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OCTOBER 1992

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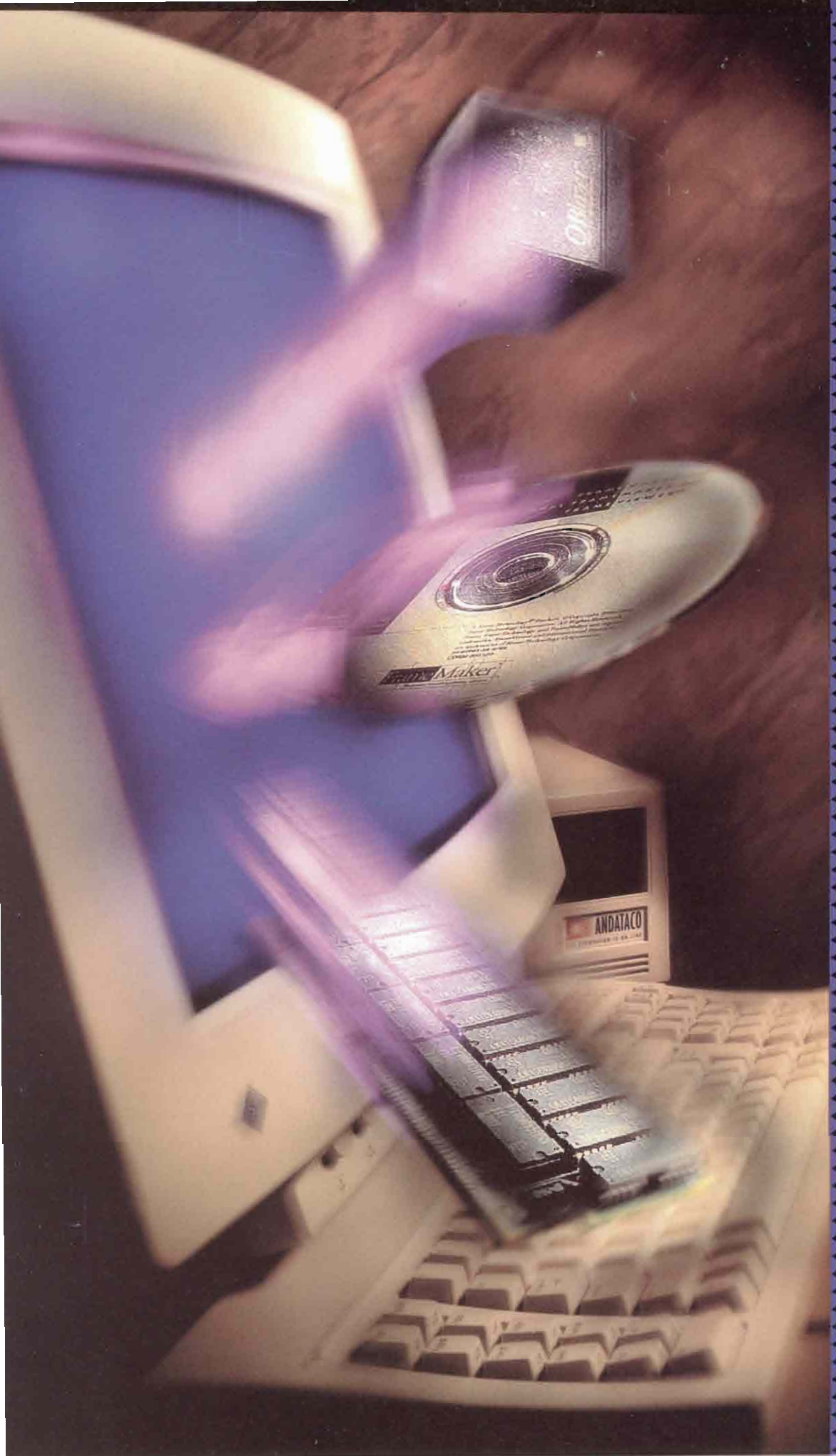

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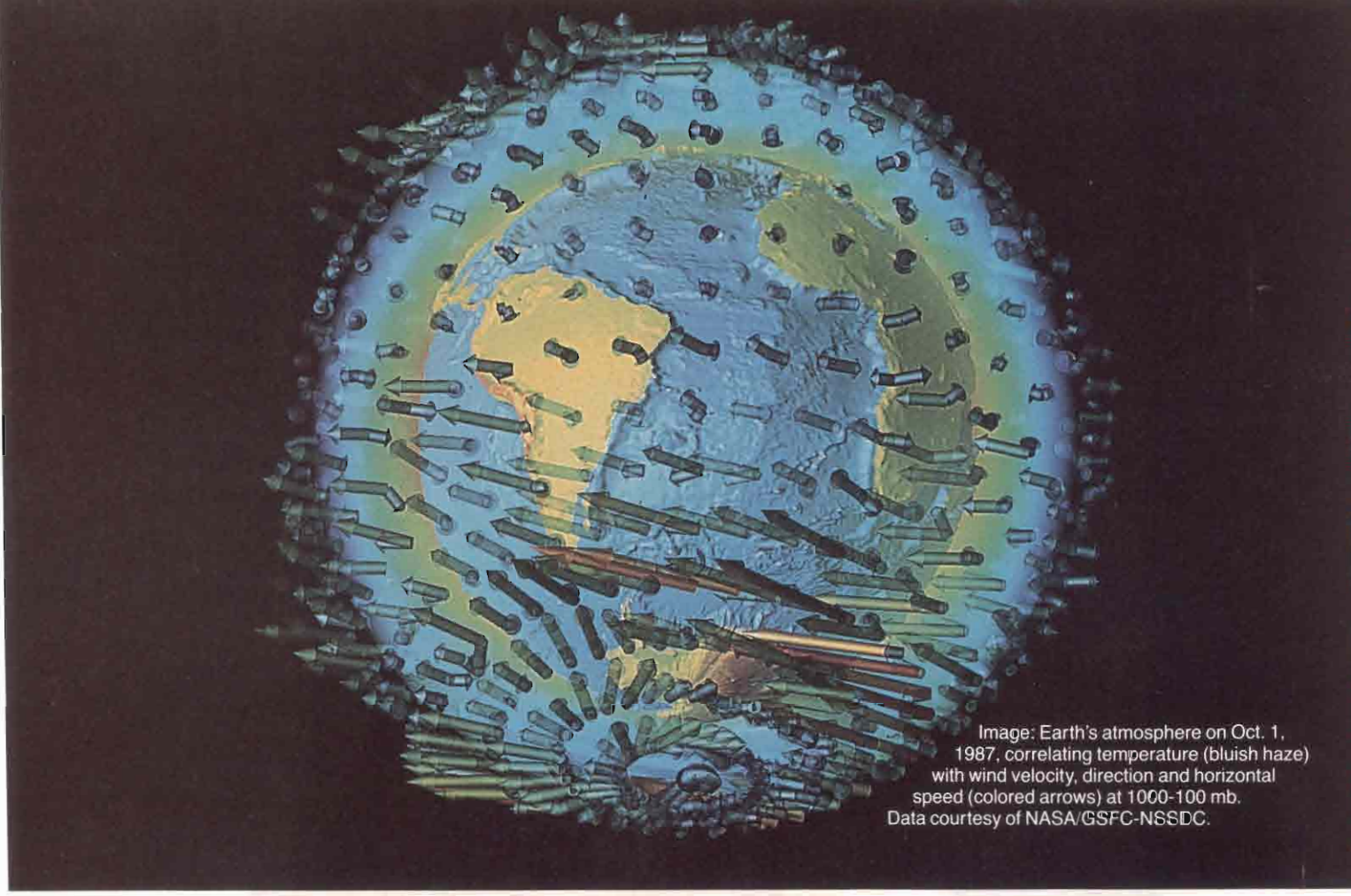

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The Eye Of The Storm

By Don Marks

Most attendees expected this year's INTEREX HP Users Conference to be a steamy one—given New Orleans' reputation for muggy August heat, the bayou city was hardly an optimal choice for a summer conference—but no one was quite prepared to sweat out a hurricane.

In fact, if that ominous wind hadn't kicked up, this year's conference might have been as placid as last year's love fest by the San Diego bay.

For HP 3000 users, certainly, there was no shortage of positive vibrations. HP selected the newest HP 3000 system, the high-end Model 987, as the first vehicle for the latest incarnation of PA-RISC—the superscalar, 96Mhz 7100 chip. And, just when I thought it was safe to start whining again about the demise of MPE, HP delivered both a read/write SQL interface for TurboIMAGE and NetWare for MPE/iX.

More important than these technical Eurekas, however, was a notable marketing breakthrough on the part of HP's normally-reticent Commercial Systems Division. Glenn Osaka, marketing manager for the HP 3000, came to New Orleans prepared to declare war. His target: IBM's $16 billion-a-year AS/400 business.

The plan, Osaka says, is to position the HP 3000 as a complete, turnkey alternative to Big Blue's midrange offering. HP promises to do all the handholding IBM routinely does for its cautious, job-conscious installed base — for about one-third the price. Says Osaka: "If we can siphon off 10 percent of that market per year, that's over three billion dollars. We'll be satisfied."

On the UNIX multiuser front, the big news in New Orleans was on the exhibit floor. Computer Associates, Legent, Lawson, Uniface and Ross HP, to name a few, all swept in from other platforms to offer a host (or, pardon me, a server) of commercial applications for the open systems crowd.

HP's mid-September delivery of 7100-based UNIX servers (we received the news at press time) only verified what has long been suspected in these pages: HP-UX actually *is* hotter than August in New Orleans.

The new high-end HP 9000 887 and 897 offer industry leading single-processor performance. The 897 delivers client-server mode transaction processing at an incredible 184/tps for an equally unbelievable $10,737 per tps. Prices for the 887 and 897 are $92,000 and $112,000 respectively.

Winds Of Change

Meanwhile, outgoing HP CEO and President John Young bid the INTEREX organization farewell in a speech that looked back on his successful tenure at the helm — and forward to a decade of intense, accelerated change driven by RISC technology. Young also introduced new CEO and President Lew Platt, who promised to maintain HP's commitment to quality and support as the company plunges into competitive hardware markets characterized by low margins and commodity pricing.

Before fleeing Andrew's wrath, I had the opportunity to interview Mr. Platt. Talk about a whirlwind. In the course of our brief conversation, I learned that his plans for HP include a headlong push into network services and systems integration, increased leverage of the company's computer and instrumentation businesses and a renewed emphasis on decreasing time-to-market for new technologies — all strategies designed to raise margins rather than simply increase volume.

Make no mistake, this company is prepared to survive the coming storm.

Don Marks

An Enterprise Perspective

Starting this month, *HP Professional* adopts a new tag line for beneath its title: *The Magazine For Hewlett-Packard Enterprise Computing.* This new phrase, we believe, best describes the complete range of computing options now available to HP users—from desktop to data center, factory floor to interdepartmental LAN. It also characterizes the primary challenge facing most HP computing professionals today: how to link a diverse array of corporate systems and integrate existing islands of information.

