Execs depart troubled lesser

BY JOHANNA AMBROSIO CW STAFF

DEERFIELD, Ill. — The top two executives at Meridian Technology Leasing Services, the industry's third-largest leasing company, are resigning July 1 to start their own separate firms.

The departures of Harvey Kinzelberg, Meridian's founder and chairman, and Timothy Osark, the company's president, signal a change in focus for Meridian. The firm will continue in the leasing business but will offer additional financial services to its 1,000 clients, executives said.

 Meanwhile, it came to light last week that Meridian was expelled last month from the Computer Dealers and Lessors Association for violating the trade group's code of ethics.

Meridian executives responded that the company had already resigned from the CDLA in October 1991. They disputed the ethics violation charge.

The changes have at least one customer examining its relationship with Meridian. "We are concerned," said Ray Gilmore, senior vice president of information services at General Casualty Co. of Wisconsin, an insurance firm in Sun Prairie. "We are evaluating a lease for a computer

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Lease on life
Despite some problems, leasing is still a good business to be in


Source: Computer Dealers and Lessors Association

(1 billion)

Apple/IBM Birthday

Users snub star-crossed pairing

BY JAMES DALY and CAROL HILDEBRAND CW STAFF

The first birthday of a wide-ranging technological partnership between Apple Computer, Inc. and IBM — strange bedfellows by any definition — reveals two fairly tight-lipped camps.

The duo, which just a year ago this week announced bold plans to redraw the corporate desktop, has so far found the task of cranking up the development engines and garnering user support to be a difficult one. And, some users say, their efforts may well prove fruitless.

Both Apple and IBM have admittedly done a poor job of selling the whys and wherefores of their ambitious foray into object-oriented RISC-based computing to their intended target: power users. Apple, in fact, declined numerous offers to discuss with Computerworld its partnership with IBM.

Faced with such vagueness, many information systems professionals said they regard the partnership as a complex initial offering that is still a good business to be in.

"I don't expect anything earth-shattering to come out of all this. In fact, I don't expect anything at all," said Allen Head, IS development manager at University of Wisconsin-Madison. "I can't build our future around their plans."

"Tf IBM doesn't have it, we'll just buy it from someone else," said Philip Newcomb, senior technical consultant at Baxter Healthcare Corp., a large IBM shop in Deerfield, Ill., that is looking to migrate its Systems

Continued on page 22

Copyright grip on source code weakened

BY THOMAS HOFFMAN and JOHANNA AMBROSIO CW STAFF

NEW YORK — In what could become a landmark decision affecting the entire software industry, a federal appeals court last week ruled that the behavior of a computer program is not protected under copyright law.

The ruling, handed down by the U.S. Court of Appeals for the Second Circuit in Manhattan, found that the creativity behind a software program could not be the subject of copyright protection.

The case in question involved an appeal made by Computer Associates International, Inc., the $1.4 billion Islandia, N.Y.-based software giant, regarding a suit against Altai, Inc., a small Dallas-based mainframe software company, CA successfully sued Altai in 1987 for infringing on CA's copyrighted CA-Scheduler, a job-scheduling program designed for IBM mainframes (see story page 15).

Subsequently, CA charged that the new version of the disputed Altai program also infringed on CA-Scheduler. Altai countered that charge, claiming that the new code was substantially different.

In 1991, the U.S. District Court for the Eastern District of New York agreed with Altai on that point but awarded monetary damages to CA, which appealed the ruling.

The Second Circuit Court ruling upheld the previous court's

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IBM delays new router, loses face

More testing needed; few users waiting

BY JOANIE M. WEXLER CW STAFF

RALEIGH, N.C. — IBM last week postponed delivery of its ballyhooed multiprotocol router by three months so it can better integrate the product's range of routing, bridging, management and other functions, the company said.

The move threatens to weaken IBM's already tenuous position in the $1 billion router market, particularly if the schedule slips any further, users and analysts said.

IBM bit off more than it could chew in attempting to turn around a complex initial offering to the fertile router market on an 18-month development cycle, according to users and analysts.

"No need to panic however, with plenty of other proven products to choose from, the delay is not a disaster for most companies embarking on building internetworks. "If IBM doesn't have it, we'll just buy it from someone else," said Philip Newcomb, senior technical consultant at Baxter Healthcare Corp., a large IBM shop in Deerfield, Ill., that is looking to migrate its Systems

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The 5th Wave

EXECUTIVE BRIEFING
1 The first anniversary is known as the Paper Anniversary, and that’s about all IBM and Apple have at this point — great products on paper. With delivery dates stretching into the mid-1990s, users aren’t holding their breath waiting for the real thing, either. Next-generation operating systems such as Microsoft’s Windows NT — due out years before Taligent — could put some bumps in the two companies’ plans, too. Page 1.

Companies often ask questions that can best be answered geographically and visually: Where are my customers and competitors? Where should I locate my warehouses? Businesses from Chemical Bank to Johanna Dairies are using geographic information systems and finding ways to map corporate data, reveal business patterns and improve decision-making. Page 85.


Being prepared for disaster doesn’t mean IS operations will run without a hitch after the earth quakes or a hurricane blows. Six companies share the lessons they’ve taught them. Page 77.

Sun’s SunSoft subsidiary is rolling out its Solaris 2.0 operating system to OEMs now for year-end shipping on SPARC platforms. Page 7.

IBM delays its entry into the $1 billion multi-protocol router market by pushing delivery of the 6611 Network Processor back three months. Users say they are disappointed but have other options. Page 1.

Some IS spin-off companies are chock full of openings for programmers as well as business and systems analysts. Page 92.

Kimberly-Clark is scrambling to find a replacement for CIO John T. Kohler. The dynamic IS leader, credited with helping to push the paper products manufacturer to the front ranks of technology-enabled business, quit midmonth to take up consulting. Page 6.

Four developers are proposing a new version of SNMP that they hope will succeed both the old SNMP and CMIP. Users welcome SMP’s increased functionality but wish vendors would stop bickering. Page 16.

Intel goes low voltage in its new generation of chips for notebook computers. But systems will have to be redesigned to get the power savings. Page 37.

Virus activity should be low this month, but there are a couple of nasty new ones cropping up. Page 55.

Unix vendors aren’t happy about USL’s shrink-wrap operating system. They complain that USL is competing with its OEM customers. Page 61.

Software leasing’s popularity grows as recession-strapped users seek a spread out payments. However, not many vendors have signed on yet. Page 73.

Class libraries catch on in sites developing multiplatform applications. Productivity benefits are big, but a lack of standards has some users wary. Page 75.

On site this week: IS services firm commits big to Lotus’ Notes. Page 61.

Stanford University tests imaging in a client/server environment and likes it despite increased complexity and network overhead problems. Page 65.

Texas officials are talking about the benefits of using a data server to link disparate databases. Page 73.

Cancer treatment center saves money and ups productivity with document imaging. Page 74.

GM uses a new parallel processing technology to manage multiple real-time activities on one shared-memory system. Page 31.
After Creating The
World’s Largest
Family Of Windows
Software, There Was
Only One Thing
Left For Us To Do.

OS/2.

Unlike some software companies, we aren’t chained to any one operating system. In fact, as a truly independent software company, we have always developed applications for any operating system our clients want.

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To do it quickly, we’ve teamed up with our partners at IBM. This week we announced that we are working closely with IBM to ensure that our

OS/2 applications are available in record time.

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Best of all, each new OS/2 application will be free to any client who has bought our Windows version. This will protect everyone who doesn’t want to take sides in the war between Windows and OS/2.

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Virus fighters fume over little black book

Debate ranges over merits of publishing codes

By James Daly, Staff Writer

A little book is rattling a lot of chains in the computer security business these days. A little black book, to be exact.

Only two weeks after being picked up by a small publishing house, The Little Black Book of Computer Viruses has irri-
tated as nasty and divisive a free speech battle as this community has seen.

That is because the whole volume is chock full of the necessary source code for creating potentially destructive viruses. And for less technically inclined readers, it can simply send in a coupon and order floppy disks already loaded with compiled and executable virus programs.

Anger flares

Professional virus fighters such as Alan Solomon at S&S International are madder than angry hornets over the publication. As Alan Solomon at S&S International are madder than angry hornets over the publication.

They are encouraging anti-black book campaigns that include picketing author Mark Ludwig's house, boycotting shops that sell the book, petitioning Congress and even bringing in lawyers.

Others said the book is relatively harmless because any hacker who really wants to get virus source code only has to download a well-known hacker bulletin board to quickly and easily download dozens of virus.

Critics dismissed Ludwig's first efforts as the computational equivalent of yelling "fire" in a crowded movie theater.

Inherently 'evil'

"Any virus, by its nature, is evil, and Ludwig presents sample after sample of ways to go about writing damaging code," said David Stang, chairman of the International Computer Security Association in Washington, D.C.

The fundamental attraction of computers is that we can understand, control and predict what they do," he added. "We do not want that data messed with, but Ludwig seems to think it's okay.

No true, according to Ludwig, who claimed the purpose of the book is not destructive but educational.

"Computer viruses are not evil, and programmers have a right to create them, possess them and trade them with them," Ludwig said. "These viruses are designed so that security people can see what a virus looks like and how it behaves. How can anyone realistically be in charge of security without having ever seen a virus?"

The book's jacket cautions that those who misuse its viruses can be held legally liable, even if the misuse is unintentional. Additionally, Ludwig said, the viruses in the book are protected by copyright law and anyone who uses them without his permission will be subject to both civil and criminal proceedings.

Stang has suggested that if Ludwig's altruistic claims are true, then he should offer to donate the proceeds from The Little Black Book of Computer Viruses to a fund that would fight the spread of damaging computer viruses.

On the book jacket of The Little Black Book of Computer Viruses is a bold note warning that the viruses contained inside can be extremely dangerous in the hands of incompetent people. "Do not attempt to execute any of the code in this book unless you are well-versed in systems programming for personal computers and you are working on a carefully controlled and isolated system," the warning reads.

Others have suggested that Ludwig should have included "pseudo-code" versions of the viruses, which contain enough information to illustrate a point without providing a full working virus.

First in a series

The book is scheduled to be the first in a series of three books about computer viruses. Ludwig first published the book himself last year and became its primary salesmen after it was reportedly turned down by a succession of publishers.

The Upland, Pa.-based Diane Publishing Co. picked up the distribution rights to The Little Black Book of Computer Viruses earlier this month.

Ludwig suggested that if the division will compete across the entire printer spectrum, which is a relatively new, emerging segment, he said.

Kern predicted that Compaq would try to differentiate itself with some sort of bundling deal with its PCs. She noted that the division's first efforts will be in the network printer field, a strong area for Compaq servers.

Capping a long and secretive three-year buildup, the company will launch a worldwide Peripheral Division that will be structured and sized on a par with its PC and Systems Divisions.

According to David Black, the division's newly appointed vice president and general manager, this is Compaq's first venture outside the PC field. Although Compaq did get into the tele-communications business briefly in the mid-1980s, Compaq maintained that that venture was PC-based.

The first products out the door will be a family of network printers later this year.

"Initial products are targeting the network printer segment, which is a relatively new, emerging segment," Black said.

Compaq plans foray into printer market

By Carol Hildreth

HOUSTON — In its third major announcement in four weeks, Compaq Computer Corp. will enter the printer market this week with a dealer channel that it estimates at about 4,000 sites worldwide. While the printer market is crowded, "the channel doesn't have the window into the channel and the money to spend on advertising that Compaq has — with the exception of HP and Lexmark," Wecksess said.

Kern predicted that Compaq would try to differentiate itself with some sort of bundling deal with its PCs. She pointed out that the division's first efforts will be in the network printer field, a strong arena for Compaq servers.

Capping a long and secretive three-year buildup, the company will launch a worldwide Peripheral Division that will be structured and sized on a par with its PC and Systems Divisions.

According to David Black, the division's newly appointed vice president and general manager, experienceing very aggressive price competition" that in part reflects the growth of multiple applications [sales] like Microsoft Office and [Lotus'] Smart-suite.

Lotus results expected to dip

Officials blame decline on vicious competition in Windows spreadsheets

By Rosemary Hamilton

CAMBRIDGE, Mass. — Lotus Development Corp. last week said it is likely to earn $10 million less than what Wall Street has been expecting and is expected to fall much lower than expected growth in Microsoft Corp.'s Windows spreadsheet market, among other market factors.

"I think some investors might be throwing up their hands saying, 'Here we go again,'" Mary McCarthy, a vice president at New York-based brokerage C. J. Lawrence, Inc., said of the Lotus warning to tone down the estimates.

Also, the company said full-year earnings per share will likely be about 25 cents less than current estimates, which range from $2.05 to $2.30.

In explaining the lower quarter results, Lotus cited slower anticipated growth in the spreadsheet market — particularly in the Windows segment — as well as slower growth in some of its software, which it had mentioned earlier.

The view on spreadsheets, however, comes after very bull-
The world's largest database company introduces a revolutionary new technology called a cooperative-server database. A cooperative-server database hides the complexity of computer networks by enabling applications to access data located on multiple computers just as if all the data were stored on a single computer. In this way, a cooperative-server database simplifies application building and improves decision making by making access to information easier...much easier.

"Oracle's always been the leader in building database technology. One of the great things about Oracle's approach is that they're hiding the differences between all the machines out on the network running on various platforms."

Bill Gates
Chairman and CEO
Microsoft Corporation

"ORACLE7's breakthrough in hiding technological complexity is analogous to the ease-of-use breakthroughs accomplished by the introduction of the Mac in 1984."

John Sculley
Chairman and CEO
Apple Computer, Inc.

"The fundamental problem with early client-server database management systems is that applications cannot access data on more than one server without a lot of extra programming. This programmatic approach to accessing data on multiple servers is in stark contrast to the totally automatic approach provided by ORACLE7."

Larry Ellison
President and CEO
Oracle Corporation

"With HP systems and ORACLE7, our customers will have the desktop to high-end performance they need for a fraction of the cost of mainframe computing solutions."

John Young
President and CEO
Hewlett-Packard Company

"ORACLE7 is really solving the complexities of the distributed computing environment cost-effectively. Plus, it supplies the reliability and security that are required in a distributed computing environment. In fact, because ORACLE7 matches Sun's client-server model so well, we have chosen ORACLE7 as one of our key databases."

Scott G. McNealy
President, CEO and Chairman
Sun Microsystems, Inc.

For more on ORACLE7, just call 1-800-633-1071 Ext. 8184. Find out what these industry leaders are excited about.
NEWS SHORTS

IBM invests in KnowledgeWare
IBM paid $25 million for a U.S. site license for computer-aided software engineering products from its AD/Cycle business partner, KnowledgeWare Inc. IBM will use KnowledgeWare's 12 different modules both internally and for developing commercial software products, a KnowledgeWare spokesman said. The deal's precise effects on KnowledgeWare's balance sheet will not be revealed until mid-August, when the company releases fiscal 1992 results.

IBM, Microsoft settle royalty spat
IBM and Microsoft Corp. have agreed to end their long-lasting royalty dispute on OS/2 and Windows, an IBM spokesperson confirmed late last week. Neither company was able to make a high-ranking official available by press time to elaborate on the settlement terms. Kidder, Peabody & Co. and Dean Witter Reynolds downgraded their ratings on Microsoft stock from "buy" to "hold." Microsoft shares slid 21/2 points to 671/2.

OSF releases OSF/1.1
The Open Software Foundation (OSF) announced general availability of OSF/1.1, the second release of its operating system kernel. Features include the ability to run on systems with as little as 4MB of memory and compliance with the Unix System V Interface Definition, or SVRD3. Compliance ensures that applications written for Unix System Laboratories, Inc.'s System V, Release 4 Unix will be portable to OSF/1.1. The new release costs $85,000 for a source license with full distribution rights; existing licensees can upgrade to 1.1 for $25,000.

Sequoia forecasts weak results
Sequoia Systems, Inc. last week warned that its fourth-quarter and full fiscal year results will be significantly below expectations. The lower financials are a result of the write-off of receivables, including a $2.5 million receivable from Meta Associates, a company that bought a handful of electronic devices offering multimedia capabilities. Sequoia will make the device, which both firms will sell jointly, as well as product development and manufacturing sites.

Short takes
In a recent Dataquest, Inc. survey, private branch exchange users awarded Rolm Corp. the highest rating in terms of customer service. The first manufacturer in its industry to use a satellite network to link its dealerships nationwide, Herman Miller now wants to transmit its parts catalog, which resides on microfiche, to dealers. Borgen was not sure what to make of the emphasis on business-process re-engineering and work flow. "I'm hearing here that it's difficult to cost-justify [imaging] without it," he said.

Process re-engineering steals AIM spotlight
By Ellie Booker
ANAHEIM, Calif. — Think process, not product. That was the message at last week's annual Association for Information and Image Management (AIM) show, where the topic of business-process re-engineering stole the spotlight.

Each AIM conference has witnessed improvements in management, character recognition, and electronic ordering across the board, but as these technologies have matured and moved toward standards, users and vendors alike have come to see imaging in a far broader context.

"When you begin with imaging, you start asking questions about the paper flow, and that starts you asking about the business," said John Kick, the division general manager at Hewlett-Packard Co.'s Pineswood Information Systems Division. More than 90% of the information handled by organizations today is in paper form, according to several estimates. Document imaging alters these familiar arrangements and suggests entirely new ways of organizing work and workers.

Many users seem ready to take the imaging plunge, according to a straw poll conducted by IBM at AIM last week. Ron Borgman, information programs manager at Herman Miller, Inc. in Zeeland, Mich., was one of those many AIM attendees who expressed interest in the cuap of a decision about imaging. The first manufacturer in its industry to use a satellite network to link its dealerships nationwide, Herman Miller now wants to transmit its parts catalog, which resides on microfiche, to dealers.
Sun pitches Solaris 2.0 to corporate desktops

BY MARYFRAN JOHNSON CW STAFF

MOUNTAIN VIEW, Calif.—On time and as promised, Sun Microsystems, Inc.'s SunSoft subsidiary last week began shipping its next-generation Solaris 2.0 operating system to software and systems vendors for Scalable Processor Architecture (SPARC) platforms.

End users will not see Solaris 2.0 on Sun machines until late this year, however, when the SPARCstation 10 line of multiprocessor desktop systems and servers begins shipping. But few customers are in a rush to begin an operating system migration, regardless of how painless Sun claims it will be.

SunSoft also unveiled a lineup of personal computer companies preparing to sell Solaris on Intel Corp. machines next year. Dell Computer Corp., Compaq Corp. and Zenith Data Systems have joined a Solaris 2.0 support roster that includes Toshiba Corp., AST Research, Inc., ICL, NetFrame Systems, Inc., NCR Corp., Olivetti USA and Everex Systems, Inc.

Sun's stretch for the Intel desktop is a crucial move in positioning itself in the corporate environment, analysts and users agreed. The workstation leader aims to have more than 90% of the 4,000 current SPARC applications ported to Intel within the next year. "If Sun can get people to take them seriously on other platforms, they have a real chance of being viewed as an enterprisescale player," said Judith Hurwitz, president of Hurwitz Computing Group in Newton, Mass.

"This is Sun's opportunity to go as far as they can, as fast as they can, before Windows [New Technology] or the IBM/Apple alliance become market realities," said Robert Herwick, an analyst at Hambrecht & Quist, Inc. in San Francisco.

Analysts also said Sun is overly optimistic about the ease of migration from Solaris 1.0 to 2.0. "Sun thinks this will be like moving from one chip to another, but it's going to be a headache for ISVs and some users," Card said.

"I have no doubt we'll move to Solaris 2.0, but Sun is promising five years' support of the current operating system, so they're not forcing anybody to move too soon," said Harry Perrin, assistant vice president of investment systems at the Teachers' Insurance Annuity Association in New York.

Highlights of Sun's Solaris 2.0 unveiling include the following:

- Priced at $795 for a single desktop, Solaris 2.0 will be available on SPARCstation and SPARCserver platforms by year's end.
- The new operating system extends the Unix System V, Release 4 kernel with 15 built-in productivity applications such as multimedia mail and workgroup calendar manager. It includes networking support and administration tools, symmetric multiprocessing capabilities and multithreading.
- Solaris 2.0 also includes mainframe-type enhancements for the commercial marketplace, such as disk mirroring to protect data from loss during system failures.
- Now shipping is the Solaris 2.0 OEM Multiprocessing Kit, which allows systems manufacturers to tune the symmetric multiprocessing features of Solaris for their own hardware.
- Solaris 2.0 will be available to developers in the July to September quarter for the Intel platform, with customer shipping to start in early 1993. No pricing has been established yet.
- Intel hardware supported: 33-MHz 80386 and 25-MHz or 50-MHz 1486, requiring a minimum of 8M bytes of memory and a 200M-byte disk controller.

JUNE 29, 1992

COMPUTERWORLD
IS chugs along despite train engineers' strike

BY KIM S. NASH
CW STAFF

Cargo transport may have stood still, but the information systems departments at several major railroads moved right along last week despite the engineers' strike. In fact, it appears there were benefits as some shops attacked backlogged maintenance chores.

IS staffs were temporarily smaller at some railway companies as some members of the Transportation Communications Union (TCU) failed to show up for work. Santa Fe Pacific Corp.'s Topeka, Kan.-based data center, for example, was about 25 people lighter last week, although IS operations were largely unaffected, according to Bob Robinson, general director of computer operations.

"When you shut down the trains, you shut down the train operations, so things are quiet," Robinson said.

The remaining 300-person staff used the slow time to take down key systems such as dispatching, load tracking and train car management to perform maintenance tasks that would otherwise have been done in off-hours, he explained.

Santa Fe will also use the free time to iron out some of the bumps in a several-month project to switch over its 8,000-program Transportation Support System from a Unisys Corp. mainframe to an IBM Enterprise System/9000 Model 880 machine, Robinson said.

Cleaning shop

CSX Transportation, Inc. and Union Pacific also did housecleaning chores last week while they waited for a labor settlement. More than 400 members of CSX's 1,200-person IS department are unionized, but "so far, they are all on the job," said George Sekely, president of CSX Technology, Inc., the computer systems unit of the Jacksonville, Fla.-based railroad.

Sekely said he was confident that the strike would not last more than a few days, and then "everything will pick up its typical crazy pace."

In the meantime, operations were stalled at Union Pacific in Omaha that the company implemented a management-only rule, where all nonmanagers stayed home, according to a company spokesman.

AlCorp, Aion to join forces

BY KIM S. NASH
CW STAFF

PALO ALTO, Calif. — Tough competition and the opportunity to cut costs by merging operations spurred knowledge-based application development tools makers AlCorp and Aion Corp. to join forces last week.

Though on opposite sides of the continent, the two firms signed a letter of intent to merge — a deal estimated to be worth between $40 million and $50 million, according to James Gagnard, Aion's chief executive officer.

The new, as-yet unnamed company does not plan to converge the two firm's separate product lines, but it will proceed with each of their previously outlined strategic plans, he said.

Both 8-year-old, privately held Alion and 17-year-old, public AlCorp sell development tools for mainframes, minicomputers, personal computers and Unix workstations.

The first steps

Once shareholders and the Securities and Exchange Commission approve the deal, which is expected by September, a single development and engineering team will begin enhancing AlCorp's and Aion's respective flagship products in different directions from each other, Gagnard said. He will become CEO of the new firm, while Robert Goldman, CEO at Waltham, Mass.-based AlCorp, will become chairman.

The goal of the new company will be to give users object-oriented tools and a fourth-generation language for building applications that automate business processes. Such programs would provide timely data for tasks such as production scheduling and business diagnostics, a spokeswoman said.

Noting that business process automation has become a focus for a crowd of vendors that includes the Big Six accounting firms and computer-aided software engineering companies, analyst Judith Hurwitz, president of The Hurwitz Consulting Group in Newton, Mass., nevertheless was hopeful that Alion and AlCorp were on the right track.

The market lacks solid data access tools that do more than help represent quarterly sales figures or build organizational charts, Hurwitz said.

The proposed deal calls for AlCorp to issue approximately 7.2 million shares of AlCorp's common stock to Aion shareholders in exchange for all outstanding Alion employee stock options, which will be exercisable for AlCorp common shares.
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Hitachi unveils five air-cooled machines

BY JEAN S. BOZMAN

SANTA CLARA, Calif. — Hitachi Data Systems Corp. last week turned on the fan to chill its mainframes serving up five new air-cooled machines to complement its line of five water-cooled computers. The low-temperature lineup will roughly match IBM's mix of water- and air-cooled Enterprise Systems 9000/8000 computer models and give users more price/performance points.

Hitachi also added three water-cooled models, bringing its lineup to 13 machines. At the same time, the company renamed its mainstay products the GX mainframe series, designating air-cooled models with a "G" and water-cooled models with a "W," (see chart). Previous models were named the AS, the AS/XL, the AS/EX and the EX.

By rearranging its mainframe line, HDS improved price/performance, encouraging longtime customers to upgrade aging AS/XL or EX models to machines comparable to IBM's ES/9000 line. "The HDS line covers the same performance range as the IBM machines," said Bob Djurdjevic, president of Annex Research, a Phoenix-based marketing research firm.

"The significant thing is that the midrange products they're replacing are 1985-vintage technology," he added. Previous HDS machines in the GX range series from $2.1 million for an entry-level GX 6115 with 1 million instructions per second (MIPS) performance to $12.5 million for the high-end 124-MIPS GX 8320. HDS said it will ship water-cooled GX models in the third quarter. Shipments of air-cooled models are set for the first quarter of 1993.

In not time

But the air-cooled models will come too late for Dialog Information Services Inc., a Palo Alto, Calif., HDS customer that added a 40-IMPS IBM ES/9000 Model 480 in January. "The problem was that [HDS] didn't have the type of machine I needed last September or October," said Robert Feinstein, senior director of data processing for Dialog, an online database service subsidiary of Knight-Rider Inc.

