AT bus rides high again at IBM

IBM is expected to announce three personal computers this week that incorporate the AT bus, a capitulation to entrenched demand, according to sources briefed by the company. While IBM may be becoming less dogmatic about its Micro Channel Architecture bus, it will incorporate MCA into one other PC to be announced this week.

In all, IBM plans to introduce four Personal System/2s, dubbed Models 35, 35LS, 40 and 57SX, each of which will use the 20-MHz Intel Corp. 80386SX chip. IBM currently sells only 16-MHz 80386SX models, while many of its competitors have been shipping the 20-MHz versions since last year. Analysts say the move is a hedge against an anticipated sales decline for the 16-MHz 386SX computers. Despite its reputed technological superiority, IBM's MCA has made few strides in the face of users' staunch allegiance to the AT bus, analysts noted. In 1987, the company introduced MCA as a standard for its entire corporate PC line.

"That strategy failed dismally," said Frank Michnof, an analyst at Meta Group, Inc. in Westport, Conn. IBM said it did not foresee end-user resistance to "proprietary" Architecture bus, it will incorporate MCA into one other PC to be announced this week.

Continued on page 7

IBM unit finds first
outsourcing subsidiary last
week, the firm said it will obtain
80% ownership in

Oracle white knight wears samurai garb

REDWOOD CITY, Calif. — Oracle Corp. has found a way out of the yearlong cash squeeze that nearly brought the growth of its business to a standstill. Last week, the firm said it will obtain $200 million in financing from Nippon Steel Corp. in Tokyo.

In exchange, Nippon Steel will acquire a 49% ownership in the U.S. firm's Japanese subsidiary and the option to convert its investment into Oracle common stock. The deal could be finalized this summer.

Longtime Oracle users and industry analysts said they were comfortable with the prospect of a $1.3 billion Japanese giant financing their software supplier, mostly because it will ensure financial stability at Oracle.

"They had to give a little to get a little," said Warren Capps, president of the Mid-Atlantic Oracle Users Group.

Continued on page 7

Bank bailout costs jobs

Rescuer slashes Bank of New England tech staff

By MARYFRAN JOHNSON CW STAFF

PROVIDENCE, R.I. — Nearly 1,000 Operations and Technology Division workers will lose their jobs in a computer systems consolidation between Fleet/ Norstar Financial Group and the recently acquired Bank of New England, Fleet officials announced last week.

The consolidation is expected to save Fleet up to $350 million annually by shifting most of the acquired bank's technology operations to Fleet's own data processing and bank operations center in Albany, N.Y., during the next 18 months.

New plans

Fleet plans to close the bank's Boston-based systems and programming office, eliminating 140 jobs, as well as moving the bank's Malden, Mass., data center, which employs 850 people, to the Albany data center.

Fleet began operating the failed Bank of New England operations in Massachusetts, Connecticut and Maine on April 29 under an interim management agreement with the Federal

INSIDE

IBM's Repository Manager has had mixed results among early users in its first year. Page 6.

DEC customers approve of the company's conversion to the 'open systems' philosophy. Page 8.

1-2-3/Windows finally launched as Lotus begins campaign to battle Microsoft as the one-stop applications provider. Page 14.

Product Spotlight — Mini-computers are sometimes the right machines for a server job. Page 63.
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6 Intel has jumped into RISC waters with the release of its 860 XP microprocessor, but observers say Intel may have missed the boat. Ten companies will be honored by Computerworld and given Smithsonian Awards for the outstanding ways in which they use information technology to benefit the general public.
10 Looking for privacy: Microsoft said last week that it has licensed a data security software package from RSA Data Security that would allow PC users to encrypt private messages to be sent across data networks.
16 Computer Sciences takes an early exit from the New Jersey State Insurance Contract. The state cancelled a contract with CSC, citing performance problems and less need for CSC resources.
99 IBM fits more pieces into its multimedia jigsaw puzzle with the announcement of several products.
100 Prime'd and ready: The user group meeting in San Antonio showcases new products and promises of lifelong commitments.
101 Benchmarks get no respect from a lot of people when it comes to OLTP systems purchases.

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PCs & WORKSTATIONS
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PRODUCT SPOTLIGHT
63 There's lots of action on the minicomputer front, including enhanced service strategies and new server configurations.

The 5th Wave

EXECUTIVE BRIEFING

Minicomputers as servers? 'Yes,' say 31% of IS managers surveyed by Business Research Group in Newton, Mass. These machines are particularly attractive to people with very large, critical applications and a dire need for service and support as well as to companies that own minicomputers now and would like to extend their use. On the downside, machines are still expensive, and their resale value is diminishing. Page 63.

Already tough times got tougher for 1,000 IS staff members last week when Fleet/Norstar Financial Group announced it is laying off operations and technical personnel as part of its acquisition of the failed Bank of New England. The Providence, R.I.-based financial concern plans to close most of Bank of New England's operations centers and bring their work under Fleet. Page 1.

The celebration is muted as IBM's Repository Manager approaches its first birthday. A sampling of early users finds that although some have made progress with IBM's strategic software development application, many are still quite cool to the concept, and one has stopped development altogether. Page 6.

DEC users are confident the vendor can achieve its goal of becoming a master open systems integrator. But DEC faces problems finding performance vendors can offer between Windows and many systems, but IS managers should shop carefully. Page 93.

Microsoft is moving to end incompatibilities between Windows and many graphics boards. The company is releasing tool kits that let developers write drivers that work with nonstandard video equipment. Page 37.

A Canadian government agency will link 12,000 terminals together using an X.25 packet-switching network to connect five networks that barely speak today. Page 50.

The state of New Jersey cancels a processing service contract with CSC, saying the vendor isn't performing well. Page 16.

Companies with ill-defined software development processes shouldn't try to justify CASE until they fix those poor processes. The sequence is to standardize, mechanize, then automate. IS departments have been telling that to users for years. Now it must heed its own advice. Page 75.

On site this week: Milwaukee finds network-based purchasing software does the job as well as a mainframe. Page 47. Market research firm puts together a list of technology in consumers' hands, letting bar code readers do the work of finding out which cereal is on their shopping lists. Page 31. A tracking firm uses imaging to dig itself out of a blizzard of 5 million pieces of paper per year. Page 31.
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U.S. and Japan sign semiconductor pact

BY GARY H. ANTHEIS CW STAFF

WASHINGTON, D.C. — The U.S. and Japan signed a bilateral trade agreement last week that calls for foreign penetration of the Japanese semiconductor market to rise from its present rate of 13% to 20% by the end of next year. The target carries no penalties if it is not met.

According to the five-year agreement, the U.S. and Japan will no longer collect cost and price data used to detect and monitor dumping. However, the pact provided for a "fast-track" procedure by which Japan will supply such data "on an expeditious basis" if a U.S. antidumping investigation is undertaken.

The pact also eliminated sanctions on the import of certain categories of Japanese products that were imposed on Japan in 1987 for violations of the 1986 U.S.-Japan semiconductor trade agreement.

Counting the chips
U.S. semiconductor manufacturers have slowly penetrated penetration of the Japanese market

<table>
<thead>
<tr>
<th>Year</th>
<th>U.S. share of Japanese market (by total sales)</th>
</tr>
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<tbody>
<tr>
<td>1986</td>
<td>8.6% 8920M*</td>
</tr>
<tr>
<td>1987</td>
<td>9.6% $1,251M*</td>
</tr>
<tr>
<td>1988</td>
<td>10.2% 81,903M*</td>
</tr>
<tr>
<td>1989</td>
<td>11.0% $2,153M*</td>
</tr>
<tr>
<td>1990</td>
<td>12.3% $2,406M*</td>
</tr>
</tbody>
</table>

*Value of total U.S. sales to Japan


BY PATRICIA KEEFE and JAMES DALY CW STAFF

Majority Leader Richard Gephardt (D-Mo.), said. The agreement should prevent dumping while further opening the Japanese market, said Sen. Max Baucus (D-Mont.), chairman of an international trade subcommittee. But he added that the trade sanctions should not have been lifted. "The commitments have still not been fulfilled.... The pact may be terminated after three years by mutual agreement.

Computer systems manu- facturers applaud the new agreement, said John Young, chief executive officer of Hewlett-Packard Co. and chairman of the Computer Systems Policy Project (CSPP), a coalition of CEOs from 11 major U.S. computer companies. CSPP and the Semicon ductor Industry Association (SIA) set aside traditional buyer-seller differences last fall and made a joint proposal for the new agreement with Japan.

"Japan's public recognition that the foreign share of the Japanese semiconductor market will increase to a minimum of 20% by the end of 1992 is a historic milestone," said Will Corri gan, CEO of LSI Logic Corp. and chairman of the SIA.

But it is not the first such milestone. The 1986 agreement was accompanied by a secret letter of understanding containing the same 20% target to be met by July 31, 1991. But the foreign share of Japan's semiconductor market grew from 6.8% in 1986 to only 12.3%, with the U.S. owning a 12.3% share.

Industry leaders generally praised the agreement, but some on Capitol Hill were less pleased. "The agreement contains no specific commitments by Japan to guarantee market share opportunities for U.S. semiconductor products," said one industry official. "We should reward Japan for failing to live up to an agreement they've already signed," House Majority Leader Richard Gephardt (D-Mo.), said.

Apple eyes chip defection

Apple Computer, Inc. rethinking its commitment to Motorola's 88000 RISC chip. If Apple were to defect to another supplier of reduced instruction set computing (RISC) processors, it would pose a serious blow to Motorola's semiconductor business, analysts said. An Apple spokesman confirmed that the company is talking to multiple RISC suppliers but would not confirm or deny a published report last Friday about a pending deal for IBM's RISC chip set in exchange for Apple software.

"It's a positive development in continuing our long-term relationship with Businessland," said Leon Griggs, director of PC services at Kodak.

JWP's low-cost delivery system will increase to a minimum of 20% by the end of 1992 is a historic milestone," said Will Corrigan, CEO of LSI Logic Corp. and chairman of the SIA.

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CORRECTIONS

Because of a reporting error, a Conders/Spring '91 notebook item that referred to a spreadsheet page titled incorrectly identified the speaker from Borland International, Inc. Steve Kahn, not Philip Kahn, represented Borland.

Richard Goldberg, IBM's assistant general manager of software marketing, was incorrectly identified in an article in the June 3, 1991, issue.

TGV, Inc., maker of a Transmission Control Protocol/Internet Protocol-to-VAX/VMS connectivity application called MultiNet, will give full credit to those who bought Novell, Inc.'s OEM version of the product. TGV, and not Novell, sells and supports all versions of MultiNet.

JUNE 10, 1991
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.
Slate schedules shipment

Slate Corp. sketched out plans to expand its pen-based computing packages last week with support for Microsoft Corp.'s upcoming Windows for Pen operating system, which is expected late this year. Slate's first Microsoft offering will be the Penmaster Integrator alarm interface and support documentation of Penapps will cost $2,500, while a runtime edition will sell for $99. The Scottsdale, Arizona-based Slate also plans to up its linking capabilities and begin to produce Penpoint products using Traveling Software and its communications technology.

NEWS SHORTS

IS management bonuses slashed

Information systems-executives have seen their bonuses slashed an average of 23% because of the recession, according to a 1990 survey by Edward Perlin Associates, Inc., a New York compensation consulting firm. The survey of 800 IS managers at 31 major corporations found an average increase of 7% in base pay compared with last year's survey and an average drop of roughly 1% in total compensation. Companies have been shifting financial incentives to bonuses, which can be cut in hard times and still enable the company to keep salaries competitive, the firm reports.

AT&T opens up Accumulator

At last week's International Communications Association conference in Anaheim, Calif., AT&T said it will publish its Accumulator Integrity alarm interface and support documentation for AT&T's Simple Network Management Protocol. The company said opening Accumulator's network management interface would bring the product closer to compliance with OSI standards by allowing developers to write Open Systems Interconnect (OSI) and non-OSI software for management applications.

Bells get Senate support

The U.S. Senate voted 71 to 24 to allow the seven regional Bell telephone companies to manufacture communications equipment, a $115 billion line of business prohibited by the Consent Decree that broke up AT&T in 1984. The Baby Bells are expected to find more resistance when the U.S. House of Representatives considers the bill if it retains a provision limiting the foreign content of the equipment. The Bell companies also may not sell information services or long-distance services.

NSA publishes specs for DBMSs

The National Computer Security Center, a unit of the National Security Agency, has published the Trusted Database Management System Interpretation (TDB) of the Trusted Computer System Evaluation Criteria, the so-called "Orange Book" detailing specifications for trusted operating systems. The TDI extends the concepts of trusted systems to applications in general and to DBMSs in particular. The center said it has so far received six technical proposals for trusted DBMSs for evaluation and certification at various levels of security.

Xerox adds imaging system

Xerox Imaging Systems last week announced a new high-speed document imaging system offering a 30% increase in throughput over its earlier products for personal computers. At the heart of the K6200 document input system is a reduced instruction set computing (RISC) processing unit featuring the AM29000 RISC chip from Advanced Micro Devices, Inc. The system also includes proprietary intelligent character recognition software and a high-speed, heavy-duty scanner with an automatic document feeder. Following numerous other imaging vendors, Xerox chose Microsoft's Windows 3.0 environment as the end-user interface for the K6200, which will be available at the end of June at a price of $25,950.

Repository users slow to start

After a year, AD/Cycle hub draws mixed messages from early installers

BY ROSEMARY HAMILTON CW STAFF

Nearly one year after its release, IBM's Repository Manager has to catch the fancy of many users. It has had mixed results at early-user sites, with at least two customers saying interest in early users reporting progress but with another putting Repository Manager on hold because it was too difficult to work with. Some other users contacted last week said they are still not ready to implement a complete Repository Manager, much less install the software.

"We looked at the general concept and approach and didn't feel it was going to be immediately beneficial to us," said Doug Underhill, a vice president at CSS Technology, the automation systems arm of CSX Corp. "I also have to confess that I am still confused by what it is." Piece of the puzzle

Repository Manager is a key piece of IBM's AD/Cycle, its software development strategy. The software, which is essentially an application that sits on DB2, is designed to act as the central storage and control mechanism of a computer-aided software engineering (CASE) environment.

IBM shipped an initial version of Repository Manager/MVS in June 1990. It has maintained that this release is not a full-blown repository and as such is intended for early vendors and advanced users. "I think the level of interest could be higher," said Paul Hessinger, chief technology officer at the Computer Task Group. "IBM continues to say this release was for the tools for early builders, but the interest should be stronger in terms of planning for it, planning for it generically as well as planning for Repository Manager."

An IBM spokesman last week said development of AD/Cycle and Repository Manager are an evolutionary process. "If customers are satisfied with the progress they are making, then so are we," he said. "If they are not, then we've got more work to do."

"Two early users contacted last week gave release good marks. However, a third, Deposit Trust Co., which installed Repository Manager before it was officially released, stopped working with it early this year. "We aren't ready for it, and we aren't sure it's ready for us," said Emmanuel Ackerman, director of data administration at the firm. "We just haven't done anything since the first of the year."

"Still, both the Bank of Montreal and Phillips Petroleum, are satisfied with the tool, and so are we," he said. "If they are not, then we've got more work to do."

Observers skeptical of Intel's 1860

BY JIM NASH CW STAFF

SANTA CLARA, Calif. - With the introduction of Intel Corp.'s new 1860 XP microprocessor, the company has proved it can surf with the best on the reduced instruction set computing (RISC) wave. But observers said Intel has grabbed the wave too late and too close to shore. Few computer makers use the 1860 in their high-end systems or mainframes.

That do use it cater primarily to niche needs centering on complex graphical displays. Observers predicted that the XP will have little impact on the market, given the scarcity of industry systems departments requiring RISC systems.

The company, based here, last week announced preproduction shipment of the XP, a 2.5 million-transistor chip capable of crunching 100 million floating-point operations per second. Intel is offering 40- and 50-MHz versions of the XP for use as CPUs in supercomputers and as coprocessor boards in workstations.

The XP, Intel executives said, will be followed by a 60-MHz version now under development. It was preceded in 1989 by the one-million-transistor, 33-MHz XR. Though considered different generations, both are RISC chips. Also last week, Intel announced availability of a scaled-down XR running at 25 MHz and costing $176 each in sets of 1,000.

An Intel spokesman said he expects to see systems running on the chip in "six to nine months."

Gordon Bell, chief scientist at Stardent Computer, Inc., in San Nyvale, Calif., said his company will have an XP-based machine out this summer. No other computer vendor expects to have a 1860 chip would be so specific.

Michael Slater, editor and publisher of "The Microprocessor Report" in Sebastapol, Calif., said the entire line of 1860 chips was handicapped early on by Intel's late arrival into the RISC architecture, which by the time Intel introduced the XR two years ago, most computer hardware makers had already standardized on microprocessors, the IBM, Hewlett-Packard Co., Micropip Computer Systems, Inc. and Sun Microsystems, Inc. By Intel's own reckoning, 60% to 70% of the market belongs to entrenched competitors. The company instead will focus on a handful of primary computer vendors including leading vendor, Alliant Computer Systems Corp., Ok Electric Industry Co. Ltd., Samsung Electronics Co., and its own supercomputer division.

The XP, which will cost $699 for the 50-MHz version and $559 for the 40-MHz version, is likely to be a "very good companion product to the X86 line," said analyst Millard Phelps at Ansonia Securities in San Francisco. But its role remains primarily that of an accessory. Phelps said "As a coprocessor, you can't unload (data) and it will crank away," he said.
CONTINUED FROM PAGE 1

Washington, D.C., area. "They needed cash, and they had to give away 49% of Oracle Japan to get it." Oracle said it will maintain 51% ownership of the Japanese business — which is expected to generate more than 10% of its revenue by 1995 — and has an option to increase its share.

The issue of financial stability seemed to outweigh any prospect of Oracle opening the door to future foreign control. "At least this isn't another American software company trying to take Oracle over," said Tony Ziemba, chairman of the New York Oracle Users Group. "We just want to know that our vendor will be there for us and that their revenue stream will allow them to continue their product development plans and to improve customer service."

Cash flow dried up
Oracle's cash flow had trickled to a virtual halt earlier this year. Oracle executives said in January that the $971 million firm then had less than $50 million cash on hand and that more than $300 million in back payments from customers had to be collected.

During its third fiscal quarter, Oracle decided to write off $42 million of those bills as uncollectible. However, positive cash flow returned that quarter, and by March, Oracle had $72 million in cash.

As part of the Oracle Japan pact, Nippon Steel will gain $100 million worth of Oracle preferred stock, convertible in four years to Oracle common stock, and is guaranteed a 4% return on that money. It also owns $100 million in 10-year convertible notes, which will produce a guaranteed 9% interest.

For the moment, however, Oracle's stock — which slid from $28 per share to $6 per share on news of a $36 million loss for the first quarter last fall — will remain undiluted until 1995. Oracle stock is now trading at about $10.

Analysts said Oracle will use the Nippon Steel money to reduce Oracle's $168 million line of credit with an international syndicate of 13 banks. The banks have been growing impatient since Oracle failed to meet its loan covenants in February because of insufficient profits.

The lingering debt situation left one Oracle customer wary about the lasting impact of last week's deal. "They're just moving the debt around and making it more manageable," said the California Oracle user, who did not wish to be identified.

Resignation announced
In another development last week, Oracle announced the resignation of former Chief Financial Officer Jeffrey Walker. In March, Walker was reassigned to direct Oracle's Applications Division, a group he had started in 1988. "It's a positive thing, from Wall Street's point of view," said Charles Phillips, a senior analyst at Soundview Financial Group, Inc. in Stamford, Conn. "But his resignation is not as important as the fact that he was replaced as CFO." Walker will serve as a consultant to Oracle, the firm said.

Walker's departure came May 31 but was only announced last Tuesday. Oracle has since named George Koch, 44, a longtime associate of Oracle Chief Executive Officer Lawrence Ellison, as senior vice president and director of the Applications Division. Koch, whose banking applications firm, Koch Systems, Inc., became one of Oracle's first value-added resellers in the 1980s, will also serve on Oracle's management committee.

"Even though Koch is an outsider," Ziemba said, "he's got that personal relationship with Ellison that will make him an effective player inside Oracle."

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Trendsetter

Oracle's deal with Nippon Steel is just the latest example of a growing trend toward Japanese investment in U.S. relational database management system firms.

Tokyo-based Nippon Steel already has a large systems integration business with 5,000 employees in Japan. The firm has the ability to use Oracle products in its turnkey solutions for Japanese customers and to distribute Oracle products throughout Japan, analysts said. Nippon Steel also owns Librex, Inc., a 1-year-old San Jose, Calif., firm that sells Japanese-language applications.

Last year, Aculi Corp. in Japan bought 5% of Menlo Park, Calif.-based Informix Software, Inc., which has a large share of the Unix RDBMS market. In 1989, Informix had made an investment in Aculi, in part to help Informix distribute software in the Japanese domestic market.

In November 1990, Sumitomo Metal Industries Ltd. in Tokyo joined in a three-way business venture with Unix Corp. in Sacramento, Calif., and Air Co., a Japanese firm that distributes Unix's software in Japan. Air set up a value-added reseller network within Japan that sold applications developed with Unix's Accell/SQL fourth-generation language. Unix also sells a RDBMS engine for use with Unix systems.

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DEC converts to open systems

BY MARY FRAN JOHNSON
CW Staff

MAYNARD, Mass. — Acknowledging that proprietary systems are a bitter pill that users hesitate to swallow, Digital Equipment Corp. last week declared its corporate conversion to open systems to a broader audience: in many customers and industry analysts nodding in approval.

"The big thing DEC has to do now is convince people of what they've been doing all along with their strategy to tie together heterogeneous platforms," said Stanley Rose, vice president of technical strategic planning at Bankers Trust Co. in New York.

"They will still have a tough sell in non-DEC environments," Rose added, "but I would tell people to listen to the message and see what they have." 

Along with its "Open Advantage" marketing campaign, DEC unveiled 3D networking (see story at right) and software products technical strategic planning. at right) and software products technical strategic planning. They've been doing all along with open systems. DEC is working very hard to give us a migration strategy so we don't get caught."

KEN KRALLMAN
CARLETON TECHNOLOGIES

"DEC has shown us they are moving as aggressively as they can into open systems while maintaining their installed base," said Ingvar Peterson, vice president and chief information officer at McCaw Cellular Communications, Inc. in Kirkland, Wash.

"We are adopting the philosophy DEC is talking about, and they seem strongly on the path to an open philosophy of interconnecting systems," said Robert Grandle, a systems manager at the National Aeronautics and Space Administration's Langley Research Center in Hampton, Va., which uses a Unix-based network with systems from IBM, DEC, Hewlett-Packard Co. and Sun.

Yet users and analysts agreed that DEC faces daunting business and technological challenges over the next two years.

The VAX line is being reengineered from a complex one to a reduced instruction set computing-based CPU, and the proprietary VMS operating system is being "opened" with the addition of Posix-compliant industry-standard interfaces.

In the meantime, layoffs are trimming company size from 125,000 to roughly 116,000 by the end of this year, while company executives claimed that people-intensive areas such as software engineering will become the key money makers.

"There's not that many people around with all the skills needed for systems and network integration," Kranlman noted.

A key issue in DEC's success with this new strategy will be communicating it to thousands of people in the field, analysts and users said.

"Out in the field, the salespeople are very strong in their approach to open systems while to open systems isn't happening," said John Braucksieker, MIS director at Protein Technologies, a subsidiary of St. Louis-based Ralston Purina Co.

"DEC had better start educating its employees in these new philosophies," Braucksieker said.

