Microsoft, IBM strain to deliver wares

String of delays stalls Windows 3.1

BY JAMES DAILY
CP STAFF

What's holding up the arrival of Windows 3.1? Users planning to attend the upcoming third annual Windows & OS/2 Conference in San Jose, Calif., are anxious to find out but are getting few acceptable answers. What Microsoft Corp. officials originally described as a compilation of minor fixes—a simple fine-tuning of the popular Windows 3.0 graphical environment—has instead turned into a steady string of delays and excuses.

"There are not a lot of cosmetic features that are going to blow people away," said John Stingl, a Windows 3.1 beta-test user and office automation manager at Pacific First Bank in Seattle. Yet so far, Microsoft developers have worked their way through four beta-test releases, cramming in new features and improving clumsy old ones. The safe money is betting that Version 3.1 will be unveiled at Comdex Spring '92/WINDOWS World in early April, almost a year after Microsoft Chairman Bill Gates announced the first of at least three delivery dates that were later postponed.

The latest default came at Comdex/Fall '91 in October, when Microsoft shelved an avowed end-of-the-year ship date, promising instead to have the elusive update available in the first quarter of this year. "I'd like to see a final version they've promised, but I don't expect to anytime soon," said beta-test user Dick Nelson, vice president of information delivery technology at Chase Manhattan Corp. in New York. Nelson, who recently completed equipping the Royal Bank of Canada in Toronto with the new low-end Model 705, said one of the analysts briefed by Gary Eichhorn, a general manager at HP's workstation business unit here, is "really going to stick it to IBM on the pricing side," and one of the industry observers expect it to be priced much below $7,000. Currently, IBM's lowest priced RS/6000 is the $14,000 Model 320H. The new low-end Model 705, based on HP's Precision Architecture reduces instruction set computing (PISC) configuration of a gray-scale computing chip, is a gray-scale workstation performing at roughly 35 Specmarks and equipped with space for additional disk drives.

Price expectations

IBM is expected to announce its new low-end RISC System/6000 during the next few weeks, but few industry observers expect it to be priced much below $7,000. Currently, IBM's lowest priced RS/6000 is the $14,000 Model 320H. The new low-end Model 705, based on HP's Precision Architecture reduced instruction set computing chip, is a gray-scale configuration performing at roughly 35 Specmarks and equipped with space for additional disk drives.
IBM meets a crucial deadline and ships a preliminary version of OS/2 Release 2.0. IBM had plenty riding on this shipment because of the potential risk to its credibility, analysts say. The release had been promised in April, and then again in October, for delivery by the end of 1991. This final version of Release 2.0 will debut in March. Page 1.

U.S. companies jumping on the quality bandwagon are far more likely to concentrate their efforts on manufacturing or customer service than on information systems. But experts say real quality advances are more probable when companies improve data flow first. Page 57.

Modular software may find a home on PCs. Analysts say applications are on the market, and Windows based software that comes with segments that run alone or can be linked together will be popular. Page 37.

Potential users wait and watch as Switched Multimegabit Data Service oozes out of the phone companies. Before committing to using it, telecommunications managers want to know how it differs from options such as frame relay. Page 49.

The distributed network management system announced by Novell last month seems to have some of the features users want. However, it may also be a burden because it is based on the less-than-popular OS/2. Page 49.

On site this week: The Santa Fe Railroad has a wall-size display fed by data drawn from a mainframe and personal computers to monitor the status of trains nationwide. Page 29. A new testing and certification system is on tap at the National Association of Securities Dealers. Page 29. The results were better than anyone expected when seed developer Northrup King downsized to an IBM Application System/400 and integrated its applications under a common menu system. Page 31. Phase I of Hyundai Motor America's move to laptop computers brought lighter work loads for administrative staffs, less travel and reduced phone bills because of better use of electronic mail. Phase 2 is, now under way. Page 37. Central Life Assurance cast an eye to the future when it moved to an imaging system. Page 41.
"I don't lose sleep worrying about my software company going out of business. With CA, I know my software investment is protected by the financial stability and resources of a billion-dollar, Fortune 500 company. That's important. Because in this business, anything can happen."

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And that's one feature all software should offer.
Volvo sub takes Action vs. Officevision

BY ELISABETH HOFWITT

Having quietly won several rounds, IBM's office-mail systems in the U.S., a Scandinavian office systems vendor is now preparing an assault on IBM's Officevision on both the host and local-area network sides. The potential for users to work with multimedia on Action's LAN-based workstations is now in sight.

Verimation, Inc., a sub of Volvo, is expected to announce next week plans to extend its host-based integrated office system, Memo, beyond IBM's mainframes into the LAN environment through a joint-development agreement with Action Technologies, Inc.

The partners plan over the long term to integrate Action's LAN-based workflow coordination technologies to provide automatic routing of documents across LAN-based and host-based systems corporately, according to Adam Sroczyński, president of Verimation's U.S. subsidiary.

Users expressed cautious enthusiasm about Verimation's new offering because of Action's history and past failures to deliver. "Action's software has been missing in action," said Mike Anderson, a program manager at Sun Microsystems, Inc. "They have the CPU overhead on our mainframe and the problem of getting the information down to the host," he said.

Verimation's George MacLawhon, manager of information technology at the Dallas-based energy firm, Halliburton Co.'s dilemma of one E-mail and automated document-processing system for its LAN users without having to maintain two separate E-mail systems — one for LANs and one for hosts, said George MacLawhon, manager of information technology at the Dallas-based energy firm.

The company needs to extend Memo to LAN users if it wants to capture a bigger piece of the U.S.-based integrated office systems market, which together with groupware is projected to grow from about $41 million in 1990 to $320 million in 1995, according to IDC.

While Verimation recently announced gateways to LAN E-mail systems, the deal with Action targets users that only want one E-mail and automated document distribution system running across their host and LAN networks.

- "Intelligent routing of forms will become important for 1992 and beyond, as companies get settled with their LAN E-mail systems. Action has applications beyond that," said Ann Palermo, director of office systems research at International Data Corp. (IDC).

No postage necessary
Worldwide mainframe electronic-mail software market measured by numbers of mailboxes (Total: 5.16 million)

<table>
<thead>
<tr>
<th>Vendor</th>
<th>% of Market</th>
</tr>
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<tbody>
<tr>
<td>IBM's Officevision</td>
<td>35%</td>
</tr>
<tr>
<td>Novell's Memo</td>
<td>20%</td>
</tr>
<tr>
<td>Fischer Internatio'Àés EM2</td>
<td>17%</td>
</tr>
<tr>
<td>MacLawhon's Memo</td>
<td>16%</td>
</tr>
<tr>
<td>Other</td>
<td>20%</td>
</tr>
<tr>
<td>Computer Associates' CA-Email</td>
<td>5%</td>
</tr>
<tr>
<td>Verimation's Memo</td>
<td>3%</td>
</tr>
</tbody>
</table>

Source: International Data Corp.

IBM's Personal Services/370 for MVS

Memo's CPU overhead on Halliburton's 3090 mainframe is so low that the firm's information systems department does not even list it as a separate $00 to 15,000 E-mail "customers" for unlimited usage, Palermo noted.

Halliburton's 3090 is one of IBM's Disos, Profs and Personal Services E-mail products about four years ago, finding that the "products were not user-friendly and [were] expensive to run," Palermo said.

Diebold chose Memo over IBM's Officevision, Profs and Disos packages about six months ago, primarily because of Memo's "intelligent forms capability, according to Carl Hossler, manager of software services at the Ohio-based equipment manufacturer.

Host-based ofice system vendors are trying to create an intelligent naming service that is to see how it can apply the principles of object orientation to its directory services, said a Novell source who requested anonymity. The firm has struggled to produce a naming, or directory service that includes user addresses and rights for an entire network rather than segments of a companywide network.

Summer plans
Peter Raulerson, president of Paratechnology, Inc., a Bellevue, Wash.-based consulting and software development firm, said he expects Novell to push for a version of Serius Programmer for its Netware network operating system by midsummer.

He said Novell is in the process of matching virtually every possible application to Microsoft Windows NT, which is to be released in June. "Windows NT offers an improvement over Windows and is running very fast," he said.

Noval, based in Provo, Utah, Crosspoint Venture Partners in Los Altos, Calif., and Crosspoint Venture Partners in Boston are putting a total of $2 million into the privately held firm located here, the Serius spokesperson said.

Serius makes Serius Programmer, software that contains 45 distinct application functions. Each of the functions — such as print, spreadsheet, animation and test — is represented by an icon. Developers can drag the icons into an appropriate place in their code, instantly placing a ready-made application.

Raulerson estimated that Serius’ annual sales last fiscal year just short of $1 million.

"This must be some sort of countermove to the networking threat posed by Windows NT," he said. "The expected $1 billion, president of Phoenix-based consultant Business Automation, Inc., said that Novell, which is well behind on its NT development plans, agreed that NT, due in 1995, will likely obviate the need for Microsoft's LAN Manager network operating system.

Sun will soon detail multimedia strategy

BY JEAN S. BOZMAN

MOUNTAIN VIEW, Calif. — Sun Microsystems, Inc. is expected to soon take the wraps off of multimedia features for its workstations, including enhanced audio, Integrated Services Digital Network (ISDN) capability and video support.

The new features will be anchored by specialized chips added to the Sun workstations' motherboards, according to Sun Chief Executive Officer Scott McNealy. Some of the new and improved multimedia capabilities may be revealed as early as the Uniforum show in San Francisco, which begins on Jan. 22. McNealy said. But he declined to say there's an assurance — including the special chips — would be generally available or whether they would boost workstation prices.

McNealy conceded at a recent industry seminar that Sun would not be first in the multimedia market but would instead aim to include multimedia capabilities on all shipped Sun workstations.

"We don't want to be the first pigeon to take flight over a shooting gallery," he said. "We don't want to be hit first."

Sun's move into multimedia will accelerate in 1992 via software-related announcements, a Sun spokesman said last week, noting the company will offer add-on multimedia capability to standard workstations.

Sun's vision for multimedia includes collaborative applications involving audio, video, telephony, fax, graphics and text. Typical business applications might include groupware, concurrent engineering, in-house tracking, knowledge information centers in retail stores and medical applications, spokesman Li- nese Lee said.

Sun already supports a software Netscape of multimedia software, much of it from third-party vendors, said David Smith, a senior software analyst at International Data Corp. in Framingham, Mass. "Their direction," he said, "is that all workstations will be multimedia-ready in the future."

But Sun's hardware will not change overnight. "Sun needs to set the stage for future products and to keep the Sun developer camp from getting restless," explained Pe- ter Kastner, a vice president at the Aberdeen Group, a Boston-based market research firm.

Kastner said he did not think the market's multimedia capabilities are "complement Sun's hardware support for multimedia. "We've reached a critical mass in interest in the third-party community, which feels there's a market out there," said Glenn Wichman, a senior software designer at Highland Software in Palo Alto, Calif. Wichman designed the Multimedia Object Manager application development language, which can be used with Sun computers. Sun has been gathering clues about its intentions in the multimedia market for months now, including a demonstration of a videoconferencing application last summer. But pressured by workstation competitors Digital Equipment Corp. and IBM — both of which announced multimedia products last year — Sun has to make its move this year, analysts said.

"The multimedia workstation is a very viable multimedia platform, but there are quite a few missing links," said Ajit Kapoor, vice president at Meta Group Inc., image management service in Westport, Conn. Sun's new Solaris operating system must be refined to support full-motion video, including the capture of 30 video-image frames per second, he said.

Novell invests in object firm

BY JIM NASH

SALT LAKE CITY — Novell, Inc. has agreed to invest $7 million in tiny Serius Corp., a maker of object-oriented development software for Apple Computer, Inc. machines, a spokes- woman for Serius said last week.

Novell will put one yet-to-be-determined executive on Serius' board. It expects the partnership to grease the wheels of its network-management plans by using object-oriented software and to throw another hurdle in front of competitor Microsoft Corp.'s anticipated Windows New Technology (NT) operating system, according to industry observers (CW, Dec. 2, 1991).

Summer plans
Peter Raulerson, president of Paratechnology, Inc., a Bellevue, Wash.-based consulting and software development firm, said he expects Novell to push for a version of Serius Programmer for its Netware network operating system by midsummer.

He said Novell is in the process of matching virtually every possible application to Microsoft Windows NT, which is to be released in June. "Windows NT offers an improvement over Windows and is running very fast," he said.
SEMATECH, a 14-member consortium including IBM, Digital, Texas Instruments, Hewlett-Packard and AT&T, has cited Oracle for its commitment to Total Quality. Oracle is pleased to be the first and only software company to have won this prestigious award. But we're even more pleased to offer quality products and services.
Cabletron’s edge over Synoptics points up trend toward direct sales

BY JOANIE M. WEXLER

A revenue shift between ever-dueling smart-hub market leaders Cabletron and Synoptics Communications, Inc. indicates a trend in user preferences toward direct sales and support strategies.

Cabletron has finally outdistanced archival Synoptics in revenue, though the two vendors are splitting hairs over what percentage of Synoptics’ income is attributable to managed-hub sales. Analysts chalk up Cabletron’s generally outselling Synoptics’ third-quarter $41.5 million in revenue ($78 million in revenue (66%), contrasted with Synoptics’ third-quarter $41.5 million in revenue ($78 million in revenue (70%). However, Synoptics countered that its high-end hub revenue actually accounted for about 90% of its third-quarter revenue.

The release of the initial comparison figures by Cabletron was an odd move, given the firm’s 16-month repositioning from smart-hub vendor to network management software firm. Cabletron’s network management sales hover between 3% and 4% and are projected to reach almost 4% of the firm’s revenue by 1993, according to Needham & Co., an investment analysis firm in New York.

Proteon pitches hub

While the two smart-hub market leaders duke it out, second-tier vendor Proteon, Inc. is trying to salvage its hub customer base. Proteon recently introduced a $123-per-port, high-end hub designed first to allow IBM-dominant environments to accommodate larger Token Rings, then bundle Ethernet into the same hub.

The Series 90, the product is a follow-on to Proteon’s intelligent Series 70 Token Ring wiring hub and handles networks larger than 30 nodes. Come midyear, the Series 90 will support two Ethertones alongside the two Token Ring network modes that are now available. Modules for Proteon’s bridge/router technology are also slated for mid-1992.

Each hub module can be configured as a stand-alone network or can be integrated into one or several backbone networks, said Vice President of Marketing Nathan Kalowski.

Accompanying Proteon network management announcements will allow Token Ring networks to be managed by IBM’s Netview, Digital Equipment Corp.’s DECnet, Tivoli’s Master Integrator or Proteon’s OS/2 and Simple Network Management Protocol (SNMP)-based Overview. The network management products are all slated to ship in February.

These moves “allow Proteon back into the market to compete on an even footing,” said Bruce Bancroft, northern regional vice president at Trellis, a systems integrator in Hopkinton, Mass., that sells Proteon gear and has also been testing the Series 90 and management products.

Users and analysts agreed on the benefits of a $4,995 SNMP-to-Netview gateway, which translates SNMP messages to Netview formats or Netview to SNMP. A Netview operator does not need to understand SNMP and Transmission Control Protocol/Internet Protocol addressing or vice versa.

“IT’s like a line at a candy store for beta testers for this gateway,” said Bancroft, adding that 25 to 30 firms have shown interest in testing the product during the last three weeks.

“Full translation in both directions will eventually be necessary for everyone,” said Jerry McDowell, director and principal network analyst at San Jose, Calif.-based research firm Dataquest, Inc. Currently, Codex Corp. offers a bidirectional gateway to Netview, and one is on the way from Cabletron Systems, Inc.

The Series 90 architecture will accommodate Fiber Distributed Data Interface networks, Kalowski said. But Proteon said it is not now supporting FDDI local area network or an FDDI bridge/router module until market demand heats up.

Start-up Coral gains 11th-hour financing

BY JOANIE M. WEXLER

MARLBORO, Mass. — InterNetworking start-up Coral Networks, Inc. last week secured $4 million in venture capital amid rumors that it was closing its doors for good.

The 11th-hour financing came from Dallas-based Sevin Rosen Funds and Gibraltar Trust in New York. This is the second $4 million investment in Coral made by Sevin Rosen, which teamed with TA Associates, Venture Investors, and The Barra Trust to provide the firm’s near-$6 million backlog 18 months ago.

Coral has been developing a heavy-duty combination bridge/router/multiplexer aimed at heavy-duty networking requirements, said Vice President of Marketing Nathan Kalowski.

The Series 90 architecture will accommodate Fiber Distributed Data Interface network and an FDDI bridge/router module until market demand heats up.

CORRECTIONS

Because of an editing error, a story in the Dec. 16 issue stated that the computer industry is seeking to change the Computer Systems Policy Project (CSPP), a coalition of chief executives from 12 U.S. computer companies. It should have said the CSPP wants to change a federal government program in high-performance computing and communications.

The table of contents in the Dec. 9 issue incorrectly implied that Software AG’s client/server strategy is tied exclusively to Microsoft Corp’s Windows. The open systems plan, as the story points out, supports a variety of databases running on IBM mainframes, Digital Equipment Corp. VAXs and Unix machines. SQL/DB is an extension to the firm’s entire strategy rather than a new thrust, as the story stated.

Because of a production error, part of the year-end stock table in the Dec. 23, 1991/Jan. 2, 1992 issue of Computerworld was incorrect. The “Top Dollar Gainers” for the year are as follows:

<table>
<thead>
<tr>
<th>Company</th>
<th>Total U.S. hub port revenue (in millions)</th>
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<tbody>
<tr>
<td>Microsoft Corp.</td>
<td>$51.84</td>
</tr>
<tr>
<td>Borland Int’l.</td>
<td>$44.25</td>
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<tr>
<td>Novell, Inc.</td>
<td>$38.00</td>
</tr>
<tr>
<td>Xerox Corp.</td>
<td>$30.25</td>
</tr>
<tr>
<td>PictureTel Corp.</td>
<td>$29.63</td>
</tr>
<tr>
<td>Source: Forrester Research, Inc.</td>
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</tbody>
</table>
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Harris lands FAA voice pact
The Federal Aviation Administration (FAA) last week chose Harris Corp., over AT&T for a 15-year, $1.66 billion contract to overhaul the voice communications network for the nation's air traffic control system. The system will initially be deployed at 25 regional facilities and will provide communications between pilots and controllers at the centers that track domestic flights beyond the jurisdiction of local airport towers. It will be built around Harris digital switches, Tandem Computers, Inc., fault-tolerant computers and Magnavox Electronic Systems Co. color touch-screen displays.

ICEBERG COOLS ITS HEELS
Storage Technology Corp.'s large disk array, code-named iceberg, will go into customer beta-test sites a little later than planned. The firm cited final software refinement and internal testing as the cause of a delay in the beta-test schedule, which has slipped from the first quarter to the second quarter of this year. "We continue to believe we will meet our target of first production shipments at mid-1992, but this puts added pressure on achieving that goal," Kyal R. Popa, chief executive officer at Storage Tek, said in a written statement. The company will formally announce iceberg on Jan. 28.

DEC to expand chip facilities?
Digital Equipment Corp., based in Maynard, Mass., has confirmed that it is "exploring the opportunity" to build a new semiconductor chip manufacturing plant, according to a company spokeswoman. While no location has been specified, speculation centers on Hudson, Mass., home of DEC's current chip manufacturing facility.

ZALE EMPIRE LOSES SPARKLE
Zale Corp.'s effort to stave off involuntary bankruptcy through a dramatic downsizing of its troubled nationwide retail jewelery empire may endanger its outsourcing pact with IBM subsidiary Integrated Systems Solutions Corp. Signed last June, the 10-year contract, estimated by analysts to be worth $286 million, provides for renegotiation in the event that Zale's total volume falls below a stated level. However, Zale information systems head David Karney said, "That point has not been hit yet." Zale plans to close some 400 of its 2,000 stores, freeze certain payments to creditors and cut its work force by an estimated 20%.

Cray Computer stung by delay
The holiday season was less merry for Cray Computer Corp. after the University of California Lawrence Livermore National Laboratory, Cray's sole customer for its new $350 million Cray 3 supercomputer, decided to give the business to ex-affiliate Cray Research, Inc. Livermore tied delays for the Cray 3 and exercised a provision in a contract with the two supercomputer companies to break the contract from Cray Research, according to a Cray Computer executive. In a prepared statement, Bill McCurdy, director of Livermore's National Energy Research Supercomputer Center, said another supercomputer was badly needed because "requests for computer time already exceed the center's current resources threefold."

Hitachi to resell IBM notebooks
IBM confirmed reports published in Japan that it had reached an OEM agreement with Hitachi Ltd. to supply Hitachi with notebook computers to sell on the Japanese market. A spokesman said the notebooks would be a version of IBM Japan's PS/55tote, which runs a Japanese version of DOS. IBM is offering the notebooks as an alternative to NEC Corp.'s proprietary system, which is dominant in Japan. A Japanese newspaper said Hitachi would buy at least 2,000 notebooks a month beginning in April.

Shrink-wrapped viruses on rise
Experts say software publishers are being infected by 'stealth' virus

BY MICHAEL ALEXANDER

Computers are increasingly being infected by viruses from an unlikely source: mainstream software publishers. Although hard statistics are unavailable, some experts say so-called shrink-wrapped viruses are among the most prevalent methods of infection. In the last weeks of 1991, Novell, Inc. was forced to send letters to 3,800 customers warning that the December release of the Network Support Encyclopedia Standard Volume 5¼-in. disk had inadvertently been shipped with the Stoned III virus.

Stoned III is a relatively new breed of "stealth" virus that is designed to evade detection by traditional antivirus scanning techniques and is incredibly tricky to remove once discovered.

Several recipients of the disks alerted Novell on Dec. 13 after their systems were infected by the virus. There are no reports of damage, according to Novell.

Novell's letter said the virus would infect a personal computer if an infected disk was used to boot the machine but would not infect local-area network servers. The firm also shipped a McAfee Associates virus scanner and cleaning utility that is designed to detect and remove the virus.

In early December, Konami, Inc., a software games publisher, sent a letter to customers warning them that a release of SpaceWracked had been infected with the Stoned virus, an earlier version of Stoned III. Konami said the virus was detected before a large number of copies of the game had been shipped.

The number of infections triggered by shrink-wrapped viruses is mounting, although most software publishers do not routinely screen their products before shipping. Disks that are shuttled between home and office are the primary source of infection, according to a recent study by the National Computer Security Association in Washington, D.C. In a survey of 600 respondents, 43% of virus infections occurred after employees brought an infected disk to work.

The problem of shrink-wrapped viruses stems from the rapid influx of stealth viruses that has emerged during the past 18 months, said John McAfee, president of McAfee Associates, publisher of the Viruscan anti-virus software program. "In the past year, there have been 100 occurrences reported to us of shrink-wrapped viruses on a fairly large scale involving more than 25 installations," McAfee said. About half of all viruses — some 200 — introduced in the past six months are from the stealth variety, he said.

Stoned III is the stealth version of the Stoned virus, discovered several years ago. If left unchecked, the virus can destroy a boot sector or partition tables on a hard disk, causing substantial damage, McAfee said. The virus may cause a pro-marijuana message to appear on the screen.

"Without using a specific scanner that knows how to detect that virus in memory, there are no techniques to detect it," McAfee said. Standard antivirus techniques such as checking for changes in file sizes will not work with stealth viruses, he said.

The National Computer Security Association's study indicates that 9% of infections were triggered by shrink-wrapped viruses.

Swamp meet

About three dozen of the world's top virus trackers are expected to attend an annual virus swamp meet at an upcoming computer security conference.

The event, sponsored by the Antivirus Methods Congress (AMC), will take place during the Fifth International Computer Virus & Security Conference slated to be held March 11-13 in New York.

"Virus researchers routinely swap viruses, but [until now], there hasn't been an organized forum [in which to do it]," said Dick Lefkon, president of the AMC and an information technologies professor at New York University.

The newly established AMC is an industry group that proposes to formalize the exchange of virus information among researchers, antivirus software developers and others who meet certain guidelines. The group has established a credentials committee and plans to limit the swap meet to established virus trackers who are sponsored by members of the AMC's board or by fellow members.

The AMC also has a nonproliferation committee that has the power to block the process of developing controls to limit the accidental dissemination of viruses and to pinpoint the origin of a traded virus should it be released, Lefkon said. The procedures for controlling and tracking viruses will not be made public, to heighten their effectiveness, he added.

Michael Alexander

JANUARY 6, 1992

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CHICAGO — With the central government of the former Soviet Union officially out of power, U.S. high-technology firms trying to do business in the region face even more uncertainties than they did just six months ago.

At best, those firms that made bold investments in the former Soviet Union during the rapid thawing of the Cold War probably face a slowdown of buying and joint venture activity while the republics that now constitute what was the Soviet Union sort out their trade policies.