The new HDS air-cooled mainframes were presented in Japan, where they were announced by HDS parent Hitachi Ltd., Djurdjevic said. The Japanese machines were announced in March and will be shipped in August. By announcing them in the U.S. and Europe now, HDS will benefit from the marketing IBM has done for its ES/9000 series, introduced last year.

"They may end up being lucky," Djurdjevic said, "because their announcement dovetails with a pickup in demand for the IBM mainframes."

Keeping current

A sampling of Hitachi Data Systems Corp.'s GX mainframe line:

<table>
<thead>
<tr>
<th>Model</th>
<th>MIPS</th>
<th>Min./max. main memory</th>
<th>Temperature control</th>
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<tbody>
<tr>
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<td>40</td>
<td>128/2,048</td>
<td>Water-cooled</td>
<td>32/256</td>
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<tr>
<td>GX 8230</td>
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<td>512/2,048</td>
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<td>64/256</td>
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"MIPS ratings from industry sources. Source: Hitachi Data Systems"

Execs depart troubled lessor

CONTINUED FROM PAGE 1

upgrade this fall, and we're going to take a close look to make sure we have no liabilities should they default," Gilmore said.

Gilmore said that "although Meridian has been a very good vendor to us over the years, things have changed." About a month ago, Gilmore said, he asked his firm's finance and legal departments to check the vendor out. "We began hearing rumors of financial difficulties," he said. "We were concerned that he might do the same to us."

Peck disputed that, saying, "We're not afraid to walk that [street] as long as we can be sure we're dealing with a reputable entity."

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"MIPS ratings from industry sources. Source: Hitachi Data Systems"

Feeling the heat

HDS has been under pressure to make its products compatible with IBM's fiber-optic channel architecture, known as Escon. That pressure intensified this summer as IBM lowered Escon prices and introduced a number of fiber-optic channels needed to support the feature.

Last week it was announced that it would deliver Escon support for disk drives and tape drives, provided by adapters, by the third quarter of next year. Fifty-five percent of HDS' estimated $1.4 billion in business comes from peripherals, the company said. HDS said it will deliver Escon support on its mainframes by the third quarter of this year.

The adapters will allow users to mix-and-match IBM mainframes with HDS drives over Escon channels. Some HDS disk-drive customers have already turned to IBM Escon converters to create fiber-optic links with IBM ES/9000 mainframes. Adapters for the HDS 7980 disk-drive controller and the HDS 7490 tape drive will range in price from $12,000 to $31,000.

Plug-compatible competitor AMDahl Corp. has said it will deliver Escon support on its mainframes in the fourth quarter of this year. AMDahl began shipping IBM Summit-Class 5995SM mainframes late last year.

JEAN S. BOZMAN
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Users focus on desktop OS

CONTINUED FROM PAGE 1

Microsoft Windows 3.1 customers contacted last week said they have experienced typical new product glitches but are moving ahead with implementation plans. None reported disabling problems.

“We are in the process of deploying [Windows 3.1] as I speak,” said Robert Falcon, vice president of PHH Fantus, who discovered “minor compatibility problems” with some applications that software vendors “quickly addressed.”

Royal Bank of Canada has reported about a dozen problems with OS/2 2.0 to IBM, but company officials described its rollout as “going rather well.”

“I’d say it’s perfectly normal,” said George Oliver, manager of information delivery technology at the bank.

“There are four categories of severity, and if it’s a showstopper, it’s a Severity 1,” he said of the 2.0 bugs. “We had one of those in our testing, and they came up with a fix.”

However, two other IBM OS/2 2.0 users said they felt concerned enough about bugs, particularly those related to the Workplace Shell, not to release Version 2.0 to end users on a wide-scale basis. “I would say it is of good quality, but it is not ready to end up on clients’ desks,” said Wayne Robinson, manager of software systems at Prudential Investment Corp. “We would give it to ES people, but it isn’t ready for our production environment yet.”

Unlucky seven

Robinson said he had noticed IBM of seven problems that needed fixes. One problem lies within a storage allocation procedure that kicks in when “all the pretty icons [come up]. It’s very graphic... there is a problem releasing the storage that was obtained to show you all those icons. The workstation ends up locking up.”

Sears Technology Services, Inc. is adding “several hundred” 2.0 users each month for parent company Sears, Roebuck, and Co., according to Gary Weiss, senior vice president of network technology services. “We are migrating from the early code to the [general availability] code, and that is going fine,” Weiss said. “Anytime you install that much software, there’s bound to be a few problems, but it’s certainly been well within accepted bounds.”

An IBM spokesman said that of approximately 30,000 support calls it has received, “less than 1% were pervasive problems or in need of immediate attention.”

Lee Reisiw, assistant general manager of network services for IBM Personal Systems line of business, said issues with the Workplace Shell may be the result of its being a new technology within OS/2 that some customers are not yet comfortable with.

“I’m not aware of any serious defects within the Shell,” Reisiw said. “There have been some minor things.”

On the Microsoft Windows front, five users contacted said they are on schedule with their 3.1 rollout to end users. “We are starting to move it out onto the desktops of our people,” said Craig Goldman, chief information officer at The Chase Manhattan Bank NA.

New York — The U.S. needs a technology policy, but there are as many opinions about what form it should take as there are translators on an I486.

A panel of six dignitaries from industry, academia and government generally agreed last week that a technology policy could help revive the economy and prevent a further slide in U.S. technological leadership. But they differed sharply on how much of a hands-on approach government should take.

One economist said the technology policy issue misses the point until it becomes clear whether computers actually enhance productivity.

The panel, titled “The Great Debate: Should the U.S. have a Technology Policy?” was sponsored by Computerworld and Computer Associates International, Inc.

Participants agreed that useful government initiatives included tax incentives for high-tech firms and lower capital gains taxes for investors in high-tech startups. Yet they all also agreed that too much government intervention would do more harm than good.

“The peril is... not that we’re neglected, but that we’re not viewed as having effective vendors and causes corporations to spend too much money for technology that brings them little in return,” Roach said.

The current U.S. policy is “breakthrough-oriented” and pays too little attention to commercializing technologies, said Sen. Jeff Bingaman Jr. (D-N.M.), chairman of the Senate Defense Industry and Technology Subcommittee. He called for government involvement in forming regional technology alliances and support for small manufacturers.

Harvard University Professor Lewis Branscomb agreed, calling U.S. policy-making “a top-down, centralist strategy. The business community has to help government learn how to be a good policy-maker.”

Yet while the consensus was in favor of crafting government policy driven by recommendations from industry policy, the specter of Big Government loomed. “It’s a little hard to say government intervention doesn’t do any good,” admitted Doug Michels, executive vice president of The Santa Cruz Operation (SCO), who pointed out that government procurement policies have helped SCO immensely. “But the greatest oxygen to the guy is, ‘I’m from the government and I’m here to help.’”

Roger Sippl, chairman of Informix, Inc., said his biggest fear was that other issues, such as mandating social activism from companies, would be incorporated into a technology policy.

Did they or not?

IBM came out swinging last week at PC Expo, boasting that 700,000 copies of OS/2 2.0 had shipped since its March 31 availability date.

Some analysts were skeptical of the numbers but acknowledged that IBM could be building momentum. Will Fostie at Alex. Brown & Sons, Inc. said this was possible, but he suggested that a significant percentage of those sales were probably upgrades. He added that the pace of sales should slow in the coming months.

“For OS/2 coming out of the block, that is a very significant number,” said William Blaisten, a senior analyst at Forrester Research, Inc. in Cambridge, Mass. “That means they are on a run rate to go over a million this year.”

IBM also confirmed that at least three new features for 2.0 will ship in the fall, including support for Microsoft’s Windows 3.1. Also expected is the full-blown 32-bit graphics engine and video support for 2.0 multimedia extensions.

Audio support for 2.0 multimedia is still on schedule for shipment by the end of this month.

ROSEMARY HAMILTON

The Great Debate

BY MICHAEL FITZGERALD

CW STAFF

GALEN ROACH, executive vice president of Compuserve Inc., had a problem that all but defined the debate.

He was in the middle of a comment on the state of U.S. technology leadership when he was interrupted by the opening of a new window on his computer screen.

Roach was not alone. Nearly everyone present was busy watching the World Wide Web, the Internet’s new frontier. It’s a place where conferences can be held, research can be done, and even a debater’s Web page can be opened.

Roach paused and then continued: “Here’s the problem: We have used the best technology to give all these people the best possible experience. By the time we get them in here and up and running, they are on to the next thing. How do we create government policy driven by what people are doing now?”

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ROSEMARY HAMILTON

JUNE 29, 1992
Dell, Everex meet Compaq’s price challenge

But corporate users with high-end computing needs are looking at more than just price

BY CAROL HILDEBRAND and MICHAEL FITZGERALD
CW STAFF

NEW YORK — Dell Computer Corp. and Everex Systems, Inc. wasted little time in returning Compaq Computer Corp.’s recent price salvo last week by announcing low-end desktop families of their own, as well as significant price reductions on the part of Dell.

Although the low-cost lines are sparking interest among price-conscious users, many say the corporate environment demands a different kind of box.

“We look for the high end,” said Jeff Newman, assistant vice president at Barcav’s Bank in New York, “We’re not interested in one- or two-slot machines. Price is a concern, but configuration is more important.”

Dell will cut prices for the fifth time in 1992, making across-the-board cuts of 8% to 20%. This will bring a 33-MHz 80386DX-based Dell 333P to $1,999, 27% less than a similarly configured DeskPro/I from Compaq, for instance. Dell’s new Dimension line, to be sold through direct marketing, consists of eight low-end inserts.

Direct marketing also includes an expanded toll-free service for certain customers.

Pen-based products previewed

Pen computing made further moves toward the mainstream at PC Expo, with several vendors displaying new products, including the following:

- Grid Systems Corp.’s recently created software division announced its first significant licensing agreement. NCR Corp. said it would remark and distribute Grid’s PenRight operating system and application development environment with its System 3125 pen-based system.

- NEC Corp. used PC Expo to show off a full pen-based system. The product, code-named Peabody, comes in a notebook size. The prototype runs either Go Corp.’s PenPoint or Microsoft Corp.’s Windows for Pen Computing.

- Sharp Corp. will move into the pen market in the fourth quarter with a pen-capable version of its Wizard. The Wizard 9600 demonstrated at PC Expo offered a larger keyboard, a 53 line by 30 line touch screen and infrared communications technology. The expected list price for the product is $699.

- Compumad’s Express mail-or-disk system, based in Media, Pa., demonstrated System Engineer, a new Windows System configuration utility that ease modifying aspects such as Windows memory, keyboard and initialization file settings. The product should be available in about a month for a list price of $79.95. Group members will receive System Engineer as part of their membership.

- AST could get a boost soon. A high-ranking Dell official said the company is very close to agreeing to offer IBM’s OS/2 2.0 as a bundled option in systems in the U.S. The official said that while Dell had not seen a huge demand for OS/2, some significant customers wanted it.

- Sharp cut prices on its active-matrix color notebook, putting its list price at $4,799, the lowest of the active-matrix vendors so far. Dell and AST said they are hard at work building active-matrix notebooks that will ship this year. One has to wonder about AST, since the company says its passive-matrix notebook is selling at the hearty clip of 5,000 units a month.

- CompuAdd’s Express mail-or-disk division is building both a new desktop and a new notebook around Texas neighbor Cyrix’s Intel-mimicking 486DLC. The notebook will cost $2,695, the desktop $1,695.

- The Video Electronics Standards Association announced the VL-Bus-local-bus specification, which supports an I/O bandwidth of more than 130M bytes/sec.
**IBM delays new router**
CONTINUED FROM PAGE 1

Network Architecture (SNA) environments to local-area networks.

Jon Fjeld, IBM's director of network routing systems, denied reports that the hang-up with IBM's 6611 Network Processor — originally slated to ship last Friday — is due to performance problems. "We simply must do more testing to convince ourselves that we have a fully integrated set of functions," Fjeld said.

"The fact is, we have no performance problems right now."

Some IBM faithful are chagrined by the delay integrating their large IBM environments with their LANs, but the industry is not surprised that smoothing out the wrinkles in sophisticated router technology is taking IBM longer than the vendor anticipated.

"The main thing this hurts is IBM's credibility," said Robin Layland, engineering consultant at The Travellers Corp., a large IBM shop in Hartford, Conn., awaiting the IBM branded products. Layland is "disappointed" because Travellers needs to make a major change in their local area network to support their 6611 network. "NetBIOS is now eating up 20% to 30% of our 56K bit/sec. lines, and we don't want to have to spend the money to upgrade them," he explained.

However, Fjeld is willing to continue fiddling with the network to keep the link upgrades at bay until IBM ships the 6611 because "for a three-month delay, it doesn't make sense to abandon IBM," Layland said.

Some said the postponement of IBM's router vendicates users who made the decision early on not to wait for IBM to begin building their internetworks.

"But little, too late"

"We've already become the router world for years; IBM is just too late," said Ken Starkey, associate director of communications at Travelers Corp., a large financial services firm. "We're going to use the Cisco 6000 [Multimedia Data Service] traffic going through, explained Mark Sisko, a senior manager of product planning and development at MCI. This means the Wellfleet switch "is enforcing the committed information rate and driving the billing" in the network, he said.

This development means that Wellfleet is blazing a new trail for the router vendors to act as general-purpose wide area messaging switches, said Rick Malone, a principal at Vertical Systems Group in Dedham, Mass.

Cisco President John P. Moran said his company is considering following an upcoming ATM interface announcement with the creation of a proprietary local ATM switch that has routing functions bundled into it. However, he said he is uncertain whether this might give up some functionality in using a lower layer — though higher speed — switching function, such as network partitioning for security.

"The Cisco switch will do filtering, but initially there will be no [traffic] prioritization as there is with routing, he said.

However, "anything that would facilitate handling rapidly increasing use of bandwidth would be positive," commented Howard Maynard, senior vice president and director of MIS at worldwide New York-based advertising agency Young & Rubicam, Inc., a large Cisco user.

**Stratus bases system on HP RISC chip**
BY MELINDA-CAROL BALLOU

MARLBORO, Mass. — Stratus Computer, Inc. may have upstaged its upcoming announcement of Intel Corp. 8060 XT-based computers last week by revealing plans to base a future generation of fault-tolerant systems on Hewlett-Packard Co.'s PA-RISC Architecture-2 microprocessors.

The PA-RISC-based systems will not be out until 1994 or possibly 1995, said Jim Holley, Stratus' director of system products. The firm, which only last year transitioned from Motorola, Inc.'s 68000 to the Intel reduced instruction set computing chip, plans to disclose a second generation of IBM-based systems next month. "There is the possibility of additional Intel-based systems before the HP-based products arrive," Holley added.

Stratus will continue to support all three product lines at that time and will address migration issues by offering source code compatibility across the product lines, Holley said. Moving to the PA-RISC microprocessors will offer better price/performance through the end of the 1990s, he added.

Industry analysts applauded the decision as a long-term strategy for Stratus, but they predicted that in the short term the move could slow sales.

"Many customers may choose to wait for the PA-RISC systems so that they will have to make only one migration from the XA6000 [Motorola-based] system," said Carolyn Osgood, a senior analyst at International Data Corp. "Others said they are not yet ready to pass judgment.

"We have seen the 1860 product, but have not yet tried to benchmark applications on it, and are considering doing so," said James Crofeld, executive vice president of information systems at the Boston Stock Exchange. "We haven't sorted it out, but [the PA-based systems] are probably beyond our time line for upgrade," he said.

Stratus will have to bring its PA-based systems out in a timely fashion, Osgood said, because its competitor Sequoia Systems, Inc., also based here, expects to ship systems based on HP's PA-RISC architecture in late 1993.
CONTINUED FROM PAGE 1

finding that Altai's product, Oscar 3.5, did not infringe on the code or structure of CA-Scheduler.

Arnold S. Mazur, executive vice president at CA, said the company would appeal the court's decision. "I think it's a good decision where the appellate court doesn't understand the consequences of the decision and its negative impact on the software industry," Mazur said.

Although the decision allows for more limited software copyright protection, many legal experts said the Second Circuit Court made the correct ruling. "It's a dramatic reduction in the scope of copyright protection," said Barry Rein, an attorney at New York-based Pennie & Edmonds. "If it's art, you should copyright it. If it's a technology, you should patent it."

Indeed, many legal experts said the decision may force more software companies to patent their inventions instead of using the more amorphous copyright protection. However, the patent process is long and expensive, without any promise that the technology will eventually be patented.

"A patent requires long and rigorous study, with people in the Patent Office who are trained to recognize what is unique and what is not," said Jon Stark, a colleague of Rein's. Added Stark, "With copyright, you mail in a two-page form and a $20 check, and it's much less clear what is protected. With a patent, everybody knows what's covered."

The sticky wicket with patents, Rein explained, is that a software program that has been on the commercial market for more than a year cannot be patented either by the inventor or by anyone who acquired the product. Thus, a company such as CA, which acquires a good deal of the software that it sells, would not be able to use patent protection. Legal pundits said this is a main reason why CA protested the copyright decision so vigorously.

"They're appealing to public policy and apple pie when they really have their own self-interest at heart," Rein said.

Mazur disagreed: "Patent law is appropriate for certain things. I suspect that we will still rely on copyright law and straight secrecy law for protection."

The decision is not expected to impact pending "look-and-feel" litigation between Lotus Development Corp. and Borland International, Inc. or litigation between Apple Computer, Inc. and Microsoft Corp. and Hewlett-Packard Co. In fact, one vendor said the decision may not have much bearing on vendors' day-to-day decision-making. "We don't expect it to affect how we develop products or do business," a Lotus spokesman said.

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**NEWS SHORTS**

**Prognet unveils software meter**

Prognet Corp., a developer of open systems connectivity software for IBM host systems, last week introduced Software Meter, an MVS/ESA-compatible software utility that measures how frequently mainframe software is used. It provides vendors with five pieces of information on customer software use, Prognet said. Nick Mirtalipour, Prognet's CEO, introduced Software Meter with Prognet to use the software because it is developing similar products.

**DEC bites into Olivetti**

Digital Equipment Corp. and Olivetti USA last week announced an alliance under which DEC's next-generation Alpha RISC technology will become the basis for future Olivetti products. DEC will supply chips, systems and basic networking software to Olivetti. DEC also announced that it will become a shareholder for up to 10%, or approximately $300 million, of Olivetti's stock.

**Former Olivetti CEO dies**

Vittorio Cassoni died Sunday in Milan of a brain tumor at age 51, the Financial Times reported. He started his career at IBM Italy, moving to AT&T in 1988 to head up its computer division. In 1988, he moved back to F. C. Olivetti & C. SpA in Italy as chief executive officer. Earlier this year, Cassoni went to Xerox Corp., where ill health forced him to leave that post within days.

**Consortium tests network loads**

A group of military, industrial and academic institutions has formed the Multidimensional Applications and Gigabit Inter-network Consortium, a U.S. Department of Defense-funded project to explore how high-speed local- and wide-area network equipment reacts and interacts under a full application load. In one planned application, visual data of various terrains can be updated over the Internet and translated into computer center in different parts of the country. The results of the trial will contribute to the deployment of future commercial and public-sector high-speed services, consortium officials said.

**Revenue slides at Cognos**

A bumpy transition to desktop and Unix-based development tools combined with flat sales of products for proprietary operating systems caused a quarterly profit drop at Cognos, Inc. Its net income for first-quarter 1993 plunged to $245,000 from $646,000 for the same period last year. Sales slipped slightly, from $7.6 million to $7.2 million. Chairman Michael Potter said Cognos will step up its efforts in the Unix and IBM Application System/400 markets, where revenue grew significantly during the quarter.

**Banyan bees up support**

In the wake of a user group meeting stressing the need for additional support of Banyan Systems, Inc. Vines networks, Banyan has formed support alliance partnerships with Cablenet Systems, Inc., Dell Computer Corp., FairCor Corp., Proteon, Inc. and Oracle Corp. The partners will share support technology, expertise and training to benefit mutual customers.

**Short takes**

Hewlett-Packard Co. cut prices up to $500 on its current HP 700/RX workstation line and added a $3,995 gray-scale model to its HP 700/RX RISC S family. Valera Recognition Systems, Inc. in Sunnyvale, Calif., and STF Technologies, Inc. will jointly develop and market fax-based communications products for Apple Computer, Inc.'s Macintosh family. Sybase, Inc. is readying a maintenance upgrade of its 4.9 SQL Server, called 4.9.1, due in the fall. The Santa Cruz Operation will ship its Open Desktop Release 2.0 this week, the Operation said. Sybase, Inc. said it will support IBM's OS/2 2.0 across its product line. SQLBase for OS/2 2.0 is slated to ship in first quarter 1993.
When millions of people worldwide turn to Duracell batteries, they expect the best in performance. When Dan Harris, MIS Manager for Duracell Australia, turned to IPL's 8mm back-up, he expected the same.

"Before IPL back-ups were a real problem for us. Using standard tapes, it would take a full nine hours to do a complete system save. We'd have to open our facility on a Sunday, and with a day of tedious work in front of us, the process was very stressful."

Instead of hiring additional staff to solve the problem, Dan turned to IPL's 8mm solutions. "Thanks to IPL's 6765 tape drive, Duracell's back-up is now a totally unattended process using 8mm technology. We even took the extra step of testing the drive at our IBM disaster recovery site in Sydney. It performed impeccably."

Which means fewer headaches for Dan, and more time to concentrate on other areas of the business. "Working with a storage leader like IPL was refreshing. The quality information and attention we received helped us make a comfortable decision, and local service made installation simple. We're grateful to have such a top performer on our side."

To see how you can benefit from IPL's broad range of AS/400 disk, tape and memory solutions, or for our complimentary guide to AS/400 tape drive choices, call IPL today at 1-800-338-8475; 617-890-6620 in Massachusetts. In Canada, call 800-565-5606. In Europe, call 011-32-2-725.40.87.

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DIGITAL. THE OPEN ADVANTAGE.
Copper FDDI rivals ally against ATM threat

BY JOANIE M. WEXLER

BLOOMINGTON, Minn. — The recent white flag-waving by two rival technology camps, which are seeking to spur 100M bit/sec. Fiber Distributed Data Interface (FDDI) networks over copper wiring, prompted the national FDDI standards committee to ratify a key component of the standard last week at its meeting.

The near-unanimous committee vote on a standard encoding scheme could pave the way for a fleshed-out standards document by October, according to committee member David Husak.

The move was needed to hurry the standard for supporting FDDI networking characteristics less expensively over both shielded twisted pair and data-grade unshielded twisted pair so that FDDI does not get leapfrogged by other technologies, according to analysts.

In light of the laboratory test results of their previously separate proposals before the American National Standards Institute for a combination shielded/unshielded twisted-pair specification, vendor groups led by Cabletron Systems, Inc. and Crescendo Communications, Inc. coalesced around the Crescendo scheme. This prompted the committee to ratify what the industry has decided is the more robust technology, Husak explained.

The industry compromise "could speed up the standards process by six months," which could be crucial to the success of FDDI and its copper counterparts, said Todd Dagres, director of data communications research at The Yankee Group, a Boston-based consultancy.

Lags in standards for inexpensive 100M bit/sec. networks could mean "users might turn to [emerging] switching hubs or extend their Ethernets" to tide them over, then move directly to gigabit-speed Asynchronous Transfer Mode (ATM) switching products now under development, according to Dagres.

In fact, Bear, Stearns & Co. in New York told Computerworld last week that it has already decided to leapfrog FDDI for ATM.

To curb user FDDI bypass moves, the standards players "must get their act together immediately" to proliferate FDDI technology during what Dagres predicted is its 1991-1993 window of opportunity.

Confusion over standards body work toward a shielded-only or a combination shielded/unshielded copper FDDI standard has impeded user moves to FDDI. Husak noted that there are still 16 technical issues to be resolved but said he would be "personally disappointed" if the committee did not have a document ready for final polishing in October.

Cell-switching gets serious

The ATM movement was boosted last week with the meeting of ATM Forum, a group of vendors and user companies, including Bear, Stearns, that are working to proliferate standards for high-speed, cell-switched networks designed to carry emerging multimedia applications.

Cell-switching is desirable for applications such as voice and video that cannot tolerate the unpredictable delays of the variable-size packets carried by local-area and frame-relay networks.

The forum's tete-a-tete in Palo Alto, Calif., yielded a goal of nailing down key components of the User Network Interface (UNI) specification for signaling and traffic management by the group's December meeting, said David Husak, a member of both the ATM Forum and the FDDI standards committee.

UNI is the technology needed to link an ATM desktop user to a LAN or an ATM carrier network to a user's premises equipment — the key to ATM implementations. "The technology is here for building an ATM network," Husak said. "However, what the forum is working toward is interoperability in larger and larger ATM networks" where hubs, routers, LANs and wide-area networks all mesh together in an enterprise, he added.

No specific time frame has been set for that goal; however, industry analysts peg ATM in the local area to start kicking in by year's end and in the wide area by mid-1993.

JOANIE M. WEXLER

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Users snub star-crossed pairing

CONTINUED FROM PAGE 1

tion world, might make the Ap-
ple/IBM alliance die, but envi-
ronment seem like old hat by
the time they are finally released
in the mid-1990s.

Some users contend that the
wait is far too long and that both
companies may wind up deliver-
ing too little, too late. Many said
they will make decisions based
on what is realistically available.
"I'm not waiting for these
products — it's too late al-
ready," said Charles Darnell,
chief information officer at Lib-
tonia Lighting in Atlanta. He
compared the initiative with the
Big Three automakers' tardy
and ineffective response to Ja-
ron environment, PowerOpen, based on
products — it's too late al-
ready in the works before the
projects stretched into the
mid-1990s.