Our goal is to provide you with insights that help you manage all your computing resources, be they the latest in PA- RISC technology or legacy systems that still perform a vital role.

You'll also notice that we've made some changes to *HP Professional*'s DP Labs. Our new "spec-sheet" presentation, which includes a checklist of major product features, as well as pricing and platform information, is designed to provide you with a quick reference source for the information you need when evaluating software and hardware products. Our product reviews themselves continue to provide the rigorous analysis and hands-on testing you've come to expect from DP Labs.

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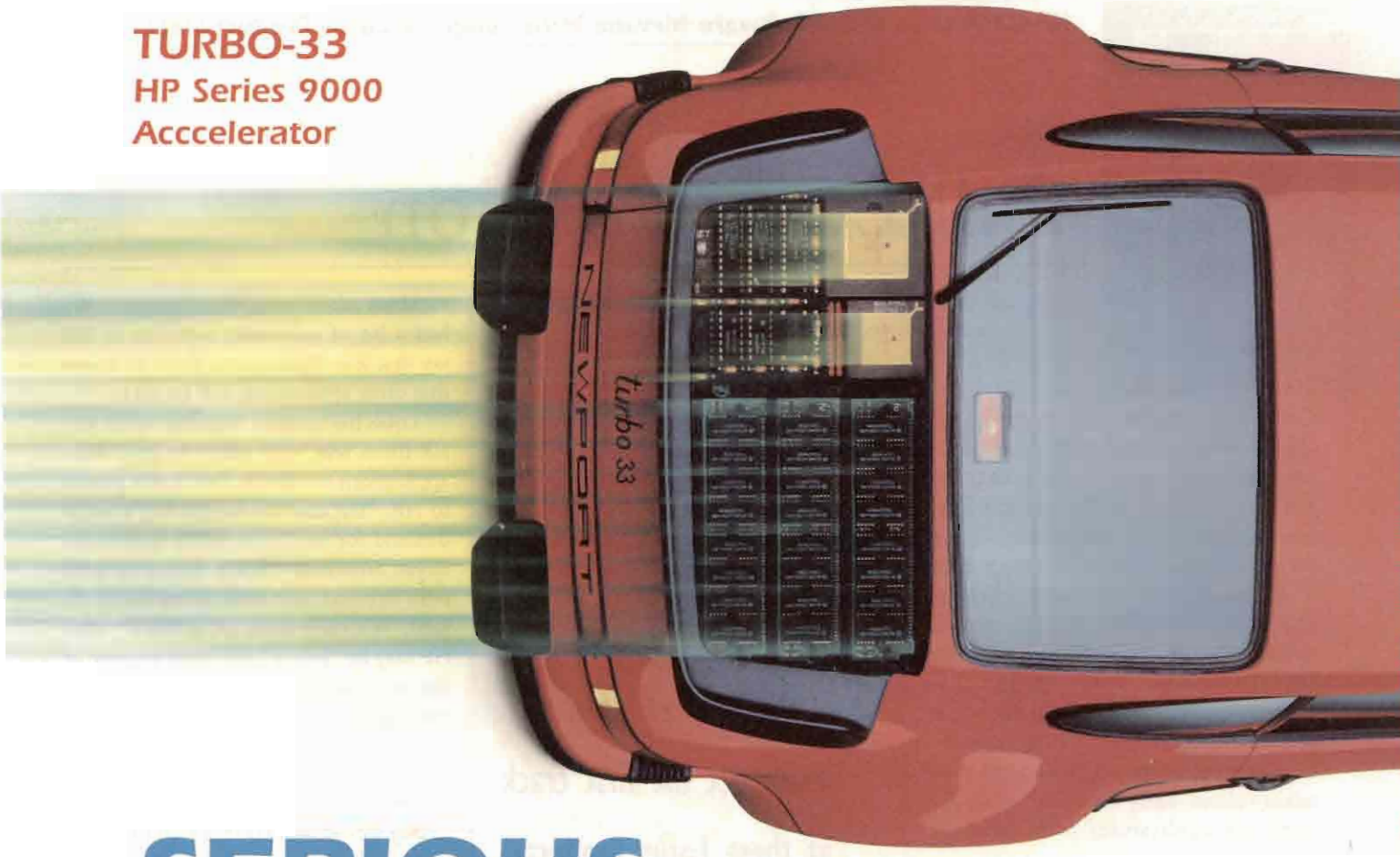

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INDUSTRY WATCH

Bill Sharp

Full Lotus Position

This may be it: the true reality. The HP/Lotus Development Corp. deal to move four big-time DOS applications onto HP-UX could be the final piece that takes HP's version of UNIX out of Guru-land and places it solidly amongst real people who use real computers, drive real cars and drink real beer.

We aren't talking about moving just one application onto HP-UX, as was done with Lotus 1-2-3 last year. Nor are we talking about some low-life DOS emulation window that brings the power of your UNIX system to its knees by forcing it to act stupid. We aren't even talking about using off-brand office automation applications from Also-ran Software Inc.

No ma'am. We are talking about the very same applications from Lotus Development Corp., Cambridge, MA, that run on millions of DOS PCs worldwide. HP and Lotus reportedly will have them on HP-UX by early next year. This will be in addition to Lotus 1-2-3 and Lotus Realtime, which have been available on HP-UX for more than year. The new additions to the HP-UX family will include:

Ami Pro: A word processor that includes capabilities for charting, drawing, file management, macros, merges and tables.

Freelance Graphics: A presentation graphics product with templates, drawing, outlining and charting features.

Lotus Notes: A groupware computing environment that facilitates information-sharing over networks.

Lotus cc:Mail: A widely used LAN-based electronic mail system that will be integrated with HP OpenMail.

Sitting Pretty

"This is great news!" says Peter Vescuso, commercial market development manager for HP's Workstation Business Unit. "Here you can have a lot of what you liked about a PC with all the advantages of a workstation. This is an important announcement for users and MIS people."

Those of you using HP-UX get the first crack at these Lotus products outside the DOS environment.

Advantages of moving Lotus applications onto HP-UX include the pluses of native UNIX applications, such as:

- Networked applications capability.
- Floating license technology to reduce licensing costs.
- Native UNIX performance as opposed to emulated DOS performance.

"If you compare performance of these products on our workstations to their performance on a 386-based PC, there is a 5X difference," says Vescuso.

But HP's excitement goes beyond just getting some top-drawer office-type applications onto HP-UX. These are some of the applications that are particularly important in the commercial marketplace, the fastest-growing segment of the UNIX market, and the portion where HP is working hardest to ensure success.

Users asked for it, says Vescuso. "We had a lot of customers come to us and say that it is important to them to know that these applications will be there."

Lotus has a similar response when you ask them why they chose to port these applications to HP-UX first. Lotus ported to HP, "Because we are getting a lot of demand for HP," says Lotus spokesman Bryan Simmons. "It is a matter of what is in demand and what is easiest to do next. We can't do it all at once." And HP may be "easier" for Lotus because of the work the two firms have been doing together. Work like the HP palmtop with Lotus 1-2-3 built-in. Lotus also gains access to a block of customers who are more likely to be spending money during this protracted recession than customers of other computer vendors.

But Lotus is not about to ignore other computer platforms. "We are gradually moving toward providing our suite of applications on all the key platforms," says Simmons. "We have committed to delivering the full suite on UNIX, OS/2, and we continue to spread onto the Macintosh (with 1-2-3 most recently)." Ever-popular 1-2-3 is also available for Sun workstations, and the other Lotus products will be moved over to Sun, as well as to IBM systems.

For the moment, however, those of you using HP-UX get the first crack at these Lotus products outside the DOS environment. First out early next year will be Ami Pro, the word processing product. The rest of the suite will appear over the course of a few months after the introduction of Ami Pro. ■

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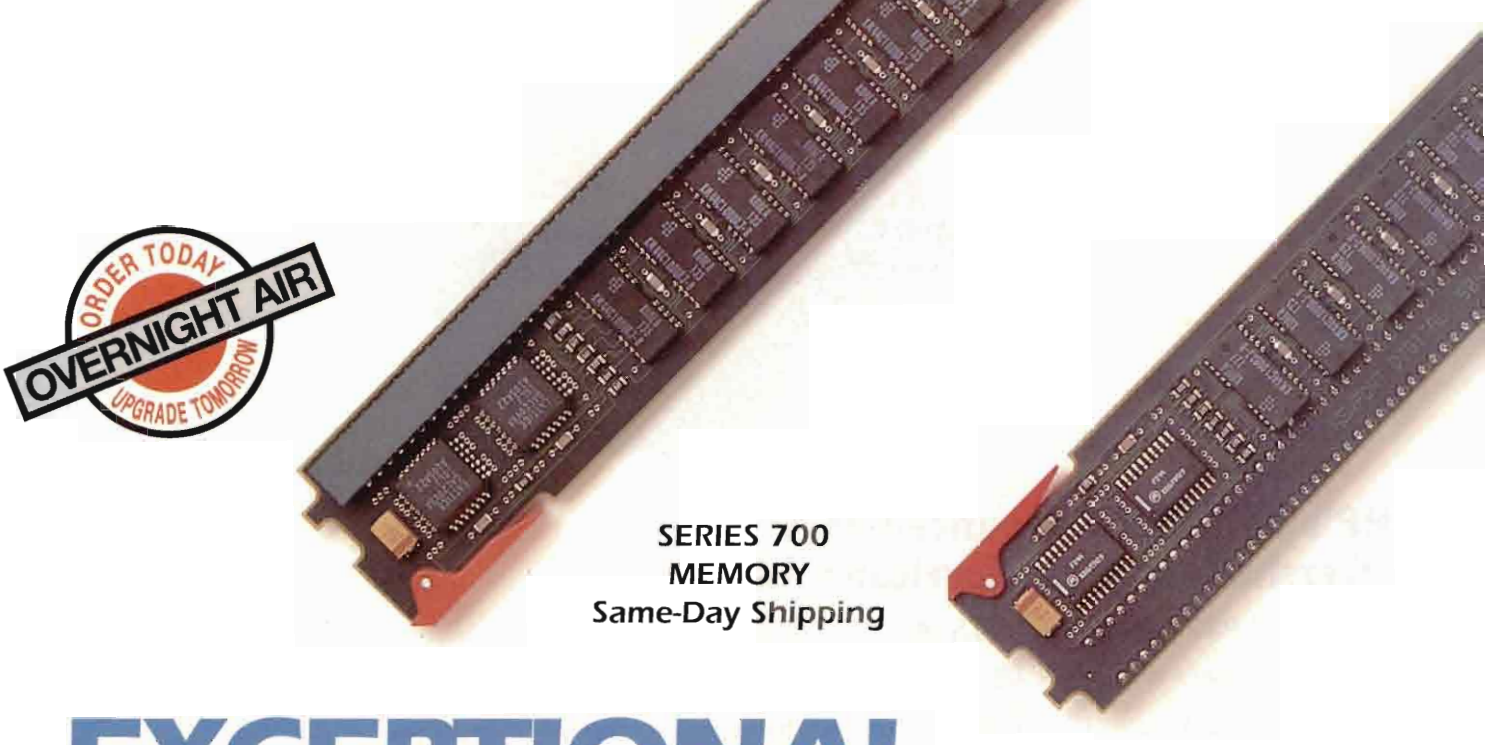

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HP's INTEREX Announcements Overshadowed By Hurricane Andrew

HP 3000 987 Blows Away AS/400; Portable NetWare Takes MPE/iX By Storm

Hewlett-Packard planned to jazz up this year's 18th annual INTEREX Users Conference in New Orleans with its usual show-stopping flurry of new PA-RISC systems, product line enhancements and statements of future direction. Unfortunately, this year, Hurricane Andrew stole the show.