"In a sense, DEC is moving the debate on open systems to a higher level," said William Bluestein, an analyst at Forex- ter Research, Inc. in Cambridge, Mass. "Users are more interested in where their applications can run on the network than in which variant of Unix a vendor supports."

Overall, DEC customers seem confident that DEC can deliver on its promises.

I THINK DEC is working very hard to give us a migration strategy so we don't get caught."

Phase V tweaks Decnet OSI strategy

BY JOANNE M. WECKLER
CW Staff

MAYNARD, Mass. — In the aftermath of Digital Equipment Corp.'s "open" computing announcement avalanche last week, users were upbeat but not wringing their hands waiting for Decnet Phase V, despite the critics' warnings.

"When you have multivendor networks, nothing accommodates that," said Robert Parcell, director of computer operations at National Aeronautics and Space Administration's Langley Research Center in Hampton, Va., which uses a Unix-based network with systems from IBM, DEC, Hewlett-Packard Co. and Sun.

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Overall, DEC customers seem confident that DEC can deliver on its promises.

DEC's Open Advantage campaign features a stronger networking best, with several key products and ca-

abilities falling under its Network Applications Sup-

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faces, tool kits and software products that allow users to integrate and distribute applications across VMS, Unix, MS-DOS, OS/2, Sun and Apple Macintosh platforms.

Following are highlights of last week's announcements:

• The extension of NAS to provide transaction processing software for MS-DOS and Macintosh platforms and the addition of new capabilities to DEC's Compound Document Architecture for Macintosh and MS-DOS personal computers.
• Delivery of NAS products for multivendor platforms.
• The intent to extend DEC's Enterprise Management Architecture products into the NAS products, eventually providing "common agent" software that will allow access to various managed resources, such as applications and databases.
• The rollout of multiprotocol routers, available immediately, that support Decnet, Transmission Control Protocol/Internet Protocol (TCP/IP) and OSI Systems Interconnect protocols and a frame-relay interface.
• A shipping date of August 1991 for network adapter cards supporting Fiber Distributed Data Interface/100M bit/sec. data rates plugged into shielded-pair twisted-pair wiring or DEC's thin-wire copper cabling.
• A joint development and marketing partnership with Bell Atlantic and Becton Dickinson to offer DEC's "open" computing an-

nouncement avalanche last week, users were upbeat but not wringing their hands waiting for Decnet Phase V, despite the crit-

ics' warnings.

"When you have multivendor networks, nothing accommodates that," said Robert Parcell, director of computer operations at National Aeronautics and Space Administration's Langley Research Center in Hampton, Va., which uses a Unix-based network with systems from IBM, DEC, Hewlett-Packard Co. and Sun.

Yet users and analysts agreed that DEC faces daunting business and technological challenges over the next two years.

The VAX line is being re-engineered from a complex one to a reduced instruction set computing-based CPU, and the proprietary VMS operating system is being "opened" with the addition of Posix-compliant industry-standard interfaces.

In the meantime, layoffs are trimming company size from 125,000 to roughly 116,000 by the end of this year, while company executives claimed that people-intensive areas such as software engineering will become the key money makers.

"There's not that many people around with all the skills needed for systems and network integration," Kranlman noted.

A key issue in DEC's success with this new strategy will be communicating it to thousands of people in the field, analysts and users said.

"Out in the field, the salespeople are very strong in their approach to open systems while to open systems isn't happening," said John Braucksieker, MIS director at Protein Technologies, a subsidiary of St. Louis-based Ralston Purina Co.

"DEC had better start educating its employees in these new philosophies," Braucksieker said.

"In a sense, DEC is moving the debate on open systems to a higher level," said William Bluestein, an analyst at Forex- ter Research, Inc. in Cambridge, Mass. "Users are more interested in where their applications can run on the network than in which variant of Unix a vendor supports."

Overall, DEC customers seem confident that DEC can deliver on its promises.

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IBM automates CICS management

BY ELISABETH HORWITT
CW STAFF

RYE, N.Y. — IBM last week introduced automated software designed to take much of the grunt work out of managing and maintaining an enterprise network of IBM CICS.

CICS Automation Option/MVS works with IBM's Netview network management platform on each CICS host to respond automatically to a range of alerts and events across the network and to minimize the need for a human technician at each site, according to IBM staff programmer Evelyn Treuil.

In addition, the system provides the network manager with the ability to control and monitor an enterprise network of multiple CICS regions from a single console, Treuil said.

One of the package's key features is a monitoring component that keeps an eye on the LU6.1 and LU6.2 links that support CICS sessions, according to IBM spokesman Mack Phelps. The monitor attempts to reacquire a session when a link goes down and notifies IBM's Automated Console Operations software if the attempt fails, he added.

The program can also automatically reacquire links that were cut off as the result of a Performance in Storage. (QvSraiielive delimiter ee Clnaoon

Priced at $18,400 for the basic system, the program is available now.

Microsoft to add security

REDWOOD CITY, Calif. — Microsoft Corp. said last week that it has licensed a data security software package from RSA Data Security, Inc. that will allow personal computer users to encrypt messages to be sent across data networks.

Microsoft Chief Executive Officer Bill Gates said the license will be used to create future PC software products. Eventually, the code will be "pulled" into the Microsoft operating system, he said.

"People's assumptions about physical access [to a data network] and about having a single person control that access no longer apply," Gates said. "In the very large networks of the future, information will come from many sources and from many networks, and you'll have to worry about who's tapped in and who's watching those data packets go by."

RSA's system works by issuing users a public key, or very long number, that is widely distributed around a network and a private key, or a set of two long numbers. The key system allows businesses to verify the identity of any sender of electronic information. Without it, Gates said, "someone else could masquerade as Bill Gates at Microsoft and give out memos purporting to come from me."

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 Lotus faces off with Microsoft

Work-group applications key to one-stop shopping title

BY PATRICIA KEEFE
CW STAFF

BOSTON — Lotus Development Corp. took advantage of its annual meeting to up the ante in its race with Microsoft Corp. to become the one-stop work-group provider to corporate accounts.

Lotus executives told attendees at last week's meeting that it is moving to better tie together those programs to better serve its clients. The move is a reaction to the growing interest in work-group communication.

"We are judging applications by how well they function within a family of programs and how vendors' applications are internally consistent with one another," said Ronan McGrath, vice president at Canadian National Railways in Montreal.

Also key is that many users do not need more base functionality, said Sheldon Laube, director of technology at Price Waterhouse in New York. They need better integration among packages to ease work-group communication.

For example, by building hooks into Notes and its automatically replicating database, Lotus will enable Laube to simplify and shorten the process by which he sends a worksheet to another user.

In addition, Lotus gave signs that Microsoft Office's bundle of four Windows applications will not go unchallenged. King said that while Lotus was not making any public statements, it is entertaining a variety of licensing requests from users' accounts.

"User interface consistency beyond the conventions defined by the operating environment will [become] vital as users switch between information types in creating and exploring compound documents," King said, adding that Lotus will re-engineer applications to achieve this.

That approach won early praise from users. "We are judging applications by how well they function within a family of applications and how vendors' applications are internally consistent with one another," said Ronan McGrath, vice president at Canadian National Railways in Montreal.

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Token Ring card price hacked 50%

BY JOANIE M. WEXLER
CW STAFF

WHITE PLAINS, N.Y. — IBM lashed out at the Ethernet market last week by slashing its 4M bit/sec. Token Ring network adapter card prices by 50%.

Users and analysts said the move will probably spur users whose purchasing decisions hinge on price to choose the Token Ring alternative for medium-size local-area networks that exchange enough traffic to bog down an Ethernet.

"Dropping the price is a way of giving the haphazard network access method it uses," said Bill Sheehan, network support specialist at Stone & Webster Engineering Corp. in Boston.

IBM marked down its cards, which attach Micro Channel Architecture and AT bus computers to a 4M bit/sec. Token Ring LAN, to $395 from $700 to $800.

IBM was able to drop prices because "we've refined our processes over the last five or six years and are passing along our savings to our customers," said Bill Spencer, IBM's product planner of LANs. IBM also dropped the price of its 4/16M bit/sec. card from $957 to $895.

IBM competitors Proteon, Inc. and Madge Networks, Inc. have not indicated that a price war is afoot.

"Given the [positive] direction of 4/16M bit/sec. Token Ring, there hasn't been much activity in the 4M area," said Charlie Robbins, director of communications research at Aberdeen Group in Boston. "Dropping the price is a way of giving it a midlife kick."

Thinking About EIS? Think Twice.

BY PATRICIA KEEFE
CW STAFF

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Gupta on end-user Quest for SQL link

BY JEAN S. BOZMAN CW STAFF

BURLINGAME, Calif. — Gupta Technologies, Inc. announced an end-user database query tool last week that supports Microsoft Corp.'s Windows 3.0 graphical user interface and allows corporate end users to create their own database reports without information systems help.

The $495 product, called Quest, was designed as a companion to Gupta's SQLbase database and allows corporate end users to create their own database reports without information systems help. Quest can be used to obtain data from IBM's DB2 and Oracle Corp.'s Ver-7ion 6.0 DBMS as well as Microsoft's SQLServer for Q5/2 and IBM's OS/2 Extended Edition Database Manager.

Connectivity software for mainframes and minicomputers could significantly boost the cost of ownership. The Gupta host-based software for IBM's DB2, for example, will cost users $40,000 to $100,000. SQLgateway, another Gupta gateway product required for use with DB2, is priced at $3,500. A similar gateway for Oracle host databases is also priced at $3,500.

Quest can also share data with any Windows 3.0 applications program running Microsoft's Dynamic Data Exchange facility. In this way, Quest could obtain data from DB2 and "paste" it into a Microsoft Excel spreadsheet.

However, system security and database integrity are matters that Gupta will leave up to IS and database administrators. "It is fair to say that Quest is a data access tool and not an information management tool," company founder Umang Gupta said. "We assume that security privileges and data are maintained by somebody at the back end [database server]."

Industry analysts present at the Quest demonstration here were upbeat about the product's capabilities. "With all the competition in the relational database market, they have placed less emphasis on their SQLbase database and more emphasis on their tools," said Donald Feinberg, program director at Gartner Group, Inc.'s Software Management Strategies service in Santa Clara, Calif. At the same time, he said, the market has a relative lack of graphically oriented database tools for end users. "Quest has allowed general acceptance of local-area network database servers. However, Quest may have an uphill marketing fight, with some analysts questioning whether Gupta, with only about $15 million in revenue, can have an impact on the vast LAN marketplace."

N.J. agency axes CSC pact

BY JOHANNA AMBROSIO CW STAFF

TRENTON, N.J. — The state of New Jersey said last week that it will cancel the remainder of an insurance services contract with Computer Sciences Corp. (CSC), citing a shrinking amount of business and performance problems.

The contract was scheduled to run until 1993 but will expire as of September 1992. The decision reduces the value of the $228 million contract by approximately $35 million, which a CSC spokesman said "is not material" to the company's financial performance as a whole.

The spokesman said CSC, which is based in El Segundo, Calif., had been notified by letters of the state's decision, which he said did not mention any performance problems. "We disagree with their comments in connection with our performance," the CSC spokesman added.

Under terms of the contract, CSC serviced automobile insurance policies for people unable to buy insurance through regular means. The policies were underwritten by a state-sponsored agency. The other service organizations for the contract include Policy Management Systems Corp. in Columbus, S.C.; Amgro, Inc. in Worcester, Mass.; and Warner Insurance in Fair Lawn, N.J.

Given a declining number of policies to service, the state chose to cancel CSC's contract because "CSC has never had a passing score" on any of the state-sponsored audits, according to a spokesman for the New Jersey State Insurance Department. Additionally, he said, the company's complaint ratio — the number of complaints vs. vehicles covered — has also been consistently higher than that of the other three service organizations.

The CSC spokesman declined to comment on the state's audit results and said, "I don't know where those numbers came from." He said he did not have any internal CSC statistics that countered the state's results.

CSC is not the only computer company that has had problems with a New Jersey state automobile insurance contract. Back in October 1990, Electronic Data Systems Corp. (EDS) in Dallas started voluntarily withdrawing from an earlier, related contract that will expire later this year, according to an EDS spokesman.
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Video camera on a chip

Scientists at Edinburgh University in Scotland have developed a chip that incorporates all the functions of a video camera. The chip opens up the potential for videophones and electronic surveillance systems, according to VLSI Vision Ltd., a new company formed to negotiate with industrial companies on royalties and joint venture projects.

"The new chip with 100,000 transistors is one example of the patented technology, which opens up a huge potential market in video surveillance, security and road surveillance, vision toys, bar-code readers, aerospace and robotic vision worth an estimated $9.75 million a year in royalties within three years," said VLSI Vision President Roy Warrender. The first prototypes of the chip were completed 18 months ago by six Edinburgh University scientists under the leadership of Peter Denyer and David Renshaw, but because of the commercial significance and the need for comprehensive patents, the device has been kept under wraps until now, the company said. The new chip will allow manufacturers to produce a full-function video camera the size of a wrist watch. It will operate silently and use minimal power. "We're looking at new applications where the low cost of the devices will create new mass markets," Warrender said.

Display tag team effort

Toshiba Corp. and IBM Japan Ltd. said recently they have started producing large-size, color LCDs at their recently completed joint venture manufacturing plant in Himeji, Japan. The plant is now making 10.4-in. displays with 640- by 480-pixel resolution and will gradually increase the size of the products, which are expected to become popular in portable computers once their manufacturing volumes rise and prices drop. The joint venture, called Display Technologies, Inc., was announced in November 1989.
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Identity crisis?

T

here's a peculiar trend at work these days.
DEC has unveiled an aggressive campaign to prove it is not the proprietary company it had always been. Microsoft is trying to cast itself as a kinder, gentler company to shed the vicious competitor image it has had. IBM has resorted to some interesting moves (see below) to show the world it really isn't mired in its own bureaucracy. Lotus is determined to redefine itself as something other than a one-product company. AT&T is willing to recast its computer business to cast itself as a kinder, gentler company to shed the change is a cosmetic one designed to appease the customer absolutely must determine is whether they took their eyes off the ball.

For any computer companies, the burden of the 1990s is the result of taking their eyes off their customers. They got away with it for a while, but the overbearing force of competition now has them scrambling for a share of markets they pooh-pooed in those heady proprietary days of not so long ago.

Case of the blues

A
nd speaking of change, it sure looks as if that was one brilliantly executed "leak." IBM pulled on the big business papers recently, getting them to air at great length the gory details of the message of an unkind, tougher Chairman John Akers blasting his sales, marketing and product development staffs. The tactic didn't do much to buoy the perception of IBM with the stock jockeys, although it likely sent some shivers through the rank and file at the company. The tactic, however, is not new. We fished out the wrong time.

I believe Sterling is now offering innovative products that help the data processing professional shift to IBM's vision of dispersed computing without making existing software obsolete. As this becomes more recognized on Wall Street, I think Sterling could attract a wider following of other analysts.

Walter E. Biatsik
Marina, Calif.

LETTERS TO THE EDITOR

No bureaucracy

Rep. Don Ritter is right: Manufacturing does matter [CW, May 6]. Manufacturing, mining and agriculture are still more by which most of our nation's wealth is produced. On the other hand, Rep. Ritter's seven terms in the U.S. House of Representatives have warped his judgment on how to re-energize private industry. He would have us believe that Congress and the U.S. Department of Defense can select, fund and manage the gestation of complex technological instruments. However, the record shows that government and the DOD in particular are incapable of picking "high-tech" winners. Like Ada, bubble memory and VHSIC before it, high-definition systems are the wrong technology being promoted the wrong way by the wrong organizations at the wrong time.

Don't let high-definition display technology slip away from U.S. industry — keep Congress and the DOD out of it!

Dave Nelson
Information Engineering
Garmisch-Partenkirchen, Germany

Gains a following

Regarding "Sterling announces initiative to focus on development" [CW, May 20], in which I was quoted, I have been very impressed by the strategic initiatives under way at Sterling Software's various systems software divisions, and I have been recommending investment in the company's stock.

I believe Sterling is now offering innovative products that help the data processing professional shift to IBM's vision of dispersed computing without making existing software obsolete. As this becomes more recognized on Wall Street, I think Sterling could attract a wider following of other analysts.

Robert E. Williams
Investment analyst
The Principal, Inc.
Dallas, Texas

Unnecessary wait

It was very amusing to read the article by James Daly [CW, May 6] about the upcoming version of MS-DOS 5.0. As usual, Microsoft will bring out its new DOS version with all sorts of hype about how great it is and how the masses will beat the doors down to get at it. I, however, will not be in line June 11. I have beaten Microsoft to the punch. Two months ago, I purchased Digital Research's version of DOS 5.0.

I have all the amenities touted for the new DOS version at my disposal now, including the removal of Qualitas 386MAX from my hard drive. It also gives me great pleasure to exit into DOS, type MEM and see that I have 616K bytes of memory available without shuffling the system's files. So, good luck to all who will wait until June 11 for MS-DOS, when Digital Research DOS works now.

Walter E. Biatsik
Marina, Calif.

Computerworld welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Laborte, Editor In Chief, Computerworld, P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701. Fax number: (508) 875-9811; MCI Mail: COMPUTERWORLD. Please include a phone number for verification.
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   i. Systems Integrators, Mail, Computer Service
   j. Business Planning & Consulting Services
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Let's learn to look before we leap

We shouldn't develop wireless networks without checking the health risks

LOUIS SLESIN

At a time when the computer industry is racing to bring public fears over VDT radiation to a new source of electromagnetic radiation is being introduced into the electronic office — wireless computer networks. If computer companies want to gain acceptance for the microwave transmitters that will replace computer cables, they must think hard about the VDT experience and avoid making the same mistakes all over again.

Public safety — and good public relations — demand that the possible health hazards of wireless computer networks be investigated before hundreds of millions of dollars have been invested.

It is still unclear whether VDT radiation contributes to pregnancy problems or to the development of cancer. This is hardly surprising — not a single study has ever been carried out in the U.S. to investigate the effects of VDT radiation. Incredibly, American scientists have been unable to raise a dime to fund even one of the more than 50 millions in VDT research here in the U.S. to investigate the effects of VDT radiation. Incredi-

Bigger unknowns

VDT radiation is an unintentional by-product of the deflection coils that move the electron beam in a CRT. Wireless networks, on the other hand, entail intentional sources of microwave radiation. NCR’s Waveland system operates at 900 MHz. Motorola’s Altair sys-

Much must be done to make our data center act like a cheap dumb terminal?

I think this whole process is pretty silly, but who am I to question leading-edge technology?

Techie friends advise me to write macros or to learn some programming. They also say I should upgrade to Windows and stop sniveling. A graphical user interface is just the ticket for worker weenies like me, they say.

But I don’t need icons; I need intuitive information tools. I don’t need protocols, or whatever you call them, to control my activities. I want enabling tools that allow me to energize and redefine my work. I don’t need a bookshelf full of software that doesn’t work together.

I have 512K bytes of my 640K-byte memory hungry menu manager. When I complain to my friendly help desk techie, he tells me to check the device allocations in my CONFIG.SYS file. Thanks, pal, that’s a lot of help. I don’t even want to know what a CONFIG.SYS file is. What the heck does such a thing have to do with my job?

Detours and diversions

How are computer users supposed to be productive when every time we need a document, we must run down the hall to the laser printer to load paper or change toner cartridges? And why is it that when I need in-

Smartterm to make my expensive data center act like a cheap dumb terminal?

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Bethlehem Steel, one of the nation's leading steel producers, strives to improve productivity in an increasingly competitive market. When Bethlehem Steel started using DB2, they immediately began looking for DB2 administration tools. For nine years Bethlehem Steel has relied on BMC Software for their IMS database and data communication needs. But to determine the best source for their DB2 needs, they developed a comprehensive evaluation process designed to stress DB2 products to their limits. Few of the products could handle the heat.

While other vendors made promises for increased functionality, BMC Software delivered comprehensive capabilities in MASTERMIND™ for DB2. With BMC, advanced features were already available.

Program manager, Nancy Friedel explained, "the sophistication with which ALTER™ for DB2 was able to make multiple changes at one time and generate the worklist in the sequence of the proper creation of objects was far advanced compared to the other products we looked at."

The time savings led technical analyst Mike Best to say that the return-on-investment has been "tremendous."

The other MASTERMIND products also provide comprehensive capabilities for Bethlehem Steel.
Early testing a must for big systems

When software systems involve millions of lines of code, testing shouldn’t be an afterthought.

By Ellis Booker

Chicago — It can test the mettle of even the most quality-conscious developer: a software package with a half-dozen integrated subsystems totaling perhaps several million lines of computer code.

However, automated environments able to analyze such complex compositions — ones that ensure that the millions of pieces fit together smoothly — may not be the answer, according to two Sunnyvale, Calif., experts. They say the way they avoid big problems is to address the testing issue — either through tools or procedures — in the initial phase of a software project, rather than leave it as an afterthought.

Users may find more need for taking such precautions and for testing products as applications grow through the integration of numerous modules.

Test tips

"We believe these tools are not anything more than power tools," said Wayne Smith, regional vice president at Computer Power Group, Inc., in Oak Brook, Ill. Smith's firm has been in the software quality business for 15 years, handling jobs that typically involve software with a minimum of 1 million lines of code.

Waiting until software is built to begin testing is asking for trouble, said Smith, who notes that the cost of fixing a flaw increases exponentially as the life cycle increases. "It can be 300 to 1,000 times more expensive to fix that integration phase than if it is caught in the requirements phase," he said.

One of Computer Power's products is a system to track the various stages of a quality test, which Smith argues can overhaul users or developers familiar with techniques appropriate in the context, the integrity of a program with only several hundred thousand lines.

At the simplest level, such audit procedures are vital, considering the accepted rule of thumb that for every 20 defects corrected, one defect is introduced.

"To integrate and test 5 million lines of code is an order of magnitude more difficult than [doing this on] a stand-alone system," says Carleton F. Kilmer, managing partner for aerospace and defense at Chicago-based Andersen Consulting.

Kilmer is referring to Andersen's Manus/Pac-D family of manufacturing management systems for the defense and aerospace industry. Nine months ago, Kilmer explained, Andersen began a major initiative to strengthen the Manus/Pac-D. A substantial part of the $48 million Andersen will spend this year on Manus/Pac-D will be allocated for the test phase engine. He is quick to point out, however, that this is "virgin territory," that few companies have developed such a state-of-the-art test engine.

"A more fundamental issue may be the development of industrywide, standard approaches to software testing," he said.

Although the nuclear industry and the National Aeronautics and Space Administration have gone the furthest toward establishing software-quality-testing methodologies, according to Kilmer, the commercial marketplace has lagged behind.

On the other hand, developers and end users of commercial software systems have begun using a common suite of testing tools, according to Beth Lasner, research director at the Quality Assurance Institute in Orlando, Fla.

Among these tools are "capture/playback" systems that allow the user to enter test data and describe expected results and have the tool check to see if the expected result matches the actual result. Comparison tools, which compare code and data files, are common, as are code analysis tools, which report on the complexity of a given piece of software coding.

However, subjecting software to conditions as close as possible to the real world is always an essential step, said Jim Strass, director of New England Testing Systems technology at AT&T.

The 4ESS, the digital switching system at the heart of AT&T's long-distance telecommunications network, is a complex hardware and software environment that was created in 1976 — comprising 115 switches and software, that has grown to contain millions of instructions and thousands of features.

"We want to simulate the real AT&T network... but we don't want to test [hardware and software] in the real network," Strass explained.

The AT&T approach

AT&T's solution is the ITN, for integrated test network, a microcosm of the real AT&T telecommunications system, complete with several switching, database and signaling systems that closely resemble from the "real" network that carries customer traffic.