They announced a partner-
ship centered around the fol-
lowing initiatives: creation of a
line of RISC processor chips
called the PowerPC, a de-
velopment of an open systems envi-
ronment, PowerOpen, based on
industry-standard Unix; greater
interoperability among Macin-
tosh and IBM systems and net-
works; and two joint ventures
— Taligent, Inc., which would
create a software platform for multimedia applica-
tions; and Kaleida, which would create a soft-
ware platform for multimedia applica-
tions.

Except for the interopera-
tibility products — which were al-
ready in the works before the
announcement was publicized and
which also began shipping in late
July 1991 — and the PowerPC
chips (see story at right), the
hazy arrives dates for much of
these projects stretched into the
mid-1990s.

Andrew Allison, editor of "RISC Management," a news-
letter based in Carmel, Calif.,
rated the initiative's long-term
chance of success as "slim to
negligible. The whole thing
hangs on this wonderful soft-
ware environment that will take
years to come to fruition. By that
time, nobody is going to care."

Not everyone agreed. This
venture is "absolutely critical for
next-generation computing," said
Tim Bajarin, president of Creative
Strategies Research
International, Inc. in Mountain
View, Calif. "In the past,
the computing mod-
el was individual
desktops, and now
it's shifting to a true
client/server model.

"In a true RISC-based
client/server setup,"
"Allan is at issue are the
record of both companies when
it comes to getting PC operating
systems out the door. They are
not good ones. And some users
with heavy investments in IBM's
OS/2 and AIX and Apple's
Solaris and System 7.0 operating sys-
tems are clearly worried about
migration issues.

Taligent President Joe Gug-
lideli is trying to quiet those
fears. "We are working closely
with technical teams from both
Apple and IBM to build call
adaptors so that Mac or IBM ap-
lications can run unmodified
in the new environment," he said.

Strange bedfellows

The Apple/IBM alliance has been long on rhetoric but short on
deliverables.

July 3, 1991

Apple and IBM announce
original letter of intent.

July 1991

SNAPs — integrated protocols and services for Macintosh users communicat-
ing in an SNA environment.

Oct. 2, 1991

Apple and IBM formally announce
the wide-ranging agreement.

16/4M bit/sec, Token Ring adapter for
Macintosh, which incorporates IBM's
Token Ring technology.

Feb. 25, 1992

Joe Guglielmi named CEO of Taligent, Inc.

May 4, 1992

Somerset, the IBM/April/
Motorola chip facility.

May 21, 1992

Additional Token Ring TCP/IP
products for IBM/Macintosh connectivity.

June 23, 1992

A, Nathaniel Goldhaber named president
and CEO of Kaleida.

Fourth quarter 1992

601, Somerset's first chip due.

1993-94

PowerOpen products, the duo's
open systems environment,
slated to hit the market.

Mid-1990s

Full-object-oriented operating system
from Taligent due. Kaleida's multimedia
products also slated for this time frame.

Stepping stone

Kaleida, the venture charged with
crafting new multimedia applications,
haves been the quiet sibling in the
Apple/IBM partnership, all but lost in the
talk and hoopla over new chips and an
operating system.

That's understandable; products are not expected before next year.
And it was only last week that a five-
member board of directors was named,
including A, Nathaniel "Nat" Goldhaber,
who was appointed CEO. Additional
executives will be appointed in the
next 30 days. Goldhaber, a former venture capitalist focusing on
high-technology firms, also founded Topi, Inc.

Apple Chairman John Sculley has hinted that Kaleida could
lead the firms into the information services sector. Some ana-
lysts are predicting that its multimedia software could propel
due out of the stagnant desktop market into areas such as
consumer electronics and automotive, where you can only go so far in
extending the desktop PC metaphor," said Pieter Hartsook,
editor of "The Hartsook Letter."

Fledgling finally flies

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extending the desktop PC metaphor," said Pieter Hartsook,
editor of "The Hartsook Letter."

Putting technical concerns
aside, there are also cultural is-
 issues to be reckoned with. Short-
ly after the alliance was formal-
ized in October 1991, the clad
of corporate cultures that every-
one had feared seemed to sur-
face. Taligent — the company
on which Apple and IBM are
banking most heavily — was
slow to announce top manage-
ment.

Furthermore, objec-
tions by Apple program-
mers to first choice Da-
vid Liddle resulted in an
uneasy compromise. Ap-
ple Senior Vice President
Ed Bessa was tapped for
day-to-day operations,
while Taligent's chief
post was given to Guglielmi.

IBM's top OS/2 marketeer.

This has fueled doubts about
the ability of the companies,
which are still competitors,
to cooperate effectively.

IBM Pres-
ident Jack Kuehler insisted it will
"We'll work together in the
morning, and we'll beat each
other's brains out in the after-
noon," he said. "There's room for
both.

Tough sell

Users aren't buying it. "The
philosophy of the companies are
so out of whack that I think I'll be
some time before, or if, they
come up with anything together," said
George Tabiback, director of cor-
porate network at Ingersoll-Rand Co.
in Woodcliff Lake, N.J.

"Unfortunately, it's historical
glitches we have to live with,"
Guglielmi said. He said he hopes
to prove skeptics wrong by put-
ting out a great product, starting
with the PowerPC chip under
development by Somerset, the
Austin, Texas-based facility that
houses IBM's, Motorola's, and
Apple's joint efforts.

According to Alli-
son, the chip group
moved its produc-
tion schedule ahead
by about a year in re-
response to Intel's P5 push.
A result, the first offering will be
"a re-spin of the pro-
cessor used in RISC
System/6000 Model
220. It's unlikely
that its performance will be any
different. The performance will
be roughly half of the P5."

The long-ranging nature of
the agreement opens the door
for rivals such as Microsoft, Intel
and Next, Inc. to lay claim to
focusing today the same sort of ob-
ject-oriented open systems tech-
nology that Taligent is promis-
ing for the mid-1990s.

With users planning more for
tomorrow than for today, the press
will be generally available by the
middle of next year, coin-
melding the appearance of PowerPC-
based systems.

Products roll out slowly

The meat of the Ap-
ple/IBM alliance delivera-
ables are not expected to
begin arriving for nearly a
year, but the following
have already begun to
trickle in:

- Just weeks after its July
1991 engagement, Apple unveiled SNAPs, an in-
grated set of protocols and services used to tie Ma-
cintoshes into Systems Net-
work Architecture.

- In October, Apple rolled out a 16/4M bit/sec.
Token Ring adapter for Macin-
toshes into Systems Net-
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Simple chip upgradeability and a 64-KB cache...
MUCH FOR THE IDEA THAT TO LIMITED THINKING.

memory module option provide quantum leaps in performance. Without unfamiliar dimension in mainstream business computing: your voice.

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Add CompaqCare, our new service and support program with our free one-year, on-site limited warranty. An Asset Management Provision that gives you and your network administrator a snapshot of your PC's configuration. And you have nothing short of a system that breaks a lot of new ground. Without breaking the bank.

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OK PC LOOKS LIKE A
OULD MAKE THIS THE MOST
AD IN HISTORY.

or components. No second-
rate manufacturing. No
logos stuck on the out-
side after somebody else's
guts went inside.

Thanks to some high
levels of chip integration
and some of the smartest
mechanical design this
side of NASA, we've man-
aged to engineer costs out

Place your fingers on
the keyboard and they im-
mEDIATELY feel at home.

This notebook also has
a unique ability to hiber-
nate when left idle, sav-
ing all your open files to
the hard drive and auto-
matically shutting your
notebook off. Preserving
your remaining battery
life. Start up again hours,
days, or even years later,
and you're right where
you left off.

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ternal, power-conserving
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tell you all the places
you can get it. And we'll
tell you that you won't
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book PC that looks this
good and works this well
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We could have farmed out all the manufacturing.

We could have bought parts from the cheapest vendor in town.

But then all we would have ended up with is another inferior, low-priced
T's AS GOOD AS A COMPAQ. THAT OUGHT TO KNOW.

close. And what we were determined to build was a low-priced COMPAQ computer.

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- 2 drive bays
- 40- or 84-MB hard drive

- Intel 386SX/25, 2 MB RAM
- 3 ISA slots
- 3 drive bays
- 84- or 120-MB hard drive

- Intel 486/33, 4 MB RAM
- 3 ISA slots
- 3 drive bays
- 84- or 120-MB hard drive

All models include high-resolution 1024 x 768 video system and pre-installed Microsoft MS-DOS 5.0 as published by Compaq

and just plain common sense, we've managed to cut costs in both system design and manufacturing.

While still managing to deliver 100 percent of the virtues you've come to expect from Compaq.

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And each comes with a high-resolution 1024 x 768 video system.

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Enlarges systems + chaos = better control systems

Firms such as GM save time with Parallel Inference Machine, a real-time computer for factory automation

BY GARY H. ANTHEIS CW STAFF

G

eral Motors Corp. has a new computer at its Fort Wayne, Ind., truck paint shop that has greatly simplified process control and reduced software development time by 40%.

But its name is not a household word just yet. The Parallel Inference Machine (PIM) from Flavors Technology, Inc., is a parallel-processing computer driven by two seemingly opposing guidelines: expert system rules and the principles of chaos. According to the GM engineer who programmed it, the computer behaves like a flock of birds.

PIM is a real-time computer for factory automation, military command and control, image processing and other applications that can be broken into numerous, loosely coupled processing streams.

At the GM facility, it controls ventilation, paint flow and spray-gun air pressure in a shop where more than 900 trucks are painted each day.

**Multiple cells**

Through time-sharing, the PIM stretches its 128 physical processors - Motorola, Inc. 68040s - into as many as 1,638 virtual processors, called "cells." The cells operate independently of one another but share a large common memory.

The computer is "systolic," pumping rhythmically like a heart. Sixty times per second, in perfect synchronization, the cells read from the global memory, perform calculations and write the results back to memory.

But the vendor and users said the real magic of PIM comes not from the hardware but from its Paracell programming language, which Flavors said requires about as much computer expertise to use as setting up a spreadsheet application.

Paracell was designed to be used by engineers, not programmers, said C. Robert DeSimone, marketing director at Amherst, N.H.-based Flavors.

"Typically, control engineers try to convey system needs to a contractor who hands them to a C programmer who then tries to write some code to run a factory," DeSimone said.

Instead, Paracell allows the engineer to program the PIM directly by writing English-language commands such as: "If pump pressure > 3,000 psi then reduce flow, set pump status to override and set control room alarm on."

If Paracell does not know which pump is intended or what is meant by "override," it will prompt the engineer for more information, which it remembers. "It learns your vernacular," DeSimone said.

**A rare bird**

"Paracell is absolutely unique," said Alan Campagna, president of Theta Systems, Inc., an advanced systems consultancy that is based in Boston.

"You don't have to think about [the parallel architecture]. You do one simple thing with one simple processor and you don't have to put the whole thing together," (See story below.)

Writing for an internal GM publication, Gregg Ekberg, a GM control engineer who wrote the Paracell commands for the application, said, "Our control software has become so complex that a significant portion of our personnel cannot maintain our processes, and worse, cannot implement improvements in the process because it is too difficult to determine how to incorporate the idea in the existing software."

Ekberg said the principles underlying PIM allowed a 40% reduction in software development time and a 90% reduction in the amount of code needed compared with traditional methods.

**A flock of processors**

Ekberg said systems that control multiple devices can be likened to birds flying in formation.

A traditional but complex approach to modeling a flock of birds would be to assume there is a bird leader that issues commands to the other birds while monitoring their flight. The bigger the flock, the smarter the lead bird must be and the better the interbird communication system.

But PIM uses a different model, the one employed by Mother Nature. There is no master bird; instead, the birds (processors) do not communicate with one another at all. All the birds get the same information from the environment (the shared memory), and each bird just applies its own simple rules: Fly 3 feet from your neighbor, fly at constant speed, slow down around corners and head for the roost.

In short, you can rely on having a taxi at 8 a.m. if you order it the night before, but you cannot know which cab you will get.

Morley said GM tried for years but failed to devise a master scheduler for assigning trucks to paint booths to minimize paint waste. Because the trucks came through with a random color requirement, the spray guns had to be cleaned after each truck was painted.

Now, the paint shop works a little like the Boston taxi system. A dispatcher broadcasts to all booths the color requirement for the next truck in the queue.

A booth has one basic rule: It bids for the truck if it is too difficult to determine how to incorporate the idea in the existing software."

Ekberg said the principles underlying PIM allowed a 40% reduction in software development time and a 90% reduction in the amount of code needed compared with traditional methods.

**The ‘chicken brain’ approach**

According to Flavors Chief Executive Officer Richard Morley, PIM works best in situations involving "relatively dumb, loosely coupled aggregates of stuff." He called it the "chicken brain" approach.

For example, Morley said, "If we were Martians and we came to Boston, we would not understand how the taxi line you are in is too long, go to another line," and "When the dispatcher calls, bid on it."

That is the best way to approach a broad class of problems, from factory automation to air traffic control to financial modeling, Morley said. The problems are marked by chaos, in which the behavior of the system as a whole, but not the actions of individual elements, can be predicted.

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The latter approach is much simpler to implement, according to PIM users. "The result is an exponential reduction in software needed to control the system," Ekberg said.

PIM systems are priced from $250,000 to about $2.5 million, depending on the number of processors required.
Federal assistance

The paradox of the high-tech industry's attitude toward a U.S. technology policy hit home last week when Informix Chairman Roger Sippl wagged a finger at Sen. Jeff Bingaman Jr. (D-N.M.) and warned government to "stay out of the way" of high-technology businesses.

Bingaman politely declined to point out that there has been no greater beneficiary of government grants and contracts in the computer industry than Unix, which has made Sippl, by his own admission, a wealthy man.

Such is the irony of high-tech leaders railing against government involvement in industrial policy. Last week's Great Debate on U.S. Technology Policy, an event co-sponsored by Computerworld and Comptia, pointed up more than ever the need for government to play a role of some kind in promoting American technological competitiveness.

Technology entrepreneurs have already benefited immeasurably from government investments. Where would the semiconductor industry be without the Department of Defense and NASA? How far would the computer systems industry be without the Department of Defense and government contracts and standards?

Where the government makes a mess of things is when it micromanages problems (as in the Commerce Department's flat-panel display duty fiasco last year) or sets standards that are out of touch with the market (like the DOD's sputtering Ada project). But Washington could take several short-term steps to improve the U.S. position without stonking on innovation:

- Identify critical technologies and provide tax incentives for their commercial development by U.S.-based companies. Lists of these technologies abound. What's needed is a government commitment to support them.
- Refocus defense R&D spending on areas that have commercial potential. DOD research is increasingly out of touch with the market. Bring it back to earth.
- Provide incentives for science education in the form of tuition tax credits, grants and scholarships. Polls show Americans are ready to pay for better education.
- Commit to using advanced technologies. The government spends more than $3.5 billion a year on computers. Why not write some of those procurement contracts to specify hot new technologies? If the benefits are so great, then technology and the taxpayers both win.

Yes, this is going to cost money, but so does any investment in the future. When it comes to America's technological competitiveness, government can't afford just to stay out of the way.

Paul Gillin, Executive editor

LETTERS TO THE EDITOR

"Hackers aren't the real enemy" viewpoint riles readers

It all comes down to issue of morality

Reading Chris Goggans' "Hackers aren't the real enemy" [CW, June 8], I'm depressed at the sight of a young person, obviously highly intelligent, so incapable of understanding the basics of morality.

- He justifies his penetration of computer systems by saying that he never damaged anything. Violating someone's computer is the same thing as violating his home. Once that moral precept is gone, anything is fair game.
- He justifies his actions based on the "learning" he gathered while violating others' systems, but to what productive end has he put that learning? In the time he spent peeking at the hard work of others, he probably could have done some really valuable work. I suspect that he and his ilk are not staked on learning so much as on the high they get from getting away with something.
- He marvels at the vulnerability of computer systems. When he joins organized business, he will confront the fact that everyone is busy, and things sometimes drop through the cracks. When he has walked a mile in overloaded shoes, he may find that even he forgets to change a password every now and then.

Instructing systems administrators on their responsibilities is like a thief calling his victims to scold them on leaving the window open.

Chris, you're bright, energetic and potentially productive, but until you learn what's right and what's not, you will be just a dangerous kid.

Barry Schaefer
Synergy Group, Inc.
Falls Church, Va.

Accidents can happen — too easily

I would like to reply to the statements in Chris Goggans' Viewpoint article.

"But I'm not stealing anything." Yes, you are. Every processor cycle that you use steals from the owner of the computer. Someone has to pay for it, either in direct charges for the equipment or in some other way.

"But we were careful not to change anything that might be harmful." Of course you were careful. But you admit that many of your fellow hackers run unknown utilities to see what they do. Running a program without knowing anything about it is like checking the amount of gasoline in a tank by lighting a match to look inside.

Don't tell me you can tell that the utility program will not do any damage. You don't know the purpose, the operating parameters or the intended effect of a program. Do you just say "oops!" if you destroy files in the process?

There are two ways to deal with hacking: stiff penalties, including banishment from the industry; or a program operated by the major industry players to put the "explorer" to work building more secure systems. I would prefer to support a young computer enthusiast with talent and brains to work for me rather than against me.

Walter Daniels
Indianapolis

It's trespassing

The column by Chris Goggans brings up many valuable points regarding computer security and the need for security procedures in an increasingly decentralized, interconnected and vulnerable computer infrastructure.

However, lack of countermeasures to prevent trespassing, vandalism and theft of computer resources is not the problem: the problem is people who don't see the difference between voyeurism and crime. Strolling along a nude beach provides opportunities for voyeurism; entering a house uninvited and watching the occupants shower is trespassing.

When evidence of a hacker is found on a computer system, the system must be diagnosed for possible viruses, deleted or corrupted files and other damage. This considerable time and expense cannot be avoided by hoping that the hacker was of the benevolent variety that we are to believe Goggans represents.

Hackers do not deserve access to valuable, sensitive information until they can demonstrate their desire to be law-abiding, responsible citizens.

Michael L. Wyland
Sioux Falls, S.D.
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"I THINK IT'S TIME HE GOT HIS OWN SUBSCRIPTION TO COMPUTE..."
DON'T WASTE BLUE-COLLAR POWER

ANTHONY P. CARNEVALE

We are in a new economic ballgame with new rules and new competitive standards. And if we want to be a winning player, we must meet the formidable challenge of simultaneously reforming both our schools and our workplaces.

American education has not failed by historical standards. Schools have been able to raise test scores and the number of dropouts in half during the past decade, while providing greater access to education from preschool to graduate school. But our schools are not doing as well as those of our principal competitors because the global standards of the new economy have set the bar higher for both schools and employers.

Power to the people

The computer is the critical technology in the emerging economic order, and its greatest power comes from the fact that it grants unprecedented autonomy to employees who use the technology to make products, deliver services and interact with customers.

That power can only be realized, however, if employees understand and down the line have been given enough sufficient knowledge and encouragement to make the fullest use of computer-based technologies.

Real school reform will require deep changes in the way knowledge is organized and taught. Since time is money, schools have learned as human and organizational computers for storing and passing knowledge down through the generations. As a result, students taught in traditional schools know a great deal more than they understand.

In the schools of the future, students will have to learn how to apply as well as store interdisciplinary knowledge, to understand and use what they know.

The most radical challenge for schools and employers is to empower and enable that half of the graduating class — the half that doesn't graduate from college — to fully use computer-based technologies on the job.

Employers can best help the schools by putting their own house in order. We can't wait for the schools to save us. Graduates will place employees at just 3½ a year.

Further, we can educate all we want, but if employers aren't prepared to use more highly educated employees, we will end up with too many smart workers and too many dumb jobs.

2% down, 98% to go

Most employers have a long way to go. Currently, only 2% of employees are empowered to use the technologies available to them. Nor have U.S. line employees received much training to meet competitive standards as their foreign competitors.

The average Japanese employee works with three times as much technology as the average American worker and gets at least three times as much training on the job. The Germans provide several years of formal training to more than 80% of their noncollege youth.

That'll be a pizza, a Coke, some cookies and a PC to go

MICHAEL COHN

Don't throw in the towel on PC sales. Granted, PC vendors are taking a beating. Profits are pitiful. And the few people who don't already own a PC only want to purchase one if it's dirt cheap.

None of this means you can't still make a buck selling PCs, though. Just need a few low-cost alternatives — some cheap new ways to get your product to market.

Have a few ideas for you to try. Never mind if they sound a little quirky; they may just be crazy enough to work. Besides, what have you got to lose, especially if you haven't sold gold ink since the third quarter of 1989?

• The PC vending machine. I'm shocked it hasn't come to this. I expect to see one day now. Put your money in, press a button or two and out slides a system, like a can of Coke.

Of course, you might risk ticking off a customer with a $1,240 system unit when the exact change light is on. And you'd better warn people to keep those fingers away from the chute, especially when they're selecting that 40-pound color monitor.

• PC drive-thru. They probably have this somewhere already. But if not, someone should start thinking of it as fast food for the MHS crowd. Just glide up to the drive-thru window and hawk out your configuration. Quick and convenient, as long as most file servers fit through the driver's side window. And retain for future expansion.

Think customers will be reluctant to place a complex French and Australians demand that their employers spend at least 1.5% of payroll on training or pay the difference in a national training fund.

Although U.S. employers spend a great deal of money on training — $30 billion annually at last count — only 13 U.S. workers has ever been trained by his employer, and most of the training goes to those at the top of the organizational pyramid.

Work and school reform will cost money, but not nearly as much as most suppose. About 40% of competitive improvements come from the technologies and educated workers we buy. The other 60% comes from the way we learn to use technology and from people on the job.

Two-part challenge

Buying the new technologies and educated workers is the easy part. But it is only 40% of the challenge. The other 60% is the race up the learning curve. Transitioning from the rigid, mechanical and authority-based model of the past to the flexible, electronic and information-based structure of the future will require profound changes in our organizational relationships and workday habits of mind.

Those changes will be especially difficult in the U.S. We have been the world leader in top-down mass production systems. But it is old and once-successful behaviors die hard.

Carnevale is president of the Institute for Workplace Learning of the American Society for Training and Development in Alexandria, Va.

Stefanich is president of the Institute for Workplace Learning of the American Society for Training and Development in Alexandria, Va.
Introducing Z series.
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The PaintJet XL300 has HP LaserJet printer compatibility built right in. The same typefaces. The same page formatting. It also has PC/Macintosh auto-switching, so users in a mixed environment can share. And, just like a LaserJet, the PaintJet XL300 becomes network-ready with optional HP JetDirect interface cards.

Get laser-quality text and graphics on a choice of media that includes plain paper and transparencies. Or add optional Adobe PostScript® for access to even more graphics applications.

Now that there's a printer as practical as the PaintJet XL300, maybe it's time you took the plunge into color. Call 1-800-752-0900, Ext. 3159 for a free print sample and the name of the authorized HP dealer nearest you.†
In this issue's Windows View, Jesse Berst discusses the principles of good GUI design. He notes that while users may prefer a more productive approach, there are cases where developers have difficulty applying the GUI to a whole package. He advises managers to consider the workings of a PC, rather than just its hardware and software components.

In the Intel breaks into low-volt chip market section, Michael Fitzgerald analyzes the move by Intel into lower voltage processors. He highlights the power management implications of this change and the potential improvements in battery life. The Intel 3.3V processor, he notes, can save up to 30W of power compared to the standard 5V version.

The analysis on the gender gap in desktop division finds that men are more concerned with getting their jobs done, while women are more interested in the inner workings of a PC. This reflects a gender difference in how people interact with their desktop box.

Renaming can fix files. Part of a series of Windows 3.1 user tips published by Microoperator Corp., these tips cover common issues and solutions in Windows setup.

The diskette division study finds gender roles differ, with men more concerned with getting tasks done and women more interested in the inner workings of a PC.

During installation, when Windows Setup attempts to switch from 3.1 to 3.5, it may prompt users to rename their SETUP.INF or SETUP.EXE to SYSTEM.INF or SYSTEM.EXE. This can be done to prevent errors or to customize the installation process.

Can I set up a permanent or temporary swap file on a 3.1 drive? Windows 3.1 does not support the use of a permanent or temporary swap file on a 3.1 drive. A stacked drive is one on which you are running the Stac Electronics' Stackover utility, which is designed to work in the Windows environment.
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White Paper

ELECTRONIC MAIL: THE NEW CORPORATE BACKBONE
“Electronic mail has delivered itself to the forefront of the corporate psyche. In many instances, it has become the preferred way of communicating within an enterprise. In fact, electronic mail will begin to make us redefine exactly what “The Enterprise” encompasses. It will play an integral role as U.S. companies increasingly change their automation focus from transactions to relationships among people.”
Electronic Mail: The New Corporate Backbone

Introduction

In the world of corporate communications, electronic mail is doing for data what the telephone did for the spoken word: providing a ubiquitous communication media that allows anybody on the network to communicate with anybody else on that same network. Without the threat of busy signals.

But far more than just providing personal communication, electronic mail is turning into the backbone for a host of enhanced communications services that will greatly alter the way corporations and other organizations conduct their internal and external business. For instance, voicemail and facsimile transmissions are piggybacking on electronic mail networks.

Further, innovative group applications such as workflow and routing, scheduling and electronic conferencing are using selected electronic mail system components such as directory services and transport capabilities. While this White Paper will discuss many of these topics, it will focus on electronic mail-enabling, applications-integration issues.

In addition to enabling enhanced services, electronic mail is supporting such business-altering trends as total quality management, reengineering and top line management. The impact of all these services and capabilities is nothing less than staggering.