At worst, the time, effort and money these companies spent nurturing relationships with the now-defunct central Soviet government could be swallowed up in chaotic and multiple social, political and economic environments.

For instance, Control Data Corp. in Minneapolis, a company with a long history of deals with the Soviet government, found itself briefly without a customer. Fortunately for CDC, a number of Soviet government agencies have been transferred to the Russian Republic.

"In our case, we were dealing with the larger government entities, and most of these have gone intact," said James E. Ousley, president of CDC's Computer Products Group.

Esther Dyson, an industry analyst and editor of the "Release 1.0" newsletter, stands by her earlier assessment that the long-range opportunities for U.S. firms are good. "There was and is a tremendous opportunity," she said, noting that the republics that now constitute what was the Soviet Union have 280 million people "with a huge need for information technology."

Dyson and companies with Soviet experience emphasize that some of the most fundamental obstacles to doing business in the region predate the breakup of the country.

SPSS, Inc., a maker of statistical software in Chicago, tried and failed to set up a distributor arrangement with a Moscow-based firm. "It went sour after six months. They did not understand the concept of capitalism, of how we do business in the West," an SPSS spokesman said.

Currency problems

An even more serious impediment is the lack of "hard" currency — the ruble is still unconvertible on the world currency exchanges. A number of U.S. software firms have addressed this by selling their product for rubles, rather than dollars, to build both market share and loyalty.

Nantucket Corp., the Los Angeles-based maker of Clipper software, has sold a couple of thousand copies of its application development software in the former Soviet Union during the past 15 months, according to company President Larry Heimendinger. Heimendinger, who says his firm has always emphasized a long-term approach, said he cautiously optimistically.

"There are no firm, hard principals on how you do things," he said.

Cesare F. Rosati, technical adviser to the deputy assistant secretary for international trade control, said a review of high-technology imports will likely take place in the coming weeks or months.

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JANUARY 6, 1992

ELLIS BOOKER

"The MIS director informs me we're now as compatible as we're going to get."

"It's like [having] NASA go out of business," he said, referring to the talent in the former Soviet Union that he can now add to his database of 700 Soviet computer scientists and software engineers.

Del'yon's Intercontinental Software in Palo Alto, Calif., employs Russian software engineers to build custom computer code.

Del'yon said he can put Soviet workers on a programming job at a fraction of the cost for U.S. workers. "The type of expertise that you'd hire for $75 an hour here, we can provide at $25 per hour there," he said.

Is Del'yon worried about social disruptions? "All we need for our business is a hacker. We need a telephone line, and we need an electric outlet," he said. Knowledgeable, motivated people, he added, is the one export the former Soviet Union can offer the world today.

ELLIS BOOKER
To a great extent, the day of the bulldozer is over.

Buildings, like the historic St. Louis Union Station, are saved. And made even more valuable by putting them to new uses. Architects call it "adaptive re-use."

There are parallels in computing.

Mainframes are saved. And made even more valuable by becoming part of the on-line enterprise. Software architects call it "mainframe integration."

There is one software architecture that is designed to integrate the old and the new: Sybase.

Sybase integrates any CICS application and data source—IMS, VSAM, DB2 and more—into an advanced client/server computing environment. The mainframe becomes a high performance server in a network of PCs, workstations and minicomputers.

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With the LaserJet III Si, your users are up to speed the moment they give the "print" command. HP's RISC-based formatter and the PCL 5 printer language, with on-the-fly typeface scaling, yield fast results. Even on the most complex documents.

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to transfer data directly to the printer at up to 180 Kbytes per second. That's 25 times faster than a typical parallel connection.

And since every workgroup has special needs, this versatile LaserJet offers software-selectable language switching. And a range of paper-handling features.

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LaserJet Printers
When it's important to you.
Grace Hopper, mother of Cobol, dies
Feisty mathematician and Navy admiral, 85, most proud of students

BY MITCH BETTS
CW STAFF

ARLINGTON, Va. — "Amazing Grace" Murray Hopper, one of the first computer programmers and mother of the Cobol programming language in 1957 for business data processing applications on the classic Univac line of computers from what was then Sperry Corp. Flow-Matic was notable because it used English-like instructions and was the main precursor of Cobol, the most widely used business programming language today.

In the latest of a long string of honors and awards, Hopper received the National Medal of Technology from President Bush last September. She was cited "for her pioneering accomplishments in the development of computer programming languages that simplified computer technology and opened the door to a significantly larger universe of users."

The strong-willed mathematician, who died in January 1992, said in a 1986 interview: "If it's a good idea, go ahead and do it. It's much easier to apologize than it is to get permission." She was called "Amazing Grace" by subordinates because of her strong, no-nonsense opinions about data processing. Computer pioneer J. Presper Eckert recalled in an interview last week that Hopper was determined to bring structure and discipline to the art of computer programming.

Eckert praised Hopper for fighting the young computer industry's "Tower of Babel problem" of having multiple, incompatible versions of a programming language. Hopper vigorously promoted standardization of programming languages so they would be hardware-independent.

Always fond of gadgets and geometry, Hopper obtained a doctorate in mathematics from Yale University in 1934 and was an associate professor at Vassar College. In 1943, at age 37, she left academia to join the war effort of the U.S. Naval Reserve. In her first Navy assignment, she was thrust into the nascent world of computing as one of three "coders" for the first large-scale digital computing machine, the Mark I, at Harvard University.

In 1949, she joined Eckert-Mauchly Computer Corp. in Philadelphia as a senior mathematician in charge of programming the Univac I, and she stayed with the company as it was absorbed by Remington Rand and then Sperry. It was during this Univac era that Hopper developed the first compiler in 1952 and Flow-Matic, the first compiled language.

Hopper frequently told interviewers that she was most proud of "all of the young people I've trained over the years — that's more important than writing the first compiler."

Although originally retired from the Navy reserve in 1966 because of age, Hopper was recalled within a year to full-time duty to help the Navy standardize its programming languages.
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No wonder more and more companies are choosing the SAS System to bring out the best in OS/2. And the people who use it.
OSF adds end users to meet open systems challenge

BY MARYFRAN JOHNSON CW STAFF
CAMBRIDGE, Mass. — The Open Software Foundation (OSF) began its life as a vendor-driven organization, but end users now form the fastest growing segment of its membership.

OSF President David Tory said last week.

In 1991, the OSF brought its total membership to more than 300 with the addition of 62 new members, including 23 user companies such as J.C. Penney Co., Georgia Pacific Corp. and Bell Communications Research.

With the membership roster now.

The increased user participation coincides with increasing user pressure on vendors to open up systems and deliver products at a faster pace.

In September 1991, for example, participants in the OSF's End User Forum presented management with a blunt message. "We told them there needs to be a lot more delivery of product," recalled Warren Hoffman, an OSF user member and principal consultant at Du Pont Co.'s Information Systems Division.

"It's great that OSF is doing the Distributed Computing Environment, but we need to see a large number of software suppliers who are going to do it, too.

Otherwise, what's the use?"

"End users are playing an active role on all the various committees and task forces. OSF is trying to open up their processes to get even more end-user input," Hoffman said.

The $25,000 membership fee (discounted for universities and nonprofit groups) entitles members to a regular newsletter and a smorgasbord of groups and task forces to sample.

For example, Boeing Computer Services Co.'s participation in the OSF has meant earlier access to technologies such as the Motif graphical user interface, noted Jim Presti, an IS manager at the firm and chairman of one of the OSF's special interest groups.

Pyramid eyes restructuring

BY KIM S. NASH CW STAFF
MOUNTAIN VIEW, Calif. — Staff cuts, a corporate reorganization and other expense-paring efforts are in Pyramid Technology Corp.'s immediate future, the company said last week.

These steps were prompted by the midrange systems maker's preannoucement last week of an operating loss for its fiscal 1992 first quarter that it blamed on the worldwide recession.

Tight user budgets also hurt Pyramid during the closing months of last year. About 20% of Pyramid's annual sales comes from regional Bell operating companies, and up to 15% comes from the UK, according to a Pyramid spokesman. Sales from both these segments were down considerably, he said.

The company said it expects a sales drop of "several million dollars" compared with first-quarter 1991's revenue of $56 million, resulting in a loss. Profits for the first quarter of 1991 topped $4.6 million. Official figures for the quarter just ended will not be released until Jan. 21.

Wall Street watchers noted that Pyramid's announcement follows similar events at competitors Sequent Computer Systems, Inc. and Digital Equipment Corp.

A company spokesman declined to provide specifics about the restructuring, saying only that Pyramid aims to reduce spending by $4.5 million per quarter going forward.

That will shrink the company's break-even level, putting it in a good position for the short term, said Shao Wang, an analyst at Smith Barney, Harris Upham & Co. in New York.
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E4201-6
Combining the methods of ‘two separate worlds’

Firms that produce mixed-signal chips for processing analog and digital data find challenges — and profits

BY CLINTON WILDER CW STAFF

With the growing popularity of multimedia, more analog data in the form of audio and still and moving images is finding its way onto computers. That means a big surge in demand for a type of semiconductor called a mixed-signal chip, which can process both analog and digital data.

The hybrid chips have been around for years, but there are technical barriers to large-scale production of high-quality, fully integrated mixed-signal chips. However, the lucrative potential of applications based on the dual-function chips is prompting several U.S. chip vendors to batter down those barriers.

**Design, testing most difficult**

Analog-to-digital conversion (and vice versa) is a fairly straightforward process, and it is the key to technologies ranging from the latest communications to disk drives. The technology problems crop up in designing, testing and manufacturing hybrid chips.

The disciplines of design and testing for analog and digital chips have traditionally been two separate worlds, said Jeff Teza, vice president of corporate technology at Brooktree Corp., an emerging San Diego-based maker of mixed-signal chips. "The processes that were optimum for analog and digital tend to be stand-alone."

Brooktree has also had to cope with using commercially available computer-aided design (CAD) tools for chip design that have traditionally addressed analog or digital design but not both. Brooktree says the best processes for building analog and digital chips are not the same for digital,” he said. "If you want the best quality analog chips, they tend to be stand-alone."

In CMOS technology — the basis of most chip manufacturing today — testing the chip by running signals through the gates of digital circuitry creates disruptive noise. "That's a no-no for precision analog testing," Teza said.

One solution, as practiced by Brooktree and other companies, is to test the digital processing with as little I/O — fewer gates, in other words — as possible. "We have invented a lot of testing methods inside," Teza said. "We protect trade secrets in the test area almost as much as the designs themselves; it’s a competitive barrier."

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**Market to double by ’94**

Brooktree posted about $85 million in revenue in 1991 selling mixed-signal chips exclusively. The mixed-signal market will top $5 billion this year and will double by 1994, according to VLSI Research, Inc., a chip industry research firm in San Jose, Calif.

The leaders in the niche are some of the industry’s biggest players: National Semiconductor Corp., Philips/Signetics, Inc., Texas Instruments, Inc., Analog Devices, Inc. and Motorola, Inc. Emerging smaller competitors include Brooktree, Crystal Semiconductor (now owned by Cirrus Logic, Inc.) in Austin, Texas, and Sierra Semiconductor Corp. in San Jose.

"The interesting thing is they are all American," said Dan Richard, product manager at VLSI...

**Debugging ‘insect’ crawls one step closer**

BY MICHAEL ALEXANDER CW STAFF

Robots have long been the bane of computers, but at least one researcher believes some bugs could be used to repair computers and to tackle other tasks.

Johannes Smits, an associate professor of electrical engineering at Boston University's College of Engineering, has received a patent for a computerized "silicon ant," a device that is small enough to crawl around the innards of a computer and sophisticated enough to locate and repair defects.

The same silicon ant could be programmed to detect and pick up specks of radioactive dust in a nuclear medicine laboratory, hold human cells for inspection under a microscope or even plant electronic bugs for professional snooping.

The notion of a truly useful silicon ant has been met with "considerable skepticism," Smits acknowledged. "The real applications seem far-fetched," the researcher said. However, other accepted technologies, notably lasers, were invented before their potential applications were fully appreciated, he said.

Smits has not actually built the tiny robot — the first working prototype is about two years away, he estimated. Thus far, he has been able to fabricate the legs that the ant will need to maneuver.

The ant could measure 3 to 7 mm long, depending on its function. A robot equipped with a charge-coupled device, used as an image sensor in video cameras, would be larger than one intended to kill a certain type of crop-damaging insect, for example.

The ant consists of a central processor that serves as its brain, a solar or acoustic cell that provides power, and six pairs of legs. The ant’s legs are actually tiny micromotors that consist of piezoelectric film attached to the top surfaces of a pair of silicon cantilever beams and a V-shaped piece of silicon, which act as feet. Applying small amounts of voltage causes the film to shrink and stretch, thus driving the legs up and down. Alternating the voltage to each beam causes the V to swing back and forth; at the same time, alternating the voltage to each leg causes the ant to scurry forward and backward.

Additional pairs of silicon beams can be attached to the ant's head to act as a pincer or to its tail to act as a tiny saw or other device.

Getting the piezoelectric film in the ant’s legs and pincers to stretch and contract predictably is the real breakthrough in designing the ant, said Smits, who is also the director of the engineering department’s sensors, actuators and micro-mechanics laboratory and an expert in piezoelectric technology. The remainder of the ant is readily available or could be easily produced, he added.

Smits calculated that the device would be capable of traveling fast enough to outrun a real bug. It should be able to carry up to 300 times its own weight, according to Smits.

**ADVANCED TECHNOLOGY**

**Robot ant**

Pincer

Acoustic sensors

Local controls

Central processor

Leg with foot

Pincer control

Smits calculated that the device would be capable of traveling fast enough to outrun a real bug. It should be able to carry up to 300 times its own weight, according to Smits.
Everyone agrees they’re

No one’s debating whether open systems are a good idea, but you’ll hear plenty of discussion about what open systems are.

Some insist, for example, that an open system is a UNIX® system. But to others it’s whatever it takes to get their different operating systems, networking protocols and databases working as one, and the sooner the better.

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good, but not everyone agrees how to get there.

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Testimonial

I can clearly recall the first time I heard Grace Murray Hopper speak to a large group. It was 10 years ago, and, as a junior member of this editorial staff, I was assigned to cover her conference presentation.

My expectations were to be bored by an old-timer (she was 75 then) rambling on about computing days past. I learned two things. First, one of the greatest social sins is to prejudice someone solely on age. And second, what a remarkable woman she was!

For a full hour, Grace Hopper held her audience captive in the tender trap of utterly lucid discourse. Her presentation skills were undeniably strong, almost intimidating. Uncanny was her ability to get the crowd focusing on her image that was still years away.

She believed the conventions of the past — the Cobol-dominated world she helped foster — would crumble under the weight of a PC revolution that was still years away.

For all her achievements and contributions to the world of information technology, we should remember her words from an interview with us a decade ago when she spoke of her praise for people who “aren’t hampered by ‘We’ve always done it this way’ or ‘It won’t work.’”

Us/2

This year — the end of this quarter, in fact — is put-up-or-shut-up time for IBM and OS/2 2.0. And while so much attention has been focused on the importance to IBM of its meeting its stated and implied promises with this product, the spotlight needs to be turned on the customer.

For big IBM sites — and that means many major corporations — OS/2 is a critical part of Systems Application Architecture — the systems blueprint many of these companies have tacitly bought into. So while the corporate computing world of the desktop has been revolving around the Windows-centric universe, some big users are holding out for OS/2 because their major supplier has indicated they should.

There are many critics and skeptics out there who claim IBM will never incorporate all the promised and desired features into OS/2, and even IBM has as much as admitted that the development process has become woefully complex.

If the company delivers on promises and expectations, that’s great. The customer has more to gain than IBM has to lose; it is about “counterfeit” parts. It is one thing to sell modified parts, quite another to pass them off as “IBM original” without telling the buyer.

This is a case of customers not getting what they were paying for. Please note: It wasn’t until a court order that Comdisco decided to alert affected customers and make restitution on this allegedly illegal activity.

Sam Albert
Sam Albert Associates
Scarsdale, N.Y.

Author responds

Regarding Harry Miller’s Nov. 25 reply to my Viewpoint column, “Don’t mess with what isn’t yours” ([CW, Nov. 4], allow me to clarify several points:

First, the two lawsuits IBM has filed against Comdisco are unrelated, and I did not suggest otherwise in the original article.

Second, concerning the return of parts owned by IBM and IBM Credit, the contract obligations are clearly defined in IBM Credit’s Term Lease Master Agreement. Generally, IBM Credit will not accept substitute parts.

As I described in my analogy, if it were my property, I wouldn’t want unauthorized parts of questionable ownership installed, qualified by a generality of “like for like.”

Finally, the lawsuit filed in Chicago is not over “modified” parts; it is about “counterfeit” parts. It is one thing to sell modified parts, quite another to pass them off as “IBM original” without telling the buyer.

This is a case of customers not getting what they were paying for. Please note: It wasn’t until a court order that Comdisco decided to alert affected customers and make restitution on this allegedly illegal activity.

It’s Atari’s Atari

“Apple stocking antipiracy ammuni-”tion” ([CW, Dec. 16] includes the following paragraph: “Commodore Business Ma-

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Sam Albert
Sam Albert Associates
Scarsdale, N.Y.

Author responds

Regarding Harry Miller’s Nov. 25 reply to my Viewpoint column, “Don’t mess with what isn’t yours” ([CW, Nov. 4], allow me to clarify several points:

First, the two lawsuits IBM has filed against Comdisco are unrelated, and I did not suggest otherwise in the original article.

Second, concerning the re-

turn of parts owned by IBM and IBM Credit, the contract obligations are clearly defined in IBM Credit’s Term Lease Master Agreement. Generally, IBM Credit will not accept substitute parts.

As I described in my analogy, if it were my property, I wouldn’t want unauthorized parts of questionable ownership installed, qualified by a generality of “like for like.”

Finally, the lawsuit filed in Chicago is not over “modified” parts; it is about “counterfeit” parts. It is one thing to sell modified parts, quite another to pass them off as “IBM original” without telling the buyer.

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H.R. 3035: A bill that taxes common sense

DOUG JERGER

Political logic and economic reasoning rarely go hand in hand. Right now, a powerful congressional committee is preparing to prove that point by handing the U.S. software community a bill that taxes common sense.

H.R. 3035 is draft legislation to simplify the tax code on intangible assets. The thought of simplifying tax law is seductive. But, with all due respect to its sponsor, Rep. Dan Rostenkowski (D-Ill.), chairman of the House Ways and Means Committee, H.R. 3035 is a deal that most U.S. software buyers and vendors will want to reject.

The logic of the bill is no doubt dear to companies that have been forced to battle with the Internal Revenue Service over amortizing expenses in intangible assets such as goodwill, work-force-in-place and covenants not to compete. But the bill’s logic stumbles by sweeping software into the melange of other intangibles, and it collapses by making the uniform recovery period for software 14 years. Fourteen years! Only 13 years ago, Dan Bricklin and Visi-ware were just getting ready to launch the PC software revolution.

Today, the product isn’t sold, and Visi-ware guru, customers and the industry have gone on to other things.

The overwhelming majority of software products make their commercial progression from cradle to grave in five years or less. Give the economy a much-needed boost by voting business tax benefits for goodwill and the like . . . but not at the expense of software tax reform.

Let’s get back on a logical track. Software has always been different. For more than 20 years, the Internal Revenue Service has allowed companies to write off the expense of software purchases in five years or fewer.

Several methods exist to determine the value of software when obtained in a product or company acquisition.

H.R. 3035 makes U.S. companies less competitive because the bill makes their investments in software technology more expensive — by 12% to 29%, depending on the mode of acquisition.

Are we really better off making a critical technology less financially attractive to American business? Our international competitors may think so.

Canada, France, Germany, Japan and the UK, among other nations, allow the amortization of software acquisition costs over five years or fewer.

Software has grown to become the largest segment of the U.S. information technology industry. An enlightened tax policy will encourage U.S. companies to acquire more software, not less. That’s just common sense.

Systems and software are defining the competitive edge in most major markets. Can lower tech U.S. companies reasonably compete against Japanese or German auto manufacturers? Against the Germans and Japanese in apparel manufacturing? Not for long and not well.

So where’s the logic for changing the rules to amortizing software now?

By extending the period for software and other intangibles to 14 years, Rostenkowski seeks to neutralize the negative revenue effects of recognizing new forms of intangible assets.

The approach may put a few new tax benefits on the table for the average business, and that makes sense when our political leaders are desperately seeking measures to kick-start a slumping economy. But logic that truly serves the national interest must hold up under scrutiny. As an “intangible” asset, software provides tangible benefits to the nation. Now it’s time for Congress to make economic sense, too.

Give the economy a much-needed boost by voting business tax benefits for goodwill and the like . . . but not at the expense of software amortization. Take software out of H.R. 3035.
HOW DO YOU INTRODUCE THE BIGGEST INNOVATION IN OPEN
OURS IS THE

CONTROL DATA INTRODUCES THE 4680 INFOSERVER, THE HIGHEST-PERFORMING SUPERSERVER IN THE INDUSTRY.

Excuse us, but we at Control Data really do have the biggest innovation in open systems computing. Not Sun Microsystems. Not Digital. Not any of our competition. It's called the 4680 InfoServer," and it's the industry's first mainframe-class UNIX server. But more importantly, it's the fastest, the most expandable multiprocessor on the market today. In fact, as industry analysts at Dataquest® report, it delivers "a phenomenal level of performance yet unseen in the industry."

It is, to continue in their words, "a stunning announcement" that "leaves its open systems competitors in the dust."

IT HAS THE BEST OF EVERYTHING.

Its attributes include standards compliance, built-in scalability, network connectivity and truly impressive levels of performance—including the highest SPECthruput number on open systems today (205) and 1381 AIM User Loads—both new world records.

It ensures interoperability with its heterogeneous networking capabilities. It meets any organization's critical security and reliability requirements. And it manages even the most data-intensive environments. And because it conforms to all major standards, including POSIX (NIST certified), IEEE, ANSI and OSI/GOSIP, applications are easily portable.

In plain English, as Dataquest writes, it "delivers all the requisite attributes that both leaders and niche players in the open systems market boast about."

BUT CONTROL DATA DOESN'T MERELY PROVIDE GREAT HARDWARE.

We provide great solutions, too. As a prime contractor, we've implemented open sys-

<table>
<thead>
<tr>
<th>Comparison of UNIX-Based RISC Servers</th>
<th>Performance</th>
<th>CDC 4680</th>
<th>DEC 5800</th>
<th>HP 750</th>
<th>IBM 950</th>
<th>SUN 690 MP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum No. of CPUs</td>
<td></td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>SPECmark/SPECthruput (Max)</td>
<td></td>
<td>205</td>
<td>39</td>
<td>78</td>
<td>72</td>
<td>91</td>
</tr>
<tr>
<td>AIM User Loads</td>
<td></td>
<td>136*</td>
<td>56*</td>
<td>AP</td>
<td>310</td>
<td>AP</td>
</tr>
<tr>
<td>TPC-B (Oracle)</td>
<td></td>
<td>112*</td>
<td>AP</td>
<td>AP</td>
<td>AP</td>
<td>AP</td>
</tr>
<tr>
<td>Max. Disk Capacity (GB)</td>
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<td>179</td>
<td>58</td>
<td>40</td>
<td>22</td>
<td>52</td>
</tr>
</tbody>
</table>

**Standards Compliance**

- POSIX Certified UNIX: YES YES NO YES NO
- U.S. Interop. Registration: YES YES YES AP

*With four processors, certified and tested by Dataquest. **With two processors, multiprocessor data not available.

For example, we helped move the Army Corps of Engineers from a data-processing
system that allowed for only fragmented communications, to a single highly integrated system that is literally transforming the way they do business.

And, to modernize key aspects of the space shuttle program, we integrated a large number of open systems products for the Flight Analysis and Design System (FADS) program.

In Denmark, FIH (Finance for Danish Industry), highly regarded throughout the financial community for the innovative ways it combines information technology with marketing, chose the InfoServers for an ORACLE client/server environment that integrates open systems technology with over 100 PCs.

Similarly, when Canada’s Digitech Information Services, Ltd. needed to migrate its petroleum information database from an antiquated mainframe environment to an open systems alternative, they chose us because they were the only supplier who had implemented the necessary enhancements.

In fact, no company is more uniquely qualified to provide open systems solutions than we are.

We have the hardware—including our 4000 InfoServers and our high performance disk array subsystem (DAS).

We have the operating software and sophisticated networking capabilities. Including FDDI, DECnet, and SNA connectivity, and a complete set of OSI networking capabilities; EDL, a powerful framework and networking tool that can get an organization working together like it’s never worked together before; AWBUS, our automated workstation backup system that virtually eliminates lost data for networks of UNIX workstations; and ICEM, our suite of CAD/CAM software that allows for a seamless flow of information from geometry generation to NC programming.

