to inte-grate all of the $1 billion firm’s products and services under one umbrella, indus-try analysts said.

Lane likened most IS groups in large companies to customer service stations where IS managers "wait for all these users to pull up and ask for service."

That old model of main-frames, COBOL programming and centralized IS is giving way to distributed models of computing, Lane said. "The service station is just going to die, and replacing it will be a new set of manage-ment techniques." He said he will help Oracle and its customers make the switch to distribut-ed database systems based on Oracle’s new architecture.

The appointment met with approval among users active in the Oracle Group. "It’s completely consis-tent with what [Chairman] Larry Ellison has been saying," said Paul Opara, chairman of the Association of Independent Oracle Consultants and president of Nobelsys Systems Corp. in Falls Church, Va. "A company has to be more than just a provider of off-the-shelf technology tools. It has to solve the whole business problem for the customer."

Oracle may be driven to provide more services to comple-ment a slowdown in the rate of selling new licenses for data-bases and software tools, indus-try analysts said.

"Oracle’s basic business mod-el is changing," said Peter Kaszter, vice president of Aber-deen Group in Boston. "They will be more applications and services-driven, and Ray’s cre-dentials with EDS and Booz Al-len are perfect for an organiza-tion that is highly service-orientated."

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REACH OUT AND ACCESS EVERYTHING

EDA/SOL FROM INFORMATION BUILDERS: The Industry Standard Client/Server Solution That Lets Any Tool Access Any Data, Non-Relational or Relational, From Any Desktop.

INACCESSIBLE DATA IS USELESS
You've spent a lot of years and a ton of money building up the databases you need to call on regularly to help run your business. But, can you access your data fast when you need it? Even worse, if it's on an incompatible platform, can you access it at all? Chances are the answer is no.

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Happily there's another answer to the problem. It's called Enterprise Data Access (EDA/SOL) from Information Builders. The people who specialize in distributed information systems.

EDA/SQL extends the reach of desktop solutions. It enables virtually any application or end-user tool that supports SQL to transparently reach any data in non-relational database files from any workstation.

REACH OUT AND RETRIEVE
With so many SQL tools integrated with many of the proprietary databases, you need a standard method of access with the power and flexibility to extend their range across distributed, multivendor systems environments.

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Nothing else delivers this universal, flexible, access capability in the day to day management of all your company's data.

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IBI EDA/SOL
Information Builders, Inc.
SoftSwitch shows off distributed E-mail

According to users, backbone will allow them to send a broader mix of messages across single wire

BY DANIELE M. WEXLER
CW Staff

BOSTON — The industry's most pervasive electronic-mail interconnection vendor last week moved to distribute its mainframe-based gateway service across user enterprises. The initiative moves the industry ever closer to X.400 standards and reinforces user decisions to shift from mainframe-centric to distributed computing, analysts said.

SoftSwitch, Inc.'s announcement of a $30,000 to $300,000 distributed messaging backbone switch addresses user pleas for automated updating of disparate enterprisewide mail directories. It also provides migration tools that will allow users from proprietary to standards-based messaging networks [CW, June 1].

The Wayne, Pa.-based, 500-customer vendor last week released a distributed messaging backbone switch that addresses user pleas for service that ease users from proprietary works for mail-enabled applications, which the slower, mainframe-centric scenario precludes.

In addition, the distributed approach aids users in gaining the economics of distributed processing, streamlining hardware cycle costs and network traffic loads, said W. Andrew

Mailbon ding

Distributing the mail — EMX at a glance:
- System guts: Data General Corp.'s Avion hardware, DG/UX Unix software; Retix's 1988 X.400, X.500 protocol stacks; Oracle Corp.'s relational database management system.
- Management: X Window System protocol. Motif graphical user interface.
- Prices: $30,000 to $300,000, depending on number of protocols, plus $5,000 per LAN gateway.
- Availability: Second quarter for first systems; third quarter for most systems; directory synchronization support in December.

Interoperability testing of FDDI products surges

BY ELIZABETH HORWIT
CW Staff

A year after Fiber Distributed Data Interface (FDDI) products hit the market in bulk, users are still experiencing problems getting different vendors' products to interoperate. In the case of the 100Base-TX networks, it came down to standard and communications testing in the lab.

Not that users are backing off from FDDI. On the contrary, a raft of users are on the verge of installing FDDI networks to support high-speed connections between local-area networks and powerful hosts and workstations, according to Infometrics Research, Inc. The San Jose, Calif., research firm predicted that the worldwide FDDI market will zoom from $18.1 million in 1991 to $640 million in 1993 and to more than $1.4 billion by 1995.

However, most would-be FDDI implementers are not willing to take vendors' word that any given mix of FDDI products will interoperate without hitch or glitch (see chart below). Many companies have set up laboratories to exhaustively test each product, generating a strong demand for third-party FDDI diagnostic tools.

The most recent of several products on the market is Sniffer, introduced last month by Sniffer, Inc., a 200-customer vendor based in Cambridge, Mass.

"We want to get to a 1988 X.400 internal backbone so we can pass phone numbers, faces and directory systems across the network. The older [mail] gateways don't let us do that," said Don Price, a technologist at Texaco, Inc. in Tulsa, Okla., a beta-test site for SoftSwitch's new Enterprise Mail Exchange (EMX) that is likely to purchase the system.

From a performance perspective, Price said, the distributed configuration allows users to take advantage of fast LAN speeds and should allow Texaco to implement mail-enabled applications, which the slower, mainframe-centric scenario precludes. For instance, Price said, the distributed approach aids users in gaining the economics of distributed processing, streamlining hardware cycle costs and network traffic loads, said W. Andrew

McPherson, assistant director of the office technology group at Merck & Co., a railway, N.J., SoftSwitch customer.

Currently, Merck's global network funnels all messages through SoftSwitch Central software on a U.S. mainframe, cluting the X.400 backbone.

No, now, the state of directory synchronization "is a big joke," said Mike Eisenman, a computer consultant at Liberty Mutual Insurance Co., a SoftSwitch Central user in Portsmouth, N.H.

Sniffing fiber

Network General last week added FDDI diagnostic capabilities to its Sniffer LAN analyzer. Key features include the following:
- Seven-layer decoding of more than 140 protocols.
- Capture and filtering of FDDI Management packets to resolve interoperability problems and isolate faults.
- Support of both dual-ring and point-to-point FDDI topologies.

FDDI Sniffer is scheduled to begin shipping this month. It is priced at $18,500 for a single attachment version and $21,000 for a dual attachment version.
Cincom users praise database moves

BY JOHANNA AMBROSIO CW STAFF

NASHVILLE — Cincom Systems, Inc. users discovered last week that by using the latest release of the Supra database management system, they can bridge the gap between the old and new database worlds. Version 2.4 of Supra, announced at the Cincom user group meeting last week, has entered beta testing and is now installed at a handful of customer sites, Cincom executives said. It essentially allows users of Version 1 to build SQL-based, relational applications and continue to use data contained in applications written under Version 1. No conversion is necessary.

Users mostly praised the move, saying the new release will allow them to take advantage of SQL and relational architecture but also retain their applications that were written in older, pre-SQL Supra versions.

Variety of uses
Thomas Nies, Cincom president and chief executive officer, also laid out the company's corporate direction as one that will deliver a wide range of applications development and other tools across different platforms — from mainframes to workstations and personal computers.

"We are not a niche player," Nies said. "We are the oldest software company in the business, and we are eliminating entirely the software lock-ins. We allow you to choose where to develop and how to do it." He also said Cincom is one of few vendors that can claim continuous revenue growth during the past 23 years.

For fiscal 1991, revenue increased from $5 million to $158 million. A private company, Cincom does not report profits.

For their part, users applauded Cincom's strategy, although some grumbled privately that it may have taken the company longer than it should have to bridge the old and new versions of Supra.

"If they had waited any longer, they would have lost the majority of their customer base," said one federal government database administrator. "We are the oldest software company in the business, and we are eliminating entirely the software lock-ins. We allow you to choose where to develop and how to do it." He also said Cincom is one of few vendors that can claim continuous revenue growth during the past 23 years.

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Imlay relinquishes corporate post

John Imlay, chairman of Dun & Bradstreet Software, confirmed last week that he will step down in January 1993 as senior vice president and parent company Dun & Bradstreet Corp. At that time, Hank Holland, president of D&B Software, will pick up the additional post of principal executive officer for the Framingham, Mass.-based applications provider. Imlay said the move will allow him to focus on public speaking and working with D&B Software's sales force.

PC makers bundle NetWare

Novell, Inc. has struck bundling deals with both Dell Computer Corp. and Compaq Computer Corp. The deals are expected to appeal primarily to network managers at smaller shops. Starting next month, Dell will sell workstations and servers already loaded with Novell's NetWare 3.11 network operating system. Compaq plans to bundle NetWare 3.11 in a package that will include other software for Compaq SystemPro server management and various network-related functions.

IBM to build child welfare network

IBM's Federal Systems Co. in Manassas, Va., won a $9.3 million contract from the U.S. Department of Health and Human Services to build a nationwide Child Support Enforcement Network. It will allow federal and state agencies to swap information that would help identify people who evade their child support obligations by moving to another state.

USAir taps KnowledgeWare

KnowledgeWare, Inc. said last week that USAir signed a "seven-figure" deal for its computer-aided software engineering tools. The Arlington, Va.-based airline plans to outfit 300 programmers with Application Development Workbench as part of a plan to improve productivity 25% to 40% with a company-wide uniform approach to software building, said Joe Abruzzo, assistant vice president for applications development.

Cyrax takes on Intel

Cyrax Corp. last week introduced the first 32-bit Intel Corp.-compatible microprocessor. Cyrax touted its 1486DLLC as better than the 68020 because it features a built-in math coprocessor, which the 486SX lacks. Analysts said the 486DLLC, designed to fit into an 80386DX socket, is not directly comparable with the 486SX.

DEC network used for Earth Summit

Digital Equipment Corp. has set up an Earth Summit Information System that will allow the 12,000 attendees at this week's United Nations Earth Summit in Rio de Janeiro to exchange electronic mail and to access information, Videotex services and a visitor's inquiry function. DEC is providing all system and network hardware, as well as all software and personnel necessary to support those services.

Short takes

The Display Industry Association last week released a framework and specifications to give vendors the ability to create compatible, standards-based products using sophisticated windowing techniques on alphanumeric display terminals. . . . Mitsubishi Electronics America, Inc. has bundled a Microsoft Corp. Windows 3.1 driver with its families of dye-sublimation and wax-thermal printers. . . . IBM and Lexmark International, Inc., IBM's printer arm, filed suit against three companies in a trademark violation suit. Filled in U.S. District Court in Asheville, N.C., the suit alleges that Lasertek, a company that refiles and resells printer toner cartridges, and two Laser Tech, Inc. lasers, claiming IBM trademarks. . . . Software Publishing Corp. shipped a multimedia upgrade for Harvard Graphics for Windows. . . . Scandinavian application development firm Sapinsa Internationale Corp., 2.5% owned by IBM, raised $41.1 million last week via an initial public offering of 3.6 million shares.

IBM kills OfficeVision LAN

The three host versions run on MVS, VM and OS/400 operating systems. The company is working on connectivity products that will directly link Notes to the host systems. However, no timetable was provided.

"What we realized is we can't roll out a broad, all-encompassing strategy with a long time between announcement and delivery," said Sullivan. "That's one of the reasons we are reluctant to announce something new until we are very near shipping it." Yet Sullivan did say that in the long term, the goal is to make OfficeVax a more intelligent server offering and that, eventually, hosts will likely play a role as communications or database servers.

Product powwows

WordPerfect Corp. stuck its oar into the OfficeVision waters last week as it discussed IBM's OfficeVision LAN office strategy. A WordPerfect spokeswoman said that although no announcement date has been set, the companies' talks extend beyond WordPerfect, the Orem, Utah, company's flagship word processor, to other products. The spokeswoman said the discussions reinforced a strengthened relationship between the two companies, citing a recent agreement for IBM to market Application System/400s bundled with WordPerfect.

CAROL HILDERBRAND

Manager of information technology support at Marine Midland Bank in Rochester, N.Y.

Some users and analysts were skeptical of any real cost saving potential of usage-based pricing, saying vendors would manage to maintain hefty prices. "If I was a betting man, I'd say large users are going to get hammered [by usage-based pricing] and smaller users would benefit," said Gavin Taylor, manager of information technology support at Marine Midland Bank in Rochester, N.Y.

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"If I was a betting man, I'd say large users are going to get hammered [by usage-based pricing] and smaller users would benefit," said Charles Phillips, an analyst at Soundview Financial Corp. in Greenwich, Conn.

One way in which vendors could retain their revenue streams, he said, is by imposing stiff fees on usage-based price models. According to Mohen, Software Meter would be useful to IBM MVS/ESA shops that pay high fees for licensed software that is not fully used. Software Meter, for example, would track the number of transactions processed or files transferred with a particular MVS/ESA software product.

Mohen said pricing for Software Meter would be based on how the utility is integrated.

ANALYSIS

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A Friendly Face

The SAS System helps UNIX do what UNIX does best. It's never been easier to exploit all the price/performance advantages of UNIX...or to connect UNIX with other systems throughout your organization. That's because the SAS System's powerful data access, management, analysis, and presentation tools work the same way on UNIX workstations as they do on host machines.

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- OS/2 2.0 upgrade: $49 from Windows, $99 from any DOS**
Pentagon makes IS a weapon

imperatives such as an 85% reduction in the number of DOD information systems centers (see chart page 1).

As the DOD sets its giant CIM effort in motion, civilian agencies — beset by their own budget cuts and runaway system costs — are watching to see what lessons they can learn from the Pentagon’s IS initiatives [CW, May 18].

While progress has been made in all areas, many of CIM’s underpinnings are still in the conceptual stage.

CIM is expected to generate $6 billion in direct cost savings over seven years by making IS more efficient. An additional $30 billion is expected from savings achieved elsewhere that are enabled by improved IS productivity.

The major cost savings will come from the interagency communitiess — finance, logistics, personnel and so forth — re-engineering their functional processes. That is just getting under way,” said Col. Richard E. Broome, who heads CIM for the U.S. Army.

Unlimited need

As compacted by the budget squeeze and compounding the challenge to CIM is the Pentagon’s insatiable appetite for software. Its inventory today stands at 1.4 billion lines of code and is growing at an annual rate of 20 million to 30 million lines.

Without the CIM initiative, Strassmann said, the DOD would spend $4.5 billion per year on software in 15 years — a level he described as “totally unaffordable.” The goal under CIM is to cut software costs to “substantially less than $20 billion.”

In this effort, standards are everywhere the new functional pro- cedures that mission for a new sys- tem that I know supports, and I'm very nervous about giv- ing up a system that I know support- ed, but which is not nearly as good as the new system.

Positive note

A military officer with responsi- bility for supply systems, who in- sist that neither he nor his service be named, said he was bullish on the CIM program for the long term. In particular, he said, efforts to standardize data, business processes and whole systems would greatly improve interoperability among military units.

However, the officer said he wished he could be there without getting there. “Look, I have a [supply] mission to accomplish, and I’m very nervous about giv- ing up a system that I know sup- ports that mission for a new sys- tem that may, initially at least, not work as well or not interface with other of my applications. I will move to [DOD-standard sys- tems] but not any faster than I have to,” he said.

There is some concern about CIM among the four-star com- manders-in-chief, Broome acknowledged, but most Army IS users know little about CIM yet.

The CIM program needs more-end user input, Broome said. “We’re at the point where we’ve done all we can to make good technological choices and getting the services to buy into them.”

Key pieces

The most fundamental near-term milestone in the CIM re-engineering effort is to complete comprehensive, DOD-wide data and business process models. The models will be key to en- abling the interoperability and the standardization that are needed if the DOD is to meet its operational and financial goals.

The effort is not trivial; Strassmann said he has 39 data modeling projects under way now, which will lead to a DOD-wide data dictionary and data re- repository system tied into the business process models.

Critical elements of the mod- eling are expected to be finished within three years.

“Very few intergovernmental agencies have achieved that... [but] until we get that right, we can’t do other things,” Strassmann said.

Another underpinning of the CIM program is a four-year ef- fort to consolidate and stream- line DOD networks into a De- 

The project has an estimated value of $650 million.

Software reuse. DOD is implementing a networked warehouse of software repositories holding reusable Ada code supplied by and available to internal users and contractors. It is ex- pected to hold $1 billion in software by year’s end.

Software reuse is expected to enable half of the $30 billion target reduction in annual software expendi- tures.

Consolidation/elimination of multiple systems performing similar functions.

Shrinking 219 IS and software design centers down to 33 to save $1.3 billion over seven years.

Move to open systems and to commercial off-the-shelf hardware and software. DOD recently published a technical reference model and a graphical user interface style guide based on open systems standards.

A move to centrally provided IS services based on DOD-wide data and business process standards with fees pegged to commer- cial use.

Great expectations

CIM consists of a gaggle of loosely related projects, procurements, management initiatives, policies and concepts. Connecting them are standards and the common goal of improving the business processes that support the DOD’s mission.

IS officials at the DOD said they expect CIM to pro- vide the following — and they mean it: “standard, vendor-independent, scalable, real-time, reliable, interoperable, flexible, secure, survivable, porta- ble, redundant, damage-resistant, low-cost, long- life, commercial, plug-together elements.”

The following are the major pieces of the Pen- tagon’s CIM effort:

• Data and business process modeling and building of a DOD-wide data dictionary, which is expected to hold 50% of DOD’s definitions by year’s end.

• Procurement of a standard family of tools for software development and process and data modeling for business re-engineering. The tools will provide access to a DOD-wide software development and data dictionary.

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Another underpinning of the CIM program is a four-year effort to consolidate and streamline DOD networks into a Defense Information System Network. It will have more than 1 million nodes and very stringent requirements for performance, reliability and security.

"Certain messages have to get to the right place with 100% ac- curacy in a fraction of a second," Strassmann said.

He predicted military IS will be the No. 1 target by adversaries in future conflicts. You have more than 1 million points of entry, and each is a point of exposure.

If you don't build in redundan- cy so that you can disable a large portion of the network and the network still performs, you don't have a survivable system," Strassmann said. "The technol- ogy is available, but the question now is one of affordability."

Strassmann said open sys- tems will help. "We are in procure- ment mode with billions of dollars on the table. We also have the most elaborate testing facilities in the world."

"We intend to go through open systems procurement... after we know we are getting vendor commitment to the kind of standards we want. We in- tend to make available to indus- try our procurement specifications and the result of our tests validating interoperability."
Are you too busy fixing old applications to think about getting new technology off the ground?

Every day, more and more IS managers appreciate the tremendous opportunities offered by new technologies such as client/server, cooperative processing and graphical user interfaces. Meanwhile, the pressure to maintain existing systems never lets up.

KnowledgeWare understands your need to maintain current systems. Our Application Development Workbench® family now includes ADW/Pinpoint, Inspector and Recorder to help you understand, analyze and document existing applications. And a reengineering strategy that underlines our commitment to bring the focus and discipline of full-lifecycle CASE technology to redevelopment.

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Univel's operating system to shed TCP/IP

BY JIM NASH
CW STAFF

SAN JOSE, Calif. — Univel, the joint venture between Novell, Inc. and Unix Systems Laboratories, Inc. (USL), said its upcoming Unixware operating system will eliminate the need for the cumbersome TCP/IP gateways used to link personal computer networks and Unix machines.

Instead, Univel will put Novell's Internet Packet Exchange/Sequenced Packet Exchange (IPX/SPX) transport protocol directly into the kernel of Unixware, an operating system designed for networking DOS with Unix machines. A September delivery is planned.

Novell and USL formed Univel last year in an effort to marry Novell's NetWare communications features with USL's anticipated 32-bit Unix System V Release 4.2.

Transmission Control Protocol/Internet Protocol (TCP/IP) adequately handles network transport needs among Unix machines, but in order to move data between these boxes and PC networks, gateways — which add traffic, cost and management headaches to systems — are needed. TCP/IP gateways "are just another 'something' on the network to manage," said Michael Bergman, PC network administrator at McDonnell Douglas Computer Systems Co.'s helicopter division in Manassas, Ariz.

Unix machines supporting IPX/SPX would need no such devices. PC users would get access to Unixware machines that have far greater computing strength than PCs, making them ideal as application servers. In return, Unix would move beyond technical computing circles, gaining access to Novell NetWare networks, which dominate the market. Unixware is scheduled for beta testing next month.

Although some industry observers see Unixware as another in a series of favorably signs that Unix will find wide market acceptance — among them a new graphical user interface (GUI) that USL is slapping on Release 4.2 — network managers are showing lukewarm interest in the GUI or Unixware. Some said they are relatively satisfied with the way their minority Unix machines interoperate with majority PC networks.

However, marking TCP/IP as an option for Unix users and making IPX/SPX standard on Unixware have at least raised their curiosity.

"That might be interesting," said Bob Holmes, a computer technical research analyst at Southern California Gas Co. in Los Angeles. "We've got a little bit of Unix [besides the company's large NetWare networks]... In the long run, we can plug more platforms together without doing superhuman things to make them talk together." Bergman agreed, saying IPX/SPX would make a good replacement for the ousted TCP/IP.

Jude Gartland, a senior vice president at Lehman Brothers in New York, said he wants to reduce the number of hurdles he must leap to link Unix and NetWare.

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PEOPLE IN THE COMPUTER BUSINESS HAVE BEEN TRYING TO IMPROVE ON COMPAQ FOR YEARS.
It wasn’t easy. Changing a company our size never is. But we listened to our customers, we studied our competitors, we took a good, long look in the corporate mirror and did the only thing we know how to do. We rolled up our sleeves and went to work.

The result of all this work will begin appearing in the weeks to come.

That’s when you’ll see new prices, new customer service and support, new methods of distribution and, of course, new products from Compaq.

From inexpensive machines for the most basic computing needs to advanced products that stretch the envelope of computing technology at prices that our customers will find quite compelling and our competition will find, well, competitive.

What you won’t see are stamped-out, second-rate boxes with the COMPAQ name stuck on at the end of somebody else’s assembly line.

While that may be the way of the world, it’s certainly not the COMPAQ way.

We still believe today what
ALLY Did IT?

we have always believed.
That a PC's overall performance, compatibility, reliability, and ultimate affordability has a lot more to do with innovation than with imitation.
So instead of asking 1200 of the finest computer engineers in the world to forget their experience, forget their beliefs, forget everything they knew about building great computers, we chose to take a different approach. We asked them to take all that knowledge and ability and build great inexpensive computers.

Engineering to cost versus engineering at any cost.
And as the best engineers are wont to do, they saw this not as a limitation to their creativity and spirit, but rather, as a new kind of challenge. A new hurdle to overcome. A new problem to ponder, twist, push, pull and ultimately, to solve.
They questioned standard manufacturing techniques, they challenged all of our suppliers, they poked and prodded and turned every aspect of every process upside down, inside out and sideways until they had managed to shake out every unnecessary cost or component.
No more over-think.
No technology simply for the sake of technology.
And along the way to our new improved destination, we learned something that our most loyal customers probably knew all along.
We learned that what makes a COMPAQ PC more than just another computer isn't simply the engineering. Or component quality. Or design. Or testing.
It's not even more tangible qualities like our reputation for complete compatibility or near-zero defect production runs or the dozens of other examples you'll be reading about in greater detail on the following nine pages of this advertisement.

In the end, what makes a COMPAQ PC more than simply another computer can be summed up in a single word.
Passion.
The passion to push technology, the passion to recognize an idea whose time has come, the passion not just of those 1200 engineers, but of an entire company, to listen and learn and adapt to whatever the customer may want today while anticipating what they might need tomorrow.

In short, the passion to do things right for the customer.
It's hard to believe, but at some PC companies the engineering department is nowhere to be found. Which stands to reason, since most other computers aren't engineered, they're copied. And as with all copies, something gets lost in the translation.

What happens when companies lack the engineering depth and expertise to make new things happen?

You guessed it... new things don't happen.

A fact that few people understand better than the 1200-plus engineers working at Compaq. The very same engineers who developed the first portable computer with dual-mode monitor and set an industry standard for compatibility. And the world's first desktop computer with concurrent bus.

So what, you might be asking, have we been up to lately?