Hardware and software is exposed to ITN after earlier tests in the laboratories of Bell Laboratories, AT&T's research and development arm. But the ITN is not perfect. One software patch that got through the test bed last year caused the worst network disruption in AT&T's history.

The Martin Luther King Day outage, which disrupted phone service to millions of AT&T customers last January, can be used as a model of how difficult it is to test software from enormous and complex systems.

That bag, in fact, lay dormant for nearly a month before a set of four or five events occurred in succession and caused it to activate, bringing the AT&T network crashing down.

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"Illuminator Light Show" seminar in your area. It will introduce you to some innovative ways of managing your DB2 environment.

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A wave of a wand tracks buying habits

BY CAROL HILDEBRAND
CW STAFF

Picking up a few groceries seems to save them advertising money companies, has evolved from several use in April. Household to capturing data used costs but also improves data accuracy.

Headquartered in Port Wash- ington, N.Y., NPD/Nielson has a stable of 15,000 households nationwide recruited on the basis of demographic characteristics such as income, education and age. "We're looking for a representative group of households for the U.S.," said Mike Oak, vice president of information services at the company. "These homes are used as projections of the nation as a whole."

Recruited households carefully track their shopping habits. Each time they submit information to the company, they are re-warded on a point system. They can trade in the points for various types of gifts. Long-standing survey members gain special status, such as gold or platinum standings, and are allotted extra points.

Survey households are equipped with a bar-code reader, or what Oak calls a wand, that has been custom- made for this use. As a consumer scans the bar code on a grocery bag, the shopper scans the bar code with the wand. The wand is pre-programmed with pricing from stores that participate in Nielson's "Scannetrack" program. It is then a matter of entering the number of units bought. If that box of cereal came from a non-Nielson store, the lack of preprogrammed num-

bers will cause the wand to prompt for prices. It will also ask whether or not the buyer used a coupon, or whether the item came from a special promotional display, Oak said.

Newly gathered information is input, it is transferred via modem to a personal computer-based front end, and from there moving through and how different demographic groups react to particular discounting and pricing policies.

Trial and error

Oak said that NPD/Nielson went through several testing stages to make this process work. "We're not tied to a particular store," Oak said. "Having the household members scan the bar code first — New York, Chicago and Los Angeles — before we launched the full panel about three years ago," Oak said. "These devices are not cheap for the amounts of data we are talking about."

He added that NPD/Nielson presently uses wand readers from both Handheld Products, Inc. in Charlotte, N.C., and Telcon Corp. in Dayton, Ohio.

Expensive or not, the wands have allowed NPD/Nielson to expand the amount and type of data it captures. "In the past, we just collected data on 20 or so product categories," Oak said. "This allows us to have data on just about everything that's bar-coded."

Another plus is the fact that collecting the data from a household rather than from the point of purchase allows the company to more accurately track the consumer's spending habits. "We're not tied to a particular store," Oak said. "Because we're collecting data capture is in the house, we can capture all outlets, from warehouse stores and regular supermarkets to mom-and-pop operations."

Having the household members scan their data cut the entry expenses as well, Oak noted. "Basically, we don't have a data entry staff — our data entry staff is at the households out there."

He estimated that if his current survey sample was using this system, he would need approximately 100 people to input and edit the data.

The success of this program has led other companies to begin expanding the number of surveyed households from 15,000 to 40,000 over the next few years. At the same time, NPD/Nielson plans to phase out both its paper diary-based and store-based collection efforts.

If a customer calls up asking for proof of delivery, they key into the IBM mainframe, which routes the request to the correct Tandem [VXL] machines via IBM's L.U.6.2 protocol," Seeley said.

Once requested, the digitized documents, which are stored with standard fax protocols, are sent to the customer via standard fax machines.

Tandem plans to offer specialized consulting help to other companies using their mainframe-based TIMS, said Jeri Eders, manager of imaging strategy at Tandem's Cupertino, Calif., headquarters.

Tandem system lightens truckers' load

BY JEAN S. BOZMAN
CW STAFF

PORTLAND, Ore. — Consolidated Freightways, Inc. wanted to throw away all the paper that was piling up at its 1,000 trucking depots nationwide — 50 million documents per year.

Those paper piles should stop growing now that CF has become a test user of Tandem Computers, Inc.'s new image-processing system, a combination of Tandem products that were integrated over the last four years to meet CF's specifications.

The enterprise wide image system, which cost nearly $10 million — including hardware, software, consulting and installation fees — was officially put into production in mid-May. It will translate all of those paper bills of lading and delivery notices into digitized images that can be stored on hard disk drives and optical discs at CF's data center here, according to spokesman to the Menlo Park, Calif., company.

The system is based on Tandem's Tandem Image Processing System (TIMS), which was officially announced for general use in April.

TIMS, developed by Tandem software engineers in conjunction with CF's information systems planners, was originally designed in response to the trucking firm's request for pro-

This bar-code reader helps NPD/Nielson organize data based on consumers' shopping habits

posals issued in mid-1987. Scanned images of the trucking receipts generated throughout CF's enterprise will be forwarded to Portland for storage and retrieval by more than 6,000 customers nationwide.

No central site

"We were well aware that optical storage offered us a suitable alternative to this massive paper problem," said Philip Sorel, CF's vice president of MIS.

"The problem was that the optical storage systems then available were largely for centralized processing. We wanted a wide-area network solution, because we didn't want to move all that paper into a central site to archiving."

The technical solution to CF's distributed archiving requirements involves several Tandem VXL systems: based here, and 48 Tandem CLX midrange pro-
cessors, running at 48 scanning centers scattered throughout the U.S. Each Tandem CLX has a 300Mb storage capacity, allowing it to collect thousands of scans per day. Once completed, these are sent to the Tandem machine in Portland over CF's T1 backbone network, Sorel said.

In the old system, document workstations — IBM-compatible personal computers outfitted with special image-editing "cards" — handled data compression and identify bar-coded labels to create indexed files. The index re-

JCL tools assist users with changing needs

BY JOHANNA AMBROSIO
CW STAFF

A new duo of tools is now helping users whose shops are undergoing conversions, consolidations or other kinds of changes.

The software, called JCL/Convert from MB Solutions, Inc. in Denver, searches through job control language (JCL) statements and finds all references to names of files, procedures, jobs and jobs which are tied to CF's IBM mainframes here.

Once here, the digitized documents are recorded both on Tandem disk drives and on Tandem-label Hitachi Ltd. optical disc drives, which house 12-in. optical platters. Each double-sided optical platter has 2.8G bytes of capacity. The documents can then be accessed on-line, via disk drives or off-line by accessing the correct optical disc.

IBM connections

CF's system accommodates the use of IBM 3278 and 3279 terminals at 6,000 customer sites, all of which are tied to CF's IBM mainframes here.

"If a customer calls up asking for proof of delivery, they key into the IBM mainframe, which routes the request to the correct Tandem [VXL] machines via IBM's L.U.6.2 protocol," Seeley said.

Once requested, the digitized documents, which are stored with standard fax protocols, are sent to the customer via standard fax machines.

Tandem plans to offer specialized consulting help to other users of their mainframe-based TIMS, said Jeri Eders, manager of imaging strategy at Tandem's Cupertino, Calif., headquarters.

"We had a massive JCL project where we had to change data set names to conform to newly written standards," he said. "The problem was that everyone had their own naming conventions, so we standardized."
Transaction rate, cost linked in tests

 Transaction Processing Performance Council releases first benchmarks

BY J. A. SAVAGE CW STAFF

The 3-year-old Transaction Processing Performance Council recently found that Sequent Computer Systems, Inc.'s Symmetry 2000/200 was the most cost-effective of 48 systems tested in recent benchmarks. In its first published results of tests in which transaction performance and system cost were related, the coalition of 42 vendors also found that AT&T's Starserver E with Informix Software, Inc.'s Online 4.0 came up with a lower cost per transaction than did 22 other systems tested in a database-oriented test — $2,670 per transaction.

In a test of a single, simple update-intensive transaction, a Sequent machine running Informix Online 4.0 tested at nearly 50 trans./sec. on a local-area network at a cost of $14,950 per transaction.

In contrast, Unisys Corp.'s A16-61E running Data Management System II was clocked at 272.5 trans./sec. at a cost of $43,190 each.

A company's computer system is the very heart of its operations. But let it respond slowly to its users, and you'll hear complaints up and down the halls. Let it go down for any length of time, and you'll find cases of cardiac arrest, right there in the data center.

So it is good news, indeed, that Goal Systems offers a software solution that can dramatically enhance on-line availability.

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The council was organized in 1988 with eight original vendors, including Tandem Computers, Inc. and Pyramid Technology Corp.

**System-independent**

It has taken the group several months to compile its results because each benchmark had to be built for a system that followed the council's specifications; that way, each benchmark was operating system-independent, a spokesman said.

In addition, it cost a vendor "tens of thousands of dollars and a couple man-months to run it" as well as to finish the documentation, according to the spokesman.

In future benchmarks, the council plans to address real-time complex data management and business service applications.

**Hamilton**

FROM PAGE 27

Response: "When you start looking at individual packages — graphics, spreadsheets — those things for the moment are really secondary in terms of where we would make our investment as opposed to building the workstation infrastructure," said Richard Goldberg, IBM assistant general manager of software marketing.

"It depends on how you answer it, OK? We haven't built a spreadsheet; that's fair," Goldberg added.

Perception: Systems Application Architecture (SAA) is still more concept than reality.

Response: "This is a half-empty, half-full issue," Libutti said. "SAA has made enormous strides. Now we are managing ourselves to those disciplines. We can have a lot of debate on that statement. As you get to the next level of integration with AD/Cycle and Officevision, clearly there's a lot more work to be done. We have started down the path and we are adding to it."

Perception: The products are moving in an accelerated fashion.

Response: "I think at the architectural level, there are lots of good examples of customers moving into SAA, and it will accelerate," Goldberg said. "We are moving in an accelerated fashion."

Perception: The Officevision delays were a setback for IBM.

Response: "Look, there's no question we would have liked to deliver the next release of it," Goldberg said. "But when you look at what's out there, there are lots of people using Officevision for real productive work."

Hamilton is a Computerworld senior editor, systems and software.
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NEW PRODUCTS — SOFTWARE

Database management systems

Candle Corp.'s Database Tools Division has announced an upgrade of DB/Explain, a SQL optimization tool for IBM DB2 databases.

New features in Version 2.2 include a custom macro facility, database application quality assurance and connectivity to IBM's Query Management Facility. In addition, the product also analyzes SQL performance and offers single-screen optimization.

DB/Explain runs under MVS/ESA and MVS/XA.

A license costs from $12,000 to $42,000, depending on processor size.

Candle Database Tools Division
6464 Savoy Drive
Houston, Texas 77036
(713) 952-8880

Development tools

On-Line Software International, Inc. has announced the availability of Ramis Information System Release 7.2, enhancing its information management system for end users.

The upgrade offers an improved MVS/CICS interface, a window for SQL commands and a Cobol FD Reader that allows Cobol file definitions to be read into the Ramis data dictionary. An interface for the SAS Institute, Inc.'s SAS System has also been added.

Prices for Release 7.2 range from $25,000 to $170,000, depending on processor size and operating system.

On-Line Software International 2 Executive Drive Fort Lee, N.J. 07024 (201) 592-0009

Applications packages

Computer Associates International, Inc. has added a Collection Management System and a Recovery Management System to its integrated line of business applications software.

Both products support automatic account sequencing, real-time access, user-controlled job prioritization and assignment and automatic or selective letter generation. The Recovery Management System accounts for payment delinquency and automatically reports to the General Ledger.

Pricing for each application starts at $60,000 on the MVS and VSE operating systems. The Collection Management System is also available for the IBM Application System/400 platform starting at $30,000.

Computer Associates 711 Stewart Ave. Garden City, N.Y. 11530 (516) 227-3300

Change Man, a change management software package for MVS systems has been updated by Optima Software, Inc.

Release 3.3.1 includes an option for linking Change Man on the host system to IBM programmable workstations via the Token Ring protocol, allowing workstation users to check out and stage source code from the mainframe. According to Optima, 15,000 lines of code can be transferred in one minute.

The program's DB2 option has also been revised, and an Information Management option is available for automatic updating of Information Management change request records.

Graduated processor pricing starts at $40,000 for the base system and $10,000 for the network option.

Optima Software Suite 109 1765 Challenge Way Sacramento, Calif. 95815 (916) 646-3800

Utilities

Goal Systems International, Inc. has created Faver for DB2, a utility for quick, efficient copying, restoring and reorganizing of IBM DB2 databases.

The product creates multiple copies in one pass and uses parallel processing to speed reorganization of partitioned table space. It also eliminates unused storage areas and optimizes free space in individual tables.

Prices range from $10,000 to $35,000, depending on hardware platform.

Goal Systems International 7965 N. High St. Columbus, Ohio 43235 (614) 888-1775

HARDWARE

Power supplies

Upsonic has announced uninterruptible power supplies for the network, minicomputer and telecommunications markets.

The PC Might Models 80, 140 and 200 offer up to 10 minutes of backup power and include software that automatically saves all active files on a network during a power emergency. Unix and Novell, Inc. networks are supported. External batteries may be added to increase backup time.

The 80 VA Model 80 costs $729; the 1.4 kVA Model 140, $999; and the 2 kVA Model 200, $1,795.

Upsonic 1392 Industrial Drive Tustin, Calif. 92680 (714) 258-0808

JUNE 10, 1991
On the road to standard graphics drivers

BY MICHAEL FITZGERALD
CW STAFF

ATLANTA — Any user who has ever purchased a graphics add-in board only to have it not work with certain programs can take some heart from events that took place here before and during Comdex/Spring '91.

For instance, Microsoft Corp.'s Keith Laepple, program manager of the DOS and Windows business unit, addressed the Video Electronics Standards Association (VESA) meeting here before Comdex, with a stated aim of improving the performance of Microsoft's Windows environment when Windows 3.1 is released later this year. He told attendees that Microsoft, seeing a world where "nonstandard drivers may exceed standard drivers," wants to get a maximum number of drivers working with Windows.

The significance of this is that Microsoft is opening Windows up to everyone's boards," said James A. Anderson, chairman of VESA and director of strategic marketing at board maker Headland Technology, Inc./Video Seven in Fremont, Calif.

Microsoft's move, which includes a soon-to-appear test suite of applications for board developers to test their own compatibility, may also represent a shift in graphics development, from needing hardware register compatibility with hardware standards such as IBM's Video Graphics Array to being able to write successfully to the application program interface (API) that is present in all software packages. This sort of shift would be transparent to users but would help eliminate incompatible cards.

Hardware not the issue
"Hardware compatibility is not the issue that it was in 1987," said Jon Peddie, president of Jon Peddie Associates, an Oakland, Calif.-based graphics research firm. "Today, hardware manufacturers of display controllers are obliged to provide a driver for either Autocad's API or Windows' [graphic device] interface. That becomes a neutralizing API. Therefore, it's of little concern to the software vendor or end user if hardware is the same or not."

Still, Peddie said, hardware will continue to be important in defining graphics standards, in

Continued on page 40

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The newly-released Micro Focus COBOL™ Version 2.5 now allows developers to write fully-functional Windows 3.0 applications with the standard Windows API and the standard Windows development kit from Microsoft®. With Micro Focus COBOL™ Version 2.5, existing character-based applications can be migrated immediately to the Windows 3.0 environment where they will utilize the Windows memory-management and windowing capabilities.

With Micro Focus COBOL™ Version 2.5, COBOL programmers no longer need to be experts in C or Assembler in order to write applications that run under Windows. That means more business applications will have a user-friendly interface and the people who use those applications will become more productive.

Windows support is just one of the enhancements Micro Focus is offering COBOL developers in its 1991 product line. Call 800-872-6265 to learn more about the latest version of this comprehensive COBOL programming environment.

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JUNE 10, 1991
COMPUTERWORLD

Commentary

Patricia Keefe

Improving Windows

Microsoft: takes a hint. In a recent Microsoft survey, Windows users ranked the following attributes according to importance and usefulness: ease of use, ages, graphical user interface, ability to run multiple DOS applications and networking capability. Chairman Bill Gates said he hopes to move applications integration to the top of the list.

In the meantime, Gates, who gave one of the keynote speeches at Comdex/Spring '91, said he wants to get the waiting time on the 2.500 Windows support calls that Microsoft receives daily down to less than one minute.

He also acknowledged that many of the problems users have today with setup and memory management can be avoided through better documentation and installation programs. "Windows is not as easy to install and use as it should have been," conceded Mike Mapies, who heads Microsoft's applications software efforts.

Gates promised that close coordination with network providers will iron out networking issues, which industry observers say occur primarily on Novell's network.

Continued on page 42

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Silicon Graphics serves an ACE system

BY J. A. SAVAGE
CW STAFF

Taking one step toward an Advanced Computing Environment (ACE) operating system, Silicon Graphics, Inc. last week released Irix 4.0, which it says runs applications 10 times faster than its last operating system did.

"When the ACE specifications come out, it will be a re-write," said Barbara Shelhoss, director of software product marketing at Silicon Graphics Entry Systems Division. ACE is a consortium of 21 vendors that have said they will standardize DOS and Unix software on computers using the Mips Computer Systems, Inc. architecture. Silicon Graphics markets workstations using Mips processors.

Irix 4.0 is based on AT&T's Unix System V but has parts of the Open Software Foundation's Unix base.

"The ACE consortium is leaning toward OSF," said Jim Terhorst, software product marketing manager. OSF will be used most in The Santa Cruz Operation's ACE. Vendors with AT&T's Unix System V Release 4 should also be able to use ACE specifications, Shelhoss said.

Music to GUI users' ears

BURLINGAME, Calif. - Mo- zart Systems Corp. has announced an object-oriented applications builder that allows developers to build graphical user interfaces that will run without modification under both DOS and Microsoft Corp.'s Windows 3.0 environments. Mozart 3.0 lets users side-step a problem that has dogged developers: Applications developed on one platform must be ported to DOS and Windows 3.0, a process that normally requires considerable recoding.

It also lets developers streamline the crafting of complex applications. Mozart 3.0 allows development with existing personal computer configurations, so developers can build complex cooperative processing applications, for example, without costly hardware upgrades. The result: extended life for a firm's valuable host applications.

The application builder also supports all major Windows 3.0-specific features, including multitasking and direct data exchange, Mozart President Alan Parnass said.

Pricing starts at $7,000 for Composer, the development environment, or $500 each for 10 to 24 licenses for Performer, the runtime module.

Office for Mac revised

REDMOND, Wash. — Micro- soft Corp. has revamped The Microsoft Office software package for Apple Computer, Inc.'s Macintosh environment to include the latest versions of a pair of recently updated applications.

Microsoft Excel Version 3.0 spreadsheet and Microsoft Mail Version 3.0 electronic mail sys-

WANTED: MVS and COBOL Programmers to test an ISPF/PDF-style text editor for OS/2

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SPF/2 offers you the same familiar environment, command structure and editing capabilities on your PC. You already know how to use it—no training required.

SPF/2 takes advantage of OS/2's powerful features. It uses virtual memory to handle very large files. In addition, HPFS (High Performance File System) long file names are supported. And SPF/2 uses OS/2's REXX for its macro language—75 mainframe-compatible IREDDIT edit sub-commands provide the interface.

SPF/2's 3270 compatibility also contributes to your ease-of-use on the PC. SPF/2 processes keystrokes in the same way as the OS/2 Extended Edition 3270 emulator, including NEW-LINE and ENTER. SPF/2 even displays the same status indicators.

SPF/2 has features not available on the mainframe. For example, SPF/2 supports 48 PP keys, automatically adapts to the various OS/2 video modes (full-screen or text-window), and scrolls the file as you move the cursor. In addition, SPF/2 has virtually instantaneous response time, 100% system availability, and no connect-time charges.

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Vendors take economical path

**Wyse Technology and AST Research bring out PCs**

**BY CHRISTOPHER LINDQUIST CW STAFF**

A pair of personal computer vendors, Wyse Technology and AST Research, Inc., took separate roads to affordability last week.

Wyse Technology's path to more affordable high-performance computing involved the announcement of systems based on Intel Corp.'s 80386 25-MHz and 1486 33-MHz chips.

The firm's AT bus-based Decision 486/33T comes standard in a tower case with 4M bytes of memory, expandable to 32M bytes on the motherboard. Pricing ranges from $5,995 to $9,399, depending on configuration.

The Decision 386/25 comes with 2M bytes of memory standard, expandable to 32M bytes, and a 64K-byte cache. The system is priced from $2,599 to $3,599, depending on configuration.

**Upgradable systems**

AST Research took the low-end trail, padding its least expensive product line with upgradable systems based on Advanced Micro Devices, Inc.'s 16-MHz AM-80L286-16 and Intel's 20-MHz 80386SX chips.

The company is calling the Bravo 286/16 ideal for use as a network node. The PC comes complete with integrated Super VGA and 1M byte of memory and can support up to 16M bytes on the motherboard. The system can also be upgraded with a 20-MHz 386SX chip. Pricing begins at $1,195.

The AST Bravo 386SX/20 includes built-in Super VGA and 2M bytes of memory. Pricing ranges from $1,895 for a system without a hard drive to $2,895 for a system with a 40M-byte hard drive, Microsoft Corp.'s Windows, Lotus Development Corp.'s 1-2-3 Version 3.1 and a Microsoft mouse.

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**Cirrus condenses video controller**

FREMONT, Calif. — Claiming the GD6410 controller will reduce the size and weight of portable computers while improving screen displays, Cirrus Logic, Inc., plans to release the chip today.

The GD6410 comes on a 4-in. video subsystem board; competing products can take up as much as 11 inches on a board, according to George Alexy, Cirrus' vice president of marketing.

"The issues in the portable market are display technology and the cost of that and the power curve," said Ken Lowe, an analyst at market research firm Dataquest, Inc. Lowe said the Cirrus chip may find buyers among OEMs. The chips will list for $52 each in quantities of 1,000.

The GD6410 features on-board random-access memory digital-to-analog converter, which lets it interface directly with an external monitor, on-chip LCD interface logic and power sequencing, which enables it to shut off the screen when applications are running, saving battery power, Alexy said. The chip also provides IBM Video Graphics Array resolution with 64 shades of gray and supports 800- by 680-pixel resolution.

Full production of the GD6410 is expected by September. Alexy predicted that machines using the chip will be on display at Comdex/Fall '91 in November.

**Graphics drivers**

CONTINUED FROM PAGE 37

particularly for the huge installed base of non-Windows applications. He said two paths could develop, one focused on register compatibility with the display controller and the other software written to the APIs of major environments, such as Windows or OS/2 Presentation Manager.

While Laepple said his presentation "really wasn't intended to be a commentary on standards for video," others said it is part of Microsoft's move to make Windows a widely recognized standard.

"We believe it's Microsoft's intent to become involved with as many industry groups and standards as possible and open Windows to the point where there is no incompatibility between hardware and software," said John Dunse, vice president of Workgroup Technologies, Inc. in Hampton, N.H.

Microsoft would not be alone in this goal: IBM has encouraged developers to write to the API at least since it introduced its 8514/A card in 1987.

This could present an opportunity for cards with "intelligence" to recognize which software applications are in use.

"Windows 3.1 is the first step to providing mechanisms for intelligent graphics," said Ken Lowe, an analyst at Dataquest, Inc. in San Jose, Calif. Lowe said a new generation of cards would greatly improve the speed of functions by recognizing when they are in Windows-based applications and using off-screen memory to store memory-intensive functions.