We have the ability to integrate these powerful, open-standards solutions into existing environments—as can be attested by our 35 years of experience.

And we have the worldwide service and support to back it all up.

**WE OFFER ENTIRE SOLUTIONS.**

Solutions that are unparalleled at organizing overwhelming amounts of data.

Solutions that allow for a powerful and quick flow of ideas between individuals and, as a result, can pull together an entire organization, so it’s more efficient, more productive and more profitable.

Solutions that, in the end, give an organization the flexibility and power it needs to not only survive, but thrive in a volatile and competitive business climate.

Interested?

Then call 1-800-257-OPEN (1-800-257-6736) for more information and a free reprint of the Dataquest report.

Let us show you why, if you want the best open systems solutions and you want them now, we’re the people to call. Period.

**CONTROL DATA**

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YOU NEED PEN COMPUTING

You may not even know what pen computing is or what it can do for your organization. Experts* predict that Fortune 100 companies collectively will be saving hundreds of millions of dollars in data-entry costs alone through pen computing by 1995, not to mention improvements in customer service, field sales, inventory reporting, medical record keeping, and claims adjusting, to name a few applications.

To better understand how to apply pen computing to the challenges facing your organization, come to the first Pen Computer Users Conference for prospective users. Managers who are using pen computing today in organizations like yours will discuss how they gained the acceptance of upper management and end-users, and developed software. The major pen computer systems available today will be demonstrated.

The Pen Computer Users Conference has been guided by The National Advisory Council on Pen Computing, whose members will speak at the conference.

* Portia Isaacson, Ph.D., Dream Machine
* Andrew Seybold, Dataquest
* Bill Lempesis, The Lempesis Report/Pen Vision News
* Tim Bajarin, Creative Strategies Research International
* Peter Tingle, InfoCorp
* Bruce Stephen, International Data Corporation

Other industry experts will speak including John Rizzo of Momenta, Pradeep Singh of Microsoft, Chuck Ennis of TelePad, Jeff Hawkins of GRID, David Fox of Nestor, and Harry Gierhart of OCR Systems.

A total of 16 sessions will be held on key topics including:

- Gaining User Acceptance
- Pen Computing's Return on Investment
- Demonstrating Advantages to Management
- Handwriting Recognition Applications
- Pen-Top Computers
- Wireless Communication via Handheld Pen Systems
- Palmtop Computers and Pens

Register now or call for more information on pen computing. Be sure to ask about the conference transcript available on interactive diskette. (800) 729-3660.

PEN COMPUTER USERS CONFERENCE
January 15, Baltimore, MD.
Stouffer Harborplace Hotel

Advance registration: $419 ($479 after December 18)
WE HAVE A FEW WORDS FOR PEOPLE WHO DEMAND HIGH PERFORMANCE AND EXPECT TO PAY PEANUTS FOR IT.
You wanted it, you got it.
Introducing the Dell® 486P/20. A computer that gives you an i486™ SX processor at the price of an i386™ DX machine.
An incredible performance boost of up to 40% at virtually no additional cost.

A true power user’s desktop. For its low price, the Dell 486P/20 has a lot of technical innovations you wouldn’t expect to find on even higher end machines. Things like programmable Flash EPROMs, for example, that make conventional methods of upgrading system BIOS seem almost obsolete. You won’t have to take this computer apart and lose your patience trying to pry out a reluctant chip. Just slip in a diskette — that’s all.

Generating enough processing power to exploit the full potential of future versions of Microsoft® “Windows” and OS/2®.
Making whatever software you run, run that much faster.

Giving you quicker recals, database compiles and screen refreshes.
In short, getting rid of excess wait.
And if that isn’t impressive enough, the Dell 486P/20 comes with an upgradeable processor that can go from a 20 MHz i486SX chip all the way up to a high-end 33 MHz i486DX system, and even beyond.

Which, considering that we’re talking about a computer under $2,000, is nothing short of revolutionary.

An i486SX processor with the future built in. Because the Dell 486P/20 upgrades via a processor chip instead of traditional processor cards, upgrading takes the form of a single, economical step:
Just remove one chip and replace it with a higher performance version.

On the other hand, if you never need to upgrade at all, you don’t end up having paid a price penalty to get the system in the first place. Either way, you win.

Apart from the processor, the 486P/20 is also designed to allow easy upgrading of hard disks, memory and video capability. So when your needs change, the rest of your computer can, too.

DELL COMPUTER CORPORATION
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TO ORDER, CALL: PLEASE REFERENCE #11HA2
HOURS: 7AM-9PM CT MON-FRI 8AM-4PM CT SAT 8AM-2PM CT SUN
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THE DELL 486P/20 20 MHz i486SX SYSTEM.*
SYSTEM INCLUDES 50 MB HARD DRIVE, VGA COLOR MONITOR, AND 2 MB RAM.
THE MORE YOU GET, THE MORE YOU GET!

If your requirements call for a more powerful or specialized system than the one we offer, we can even better deal with our higher-end i486 systems. From $248 all the way up to a whopping $1,348, you can have what you need.

And if you still have any doubts, call us. We'll be happy to explain how our systems can better serve your needs.

MORE VALUE

The Dell 486P/20 is a 20 MHz i486SX general purpose workstation you can upgrade to 33 MHz and beyond.

For a configuration that costs so little, you sure get a lot. Like programmable Flash EPROMs for easy BIOS upgradeability. And an 80 MB hard disk drive with 15 ms access time. And an 8 KB cache built into the processor for increased throughput. And 4 MB of RAM on 32-bit SIMMs with gold-plated connectors for greater reliability.

And 2 floppy drives. Surprised? Keep reading.

You'll also get a 1024 x 768 14" color monitor with long persistence phosphors.

And the power to display 32,000 colors simultaneously, if you expand video memory to 1 MB.

And factory-installed MS-DOS® 5.0 and Microsoft Windows 3.0.

And a Microsoft Mouse.

And, considering it's from Dell, a whole lot of peace of mind.

That, by itself, is worth a fortune.

$2,499
LEASE: $93/MONTH

THE DELL 486P/20 20 MHz i486SX SYSTEM.*
SYSTEM INCLUDES 80 MB HARD DRIVE, SUPER VGA 1024x768 COLOR MONITOR, 5.25" 1.2 MB AND 3.5" 1.44 MB FLOPPY DRIVE, AND 4 MB RAM.
SAVE $248

MORE PRODUCTIVITY

The Dell 486D/25 is a sophisticated productivity workstation that was designed with your future in mind. To upgrade from a 25 MHz i486SX processor to a faster processor when available, all you'll need to do is replace a processor chip. Not a card. And starting with 4 MB, you can keep adding RAM up to a maximum of 64 MB.

This new system is priced on par with 33 MHz i386DX machines, yet performs up to 40% faster. And its sheer processing power is amply backed by a 100 MB hard drive with a 32 KB cache for increased throughput. A dual floppy drive completes the excellent storage arrangement.

A 1024 x 768 14" color monitor with a 70 Hz refresh rate gives you a flicker-free display. With 32,000 colors, if you make a small expansion of video RAM. Should anything go wrong, the built-in SmartVu™ diagnostic display can find the problem, even if the monitor goes down.

The 486D/25 comes with six expansion slots and five drive bays for added flexibility. You'll also get factory-loaded MS-DOS® 5.0, Microsoft Windows 3.0 and a Microsoft Mouse.

$2,899
LEASE: $108/MONTH

THE DELL 486D/25 25 MHz i486SX SYSTEM.*
SYSTEM INCLUDES 100 MB HARD DRIVE, UTRASCAN™ 14C MONITOR, 5.25" 1.2 MB AND 3.5" 1.44 MB FLOPPY DRIVES, AND 4 MB RAM.
SAVE $748

*Prices calculated from Dell retail pricing as of Dec. 9, 1997. No other discounts apply. Promotional prices expire 1/31/98. All prices and specifications are subject to change without notice. Dell and Dell System are registered trademarks, UltraScan and SmartVu are trademarks and the Intel Inside logo are trademarks of Intel Corporation. PCSC. is a registered trademark licensed to Microsoft Corporation. MS-DOS and Microsoft are registered trademarks and Windows were based on office sites with between 1 and 499 employees. Best Personal Computer in Office Based Dual User Satisfaction in Small 9 to Medium Stand Businesses. J.D. Power and Associates is a registered service mark of J.D. Power and Associates. Dell disclaims proprietary

U.S. News & World Report

NOVEMBER 10, 1997

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MORE SPEED

From desktop publishing to spreadsheet applications, there's one feature that's always welcome, and that's speed. With quick recalls and lightning fast screen refreshes, you'll get your work done faster with the Dell 486P/33.

The 33MHz 486DX processor generates up to 80% more performance than 33MHz 486DX systems. If that leaves you craving for more, you can upgrade to a faster 486 processor when available.

This 486P/33 configuration features a 100 MB hard drive with a phenomenal 15 ms average access time. An 8 KB cache in the processor boosts performance. And dual floppy drives allow you to read any diskette, regardless of MS-DOS format.

A 1024 x 768 non-interlaced big 15" color monitor with overscan gives you 30% more viewable area than the standard 14" you get with any competitively priced system. For even more versatility on desktop publishing or graphic-intensive applications, just expand video RAM to 1 MB and you'll get a 32,000 color, near photograph quality display.

The system comes with 4 MB RAM on 32-bit SIMMs with gold-plated connectors, MS-DOS 5.0, Microsoft Windows 3.0 and a Microsoft Mouse.

MORE GRAPHICS

The Dell 486D03 has every high-end feature you'd expect in an outstanding graphics workstation. Except a high-end price tag.

There's a superfast 33 MHz 486DX processor with 8 KB internal cache. For even greater performance, all you'll need to do is replace the processor chip. So you can upgrade inexpensively as soon as new chips hit the market.

Should your workload, heaven forbid, triple by then, you'll still find the 200 MB hard disk more than adequate.

And as your requirements become increasingly more sophisticated, you can keep adding to the 486D03's 8 MB RAM. With a maximum of 64 MB, there's plenty of room to grow.

Talking about room, we have a large 15" flat square monitor with 30% more viewable area than the standard 14" monitor, which makes those large spreadsheets and high resolution documents much easier to read.

The Dell 486D03 comes with factory-loaded MS-DOS 5.0, Microsoft Windows 3.0 and a Microsoft Mouse.

THE DELL 486P/33 33 MHz 486DX SYSTEM.*
SYSTEM INCLUDES 100 MB HARD DRIVE, UTRASCAN 15" MONITOR, 3.5" 1.44 MB AND 3.5" 1.44 MB FLOPPY DRIVES AND 4 MB RAM.
SAVE $948

THE DELL 486D03 33 MHz 486DX SYSTEM.*
SYSTEM INCLUDES 200 MB HARD DRIVE, MS-DOS 5.0, Microsoft Windows 3.0, MS-DOS MOUSE, 3.5" 1.44 MB FLOPPY DRIVES AND 8 MB RAM.
SAVE $1,348

*As with most technologies, our systems are subject to change. System hardware and configuration shown is an example of what you will receive. May have variations in memory and hard drive capacity. Details of offer, terms and conditions are subject to change. 

**Click here to see our current leasing special.
There are plenty of companies anxious to sell i486 systems at a low price. All they really need is a supply of parts (the cheaper, the better) and a garage to assemble them in. Once the "production line" gets going, they place a few ads in the paper. After that, of course, it's anyone's guess as to which will last longer: the computer or the "company" it came from.

At Dell, on the other hand, we offer lower prices by cutting down on traditional retailer mark-ups, not quality. In fact, we're almost fanatical about the quality of every machine that leaves our state-of-the-art factory. That attitude is reflected in the way we design, test, manufacture and ship our i486 systems.

To see how our i486 systems stand up to air delivery, we use a Black Box. Or, in technical parlance, a portable accelerometer/thermometer. This little device is fitted into a test computer which we then send out through regular delivery channels, much as if you had ordered it yourself. When we bring it back, the "Black Box" tells us exactly what the computer went through, in terms of shock, vibration and temperature. This innovative test is part of a series that's been so successful in helping us improve our packaging, we've won an international award for package design.

To make our computers more reliable, we cook them. After our computers are fully assembled and configured, randomly selected units are "burned-in" and tested at 104°F. In perhaps the most grueling temperature test we've ever come up with, pilot Dell systems must survive a storage chamber where temperatures vary rapidly between -40°C and +60°C.
Our computers have a heart of gold.

At Dell, we take quality consciousness
so seriously, we fit our i486 systems
with SIMMs that have gold-plated
connectors. If you're wondering what
such expensive components are doing
in relatively inexpensive computers,
the answer is simple: they cost us
a bit more, but by eliminating
connection-related errors, they're worth
their weight in gold.

It's exactly this kind of commitment
to quality control that's enabled us
to meet CSA, UL, TUV-GS, FCC and
VDE standards, earning worldwide
regulatory approvals.

There are thousands of ways to use
a Dell i486 system. Dell i486 systems
are tested for compatibility with major
peripherals, software applications, network
topologies and network
operating systems,
including Banyan and
Novell, in several
different permutations
per system. They're
even tested for AS-400 connectivity.

So you can use our machines in virtually
any environment.

50% fewer opportunities for things
to go wrong. After the traditional
computer manufacturer builds a system,
it goes to the dealer, who then does
his own configuring. That's 2 stages of
manufacturing, which means twice
as many opportunities for things
to go wrong.

A Dell i486 system, on the other
hand, is manufactured
only once. We custom-
configure memory boards,
network cards and advanced video,
testing the system as a unit.

We even load select software packages
you buy from us, at no cost to you.
That includes MS-DOS 5.0, Microsoft
Windows 3.0, and many popular
applications programs.

With 20 diskettes and 2 hours to load
and configure just one system, imagine
the time you'll save and the potential
hassles you'll avoid. Which gives you yet
another reason to buy a Dell i486 system:
When you open the box, you're
ready to go.

800-545-3725
WE THINK A COMPUTER SHOULD COME WITH MORE SUPPORT THAN THIS.

As a potential buyer, you’ll receive lots of attention from most computer companies. Until they receive your check, that is. For all practical purposes, once the sale is closed, so is the company.

At Dell, on the other hand, half our story begins after you receive your computer. Despite our low prices, we’ve built a reputation for the highest level of support in the industry.

To begin with, a Dell expert works with you to figure out which computer, with which options, works best for you. We help you arrange financing from a wide variety of credit, lease and lease-to-buy plans. Then we test, pack and ship your personalized computer to you via two-day air standard.

In the unlikely event that you have a problem with your computer, it won’t last long. Our technical support staff solves 90% of reported problems over the phone. Usually in six minutes or less.

You can also get technical help 24 hours a day via our innovative TechFax™ line. Just dial up and detailed system information will be automatically faxed back to you from the Dell Technical Library.

We even have a special section on CompuServe’s PC vendor forum. So you can view other users’ problems, and, more importantly, our solutions. But what makes our bulletin board special is that we constantly monitor what goes on there. Which means we can keep track of any small problems, and stop them before they become big ones.

On-site service is an ambiguous term.

To some enterprising vendors, it conveniently means that the replacement parts, and not the service technician, will arrive on-site. Which isn’t as crazy as you might imagine; there are any number of do-it-yourself computer whiz kids in this business.

If you don’t count yourself among their
If needed, a trained technician can be at your home or office with a solution in hand, usually by the next business day.

What's more, every time you call Dell Tech Support an entry is made in our customer database. So over time, we'll know your computer as well as you do. Maybe even better.

And you get all this support without getting burned. Because the price of your system includes on-site service coverage for a year, and phone support forever.

**Buy a computer and get the company.**

By standing behind every machine we've ever sold, we've built up a $546 million company in just seven years, one customer at a time.

On the way, we've acquired quite a following. For example, the editors at PC Week have described the Dell service and support package as "overkill." J.D. Power and Associates® ranked Dell "Best PC in Customer Satisfaction in Small to Medium-Sized Businesses." We've won PC Week's Customer Satisfaction Poll an unprecedented eight times.

And in the last 12 months alone, we've collected 57 product awards, including PC Magazine's Editor's Choice, InfoWorld's Buy's Insurance and Best Buy and World Class Awards.

And it's not just the smaller users that are satisfied; 84 percent of our users are satisfied, either.

Dell computers are now used by over two-thirds of the Fortune 500® Overseas, it's been pretty much the same story. We've moved through millions of computer sales in the last 3 years, yet we still lose in customer satisfaction surveys in the UK, Germany and France.

Still can't decide? Take 30 days to make up your mind. Within that time, if you aren't completely satisfied, you return your Dell system and we'll refund your purchase, no questions asked.

We're proud to say, though, that this unconditional guarantee has been so trustworthy that only 1.2% of the over half a million computers we've sold so far have ever come back.

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Send us the Fax and we'll send you the figures.

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### Processor
- □ i486SX, 20 MHz
- □ i486SX, 25 MHz
- □ i486, 33 MHz
- □ i486, 50 MHz

### Memory
- □ 4 MB
- □ 8 MB
- □ 16 MB
- □ Super VGA Color, 14", 1024 x 768, 28mm dot pitch
- □ UltraScan 14C, 14", 1024 x 768, .28mm dot pitch non-interlaced, 70Hz
- □ UltraScan 15C, 15", 1024 x 768, .28mm dot pitch non-interlaced, 70Hz
- □ GPD-16C, 16", 1280 x 1024, .31mm dot pitch
- □ GPD-19C, 19", 1280 x 1024, .31mm dot pitch

### Architecture
- □ EISA
- □ ISA

### Chassis
- □ Small Footprint
- □ Mid-Size
- □ Floor-Standing

### Diskette Drives
- □ 3.5"
- □ 5.25"

### Hard Drives
- □ 50 MB
- □ 80 MB
- □ 100 MB
- □ 200 MB
- □ 320 MB
- □ 650 MB
- □ 150 MB
- □ 80 MB
- □ 200 MB
- □ 320 MB
- □ 650 MB
- □ Other

### Monitors
- □ VGA Color, 14", 640 x 480, .39mm dot pitch
- □ VGA Plus, 14", 640 x 480, .31mm dot pitch
- □ Super VGA Color, 14", 1024 x 768, .28mm dot pitch non-interlaced, 70Hz
- □ UltraScan 15C, 15", 1024 x 768, .28mm dot pitch non-interlaced, 70Hz
- □ GPD-16C, 16", 1280 x 1024, .31mm dot pitch
- □ GPD-19C, 19", 1280 x 1024, .31mm dot pitch

### Operating Systems
- □ MS-DOS 3.3
- □ MS-DOS 4.01
- □ MS-DOS 5.0
- □ MS-OS/2 1.21
- □ Dell UNIX® System V

### Other (i.e.: tape drive, network card, mouse or modem)

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#17432
Cad/Cam field shows demand for openness

By Maryfran Johnson CW Staff

Cambridge, Mass. — IBM, Intergraph Corp. and the Computervision subsidiary of Prime Computer Inc. all felt the undercurrent of the economic tide this past year in computer-aided design and manufacturing (CAD/CAM) and computer-aided engineering (CAE) sales — a $7.3 billion market they control with nearly 60% of the business.

A study from Daratech Inc., based here, shows that product transitions, dwindling hardware prices and the recession conspired to slow industrywide growth in CAD/CAM to 5% during the past year.

Yet while the market leaders were hobbled with growth rates as low as 2%, the "growth leaders" — such as Hewlett-Packard Co., Autodesk Inc. and McDonnell Douglas Corp. — all flourished with sales increases of 20% or more, in part because of their break from proprietary platforms.

"This industry is going through a very major restructur- ing," said Charles Foundylier, president of market research firm Daratech Inc. "There is a group of [end-user] companies out there that really want software only if it is available on multiple platforms. No one wants to pay a premium for the platform anymore.".

HP, for example, is porting its key mechanical design software products to Unix-based Sun Microsystems Inc. Sparcstations, slated to ship early this year. That broadening of platform choices should spur further growth for HP, whose revenue surged 20% in 1991 to make it one of the fastest growing companies among the mechanical design vendors, according to Daratech.

Autodesk's AutoCAD software, the most widely used CAD system in the world, showed "resounding success" with its Unix versions of the product, Daratech noted. In terms of revenue growth, Autodesk has lead the industry with 23% growth in 1991.

Donnell Douglas in St. Louis managed to glide over the industry slow spots with revenue from its Unigraphics business growing 20% in 1991. Customers seemed even more confident of the product, the Daratech survey found, since McDonnell Douglas' second quarter 1991 results, announced efforts should dispel some of the uncertainty users have felt about future of both product lines, Foundylier said.

Most encouraged in the CAD/CAM market was Intergraph Inc. in Huntsville, Ala. Daratech's survey found Intergraph users less than satisfied with the proprietary Clipper line of workstations — judging them too slow, too expensive and too far behind major competitors, Foundylier said.

Although Intergraph is now porting its Metrastics and I/TMS products to Sun workstations, the majority of its mechanical business will remain on Clipper in 1992.

"If its Clipper upgrade is late, or if disgruntled users start a stampede to Sun-based systems, the company could be in some tough times in the coming years," Foundylier cautioned.

Broader use of distribution channels through independent resellers and systems integrators is emerging as a clear trend for the '90s, according to Daratech. Computervision already offers all of its CAD/CAM, CAE and electronic information system software through those channels.

Tandem outlines its strategy

Firm moves into client/server field in hopes of increasing market share

By Jean S. Bozeman CW Staff

Cupertino, Calif. — Tandem Computers Inc.'s quest to broaden its market beyond the traditional boundaries of on-line transaction processing took a new turn last month with the announcement of a client/server strategy in which Tandem machines are the "back-end" database server.

The firm has forged a series of partnerships in hope of providing client/server connectivity to many personal computers and workstations. Among the partners are Oracle Corp., Borland International Inc., JYACC Inc., Neuron Data Inc. and Sq Software Inc. Building on gateway technology licensed from Sybase Inc., Tandem developed an SQL Server Gateway to link PC "clients" with the Tandem database server.

Tandem also said Annatek Systems Inc., a provider of software for distributed PCs, would adapt its Network Navigator products to Tandem systems. This client/server concept dovetails with earlier company statements about a software tools strategy to tie Tandem's proprietary Guardian operating system to open systems, such as Unix.

However, customers have not yet shared Tandem's vision, according to recent interviews, because those users are accustomed to having their Tandem machines act as transaction workhorses.

Even without a client/server strategy, data stored in Tandem's Nonstop SQL relational database is relatively easy to access, users said. "We can code an SQL query and throw up screens very easily from a terminal," said Dana Barber, who manages software development at Federal Express Corp.'s Colorado Springs data center. Tandem data on misshipped packages in Fedex's worldwide airport stations is stored for a few days, then purged from the Nonstop SQL database. If data is to be stored permanently, it is moved to an IBM mainframe at Fedex headquarters in Memphis.

However, Tandem would like its installed base of thousands of Tandem sites to start thinking of their Nonstop SQL systems as warehouses holding vital business data. That way, "client" PCs or workstations could launch queries against the SQL-based database, searching for patterns in the day-to-day data.

Continued on page 30...
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*PC Magazine* also singled out the fast, sharp IBM LaserPrinter 10 for an Editors' Choice award, citing "the fastest PostScript graphics we've ever seen from a desktop laser printer," and praising its high-resolution, optional "true 600-dpi output—no marketing doublespeak or technical gimmickry."

They also described it as "bristling with paper-handling options."

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High praise indeed, especially for a new product from a company less than a year old: Lexmark International, created from a business unit of IBM to develop, manufacture and distribute IBM personal printers, typewriters, keyboards and related supplies.

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ON SITE

SCHAUENBURG, Ill. — On a slick track in a small New Mexico town, a Santa Fe Railroad freight train moves past.

The following morning, the 60-ft-wide computerized map that shows the type, status and location of the 250 trains that start across Santa Fe's 10,650 miles of track every day is still fetched with yellow and red flags, indicating rerouted trains that are behind schedule.

More remarkably, before this highly computerized system operations center started on Oct. 1, Santa Fe controllers here used a giant magnet board to monitor the whereabouts of trains by drawing data from a mainframe and personal computers.

"The board had no historical reporting or management reports," explained T. J. Lewis, information systems manager at the railroad's data center in Topeka, Kan. "With automation, we saw the potential to better utilize our fleet."

Driving the display, which wraps around one end of the room, are six IBM Personal System/2 Model 70's running OS/2 and Easel Corp.'s Easel interface software. With each refresh of the screen, several SQL calls are made on the IBM OS/2 Database Manager database, loading 2,000 to 7,000 rows of data from seven key tables.

The Model 90's, which are connected over 16M Mb/sec. Token Ring local-area network, are able to open up to 100 windows.