The same engineers who designed and delivered the first 386 computer. And managed to break the 32-MB barrier in hard-drive technology.

And that's just for starters.
Among other things, we've just introduced the world's first lightweight 386SL/25 notebook PC with 120-MB hard drive and full desktop expansion capability.

Compaq engineers have also recently developed highly sophisticated Windows accelerators, and have conducted extensive testing to optimize the performance of Windows 3.1 on every COMPAQ PC.

A test that other companies will undoubtedly leave you to perform on your own.

We've even been designing new enhanced fault-tolerance features into our drive array adapters to make data reconstruction and retrieval easier, more automatic and less disruptive to normal operation.

And as you read this we're working on dozens of other new computing ideas.

Some will arrive next week.

Some will arrive next year.

Some may change the way you look at computers forever.

Others will simply make next year's COMPAQ products work a little bit better.

And finally, some will be just the kind of ideas our competitors have been looking for.

Ideas that wouldn't occur to them, however, until they looked inside a COMPAQ PC.
If you’ve ever attempted to put together a computer network, even a relatively simple one, you know what we mean. It can be time consuming. Nerve wracking. Sometimes even traumatic. And that’s assuming that everything goes according to plan.

Now obviously, variety is a fact of life when dealing with networks. There’s probably not a single LAN in existence that doesn’t include a few PCs from one company, some more from another, and still more from a third. (Not to mention an assortment of peripherals, interface cards and various network operating systems.)

And, being a proponent of PC technology, we’re certainly not recommending that you completely scrap your existing hardware and start over with strictly COMPAQ products.

We do recommend though, that as your needs expand, you think a little differently about how you approach your next PC purchase.

Because, as you may have noticed, when you throw a variety of bargain-basement components together and subject them to the increasingly complex demands of network environments, compatibility problems arise.

It’s a lot like being at a bad cocktail party. Nobody talking to anybody and everybody blaming the person who brought them together.

And suddenly you realize your well-thought-out, master-minded network has turned into a house of cards hit by a rather stiff breeze.

On the other hand, of course, there’s Compaq.

Unlike other companies, at Compaq we have an entire group of engineers who are dedicated exclusively to testing network and communications
THE SPICE OF LIFE, NETWORK, IT COULD BE OF DEATH.

hardware and software.

In addition, we have teams of engineers who continually monitor the performance of our computers within network environments. Working with many of the world's major software companies including Novell, Banyan, SCO, Microsoft, and others, they test all COMPAQ products in very active, multi-user network environments for hours, days and even months on end.

And to make system integration even easier, we offer the COMPAQ ToolKits and TechNotes, the most highly sought-after guides in the industry for multi-vendor network installations.

As a result, you can be sure that you're getting products which have been designed, engineered and tested to operate within even the most complicated network environments.

In short, products built by a company dedicated to solving computer network integration problems in our offices.

That way you don't end up having to solve them in yours.
Not long ago, Denise Anderson of Morrison, Colorado, left her COMPAQ notebook PC in, of all places, her driveway. When next seen, the 6.9-pound computer had become a speed bump for 1.3 tons of automobile. When next used, it started up fine.

Now, that may have come as a surprise to Denise. But at Compaq, it didn’t cause so much as a raised eyebrow in the engineering department. After all, when a PC is designed to withstand the slings and arrows of today’s hectic business world, a small thing like a traffic mishap is all part of a day’s work.

In fact, if you happened to walk into the Compaq testing laboratories, what you’d see is the stuff a computer owner’s worst nightmares are made of.

Computers that are being subjected to the kinds of conditions you’re only likely to encounter during the height of
summer in the Sahara Desert.
Or during the middle of the
night in an Arctic winter.

Humidity, temperature,
power-cycling and thermal-
shock tests performed while
the unit is up and running, not
just for a few hours, but for
days and weeks to simulate
years of normal use.

Computer keyboards being
pounded and punched literally
millions of times, often with
dust, dirt, ashes and other
kinds of contaminants dump-
ed into their workings.

Portable and notebook PCs
being opened and closed up
to 20,000 times to ensure the
integrity of the hinges.
And dropped over and over
again from terrifying heights,
right onto even their most
vulnerable corners.

Just to make sure that your
notebook computer can sur-
vice a couple of unattended
hours stuck inside the trunk
of your car on a hot day.

Or the power surges of
your electrical system.

Or even the occasional
heavy-handed operator.

But the important part of
the story isn’t simply that we
put our products through one
of the most rigorous testing
programs in the entire com-
puter industry.

The important part is that
every product we build is engi-
neered to survive it.

That means the reliability,
serviceability, and ultimately,
the affordability, are designed
into every product we build
right from the outset.

Which means conducting
extensive thermal simulations
to determine the absolute
optimum locations and posi-
tions for critical components
and cooling devices.

And electrostatic discharge
protection integrated into the
computer system from the
very beginning.

It means consistency of
component quality from one
production run to the next.
And to the one after that.

It means, quite simply, that
the ultimate goal of every
Compaq designer and en-
gineer is to build a product
that works, and keeps right on
working, no matter what.

A product, in other words,
that won’t break down under
the pressures of today’s com-
plex business world.

Even when the pressures
amount to all of 1.3 tons.
With our new service and support program, what you need is what you get. In fact, our technical support staff resolves 95% of all calls in under 15 minutes. And for questions that require greater expertise, we have engineers ready to get on the line.

The above is only a part of CompaqCare, the comprehensive new program designed to provide you with everything you need in the way of service and support.

Quickly, efficiently and, most of all, easily.

Our free one-year, on-site limited warranty, for example, covers just about anything that could possibly happen to your COMPAQ hardware, anywhere it happens in the U.S. or Canada. And, unlike most competitors' programs, our new on-site warranty covers every product we build.

And no matter where you take COMPAQ portable or notebook PCs, they're backed by our worldwide, one-year, carry-in warranty.

So wherever your business happens to take you—from Tokyo to Turkey, Britain to Berlin—you can feel perfectly comfortable taking your COMPAQ portable computer along with you.

We also give our users plenty of flexibility.

So much so, in fact, you can choose from any of over 2000 Authorized COMPAQ Reseller service locations.

Or, if it's more convenient, call us directly for service.

For those companies with support technicians already on staff, we've designed a self-maintainer program that gives you access to all the support resources you need to help in performing whatever service you find necessary.

Of course, while increasing the scope of our warranty programs has certainly been a priority, we've also been working on many other important aspects of customer support.

When you have any questions, for example, the Compaq
SMART System provides all of our support personnel with a sophisticated information bank comprised of countless hours of troubleshooting and engineering expertise.

All of which means the person who answers your call is certain to provide you with consistent, smart answers to your questions.

And quickly take care of even your most pressing hardware problem.

We even have on-line access with most of the major software companies.

That way we can help you understand and take care of any software-related difficulties you may encounter.

You'll also be gaining 24-hour electronic support via three different services:

CompuServe, which offers you an on-line dialogue with Compaq technicians. PAQFax, a new fax-based information retrieval system. And finally, QuickFind, our CD-ROM technical reference library.

If, after all of the above, you're still not entirely convinced that our new service and support program is one of the most comprehensive in the industry, call us on it.

1-800-345-1518.

On the other end of the phone, you'll find a whole bunch of Compaq people who are just looking for trouble.
"Now that we've made clear what we stand for, let us make it clear what we won't stand for anymore. High prices. We have a new mission. A new goal.

To provide you with all the Compaq quality, Compaq reliability, Compaq research and development, Compaq testing and customer service and support at the most competitive prices possible.

In other words, products that are exactly what you need, that are easy to find, and that are priced right.

That's what Compaq is all about today.

For the details on all of the above, yes even on the prices, just call us at 1-800-345-1518, Ext. 205, in the U.S., and in Canada call 1-800-263-5868, Ext. 205.

We think you'll like what we have to say."

—Eckhard Pfeiffer
President, CEO
Compaq Computer Corporation
IBM is claiming a breakthrough in chip research. Scientists at IBM's Thomas J. Watson Research Center in Yorktown Heights, N.Y., recently reported the development of what they said are the world's smallest transistors. The devices could lead to memory chips storing more than 4G bits of data—compared with the current maximum of 16M bits, according to IBM. The researchers said the experimental devices have an active area that is 1/75,000 of the diameter of a human hair. Based on metal oxide semiconductor field effect transistor (MOSFET) technology, the transistors work at room temperature. While the 4G-bit Mosset chip could appear before the year 2010, according to IBM, the company acknowledged that further breakthroughs in manufacturing technology will be needed in order to support mass production.

Number crunching

The financial services industry has stepped up to a Cray Research, Inc. supercomputer for the first time. The Federal Home Loan Mortgage Corp., commonly known as Freddie Mac, recently ordered a Cray T-MP EL system, which Cray said is the first Cray system ordered for the financial services sector. McLean, Va.-based Freddie Mac will use the system for analyses related to its $100 billion mortgage-backed securities business.

NCR's parallel universe

NCR Corp. is planning to build a $30 million facility for developing massively parallel computers. The Rancho Bernardo, Calif., plant will be the center for NCR's massively parallel processing research, development and manufacturing work, including the work related to the database technology the A&T subsidiary acquired from TeradatCorp.

ADVANCED TECHNOLOGY

Tackling super software challenge

Intel supercomputer packs processing punch, but programming for it can be tough

BY JEAN S. BOZMAN

Intel Corp.'s Touchstone Delta supercomputer is one of the most powerful computers ever built. But getting it to perform well calls for a balancing act, according to programmers.

The Delta computer, a prototype machine built with 513 of Intel's 1860 reduced instruction set computing microprocessors, was installed at the California Institute of Technology (Caltech) in Pasadena, Calif., one year ago. Thirteen academic and government organizations—including NASA, Caltech's Jet Propulsion Laboratories (JPL) in Pasadena, Los Alamos National Laboratory and the Defense Advanced Research Projects Agency—chipped in $8 million to buy it. The massively parallel machines can process 30 billion floating-point operations per second.

Recently, about 20 Delta applications were demonstrated in a "grand challenge" computing competition that offered a $35,000 prize. Scientists used special compilers to port applications from Unix machines and wrote applications in C and Fortran. They proved that Delta worked but discovered it needed a high degree of custom programming and tuning to perform uniquely.

The programming process for Delta was unconventional, to say the least. "Parallel programming is an optimization process because you split up the problem between many processors," said Adam Kolawa, president of Paratools, Inc., a Cray spin-off firm that specializes in compilers for parallel processing software. Deciding how to parcel out the problem to 64, 128 or even 512 processors is the first challenge, Kolawa said.

The next challenge is getting those independent processors, each with its own copy of Intel's NX/M operating system, to communicate effectively. "You have to visualize how much computation is associated with your calculations, and you develop algorithms to spread the load among the processors," said David Levine, a scientist at the Argonne National Laboratories in Lemont, III. He used Delta to model high-speed computers of with older Intel IPSC/860 machines, which can have 64 processors.

The Delta, an air-cooled machine measuring 5 ft high, 16 ft long and 3 ft deep, has a main memory of 8.3G bytes, a disk capacity of 925G bytes, an internal communications speed of 25M byte/sec., between chips and a high-speed High Performance Parallel Interface to a front-end Alliant Computer Systems Corp. Unix computer.

The range of applications run on Delta included an animated fly-by of Venus (see story below), simulations of colliding galaxies and a modeling of vibrations for chips used in Motorola, Inc.'s cellular phones. Overall, the work was greatly acknowledged. Scientists said, "I enjoyed being an advocate of it," said Eugene Wong, associate director for industrial technology at the White House Office of Science and Technology Policy. Wong helped attract federal funding for the project. The winners of the competition, a team from Caltech, used Delta to study simulations of colliding galaxies.

Gary Smaby, president of Smaby Group, Inc. in Minneapolis, said Intel had one-third of the $270 million worldwide massively parallel processing market in 1991. Competitors include Ncube Corp., Thinking Machines Corp. and, soon, Cray Research, Inc.

Delta's California shakeout of massively parallel processing will pave the way for a commercial follow-on machine called Paragon, Smaby said. The sites reportedly slated to install Paragon include the Oak Ridge National Laboratory in Oak Ridge, Tenn., the Prudential Insurance Co. in New York and The Boeing Co. in Seattle.

A look beneath the clouds

C altech's JPL studies astronomical phenomena by sending spacecraft where no human has gone and studying data in ways no one has ever done before.

In the 1980s and '90s, the world saw color photos that JPL scientists pieced together from the Voyager spacecraft's fly-by of Jupiter, Saturn, Uranus and Neptune. This year, the spacecraft Magellan sent back data from a radar survey of cloud-shrouded Venus.

The Magellan data, converted to digital images, allowed JPL scientists to create "photographs" of Venus' mountains and volcanoes. Colored orange and somewhat exaggerated in depth, the images gave early scientists their first impressions of the planet. JPL also fed the images into the Delta supercomputer to create an animated "fly-by" of the Venustian landscape. It was a project requiring complex analysis and exquisite timing.

"We think we can get the process to work 10 to 50 times faster on Delta than on Unix workstations," said Stephen Watson, a JPL imaging scientist. JPL tried using several "mesh" patterns, or sets, of Delta microprocessors or with older Intel IPSC/860 machines, which can have 64 processors.

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EDITORIAL

Dis-integration

It was a year ago that the Harvard Business Review published a highly controversial article, "The computerless computer company," in which two researchers foresaw the near-complete commoditization of the hardware business in the year 2000.

By then, the authors argued, most significant hardware manufacturing would originate in the Far East and would be based on mass-produced, off-the-shelf parts. In other words, there would be no more U.S. hardware industry, but instead a wealth of standards-based hardware choices for users worldwide.

A year later, we are no closer to the computerless computer company than we are to the paperless office. And if the authors had spent a little more time talking to customers and less time talking to the vendors to which they sell consulting services, they'd understand why this is so.

Consider the manifold expression of commoditization in the information world today — the PC clone. By definition, a clone is an exact duplicate of the real McCoy and functions as such, only more cheaply. If only it were so.

Recently we ran an article showing that some clones creaked, groaned and eventually snapped under the weight of the newest operating systems and operating environments, namely OS/2 and Windows [CW, May 4]. The problem, it seems, is that many clones require a certain missing something to perform properly under the emerging software environment. And that something is quality memory chips, not the off-the-shelf junk you find in some clones.

That's commoditization at its most fundamental level. Can you as a user envision a future, eight years out, when your real serious hardware — the superserver, for example — is bought and sold on a plug-and-play basis? Or when nodes on a network are interchangeable with one another just as desk phones in your office are today?

In mid-1992, there isn't a convenient way even to get mongrel E-mail systems to talk to one another, let alone to pick up a mail-order catalog and buy any clone you want to fit your network. And if, as the Review article's authors pointed out, the hardware commoditization will be promulgated by software operating system standards, which standards will do the promulgating? OS/2? Windows? Windows NT? Unix?

The computer industry today is rife with catch phrases like "platform-independent," "single view of the data" and "hardware transparency." Problem is, very often the only place these things exist is in the sales pitch.

The reality is that there is an enormous gap between the promise of open systems and the realities of the integrated, networked environment. It is this gap that has stubbornly resisted closing and that is plainly evident in the overwhelming majority of user sites, where customers struggle daily to piece together all those "commodities."
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E4223-7
HACKERS AREN'T THE REAL ENEMY

CHIRS GOGGAN

For years articles have been published about people who call them-

selves hackers. I would like to present the hacker's point of view.

I hope you will put aside any personal bias you may have to-
toward people who call them-

selves hackers because it is

probably based on media re-

ports rather than real contact.

I also hope you won't refuse to read this because you have a

problem with my ethics. Over

the past 11 years, operating

under the pseudonym Erik

Bloodaxe, I had opportunities to become rich beyond the

dreams of avarice and wreak

great havoc on the world's

computer networks. Yet I have

done neither. I have looked be-
hind doors that were marked

"employees only" but have

ever disrupted the operation

of business. Voyeurism is a far
cry from rape.

Illegal but not criminal

Undeniably, the actions of

some hackers are illegal, but

they are still hardly criminal in

nature. The intention of most

of these individuals is not to
destroy or exploit systems but merely to learn in minute detail how they are used and what they are used for. The quest is purely intel-

lectual, but the drive to learn is so overwhelming that any obstacle blocking its course will be circumvented. Unfortunately, the obstacles are usually state and federal laws on unauthorized computer access.

The overwhelming difference between today's hackers and their 1960s MIT name-
sakes is that many of my contemporaries be-
gan their endeavors too young to have ready

access to computer sys-

tems. Few 13-year-olds

find themselves with

systems administrators to ensure that they

have the proper tools to secure their sites

and, are rarely conducted by individuals

who do so for a living.

In most cases, however, once hackers reach college age - or, at minimum, the age of legal employment — access to the sys-
tems they desire is more readily available through traditional means, and the need to break a law to learn is curtailed.

Popular media has contributed greatly to the negative view of the word "hacker." Any

person found abusing a long-distance calling card or other credit card is referred to as a hacker. Anyone found to have breached com-

puter security on a sys-
tem is likewise referred to as a hacker and

security of all sites is in jeopardy. The most

serious computer crime. In fact, hackers are rarely more than a

temporary nuisance, if they are discovered

and, in fact, it only

makes matters worse because many hackers have access to these databases and to archives of the information sent in these mail lists.

Another major problem in system security comes from telecommunications equipment. The various Bell operating companies have long been the targets of hackers, and many hackers know how to operate with corporate and central office systems better than the technicians who do so for a living.

Increased use of computer networks has added a whole new dimension of insecurity. If a computer is allowed to communicate with anot-
er on the same network, every com-

puter in the link must be impermeable or the security of all sites is jeopardized. The most stunning examples of this occur on the Inter-

net.

With such a wide variety of problems and so little information available to remedy them, the field of computer security consult-
ing is growing rapidly. Unfortunately, what companies are buying is a false sense of secu-

rity. The main players seem to be the nation-

al accounting firms. Their high-cost audits are most often procedural in nature, how-

ever, and are rarely conducted by individuals

with enough technical expertise to make rec-

ommendations that will have a real and last-
ing effect.

Ultimately, it is the responsibility of the systems administrators to ensure that they have the proper tools to secure their sites against intrusion. Acquiring the necessary information can be difficult, but if outsiders can get their hands on this information, so can the people who are paid to do the job.

Goggans is a 23-year-old hacker. He is currently seek-

ing employment with anyone who won't make him cut his hair.

JUNE 8, 1992

COMPUTERWORLD
HP's PaintJet XL300. Now, brilliance doesn't require genius to install.

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HEWLETT PACKARD
Intel moves into OverDrive
 Pricing as well as ease of modular upgrade lauded by potential users

BY MICHAEL FITZGERALD
CW STAFF

FOLSOM, Calif. — Intel Corp.'s new OverDrive processor may spur user interest in personal computer upgrades by promising up to 70% better performance.

Analysts and users said that with the price and installation of the OverDrive chip, Intel may have given them reasons to look more seriously at upgrading. The single-chip, pop-in upgrade will double the clock speed of 1486SX-based systems.

At least one user, Bill Lodge, a project leader at Turner Corp., a New York-based construction firm, said the chips would have helped his company avoid replacing several of its PCs.

Lodge said Turner wanted to improve the processor power of its 68386 PCs but saw no need to replace the subsystems. "If we'd had a processor like that, we would have taken advantage of an upgrade like this and not replaced those machines," he said.

Lodge added that replacing subsystems is "less of an issue than it might be because the upgrades are 1486-specific, and his company buys Dell Computer Corp. PCs, designed with a universal motherboard.

"It's a good deal for the end users," said Michael Slater, publisher of the "Microprocessor Report" in Sebastopol, Calif. "Intel likes the thought of potentially being able to sell two chips for one box."

Intel plans to release OverDrive processors for the 486DX, 486DX2 and, eventually, for the 586 chip family.

Something on your mind? Macs open for discussion

BY JAMES DALY
CW STAFF

WOBURN, Mass. — Feeling chatty? Your Macintosh can now lend an ear.

A small software company has beaten Apple Computer, Inc. to the punch by introducing a software package that it claims adds instant voice-recognition capabilities to the Macintosh. Although it will not offer advice for the laymen or suggest ways to keep your kids under control, Articulate Systems, Inc.'s (ASI) $399 Voice Navigator SW reportedly allows users to control any off-the-shelf Macintosh application by voice commands.

Apple is working on a similar product. Phac Le Tuan, manager of Macintosh system software, demonstrated a Macintosh sporting rudimentary voice-recognition capabilities at an analyst's briefing earlier this spring.

"We'd had a processor like that, we would have taken advantage of an upgrade like this." BILL LODGE TURNER

Articulate Systems' Voice Navigator SW allows users to type while using voice for formatting and menu commands

Heathrow Airport, he said. Allsoft said they expect their package to appeal to a large number of graphic artists, desktop publishers, multimedia artists, computer-aided-design and manufacturing and business users who might adopt voice control as a way to work.

The package allows a user to record and access 200 commands at once. However, the vendor claimed that an unlimited number of commands is possible if users assign more lists of stored commands to the original 200.

Continued on page 41
Central Point Anti-Virus protects the 486s in engineering, the laptops in marketing, the XTs in your secretarial pool and just about everything in between.

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Which of these graphics-oriented applications best describes your needs? (Check all that apply)
- Desktop Publishing
- CAD/CAM
- Animation
- Realtime Modeling
- Image Processing
- AutoCAD
- Business Graphics

How many people work in your group, department or small business?
- Less than 10
- 10-20
- 20-35
- More

Is your desktop operating system:
- DOS
- DOS with Windows
- MAC
- UNIX™
- VMS
- Other

LAN Communication:

- How many PCs do you have installed?
- From how many manufacturers?
- What kind of media (cable) is used in your LANs today?
- What is the networking software now being used in your company?
- What kind of host system will your PC communicate with?
- Digital
- IBM
- Other

What kind of service do you need?
- On-Site Hardware Support
- Software Support
- Telephone Support
- Training
- FAX Hotline

How many of your users take portables on the road?
- Do you currently have a service contract(s) for your PCs?
- Yes
- No

Does your service provider offer Multivendor Support?
- Yes
- No
Lindquist CONTINUED FROM PAGE 39

multithreading, even if there are only one or two applications (one is solitary — or boy!) that take advantage of the features, I also like the idea of an operating system that can run even the most buggy beta-test software without having to be rebooted when it crashes. I ran OS/2 2.0 on IBM hard- ware when writing my review of the operating system. It’s performance was admirable, if not blindly fast. I was sure my close PC (let’s call the model XYZ) with its much faster processor and disk drive and more memory, would make OS/2 2.0 a dream to work with. I couldn’t have been more wrong. My XYZ machine will not load OS/2 2.0. It takes the install disk fine. But after I put in the second disk (Disk 1 in IBM nomenclature), it locks up and flashes an “inte- TROOF 000” error on the screen.

I’ve called the manufactur- er, the reseller, my IS depart- ment and IBM to find out how to resolve the problem. The manufactur- er told me it was my cheap memory. But none of our other sys- tems was loaded with the expen- sive stuff, and that failed too. The reseller told me he didn’t support OS/2, so it wasn’t his problem. My IS department said it wasn’t sure how to help me and that it was very likely that the system would never run OS/2. I have yet to hear a peep out of IBM — and I don’t want to pull any strings on this one. I suppose I could use the special “media relations” phone num- ber I was given, but I wanted to see what it was like to be a real user, not some- one IBM worries would print a bad review.

I am still waiting to have IBM fix OS/2. I’m going to have to get a new sys- tem. I suppose I could have a re- view machine sent to me and use that, but review machines have to go back eventually, and there’s nothing I hate more than getting a system just the way I like it and then having to start from scratch again. I also don’t want a system from XYZ again. My IS depart- ment swears by that company, but I’m more inclined to swear at it. It’s done nothing to make me feel confident.

Other manufacturers I’ve tried and heard about run OS/2, and I’m jealous. And my system is quite new, so it just isn’t likely that a new PC is in my cards in the near future.

Regardless of a miracle occurs, I’m going to keep using Windows 3.1. In another few months, I’ll be able to get aCompaq 386SX and go on the system.

Lindquist is a Computerworld staff writer.