Still, Windows 3.1 is not even an official product yet, and VESA will not vote on an IBM Extended Graphics Array standard until Comdex/Fall '91, if then. Users will still have to suffer poor drivers for graphics boards for some time to come.
**Vendor financial ratings**

**Technology Analysis — A roundup of expert opinions on new products. Summary written by free-lance writer Suzanne Weixel.**

**Wordstar International, Inc.’s Wordstar Version 6.0**

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Reviewer evaluations are excerpts from articles. Refer to actual reviews for details. User and analyst ratings are based on telephone survey. *Infoworld scores on a 1 to 10 ranges. NC = No comment.

**Next Week**

Microsoft Corp.’s Word for Windows Version 1.1 is seen as one of the strongest products among word processors. With powerful basic features and advance capabilities, it is also priced lower than the competition.

**Wordstar responds**

Lisa Linzenkohl, Wordstar product manager

**Performance:** Reformating is not totally automatic, but our customers have not complained that it is too slow.

**Ease of use:** In Version 6.0, we made certain features available in the add-on modules. Now we are working toward integrating them fully in future releases. We do offer limited mouse support for pull-down menus, and the Inset graphics program supports a mouse.

In the next release, due this fall, we will have full mouse support as well as first-class accelerator keys for our pull-down menus.

**Editing capability:** We offer a wide variety of layout and formatting tools including scalable fonts, kerning and paragraph styles. There is no table editor, and it is not high on our users’ priority lists. If we include it in a future release, we will also include support for parallel columns.

In the next release, we will integrate graphics conversion into the product.
is building an object-oriented shell to which developers of different 32-bit environments can write — once. Developers reportedly will only have to write one version of their software, and users will be able to run OS/2 and Unix software under the same shell. Sounds great, right?

Part of the Patriot pitch is that there is a whole host of new and different applications waiting to be discovered once developers are freed from having to port their packages to multiple environments.

Then why the fuss? Gates briefly mentioned New Technology (portable) OS/2, stating he does not expect to achieve large sales volumes with NT, which is two years off. Then again, Maples said users won’t see any impact from 32-bit processing. Asked if the same held true for 32-bit Windows, he nodded yes.

Put ‘em up! Microsoft has definitely taken off the gloves. Ex-IBMer Maples complained about the “the myth that OS/2 is for line-of-business applications while Windows is for expert programmers.” Also combating that idea, Gates shrewdly incorporated into his keynote demonstrations from three large accounts using Windows in mission-critical applications. These included McDonnell Douglas, which is using Windows to help build the Space Station; Fidelity Investments, which is using Windows to improve its on-line customer service; and Otis Elevator, which is using the technology to cut its paper output and to speed report production worldwide. Maples claimed Microsoft shifted through at least 20 major accounts before settling on those three.

Keefe also took aim at Patriot Partners, a joint venture between IBM and Metaphor Systems that have their own “open” platforms, to back the Patriot concept. “They want applications unique to their platforms,” he said. As a result, it won’t matter how easy Patriot’s shell is to write to. “Just because it is easy to write to Nextstep doesn’t mean it is a good business alternative.”

Sounds good to me. Microsoft recently announced it has licensed Caseworks, Inc.’s Knowledge Assisted Software Engineering (KASE) tool set for inclusion with “future development products.” A source claims KASE will be bundled in with Microsoft’s Quick C, once it’s ready to ship.

Keefe is Computerworld’s senior editor, PCs and workstations.
NEW PRODUCTS

OS/2 software

SPSS, Inc. has upgraded SPSS for OS/2, a statistical data analysis package.

Release 4.1 ($995) adds Dynamic Data Exchange support, logistic regression and matrix tools for the Advanced Statistics module and database management systems interfaces. The firm also announced SPSS Categories ($495), an add-in that performs conjoint analysis and optimal scaling techniques.

SPSS
444 N. Michigan Ave.
Chicago, Ill. 60611
(312) 329-2400

Development tools

Information Engineering Systems Corp. has released IE:Expert Version 5.0, a tool for designing information systems.

The DOS-based, Microsoft Corp. Windows 3.0-compatible program generates graphical maps of business and systems projects based on text input and indicates data dependencies between elements. It includes model analysis based on the firm's Information Engineering techniques to ensure completeness of all models. It also offers modification audit trails, a report generator and a SQL schema generator.

The product costs $17,500, with one year's support and maintenance included.

SPSS
444 N. Michigan Ave.
Chicago, Ill. 60611
(312) 329-2400

PCs & WORKSTATIONS

Development tools

Information Engineering Systems
5th Floor
201 N. Union St.
Alexandria, Va. 22314
(703) 739-2242

Micro Focus has upgraded its line of Cobol language programming tools.

Version 2.5 of the Cobol/2 compiler ($750) includes support for intrinsic functions. It supports programming for Microsoft Corp.'s Windows 3.0 and IBM OS/2 Presentation Manager.

The Cobol/2 Toolset 2.5 ($750) includes a memory manager that makes 16M bytes of memory, as well as file sharing and report writing utilities, available to the developer.

The Cobol/2 Workbench 2.5 ($2,500) comprises the compiler, tool set and several additional programming utilities. The package's Cobol Source Intelligence facility (a real-time analysis tool) and the Advanced Animator (a source code debugger) have been enhanced.

Micro Focus
Suite 400
2465 E. Bayshore Road
Palo Alto, Calif. 94303
(415) 856-4161

Software applications packages

Symantec Corp. recently announced Justwrite Version 1.0, a word processor for the Microsoft Corp. Windows 3.0 environment.

The product was designed for ease of use, Symantec reported. It includes automatic file format conversion, document templates, intelligent mail merge and support for Dynamic Data Exchange. Network operating systems from Novell, Inc., IBM and Banyan Systems, Inc. are supported as well.

Justwrite costs $199.

Symantec
10201 Torre Ave.
Cupertino, Calif. 95014
(408) 253-9600

Pageahead Software Corp. announced a software product that provides integration of leading database and desktop publishing packages.

The product, called Pageahead, runs under Microsoft Corp.'s Windows 3.0 environment and interfaces with Oracle Corp.'s Oracle and Ashton-Tate Corp.'s Dbase IV relational database management systems as well as with Aldus Corp.'s PageMaker and Aldus. It automates the process of integrating database information into publishable report formats, the vendor said.

Pageahead costs $795.

Pageahead Software
Suite 300
2125 Western Ave.
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(206) 441-0340

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Broadband services unleash the true power of the public switched network. Let networks of computers listen and talk. Allow you to bring up a remotely stored document in one window. Video conferences in two others. How? By using cell relay, fast packet switching, it allows existing public networks to transmit more information at faster speeds. So things impossible now, will be possible tomorrow with broadband. High-definition television. Interactive education. Image processing. High-resolution faxes. To learn exactly what broadband services can do for you and your business, talk to the broadband leaders. Call your local phone company or AT&T Network Systems at 1 800 658-7978, ext. 6110.

And Your Local Phone Company Technologies For The Real World.

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Pageahead costs $795.

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This is the Macintosh Chooser. A single point of access to a wide range of systems. The Chooser shows available network resources graphically and consistently. Just point the mouse and you're connected.

Macintosh offers an incredible range of tools for connecting with virtually any host-based environment, whether it's running SNA, TCP/IP, DECnet*, or OSI.

Apple's Data Access Language (DAL) adapts popular off-the-shelf database, spreadsheet, and data analysis software to major SQL environments. So non-technical users can easily access remote databases.

Apple A/UX* lets Macintosh run UNIX* applications plus thousands of Mac* programs. At the same time you can run X-Window and MS-DOS applications, and cut, copy, and paste between any of them. No other desktop computer can do this.
While diversity may make life rich and fascinating, it makes life as an IS manager something short of serene.

What is politely referred to as the “multi-vendor environment” is an amalgam of disparate hardware, incompatible operating systems, dissimilar databases, and multiple networks. Nevertheless, IS people are expected to make these all work together in perfect harmony.

But lately, a lot of people are finding the source of their solution a pleasant surprise: the Apple Macintosh computer.

They’re finding that Macintosh comes out of the box with sophisticated networking capabilities designed right in.

That Macintosh is open to virtually any host, any file server, or any database, through any network.

That Macintosh makes the desktop the place where diverse systems come together.

And that with Macintosh you can build systems that let even nontechnical users access information from the desktop, no matter where that information resides.

And because Macintosh works with all your networks, databases, and hosts in one consistent and graphic way, it delivers major savings in implementation and training.

In short, Macintosh gives you the power to make information systems more valuable to the people who use them. The power to be your best™.

Macintosh gives people a single, simple view of the information and services that can help them do their jobs and serve your organization. See for yourself. Call 800-625-9550, ext. 554, and we'll send you a free video showing how Macintosh helps unify complex systems.
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CIRCLE 205 ON READER SERVICE CARD
**NETWORK SHORTS**

**Card costs changing**

Token Ring network interface card maker Madge Networks Ltd. has raised the price of its Micro Channel Architecture-compatible adapter — switchable from 16M to 4M bit/sec. speeds — from $995 to $1,025 in single-unit quantities. The card, as well as those for the IBM Personal Computer AT, are available in packages of 10 at a 10% discount, the company said. The move came shortly before IBM slashed the price of its 4M bit/sec. adapter cards by 50%.

Meanwhile, IQ Technologies, Inc. has lowered the price of its 4M bit/sec. Token Ring adapter card from $950 to $845. It also recently announced a $995 16/4M bit/sec. switchable card. According to the company, the card works with most laptop, notebook and desktop PCs.

The price of Hughes LAN Systems, Inc.'s Prolinc desktop connectivity product has reportedly dropped by 31%: from $995 to $495 per single-user package and from $505 to $350 per 25-user package. Prolinc allows MS-DOS and Microsoft Corp. Windows 3.0 PCs to concurrently access file hosts, file servers and network operating systems, according to the company.

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**T1 demands more safeguards**

*Bands need constant uptime use Clearview expert system*

*BY JOANIE M. WEXLER CW STAFF*

The tendency of T1 users to dump voice traffic back onto the public network and replace it with business-critical data is giving way to the need for tighter management tools to protect companies’ quickly appreciating corporate backbones.

The trend to anchor business on corporate data networks that can tolerate virtually no downtown is apparent in some firms’ recent decisions to install or expand monitoring of their T1 circuits and equipment with an artificial intelligence-based system from Clear Communications in Lincolnshire, Ill.

The vendor announced last week that telephone switch maker Northern Telecom, Inc. and GTE Data Services have installed its Clearview Surveillance System and that Mastercard International has expanded its use of the product nationwide.

The system runs on a Sun Microsystems, Inc. workstation and aims to pick up where diagnostics in multiplexer vendors’ network management systems and channel service units (CSU) leave off. CSUs terminate a digital circuit, collect network performance data and provide alarms for follow-up action.

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**Before-the-fact protection**

Clearview, on the other hand, provides real-time fault isolation and diagnostic tools to alert managers to degrading performance before the network falters. The after-the-fact reporting done by multiplexer vendors’ proprietary network management systems and CSUs often do not offer enough nitty-gritty details for heading off lost data and network outages at the pass, some Clearview users said.

Mastercard said it has expanded its use of Clearview because Banknet, the company’s network, “is the business,” explained Steve Crider, director of network communications at Mastercard’s operations facility in St. Louis.

Mastercard just bumped its number of Clearview-monitored T1 circuits from 80 to all 119 U.S. Banknet circuits connected via a Racal-Milgo T1 backbone.

Mastercard demands 99.99% Banknet availability, and Clearview serves as an “early-warning and real-time system” that resolves network problems before they happen, Crider said. It automatically and continuously pulls information from all T1 links, documents it and prints it in graphical form, he added.

Also important to Mastercard is that “when a [telecommunication] carrier is out of compliance, we can call him on it and get a refund,” Crider said. Clearview has twice tagged poor carrier performance resulting in potential carrier service paybacks to Mastercard, he added.

Northern Telecom is also using Clearview to ensure that its worldwide private T1 network does not miss a beat. “There is a gap in T1 [multiplexer] technology in the sophistication of tests you can run,” explained Mike Hill, manager of network control at the Mississauga, Ontario-based data services arm of Northern Telecom. “You can get basic diagnostics such as bit-error rates, but you certainly can’t get errored seconds and other information you need to isolate problems quickly.”

Hill boilled his goal down to: “I don’t want to get a call from a VP because he’s in the midst of a videoconference and the picture goes bad. To keep up with the exotic data demands we’re running across our corporate networks, we need to resolve glitches quickly or we’ll have a quagmire of problems.”

Hill said his goal for network uptime is 99.89%, a charge made more complex by the 24-hour, global nature of Northern Telecom’s network because there are no “off-hours” when the network is “closed.” Also, the network company’s T1 links are from vendors with different network management systems: Racal-Milgo, Telepoint, Inc. and Newbridge Networks, Inc.

Both Hill and Crider said they use multiple interexchange carriers, and Clearview provides an efficiency rating of each carrier and vendor — “something that would reconcile a bunch of mainframe work on a PC database,” Hill said. The function allows the companies to grab statistics and compare vendor report cards, allowing them to tell carriers and vendors to “get their acts together,” Crider said.

Continued on page 51
The Sun SPARCstation family. 28.5 MIPS maximum.

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for more information. Then, instead of just striking a spark, you can set the world on fire.
Agency plans five-net integration

BY ELISABETH HORBWITT
CM STAFF

QUEBEC — The Canadian Employment and Immigration Commission (CEIC) plans to take five networks that can barely talk to one another and mesh them into an organizationwide system that will support 12,000 terminals.

Under a $7.1 million, five-year contract signed last month, BT North America, Inc. will provide the CCITT X.25-compliant packet switches to put the network together.

CEIC is responsible for unemployment insurance, job listings and immigration management. Unisys Corp. mainframes at each of the five centers serve a group of user terminals and personal computer local-area networks. Interaction among the different centers is currently limited to file transfer that uses Burroughs Corp.'s Network Architecture, CEIC Director General Steve Connolly said.

The new network, CEICnet, will provide a single, integrated communications system within the 25,000-person agency, Connolly said. CEIC "has all kinds of reason to talk" across its disparate agency networks, including the need to collect data across the organization for internal finance and personnel systems, he added.

Use of X.25 packet switching will provide much more efficient utilization of CEIC's private network. This is an important point, given that the backbone covers an area roughly 4,500 miles long and 150 miles deep, according to Steve Kay, CEIC's director of data communications and office automation. X.25 "supports an easier mix of on-line terminals and file transfer and permits easier and lower cost sharing of the backbone," Kay said.

The industry standard will also keep CEIC independent of any one vendor's networking devices and will enable the organization to route flexibly around circuit failures, Connolly said.

Installation plans
CEIC will not migrate to X.25 immediately, however. During phase one, BT will install Turbo Engine 4800 switches to connect CEIC hubs in Montreal, Bell, Belleville and Toronto at speeds of 56K bit/sec. Eleven other cities will be equipped with BT PXL engines and linked over 9.6K or 19.2K bit/sec. lines. During this phase, CEIC will use X.25 to run the proprietary Burroughs Poll Select protocol across the network without X.25.

During phase two, BT will provide software on the PXL 4800 switches to translate Burroughs Poll Select to X.25, and 7,000 terminals will be added to the network.

One key application that will run on the network is an organizationwide electronic mail system. Right now, terminal users have a very limited form of E-mail on the host and no effective way to exchange messages outside of their regional networks. CEIC is now evaluating the CCITT X.400 standard as a possible basis for the E-mail network, Kay said.

CEIC is also standardizing its LAN installations on Banyan Systems, Inc.'s Virtual Networking Software, according to Connolly. While most sites now continue Banyan, a few use other LAN products, such as Novell, Inc.'s Netware.

After competitive bidding by 10 vendors, CEIC chose BT because the company offered "the best type of solution at the lowest cost," Connolly said.

Telecom firms set standards for multinational networks

BY ELLIS BOCKER
CM STAFF

NEW YORK — AT&T and three foreign providers of telecommunications services said late last month they had settled on standards and procedures for offering coordinated, global private networks to large multinational customers.

The alliance between AT&T, British Telecom, France Telecom and Kokusai Denshin Denwa (KDD) of Japan was announced last November. The arrangement is aimed at creating a "one-stop shop" for multinational networking. Without such a service, multinationals face the often cumbersome task of dealing with each national telecommunications agency in turn.

Called the Joint Network Initiative, the standards call for coordinated billing, network testing and a single point of contact, regardless of which company bears the territorial responsibility for any part of the network.

The initiatives cover the provision of telecommunications services; network hardware, including private branch exchange; circuit failures; in some cases; project management; network design; equipment installation; and network management.

The partners claimed that harmonized testing and configuration procedures help to reduce network design time by as much as 50% and that customers will be assured of end-to-end service integrity.

The partners announced that Nippon Express Co., a large Japanese shipping firm, would be the first customer of the joint offering.

A spokesman for the group said the Nippon Express network will cover Japan, the U.S. and Europe; will include voice, fax, telex and data services; and will connect up to 13,000 telephone terminals in Japan.

Nippon spends approximately $219,000 per month on international calls placed from Japan. The firm said it hopes to save $102,000 per month under the coordinated service.

The initial cost to Nippon Express will be about $4 million, the spokesman said.
Lansystems users expect Intel to be good to them

Improved technical support cited as a likely benefit of the small software firm's recent acquisition

BY JIM NASH
CW STAFF

Network managers see more pluses than minuses in Intel Corp.'s acquisition of Lansystems, Inc.'s networking software division. Intel's greater resources, at least in the short term, could aid in supporting Lansystems software.

Intel's acquisition of Lansystems' network products last month caused little more than a tremor among users of its network utilities. Lansystems software is largely based on Novell, Inc.'s network operating system, although some versions of certain products, such as its print server application, Lanspool, were based on Microsoft Corp.'s LAN Manager.

"In terms of support, I would assume things will be better" under Intel, said Victor Tam, a programmer at Continental Insurance Co. in New York.

"When I'm out in the field, I can't call in for advice and just sit there for three hours waiting for a reply," he explained.

Tam said Intel may make the logical move and begin to combine its hardware products with Lansystems' applications.

For example, Intel could merge its Lanport, a device that hooks directly to a network port and acts as a dedicated print server, with Lanspool, a Lansystems application that allows users to designate a nearby workstation as a temporary print server, according to Tam.

That could be a negative for some managers, however, said Alex Resnick, president of systems integrator Practical Computer Corp. in Markham, Ontario.

Resnick pointed out that companies now using Lansystems' software products may be left with dead end products if they are made into firmware.

Purchasing had been a manual process for the city, and the turnaround time from request to approval was 30 days or more, Hoeppner said. This lag time, combined with the lack of an efficient means of inventory management, resulted in inventory levels two to three times higher than those in cities of comparable size. "Our current level is somewhere around the $6 million mark; cities of our size are normally in the $2 million to $3 million level," Hoeppner said.

In response to this problem, the city last year issued a request for proposals (RFP) for a computerized purchasing system intended to cut lead times and provide a centralized way to manage both purchasing and inventory.

Performance, not platform, was the most important consideration, Hoeppner said. "We basically put out an RFP that said, 'We don't really care what kind of platform you run on; we're looking at the requirements for a purchasing system,' " he said.

After testing software for a variety of platforms from personal computers to mainframes, the city decided on the LAN-based Reality and signed a $158,000 contract for software with Structured Computer Systems.

The system is currently being installed, and Hoeppner said he hopes to begin pilot testing within about six months.

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Reality
FROM PAGE 47

attached to other systems around the city.

Milwaukee has 16 servers that are interconnected by a fiber-optic backbone. Using Reality, the purchasing department will be able to perform requisitions and track orders across all of the interconnected networks from a central location. Hoeppner said interconnecting the systems will help reduce inventory levels by cutting lead times and making information more readily available.

In another bid for improved efficiency, a fax gateway has been connected to the LAN, allowing the department to electronically send such things as bid documents to vendors.

The department has looked into electronic data interchange (EDI), but the sheer number of vendors the city deals with makes EDI a prospect for the far future, Hoeppner noted.

"We have, for example, about 8,000 bid vendors in our vendor bid file, so it's kind of difficult for us to target and get EDI relationships going with our vendors," he said. However, he added, "It is our vision down the line to be able to eliminate some of the documentation that flows back and forth."

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The T1600 and the rest of the Telebit modem family form the foundation for Dial-Up Internetworking. Dial-Up Internetworking connects remote locations in your organization together in a virtual wide area network, giving remote users transparent access to all network computing resources at a far lower cost than is possible with conventional internetworking technology.

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**NEW PRODUCTS**

**Local-area networking software**

KEA Systems Ltd. has introduced KEAlink IPX, a software product that makes possible concurrent connections under Novell, Inc.'s Netware, Transmission Control Protocol/Internet Protocol (TCP/IP) and Digital Equipment Corp.'s Local Area Transport (LAT) protocol.

**Network services**

An off-site backup and retrieval service for personal computers and PC networks has been announced by Secure Data Network, Inc. (SDN). SDN installs the Subscriber System 1000, a high-speed modem, in a subscriber's PC under DOS and Novell, Inc. network environments. The system automatically compresses, encrypts and transmits copies of files that have been altered since the most recent backup. Files are stored by a substation that transfers data to digital audiotapes and returns files to the user in the event of data loss. A central station provides daily backup for all substations and archives information permanently on optical discs in secure, remote locations.

**Electronic mail**

Soft-Switch, Inc. has announced integration of fax and telex capabilities into its electronic mail gateway product line.

**Gateways, bridges, routers**

Lan-Link Corp. has announced an Ethernet bridge that communicates at 56K bit/sec over analog lines.

**Micro-to-host**

Mozart Systems Corp. has added support for the Microsoft Corp. Windows 3.0 environment to its personal computer-based mainframe applications development software tool.

**Network management**

Digital Pathways, Inc. has announced Multi software for management of remote networked security devices.

**The IBM LaserPrinter.**

Other than being 25% faster, with a smaller footprint, and powerful options like 3 paper input sources, 3½ times the paper capacity, 5 times the envelope capacity, and automatic collating, it's a lot like the HP LaserJet III.

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Suddenly, nothing else measures up.
Survey uncovers resistance to outsourcing

BY CLINTON WILDER CW STAFF

Despite all the hype, there is still considerable resistance to the outsourcing wave, according to a recent survey by Mountain View, Calif.-based Input, Inc.

The survey of information systems executives and managers at 55 Fortune 1,000 companies established that 75% of the companies have not even evaluated outsourcing as an option for their IS functions. Input defines outsourcing as farming out all or part of a company's IS operations for three years or more.

Even among the one-quarter of respondents who have looked at outsourcing, "a lot of them were nudged into it by declining economic conditions," said J. P. Richard, principal consultant at Input's Vienna, Va., office. "We expected about 50-50; 75% is a big number," he said.

The reason for such resistance is "they want to protect their own empire, and rightly so," Richard said. "But within the next five years, I think there will be a lot more pressure from financial executives to evaluate the option.

"Enlightened IS executives will do it, either to save money by outsourcing or to use the option as a baseball bat to reduce costs on their own staff. We have seen where that can be very effective," he said.

IS executives in the banking industry were among the most receptive to outsourcing, according to the survey, while the retail industry was the most resistant. "In retail, we ran into a lot of people who said, 'These [outsourcing] vendors don't understand our business; it's unique,'" Richard said.

Input continues to predict fairly healthy growth for the outsourcing market. However, the firm estimates a 17% annual increase from $7.4 billion in 1990 to $15.9 billion in 1995. Richard is optimistic that current IS management resistance will be overcome in the next few years. The resistance "just dumpees what could be an extremely healthy growth rate," he said.
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We have more experience in networking and distributed computing than any other vendor. Worldwide, we support more multi-vendor environments than anyone else. And our Network Application Support (NAS) allows you to share applications across platforms.