Lewis said, "the response time requirements were tremendous." The existing turnkey testing system — Plato — cannot be inflexible, but it is old. "It's not even made anymore," Samuelas said.

The future of the systems operations center may include extending the windowing system to attract other testing organizations to its testing centers, a percentage that he says is subcontracting out some of the work. "ERI, a systems integrator in Hauppauge, N.Y., will put the pieces together, test the system and deliver it to all the testing centers so everyone is in full production by Sept. 1.

"We wanted to write the software to control our own destiny," Samuelas explained. The existing turnkey testing system — Plato — cannot be altered. NASD plans to tout its new software as a selling point to customers. Customers will now be able to use their own software on the testing center computers. Plato was developed original-ly as a training system by Control Data Corp. (CDC) and subsequently sold by CDC to The Roche Organization. NASD has had Plato installed for approximately six years.

"Not only is the older system inflexible, but it is old. "It's based on CDC 730s, which they don't even make anymore," Samuelas said.

The new system, called Proctor, based on Informix Software, Inc. database management software, will run on Sun Microsystems, Inc. workstations and will allow students to take their exams on personal computers linked to the Sun's.

Planning for the new operations center began in September 1990; the first iteration of the $433,000 system was running by Sept. 16, 1991.

"We already have 20 outstanding projects for 1992," he said, noting that the replacement of the magnetic board with workstations was just the first step of many projects for his 350-person IS shop.

"We were just the catalyst for an enormous amount of work," Samuelas said. "We've been a nice addition to the IS shop, but we were just there to help planners in their task of ordering appropriately sized equipment for the project.

The new system is stand-alone, with no links to the mainframe. Proctor is based on the Plato's general outline of test development and presentation, but adds new functionality — particularly in the areas of center and network management. It incorporates around 60 Sun Sparcstations, some X terminals for staff use in scheduling exams and electronic mail and Intel Corp. 80286-based computers on which to administer the tests. Plans are to upgrade the PCs soon, Samuelas said.

Ultimately, the new hardware will enable the next step in so-called adaptive testing. With this technique, the test modifies itself depending on the ability of the person taking the test. The computer presents introductory questions to determine the person's level, then presents a series of questions. The computer keeps adapting the questions to the person.

"To do that, you need the whole database to reside on the workstation because of response time issues," Samuelas said.
SOFTWARE SHORTS

Real-time tools added

Digital Equipment Corp. recently rolled out more than a dozen real-time products to complement existing offerings on both its Unix-based Ultrix and proprietary VAX/VMS environments. DEC incorporated the Posix 1003.4 industry standard for real-time applications into its VAXeln software environment for VAX/VMS, and it added real-time extensions to the Open Software Foundation’s OSF/1 Unix operating system.

Pyramid Technology Corp. has formed a database division to promote the use of Pyramid machines as high-performance platforms for relational database applications. Pyramid’s move parallels a similar one at competitor Sequent Computer Systems, Inc. in Beaverton, Ore., which formed a database division earlier this year. Pyramid will work with the major relational database management system vendors, including Oracle Corp., Sybase, Inc., Inforrnix Software, Inc., Ask Computer Systems, Inc.’s Ingres Products Division and others to optimize database software for use on Pyramid’s multiprocessor computers. Pyramid also unwrapped Pyramid Database Fastpak, a package of software products that will address the twin problems of memory contention and I/O bottlenecks that slow the performance of Unix databases.

Database Fastpak, which is available immediately, ranges in price from $10,000 to $47,500.

Uniface Corp. and Hewlett-Packard Co. said they will integrate the Uniface applications development environment with HP’s MPE/IX operating system. Users will be able to build applications that allow transparent access to data in HP’s Allbase/SQL and Turbowimage databases and third-party relational databases.

Oracle recently said that it will support Intel Corp.’s Intel 386 Family Binary Compatibility Specification 2 (IBCS2) standard in Version 6.0 and Version 7.0 of its Oracle relational database products. The Intel standard is supported on many Unix System V Release 3 and System V Release 4 desktop machines, including Compaq Computer Corp.’s Systempro, NCR Corp.’s 3000 series and computers from The Santa Cruz Operation. Oracle is pricing a single-user copy of its Oracle 6.0 RDBMS at $1,700. It will be released on floppy disks and tape cartridges; Oracle also plans to ship the software on compact disk/read-only memory media in 1992.

Tandem offers new strategy

CONTINUED FROM PAGE 25

“Tandem is working very hard to get a bigger and bigger chunk of the back-end database business,” said Roy Schulte, a senior software analyst at Gartner Group, Inc., based in Stamford, Conn. Tandem may even try to position itself against Teradata Corp. — recently acquired by AT&T’s NCR Corp. — since Teradata database machines also use SQL access methods, according to Schulte. Both Tandem and Teradata machines are based on a parallel-processing architecture. In an attempt to overcome its proprietary system label, Tandem helped to found the 2-year-old SQL Access Group, which promotes a single industry standard for the SQL language that would unite all relational databases. To enter the open systems market, Tandem also developed a fault-tolerant version of Unix for its 1-year-old Integrity series of Unix computers.

Just how “open” or “closed” Tandem systems are depends, in part, on your point of view, says Richard Luebke, manager of client/server marketing at Tandem. “A person developing a pure database application might see a need for [the] SQL [language], in which case the Tandem Guardian platform is just as open as any other platform,” Luebke said. Whether longtime Tandem users will embrace the new client/server strategy remains to be seen. But some have said it could well fit into their long-term plans.

“The client/server environment they’re talking about is of interest to us,” said Phillip Seeley, vice president of MIS at Consolidated Freightways, Inc. The company maintains a nationwide image-processing system that tracks shipment orders and then stores them on optical disc at a central site in Portland, Ore. “All of our indices [for the image system] are in SQL databases,” Seeley said. “So we could do some [SQL-based] client/server applications with little difficulty. There are some applications like that in our long-term plan.”
Downsizing brings unexpected bonus
Seed firm boosts software integration substantially after putting mainframe out to pasture

BY SALLY CUSACK
2/13/92
MINNEAPOLIS — When one of the world’s largest agricultural seed producers and distributors, Northrup King Co., downsized from an IBM mainframe to a midrange system, it found an unexpected gain.

While the company expected substantial benefits from the resulting software integration, it was surprised by the capabilities of the menu management system.

The company decided in July 1990 to replace an IBM 4381 with an IBM Application System/400 Model D80.

Northrup King, owned by Sandoz Ltd., develops, produces and markets hybrid seed corn, soybeans, alfalfa and sorghum as well as several other farm seed products.

The publicly held company employs more than 800 people worldwide and operates 20 research sites throughout the world.

The company found that its new software was so superior to its old, that it was capable of doing other functions.

For example, it can handle orders, process customers’ inquiries, and do anything else that a midrange system can do.

Finally, it can handle the company’s financial transactions.

One of the biggest advantages with the AS/400 platform is the data access and query capabilities that the environment provides, Larson said.

“Since this is a midrange system, it is very good at handling data,” Larson said.

Larson characterized the AS/400 system as “quite straightforward” in its programming approach, and he said the Synon-developed applications are also integrated into the Application Manager 2000 menu management system.

So far, the implementation has gone well. “We’re basically through with just some minor hitches and bumps,” Larson said.

“I suspect that we may have some of the same problems with this system as we did with the mainframe MVS system, but we are not sure,” Larson said.

One of the advantages of the AS/400 platform is that the new software implementation on the AS/400 must serve to produce market information and offer data to help better position the product while servicing the dealer organizations.

There are at least 150 and 200 people linked into the AS/400 via terminals and personal computers on the company’s network. With 60% of those users at remote site locations, data integration and delivery on systems and inventories were important issues.

To that end, Northrup selected Software 2000, Inc.’s General Ledger and Accounts Payable programs to handle financial applications and Marcam Corp.’s Prism package for product inventory and sales order management systems.

The integration between Software 2000 and Marcam software was completed very soon after the products were delivered, Larson said, adding that one of the main benefits in the whole transition process has been the Application Manager 2000 product that Software 2000 supplies with its products.

By providing a single menu management and security tool interface, the application manager gives all the software systems on the AS/400 the same “touch and feel” to the end-user community, he said.

“It was very easy to integrate all the software under the application manager, and security access is controlled by menu item,” Larson said. “It is a very flexible system — it only takes about five minutes to add any menu item.”

Northrup King had also decided to develop some non-packaged applications in-house to address some specific dealer information needs.

In conjunction with Coopers & Lybrand, Northrup King elected to use Synon/2E, a computer-aided software engineering tool from Synon, Inc. for design and development.

The Synon-developed applications are also integrated into the Application Manager 2000 menu management system.

So far, the implementation has gone well. “We’ve basically come through with just some minor hitches and bumps,” Larson said.

“I suspect that we may have some of the same problems with this system as we did with the mainframe MVS system, but we are not sure,” Larson said.

One of the advantages of the AS/400 platform is that the data access and query capabilities that the environment provides, Larson said.

“We can move some of the data query tasks to the user and away from the MIS. And more and more questions that were directed to the MIS can now be resolved at the user level.”

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**Development tools**

Fortran-Lint for VMS, a Fortran static source-code analysis tool from Information Processing Techniques Corp., has been updated. Fortran-Lint now includes support for Digital Equipment Corp.'s VAX DBMS database application code. The upgraded version makes it unnecessary to run database management system code through a preprocessor before using Fortran-Lint. The analysis process is streamlined, the company reported.

Pricing is $3,900 per user.

**System software**

Pencom Software has upgraded its Co-Xist software package for Next, Inc. workstations. With Co-Xist, Next users can run X Window System software. Release 2.1.1 provides full client/server support for X Window Version X11R4. Color support and cut-and-paste features have also been added.

Pricing for the software starts at $249.

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**Unix**

Interactive Development Environments, Inc. has ported its Software through Pictures 4.2 development tools to The Santa Cruz Operation's SCO Open Desktop.

Software through Pictures is a multiuser, integrated computer-aided software development environment.

The SCO Open Desktop version costs between $5,000 and $21,000, depending on hardware platform.

Interactive Development Environments
595 Market St.
San Francisco, Calif. 94105

(415) 543-0900

**Processors**

Radstone Technology Corp. has announced a VME module for image and graphics processing.

The Visionmaster handles both computer-generated and live images. It offers a programmable video format and displays images with up to 2,048- by 1,024-pixel resolution. It includes 4M bytes of memory. Supported functions include line drawing, filtering and edge detection.

Visionmaster is priced at $14,950.

Radstone Technology
20 Craig Road
Montvale, N.J. 07645

(201) 391-2700

**I/O devices**

Tektronix, Inc. has introduced a color X terminal with a small footprint.

The Tekxpress XP26 features a 17-in. display with 1,152- by 900-pixel resolution, .28mm dot pitch and a 72Hz refresh rate. It is priced at $4,750.

Tektronix
26600 S.W. Pkwy.
Wilsonville, Ore. 97070

(503) 685-2838

**The Viewstore board offers detailed image examination**

A high-capacity frame buffer board has been developed by Viewgraphics, Inc.

The Viewstore board provides workstations with up to 384M bytes of 24-bit color image storage, which can hold 372 standard TV images or more than 12 seconds of video output. The board also offers a magnification feature for image examination during live-video playback.

The VME-based board is priced from $25,000 for a 96M-byte version to $49,000 for the 384M-byte model.

Viewgraphics
1185 Terra Bella Ave.
Mountain View, Calif. 94043

(415) 903-4900

**HARDWARE**

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Viewgraphics
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Mountain View, Calif. 94043

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And tell everyone to stand back.
Hyundai hits road with laptops; shifts to second part of project

BY MICHAEL FITZGERALD
CW STAFF

FOUNTAIN VALLEY, Calif. — At Hyundai Motor America, a two-year push to use laptops is heading into Phase 2.

Hyundai finished the final pieces of Phase 1 about two months ago and has outfitted all 60 of its dealer representatives with Compaq Computer Corp. LTE 286 notebooks running a variety of software.

The initial payoff was solid: Hyundai's regions report a reduced work load on central administrative staffs and less need to fly representatives in for meetings, and some representatives say they have seen phone bills drop by as much as $300 a month, thanks to electronic mail.

Hyundai's representatives, or field travelers, as they are called, also save time in meetings by being able to pinpoint specific numbers in spreadsheets, rather than searching through reams of paper, as they did before.

Now, field travelers can call the shots in improving the way they use laptops.

“We're trying to push empowerment, give them more information so they can make more decisions when they're in with the dealers,” said Carrie M. Ulvestad, Hyundai's national manager of dealer communications.

Hyundai has created a Field Traveler Council consisting of a parts and service representative and a district sales manager from each of its four regions. Also on the council are Ulvestad; Bette D. King, Hyundai's information center manager; Nancy R. Bethel, a senior office systems analyst; and two field liaisons from the national office.

First on the list is improved

Continued on page 64

Modular software poised to gain foothold this year

BY CAROL HILDERBRAND
CW STAFF

They say that breaking up is hard to do, but the lure of modularity in software is that it just is the opposite.

Modular software — or an application that comes in several segments that can be removed and either run alone, added to another application or hooked into other applications via open system interfaces — has been gaining ground recently, particularly as applications start to exploit Microsoft Corp.'s Object Linking and Embedding (OLE) and Dynamic Data Exchange (DDE) functions.

In the Windows world, such applications are just beginning to hit the shelves, and analysts predicted that it would take until late 1992 for modularity — in the form of support for DDE or OLE — to become a definite feature for a piece of software.

“Once we get a critical mass of users will get a handle on it and be able to combine to create more interesting applications,” said Rich Bader, contributing editor at "PC Letter."

Jesse Berst, editor of "Windows Watcher," said developing modular software will not only decrease time to market but will enable third-party developers to more easily piggyback their applications onto larger core packages. He added that the mix-and-match option will be a boon to users. Once modularity gains ground, he said, "If you like one graphics package's slide sorter but would rather have Corel's charting module, you can stick it in."

There is clearly user interest in the concept of modularity, but the definition of it is variable. "There's very little in the marketplace, and people are still trying to figure out what it means," Bader noted.

According to Matt Edelstein, a beta-test user for Lotus Development Corp.'s Ami Professional word processor at Information Projects Group in Herndon, Va., "I always thought that the basic kernel of a word processor should be entry-level, and you could then sell modular add-ons" as a user desires more sophisticated features.

Mary Lou McPherson, an information technology specialist at Michigan State University, said she sees it as applications working together seamlessly as vendors reach more of a collaborative stage. "As vendors move toward the center, there will be more overlapping," she said, citing, for example, Alektr Corp.'s Pagemaker, which can grab information from a database when needed.

Vendors queried at a seminar on applications in the '90s at November's PC Expo in Chicago expressed varying degrees of willingness to break an application down modularly. While Lot- tus said that its current method of distribution would make it difficult to break apart an application, other companies, such as Macromed, Inc. and Borland International, Inc., said that more basic applications with optional add-ons were in the works.

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Insurer sees future in imaging strategy

Central Life Assurance implements paperless work-flow arrangement in accounts department

ON SITE

BY JAMES DALY CW STAFF

DES MOINES, Iowa — Hun-dred of miles from the nearest ocean, underwriters at the $2.2 billion Central Life Assurance Co. (CLA) were drowning — in paper, that is.

But rather than reach for the first life preserver it was tossed, the insurer waited to find some thing that would help keep it afloat in the long term.

During the next few weeks, after 96 years of scrabbling out new insurance applications by hand, CLA will complete work on a paperless work-flow ar- rangement in its new accounts department that will finally give overstuffed filing cabinets a breather. If all goes smoothly, it could rapidly expand to the far corners of the organization.

Slow procedures

Like many offices, CLA uses data entry clerks to enter information from handwritten docu- ments into a data processing sys- tem. And like many organiza- tions seduced by the promise of a paperless work-flow, CLA thought the insurer would be able to breathe more easily.

"It was getting to the point where you couldn't tell exactly where a document was at any given moment," said Gary Rasmussen, CLA's chief information officer.

Or, as he phrased it, "The data processing and document management was about 60 to 90 percent on paper."

Moreover, the updating and data entry were a matter of hours and days, instead of minutes and seconds, for many insurers.

Central Life Assurance systems

CLA plotted out an advanced imaging system for more than a year and finally decided to build a system that used a cooperative processing approach to inte-grate data processing, text man- agement and document/image processing. Receiving information, data entry, underwriting and policy preparation was all to be tightly linked.

The first proposed solution was suggested by folks from IBM. It called for running an imaging system on CLA's Application System/400 and QS/2. It was rejected as too costly.

CLA officials instead opted for a desktop system powered by Metalfie Information Systems, Inc.'s Metaview software, a high-level, object-driven lan-guage for finding and processing imaging ap-plications in a cooperative pro- cessing environment.

The Metaview system in-volved less processing power and expense. "Metaview didn't require our AS/400 at all," said George Eldridge, senior vice president of corporate services. Eldridge said the ability to cir-cumvent the AS/400 saved "hundreds of thousands of dol-lars."

First step

The data-capture process begins when insurance seekers send ap-plications to CLA. The applica-tion is scanned at the mail room, and the images are indexed and checked for quality. The images are stored magnetically at first and then transferred to 12-in. optical disc in a Sony Corp. 50- disk jukebox.

"The images are accessed via a fiber-optic backbone from a Net-frame NF. 400. Operators use about 60 Intel Corp. 80386- based IBM 5370 terminals. Files are kept in magnetic stor-age while active, or about eight weeks. They are then archived on optical disc, Rasmussen said.

Up to 700 pages a day are then routed to the appropriate work queues. Correspondence goes to a mail queue, where it is related to a file by policy num-ber, and the network server pro-vides any associated documents, Rasmussen said.

Underwriting files contain all information related to a specific account: financial reports, medi-cal information, photographs and so on. When a file is complete, underwriters review all the doc-uments and then approve or deny the application.

Although still in its infancy, the new system has already ad- fected other areas of CLA, par-ticularly customer service. "We have instant status reports, which was a high priority, but it needed a sys-tem to better manage the building op-erations and deliver data to its executives in a timely fash-ion, Barrett said.

The group put together a task force last year. Some of the ini-tial decisions were easy. For in-stance, the department selected MS-DOS as its platform because it wanted a network of personal computers, and MS-DOS is the standard desktop operating en-vironment at the insurance com-pany, Barrett said.

Third-party chaos

The task force began meeting on a weekly basis to determine what CP&S' users needed. It looked at third-party packages for facilities management, but it could not find an O/S that offered what suited users' needs.

The next step, then, was to find software that would allow them to create their own sys-tems. The group selected Clipp-er, a software development system designed by Nantucket Corp. in Los Angeles.

The Clipper software was recom-mended by an outside con-sultant and has been used in oth-er departments at Met Life. Bar-rett said it allows for quick and easy development of applications and added that its advantage is that it lets the group tailor an ap-plication to "exactly the way you want it."

Barrett said the application work was handled by one pro-grammer while another worked on interfaces to hook the soft-ware to the mainframe data-bases.

The system is called the Facili-ties Administration System and includes modules as con-tract and budget management.

Met Life finds dividend in automation system

BY ROSEMARY HAMILTON CW STAFF

All it took was Microsoft Corp.'s MS-DOS and an application de-velopment tool, and the Compa-ny Property and Services (CP&S) department at Metro-politan Life Insurance Co. was up and running.

While other segments of the insurance company are automat-ed, this department has long got-ten by with only a few personal computers and no on-line man-agement information systems.

The group handles 17 proper-
ties, totaling about 6.2 million sq ft, for the insurance company. That includes management of contracts, security and fire safety for these buildings, which are located throughout the country.

"It's not a division that puts money into the company," said Peter Barrett, a project manager at Met Life who helped automate CP&S. "The ones that are more cost centers are the last in the pecking order, if you will."

The department may not be a high priority, but it needed a sys-tem to better manage the build-ing operations and deliver data to its executives in a timely fash-ion, Barrett said.

The group selected Clipper, a software development system designed by Nantucket Corp. in Los Angeles.

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The system is called the Facili-ties Administration System and includes modules as con-tract and budget management.

PC & WORKSTATIONS SHORTS

Vendor collaborate on security

Datamedia Corp. and Micronyx, Inc. have signed an agreement to work together on developing a new generation of security and control prod-ucts for personal computing environments.

The companies have targeted early 1992 for shipment of the first hardware and software components.

Fremont, Calif.-based Everex Systems Inc. recently began shipping its 5.2-pound Tempo Car-rier computer, which it claims is the light-est notebook to have both an internal floppy and a hard drive as well as the first to use an integrated pointing device called the Keymouse. Tempo Car-rier is based on Intel Corp.'s 20-MHz 80386SX chip and features an inter- nal floppy of 2 Mbytes of random-access memory and a 40M- or 80M-byte hard disk. Pricing starts at $2,795.

Computer Associates Interna-tional, Inc. has released a new version, 3.1, of its ACCPAC BPI ac-counting suite for the per-sonal computer. Enhance-ments include the ability to define benefits, deduc-tions and payments in a variety of situations and support for benefit plans that allow employees to set aside pretax funds for medical and dependent care. ACCPAC BPI 3.1 is available now for $895.

AT&T's NCR Corp. dis-division announced recently that it would cut prices on the Safari NSX/20 laptop with a 40M-byte hard drive from $4,749 to $4,199. It will also expand in-distribution to in- clude NCR's reseller base, as well as AT&T's existing base of resellers.

Twinhead Corp., a Mil-pitas, Calif.-based subsidi-ary of a Taiwanese clone maker, said it will provide on-site war-ranty service for its Twin-head portable through the AT&T's Consumer Service Division depot service centers.
There is a myth going around that Windows is virtually impossible to network, so let me set the record straight: Networking Windows is a pain, but it is often worth the pain.

Perhaps Windows got its bad reputation because it's so much trouble to install on a network. The out-of-the-box settings are not right for networking. You must tune Windows manually before it will run properly.

You must also anticipate all the different hardware configurations used as workstations and prepare a different SYSTEM.INI file for each one. (SYSTEM.INI is an initialization file that adapts Windows for a particular hardware environment.) Even after painstaking installation and careful tuning, some users continue to complain of frequent crashes. Often, these crashes result from memory-resident DOS programs that conflict with Windows.

But the Windows user must install new software, or a new version of existing software, or a bug fix, or a new screen driver, or new printer settings, you will soon understand why the savings can quickly add up to many thousands of dollars.

The "Windows from the server" approach also makes it easier to monitor compliance with software license agreements. And it might let you save with concurrent licensing schemes.

Most companies find that even if 100 users need a program sometime during the week, fewer than 30 ever need it simultaneously. If you install your applications on local workstations, you must pay for 100 programs. If you run from a centralized server, you can, in theory, buy just the 30 you really need. (In practice, license arrangements vary by vendor.)

Of course, you don't get these benefits without a price. For one thing, you need a fast hard drive and a large disk cache on the server. Otherwise, Windows will bog down the network. Still, it's cheaper to buy extra disk space and more RAM for a single server than for every workstation.

Moreover, you must plan enough time and resources to fine-tune the system. Otherwise, Windows may bring your network to its knees. The adjustments should be done by an experienced Windows networker who knows the tricks that have been discovered over the past year and a half.

For instance, plain-vanilla Windows can take up to several minutes to load over the network. But with the addition of a few lines to SYSTEM.INI, it can load as fast as it does from a local hard drive.

And the best is still to come. Later in 1992, Microsoft will come out with a simplified peer-to-peer networking scheme — at least, according to the rumors. If you can wait a little longer, you'll eventually have full-scale networking built right into Windows.
Microsoft's Visual Basic simple alternative to C

Microsoft's Visual Basic 1.0

<table>
<thead>
<tr>
<th>Reviews</th>
<th>Ease of use</th>
<th>Environment</th>
<th>Tools/Extensions</th>
<th>Debugging</th>
<th>Value</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infoworld</td>
<td>Very good</td>
<td>Excellent</td>
<td>Excellent</td>
<td>Very good</td>
<td>Excellent</td>
<td>6.0</td>
</tr>
<tr>
<td>Byte 10/91</td>
<td>Very good</td>
<td>Excellent</td>
<td>Excellent</td>
<td>Very good</td>
<td>Excellent</td>
<td>6.0</td>
</tr>
<tr>
<td>Byte 10/91</td>
<td>Not difficult, but complex</td>
<td>Novell approach requires learning</td>
<td>Visual select interface objects</td>
<td>Easy</td>
<td>Excellent alternative to C</td>
<td>6.0</td>
</tr>
<tr>
<td>PC Week</td>
<td>Quick and easy</td>
<td>Graphical</td>
<td>Lack Windows support</td>
<td>Integrated</td>
<td>Excellent alternative to C</td>
<td>6.0</td>
</tr>
<tr>
<td>PC Computing 1/25</td>
<td>Select actions from drop-down lists</td>
<td>Object-oriented environment</td>
<td>Extensible</td>
<td>NC</td>
<td>Obvious choice</td>
<td>5.0</td>
</tr>
<tr>
<td>Purchaser</td>
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<td></td>
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<td>Reviewer</td>
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Vendor financial ratings

Microsoft responds

Realizer: Strong, competitive tool from Within

Within Technologies' Realizer 1.0

Vendor financial information

Within Technologies, Inc. is a privately held company incorporated in 1980. It is based in Mount Laurel, N.J., has approximately 25 employees and is profitable, according to the company. Realizer is Within Technologies' first product.
Hyundai rides with laptops
CONTINUED FROM PAGE 37

communications facilities, Ulvestad said. "Basically, they said that if we don't fix the communication problems we have now, they don't want to get any more information than they already have."