The future of electronic mail will be greatly impacted by its adherence to the X.400 electronic mail transport and X.500 directory standards. As with most standards, these two are going through an evolution of acceptance within the vendor and user community. Eventually, they may play a key role in making electronic mail a truly pervasive user tool instead of a simple vendor-dependent add-on.

Despite its alluring promise, however, electronic mail still has some barriers to overcome. Unfriendly interfaces continue to put off potential users, and it is only slowly being integrated with applications in the all important local area network environment.

As these technology barriers inevitably fall, electronic mail will prove its value by automating relationships and the roles of people, rather than transactions.
among people. In so doing, it will extend beyond the traditional concept of interpersonal messaging to include the automation of manual processes and the activation of desktop applications.

But before delving into the future of electronic mail, it is worth taking a look at how it got to where it is today.

**THE GROWTH OF ELECTRONIC MAIL**

The roots of electronic mail in a commercial office environment can be traced back to the 1980s, when it was a proprietary part of such large vendors' automation packages as Digital's All-in-1, IBM's PROFS and Personal Services, and Wang Office.

Changes began to take place in the late 1980s, with the advent of low cost electronic mail delivered on PCs attached by local area networks. But as the much-ballyhooed "Year of the LAN" was announced again and again from 1988 through 1992, the results were unimpressive: Despite the many grandiose predictions, LANs were primarily used to share expensive peripherals, such as laser printers.

Because prices of peripherals are rapidly declining, the economics of LANs are also changing. Now that LANs are largely established and accepted, users are adding networked applications. The first significant networked application is electronic mail.

The rapidly burgeoning number of LAN-based electronic mailboxes is attributable not only to the upward growth in LAN-connected PCs — today over 40% of U.S. business's PCs are connected via local area networks, and that number is expected to grow rapidly over the next five years — but also to the recent trend towards downsizing applications. As a result of the booming LAN-based electronic mail popularity, minicomputer- and mainframe-based electronic mail systems are losing market share.

However, electronic mail is not without its problems. Many of its user interfaces are less than user friendly. Most electronic mail is text oriented and provides no inherent structure within the message. Electronic mail allows users to broadcast messages, but for instance, in workflow environments, there is no provision for automated routing of messages to a series of people. The integration of electronic mail with applications within the LAN environment has lagged. Finally, management issues including directory synchronization, multi-vendor integration and systems administration are growing as the number of electronic mailboxes grows. Both vendors and users alike are currently grappling with these issues.

Despite these shortcomings, there are some strong reasons why IDC believes electronic mail is not only here to stay, but will significantly change our corporate culture, becoming, in effect, the corporate information backbone. First and foremost is the growth rate of mailboxes. Total mailboxes numbered six million in 1987, but reached nearly 17 million in 1990. Second, electronic mail leverages existing investments in network technology, and unlike database management technology, it is inherently scalable.

Finally, there is an established set of international standards related to electronic mail transport (X.400) and directory services (X.500). These standards have increasing levels of support within vendor offerings, and clearly they have support from the user community (see sidebar), which will in turn drive the vendors to greater support. Ultimately, scalability, coupled with the X.400 and X.500 initiatives for transport and directory standards, will spell the difference in making electronic mail a truly pervasive business tool, as opposed to a simple vendor-dependent add-on.

This promising future of electronic mail is also predicated on some significant organizational trends that are currently occurring in the U.S., as well as ancillary developments in workflow software and intelligent mail filtering technology.

**ARCHITECTURAL CHANGES**

Typically the large-vendor, central, office-automation-based electronic mail systems of the 1980s were installed at sites where the predominant desktop device was a terminal. These systems of yesteryear are now ripe for conversion to LAN-based electronic mail packages, particularly in the many organizations that have replaced terminals with intelligent desktop devices.

For the companies placing processing power at the desktop, the appeal of host-based personal productivity applications is extremely limited. Over the past seven years, the trend towards replacing host-based applications with less expensive desktop applications such as 1-2-3 and WordPerfect, has crystallized.

Further, as LAN-based electronic mail became available, its adoption within companies mirrored the personal productivity software trend. That is, just as host-
based word processing and spreadsheets were augmented and replaced by PC-based software, so did LAN-based electronic mail affect its host-based counterpart.

One compelling reason for this is the lower initial license cost of the software: PC LAN-based electronic mail user costs are approximately $50 per mailbox, which is a fraction of the cost of the host-based equivalent. Finally, as PC LANs grew up in organizations, out of workgroup, departmental, or other grass roots efforts, there was a void in terms of interpersonal communication that was readily filled by LAN-based electronic mail.

Until early 1991 even the major PC software vendors had only a limited investment in electronic mail. In recognition of the growing demand, however, they are now delivering LAN-based electronic mail for a wide audience while offering lower prices and more appealing user interfaces.

As the new electronic mail systems evolve, like the previous generation of office automation systems, they too will include other applications. Rather than providing personal productivity applications, which are now commodities on PCs, electronic mail will evolve to support networked and group applications, such as workflow and routing, scheduling and electronic conferencing.

Even though these applications are a step beyond electronic mail because they are focused on collaborative activities, in many cases electronic mail will still provide the infrastructure required to run them. For example, many group computing applications will use selected electronic mail system services such as address book and transport.

Electronic mail architecture is shifting toward a modular, client-server foundation as PC-LANs supplant host-based systems. On the client front, the key function is performed by the user interface. Because of the variety of desktop devices in the office, companies frequently have a need to support varied devices in a single electronic mail network. Also, users want to customize their electronic mail environment to suit their individual needs. This includes having easy-to-use programming and electronic mail filtering systems that discriminate among calls and treat them in a set way.

On the server side, three electronic mail components are becoming increasingly modularized: the directory, the message store and the transport. The directory, or address book, minimally holds information on users' addresses. This is expanding, however, to include information further profiling the user's work preferences, such as his or her preferred word processor or spreadsheet. As a result, when application-based information is mailed, it can be translated into the most useable format for the recipient. The message store is the repository for the actual message files, and the transport routes the transmission.

The server will increasingly provide more sophisticated services as electronic mail becomes more widely implemented. For example, network-based electronic mail rules servers will function as filtering systems for all the electronic mail in the system. Much to the relief of users, there may be a time in the not too distant future when such a system will be used to weed out the electronic junk mail.

**Organizational Trends**

There are a number of factors contributing to the pervasive need for more and better kinds of interpersonal electronic communications within and among businesses and organizations. This is happening as the enterprise goes through fundamental changes.

**Total Quality Management**

The concepts of total quality management and quality circles are rapidly moving from the largest, most successful corporations to smaller organizations. American companies of all sizes are such enthusiastic fans of quality management that prestigious awards, such as the Baldrige, are now based on quality. The fact that few companies spend any time defining quality does not prevent them from dedicating themselves wholeheartedly to quality circles.

**Reengineering**

Reengineering is a set of methodologies aimed at streamlining the business process. Its goals are to create significant improvements in throughput as well as provide improved tools for management feedback. The term is somewhat ironic as most business processes were never engineered in the first place. Reengineering works best when it is implemented in an environment involving all levels of employees. Perhaps the biggest advantage of reengineering is that its promise makes it easier for businesses to admit that they need to change. Again, electronic mail can be a key enabler by opening up and maintaining communication during this critical process. Like reengineering itself, electronic mail breaks down the barriers between departments.

**Top Line Management**

The bottom line management style of the 1980s focused on corporate profitability. This approach focused more on earnings per share than customer satisfaction. The 1990s will show a dramatic shift towards top line management, wherein companies take a longer term approach.
Nearly 2 million people around the world have given cc:Mail™ a vigorous thumbs up. And for good reason.

cc:Mail allows you to send messages transparently and maintains a consistent set of features across all these major platforms. That’s because it was built from the ground up to support network environments made up of different platforms and LANS—a design consideration that seems to elude most e-mail systems. Further, it’s the only system that gives you a wide range of options for enterprise-wide connectivity. cc:Mail can even exchange mail messages with most mini and mainframe mail systems such as IBM® PROFS® and offers gateways to public e-mail services such as MCI Mail. And cc:Mail runs smoothly on any server or network operating system, in any configuration. All of which makes it easier for you to maintain, administer, and install. And put your faith in.

cc:Mail offers an impressive set of administration tools. Such as Automatic Directory Exchange, a product which automatically collects any changes...
made to the directory and updates the entire network. It's also the first package of its kind that's built on a new, fully scalable messaging architecture. Which means it can accommodate 5 to 500,000 users. And grow along with your business. One more thing: cc:Mail has won every major industry award, including the Windows Magazine 1992 WinAward and ComputerWorld's 1992 LAN Brand Preference award.

So if you're looking to standardize your e-mail system, look to cc:Mail, the award-winning system that gives you enterprise-wide connectivity, scalability and reliability—the kind nearly 2 million people count on every day.

For a free demo disk of the cc:Mail Macintosh, Windows, UNIX, or DOS Platform Pack, call us at 1-800-448-2500. With all the stamps of approval we've received, we're still missing one very important one: yours.
Users embracing E-mail, standalone fax, voicemail

The annual IDC multi-media and integrated messaging end-user survey of 100 Fortune 500 U.S. corporations reveals significant shifts over the past year in messaging priorities along with substantial growth in corporate usage and intent to purchase electronic messaging technologies.

According to the survey, electronic mail, standalone facsimile and voicemail are becoming nearly as ubiquitous as the telephone. Furthermore, activities such as the deployment of LAN-based electronic mail and increased emphasis on the interconnection and integration of electronic mail systems, PC fax boards, X.400/X.500-based products, messaging Application Program Interfaces (APIs), on-line information services and EDI technologies are all given a high priority by the survey respondents.

These shifting priorities reveal that electronic mail in the corporate environment is moving beyond its traditional role as an interpersonal communications vehicle. It is becoming a universal platform for a wide variety of multi-media and integrated messaging applications. Interim corporate electronic mail strategies are giving way to strategies designed for the longer term.

Acquiring a Critical Mass of Users

The purpose of electronic mail is becoming clearer as it evolves into a foundation for building enterprise-wide, integrated multi-mode messaging highways. The prerequisite for implementing these highways is a critical mass of interconnected users and the installation of a ubiquitous, integrated messaging transport platform. This explains the strong emphasis on interconnection, integration and open systems deployment by the end users in this survey.

Look for the coming year to bring increased end-user emphasis on purchasing and deployment of Open Systems Interconnect (OSI) compliant X.400 and X.500 products and services. There will also be more emphasis on the integration of fax and electronic mail and voicemail and electronic mail. Other trends to look for include increased support and development of messaging APIs; continued growth of LAN-based electronic mail system implementations; and the beginnings of workgroup and document management system deployment.

Respondents are surprisingly consistent and clear when identifying emerging trends in electronic messaging. The need for integration of various electronic messaging technologies appears repeatedly as a key theme and end-user requirement, particularly the intra- and inter-enterprise integration of electronic mail systems. And they reveal preferences for particular integration scenarios and standards (internal electronic mail standardization and industry electronic messaging standards).

This year's report shows rapid growth in the penetration rates of electronic messaging technologies. The following items reflect the current percentage of use and the comparable figure from one year ago:

- Electronic mail penetration (98%, up from 67% last year)
- Voicemail penetration (84%, up from 48% last year)
- LAN-based electronic messaging penetration (65%, up from 50% last year)
- EDI penetration, (42%, up from 28% last year)
- Fax boards, (49%, up from 15% last year)
- LAN or host fax servers/gateways (52%, up from 17% last year).

Specific integrated hardware scenarios indicate increased user sophistication resulting from early adoption. More than half of the survey respondents give high importance to integration of the following messaging media:

- Access a “universal mailbox” from anywhere (65%)
- Integrate graphics/images into electronic mail (58%)
- Be notified in electronic mail of fax receipt (58%)
- Retrieve messages in any format from electronic mail (62%)
- Be notified in electronic mail of voicemail receipt (54%)
- Integrate fax graphics into electronic mail (54%).

Market Sophistication Drives Use

It is also important to compare this year’s responses to last year’s. Sixty-five percent of this year’s respondents indicate the importance of the universal mailbox, up from 40% last year. This is evidence of major advances in market sophistication. Fifty-six percent of respondents indicate the importance of retrieving messages in any form from electronic mail, up from 35% last year. This reflects the gains in penetration electronic mail has realized.

Among end users, OSI-compliant products are mentioned as the most popular means of providing integration. X.400- and X.500-compliant products are strongly favored by system implementers and those who influence purchasing decisions. Approximately 42% of the respondents indicate planned deployment of X.400 interconnections during the next two years. The importance of X.400 compliance in electronic mail systems is cited by 53% of respondents, up from 26% last year.

Interestingly, 38% of the respondents indicate they will be implementing X.500 applications within the next two years. IDC believes this response reflects a willingness on the part of corporations to begin deployment of strategic plans that will include internal and external international OSI intercon-
connection capabilities. This response also portends gradual migration from proprietary, or tactical, electronic mail gateways to open systems protocols.

Purchasing intentions for all forms of electronic messaging products and services continue to be strong. For internal use, facsimile-related technologies are most often mentioned, with bigger ticket purchases of voicemail and EDI also showing a significant response rate.

For external use, 31% of the respondents say they are planning to purchase electronic mail switching and gateway services within the next year. An additional 14% are planning to purchase these services (e.g., X.400, Message Handling Services, SoftSwitch, or LAN gateways) within the next two years. This response supports the premise that end users are continuing to emphasize the interconnection of electronic messaging systems (via proprietary and open systems protocols) to their electronic mail backbone networks.

Burgeoning Fax Derivations

Although fax technology is reported to be ubiquitous, significant growth continues in related technologies such as multi-function fax machines, LAN- or host-based fax servers/gateways, fax boards and fax/modem boards. Stand-alone fax machine purchases within the next year are predicted by 48% of the respondents and fax server purchases are planned by 35%.

Fax and fax broadcast services are also popular with the respondents, as 43% say they subscribe to various types of enhanced fax services. This market is poised for continued growth in areas such as fax broadcast, fax mailboxes and fax-on-demand. These services are helping companies realize improvements in marketing and customer service. Enhanced fax services are also positioned to move into the residential markets, as fax machines become a low-cost commodity like the telephone, VCR and television.

Integration Need Cited

According to survey respondents, the need for integrating electronic mail with other key applications is becoming an increasingly important priority. The focus of electronic mail is now shifting to include more structured, application-specific activities and expanding to include a broader range of applications and enterprise-wide services. IDC believes that end users are looking to integrate electronic mail function within their specific application types, and as a result, they place strategic importance on products and services that will be able to provide this capability.

The number of voicemail systems installed at surveyed sites is up 75% from last year. This indicates an increased reliance on voicemail as an internal/external messaging device. Interestingly, voicemail is growing faster than electronic mail, which itself is up a healthy 46% from last year. Overall, electronic mail and standalone fax machines still maintain higher penetration rates than voicemail. IDC believes, based on reported 1992 purchase intentions, that by 1993, the penetration rate of voicemail will equal that of both electronic mail and fax machines.

There are many architectural issues to consider when implementing integrated electronic messaging, particularly modular, multivendor client/server-based messaging systems.

Major Trends

Without being prompted with choices, respondents identified their view of the major purchasing trend in electronic messaging in the coming year. Grouping the responses into major categories according to frequency of their occurrence shows three major purchasing trends:

- Purchase Trend I — Emphasis on X.400 and X.500 products and services.
- Purchase Trend II — Emphasis on products that can integrate various messaging technologies.
- Purchase Trend III — Growth of the LAN-centric electronic mail environment and LAN-based electronic mail solutions.
SmartSuite from Lotus is one smart choice. Because not only does this suite of four award-winning Windows products offer you an incredible value for your money, it also delivers individually outstanding products that work together. Each shares a common interface. As well as common features like our unique SmartIcons for one-click access to the tasks you perform most frequently. Which means the products work so much alike that when you learn one you've learned them all.

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

Take 1-2-3 for Windows, for example. It brings you all the power of The World's Most Popular Spreadsheet, including 3-D worksheets, automatic print compression and our unique fast Solver technology. And it now includes file compatibility with Microsoft Excel, support for Windows 3.1 and overall improvements in its performance and speed. It even gives DOS users access to the 1-2-3 for DOS Classic menu at the mere push of the slash key.

With Ami Pro you'll find a feature-rich, easy-to-use word processor that comes with dozens of pre-formatted Style Sheets. Which means you can get professionally designed letters, memos and reports as fast as you type in your text. In fact, only Ami Pro gives you visual cues every step of the way. Without any complicated screen commands to remember.

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"Sending a cc:Mail message is easier than addressing an envelope and licking a stamp."
—PC World, 9/91

cc:Mail. The leader in electronic mail.

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"Sending a cc:Mail message is easier than addressing an envelope and licking a stamp."
—PC World, 9/91

SmartSuite for Windows
1-2-3, Ami Pro, Freelance Graphics, and cc:Mail

It lets you send text, files, graphics and facsimile items across all major platforms, like DOS, Windows, OS/2® and Macintosh. It runs smoothly on any server or network operating system in any configuration. And its unique architecture makes it easily scalable to fit the size of your workgroup, whether it’s five or 500,000.

More good news? SmartSuite costs less than the price you’d expect to pay for two of these products. And it even includes a free Windows 3.1 tutorial from Personal Training Systems, complete with an audio cassette, manual and demo disk.

"Sending a cc:Mail message is easier than addressing an envelope and licking a stamp."
—PC World, 9/91

So if you still think that buying a suite of products from one company means sacrificing product excellence for price, we have two suggestions. Step back and consider what’s in SmartSuite. Then consider what’s behind it... the most comprehensive service and support in the industry.

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to business that includes an emphasis on quality and employee participation. As part of this process, companies will increasingly purchase only essential technology products and services. Electronic mail is one of these essentials.

**Flattening of Organizations**

Progressive companies no longer take a top-down approach to running their businesses. Active involvement by even the most senior management with the rank and file is becoming more common. At the same time, organizations are shedding management layers and adding more matrix organizations. This combination of factors has set the stage for a significantly wider use of electronic mail. In fact, it is not unusual for CEOs of billion-dollar companies to be regularly and actively involved in electronic mail-based conversations.

**APPLICATION FOCUS**

In order for electronic mail to realize its full potential, it must be accessible not only from a discrete electronic mail application, but from whatever application a user happens to be in. Typically, the concept of electronic mail enabling is associated with PC-based application software, but host- and workstation-based applications can also be enabled.

From a user's point of view, an electronic mail-enabled application would treat mail like a utility — such as a spell checker or printer driver — within the application. The fact that at minimum the message will need to travel over a LAN or even a WAN need not be known by the user. The capability should be seamlessly included within the desktop environment’s native user interface. As such, electronic mail will appear as an entry on a pull-down menu in some environments, or a ring-menu in others.

In this form, electronic mail will be joined by other messaging technologies such as fax and voice transmission.

As electronic mail-enabling of applications becomes more prevalent, which IDC believes will be the case within the next two years, electronic mail will become seamless, allowing files to be sent in their native applications. Sending around spreadsheet files with formulae embedded, rather than in final print format, will streamline the way users work together, and will be essential for workflow automation and other workgroup applications.

The increased availability and sophistication of electronic mail application program interfaces (APIs) is enabling electronic mail as an embedded utility within applications.

As a result, each environment will have its own set of interfaces supporting more customized messaging capabilities, which will enable software developers to describe and tag in detail the message content. These new messaging capabilities differ from the generally accepted concepts of interpersonal electronic mail, expanding the concept of messaging to include groups, routing and filtered selection.

**LAYERED ELECTRONIC MAIL APPLICATIONS**

The electronic mail of the 1990s will offer far more than the person-to-person messaging that characterized its 1980s counterpart. There is talk now about a number of application types that use electronic mail as their foundation. Some of the applications are not new — for example, calendar and scheduling facilities. The advances in this area are really in the interconnections, where they will be implemented across different mail systems.

Three new application types will have a great impact in the near future: conferencing, filtering and agent facilities, and most dramatically, workflow.

**Electronic Mail and Workflow**

An appropriate application focus for electronic mail must combine a number of elements. First it must recognize changing organizational structures. This will sound the death knell for host-based systems. Second, it must leverage the innate strengths of electronic mail while adequately compensating for its weaknesses.

Workflow automation will become one of the most significant electronic mail-based applications before 1995. As required, it will improve, or at least mask, some of the weaknesses of electronic mail, while maximizing its strengths.

But what is workflow software? This is how IDC defines workflow: "Workflow software is the tool or set of tools that empowers individuals and groups of individuals in both structured and unstructured work environments to automatically manage a series of recurrent or nonrecurring events in a way that achieves the business objectives of the company. Simultaneously, workflow software should allow feedback to management ensuring it the opportunity and ability to extend or modify those business processes as the business environment changes."

Workflow software represents the largest shift in automation in the past 10 years. Its implications go far beyond imaging technology, transaction processing systems, document management or office system technology. In fact, workflow software will become so pervasive that, for many companies, it will become the front-end to all their strategic business processing applications.

Electronic mail will play a fundamental role in workflow automation by providing the infrastructure for transport of the work packages.

Simply laying a workflow capability on top of existing electronic mail packages brings a number of immediate benefits. It provides the ability to route forms, messages or other objects. It also pro-
vides a consistent user interface across multiple environments. Application connectivity can be provided assuming that the workflow environment is built using a user interface that inherently has a data exchange facility.

**Conferencing Systems**

Electronic conferencing systems are not new — in fact, Digital has been delivering a conferencing system called VAXNotes since the mid-1980s. What is new, however, is the wider availability of a more appropriate infrastructure — electronic mail — to support this application concept. Conferencing systems, sometimes called electronic bulletin boards, support many-to-many communications. A conference topic is chosen, and the bulletin board for writing or reading is accessible to all or designated members of the forum.

Electronic conferencing is somewhat equivalent to the concept of a company meeting, but has some striking advantages: it does not have to happen in real-time, or all at one location. Conferencing systems streamline some activities that necessarily occurred in serial format — a memo is sent, each individual responds to the author, the author summarizes and sends out another memo, etc. That series of steps can be compressed into the introduction of a new topic in a conferencing system.

Another advantage of conferencing systems is that they provide a history of interactions. Thus, they can quickly bring a new employee up to speed on particular topics, or provide a path to understanding group contributions to the resolution of a topic.

**Filters and Agents**

With the proliferation of electronic mailboxes, and the increasing use of electronic mail as a standard way of intra- and inter-company communications, electronic mail management has become an increasing concern. It is not unusual for employees in a company with an electronic mail culture to return from a week's vacation with literally hundreds of unread messages waiting.

Users are searching for automated ways of managing both incoming and outgoing mail, and mail filters or agents are one way to do so. A mail filter can intelligently discern, and act on, electronic mail messages.

So, for example, there is hope for the beleaguered user just back from vacation. Next time, that user can set up a filter that will keep watch over all incoming mail, and sort, delete, forward or respond to mail based on certain established rules. For example, all mail from a manager could be forwarded to the secretary for review and response. All mail from colleagues can be sent a reply that states the user is on vacation and will return next week. All mail from a mailing list can be automatically deleted.

The reach of filtering agents can extend beyond the individual's desktop for more centralized control of electronic mail systems. Server-based filtering can be set up to manage the mail system by executing some system-wide rules. For example, a server-based agent could be set up to automatically notify a user that his mailbox has more than 300 messages. Or similarly, a server-based agent can be set up to automatically delete all messages over three months old.

**SUMMARY**

Clearly, electronic mail still has some maturing to do, but it is better to contend with immature technology than it is to stand by obsolete alternatives. Most noticeably, functions such as directory synchronization, interoperability of host- and LAN-based systems are still outstanding issues. On the brighter side, electronic mail continues to receive a great deal of development resources and improvements are delivered month by month. It is critically important that electronic mail be permitted to evolve and be redefined even as the businesses and organizations it serves also redefine themselves.

It is also clear that electronic mail will be the foundation of a series of new applications, such as workflow software and conferencing systems, which are aimed at automating relationships and the roles of people, rather than just transactions. As a result, electronic mail will rightfully be known as the backbone of corporate change.
When everything works together, everyone works better.

Today, more and more businesses are turning to computer networks to help connect their people. They’re also turning to Lotus’ for breakthrough communication products like Lotus Notes’ and cc:Mail.” Whether it’s sending a mail message with cc:Mail or conducting a global brainstorming session with Notes, both of these products allow people to work together better than ever before. Regardless of the computing environments or network systems that are in place.

Of course, the same principle that applies to people working together also applies to products working together on your desktop. Which is why we offer Ami Pro,” Freelance Graphics” and 1-2-3®; our award-winning Windows™ applications that work seamlessly together. Each, in fact, is fully integrated with the other. And fully compatible with earlier releases. Each gives you a common interface, a common install procedure and common features like our unique SmartIcons.”

But even more importantly, we’ve taken our desktop applications and integrated them with our communication products. For instance, since all our Windows applications are mail-enabled, you can use cc:Mail to send a “live” file to anyone you work with without having to leave the application. And since Notes also serves as an environment for application sharing on a network, you can use it to easily access and share information across your favorite applications.

If increasing your organization’s productivity is as important to you as we think it is, it’s time to turn to the company that offers you the products that truly exploit the productivity gains found in today’s networked computing environments.

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July viruses: Irritating but relatively harmless

BY JAMES DALY

The crop of viruses scheduled to rear their ugly heads this month will be like mosquitoes at a barbecue — a nuisance and not much more. There are, however, two unusual viruses that may activate this month, according to officials at Fifth Generation Systems, Inc., a Baton Rouge, La.-based developer of desktop and Quick Utilities personal productivity software.