As hundreds of conference attendees and exhibitors scrambled to flee the impending storm, HP rolled out a new HP 3000, portable NetWare for MPE/iX, an SQL interface for TurboIMAGE and more to somewhat soggy fanfare. The company also announced new plans for its venerable electronic-messaging system HP Desk, and a new integrated worldwide support program designed to service all HP customers.

A Fresh Blast

Although no match for Hurricane Andrew, HP hopes the latest blast of power from PA-RISC will enable the HP 3000 to blow the doors off IBM's successful AS/400 line. A new system announced in New Orleans, the HP 3000 Series 987, marks the first implementation of the PA-RISC 7100 microprocessor — a superscalar version of the architecture that can process several instructions simultaneously, eliminating the need for multiple processors at midrange performance levels.

The 987, which makes use of the compact, integrated packaging HP introduced last year with the "Nova" systems, expands the growth path for users of the HP 3000 9x7 series by offering an additional high-end option. Official TPC-A benchmark tests for the 987 are not complete, but HP estimates the new system will outperform the current high-end, the HP 3000 Series 977, by 30 percent. The Series 977 had been benchmarked at 111.1 transactions per second (tps) at a cost of $9,853 per tps, making it — until now — the fasted single-processor computer in the industry.

With the introduction of the Series 987, HP has clearly fixed its sights on IBM midrange accounts. According to Pat Adamiak, product line manager for the HP 3000, the 987 provides performance levels comparable to the top of IBM's AS/400 line at a much lower overall cost-of-ownership. "Three-year cost-of-ownership for the AS/400 E90 (the model closest to the 987 in performance) is over one million dollars more than that of the 987."

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The Series 987, including CPU, memory, disk, tape backup, MPE/iX operating system, TurboIMAGE and ALLBASE/SQL databases, a console and a 100-user license is priced at only $320,000. (The AS/400 E90 is priced at over one million dollars.) The cost to upgrade to the Series 987 from the Series 977 is $85,000, and board upgrades from other 9x7 series systems are available for less than one-third the cost of a new system. Shipment of the Series 987 began in September.

Glenn Osaka, product marketing manager for HP's Commercial Systems Division, claims that "in sales situations where the HP 3000 competes with the AS/400, HP wins four out of five times." According to Osaka, HP's goal in the coming year is to position the HP 3000 effectively as part of integrated, preconfigured, turn-key solutions.

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DataGeneral	Macintosh	Stratus
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the same, with better performance at a better price," said Osaka. He noted, however, that at present IBM faces no competition whatsoever in 80 percent of its AS/400 sales.

NetWare Hits MPE/iX

As part of an unfolding strategy for Novell NetWare support, HP also introduced NetWare/iX—high-performance portable netware for the HP 3000's POSIX-compliant MPE/iX operating system.

According to Rich Sevcik, general manager of the company's new Systems and Servers Group, NetWare/iX enters the market as the industry leader for NetWare server performance. Test results using *PC Magazine*'s LAN Benchmark show that NetWare/iX running on an entry level HP 3000 917LX outperformed all tested PC-based NetWare servers, when supporting networks of 40 or more users.

"Our NetWare/iX performance results prove today that the HP 3000 provides the most powerful NetWare solution on the market," said Sevcik. "What we have here is the Ferrari of NetWare server performance."

Given the high cost of NetWare/iX, however, Sevcik's Ferrari analogy may carry an unintended double meaning. NetWare/iX will be available in October at prices ranging from $5,900 to $31,000, depending on network size. With the added cost of an HP 3000—base price for the 917LX is $14,500—NetWare/iX would be one of the most expensive NetWare solutions on the market — almost as costly as a Ferrari. Also, portable NetWare offers only file and print server functionality and does not support other features of NetWare 3.1, such as NetWare Loadable Modules.

New HP 3000 Model 987 offers first implementation of HP's 7100 PA-RISC chip.

When asked about the price competitiveness of a NetWare/iX solution, Sevcik conceded that the product was most suitable for existing HP 3000 users who sought high-performance PC integration. At present, he said, the company has no plans to position the HP 3000 and NetWare/iX as a competitor to low-cost PC NetWare servers.

Sevcik did, however, hold out the possibility that a low-cost PA-RISC-based native NetWare server, capable of delivering even higher levels of performance, would be available by late 1993. This new server, said Sevcik, which would be neither an HP 3000 or HP 9000, would compete head-on and in the same price range with PC servers like the Compaq SystemPro.

TurboIMAGE Hangs Tough

Hurricane Andrew also obscured the most significant news for TurboIMAGE users since the stormy Boston conference of 1990. Despite inclement weather outside, the outlook for TurboIMAGE users inside the convention center was pretty rosy.

In a technology breakthrough that evidently stymied other industry vendors, HP has managed to develop the first SQL write interface for a non-relational database. HP SQL for IMAGE now provides HP TurboIMAGE with a read/write SQL interface, which allows tools and applications that today support only ALLBASE/SQL to support TurboIMAGE databases as well. Also, HP SQL for IMAGE, will enable tools and applications that make use of Microsoft's ODBC client-server database interface to access TurboIMAGE.

HP SQL for IMAGE is scheduled for delivery in the first half of 1993; it will be packaged as a separate product with future releases of MPE/iX. Pricing information will be announced this November.

HP also highlighted several TurboIMAGE enhancements introduced earlier this year with the release of MPE/iX 4.0. First among these was the long-awaited critical item update capability, which allows search and sort items in detail datasets to be directly updated, making changes easier and more efficient to perform. Other major enhancements included tighter integration between IMAGE and third-party indexing software, including DISC's Omnidex and Bradmark's Superdex, and increased MPE/iX file size limits (from 2 GB to 4 GB).

The Message Is Open

The future also looks clear for another HP 3000 standby, HP DeskManager. HP announced what it's calling the OpenDesk initiative which is designed to transform the venerable electronic messaging system into an "open, client-server, enterprisewide messaging backbone."

According to Sevcik, the first goal of the OpenDesk initiative will be to implement "a clients-of-choice strategy" that will allow users to access HP Desk from a variety of client front-ends, including Microsoft Windows, the Apple Macintosh, HP NewWave and Motif-based workstation systems.

Future objectives for the

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So when you're ready to pump up the power in your HP 9000 and HP 3000 midrange systems or your Series 700 PA-RISC workstations and X-terminals, call **1-800-DATARAM** and ask for a quote on our expansion memory. You can have the boards in your hands within 24 hours.

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OpenDesk initiative include implementation of X.400 software, which would allow users of HP DeskManager to access any X.400-compliant E-mail system, and the adoption of other communications standards.

Emergency Service

As Andrew downed power lines, communications links and business systems throughout southern Louisiana, HP's Roger Costa, general manager of the System Support Division, announced his plan to deliver more effective worldwide support.

The new program, dubbed HP System Support, simplifies service choices and provides customers with personalized support options. Encompassing hardware, software and network maintenance services, HP System Support allows customers to put together a single streamlined service program rather than maintain multiple service contracts for many different systems.

According to Costa, the personalized support program will provide each customer with a "specified support team," consisting of a local field engineer and an HP Response Center engineer. Together these two will maintain a detailed understanding of the customer's business systems and maintenance plans in order to provide a faster, more efficient response.

HP System Support will be made available to customers as their current support contracts come up for renewal over the next year. Prices are based on support needs.

The Grand Finale

Last but not least, HP rounded out the INTEREX news deluge with two printer announcements.

First, the production-capacity HP 5000 F100, which was announced at last year's INTEREX conference in San Diego and is now in full production shipment, was demonstrated at the HP booth. The 100 page per minute, 300 by 300 dots-per-inch printer supports the HP PCL printer control language (of HP LaserJet fame) and can produce up to 2.8 million letter-quality pages per month. Cost is $175,000. Second, HP also introduced a low-cost HP 2300-840L line printer capable of printing 840 lines per minute. Price for the HP 2300 840L is $12,340. — *Don Marks, Managing Editor*

For Your Information

- WRQ announced a technology license agreement with HP that will allow WRQ to offer more functionality for HP 3000 computer system connectivity. (206) 324-0350.
- PeopleSoft Inc. announced an agreement that provides ADP with rights to incorporate PeopleSoft HP/Payroll/Benefits software into value-added ADP service and software offerings. (510) 946-9460.
- Lawson Software announced that its Lawson Accounting System won International Computer Programs' $50 Million Dollar Award. Lawson's Fixed Assets package won a $10 Million Dollar Award. Lawson UNIVERSE Productivity Products and UNIVERSE/CASE won $5 Million Dollar and $1 Million Dollar Awards, respectively. Lawson also opened a new sales office. For more information about its product line, contact Lawson Associates, 26911 Northwestern Hwy., Suite 300, Southfield, MI 48034; (313) 262-1471.
- Workstation Source offers a new range of equipment from ISA of Japan, the ISA Model 1000 Series, that is designed to fill the gap of the discontinued HP-IB floppy drives and small Winchester disks. (0628) 75252.
- HP announced plans to make available emulation software that will let users of HP's PA-RISC-based workstations run Macintosh application software without modification.
- Cincom Systems announced a newly formed technology partnership with Independent Computer Consulting Services Inc (ICCS). ICCS is the new owner of the HP version of MCBA's "CLASSIC" application software. (513) 662-2300.

Computer Technology Aids Pharmaceutical Research

HP And Molecular Systems Combine Efforts In Computer-Aided Molecular Design

In an effort to expand its involvement in advanced computer-aided molecular design (CAMD) systems, HP has joined with Molecular Design Simulations (MSI) to develop business opportunities in the pharmaceutical and chemical industries.

MSI has agreed to port its suite of software applications to HP's PA-RISC-based 700 Series workstation family to provide scientists with new open-system solutions for 3-D molecular modeling and visualization.

MSI products include:

- AVS ChemistryViewer, a 3-D visualization environment that allows researchers to display and manipulate the results of quantum chemistry programs.
- CERIUS, a family of products for research and development of new materials such as polymers, zeolites, catalysts, ceramics and metal alloys.
- POLARIS, modeling software for working with simulated molecules in solutions.
- QUANTA 3.3, an integrated program with over 12 modules for molecular graphics, construction and simulation of small and large protein and polynomer molecule systems.