Hyundai is looking at a variety of methods to improve communication facilities, including finding 9.6K bit/sec. data modes to improve communication facilities, formation than they already have."

with laptops and putting in a dedicated line at a dealer -now, they don't want to get any more in -communications facilities, Ulvestad said. The challenge Ulvestad and her team faced was increasing the time they could spend meeting with dealers and their eff -ectiveness during that time.

At the end of the test, the central re -gion's general manager told Hyundai Mo -tor America's executive committee, "If you try to take these PCs away from my peo -ple, I'd have complete mutiny. You cannot take these away; we are depen -dent on them, that's how they do their jobs." Hyundai rolled out portables to the rest of its regions, a process it completed four months into the pilot, the lighter, smaller LTE 286 appeared. Ulvestad said "we were quite upset" by this, as the company had researched the market before buying. So it moved to leasing to avoid getting caught again.

Only the initial phase used SLT models purchased from a Compaq dealer. Some four months into the pilot, the lighter, smaller LTE 286 appeared. Ulvestad said "we were quite upset" by this, as the company had researched the market before buying. So it moved to leasing to avoid getting caught again.

Installed on the portables are Lotus Development Corp.'s Lotus 2.01 spreadsheet, IBM's DisplayWrite IV word processor, PS/PC's communications pack- age and compiled versions of Microrim, Inc.'s Rhase 3.0 applications. Hyundai will upgrade to Lotus 3.1 soon and may add a graphics presentation package.

BY MICHAEL FITZGERALD

VAN NUYS, Calif. — Clone-maker Bell Computer Systems said it would greet the new year with an upgradable personal computer that allows the user to upgrade the bus as well as the CPU.

Bell's line of systems, based on chips from Intel Corp. and Advanced Micro Devices, Inc., will offer processor upgradability from a 25-MHz AMD386SX to an Intel 50-MHz I486DX. It will also give users the ability to see their peripherals run at the CPU speed, rather than the 8-MHz rate of data transfer permitted by the AT bus.

To do this, Bell's systems will use Santa Clara, Calif.-based Opti, Inc.'s Lo-cal/CPU Bus chip set. The catch for users is that existing peripherals do not take ad-vantage of local-bus architectures and will not run faster, although Bell said its sys-tems will have peripherals that will use the Opti system.

Bell expects to ship systems at the end of February. It will not sell CPU upgrades without an Opti chip set but has yet to set pricing for the systems.

One analyst said the bus system ap-pears to make sense for users.

"Users will want to get maximum mileage out of an upgrade, performance enhancements and true productivity en-hancement, and to the extent that you're limited by the bus, how much does an up-grade give you?" said Richard Zwitch-kenbaum, senior hardware analyst at In-ternational Data Corp. in Framingham, Mass. A Bell spokesman credited Intel with developing the local-bus concept back in 1988 but said vendors were reluctant to lock themselves into both Intel chips and an Intel architecture.

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JANUARY 6, 1992
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NCR offers NETWORK SHORTS

BY JOANIE M. WEXLER CW STAFF

NCR Corp. recently announced a new point-of-sale workstation that can work with a wireless local-area network. Members of the the NCR 5100 family occupy half the space of traditional personal computers, according to NCR. The company said up to 11 cables per work area can be eliminated if the device is used with NCR's optional Wavelan wireless LAN. The 5100 systems use Intel Corp.'s 386, 16-MHz chip and measure 11⅛ by 17 by 6⅜ inches.

Mainlan, Inc. in Dallas said it is shipping a low-end LAN operating system for $199 per node that includes a network interface card, software and cabling. The LAN, which targets small networks, is said to support MS-DOS and DOS/Windows clients and includes peer-to-peer sharing of DOS and DOS/Windows network applications and electronic mail.

Network analysts are unsure about SMDS

BY ELISABETH HOWWITT CW STAFF

PROVO, Utah — Novell, Inc. threw what some users may consider a curveball when it announced its distributed Netware management system late last month.

While the product does meet some long-standing user needs, Novell's decision to base it on IBM's OS/2 Version 2.0 is likely to draw some user resistance, according to Tom Wood, senior industry analyst at Business Research Group, a Newton, Mass.-based consultancy.

Novell has been hinting for some time that it would be announcing a graphics-based, integrated management system for distributed Netware nodes. "Before, when Novell said it had network management, it really meant management of a single Netware server," Wood said. A network manager at a terminal would need to log on to each server in turn to get information about what was happening on each local-area network, he explained.

In contrast, Novell's Netware Management Map is said to track nodes automatically across multiple Netware LANs and display their status on a graphical user interface based on IBM's Presentation Manager. The product identifies active nodes on the network and "paints a map" depicting those nodes on a corporate-wide network, according to John Edwards, Novell's director of marketing.

If a system fails or its performance degrades, its icon on the screen changes color. Then the administrator can position the mouse over the icon, zoom in to get more specific information about the ailing node and "take proactive steps, hopefully long before users call," Edwards said.

In addition, the system collects configuration information, such as what version of DOS or IPX a workstation is using or the number of packets it transmits within a certain time period. It then stores the information in a Novell Btrieve database for later retrieval and analysis, he said.

The above system "sounds very good, particularly when it comes to getting an inventory of devices on the network and a picture of the network's health," said Brian Keller, a network specialist at a major insurance company.

Keller said he also likes the idea of collecting configuration information...
By Elisabeth Horwitt

Novell, Inc.'s announcement of Netware Management Map was only one of several promising developments in the local-area network management area that took place late last year and the first quarter of 1992. Other key announcements included the following:

- Ungermann-Bass, Inc. (UB) announced that it had purchased a bare majority share (50.1%) of LAN management vendor Networth, Inc.

- Underex, Inc. (UB) announced that it would sell its Up-and-coming Network Management vendor Network manager, Network, Inc.

- Underex and Network management vendor Network manager announced an agreement to sell their products, but Network management vendor Network, Inc. will "part of a move into the Network management market that will take place in the coming months," according to Network management vendor Network, Inc.

Under the agreement, the two companies will continue to sell their respective products, but Network management vendor Network, Inc. will "part of a move into the Network management market that will take place in the coming months," according to Network management vendor Network, Inc. Underex announced no definite plans for porting Network management vendor Network, Inc. products, saying "The first step toward downsizing," according to Underex.

"When we announced our new version of Transmission Control Protocol/Internet Protocol (TCP/IP), software for VM, which is used to include SNMP support for IBM's 3172 controller. This is a new, in turn, will enable users to manage the 3172's Fiber Distributed Data Interface (FDDI) network connections via host-based SNMP management system.

The new version introduces a TCP/IP-based client/server database system. The remote procedure call-based system is said to be "the first step toward downsizing," according to Underex.

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Ameritech takes
aim with AIN trials
BY ELLIS BOOKER
CHICAGO — Two years ago, Ameritech became the first of the regional Bell holding companies to announce its Advanced Intelligent Network (AIN) plans. In early December, it took the lead again, becoming the first to announce AIN customer trials.
However, commercial availability of AIN-based services in Ameritech’s five-state region is still “a few years away,” according to Ameritech.
AIN calls for the deployment of computer databases and intelligent switches throughout the phone network. These pieces work together to route customer calls based on information stored in a database.
For example, calls can be routed depending on criteria such as the time of day, or customers can arrange for simplified, wide-area dialing plans for outgoing calls.
The next iteration of AIN, expected in the 1997 time frame, will tighten integration of this approach with the administrative and billing systems used by phone companies. This should dramatically speed up the hook-up, connection or modification of phone service — what telephone companies call “responsiveness” to customers.
The AIN architecture consists of the following parts:
- The Service Switching Point (SSP), the network access point at which an incoming call is first processed. The SSP strips the call’s out-of-band signaling information and sends this to the signal transfer point (STP).
- The STP recognizes whether this is an AIN call; if so, it signals the information is transferred to the service control point (SCP).
- The SCP, in essence a central database, references the Service Management System, a routing database where additional details for how the call should be handled are stored.
The entire process takes a fraction of a second.
Continental Bank Corp. and America Online, based in Chicago, will participate in Ameritech’s AIN technical trial.
The two will test a variety of call routing and forwarding, call blocking and simplified extension dialing capabilities.

Decomarca lines
A recent survey by Boston consultancy Yankee Group of 80 large companies showed that 54% plan to implement SMDS, compared with 73% planning to use frame relay. The discrepancy can largely be chalked up to user unfamiliarity with the as-yet nonexistent SMDS service, which offers the following advantages:
- SMDS as LAN extender requires less configuration work on the part of the user.
- SMDS can eventually reach 155M bit/sec., while frame relay will probably only reach T3 (45M bit/sec.).
- Monthly T1 carrier charges might be significantly cheaper than frame-relay charges.
- Users can often upgrade multiplexing equipment to support frame relay. If they do not already have equipment installed, the investment is still about half of that of the equipment needed to support SMDS.

Micro-to-micro
A version of Carbon Copy Plus for the Microsoft Corp. Windows 3.0 platform has been released by Microcom, Inc.
The product offers file-transfer capabilities and remote control of another personal computer running Windows 3.0. It also includes a “chat” function.
The price is $199.

Electronic mail
Folio Corp. has announced Mailbag, an electronic mail storage- and-retrieval system for Novell, Inc. Netware local-area networks.
Mailbag categories and archives messages from common E-mail packages including Microsoft Corp.’s Mail, Lotus Development Corp.’s CC:Mail and Wordperfect Corp.’s Wordperfect.
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Local-area networking hardware

A new set of 10Base-T network hubs has been announced by 3Com Corp. The Linkbuilder 10BT products are 12-port hubs that can be interconnected to support up to 48 10Base-T nodes as a single logical repeater. They also allow users to hot-swap a BNC or fiber backbone port.

The Linkbuilder 10BT costs approximately $90 per port. An intelligent version supporting Simple Network Management Protocol costs approximately $110 per port. A single-port BNC module costs $149.

**3Com**
3165 Kifer Road
Santa Clara, Calif. 95052
(408) 562-6400

Storage Dimensions' Lanstor EL can control up to seven disk drives

Storage Dimensions, Inc. has introduced the Lanstor EL series of storage products for small to midsize Novell, Inc. Netware local-area networks.

The Lanstor EL line includes a small computer systems interface adapter that can control up to seven disk drives. Drives in the product line offer formatted capacities of 213M, 339M and 535M bytes. Data transfer rates are as high as 5M bytes/sec. The system can be configured to provide more than 3G bytes of storage.

Pricing starts at $1,825 for an internal 213M-byte subsystem.

**Storage Dimensions**
1656 McCarthy Blvd.
Milpitas, Calif. 95035
(408) 954-0710

Gateways, bridges, routers

Intellicom, Inc. has announced a low-cost, high-performance local Ethernet bridge.

The Quicknet 6000 bridge examines more than 27,000 packets/sec, and forwards more than 14,700 packets/sec. It is protocol independent, Intellicom said, and supports the Simple Network Management Protocol. The bridge also automatically learns the network configuration and stores up to 10,000 Internet Protocol addresses.

Quicknet 6000 costs $1,975.

**Intellicom**
20415 Nordhoff St.
Chatsworth, Calif. 91311
(818) 407-3900

Mcdata Corp. has announced the availability of its enhanced Linkmaster 7100 Network Controller.

The Linkmaster 7100 is an IBM 3174-compatible device with expanded local-area network support. The product offers 10 new features including Systems Network Architecture gateway connectivity for Ethernet, concurrent SNA and non-SNA channel protocols on the same channel and multiple host protocol combinations.

Pricing ranges from $5,635 for a 16-port, single-host controller to $29,355 for a 128-port, single-channel version.

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Broomfield, Colo. 80021
(303) 460-9200

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JANUARY 6, 1992
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Fresh air beats Times Square

Reynolds IS chief Robert Wynn has no regrets about leaving the big city for Nevada

BY JIM NASH
CW STAFF

Robert Wynn laughs loudly at the comparison of his life to the television show "Green Acres." It's funny, the information systems manager admits, because it's true.

Last October, Wynn, former manager of computer systems and planning at Manufacturers Hanover Trust Co. in New York, checked "the manure of Manhattan for the mountains of Nevada." Wynn now manages the information systems department at Reynolds Electrical & Engineering Co. in Las Vegas. Reynolds is a U.S. Department of Energy contractor that for 40 years has provided site construction and support for underground tests of nuclear warheads.

"I agree the change he made is continental in size. "But the time for change was there. I needed to expand my career and my experience," Wynn says. "The East Coast was a negative experience."

Consolidations and mergers in the late 1980s were sweeping away those companies that had not already lost their economic edge, he notes, "and our revenue stream looked bad." With consolidation would come staff cutbacks, something in which the 18-year Manny Hanny veteran was loathe to participate.

"I left Manufacturers Hanover a year ago, only months ahead of its merger with Chemical Bank," Wynn says. "And my objective was to become a CIO." The better practice is putting IS executives in trouble.

A graduate of Fordham University in New York, Wynn joined the Federal Reserve Bank in New York in 1969. There, he learned the particulars of financial communications equipment as a systems analyst.

Continued on page 56

New Year: It's high time for an IS makeover

BY CLINTON WILDER
CW STAFF

The new year. Time for questions, self-examination and New Year's resolutions that are put on the shelf to gather dust as soon as the first "drop of everything" crisis lands on your desk.

Leading information systems consultants, however, suggests that letting resolutions languish this time around could be suicidal.

Calling 1992 "the year of introspection" for IS, N. Dean Meyer, president of NDMA, Inc. in Ridgefield, Conn., said the IS function must undergo a fundamental change in order to survive.

Meyer contends that somewhere in the midst of the changing information officer, many IS organizations have lost sight of management fundamentals.

Without changing the organization to be responsive, cost-effective and aligned with the business, the CIO is doomed to failure in the eyes of senior management — and will become another CIO turnover casualty.

The 'better organization' Unlike in Japan, many Americans don't treat management as a science," Meyer said. "Anyone who talks a good game can make it to the top. But IS executives had better learn how to design better organizations."

The better organization is one in which the CIO has empowered both the technical specialists and end users in the business to make technology and budget decisions. A growing trend that NDMA and other firms support is placing business users in charge of IS budget prioritizing for their specific needs.

"The IS executive can never know 100 opportunities for a $1 million payoff with a $10,000 investment in end-user computing. Focus on low-cost, high-payoff opportunities." Such projects can help convince senior management that there is a return on investment (ROI) payoff from IS spending — and save the CIO's job.

Senior executives are "getting fed up when ROI is low and IS appears to be a necessary evil," Meyer said. "But at the same time, they are more computer-literate and more excited about the potential of technology. That combination is putting IS executives in trouble."
Fresh air beckoned to Reynolds' Wynn

CONTINUED FROM PAGE 55

Three years later, he left to teach at the University of New Mexico. When he accepted a position as a deputy director of a Department of Defense systems management school in Fort Belvoir, Va., Manfro decided to return to his roots in the field of information systems. "It was a real big change," he says. "I was stuck in a box all day long. I needed an IS manager," Wynn says. "I needed an IS manager, and I was offered a job as a senior systems analyst there." Wynn says he was drawn to the position by the "private" nature of the work. "It was the small-town feel that appealed most to him. It immediately upon arriving — in less time than it usually took him to find a parking spot. "I came to Manhattan — Wynn had purchased his first Steetson hat and a pair of cowboy boots shortly after moving there. But when Wynn wants to re- member how this world really is in high-rise towers of New York, all he has to do is drive out to the desert sites where Reynolds has conducted his testing for most of the nuclear experiments. From the sun-blasted desert, he can see mountains scraggly at the horizon, which are surrounded by occasional concentric circles marking test spots.

The first time I was on the [testing] site, I thought I was on the moon," Wynn says.

Company town

For all the similarities Robert Wynn may find between his job maintaining systems at Manufacturers Hanover and Reynolds Electrical & Engineering, the role of the equipment differs enormously. The systems accumulated by employees, Reynolds' systems also help run the tiny, private town of Mercury, Nev. Mercury was built by the Department of Energy to test house-site employees. It looks like a miniature village shimmering miles behind a barred wire fence in the Nevada desert.

For all intents and purposes, it is a giant hotel and motor pool. Employees rent homes for nominal fees and are provided with vehicles. Reynolds, in fact, manages about 5,500 autos, the largest nonmilitary pool in the nation.

The company's DEC VAX computers maintain databases that note who is scheduled to arrive in Mercury, which house they will rent, what, if any, transportation they will need and how long they will stay. Wynn explains. The computers go far as to help schedule entertainment in the company town's theater and juggle food deliveries to its stores.

JIM NASH

MANAGEMENT SHORTS

Poll: 36% planning to hire

Searching for a ray of economic hope? There may be one in the latest survey of hiring intentions conducted by Computerworld's Polling Division of Cleveland-based personal search firm Management Recruiters International, Inc.

Computerworld polled 400 firms and found that 35.8% plan to increase their information systems staffs in the first half of 1992. This represents a 6.9% jump over projections for the last half of 1991. Not surprisingly, however, there is some bad news: 13.8% of firms polled said they plan to reduce IS staff in the same period, an increase of 1.2% over the second half of 1991. About half the firms (50.3%) plan to maintain current staff sizes in the next six months.

The aggressive IS hiring will be in the health care industry, where 59.3% of the firms polled said they would increase IS hiring. The data processing industry was next, with 43.9% planning to beef up IS staffs, followed by the electronics industry at 35.5% and fabricated metal products at 32%.

The Association for Computer Operations Management (AFCOM) will present its first "Data Center Manager of the Year" award for excellence in data center management. The award will be presented at a special awards banquet during AFCOM's 12th annual conference and trade show in Nashville on April 29.

Managers directly responsible for the success or failure of a computer operations department are eligible for nomination. Candidates can be nominated by professional colleagues and fellow employees, but not vendors who sell products to the data center.

Nominations should be submitted to AFCOM, 742 E. Chapman Ave., Orange, Calif. 92666.

Profit- Oriented Systems Planning Program (POSP), an IS research consortium, will hold its winter meeting Feb. 3-5 in San Diego. Nonmembers of Carrolton, Texas-based POSP are invited to attend but must pay a higher fee.

The conference will cover a range of topics including using IS to set business objectives, improving returns on investment through re-engineering and dealing with shifting technology environments.

Speakers include Thomas R. Gaughan, senior vice president and chief information officer at Home Insurance Co.

Computerworld
For IS, quality is 'job none'

U.S. businesses are abuzz with talk of quality, but surprisingly few look to information systems as a means to achieve it.

BY ALICE LAPLANTE

Three years ago, Carrier Corp. wasn't exactly a hotbed of quality. The Syracuse, N.Y.-based manufacturing giant faced eroding market share and — perhaps worse — an increasing perception that it was not communicating effectively with customers.

Small wonder: A manual order-entry system designed to match products with customers was plagued with problems, resulting in a 70% error rate. The system handling one of Carrier's bread-and-butter products, a commercial air-conditioning unit, had so many steps that mistakes were all but inevitable.

Still worse, says Paul Burkhart, manager of applications development at Carrier, errors sometimes went undetected until the end of the manufacturing line, where workers would discover a wrong coil or similar problem. Worst of all, big mistakes would occasionally reach customers.

In 1988, Carrier said "enough" and started a Total Quality Management (TQM) program in which information technology would play a big role. Today, an expert system — developed using an IBM expert system shell on a 3090 mainframe, later converted to Aion Corp. technology — coordinates everything from sales to manufacturing, resulting in fewer errors, lower manufacturing costs and happier customers, Burkhart says.

In fact, Carrier management was so pleased with its first success using technology to beat a quality problem that it is now looking for new ways information systems can help streamline business processes.

Sadly, Carrier is a minority among U.S. businesses. Although quality is an oft-heard term, to date, few organizations have effectively harnessed information technology to improve the quality of their goods and services.

U.S. misses the connection

A recent joint study by Ernst & Young and the American Quality Foundation (AQF) found that only 22% of U.S. businesses believe technology is of "primary importance" in meeting quality goals — the lowest percentage of the four countries surveyed. In contrast, 49% of Japanese firms, 33% of German firms and 31% of Canadian firms saw technology as a key factor, says AQF President Joshua Hammond (see chart page 59).

The study jibes with a recent member survey taken by the Society for Information Management (SIM). Although the importance of quality rated 3.19 on a scale of 4.0, only 15% of the 580 IS executives responding felt it was their role to act as a supplier of technology to enable quality programs.

"The people introducing TQM to corporations all read the same business books and articles and concentrate on things like manufacturing and customer service," says Ted Prince, chief executive officer of the Computer Power Group, Inc. a New York-based consulting firm. "Virtually none of them are interested in IS."

That's a big (and ironic) mistake, Prince notes, because good information is a top concern of quality programs. "If you are trying to improve manufacturing, you need data . . . on what you are doing wrong, what you are doing right. Where are you going to compile that data? How are you going to analyze it, get it to the right people? Without the help of IS, it's an impossible task."

Carrier knew this when it had IS work with business management on the order-processing role of IS in quality

KEY POINTS

- Quality is a popular buzzword in U.S. businesses, but few have effectively harnessed information technology.
- Most IS quality efforts focus on improving internal processes, such as application development.
- Americans place less faith in the ability of technology to improve quality than do Europeans or the Japanese.
- Carrier Corp. is an exception. It slashed production costs by installing expert systems.
- U.S. government agencies are starting to climb on board the quality bandwagon.
- Quality pioneer Nashua Corp. shifted to local processing as the latest advance in quality programs, begun in the late 1970s.

QUOTABLE:

"The people introducing TQM to corporations all read the same business books and articles . . . Virtually none of them are interested in IS."

Ted Prince

Computer Power Group
Few U.S. businesses look to IS to achieve quality

CONTINUED FROM PAGE 57

problem. More often, however, an IS department participating in a TQM program focuses only on using quality techniques to examine and improve internal functions such as producing software applications. That's what nearly half of the SIM survey respondents said.

Quality experts and IS managers note that the two arc, of course, related: Without a high-quality IS function, chances are slim that technology will be used well in a corporate quality program. Unfortunately, experts say the traditional definition of quality — minimizing defects while trying to conform to pre-established customer specifications — isn't very useful or helpful to most IS managers for several reasons:

• Few IS shops have identified their customers, much less asked them what they believe constitutes a high-quality IS product or service.

• Quality techniques or measurements have yet to be specifically adapted to IS functions.

• IS culture still tends to focus on individual performance and craft skills — the antithesis of a TQM program, which highlights group efforts and routine functional processes.

• IS is still perceived by corporate management as being more concerned with technology than overall business efficiency.

New path for IS

Does all this mean that IS is doomed to count software bugs and that it will never make a meaningful contribution to corporate quality? Not at all, according to Computer Power Group's Prince and others. But, they say, most IS departments have a long way to go when it comes to planting quality in their own backyards and beyond.

A key first step is defining what quality means to IS. Most say that it means knowing exactly what customers want.

"Quality means changing from a technical focus to one that takes into account real business issues," says John Tremse, vice president of IS and logistics at pharmaceuticals firm Miles, Inc., in Elkhart, Ind.

For example, a customer service department might say it needs a printer that works 24 hours a day. In reality, the department is really expressing a business need — instant, uninterrupted service. Learning to translate technical requests into business needs is key, says Tremse, whose IS quality efforts launched him into a leadership role in his firm's quality effort.

Prince agrees: "Before an IS manager even thinks of what quality means to IS, then blanketed across the organization. 'General Electric has made enormous strides by asking the simple question, 'Who needs this report, and exactly what information do they need from it?'" AQF's Hammond says. In many cases, a one-page summary would be perfectly adequate, he adds.

Morgan, Inc., internationally recognized as a quality leader, took a similar tack in simplifying a common process. The company used information technology to slash the time needed for generating financial reporting from monthly to daily. "The size of the reports has been whittled down to almost zero," Hammond notes.

Jim Allred, chairman of the American Executives for Manufacturing Excellence, notes that IS has traditionally given manufacturing executives historical data. To be really useful, he says, IS should focus on providing data that can really improve product quality.