COMPUTERWORLD

Acer PACs a bundle into activity center

BY CAROL HILDEBRAND

The everything-but-the-kitch- en-sink philosophy came to the personal computer world last month with the introduction of the Personal Activity Center (PAC), an AcerPAC 4000SE from the Acer Group. Using a mixture of computing and consumer electronics fea- tures, the PAC combines tele- phone, fax, a stereo system, a compact disc/read-only memory (CD-ROM) drive with reference guides on board, preloaded applica- tions, on-line tutorials and multimedia functions. Estimated street pricing ranges from $2,925 to $2,695.

“IT’s kind of like a buckshot approach: Something is going to hit,” noted Richard Zweckenheim, an analyst at International Data Corp., a market research firm in Framingham, Mass. He added that while the PAC was “probably not the formula for the system of the future,” he could see a market for comput- er-phobic executives or small middle businesses with budget constraints.

The PAC is based on a 20- MHz 80286 chip with 4MB of random-access memory and a 130MHz-byte hard drive. Its ark- load of enhancements includes the following:

• Telephone Answering De- vice. A built-in digital answer- ing machine that recognizes both voice and fax messages. Also in- cluded is a built-in fax and data modem, as well as a speaker phone with a condenser micro- phone.

• Music Center. Featuring an AM/FM tuner that can be preset for up to 16 radio stations, the center also has a CD player and an eight-channel mixer that can add in sounds from the telephone that can bring the sound up to professional levels.

• StartSmart and Save-Smart. The first automatically switches the PAC on to receive a phone call or fax. The latter automatically captures and stores data while the fax or phone is being used and comes up to the same spot once the call is terminated.

• Bundled applications. MS- DOS 5.0, Microsoft Corp.’s Win- dows 3.0 with multimedia exten- sions, Microsoft’s Works for Windows, Microsoft’s Book- shell, Prodigy, Microsoft’s Entertain- ment package and Derina Technology, Inc.’s WinFax soft- ware are all included.

• Miscellaneous bells and whistles include stereo head- phone and microphone jacks, a microwave oven, a RJ- 11 standard phone jack, coaxial antenna jack, a Musical Instru- ment Digital Interface (ject- port and a PC parallel port and two serial ports.

Acer is also employing a little of the buckshot technique in its marketing approach, making the PAC available through both its net- works and Acro lines, as the AcerPAC 150 and the Acros 380.

Helpful facts about fonts

Port of a series of Windows 3.1 user tips pro- vided by Microsoft Corp. and based on ques- tions commonly asked by Microsoft custom- er support personnel.

Q I loaded Windows 3.1 on my net- work using the SETUP/N com- mand. When running Digital Consult- ing Associates, Inc.’s Irma Worksta- tion for Windows, I receive an error message. What’s wrong? A Irma Workstation for Windows loads its fonts into a System sub- directory under the Windows directory. However, on a network setup of Windows 3.1 (using the SETUP/N command), there is no System subdirectory either created or needed. When the application requests its fonts, Windows will not look for a System subdirectory and will return an error message. To work around this problem, simply copy your font files from the System sub- directory into your shared Windows directory.

Q I heard that there were TrueType and font-caching driv- er issues. Can you elaborate? A Caching assumes that once a character has been read from the graphic device interface, all characters for this size will be available. This works for bit-mapped fonts but not for TrueType fonts, which are created on the fly from the display device’s inability to properly display TrueType fonts.

To correct this, try changing your display driver characteristics for your driver.
Without the right tools, migrating to a new e-mail system could be very bumpy.

Although downsizing from a host to a LAN-based e-mail system can indeed provide significant long-term savings as well as increased user productivity, it's just not going to happen that way if you have not planned for it carefully.

So how do you guard against this? Well, for one, make certain you choose a vendor who can provide a clear migration plan, along with the understanding that downsizing is a gradual process and not something that'll happen overnight.

Secondly, be sure they are in a position to offer you the right technology to meet your needs.

At Microsoft we're able to do all of this and a lot more. Take for instance our new transport-independent Microsoft Mail Windows client. With it you can move your users to a
single e-mail interface first, then migrate the back end when it’s convenient for you.

Precisely what does all of this mean? Basically that you can move in manageable phases—phases that don’t force you to change everything in one fell swoop.

For the details on our 3-phase migration plan, call us at (800) 227-4679, Department Z14, and ask for the Microsoft Electronic Messaging Strategy white paper and the Migration Solutions paper, too.

And put yourself on the road to a highly successful electronic mail strategy.

Microsoft
Making it easier
NEW YORK — For legal professionals, researching criminal and civil cases can often require hours of painstaking fact-checking. But a series of new compact disc/read-only memory (CD-ROM) tools with a complete history of state case law can speed that process.

LawDesk, a CD-ROM-based research storage disk containing more than 240 volumes of court rulings and decisions from the New York Official Reports 2d, was recently introduced by Thomson Electronic Publishing in Stamford, Conn. Similar volumes were also introduced in California, Connecticut and Arkansas, and the company plans to add case law for other states.

Reaction from the legal community to LawDesk has been positive. Loren Glassman, an independent lawyer in White Plains, N.Y., has been beta-testing LawDesk for five months. Glassman, who shares a law library with eight other attorneys, said LawDesk has been very helpful.

"Sometimes you can find a case very easily by using a key word on LawDesk, whereas by using other on-line services, you can spend up to an hour searching indexes," he said.

Glassman said he intends to continue testing LawDesk for a few more months before purchasing the product.

"I could substantially lower my monthly bills with a product such as this," said Rodney Bats, an independent lawyer in Hempstead, N.Y., who showed interest in LawDesk. Bats is also the chairman of the computer committee for the Nassau County Bar Association in New York.

LawDesk includes decisions from the New York Court of Appeals and the Appellate Division of the Supreme Court. This fall, the vendor will add miscellaneous decisions and New York slip opinions.

LawDesk was originally developed under a contract between Thomson Electronic Publishing and the state of New York. The first disk was pressed in August 1991 but was made available as a commercial product only recently.

What's the precedent?

LawDesk can operate on an IBM-compatible personal computer or a PC/AT-class desktop machine. The database also allows lawyers to research how certain judges have ruled on specific cases, from automobile injury lawsuits to murder trials.

Stand-alone versions are priced at $2,995, with quarterly updates provided for an additional $580 per year. Networked versions are available for $500 per network or $50 per user.

"Changes in information technology have exploded the notion of what a law library is," said Peter Martin, a law professor at Cornell University Law School in Ithaca, N.Y.

While both Martin and Glassman acknowledged that LawDesk and other electronic legal research tools will not replace law libraries and legal manuals, they concurred that the storage technology offers immense potential in accessing legal information.

National unveils integrated circuits

SANTA CLARA, Calif. — National Semiconductor Corp. has joined the move toward multifunction chips with the recent debut of Dispatch, a family of integrated circuits that combine digital voice, fax and speech recognition.

Among other things, these circuits could allow a user to place a telephone call on hold long enough to send a fax. They bring an answering machine and fax machine together on a 4-by-5-in. circuit board.

"One thing National brings to the market that no one else has is speech recognition," said Dean McCarron, an analyst at In-Stat Research, Inc. in Scottsdale, Ariz. He said this would allow people to phone in and give simple commands, such as "play back messages."

Dispatch will mix and match three system chips with three peripheral controllers on a single circuit board.

"Now a single National brings to the market that no one else has is speech recognition," said Dean McCarron, an analyst at In-Stat Research, Inc. in Scottsdale, Ariz. He said this would allow people to phone in and give simple commands, such as "play back messages."

Dispatch will mix and match three system chips with three peripheral controllers on a single circuit board.

National is now selling it to OEMs at a base price of $45. The company expects its OEMs will have the product on retail shelves by March 1993.

MICHAEL FITZGERALD

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JUNE 8, 1992
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A powerful new workstation that runs your applications better than any other desktop on earth.

A multiprocessing workstation you can upgrade to future generations of chips about as easily as you can change a light bulb.

An innovative workstation that doesn't trade off backward compatibility for the sake of forward thinking.

If that's your idea of a truly new workstation, meet the SPARCstation™ 10 system.

**The only performance that matters.**

One of our engineers describes performance this way: What good is a turbo-powered engine if the car's transmission is sluggish? Or its tires are flat?

His point is that building faster CPUs makes little difference if the rest of the computer can't keep up.

So for the new SPARCstation 10, Sun devised an entirely new workstation, from the footpads up. Not only with a faster CPU, but with a faster system bus, faster input/output, faster networking, and built-in multiprocessing.

The faster CPU is our remarkable — and reassuring — new SuperSPARC™ chip.

Reassuring, because SuperSPARC is binary compatible with previous generations of SPARC®. It runs the Solaris® operating environment, too, so you can use thousands of existing applications.

And remarkable, because SuperSPARC can handle three instructions at once (most others manage only one or two). Imagine what that does for sheer processing speed.

Now here's where things really start cooking:

We teamed all that horsepower with the extra performance of multiprocessing. One megabyte of SuperCache™ memory. A 320-megabyte-per-second peak memory bandwidth. A 10-megabyte-per-second SCSI disk...
controller. And a large I/O buffer for faster Ethernet transfers.

Individually, each of these represents a big step forward in computing performance. But together they produce an astonishing leap ahead in application performance.

And to the person whose hands are on the keyboard, that's the only kind that matters.

Growing up vs. growing old.

Though budgets have never been tighter, most workstations are still designed around the belief that you're willing to replace last year's computer just to work with a newer processor. The SPARCstation 10 was designed around a different philosophy: Make the processor replaceable, not the workstation.

To that end, we put the processor on a small SPARC module that plugs into the motherboard. As faster chips become available, you can upgrade by pulling out the old card and plugging in a new one.

The rest of your investment — memory, storage, accelerators, everything — is left intact.

But don't feel you have to wait around for faster chips. You have the freedom to grow a SPARCstation 10 in plenty of ways right now.

You can start by plugging in a second SPARC module. Since this machine was engineered throughout for symmetric multiprocessing, a second module will nearly double its processing power.

You can also boost its memory to 512 megabytes. And its disk capacity to 26 gigabytes.

There are ports for both parallel and serial devices; connections for thick, thin, or twisted-pair Ethernet; even ISDN connectors for networking over public telephone lines. All built in. Which leaves its four expansion slots available for other functions.

To sum up, we hope you like the way Sun's SPARCstation 10 looks on your desk. Because it's going to be there quite a while.

The future is not an option.

As innovative as computer companies try to be, they usually can't keep up with what people like you are ready for.

For instance, how long have you been hearing about promising new technologies like multiprocessing? Multimedia? ISDN?

And how many workstations can you name that give you all these capabilities, right out of the box?

There's only one. And you're looking at it.

You've already read how the SPARCstation 10's multiprocessing can speed up the applications you run today. But it also means you can add enough horsepower later to run next-generation software built around multithreading and object management.

Then there's ISDN. It brings the worldwide telephone network directly into the computer — without modems. Which allows applications to make faxing, voicemail, and even video conferencing as natural as printing.

A 16-bit audio chip and external speaker are also included. So applications can use CD-quality sound for e-mail, spoken tutorials, and multimedia presentations.

And there's enough memory, disk space, and bus bandwidth to meet the enormous demands of animation, simulations, and real-time video.

Oh sure, there are plenty of options you can add to this computer.

The future, though, is standard equipment.

Admit it, you're intrigued.

You can't have read this far without feeling at least a twinge of excitement.

Maybe it's for the swift kick-in-the-pants this machine can give to the applications you're already running today.

Or the enthusiastic way it welcomes whatever promising new technologies might be around the corner.

Maybe you simply can't help but respect a computer that offers your business a lot more than just MIPS and MFLOPS.

Whatever you think, here's what to do:

Call 1-800-426-5321, ext. 485, for complete information on the SPARCstation 10, or for the name of your authorized Sun reseller or sales representative.

It's the first workstation to combine such powerful numbers with such potent ideas.
NEW PRODUCTS

Peripherals

Integrix, Inc. has announced the Integrix SGX 120, a plug-and-play graphics accelerator board. The Integrix SGX 120 requires a single SBus slot and gives 1,280-by-1,024-chip, the Integrix SGX 120 is fully compatible with all Sun software and systems, the company reported.

The single-slot configuration permits the use of multiple monitors per workstation and can accommodate up to three boards per system. Sun monitors with either 1,152-by-900-pixel or 1,280-by-1,024-pixel resolution can be used with an auto-sensing capability.

Integrix SGX 120 costs $2,750.

Integrix
1200 Lawrence Drive #150
Newbury Park, Calif. 91320
(805) 375-1055

Antex Electronics Corp. has announced Audioport, an external audio adapter for laptop, desktop and notebook personal computers.

Users can perform real-time playback of sampled sound and direct-to-disk recording. Audioport connects to the parallel printer port of any PC and does not interfere with use of the printer.

Three different models are offered. Audioport has software programmable sampling rates ranging from 7.1 KHz to 36.5 KHz.

Audioport costs $495.

Antex Electronics
16100 S. Figueroa St.
Gardena, Calif. 90248
(310) 532-3092

Radius, Inc. has started to ship MultiView 24, a 24-bit true color graphics board, for IBM Personal Computers and compatible running Microsoft Corp.'s Windows. MultiView 24 offers 1,024-by-768-pixel non-interlaced resolution and refresh rates of up to 75Hz. The product is designed for Windows 3.0 and 3.1's 24-bit color and offers 8-bit, 8514/A compatibility for non-Windows applications.

MultiView 24 costs $1,999.

Radius
1710 Fortune Drive
San Jose, Calif. 95131
(408) 434-3010

Software application packages

Digital Tools, Inc. has ported AutoPlan to the Sun Microsystems, Inc. Motif graphical user interface environment.

AutoPlan with the Sun/Motif provides a framework for organizing project tasks. It is designed for open systems in a distributed, networked workstations environment and utilities graphical elements for intuitive use of software.

AutoPlan's software is priced at $2,995 per floating license and $1,495 for a node-locked license.

Digital Tools
18900 Stevens Creek Blvd.
Cupertino, Calif. 95014
(408) 366-9920

Macintosh products

Fifth Generation Systems, Inc. has created Public Utilities. It offers the Apple Computer, Inc. Macintosh.

Public Utilities transparently monitors Macintosh disk usage. It includes diagnostic and repair features for partition maps, drivers and driver maps, bad blocks and various other problems.

It also provides a Launch Pad function that integrates third-party utilities into a single program launching facility.

Public Utilities costs $149.

Fifth Generation Systems
10049 N. Beige Road
Baton Rouge, La. 70809
(504) 291-7221

Software utilities

Individual Software, Inc. has introduced Individual Training for Version 5.1 of WordPerfect for Windows.

The software-based training tool helps new users learn WordPerfect Corp.'s word processor for the Microsoft Corp. Windows environment. Pull-down menus, presentation-quality table creations, underlining and bold and italic elements are included.

Individual Training is priced at $69.95.

Individual Software
5870 Stoneridge Drive #1
Pleasanton, Calif. 94588
(510) 734-6767

WANT QUICK ACCESS TO PRODUCTS?

See Computerworld's Product Showcase.

Page 105
Reach extends its links between E-mail apps

BY JIM NASH
CW STAFF

Growing customer sophistication is driving makers of electronic-mail products to slice, dice and splice their lines to provide successful feature combinations.

One prime example is Reach Software Corp.'s expanding line of messaging products. Last month and next month, the Sunnyvale, Calif.-based company is scheduled to ship Mailman 2.0 for Novell, Inc.'s Message Handling System (MHS) engine and Banyan Systems, Inc.'s Vines Mail. Also expected to ship next month is Personal Mailman for Intel Corp. 80286 or greater IBM and Compaq Computer Corp. laptops.

Good reviews

Despite some bugs in beta-test versions of Mailman 2.0, initial users of the software say it compares favorably with competitors including Beyond, Inc.'s rising-star product, Beyond Mail. Mailman 1.0 began shipping a year ago. In the intervening time, Reach has begun shipping Workman, a spin-off work-flow application that automates the process of developing, distributing and auditing business forms.

Reach has given Mailman 2.0, based on Microsoft Corp.'s Windows operating system, two-way support for Windows' Dynamic Data Exchange (DDE). That support enables users of Mailman to invoke other Windows-based applications while in Mailman and to access Mailman while in those other applications. This alone has won praise from Mailman 1.1 users.

Dave Pearce, a systems analyst at Bank of Tokyo's systems department in Boston, said DDE support is a key element. With Mailman 2.0, Pearce said, there is no need to shut down one application to invoke another.

The new version has also gotten Mailman and Workman to recognize each other's objects: electronic forms for Workman and mail for Mailman. In previous versions, according to Greg Boyd, president of Imagengineering, Inc. in Columbus, Ohio, Mailman would accept Workman forms and alert users of their arrival, but because they were forms and not mail, nothing could be done with them.

"No one needs these forms cluttering up the mail," Boyd said. Mailman has been altered to provide successful feature combinations.

Users gain influence at X/Open

Will use annual survey to extract product delivery dates from vendors

BY MARYFRAN JOHNSON
CW STAFF

MENLO PARK, Calif. — The role played by users in the X/Open Consortium Ltd. is undergoing a quiet but important power shift, as the 44 user company members take over the job of tracking vendor responses to their requests for open systems products.

For the past three years, X/Open has been documenting a number of heavy hitters in the international corporate world, including Japan's Nippon Telegraph and Telephone Corp., Du Pont Co., BT, Daimler-Benz AG, The Boeing Co. and Ford Motor Co.

"We will be fine-tuning the focus that was previously placed on low-level interfaces into the operating system and the hardware and paying more attention to how the computer functions within a business to solve problems," X/Open's Morris said.

"We would like to see a market more populated by vendors delivering applications that do very useful things to solve our business problems," agreed Doug Morris, a user council member from Exxon Exploration Co. in Houston.

"It's good to have commitments from system vendors, but we need a better idea about what applications developers are going to do," Exxon's Morris said.

In practical terms, the changes will mean greater guidance for users buying open systems technologies. There will be Continued on page 51

By the end of this week Computerworld readers will have spent over $35.8 Billion on Information Technology this year — representing nearly half of all IT spending to date in 1992.

JUNE 8, 1992
Fast action, not luck, puts casino on a roll

BY PAUL GILLIN
CW STAFF

LEDWARD, Conn. — When the Foxwoods Casino opened in February, the information systems staff expected to get some breathing room during the seven hours that the gambling hall would shut down every night. That was before casino patrons came streaming through the door.

So many people came to opening day of the Northeast's newest gambling casino that management said they made a decision to run 24 hours a day. "We started Feb. 15 and have never shut down," said Alan House, the former IBM engineer who installed the casino's twin RISC System/6000s. House is now president of LewCo, Inc., a Freehold, N.J., consulting firm.

Foxwoods installed redundant IBM RS/6000 servers connected by a fiber-optic Ethernet backbone to terminals on the casino floor and in the bank, which is the heart of casino operations. It chose a combination of packaged and homegrown applications written in Progress Software Corp.'s Progress application development environment. The advantage of Progress, Zorner explained, is its portability, scalability and speed of coding. "We could easily take the applications we wrote and move them onto an AS/400 if we wanted," he said. "That's be important if we see the kind of growth we're planning."

The total project cost about $420,000. While Zorner said he could not estimate exactly how much Foxwoods saved, he noted that an Application System/400-based system at a similar-size casino in Atlantic City cost more than $2 million.

The RS/6000 and the software were acquired with an eye to the future and with modularity in mind. Gaming Enterprise President Albert Luciani hopes someday to expand Foxwoods into a fantasy resort — sort of a Disney World in the woods.

"We didn't want something that was going to last six months before we outgrow it," said Robert K. Lewis, president of LewCo, Inc., a Freehold, N.J., consultant on the project. Zorner also chose a modular approach to staffing. The casino employs just 11 IS staff and relies on contractors for nearly all of its software development.

There has been plenty to keep the small staff busy. System specifications changed frequently during the construction period. "We probably refiled the system in full three times" in the year before the casino opened because management was operating at such a frantic pace, Zorner said. "But the Progress system was flexible enough to let us do that.

With the specifications finalized only five months before the casino was set to open, Progress consultant Ethan J. Tower spent December and January pushing software releases out the door, often just in time for user training to begin. The pace was frenetic, but Zorner credits the Progress fourth-generation language, Tower's skill at the keyboard and the reliability of the RS/6000s with getting clean code written quickly.

Another potential problem cropped up when it was discovered that the payroll system Foxwoods bought from a Progress value-added reseller had never been tested in a company with more than 600 employees. Foxwoods surpassed that level long before opening day and now is changing along with more than 3,000 people on its payroll.

Tower also wrote a job applicant tracking module for Foxwoods' human resources package — in less than a week. It has since swelled to a database of more than 200,000 records without problems, staffers said.

Reach extends E-mail links
CONTINUED FROM PAGE 49 to recognize a form but leave it for Workman to display it.

Scott Totman, manager of network planning and design at a major health maintenance organization, said he is looking at messaging systems that smooth out the shortcomings of his Vines Mail system, and Mailman is high on his list.

Past and present versions of Mailman enable employees to access and store documents attached to electronic mail. With Vines Mail, Totman said, files attached to incoming mail must be saved separately and stored to another application, such as word processing, before they can be accessed.

"If I can save my people from having to do that — save 5 to 10 minutes of an average employee's day — I could have a return on this investment in 41 days," he said.

Passing muster
Already sold on Mailman, Pearce has put the new version through a monthlong beta test. Two bugs have caused the software to crash during that time, he said. Reach sent him a new Dynamic Link Library module that he copied into the Mailman subdirectory to try the trouble. Another as-yet unsolved bug has caused the beta-test version to distort labels and headings on Mailman running on Windows 3.1 to the point of illegibility, he said. Pearce said Reach is working on a fix.

All of the products will ship before the end of July, including Personal Mailman, which enables employees to retrieve mail from Vines, Novell's NetWare, Compuserve, Inc.'s CompuServe and MCI Communications Corp.'s MCI Mail. The software is based on Mailman 2.0. Messages can be held on the laptop until it is hooked up to a NetWare, Vines Version 4.1 or Microsoft LAN Manager network directly or over dial-up connections.

Personal Mailman is priced at $149 for each single-user license. Mailman 2.0 on MHS is priced at $495 for 25 users and $2,395 for unlimited users on a single server. A Vines version runs $1,495 for unlimited users on a single server.
Token Ring card melds copper, fiber

BY JOANIE M. WEXLER CW STAFF

SALT LAKE CITY, Utah — Picking up on the trendy theme of dual-personality network adapter cards that protect user investments, Racore Computer Products, Inc. recently rolled out 16/4M bit/sec. Token Ring adapters that will attach to either shielded twisted-pair copper wire or fiber cabling.

The vendor's $995 cards for IBM Personal System/2s and compatibles would allow users to extend the distance between two network nodes from the 100 meters specified by the Token Ring standard for copper wiring to 2 km across fiber, should they decide to upgrade their cabling plant, said John LaPorta, Racore president.

However, analysts do not see a huge market for Token Ring networking over fiber — for which there is currently no ratified IEEE standard, said Susan Frankle, a senior analyst at International Data Corp. in Framingham, Mass.

"There are not a lot of people pulling fiber to the desktop now, and if they are, they are probably incented to make that an FDDI network," she said. Fiber Distributed Data Interface (FDDI) networks run at 100M bit/sec.

"The cost of FDDI is coming down to the $1,500 (per connection) range, and it's going to drop even lower," Frankle said. Racore's $995 cards are "not aggressively priced," she added.

Users take new role at X/Open

CONTINUED FROM PAGE 49

a broadening of the X/Open "branding" process to include applications and hardware interfaces, as well as a sharper focus on interoperability with legacy systems.

"Users are not, in general, writing to lower level interface standards," Exxon's Morris explained. "But they'd like to buy applications that use those interfaces to communicate to the operating system so they can have portability and interoperability."

The X/Open user members are also taking more active roles in the individual "working groups" on topics such as distributed transaction processing, system management and data interchange standards.

"There are a lot of user companies that look to X/Open to really be the integrator," Barrett said. "Since X/Open's onlyherent, which has sold more than 40,000 copies since its 1990 release. The price includes documentation, unlimited technical support and an unlimited user license.