Mendosa is a rare strain of the Jerusalem or Pestervirus. The 13th virus that may strike anytime between July 1 and the end of the year. When activated, it deletes the infected file and all files in the directory with the infected file. It differs from Jerusalem in that it can crop up at any time during the last half of the year.

Another unusual virus is Argentina, a nondestructive virus that infects all .COM files, except COMMAND.COM. It is set to go off Thursday, July 9, when a message appears in Spanish noting the day's importance in Argentina's struggle for independence, according to Fifth Generation officials.

As with all viruses, these dates of occurrence are for general awareness and are not exclusive. Many a skilled programmer can do a little tinkerering under the hood to change a few lines of code and make the virus go off whenever they desire. Experts advise scanning any new disk before using it as well as following the three basic rules of virus protection: backup, backup, backup.

Characteristics of other July viruses that are slated to go off include the following:

- **AH!** — This strain is based on the V1824 virus and infects.COM programs. Symptoms include crashes and a decrease in available memory.
- **Crew 2480** — A nonmemory resident infector of.COM programs that allocates more than 10K bytes in size. It changes the file date and hangs up the system, which then reboots.
- **Day 10** — An infecter of.COM programs. Symptoms include a .COM file growth, file date and time change and hard disk corruption.
- **Alabama** — Remains resident and infects .EXE files only. Moves into memory when any .EXE file containing the virus is executed. One hour after activation, the virus displays this message in a flashing box: "Software Copies Prohibited By International Law and 1955 Tuscambique Alabama USA." It runs routine operation, corrupts programs, any .EXE files and corrupts file linkage.
- **Frere Jacques** — Plays the tune "Frere Jacques" on Fridays; .COM and .EXE files become larger. Available memory may decrease; systems may crash.
- **Pay Day** — .EXE and .COM files become larger. The system may slow down. Files may be deleted on any Friday except Friday the 13th.
- **Flip** — Modifies .COM, .EXE, overlay files and the boot sector and partition tables. When activated, the virus slips the screen 90 degrees. It may also cause damage and corrupt some data files.
- **Frog's Alley** — Corrupts COMMAND.COM and .COM files.
- **Taiwan** — Infects .COM files, including COMMAND.COM.

Security experts suggest using any of a number of scanning software packages in order to detect and eliminate virus infections. These applications are offered by a wide variety of firms, including McAfee Associates, Fifth Generation Systems, Symantec Corp. and Centura Probe Software, Inc. Bulletin board services may also offer free shareware scanning applications.

According to the FGS Virus Watch, the following viruses are expected to hit during the month of July:

### JULY

- **All month:** Got you, Crew 2480, Mendoza
- **Each Monday:** Bad Guy 2, Exterminator
- **Each Tuesday:** Demon, AH!
- **Each Friday:** Alabama, Frere Jacques, Pay Day
- **Skim will hit the last three Fridays of the month.**

#### 2019

- **July 1:** Fly
- **July 2:** Flip
- **July 5:** Frog's Alley
- **July 9:** Taiwan
- **July 13:** Monza
- **July 18:** Form 18
- **July 24:** Form

### IQ Software

<table>
<thead>
<tr>
<th>Software application packages</th>
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<tbody>
<tr>
<td>Hayes Microcomputer Products, Inc. has announced Smartcom for Windows Version 1.0, an asynchronous communications software package for Microsoft Corp. Windows Version 3.0 and 3.1.</td>
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<tr>
<td>Smartcom for Windows supports multiple protocols for file transfers and advanced terminal emulations.</td>
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<tr>
<td>Users can create custom buttons and keyboard macros and configure keyboard layouts to map to a particular system application. A Task/Group Communication Programming Environment feature lets users automate repetitive tasks and create menu-driven interaction with remote systems.</td>
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<tr>
<td>Smartcom for Windows Version 1.0 costs $179.</td>
</tr>
<tr>
<td>Hayes Microcomputer 5835 Peachtree Corners, East Norcross, Ga. 30092 (404) 840-9200</td>
</tr>
<tr>
<td>Metz Software Corp. has announced Version 3.0 of Intelligent Query for MS/DOS. The product is a database-independent report writer and query tool.</td>
</tr>
<tr>
<td>Enhancements in this release include an expanded what-you-see-is-what-you-get screen painter that has definable areas for subheadings and page footers. Users-defined margins and word wrapping are included, and long text fields can be placed in any location. A variety of report output choices have been expanded and matrix cross tabulation reports have been added for users to create spreadsheet-type summary reports.</td>
</tr>
<tr>
<td>IQ Software Corp. has announced three .EXE files. When an infected program is run on the eighth day of any month, the virus will perform an absolute disk write for 160 sectors, starting at logical sector 0 on the C and D drives, overwriting the partition tables, boot sector, file allocation tables and root directories.</td>
</tr>
<tr>
<td>IQ Software Suite 550 3295 River Exchange Drive Norcross, Ga. 30092 (404) 446-8880</td>
</tr>
<tr>
<td><strong>Data storage</strong> Mass Microsystems, Inc. has introduced the FloppiPak 21, a compact 3½-in., 21MB floppy disk drive. The product has the ability to read and write to standard 3¼-in., 1.44MB Apple Computer, Inc. Macintosh and IBM personal computer floppy disks and 3½-in., 720KB floppy disks formatted for IBM PCs and compatibles. Error correction and defect mapping features are incorporated and an optical server pattern on the disk is used for track positioning.</td>
</tr>
<tr>
<td>The FloppiPak 21 costs $699.</td>
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<tr>
<td>Mass Microsystems 810 W. Maude Ave. Sunnyvale, Calif. 94086 (408) 522-1200</td>
</tr>
</tbody>
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XyQuest's Signature 1.02: Friendlier but slower

XyQuest, Inc.'s Signature 1.02 is the long-awaited successor to both XyWrite and IBM's DisplayWrite. It trades in some of XyWrite's speed but retains customization options and adds a friendly interface.

**Performance:** Signature 1.02 features unremarkable speed, reviewers said. Predictably, the graphics editing mode is noticeably slower than the character mode.

**Ease of use:** The what-you-see-is-what-you-get graphics display mode makes the program easier to use.

**Editing:** Significant new features include keystroke macros, warm links to spreadsheet data, programmable mail merge and nine file windows.

**Output:** Bitstream, Inc. Speedo supports IBM's set of 800 display characters.

**Ease of use:** The new menus are organized differently than XyWrite's was, but it's very good. No glaring errors have been brought to our attention.

Vendor background information

XyQuest was founded in 1982 to market the XyWrite word processing package. Signature was developed in conjunction with IBM; XyQuest obtained full rights to Signature in October 1991 and began shipping Signature in November. XyQuest is a private company and does not disclose financial information.

WordStar for DOS 7.0: Good upgrade

**WordStar's WordStar for DOS 7.0**

Vendor background information

WordStar reported net profit of $26,000 on revenue of just under $11 million for the quarter ended March 31, 1992. In the same quarter of 1991, the company lost $2.7 million on $10.1 million in revenue. According to the company, 51% of WordStar's revenue comes from sales outside the U.S.
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It's curious what passes for interoperable computer systems these days.

Lately, many computer makers are claiming, "Our systems are open." But their customers are asking, "Open to what? Your computer environment? Or ours?"

The point is well taken. Because computers should work with systems already in place, the customer's existing investment. And with systems yet to come, the customer's future investment. It's a big assignment—interoperability, enabling information to move freely across different computer environments.

Permit us to suggest a simple test. Ask your computer providers if their commitment to interoperability extends to a few of their offerings—or all of them. Ask if their commitment ends with UNIX® and PC operating systems—or anchors their systems architecture and corporate strategy. Total interoperability does not yet exist. But a total commitment to interoperability puts Unisys at the head of the industry—and gives our customers a head up on the competition.

Perhaps you hadn't realized that Unisys is a pioneer at delivering information solutions over open information networks. And among the first to appreciate that open systems are only one stop on the drive to interoperability.

"No supplier is doing more to respond to its customers' requirements for interoperability across an entire product line than Unisys," reports the Aberdeen Group. We've brought the benefits of interoperability to customers such as The Limited, the State of Ohio, Banque Bruxelles Lambert, and more.

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*This article has been published in various publications and includes references to industry publications and tests performed by independent third parties. Results may vary depending on the specific configuration and software version used. For the most accurate performance information, please refer to the official Microsoft documentation.*
CBIS makes Notes key element of IS strategy

BY ROSEMARY HAMILTON
CW STAFF

MAYTLAND, Fla. — Cincinnati Bell Information Systems, Inc. (CBIS) is extending its use of Lotus Development Corp.'s Notes groupware software to make it a key piece of the CBIS information systems strategy.

In one year, the company has increased its number of users from 700 to 1200 and recently added Lotus' imaging software to the Notes platform, which Lotus officially announced earlier this month. CBIS is now making plans to link several applications, such as financial reports, to Notes so users can work with them from within the Notes environment.

"We are starting to build a big infrastructure based on Notes," said Greg Buchanan, director of development at CBIS, which first installed Notes in April 1991.

While CBIS is developing various kinds of applications on the Notes platform, the overall purpose of the groupware software is to boost communications between basic electronic mail, Buchanan said.

CBIS, which operates as a subsidiary of Cincinnati Bell and provides integration and IS services, is using Notes in sales, marketing and development. In each case, the key objective is better staff interaction.

For example, the sales and marketing group uses Notes for account management and account tracking. "It was difficult before, being as spread out as we are," Buchanan said. "It was hard to have multiple people review a proposal. We had to burn out faxes or store it out on the LAN and pull it in files."

The Notes applications allow sales and marketing staff members to work on proposals by participating in an electronic meeting of sorts by accessing documentation and adding comments.

The latest CBIS step was the addition of Lotus Notes: Document Imaging, a companion product to Notes that Lotus co-developed with Eastman Kodak Co. and officially announced earlier this month. The software, which CBIS beta-tested, allows users to start up an imaging application from within Notes, including managing and storing images within the groupware environment.

CBIS plans to use the software to better handle client information by putting large chunks of documentation online.

Looking ahead, Buchanan said, the company is hoping to link some applications with the Notes platform. While Lotus is working on group-enabling applications such as 1-2-3, Buchanan said there is no plan to work directly with Lotus on its own integration plan.

Fulcrum releases Ful/Text Version 6 retrieval engine

BY CHRISTOPHER LINQUIST
CW STAFF

Fulcrum releases Ful/Text Version 6 retrieval engine

"Intuitive searching."

The Ful/Text Version 6 retrieval engine allows users to perform searches in the standard ways — such as Boolean and wild cards — but also allows a user to define a segment of text and say, "Find me more documents like this one."

The engine automatically eliminates common words and assigns "weights" to other words based on their frequency in the text sample vs. their average frequency in all documents. Searches can be performed in a much more abstract manner and can be built quickly by simply pointing and clicking with a mouse. Thus users do not need complex search commands.

The Ful/Text engine is sold without a user interface. Customers are supplied with a developer's kit that allows them to either attach Ful/Text to existing applications or develop new applications around it.

Ful/Text Version 6 is currently available for Sun Microsystems, Inc.'s Scalable Processor Architecture platform. Versions for Microsoft Corp.'s Windows, IBM's OS/2, Apple's Macintosh and other Unix platforms are slated to be available later this year, according to the company.

Pricing for Ful/Text ranges from $5,000 to $50,000.

Much ado about source code

USL's "Destiny" 4.2 leaves USL's bigger customers cold

BY MARYFRAN JOHNSON
CW STAFF

Summit, N.J. — The boisterous debut of Unix System Laboratories, Inc.'s (USL) trimmed-down desktop operating system — Unix System V, Release 4.2 — landed like a lead balloon on some of USL's biggest customers.

"We're trying to tell people that we are already shipping a production-quality product that meets the standards everyone is talking about," said Bill Larson, vice president of marketing at Sunsoft, Inc., the Sun subsidiary in charge of system software.

Another Unix competitor, Sun Microsystems, Inc., also looked on the recent USL hooplas as much ado about source code. USL sells its System V Unix code to system and software vendors who use it as a technology base on which to build their own products.

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Continued on page 64

By the end of this week Computerworld readers will have spent over $40.5 Billion on Information Technology this year — representing nearly half of all IT spending to date in 1992.

Source: IDC Research Services, Fall 1992

JUNE 29, 1992

COMPUTERWORLD

61
What you need today is

Somehow the word “foreign” seems foreign these days. The world is smaller, so people are thinking bigger, beyond borders.

Yet cultures will always be different, and that’s the paradox of international business—the need to be global and local at the same time.

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an international business machine.

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We can also help you communicate, whether you have your own global network or hook into ours. The IBM Information Network makes it easier to connect more than 90 countries for electronic mail, EDI and more. You can even pay in one currency.

To learn more, call our International Marketing Information Desk at 1 800 IBM-1774.
There is much ado about source code

CONTINUED FROM PAGE 61

about," said Doug Michels, executive vice president at SCO. His SCO Unix is based on an early System V Unix version.

Yet there is no arguing that the rules of the Unix game are changing under USL President Rod Pieper.

"Undoubtedly USL is going head-to-head with SCO and with Solaris," said Rikki Kirzner, an analyst at Dataquest, Inc. in San Jose, Calif. But she and other analysts agreed that USL's biggest target is Microsoft Corp. and its dominance of Unix-based hardware.

There are already more than 6,000 Unix applications that will reportedly run under Release 4.2 on Intel platforms — primarily those written to System V Release 4, SCO Unix, SunOS or the Berkeley Software Distribution Unix derivative. Some applications may need a recompile, but many will run unmodified, according to USL. By year's end, USL plans to have Release 4.2 running on Mips Computer Systems, Inc.'s and Sun's Scalable Processor Architecture platforms as well.

"We are on a very aggressive path to see that Unix is a competitive threat against Microsoft on all hardware platforms," Pieper said last week. "What we have added is a binary master of the product, which allows clone manufacturers, even Unix itself, to turn up with middleware into a product overnight."

If that means ruffling some feathers at Sun, then so be it. "There are many high-level agreements in place between USL and Sunsoft to ensure compatibility for each company's Unix implementations (see story at right)." We are doing things for the good of Unix, and those things are, unfortunately, not in all cases for the good of Sun," Pieper acknowledged.

While the Unix wars may have arrived at an armistice, some political hostilities linger. Peiper said Sun is particularly annoyed by USL's support of the Open Software Foundation's (OSF) Motif graphical user interface, Distributed Computing Environment and Distributed Management Environment technologies.

In the works

Still, those OSF technologies are important to companies such as IBM and Hewlett-Packard, Co., and HP is reportedly negotiating with USL to determine what role Unix will play in its own systems future. Even Digital Equipment Corp., which has chosen the OSF/1 kernel as its strategic Unix, is planning to put its Network Application Support services on USL's System V Release 4.2 Unix.

We are having very serious discussions [with HP and other vendors], but I cannot talk about them," Pieper said this week. "The fundamental change here is that USL is getting into a position that allows these discussions . . . to take place."

By this time next year, USL and OSF are expected to have a high level of compatibility in place for the "middleware" level above their respective operating systems. "That will allow SVR4 to support OSF/1-compatible applications," Peiper noted.

IN BRIEF

SQL group completes platform

The SQL Access Group recently completed the Phase II Technical Specification, which includes a Call-Level Interface standard and Transmission Control Protocol/Internet Protocol network support. With this work done, the group said it now has a platform that will allow basic heterogeneous interoperation for client/server computing.

Lotus Development Corp. recently provided the Chicago Kent College of Law, with the Lotus software at its Conference for Law School Computing Professionals earlier this month to maintain information and communications on conference proceedings.

Citrix Systems, Inc. signed a deal with Microsoft Corp. for a strategic alliance that calls for the two companies to "cooperate on technological and marketing initiatives for advanced operating systems," Microsoft said it expects Citrix to play a key role in providing multilayer and network extension capabilities to future Citrix products. Citrix sells a multilayer version of IBM's OS/2. Company founder Edward Jacobucci was part of the original OS/2 design team.

IXI Corp., a Cambridge, England, launched its DesktopWorks 1.0 last week as a suite of tightly integrated productivity applications for users of Sun Microsystems, Inc. workstations running the Open Software Foundation's Motif graphical user interface. The groupware application includes productivity tools for users of IXI's X-desktop, which, according to X Business Group, has 64% of the third-party desktop manager market. DesktopWorks is priced from $750 to $1,160, depending on the number of users.

Nomura buys back office automation

BY THOMAS HOFFMAN

NEW YORK — Nomura Securities International, the New York-based brokerage firm, has contracted with The Davidsohn Group, a New York consultancy, to install its Autocage and Auto- bank Pledge software systems to help the brokerage automate several of its back-office operations. The size of the contract was not disclosed.

According to George David- sohn, president and chief execu- tive officer of the consultancy, Autocage is a Unix-based soft- ware system that Nomura will use to receive and deliver vari- ous securities functions between different brokers and trading firms.

Davidsohn said Autocage handles many settlements on securities and "ages" securities to the date when the security issue- use was due to be settled. In ad- dition, the system tracks divi- dends payments for corporations and due bills and accommodates other transactions between bro- kergagers and The Depository Trust Corp., Wall Street's larg- est clearinghouse for securities.

Executives at Nomura de- clined to comment on the con- tract, but Davidsohn said the company will use Autocage on Compaq Computer Corp. per- sonal computers strung together over an Ethernet local-area net- work running the Transmission Control Protocol/Internet Pro- tocol.

similar system

Under the terms of the contract, The Davidsohn Group will pro- vide three years of maintenance on the software, including annual software upgrades. Davidsohn said New York brokerage Mor- gan Stanley Group, Inc. is using a similar system, which his compa- ny developed, and that has enabled Morgan Stanley to reduce its back-office staff while elimi- nating many of the errors caused by the prior manual operations of these functions.

Autobank Pledge, also a Unix- based system, was developed to enable brokers to settle daily monetary transactions such as pledging securities of equal value against loans borrowed from banks. Autobank Pledge also provides a daily list of securities for brokerage to pledge to lend- ing banks; it is available with dai- ly updates.

NEW PRODUCTS

Local-area network software

District Corp. has started ship- ping a fully integrated Transmission Control Protocol/Internet Protocol (TCP/IP) solution for Microsoft Corp.'s Windows.

District FTP allows users to transfer ASCII and binary files over local- and wide-area net- works by tagging the files or en-ABIs and directory services.

Entry-level configuration prices for AlisaMail Version 4.0 begin at $10,000, according to the company.

Alisa Systems, Inc. offers a remote access server (RAS) for a number of personal computer local-area network-based E-mail systems that can be seamlessly connected to other standard E-mail systems. AlisaMail 4.0 also allows a PC user to send an E-mail message directly to an Apple Computer, Inc. Macintosh or Digital Equipment Corp. VAX user without knowing more than the person's name.

Electronic mail

Alisa Systems, Inc. has released AlisaMail 4.0, an enhancement to the company's electronic-mail integration and directory services product.

Version 4.0 supports a number of personal computer local- area network-based E-mail systems that can be seamlessly connected to other standard E-mail systems. AlisaMail 4.0 also allows a PC user to send an E-mail message directly to an Apple Computer, Inc. Macintosh or Digital Equipment Corp. VAX user without knowing more than the person's name.

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231 E. Walnut St.

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JUNE 29, 1992
Stanford navigates client/server project at Cali.

**Budgetary constraints spur experimentation**

BY JOANIE M. WEXLER
CW STAFF

PALO ALTO, Calif. — Stanford University is testing the client/server waters with several imaging applications campuswide.

The year-old project is aimed at speeding up and enriching the value of systems in the human resources, fund-raising, travel and reimbursement and other departmental operations — as well as reducing costs in physical storage space, explained Cedric S. Bennett, director of the university's application support center.

New York-based Image Business Systems Corp.'s ImageSys software, running on IBM RISC System/6000 servers, is at the heart of the university's neophyte imaging pilot. A mix of Unix, Apple Computer, Inc. Macintosh and Microsoft Corp. Windows clients spans 300 departments.

**Forced creativity**

Bennett said Stanford's budgetary constraints have spurred experimentation with imaging technology. For example, the human resources department wanted to hasten the transmission of clerical job applicant information onto different applications aimed at speeding up processes, enriching the user experience.

Bennett said the university is "very competitive in the [Silicon Valley]," Bennett explained.

Scanned-in resumes can now be faxed directly from the Image/Stations to departments requesting them rather than being hunted for and delivered manually. The changed procedure has reduced department head count by three staffers. Other applications include scanning travel receipts to speed up the reimbursement process and creating electronic files of correspondence, newspaper clippings and other information about charitable donors to enhance the fund-raising process.

Bennett said the university is easying into client/server with nontransaction processing-oriented applications largely because "we think the client/server development tools are not robust enough for the dimension of complexity added by on-line transaction processing."

**Powering up campuswide**

However, the multyear client/server migration "will eventually touch many areas of the university," Bennett said, adding that downsizing is "more about interoperability and empowering desktops into "enterprises" than it is about hardware costs, which he estimated accounts for just 10% to 15% of overall computing expenses.

The client/server experience has taught the information services department about a few lessons about network bottlenecks (see story at right) and the domino effect of running distributed applications that rely on multiple computing resources.

"There are an incredible number of pieces and parts involved in centralized, conventional computing to distributed client/server computing," Bennett said. "If any one of them doesn't work right, the whole thing fails."

The questionnaire is a message to vendors that the user council "wants open, interoperable network management systems," said Don Golden, a systems management program manager at Shell and a member of the council.

Fasten your seat belts

AT&T, IBM and Digital Equipment Corp. all indicated that, while they are in the process of implementing Network Management Forum specifications, they would significantly speed up their efforts if a group of power users demanded OmniPoint-compliant products.

"We currently have no announcement to ship products based on the CMIP structure because of a general lack of demand in the marketplace," one council member said. "We are all working on the process of internal marketing within our companies," Golden said. "I want to get OmniPoint compliance into our procurement direction, but I have work to do to sell that to management."

"One reason for the questionnaire and scorecard is to test the waters — find out what vendors are committed. We need to get a critical mass of both users and vendors," said Ron Scott, a council member and section

**Imaging data threatens net response time**

BY JOANIE M. WEXLER
CW STAFF

PALO ALTO, Calif. — A feet-wetting client/server project at Stanford University has triggered some network congestion repercussions that currently can be handled only by overengineering the network.

Bill Yundt, Stanford's director of networking and communications, explained that an imaging pilot aimed at speeding up the campuswide flow of clerical job applicant data (see story at right) "caused some latency problems, principally due to lots of traffic impinging on a particular router."

Stanford runs a 200-Ethernet internetwork tied together by a 100-Mbit/sec backbone and as individual local-area network segments. It has upgraded to a 1-Gbit/sec Fiber Distributed Data Interface (FDDI) backbone based on 11 Digital Equipment Corp. dual-attached concentrators.

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**Vendors pressured to comply with OmniPoint**

BY ELISABETH BOWWITT
CW STAFF

The Network Management Forum User Council — a group of heavy hitters that includes Shell Oil Co., Motorola, Inc., Du Pont Co. and DHL Systems, Inc. — is pressuring vendors to comply with certain network management standards by publishing a scorecard that rates vendors on their compliance.

The standards targeted for implementation by the users are embodied in OmniPoint, a set of specifications that have been jointly defined by the forum's 100-plus vendor members. The goal is to get vendors to agree on a common set of standards.

Phase 1 of the OmniPoint program, due out in August, combines the Open Systems Interconnect (OSI) Common Management Information Protocol (CMIP) with application programming interfaces from the Open Software Foundation's Distributed Management Environment (DME).

Two weeks ago, the forum's user council announced that it had sent a survey to 100 vendors asking them to spell out their OmniPoint commitment.

Concentrators link multiple nodes to the FDDI backbone to reduce the number of directly attached devices. This protects the backbone from segmentation should devices fail.

The university then reconfigured the network with an extra Ethernet to reduce the number of hops between server and client endpoints.

Some router companies, such as Advanced Computer Communications in Cupertino, Calif., have been outfitting their inter-
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**Bidirectional network management costs big**

**Implementing IBM/AT&T accord set at $90K**

**BY ELLIS BOOKER**

Next fall, users will be able to manage their physical network devices via IBM’s NetView or, conversely, manage their IBM Systems Network Architecture (SNA) costs query AT&T’s Accumaster Integrator. However, the software to provide this bidirectional information flow costs upward of $90,000—not including the network management systems themselves (see story at right).

IBM and AT&T’s recent disclosure of bidirectional network management capability [CW, June 22] is the fruition of a cooperation agreement announced in March 1991. It targets users who own both the management of their private and carrier-based network installations with that of their IBM networks.

For example, when NetView operators discover that several dozen users have just lost their SNA sessions, they can quickly query Accumaster as to whether the problem is with a physical network device or carrier link. Conversely, the network control center may use Accumaster to find out the origin of a sudden burst of SNA traffic that is clogging the ports on a multiplexer.

In addition, the two systems can update each other’s configuration databases, enabling information systems and telecommunications departments to maintain more accurate and consistent network information for inventory and change management purposes, AT&T said.

Indeed, the integration of the two network management systems go beyond IBM and AT&T devices, since both vendors have broadened their respective products’ multi-vendor capability over the years. A variety of third-party network device vendors now send alerts to Accumaster or to NetView. In addition, IBM’s system can manage local-area networks through IBM products, such as NetView/6000 and LAN Network Manager.

The question is whether corporations will find the additional integration worth the price of the additional software. Blue Cross/Blue Shield, for example, currently uses Timeplex, Inc.’s TimeView in concert with NetView to provide integrated management of its SNA and telecommunications networks, according to Robert Schultz, a senior consultant at the health insurance firm. Timeplex has provided a way for its network management systems to manage alerts to NetView for over a year.