"Usually the damage has already been done by the time senior management sees data provided by IS," says Allred, who is also chairman of Easkey Corp. in Bountiful, Utah. "In effect, you are reviewing problems that already occurred rather than using IS to avoid them."

Much more helpful to corporate quality efforts would be 100% accurate, real-time data during the manufacturing process.

Tom Bowman, quality man-

New studies examine relationship between quality and IS

Several landmark studies attempting to relate quality to technology concerns and issues are due by midyear.

The reports aim to provide IS managers with concrete evidence of what quality programs can and cannot do, specifically the following:

» The Society for Information Management (SIM) will deliver results from a new study on the quality of IS at its annual 1992 conference. More than 50 firms participated as members of a working group for the 18-month study, which began in early 1990. The project has several aims, according to co-chairwoman Nancy Wendt, partner at the Winhall Group in Bloomfield, Conn. They include describing applications and technology that can help IS contribute to corporatewide Total Quality Management (TQM) programs.

» Ernst & Young's Center for Information Technology and Strategy in Boston recently kicked off a program that focuses on quality in IS. "We want to see how leading IS organizations are applying quality tools," says Richard Swanson, director of the TQM within IS program. Participants include AT&T Eastman Kodak Co., Ameritech and Apple Computer, Inc.

» This spring, IS managers will finally have hard numbers about how technology impacts bottom-line performance. The American Quality Foundation, in a joint study with Ernst & Young, is compiling the results of the technology portion of its international study on quality. Joshua Hammond, president of the American Quality Foundation, says a key goal of the study is to correlate quality practices with actual results. "We are very interested in seeing if there is a high correlation between the use of technology in quality programs and high-performance companies," Hammond says. "If there is, that's bad news for U.S. businesses, who have been lagging behind the Japanese."

The American Society of Quality Control (ASQC) is expected to release guidelines at its annual meeting in 1992. Solicited from ASQC members, the guidelines will be designed to help companies implementing automated quality information systems in computer-integrated manufacturing programs.

Black and Decker Corp.'s IS department has instituted a TQM initiative. The main goal of the initiative is to increase communication between IS and the other departments in the firm. Today, the firm is looking for TQM to generate better product yields (CW, July 15, 1991).

Wolf Advisory International Ltd. in Lancaster, Pa., offers a free questionnaire and quality rating audit for firms to gauge the effectiveness of their departmental audits. The audit asks managers to agree or disagree with statements addressing such issues as user satisfaction, productivity, planning and training. For a copy of the audit, call Wolf at (717) 299-6653.

Austin, Texas-based Sematech, a consortium of 14 major U.S. semiconductor companies, is focusing on quality as a means to alter the way competing firms interact. Keith C. Erickson was appointed the consortium's vice president and director of total quality, and he concentrates on the Partnering for Total Quality program there. He also supervises the implementation of Sematech's internal TQM program.
Some starting points for quality assistance

Following is a sampling of where firms can turn for information on quality in the workplace.

GROUPS AND ASSOCIATIONS:

American Executives for Manufacturing Excellence
ASME 8655 East Via De Ventura/C-200
Scottsdale, Ariz. 85258
(602) 951-8994

American Productivity and Quality Center
123 North Post Oak Lane
Houston, Texas 77024-7797
(713) 681-4020

American Quality Foundation
Suite 2C
253 West 53rd St.
New York, N.Y. 10023
(212) 724-3170

American Society for Quality Control (ASQC)
P.O. Box 3005
Milwaukee, Wis. 53201-3005
(414) 272-8575

Association for Quality and Participation
Suite 501
801B West 8th St.
Cincinnati, Ohio 45203-1607
(513) 381-1959

Computer Power Group, Inc.
1500 Broadway
New York, N.Y. 10036
(212) 575-2225

Cooper's Lybrand Division of Federal TQM Services
Suite 800
1525 Wilson Blvd.
Arlington, Va. 22209
(703) 875-2000

Council on Competitiveness
Suite 1050
900 17th St., NW
Washington, D.C. 20006
(202) 785-3990

Information Technology Association of America (formerly Adapso)
1616 N. Fort Myer Drive
Arlington, Va. 22209
(703) 522-5055

Juran Institute, Inc.
P.O. Box 811
11 River Road
Wilson, Conn. 06897-0811
(203) 834-1700

The Ken Orr Institute
Suite 3
5875 S.W. 29th St.

U.S. General Accounting Office's General Government Division
Room 3858C
441 G St., NW
Washington, D.C. 20548
(202) 275-6059

Wolf Advisory International Ltd.
14 South Dale St.
LaCaster, Pa. 17602
(717) 299-6653

U.S. Department of Commerce's National Institute of Standards and Technology
Gaithersburg, Md. 20899
(301) 975-2000

American Society for Quality Assurance Institute (QAI)
7575 Dr. Phillips Blvd.
Orlando, Fl. 32819
(407) 363-1111

Quality Breakthroughs
1407 S. 7th St.
Brainerd, Minn. 56401
(218) 829-0651

QAI's National Quality Award Newsletter
Suite 350
QAI
7575 Dr. Phillips Blvd.
Orlando, Fl. 32819
(407) 363-1111

Quality Magazine
Hitchcock Publishing
A Capital Cities/ABC, Inc. company
191 S. Gray Ave.
Carol Stream, Ill. 60188
(800) 633-4931

40th anniversary edition of "Total Quality Control"
By Ronald Feigenbaum
McGraw Hill, Inc., $62
(212) 337-5945

Topkea, Kan. 66614
(913) 273-0653

The Quality Contest:
EXECUTIVE REPORT

JOINING THE QUALITY CONTEST

A growing global role
A survey of more than 500 business sites indicates the importance of the use of technology in meeting customer expectations

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<th>Country</th>
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<th>Current</th>
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<td>US</td>
<td>32%</td>
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Source: International Quality Study (Ecream & Young and the American Quality Foundation)

Current emphasis to really...tough even in fast times, but convincing workers of corporate commitment to quality is especially tough for managers amid recession and downsizing, experts say. Yet it's possible. At Corning, employees give peers performance evaluations, merit raises and, on occasion, promotions or pink slips. While head count has dropped as several layers of management have been eliminated, Venette says, no jobs have been lost. Employees have been retrained and placed elsewhere in the company.

"If you are telling people it's up to them to come up with ways to streamline the organization and make it more effective, you have to guarantee up-front that they won't be unemployed as a result," Venette says.

Indeed, Texas Instruments, Inc. even created a new category of IS jobs as a result of its quality program. Dubbed "process re-engineers," these workers combine technical know-how with the ability to examine a business process for quality defects, explains Gary Pullin, director of total quality control manager for information systems and services at TI. These process re-engineers then devise ways to apply technology to fix problems. "We foresee that this will be a key job for IS workers of the future," he adds.

In the meantime, a scene may seem light-years away for many IS shops, pioneering IS groups at Carrier, Corning, and TI elsewhere show that it's possible.

Culture shock needed
IS organizations with a desire to help the corporate quality mission might do well to look at computing culture as well, experts advise. For instance, applications developers, whose self-perception is that of highly specialized craftsmen, are the antithesis of TQM philosophy.

"IS organizations have traditionally been made up of mavericks," notes Victor Schwinghamer, director of quality management support at First Data Resources, Inc., an Omaha-based credit-card transaction processing subsidiary of American Express Co. "People who stay up all night to fix systems problems have been viewed as heroes. Yet the emphasis instead should be on those unexciting individuals who never have to come in the middle of the night because they don't create any problems to begin with."

"The difference between a quality culture and a nonquality culture is the Mack truck test," Computer Power Group's Prince says. "If a Mack truck blows through your IS department, will you still be able to replicate quality efforts? Or if you lose certain individuals, will everything fall apart? If you can't pass this test, you don't have a quality shop."

Schwinghamer says another big problem in IS culture is the fear that reporting a bug or a quality defect reflects poorly on the individual worker. Changing such attitudes requires constant effort, says Schwinghamer, who works full-time at quality improvement and manages six employees within the systems and programming group. "You need the day-to-day emphasis to really put quality into the corporate culture."

Such challenges are tough even in fast times, but convincing workers of corporate commitment to quality is especially tough for managers amid recession and downsizing, experts say. Yet it's possible. At Corning, employees give peers performance evaluations, merit raises and, on occasion, promotions or pink slips. While head count has dropped as several layers of management have been eliminated, Venette says, no jobs have been lost. Employees have been retrained and placed elsewhere in the company.

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January 6, 1992

Computerworld
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Also call to reserve your place at our free SAS System executive briefing...coming soon in your area.
Nashua keeps quality flame burning in customer service

BY CATHERINE MARENGHI

Long before it was in vogue to talk about quality, Nashua Corp. was trying to do something about it.

As far back as the late 1970s, the Nashua, N.H.-based manufacturer of office supplies and computer products worked with consultant and quality guru W. Edwards Deming. Company Chief Executive Officer William Conway hired Deming, now a board member, to bring continual quality improvements to the company's processes and customer service.

For a long time, the company's information systems department had little to do with these efforts. Today, technology professionals are heavily involved in helping the $590 million corporation meet current quality goals.

The turning point came four years ago, when director of MIS Tim Gallagher launched a five-year strategic plan for IS decentralization. Gallagher, who oversees IS for each of the company's nine divisions, says he saw centralization as a barrier to change and quality improvement.

"It used to take us two days to process a telephone order," Gallagher says. "Now, [through decentralization] it takes us three minutes."

Formerly, Nashua's centralized information systems could process only data common to all divisions. Local systems augmented the centralized system, handling the unique requirements of each division.

The net result of this two-tiered approach was more likely to be customer frustration than satisfaction.

For example, if a customer called to order copy paper, the order taker had to dial into a central system to verify customer information and do a credit check. He then had to hang up and log on to a local personal computer to calculate pricing, which was unique to each division. If a second call to the customer with pricing information was necessary, the order taker had to check another central inventory availability system. If all went well and no errors were made, it took two days to complete the order — if the customer had not lost interest and gone to a competitor.

Today, clerks quote prices on available inventory, mentioning volume discounts or special orders when applicable, and process resulting orders on a local system in just minutes.

**Five-year plan**

Because each of the company's diverse businesses has its own set of manufacturing processes, raw materials, finished goods and customers, Gallagher says it did not make sense to have central systems that played to the lowest common denominator. Instead, he wanted each division to have the information systems that were best for its business.

The five-year plan was consistent with the company's overall philosophy of pushing decisions down in the organization to improve processes. At each plant, changes were effected by small teams of IS staffs and end users empowered to enact system changes at the local level. Corporate MIS provided the systems selection methodology, but it was up to the local team to make the hardware and software evaluations.

The result was discrete systems within each division, including four Digital Equipment Corp. Vaxclusters, an IBM RISC System/6000, a Wang Laboratories, Inc. VS 8360 and five IBM System/38s that are being converted to four Application Systems Division/370s this year. An IBM 4381 mainframe, the last vestige of centralized IS, will be phased out within 117 years.

"It wasn't downsizing," Gallagher stresses.

At the same time, decentralization flattened the IS organization, shifting from a five-to-a three-level hierarchy and growing from one data center to nine. The number of IS personnel has remained at about 60, but over time, there has been a redistribution of jobs: fewer middle managers and more programmer/an

ists.

"Our annual net corporate expense for MIS has nearly doubled. But we have better systems in place at the functional level, handling the unique requirements of each division. We didn't get the best cost but the best fit," Gallagher says.

The added expenses have been mostly in outfitting the nine local data centers with the most appropriate systems, however — not purchasing high-ticket systems or glitzy applications. For example, a simple automated ZIP code verification package helps the company's Mail-in Photofinishing Division process 70,000 films a day with virtually zero errors.

Information systems are applied only where and to the extent that they make sense, says Earl Dodge, an internal quality consultant, noting that the company still does flowcharting by hand. "More attention is paid to a manufacturing process if a person physically plots a point on paper. It doesn't get lost in a lot of electrons floating through a computer," he explains.

Gallagher agrees that systems should assist, but not drive, the quality process. He even concedes that complex systems can occasionally subvert the process by imposing too much complexity. In fact, right now the company is wrestling with installing a new manufacturing resource planning II system but is concerned that the approach might actually make it more difficult for people to understand, change and improve processes.

Overall, Nashua doesn't expect miracles from its information systems and avoids buzzwords and catchphrases such as "quality circles" and "total quality management." You won't find a corporate quality program with a catchy name here, and the company has never applied for the coveted Malcolm Baldridge National Quality Award.

Nashua's Gallagher says information systems should assist quality process

But no matter what, the quality effort goes on — even when Nashua's stock price plunged from $37 to $20 this year because of a research and development failure at one of its facilities in Santa Clara, Calif.

"Quality isn't a contest you win just once. It has to be ongoing," Gallagher explains.

Marenghi is a Boston-based freelance writer.
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Miles building quality from an IS foundation

Information systems are providing a solid footing for quality efforts under way at Miles, Inc., whose business has evolved to play a leadership role in bringing quality concepts to the $2.5 billion pharmaceuticals firm based in Elkhart, Ind.

This month, IS will face an even greater challenge, as four sister companies of Miles will be merged after 15 years of independence. Management wants the IS group to be the catalyst for a Total Quality Management (TQM) program for the new, combined $6.5 billion firm.

It's been a long road, says Vice President of IS and Logistics John Tremse, whose staff is split 60-40 between the firm's headquarters and operating divisions. He says developing strategic applications within business groups has not always been easy for IS. When efforts started in 1986, IS felt it was not making enough of a contribution or impact. A big problem, Tremse says, was an unclear understanding about what real value IS brought to business units. Tremse explains.

Tremse spent six months studying various quality gurus, such as Deming and Juran, before choosing a program by The Quality Improvement Co. in Cupertino, Calif. Soon after, executives were sent to training classes, then returned to train other IS employees.

The 26 quality improvement teams that were subsequently formed have completed more than 300 quality projects, Tremse says. IS team members identify problems, defects and barriers in such areas as applications development, requirements planning and data center management as well as work on fixes. Problems that cannot be solved by a single team are escalated to a cross-functional team spanning several departments.

One typical project that involved re-engineering the data center's on-line report generation system saved Miles $200,000 in out-of-pocket expenses.

The quality efforts at Miles are now spreading worldwide. A year ago, all transportation, central warehouse and import/export logistics operations came under Tremse's management, and he instituted a TQM program. To date, more than 300 employees have been trained in TQM concepts and functions. Tremse has been asked by other, non-IS managers to help train their departments in quality procedures.

"All of a sudden, the things we were doing in IS that were perceived as being rather strange by other employees and we have been legitimate," he says.

ALICE LAPLANTE
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Statistical software rings in quality

BY MEL MANDELL

Whether it involves squeezingings or finding troublesomeprecise quantities of spicyproblems is a hot topic.

The quality craze has created a healthy market for specialized software designed to help companies improve products and processes. Dozens of vendors and packages are available, many focusing on statistical packages. For example, "Quality Manager" from SPSS, Inc. in Chicago is a $6,000, DOS-based realtime process control package that the company says provides historical trend data on products. It is used by electronicsmakers, as well as by food processors such as RJR Nabisco, Inc., the company says.

One example is Bolt, Beranek's Catalyst, an Apple Computer, Inc. Macintosh-based system that sells for $2,495. Plant engineers and other users enter various parameters, then adjust each to graphical ly simulate the impact of other statistical parameters.

Ed Stiff, group quality director at Frigidaire, uses SAS/QC from SAS Institute to pinpoint quality problems for the firm's line of durable goods. A unit of Sweden's AB Electrolux, Frigidaire grosses about $6 billion a year, making it the nation's third-largest producer of home appliances.

The firm hopes to raise margins even more by cutting down on warranty repairs.

The old system, generating statistics was a big chore. Warranty claim records for Frigidaire's appliances were stored in five different databases maintained on a leased Burroughs mainframe. Products from the now-consolidated Frigidaire, Gibson, Kelvinator, Tappan and White-Westinghouse product lines are now assembled with many common parts in the same plant in Dublin, Ohio. Stiff says consolidation of each line's quality statistics into one comprehensive database was a key step.

The replacement system, which runs on IBM Corp. 80386-based personal computers connected to an IBM 3090E mainframe, costs $300,000.

However, Stiff says the many payoffs have already outweighed the drawbacks. The new approach has already saved the firm about $500,000, mostly by eliminating the $50,000 cost for staffing the scrapped Burroughs system. The cutout also halved the number of data-entry clerks from four to two, he says.

Even greater savings have come in service calls, but Stiff declined to elaborate. Finally, his firm says, customers are more satisfied.

With global competition increasing, Stiff says, the firm is hoping information technology will result in better quality to enable worldwide expansion, cut costs and boost profitability.

Mandell is a free-lance writer based in New York.

Quality visits Washington

BY KRIS HERBST

The infant movement to use technology in improving quality has even spread to the U.S. government.

Officials say Information Resources Management (IRM) offices are just starting to help other organizations in the federal government implement Total Quality Management (TQM).

They are taking a "cautious, wait-and-see approach to implementing TQM," says Theresa Keene. She's chair of the new Federal Interagency Council on TQM in IRM, an agency formed under the auspices of the Federal Information Resources Management Policy Council to create a foundation for government-wide quality improvement.

Given the government's heavy emphasis on customer service, it's surprising that information technology has not been seen as a crucial component in quality in federal programs before now, says Ian Littman, director of federal TQM services at management consultant firm Coopers & Lybrand.

Littman says passive IRM departments are frequently opting to let noncomputer operations begin TQM efforts. For example, in U.S. Department of Defense industrial activities, quality is pushed by workers who repair ships and planes.

Still, some federal IS departments are taking a more aggressive approach to TQM. NASA, for example, is looking hard at data-oriented activities across projects and programs and how they "tie together," says Wally Herbst, NASA's IRM administrator.

It's IRM's task to work with scattered groups to identify and discuss common needs, Keene explains.

The approach is paying off: The agency's IRM office recently helped NASA's space centers save 60% — or several million dollars — on mainframe purchase prices by pooling procurements for four space centers.

Big savings — $19 million and 47 man-months — were also realized by combining supercomputer procurements from the Lewis Research Center in Cleveland and the Goddard Space Flight Center in Beltsville, Md., Keene adds.

Herbst is a free-lance writer based in Washington, D.C.

JOINING THE QUALITY CONTEST

EXECUTIVE REPORT

Warranty claim records for Frigidaire's appliances were stored in five different databases maintained on a leased Burroughs mainframe. Products from the now-consolidated Frigidaire, Gibson, Kelvinator, Tappan and White-Westinghouse product lines are now assembled with many common parts in the same plant in Dublin, Ohio. Stiff says consolidation of each line's quality statistics into one comprehensive database was a key step.

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These days, technology has to serve everybody. The trouble is, everyone wants technology to do something different.

IS managers, for instance, are apt to put a very strategic spin on things. That’s because they’re charged with delivering information throughout the enterprise, integrating the company’s computing and communications resources.

CIO’s tend to look at the whole enterprise another way. After all, they’re tackling some of the very trickiest issues in business. Like how to best use technology to produce the greatest business management gains.

Department managers, on the other hand, have to focus on doing just what their name implies. So they’re more concerned with the productivity issues in their own backyard, their local area networks, and generally making sure their department is happy and humming along.

End users, however, have a different perspective entirely. They see the world from their desktop. They want whatever helps them do what they do better—while giving them access to the rest of the workgroup or a mainframe.
Then there's senior management. To them, technology is one of the best ways to gain a strategic, competitive advantage. Or, at least, it better be.

The point is, everybody's involved. All these groups influence each other. That's why, today, there's no one person who's responsible for buying technology for the many. Instead, in the networked corporation, there is a network of people who are responsible for buying and implementing technology, each responding to different needs and demands.

That's why they all need different kinds of information, presented in different ways, to help them do their jobs. And why we have more than one kind of computer publication.

In fact, IDG has more ways to reach more of your market than anyone. We also know more than anyone about how information technology is bought, having just completed the largest independent study of the buying process ever conducted.

It's called, "Buying IT in the 90s: The People, Patterns, and Process." And we'd like to share it with you. Just call Erica Baccus, our V.P. of Marketing, at 1-617-534-1210, for a free copy of the Executive Summary.

And find out why nobody knows more about how to reach more of your market than we do.
There's No Such Thing as Bad News.

When it comes to the events, the technology, the trends, the products, and the people that shape the IS industry, you need to know it all — the good and the bad.

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The Newspaper of IS
Never underestimate the power of a great microprocessor.
Fifty million strong and counting. That's how many high-performance systems are powered by Motorola's 68000 family of microprocessors.

The 68040 is the 68000 family's newest member. As such, it inherits over $8 billion worth of 32-bit software.

And it's off to a fast start. Capable of delivering 22 MIPS at clock speeds of 25 MHz and 29 MIPS at 33 MHz, it outperforms any microprocessor at similar speeds.

Surprised? You shouldn't be. The 040 is a 32-bit, RISC-class performance microprocessor, with instruction execution approaching one instruction per clock.

The 040 was designed from the start with price/performance in mind.
this one's made.

Featuring on-chip cache and floating point units, it provides an unprecedented degree of integration and parallelism. Which means costly external memory accesses and wait states are nearly eliminated. The result is high sustained performance at a remarkably low cost.

So whether you're interested in desktop, workstation or commercial systems, 68040-based computers deliver the superior performance you're looking for.

To see how the 040 stacks up in real-life applications, just turn the page.
No doubt about it, the NeXTstation™ computer is a knockout. But appearance is only a small part of the package. In fact, price/performance is where it really stands out. Especially against the 486 based PCs (see chart).

This should come as no surprise when you consider the 68040 microprocessor inside the NeXTstation. Its independently operating caching system provides better sustained performance levels than the i486™. And its powerful multi-bit manipulation instructions allow for easy GUI design. Not to mention...
the NeXTstation's superb graphics.

With its NeXTstep® object-oriented software, the NeXTstation has revolutionized programming. And with features like built-in Ethernet, the innovative NeXTmail™ messaging capabilities, and the power of UNIX, it represents a breakthrough in "interpersonal computing." Yet it costs less than half the price of comparable systems.

In other words, you have every reason to consider the NeXTstation as your next system.
Against Hewlett-Packard, Fast windowing performance and low cost aren't mutually exclusive terms. Even in a workstation. The HP Apollo 425e is an excellent case in point.

Quite simply, the 425e can run more simultaneous applications, more efficiently than the Sun® SPARCstation® ELC. Just check out the Windowing XII performance. The 425e clearly outperforms the SPARCstation (see chart). And at a price/performance point that blows it away.
Sparc's windows shatter.

Then again, the 425e is a 68040-based machine. And the 040 incorporates RISC-like features such as integer and floating point pipelines, single-cycle execution, and load and store optimizations.

So now people who need high-performance windowing, local processing power, fast data analysis, crisp graphics and versatile networking capabilities can have it all with an HP Apollo workstation. Without having to pay the price.
Head to head, Bull decks

The Bull DPX/2 Model 250 is a multi-user UNIX* system that gives you a wide range of choices. It's versatile, operating as a workgroup server, a departmental processor or an all-purpose system for small and medium sized companies.

It's powerful, thanks to a Motorola 68040 microprocessor at its core. With a burst interface on its bus controller, the 040 rapidly shuttles massive amounts of data on and off the chip. That translates to sustained peak performance in a demanding multi-user,
multi-functional environment.
So when it's put through its paces against MIPS RISC-based machines like the DECsystem 5100, the Bull DPX/2 is

<table>
<thead>
<tr>
<th>The Commercial Market — $/AIM</th>
<th>040 vs. MIPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microprocessor</td>
<td>System AIM</td>
</tr>
<tr>
<td>Motorola 040</td>
<td>Bull DPX/2 Model 250</td>
</tr>
<tr>
<td>MIPS R3000</td>
<td>DECsystem 5100</td>
</tr>
</tbody>
</table>

The Bull DPX/2 250 was configured with 25 MHz CPU and 20 MB RAM. The DECsystem 5100 was configured with 20 MHz CPU and 24 MB RAM. As published in the AIM® Performance Reports. Prices quoted are manufacturer list prices and are subject to change.

awesome. Weighing in with 19.5 AIMS versus the DEC system's 175. And costing nearly $900 less per AIM (see chart).

With that level of price/performance, it's no wonder Bull's Motorola-based server family has already sold over 25,000 multi-user systems. And more and more computer professionals are sold on Bull computers every day.
When the first Apple* Macintosh* appeared on the scene, it radically changed the face of the personal computer marketplace. And now Apple is re-defining the high end of the PC market with the Macintosh Quadra™ 700 and 900 computers.

Supporting up to 20 megabytes of RAM, the Macintosh Quadra 700 may be the most powerful personal computer ever to sit atop a desk. And with support for up to 64 megabytes of RAM, the Macintosh Quadra 900 is the most expandable Macintosh yet.