IN BRIEF

Lotus' Unix-based upgrade to ship

Lotus Development Corp. plans to begin shipping an updated version of its Unix-based spreadsheet this month. The 1-2-3 for Unix Version 4.2 will run on IBM's, Digital Equipment Corp.'s and Hewlett-Packard Co.'s Unix-based systems.

The price includes documentation, unlimited technical support and an unlimited user license.

JUNE 8, 1992
You can read a knee-high stack of computer magazines each month and still not find the depth and breadth of news and information you’ll discover each week in the pages of Computerworld. As the only weekly newspaper for IS professionals, Computerworld is filled with up-to-the-minute articles on topics ranging from products and people to trends and technology. We cover it all—PCs, workstations, mainframes, client/server computing, networking, communications, open systems, languages, industry news, and more. It’s everything you need to know to get an edge on the competition.

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   - Databases
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   - Multipart forms
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3. When will you be purchasing printers?
   - 0-3 months
   - 4-6 months
   - 7-9 months
   - 10-12 months
   - 13-15 months
   - 16-18 months
   - 19-24 months
   - 25-30 months
   - 31-36 months
   - 37+ months
   - No current plans

4. How many printers do you plan to purchase during the next 12 months?
   - 1-2
   - 3-5
   - 6-10
   - 11-25
   - 26-50
   - 51+

5. Please check this box if you would like to have a GENICOM representative call you.

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NEW PRODUCTS

Fax hardware

TGI Technologies Ltd. has released Sci-Net 2000, a fax server product for Novell, Inc. NetWare local-area networks. The product manages fax receipt and transmission from LAN workstations. It includes a set of fax-specific fonts with 196 by 204 dot/in. resolution for clarity of transmission. Users can send faxes from within other applications such as word processors. Incoming faxes are routed automatically.

Sci-Net 2000 pricing starts at $1,495.

TGI Technologies
107 E. 3rd Ave.
Vancouver, British Columbia
V5T 1C7
(604) 872-6676

Software utilities

Multisoft Corp. has announced that PC-Kwik Power Pak, its reorganizer and defragmenter, is being sold with PC-Kwik Power Pak, its performance enhancement utility package. Power Pak has the ability to optimize large disk partitions and complete data security. Designed to accommodate a range of media up to 1G byte in size, Power Pak includes special safety features that ensure users against loss, even in a power outage, the company reported.

Power Pak features the Super PC-Kwik disk cache, keyboard and screen accelerators, print spoolers and random-access memory disks.

Power Pak costs $79.95, and Power Pak costs $129.95.

Multisoft
Suite L
15.100 S.W. Koll Pkwy.
Beaverton, Ore. 97006
(503) 644-5644

Software applications packages

Lysis Corp. has announced the Lysis Shared Information System 2000A, automation software for help desks.

The 2000A automatically generates VMS mail messages, including the caller’s name and phone number, a description of the problem and the priority for resolution. Whenever an existing open problem is reassigned to a different specialist, the 2000A sends out a notification message.

The 2000A costs $6,000 for the first two users and $1,500 for each additional simultaneous user.

Lysis
118 E. Maple St.
Decatur, Ga. 30030
(404) 373-3359

Software Artistry, Inc. has announced Expert Advisor Version 2.2, a help desk automation system. Enhancements for this release include voice annotation support and a case-based reasoning engine.

Operators can add, edit or update diagnostic decision trees with current information through the on-line hypermedia decision tree generator. Expert Advisor Version 2.2 costs $45,000 for a configuration with 15 workstations.

Software Artistry
Suite 1100
3500 Decatur Blvd.
Indianapolis, Ind. 46268
(317) 876-3042

Fax software

Cheyenne Software, Inc. has introduced FAXserve, a file server-based network fax service for Novell, Inc. networks.

FAXserve’s scheduling feature permits a fax transmission to be sent during peak hours and

JUNE 8, 1992
From the Data Center to the desktop, only the SAS® System brings you integrated software that exploits all the potential of enterprise-wide computing.
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Recently formed vendor consortia promise to add significant functionality to network management standards. First, however, the initial members must win support for their proposed protocols from a broad base of their colleagues.

Emerson Computer Power has submitted to the Internet Engineering Task Force (IETF) a draft Management Information Base (MIB) that defines how a Simple Network Management Protocol (SNMP)-based system can manage uninterruptible power supplies (UPS).

One application of such an MIB would be to enable UPS products to pass network management data to an SNMP platform: for example, to notify the network manager that a battery in a UPS would not be feasible without the long-awaited SNMP security protocol, which the IETF is expected to finalize this summer, Stolinski said. The security protocol was designed to block unauthorized attempts to recon- figure or control remote devices via an SNMP system.

A UPS vendor in Knoxville, Tenn., company that has helped develop a number of SNMP standards, is co-sponsoring a draft version of the MIB for UPSs and assembling an industry group to develop it. Emerson demonstrated a prototype version of the MIB at Interop ’92 Spring. SNMP Research also announced recently that it has completed an application pro- gramming interface (API) for a “master” SNMP agent that would allow an SNMP-based network management system to manage multiple elements on a single network node. Currently, SNMP recognizes only one agent on any single device.

The master agent would be helpful for managing workstations, hubs and other devices that include multiple elements from multiple vendors. Eight vendors, including Data General Corp., San Microsystems, Inc. and Synoptics Communications, Inc., have announced intentions to incorporate the API into their network and network manage- ment products.

Meanwhile, a five-vendor consortium has announced a Secret ambition. However, Emerson has a more ambitious role for its MIB: to use it as a means by which SNMP- based systems can command the UPS to shut off or power up a remote system, Stolinski said. This would enable managers to au- tomatically turn on multiple remote backup systems after a dis- aster, he added.

In addition, an SNMP system could be programmed to automatically turn on multiple workstations at a set time for software updates or file backup, he said. “Leaving PCs on all night to be polled by the host is a major security issue,” Stolinski said. “However, you can’t [remotely] break into a PC that’s off.” Indeed, an SNMP agent for UPSs would not be feasible without the long-awaited SNMP security protocol, which the IETF is expected to finalize this summer, Stolinski said. The security protocol was designed to block unauthorized attempts to recon- figure or control remote devices via an SNMP system.

There is an industry group to develop it. Emerson demonstrated a prototype version of the MIB at Interop ’92 Spring. SNMP Research also announced recently that it has completed an application pro- gramming interface (API) for a “master” SNMP agent that would allow an SNMP-based network management system to manage multiple elements on a single network node. Currently, SNMP recognizes only one agent on any single device.

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Meanwhile, a five-vendor consortium has announced that Continued on page 58

### Federal computer systems still vulnerable

**Report warns of Internet-type disaster if government underestimates need for security**

**BY JAMES DALY CW STAFF**

VIENNA, Va. — The virus that brought the Internet computer network to its knees several years ago caused heart palpitations in the federal government, but its ultimate message of vul- nerability has already been lost in a sea of bureaucracy and iner- tia, according to a report recent- ly prepared by Input, a research and consultancy firm.

“We may just need a disaster to happen before the govern- ment realizes how important computer security is,” said An- nie King, author of the “Federal Computer Security Market 1992-1997” report. “With the end of the Cold War, a lot of people are underestimating our se- curity needs, and that’s danger- ous. They remain constant.”

The 160-page report notes that while the government’s de- mands for computer security products and services will grow at a compound annual growth rate of 5% in the next five years — from today’s $609 million to $761 million in 1997 — it is not enough. “Much of the money is going for putting security into new systems, which is good, but it ignores retrofitting the older and perhaps more vulnerable systems,” King said.

**Not in the budget**

Continuing budget con- straints are the biggest in- hibitors discouraging the growth of federal computer security, King noted. Indi- vidual agencies operating under constrained budgets are not in the habit of enhancing computer security for greater operational ef- ficiency, she added.

Many agencies are allo- rating their limited re- sources to more pressing initiatives where there appears to be a great payoff, at least in the short term. Although forward movement in the security area is bogged down today, at one point the situation was a lot more promising. The Com- puter Security Act of 1987 was a positive early step be- cause it required each federal agency to develop a computer security plan and initiate computer security training.

But King said much of the planning effort that the act gen- erated turned out to be little more than an exercise in paper- work. Many of the plans that were eventually drawn up omit- ted key ingredients such as network security or failed to involve user organizations.

**Coming up short**

The 5% annual increase in government spending on computer security may not buy enough insurance against break-ins. The 5% annual increase in government spending on computer security may not buy enough insurance against break-ins.

**Federal security market**

Projected user expenditures (in millions)

<table>
<thead>
<tr>
<th>Year</th>
<th>Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>609</td>
</tr>
<tr>
<td>1997</td>
<td>761</td>
</tr>
</tbody>
</table>

**Source:** Input

**CW Chart:** Michael Sitapes

Things ground to a near halt in 1988 and 1989, when Con- gress failed to pass several attempts at follow-up computer security legislation. King said this showed a reduction in congressional concern and with it, a lessening in ap- propriation efforts.

King said the need is still acute because most agen- cies have moved computing power to the end user and enhanced their dependence on it through local- and wide-area networks. The security risk, in turn, increases as it becomes easier to share information across open net- works.

Still, most agency execu- tives and congressional de- cision makers do not appreciate the potential loss due to security mishaps. Their only experience of a widespread security breach was the In- ternet incident, which ulti- mately did little harm.

King said that until major damage occurs involving loss of life or major property de- struction, few changes will oc- cur. “Someone will need to get hurt,” King added.

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DEC software positions VAX as backup for IBM mainframe

BY ELISABETH HORWITT

LITTLETON, Mass. — Digital Equipment Corp. has introduced IBM Systems Network Architecture (SNA) software that is said to enable DEC VAXs to be used as backup systems for running IBM mainframe applications. The announcement addresses many of DEC's customers who also have IBM systems, DEC said.

DEC SNA Applications Services software consists of a library of routines that can be used to build IBM applications on a DEC VAX, according to DEC. An IBM terminal or personal computer can "log onto a VMS application with the same routines they use to access an IBM mainframe" via an IBM terminal interface, DEC spokeswoman Linda Saytes said.

In this way, information systems programmers can "offload their IBM mainframe application backlog" onto a DEC VAX, she added.

Prices range from $500 to $30,000 for the runtime system and $1,000 to $60,000 for the development version. A second software introduction, DEClimbs, allows programmers to develop IBM-compatible applications on a DEC VAX without dealing with the technicalities of the 3270 data stream, Saytes said.

DEC also announced DEC SNA Domain Gateway for Channel Transport, software that is said to allow bidirectional information exchange between IBM SNA and DECnet environments. Domain software "looks like an IBM 370/168 device to another VTAM system so that a DEC VAX can be addressed directly by an IBM terminal."

The gateway is said to allow VMS-, Ultrix-, DOS- and OS/2-based applications to communicate as peers with IBM System/370 and 380 applications. It runs on DEC Channel Server or Channel Server II and is scheduled for availability in August, with prices ranging from $41,000 to $91,000.

DEC also announced the commercial release last month of a line of Ultrix-to-IBM communications software packages that were developed for DEC by Systems Strategies, Inc.

The software, which runs on DEC's DECnet/SNA gateway, is said to enable Ultrix systems to access IBM hosts using IBM LU6.2, Remote Job Entry, 3270 and High Level Language Application Programming Interface protocols. Pricing ranges from $195 to $10,676 for runtime versions.

When new products get to market

EDS helped Chris*Craft answer yes.

Unigraphics®, a computer-aided design and manufacturing software system from EDS, helped pleasure boat manufacturer Chris*Craft accelerate the design cycle for an important new product by 30%. Based on client-server technology, the system also enabled the company to take advantage of new styling techniques, components and design trends. And gave Chris*Craft a significant edge over its competitors in the marketplace.

The EDS system also helped cut the amount of time that's required to manufacture the 27-foot Chris*Craft 272 Crowne by as much as 40%. How? By
Router vendors vie for top performance
Cisco slips in some categories but maintains overall consistency across various protocols

BY JOANIE M. WEXLER
CW STAFF

CAMBRIDGE, Mass. — The results of this year’s independent multiprotocol bridge/router throughput tests at Harvard University indicate that Cisco Systems, Inc. competitors are generally gaining on the market leader by outperforming the company in certain network configurations.

However, Cisco remains the most consistent router vendor across protocols and local-area network types by maintaining second or third place in every test category, said Scott Bradner, a full-time Harvard consultant. Bradner has been measuring how fast routers transfer data from one network to another for four years.

Last year, Cisco was the top performer in every category, Bradner said. Among this year’s participants were Ascom Timeplex, Inc., Cisco, Coral Networks, Inc., Fibronics International, Inc., Hewlett-Packard Co., Netronix, Proteon, Inc., Sigma Network Systems, Inc. and 3Com Corp. Waltham Communications, Inc. did not participate because production code for its Backbone Node bridge/router, slated to ship this month, was not yet generally available.

Sorting the numbers
Harvard originally began conducting the benchmarks for an internal router evaluation, then picked up the yearly task as an objective industry service, Bradner explained. “There were numbers flying all around,” with vendors using inconsistent criteria to arrive at their performance statistics, he said.

Harvard evaluates the bridging and routing performance of participating vendors’ products on a protocol-by-protocol basis across various LAN topologies. Vendors are measured on comparative throughput in data packets forwarded per second.

The testing includes throughput rates for local and remote bridging between Token Rings, Ethernets, Fiber Distributed Data Interface (FDDI) networks and mixed combinations of those LANs, as well as the routing of Internet Protocol (IP), Novell, Inc.’s IPX and Apple Computer, Inc.’s AppleTalk among the various LAN combinations.

Proten “was the clear winner” in source-route bridging and IP routing between Token Rings, Bradner said. However, “it is not so clear” which is the highest-performing IPX router, as the throughput for the notoriously slow protocol dropped to a few thousand packets per second for most devices.

In addition, while start-up Coral Networks performed “blindingly fast” when bridging between FDDI networks, it “didn’t do so well in IP routing,” Bradner said.

3Com and Sigma Network Systems, Inc. took the top two spots ahead of Cisco in both Ethernet and FDDI routing.

All of the routers evaluated were able to fill the bandwidth of 16M bit/sec. Token Ring networks and T1 lines, Bradner said. This means that none of the routers were a bottleneck source in these configurations.

However, Bradner said, performance test numbers “are overblown as selection criteria.” He mentioned such decision factors as vendor service, compliance to routing protocol standards and product scalability as possibly having equal importance, depending on a company’s network design.

For example, “if you’re only connecting to a 56K bit/sec. wide-area link, 120 packets per second is all that will fit across it at one time,” he explained. “Huge throughput rates of 58,000 packets per second don’t mean much here.”

Three MCI services connect E-mail into single network

BY ELISABETH HORNWITT
CW STAFF

WASHINGTON D.C. — Following in the footsteps of rival Infonet Corp., MCI International, Inc. has announced a family of services to help global firms interconnect diverse electronic mail systems into a single corporatewide messaging network.

The MCI Enterprise Family includes three product groups.

• MCI Enterprise Connect is an E-mail outsourcing service for companies that would like to turn the management of internal and interenterprise E-mail connections over to a vendor.

The MCI Enterprise Connect X.400 offers interconnectivity between E-mail systems and MCI’s value-added messaging network via the CCITT X.400 protocol.

• MCI Enterprise Connect is said to link customers’ broad range of proprietary E-mail systems without the need for users to support X.400, MCI said.

Like Infonet, MCI is basing its multivendor E-mail connections on gateways from Soft-Switch, Inc. MCI will market the packages developed by Soft-Switch, which give users the ability to access MCI Mail from such products as IBM’s Professional Office System and OfficeVision and Verimation, Inc.’s Memo.

QUESTIONS:
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speeding up the design of the vessel at every stage. From concept, to solid model, to prototype. From assembly drawings, to production procedures, to parts manuals. The entire manufacturing process is streamlined, saving valuable time-to-market. Says Verne Zoll, a Chris-Craft executive, “We need to stay ahead of current trends. Styling and appearance are extremely important to our success, and our designs must be brought to market faster than our competitors'.

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The Great Debate
Monday, June 22, 1992

Should the U.S. have a technology policy?
Can it rekindle America's economy?

On June 22, Computerworld marks its 25th anniversary by bringing this important issue into the spotlight.
The Great Debate will be one of the most important forums for discussion of an issue that affects your job future, your company's future and the future of this country. You'll want to be a part of this event, as a well rounded group of panelists from industry, government and academia tackle the question.

A record of the proceedings will become part of the Smithsonian National Collection of Information Technology.
MALVERN, Pa. — To help upscale its MS-DOS-based work-to-mainframe links with its Open Advantage for DOS, Rabbit Software Corp. recently upgraded its MS-DOS-based gateways with software that alleviates some manual reconfiguration and load-balancing tasks.

The vendor last month added a feature dubbed SmartPool to its OSA-Advantage for DOS devices, which translate personal computer, LAN and wide-area network protocols into the IBM Systems Network Architecture mainframe format.

To keep network communications up, the feature automatically establishes a new session with an alternative gateway should any gateway go down, according to Rabbit officials said. SmartPool also reportedly distributes data loads across multiple gateways to maximize efficiency.

The automatic backup and re-source-sharing functions speak to Rabbit's growing presence in the networked enterprise, ranked second next to cost in a recent 89-company survey conducted by International Data Corp. (IDC) concerning gateway purchasing criteria.

One organization that beta-tested SmartPool and has installed it did so for the source-resharing and uptime value, "The software does a continual scan to make sure you're connected to a session. If you're not, it finds one and connects you to it," said Art Mulanax, an information center analyst at Nevada Power Co. in Las Vegas.

Previously, Mulanax said, "if you'd lose a session, you'd have to unload and reload the [gateway's] front end after getting the back end going again.

"Now, he said, "if you solve the problem at the back end, the front end will automatically read it back in.

However, in terms of time and cost savings derived from the automated administrative tasks, Mulanax said, Nevada Power does not yet have enough SmartPool/LAN functionality to make specific calculations.

Aiming to please Rabbit said it added the functions because gateways are moving largely from the suspicions of the traditional IS group to the central IS group, and customers are looking to blend them into their corporatelywide configuration management strategies.

"As the link between the personal computer and mainframe worlds tightening, the central information systems group is gaining more control of LANs," said a senior analyst at Framingham, Mass.-based IDC. "As critical applications move to LANs, which connect into the mainframe, the gateway grows." IS cloud.

For example, the Marketing Categor PC, "if we switch to a proliferating gateway strategy because of its need to blend LANs with a complex, distributed, mini and mainframe systems being installed on its mainframe, said Stan Fiedor, manager of data communications at the New Castle, Del.-based facility. However, while the SmartPool backup capability is preferable, he doesn't think maximizing user availability to the system, the medical center, a large Rabbit shop, cannot use SmartPool, Fiedor said.

Because the center chose to carry its printer sessions on dedicated connect into the mainframe, the SmartPool backup capability would not allow anyone to use it, the printer session wouldn't follow," Lucascott said.

"However, the "philosophy of not relying resources to an individual user who could be a casual user is good," Fiedor said.

### In Brief
User group vote solid on 802.3 Ethernet standard

- The MAP/TOP Users Group has unanimously voted to include the 802.3 Ethernet standard in the Manufacturing Automation Protocol (MAP) specification. Previously, MAP, an Open Systems Interconnect standard geared to the factory floor, included only 802.4 Token Bus.
- Omnicom, Inc. in Vienna, Va., has released its 1992 Index of Standards for Telecommunications and Open Systems. The index lists more than 3,000 published and draft standards from 23 international and national organizations. It is priced at $397, plus $10 shipping and handling.
- IBM has agreed to license NetManage, Inc.'s Chameleon, software that implements Transmission Control Protocol/Internet Protocol (TCP/IP) on Microsoft Corp. Windows 3.0 environments. The agreement helps round out IBM's TCP/IP offerings to include most major IBM host and workstation systems. IBM said, NetManage, Inc. announced that Chameleon/NSF, a TCP/IP package that includes support of Sun Microsystems, Inc.'s Network File System, is now available on Windows.
- Ungermann-Bass, Inc. has announced its intention to incorporate virtual network technology into its AccessOne Enterprise Edition. The technology allows managers to manage and manage any number of virtual workgroup segments down to the individual node level within a single hub enclosure, the firm said.
- Sterling Software, Inc. in Chatsworth, Calif., has unveiled a project, dubbed Galli, to develop centralized local-area network management systems for large corporate networks.
- XcellNet Inc. in Atlanta has renamed and consolidated its entire product line under the new RemoteWare brand. RemoteWare is software that integrates a variety of hardware and software platforms across LANs and wide-area networks.

### NEW PRODUCTS

#### Gateways, bridges, routers

**Ideassociates, Inc.** has announced Version 1.2.3 of the Idea Concert Communication Processor, which allows multi-host operation from local-area networks.

Idea Concert can now carry IBM Systems Network Architecture data traffic over an installed Ethernet or Token Ring LAN. Users can run standard 3270 and 3275 emulations to IBM mainframes and midrange systems.

Pricing for Idea Concert runs from $2,995 for four devices to $21,965 with support for 96 devices.

**Ideassociates**

**29 Dunham Road**

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(508) 963-6878

Network Equipment Technologists, Inc. (NET) has announced theNET Ethernet Bridge Option, a software product for the company's NET SFX Intelligent Statistical Multiplexers.

The NET Ethernet Bridge Option connects local-area network without degrading network performance, according to the company. In transparent mode, the bridge can handle up to 1,000 device addresses.

The stand-alone version costs $5,200, a version with a fiber-optics extender is priced at $5,800.

**Raycom Systems**

**1204 Sherman Way**

Van Nuys, Calif. 91406

(818) 909-4186

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When it comes to developing Windows applications, Microsoft COBOL version 4.5 is fully qualified for the job. That's because COBOL 4.5 provides you with several ways to migrate your existing COBOL applications into the Windows environment.

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To order your upgrade, just call us at (800) 541-1261, Department B32. You'll get all the benefits of COBOL 4.5 at less than half the price.
Red Cross' revamp slowly takes shape

**Installation of new systems in 52 blood centers not expected until 1997; money not seen as a factor**

**BY JEAN S. BOZMAN**
**CW STAFF**

WASHINGTON, D.C. — A year ago, the American Red Cross announced that it would "transform" a sprawling empire of 20 computer systems in 52 blood-processing centers nationwide into a single, coherent system.

The sheer diversity of the Red Cross' blood-handling systems caused operational problems that led to numerous Food and Drug Administration (FDA) citations — and to the 1990 shutdown of blood centers in Albany, N.Y., and Washington, D.C. But it now appears that the extensive re-engineering project will take three — not two — years to complete and another one or two years to deploy.

The delays stem from the need to complete a comprehensive analysis of how blood products are managed at the Red Cross works, and how it should work if it is to protect approximately half of the nation's blood supply. To do that analysis, the Red Cross hired consultants from IBM and Andersen Consulting, and KPMG Peat Marwick gathered information systems experts from regional Red Cross blood banks to identify system requirements.

When it announced the project in May 1991 [CW, May 27, 1991], the Red Cross predicted it would cross the finish line in 1994. However, the multi-phased re-engineering project is now expected to extend its deadline into 1995.

The Red Cross has already spent $140 million on the "transformation" plan — $60 million of which is earmarked for computers — and expects to complete the project in 1997. Rolling out the new systems at all 52 blood centers should stretch installations into 1997, Red Cross executives said.

"We don't want to worry if it takes a little longer on the development side. We're not trying to rush it to market," said Mark Cochran, general manager of the Red Cross' Blood Computer Systems Division. Systems that handle the identification of acquired immune deficiency syndrome-tainted blood and unsuitable blood donors are too important to rush, he said.

"It's not like putting in new accounting systems," Cochran said. "It really does handle life-and-death decisions."

The Red Cross' $140 million "transformation" plan — $60 million of which is earmarked for computers — will reinvent the agency's computer infrastructure. As such, it is an invitation to create the ideal computers without worrying about legacy systems. "You very, very rarely get to make a decision about architecture that's not constrained by existing systems," Cochran said.

Money is not seen as an obstacle in this project. The non-profit organization's recent financial troubles are not expected to affect the $140 million budget, which includes $20 million added in 1992. In preparation, the Red Cross has studied other blood-collection and distribution systems, including those of Blood Systems, Inc. in Scottsdale, Ariz., and the New York Blood Center in New York City.