In a way, the more complicated your computing environment, the simpler your choice. Digital. Something very smart to buy into.


EN ADVANTAGE.
Ichimura-Hoffman CONTINUED FROM PAGE 55

country several times. Her most vivid memory is of years spent in the dark and isolated camps. "I remember sitting on a curb in Kansas City soon after we were released, and I was just fascinated by the neon signs. I had never seen so many lights," she recalls.

That fascination with blinking lights returned at California State University in Sacramento when she began using computer terminals in chemistry day classes. Later, she combined her analytical and chemistry skills to establish a criminalistics laboratory information system.

In addition to handling the IS needs of the lottery's 1,100 employees, Ichimura-Hoffman maintains the trust of millions of lottery players. A system that handles more than 20 million transactions daily must perform as effortlessly as a kitchen toaster, or the whole process is undermined. "We're not perfect—but we can always try," she says. Her ultimate goal: "A zero-defect, quality product that performs at highly stressed levels."

Unlike other state agencies, the lottery is a fund-raising organization. Approximately $4 cents from each $1.50 lottery ticket go to the California public school system. Since the lottery's inception in late 1985, it has raised more than $4 billion for public schools.

Team player
Ichimura-Hoffman's management style stems from a philosophy of managers as interworking team, able to share many chores within a department or process. "Joan is constantly challenging us so we stay fresh, and we're never afraid of getting stuck in a rut," says Lou Mucci, chief of gaming systems for the lottery.

There are plenty of challenges for the 200 employees in the lottery's 55 million IS department. Nearly 10,000 lottery terminals peppered throughout the state continually inject information into a database at Sacramento in the north or Whittier in the south. Even this relatively simple process comes under Ichimura-Hoffman's edict of "no surprises." Network bridges don't always operate at the speed that may be adversely affecting other retailers on the shared circuit until the problem is resolved. Switching equipment can also route transmissions to a backup facility.

Each site contains two Concurrent Computer Corp. 3280s, one serving as the primary machine and the other as its backup. The backup maintains a record of every transaction received by the primary system so it can take over in the event of a failure. Each primary computer transmits all of its data to the primary computer at the other data center.

Co-workers praise Ichimura-Hoffman's decision to use multiple 3280s because they allow the blossoming operation to expand easily. "You just continue to attach more processors and increase your throughput," Mucci says. "Its possibilities are unlimited!"

The expandability is critical for a system so dependent on record-taking. Each ticket contains a serial number that records where, when and in what order it was purchased. This information stockpile typically approaches 100 million per week and is kept for the six months during which winners can redeem their tickets.

Ichimura-Hoffman enlisted the aid of an outside vendor for the formidable task of running the on-line operations. Lotto games, which are updated regularly, are developed jointly with Providence, R.I.-based Gtech Corp. The lottery staffs deliver all the design specifications to Gtech, which codes the software. Gtech also handles software development work and data center operations and repairs terminals in the field.

The end user—the Lotto ticket buyer—sees little in this complex arrangement except computational efficiency. Prices of $25 or less are verified and awarded near- ly instantaneously at the retailer outlets, even when the systems are dealing with processing bursts as unpredictable as human nature itself. After the final out of one World Series game, for instance, sports fans flooded out of their homes to buy lottery tickets. "It was horrendous, but we hung in there," Ichimura-Hoffman says.

One area Ichimura-Hoffman obsesses about is security, an absolutely crucial component to the trustworthiness of each drawing. All on-line terminals include audio trails, and each terminal is uniquely identified to the computer, ensuring that the terminal accepts only data meant for it and that the central computer accepts data only from a known lottery terminal. Data is encrypted for sending.

The draw machines and balls used in the twice-weekly Lotto drawings are measured and weighed regularly to ensure uniformity before being trotted off to a secured safe room. New staffers are carefully screened, and access to lottery headquarters is closely monitored.

Ichimura-Hoffman likes to know what's going on at firms that are critical to the success of the lottery. The firm that supplies the ticket stock, for example, was informed that it had better be ready to spring if a retailer's supply was low. Both AT&T and MCI Communications Corp. were given stern warnings during the record-breaking drawing.

"We don't even want them near our circuits," she says. "We told all the electri- cians not to come back until another week has passed; we don't want them to do anything with the wiring. We don't want air conditioners fixed unless they're in the computer room. We freeze all software, all testing."

No surprises.

The Closer You Look At Distribution Software For...
"Insourcing vs. Outsourcing: Innovation Without Headcount," The Yankee Group's second annual conference on outsourcing, will be held July 30-31 at the Westin Resort in Hilton Head, S.C.

Speakers from user companies include Fred Ciesiewski, senior vice president at Bank South NA, and AI Jones, director of information systems at Kelsey-Hayes. Vendor speakers include Mel Burgstein of Computer Sciences Corp. and Howard Frank of Network Management, Inc.

For more information or to register, contact Betsy Gray, The Yankee Group, Boston, Mass. (617) 567-1000.

**JULY 7-13**

International Conference and Exhibits on Failure Analysis. Montreal, July 8-11 — Contact: ASM Member-Consumer Service Center, ASM International, Materials Park, Ohio (216) 338-5511.


Engineering Workstations Conference. Boston, July 9-11 — Contact: EWC, Santa Monica, Calif. (310) 459-0550.

Geographic Information and Spatial Data Exposition. Washington, D.C., July 9-12 — Contact: Glen Silver Spring, Md. (202) 445-4490.


**JULY 14-20**

Guida 800, Boston, July 14-19 — Contact: Guida Headquarters, Chicago, Ill. (312) 644-6616.


Information Engineering/RAD. Washington, D.C., July 16-18 — Contact: Technology Transfer Institute, San- tana, Calif. (213) 394-8306.

International Conference for Young Computer Scientists (ICYCS '91). Beijing, China, July 18-30 — Contact: Yachtin Liu, Cad Laboratory, Academia Sinica, Beijing, China. Fax: (011 86 10) 2577724 or 2568152.

**JULY 21-27**


IBM '91, Beaver Creek, Colo., July 22-24 — Contact: Rec- ognition Technologies Users Association, Boston, Mass. (617) 426-1167.


**AUGUST 2-8**

International Management Graphics User's Group Meeting. Las Vegas, Aug. 4-6 — Contact: MGI, Minneapolis, Minn. (612) 854-1220.

**AUGUST 4-10**


Localex '91. San Francisco, Aug. 8-10 — Contact: Local Area Network Dealers Association, Elysebur, Ill. (718) 379-2325.

**AUGUST 11-17**


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**EDS**

**TAKE ADVANTAGE OF CHANGE**
"A diagnostic approach to information management problems in the organization"
By Richard J. Palmer, Martin W. Tucker and James B. King II
Journal of Systems Management May 1991
- The information systems manager can improve the overall efficiency and effectiveness of IS by identifying areas for improvement through the development, distribution and analysis of a user satisfaction survey.
- In order for IS managers to maintain an information system that will satisfy present and future needs of management, the following guidelines must be adhered to:
  - Begin with a philosophical commitment to customer service. The products IS departments provide to users should create high customer satisfaction.
  - Manage the information base proactively by taking steps to ensure that customers receive what they need in a timely manner and are not given what they don’t need. Surveys can often be valuable tools in determining whether the needs of the users are being efficiently and effectively satisfied.
  - Anticipate the future information needs of customers. An IS manager can be successful by meeting customers’ current needs. However, to remain successful, managers must be able to foresee users’ future needs and keep the user informed of the progress made toward meeting those needs. — Kelly E. Dwyer

"Teaching smart people how to learn"
By Chris Argyris
Harvard Business Review May-June 1991
- There is a learning disability affecting corporations today: Many highly educated, high-profile professionals — including IS managers — are having a hard time learning on the job.
- Their success in education is precisely the reason they have difficulty learning. Their educational records speak to their success and to the fact that they have almost never seen failure. To correct this weakness, managers must realize that learning is not just problem solving; it also involves reasoning. Behavioral changes might be in order so that managers can obtain their highest level of success. Managers need to be taught that failure is a part of the learning process. Accepting failure, rather than trying to shift the blame for it onto other employees, is the key to successful learning. — Stefanie McCann

"Client/server architecture promises radical changes"
By Grey Freeman and Jerry York
Cause/Effect Spring 1991
- By the mid-1990s, client/server architecture is expected to be in widespread use among Fortune 500 companies. But before it can be widely adopted, some transitions will be necessary.
- While users working from their personal computers or workstations on a network have for years been able to access other platforms and tiers through local-area and wide-area networks, doing so involves a patchworked system. The client/server model takes accessibility many steps further and makes the process easier.
- Basically, the client/server architecture gives the PC user a consistent user interface to access a variety of resources from different vendors and architectures connected through networks. The user may not know or care which vendor’s platform is being accessed, the hardware and software characteristics of that platform, the commands necessary for the access or how that access request is routed through the network. The PC is used to gain access when the user makes a request. When the user’s “client” system requests access to a computing resource, his PC or workstation will either handle the request itself, if capable, or pass the request through the network to an appropriate “server.”
- The problem is that hardware technologies to make the client/server concept viable are available, but software technology and standards for the architecture have not yet fully emerged.
- To plan for the emergence of client/server architecture, companies and institutions will need to adopt new technologies, develop new applications design and development methodologies and restructure their IS organizations. — Alan J. Ryan
Teaching minis new tricks

Necessary changes lie ahead, but midrange machines are proving they can be the right machine for a server job

BY JIM HAMMONS

mid all of the client/server fanfare, there are two groups of people decidedly not swayed by the idea of using personal computers or workstations as the server component in such a setup: vendors of minicomputers and owners of minicomputers and minicomputers who would rather take advantage of what they already have.

Take Lee Bockhorst, manager of technical research at Central Area Data Processing Cooperative near St. Louis, which manages systems and services for a group of rural utility companies in the Midwest.

Bockhorst used connectivity software provided by Unisys Corp. and existing communications lines to turn the cooperative's Unisys U6000 minicomputers into servers. All in all, he says, it was a relatively smooth transition.

"We sort of grew into it over time as users wanted more access to data from their PCs and LANs," Bockhorst says. "It's what we've had installed, and there's no sense moving from it now."

In a time of restricted budgets, the ability to find an additional use for existing minicomputer resources is extremely attractive. With the help of the original vendor, companies are finding they can avoid the purchase of an additional server — even a low-cost PC server — and put more resources into software and connectivity.

The question is: Is the minicomputer actually a better choice than the smaller machines as a local-area network server? Is it ever a good idea to consider minicomputers as LAN servers instead of PCs?

According to Business Research Group, a market research firm in Newton, Mass., a significant number of users think so. In a recent study, 31% of 100 inform-
mation systems managers surveyed said they plan to purchase minicomputers as LAN servers in the future.

Certainly, the minicomputer vendors would like you to think so. All of the major players are now making a concerted effort to reposition and reconfigure their traditional terminal-to-host minicomputers as very powerful servers for the burgeoning networks their customers are installing.

The newer machines, such as Digital Equipment Corp.'s VAX 4000 and Hewlett-Packard Co.'s latest 3000 and 9000 systems, have significantly improved I/O performance and can be configured with server software and PC connectivity options direct from the manufacturer.

In addition, these systems do not require a multiluser license or some of the components typically needed to support a traditional minicomputer installation.

At the same time, PCs undoubtedly hold quite a few trump cards than their larger predecessors, even these sleeker models. PCs are easier to install, increasingly able to handle critical applications and less expensive, both to purchase and to maintain. However, minicomputers may still be worth more than just a second look.

For instance, vendors such as DEC and HP are working to make the minicomputer environment — which is notoriously difficult in terms of configuration and maintenance — more familiar to PC users.

Minicomputers are also better able to accommodate growth than even an Intel Corp.-based I486 PC server.

Superservers from Compaq Computer Corp., Netframe Systems, Inc. and Parallalan Computer Corp., Inc. are addressing growth and storage limitations of PC servers, but minicomputers ultimately offer higher top-end growth.

With superservers, you also run the risk of locking yourself into a local-area rather than a corporatwside configuration. This is because minicomputers are better and more experienced at wide-area connectivity.

Other strengths of server-configured machines include the following:

- Strong systems management.
- Support of existing multiluser applications.
- High levels of service and maintenance (see story page 66).
- Better fault tolerance.

However, while fault tolerance and offerings such as systems management are all well and good, they are proprietary solutions, and people seriously considering minicomputers as servers need to look beyond the proprietary world to connectivity with PCs and LANs.

It is here, in the area of

INSIDE

<table>
<thead>
<tr>
<th>Falling Resale Zone</th>
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<td>Many factors have newer minis dropping in value.</td>
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<th>At Your Service</th>
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<td>Service ain’t what it used to be: It’s a whole lot better.</td>
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<tr>
<th>Product Guide</th>
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<tbody>
<tr>
<td>A comprehensive listing of late-model miniservers.</td>
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</table>

Continued on page 64
Consider a minicomputer server if the following are true:

- The application runs on a minicomputer now and is not in need of extensive modifications.
- The application requires a lot of disk space or memory.
- The application cannot tolerate downtime.
- You need wide-area communications and interfaces with larger networks.
- You have broadly distributed applications, or your organization requires more support or faster response to problems.

The The application -- even a thin client system -- is already implemented on a DOS platform and does not require extremely large amounts of disk storage.
- You have no inhouse expertise in using midrange systems.

William Bluestein, an analyst at Forrester Research, Inc. in Cambridge, Mass. says, "ers," says William Bluestein, an analyst at Forrester Research, Inc. in Cambridge, Mass. to try to integrate new miniservers with existing LANS is to support network operating systems such as Novell, Inc.'s Netware and Microsoft Corp.'s LAN Manager.

Novell's Portable Netware runs on DEC's VMS operating system and Unix. In addition, HP, Wang Laboratories, Inc. and Data General Corp. each have licenses to the network operating system, which they have ported to their own operating systems. Microsoft's LAN Manager has been ported to run on most Unix systems.

Slow going

While support of these network operating systems allows the minicomputer to act as a network file and print server while concurrently supporting other network functions such as server-based database applications, it can also make the minicomputer quite sluggish: In many cases, the network operating system is implemented on top of the minicomputer's native environment. A much larger roadblock to minicomputer popularity is its price.

Several vendors are working to bring the cost of their entry-level miniservers down to more competitive levels, but they are still more costly than even more advanced PC servers such as the Compaq Systempro.

Minicomputers offer much higher potential value on the secondary market. Even though resale values are declining (see story below), they are still much more attractive to lessors than PC-based systems, including superservers.

For one thing, says Tony Coppola, president of Computer Products Marketing in Laguna Niguel, Calif., residual values at the end of the lease for PC-based servers are typically very small, whereas lessors would rather have customers renew a lease — a common practice in the minicomputer world — than try to remarket a PC server at the end of a lease. They are particularly skittish about establishing any resale value now for the "multithreading" superservers because those companies have no track record.

Coppola says, "minicomputers can be remarke d as a server or as a minicomputer. It gives the user a better deal in the end."

In other words, because the lessor has two ways to resell a used minicomputer, the potential value at the end of the lease is higher. With this higher residual value, users can negotiate lower lease payments over the term of the lease.

Beyond justifying the cost, the most difficult short-term problem minicomputers contend with is the lack of innovative new software that implements true client/server functionality.

PC vendors actually have the same difficulty in finding applications that allow a server and a workstation to process different parts of the same application at the same time. But because minicomputer vendors see this as their proving ground, they tend to feel the burden more acutely.

Proving ground

What many minicomputer vendors are waiting for are standards to emerge in wide-area networking, such as the Open Software Foundation's Distributed Computing Environment.

Because such standards would support common procedures and applications programming interfaces across a network, they would allow developers and users to create applications using computing resources and data from across the enterprise.

Such standards would do much for the minicomputer vendors' advantage over PC server vendors. Especially if you consider their previous experience in wide-area communications and the fact that most minicomputer operating systems, including Unix, support multithreaded commands.

Midrange vendors may be aggressively pursuing the server market, but PC vendors are certainly not standing still. Many are adding fault-tolerant capabilities, network management features and increased storage to their systems.

As Bluestein suggests, many of the advantages miniservers currently enjoy will not last, especially if vendors don't move quickly to improve their support of PC and LAN protocols.

Still, the strength of the installed base and the experience of the minicomputer vendors should not be underestimated. In particular, those IS organizations familiar and comfortable with midrange systems will find it a relatively easy transition into using those systems as servers on their networks.

Watch out for plummeting residuals

BY KARLYN KILROY and TONY MEMBRINO

Caution: Falling resale values ahead.

There seems to be no end to their plummet. Compared with the 1980s, today's minicomputer product life cycles are shorter, price/performance improvements are more frequent and aggressive, and vendor discounts are steeper.

Price/performance improvements especially have a devastating effect on the value of older systems, and some times not so old — machines. For example, the four-year-old VAX 6000-310 is trading for 33% retail, whereas it took nine years for the VAX 11/780 to drop to 28% retail.

Recent research indicates the IBM Application System/400 9406 B30 — less than three years old — is trading for approximately 45% retail. An IBM System/38 Model 8 traded for 64% retail during the same period of its life cycle.

Lower resale values can be good news for buyers, but they can be bad news as well. It is difficult to get the expected value for the system when it comes time to sell it. There is still bargaining room, however, especially with minicomputer emerging in server roles (see story above).

Minicomputer vendors today will probably get even more aggressive with price/performance improvements and marketing incentives.

In fact, the proliferation of personal computer local-area networks and open systems is placing even more pressure on midrange firms to offer competitively priced feature-rich products more frequently.

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**Market value**

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Model</th>
<th>Current list price</th>
<th>Current fair market value $</th>
<th>Percent of retail As of this date</th>
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</thead>
<tbody>
<tr>
<td>DEC</td>
<td>VAX 6000-310</td>
<td>$195,305</td>
<td>$87,000</td>
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<td>VAX 8550</td>
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<td>$20,000</td>
<td>11%</td>
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<td>Wang Laboratories, Inc.</td>
<td>VS 65</td>
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<td>$2,000</td>
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<td>VS 7100</td>
<td>$212,600</td>
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<td>IBM</td>
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<td>System/36-DXK</td>
<td>$29,600</td>
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<td>82%</td>
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</table>

*Source: Technology Investment Strategies Corp.*

**Fair market value of System/38 processors was not established during 1991 due to minimal trading activity.**
To each vendor, its own server strategy

BY JIM HAMMONS

Each minicomputer vendor has taken a different tack in ramping up its server offerings. What follows are synopses of each.

IBM

IBM announced connectivity software for its Application System/400 in April; it was then that the company first dared to call any machine in its minicomputer line a server.

The announced software, PC Support for the AS/400, implements IBM's own Advanced Program-to-Program Communications protocol, but it does not natively support the most common personal computer networking protocols, such as Novell, Inc.'s Netware and Microsoft Corp.'s LAN Manager.

The AS/400 is also limited in its ability to interface with other servers, according to some analysts. In addition, it still has only a proprietary database, although many third-party developers are developing client/server applications for it. The AS/400 does offer excellent connectivity with IBM host systems.

DEC

Digital Equipment Corp. has received positive reviews for its efforts to integrate PCs into its overall office strategy and for its connectivity to IBM mainframes.

DEC's recent cooperation with Apple Computer, Inc. has produced some of the best Macintosh integration products on the market. However, DEC remains committed to its own Decnet protocols, although the company does provide support for LAN Manager, and analysts say they expect the company to support Netware on the VAX soon.

On the software side, DEC is still heavily promoting its own RDB database product but shows some signs of working with other vendors to improve third-party database support. DEC also intends to significantly improve the ease of installation for its server products.

Hewlett-Packard

Hewlett-Packard Co. has done well on the communications front, supporting both Netware and LAN Manager on its HP 3000 and HP 9000 systems. It also connects well with IBM host systems. Its ability to integrate with other servers on a network is very strong because of the company's early commitment to Transmission Control Protocol/Internet Protocol (TCP/IP).

HP's New Wave software provides some of the most impressive client/server capabilities in the industry. HP has also been a leader in opening its proprietary database to other front-end products and in recruiting

Continued on page 74

Take two

One of the most important things to remember is that you do not have to use minicomputer- or PC-based servers exclusively.

Applications in most organizations are diverse enough that both types of servers may be justified in different situations.

For example, you may use miniservers for all network-based transaction processing applications and PC servers for smaller workgroup applications.

These networks could all be tied together on the same enterprise-wide communications backbone.

What this means for minicomputer vendors is that they're no longer the only game in town. "The mini will be just another system on the network," says William Bluestein, an analyst at Forrester Research, Inc.

JUNE 10, 1991
I'm sitting in a
about my son
above our house
I told him that
hand; however,
some unknown
and my little boy
MAINTENANCE
come up with
actually happen.
switch is devoted
for the tip and he
fly right, Dad,
for me going to
corner office on a round planet and I’m thinking
and how last night he looked at the crescent moon
and said, “Daddy, broken moon, broken moon.” And
the moon would be fixed soon by a silent and unseen
the PBX that I bought for the corporation from
company might not be fixed any time soon at all,
who is only five said, “Dad, AT&T has a REMOTE
lab in Denver set up to detect any problems that might
their DEFINITY* System and fix them before they
You see, Dad, a full 1/3 of the memory of a DEFINITY
entirely to self-maintenance.” And I told him thanks
looked up at me and said, “Straighten up and
because no silent and unseen hand is going to pay
college.”

AT&T provides several levels of remote maintenance and diagnostic services around the clock. Please call
1 800 247-1212, Ext. 106, for more information or a free copy of THE AT&T CATALOG. In Canada call 1 800 387-6100.
Service options on the rise

BY LORI KLEINMAN

When you look over your options for minicomputer support and service, don’t be surprised if the list has gotten lengthier and the offerings more complex than they used to be.

Especially with minicomputers taking on new roles in many organizations, minicomputer vendors are expanding their service portfolios beyond remedial maintenance to include multivendor and network support and are customizing and adapting technologies to meet customers’ business needs.

With this new emphasis on service, users will need to get accustomed to a new way of pricing. Service used to be thrown in with the product purchase as a sales negotiating tool; more and more, service and support is being charged separately.

What follows are the support offerings from the major systems vendors:

IBM

During the past few years, IBM has concentrated primarily on simplifying its service contracts. Last month, however, it introduced value-added services through its newly organized Integrated Systems Solutions Corp.

DEC

Digital Equipment Corp. is one of the few vendors to support distributed systems with its VAX and Microvax service portfolio. It offers full support on the primary server system — including rights for designated people to call the support centers directly — and “economy” support on connected systems.

With its Vendor Application Services, DEC is well ahead of its competitors in providing third-party software support for midrange applications.

DEC has also gotten a jump on configuration service, which is being overlooked by other vendors. For example, DEC will configure and set up 1,000 or more PCs connected to a server for a large account.

Like IBM, DEC may need to consider adapting some of its desktop services for PCs and workstations to provide help desk support to other VAX platforms.

Hewlett-Packard

Hewlett-Packard Co. offers separate, tiered hardware and software support portfolios for its HP 3000 minicomputer product line, allowing customers to choose the level of support appropriate for their environments.

New services

The following trends have emerged as vendors attempt to address customers’ minicomputer support needs more fully:

* Greater supply of value-added services.
* Integrated hardware and software service contracts.
* Increased availability of multivendor support.
* Differentiation of levels of support for the server and nodes.
* Comprehensive network support offerings.

The company may expand its integrated hardware/software/network support to its minicomputer products, although it is currently available only for its workstation product line.

HP does offer network support under its Consultline services, which are priced separately from the traditional hardware and software support contracts.

NCR

NCR Corp. recently developed nine specialized “centers of expertise”: systems integration, software engineering, account support, product, education, customer support, logistics, industry (vertical market focus) and business management.