Scientists in fields such as protein chemistry, molecular biology, drug design and new material research will benefit.

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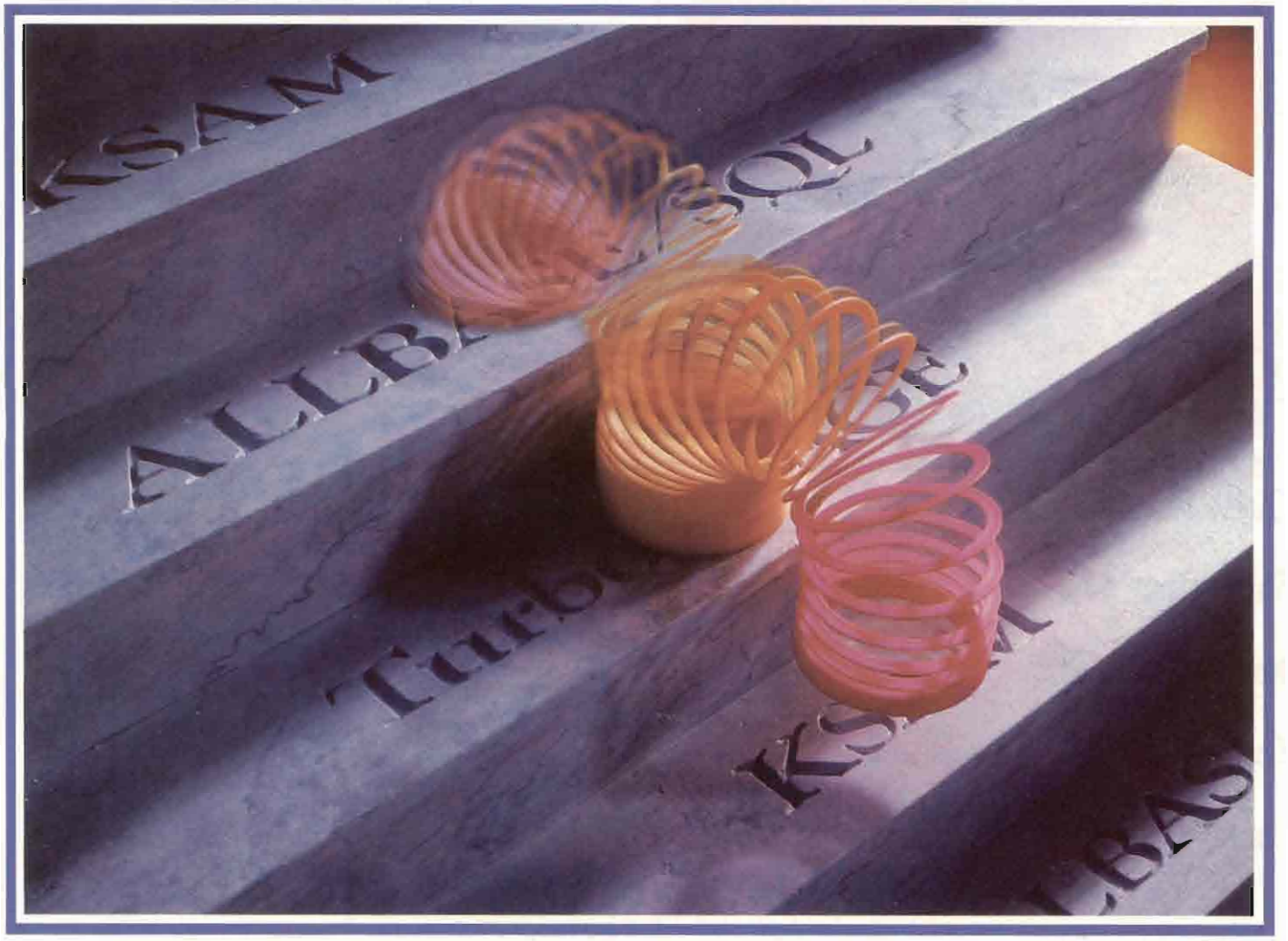

FOCUS FROM INFORMATION BUILDERS: The 4GL That Gives You The Options To Work With Any Database.

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Right now almost 90% of your applications use TurboIMAGE database. But, as you move towards relational or object databases, how will you integrate this new technology with your existing data?

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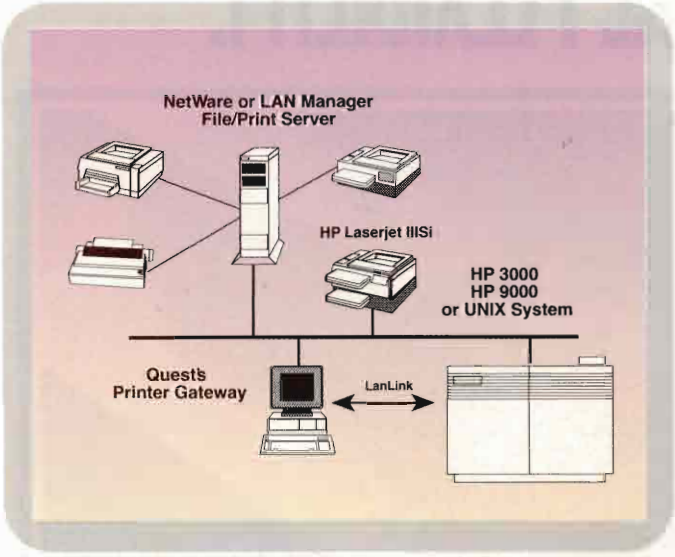
Network Etiquette



Quest Software Shows That Your Network's Social Code No Longer Stands On Protocol

In today's economy, your personnel and equipment resources are valuable assets you can't afford to waste. Transferring files to a dedicated printer used by only a few nodes on your network is hardly efficient. And the last thing you need to hear is that you need six new printers to accommodate various network platforms.

NBSpool from Quest Software Inc. offers bidirectional gateway capability that efficiently employs your network resources by permitting any HP 3000, HP 9000 or any UNIX system to share printers attached to a Novell Netware or LAN Manager PC network, or an IBM host.

The gateway, which doesn't require NetWare or LAN Manager software running on the host, converts TCP/IP to the protocol used by the PC LAN, allowing you transparent access to any printer queue on the network.

Through MPE-like commands you can alter, archive, banner, copy, duplicate, merge, move, purge, store, show or view subsets of output spool files. In addition, you can alter, copy, merge, show, stream and view input jobs.

The PC configuration includes a PC with a ThinLAN or StarLAN card. The software required for a NetWare gateway includes HP's NS 2.1 for NetWare or LAN WorkPlace for DOS, Quest's NBSpool's Printer Gateway software and MS-DOS. An HP 3000 host, for example, requires HP ThinLAN XL or V, Network Links and NBSpool software.

NBSpool's bidirectional function lets you print from a NetWare PC to a host system printer through the gateway PC. You only manage one PC, which is convenient and economical during client system upgrades. Using one PC as the gateway eliminates the need to run captures on every PC on the network.

Quest's customers have found NBSpool quite flexible thus far.

Paul Smith, network services manager for Trimble Navigation, a manufacturer of Global Positioning Satellite (GPS) transmitters and receivers, explains that Trimble needed an economical way to access to more than 100 printers worldwide. The company considered direct leased lines to each of its sites; including Texas, New Zealand and the UK; but this meant installing a DTC in each location to handle only two or three printers; as well as purchasing the appropriate printers.

"We wanted to use our existing Infolan connection to access the UK and Texas," says Smith. "And Quest's NBSpool let us do that, without leasing new lines or buying DTCs and printers."

Smith says that Quest's NBSpool gateway allows them to print directly to printers that produce custom reports, rather than bar paper.

Smith maintains, "NBSpool does the job. I can do a real-time Quiz report and print the document to any local printer." Trimble currently prints to 55 devices via NBSpool on a regular basis.

Pricing for NBSpool Printer Gateway software ranges from $3,500 for Micro 3000/917LX to $5,500 for Series 68/70/932/935/947/947LX, up to $8,000 for the Series 980/300, with annual support from $560 to $1,280.

According to Smith, Trimble management believes that making reports readily available has greatly enhanced their value. "The reports are no longer data, they are information." — *Charlie Simpson, Technical Editor*

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FOR HP

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That's extra value, and yet another good reason to buy Bering.

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ECHO Series
High Performance, High Capacity Tape Backup Subsystem. Up to 5GB on an inexpensive cartridge. SCSI and/or HP-IB interface.

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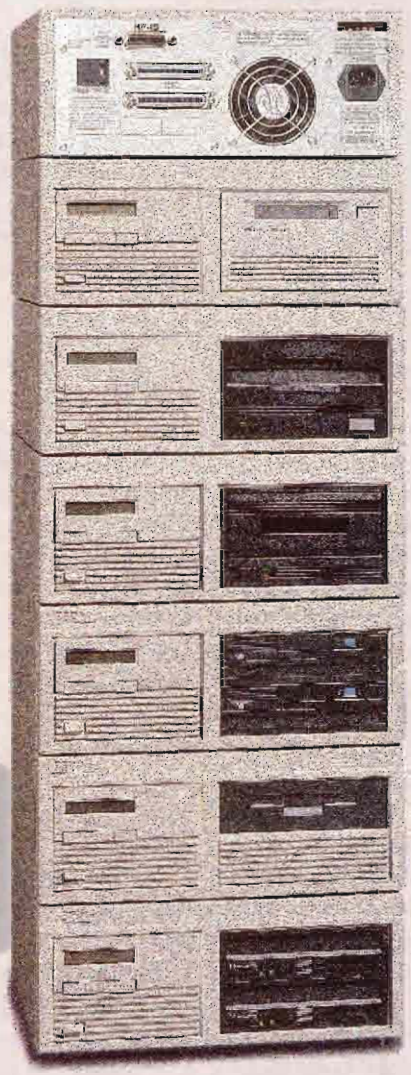
High performance 80MB to 1.7GB fixed hard drives for basic storage needs. HP-IB and/or SCSI interface. HP-IB drives are available with 2.0MB FDD. Designed and tested to replace the discontinued HP9153C hard disk and floppy disk drives.