Central to the system revamp is an emphasis on standardization and data integrity. The Red Cross will work with "proven methodologies and tools," including KnowledgeWare, Inc.'s Information Engineering Workbench, Cochran said. A team of 25 IS personnel and consultants staffs the re-engineering project. That number will grow to 45 by 1995.
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**DIGITAL. THE OPEN ADVANTAGE.**

Red Cross’ revamp slowly takes shape

CONTINUED FROM PAGE 63

in 1993, and two-thirds of the staff members will be outsiders.

IBM consultants have been leading Joint Application Development (JAD) groups since February, helping Red Cross staff members identify key business requirements.

"It’s not just brainstorming," said Frederick Kyle, senior vice president of biomedical services at the Red Cross and a former president of SmithKline Beecham. "There’s got to be some discipline in order to come up with products. JAD process requires facilitators, both for idea generation and crystallization of those ideas," Kyle said.

Meanwhile, consultants from Andersen Consulting are sketching out the new IS computer options in broad strokes — laying out centralized mainframe-based scenarios alongside networks of peer minicomputers for the regional blood-testing laboratories. A third team from KPMG Peat Marwick is heading up project management during the initial planning, Cochran said.

The next generation of standardized systems will replace what was a hodgepodge of 20 software systems on many platforms, including Hewlett-Packard Co.

Nynex storage saves millions

CONTINUED FROM PAGE 63

cause users do not have to wait for manual tape mounts. In June 1988, TRG was handling about 32,000 manual mounts each day; today that number is about 11,000. The goal is 4,000 each day by year’s end.

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JUNE 8, 1992

LARGE SYSTEMS

New blood type

The Red Cross studied Blood Systems, a nonprofit blood bank that operates 21 centers in 14 states, in order to gain insight into the firm’s centralized, on-line blood-handling systems. Founded in 1943, Blood Systems is the nation’s second-largest blood bank, distributing nearly a million units of blood to hospitals each year.

The Red Cross is currently decentralized, with 52 regional blood centers across the U.S. Conversely, Blood Systems has all 21 centers — and 15 smaller satellite subcenters — reporting into a centrally based mainframe.

Blood Systems’ primary software system is IBM’s DOS/VSE, which runs in partitions under IBM’s VM operating system. Users at all centers log on to a single menu, which offers financial, medical, inventory and donor registry applications. Updates are made to the Software AG of North America, Inc. central Adabas database, which runs on a 24 million instructions per second Hitachi Data Systems Corp. ASTRAL 60 with 64M bytes of main storage.

JEAN S. BOZMAN
ITT Hartford struts spreadsheet solution
With 1-2-3 for All-In-1, more users can access spreadsheet technology

By ROSEMARY HAMILTON
CW STAFF

HARTFORD, Conn. — The Employee Benefits Division of ITT Hartford is searching for a way to deliver spreadsheet technology to its mix of users at a low cost.

While some users virtually live among the rows and columns of a spreadsheet, others occasionally use the software for a specific task. In other words, it did not make financial sense to put a spreadsheet on every user’s desk.

As an alternative, the group last year installed a version of Lotus Development Corp.’s 1-2-3 that was designed for Digital Equipment Corp.’s office software, All-In-1. Satisfied with the software’s performance, the division recently expanded its use of 1-2-3 for All-In-1 to its field sales staff.

Spreadsheet accessibility

“We wanted everyone to have access to spreadsheet tools,” said David Annis, assistant vice president of business systems at the Employee Benefits Division. “We had a large number of people who didn’t have PCs, and we couldn’t justify that expense for occasional spreadsheet use. We have 1,600 users, and they all have Lotus available to them, but they aren’t all Lotus users on a regular basis.”

Currently, the spreadsheet software is installed on 25 DEC VAXes at various offices of The Hartford and ranges from lower-end MicroVAX 3400 to VAX 6620s, Annis said. Users access the spreadsheet application from either a personal computer or terminal.

Although Annis could not re-

veal exact costs, the per-user price for 1-2-3 for All-In-1 is about “a few hundred dollars,” he said. In contrast, the PC spreadsheet route would have required upgrading many terminals to PCs, which would have added a cost of “a few thousand” per user in addition to software fees.

“We felt there was a whole set of things that should be available to everyone,” Annis said. “Then they pick and choose which ones they need.”

With All-In-1, users are able to access the application as if they had a 1-2-3 of their own. The tradeoff for All-In-1 users is that it was designed as an extension to the DEC office software, so it shares the same look and feel with menus and screens.

Delivery of the spreadsheet function via All-In-1 has boosted the productivity of some users who had not previously used a spreadsheet, Annis said.

One example is the field sales staff. Typically, this group completes order-underwriting work for insurance policies, which involves gathering information and then forwarding it to the home office staff. The DEC group would then develop proposals and rates for the policy.

When this process was now provided with “caused spreadsheets,” which are essentially work sheets they can use in the field. They enter the basic data from customers and then execute the spreadsheet, rather than creating a spreadsheet from scratch. “We realized that business strategy to get field people to do more technical work, which made them look more credible in front of clients,” Annis said.

“It was a fairly dramatic difference,” Annis said. “With 1-2-3 for All-In-1, we utilize all our existing hardware.”

A secondary benefit was its links to DEC’s All-In-1 office software. This allows the company to provide users with a more integrated office platform, using common services and applications.

Sungard takes over Labor’s outsourcing, replaces Boeing

By MARK HALPER
CW STAFF

WASHINGTON, D.C. — Some major mainframe changes are under way at the Department of Labor, which has tapped Sungard Computer Services, Inc. to take over outsourcing from Boeing Computer Services, Inc. and then move various applications from the MVS/XA operating system to UNIX.

Sungard recently won two separate remote processing jobs from the department, which has been purchasing services from Boeing under contracts that expire in September.

The jobs include a five-year, $12 million contract with the Labor Department’s various agencies and a one-year, $13.8 million contract with the department’s Bureau of Labor Statistics, according to Sungard President Dave Douglas. Both jobs call for remote processing, printing and storage as well as for courier service, he said.

Lock of response

Boeing, which is exiting the remote processing business, did not respond to the recompete request for proposals, according to Anne Farrer, a computer specialist at the Labor Department’s data communications division, which works with the department’s various agencies.

However, Boeing is working with Sungard to transfer applications from Boeing’s Amdahl Corp. 5990-7000 mainframe to two Sungard mainframes in Philadelphia, an IBM 3080-200E running MVS/XA and an IBM 3600-400 running MVS/ESA.

The Labor Department’s financial needs include the Enterprise Systems Architecture (ESA) system in order to upgrade its CA-IDMS database management system from Version 10 to Version 12, Farrer said.

Version 12, like Version 10, will be used for accounting and payroll purposes. The department will implement it as soon as Computer Associates International Inc. makes it available, Farrer said.

In addition, the department’s eight other operations will have a choice of software packages on MVS. Users can choose either on KA or an MVS/ESA.

“Something’s that each one will discuss with the vendor,” Farrer said. Programs to be transferred include specialized software for the Labor Department’s eight agencies.

Programs include specialized software for such operations as the Occupational Safety and Health Administration; Mine Safety and Health, Pension and Welfare Benefits Administration; Employment and Training Administration; and Employment and Training Standards.

Cross-country access

Data will be routed between the Philadelphia mainframe and the Labor Department’s sites around the country through NCR Corp. Computer Associates’ PrestoServe systems, which are located both on the mainframe site and in the department offices.

Users access the mainframe via terminal emulation software on some 8,000 personal computers, mostly 80286-based, according to Farrer.

The department is planning to upgrade those PCs to more powerful processors, she added.

Sungard’s role will be restricted strictly to the mainframe level. The Labor Department will continue to run its own local-area networks, Farrer said.

Meanwhile, the contract with the Bureau of Labor Statistics calls for Sungard to provide processing for the bureau’s various ongoing surveys, such as employment levels, the Consumer Price Index, the Producer Price Index, the Employment Cost Index and others, according to Rodrick Bess, a program analyst at the bureau.

Bess said that Sungard will process about 60% of the bureau’s survey data, and the balance will be processed by the National Institutes of Health, which sells surplus processing to government operations.

The 60-to-40 ratio is the same as under the present relationship with Boeing, Bess said.

JUNE 8, 1992

DEC jumps into Unix pool with file server

By MELINDA-CAROL BALLOU
CW STAFF

MAYNARD, Mass. — Digital Equipment Corp. recently targeted the commercial Unix market with the release of StorageServer 100, an Ultrix-based file server that combines rewritable optical disc technology with magnetic media and storage management software.

Automatic file migration capabilities available with this product ensure that frequently accessed files are stored on magnetic media and that less frequently accessed files are stored on optical media, DEC officials said.

The components of StorageServer 100 include hierarchical file server software, multi-optical jukebox libraries and a standard DECsystem instruction set computing server, with total storage capacity ranging from 20G to 125G bytes.

Satisfies a need

Industry analysts said the ability to manage different types of storage media is helpful to users seeking to take advantage of the various devices.

“The monkey is on the back of DEC and vendors like them to make their storage systems operate as efficiently as possible,” one industry analyst said.

The ability to intermix storage devices, which is available under the control of DEC’s StorageServer, is important for users’ efficient use of the hardware,” said James Porter, president of Disk/Trends, Inc., a market research firm based in Mountain View, Calif.

“Many of them are just starting to use optical media and are still using magnetic disk drives. They need a way to use both and to manage them in a coherent manner,” he said. “So users have been offered these systems without attention to how they will use them in concert.”

Client systems access the StorageServer 100 via the standard Network File System (NFS) protocol. Clients can include personal computers, Macintoshes, VMS and Unix systems. Current DEC systems, such as the VAX, DECnet and DECnet software, PrestoServe consists of hardware and software that speeds up NFS. The technology was originally developed by Data Facility Systems, Inc. in Palo Alto, Calif., and is included as a standard part of DECsystem 5900s and 5500s. DECnet software, which allows users to perform on-line backup without having to shut down the system, is being phased in.

IBM has targeted the mainframe environment for several years now with its Data Facility Storage Management Subsystem software, which offers capabilities similar to DEC’s StorageServer, and users need to address this issue on midframes,” Porter said.

DEC systems are shipping now; pricing starts at $66,700.
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AT&T
The right choice.
Talarian Corp. has announced RTworks Development tools for IBM RISC System/6000 workstations. The product allows developers to build real-time monitoring and control systems by incorporating interprocess communications, knowledge-based systems and graphical user interfaces.

Real-time data is analyzed, distributed and displayed by RTworks' set of application development tools. A combination of various technologies is used, such as real-time data acquisition, real-time inferencing and client/server data distribution. RT works has a starting price of $35,000.

They calculated that a 100% increase in business needed a 900% increase in productivity.

The system allows users to isolate, define and solve manufacturing quality problems in hours or days rather than weeks or months. ExQc can evaluate relationships among data collected from a number of sources and uses statistical graphics in a graphical user interface-based system. Users can extract and test data, isolating it for detailed analysis. ExQc license cost $120,000.

When a major health insurer suddenly doubled its customer base, their MIS department quickly predicted disaster. The company's in-house document publishing system was already overloaded. They had to drastically cut the time it took to produce vital documents or risk the company's reputation for customer service. That's when they called Lynn Wells and the Xerox team.

Working together, they saw that merely upgrading equipment to add capacity was not the solution. So they took a fresh approach and completely redesigned the company's document publishing process. Carefully building on existing systems, they integrated Xerox workstations, software scanners and laser printers to create a custom publishing network.

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APPLICATION DEVELOPMENT

Tools ease pen-based PC programming

BY MICHAEL FITZGERALD
and GARRY RAY
CW STAFF

Applicants are developing tools that are making it easier to write pen-based software. These programs can be used to develop conventional programming tools or a variety of programming aids designed specifically for pen environments.

At Detroit Edison Co., for instance, developers are building pen-based applications using a mixture of conventional and specialized pen tools. Nucklesoft Corp.'s Clipper 5.0 and PadBase+ from R22, Inc., in Fremont, Calif., use the line clearance central staff at Detroit Edison, said that while Edison "had some bugs with internal programming," they were not out of the ordinary for a development project.

"They were just errors in the program code. Developing for the pen environment is pretty complex, but what we saw was unexpected, and there was nothing that stopped progress," he said.

Similarly, at Helene Curtis, Inc., senior programmer/analyst Sam Tong decided to go with a third-party application in order to complete a project faster.

"We thought it was not feasible to do in-house development — it would take longer to start up, and the end users wanted something right away," Tong explained. He said the company, which uses four NCR Corp. systems, was updated to make use of features included in Microsoft C++ 3.1 graphical user interface. Supported Windows 3.1 graphical user interface.

Beta-test users spoke enthusiastically about the product's features. "There are tools that are available, with programs like Grid's PenRight, that make it much easier to develop for pen than standard programming tools," said David May, president of窥视 corp., a Los Angeles, Calif.-based $1 company that makes tools for non- professional programmers. Both products are scheduled to ship this fall.

Analysts said that while pen-based system development does not require specialized tools, building applications can be easier with environment-specific tools.

Developers seem to agree. "There are tools that are available, with programs like Grid's PenRight, that make it much easier to develop for pen than standard programming tools," said David May, president of窥视 corp., a Los Angeles, Calif.-based $1 company that makes tools for non-professional programmers. Both products are scheduled to ship this fall.

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COMMENTARY
Laurence J. Best
Software and business redesign

For condo developers on a building spree and information systems executives on a redesign mission, existing structures are often viewed the same way: as mere obstructions on the road to progress and profits. It's not surprising, then, that vintage homes and vintage applications usually suffer the same fate: They are simply bulldozed into oblivion.

Authorities on business redesign are quick to point out that organizations must "obliterate" their outdated business processes. And because outdated business processes are often intertwined with outdated software applications, executives usually conclude that they must simultaneously "obliterate" their software systems as well.

The problem is, these organizations then begin to simultaneously recreate both their business infrastructure and their software infrastructure. Unfortunately, the result is usually failure. It's just too big a task to pull off.

One example

One of Canada's largest financial institutions had centralized its loan approval processing by moving it from the bank's more than 1,000 branch locations into 100 loan processing offices. This redesigned organization provided better control over loan decisions, but loan approvals were so delayed that potential borrowers often lost patience and went elsewhere.

To resolve this problem, the institution installed a credit approval system that interacted with older systems to simultaneously provide the control of centralization with the quick turnaround of local decision-making. Loan approval turnaround improved, and the institution was able to further consolidate its loan processing offices by another 90%.

Other companies have achieved similar results with coexistence systems. Software that supports the new business processes introduced by successful business redesign exhibits seven basic characteristics: integrated, robust, flexible, intuitive, portable, continuous and architected.

Clearly, most installed software falls short of these characteristics, especially because older systems were usually crafted to a narrow set of immediate functional requirements.

Enabling business redesign

It is when organizations try to implement redesigned business methods over a software infrastructure without these characteristics that they usually encounter a "brick wall." Coexistence systems sidestep this wall by providing (at least to some degree) for the software features that enable effective business redesign.

However, a coexistence strategy should be viewed as an interim rather than a permanent solution. Even the most clever interface cannot substitute for truly effective software support of business processes.

The proper role of the coexistence strategy is to permit the earliest realization of business redesign gains. Then, the organization's next generation of software applications should provide for native rather than add-on support for modern business processing.

Best is a principal at the Corporate Technology Group of American Management Systems, Inc.

NEW PRODUCTS

Control tool targets Unix sites

CONTINUED FROM PAGE 71

Data storage

Cincom Systems, Inc. has released M/Archive, a text storage and retrieval system for IBM mainframes, personal computers, local-area networks and Unix systems. M/Archive's application programming interface allows it to be integrated with new or existing applications. Pricing ranges from $1,100 to $100,000. Cincom Systems 2300 Montana Ave. Cincinnati, Ohio 45211 (513) 682-2300

Ten X Technology has introduced Opti-
Why Working Together with Lotus is a better way to work in Windows.

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If you're working in Windows, you can now work better, faster and easier... with products from Lotus Development Corporation.

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So, whether you use words, numbers or pictures, Lotus has an award-winning application that will help you get the most out of the Windows environment.

**It's pure Windows. Pure 1-2-3.**

Now you can put the power of 1-2-3 to work in Windows and get such innovative features as true 3D worksheets, automatic print compression and the Solver technology.


Of course, if you're moving from 1-2-3 for DOS, 1-2-3 for Windows allows you to access the 1-2-3 Classic™ menu merely by pressing the slash (/) key. You'll even find complete compatibility with previous versions of 1-2-3. As well as versions of 1-2-3 that run on different platforms.

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Nothing brings your finished work to life like our award-winning Ami Pro for Windows. Ami Pro lets you work the way you think... in words, pictures, graphs, symbols, drawings and colors.

Bring your words to life with Ami Pro for Windows.
Plus, it comes with dozens of pre-formatted Style Sheets so you can create professionally designed letters, memos and reports as fast as you can type in the text. And only Ami Pro is truly WYSIWYG in four editable, customizable views. It even seamlessly imports files from other word processing formats.

Freelance Graphics, Your partner for successful presentations.

From start to finish, Freelance Graphics is the easiest way to make a great presentation. Not to mention a great impression. This presentation graphics program is the only one that features Smart-Masters, customizable templates that automatically manage the design and layout of the presentation for you. Just select the design you like, follow the on-screen prompts and fill in the blanks with text and graphics. It's that easy. So easy, in fact, that recently beat Harvard Graphics in a one-on-one performance shoot-out (PC Week, 4/13/92).

Freelance Graphics is the fastest, easiest way to a successful presentation.

Of course, since Freelance Graphics is fully-integrated with 1-2-3 for Windows, you can easily move all your spreadsheet data directly into your presentation...without leaving Freelance Graphics.

Never used a presentation graphics program before? Freelance Graphics even includes an animated, on-line tutorial called QuickStart, which will lead you step-by-step through the entire process...in minutes.

SmartSuite.
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If you’re looking for a complete solution in Windows, you needn’t look further than SmartSuite. You get four individually outstanding Lotus applications...1-2-3, Ami Pro, Freelance Graphics and cc:Mail, our award-winning electronic mail program...all in one package. All for less than the price you’d expect to pay for two.

So whether you’re buying for the first time or upgrading to SmartSuite from an existing Lotus application, this package represents one great deal. And one smart choice.
People working together

Staying competitive. It's the greatest single challenge your company faces in the days ahead. How can you do more with less? What will it take to get you there before the competition? How quickly can you service the new business you've recently won? These are just some of the questions.

The answers lie in networks. And with people. Because for a business to truly be competitive, the people who work there need to be connected and coordinated.

Which is why more and more people are once again turning to Lotus, where they're discovering a collaborative form of computing that allows "connected" people and their ideas to come together. Whether it's sending a mail message to an associate using cc:Mail or conducting a global brainstorming session with Lotus Notes, only Lotus offers you the products and expertise to make it all work together. No matter what network you're working on.

cc:Mail. The undisputed leader in electronic mail.

No one delivers a more powerful and flexible electronic mail package than cc:Mail from Lotus. With it you can send text, graphics, faxes and entire files across all major LANs. And it runs transparently across DOS, Windows, Macintosh, and OS/2.

What's more, cc:Mail allows you to send files from within any mail-enabled Windows application, including 1-2-3, Ami Pro and Freelance Graphics. All without leaving the application.

Plus, cc:Mail is the first package of its kind to take advantage of a new, fully scalable messaging architecture. This means cc:Mail will grow along with your business. Whether you're adding five new users or 500,000.
Considering all that it delivers, it's not surprising that cc:Mail won InfoWorld's 1991 Product of the Year Award. And that more than a million and a half people (and over 40% of the Fortune 500*) are counting on it to get their messages across. Maybe you should, too.

Lotus Notes. The only environment where people can truly collaborate.

Lotus Notes is more than a single application. It's a breakthrough technology that is solving real business problems by helping companies tap the collective expertise within their organizations. Not to mention making better use of their existing hardware, software and network investments.

This flexible, workgroup computing environment allows IT or MIS professionals and end users to work together to create the widest variety of applications that facilitate information sharing. And to deploy them to multiple users at multiple sites in less time and for less money. Regardless of what networks, applications and operating systems are in place. For example, Notes runs on the most popular networks, such as Novell, IBM, Microsoft, DEC and Banyan. And in Windows and OS/2 (with Macintosh and UNIX on the way).

What's more, you can get started with Notes for less than $500 per user. In fact, right now more and more companies—both small and large—are using Notes for sales lead tracking, product planning, brainstorming, account management, project tracking, call reporting, quality management and a whole lot more.

So if you're looking for a better way to get people Working Together, maybe you should be taking Notes, too.

"Notes and cc:Mail reign, respectively, as the technology standard-bearer and market-share leader in work-group software..." (PC Magazine, 3-9-92).
Technology has made the world smaller. And more competitive. No matter what industry you're in, gathering, analyzing, communicating and presenting information is a critical activity. How well—and how quickly—you work with information can be what separates you from the competition. There are many organizations who view Lotus as the company that's helping them gain a competitive advantage. Companies like the Boston investment firm of Adams, Harkness & Hill, which has built its communication infrastructure around a suite of Lotus products.

According to Lisa Beaton, Director of End User Computing at Adams, Harkness & Hill:

“We're essentially in the communications business, keeping clients in the U.S. and Europe up to date on our investment opinions. To us, analysis equals Lotus 1-2-3. And the compatibility between the DOS and Windows versions is a real advantage. When we looked at word processors, Ami Pro stood alone in the feature-rich, ease-of-use category. So we made it our standard.

With presentation graphics, we were impressed with the simplicity of Freelance Graphics for Windows. We actually have people creating presentations who have never even cracked open the manual.

“Our professional and support staffs? They practically live in Lotus Notes. It keeps them close to our clients and to each other. And that's what we have to do to succeed. Also, we have no support infrastructure here. So the fact that all products share a common interface is a big win for us.

And finally, we like the fact we can rely on unified support from Lotus. If I have a question on any
A specific application, there's one person at Lotus who can answer it directly.

"All in all, we think working with these products has given us a better way to work...with each other and with our clients."

Then there are the IT professionals, at multi-national companies like Ciba-Geigy, who are helping to build problem-specific applications for their organizations with Lotus Notes.

According to Bob Kantor of Ciba-Geigy:

"With Notes, we have a quicker way of delivering some very useful applications to our people. For example, we recently created a customer information and profile system that was up and running in less than two months.

"In the long run, we imagine a model that serves as a virtual town meeting for everyone in the organization. Where no matter what any of us is trying to accomplish, we'll have all the resources of the rest of the organization behind us and available to us. Which means, as IT professionals, we'll be in a much better position to help our company realize its business goals. And to bring a better level of service to our customers."

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MRP II: Out with the old . . .

Systems need to take in the bigger picture as manufacturers integrate their processes with those of trading partners, customers and other plants.

BY ALICE GREENE

Today, these words are taken on a whole new meaning. It's not so much the words that are changing. It's their scope that's broadening, as manufacturers in an effort to become more competitive — break down the walls that separate their own operations from those of their business units, customers and trading partners.

To accommodate the more expansive viewpoint — sometimes called "the manufacturing enterprise" — companies are finding that they need to replace their traditional processes, technologies and MRP II software with systems that offer world-class performance.

MRP II — or manufacturing resource planning — has enjoyed a 20-year run as the business unit system of choice for operations management. Focused on the critical production issues at the plant level, these systems supply the following information:
- What and when to produce.
- How much to purchase or make.
- How much inventory is available.
- Which resources are constrained.
- Whom to ship product to and where.

But now the MRP II era is about to give way to advances in and the need for multidivisional, centralized production management capabilities. The first-generation systems were not designed to support centralized planning and are incapable of sharing data with other MRP II systems, let alone accessing and using data on a timely basis from other divisions. They are also too slow, because of coding for antiquated processors, to support decision-making and customer responsiveness across multiple facilities.

What manufacturers need is the ability to view — as a whole — all the operations that can service the same customers, supply multiple facilities and be jointly managed for greater profitability. Because of this, they need access to timely, synchronized data on customer demand, inventory and capacity levels, costs and profitability measures in all business units that are deemed part of the enterprise.

This can best be seen in some actual cases of manufacturers moving in this new direction (see story page 77).