While the current products “satisfy our needs nicely” for the moment, Blue Cross/Blue Shield will soon start evaluating whether it will need new or additional network management products as its interconnected LAN infrastructure is extended, Schultz said, adding that AT&T’s Accumaster will be seriously considered by the company, which uses AT&T digital service units and leased lines.

“However, we ‘need to do a thorough cost-benefit analysis’ before committing to anything, Schultz said.

In order to implement full, bidirectional flow of management information between current installations such as Accumaster, users must purchase two software packages from each vendor or upgrade to new releases of AT&T’s Accumaster and SNA Management Application. The total cost from the IBM side is $65,000, the cost of upgrading the AT&T side, for users who already have the previous release of Accumaster but no SNA Management Application, is $90,000.

**National ISDN demonstration gets mixed reaction**

**BY ELLIS BOOKER**

CHICAGO — A symbolic “Golden Spike” long ago interconnected the nation’s railroads and made the dream of transcontinental rail travel a reality. This fall, the nation’s telecommunications carriers and equipment vendors hope to make history with what is being billed as the “The Golden Splice.”

Officially known as Transcontinental ISDN Project 1992, or Trip ’92, the weeklong event will show real-world applications and connectivity of Integrated Services Digital Network (ISDN-1), an interoperable ISDN interface standard adopted last February by the industry’s three largest switch manufacturers — AT&T, Northern Telecom, Inc. and Siemens Stromberg-Carlson.

Trip ’92 will involve some 65 operators showcasing 21 ISDN applications at 115 locations in the U.S. and at international sites. Details of Trip ’92 were presented here two weeks ago at the Supercomm ’92 trade show.

More broadly, however, Trip ’92, organized by the ISDN Users Corp. for Open Systems International, the North American ISDN User Forum and the National Institute of Standards and Technology (NIST) — said the event would be a landmark for showing that ISDN is real and capable of answering user needs.

“Users who jumped into ISDN a long time ago are going to take a wait-and-see approach,” said Kenneth Zoline, president of Kenneth O. Zoline & Associates, a network systems consultancy in Chicago.

Even carrier representatives acknowledged that ISDN has taken longer to deliver than hoped.

“Birthing these things is a lot harder than it looks,” a BellSouth Corp. executive said recently. Nevertheless, he said the country was on the “eve of volume deployment,” pointing to Trip ’92 as indicative of the trend.

Jeffrey N. Fritz, telecommunications engineer at the University of West Virginia in Morgantown and a Trip ’92 participant, described the event as among the more significant things to happen to communications. “It signals national ISDN connectivity in North America,” he said.

Since 1989, the university has had ISDN services supplied by C&P Telephone of West Virginia and currently has approximately 400 voice and data users on ISDN Basic Rate Interface (BRI) lines. An ISDN BRI contains two 64K-bit/sec. “B” channels and one 16K-bit/sec. signaling channel.

Within the next six to nine months I think we could have 2,000 to 3,000 ISDN users on campus,” Fritz predicted, noting that the cost of ISDN customer premise equipment is plummeting. But according to Zoline, the connectivity being demonstrated by Trip ’92 is only a beginning.

“ISDN—1 works in terms of the link-level transmission,” he said. “We need to develop a whole set of standards for applications — like NetBIOS in the LAN area.”

Other observers said the educational Trip ’92 demonstration will act as a seed for a future, commercial national ISDN network. Another potential benefit, a Trip ’92 participant pointed to the publication of a 200-page Trip ’92 atlas detailing the location and type of ISDN demonstrations and the equipment and service provider for each component of the test.
There are two places where complex network integration problems can be worked out.
As surprising as it may seem, there are many clone companies that boost profit margins by not hiring enough designers and doing dangerously little testing. What does it all mean? It means that your network is the unofficial test site for their server.

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In fact, in a recent survey, the readers of LAN Times selected COMPAQ 386- and 486-based file servers over all others—including IBM, Northgate, Dell and AST—for the second year in a row.

Becoming this good requires rigorous network testing for months. This process—which we believe has no equal in the entire PC server industry—is referred to affectionately as "The Meat Grinder."
Virtually every conceivable kind of test is run using literally hundreds of different applications, configurations and cards. Running on the world's four most popular network operating systems. But to be perfectly honest, not all development and testing takes place at our place. Because the engineers at Novell, SCO, Microsoft and Banyan—unfortunately, those engineers were unable to make it to the above photo session.

Nor could the specialists who created the COMPAQ Toolkits and TechNotes—the industry's most sought-after guides for multi-vendor network integration.

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Software leasing catching on

But progress is slow; customer ignorance, few vendor incentives cited

**ANALYSIS**

BY JOHANNA AMBROGIO
CW STAFF

Software leasing, after a long incubation period, is finally starting to make some headway into large corporations as an alternative financing scheme.

A practice that has been around since the mid-1800s, software leasing essentially allows a customer to purchase big-ticket software by borrowing money from a third-party lessor (CW, Sept. 3, 1990).

By some measures, including the growth in the number of customers and software vendors that are using the practice, software leasing is becoming a more accepted means of funding software purchases. The big reason is the leasing market, which has made this option more attractive to both users and software vendors alike.

According to customers, leasing allows them to use money other than operating capital to purchase software, and it also allows them to end-run corporate purchase software only.

Software leasing is becoming a more accepted means of funding software purchases.

Not 100% successful

Nevertheless, it is still too early to characterize the concept as an all-out success. Problems have included a lack of awareness among customers that this option is available and, until very recently, not enough incentive for software vendors to offer it.

"It's growing and things are happening, but the real significant impact will be two or three years down the road," said Marc Carpenter, president of Software Lease Finance Group in Sacramento, Calif. The firm is a leasing outfit that works with banks to fund users' large software purchases.

Although figures about the total software leasing industry are not available, early signs are encouraging, participants said.

Howard Smith, president of Software Leasing Corp. in Beverly Hills, Calif., said his company's revenue grew by 300% last year, and he expects the same to continue this year, and he expects the same to happen this year. Carpenter said his firm has likely doubled its revenue this year.

Other players include Meridian Software Funding, a division of Meridian Leasing Corp. in Deerfield, Ill.; and IBM Credit Corp., which, a spokesman said, will arrange leasing for IBM software only.

New vendors are looking to enter the fray. The CIT Group in Livingston, N.J., which has funded hardware leases but has not traditionally funded software-only deals, will decide the question soon, said Madeline Bayliss-Aikin, senior vice president of national accounts.

Healthy client base

Another indicator is the number of customers using the practice. Smith said his company has more than 100 end-user clients, including Wells Fargo, The New York Times Co. and Citibank.

Another customer, who did not want to be named, said, "It gives me flexibility around the clock." Smith also said he has been getting more calls from large corporations that have never before used software leasing, including an insurance concern and a consumer electronics company.

Texaco finds black gold

with virtual data server

Custom-built server allows consistent data access

ON SITE

BY JEAN S. BOZMAN
CW STAFF

SAN JOSE, Calif. — What if you were surrounded by row after row of rotating disk drives holding transaction data — and had no way to quickly locate any particular piece of that data for decision-support applications?

That was the challenge facing Texaco, Inc. two years ago, when a small team of data managers from the oil giant's Houston-based Scientific Systems Management (SSM) group wanted to build a consistent data-access method. The scientists from oil exploration teams was stored separately from the data used by Texaco's engineering groups.

That problem was solved by creating a unique, custom-built server that combines off-the-shelf database software with homgrown gateways.

"We wanted to track all data from an oil field, from the time it was discovered until the time it came to close the field up," Tom Peters, manager of the nine-person SSM data group, said at a recent Sybase, Inc. user group meeting. "We wanted seamless access to multiple databases [and needed] a tool that could be used by applications to access data throughout Texaco.""Texaco used a Sybase SQL Server relational database running on a Unix-based Sun Micro-systems, Inc. Sun 670 server as the basis for its virtual server. The two-processor server has 128M bytes of main memory and 9.3G bytes of storage memory; it is slated to be upgraded to

"virtual data server" (VDS) that combines off-the-shelf database software with homgrown gateways.

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** Texaco's virtual server **

The Sybase SQL server was at the oil company helps client applications track down data dispersed across a variety of options.

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** Texaco finds black gold with virtual data server **

"virtual data server" (VDS) that combines off-the-shelf database software with homgrown gateways.

Custom-built server allows consistent data access
Leasing

Continued from Page 73

approved budget, get the software I need quickly and speed up the whole process," Sterling said. "That's not changing. From 1987 to 1989, Smith said, his company worked with only one vendor—Management Science American Corp., which Smith used to work. Now Software Leasing represents more than 30 software houses, including Candle Corp., BMC Software, Inc. and Sterling Software, Inc.

"I basically go to the software company and show their sales force how to use this as a tool to close sales," Smith said.

Imaging cures hospital's paper woes

Memorial Sloan-Kettering saving more than $140K/year with a healthy dose of document imaging

BY THOMAS HOFFMAN

NEW YORK — Memorial Sloan-Kettering Cancer Center (MSK) is renowned as the world's largest and most sophisticated treatment facility, but its pioneering use of document imaging systems has also led the hospital to the forefront as one of the top information technology users in the health care industry. MSK saw the need to deploy document imaging systems as far back as 1988, when the hospital was being overrun with administrative paperwork, documents that contains more than 18,000 patients each year, processes more than 1 million pages of medical claims, bills and other administrative paperwork annually. Strategic edge

In addition to reducing the amount of administrative paperwork handled here, the 565-bed hospital's imaging system will eventually process the facility's 7.2 million pages of medical records each year. "We saw imaging as a strategic technology for the future," said John S. McBride, director of patient accounts, who oversaw the imaging project.

One of the challenges MSK faced with designing the project was the never-ending growth of the hospital. No other hospital had installed an imaging system to process patient bills or any other administrative functions. So in early 1988, McBride and his staff turned to banks and insurance companies to see how they were using imaging systems to unclog the paper bottlenecks in their industries. "The philosophy at campuses, controlled and secured access to the system and an interface to current systems at MSK and at the hospital's Lyndhurst, N.J., data center. After nine months of deliberation, a two-year option for a FileNet Corp. solution.

The system — made up of a FileNet Optical Scanning and Retrieval (OSAR) GT-90 jukebox housing 90 12-inch optical discs (with 32 active discs), 44 clustered FileNet Unix workstations, three FileNet OSAR servers, and a Laser Disc Optical Output (COLD) device — was first used to scan and retrieve patient records from Medicare, Blue Cross/Blue Shield and other commercial insurers, as well as inpatient and outpatient payment records.

The system, phased in over a two-year period beginning October 1989, sends and retrieves information from transac- tive offices in Manhattan and the Lyndhurst data center using the COLD system, with backing up by an Ethernet fiber-optic link. American Management Systems, Inc., a Vienna, Va., based systems integrator, developed the retrieval and routing module for MSK, according to McBride.

McBride said the imaging system enables MSK administration to "see the entire patient picture in a more timely manner. Prior to the FileNet system, MSK stored its own patient bills on microfilm, while microfilm was used to store third-party insurance patient bills. It often took 24 hours or longer for a user to access a document. Accessing the imaging system, bills can now be queued up and print- ed within 30 seconds.

Productivity gains

All mail sent to the hospital for patient accounts now comes into a central mail area, where it is scanned and indexed into the FileNet system at Lyndhurst. The system then sends and retrieves infor- mation to MSK's headquarters and insurance companies. McBride said the hospital is saving $85,000 per year in media costs since associated with the paper and microfiche copying that have since been eliminated, $55,000 annually in microfilm costs and 2,000 sq ft of floor space once occupied by file cabinets housing 90,000 file folders. McBride also eliminated 11 staff positions supporting file library functions for paper and microfiche.

The system pays for itself in 22 months, according to McBride.

Now that all of its patient ac- count documents are image- based, MSK is in the process of imaging-enable its medical records. So far, 2.2 million pages of medical records are image- based.

Next month, MSK will deploy a signature verification system that will allow insurance carrier to-patient refund checks to be processed overnight.

CA to port to HP/UX

BY MARK HALPER

PALO ALTO, Calif. — Computer Associates International, Inc. said it is planning to release a large number of its Unix-based CA-ADS and CA-Ideals fourth-generation languages for those two programs and its Masterpiece financial accounting programs over the HP/UX operating system.

The move marks the first time CA will have made any of its programs available on a Unix platform. Ports to other Unix plat- forms are planned.

CA is porting its CA-IDS and CA-Datacom database programs, the CA-ADS and CA-Ideals fourth-generation languages for those two programs and its Masterpiece financial accounting programs over the HP/UX operating system.
Class libraries ease development

BY GARRY RAY
CW STAFF

As developers move toward object-oriented programming, they are increasingly turning to prepackaged class libraries to reduce programming efforts and to hedge against today's growing number of platform alternatives. However, developers and vendors both agree that their concerns about class library standards and compatibility have yet to be addressed.

Class libraries — which are popularly represented by products such as Borland International's, Inc.'s Application Framework and Microsoft Corp.'s Foundation Classes — typically include a set of skeletal functions around which larger C language programs can be built. Alternately, class libraries can be specific to a discipline, such as actuarial or quantum physics, or to a particular set of functions, such as SQL database access or high-resolution graphics. No matter what the domain of the library, it provides a set of generic building blocks that can be used to create or enhance an application being written in C++. The benefit of these libraries is substantial, according to users and programming consultants.

Pros and cons of class libraries

Benefits

- Prepackaged application functions such as generic menus and screens reduce development time.
- Multiphotoform class libraries make it easy to port applications.
- Current absence of class library standards makes it difficult to merge libraries from different vendors.
- Writing applications to a particular class library effectively wed the developer to that library.

Problems

- Citing a proprietary class library that reduced the development effort by more than 70%, Anchorage, Alaska-based developer and consultant Nancy Nicholson said, "Real people have a real opportunity to whisk the heck out of a development budget that nobody likes in the first place."

However, such benefits are not free, according to David Baillie, vice president of optical testing firm Phase Shift Technology, Inc. in Tucson, Ariz. "It's not magic, and you still have to do the [development] work," he said.

Easel expands product line; updates Workbench

BY GARRY RAY
CW STAFF

BOSTON — The client/server tools war heated up recently as Easel Corp. unveiled a slew of partnerships, strategies and products at its annual user conference. The announcements add a number of new database capabilities to the company’s flagship Easel Workbench, a client/server application development tool.

Most prominently, the company added Easel hooks to a variety of SQL databases and a module that provides transaction processing to Easel applications.

Variety of improvements

Burlington, Mass.-based Easel’s Transaction Server Toolkit provides static SQL and Oracle Corp.’s OS/2 Database Manager. Static SQL programs are executed on a database transaction server, reducing network traffic and improving overall execution of client applications, according to Easel officials. Access to other IBM databases, including DB2, SQL/DS and SQL/440, is available in conjunction with IBM’s Distributed Database Connection Services/2, according to the company.

Easel officials said the tool will be included with the already shipping $11,900 Easel Workbench beginning in September. Easel applications will also gain access to an array of database bases with the EDA/SQI Option, company officials said. The $995 tool, slated to be delivered in September, works with New York-based Information Builders, Inc.’s EDA/Link software to provide access to more than 40 databases, according to the company.

Supported databases include Oracle Corp.’s Oracle; IBM's DB2, SQL/DS and SQL/440; and Digital Equipment Corp.’s Ultron/SQL.

Also announced were 11 partnerships with systems integrators and software companies, including Oracle, Microsoft Corp., Sybase, Inc., Information Builders, Technomon, Inc. and Bachman Information Systems, Inc.

The partnerships were said to illustrate growing support for Easel in the vendor community. "All of these things indicate that Easel has an awareness that what they had before was not enough" to contend with previously mounting criticism of the company’s product line, said Andrew Mahon, a senior analyst at New Science Associates, Inc., a technology consulting firm in Westport, Conn.

The announcements “show that there will be an upward path” to the ongoing trend toward client/server computing, Mahon said.

Netron ships graphical PC tools

BY KIM S. NASH
CW STAFF

TORONTO — Netron, Inc. is now shipping two personal computer-based development tools designed to help programmers build full-blown graphical PC applications.

The tools were unveiled at a Netron user conference held here two weeks ago. A joint marketing agreement with IBM Canada was also announced.

The company, whose primary product family is Netron/Cap, a line of PC-based graphical application builders, said the new development tools are aimed at creating “switch portability” between IBM’s OS/2 Presentation Manager (PM) and Microsoft Windows Applications.

Netron/Client for Windows and Netron/Client for PM, which generate Cobol code, were designed to enable users to Continued on page 76

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Borland to market tools

SCOTTS VALLEY, Calif. — In August, Borland International, Inc. will begin marketing under its own name two development tools — Brief and Sourcerer's Apprentice — that it acquired recently from a New England software house.

While Borland plans to continue to develop the two lines for future stand-alone releases, it also plans to embed at least some features of both programs into its Integrated Development Environment, said David Intersimone, director of developer relations for Borland's Languages Business Unit.

However, Borland has not decided whether to offer dBrief, a version of Brief tailored for use by database developers. Intersimone said Borland's Applications Business Unit will make that decision.

Borland completed its acquisition of Brief, a programmer's editor; Sourcerer's Apprentice, a version control program; and dBrief from Hingham, Mass.-based Software Developer's Co. (SDC), late last month for $6.7 million.

Borland will offer Brief and Sourcerer's Apprentice at the same prices charged by SDC, starting Aug. 1. It will price multi-user versions of Brief for DOS or IBM's OS/2 at $249, and multi-user versions of Sourcerer's Apprentice at $499.

Future-proof

CONTINUED FROM PAGE 75

applying layered concepts to typical enterprise applications, each layer then only needs to know about and communicate with adjacent program layers. This revolutionary approach dramatically simplifies application porting to multiple platforms.

The key to implementing a layered architecture is to break the application into discrete modules or blocks. Each block carries out a particular physical function unique to that block, such as user interface, data management, network function or applications function. Each discrete block is then encapsulated by specifically defining how the blocks will interface with each other.

Most significantly for developers, any one of the blocks can be changed or even replaced without changing the rest of the application.

In contrast to mainframe applications, where scores of programmers took two to three years to port applications from one platform to another, so-called future-proof architecture allows developers to move to new platforms with minimum effort.

There are many benefits because multiple versions of the application will be available in a timely manner and will be synchronized with each other. This means that a large multisite organization that chooses to run popular but different platforms at various locations can work with the identical set of application software in each location.

Equally important, as new platforms, such as object-oriented databases, come to market, future-proofed applications can be ported to the new platform by changing only the DBMS block — the others remain intact and unaffected.

Although the benefits of future-proofing software are numerous and obvious, a major investment of resources is required because there is no way to evolve old mainframe applications to this type of architecture.

Noted technology consultant George Stobart, president of Digital Consulting, says, "For maximum advantage from the added power, functionality and richness of downsized client/server approaches, you'll need to trash your old applications and rebuild them from scratch."

This is why future-proofed, object-oriented application packages are mostly coming from newer software vendors that have little stake in old applications and maintenance revenue.

The New Development tools are aimed at creating "switch portability" between IBM's OS/2 Presentation Manager and Microsoft Corp. Windows applications.

D&B Canada plans to expand its use of the Netron products to revamp on-line credit reporting systems at customer sites next year.

The Netron/Client products, which are priced at $9,000 per copy for new users, were originally announced three months ago and have begun shipping in volume [CW, March 9].

Meanwhile, a marketing pact with IBM Canada calls for IBM to market and take orders for Netron/Cpp for AIX and related support services.

The product generates native Cobol for IBM's RISC System/6000 workstations and servers. Netron will service and support graphical user interface builders sold by IBM.

Other plans outlined by Netron at the user conference included Netron/Client for OSF/Motif and for Digital Equipment Corp.'s Alpha.

Netron ships graphical PC-based tools

the same specifications to build equivalent programs for both environments. Developers can just "flip a switch" to choose a target platform, a company spokesman said.

At least one early user was pleased with Netron's direction. Dan & Bradstreet Canada, a division of Dan & Bradstreet Software, bought a prerelease version of the PM tool to help downsize a large customer service application from a GICS mainframe configuration to a local-area network composed of IBM Personal System/2 boxes.

But there is a hitch: The company wanted to hold onto its Cobol programmers.

"When we learned that [Netron] could support Presentation Manager from Cobol, we were sold," said David Ravencroft, manager of business systems development.

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Lessons from Hell

Natural disasters need not be disastrous for IS. Learn from companies that emerged from floods, fire, earthquakes smarter than when they started.

BY JULIA KING

Hindsight, everyone knows, is always 20/20. Sadly, it’s often only after disaster strikes that recovery plans are made. But even then, information systems managers may find it tough to win approval and funding for safety plans, experts say.

“Time and again, disaster recovery comes up as an area where IS doesn’t get strong support from management,” notes Al Froehlich, a disaster recovery specialist at Nolan, Norton & Co. in Chicago.

Although business heads expect IS to have a disaster recovery plan in place, many simply don’t want to pay, he says. “IS people are coming to the boardroom with million-dollar disaster recovery plans that are being summarily dismissed,” Froehlich says.

Blame human nature, says Julie Schwartz, associate director at Dataquest/Ledgeway, the Framingham, Mass.-based market research firm. “I don’t lock my house until I get robbed, and then I bolt my doors,” she says. “It’s the same with disaster recovery — [companies] don’t want to put money in it because it is a gamble. But if they get burned once, they don’t want to get burned again.”

Stuart Johnson, an editor at Disaster Recovery Journal, a quarterly magazine published in St. Louis, agrees. Contingency planning means spending capital that does not bring in income, he says. Bottom line: Disaster planning can be expensive insurance.

Even so, Johnson predicts that the recent Chicago flood — which he calls the largest business disaster ever — will open some corporate eyes and show that contingency planning is a vital part of business.

“Companies that didn’t have plans developed in Chicago are going to have a much harder time staying in business in the next year or two,” Johnson says. “I imagine some of them will fail.”

Analysts agree that spending and interest in disaster planning are growing, but they can offer few hard numbers. They say larger companies are more likely to have disaster plans and funding than smaller firms, but the adequacy of both is another story. For instance, a company might have a good plan for recovering critical systems applications. But it could lack an overall business plan to handle secondary issues that are less data-intensive, such as having systems available for human resources or customer service.

Nonetheless, analysts and IS managers say things are improving. Some have learned the hard way — by suffering through power outages, fires, earthquakes and other disasters.

Interestingly, the growing popularity of distributed computing has fueled interest. Schwartz says, “Environments are getting so complex,” she says, “that people realize they need help.”

While spending on hot sites is still rising, she says, more money is being spent on planning.

“One of course, companies with mainframes will always need mainframe hot sites,” Schwartz says. “But for lots of companies, what they need are business recovery centers, instead — they need a place to put people with PCs and networks and a minicomputer server. It is a lot less expensive than going to a mainframe hot site.”

Also fueling interest is a growing number of government mandates for banking, insurance and health care firms and others to have better plans.

In the following pages, managers from six companies share what went right — and wrong — with their disaster recovery plans, and how they made changes after enduring fire, floods, earthquakes, hurricanes and power outages.
Traders wheel, deal, soar to keep Chicago commodities exchange humming in flood

Monday, April 13, 1992. Roger Rutz, president of the Chicago Board of Trade (CBOT), was driving to work at 6:15 a.m. when he heard a radio report about a broken water main in the city's downtown business district. By 9:15 a.m., when CBOT directors announced that agricultural markets would not open, Rutz knew something was wrong.

Minutes later, the problem became horribly clear: The early morning water main break actually was the Chicago River. The river had taken a disastrous turn through 141 West Jackson St., headquarters for both the CBOT, which processes trade data, and 80 other member brokerages. Unfortunately, the flooded building housed the clearing corporation's data center, which processes and pays all CBOT transactions.

At 9:20 a.m., Rutz declared a disaster. By noon, the building was one of hundreds in the Loop without electricity. Board workers at the site joned 200,000 people evacuated from the area.

Fortunately, CBOT had a disaster recovery plan, tested faithfully every three months since its adoption in 1989. So about half of the 140-member CBOT staff packed backup tapes and traveled approximately 35 miles to a Northbrook, Ill., hot site operated by Sungard Recovery Services, Inc.

By 2:30 p.m., just six hours after Rutz officially declared the disaster, CBOT was back in business at temporary quarters.

The corporation's troubles, however, were far from over. The worst problems surfaced a day and a half later. Power was partially restored to 141 West Jackson St., allowing the CBOT to open trading for two hours. Normally, the exchange trade between 500,000 and 600,000 futures and options transactions a day, with an underlying value of between $60 billion and $70 billion.

But member firms and the clearing corporation were still shut out from the building. The first dilemma was finding places for brokers from 80 companies to electronically enter trades for processing.

So the 100-member information systems group arranged for 30 terminals to be set up at the Chicago Mercantile Exchange, about five blocks away. These were linked via modem to the temporary mainframe facilities in Northbrook. Brokers also used terminals at 35 other sites, and facilities affected by the flood to gain dial-in access to CBOT's data center.

Finally, when partial electricity was restored to a CBOT building, terminals in the exchange's office staffs on the 14th floor were converted to trading stations.

Soon another problem cropped up: insufficient printing capacity at the Northbrook hot site. The disaster recovery plan allowed for the printing of partial information reports to trading members, Rutz explains.

But because the exchange had managed to fully open trading, members needed their regular daily reports — in all, about 4,000 pounds of documents produced by four laser printers at the corporate data center.

Rutz's solution: Charter helicopters to airlift in reports produced by a single laser printer in Northbrook. But bad weather prevented choppers from landing in Chicago, Rutz chartered a plane to fly in data communications equipment from Computerm, Inc. in Pittsburgh. This, he says, proved to be a turning point in the recovery.