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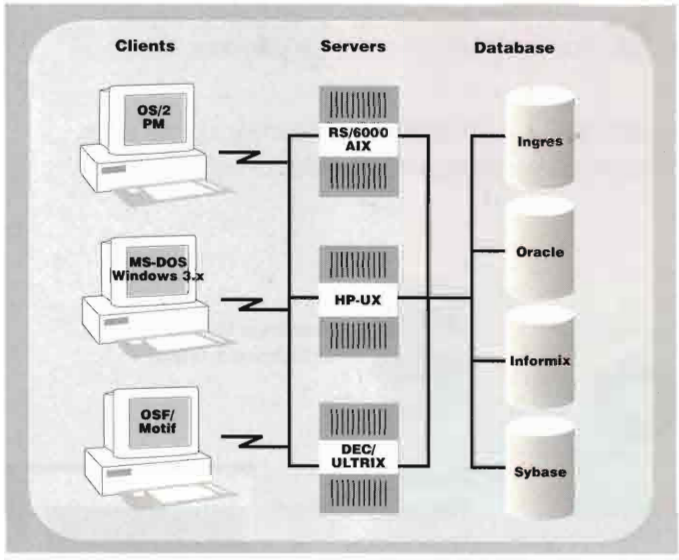
Environmentally-Conscious Computing



Netron/CAP Lets You Reduce, Reuse and Recycle Your Enterprise's Critical Application Code

As in many companies across the country, we've become recycle-conscious at *HP Professional*. We're constantly separating, saving and recycling, doing our share for the environment.

For us, recycling applications means that hardcopy of old code gets thrown in the recycling containers. Netron/CAP, however, has something different in mind.

Recycling code to the folks at Netron means that useful portions of your applications get used over and over, allowing you to maintain application consistency and quality, while saving valuable development time.

Netron/CAP contains a core toolset and a frame library. This combination provides for Rapid Application Development, Detailed Specification Design and automated COBOL code generation.

The toolset includes these components:

CAPdesigner. Complete design specifications can be created with CAPdesigner. Later, COBOL code can be generated from your finished designs. Application specs are built by asking the developer simple questions. Programmers don't write one line of source code.

Portions of applications can be saved as Design Templates and used later. Design Templates of the most common applications can be saved in a library. Templates then can be retrieved and customized for new applications saving programming time and effort.

CAPscreen and CAPreport. Data entry screens and reports can be designed and specified with CAPscreen and CAPreport. In addition to field layout, items such as field attributes, function key handling, validations, error handling and context sensitive help can be included.

CAPprocessor. Complete COBOL code is generated from design specifications and from your collection of reusable library routines. Any changes you make are done in CAP designer, so that a programmer never touches a line of COBOL.

Netron/CAP also provides the Program Design Specification. This component provides a program construction blueprint, allowing a developer to see how an application was built, along with any customizations made.

CAPwindow for Motif is an optional component available through purchase of Netron/Client, an extension of Netron/CAP. CAPwindow allows the development of Motif GUIs. Motif expertise is not required to build complex user interfaces. COBOL code to handle the Motif widgets is automatically generated. Programmers only need to concentrate on the code that will comprise the application's business logic.

With all the existing COBOL code in the world, application developers will appreciate not having to learn C or some proprietary 4GL. Netron/CAP lets you integrate new development into existing applications.

Netron/CAP lets you develop applications on several platforms including HP-UX and prepare them for deployment on many foreign host systems including VAX/VMS, MS-DOS, Windows, OS/2, OS/400 and the various IBM mainframe operating systems. Several databases are supported, including Oracle, Ingres and DB2.

Netron/CAP is available on HP Apollo 9000 Series 700 workstations running HP-UX version 8.07 and the COBOL/HP-UX Developer Revision B.06.25. Netron/Client, needed to develop Motif GUIs, requires Motif Version 1.0 and Netron/CAP. — *David B. Miller, Sr. Technical Editor.*

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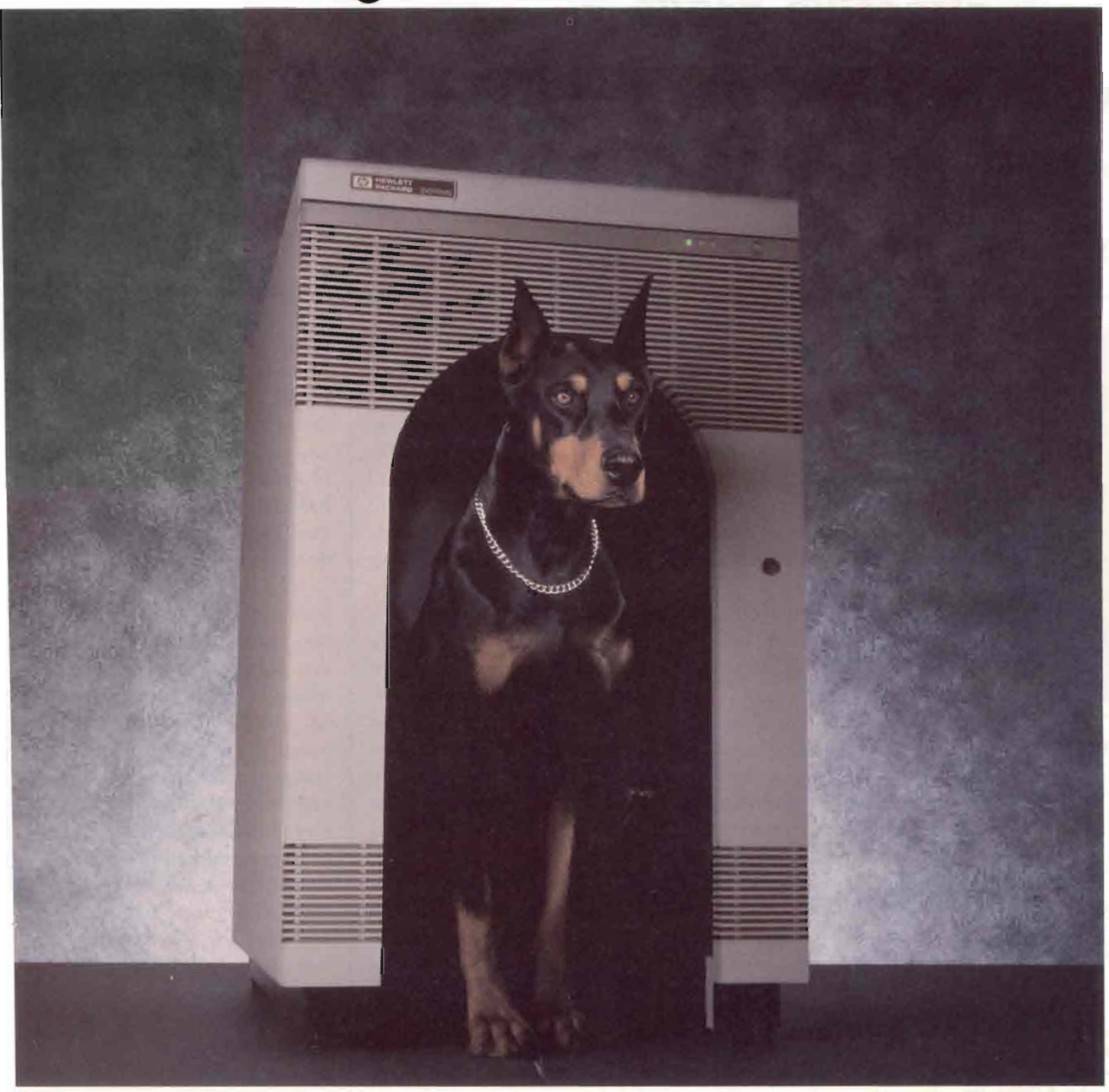

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Seattle's Effective Frogs

WRQ's Successful Leap Into Terminal Emulation May Be A Springboard To Success In Client-Server Computing

"We are strongest in heterogeneous networks of HP, DEC and IBM computers, with end-user environments for DOS, Macintosh and Windows systems."

George Hubman
President Of Sales
And Marketing
Walker, Richer & Quinn, Inc.

Effective business management is rather like being a good frog. Success requires patient, careful observation and well-timed, vigorous action.

George Hubman, president of sales and marketing for Walker Richer & Quinn, Inc. (Seattle, WA), never mentioned effective frog techniques to me. I just sense that he and others at WRQ understand them.

Why else would four fellows have known the right time to launch their own contract programming firm for HP 3000 systems?

How else would they have known to market the one-of-a-kind terminal emulator they wrote for a client's billing system, resulting in the market-leading Reflection series of emulator products for HP, DEC, IBM and UNIX hosts?

How else would they have known to sit quietly while other companies overextended themselves in the intoxicating 1980s?

Talking about the success of Reflection 1 in 1985, Hubman laughs, "I think it surprised everybody. There was nothing out there like it. IBM came out with the PC as a defensive measure to keep Apple from taking too much business, and IBM did not expect the PC to be successful in the corporate market."

When IBM's estimate turned out to be gloriously inaccurate, and PCs needed links to host computers, WRQ had the product. "We had the market to ourselves. We focussed rightly on the manager of the HP 3000 and viewed Reflection as an HP 3000 product, not a PC product, and it captured the lion's share of that market."

The market was and is medium and large company users communicating with large host systems from HP, DEC, IBM and UNIX systems generally. "We are not chasing the guy who wants to dial into Compuserve from home, although you can do that, too," says Hubman. "We are strongest in heterogeneous networks of HP, DEC and IBM computers, with end-user environments for DOS, Macintosh and Windows systems."

In the near future, Hubman says WRQ will add:

- 3270 emulation, to enter a market that has attracted quite a bit of attention, and sales.
- X-windows server, to get in on the early stages of a market Hubman says will be "astronomical" in size.
- Transportable computer products, with an entry to allow HP 95LX systems to communicate with host computers from remote locations to check on E-mail and manage scheduling, appointments and use Reflection.

Part of the reason why WRQ works well is an informal organization and high productivity. "We tend to hire six months after we need a person instead of six months before, unlike some of our competitors," he teases. And while at times that may create some stress among employees, says Hubman, "I go down the hall telling people, 'Hey, chill out. This is terminal emulation, not a cancer cure!'"

Challenges face WRQ during the remainder of the 90s. Hubman freely admits that people have been foretelling the demise of terminal emulation for several years. And although the company stubbornly persists in growing at a steady 30 percent, he knows the world is moving toward client-server systems. Look for WRQ to make moves into that market. Like the effective frog that it is, WRQ will wait for the right fly to come by — and then take it. —*Bill Sharp, Technical Editor*

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HP-UX UNIX® MPE/iX CLIENT/SERVER

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91X—92X	$400
93X—94X	$500
95X—97X	$700
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There's nothing new about on-line transaction processing (OLTP). It's the computing lifeblood of most companies, and the basic technology has been around for almost 20 years. What's new is the spin that the move to client-server architectures and distributed computing has put on it. Previously dominated by a small handful of proprietary, mainframe-based approaches, OLTP now is making a predictable shift toward open, networked platforms.