As might be expected, many of the roughly 300 MRP II vendors in existence have moved swiftly to revamp their systems and position themselves as "the critical application structure." This next generation of MRP II was first coined in 1990 as Enterprise Resource Planning by Gartner Group, Inc. in Stamford, Conn. Since then, Advanced Manufacturing Research, Inc. (AMR) in Cambridge, Mass., has expanded the concept in its Customer-Oriented Manufacturing Management Systems model, adding in requirements for vertically integrated supply chain functionality and for real-time links with plant-level execution systems.

Both have provided vendors and manufacturers with needed direction. Yet not all companies need the full breadth of these models, while others require broader business models that recognize the inherent limits of MRP II and are founded on more advanced technologies, such as object-oriented systems.

A good way to understand this new generation of systems is through three lenses: the underlying architecture, the technology and the functionality.

System architecture

Because next-generation MRP II will be larger in scope, the underlying system architecture becomes a primary selection factor. MRP II vendors need to support not only today's business operations but also future ones, which will likely involve more streamlining and automating of business and production operations. For that reason, next-generation MRP II must provide for proper business controls, data integrity and an enterprise-wide scope, says Wayne Kaufhold, senior product engineer at SAP America, Inc., a company that made complete rewrites in 1991. But most, such as The Ask Cos. in Los Altos, Calif., are still developing the framework. Some other that introduced more technologically advanced systems in the past few years (for example, Avalon Software, Inc., formerly Interactive Information Systems, Inc. in Tucson, Ariz.) are now making further improvements.

Some vendors, including Datatools International, Inc. in Valhalla, N.Y., began to draft changes five years ago, releasing complete rewrites in 1991. But most, such as The Ask Cos. in Los Altos, Calif., are still developing the framework. Some others that introduced more technologically advanced systems in the past few years (for example, Avalon Software, Inc., formerly Interactive Information Systems, Inc. in Tucson, Ariz.) are now making further improvements.

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SOME COMPANIES are even using EDI transactions to transfer information between MRP II and other internal systems.

- Graphical user interface.
- Multiple database support.
- Front-end systems for decision support.
- Automated EDI.
- Interoperability with multiple platforms.
- Access to application programing interfaces.

There is also increasing interest in the concept of objects. A number of MRP II software vendors are now working to develop these types of objects in their forthcoming systems, including Cincom Systems, Inc., Dun & Bradstreet Software and Powersoft Corp.

Enterprise functionality

Just as important in an enterprise structure are those functions that support operations at more than one organizational layer — operator, plant, division and corporate levels — as part of a distributed client/server architecture. Therefore, need distributed applications for planning, inventory management, order processing, product costing and availability-to-promise and purchasing.

Companies need both centralized and decentralized functions. At the centralized level, companies can determine the best-possible orders for multiple facilities; at local levels, they can determine how to supply the demand, says Jim Shepard, vice president of business development at Carp Systems International, a software vendor in Lexington, Mass. These capabilities are being added into next-generation releases.

For global requirements, vendors are seeking the ability to manage multiple languages across the network and convert currencies. They are also adding on-line transactions for sharing data and shipping products between distribution centers and multiple plants and with suppliers and customers.

Clay Bowyer, director of computer-integrated manufacturing solutions marketing at IBM’s industrial sector division in Atlanta, cites additional functionality that will help manufacturers. The front ends for salesmen to shorten cycle time and increase customization; additional EDI transactions for better and faster communications with customers and suppliers; and on-line, immediate data interchange with plant floor systems, enabling operators to take on more responsibilities.

The migration path

For firms seeking enterprise-level functionality from their existing MRP II programs, there are several migration options. From some vendors — Data-Logix, for example — the transition means a complete conversion, with reimplemention support. Other data migration tools. Other systems are more easily ported to new-generation technologies because of existing data and transaction processing structures. Cincom’s Control:Manufacturing is an example.

In other cases, such as D&B Software, the transition is even more evolutionary. By enhancing its Advanced Manufacturing Application Product Suite, or AMAPS, to coexist with front-end client/server functions developed with SmartStream, D&B Software will give users access to advanced capabilities that are not likely to be available from a next-generation MRP system for a few years.

The best approach depends on your current and planned enterprise structure. In many cases, “technologically advanced systems and newer MRP II systems are not necessarily the only solution for evolving enterprise manufacturers,” says Michael Hawotte, director of A. T. Kearney, Inc.’s information technology practice in Chicago. “Frequently, companies just need to properly implement what they have.

Regardless, most manufacturers will choose to migrate to the next-generation systems — the perceived benefits far outweigh the known costs.

To make sure you get all the functionality you need in your next-generation MRP II package, here is a checklist to follow:

- Are there multicurrency conversions available for product shipment, financial transactions and sales?
- Are there global transactions managed and consolidated across multinationals?
- Is there activity-based costing analysis?
- Is it possible to roll up product costs from multiple plants?
- Are there existing MRP II systems that are being used by any other application programs?
- Is there a centralized, multisite available-to-promise capability to inform customers how much product or capacity is available?
- Are the EDI transactions managed automatically by the system, or is human intervention necessary?
Maybe it's time to rethink your business processes.

**Change of heart in process**

Process manufacturers have not traditionally been users of production planning systems. That's partly because MRP II was designed for fabrication and assembly functions — which aren't relevant to the food, chemical, pharmaceutical, beverage and personal care industries — as well as for timing the availability of materials.

But an even more significant factor is that the automated process equipment in most process plants has minimized the need for sophisticated planning and tracking capabilities.

That scenario is changing. For one thing, software specifically designed for the batch process industry has become increasingly available.

Marcam Corp., Datalogix and Q-CIM, Inc. all introduced resource planning and control systems — or process-oriented MRP II — in the early 1980s.

And since then, a growing number of traditional MRP II vendors have jumped into the market by adding process-specific functionality to their existing systems as modular enhancements.

Most of these systems support the following needs unique to the process industry:

- Mix many raw material ingredients together from a recipe or formula.
- Compensate for inconsistencies in ingredient quality.
- Convert multiple units of measurement.
- Deal with variations in raw material availability and price, batch yield and process cost.
- Comply with increasing and changing regulatory requirements.
- Deal with constraints of production resources and sequencing of operations.
- Track and coordinate with other groups the array of items produced from a batch (i.e., coproducts and byproducts, waste and recyclables), and direct them for available: Real-time EDI, multiprocess functions, more

**BY RICHARD COSTELLO**

There's basic MRP II software, and then there's enhanced MRP II software. Some of these enhanced functions have existed for years in less sophisticated forms and have only recently undergone technological improvements, making them more fitting for an enterprise manufacturing system.

These functions include the following:

- **Links with real-time EDI.**
  - Roughly 80% of MRP II packages feature either an integrated EDI module or an EDI interface, allowing manufacturers to import and export documents with trading partners.

  What's new is that EDI no longer has to be batch-oriented. Some vendors are starting to offer real-time EDI transfers. Atlanta-based American Software, Inc. and Sterling Software, Inc.'s OrderNet Services Division offer Gentran RTE, an application that allows for the instantaneous electronic transfer of documents. Gentran RTE is integrated with American Software's Amsoft applications and ranges in price from $10,500 to $15,000.

  IBM's Data Interchange/MVS-CICS for MVS mainframe systems also provides near real-time transfer of data. The software runs on the IBM Information Network. It integrates with Copics and ranges in price from $20,000 to $86,500.

- **Product configuration management.** This function adds flexibility and increases efficiency for custom orders.

  The product configurator manipulates the bill of materials of a standard product line into an option-specific bill of materials for a custom product and then stores the option bill of materials in the system for recall when needed.

  Product configuration is not a new function to MRP II. But only about 25% of MRP II vendors offer this process as a separate function and have recently enhanced it to enable quicker access, manipulation and implementation.

  Andersen Consulting's Mac-Pac for the Application Systems/400 features an Expert Configurator module that uses artificial intelligence to allow manufacturers to build and store complex combinations of features and options. The Expert Configurator is available for the AS/400 platform and is priced at $10,000.

  Symix Computer Systems, Inc.'s Symix software includes a Product Configurator module that works with the system's inventory control, shop
further processing.
- Manage the investment in capital equipment, energy and additional resources.
- Perform extensive lot traceability for monitoring product shelf life or tracking a contaminated source in a product recall.
- Schedule daily deliveries that conform to load specifications for increasingly demanding retailers.
- Deal with the complexity of the distribution channel.

A second reason for the process industry's change in attitude toward process-oriented MRP II is the current competitive climate. Process manufacturers — as well as discrete manufacturers — are feeling pressured to constantly improve customer service and increase profitability.

Process manufacturers are growing increasingly interested in linking plant-floor process control equipment with enterprise systems that can manage what customers need, what suppliers can produce and what planners require for decision-making, says Toni Lee Rudnicki, director of the chemical business unit at DEC.

Process manufacturers have distinct needs: They usually have a greater number of plants; products are often supplied from one plant to another; and the distribution channel is more complex. Furthermore, notes Ken Arnold, president of Datalogix, "Customers want to deal with the manufacturer as a single entity with diverse product lines."

To meet that requirement, "process companies need to centralize recipe management, plan across the network of facilities and identify available capacity or inventory throughout their operations," says Paul Margolis, president of Marcam.

This requires broader functionality than has previously been available. Therefore, many of the system vendors are announcing next-generation systems with the capabilities to support those manufacturers that want to centralize their enterprise functions.

There may be a company that can make your systems work together more effectively.
Will you get the best solution from the first company that comes to mind?

Furniture maker uses MRP II to cut lead time

BY ROBERT M. KNIGHT

For a manufacturer like Harpers, Inc., it was the ultimate in good news/bad news: The company's sales kept going up, but its profits kept going down.

That was January 1988. By March, Harpers' plant in Torrance, Calif., experienced the manufacturing equivalent of a nervous breakdown. It was accustomed to a 12-week raw-material-to-market cycle (also known as lead time) to make its freestanding office furniture.

Meanwhile, its competitors—Herman Miller, Inc., Steelcase, Inc. and Haworth, Inc., all in Michigan and all nationwide suppliers—were taking just six weeks to convert raw plastic and metal into modular "systems furniture," the pastel, rat-maze furniture that was becoming popular.

"We were forced to either become a "systems furniture" manufacturer or sell the company to other manufacturers," says Joe Wisniewski, executive vice president and general manager at Harpers. "We chose systems."

Wisniewski and his managers drew up a detailed plan of objectives to complement Harpers' lofty goals of reducing money and lead times.

First was a marketing objective. The company decided it would have a niche for "custom furniture solutions," which would appeal to companies that were, for example, converting their engineering staff from drawing boards to computers. Such projects often demand products that are not of a standard size. Wisniewski decided on a design lead time of two weeks, with custom furniture "shippable in no more than four weeks."

The second objective was to acquire "flexible manufacturing" machinery. The system would be able to increase or decrease the number of features of a particular furniture system offered at the customer's whim.

By October 1990, the system was installed and running. Harpers has not yet met its goal of a three-week manufacturing lead time, but 20% of its furniture is out within two weeks, with the remainder clocking in at four weeks.

Harpers took a look at its hardware requirements, narrowed the possibilities down to Digital Equipment Corp. and IBM, determined that more solutions were available on the IBM platform and selected IBM's Application System/400, which was new at the time.

Harpers looked at its software requirements and developed a list of requirements processing (formerly known as MRP I, or "little" MRP) system that would "integrate our engineering, marketing, manufacturing and accounting efforts and simultaneously engineer and deliver those custom products," Wisniewski says.

Wisniewski decided to cut manufacturing costs by 15%. One way to do that was to reduce lead time to three weeks or less vs. the new industry standard of six weeks.

Second, the firm decided to cut product design and development lead time—a critical phase for a company bent on being responsive to its marketplace—to six months instead of the three years Harpers had previously enjoyed.

It wasn't going to be easy.

For one thing, Harpers' material requirements processing (formerly known as MRP I, or "little" MRP) system was homemade with no forecasting, "no real integration between order processing and accounting and no inventory location system in the plant," Wisniewski says.

Wisniewski and his managers drew up a detailed plan of objectives to complement Harpers' lofty goals of reducing money and lead times.

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But what would make the whole system work was a manufacturing resource planning

JOE WISNIEWSKI
HARPERS

(MRP II, or "big" MRP) system

that would "integrate our engineering, marketing, manufacturing and accounting efforts and simultaneously engineer and deliver those custom products," Wisniewski says.

Finding MRP II software became a contest between IBM, Systems Software Associates, Inc. in Chicago, Andersen Consulting in Chicago and Pansophic Systems, Inc., now a subsidiary of Computer Associates International, Inc. in Lisle, Ill. Andersen Consulting's Mac-Pac won, partly because it included an expert system, Expert Configurator, that was developed to improve order accuracy and response time.

By October 1990, the system was installed and running. Harpers has not yet met its goal of a three-week manufacturing lead time, but 20% of its furniture is out within two weeks, with the remainder clocking in at four weeks.

Harpers, which was bought by Jasper, Ind.-based Kimball International last January, now makes modular furniture at the rate of $60 million a year. Wisniewski says the company accomplishes that with only 350 factory employees, compared with an output of $50 million in 1988 with 580 employees.

Knight is a free-lance writer in Chicago.

JUNE 8, 1992
Manufacturer puts end to ‘we’ll call you back’

BY ROBERT M. KNIGHT

When International Flavors and Fragrances (IFF) moved Wim van Berkel from the Netherlands to the firm’s Union Beach, N.J., plant in 1982, there was nothing wrong with U.S. manufacturing that a little systems integration, reliability and network uptime couldn’t solve.

That’s how it appeared to van Berkel, who quickly determined that IFF’s manufacturing and business process needed to be re-engineered so it could take advantage of MRP II software, which the company also needed.

“We needed a package that we could quickly tune and tailor to meet various division needs,” he says. Finding the software to convert operations such as IFF’s presented some problems.

When manufacturing software first came out, it addressed the most common — and the least complex — form of manufacturing: repetitive assembly. IFF’s operations are neither repetitive (performing the same operation time after time) nor assembly-driven.

IFF uses process technology, but it is custom. If the task involved assembly, IFF would be called a job shop. “We don’t make product for stock,” van Berkel says. “We make it for a specific order, ship it, and then we’re done with it.”

To select an MRP system, “we had two main criteria,” he says. “We wanted in-depth functionality that we could change, when we needed to, through the skeleton of the application.” In other words, van Berkel wanted to tailor and update the system to his overall business needs, so he wanted access to the executed code. Second, he says, “we wanted cross-functional integration in a package that covered purchasing, material control, bill of material handling and product costing.”

In December 1982, van Berkel formed a task force to define IFF’s business requirements and invited some vendors to make presentations. A former company called Conserve served up a look at its Advanced Manufacturing Application Product Suite (AMAPS) system, which has since become a part of Dun & Bradstreet Software’s product menu by way of Management Science America, Inc., which D&B Software bought.

That’s what IFF chose, and the first module, for purchasing control, arrived in October 1984 aboard the IBM 4381 that IFF operated with a VSE operating system. (Today, it runs on an IBM 3090 with MVS/ESA.)

Getting started

Implementation was a long process. “We implemented the first few modules, but it took roughly a calendar year to get something of substance going,” van Berkel says. AMAPS was tightly integrated with IFF’s order processing and billing system by late 1989 and with the flavor warehouse system last year.

“From a business perspective, we have much better control over the materials flow and over our customer service,” van Berkel says. “And we have refined our requirements planning, so we can tell customers when we’ve scheduled delivery instead of, ‘We’ll call you back in a couple of days or so.’”

Today, IFF is looking at the possibility of a client/server platform. Van Berkel is expecting a client/server version of AMAPS, with early prereleases scheduled to arrive by next summer.

Three facets of ‘enterprise’

There are three economic models used to define the term “enterprise,” according to Daniel Appleton, president of D. Appleton Co., a consulting company in Manhattan Beach, Calif.:

• Autonomous business units (or small companies) do not have the same customers, nor do they produce goods used by others in the organization.

• Business units with multiple divisions. Here, divisions within multiple units supply one another or they have customers in common. This form of enterprise needs synchronized production planning and product movement. It is also advantageous to centrally manage customer order processing, allocation of capital, the flow of inventory across production and distribution facilities and product development and human resources.

• Businesses with contingency claims contracts to procure, produce, assemble or move the product at varying points throughout the supply chain. It is imperative for these companies to respond quickly to demand, which requires immediate access to information from their trading partners.

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<th>TYPE OF MANUFACTURING</th>
<th>NUMBER OF MODULES/ TOP MODULES</th>
<th>HARDWARE SUPPORTED</th>
<th>CLIENT/SERVER PLATFORM</th>
<th>DRIVES SUPPORTED</th>
<th>CPU ACCESS</th>
<th>OS SUPPORTED</th>
<th>AUTOMATED INTERACTIVE BITES TO BACK PRODUCT</th>
<th>MULTILINGUAL CAPABILITIES</th>
<th>ACTIVITY-牵成 DECISION TO THE CHAIN</th>
<th>STANDARD ORDER MANAGEMENT</th>
<th>WORLDWIDE INSTALLED BASE (APR. '92)</th>
<th>PRICE PER MODULE</th>
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<td>Discrete, discrete, make to order, repair and overhaul</td>
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<td>IBM PC's and compatibles, VAX, all Unix</td>
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<td>EXR, CAD, data collection</td>
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We were unable to list all 300 (or more) MRP II vendors on these pages. Instead, we compiled a list of firms known to be building new and innovative functionality into their systems to meet the needs of future generations. That new functionality is reflected in the questions we asked. The list was compiled by Industry Directions in Burlington, Mass.; Advanced Manufacturing Research in Cambridge, Mass.; and Gray Research and The Oliver Wight Co. in Kensington, N.H.

*Top 5 modules in descending order of importance.

1. Currently or within the next two years, the user will look in one common directory to see what is going on across the entire supply chain, rather than in multiple databases spread across the network.

2. The companies included in this chart responded to a recent survey conducted by Computerworld. When a vendor is unable to provide specific information about its product, the abbreviation NP (not provided) is used. When a question does not apply to a vendor's product, the abbreviation NA (not applicable) is used. Contact vendor for further product information.
## MRP II

### PRODUCT SPOTLIGHT

<table>
<thead>
<tr>
<th>VENDOR</th>
<th>PRODUCT</th>
<th>TYPE OF MANUFACTURING</th>
<th>TOP CUSTOMERS</th>
<th>TOP MODULES</th>
<th>PC'S SUPPORTED</th>
<th>DATABASE ACCESS</th>
<th>CONFIGURATION</th>
<th>AUTOMATED INTERACTIVE INTERFACES TO APPLICATION DEVELOPMENT TOOL USED TO BUILD PRODUCT</th>
<th>MULTILINGUAL CAPABILITIES</th>
<th>ACTIVITY-BASED COSTING</th>
<th>INTEGRATED SUPPLY CHAIN</th>
<th>INVENTORY MANAGEMENT</th>
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### Notes

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2. IBM PCs and compatibles.
3. Embedded database.
4. No user-level controls.
5. Support to tools.
6. DBMS support.
7. SQL access.
8. Microsoft Windows.
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<th>PRODUCT DESCRIPTION</th>
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<th>NUMBER OF MODULES/TOP MODULES</th>
<th>HARDWARE REQUIRED</th>
<th>DRIVES SUPPORTED</th>
<th>SIGNAL</th>
<th>AUTOMATED INTERACTIVE INTERFACES TO APPLICATIONS</th>
<th>MULTILINGUAL CAPABILITIES</th>
<th>WEB REGARDING ROYAL SIZING</th>
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<td>None</td>
<td>Windows 3.0</td>
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</tr>
</tbody>
</table>
How to negotiate the right price

BY EDWARD LOIZEAUX

If I said you could get a 45% discount on MRP software, would you believe it? You can, if you’re willing to sharpen your negotiating skills.

MRP software prices are highly negotiable, and the recession has made 1992 a particularly good time to make a major MRP purchase. Don’t listen to the three-piece suit assurances to the contrary; there are few (if any) MRP firms that strictly enforce their list price in a truly competitive situation.

The first thing you need to understand is that the MRP system evaluation is long and complex. During that time, you will likely forge something of a friendship with the sales representatives. As rapport builds, price discounts are convenient — never discussed — until you bring up the subject. Even when you do, you’ll find that the sales professional will defer serious negotiations, saying he prefers to wait until you’ve selected a “vendor of choice.” The implication is, “Once you acknowledge us as the preferred vendor, we’ll give you a really good deal.”

Resist this course of action at all costs. Remember: Significant price concessions are made only when the sales rep feels he’s under competitive pressure. If you remove that pressure, you’ll likely end up with only a token 5% or 10% discount on software, with all support services billed at full list price.

There is a way to keep the ball in your court: Choose at least two (and maybe even three) preferred vendors, and inform each of the competition. Only then is it time to begin serious discussions of price.

When you begin negotiating, leave no stone unturned. Discuss costs of consulting services, training classes, manuals, custom programming, telephone support and next year’s release.

Once you have the prices where you want them, it’s time to work on terms and conditions. Include the following:

* Payment plan. Since MRP implementation takes a year or more, it’s logical to spread your payments out over a similar time frame. If you press them, most vendors will allow monthly or quarterly payments.
* Warranty. Some vendors will offer a 90-day software guarantee, which barely gives you time to load the tape and conduct one training class. A 12-month warranty period is a more realistic length of time for you to explore all the nooks and crannies of a complex software package.
* Satisfaction guaranteed. One strategy to reduce the risks associated with extensive custom programming is to link payment for off-the-shelf software with the successful completion and acceptance of software modifications.

Think you’re finished? Keep reading. Just as you’ve made the official selection and informed both vendors, odds are that the loser will make a last-ditch effort to persuade your chief executive officer to reverse the decision. In one situation, the offer was to beat the competitor’s price by 10%. Decide in advance how you’ll deal with this.

Are we done yet? Yes, but only with the software and perhaps the hardware. The really big bucks are spent during the implementation phase. MRP software costs may well be only 25% to 40% of the entire project cost. The “real” costs are the time your employees spend on MRP training and away from work, the “lost opportunity” costs of an MRP implementation project that falls behind schedule and perhaps the additional cost of reimplementation if the original one fails. There is no substitute for careful planning and execution of an MRP implementation project.

Signed, sealed, delivered

Some real-life examples bear out the fact that you can save a lot of money via tough negotiations.

Software support consultants were proposing frequent travel from Chicago to the West Coast. The fine print in the contract stipulated that travel time was billable at 50% of the normal daily fee. Discussion revealed that travel time began upon arrival at the airport and ended upon arrival at the hotel. After 30 minutes of negotiation, it was agreed that travel time would not be billable at all, saving the company tens of thousands of dollars.

A sales professional liked to tout the fact that his firm offered “local” support in many geographical areas. Upon investigation, the “local” support was found to be limited to only one functional area, and specialized consultants were to be flown in on an “as-needed” basis. A one-hour discussion resulted in all on-site consulting services being billed as if the consultant were resident in the local office.

In one highly competitive situation, an IBM value-added reseller offered a special discount when it found out the purchaser was also considering a system from Digital Equipment Corp. An easy $50,000 was saved in this instance merely by letting each vendor know who the competition was.
Medusa, Unigraphics share top CAD billing

BY DEREK SLATER

In the ever-more competitive mechanical computer-aided design and manufacturing (CAD/CAM) software arena, Prime Computer, Inc./Computervision and Electronic Data Systems Corp. emerged atop the Buyers' Scorecard user satisfaction ratings. Prime/Computervision's Medusa line and EDS' Unigraphics products tied for high honors, with overall scores of 72 each.

The Buyers' Scorecard records users' satisfaction with their installed technologies. Users assigned 1 to 10 ratings based on their satisfaction with their CAD/CAM systems in 16 specific categories. The users also rated the importance of each category. (See the methodology on the next page for a complete explanation of the scoring process.)

The packages included in the survey are primarily workstation-based. The emerging power of desktop processing is moving a number of CAD users off mainframe platforms and onto workstations and even personal computers.

Medusa's score of 72 included first-place finishes in ease of use and data integrity. The product also scored highest in layout and design capabilities but rated fourth in user satisfaction in solid modeling and geometric modeling capabilities.