*As Innoce Laboratories study published in October 1991 supports the conclusion that the Macintosh Quadra 500 performed 42% faster than the Dell 450P, 35% faster than the Compaq Deskpro 486/33L, and 20% faster than the ALR 486/50 when measuring the time taken to run seven product scenes. astermarks are trademarks or registered trademarks of their respective companies.
e's simply no comparison.

Both come with built-in networking support. And both support all Apple displays and up to 32-bits of color.

But speed is their real distinguishing feature. The graphics architecture is faster than ever. They have enhanced SCSI and NuBus™ capabilities. And each contains a Motorola 68040. As a result, they run most applications almost twice as fast as the powerful Macintosh IIfx. In fact, in a recent independent study, the Macintosh Quadra 900 outperformed 33 MHz and 50 MHz 486-based systems by as much as 63%:

The speed, graphics and flexibility of the Macintosh Quadra computers set them apart from any other personal computer. In other words, Macintosh is, once again, in a class by itself.
So when you're looking for real power in a computer, consider the source.

No matter which criteria you use. Whether you're evaluating by MIPS, XL Performance, AIMS, or simply the time it takes to run an application. The systems that come out ahead in price/performance are powered by the 68040. The microprocessor that has pushed on-chip integration to a new level.

Add to that Motorola's reputation for technical support at every level. Hundreds of Field Application Engineers and Systems Engineers worldwide have a detailed understanding of the 68040. They stand ready to aid in the most intricate system design, or answer the most basic questions.

Finally, consider the fact that Motorola was a winner of the first Malcolm Baldrige National Award for quality.

All in all, you know what you're getting when you go with an 040-based system. And all we can say is, more power to you.

For additional information on the Motorola 68040, call 1-800-845-MOTO.
A directory of 1991 In Depth articles

1/14 Visualizing information planning
By Bob Curcice and Dave Stringer
A graphical method for showing information's impact

1/21 The minority void
By Amiel Kornel
Exploring why few minorities hold top IS positions

1/28 Misuse of power
By Vicki McConnell and Karl Koch
Poor technology use is the fault of IS and business management

2/4 The new corporate workstation
By Conrad Blickenstorfer
The basics for an intuitive machine

2/11 Unix myths exploded
By John Ossworth
Exposing falsehoods about the operating system

2/18 Evaluate, don't procrastinate
By Larry M. Singer
Seven steps to sizing up user application requests

2/25 Waste not, want not
By Peter G. W. Keen
Although they should, many firms don't know where their information technology money is going

3/4 Decision-making prowess
By Louis Fried
Executive information facilities that pack a wallop

3/11 Fuzzy logic clarified
By Earl Cox and Martin Goetz
Bringing the imprecise nature of human thought to applications

3/18 An interview with Raymond Kurzweil
By Glenn Rifkin

3/25 Look who's in the IS business
By Barbara Francett
Selling in-house-developed software commercially

4/1 Teamwork takes work
By Carol A. Norman and Robert A. Zawacki
Creating self-directed IS work groups

4/8 GTE, Contel get it together
By Joseph Maglitta
After the merger, GTE consolidates data centers

4/15 Measure for measure
By Howard Rubin
How to measure the business outcome of IS actions

4/22 Object lesson
By Daniel Tasker
The principles behind object-oriented technology

4/29 Quality-driven software
By Raymond Falkner
Making software quality a No. 1 priority

5/6 Distributed DBMS decisions
By George Schussel
Client/server DBMS vs. "true" distributed DBMS

5/13 Is technology worth it?
By Michael L. Sullivan-Trainor
Insurance IS chiefs assess business value of IS

5/20 Course of action
By Lucie Juneau
Readying IS students for the real world

5/27 Denny's POS effort
By Charlotte A. Krause
Putting store managers out front helping customers

6/3 Get the lease with the most
By Tom Martin
How leases specialize

6/10 Getting the process right
By Greg Boone and Vaughan Merlyn
Stabilizing the software development process

6/17 Legal writes
By Mark Radcliffe
Computer law changes in the '90s

6/24, 7/1 High-tech heroes
By Computerworld staff
Smithsonian award nominees

7/8 Cigna re-engineers itself
By Alan J. Ryan
A look at Cigna's business transformation

7/15 No more defects!
By Glenn Rifkin
Motorola's IS defect reduction effort

7/22 Project proficiency
By Ralph L. Kliehm
What it takes to be a successful project manager

7/29 IS architecture artsy
By Glen Gage
Ten lessons to keep in mind when building an IS architecture

8/5 An interview with Max Hopper
By Glenn Rifkin

8/12 The sociology of software measurement
By Capers Jones
How staffs might react to a software measurement program

8/19 Cooperative processing phase-in
By Robert Murray
Taking advantage of available technology

8/26 U.S. firms go offshore for cheap DP
By Gary H. Antares
Data entry tasks shipped to the Caribbean, Ireland and the Philippines

9/2 Taking stock of software
By Ian S. Hayes
Managing software like a stock portfolio

9/9 Outsourcing without guilt
By Paul Clermont
Three steps to successful outsourcing

9/16 CASE culture shock
By Robert Gifford
Automated development demands the skills of a scientist

9/23 Software piecework
By W. Burry Foss
Survie for modular software development and delivery

9/30 No software guarantees
By Lee Gruenfield
There's no proof software will do what it's supposed to do

10/7 Banks assess IS' worth
By Alan J. Ryan
Bank IS chiefs under pressure to tie IS investment to business impact

10/14 Strength in numbers
By Frederick P. Clark
Networking small AS/400s for power and savings

10/21 Quality time
By Robin F. Goldsmith
Scrutinizing your quality assurance function

11/28 Limits to distributed computing
By Harold Lorin
Problems include old software, new development, human nature

11/4 Well-handled repository conversions
By Lee L. Gremillion
Building a program that converts specs at the same logical level

11/11 Getting technology you want and need
By Tom Koulrophlos
Cost-justification techniques that work

11/18 The choice is yours
By Robert Lem
Four steps for selecting an enterprise-wide LAN

11/25 Cash drain, no gain
By Gary Loveman
Why technology investment has not resulted in great productivity gains

12/2 A blueprint for change
By Louis Fried
A plan for business process redesign

12/9 An interview with Mitchell Kapor
By Glenn Rifkin

12/16 Together at last
By Clive Flinkelstein
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Don't miss out. Phone or fax today to get your VIP pass. On-site exhibition registration without the completed VIP pass is $50 (cash only). Tutorials, Conference program and Fast Track seminars require separate registration.
Citrix hopes to grow in IBM's shadow

**Former OS/2 head tailors firm's multiuser version of the operating system to suit customer needs**

*BY ROSEMARY HAMILTON* WASH. D.C.

CORAL SPRINGS, Fla. — While many industry analysts have been busy predicting the downfall of IBM's OS/2 during the last several months, Edward Iacobucci has been building a company on it.

Potential prosperity

Citrix Systems, Inc. hasn't closed the door on Windows — but it is staking its growth on IBM's OS/2.

A solid product offering: a multiuser version of OS/2.

An impressive pedigree: Chairman Edward Iacobucci formerly headed IBM's OS/2 design team; venture backer Sevin, Rosen, Bayless Partners.

A hedged approach: VAR market focus sets Citrix at one removed from desktop OS wars.

Source: Citrix Systems, Inc.  CW Chart: Jouelle Genovese

Iacobucci, who headed the OS/2 design team at IBM, is now chairman of Citrix Systems, Inc., which began marketing a multiuser version of the operating system in February 1991.

Multiuser is aimed at customers who want both the ease of use of a desktop environment and also the support and management capabilities that traditionally come with host-based computing. As in the mainframe computing days of old, Multiuser allows a customer to support multiple users on terminals attached to a host system. In this case, however, the host is a low-cost microcomputer.

"The concept was to take OS/2 and extend it to a more traditional area with shared terminal support," Iacobucci said. "It's the best of both worlds. It has the features and benefits of a low-end Unix system without all the baggage. It has top-notch security and system management with the look and feel of DOS."

The concept seems sound and, for some initial users, Iacobucci's claims are holding true. "We've put some horrible stress tests on it, and it doesn't slow down," said Chris Crawford, president of Applied Micro Technology, Inc., a reseller in Austin, Texas. He said the company, which sells banking applications, recently added Multiuser to its roster of products. The firm also provides banking systems based on Novell, Inc.'s Netware.

However Citrix, which is based here, has not exactly exploded onto the market. According to Iacobucci's numbers, the company has signed on about 250 value-added resellers (VARs) and approximately 68 users since the debut of its first multiuser operating system. The OS/2 market is its primary focus, while end-user accounts will be picked up on an "opportunistic basis," Iacobucci said.

Uphill battle

Iacobucci considers this a good first year, but some industry observers said Citrix could have an uphill battle because many users do not want to consider yet another low-end operating system.

"I would have to be somewhat skeptical about someone coming out with an OS/2-brand ed product right now," said Judith Hurwitz, president of Hurwitz Consulting Group in Newton, Mass. "Users are not only skeptical about OS/2, but of new operating systems in general. Users may be somewhat afraid to go with an unknown at this point."

Nonetheless, the company has at least three factors working in its favor. First, it has a solid product offering, according to some users contacted recently.

"I think it's great," said Jim Hayes, information systems director at Taylor Medical, Inc., a local-area network equipment maker Ungermann-Bass, Inc. last month acquired a 50% equity interest in Genicom Corp. (MCC) has been appointed as a special partner in a strategic planning and investment banking firm targeting technology companies. Grant Dove, founding chairman of Citrix Systems, Inc., hasn't closed the door on Windows — but it is staking its growth on IBM's OS/2.

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Close to the vest

Not surprisingly, Edward Iacobucci does not like to say too much about IBM or the various controversies that have swirled around OS/2. After all, his company, Citrix Systems, maintains a relationship with IBM, and most small firms know it is not wise to say too much about their bigger partners.

Iacobucci said he cannot discuss the specifics of the relationship, other than to say "we are in active discussions with them on a variety of products." He also steered clear of the strained relations between former OS/2 collaborators IBM and Microsoft Corp.

"Our focus is on what the customer needs," he said. "We try not to get involved with the more emotional aspects of the discussions that are going on."

He would rather stay focused on the new firm, which he founded in 1989. Iacobucci, who had been vice president and chief technology officer, was named chairman late last year.

His additional responsibilities will require him to become an "evangelist on the product and the company," he said.

ROSEMARY HAMILTON

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Computerworld readers will have spent over $1.5 Billion on Information Technology — representing nearly half of all spending in the last seven days.

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Supercomputer license

Japanese giant Fujitsu Ltd. will line up its Unix-based supercomputer operating system to German firm Siemens AG, according to a recent report in the European business press. Siemens sells almost all of the Fujitsu supercomputers sold in Europe on an OBM basis, but under the new agreement, customers will be able to get both hardware and software from Siemens, the report said.

All on board

Starting Jan. 1, 1993, firms will have the right to bid across European Community (EC) borders on telecommunications services, following last month's adoption of an EC directive affording all service tenders worth more than $250,000. The directive effectively fills in a major gap in Community Rules by subjecting to open tendering procedures all open tenders not already subject to existing EC rules on public works and public procurement contracts. Like its predecessors, the legislation will require the public authorities tendering service contracts to follow open and nondiscriminatory procedures such as publicizing a tender, observing time limits for tenders and publishing award winners.

On the go

Telekomunikacijas Biedrība L.M. Ericsson said it will sign an initial contract this year to develop and install a cellular mobile telephone system in a large metropolis area. The Sweden-based firm declined to disclose the value of the contract, which will be installed with Foxphone Digital Phone Co., a consortium that includes Japan Telecom, Pactel and East Japan Railway.

Exports curtailed

When trade friction mounted several years ago over the export imbalance between the U.S. and Japan, the Japanese curtailed exports by setting up plants in the U.S. Now, with criticism focusing on Japanese corporate infiltration of the U.S. market, the pressure is on to export U.S.-made goods. Mitsubishi Electric Corp. and Matsushita Electric Industrial Co. both plan to ship overseas microchips made at their U.S. plants. Mitsubishi announced it is preparing to make about one-third of its 1-bit dynamic random-access memory chips produced at its Durham, N.C., factory available to a handful of Japanese customers possibly to Europe as well. Matsushita is said to have a similar plan.

Economy hits small firms

HIGHLAND, Mass. — The toll of a tough economy often makes headlines when large companies are forced to make cuts, but smaller firms are facing harsh facts as well. One such firm, Software Developer's Co., has begun a major restructuring that has resulted in a more than 15% reduction in staff and the resignation of several executives. The cuts reportedly will not affect programmers but are intended to consolidate support services such as shipping, receiving and accounting. In all, approximately 25 jobs will be eliminated, leaving 125 employees.

The restructuring-spurred charge against earnings could total as much as $3.5 million, triggering a loss of approximately that amount for the third quarter, according to the company.

The firm also announced that Chairman Bruce Lynch and Vice President of Distribution Stephen Underwood had resigned. Chairman L. Watson, president and chief executive officer, was elected chairman and will fill Underwood's responsibilities until a replacement is named, the firm said.

Software Developer's is the parent of Solution Systems, maker of Brief, a popular programmer's editor, and The Programmer's Shop, a software tools catalog reseller.

Citrix hopes to grow in IBM's shadow

CONTINUED FROM PAGE 71

medical supplies company in Beaumont, Texas, where Multi- tured is being installed for a variety of laboratory applications, including taking one box and support 40 users with good performance." Second, Citrix has the backing of some big name venture capitalists, including Sevin, Ro- sen, Bayless Partners. The company now has more than $17 million in two rounds of venture funding since its 1989 start and is currently raising its third round, Iacobucci said.

Third, while the firm's produc- tect is closely tied to OS/2, Citrix's strategy is not. Its local market is the VAR community, which repackages software and sells systems for specific customers. As a result, the market is less sensitive to the desktop operating system race that has pitted Microsoft Corp. and IBM against each other.

In addition, Iacobucci said, Citrix is defining itself more as a multinational system to compete against low-end Unix offerings as well as an extension of OS/2. "We don't portray ourselves as an OS/2 for LANS," he said. "We see ourselves as more a viable alternative to Unix."

Moreover, Iacobucci has not ruled out support of other technolo- gies. The company is currently evaluating the potential of supporting Microsoft's Windows New Technology in future versions of Multiuser.

NATIONAL BRIEFS

SIA report: Defects down

According to a report recently released by the Semiconductor Industry Association, the industry has reduced the level of defects in integrated circuits used in military applications. The level of defects has fallen below the 100 parts per million (PPM) mark to approximately 40 PPM, according to the association's Quality Statistics Report on Military Integrated Circuits study. The association supplies more than 80% of the semiconductors purchased by the U.S. government for military, space and other applications.

Credit where credit is due

The U.S. Congress has voted to extend for six months starting Jan. 1 a dozen tax credits, including the research and experimentation tax credit. The temporary research and experimentation credit has been extended annually since 1981, but last month Rep. Dan Rostenkowski (D-Ill.), chairman of the House Ways and Means Committee, said last month that each of the 12 credits will be considered separately this year and will either be made permanent or scrapped for good.
"Our recent recruitment advertisement in Computerworld generated an exceptionally high percentage of qualified responses - more than double that of a local newspaper advertisement."

GE Consulting Services, a subsidiary of the General Electric Company, is a leading provider of software solutions for complex information systems problems. Specializing in technology migration, new applications, software and user support, the company's 22 offices and 1500 employees service large Fortune 500 companies, as well as support internal G.E. activities. With such diversity, explains Rick Bawsel, Staffing Manager for the Atlanta Region and Recruiting Coordinator for the Southeastern Region, their hiring typically encompasses two or three technical arenas, never just one. "Our business tends to focus on certain niches - on-line relational databases, CASE tools, and, with our newly launched PC Solution Centers, advanced PC development projects such as Microsoft Windows, graphics, and object-oriented technology. When it comes to recruitment advertising, we need a vehicle that reaches qualified professionals with very specific backgrounds in the CASE, database, and Unix arenas. To recruit high-level professionals with these specialized skill sets, Computerworld is our most viable advertising vehicle. With its industry-wide focus, I know people in Unix shops will see our advertisement as readily as people in IBM shops.

"Our recent recruitment advertisement in Computerworld generated an exceptionally high percentage of qualified responses - more than double that of a local newspaper advertisement. And, since we consistently receive qualified resumes five and six weeks after each advertisement runs, we know Computerworld has a long shelf life for generating responses. When I need to recruit strong talent in a cross section of leading-edge technologies, Computerworld is by far the best answer.

"Computerworld offers a range of benefits that is unique in the industry. For one, we get the option of advertising regionally to meet the hiring needs of one specific area. And its time responsiveness as a newsweekly means I don't have to wait a month for our advertisement to start working. Also, to promote our hiring campaign for CASE talent, Computerworld's bonus distribution took our advertisement to attendees at CASE WORLD in Los Angeles. This not only enhanced our visibility but also increased our overall advertisement response.

"Since GE Consulting Services is expanding into the advanced technology arenas, our type of quality talent is difficult to find and typically not available in the local marketplace. Simply put, we advertise in Computerworld to attract leading-edge technical talent across the board."

Computerworld. It's where serious employers - like Rick Bawsel - reach qualified candidates with key computer skills. Every week. Whether you use computers, make computers, or sell computer products and services, Computerworld can help you recruit the experienced professionals your business demands. For all the facts, call John Corrigan, Vice-President/Classified Advertising, at 800/343-6474 (in MA, 508/879-0700).
MBA improves prospects but not pay

BY ALICE LAPLANTE

A lthough much lip service is paid to the idea that information systems employees need to know more about business, few organizations are currently backing up that talk by hiring MBAs for regular IS positions.

The MIS research center at the University of Minnesota recently completed a survey that asked 60 companies what kind of skills they sought when recruiting for IS positions. On a scale of 0 to 10 — where 0 represented strictly technical skills and 10 represented an MBA — the average score was 2.3.

However, there is evidence that this is changing.

"Fifty percent of the companies surveyed said they were moving away from their current hiring practices toward employing more MBAs within IS," says James Wetherbe, a professor at the University of Minnesota and director of the MIS research center there.

"With the changing role of IS people being more closely integrated into the business, it will be increasingly beneficial for any IS employee to have an MBA," says Joseph Wodushek, electronic data processing director at Washkesha Engine in Washkesha, Wis. Moreover, as U.S. corporations put more emphasis on using technology to achieve competitive advantage, many IS workers are moving out of centralized departments and into business units to forge closer relationships with users. For such positions, an MBA can be a very valuable degree, IS managers say.

"In the past few years, I've seen companies hiring technical MBAs to act as liaisons between business and IS, with the idea that it's essential to have people who speak both languages," says Peter DiGiammarino, vice president of American Management Systems, Inc. in Arlington, Va.

"The integration of those two skill sets will be increasingly powerful," says DiGiammarino, who has an undergraduate degree in computer science and an MBA from MIT.

Higher cost a deterrent

This integration of skills is just starting to happen, however. Increasing emphasis on business notwithstanding, most IS managers say they aren't willing to provide higher compensation — especially in these tough economic times — just for those three magic letters, all other things being equal.

"If an MBA is going to do the same job as a non-MBA, the company obviously isn't going to want to pay extra for that person," says Joyce Hunt, president of Hamilton Technical Personnel, a recruiting firm based in West Harley, N.Y.

IS managers and recruiters say an MBA is currently most useful to technical workers to whom they wish to do the following:
- Advance from a technical to an IS management position.
- Go to work for an external systems consulting organization.
- Move into a non-IS business unit, to act as a liaison between a corporate function and traditional IS.
- Make a complete career change into a corporate business position in finance, accounting or operations, albeit with technology skills as part of their management "tool kit."

For technical employees with management aspirations, an MBA makes a lot of sense.

Alan Mis, director of IS at American Steamship Co. in Buffalo, N.Y., worked his way up through the technical ranks at his department from a programmer position to manager of the department, picking up an MBA along the way.

"I thought it would enable me to do a better job as manager of a department," Mis says, adding that the MBA courses helped him in a number of ways, including analysis of financial issues.

Hunt says most of the requests for MBAs she gets come from the largest corporations — Fortune 50 or 100 firms — with huge centralized IS departments that want to groom MBAs for high IS management positions.

Another key IS opportunity for MBAs is an external consultant position. Universities say that their MBA graduates who specialize in IS tend to go to the large independent consulting houses such as Andersen Consulting.

"Only a small fraction are working for IS departments as such, yet a substantial proportion are doing IS-related work at consulting firms," says E. Burton Swanson, chairman of the IS area of the graduate business school at the University of California in Los Angeles.

Rick Nashleenas got his MBA from Indiana University and was recruited by IS consulting giant KPMG Peat Marwick in 1982.

"Many of these IS consulting firms have MBA-track positions where they exclusively hire people with graduate business degrees," says Nashleenas, who now runs his own software firm, Eden Systems Corp., in Carmel, Ind. One reason MBAs might be more suited for such work than for hands-on IS jobs is that although an IS concentration within an MBA program provides a strong basic understanding of IS management issues, few specific technical skills are taught.

"Many consulting firms with MBA-track positions expect you to pick up whatever technical specifics you need while on the job," Nashleenas says.

Precisely because MBA programs provide so little hands-on experience, most IS managers say they still prefer technical expertise.

Frank Nestor, director of data processing at Summit Consulting, Inc. in Lakeland, Fla., is the first IS person in the data processing department with an MBA. Although he would be "favorably impressed" by a potential employee who had one under his or her belt, he says experience is what really counts.

"The business background can be very helpful — especially these days, when data processing has to work closely with other departments," Nestor says. Still, he says, he looks more at technical expertise than an MBA when hiring or promoting.

"All things being equal, an MBA is certainly a good qualification to have if you are being considered for a promotion," says Jim Carlson, manager of human resources at Kmart Corp. in Troy, Mich. "But performance at a given job still is the top criteria for advancement."

LaPlante is a free-lance writer based in Palo Alto, Calif.
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By Julia King

Best market research prospects are in POS

Trying to read the consumer's mind is a highly specialized business, according to information systems managers in the market research industry. As a result, IS job opportunities are largely limited to professionals with very specific skills, most notably programmers experienced with industry-standard applications programs such as Mentor by Computers For Marketing Corp., Quantum by QuaYreso, Inc. and Quip by Trewells, Cohen & Arbuckle, Inc.

For the most part, managers say IS staffs at market research companies tend to be small, offering few opportunities for mainstream and computer applications programmers, systems analysts and other categories of IS staffs. However, market research giants Information Resources, Inc. (IRI) and A. C. Nielsen Corp. in Chicago, which do a lot of manipulating of point-of-sale (POS) data, are actively recruiting.

For example, at Louis Harris and Associates, an opinion research firm in New York, 10 of the 13 staff members in the company's IS department work on industry-specific applications, according to Sidney Johnson, vice president of systems.

"Systems programs tend not to change that much, so we don't really have a high need for applications programmers," Johnson adds.

Even further reducing IS opportunities, analysts say, is an industrywide trend for market research companies to hire from within, recruiting in-house employees with a working knowledge of the market research industry for their IS operations.

"Market research is such a strange area that we tend to recruit people internally and train them in computers," Johnson says. "The reason is that our requirements are so different from what most programmers learn."

By way of example, Johnson notes that at Louis Harris and most other research companies is compiled in a hierarchical fashion, rather than the linear fashion that most programmers are familiar with.

"Market research is very particular, and only a few applications programs are used. So it's very rare to find people who know these programs outside of this business," notes Pat Baker, data processing manager at J. D. Power & Associates, a consumer and automotive market research firm based in Agoura Hills, Calif.

Workers who use these specialized applications programs are primarily responsible for compiling appropriate sample groups of interviewees and scripting telephone interview questions.

"This work is both exacting and high-pressure," says Patty Karthauser, vice president and chief of computer services at The Gallup Organization in Princeton, N. J.

"Programmers typically work on seven to 10 different projects simultaneously, and if they make one mistake, it is propagated throughout every interview," Karthauser notes. As a result, she says, the job requires a person who is detail-oriented and who can work efficiently under the pressure of multiple deadlines. Currently, however, there are no openings for such people.

Of the seven market research firms interviewed, the Data Systems Division of IRI is the only company currently recruiting both applications programmers and senior-level analysts.

IRI prepares market research reports based on data it collects from POS and bar-code scanning systems in more than 3,000 retail outlets and 60,000 households across the nation. Each week, more than 40 million new records are added to the company's massive database, which is analyzed in hundreds of different ways and then sold to hundreds of other companies, including The Coca-Cola Co. and Proctor & Gamble Co.