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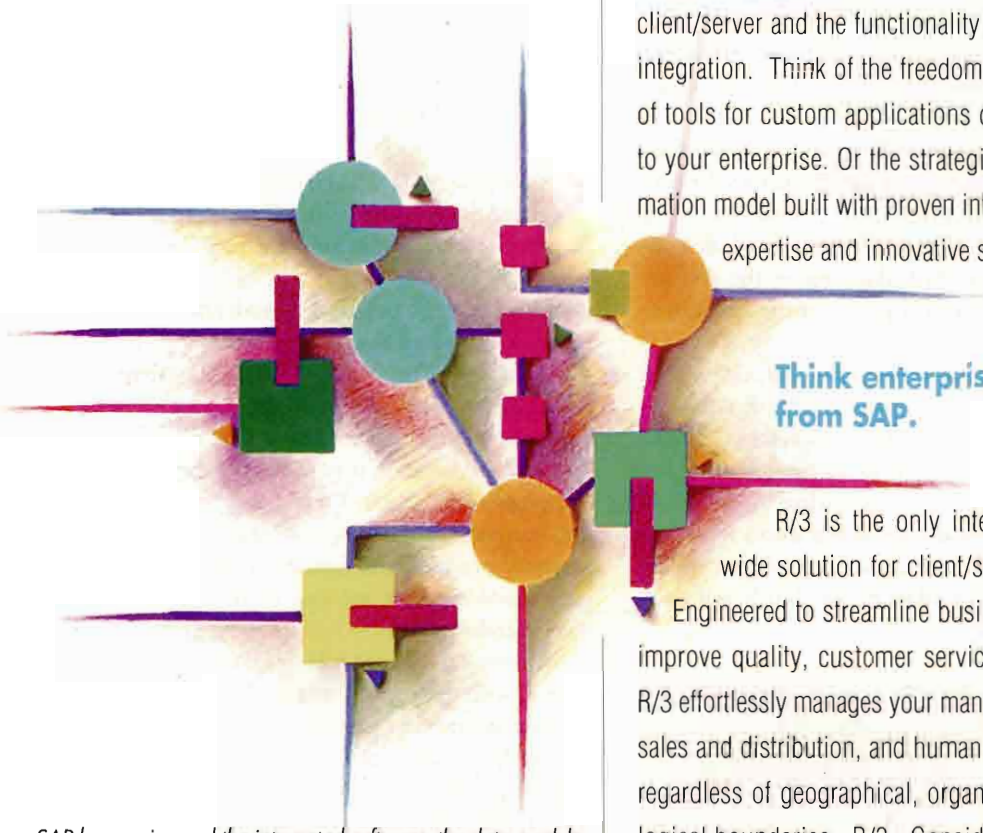

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The Distributed Transaction Processing Reference Model doesn't do justice to the complexity of either the architecture or the implementation of distributed OLTP.

and networkability, HP-UX is in an excellent position to capitalize on the downsizing trend.

Figure 1 shows the simplified model used by the X/Open consortium to describe its Distributed Transaction Processing Reference Model.

At the application level, application programming interfaces (APIs) are provided to supply the syntax and semantics for programmers to group database operations into transactions. This is the need for atomicity and is fundamental to the whole concept of OLTP. Client-server function shipping — the division of labor between the client and server pieces of the application — is also found at this layer.

Transaction processing requests are communicated to a Transaction Manager (TM) using a standard Application-to-Transaction Manager protocol. The TM — sometimes called a transaction processing monitor — acts as an intermediary between applications and the data they are trying to access. In this role, the TM translates application requests into a form that the data resource manager can understand, sequences concurrent application requests, and coordinates the distributed two-phase commit process.

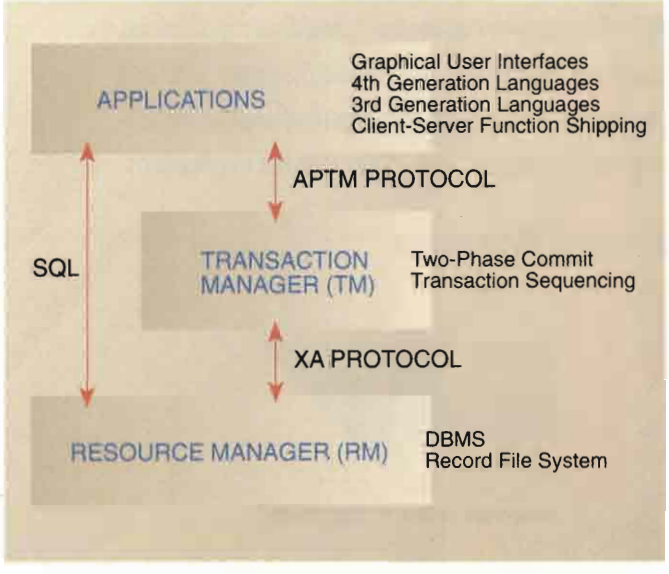


Figure 1: X/Open's simplified model of a distributed OLTP architecture.

At their simplest, resource managers are nothing more than the database managers and record file systems you would expect to find. The TM works with these through another standard protocol, known as XA, to coordinate database activities, or may provide proprietary hooks to its own, or other, DBMSs.

In theory, components within any of the three tiers of the model should be interchangeable and interoperable. Accordingly, applications could be either client-server or host-based, and able to talk to different vendor's monitors using APTM. In turn, all those monitors should be able to work with different Resource Managers over XA, and any application should be able to work with any relational database using structured query language. Fat chance.

The Standard Mudslinging

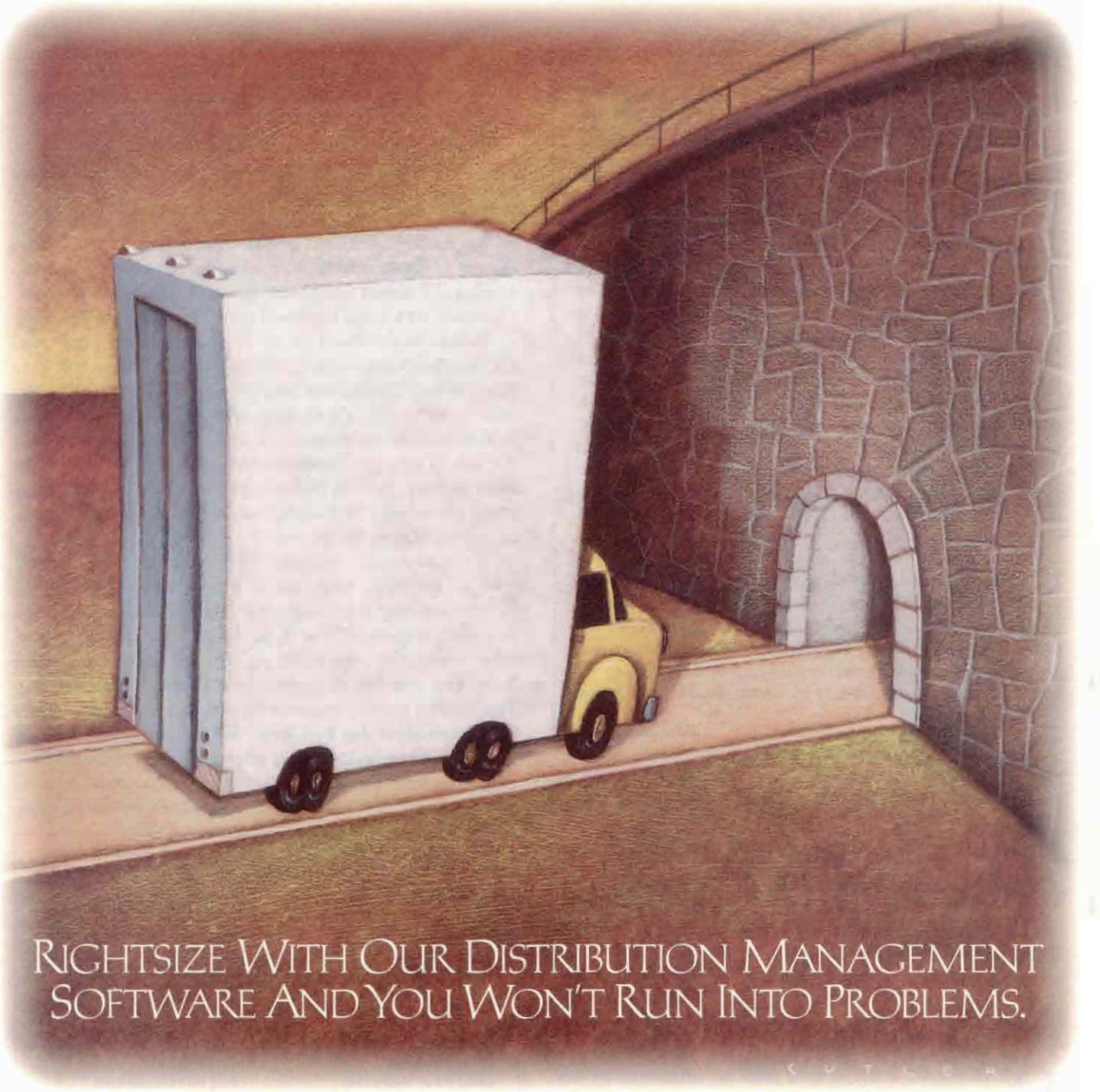
SIMPLE AND AESTHETICALLY PLEASING, this model just doesn't do justice to the complexity of either the architecture or the implementation of distributed OLTP. Although an OLTP system that looks something like the model could be created, practical considerations make that goal little more than wishful thinking. One look at the architectural diagrams provided by vendors of OLTP systems shows they have only superficial similarities to the X/Open model.

Starting at the bottom of the pile, things don't look too bad. The XA specification is in pretty good shape, and RDBMS vendors Informix, Ingres, Oracle and Sybase have all trotted out XA-compatible databases. Assuming that these recently announced products will operate as advertised, we can at least rest easy knowing that we can enjoy some degree of database interoperability.

Moving upstream, problems start to become more apparent. One flaw in the model, if you want to call it that, is X/Open's implicit assumption that there is a standard network (ISO/OSI) gluing this model together. The lack of explicit standards for a remote procedure call (RPC) mechanism, distributed naming service, security mechanisms and the countless other minutiae needed to get dissimilar machines to communicate reliably is a real obstacle.

Another problem is the lack of a fleshed-out APTM protocol. In OLTP implementations to date, this lack has caused the Application and Transaction Manager layers to be fused into proprietary blobs. Without APTM, Transaction monitors are neither interchangeable nor interoperable. Applications, implemented on proprietary application-to-monitor protocols can't use different monitors, and monitors don't know how to deal with each other as peers.

Last, but not least, is the issue of what to do with our "legacy" systems, which basically means all those IBM mainframes and their CICS-based applications that won't die. Rather than make its offerings XA-compliant, IBM is busily working on making its own LU6.2/Advanced Peer-to-Peer Communi-



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[UNIX TAKES THE ACID TEST]

Economics aside, before it can earn its OLTP stripes, HP-UX still has to pass the acid test, which in this case is actually the ACID test. Any OLTP system worthy of the name has to exhibit the four ACID properties:

- ***Atomicity*** — Related database operations are grouped into transactions. All of the operations within a transaction must complete successfully, or the entire transaction is rolled back as though nothing had ever happened. This ensures that related operations — like debiting a savings account and crediting a checking account in a funds transfer — are both successfully posted before the transaction is marked complete, or committed. This process is known as *two-phase commit*, a favorite OLTP buzzword.
- ***Consistency*** — Application programs have to be constrained so that they can't mess up the database or each other. Any program accessing the database should be assured of getting data that is accurate and up-to-date.
- ***Isolation*** — An OLTP system has to properly sequence concurrent database updates and then process them serially so that the transactions don't step on each other.
- ***Durability*** — Once a transaction is finalized, it should stay that way. System crashes and program failures shouldn't screw up a transaction once it has been posted and committed, nor should the OLTP system's logging and rollback mechanism affect a committed transaction. —

cations protocol and Common Programming Interface - Communications (CPI-C) API into ISO and X/Open standards.