Using the change extension gear, data generated at the hot site could be printed remotely at the CBOT's downtown data center, which had partial power by Thursday afternoon.

"We knew we had to fix the paper distribution problem," Rutz recalls, "because cause is everything with this paper." Soon, data center printers were plugged into the Computerm boxes and the printers started flying. It was the last quarter of the Super Bowl and throwing the winning touchdown," Rutz says.

Business as usual

For the 14 days that the CBOT operated from the Northbrook center, member firms received regular reports on time. But unlike some Super Bowl heroes, Rutz didn't slow down and head for Disney World. Instead, he calculated the cost of what he considers "very successful, on-the-fly solution" to problems that were impossible to anticipate.

While Rutz spent $500,000 — including $70,000 on chartered helicopters, airplanes and vans to shuttle IS workers between Chicago and Northbrook — he says he believes it was definitely the right thing to do, and he would do it again.

"Normally, I'm a very frugal person," he says. "But when you have a crisis, you have to get it done. The cost of chartering a plane or some other solution is minuscule compared to the value of business that can be lost." That cost can total "hundreds of millions of dollars for just a single day, according to Rutz.

"We learned from the disaster has to do with testing, Rutz says.

"We had tested our plan plenty with ourselves, but we never tested with our customers," he says. "We learned that if you think you have tested, you really haven't until you run your entire organization from a completely different location." JULIA KING

Computerworld
When earthquakes hit, disaster recovery plans register 10 on Richter scale

Christel Corp.'s information systems manager was processing the construction giant's 15,000-employee payroll when the great San Francisco earthquake of Oct. 17, 1989, thundered through its three-story data center a few minutes after 5 p.m. The quake ripped out stairwells and walls and sent mainframes scuttling across the main computer room.

"The lights were out and all the tape racks had pulled away, spilling tapes all over the place," recalls George Conniff, IS manager at the time of the disaster. "We had just executed the payroll, but we hadn't yet received confirmation from Bank of America, so we knew we were either in the best or worst of circumstances." (The payroll did go through.)

Luckily, by the time the disaster hit, many IS employees had already left for the day. Some had made it across the Bay Bridge, which the quake shut down. Those left behind gathered up disaster recovery manuals and headed for the company's adjacent headquarters building where damage was minimal.

The first order of business was to alert Bechtel's disaster contractor, Sungard Recovery Services, Inc. Then, backup tapes were dispatched from off-site storage about 25 miles away in Milpitas, Calif., to Sungard's data center outside of Philadelphia.

Too close for comfort

One of the first lessons learned, says Conniff, now a project manager at Bechtel Power Corp. in Gaithersburg, Md., was that Milpitas was not far enough from the quake. "People there were concerned about their own safety," he says. "There was a lack of commitment about shipping our tapes, so we had to send our own people."

Bechtel workers who made it out of the building before the quake went directly to Sacramento. There, they chartered a plane and headed across the country for Sungard's Pennsylvania facility. The same night, IS employees still stranded in the city chartered a ferry to cross the San Francisco Bay because the bridges had been closed.

The next day, workers traveled by car to Milpitas, picked up the tapes, then headed for Sacramento. They, too, chartered a plane to take them to the backup site.

Conniff and others spent the day surveying the damage at the data center, located in a building Conniff describes as "old, rigid and not earthquake-proof." A crew was able to reposition the mainframes. When electrical power was restored, IS technicians were on hand to run diagnostic tests. "Much to the surprise of everyone, everything was fine," Conniff says. "By 7 that evening, we were up and running with no problems."

But only a few hours later, disaster struck again. Without warning, the data center was kicked off-line by Pacific Gas & Electric Co. "It happened so abruptly that we had more damage from being kicked off-line than from the earthquake," Conniff says.

Workers spent the weekend doing what several technicians considered a long shot — setting up to operate the data center remotely from an adjacent building.

To their surprise, the plan worked. For the next several weeks, IS operated from the temporary site. Inexpensive trips were made to change tapes at the old data center, which had been declared unsafe. During this time, Sungard's facility served as a backup site.

Two months later, the data center was moved permanently to a newer Bank of America facility that was rated to withstand strong quakes and equipped with diesel generators.

Looking back, Conniff says his greatest lesson was to relocate backup tapes "much farther from the seismic zone." Now they are kept in Sacramento, about 85 miles away, far from active fault lines. Since the quake, Bechtel has also changed the configuration of its IBM 4270 communications controller to accommodate a direct connection to terminals in San Francisco and at Sungard's facilities.

In the two years between the time Bechtel's disaster recovery plan had last been updated and the 1989 quake, "we had become much more dependent on a wide network for our operations," Conniff says. Under the new plan, emergency drills connect the site to Philadelphia rather than make a direct connection through the network.

Other lessons learned: Keep current lists of all employees' telephone numbers, and have employee call in their whereabouts after a disaster occurs.

JULIA KING
Chicago flood knocks lawyers from the Loop with power glitch

At McKenna, Storer, Rowe, White & Farrug, a law firm located in Chicago's Loop, a power glitch knocked out the firm's entire computing systems for an hour.

The April flood produced a power glitch that knocked out the main accounting system for the 65-attorney firm, says Raul Lacsam, information systems manager. Ultimately, it took eight is employees two days to recover the database on the proprietary minicomputer from Barrister Information Systems Corp., according to Lacsam. Fifty secretaries worked another full day to collect and re-enter lost billing information.

In contrast, the firm's other strategic system, a Novell, Inc. local-area network running NetWare, emerged from the flood with no problems, Lacsam says. Unlike the minicomputer, the LAN had an uninterruptible power supply (UPS), which issued a 15-minute warning to users before initiating a shutdown of the network.

Given these drastically different results, Lacsam says, "There is now no way that we are not going to get a UPS on our minicomputer, too. We had tried to before, but we could never convince the executive committee to spend the $30,000." After the flood, however, Lacsam says, he suspects the case will be easier to make. "It is not just one irksome systems administrator predicting doom and gloom," he says. "Disasters really happen."

Fortunately, it didn't take another disaster for Lacsam to persuade the firm's 100 or so personal computer users to regularly back up their data to hard disk. Most, he says, were already religious about backing up their stand-alone machines.

Testing 1-2-3

Even still, it appears that restore functions were never tested. So it was not until after the flood, he says, that many users discovered software glitches that made restoration complicated or impossible.

"We had people doing backups for years and years, but they had never tried restoring their systems from the backups," he explains.

The moral? "Unless you practice what you preach and do dry runs, you never know if your systems will work or not until an emergency. And then, it might be too late," Lacsam says.

JULIA KING

Power problems plague Filipinos

As had as summertime power problems can be in the U.S., they're far worse in the Philippines.

The Asian nation's beleaguered technology sector recently went through its worst power crisis in recent memory.

The island of Luzon, for example, experienced power outages of more than eight hours a day as several power plants broke down. Repairs to the plants shortened the outages, but brownouts continued.

Filipino companies have taken to combining generating sets with uninterruptible power supplies to preserve battery life. Some information systems departments at larger companies, such as Pure Foods Corp., survived the crisis unscathed.

"We have very good generators supporting the company, so we're not affected," says Miguel M. Hilado, Pure Foods' electronic data processing assistant vice president. "Finally, the group has set up a disaster recovery planning system for the bank, acknowledged that some projects are already late by as much as two weeks.

Raymond Professional Management has developed, set up and maintained more than 500 contingency plans for large, diversified organizations worldwide.

Reksys is a recovery planning expert system for IBM personal computers. The system features include a natural language interface, a relational database, an inference engine, reports, graphics, statistics, audit trails, checking, on-line Help and a model recovery plan to help guide users.

Reksys is installed at over 800 sites worldwide.

Flood of trouble

During the recent flood in Chicago, more than 250 million gallons of Chicago River water, 40 feet below street level, flooded 35 Loop basements, shut off electricity and gas at dozens of buildings, caused major damage to more than 120 properties and forced the evacuation of hundreds of thousands of downtown workers.

The loss to businesses, services, transportation, communications, trade, real estate and government has been estimated at nearly $2 billion.

Mark L. Gordon, partner at Chicago-based Gordon & Glickson, a law firm that works with the computer and high-technology markets, says such disasters emphasize the need to spend money up front to protect a business or institution's data and information services.

That's especially true in Chicago, where it has been reported that the flood might have been avoided had the city made a single $10,000 repair to the damaged portion of the tunnel system.

Planning ahead

The First International Disaster Avoidance/Disaster Recovery Conference and Exhibition, sponsored by Power Quality Magazine and Disaster Recovery Journal, is being held in Chicago today through Wednesday.

The Fourth International Disaster Recovery Symposium & Exhibition will be held in Atlanta Sept. 28-30. For more information on either conference, call (314) 846-1001.

If you've got wet records or smoke odors following a disaster, and you don't know where to turn, consider the new Disaster Recovery Yellow Pages. The $98 book covers various issues, including entries on consulting and services, hot sites, mobile buildings and shelter facilities, emergency equipment sources, software forecasting, data recovery, training publications, supplies and associations. For more information, call (314) 846-1001.

JULIA KING
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And that’s one feature all software should offer.
New breed of disaster-proof sites built to last

BY MARY RYAN GARCIA

For EJV Partners Ltd., safe data is more important than a prestige-ous Manhattan address.

"For anybody who's got a mission-critical business in financial services, you're only as good as your availability," says Joseph DeBelis, who manages operations and facilities at EJV.

Composed of six major brokerage houses, the firm provides financial and information services to Wall Street clients.

Rather than face frequent brownouts in New York, DeBelis says EJV took its data center heart attack," Brill says. New architecture is one answer.

"During the late '70s and '80s, buildings were constructed like donuts, with fancy facades and not much inside," says Ronald Bowman, director of real estate at the Newport center.

"Now, they're being designed like danish, with the important ingredients inside." Julie Schwartz, associate director at research firm Dataquest/Ledgeway, says the move to fortify new construction is accelerating. New buildings, she says, are being built with data communications and disas-ter-proofing such as fire retardant mate-rials and halon gas.

Bowman says the $30 million New-port facility, finished in 1989, was built from the inside out. Com-site, a corporate data center design firm, was hired to plan and de-sign the three computer floors. Tenants can use their own comput-ers or the facility's plug-ready data center. Nearly one-quarter of the center's 450,000 sq ft is processing.

Brill, president of Computerise Engineering, Inc., a Santa Fe, N.M.-based consultancy special-izing in disaster avoidance.

The idea of building or moving to disaster-proofed buildings makes good sense, says Kenneth Brill, president of Computerise Engineering, Inc., a Santa Fe, N.M.-based consultancy special-izing in disaster avoidance.

Until recently, Brill says, many companies didn't even take the most basic precautions against disaster, such as regular electrical maintenance.

However, during the past few years a series of disasters, in-cluding a fire on Fulton Street in New York in 1990, forced com-panies to reevaluate their disas-ter recovery plans.

Now, many companies are trying to avoid a "corporate
Vendors: Better safe than sorry

New generation of disaster products and services is hitting the market

BY LESLIE GOFF

Not long ago, a construction crew accidentally cut a fiber-optic cable buried 40 feet beneath a Minnesota highway, knocking out the area's telephone service. As a result, the local customer service center handles 4,500 to 7,000 calls per day. Mainframe communications between headquarters and six power plants were also threatened by the outage.

Yet, says Dave Lundahl, a senior communications analyst at Northern States, the utility didn't know a break had occurred until US West called 10 minutes later. The reason: US West Communications, Inc.'s new Self Healing Network Services (SHNS) had transparently rerouted voice and data traffic within 25 msec. A dedicated service for users with large amounts of video, data and voice traffic, SHNS can open up trunk capacity on two concentric fiber-optic rings. In the event of a failure, this service "heals itself" instantly by reversing the direction of the traffic.

In recent months, dozens of new products and services aimed at preventing or coping with disasters have hit the market. The new offerings supplement traditional off-site data storage and hot sites with data, voice and network products.

From disaster recovery consulting and outsourcing to small computer-based software that lets users develop their own recovery plans, planning for the worst is becoming a big business.

Because the market encompasses a wide range of products and services, analysts can't say exactly how much it's worth or how fast it's growing. But most say they know the reasons.

Protecting phones

Tighter integration of computers and phones are fueling interest, says Curtis Edfast, chairman of the Association for Contingency Planners in Long Beach, Calif. Well-publicized and costly phone failures on Wall Street and elsewhere have also boosted concern. Power outages alone cost U.S. businesses an estimated $7 billion a day, according to reports by Collective Intelligence, Inc. in Santa Rosa, Calif.

Telecommunications is one of the busiest areas in disaster recovery. For example, AT&T Disaster Recovery Services and MCI Communications Corp. in Washington, D.C., now guarantee 30-minute restoration of call completion to their 800-line customers.

As a result of the huge nationwide outage on Sept. 17, 1991, AT&T reportedly has also budgeted millions to upgrade its backup and power systems.

Local support

Some local carriers, including Illinois Bell Telephone Co., are also beefing up their disaster-avoidance systems. Others, such as Metropolitan Fiber Systems, Inc. in Chicago, offer network rerouting.

Users such as Lundahl appear to like the new services. "This [self-healing] network is new," he says. "But we're continuing to migrate circuits onto it from other sources because we're convinced of its reliability." Netlink, Inc., a Fenton, Mo.-based firm specializing in telecommunication protection services, offers point-to-point satellite communications that bypass a company's regular telecommunications network in the event of a failure.

One carrier is even offering SWAT-team service: Last fall, BellSouth Corp. introduced a disaster recovery team, called R-Force, that the company claims can restore central office service within four hours of its arrival at a disaster site. The squad uses a hose of equipment, including a diesel generator, fiber and copper cable and digital carrier equipment — all loaded into a small fleet of trucks.

Traditional computer vendors are also jumping into the fray and are expanding their basic disaster recovery services. New offerings include multivendor hot sites complete with telecommunications services and work areas for clients' end users.

Digital Equipment Corp., for example, last November announced its Business Protection Services unit. The unit offers a portfolio of services ranging from emergency analysis to PC-based planning software.

NCR Corp. recently opened a newly expanded, 10,000-sq-ft disaster recovery facility in Dayton, Ohio. Hewlett-Packard Co. has expanded its disaster recovery services and opened a new hot site in Valley Forge, Pa.

Longtime leaders Comdisco Disaster Recovery Services, Inc. in Rosemont, Ill., and Sanguard Recovery Services, Inc. in Wayne, N.J., are broadening their product lines. Comdisco inked a deal with MCI to offer users digital reconfiguration of the carrier's networks in the event of a failure. In February, the company expanded its disruption-recovery offerings by adding PC-based LAN backup and voice-recovery services.

Sanguard, among other things, unveiled the DP/900Plan Network, a tool designed to help organizations develop recovery plans for wide- and local-area network and voice systems.

Wider field

New players are entering the market. El Segundo, Calif.-based Computer Sciences Corp., a professional services firm, last summer purchased CompuSource, a North Carolina disaster recovery firm, for an undisclosed sum.

The new interest in disaster planning and recovery has also energized a small but growing software niche market.

A sampling of recent announcements: Goal Systems International, Inc. in Columbus, Ohio, introduced Sunrise, an MVS-based automated disaster recovery product; and Software Marketing Group, Inc. in Des Moines, Iowa, announced Lazeurus, a $299 utility for Novell, Inc.'s NetWare that reboots workstations after a network failure or power outage.

Golf is a New York-based free-lance writer.

EXECUTIVE REPORT

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Robert D. Haas
Chairman & CEO

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Anthony J. Alfano
Assistant Vice President

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AT&T EasyLink Services
IN DEPTH

Seeing data in new ways

Private businesses now map corporate data to better understand the geographic patterns in their businesses and to improve decision-making

BY DAVID FORREST

A map is worth a thousand words.

Geographic information systems (GIS) first appeared in the early 1980s, when vendors linked the graphics capabilities of automated drafting with the data management functions of a relational database. While the first GIS applications appeared in government agencies, many private businesses are now mapping corporate data to improve their understanding of the geographic patterns in their businesses and to improve decision-making.

Companies are continually asking questions that can best be answered geographically and visually: Where are my customers and competitors? Where should I locate my warehouses? Where should I draw the boundaries of sales territories? What's the shortest route for deliveries? Not long ago, they could get answers only by plotting the information on a paper map and measuring distances by hand.

Today, GISs tie business data to points, lines and areas on a map for results such as the following:

- If points represent customers, for example, companies can see where they're located and calculate the distance and driving time from the warehouse.
- Instead of plotting delivery routes by hand to find an acceptable route based on trial and error, users can ask the computer to explore alternatives and find the best route using a digital map of streets and delivery locations.
- By pointing to a dot on a map representing a customer, users can access a database and reveal in a window information such as the account name, address, telephone number, sales history and account balance. They can display selected customers based on a query of the database — showing inactive accounts, for example, or accounts with sales greater than a specified amount. They can identify areas where sales activity is highly concentrated and use the computer to examine the effect of competitors on the geographic distribution of customers.

Joseph Ferreira, director of the computer resource lab in the School of Architecture and Planning at MIT, says one of the major benefits of mapping technology today is being able to integrate internal company data with data from outside sources. "It might be your own client list. You've got to be able to juxtapose that against census data . . . and land use and the like," Ferreira says.

Furthermore, geographic referencing has become much more accurate. Instead of ZIP codes and census tracts, he says, users can now get census blocks and block groups, the street address and the location using x-y coordinates.

Visualizing and analyzing information geographically has many applications, including the following: risk analysis in the insurance industry; property development in commercial real estate; asset management in banking; route planning and dispatching in the delivery, courier and trucking industry; site location in the distribution business; audience targeting in radio and television; and demographic analysis in advertising and marketing.

GISs provide a new way of analyzing information in a corporate database, and companies are finding significant benefits in identifying new markets and servicing existing customers more effectively at a start-up cost of about $15,000 to $25,000 (see chart page 86). Total cost will depend on the software selected, the number of locations implemented, the size of the area mapped and so on.

The following is a sampling of businesses putting GISs to work:

- Johanna Dairies

Johanna Dairies, based in Union, N.J., is saving money and milking its distribution network for all it is worth using digital street maps provided by Etak, Inc. in Menlo Park, Calif., and computer-assisted routing and scheduling software developed by CAPS Logistics in Atlanta.

Customer orders are downloaded from an IBM System/38, and the routing software uses the geographic locations of these customers to define delivery routes. The package helps to eliminate overlaps between routes and reduce the distance traveled.

Bruce Reynolds, a logistics planning coordinator at the dairy, says with customers accurately located on a map, "we can zoom in on . . ."
Continued from page 85

"... and see a street name and which customers are on those routes are scheduled."

With the software, the user can draw a circle around a group of customers, and the package will automatically generate a route and report the number of cases to be delivered, their dollar value, the route times and suggested delivery days.

Reynolds says customer service has improved because routing and scheduling is now more efficient. And the software makes it easier to deal with changes. "You're always changing something about a dairy," he says. "You lose a customer, you gain a customer." Recently, a major customer changed its manner of doi

The company is currently integrating GIS running on personal computers in branch sites with customer information residing in headquarters. "We want to download customer data to the GIS for analysis and display. "We're working on how to transfer data, what data should be stored in the mainframe and what should be stored (locally)," Jones says. 

### Getting started

Johanna Dairies' Bruce Reynolds gets calls all the time from potential users who want to know what they're getting into when they implement a GIS.

In terms of start-up time, Reynolds says, it typically takes about two months to input data and another two to build up confidence and familiarity with the system, based on his experience with his routing and scheduling application.

What's the best approach to implementing a GIS? Most users advise novices to start with one or two locations with a PC-based system and prepackaged street maps, ZIP code maps and census data. As a company gains experience and begins to see the benefits of the technology, they can introduce GIS to other locations incrementally and try new applications.

General-purpose mapping systems are best for applications used to analyze and visualize corporate data. More special-purpose programs using digital maps are best for very focused applications, such as route planning and scheduling. If the application requires data from the host, the company may decide to download that data and store it locally in the GIS or use the SQL support capability of the mapping package (if available) to query the corporate database.

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### AT&T

The business communications services area at AT&T has been using GIS to geographically define sales territories for account executives. These territories are based on the geographic distribution of AT&T's customers and the revenue they represent as opposed to using "the artifical boundaries of ZIP codes," says Marc Jones, staff manager of business network sales at AT&T. Now, Jones says, the company can identify logical business community boundaries and pattern of customers visible on the map.

Because customers are represented by symbols, the cost is made visible [the symbols] by value of those customers. We can pull out all our Japan-calling companies, and see what that distribution is. Or we can pull out all our high-billers," those companies that buy high-end services for the commercial market, he says.

In this way, the company can more equitably partition its sales territory so one account representative gets all the hot prospects, Jones explains. For example, in New York City, a high-biller is in midtown.

According to Jones, because of the system, he can say, "I'll give you a piece of this midtown with some high-billers, but then you'll take this other territory where you see [the prospects] are not quite as good."

AT&T expects to deploy the system, which is from MapInfo Corp., in Troy, N.Y., in 28 branches by the end of the year.

"The company is currently integrating GIS running on personal computers in branch sites with customer information residing in headquarters. "We want to download customer data to the GIS for analysis and display. "We're working on how to

### Exploring the GIS future

Future architectures will provide much greater flexibility for GIS, according to Joseph Ferreira, director of the computer resource lab in the School of Architecture and Planning at MIT. "We've been working on here," Ferreira says, "in unbundling GIS and then re-packaging it for delivery over a network."

This is expected to occur within two years.

Ferreira says he believes that in the future, GIS will not be monolithic. There will be back-end tools for data capture and data management and front-end tools for decision support. Instead of relying on a single GIS package, geographic information processing will be dispersed throughout the organization.

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### GisWorld

The Geographic Information Systems/Location Information Systems conference will be held in San Jose, Calif., Nov. 8-12, 1992. Contact: (301) 493-0020.

GisWorld magazine will hold its GIS in Business '93 conference from March 7-10, 1993 at the Boston Sheraton. Contact: (303) 223-4848.

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### ENDEPH: GEOGRAPHIC INFORMATION SYSTEMS

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Doing IS by the books

Macmillan's Hughes binds dual roles of IS implementor and products innovator

By Johanna Ambrosio

Louis B. Hughes may well be a next-generation information systems executive. As senior vice president of information technology at Maxwell Macmillan Publishing Co., the U.S.-based arm of the Maxwell publishing empire, Hughes must not only guide the company's IS infrastructure but also generate new product ideas by marrying Macmillan's products with emerging technology.

"My role is [that of] an advocate for exploiting new technology for our business, to contribute to the individual business plans and strategies," Hughes says.

Because Macmillan, based in Greenwich, Conn., is essentially an information company that publishes books and travel guides and provides data on compact disc read-only memory (CD-ROM), among other products, the top executives are "a receptive audience," according to Hughes. "We are invited to the table" to help brainstorm new technology-related business opportunities, he says.

Still struggling to get back on track following the sudden death of founder Robert Maxwell in November 1991 and the ensuing financial morass, Macmillan officials are reluctant to detail future strategies. Insiders also cite competitive pressures for not revealing too much of their hand.

But even within necessarily vague parameters, Hughes points to ways in which his dual roles as chief IS implementor and new products generator are dovetailing to benefit the company.

The P. F. Collier Encyclopedia Division, for example, is going through a major revamping, which includes bringing in new executives from elsewhere in the firm and rethinking the product-development process. Hughes, acting as an adviser to Collier, leveraged his technological roots to advance the suggestion of doing manuscript development by computer.

Re-engineering: It's great, whatever it is

By Nell Margolis

Re-engineering may be breaking down the door at the nation's corporations, but it could have a hard time making its way into Webster's. According to a recent management survey, the executives who are urging the necessity of re-engineering share an agreement on what the word means or the concept implies.

Some 88% of 121 large-company senior executives surveyed by New York-based Gateway Information Services said their firms had undertaken or furthered re-engineering initiatives within the past three years — between 10% and 48% more than those who reported having downsized, outsourced, restructured or expanded automation.

However, the picture of a large majority of executives pursuing similar goals for similar reasons fragmented quickly as the survey respondents attempted to define re-engineering (see chart below). And this could wreak havoc on the career of an IS director whose definition of re-engineering jars with the chief executive officer's, said Kathy Brittain White, information systems vice president at Greensboro, N.C.-based Guilford Mills, Inc.

"It doesn't even matter whose view is held or more comprehensive or more sophisticated," White noted. "Any way you cut it, if the CEO and the IS executive have different definitions, they also have different expectations." Re-engineering points up the problem.

"It's like we can't even use the word, because our executives think it means one thing and we [in IS] think it means something else altogether," said Frank Monteleone, strategy planning and information technology manager at The Nutsweet Co. in Deerfield, Ill. "We see it as a total shift in thinking — process orientation, continuous improvement."

What to do? What you can, Monteleone said. "We're trying to sell management on the larger concept of re-engineering as re-evaluating and changing the way you do business," he said.

"But we're starting with the basics, so we can show some payback up front."
Quality effort at crossroads

BY NELL MAR

NEW YORK — It's been big for

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School mourns first IS director

ATLANTA — F. L. "Bad" Suddath, vice president of information technology at Georgia Tech, died at the age of 50 earlier this month after suffering a heart attack in his office. Suddath's career was studded with accomplishments in both the biological and information sciences.

In the early 1970s, as a National Institutes of Health post-doctoral fellow at MIT, he was involved in developing an understanding of transfer DNA.

A research biologist whose work spurred protein growth experiments that were carried aboard the space shuttle in 1990, he also helped spearhead the plans for the State of Alabama Supercomputer Network.

In 1985 he returned to his alma mater, Georgia Tech, where he continued to ply his diverse talents as professor of chemistry and, simultaneously, as executive vice president of information technology at Georgia Tech, where he continued to ply his diverse talents as professor of chemistry and, simultaneously, as executive vice president of information technology at Georgia Tech.