These are especially specialized organizations with the staff and resources to deliver highly customized, nontraditional services.

NCR also offers a well-rounded portfolio of network integration services.

Unisys and Prime

Unisys Corp. and Prime Computer, Inc. each have recently announced reorganizations that separate value-added services from traditional remedial maintenance business units.

Kleiman is manager of software support at Ledgeway/Dataquest, a market research firm in Lexington, Mass.
## Server-configured minicomputers

### PRODUCT SPOTLIGHT

<table>
<thead>
<tr>
<th>VENDOR</th>
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### PERFORMANCE IN MIPS

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### DISK CAPACITY [BYTES] / DISK TRANSFER RATE [BYTE/SEC]

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</table>
THE COMPUTING EQUIVALENT OF CAR OF THE YEAR.

DATAMATION's Product Of The Year has been announced. And the choice of thousands of MIS professionals in the systems category is overwhelming.

It's Digital's VAX™ 9000 mainframe.

Their choice is not at all surprising. The VAX 9000 features an innovative new packaging technique, the Multi-Chip Unit (MCU), which delivers higher performance at lower cost. Its CPU speed and system throughput are perfectly balanced, for the kind of performance that the toughest mission-critical applications demand. And not only does its technology set new standards for designed-in reliability, the people behind it continue setting new standards for customer support.

As a result of all these features, Digital's first mainframe came in ahead of IBM's 3090 and Cray's Y-MP2E in Product Of The Year voting. What's more, the VAX 9000's vector processing performance helped propel Digital to the top in supercomputing market share in just one year.

For more information on DATAMATION's Systems Product Of The Year, call 1-800-332-4636, ext. 9000.
### MINICOMPUTERS

**PRODUCT SPOTLIGHT**

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<tr>
<th>VENDOR</th>
<th>PRODUCT</th>
<th>COMPARABLE SYSTEMS</th>
<th>HOST COMPUTER OPERATING SYSTEM (NETWORK OPERATING SYSTEM)</th>
<th>CPU(S) SUPPORTED</th>
<th>DATABASE(S) SUPPORTED</th>
<th>BENCHMARKS</th>
<th>MEMORY RANGE (BYTES)/CACHE</th>
<th>PERFORMANCES IN MIPS</th>
<th>SHEDD CAPACITY (BITES)/TRASFER RATE (BYTES/SEC/B/ARC)</th>
<th>LAN PROTOCOLS SUPPORTED</th>
<th>SUPPORTED SERVICES (INTEGRATION SERVICES)</th>
<th>OPEN SYSTEMS STANDARD PRICE RANGE WITH CONFIGURATION</th>
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<tr>
<td>Data General Corp.</td>
<td>Eclipse M65700/40c</td>
<td>DEC VAX 6000; IBM AS/400, HP 9000; Sun 486/286; HP 9000, IBM 3090, IBM 3081</td>
<td>VMS, Novell Netware, Microsoft Windows, Oracle, UNIX, IBM</td>
<td>i5, i9, 3900, 3900s</td>
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<td>864 MIPs</td>
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<td>24 GB (2 GB: i5), 48 GB (2 GB: i9)</td>
<td>IBM 3274, IBM 3278, IBM 3279, IBM 3270, IBM 3274, IBM 3275</td>
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<td>$12,500+ with 1 CPU, 32 MHz, 64M-byte memory, 16M-byte disk, operating system</td>
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**JUNE 10, 1991**
## Product Spotlight: Minicomputers

### Vendors
- **NCR Corp.**
- **HP Computer Systems Division, Inc.**
- **Siemens Information Systems, Inc.**
- **Royal Montgomery Computers, Inc.**
- **Price Computer, Inc.**
- **Bryant Computer Systems, Inc.**
- **Medusa, Inc.**
- **NCR Corp.**
- **Prime Computer, Inc.**
- **Pyramid Technology Corp.**
- **Sextant Computer Systems, Inc.**
- **Cyrix Microsystems, Inc.**

### Product Selection

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Product</th>
<th>Description</th>
<th>Options</th>
<th>Price Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCR Corp.</td>
<td>Tower 4100</td>
<td>Alpha 600, HP 9000</td>
<td>1 - 4 CPUs, 8M- to 128M-byte memory</td>
<td>$37,500 - $1.1 million</td>
</tr>
<tr>
<td>Medusa, Inc.</td>
<td>Real/Time</td>
<td>Sparcstation 400</td>
<td>1 - 4 CPUs, 256M-byte to 1.5G-byte memory</td>
<td>$49,800 - $1.4 million</td>
</tr>
<tr>
<td>Bryant Computer Systems, Inc.</td>
<td>XA-2000</td>
<td>Continuous Processing System, 300, 75, 90, 90N, 370</td>
<td>64 - 128 million instructions per second</td>
<td>$900,000 - $1.4 million</td>
</tr>
<tr>
<td>Siemens Information Systems, Inc.</td>
<td>Targa 5070</td>
<td>1.6 GHz</td>
<td>Target Operating System, Standard Edition, operating system</td>
<td>Unix, Oracle</td>
</tr>
<tr>
<td>Prime Computer, Inc.</td>
<td>Sys/6000</td>
<td>IBM System/38</td>
<td>1 - 4 CPUs, 8M- to 32M-byte memory</td>
<td>$25,000 - $1 million</td>
</tr>
<tr>
<td>Pyramid Technology Corp.</td>
<td>N/5000 Early System</td>
<td>IBM System/38</td>
<td>1 - 8 CPUs, 8M- to 128M-byte memory</td>
<td>$5,000 - $100,000</td>
</tr>
<tr>
<td>Sextant Computer Systems, Inc.</td>
<td>XE-2000</td>
<td>Continuous Processing System</td>
<td>64 - 128 million instructions per second</td>
<td>$900,000 - $1.4 million</td>
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### Performance Metrics

- **CPU Clock Speed:** 1.6 GHz
- **Throughput:** 1.6 million instructions per second
- **Memory:** 8M- to 32M-byte memory

### Product Features
- **Operating System:** Unix, Oracle
- **Memory:** 8M- to 32M-byte memory
- **Throughput:** 1.6 million instructions per second
- **Price Range:** $5,000 - $90,000

### Conclusion

The Targa 5070 is a powerful minicomputer with a clock speed of 1.6 GHz, offering high throughput and memory support suitable for a variety of applications. Its price range makes it accessible to businesses of different sizes.
Strategy

CONTINUED FROM PAGE 65

developers for its platforms. Where HP's problem lies, according to Cambridge, Mass.-based Forrester Research, Inc., is in its user ratings and market presence in Fortune 1,000 accounts.

Data General

Data General Corp. has shifted its focus from the MV/Eclipse, its proprietary minicomputer, to the more open world of the Avion workstation.

DG is aggressively promoting its Avion as a standards-based system, with support for Netware and planned support for LAN Manager. The company's host communications are relatively robust, but the ability of its systems to integrate with other servers remains a question.

DG also has a strong client/server software offering — CEO Object Office — that runs on the Eclipse and is compatible with HP's New Wave environment. DG is recruiting third-party vendors for further database and applications support.

Wang

The plan at Wang Laboratories, Inc., is to transfer its experience in imaging and office applications to the open systems and networking markets. These Open Image products run not only on Wang's own minicomputer servers but also on native Netware servers for non-Wang local-area networks.

Wang supports Portable Netware on its VS systems and provides one of the most robust implementations of Banyan Systems, Inc.'s Virtual Networking Software (Vines) on the VS. It does not support LAN Manager, however. Wang also provides a SQL-based database for Vines and Oracle Corp.'s database.

Stratus

Stratus Computer, Inc. has upped its server participation, supporting standards bodies and lending its support — along with IBM and HP — to companies such as Transarc Corp., which offers distributed transaction processing protocols. Stratus supports Netware, and it offers excellent connectivity with IBM hosts. Its products also integrate well with other systems.

Stratus is positioning its machines as high-availability processors for critical on-line applications in a client/server mode — a narrow but increasingly popular niche.

Unisys

The U6000 line is where Unisys Corp. is focusing on server efforts. These systems support Portable Netware and offer a high level of integration between Unix applications and the network environment. Unisys has also stated that it will support PCs in a peer-to-peer mode on its larger networks. However, its support of other protocols such as TCP/IP is lacking.

Prime

Prime Computer, Inc. has made a headlong rush into the client/server environment, establishing an alliance with Novell and rapidly announcing server products. Its primary focus seems to be in technical areas such as computer-aided design and manufacturing. However, Prime is still not seen as a company whose products integrate well with other systems. It has made some efforts recently, however, to gain third-party software support.

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### MINICOMPUTERS

#### PRODUCT SPOTLIGHT

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<thead>
<tr>
<th>VENDOR</th>
<th>PRODUCT</th>
<th>COMPATIBLE SYSTEMS</th>
<th>MAX/MIN/AVG CYCLE TIME (MHz)</th>
<th>HOST COMPUTER OPERATING SYSTEM (NETWORK INTERFACES)</th>
<th>CLIENTS SUPPORTED</th>
<th>DATABASES SUPPORTED</th>
<th>MEMORE AND DATABASE BENCHMARKS</th>
<th>CPU/MACHINE CYCLE TIME (MHz)</th>
<th>MEMORY RANGE (BYTES)/CACHE</th>
<th>HOST COMPUTER OPERATING CAPACITY (BYTES)</th>
<th>SYSTEM; (NETWORK OPERATING SYSTEM)</th>
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<th>OPEN SYSTEMS STANDARD SUPPORTED</th>
<th>PRICE RANGE WITH CONFIGURATION</th>
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<tr>
<td>Vendor Corp.</td>
<td>U6000/6000</td>
<td>IBM RS/6000, NCR 3000, Tower Series</td>
<td>25/133/106</td>
<td>Solaris, Windows, OS/2, Macintosh, SCO</td>
<td>Solaris, Windows, OS/2, Macintosh</td>
<td>Solaris, Windows, OS/2, Macintosh</td>
<td>12.5 TPCCA CLX/13.5 through 21.5 TPCCA CLX/13.5</td>
<td>8.10 (128M/256M)</td>
<td>15 (256M/512M)</td>
<td>405.9G/735MB</td>
<td>Linux</td>
<td>Ethernet, Token Ring</td>
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<td>$965,000 - $1.5 million or more</td>
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<td>U6000/555</td>
<td>IBM RS/6000, NCR 3000, Tower Series</td>
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<td>25/133/106</td>
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**JUNE 10, 1991**
Getting the process right

Before moving automated software development from pilot to production mode, make sure your development process is stable and manageable

IN DEPTH

BY GREG BOONE
AND VAUGHAN MERLYN

While most companies are managing pilot CASE programs effectively, it's during full-scale implementation that the real problems become apparent.

In a pilot, the project team is handpicked, the application is carefully selected, and the team is coddled with extra support and resources. With this special attention, the implementation can go very smoothly. Generally, this situation makes a good showing for computer-aided software engineering (CASE).

It is when you move CASE beyond pilot programs into widespread use that problems crop up. Resistance, skepticism and disasters are not uncommon. These problems are the result of the failure of many software development organizations to recognize that CASE does not just speed up existing software development activities. Rather, it transforms the software development process.

Companies that understand this difference are paying attention to how software is developed, not just looking to buy new development technologies. They realize that hundreds of small improvements to the software development process add up to huge savings in development time.

Firms that don't understand this difference are dealing with an invisible, unman- ageable process subject to change with every new technology. The challenge for information systems is to concentrate on the software development process, not just the technology, managing the quality improvements and organizational changes that are likely to occur.

Housecleaning

Organizations with ill-defined processes and poor methods shouldn't try to justify CASE until they get their houses in order. It's embarrassing to realize how many organizations buying CASE don't know that structured methods, data modeling methods, project management techniques and more disciplined practices are what CASE is really about.

Instead, they think they are buying only an "automated" solution. Without a change to the existing software development processes, however, the technology is worse than worthless. It can actually get in the way.

What is a process? It is a set of activities that transforms inputs into a useful output. What is a software development process? It is the transformation of customer needs into a useful software output.

As long as the software development process exists only in the heads of individual developers, it will remain unmanageable, difficult to improve and subject to the changing technology. The process can only be managed to the extent it is clearly known.

For example, what is the process of moving from the analysis phase of development to design? How do designers do their jobs? What sequence of activities do they pursue? Is it always the same, or is it different? When is it different, and why? What considerations do they take into account? What methods do they use?

The world of information management, realtime systems and embedded software is already highly abstract and invisible.

What takes place is a highly complicated series of activities undertaken in a highly individualized crafting manner. One of the characteristics of the craft style of building software is that its attempts to improve quality and productivity are only as good as the skill level of the specific individual producing the product. And because the "project" is the vehicle for organizing work, it becomes difficult to see software development as a continuous process instead of a unique, discrete effort.

As long as the software development process exists only in the heads of individual developers, it will remain unmanageable, difficult to improve and subject to the changing technology. The process can only be managed to the extent it is clearly known.

For example, what is the process of moving from the analysis phase of development to design? How do designers do their jobs? What sequence of activities do they pursue? Is it always the same, or is it different? When is it different, and why? Do they know why? What considerations do they take into account? What methods do they use?

When software development is low in process and high in dependence on technology—

Continued on page 76

• Continuous process improvement is the goal
• Motorola, HP have spruced up their processes
• Don't overlook the human impact of change

JUNE 10, 1991
COMPUTERWORLD
Continued from page 75 specific individual expertise, then changes in technology have an enormous impact on the productivity and capability of software developers. By contrast, traditional engineers may use new materials with radically different properties, but because they have a better defined, proven process, there is less impact. Therefore, there are very good reasons for attacking processes first. Once you understand the process, changes to it are more meaningful and manageable.

Process improvements, which can lay the groundwork for CASE, can be arrived at quite simply or more rigorously.

One IS shop with an unusually high number of maintenance requests had a practice of extensive financial analysis for each one before proceeding. This analysis also examined the extent of the change and was used for making decisions about request priority.

One day, a programmer discovered extensive analysis was extraneous. Maintenance requests could be divided into categories of large, medium and small, with small ones taking less than one day, medium ones up to four days and large ones longer. Furthermore, it didn't take much effort to make that determination.

Now, the company does a first cut on the requests by size and has significantly reduced labor from unnecessary analysis of maintenance requests. It also speeded up the response to requests.

Motorola, Inc. has also recently demonstrated the value of having a defined process. The company was faced with an older methodology that forced an overly elaborate software development process. It also handled certain types of development problems inadequately, specifically those related to distributed systems.

First, IS streamlined the methodology by producing what it calls a "project administration manual." This outline defines the overall software development process with references to other manuals and documents, depending on the requirements of the specific applications development effort. In this way, developers don't have to wade through 13 three-ring notebooks to find what they need.

Second, it developed a new adaptation of the distributed systems methodology. Because Motorola has developers dispersed throughout the world supporting these systems, it has been an enormous benefit for everyone to be able to use a common frame of reference for software development.

While both firms use CASE, what is important is their process improvement initiatives. The improvements made by the companies above weren't responses to special circumstances; they were responses to repeatedly encountered circumstances.

Rather than work around or ignore the problem altogether, these companies sought the cause and implemented a remedy that eliminated the source of the chronic problems. This preventative approach is key to making sustainable progress. Such remedies free up valuable resources to take on new classes of problems rather than waste time solving the same problem over and over again.

Derived from Japanese thought
A more advanced improvement approach is called continuous process improvement. It is based on the Japanese philosophy known as kaizen, the ethic of constantly seeking incremental improvement and perfecting existing processes. Kaizen, process engineering, continuous process improvement, employee involvement, feedback loops and measurement are some of the key features of the new quality movement known as total quality management.

Continuous process improvement differs from process improvement in that it relies on a stable process, a process that is consistently followed and repeatable, one that gives reasonably consistent results.

A simple indication of a stable, consistent process is project cost and schedule estimation. If actual software development results are within 5% to 10% of the estimates more than 95% of the time, you have a good chance of having a relatively
The business goal of any airline is simple: to get maximum revenue from every available flight. But to reach that goal takes nothing less than the most sophisticated information systems.

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Whodunit?

Digital Equipment Corp. did it; so did AT&T, Sun Microsystems, Inc., Hewlett-Packard Co., Microsoft Corp. — and now, IBM has done it too. Last week, IBM became the latest of approximately 130 computer industry vendors and users to join The Object Management Group, a Framingham, Mass.-based association dedicated to the development of guidelines and standards for the creation and implementation of object-oriented systems.

Buy and cell agreement

Ameritech continued its avowed expansion path last month with the purchase of cellular communications service providers Cyberbelt Financial Corp. and Cyberbelt RSA Cellular L.P. The Chicago-based telecommunications player will pay an approximate $512 million for the Cybertel firms, which serve the St. Louis metropolitan area.

State of the Art offering

As of May 23, State of the Art, Inc. is a public company. The Irvine, Calif.-based high-technology firm and the manager of a new stock offering of 3.45 million shares at $9 per share, raising $30.9 million.

Jolly good fellows

Five employees have been named IBM fellows, winning their firm's premier technical honor and the chance to pursue their choice of projects for the next five years. Singled out for their contributions to technology were: programming languages and systems design specialist Marc Auslander, a reduced instruction set computing pioneer; Paul Bardeh, whose achievements in testing of digital circuits helped speed the Enterprise System/9000 to market; Richard Bass, noted for his contributions as a large-systems architect; Tak H. Wing, noted for his work in semiconductor technology; and Bernhard Pogge, an innovator in the semiconductor fabrication process area.

It's got the whole world in its plans

WILMINGTON, Mass. — Ian Davison is a man who likes to think in terms of the big picture, which perhaps explains his company, Octocom Systems, Inc. is not: It was founded specifically as a global enterprise.

“Our first customers were on the West Coast [of the U.S.], London and Sydney [Australia],” said Davison, president and founder of the 6-year-old firm.

Octocom, which manufactures and supports network access and management systems, has parlayed its global outlook into a financial success. Its 14.88% growth over the past five years landed it the ninth spot on Inc. magazine's 1990 listing of America's 500 fastest-growing privately held companies. Its figure of 8% of revenue derived from exports has garnered national attention. Recently addressing a group of some 350 New England-area executives, Davison expressed re- sentments on the urgency of developing export expertise, President Bush made references to Octocom as exemplary.

The company has also received the president's award, given to companies showing excellence in exporting.

Balance the key

Davison based his firm on what he calls the "bounding balance." He noted, "What we did was create a corporation that fundamentally melted together the basic attributes of European innovation, American technology and the vital commodity from the Far East, which is generally referred to as quality and support.

"If you get the bounding balance right, everything in the business will melt together," Davison said. "This means that while having good technology remains important, it should not be the overriding factor, he added. Finding innovative uses and marketing strategies for a business' technology as well as total commitment on service and support are vital to commanding a place in the global business sphere, he said.

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New face, new focus at head of MDSI

ST. LOUIS — What do you get when you divide 31 into 3? At McDonnell Douglas Systems Integration Co. (MDSI), the answer is $398 million.

In the past two years, the computer arm of aerospace player McDonnell Douglas Corp. has undergone a quiet revolution. Under the stewardship of Mark Kuhlmann, then president and now the firm's general counsel, the company switched its product emphasis from turnkey hardware systems to manufacturing and geographically isolated information systems (GIS) software. It also sold off noncore businesses and whipped what remained of its 31 company autonomous business units into a tightly focused triad: Manufacturing & Engineering (M&E), including computer-aided design and manufacturing (CAD/CAM); Infrastructure Solutions, or GIS; and Information Systems, which includes outsourcing and systems integration consulting.

Emphasis on standards

Additionally — and critically — MDSI "embraced standards wholesale," said former M&E head John Mazola, who succeeded Kuhlmann as MDSI president in April. The move to open systems, he says, makes the firm "possibly the only CAD/CAM vendor that isn't hardware aligned."

As a result, in 1990, the firm that for years had been swash in red ink posted its second consecutive year of solid profit, tripling its pretax earnings to $11 million on worldwide revenue of $398 million, some 90% of which came from external sales. It also logged a cash flow increase that exceeded its plan by $40 million, something about it," Goodman explained. Recession clouds are also not as threatening to Octocom's future as they are to the bottom lines of many other firms. Recession in one part of the market is often offset by increased activity in another sector, Davison said. "U.S. business could halve, and it would have no effect [on us]," he said. "We'd just pick it up from somewhere like Indochina."

Being able to ride out regional downturns is a key Octocom strength, agreed Andrew Bendheim, director of the Massachusetts Office of International Trade. "There are a lot of market opportunities out there, but the only way companies will benefit is if they go into them and do..."
Whole world
FROM PAGE 79

cycles,” Bendheim said. “Not everybody goes into recession at the same time as Boston or New England.” Working in a global marketplace also allows the firm to compete in arenas that are far less competitive than the crowded domestic scene, he added.

So far, the formula certainly seems to be working for Octocom. Last year, as the U.S. recession battered the bottom lines of many firms, Octocom logged a 40% growth in revenue.

Global foresight
In addition to seeing the international advantage before “global” became an industry buzzword, Octocom has also benefited from an early and consistent focus on service and support. Its two support centers in the UK and the U.S. operate 24-hour call-in centers, Jeff Shaw, vice president of global support operations, said he takes to heart the Avis, Inc. principle of “We try harder.”

“Sometimes we do things that aren’t always cost-effective for us,” he said. For example, “We send a guy to Japan, and he doesn’t leave until the problem is fixed. But that’s the attitude,” he explained.

Shaw noted that the international aspect can make for some unusual hours, citing a 2 a.m. walk-through with a client to try to isolate a problem.

“That’s just the kind of stuff you have to do,” he said. “Working internationally, you just understand time zones and just think differently.”

Octocom moves its products through a series of local distributors, except in the UK, where it operates a wholly owned subsidiary. According to Sales Vice President Rob Scott, this distributor network serves a number of purposes. It establishes a company presence quickly and inexpensively by sidestepping issues such as language barriers, company registration, mandatory hiring of local employees and the lengthy process of getting import approval from the local post office, he said.

The distributor base currently represents about 80% of the firm’s business, although there are plans to add more subsidiaries, Scott said. “We’ll pick off the individual countries where we feel we’ll make the best impact with direct sales,” he said, referring to nations with a current high rate of sales or areas in which a distributor is not doing well.

Davison, who said he would like to see sales increase by as much as 60% next year, also expects regional markets to slowly adapt to a more global perspective. “By the time we get to the millennium, most people — bankers, lawyers, whatever — will have the same concepts of expectation with equal amounts of innovation, fundamentally applied technology and service and support.”

INTERNATIONAL BRIEFS

Sharp thinking
► Japan’s Sharp Corp. and Samas-Groep NV, the Utrecht, Netherlands-based parent of Sharp’s Dutch distributor, Orman BV, have teamed up to establish a Sharp sales subsidiary in Houten, The Netherlands. Opened last week, the new concern is aimed at reinforcing Sharp’s distribution channels in The Netherlands in time for the scheduled 1992 unification of the European Community market. Sharp and Sama said they are targeting the $33 million mark for their venture’s first-year revenue; second-year sales are projected at $48 million.

What’s up down under
► Despite structural casualties, the Australian information technology industry will continue to outperform the nation’s economy, according to market research firm International Data Corp. Australia. Hardware sales will slow considerably, gaining by only 5% between now and 1995; software and services, which are projected at 16.3% growth by 1995, will help fuel industry growth, the firm said.

Which of these people are technology motivated?

New report reveals how to differentiate Technology Motivated Individuals.

A new independent study proves there are factors far more important than traditional demographics in determining who purchases technology. Called The TMI (Technology Motivated Individual) Study, it’s the first psychographic study involved in the decision making process. It defines their interests, environment. And how to influence them.