The upshot is that OLTP systems have to shoehorn the LU6.2 protocol and SNA into their architectures if they want to interoperate with IBM's big hummers. At the very least, vendors have to support the CPI-C API. CPI-C itself can be fairly easily implemented atop another RPC system and communications stack, but getting transaction monitors to work effectively with CICS is another story.

A Three-Way Race

IN THE SHORT RUN, at least, there isn't much chance that we'll be seeing a standard OLTP platform. That said, let's look at some of the UNIX-based contenders to see what kind of compromises we have to make.

AT&T's Tuxedo is presently the predominant UNIX OLTP system on the market. Tuxedo is available in versions for the following platforms:

AT&T Star Server, NCR 3000, IBM RS/6000 AIX, Sun SPARC SunOS, DG Aviion, DECSystem 5000/5100/5500 ULTRIX, HP 9000/800 HP-UX, Pyramid UNIX SVR4, Unisys U Series, Unix System V and Sequent Dynix.

With its adherence to the XA standard, Tuxedo can work with any XA-compliant database. On the downside, Tuxedo does not support two-phase commit under LU6.2, limiting its usefulness with CICS.

Tuxedo supports DOS and OS/2 clients using AT&T's proprietary APIs and CPI-C. AT&T has pledged future support for UNIX and Windows workstations.

Although Tuxedo ostensibly enjoys a two-year head-start on the market, its future is somewhat obscure. Notably, the merger of AT&T and NCR resulted in NCR's Top End becoming the joined companies' strategic transaction manager. Evidently, AT&T was impressed with Top End's performance.

Tuxedo is also based on UNIX International's Atlas communications architecture, instead of the Open Software Foundations's Distributed Computing Environment (DCE). The latter wasn't much of a problem until X/Open backed DCE as its communications architecture in August of this year. Now, the lack of strategic commitment by AT&T coupled with the need to make Tuxedo DCE-compliant to meet X/Open specs could put a bullet in Tuxedo's skull. Other nascent standards have expired from less trauma.

Top End is also a question. Until recently, it was available only for the NCR 3000. But in May systems integrator and OLTP consulting services provider, Independence Technologies, Inc., announced that it would port Top End to several other UNIX platforms including HP-UX. According to Jeff Stern, vice president of marketing at Independence, interest in Top End has been strong since the announcement, particularly among customers that have a mix of NCR and HP systems.

"Customers who have NCR 3000 installations obviously have an interest in Top End, but also new customers who want to take advantage of the networking capabilities available in Sys-

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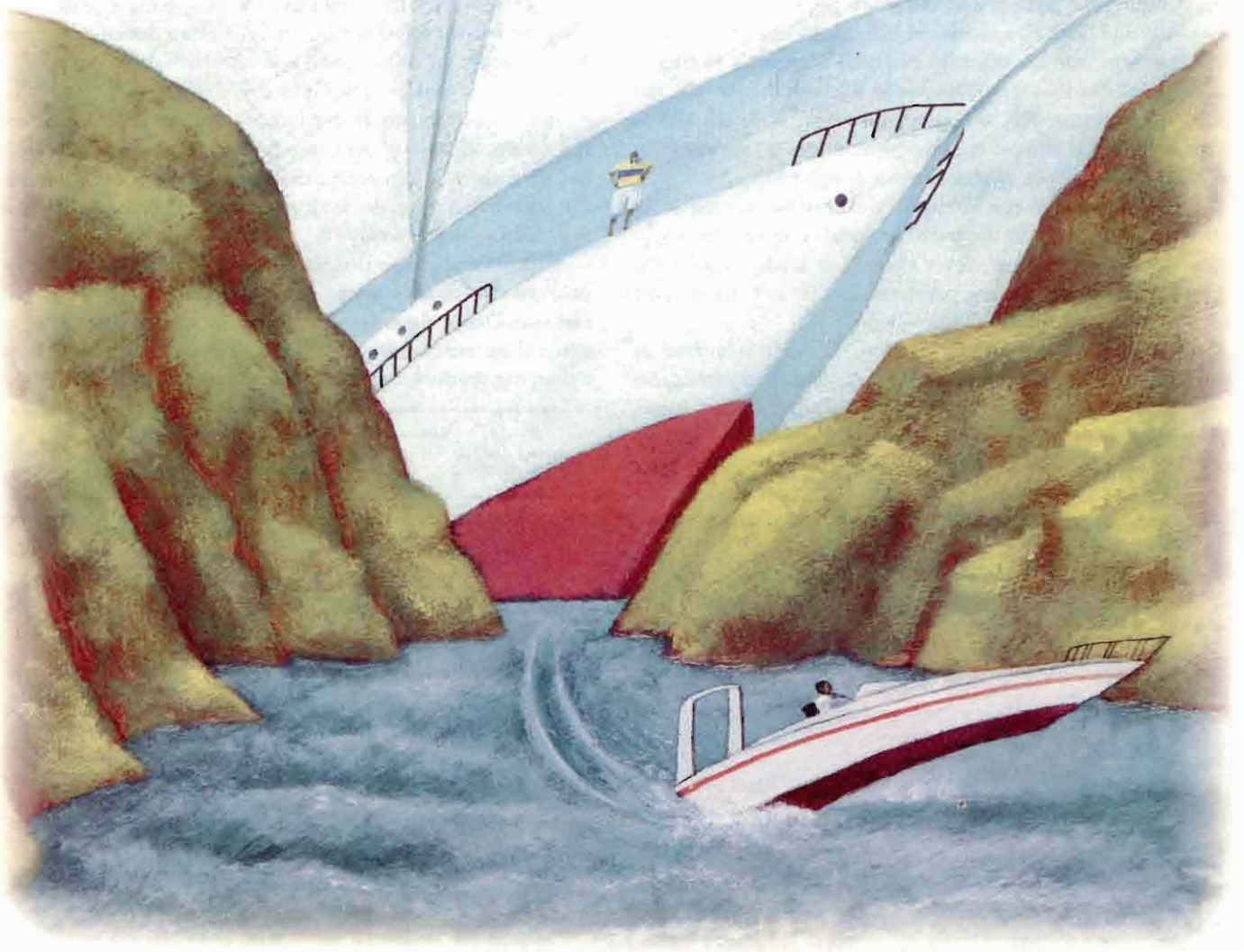

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tem V Release 4," says Stern. HP-UX, which is based on the Berkeley Systems Distribution kernel (BSD), hasn't integrated all of the communications mechanisms included in SVR4. But Independence also did the port of Tuxedo for HP platforms and plans to offer Transarc Encina when it becomes available.

Earlier this year, Transarc, the OSF member responsible for the Andrew File System and reference ports of the DCE for IBM AIX and SunOS, announced Encina, its own DCE-based OLTP system. HP has officially endorsed Transarc's Encina as its preferred distributed OLTP solution for both the HP-UX and MPE/iX platforms. HP 3000 users, however, were advised to stick with MPE's internal transaction monitoring capabilities in situations where open systems are not *de riguer*.

Encina client support is limited to workstations running DCE, which effectively blocks the use of personal computers as workstations until someone is clever enough to kludge a solution. This could pose interesting problems for HP 3000 users, over 65 percent of which use PC front-ends.

Forty-nine percent owned by IBM, Transarc is unique in providing full LU6.2 Sync-point 2-phase commit capability. So far, HP, IBM and Stratus have climbed on the Encina bandwagon, and Transarc has announced reference implementations of Encina for HP 9000s, Sun SPARC and IBM RS/6000 systems, but commercial versions aren't going to be available until sometime in 1993.

None Of The Above?

SO HERE WE SIT with three OLTP systems: one that may be headed for oblivion, one that's tied directly to a proprietary vendor solution and one that's still vaporware. It's enough to make you want to skip the whole deal.

If you need to handle distributed databases, but don't need the distributed two-phase commit capability, you may be able to live without a transaction monitor. With suitable networking add-ons, one of the multiplatform RDBMSs may be able to handle your problem.

Oracle even claims that its Oracle 7 RDBMS has a heterogeneous two-phase commit capability, and can update Oracle and non-Oracle databases simultaneously without the use of an external transaction monitor. At this writing, Oracle didn't have a shipping product, but it was due real soon. We'll see.

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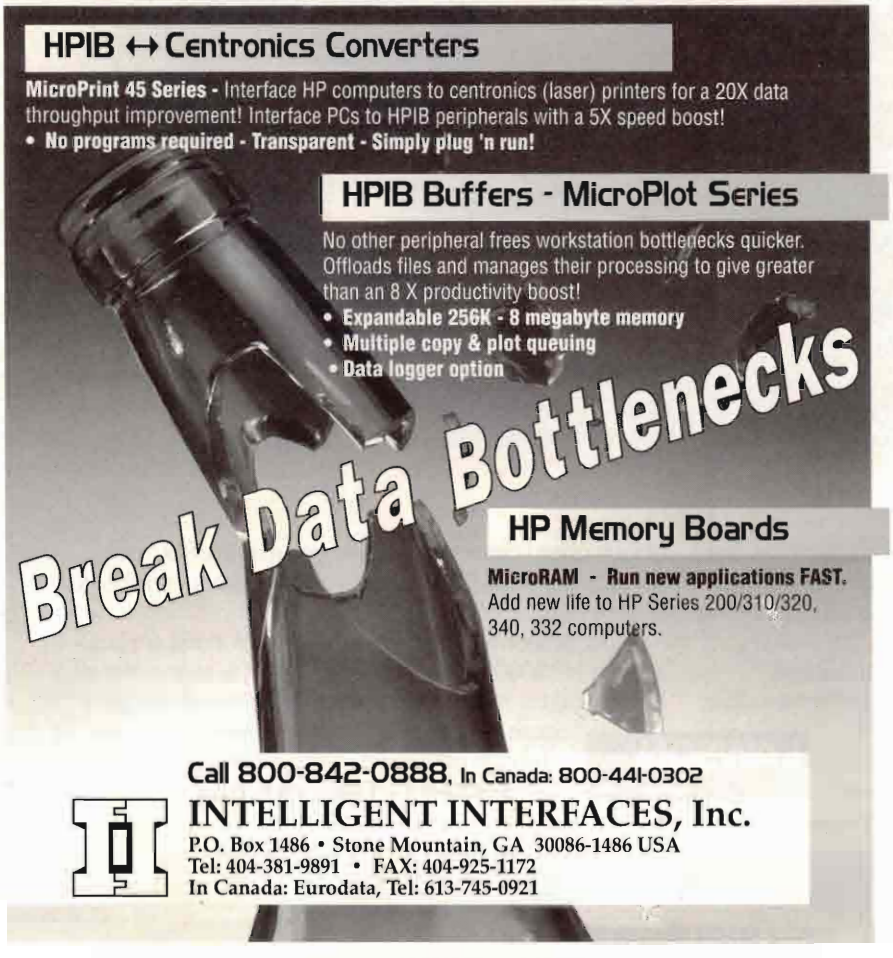