Medusa, along with the company's other CAD lines, ranks Prime/Computervision among the installed base leaders, but the company is undergoing a difficult transition from turnkey to software-only. Revenue from the Medusa line declined 11% in 1991, according to Framingham, Mass.-based International Data Corp. Despite high CAD user satisfaction, Prime/Computervision faces the challenge of overcoming questions about the company's continued financial viability.

EDS purchased the Unigraphics CAD line from McDonnell Douglas Corp. in October 1991. Unigraphics topped the ratings in the service and support categories, indicating that EDS thus far has successfully managed the acquisition of the software.

Unigraphics did not finish fourth in any of the evaluation categories. Areas of relative weakness included value for the dollar; assembly modeling; and feature, parametric and variational modeling.

Structural Dynamics Research Corp. earned third place overall with a score of 71. Its Integrated Design Engineering Analysis Software (I-DEAS) product line showed particular strength in solid modeling, which is the core I-DEAS module. It also earned first-place ratings in value for the dollar, quality and breadth of engineering analysis tools and feature, parametric and variational modeling. I-DEAS finished fourth in two areas: data integrity and support for multiple users, and quality and breadth of manufacturing analysis tools.

Of the four products included in the Buyers' Scorecard, I-DEAS holds the smallest market share, but industry analysts said they expect the company to continue its current pace of rapid growth. Structural Dynamics Research sells only software and provides a broad line of CAD modules for analysis and design based on a "master model" of each product.

IBM's Catia products finished fourth overall, but they were not far behind their competitors with a score of 67. Catia earned the highest rank in availability and quality of geometric modeling tools but came in last in quality of vendor support — IBM's traditional strength. IBM also carries a mainframe CAD product line and holds a commanding position in market share when CAD hardware sales are considered along with software sales. Analysts said they expect the Catia line to continue to compete successfully in the market.*

**RATINGS IN ORDER OF IMPORTANCE**

<table>
<thead>
<tr>
<th>Product</th>
<th>Highest ratings</th>
<th>Lowest ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prime/Computervision's Medusa</td>
<td>Data integrity/Support tools for multiple users</td>
<td>Manufacturing analysis tools</td>
</tr>
<tr>
<td></td>
<td>Layout and design capabilities</td>
<td>Ability to import data</td>
</tr>
<tr>
<td></td>
<td>Ease of use</td>
<td>Engineering analysis tools</td>
</tr>
<tr>
<td>EDS' Unigraphics</td>
<td>Quality of vendor support</td>
<td>Value for the dollar</td>
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<td></td>
<td>Data integrity/Support tools for multiple users</td>
<td>Ability to import data</td>
</tr>
<tr>
<td></td>
<td>Layout and design capabilities</td>
<td>Data manager/Product definition database</td>
</tr>
<tr>
<td>Structural Dynamics Research's I-DEAS</td>
<td>Engineering analysis tools</td>
<td>Manufacturing analysis tools</td>
</tr>
<tr>
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<td>Solid modeling capabilities</td>
<td>Ease of use</td>
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<td></td>
<td>Assembly modeling</td>
<td>Data manager/Product definition database</td>
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<tr>
<td>IBM's Catia</td>
<td>Geometric modeling tools</td>
<td>Feature, parametric and variational modeling</td>
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<td></td>
<td>Layout and design capabilities</td>
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<td>Data integrity/Support tools for multiple users</td>
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</table>

**Mechanical CAD/CAM software**

Total scores reflect average user ratings for all measured areas, weighted by user-assigned importance. Response base: Medusa, 35; Unigraphics, 46; I-DEAS, 20; Catia, 24.

Total possible score 100
Mean score 71

<table>
<thead>
<tr>
<th>Product</th>
<th>Score</th>
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<tr>
<td>Prime/Computervision's Medusa</td>
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<td>EDS' Unigraphics</td>
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<td>Structural Dynamics Research's I-DEAS</td>
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<tr>
<td>IBM's Catia</td>
<td>67</td>
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</table>

**Detailed ratings on next page**

*IBM also carries a mainframe CAD product line and holds a commanding position in market share when CAD hardware sales are considered along with software sales. Analysts said they expect the Catia line to continue to compete successfully in the market.*
BUYERS' SCORECARD

RATINGS IN ORDER OF IMPORTANCE

(CAD/CAM software, continued from previous page)

Structural Dynamics Research's I-DEAS scores highest in five of the remaining areas, including several modeling and tool categories. IBM's Catia places first in one area: availability and quality of geometric modeling tools.

7.8 Ability to import data from other programs

<table>
<thead>
<tr>
<th>Product</th>
<th>Medusa</th>
<th>Unigraphics</th>
<th>IDEAS</th>
<th>Catia</th>
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<tr>
<td>I-DEAS</td>
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7.2 Solid modeling capabilities

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7.2 Availability and quality of geometric modeling tools

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7.2 Quality and breadth of manufacturing analysis tools

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7.0 Quality and breadth of manufacturing analysis tools

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7.8 Quality of documentation

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7.2 Quality and breadth of engineering analysis tools

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7.2 Assembly modeling

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7.2 Data manager and product definition database

<table>
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<tr>
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<th>IDEAS</th>
<th>Catia</th>
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8.8 Vital statistics

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<tr>
<td>IS manager</td>
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</tr>
<tr>
<td>CAD/CAM supervisor</td>
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<tr>
<td>End user/Engineer</td>
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</tr>
<tr>
<td>Other</td>
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<tr>
<td>How many CAD/CAM seats are installed?</td>
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<tr>
<td>1-10</td>
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<tr>
<td>11-20</td>
<td>22</td>
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<tr>
<td>21-50</td>
<td>19</td>
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<td>51-100</td>
<td>11</td>
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<tr>
<td>More than 100</td>
<td>15</td>
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<tr>
<td>Don't know</td>
<td>1</td>
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<td>What is your responsibility for CAD/CAM software?</td>
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<tr>
<td>Evaluate or recommend vendors</td>
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<tr>
<td>Determine need</td>
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VITAL STATISTICS

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<td>Other</td>
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<td>3-4 years</td>
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<tr>
<td>5 or more years</td>
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METHODOLOGY

Products included in this Buyers' Scorecard are workstation-based mechanical computer-aided design and manufacturing (CADCAM) software products from the overall CADCAM software market share leaders.

According to International Data Corp. (IDC), market share is as follows: Prime/Computervision, 24%; IBM, 20%; EDS; 7%; Structural Dynamics Research, 6%; other, 44%. These figures include some companies' software offerings on all hardware platforms. Prime/Computervision and IBM each have several CADCAM software product lines.

User names were obtained from nonvendor sources. First Market Research in Austin, Texas, conducted the survey and tabulated the results. The response base was 46 users for EDS, 35 for Prime/Computervision, 24 for IBM and 20 for Structural Dynamics Research.

To compute the overall score for each product, perform the following steps: 1) Multiply the product's score in each category by the user importance rating to obtain the weighted score. 2) Repeat the process for all ratings areas. 3) Average the resulting figures for the average weighted score. 4) Convert the average weighted score to base 100; the ratio of the average weighted score to the average user importance rating is equal to the ratio of the overall score to 10. Numbers are rounded off where necessary.

ACKNOWLEDGMENTS

Computerworld thanks the following individuals and companies for their assistance in preparing this Buyers' Scorecard: Julius Dorfman, CIMdata, Inc.; Bruce Jenkins, Datatech, Inc.; Gisela Wilson, IDC; Computerworld Database Division.
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Address ___________________________
City ____________________________ State ____________________________ Zip
Phone ____________________________ Fax ____________________________
Outsourcing for novices

CIOs reveal their secrets for successfully farming out functions

BY TOR GUIMARAES AND STUART WELLS

At this stage in the outsourcing phenomenon, organizations shouldn't have to use trial and error to find out how to make outsourcing work for them. There are enough veterans around to make things easier for those who are now on the brink of such an arrangement. With that in mind, information systems professors at the College of Business Administration at Tennessee Technological University interviewed 19 chief information officers at Fortune-class organizations who are well-versed in outsourcing (see chart at right).

The object of these interviews was to give outsourcing newcomers a set of precepts to go by as they hand over some of their IS functions to a third party.

The overriding sense is that "outsourcing is very much like a marriage," says one CIO at a New York financial services firm. "It takes a long leap of faith, and then you have to live with the consequences, good or bad."

For these consequences to be good, the CIOs agree, novices and others interested in outsourcing must take to heart the following rules:

Don't take vendor promises on faith.

Before outsourcing, get detailed knowledge about the effectiveness and efficiency of both the vendor's and your own IS operations. Internal efficiency is the guide by which you can judge whether your outsourcing vendor is doing a job that is equal to or better than in-house staff.

This involves a massive learning process about your operation, your goals and your areas of strength and weakness.

CIOs say they talked to IS staff members and end users in various functional areas in their organizations to get information on what efficiency measures make sense in terms of their activities. IS measures may include function points delivered, number of errors and response times.

For example, one of the surveyed companies, which did a thorough job of researching whether to outsource systems development, measures in-house productivity in this area in terms of function points instead of lines of code delivered. The CIO selected the measure after he met with systems development managers from various organizational units.

Once pinpointed, these efficiency measures should become part of the vendor's charter and, more specifically, part of the outsourcing contract. The system development contract for the CIO above, for instance, is based on function points delivered, tested and assured for quality per hour billed instead of per lines of code programmed. The CIOs we interviewed who do performance measurement say the exercise helps protect company interests when negotiating outsourcing contracts.

In this way, vendors can't show you one level of performance before getting a job and then send in second-stringers to finish it.

As one CIO from a food processing company put it: "If you don't put such information in the contract up front, it means you are out to lunch. And unless the vendor is service-oriented and knows what it is doing, it will end up eating your lunch."

The key is to be specific because there is...

Demographically speaking

How the 19 companies in the outsourcing study shake out

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<td>Manufacturing</td>
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<tr>
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<tr>
<td>Insurance</td>
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<tr>
<td>Financial services</td>
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<tr>
<td>6 or more</td>
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</tr>
<tr>
<td>Total</td>
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</table>

Guimaraes is the J. E. Owen Chair of Excellence in Information Systems at Tennessee Technological University in Cookeville. Wells is an associate professor of IS at Tennessee Tech.
Tell me why

The CIOs interviewed articulated eight major reasons why they decided to outsource from cost savings/increase value to building an IS infrastructure quickly. All 19 CIOs said they outsourced to reduce costs or receive more value for their investment in IS service, systems and end-user information.

The CIOs also unanimously said they feel outsourcing enables them to concentrate more on managing the business than on managing technology.

Continued from page 89

There are many areas in which the outsourcing partners need to have strong agreement.

One issue for which shared vision is particularly important is that of technological innovation. If your company wants to walk on the leading edge, you have to concentrate more on managing the business than on managing technology.

Because of the company’s very detailed contract, the vendor could have been forced to upgrade had the client not deemed such a demand to be unreasonable; it instead curtailed user activity on the mainframe.

But it goes to show you what a detailed contract can do for you.

Ensure compatibility between the two companies

There are many areas in which the outsourcing partners need to have strong agreement.

One issue for which shared vision is particularly important is that of technological innovation. If your company wants to walk on the leading edge, you have to concentrate more on managing the business than on managing technology.

One manufacturing company CIO says his company’s vendor was chosen because it was willing and able to provide business process re-engineering services for basic accounting and financial applications. Two other vendors lost out because they provided vanilla service only.

Compatibility is also critical in the area of management style — that is, whether a vendor’s participative or autocratic or “benevolent dictator” style fits in at the company.

One client organization declined to enter into a facilities management outsourcing contract with a vendor it considered to be too “military-like.” The CIO says he and the other business executives felt that the vendor’s “style of moving and shaking was more appropriate for companies in troubled conditions but not for a healthy organization.”

For some companies, compatibility can also mean physical items, such as data file formats, communications protocols, software packages and hardware or operational items such as systems development standards, operating procedures and project management practices.

WHY do you outsource?

Reasons

No. of companies

- Save money/Increase value
- Control over IS projects
- Better software availability
- General ability (IT/Operations)
- Manage hardware
- Manage suppliers
- Management, IT, and other resources critical to the business
- Control of the process, the information and the results
- The strategic planning process, for instance, requires in-depth knowledge of the company’s business objectives and resources necessary to accomplish the objectives. Outsourcing IS planning would make the vendor privy to sensitive business information.

However, the CIOs say, vendors might work out for companies that have little or no short-term planning experience or for those that want to use a new strategic planning method. Even in these instances, however, the CIOs say it is prudent to have the vendor in an advisory role or doing grunt work rather than being in control of the process, the information and the results.

In terms of an organization’s data resources, outsourcing is no such hot issue because such resources embody the essence of the organization, its customers, its suppliers, its products, its new ideas and its business transactions.

The decision about which data items are sensitive and who should have access to specific data items are business decisions that should be kept within the organization.

Quality assurance is also a key function over which to retain control because applications quality must be kept at a level commensurate with company standards to reduce maintenance costs as well as to ensure system evolution and user satisfaction.

The company must maintain control over its application portfolio quality through review and evaluation, comparing individual system quality to baseline standards.

BE prepared to take over at any time.

If the relationship breaks down, who controls the hardware, software, personnel, data, methodologies, documentation and management know-how? While the CIOs in the study say one of the reasons to outsource is to off-load responsibility and concern for operational management, this creates a serious risk because it has a tendency to lull companies into being dependent on the vendor.

That, in turn, means that since contract negotiations are very important in the decision-making process.

One of the nastiest experiences with an outsourcing contract was described by the CIO of a federal government agency. With an outsourcing contract worth more than $200 million, “It is a very touchy situation. We have become so dependent on the vendor that if it pulled out tomorrow, we would be dead! We are supposed to do contract bidding, but how can we get tender other vendors when we are already so dependent on one vendor, and that vendor knows it?”

To avoid the fate of this organization, the CIOs advise, make sure you have the ability to follow through and save the outsourced functions. Contract escape clauses don’t mean a thing unless you have a safety net.

Lay the foundation for a smooth exit by doing the following: Select a vendor with compatible software and hardware equipment and operating systems. Careful review of availability and user-friendliness of systems documentation; ensure access to your own data and software; make sure you can get in touch with the person in charge; stay involved through constant updates and monitoring; and prepare a contingency plan in case the relationship does not work out. That may include having an alternate vendor ready to step in or keeping internal staff prepared to take on the work.

Set up to learn from the vendor.

One of the underlying assumptions for outsourcing is that the vendor organization has excellent technical and managerial capabilities in certain areas. Part of contract negotiations should include provisions for technology transfer. (Technology transfer also provides a way to keep IS staffers persona/they must take back work that has been outsourced.)

A CIO from an insurance company says he is big on judging his potential outsourcing vendors on their ability to add value to his IS department. He picks the one that fits in with his vision of “getting something useful in operation but also building company expertise in the particular area.”

By insisting that the vendor project...
teams include some of his IS staffers, ex-

plicitly for knowledge transfer, this CIO has set the stage for an impressive string of successful experimental projects in the areas of computer-aided software engineering, imaging systems, new ex-

pert systems development approaches (neural networks and case-based reason-

ing) and client/server technology.

Useful mechanisms to enable technol-

ogy transfer are training programs, joint management teams (in which vendor and client personnel make joint decisions), personnel hire/rehire agreements and re-

tention of key IS functions under client management.

Outsourcing situations in which client and vendor personnel work side by side provide a particularly good opportunity for clients to benefit from formal training programs on vendor software, method-

ologies and problem-solving techniques.

On the outsourcing menu

out of the CIOs said they have outsourced or are planning to outsource only oper-

ations and operational support activities because it is easier to understand and measure the benefits of such tasks. They are more structured and involve less un-

certainty, and such tasks tend to be di-

cult.

Some CIOs said they outsourced systems that are too complex for in-

house staff to handle. Examples include transpor-

tation/logistics applications requiring heavy-duty operations re-

search (mathematical modeling) capa-

bility or running out a marketing analysis application.

In the transportation case, the com-

pany had vendors handling software de-

velopment for truck routing and graph-

ics mapping. In the second case, dealing with logistics, the CIO did not have the resources to tackle a large new purchasing/warehousing/inven-

tyory control application.

For the marketing analysis application, it was more cost-effective for the cli-

ent to have the system developed by the vendor instead of in-house because the vendor owns the database.

Another finding was that 14 of the
selves but also to their work, the CIOs ad-

vise that you explain to the staff that out-

sourcing is a business and economic decision.

Employee participation in the out-

sourcing decision and evidence of out-

sourcing’s benefits to the organization can significantly contribute to a more pos-

itive view of outsourcing by IS personnel. It may be beneficial to get the parties to-

gether so they can see that they have in com-

mon the goal of making the IS area better.

One CIO from a financial services com-

pany that had outsourced a major applica-

tion took a tack in which he not only got

superior performance from the vendor’s personnel but was also able to make in-

house IS staffers more productive and happier about their jobs. He set up a

friendly rivalry between vendor and in-

house IS staff by establishing common system development metrics (function-

gations at the outset. The client

company must enforce the use of stan-

dard or compatible tools, methodologies and procedures in joint work as well as

document where and how highly integrat-

ed activities — such as systems develop-

ment and operations; data analysis and data-

base design; and database design and data-

base management — overlap."

Don’t forget the needs of end users. When outsourcing, the CIOs say, make sure that any vendor responsible for direct services to the end-user community under-

The client may become the general of a

company or platoon, which may be seen as a loss of influence.

If the opposite might occur, in

that outsourcing of operational tasks may allow the CIO to concentrate on more important issues.

In some companies, outsourcing can provide user department managers with the opportunity to become “mini CIOs” — much less dependent on corporate IS and free to run their own show.

These rules from CIOs who’ve gone through outsourcing can help to make your outsourcing experience a good one. Your vendor will become not an “alba-

trons,” as one IS chief put it, but a valued and manageable partner.

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THE MANAGER'S JOURNAL

EXECUTIVE TRACK

JUNE 8, 1992

By Christopher Linquest

Touchdown!

Is directors to score big in emerging role as user team coach

BY CHRISTOPHER LINQUEST

"e-engineer this one for the Gipper?"

While the ghost of Knute Rockne leading his Notre Dame football squad down the halls of information systems departments may seem surreal, the prospect of the IS manager as coach is not. In fact, if the predictions of several IS managers come to pass, such situations will soon seem commonplace.

"The IS leader's best role in coming years may be as coach to a team of [increasingly technology-savvy] users," says John Alexander, chief information officer at Portland, Maine-based Unum Insurance Corp.

As technology begins to shift the balance of power from the IS department to the business users—a trend born with the personal computer and still approaching adolescence—IS will find itself more and more in the role of coach, according to many IS directors and the consultants who track the evolving IS game plan. A slew of approachable, affordable tools will enable those most intimate with the business' needs to build technology that is satisfying to them. IS professionals will move from their glass houses to help users help themselves.

Although this change is occurring now, it will take some time, perhaps several years, for tools, users and IS to fully implement the idea. But if businesses are to survive, the changes must occur, users and consultants say.

Forward pass

Alexander says he sees a future for IS in which systems professionals are physically and functionally located among the intracorporate customers they serve, rather than being isolated in an IS department. Ideally, Alexander says, "he envisions "a lot of existing [IS] people moving into the business end to play coach." That future is already starting to click in, says Michael Hammer, a management consultant in Cambridge, Mass. As user firms struggle through the underlying structural changes brought about under the rubric of reengineering, he says, "Coaching is becoming an increasingly critical role for every manager."

The mandate is not limited to IS. Hammer says. However, he adds, the IS manager will be a key coach on any reengineering team.

What do coaches do? Generally they lay down the ground rules, set up the basic plans and goals for the team and give the players the training and tools they need to do the job. That hasn't been the standard paradigm for IS executives and staff members, who have generally operated not as coaches but as the entire team.

In the rapidly outmodeled model, everything from design to implementata

touchdown: Not dead yet

BY NELL MARGOLIS

"u-oh. Drag out that old Mark Twain quote again.

Studies released recently by Cambridge, Mass.-based consulting firm Arthur D. Little, Inc. (ADL) and Framingham, Mass.-based consultancy Dataquest/Ledgeway assure us that reports of the death of two recently raging information systems trends have, indeed, been greatly exaggerated.

We're still going to see plenty of grand-plan strategic IS project and bank outsourcing, but we just may see them in somewhat altered states, both to cow competitors are viewed as key parts of a technology infrastructure strategically aimed at driving efficiencies throughout the business. In addition, the following trends emerged from the survey:

- From automating functions to redesigning business processes.
- From pure IS sponsorship and responsibility to user advocacy and ownership (see story above).
- From financial to business justification. Only five respondents tagged "strict return on investment" as justification for their investments in strategic IS systems; 23 checked off "competitiveness/advantage.

Meanwhile, Dataquest/Ledgeway estimated the 1991 bank outsourcing market at some $2.5 billion, growing at a whopping 16.3% annually.

Robert F. Cairns has been named dean of the School of Technology and Applied Science at Washington University in St. Louis. Cairns, a professor of engineering and technology management and a member of the STIM faculty since 1986, holds an MBA and a Ph.D. in business administration from St. Louis University. He succeeds Robert J. Benny, the founding dean of STIM, who will remain as associate vice chancellor for computing and communications.

Rebecca McPheters has been named director of information services for New York Times Magazine Group, a subsidiary of The New York Times. McPheters moves to the newly created position after having served as vice president and search director for the magazine group.

Joseph R. Tuttle Jr. has been named manager of data processing at Marketing Dimensions, Inc., a database marketing firm in Scituate, Mass. Tuttle previously was director of office automation in the Commonwealth of Massachusetts Treasurer's Office.

Who's on the go?

When you have news about staff changes, be sure to drop a note and photo to your public relations department write to Nell Margolis, Senior Editor, Management, Computerworld, Box 9171, 375 Cochituate Road, Framingham, Mass. 01701-9171.
**IS directors score big as user coaches**

**CONTINUED FROM PAGE 93**

Cambridge, Mass.-based management consulting firm Arthur D. Little, Inc. to find out whether so-called 'strategic' IS is earning its keep. Several firms areemarks the trend from IS to user responsibility: 61% of the strategic IS users identified were targeting intracorporate end users. In contrast, 24% were identified by users working with IS managers. Only 15% were suggested by IS alone.

"We're clearly beyond dictatorship," Alexander notes. "The IS director's car lost his head years ago. That's why CI0 stands for 'Career Is Over,'." "But while end users are likely to cheer the transition from tech boss to coach, it's not all fun and games for the IS personnel who are undergoing it. For one thing, the same technology explosion that is easing the end user's burden is increasing the user's demand for more quick fixes. "In the long for the days when all I had to do was say, 'tomorrow' and have someone deliver the report, or even 'on the outs?'" Alexander notes.

"We're going to see some real opportunities to reduce costs," said Jonathan Palmer, chief technology officer at Barnett. A host of technological and managerial similarities between the two organizations are likely to yield major savings for Barnett in terms of synergies and data center consolidation.

**Integrating images**

Barnett uses Unisys Corp.'s Imaging Management Systems as its off-line check processing imaging system at three of its check processing centers, which handle a total of 3.5 million checks per day for the bank group's 520 Florida branches. Meanwhile, Barnett is also in the midst of an estimated $60 million effort to redesign its paper-intensive operations around image-based systems.

Palmer said the bank is ex- pecting a return on investment of 15% to 18% on its image processing outlays. In this area, too, he said, First Florida's growing use of image technology is expected to translate into synergy and cost savings.

Palmer wears two hats for Barnett. In addition to his re- sponsibilities as chief technology officer at Barnett Banks, he is also the chairman and chief exec- utive officer of Barnett Technol- ogies, Inc., a wholly owned $220 million Bar- nett Banks subsidiary that provides information services to the holding company and to outside fi- nancial companies as well. Many of Bar- nett's and First Florida's opera- tions and strateg- ies dovetail, Palmer said. For instance, he noted, the banks are substantially similar in fact he said he hopes will translate into major savings when Barnett is able to expand its reach without the hefty training outlay and costly cultural upheaval often triggered by an acquisition.

In addition, Palmer cited a raft of similarities in applications and operating systems software as a likely source of synergy. Both banking groups, he said, have large IBM mainframe shops which run MVS/ESA, CICS and DB2 operating systems and software, as well as complementary software packages from Com- puter Associates International, Inc.