Three years ago, he became Georgia Tech's first IS director, charged with coordinating administrative, research and academic computing.

Suddath is survived by his wife, son and daughter.
IS spin-offs are in hiring mode

BY JULIA KING

If you’re an information systems professional with sharp technical skills, some knowledge of a key vertical industry — especially retailing or financial services — and a belief that the customer is always right, a successful career could await you at one of the many IS spin-off companies, where openings for programmers as well as business and systems analysts are plentiful.

Some spin-offs, such as General Electric Information Services (GEIS), a separate business unit of General Electric Co. in Rockville, Md., and FMC Corp., a Dallas-based financial services company that sells IS and networking services to commercial customers, serve outside clients as well.

In either case, employers say, many of the same skills are required because the emphasis at both types of IS organizations is on customer satisfaction.

"One of the benefits we expect to get by going external was to improve our internal service," says Randall Gannaway, director of operations and telecommunications at FMC.

The spin-off companies interviewed all say they have positions available, many of which carry the same titles as job slots in internal IS departments. At spin-offs, however, IS workers are more likely to find themselves members of cross-functional teams whose collective job is to serve the IS needs of clients in a particular industry.

GEIS, for example, which specializes in services exclusively to sister businesses for pro-
Rewards, challenges in marketing support

BY SUZANNE WEDEK

I n the old days, it didn't take advantage of computers in marketing department — one systems person could design the marketing environment, the IS department, and the marketing support employees all worked in separate, disconnected silos. The only connection was through the marketing reports, which were delivered in paper format, usually late and often inaccurate. Today, however, computer systems are being used to support marketing efforts in a much more integrated manner. Marketing support employees are now using computer systems to help them do their jobs more efficiently and effectively. In fact, many companies have created special marketing departments just to handle the increasing amount of computer-generated data and reports that are now available to them.

Today's marketing departments are leveraging the power of computer systems to improve their decision-making processes and their overall effectiveness. For example, marketing departments are using computer systems to help them

- Analyze customer data and behavior patterns
- Segment markets and target specific customer groups
- Develop personalized marketing messages and campaigns
- Measure the effectiveness of marketing campaigns
- Forecast sales and revenue

Marketing support employees are also using computer systems to

- Manage and analyze customer data
- Create and manage customer databases
- Develop and manage email campaigns
- Manage social media accounts
- Monitor and respond to customer inquiries

Because computer systems are now an integral part of the marketing process, marketing support employees must have strong computer skills in order to be effective in their jobs. This means that companies must recruit and hire people with strong computer skills to fill these positions. In addition, companies must provide ongoing training and development opportunities for their marketing support employees in order to keep them up-to-date on the latest computer technologies and best practices.

Overall, the use of computer systems in marketing is a trend that is here to stay. As technology continues to evolve, marketing departments will continue to rely on computer systems to help them manage their operations and achieve their goals. This means that marketing support employees will continue to play a vital role in the success of these departments.

Keeping it simple: Marketing support professionals also stress the importance of being a personal computer and network on-line query system. The marketing people can access their systems reports more easily, and the systems staff should be able to deliver systems that are easy to use, accessing graphical user interfaces and mouse driven devices instead of keyboard interaction.

For example, marketing reports at Monarch Marketing are generated using an on-line query system that the marketing people can access themselves, says Wilma Ricks, a resource development analyst. It makes life easier for the systems people, she says, because the marketing people can change their minds about the type of information they want without having to wait for someone in systems to redo a report.

Because the informational demands of marketing departments are so varied and so pressing, some companies actually maintain a dedicated systems function within that department. Eddy, who reports to the director of marketing and systems support, says that marketing is the primary problem IS faced providing marketing with systems support. By the time the reports arrived, marketing was already concerned with a different situation.

Kansas City Southern Railway Co. in Kansas City, Mo., also has a systems support employee in charge of the IS department’s ever-changing needs.

"They ask for one report today, then a variation on it tomorrow. We didn’t have the resources or the business knowledge to keep up," explains Rodney Scott, director of revenue and marketing systems.

The company decided it would be easier to teach a marketing employee about systems than to teach a systems employee about marketing, so they sent Bill Hundelt, manager of MIS, to a 2-week course in programming.

When Hundelt was sent to learn programming, there were seven other employees in the class. All seven obtained jobs in the IS department, not in the user departments where they came from. Hundelt, however, is now physically located in the IS department but reports to the vice president of marketing. He is the only non-IS employee responsible to a user department yet within IS.

One benefit to working in a marketing environment, Eddy says, is that marketing generally pays more attention to do other departments, including IS, from top-level management. The company needs the marketing information to be successful, he says. Therefore, marketing systems need to be emphasized more than other systems.

Within an IS department, marketing support employees should have business as their first and marketing functions second, says Sheridan. "There’s a place for programmers, but the analysts tend to be business analysts first and systems analysts second," Sheridan says.

This is because marketing people tend to be creative types, and IS and IS people are usually analytical types, and unless there is a department capable of working across the two disciplines, it can be very difficult to develop effective systems.

In other departments, such as manufacturing, the staff recognizes the data from the start because it’s very straightforward. But Ricks describes marketing as "blue-sky stuff" — she has to understand data and order support the department.

In addition, supporting a marketing department may mean longer hours, particularly when there’s a new product introduction. "Marketing definitely burns the midnight oil, so it stunts to reason marketing support will too," Kostelevsky says.

Weizel is a free-lance writer based in Marlborough, Mass.
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JUNEAU 1992 COMPUTERWORLD
Don’t fall for a slick pitch
An IS executive tells how to simplify hardware buying decisions

BY LEILANI E. ALLEN
SPECIAL TO CW

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OK, I’ll admit it. It’s not fair to blame the poor salespeople; they’re just doing their job. But anyone who has bought any kind of hardware in these times of rapid business and technological change can probably understand the humor in that joke.

I am responsible for recommending to my executives which computer hardware and software to buy, so I know firsthand that the decision is more complicated than ever.

In the past, we could rely on IBM and one or two other vendors to set industry direction. Today, the key decision when buying hardware is how to integrate and provide for interoperability across platforms. That calls for an “architectural” approach. Because many of today’s architectures include mainframes, minicomputers, local-area network servers, laptops and any number of other devices, hardware selection almost always involves more than one vendor.

There are some basic measures I use to evaluate prospective vendors. They are the following:

»Experience in my industry: Highest points go to hardware vendors with experience supporting customers in my business. Not only does this save me from having to explain the intricacies of my industry, but it also increases the likelihood that the vendor will be more sensitive to important trends and developments.

»Ability to understand my strategy: I look for a vendor that is willing and able to grasp my business and technical priorities. Do they understand the key economic drivers? Do they understand where I want to be on the leading edge curve? And are they willing to share their other customers’ experiences, which often contain lessons I can save money, time and energy? Integrates, integrates, integrate most of us will support multivendor environments to support businesses’ needs. I need a vendor that is actively building interfaces with other vendors’ products.

»Multiple levels of support: On the first level, a vendor should support me and my senior managers in the development and evolution of our strategies. On the second level, the vendor must provide strong operational and installation support for my staff. At level three, the vendor has to provide timely and accurate hot-line support in problem diagnosis and troubleshooting. Extra points go to those that offer creative solutions such as bulletin boards or the downloading of software fixes.

»Solid technology partner: Vendors must have strong partnerships with software and network vendors. I judge them on their ability to spot current and future leaders, to integrate development strategies and to coordinate problem determination. They also have to be able to work collaboratively to solve operational problems.

Fingerpointing is not acceptable. For example, even if a hardware vendor is convinced that our problem is the database and not its machine, giving up and walking away from the problem is not the answer. I still expect the vendor to help troubleshoot the problem.

»Customer-based quality program: When selecting a vendor, I ask to see evidence of its quality program. I expect to see quality controls in the design and manufacturing process. And because these are the folks I will most frequently deal with, I want to know what the vendor is doing in the sales, marketing and administrative areas as well as whether their people had formal customer service training and whether they routinely do customer surveys.

At the core of these quality efforts must be a commitment to the customer. One vendor I spoke with recently had created customer advisory teams at its headquarters whose job was to serve as my advocate to the company’s support structure.

»Realistic pricing: One of the key advantages of using multiple platforms is that I can grow my hardware base incrementally. Volume discounts are fine as long as I have a number of small steps rather than large leaps in pricing levels.

And I am less than thrilled with bundled solutions. I recently had a discussion with a personal computer vendor that offered a competitive price that included a bundle of popular software packages. The catch came when it was time to upgrade the software, for which the vendor had obviously retained the license.

We had to send the computer back to the company to install the upgrade. Can you imagine how I would look asking my users to pack up and mail in their laptops back to a vendor so they could go to the next release of their word processor?

»An attitude that says you want my business: It sounds simple, but a lot of vendors give the impression that they’re doing me a favor in taking my business. If I have to call more than once to set up a meeting or demonstrate what we have, this is a red flag that your business is not worth focusing on. Therefore, someone with a lesser product but a “can do” attitude is going to get my attention.

Lack of FUD (fear, uncertainty and doubt): Vendors that compete by claiming technological advantage over one another leave me cold. PCs, in particular, are a commodity. Pop the cover and they are basically indistinguishable from one another. Even if the vendor has a unique feature, the product is still 95% the same. Therefore, I always want make sure I have options to migrate to if necessary.

I urge you to develop your own list of criteria and share it with your vendors. The good ones will read it and take it to heart. The bad ones will ignore it. Either way, it will make your decision easier.

Allen is an IS executive based in the Midwest.

---

[Markdown Table of Contents]

**DEMPSEY, WHERE IBM QUALITY IS SECOND NATURE.**

- SERIES/1
- 9370
- RS/6000
- INDUSTRIAL PC
- ES/9000
- AS/400
- SYSTEM 36/38
- POINT OF SALE

**BUY-LEASE-SELL**

- Processors
- Peripherals
- Upgrades

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The Pyramid is a 9620 (2 processor) model, configured with 48 Megabytes of memory and was commissioned in 1987.

1. 1 SP system support processor
2. RSX software adapter board
5. ITP intelligent terminal processors (each ITP supports 16 serial ports)
3. 10P IO processor boards (each board can support up to 4 disks)
4. NEC 201-1 2.2 GigaByte disk
1. Fujitsu open 6250/1600 tape drive
1. 3 X5 Controller boards

The operating system is Pyramid O/S, 4.4c.

---

[Markdown Footer]

All enquiries to: Paul Knox
Computer Operations Manager
NZ Apple & Pear Marketing Board
P.O. Box 3328
Wellington, NEW ZEALAND
Ph 64.4.474-7202
Fax 64.4.499-0652

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The BoCoEx index on used computers
Closing prices report for the week ending June 19, 1992

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Bids/Proposals/Real Estate

The New York Fire Department is soliciting proposals from qualified vendors for the Supply, Installation, warranty and Maintenance of personal computers, software, and peripherals to em- power the new Police Records Management System. The procurement consists of (250) PCs, (400) PCs, (250) devices, (3000) units of (250) devices, and (250) special forms. For more information, call 212-736-1507.

The Request for Proposal (RFP) is available to vendors and may be obtained by writing or calling the Public Information Office at 212-736-1507. The closing date is June 29, 1992, and may be ob- tained by written request or in person at thejon detail of this RFP. The Public Information Office at 212-736-1507.

The Price of 800/508/879-0700.

Bids and proposals must be received by 5:00 pm, Au- gust 7, 1992.
ANALYSIS IN BRIEF

**Under the Wire**

Richard Shaffer, editor

Technologic Partners

June 15

New money and savvy management give Farallon Computing, Inc. an advantage as Apple Computer, Inc. Macintosh networking schemes infiltrate the corporate mainstream.

Macintosh networking began as a niche whose small size and proprietary nature insulated it from the furious competition that marks the IBM personal computer-compatible connectivity arena.

Companies such as Farallon, Cayman Systems, Inc. and Shiva Corp. grew quickly with one or two specialties that only occasionally overlapped.

With $16 million in new venture capital and shrewd management in the form of President Alan Lefkoe — former president of Tandy Corp. subsidiary Grid Systems Corp. — Farallon seeks to ride the Macintosh's coattails into the corporate world. The Emeryville, Calif.-based company has unveiled a broad line of aggressively priced Ethernet adapters. Farallon is also expected to challenge Shiva and Cayman with a version of its StarConnector hub that provides gateway and router functions.

RECOMMENDATION CHANGES

UPGRADED FROM HOLD TO BUY: Chipcom Corp. (Prudential Securities, Inc.). Sales of intelligent hubs are brisk. An alliance with IBM — either a technology or financial agreement — could boost Chipcom (CHPM) shares. Stock currently trades at about $18, but the 12-month target price is $25.

A potential problem for the company is if Digital Equipment Corp. — which contributes 45% of Chipcom's revenue — started selling its own high-end intelligent hubs. Talk in the industry pegs such an event for late this year or early next year.

UPGRADED FROM BUY TO STRONG BUY: Newbridge Networks Corp. (Alex. Brown & Sons, Inc.). Most recent quarterly financials bested estimates. Earnings in the coming quarters will likely grow because major telecommunications carriers recently announced plans to use Newbridge Networks' (NWXCF) service offerings related to digital overlay networks.

**STOCKS**

**Computerworld Friday Stock Ticker**

**TOP PERCENT GAINERS**

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<td>Microcom</td>
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**TOP PERCENT LOSERS**

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**Communications and Network Services OFF 1.0%**

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<td>DCS</td>
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<td>NYN</td>
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<tr>
<td>NWY</td>
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**PC and Workstations OFF 2.83%**

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**Large Systems Up 0.72%**

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**Software OFF 6.78%**

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**Semiconductors OFF 3.22%**

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**Peripherals and Subsystems OFF 1.93%**

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**Services OFF 1.96%**

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**STOCK TRADING INDEX**

**ADP 500**

Closing prices on Friday, June 26, 1992

**Computerworld** (ISSN 0010-4841) is published...
JUNE 29, 1992

COMPUTER INDUSTRY

IN BRIEF

3Com sales jump 49%

- Continuing its turnaround, 3Com Corp. last week reported fourth-quarter earnings of $4.9 million, up 49% from the comparable period last year. Sales for the quarter ended May 31 were $121.7 million, up 31% from the period one year earlier. 3Com earned $4.2 million in fiscal 1992, including a $10.4 million charge related to the acquisition of BICC Data Networks, on sales of $408.4 million. Last year the Santa Clara, Calif.-based company lost $27.6 million on sales of $398.5 million.

- Cabletron Systems, Inc. last week reported first-quarter net income of $17.6 million, up 30% from the comparable period last year. Sales for the quarter, ended May 31 were $108 million, up 45% from the same period last year. The Rochester, N.Y.-based company said.

- Legent Corp. in Vienna, Va., last week elevated two senior executives and created a new position in charge of professional services. William J. Drummey and Robert W. Yellin were named exec-utives and created a new professional services group.

Short takes

- Central Point Software, Inc. in Beaverton, Ore., last week post-poned an initial public offering, citing unfavorable market conditions. . . . Stockholders of Silicon Graphics, Inc. in Moun-tain View, Calif., and MIPS Computer Sys-tems, Inc. last week approved the merger of the two companies. . . . Steven Rosen Bayless Funds in Dallas was recently named as a "supporter of entrepre neurship" by Ernst & Young, Inc. magazine and Mer-rill Lynch & Co.

HP to buy TI Unix systems line

Deal underscores HP's shift away from its proprietary operating system

BY MARK HALPER

PALO ALTO, Calif. - Hewlett-Packard Co. gave further indica-tion last week that its minicomputer future will rely on Unix rather than MPE-IX after agreeing to acquire Texas Instruments, Inc.'s multiserver Unix sys-tems business.

The pending acquisition, for an undisclosed amount of cash, would bring TI's value-added sell-ers into the HP fold, giving HP a reach into markets it has not yet successfully penetrated, said HP Executive Vice Presi-dent Lewis Platt, who runs the company's Computer Systems Organization. Those markets in-clude automotive dealerships, services, health care and wholesale distribution, Platt said.

HP plans to migrate users of TI's 68000-based 1500 comput-er family to its 9000 Series 800 multiserver systems, which are based on HP's Precision Ar-chitecture-RISC chip. The 1500 line runs TI's System V, Release 3 Unix implementation, and the Series 800 line runs HP's Unix, called HP/UX.

While Platt claimed that HP does not plan to discontinue the 1500 line, he said that only one new model is currently planned. That model, for which he de-clined to provide specifications, is slated for introduction this fall, which is around the time that TI and HP plan to close the acquisi-tion. For now, HP will buy the 1500 machines from TI through an OEM sales arrangement and resell them with the TI logo, Platt said.

Sign of the times

The pending acquisition further flags the importance of Unix over MPE at HP, some said. While HP still garners more sales revenue from its Unix line — the HP 3000 Series 900 — than from its Series 800, Unix revenue is expected to surpass MPE later this year [CW, May 25]. Sales of the 800 line have been growing steadily and, along with peripherals, accounted for much of the company's $450 million revenue growth in the quarter that ended April 30.

Users conjectured that HP will eventually make a full ver-sion of Unix available on the 3000 and that such a move would coincide with a decision to slowly migrate 3000 users to Unix.

"I wouldn't be surprised if at one point they get rid of the 3000 and make a migration path for all the 3000 users to Unix," said Rodger Lindquist, manager of information services at Dreyer's Grand Ice Cream, Inc. in Oakland, Calif.

Some users interpreted HP's addition late last year of FreeBSD hooks to MPE as the first step in a plan to offer a full-blown ver-sion of Unix.

The accord would also give HP ownership of TI's service or-ganization, which provides ser-vice and support for HP and third-party computer products. HP said it plans to absorb nearly 500 of the 1,100 workers in the TI operation.

For TI, the sale would mean unloading a business that until two quarters ago consistently lost money.

TI's John White, president of the Information Technology Group (ITG), said TI wants to fo-cus on other products, including the FTC's computer-based soft-ware engineering offerings, notebook computers, printers and telecommunications sys-tems.

Emulex to sell DEC storage line to System Industries

BY MELINDA-CAROL BALLOU

MILPITAS, Calif. - Squeezed by both a shrinking market and Digital Equipment Corp.'s litigiousness, Emulex Corp. last week said it will sell its DEC stor-age product line to longtime competitor System In-dustries, Inc. for $5 mil-lion in stock and cash.

Emulex, in Costa Mesa, Calif., had previ-ously announced its in-tention to discontinue the company's DEC stor-age product line because those sales have declined significantly and to focus on "more profit-able product lines," such as Small Computer Sys-tems Interface-based and host-related controllers and networking products, according to Bob Corey, vice president and chief financial officer at Emulex.

"DEC is being more aggressive in its pricing and in protecting its technologies, and the market is not growing," Corey said.

System Industries said Emulex's 300 DEC storage products will strengthen its market position. "Similar to other players in the market, our revenues have declined over the past year, and this will give us added market share," said Jesse Bean, treasur-er at the firm.

The deal is expected to close Wednesday. Emulex will lose 60 employees as a result of the deal and expects to incur a pre-tax charge of between $16 mil-lion and $28 million in its fourth fiscal quarter, which ends today.

Industry analysts said the acquisi-tion agreement was not sur-prising. "The technological race was becoming increasingly more expensive, as were the legal battles with DEC," said analyst Chris Chris-tiansen at International Data Corp., a market re-search firm based in Fra-mingham, Mass.

System Industries and Emulex each signed let-ters of accord to resolve suits for alleged infringe-ment of DEC's Standard Disk Interconnect and Standard Tape Intercon-nect patents.

DEC resolved legal disputes over the compa-ny's Interlink and Tape Sys-tem Interconnect patents by establishing a third-party licensing pro-gram earlier this spring.

Safety in numbers

System Industries hopes to overcome declining revenue by buying Emulex's DEC storage business

MIPS/DEC

$97,000

$8,280

$8,280

$97,000

System Industries

Emulex

1990

1991

1992

$97,000

$8,280

$8,280

$97,000

Source: Company reports

"Pache takes Bull's reins

BY KIM S. NASH

PARIS - Group Bull now has a new leader today as it tries to smooth ruffled government feathers and invigorate the company, which is still trying to re-verse its $593 million loss for 1991.

Francis Lorentz, chairman for the past three years, will pass his reins over to computer indus-try outsider Bernard Pache, most recently chairman and chief executive officer at Char-bonnages de France - state-owned coal mining firm.

The French government, Bull's biggest shareholder with a stake of 70% to 75%, opted not to renew Lorentz's contract but declined to specify why. Lorentz was unavailable for comment.

Speculation percolated last week that the executive swap is a bid to ease relations between the government and Groupe Bull. The two had disagreed ear-lier this year about which firm - IBM or Hewlett-Packard Co. - to take on as a technological and financial partner. Lorentz ulti-mately gave IBM a 5.7% stake in Bull in exchange for $100 million in cash, reportedly against the wishes of then-Prime Minister Edith Cresson.

"Ugly time"

"Bull has been through a very, very ugly time in the past couple years and they have kept trying to pull themselves out of it," said Martin Hingley, research direc-tor at the London office of mar-ket research firm International Data Corp.

Although Bull cut its losses in half from 1990 to 1991, a reor-ganization plan initiated more than two years ago called for the company to recapture profitability by the end of 1992. "It doesn't appear that that will happen, which was probably an im-portant factor [in Lorentz's de-parture]," Hingley noted.

Axel Leblois, president and CEO of Bull HN Information Sys-tems, said the company has already given IBM a 5.7% stake in Bull in exchange for $100 million in cash, reportedly against the wishes of then-Prime Minister Edith Cresson.

"The technological race was becoming increasingly more expensive, as were the legal battles with DEC," said analyst Chris Chris-tiansen at International Data Corp., a market re-search firm based in Fra-mingham, Mass.

System Industries and Emulex each signed let-ters of accord to resolve suits for alleged infringe-ment of DEC's Standard Disk Interconnect and Standard Tape Intercon-nect patents.

DEC resolved legal disputes over the compa-ny's Interlink and Tape Sys-tem Interconnect patents by establishing a third-party licensing pro-gram earlier this spring.

"Pache has been on the buy side of BS for years. He knows what a customer is going through," the spokesman said.
The Legal Market

Law firms continue to go high-tech

Out with the old, in with the new

Even though lawyers still share information the old-fashioned way, LANs are becoming more pervasive.

Percentage of firms using method*

<table>
<thead>
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<th>Method</th>
<th>Percentage of Firms</th>
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<tbody>
<tr>
<td>LAN</td>
<td>65%</td>
</tr>
<tr>
<td>Exchange or share disks</td>
<td>42%</td>
</tr>
<tr>
<td>Exchange or share hard copies</td>
<td>34%</td>
</tr>
<tr>
<td>Minicomputer</td>
<td>30%</td>
</tr>
<tr>
<td>Do not share information</td>
<td>3%</td>
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Top applications

Lawyers have access to a variety of software, such as spreadsheets, but primarily stick to legal-related packages.

Did You Know?

- Seventy-three percent of responding firms use consultants for advice on computer systems and software.
- Only 26% of responding firms have formal technology plans identifying priorities, applications and equipment configurations for the next two to five years.

Percentage of Firms posing for most firms are the following:

<table>
<thead>
<tr>
<th>Product</th>
<th>Percentage of Firms</th>
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<tbody>
<tr>
<td>PCs</td>
<td>69%</td>
</tr>
<tr>
<td>Laser printers</td>
<td>58%</td>
</tr>
<tr>
<td>Portable computers</td>
<td>46%</td>
</tr>
<tr>
<td>Memory for PCs</td>
<td>44%</td>
</tr>
<tr>
<td>Modems</td>
<td>42%</td>
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</tbody>
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IBM is scheduled to do battle with a San Diego-based AS/400 third-party reseller tomorrow over money that IBM has already admitted it has been paid. IBM filed suit against Legal Eagles Software in 1989, claiming the application vendor owed IBM for hardware and software pertaining to contracts signed during the AS/400's early days. When an independent investigator and accountants from Deloitte & Touche checked out the situation — at the behest of IBM — they found that Legal Eagles had in fact overpaid IBM. Nevertheless, Big Blue opted not to withdraw its case, and Legal Eagles filed counterclams against IBM alleging fraud and bad-faith negotiation.

Running out of gas

Unix mania took a little hit last week when zealot Sequent revealed that it is developing a Windows NT machine for the client/server market. Sequent expects to introduce the server around the time Microsoft makes NT available later this year or early next year. The Beaverton, Ore.-based company will continue to offer its multiprocessing Unix machines, which it will position for larger jobs than those to be handled by the NT product.

Different orientation

IBM will beef up its AD/Cycle offerings through a deal with re-engineering software provider Viasoft within the next two months, according to a consultant who was briefed last week. In September, IBM will outline its strategy to make AD/Cycle address the object-oriented world, the consultant said, "although IBM's notion of objects is different than other people's," he said. "They weren't real specific; the message was 'watch this space.'"

Just as computer virus fighters have their own magazines, a new electronic magazine is currently circulating on underground bulletin boards for virus writers, 40Hex is published by the North American Phalcon/Skism group, which operates the Digital Warfare bulletin board and contains articles on such topics as subverting memory-resident antivirus programs, observing scanner strings in memory, hacking virus code to make it undetectable and source code for various viruses. Contributors include the project members as Dark Angel, Night Crawler and Hellraiser. He may not have an intriguing handle, but News Editor Alan Alper is looking for news tips. Phone, fax or CompuServe him at (508) 820-8555; (508) 875-8931 or 76537,2413, respectively. Or try Computertrend's 24-hour voice-mail tip line at (508) 820-8555.
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