The TMI Study important conclusions for people involved in marketing technology, arrived at by interviewing hundreds of people across the country. This TMI Study was conducted independently by the Technology Group at FCB/Leber Katz Partners Advertising, Lieberman Research East and the publishers of Scientific American. For more information, or a free presentation on the complete study, call Laura Salant at (212) 754-0590.

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   25. Director, Planning, Administration, Data, Comm.
   30. Systems Analyst, Support, IS/DS/IT Management
   35. General Manager, Systems, Software, Developing
   40. Manager or Director of Programming, Software, Development
   45. Systems Integrators, VARs, Computer Services, User, Other

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Roger A. Peterson
Director of Information Systems
Kawasaki Motors Corporation

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COMPUTERWORLD
The Newsweekly of Information Systems Management
**NEC to plow profits into microchips**

**BY LORI VALIGRA**

Tokyo — Although microchip sales, notably in memory chips, dragged its bottom line down last fiscal year, NEC Corp. plans to pump up semiconductor production this year.

NEC recently announced that declining memory prices drenched 1990 net profits to $1.18 billion. According to industry projections, investment by Japan's semiconductor companies will be off this year from the double-digit growth logged in recent years to only 5% of sales, the result of soft personal computer sales and trade pressure from the U.S.

Nonetheless, analysts here said they expect chip makers to put their money behind next-generation 16M-bit dynamic random-access memory chips starting this year and continuing into 1992.

NEC, which produced $5.58 billion worth of semiconductors in its most recent fiscal year ended March 31 — a 6.6% year-to-year increase — plans to produce 10.3% more microchips of all types this year for a total valued at $6.15 billion, the company said. The figures include both captive consumption and overseas sales of microchips.

- Last year, NEC consumed 27% of its overall production. This fiscal year, which began April 1, it said it plans to use 25% of its production in its own products.
- Last year, the firm exported $819.23 million worth of microchips, not counting parts made overseas and exported to other countries — a 5.8% decrease from the previous year. This year, it expects to export $892.31 million, an 8.9% increase.
- Last year, NEC invested $807.69 million worldwide; this year, it plans to invest $923.08 million.

The firm is currently plowing $384.62 million into a new plant in Japan to be called NEC Yamagata Ltd. It is scheduled to be completed in the third quarter of 1992 and begin trial production of custom, large-scale integrations in the fourth quarter of fiscal 1992. Mass production is scheduled for the first half of fiscal 1993.

**RISC chips from Mips**

NEC is already producing reduced instruction set computing (RISC) chips under license from Mips Computer Systems, Inc. in the U.S. It is now shipping and producing the 40-MHz VR3000 chip, which it claims is the fastest in the world, and is gearing up to produce the VR4000, which will likely be produced in Japan.

NEC said the VR4000 is its opportunity to become a big player in the microprocessor market. Although it produces complex instruction set computing (CISC) chips, its proprietary V series, it admits to being behind in the CISC area.

"NEC doesn't have the CISC products to be a majority producer, but we do have a chance in RISC," said Hajime Sasaki, vice president and director at NEC, in a recent press briefing. Along with Kubota Corp. and Sony Corp., NEC has joined the Advanced Computer Environment Initiative, a U.S. effort to promote the Mips RISC chip as a standard.

Although strong in semiconductor memory technology and products, Japanese companies have lagged behind U.S. firms in microprocessor development.

Industry observers here said they see the VR4000 as a product that could transform NEC into a major microprocessor producer, as it plans to make the VR4000 in Japan. "We have the production capacity to produce whatever amount is needed," Sasaki claimed.

NEC said it plans to make a total of 100,000 VR3000 and VR4000 Mips RISC chips per month in 1992.

In addition, the firm said it is planning to develop its CISC architecture further to use the V60, 70 and 80 microprocessors in applications, including embedded controllers, customized processors for factory automation and telephone switching.

It is now making 1.5 million microprocessors per month in the 16- to 32-bit V series and about 30,000 monthly of the V60, 70 and 80 CISC products. The firm is covering both bases, as Sasaki said RISC CPUs could be used instead of CISC chips in low-end products.

NEC sent a sample of the 50-MHz VR4000 to Mips in April for testing, which is expected to be completed this month, Sasaki said.

In addition to focusing on memory and RISC chips, the firm is pushing into Application Specific Integrated Circuits (ASIC). NEC now has 18 ASIC design centers overseas and plans to add new centers this fiscal year in Toronto and Houston and two centers by March 1993 in Rome and Madrid.

NEC's European Technology Center, established last October in Dusseldorf, Germany, to make ASICs for the European market, will release its first product, an 8-bit microcontroller to be used in mobile communications appliances, this fall.

By the end of fiscal 1992, NEC said, it expects to invest $23.08 million in the research and development center, which hopes to triple its employee roster by 1995. Sasaki said future plans call for designing ASICs for cordless telephones and automobiles.

Valigra is the Tokyo bureau chief for the IDG News Service.
EXECUTIVE CORNER

Kiger captains Microterm manufacturing team

St. Louis-based computer terminal manufacturer Microterm has a new president: Stanley L. Kiger. After coming to Microterm in 1990 from Stardest Computer, Inc., Kiger served as vice president of sales until his promotion to the 15-year-old firm's presidency late last month.

Alpha Microsystems announced late last month the appointment of Chief Executive Officer Clarke E. Reynolds to the additional office of chairman of the board. Reynolds replaces co-founder Robert B. Hitchcock, who resigned from both the chairmanship and the Alpha Microsystems board.

Branchon M. Smithson, vice president of corporate development at Legent Corp., has been appointed to the additional post of chief financial officer at the Vienna, Va.-based systems software and services vendor. In his new capacity, Smithson—who returned to Legent after a brief stint as vice president and treasurer at Computerland Corp.—will be responsible not only for all financial reporting functions of the firm but also for its MIS and corporate services groups. He replaces Arthur F. Knupp Jr.

Washington, D.C.-based Computer Law Association heads into the summer with a new slate of officers and directors in place. Leading the approximately 1,400-member international association are newly elected President Yves R. Simoet of Washington, D.C.; Vice President Edward F. Langa in Southfield, Mich.; and Secretary/Treasurer Mark L. Gordon in Chicago.

Networking and computer I/O products vendor Xylogics, Inc., elected Frank J. Pipp chairman of the board late last month. Pipp, who has been serving as a board member, replaces Bruce Bergman, who will continue to man the posts of president and CEO at the Burlington, Mass.-based firm.

So they can't accidentally fall off your desk, slip behind your coffee mug or inadvertently end up in the wastepaper basket.

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An image of a color photograph can be captured, stored and retrieved from the same folder that contains an image of a handwritten letter and other related documents.

Today, hundreds of ImagePlus systems are installed and improving productivity and customer service in banks, insurance companies, government agencies, hospitals, manufacturers, retailers and transportation companies around the world.

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UK firm buys out Nokia Data

BY DON RADOLI

OSLO — Great Britain's International Computers Ltd. (ICL) has announced that it will acquire Nokia Data Systems for $391 million. The cash and stock deal, consisting of $85 million in cash and $306 million in preferred stock, is expected to be formally completed by Sept. 30. In addition, Finland's Nokia conglomerate, which owns Nokia Data, will take a 5% stake in ICL at the time of flotation.

Although ICL Chairman and Chief Executive Officer Peter Bonfield and Nokia Data President and Chief Operating Officer Kalle Isokallio downplayed the role of Fujitsu Ltd. in the takeover, industry observers said Fujitsu had a hand in the deal.

The merging of Nokia Data and ICL will result in an expanded European computer company with a total of 24,000 employees and some $4 billion in revenue.

"The merger will place the new company in the top three [computer firms] in the UK, Finland, Sweden and Denmark and together with its majority shareholder, Fujitsu, in Spain," Bonfield said. "It significantly strengthens ICL's market position in Germany, France and Holland. This move is an important one."

Better left unsaid

Perhaps more important is what Bonfield and Isokallio did not say. First, they did not want to comment on Fujitsu's role in the takeover. The move is bound to be interpreted as a Japanese attempt to acquire European market share and distribution channels.

Second, the move means Nokia Data will have to work out a new arrangement with France's Groupe Bull, whose products it distributes in Finland. Bull is reportedly infuriated that Nokia Data carried out secret negotiations with ICL while also negotiating with Bull.

The Bull/Nokia Data negotiations collapsed after only two weeks. The two companies reportedly had a "gentleman's agreement" not to negotiate with other companies during the five months the negotiations were scheduled to last.

Nokia Data offered a simple explanation for its choice: ICL has the money, while Bull is drowning in a flood of red ink.

Kiger writes for Computerworld, an International Data Group publication.
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And see how easily you adapt to a product that adapts to you.
Cable TV is your best IS bet in broadcasting

Cable TV operators and programming providers are becoming hungry for seasoned professionals

BY ALAN RADDING

If you’re looking for an information systems position in television and have been scanning the major networks, change the channel. The fast-growing cable television companies are where you’ll find opportunities.

Although some IS skills are in demand throughout broadcasting, particularly in local-area networking and personal computer-to-mainframe connectivity, the industry is consolidating and retrenching.

Cable TV is an exception, however. Cable TV offers the most promising entry into the field.

Much of the systems work in TV revolves around the sale of advertising and the scheduling of programs with the help of specialized industry applications.

In cable TV, the IS effort aims at managing and servicing the subscribers. Systems are generally small — primarily minicomputers and PCs — and business knowledge is important.

Individual cable TV systems are typically part of larger multisystem groups. New services, such as pay per view, in which computerized systems turn particular services to subscribers on call at a moment’s notice, add to the IS challenge. Cable TV industry-standard packaged software is used widely.

Large cable TV operators, however, are beginning to develop applications on their own. At Continental Cablevision of New England, which uses the largest of eight Continental data centers, the IS group now develops SQL applications for PCs, reports Bob Tekin, MIS director.

Tekin prefers to hire people with a professional IS background, but “I’m thrilled if I can get someone with DP and cable experience,” he says, because the cable industry is so young.

Continental Cablevision of New England employs IS professionals “who like the challenge of developing software with DP and cable experience,” he says, because the cable industry is so young.

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Continental Cablevision of New England employs IS professionals “who like the challenge of developing software with DP and cable experience,” he adds.

Major league

Network television — CBS, NBC and ABC — is the major league of the broadcast industry. Here, an IS professional will find the largest IS organizations and the highest pay, although the weak economy has forced the networks to cut back.

During that time, CBS spun off nonbroadcast businesses. The CBS data center manages the network’s inventory of air time, handles pricing, billing and affiliate payments and supports a network of more than 2,000 terminals and PCs spread throughout the organization.

The company also supports an active application development organization, where a major effort is under way to create a corporatewide data warehouse using SQL and fourth-generation language technology to give users throughout the organization access to a variety of different data.

Lalli says. As a general rule, CBS looks inside for most IS staff. When CBS hires from the outside, it looks for specialized computer skills — particularly CICS, DB2, SQL and telecommunications, according to Lalli.

IS salaries at CBS and the other networks are comparable to IS salaries at the largest Wall Street firms, he reports.

The next level down are the large multisystem cable TV operators and the large conventional broadcast station groups, which have also been hit hard by the recession.

At this level, most companies use minicomputers — particularly IBM System/36s, 38s and Application System/400s, according to John DiProfano, vice president at Milford, Conn.-based Group W Information Services, which is a division of Westminster Broadcasting Co.

PCs and LANs, however, are growing in importance and may present increasingly promising IS career opportunities, DiProfano says.

With an IS staff of 68, down from more than 100, Westminster-house is one of the larger station groups in the IS business. Salaries are competitive, if not a little better than elsewhere.

Individual stations, at the bottom of the hierarchy, generally use service bureaus or run small PC-based or turnkey minicomputer systems with little need for professional IS staffs.

Radding is a free-lance writer based in Newton, Mass.
Gain management experience

Fast Track is a biweekly column dedicated to answering questions on career directions.

BY STEVE FOGLE SPECIAL TO CW

Job opportunity.

Q I've been chief information officer at a Portwine, 1,000 firm for the past five years and am ready to make a move. How would you suggest I leverage my 15 years of information systems experience into a new position? Initials and town withheld

Obviously, you could take on a new CIO position in a larger and more challenging company, but I would suggest that you investigate other alternatives as well. For example, take on any type of general manager responsibility, including running a small company division or assuming some of your current company's chief operating officer. This will help you in your current company or in any future job opportunity.

Q I am a city and regional planner with two master's degrees in civil engineering and urban planning. I'm pursuing a graduate degree in IS in database design. Should I seek a position as a database administrator, stay in the government IS department or become a consultant?

A Spending all of your IS years in government may limit your mobility in the future. After you complete your degree, you may want to make a transition into the corporate world.

Q I am an independent personal computer network consultant interested in short-term contracts overseas. What kind of market exists for this type of work? F.M.S., Montvale, N.J.

A There is a small market for this work. The best contacts may be from the jobs you have already completed. In addition, get in touch with international trade commissions and agencies in target countries and ask for their insights.

Q I am a student majoring in IS and minor in finance. I want to work with a New York-based brokerage firm developing trading systems and software. How can I prepare myself?

A Pursue a summer internship in a brokerage firm. Experience will be the best training.

 badly in the project. The position typically involves long hours, pressure, and may help bridge your government background into industry if you join a generalist firm. However, I would recommend you broaden your IS experience first.

Q I'm seeking an associate's degree in IS, but I'm concerned that when I graduate, my Pick systems background will limit prospects for a better-paying position. I believe I found some specialized training to improve my chances.

A Finding a position as a Pick systems is difficult. This way, you can pick up training on other systems while using your previous experience. Also, finish your associate's degree and then pursue a bachelor's degree in IS. Your compensation will increase as you gain more experience and education.

Q Are there any colleges in the Denver area interested in the pursuit of a major in information systems?
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President
Devon Consulting

For almost 10 years, Devon Consulting has been staffing large data-processing shops in the Philadelphia area with temporary high-tech programming professionals. As President Joel Adams explains, the firm essentially provides programmers, technical writers, and DP specialists like systems programmers, software engineers, and database administrators to companies on a contractual basis as needed. Looking at the specialized computer skills required by their ever-expanding client base, he knows their recruitment message must reach the most qualified audience available. So, like fellow NACCB members who report favorable results, he, too, advertises in Computerworld.

"Our clients - banks, insurance firms, pharmaceutical and chemical companies, and software developers - typically require seasoned professionals with unique, hard-to-find skill sets. However, professionals with a minimum of three years' experience in specific technical areas are often few and far between. To fully satisfy our clients' objectives, I need to target an audience with very technical expertise. With its highly qualified readership, Computerworld is crucial in helping us make that match.

"As we began to expand outside the immediate area into New Jersey and Delaware, our need to reach a wider technical base grew as well. Unlike our advertisements in Sunday editions of local metropolitan newspapers, our recruitment advertising in Computerworld draws qualified candidates not only from New Jersey and New York but also from all around the world. It's by far our single most-effective vehicle for reaching our target audience. Clearly, our recruitment advertisements in Computerworld cost less than in other newspapers and produce higher quality responses. In the past two weeks, for example, nearly 20% of the resumes we received came from Computerworld alone.

"In our business, recruitment results like these are key. In 1990 we placed about 135 new starts in addition to the employees we already had in place. This year we expect that number to total 165 or possibly higher. To ensure that Devon Consulting continues placing the right professionals in the right jobs, we fully intend to run an ongoing recruitment advertising schedule in Computerworld. When it comes to advertising, we believe that consistency is just as important as the size, message, and vehicle.

"Overall, our Computerworld recruitment advertising fulfills a threefold purpose. First and foremost, it's invaluable in recruiting all the top technical talent we need. It also helps us gain share of mind among a highly qualified base of readers. Finally, we know our clients read Computerworld and view its advertisers as significant players in the industry. When they read our advertisement, then, they see Devon Consulting as an advertiser in the industry's trade journal. That kind of presence only enhances our company image."

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The World Bank is seeking a Training Specialist to assist the training program as they plan new projects and evaluate existing training plans for the Ministry's Technical Training Unit. The position will be based in the Ministry's Office of Project Management. The selected individual will be responsible for the development and implementation of training plans and programs for the Ministry's technical training needs.

Requirements:

- A Bachelor's degree in Computer Science or a related field is required.
- A minimum of 5 years of experience in the design and delivery of training programs.
- Experience in the development of training programs for technical training needs is essential.
- Experience in the use of training databases and web-based learning management systems is beneficial.
- Knowledge of instructional design principles and methods is required.
- Excellent communication and technical writing skills are essential.

Interested candidates should submit their resume to The World Bank, Office of Project Management, 1818 H Street, N.W., Washington, D.C. 20433, ATTN: Robin Bagby. Please visit the World Bank's website for more information.

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Requirements:

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- Two to five years of experience in insurance sales is required.
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If you have energy and are able to prospect, demonstrate, and close large software systems sales you may qualify. We offer an excellent compensation plan with six figure income potential, full benefits and 401K with matching funds. Outstanding people with a competitive spirit and the ability to meet and exceed goals are encouraged to apply.

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Computerworld’s Total Audience by Job Function

<table>
<thead>
<tr>
<th>Function</th>
<th>Audience</th>
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<tbody>
<tr>
<td>Information Systems</td>
<td>383,140</td>
</tr>
<tr>
<td>Engineering</td>
<td>66,222</td>
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<tr>
<td>Sales/Marketing</td>
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<tr>
<td>Other</td>
<td>52,652</td>
</tr>
<tr>
<td>Total</td>
<td>629,204*</td>
</tr>
</tbody>
</table>

SOURCE: Skill Survey of Computerworld’s Audience, May 1989. Includes 8,673 complimentary copies distributed to computer and marketing professionals. Total readers or paid subscribers (does not include 8,673 complimentary copies).
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“Our customer base includes just about everything from A to Z - small start-ups, government agencies, the Fortune 100, Big Six accounting firms, software developers, and manufacturing companies. Trying to reach every potential user of our services is where Computerworld’s breadth and depth of coverage really pays off. I see Computerworld’s Marketplace Pages being read by an excellent cross section of professionals - both decision makers and doers - who are in a position to use our services.

“For 10+ years, no other classified advertising vehicle, and we’ve tried them all, has been as fruitful as Computerworld’s Marketplace Pages in delivering results. In fact, Computer Reserves is the oldest continuous advertiser in the Time/Services section because it’s keyed directly to our business.

“Based on our volume of leads, we know that buyers who can use our services read Computerworld’s Marketplace Pages. Since we carefully track every lead, it’s clear that the largest percent of our advertising-generated leads come from one source - Computerworld’s Marketplace Pages. And, with company placements and profits having grown tenfold since the mid-1980’s, it’s fair to say that a substantial number of these quality leads typically become productive business. As an extra benefit, Computerworld’s Marketplace Pages have brought us many of our best service providers as well.

"I’m a firm believer in the value of advertising continuity, especially when there’s an immediate need and high demand for value-added services like ours. I also believe that advertising should be commensurate with growth. Having orchestrated four major outsourcing placements in just 18 months, we need to maximize our exposure in the computing services marketplace. That’s why Computer Reserves is now running in Computerworld’s Marketplace Pages - our tried-and-true advertising platform - every week."

Computerworld’s Marketplace Pages. It’s where computer buyers meet computer sellers - every week. Sellers and buyers such as Computer Reserves, Inc. who advertise in Computerworld’s Marketplace Pages, reach over 629,000 information systems professionals, and get results. To put your classified sales message into the hands of America’s most influential buyers, call John Corrigan, Vice President/Classified Advertising, at 800/343-6474 (in MA, 508/879-0700).

- Don Seiden
President
Computer Reserves, Inc.
IS shops can cut costs with third-party fixes

BY ALICE LAPLANTE

W ith the economic heat turned up full blast, savings offered by third-party maintenance vendors can look attractive to information systems shops seeking to trim operating costs.

Very attractive.

IS managers say they can save upward of 50% on annual contracts for large systems by going to a third-party firm rather than IBM, Digital Equipment Corp. or Wang Laboratories, Inc. In addition, IBM, Digital Equipment Corp. or additional services free of charge.

A growing number of well-established maintenance providers can offer an economically appealing. They caused Robert Lopez, telecommunications manager at the Aerospace Division of Fairchild Industries, Inc. in Culver City, Calif., to switch his maintenance contract from IBM to a third-party provider. He estimates that his current contract with Sorbus for his firm's 3081 and 4381 mainframes saves him $16,000 to $24,000 annually.

"IBM still approaches me every year, and I tell them to give me their best shot," Lopez says.

"But since the competition is always 10% to 20% lower, I have to say no.

Moreover, Lopez says, Sorbus offered more for that lower price. Lopez's firm gets value-added services such as free installation of new machines and de-installation of older ones, guaranteed caps on annual price increases and contract exit clauses. Some IS managers say vendors became overly confident of their business and then wound up providing shoddy service, which caused customers to look elsewhere.

"IBM became complacent, didn't respond to service calls and didn't have the right technical people in place," says George Tabback, director of corporate IS at Ingersoll-Rand Co. in Woodcliff Lake, N.J. He recently signed a contract with Sorbus, which provides "excellent and responsive service," he says.

At TICraft, Inc. in Glen Rock, N.J., electronic desktop publishing director Patrick J. Lee says his current maintenance provider - U.S. Computer Maintenance, Inc. - "gets malingering systems up and running much faster than his vendor, DEC, ever did. Moreover, his annual costs have been cut in half. Sometimes I felt DEC was using our site as a training ground for younger technicians," Lee says.

Resisting temptation

At the other end of the spectrum, many IS managers argue that the manufacturer is the best choice to service a system — even if costs more. Not only does the vendor know the equipment better than anyone else, but signing the maintenance contract can also further solidify a good vendor/client relationship.

"I am guaranteed the latest revision levels for boards and system software as well as the highest quality of preventive maintenance," says James S. Kurz, manager of IS at Stanley Magic Door in Farmington, Conn.

Frank Herriott, IS director at Westminster College in Salt Lake City, continues to sign contracts with Mips Computer Systems, Inc. and Prime Computer, Inc. for the same reason. "I like the comfort factor, and I like the extra attention my vendor gives me for being a good customer.

Beyond today

Moreover, firms that invest in leading-edge technology say they simply don't have a choice.

Third-party providers just don't have the expertise to service their equipment. "We periodically visit with third-party maintenance people to see what they have to offer, but they aren't in a position to maintain a good part of our inventory," says Fred L. Heger, vice president of IS at Southwestern Bell Telephone Co. in St. Louis, which uses IBM and Unisys Corp. as maintenance providers for this reason.

Many IS managers also doubt the financial stability of third-party firms. Sometimes, the best offers are made by start-ups with no solid customer history. IS managers can take a significant risk by hiring such firms, according to Ivan Gelb, president of Gelb Information Systems Corp., a systems consulting firm in Brooklyn, N.Y. "The financial incentives offered by such organizations can be substantial, but," he asks, "is it worth it?"

At the Hotsy Corp., in Englewood, Colo., IS director David Long stuck with the maker of his system, Prime, to service his CPU, despite tempting offers from third parties. "They just didn't have a track record that made me comfortable," says Long, whose caution turned out to be justified. Of the three third-party firms in his area that work on Prime systems, two have gone out of business, and the third is in a "suspicious" financial state, Long says.