Palmer indicated that First Florida's Tampa, Fla.-based data processing center will be merged with Bar- nett's primary data center in Jacksonville.

**Approval pending**

Both organizations, he said, are working on data center and systems consolidation toward a complete merger of the opera- tions by June 1993. The acquisi- tion, now pending approval from the U.S. Department of Justice and both groups' shareholders, is expected to close by next year.

Palmer was candid about the virtual inevitability of work force cuts. "It's pretty clear that by the time next year, if our busi- ness doesn't grow substantially, fewer people will be working here," he said.

Barnett has a total informa- tion systems staff of about 600; First Florida employs 250 per- sonnel to manage its IS operations. Palmer said he expects to consolidate the two staffs in such areas as network management, data center management, sys- tems and programming.

In brief

**Latest word:** "Outsourcing" on the outs?

Is the recent zeal for outsourcing, and any user- waxes ever more eager to offload information systems de- partments or functions? The- days, your answer may depend on which consulting firm's re- port is on your desk (CW, June 1). But while definitive con- clusions as to the fate of the strategy are likely to be a long time coming, the buzzword may be about to go.

In fact, it's already history at the recently formed vendor Partnership and Outsourcing Interests Group. Mem- bers of the user group, with- out apparent provocation, first time last month to pool their out- sourcing views, voted to change their collective name to the Partially Outsourcing Interests Group. The new name, according to group leader Jon Berger, gives the federation a more latitude in considering outsourcing, insourcing, multi- sourcing and any other permutations.

"Don't write off "re-engi- neering" as something more than the latest buzzword, says Dun & Bradstreet's oh, a survey of 366 of the 2,400 U.S. managers, project leaders and systems professionals who at- tended the vendor's annual American user conference last week showed 59% would consider using vendors to implement re-engineering methodologies during the next year. Most of the respondents said they expect their efforts to result in measureable benefits to the company within three years. What they want to see, however, is a raft of consult- ing firms. When asked if they planned to bring in outside aid, approximately 50% of the sur- veied users said they intended to rely on in-house talent.

"IS executives don't have to wait for economists to agree on whether the recession is, or is not yet, over. It is over in the IS executive suite. So says New York-based management consul- ting firm Edward Perlin Associates, Inc. in its "Salary Survey of Information Management/Data Processing Execu- tives' Positions" report, released late last month. But the fig- ures are back with important strings attached, the Perlin re- port noted. As recession- scarred employers demand more bang for the buck, executive raises are smaller than they used to be, and the likelihood of being tied to company performance.
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Industry organizations go beyond schmoozing to attract new blood

BY SUZANNE WEDELL SPECIAL TO CW

Professional organizations that have been hard hit by the recession are going all out to attract increasingly choosy (and busy) information systems professionals. Discouraged by job prospects and services, free admission to trade shows, membership directories, newsletters and training are among the incentives being offered.

Declining memberships, which are down from 10 years ago, are a big reason for the services, according to Jodi Moon, managing director of client development at the Association Management Bureau. The Washington, D.C.-based firm manages several IS-related associations.

In addition, some organizations — both associations and user groups alike — have shifted their attention to focusing on jobs.

Help for the unemployed

For example, the San Francisco Bay Area chapter of the Association for Women in Computing (AWC) formed a special interest group for job seekers. The group also added a bulletin board service for job seekers, according to Jane Benedict, the chapter president.

Response has been so overwhelming, Benedict says, the chapter has organized bimonthly meetings specifically for members interested in exchanging job leads. The group also publishes a membership directory that lists everything from a member's abilities to hobbies and specializations.

"People list as assets the programming environment they expect or their skills as technical writers," AWC member Lois Tilles explains.

Basking in benefits

Meeting people with similar professional interests may still be a big reason for joining an industry group, but members are finding that schmoozing isn't the only perk. Other services that organizations provide include the following:

- Training.
- Government lobbying.
- Job banks or referrals.
- Discounts on products and services.
- Admission to trade shows.
- Prererease access to new products.
- Access to informational databases.
- Membership directories.
- Association newsletters.

The Boston Computer Society (BCS), a personal computer-oriented user group based in Cambridge, Mass., agreed that finding jobs for its members was a high priority. The 30,000-member society entered into a partnership with an employment agency, Cortico Corp. in Salem, N.H., that provides BCS members with job experience and employment counseling to resume writing.

"The recession was taking its toll on our membership numbers," says Pam Bybell, manager of user group support at the BCS.

"We had to offer something."

Some benefits have real economic value. For example, association members often receive group discounts on products and services ranging from publication subscriptions to life insurance policies. Kil Wilson, a member of the Corporate Association for Microcomputer Professionals, an association of corporate IS groups, says that complimentary admission to trade shows and conferences is an extra benefit beyond the technical sharing and networking that occurs in most associations.

Besides seminars and conferences, training services such as videotapes and entire course curriculums are also becoming more popular. In fact, some organizations have developed complete courses or have formed alliances with training companies.

Leadership opportunities

In addition to providing services, many organizations also offer opportunities for members to hold leadership positions that can help advance careers.

Carroll Lewis, a past president of the Data Processing Management Association (DPMA), says membership in organizations such as the Park Ridge, Ill.-based DPMA can provide leadership training that might not be possible in people's daily jobs.

Lewis, who is president of Memphis-based Commercial Data Corp., adds that such skills can be gained in a risk-free, noncompetitive environment.

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  - (415) 905-4663

- Boston Computer Society
  - Cambridge, Mass.
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  - (617) 252-0600

- Corporate Association for Computer Professionals
  - Northbrook, Ill.
  - Members: 975 corporate IS departments
  - (708) 251-1300

- Data Processing Management Association
  - Park Ridge, Ill.
  - Members: 30,000
  - (708) 825-8124, ext. 221

- Tele-Communications Association
  - Covina, Calif.
  - Members: 2,500
  - (818) 859-2652

Case in point: Steve Ashurst, president of the Puget Sound (Wash.) chapter of the Tele-Communications Association, an association for telecommunication professionals to share common problems, ideas and solutions, says that a position like his can provide a "fair amount of respect among your peers."

Weixel is a free-lance writer based in Marblehead, Mass.
Choose (IS) schools with accreditation

Fast Track is a twice-monthly column dedicated to answering questions about computer careers. This week’s guest advisor is Steve McMahan, managing director of the Boston office of Sours Edley, a reputation for being a specialist in the placement of computer professionals.

Q I have an associate degree in computer science and eight years of experience as a programmer/analyst and project manager. I would like to go back to school part-time at night for my bachelor’s degree in business administration with a concentration in computer science. How important is my choice of schools? I’m interested in a school that has an accelerated program, as I would be looking at public universities with national accreditation. How important is it for the school to be accredited?

A As the information systems business matures and competition among candidates/employees increases, a bachelor’s degree has become much more important in the career development. Avoid fly-by-night and unaccredited programs. A college or university with a weak reputation may be worse than none at all. You don’t have to go to the Ivy League, but look for a repected school with a strong practical orientation.

Q I am currently employed as an electronic data interchange (EDI) project manager. I have nine years of data processing experience with two years in EDI. What is the job market like for EDI experience, and what is the going salary? I have only seen one advertisement (in an EDI magazine) for EDI-experienced people. My predecessor left because his predecessor’s big raise. EDI is a useful skill, but you should focus on developing a well-rounded applications portfolio in industries where EDI is appropriate, such as manufacturing or retail.

TIP OF THE MONTH

How do you handle conflict with a user?

The best way to handle conflict with a user is the same way you’d handle conflict with a friend: Listen, acknowledge his feelings and paraphrase your understanding of the conflict.

Then work on finding common ground.

Carl Wilson, senior vice president of MIS Grand Metropolitan Pillsbury’s Food Sector and International Retailing Sector, Minneapolis

I’m working with two companies to resolve who owns what data after a divestiture. Distributing written documents of my understanding to both parties of the conflict serves as a basis for discussion and a way to get them involved.

Timothy A. Kenney, consultant Santa Barbara, Calif.

If a person is upset, it’s best to let his emotions run their course. Then ask to focus in on the facts. We had a user that wanted a job run every 15 minutes instead of every hour. We learned that he really wanted it done when he needed it — not necessarily every 15 minutes. So we worked out a compromise.

James Holley, information technologies manager Eaton Corp., Cleveland, Tenn.

We try to work with the users one-on-one and actually walk through the problem together. Often minor changes can make a big difference to a user’s satisfaction.

Robert House, manager of MIS Suma Fruit International (USA), Inc., Sanger, Calif.

The hardest conflict to handle is when a user takes his problem to management. The user often feels guilty when you help him, which makes it even harder to get him to communicate the problem. My staff tries to be sensitive to that by speaking the user’s language.

K. N. Lambert, director of IS and general manager of network/data sales United Telephone-Northwest, Hood River, Ore.

Compiled by Kathleen Gou, a freelance writer in Medford, Mass.

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Sturdy PCs built to take beating
Only some models are designed for rough treatment and harsh weather

BY ALAN RADDING
SPECIAL TO CW

Northwest Airlines puts personal computers at cursorial to handle baggage check-in. Krasdale Foods, Inc. in New York attaches them to the fork lift trucks careening around its warehouse. The Chicago Board of Trade places them on the crowded options trading floor where frenzied traders stomped.

Under conditions like these, a PC built to handle normal office standards might not survive a week. That's why all of these companies turned to ruggedized PCs and portables — models designed to withstand shock and tolerate varying extremes of heat, cold, moisture and dirt.

Shopping for superhardy PCs requires a sturdy constitution, too. These machines aren't usually found in the normal channels. They come from obscure vendors that customize brand-name products for rough use. Vendors such as Texas Microsystems, Inc. in Houston offer ruggedized Scalable Processor Architecture workstations; Tektronix Corporation, in Akron, Ohio, and Husky Computers, Inc. in Clearwater, Fla., offer ruggedized handihelds. Others include Rugged Digital Systems, Inc. in Mountain View, Calif., and CS, In. in Herndon, Va.

Depending on what you buy, ruggedized PCs can be expensive, costing as much as one-third to several times more than their nonrugged counterparts.

Rugged Digital Systems, for example, will ruggedize Poqet Computer Corp.'s $1,500 Poqet PC for about $3,000. Similarly, the Chicago Board of Trade paid about $4,400 for a rugged PC from Texas Microsystems, twice what it pays for a mail-order Dell Computer Corp. 386-based machine.

Some companies that might never have considered ruggedization necessary for full-size PCs are deciding that extra safety measures are a good idea when it comes to notebooks, handihelds and pen-based systems. A major reason: Compact units are often used for jobs outside the office by workers who aren't used to pampered tools.

A major Midwest insurance company, for example, planned to replace its auto insurance claims adjusters' clipboards with pen-based notebooks. But when managers saw the adjusters at work — dropping the clipboard onto the greasy, concrete floor and kneeling on top of it to peer under the car — they realized a ruggedized pen-based computer was needed.

Tough enough?
The big challenge for buyers is to get enough durability. But if the initial analysis of requirements is shabby or incomplete, a company can run into trouble.

The Chicago Board of Trade, for example, wanted high shock resistance. It settled on Texas Microsystems' product.

However, it failed to consider the heat factor. "We didn't think we needed to specify for heat, but the thick casing that protects the system also keeps heat in," says Armando Pena, supervisor of network technology. Because the system stand on the trading floor, their cooling fans clog with dust, which compounds the problem. Now, staff members must clean the fan filters regularly.

To prevent underestimated requirements, users often test the machines themselves, talk to other buyers or, more commonly, compare the system with military specifications.

These specifications — commonly referred to as mil specs — can be used to measure ruggedness. "If you go to a known vendor with a certified mil spec, there isn't much worry," says Kevin Atkins, technical support engineer at Northwest Airlines.

Vendors will customize systems to comply with any mil spec the buyer chooses. Northwest, for example, requested mil specs that deal with temperature, Atkins says.

Because mil specs change all the time, it's helpful to get an updated listing from the Department of Defense. Other common specifications are those for shock resistance, which are usually supplied in G ratings — the amount of gravity exerted on the machine.

An office computer might withstand a shock of 0.5 to 1 G — approximately a 1-ft drop onto a cushioned car seat — whereas ruggedized machines are built to withstand drops onto concrete from at least 0.8 ft, or approximately 40 G.

The outer case and chassis of rugged PCs are also heavy-duty and typically consist of 16- to 18-gauge steel or a high-strength magnesium alloy. By comparison, the cases of office PCs are usually sheet metal, lightweight aluminum or plastic.

If heat is a problem, vendors may add a second fan or move the fan so it blows air over the processor and boards first. Conventional PC fans usually blow air on the power supply first.

Fans are rated by their ability to move air: 20 to 25 cubic ft per minute is the norm. But whatever specifications you choose, don't expect ruggedized PCs to be sleek, trim and attractive. They are heavier, larger and look chinker than their office counterparts. "They don't look very elegant. But they're tough," one system manager says.

Rudding is a freelance writer based in Newton, Mass.
The BoCoEx index on used computers
Closing prices report for the week ending May 29, 1992

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- Financial Asset Management

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800-227-6584
## Computerworld Friday Stock Ticker

### STOCKS

**TOP PERCENT GAINERS**

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<th>Percent Gain</th>
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<tr>
<td>Nevronix Networks Corp.</td>
<td>30.51</td>
</tr>
<tr>
<td>Knowledge Revolution Corp.</td>
<td>24.75</td>
</tr>
<tr>
<td>Microchip Inc.</td>
<td>23.92</td>
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<tr>
<td>Mentor (NYS)</td>
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</tr>
<tr>
<td>Cyntegra Systems</td>
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<tr>
<td>Gateway Communications</td>
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<tr>
<td>ServiceNow</td>
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**TOP PERCENT LOSSERS**

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<tr>
<td>Sybase, Inc.</td>
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</tr>
<tr>
<td>Intersolv Inc.</td>
<td>-21.13</td>
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<tr>
<td>Integraph (L)</td>
<td>-19.22</td>
</tr>
<tr>
<td>Inpro Corp.</td>
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</tr>
<tr>
<td>Cognos, Inc.</td>
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<td>NetApp (NYS)</td>
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**STOCKS**

### Communications & Network Services

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<tr>
<td>Cognos, Inc.</td>
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<tr>
<td>Autodesk, Inc.</td>
<td>11.00</td>
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<td>Adobe Systems, Inc.</td>
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<tr>
<td>Oracle Corp.</td>
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<td>Microsoft Corp.</td>
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**PC and Workstations**

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**Semiconductors**

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<td>Analog Devices, Inc.</td>
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**Peripheral and Subsystems**

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**Services**

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3,700 depart in DEC retirement plan

BY MELINDA-CAROL BALLOU
CW STAFF

MAYNARD, Mass. — Digital Equipment Corp. completed an early retirement program last month, continuing a series of actions that cut the company's overall head count by as much as 10,000 this year, according to industry analysts' estimates.

Out of 7,200 eligible employees, 3,700 took advantage of the plan, which offered 26 weeks of pay in a lump sum and added five years of service and five years of age to the normal retirement plan.

The conclusion of this program follows a series of organizational steps put into place after DEC's stunning third-quarter loss of $294 million. It is unlikely that DEC will soon offer other retirement packages to workers seeking to buy their business by branching out into commercial systems integration. The 10-person staff at Burlington, Mass.-based Siemens/Nixdorf Systems Integration Group has so far signed up only various Siemens business units as clients but expects to close more deals by year's end.

The president of PRC, Inc.'s commercial systems integration group, John Lautman, will soon leave the McLean, Va., professional services firm, according to a company spokesman. Lauterman's departure comes weeks after the Black & Decker Corp. subsidiary postponed an initial public offering.

New York — IBM's purchase last week of a minority stake in Parallax Computer, Inc., will give it a high-end performance server to sell into markets it has failed to reach before.

The move was widely seen as saving Parallax, an $8 million to $10 million supercomputer maker that was under financial pressure. IBM was expected to buy less than 20% of Parallax (CW, April 20), though both declined to specify the amount purchased last week.

Parallax's servers fit well with IBM's product line because they are built around similar Intel Corp. processors and use IBM's Micro Channel Architecture and OS/2 operating system.

IBM executives seemed uncharacteristically bold in their comments about the purchase.

"This is a very exciting deal for us. We think this is a very fast-growing segment of the market and will be one of the most important of the 1990s," said Beverly Lambert, personal systems announcement and advertising manager at IBM's National Distribution Division.

Analysts agreed that the move was a good one for IBM.

"They're bullish, really, because of how this fits in with their high-end work," said Tim Bajarin, president of Santa Clara, Calif.-based Creative Strategies Research International. "This is a step toward true parallel processing, and that's where the future is, once there has been software designed to address it."

Under the terms of the agreement, Parallax will effectively become an IBM development laboratory, according to Jeff Westerinen, manager of high-end server development at IBM.

Parallax will no longer sell its 290 series, focusing instead on the development of what will become the IBM Server 295. This product, which will essentially combine Parallax's high-end S/390 multiprocessor architecture with IBM's most powerful Personal System/2 Model 95, is expected to ship in October.

The Server 295 products will include fault-tolerant features not previously found in IBM servers, to be called Maximum Availability and Support System/2 or MASS/2. It will offer multiprocessing through extensions of OS/2 Version 1.3 initially.

While Parallax systems currently cost more than $100,000, the Server 295 series will start at $29,060, with one 33-MHz 486. Base-level 50-MHz prices will start at $34,060. Options will not come cheap: A second 33-MHz processor module will cost $9,900; software to support orthogonal redundant arrays of inexpensive disks, level 5, will cost $15,000.

IBM officials said they did not expect the Server 295 to hurt sales of its Application System/400 minicomputers.

IBM investment reaps high-end servers

BY MICHAEL FITZGERALD
CW STAFF

Slimming down

DEC's head count has declined by 12,700 over the last 18 months and more cuts are expected (Worldwide employee count)

12,700 12,600 12,500
12,400 12,300 12,200
12,100 12,000 11,900
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1,900 1,800 1,700
1,600 1,500 1,400
1,300 1,200 1,100
1,000 900 800
700 600 500
400 300 200
100 0

In Brief

FBI rescues Adobe chief

■Adobe Systems, Inc., president Charles Geschke, 52, was rescued by Federal Bureau of Investigation agents after being abducted at gunpoint May 26 as he entered company headquarters in Mountain View, Calif. Kept blindfolded in a house in Hollister, Calif., for five days, Geschke was freed by FBI agents who tracked one of the two alleged kidnappers as he picked up ransom money totaling $650,000. Both suspects are being held in California's Santa Clara County jail.

■Add Germany's Siemens AG to the list of harnessing workers seeking to buy their business by branching out into commercial systems integration. The 10-person staff at Burlington, Mass.-based Siemens/Nixdorf Systems Integration Group has so far signed up only various Siemens business units as clients but expects to close more deals by year's end.

■The president of PRC, Inc.'s commercial systems integration group, John Lautman, will soon leave the McLean, Va., professional services firm, according to a company spokesman. Lauterman's departure comes weeks after the Black & Decker Corp. subsidiary postponed an initial public offering.

Short Takes

IBM has completed the joint development deal that it announced with Groupe Bull in January, whereby IBM invested $100 million in the Paris company in exchange for a 5.7% equity stake. . . . Digital Equipment Corp. confirmed plans to build by the end of 1994 a 520,000 sq-ft research and manufacturing facility in Hudson, Mass., to produce future versions of its Alpha reduced in- struction set computing architecture.

By Mark Halper

SHL lands consultancy

DALLAS — Canadian systems integrator SHL Systemhouse, Inc. last week acquired The Strifler Group, a small client/server consultancy, for a stock swap valued at $4 million.

The acquisition could boost the Octawa-based firm's presence in the Southwestern U.S. SHL Systemhouse's activity in this country has been concentrated on the East and West coasts. Strifler becomes the firm's central U.S. operations.

Strifler's 32 consultants have joined SHL Systemhouse, which named Strifler President Stan Strifler as director of systems integration for SHL U.S. and SHL Systemhouse's central operations.

SHL Systemhouse Executive Vice President Mark Bunnell said his plans to grow the staff to 50 consultants in the near term and to IBM during the next year.

SHL Systemhouse has picked up Strifler's ongoing client/server downsizing projects, including those with the Dallas/Fort Worth International Airport and three Dallas-area companies — RCB Contractors, a $450 million construction group; Texas Industries, Inc., a $600 million cement and concrete products operation; and Sky Chefs, Inc., a $500 million airline food service.

The acquisition gives the Strifler operation access to data centers. SHL Systemhouse uses processing centers in Houston and Los Angeles to move clients onto mainframes temporarily during the downsizing process.

Stan Strifler noted that because his firm has not had mainframes downsizing been problematic for clients who have had to continue operating their mainframes while downsizing.
**INSIDE LINES**

**Changing their minds . . . again?**
- DEC's DEC/OSF/1 management team was knee-deep in meetings late last week, evaluating customer reaction to controversial changes in the company's plans for the Unix-based DECstation/DECsystem line. Future versions of that line are no longer slated to run DEC/OSF/1, and many users are upset after being promised a migration path from Ultrix to OSF/1 on their DECstations. David Stone, vice president of software engineering at DEC, said last week that a final decision on the fate of DEC/OSF/1 on DECstations is likely to be announced this week.

**Going, going . . .**
- WordPerfect isn't going public yet — but it is busily cleaning its financial house to ready itself for such an event. The actions include bringing in former Price Waterhouse executive Dan Campbell as the company's chief financial officer. According to WordPerfect's general counsel, R. Duft Thompson, the ability to offer employees equity packages as well as to leverage stock swaps in acquisition situations are among the reasons the company is pondering the move. Although the firm will probably be ready to go public sometime this year, he said, the actual thumbs-up depends completely on co-founders Alan Ashton and Bruce Bastian.

**Chipping away**
- IBM's 486SLC chip will be officially announced tomorrow, sources close to the company said. The first product offering will be an upgrade board for PS/2 Model 56s and 57s, slated for fourth-quarter availability. A special promotion will let buyers of the two PS/2s snag a board for $259 instead of the retail price of $850. The 486SLC has 16K bytes of internal cache as opposed to the 386SLC's 8K bytes, as well as clock-doubling capabilities similar to Intel's DX2. The chip is slated to move across to laptops and servers — particularly the Model 90 and 95, sources said.

**Laptop leapfrog**
- Hewlett-Packard will push the limits of disk drive miniaturization today when it introduces a 1.3-in. hard drive made by Japan's Citizen Watch Co. The 20M-byte drive pushes past the industry-standard 2½-in. form factor and breaks the 1.8-in. barrier. HP's smallest offering to date has been a 3¼-in. model. HP is pricing the new drive between $200 and $250. According to industry watchers, the shrinkage will pose a challenge to purveyors of credit card-style memory devices.

**Taking the plunge**
- Microcom plans to jump into the LAN workstation management pool this week. Its initial product will collect real-time data on resource usage, usage levels and hardware and software problems on Windows and DOS workstations, a company spokesman said. It will run on an OS/2 workstation over Novell NetWare 286 and 386 LANs, with possible expansion to Microsoft's LAN Manager and AppleTalk in the future.

**Fly the crowded skies**
- Last week's consumer rush for half-price airline tickets produced unprecedented network traffic — and processing crunches — for the nation's airline reservation systems. Travel agents reported slowed response time from reservation computers and downed links on American Airlines' Sabre and United Airlines' Covia reservation systems, among others. The central computers were running at full tilt: "Sabre exceeded its previous record of 3,100 transactions per second," a spokeswoman said.

**Hard to say if it was the 108-degree heat or business as usual, but Borland Chairman Philippe Kahn had no qualms about knocking the competition at Borland's database developer conference in Palm Desert, Calif., last week. He aimed most of his barbs at Microsoft and its FoxPro database operations. Likening the Fox logo to another animal, the cantankerous Kahn observed, "Gee, I mean it looks like a dog." Kahn eventually let on that "we at Borland have a lot of respect for Fox." Have a tip? Phone, fax or CompuServe News Editor Alan Alper at (800) 343-6474; (508) 875-8931 or 76537,2413, respectively. Or try Computerworld's 24-hour voice-mail tip line at (508) 629-6555.
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