"Data Systems Division President Ned Heinbach describes the company's IS operation as "a pretty much a pure vanilla IBM MV5 shop. "IS professionals currently being recruited include programmers with experience in PL 1, senior systems software programmers, CICS experts and specialists in MVS and RACF," he says.

Different strokes

Unlike companies such as Gallup and other custom market research firms, IRI and its chief competitor, A. C. Nielsen, package the same retail data in various ways for many different clients. This task falls primarily to applications programmers, whose ranks at IRI's Data Systems Division increased by 50% over the last year, according to Heinbach.

Because IRI's product is information and because it is continually expanding its product line, Heinbach says he expects employment opportunities in the IS area to continue to expand.
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Disaster planners: Prices are more flexible than products

BY ALAN RADDING

Disaster recovery planning today means more than just keeping the data center operating. A new generation of contingency planning software expands the scope of disaster recovery to include total business recovery — such as keeping alive customer sales or service operations — and telecommunications network recovery, the voice and data links that keep customer sales or business recovery — such as recovery software helps organize myriad of details about personnel, resources and tasks that are vital to a business' survival.

Contingency planning/disaster recovery software helps organizations collect and maintain the myriad of details about personnel, resources and tasks that are required to keep the organization functioning in the face of an emergency, be it a power outage, fire or flood. The software stores the information in the database and produces lists of who does what, where, when and how. The software also incorporates a formal methodology to guide users through the bewildering process of creating a disaster recovery plan.

Among the leading contingency planning software products are Total Recovery Planning System (LDRPS) from Swordfish Systems in Plymouth Meeting, Pa.; and Compass from Comdisco Disaster Recovery Services, Inc. in Rosemont, Ill.

List prices for the leading products range from less than $10,000 for a single-user license to more than $25,000 for multi-user licenses, but users report a lot of price negotiation, particularly when buying multiple copies or corporate licenses.

"The price is highly negotiable. Every vendor is willing to deal," says Louise Hritz, contingency planner at Dollar Federal Savings Bank in Pittsburgh. Hritz says she selected Recovery PAC from Computer Security, although Comdisco, Dollar's hot-site vendor, "offered us a great price."

Focus on features

With all vendors willing to bend on the pricing issue, users generally focus first on the product itself. The most important features include the database, ease of maintenance, ease of use, flexibility, methodology and reporting.

All the major products are currently built on a relational database of some sort. Gone are the days when organizations built and maintained a disaster recovery plan on a word processor-based system. Relational database technology makes data input and maintenance much easier. For example, users want to input data only once. When the inevitable changes occur, users want to make the change in one place and have it automatically reflected throughout the plan.

"You need a relational database, or maintenance becomes a nightmare," says Joseph Olivo, assistant vice president at the National Community Bank of New Jersey in Maywood, N.J., an LDRPS user. He adds that it doesn't matter what kind of relational database it is. Nor does it matter to some vendor claims, if it is a true relational database.

After being assured of the relational character of the software, managers next want ease of use — from pull-down menus and context-sensitive Help to plain-English prompts, commands and querying. For most users, disaster planning is an occasional responsibility. "Ease of use is very important. People have to get around inside the product without knowing about programming," says Sue Volpi, information systems disaster recovery coordinator at Total Petroleum, Inc.

Without a Help feature, users can easily get lost in a big disaster recovery program. "Compas requires that you understand how the product is laid out. They provide a chart to help you navigate, which I still keep taped to my desk," says John Dorman, a certified disaster recovery planner at a large California bank. He puts up with the difficulty in using it because its methodology — a team approach — closely matches his own.

"I like the pull-down menus of Recovery PAC. It guides you through the program very well," Hritz says.

Paul Beim, security engineer at New York-based Metropolitan Life Insurance Co., found LDRPS easy to use: "We like the Help screens. They are context-sensitive."

Ease of use is particularly important in data collection. If data gathering isn't intuitively easy, users won't cooperate.

"LDRPS has a form shell that you can download and to a certain degree you can hand to users," Beim explains. "Users run the disk, fill in answers to questions and send the disk back to us. It makes creating the data into the plan a no-brainer. Other systems offer a more cumbersome ASCII import/export process."

The complexity of disaster recovery planning requires that the software provide a methodology around which the organization can build its plan. All the products steer the user toward their particular methodologies.

Managers, however, need to match the particular methodology to the way the organization works. "We like the team concept of Compas and how it is based on recovery action teams," says Scott Cuthbertson, manager of security systems at Shared Services Center in Harrisburg, Pa., which provides data processing services for several Blue Cross/Blue Shield plans. Hritz, however, had just the opposite reaction: "The problem with Comdisco is you have to follow their methodology."

Flexible method

Flexibility is important. Too rigid a methodology becomes a hindrance.

For instance, in an evaluation of five major packages, the U.S. Postal Service insisted that it be able to tailor the methodology, reports Steven Skolochenko, manager of automatic data processing security at the U.S. Postal Service in Washington, D.C. The Postal Service selected DP90 Plus, which has a nine-step methodology, but Skolochenko said he liked three products so he left it to the purchasing department to make the final pick based on who offered the best terms.

Users also want to customize reports. The preformatted reports in all the leading products cover the basics, Skolochenko says, but users typically want more.

"I want to create [recovery] manuals in the way we want them," Hritz says. A popular reporting feature offered by some vendors is the ability to generate an individual recovery plan for each department. Other issues of interest to users are the availability of telephone support and provisions for testing the plan. Most vendors also offer optional training and consulting. Although they will do the plan (most likely at a high cost) for you, you will still have to maintain it.

Radding is a free-lance writer based in Newton, Mass.
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Calling itself “The Document Company,” Xerox Corporation provides copiers, fax machines, printers, and systems products to organizations of all sizes, from single-person businesses to multi-billion dollar companies. With 100,000 employees located in virtually every country worldwide, the company’s domestic operations encompass district offices in 65 U.S. cities and 65,000 employees nationwide. At Xerox divisional headquarters in Rochester, NY, hiring up to 50 systems professionals annually is the responsibility of Bob Monastero, Manager of Human Resources, Information Management.

“In information management, our charter is to develop systems that support the strategic business requirements of each and every client function. Because Xerox offers such a diverse product line, our customers and prospective customers represent every industry imaginable. My job, then, is to recruit for a wide range of systems positions. Specifically, I must find qualified professionals with 3+ years of experience as applications developers, technical systems strategists, senior project managers, and information engineers, as well as specialists in areas like artificial intelligence, knowledge-based systems, and information engineering. With Computerworld, we attract more candidates with the exact credentials we’ve defined - and by a wide margin.

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“With its appropriate environment and breadth of readership, Computerworld cost-effectively generates a wealth of highly qualified candidates - advertisement after advertisement. That’s why, one year after our trial recruitment advertisement, we’re still advertising in Computerworld. In fact, based on our tremendous success, we’re doubling our 1991 recruitment advertising schedule in Computerworld.

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STOCKS

INDUSTRY ALMANAC

NETWORKING STOCKS

Kenneth Leon, analyst at Bear, Stearns & Co., Dec. 18, 1991

On the telecommunications side, the network switching and transmission market looks very strong this year. AT&T, which has strong global Postal Telephone and Telegraph relationships, stands to gain ground.

AT&T recently lost a $1 billion contract at Ameritech, which chose Northern Telecom, Inc. and Siemens AG instead. The failed deal probably will not set AT&T back much, said Chairman Robert Allen. He is bullish on new market opportunities in wireless switching systems, personal communications networks and broadband video and high-speed technologies.

AT&T stock was recently upgraded from buy to strong buy.

Louis Gugio, Bear, Stearns, Dec. 18, 1991

International growth remains stronger than domestic growth for Novell, Inc. However, the company's U.S. business increased 20% in 1991. Sales in 1990 were up 9% over 1989, which grew 15% over the previous year.

Novell's workstation operating system strategy will unfold this year, resting on several factors, including the Digital Research, Inc. merger. Plus, Novell's substantial investment in Unix International and its partnering with leading Unix vendors, including Sun Microsystems, Inc., will likely lead to Novell taking a more aggressive role in desktop Unix. Novell is rated buy, and Sun was recently upgraded from buy to strong buy.

Richard Billy and Sam Kim, analysts at Prudential Securities, Inc., Dec. 23, 1991

Synoptics Communications, Inc. just reported better quarterly financials than Cabletron Systems, Inc., for the first time. However, Cabletron officials said in a conference call that Synoptics' recent price cuts on networking gear have been a "competitive nonevent."

Cabletron sales continue to be very strong. The company's U.S. business increased 20% in 1991. However, the company's U.S. business increased 20% in 1991. Sales in 1990 were up 9% over 1989, which grew 15% over the previous year.

Analysts int'!

What to buy

Analysts are mixed on networking stocks

<table>
<thead>
<tr>
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<tr>
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<td>Chiptron Corp.</td>
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<tr>
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<td>Octel Communications Corp.</td>
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<tr>
<td>Proteon, Inc.</td>
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</tr>
<tr>
<td>Synoptics Communications, Inc.</td>
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</table>

The stock is rated buy.

KIM S. NASH

STOCK TRADING INDEX

STOCK TRADING INDEX

TOP PERCENT GAINERS

<table>
<thead>
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TOP PERCENT LOSERS

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<td>Advanced Technology</td>
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<td>ACT, Inc.</td>
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<td>Adaptec</td>
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S & P 500

COMPUTERWORLD STOCK INDEX

STOCK TRADING INDEX

TOP DOLLAR GAINERS

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<tr>
<td>Chiptron Corp.</td>
<td>Not rated</td>
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<tr>
<td>Network Equipment Technologies, Inc.</td>
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<tr>
<td>Network Systems Corp.</td>
<td>Neutral</td>
</tr>
<tr>
<td>Novell, Inc.</td>
<td>Strong buy</td>
</tr>
<tr>
<td>Octel Communications Corp.</td>
<td>Strong buy</td>
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<tr>
<td>Proteon, Inc.</td>
<td>Not rated</td>
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</tbody>
</table>

This information is obtained from sources believed to be reliable but cannot be guaranteed to be completely accurate. This information is subject to change without notice.

Big Blue gaining in mainframe security

The primary security concern in today's mainframe environment is the proliferation of platforms and networks over wide geographic areas, he said. Neither CA nor IBM has delivered complete solutions to the problem, Farber added.

However, it appears that the users who switch are not concerned about that. They are either spoooked by IBM hints or simple moving from IBM will do a better job down the road of addressing various issues.

For example, this month, Charles Schwab & Co. in San Francisco will begin writing conversion routines that will take it to RACF after four years of running Top Secret, said Lloyd Cole, vice president at the Information Services Division of the company. Cole estimated the process will take 12 to 18 months. He declined to say how much the switch will cost.

The lengthy and involved conversion is part of a strategy to move to a distributed computing and management environment, Cole said. "Our feeling, based on talking with CA and IBM, is that we'll be better positioned to move into an [Open Software Foundation Distributed Computing Environment] with RACF than we would be with Top Secret."

Meanwhile, users from Top Secret to RACF is "under consideration" at Syntex (U.S.A.), Inc. in Palo Alto, Calif., said Edward Wagner, that manager in corporate information services. The reason is "clarity, uncertainty and doubt," he added.

"CA has made major strides down the road to a platform-independent strategy," and it is not likely to trail IBM, countered John Blackley, information security administrator at Capital City Bank in Louisville, Ky., an ACF2 and Top Secret user.

Another reason to shift is that upgrades are difficult to implement, Wagner said, noting that the process is harder for larger installations.

However, some users and experts are baffled by these plans to move, given the similarity of the products and the complexity and cost of converting.

IBM moves to bolster portable efforts

IBM is planning a multipart attack that will include the following rollouts:

- An 80-Mbyte hard drive upgrade for the L40SX, expected this month. One PC director at a major East Coast insurer said his firm has been receiving L40s with 80M-byte drives since last month and has promised 120M-byte drives before June. Sources close to IBM denied that the firm will ship 120M-byte upgrades for the L40.
- A low-end, 5.5-pound notebook based on the Micro Channel Architecture has slashed to ship at the end of next month. Similar to IBM Japan's PS/55note but with an internal floppy and a 40M-byte hard drive, this will initially use Intel Corp.'s 16-MHz 80386SX chip.
- A midrange release of a pen-based system that will weigh about five pounds, use a 20-MHz 386SL chip and run Go Corp.'s Perqpoint operating system. This is expected to offer four to eight hours of battery life.
- A third-quarter release of an active-matrix color laptop that will use IBM's 386SLC power management chip and a nickel-cadmium hybrid battery, which will give it two hours of battery life.
- A fourth-quarter release of a color notebook with passive-matrix screen.

The bottom line, though, according to analysts, is that heavy users are baffled by these plans to move, given the similarity of the products and the complexity and cost of converting.

Justice security lapses rapped

A report released last week by the U.S. House of Representatives' Government Operations Committee said the U.S. Department of Justice has failed to conduct risk analyses, develop contingency plans and conduct adequate security training. The department has made some security improvements but still fails to meet the requirements of federal law, according to the report.

Wang fattens its wallet

Wang Laboratories, Inc. is about to add $11 million to its balance sheet from the sale of its Network Services Group to the UK's Cable & Wireless PLC. Wang is selling the 7-year-old unit, which provides wide-area network services, because it no longer fits the company's strategy, a Wang spokesman said. Network Services will remain in Lowell, Mass.

Northgate expands distribution

Northgate Computer Systems, Inc. moved beyond mail order last week by forming a new division that moves the Minneapolis-based company into such distribution channels as dealers, value-added resellers (VARs) and systems integrators. The company is actively recruiting dealers and VARs to carry its Inte- l Corp. 80386 and 1486 line of personal computers. It predicts business partnerships by midyear.
92: A SLIGHT UPTICK

NEWS

U.S. sees industry growth in ‘92

BY GARY H. ANThES
CW 1/6/92

WASHINGTON, D.C. — Despite predicting a sluggish economy, the U.S. Department of Commerce expects that 1992 sales of computer hardware will produce the first real growth in four years, while revenue from computer services and software will continue to rise at double-digit rates.

Moreover, information services topped the agency’s list of fastest growing service sectors.

Rose-colored glasses?

Recession aside, the U.S. government is predicting fairly strong growth for the domestic information technology industry.

<table>
<thead>
<tr>
<th>Product Type</th>
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<tbody>
<tr>
<td>Electronic information services</td>
<td>10.2%</td>
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<tr>
<td>Data processing and network services</td>
<td>8.4%</td>
</tr>
<tr>
<td>Computer professional services</td>
<td>56.3%</td>
</tr>
<tr>
<td>Computer hardware and peripherals</td>
<td>55.8%</td>
</tr>
<tr>
<td>Packaged software</td>
<td>53.2%</td>
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</table>

Similar good tidings for the computer industry come courtesy of Standard & Poor’s Corp., its annual overview of how various industries will fare in the coming year. Standard & Poor’s said it expects the operating profits of computer manufacturers to jump 12% this year, after sliding in 1991.

Paul Prutzman, director of computing and customer services at Air Products & Chemicals Co. in Allentown, Pa., foresees a “slack-off in growth, but not a decline,” in his company’s use of mainframe millions of instructions per second during 1992.

Pruzman said he will concentrate on “de-bottlenecking” the mainframe, by taking storage and memory to complement the IBM 3090 400E he shop purchased in 1991. The shop expects to buy an S- or J-class model on the used equipment market late this year or early next, Prutzman said.

“With everything’s more aware of alternatives and the re-distribution of computing work loads, I view that as a kind of real balancing. But you can’t dismiss overnight what took 25 years to build,” said Elaine R. Bond, senior vice president at Chase Manhattan Corp.’s Corporate Systems Group.

The philosophy in many large shops for the 1990s appears to be to translate “let the application dictate the platform but do not throw the ball already exists.”

This viewpoint may be em-

braced out of necessity by users unwilling to take risks with what passes for open systems today. “I wish that the sellers of open systems would get their act together and deliver usable products that give my appetite all ready.

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String of delays stalls Windows 3.1
CONTINUED FROM PAGE 1

October 1991 for delivery by year's end, was provided electronically to about 350 accounts worldwide, said Tommy Steele, director of the IBM Personal Systems Programming Laboratory in Boca Raton, Fla. He said IBM will begin delivering a shrink-wrapped version of the Release 2.0 on schedule in March. But the limited-availability version is available only to corporate accounts.

IBM had plenty riding on this shipment. Last October, the company promised a limited-availability version by year's end and another after postponing the full-blown Release 2.0 to March.

The limited-availability version includes everything IBM promised users at an April OS/2 conference. The March release will include changes suggested by beta testers.

"It was an important date," said Bill Higgs, vice president of software research at Computer Intelligence/Fincorp. "If they had not shipped this part by the end of the year, there would have been a major credibility gap." Higgs added that this shipment does not guarantee that IBM will deliver the complete Release 2.0 on schedule in March, but "it gives you a more comfortable feeling." The limited-availability version is stabilized code with essentially the same functionality as the current Release 2.0 beta code. It does not have the seamless support of Microsoft Corp. Windows applications, nor does it support a 32-bit graphics engine. Both features have been promised for the full-blown version of 2.0, now scheduled for a March shipment.

IBM's Steele said the company received orders from about 350 accounts worldwide for the limited-availability version.

Customers had to meet certain requirements to receive this release, including a commitment to install the complete Release 2.0. Customers were also required to indicate they needed the software for a production application and to prove they had the necessary technical support in-house to handle it.

In the works
Royal Bank said it had been planning to install this release because it caused it to schedule delivery of applications to its users based on the year-end availability date announced by IBM.

Royal Bank's Oliver said he had been working closely with IBM over the past two weeks to "make sure it had the kinks out." Carey Serf, manager of applied technology at Huntington National Bank, said he decided not to take the limited-availability version because "we were not quite in the crunch that some other people were, so we didn't really need it."

"That's quite awesome for that price range," observed another analyst who listened in on the briefing. A similarly priced workstation from Sun Microsystems, Inc., for example, runs at 20.1 Specmarks.

The HP offering will undoubtedly shake the trees at Sun and Digital Equipment Corp. Both vendors have similarly low-priced systems in the $5,000 range, and they run at significantly lower performance levels than the HP system will deliver, analysts noted. And if IBM hits the $10,000 mark, HP will also announce the Model 710 Bushmaster, a high-performance workstation available in both color and gray-scale versions, sources said. HP will also introduce improved three-dimensional solid modeling products integrated with the Precision Architecture RISC chip.

Users of current Series 700 workstations can upgrade their systems with the 3-D graphics boards. "HP has done a good job. You have to give them credit," said Duane Elms, a program manager in technical computing at General Electric Co. in Bridgeport, Conn. "Two years ago, I wouldn't have put a dime in their stuff, and now they're very impressive."

The appearance of an HP workstation carrying less than $5,000 is surprising in light of remarks a company vice president made last month after DEC's low-end computer was introduced.

By James Daly

Hewlett-Packard succeeds in slipping under $5,000
CONTINUED FROM PAGE 1

Lewis Platt, an HP executive vice president and head of the computer systems organization, said his company would not reach as low as $4,000 to $5,000 with its upcoming low-end models. Apparently what has changed is HP's ability to deliver a system costing $6,995 earlier than expected. Platt had been asking for it, so the strategy didn't change. The timing did," the source said.

Compatible partners
HP has clearly recognized that while the high end is an interesting place to be, they can see the way the workstation business is going," said Laura Conigliaro, an analyst at Westchester Securities Research in New York. She pointed to HP's success of the Model 720, its current low-end workstation with a base price of about $12,000 for 59.5 Specmarks.

HP has been excluded from some accounts because of its segmented product line, which includes its own operating system. "The Series 400 workstations based on Motorola, Inc.'s 68040 chip, and the Precision Architecture RISC products, "does not fit," said Platt.

Users must look 'within' for enhancements to Windows
CONTINUED FROM PAGE 1

BY JAMES DALY

While the arrival date of Windows 3.1 remains hazy, some of the improvements are certain. But "most of the enhancements are internal," according to beta tester John Stirling, a software program manager at Pacific First Bank in Seattle. These include the following:

Dr. Watson, a set of diagnostic tools designed to pinpoint the source of the persistent Unre-coverable Application Error crashes that have plagued many Microsoft Corp. Windows 3.0 software packages.

TrueType, which has been jointly developed by Microsoft and Apple Computer, Inc., will be incorporated directly into the Windows font service package. The result will be TrueType, which will allow users to scale, rotate and otherwise manipulate fonts.

Support for the pen-based Windows for Pen Computing package, as well as a feature called Common Dialogue, which contains a set of commonly used dialog boxes that developers can pop in their applications, and an improved help facility.

New application programming interfaces.

A new file manager that lets the user split the screen vertically to show a directory tree on the left and files in the selected directory on the right.

Greater application integration, including Dynamic Data Exchange, Object Linking and Embedding and drag-and-drop features.
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Dear Professional Programmer:

Earn $4,000 per month part time with a computer and still retain the security of your present position. You do not need to own or know how to run a computer — we will provide free training.

—from a want ad

CIO's Top 10 concerns in 1992

According to N. Dean Meyer, president of NDMA, Inc., a consulting firm in Ridgefield, Conn., the important issues for CIOs in '92 will revolve around the organizational structure of IS, internal economics and business practices:

1. Set budgets based on business need, not politics.
2. Involve clients in priority-setting processes that ensure alignment with the business.
3. Bring entrepreneurship and customer focus to the IS culture.
4. Provide a range of technical specialists without adding head count by using contractors.
5. Build high-performance teamwork between various IS specialists.
6. Measure the strategic benefit of IS in quantitative terms.
7. Look for high-payoff, quick-hit opportunities instead of large, complex projects.
8. Conduct architecture planning as an ongoing process.
9. Consolidate operations to reduce costs.
10. Develop collaborative relationships with decentralized IS groups throughout the company.

DO you have anecdotes about your users, your boss or your job? Know any industry trivia? If so, please contact Lory Zottola or Jodie Naze at (800) 343-6474. If we use your ideas, we'll send you a gift.

PLAY IT AGAIN, RAM

Having problems finding those computer-generated tunes you've been yearning for? Search no longer; there's a catalog, called Aftertouch: Electronic Music Discoveries, filled with jazz, rock, easy listening and new age music, all done with keyboards — computer, that is. Titles include "Console Cowboy," "Technocrat," "Mac & Me" and "Terminal Insecurity." Catalog published by the Computer Musician Coalition in Peoria, Ill.

INSIDE LINES

Sharpening the blade

> A leaner, meaner Lotus is beginning to take shape as the company starts implementing the 300- to 400-person layoff announced last month. As expected, marketing will take a substantial hit — particularly staff/planning functions, according to Robert K. Weiler, department head. The downsizing will "prune a seriously overgrown department," he said.

Faults not tolerated

> Stratus Computer and Hewlett-Packard are reportedly engaged in discussions about a partnership whereby HP would resell Stratus' line of fault-tolerant computers. While the Stratus response was "no comment," and HP could not be reached by press time, such a liaison could pose an interesting situation, as HP currently remarkets Sequoia Systems' fault-tolerant systems. HP is said to be unhappy with the way the Sequoia agreement is evolving.

Black and Blue?

> IBM is apparently going all out to prove it has changed its ways in the world of portables. Sources say its new line of portables will be in black casing, a distinct move away from the beige coloring the company has had before. "Beige is not a good color for portable computing anyhow," one source said, "It gets dirty." One source reports that the move to a new color has sparked an internal debate at IBM, and there is a chance that the company will decide the new look is too different and dump it.

But is be happy?

> Last week's uptick in the price of Microsoft's stock, bringing it to a 12-month high of $114 a share, made Chairman Bill Gates the richest man in America, industry analysts estimate. The 36-year-old entrepreneur is said to be worth approximately $6.5 billion, earning him the No. 1 spot previously held by Wal-Mart Stores head Sam Walton.

Who's on top?

> Ungermann-Bass and Networth seem to have their signals crossed about exactly how big a piece of the LAN hub vendor UB has bought. A Networth spokesman said 50%; a UB spokeswoman claimed 50.1%. That 0.1% may be small, but it does make a slight difference in terms of UB's having a controlling interest in a company that is, among other things, giving Novell a run for its money in the Netware management arena.

When splitting is good news

> Novell is rumored to be preparing to split its stock now that it has vaulted above $60 a share. The darling of Wall Street is gaining ground even compared with the recent record-breaking run-up on the stock market. Novell denies any plans to split its stock in the near future — the next two weeks, that is. No promises after that, a spokesperson said.

Putting pen to screen

> IBM's collaborative efforts with Go Corp. will yield a tablet machine that will sport a pen-based version of IBM's Presentation Manager. Data can be entered via a stylus, and overlapping documents can be moved around the screen by dragging them with a fingertip. The machine will also offer voice annotation capabilities. Chairman Michael Dell says Dell Computer also plans a product using pen-input technology by next year.
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