Even satisfied customers of third-party vendors urge caution. Lee visited U.S. Computer's repair facilities as well as some of its customers before deciding the firm was reliable. "Don't sign anything until you've talked to other customers," he advises.
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**The BoCoEx Index on Used Computers**

Closing prices report for the week ending May 31, 1991

- **IBM**
  - Model 176
  - Model 399
  - Model 239
  - Model 339
  - Model 30-286
  - Model 60
  - Model 70P
  - Compaq Portable II
  - Portable 286
  - SLT 286
  - Portable 386
  - LTX 286
  - Deskpro 286
  - Deskpro 386/20
  - Apple Macintosh Plus

**Closing prices**

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JUNE 10, 1991
STOCKS

INDUSTRY ALMANAC

RECOMMENDATION CHANGES


DOWNGRADED FROM MODERATELY ATTRACTIVE TO VERY ATTRACTIVE: Goal Systems International, Inc. (Donaldson, Lufkin & Jenrette, Inc.). Reason: Good long-term buy because domestic sales are slow. Company indicated it may pick up.


UPGRADED FROM NEUTRAL TO BUY: LSI Logic, Inc. (Alex. Brown). Reason: Big profits should come from an expected surge in orders for Scalable Processor Architecture and reduced instruction set computing chips. Company has hired new managers in the key areas of new products, finance and operations.

UPGRADED FROM NEUTRAL TO BUY: IBM (Alex. Brown). Reason: Both mainframe and personal computer markets are saturated. New Enterprise System/9000 mainframes unavailable until the second half of 1991, and bridging strategies have failed to generate interest. Price cuts on low-end RISC System/6000 signal a crowded desktop arena.

UPGRADED FROM HOLD TO BUY: Marshall Industries (Prudential Securities, Inc.). Reason: Although prospects for electronic distributors are currently poor, Marshall’s earnings look good over the long haul. Stock is currently cheap enough that any negative financial news will not greatly affect its price, but be aware that it is a high-risk proposition. Expect explosive profit growth once economy picks up.

UPGRADED FROM NEUTRAL TO BUY: LSI Logics, Inc. (Alex. Brown). Reason: Big profits should come from an expected surge in orders for Scalable Processor Architecture and reduced instruction set computing chips. Company has hired new managers in the key areas of new products, finance and operations.

KIM S. NASH

STOCK TRADING INDEX

CLOSING PRICES, JUNE 7, 1991

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- After JWP, Inc. said it will take over Businessland, Inc., shares in the financially troubled retailer gained 1% of a notch to 14%; JWP dropped 1% points to 17%. Elsewhere on the retail scene, Intelligent Electronics, Inc., which four weeks ago unveiled plans to acquire Bismarck, Inc., jumped 1% points last week to 23, while Bismarck slipped 1% of a point to 68%.
- Among semiconductor issues, Texas Instruments, Inc. picked up 1% points to 90%, while Motorola, Inc. stumbled 1% of a point to 68%.
- Elsewhere, action was mixed. IBM fell 1% points to 102; Lotus Development Corp. declined 2% points to 32%; KnowledgeWorks, Inc. tumbled 5% points to 27%.

Computerworld Friday Stock Ticker

STOCK TRADING INDEX

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Multimedia boost added to Apple's System 7.0

BY JAMES DALY

CUPERTINO, Calif. — Apple Computer, Inc., added a multimedia booster to its System 7.0 operating system engine last week when it introduced Quicktime, a software extension designed to make the integration of sound, video and animation into Macintosh applications more software, file formats, compressors and interface standards — that provide the functional foundation necessary to build multimedia applications. The features allow users to compress and decompress photographic images, play video clips and extend the Macintosh user interface throughout the presentation, Apple officials said.

While Quicktime will work with any of the standard Macintosh II computers, the various memory appetite of most multimedia applications will probably require system upgrades. At least 4M bytes (preferably 8M bytes) of random-access memory, as well as 160M bytes or more of hard disk space are suggested. Users will also need at least an 8-bit color screen with 640- by 480-pixel resolution and at least 8 bits of digital audio sampling.

Because Quicktime will make multimedia accessible to new segments of users, the package could lead to the creation of applications in virgin areas such as videoconferencing, store-and-forward video mail and low-cost video editing, Apple said.

Quicktime will be distributed as an add-on package until the next major revision of the Macintosh operating systems, which insiders said they expect will arrive next year. Current distribution plans call for a beta-test release of Quicktime to head out to developers this summer and general availability by the end of the year. No price has been set yet for the package.

In related multimedia news, Microsoft Corp. revealed plans to license image compression technology from Xing Technology Corp. Microsoft officials said they plan to use the licensed software in conjunction with their operating system.

Unisys unwraps I486 CTOS

NEW YORK — Unisys Corp. introduced last week an Intel Corp. I486-based version of its CTOS networked computer line composed of plug-in and self-configuring components.

Unisys said the new design will cut down on costs associated with technical support calls from users of these workstations.

The firm unveiled two CTOS workstations.

The $2,995 diskless SuperGen Series 2000 uses an Intel 80386SX running at 20 MHz, 2M to 8M bytes of random-access memory and built-in networking.

The $13,955 SuperGen 5000 contains an I486 chip running at 33 MHz, 4M to 36M bytes of RAM, a 32-bit bus, a 3/4-in., 1.44M-byte floppy disk and a small computer systems interinterface adapter, among other I/O ports.

Both systems use plug-in cartridges, slide-in drives or slide-in expansion units, and all add-in components are encased in copper-galvanized plastic to prevent electrostatic discharge damage and to provide ease of handling.

Both of the Supergens support Super VGA video monitors with up to 1,024- by 768-pixel resolution.

Unisys leasing arm tackles $3.8B debt

BLUE BELL, Pa. — In a move designed to pare its $3.87 billion debt, Unisys Corp.'s leasing arm last week sold lease receivable-backed certificates for $131 million in cash.

The transaction for the Unisys Credit Corp. certificates was conducted privately by Unisys Finance Corp. in Detroit.

According to a Unisys spokesman, the sale to approximately 40 undisclosed investors gives the buyers fractional ownership in the leasing company's trust property, which includes future payments due from customers and related rights and interests.

While the lease certificate sale, Unisys was able to announce that its debt reduction program began early last year, he noted. Unisys has said its debt reduction target this year is $600 million.

IBM plans a multimedia product announcement this week that represents a major step in its commitment to a broad, desktop-to-mainframe multimedia strategy that will take fuller shape in the fall.

"[Multimedia] is one of the top half-dozen corporate strategies stated in the 1990s," said Peter Blakeney, manager of market programs, multimedia and education at IBM in Atlanta.

"The reason that it is so important is that you add these functions — video, image, audio, animation, control over different user interfaces which are collectively called multimedia — to theREST built-in processors and application programs. What you end up with is a huge set of opportunities."

John Dunkle, vice president of Wenowich Technologies, Inc. in Hampton, N.H., said IBM is pointing toward the fall announcement to define its multimedia direction.

The products due on Wednesday, part of a general personal computing products announcement (see story page 1), include two multimedia kits directed at training and desktop presentations: the 8516 Touch Display, a touch-screen IBM Video Graphics Array monitor radically different from IBM's current InfoWindow touch-screen monitor, and a 128M-byte 3/4-in. rewritable optical disc drive. There will also be an Information Delivery System, essentially a Personal System/1 with a compact disc/read-only memory drive added to it, that will serve as IBM's low-end multimedia platform, and a device that will let users access information they may not be able to manipulate on their own systems.

The kits will work on all Personal Systems/2 models with the Micro Channel Architecture bus or anything above a Model 50. They mix current technology with new products at a price lower than what the pieces would cost separately.

The training-oriented kit includes IBM's M/Motion video card, a laser disc player and audio speakers, all in existence today. The kit for desktop presentations includes IBM's M/Audio sound recording card and the new optical disk drive, Blakeney said IBM would follow this marketing approach with future releases.

IBM is working for an August introduction of Enhanced Digital Video Interactive, sound and data. It will follow this with a major announcement late in the third quarter. Sources said this will include a fully integrated multimedia PC and packaged peripherals and software aimed at the manufacturing and education markets; other possibilities are being discussed.

Jim Bajarin, executive vice president of Creative Research Strategies International, Inc. in Santa Clara, Calif., said IBM will need to work with strategic partners in a variety of areas, including data compression and communications, to make the strategy work.

But, he added, "I've been watching IBM work for many years, and this is the first time I've seen them attack a concept correctly, really embrace it in and as a result develop the right technologies and strategies to make it happen."

TIM BAJARIN
CREATIVE RESEARCH STRATEGIES
NEWS SHORTS

PC cuts roll along
Following an across-the-board price cut in April, Toshiba America Information Systems, Inc. has taken the ax to prices on its T1000XE and T1000SE notebook personal computers again. The Intel Corp. 8086-based PCs will now cost $1,399 and $999, respectively. Everex Systems, Inc. and Hewlett-Packard Co. last week joined the price war that has gripped IBM, Compaq Computer Corp., Dell Computer Corp. and others. Everex cut prices 18% to 33% on all Step desktop PCs and 15% to 25% on Tempo desktop models. HP trimmed prices on its Vectra PCs by up to 10% and on storages by up to 33%.

NFN goes commercial
Advanced Network & Services, Inc. (ANS), the consortium that manages the National Science Foundation's NSFnet, announced last week that it will open the high-speed government and education backbone to commercial users. The commercial NSFnet service will be provided by the recently formed ANS subsidiary, ANS Co+RE Systems, Inc. Profits from the service will be used to improve NSFnet's infrastructure, said Allan H. Weiss, president and chief executive officer of ANS. Non-profit customers will pay less than commercial customers for NSFnet use, he added. Likely customers for the new service include information services, computer companies and contractors that want to communicate with government and research groups, Weiss said.

Apple cuts from the top
Top Apple Computer, Inc. executives can expect to have their pockets picked by as much as 10% as part of a broad cost-cutting program the firm recently adopted, according to an internal company newsletter. Last year, Apple's five highest paid executives earned nearly $10 million in salaries and bonuses. Day-to-day services, computer centers and some field centers may also fall under the cost-cutting ax, an Apple spokesman said. The company recently announced plans for widespread belt-tightening measures that include the elimination of about 1,560 jobs, or about 10% of its work force.

U.S., Japan limit super sales
The U.S. and Japan agreed to tighten their export controls to prevent supercomputers sold abroad from being used to develop nuclear weapons and missiles, the White House announced late last week. Such a move is expected to further restrict the export of software programs — will be imposed on supercomputers exported to countries that "pose a national security or [nuclear] proliferation concern," and some export applications may be denied, spokesman Marlin Fitzwater said. The company recently announced plans for widespread belt-tightening measures that include the elimination of about 1,560 jobs, or about 10% of its work force.

U.S. Privacy Council formed
Several leading privacy advocates last week formed the U.S. Privacy Council to promote stronger privacy rights for consumers in the computer age. The Washington, D.C.-based council plans to focus on such topics as credit reports, caller identification services, privacy-enhancing technologies, lobbying for a federal data protection board and helping U.S. firms adhere to the Code of Fair Information Practices. Leaders include Evan Hendrick, publisher of "Privacy Times" newsletter, and Marc Rotenberg, director of the Washington, D.C., office of Computer Professionals for Social Responsibility.

Thinking Machines claims title
Thinking Machines Corp., a pioneer in the area of massively parallel computing, last week introduced its newest Connect- 

AT&T fines cashes in on departure from Sun

BY NELI MARGOLIS CW STAFF

AT&T's divestiture of most of its 19.1% stake in Sun Microsystems, Inc. last week will likely have little impact on the rival Unix alliances the original AT&T/Sun relationship sparked to life, according to analysts. "If this move had come several years ago, it might have had a striking impact on OSP," said Judd Harwit, vice president of the Seybold Office Computing Group in Boston. The Open Software Foundation (OSF), a Cambridge, Mass.-based consortium, is developing a Unix operating system that will compete with Sun's. It was originally mandated to prevent the Sun/AT&T combination from essentially locking all other competitors out of the Unix marketplace.

However, Harwit noted, "Things have changed beyond the catalyst stage, now." Paul Cobage, an analyst at San Jose, Calif.-based market research firm Dartazet, Inc., said the OSF has become a player in its own right. "They've established a whole new way of doing a whole new kind of business," he said. As for Sun, he said, "They got the financing from AT&T when they needed it. They don't really need it any more."

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Prime trumpets tools for 50 series

BY SALLY CUSACK CW STAFF

SAN ANTONIO — Declaring undying devotion to proprietary systems customers, Prime Computer, Inc., announced several products for its 50 series at the National Prime User Group (NPUG) meeting here last week.

"We feel good," said Cathy Van Orman, chairman of NPUG. "Prime is finally moving ahead of customer needs. Users are telling me that instead of trying to get Prime to respond to problems, they are trying to figure out which sessions will teach them the most."

The highlight of the conference was an announcement by Prime officials that, for the first time, Prime's Pick-like relational database, Information, would be available at no cost on Prime hardware from IBM and Digital Equipment Corp. sometime in the third quarter of this year.

Initial conversions have already been completed for the IBM RISC System/6000 workstation, and engineering testing is already in progress. More than two-thirds of Prime's proprietary base is used in Information's sales.

Information's sales

According to Richard Snyder, president of Prime's computer systems business unit, Prime's information accounted for 50% of 1990's fourth-quarter sales and 60% of 1991's first-quarter sales revenue.

Other product announcements included the following:

• Hyper Session, a Microsoft Windows-based product that takes data from host-based Information files and transfers it into personal computer applications such as Lotus Develop-

Bank bailout

FROM PAGE 1

programmers, applications developers and data center and computer operations employees.

Finding new jobs could be a grim task for the dismissed employees. "There are just not many jobs available," said Sara Johnson, a managing economist at DRI/McGraw Hill in Lexington, Mass. The current unemployment rate in the area is 9.6%, and the only industry adding jobs is health care, she said. However, many of those 850 data center jobs may be preserved because Fleet needs at least two check processing centers in New England, said Michael R. Zucchini, chief information officer at Fleet. "Most people expected that the technology areas would be consolidated first, but we felt it was important to announce our intentions to the staff as early as possible so they can play a role in the conversion," Zucchini said. "There is a transition period that gives us some time to help them find other positions, both internally and externally."

Albany upgrades

Zocchi said Fleet has an IBM 390 Model 720 located in Albany, and that will have to be "substantially upgraded" or supplemented with an additional processor.

The conversion to Fleet's Unix-based systems will be a mixture of in-house-developed and commercial applications chosen as a companywide standard — a mix of "house baked" software and "soup and sandwich" applications with an additional processor.

Ultimately, Fleet will close 60 Bank of New England branches in New England.

Earlier this spring, as its prospects of buying NCR Corp. brightened, AT&T spun off subsidiary Unix System Laboratories, Inc. (USL) to its computer vendors, including Sun. Last week's stock sell-off, analysts said, marked the end of the USL spin-off, both of which allow AT&T to approach the altar with NCR unfortified by old, competitively awkward ties.

The telecommunications giant will pocket a pretax gain of about $1.37 million from the transaction, under which Sun will repurchase some 5 million of AT&T's shares at $36.25 per share.
BENCHMARKING MAY BE PERVERSE BUT NOT PERSUASIVE IN THE MARKET
Benchmarks get no respect according to a recent survey.

The report by The Standish Group International, Inc. in Hyannis, Mass., said that only 5.1% of the 297 respondents involved in the purchasing of OLTP systems at medium and large-size companies considered such benchmarks to be "very important" in selecting a "short list" of possible vendors.

Conversely, 38.3% of the respondents rated common OLTP benchmarks as being "not important" in determining their choices.

James Johnson, chairman of The Standish Group, indicated that he believes benchmarks are a good thing but that it appears users were not consulted sufficiently when the existing benchmarks were designed.

"It's almost like they created all these benchmarks, but no one ever went out and said to the user base, 'Gee, what kind of benchmark would you like to see?''

Interviews with users of OLTP systems corroborated the survey results. Clarence Golson, vice president of technical support at Amounth Bank NA in Birmingham, Ala., said he believes benchmarking is highly susceptible to errors, adding that his firm prefers to subject systems to a "stress test" of its own applications to determine suitability.

Other users agreed that benchmarking was not a first choice for determining performance.

"We look first for comparable data from live environments in addition to benchmarking, performance is also secondary to the overall functionality of a system in making a buying decision.

When the Student Loan Marketing Association was looking at OLTP systems, performance was considered most crucial, said Robert Kramer, director of software development.

"The critical thing was the number of networking protocols that it worked with.

"Although Vincent, director of technology planning at Humana, Inc., concurred: "If the functionality is there, we're willing to compromise somewhat on total transaction processing efficiency," he said. "We have people who are capable enough in the areas of performance and tuning to be able to compensate for insufficiencies in an on-line transaction processing system.

"Vincent added that his company had chosen a system based on business needs, not performance abilities -- a sentiment echoed in the report.

"The report also had good news for the makers of Unix-based OLTP systems. According to the report, 23.9% of those users considering the purchase of new OLTP systems within the next three years said that they are planning to purchase new Unix-based systems.

"Nevertheless, Douglas Wilder, manager of the systems operations program at market research firm Input, Inc., noted that the retail sector has distinctly lagged behind others such as health care and banking in choosing this route.

"I talked to a guy at Toys R Us, for example, and they see their data systems as absolutely critical to their competitive edge," Wilder said. "No way do they want to outsource. Middle range banks, on the other hand, generally can't afford much [in the IS line] that is unique -- and there really isn't all that much available to them that is unique.

"Outsourcing doesn't raise the same concern.

"IBM's long-time interest in the retail segment and particularly Zale's belief that "if the functionality is there, we could bring some technology partnering to the deal" weighed heavily in the retail player's decision in signing with ISSC, Karney said.

"In late 1988, Karney left his post as vice president of MIS at Zale to become president of the financial services division of The Standish Group International, Inc.

"EVEN STILL believe... IBM is seriously committed to the retailing industry.

"DAVID KARNEY ZALE

Zale FROM PAGE 1 provide end-user support, including help desk assistance, to its approximately 1,500 desktop systems and 2,000 stores.

"We talked about worth "hundreds of millions of dollars," according to ISSC President Dennis M. Welsh.

"The key thing is that we're moving into a new area -- retail sales -- that we haven't done a total outsourcing deal in before," Welsh said.

"Zale is not the first major retailer to outsource -- Brooks Brothers, Addis & Dey, Inc. and Southland Corp., for example, have also opted for outsourcing.

"However, Zale's commitment to the retail segment and particularly Zale's belief that "IBM is seriously committed to the retailing industry" is expected to save TRW as much as $175,000 per year in maintenance and depreciation costs, Wilson said. "I'm very high on the client/server model," he said. "There's no doubt the mainframe is an endangered species.

"BATTLE OF THE GLITCHES Like many client/server pioneers in the retail community, Saskatchewan Telecommunications ( Sasktel) business manager Bob Novakowski has battled maddening network slowdowns and software glitches while fine-tuning the shift from a mainframe-based system running dedicated terminals to a distributed PC environment.

"The Regina, Saskatchewan-based telecommunications company's first shot at implementing a client/server architecture was an unqualified success, however, "the tactician Novakowski said of the original design, which hooked up desktop Macintoshes to a Macintosh FX server running Acius Corp.'s 4th Dimension database.

"Novakowski learned the first rule of client/server strategizing: Be flexible. A revamped server design using an Oracle Corp. database on a DEC Vax 3400 was installed, and Sasktel was back in the fast lane.

"It's the opening busin" said Novakowski, who now has a cost-effective open architecture that uses a graphics interface to access a traditional database.

"International acclaim The outsourcing wave has generated worldwide market in facilities and operations management

"Worldwide market size by revenue

"$32.9B

"1990 1995* Projected

"$10.3B

"1990 1995* Source: Lewenberg/Deskmag

said Darwin Deason, chairman of Zale neighbor and ISSC competitor Affiliated Computer Service.

"Deason's firm is one of several that are trying to spearhead a government investigation into IBM's business practices.

"Two days after the ISSC/Zale agreement was announced, Deason commented, "We've got a group in Washington today meeting with [the Justice Department]. You can be sure that Zale is one of the subjects they are discussing."
Plainly speaking

What's the biggest problem with speechphones? 200 executives from 1,000 large U.S. companies say:

50% Lack of privacy
34% Poor voice quality
12% Feels patronizing or impersonal
4% Don't have speaker's full concentration

What will they think of next?

A couple of unfeasible business plans venture capitalist Robert Kunze has received:
- A semiconductor chip that would make a great guitar pick if it failed.
- A high-tech keyboard for Catholics (endorsed by Pope John Paul II) with a side market—gardeners.

B utt seriously: The aluminum ashtray (at right) was made in 1959 at MIT and is the first object produced using computer-aided design. Upon the ashtray’s debut, the San Francisco Chronicle wrote: “The Air Force announced today that it has a machine that can receive instructions in English, figure out how to make whatever is wanted and teach other machines how to make it.” Today it made an ashtray.

ACRONYM HELL

Ever wonder what computer acronyms mean in other industries?

CAM
Clean Air Movement

CAP
 Coalition for Apostolic Ministry

CISC
Canadian Institute for Steel Construction

CSF
Construction Industry Stabilization Committee

PC
Periconia ciricinata (toxin-producing fungus)

PO
Plasma cell (oncology)

SC
Poor Glares (Roman Catholic women’s religious order)

SAA
Serum Amyloid A (clinical chemistry)

SNA
Sex Addicts Anonymous

SNA
Student Naval Aviator

Do you have anecdotes about your users, your boss or your job? Know any industry trivia? If so, please contact Lory Zottola at (800) 343-6474. If we use your ideas, we’ll send you a gift.

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INSIDE LINES

DOS 5.0 debut or dual?
- DOS 5.0, the Microsoft version, is slated to arrive in New York tomorrow with a flourish. Microsoft plans to speed the acceptance of the new version by distributing an upgrade-only version through the retail channel—a first for the company. The upgrade will sport a retail price of $99.95. One day later, IBM is expected to announce its version of DOS 5.0; according to an IBM source, it “will be identical but not identical” to MS-DOS 5.0. IBM, of course, has Micro Channel Architecture hardware and, most probably, OS/2 Version 2.0 considerations to address. Both versions of DOS are expected to be compatible, however.

Do it yourself!
- Apple is readying the release of Tech Tool, a handheld diagnostic box that plugs into the Macintosh’s small computer systems interface port and can determine what is wrong. The unit, formerly called The Black Box, will go out to service providers in September and to everyone else next year. The Cupertino, Calif.-based firm is also working on a network design simulator tool to help during systems design.

Can’t make up their minds?
- Sources at NCR say its System 1325 notepad is still changing, despite a June 24 announcement date. In the last two weeks, NCR has killed an optional 20M-byte hard drive. Also, reports that the Intel 80386SL-based box will have a six-hour battery life are wrong; NCR is only telling customers it will reliably last four hours. The sources did say that when unveiled, the box will weigh 3.9 pounds and use a flash memory card.

Transition casualty
- Several rumors out of AT&T say the company has killed a ready-for-market 386 follow-on board based on a new Mips Computer Systems chip set. The follow-on board would have allowed users to upgrade easily to the Mips-based System 7000, which AT&T gets via OEM channels from Pyramid. This would not be compatible with NCR’s System 3000 family. Instead, AT&T will speed development of an alternate Intel 1486-based board to migrate 382 users to the System 3000.

Live and under the Sun
- Lotus is scheduled to announce tomorrow a real-time version of 1-2-3 for Sun Microsystems’s Unix. Also participating and demonstrating related products will be Teknekron Software Systems, Sybase, Reuters Information Services, JTV (a consortium of Wall Street firms) and FDX/Tolerate System, Inc.

Put your whetstones in this!
- During the debut of Intel’s newly announced 86000-XF RISC chip, Gordon Bell, chief scientist at Star-

Building a facility network requires many decisions. And none is more critical to the network’s success than your choice of smart hubs.

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**The Man Trap.**
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