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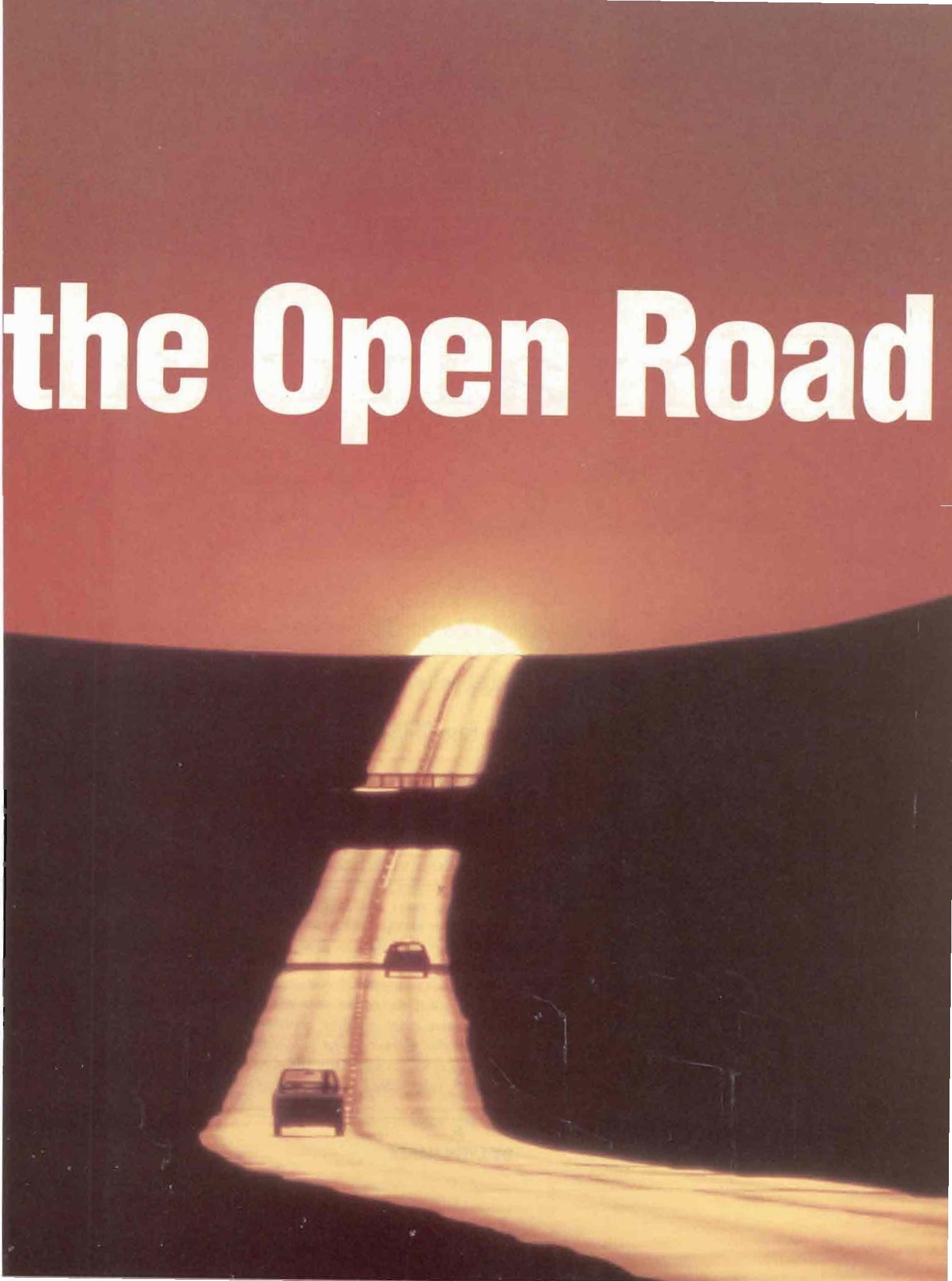

Financial Moves

While Keeping Tabs On Client-Server Computing, Financial Software Vendors Take Open Systems And Ease-Of-Use Into Account

Financial software, one of the most traditional applications available to computer users, has managed to maintain its basic functionality while changing with the technological times. The basic financial modules such as general ledger, accounts payable, accounts receivable, fixed assets and payroll haven't changed much, but many vendors in this market are promising to deliver to their users a new generation of products designed for client-server computing architectures.

"From the users' side, we're not seeing a high demand for a client-server product just yet, but if within the year vendors don't offer this type of alternative, they could be eliminated from further opportunity in the market," says J. Charles Bolinger, vice president of sales at MCBA Inc. (Glendale, CA).

According to Vince Gritsch, value-added business manager

BY LYNN HABER

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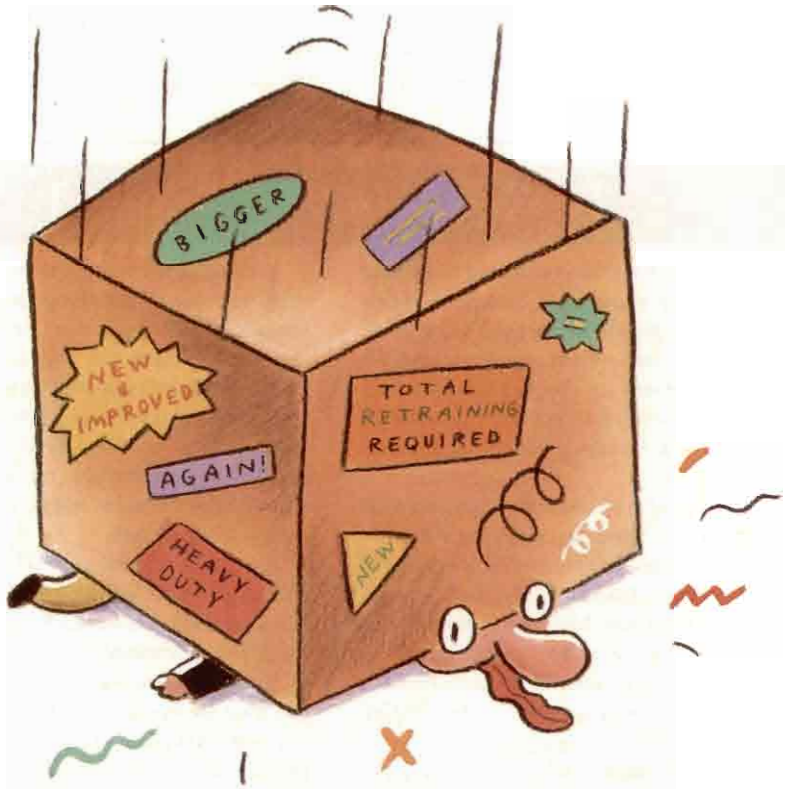

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with HP's Commercial Systems Division, client-server computing is a strong trend taking place in the financial software marketplace. He notes several vendors in the HP arena who are currently overhauling and will soon offer new versions of their products to accommodate client-server environments.

Vendors include: Computer Associates International Inc. (Garden City, NY); Collier-Jackson (Tampa, FL); Cyborg Systems Inc. (Chicago, IL); Dun & Bradstreet Software (Atlanta, GA); Lawson Associates Inc. (Minneapolis, MN); PeopleSoft Inc. (Walnut Creek, CA); Ross Systems Inc. (Redwood City, CA), SAP America (Lester, PA), Smith, Dennis And Gaylord (Santa Clara, CA), Speedware Corp. (Mississauga, Ontario).

Further, notes Gritsch, vendors are focusing their attention on HP's 9000 platform as well as the 3000. "Most software is portable and available on both platforms where previously packages might have been available on the HP 3000 only," he says.

And, whereas in the past many vendors in the financial software marketplace focused their applications on a single proprietary platform, for example, IBM Corp. or Digital Equipment Corp., there has been a shift in the marketplace to open systems and some established vendors have taken note.

Companies such as Dun & Bradstreet, Lawson, Oracle Corp. (Redwood Shores, CA) and Ross HP, significant players in the financial software market have ported their products to the HP-UX platform over the past few years.

Traditionally a vendor of IBM solutions, Lawson began to offer open systems solutions about two years ago. "Changes in the marketplace required that open systems become part of our

[Paradise By The Dashboard Lights]

Do you find that your Windows screen is too cluttered to find the window you are looking for? The tremendous upsurge in client-server applications using PC front-ends has people doing more windowing and multitasking than ever — there's barely room on the monitor for all those icons. Even if you use a Super VGA with 1024 pixels across the screen, accessing business servers and running your standard PC applications can make managing your desktop a little overwhelming.

If this sounds like a problem you have, then HP's newest personal computer software, Dashboard for Windows, might be what you need. Dashboard, introduced just this month, features a number of handy utilities including multiple full-screen "views" of your applications. Dashboard also includes push-button launching of your favorite applications; a clock with alarms and a "snooze bar"; push button access to select which printer you want; and a system resource "gas gauge," which warns you when your resources are low and lets you see which applications are using those resources.

The multiple screen views let you run a number of programs, each maximized, in three, five, or seven different "pages." Dashboard, even as an icon, is visible in each view, and you can switch views with the click of the mouse. Even when it is minimized as an icon, Dashboard lets you switch from view to view depending on which section of the icon you click.

You can define buttons to launch your favorite applications, and still have access to your Program Manager groups. When you want to change printers, you don't need Windows Control Panel: simply click on the printer you want to use on the Dashboard panel.

The clock isn't just another pretty face on your desktop, either. Dashboard's clock lets you define alarms and either run an application or beep you when the alarm sounds. It features a 'snooze bar' like the one you probably use at home every morning: it lets you acknowledge the alarm and go back to work for a while before the alarm will signal again.

For people who use several large programs, the Resource Gauge can be a great tool. Its analog display and digital 'odometer' show how much memory you have left, and you can set alarms to signal you when you are running low.

You can also save layouts with Dashboard, so that the programs you want are opened in the appropriate screens automatically. This can be helpful when more than one person shares a PC, since each person can store their own Dashboard layout.

Dashboard is completely independent of NewWave or other HP software. It runs on Windows 3.0 or 3.1 and features a suggested list price of $99, although the street price will probably be much lower. It should be in your favorite computer store now. — *Miles B. Kehoe, PC/UNIX Editor*

HP's Dashboard for Windows offers a variety of desktop controls useful to PC users in client-server environments.

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CIRCLE 135 ON READER CARD

Vendors are facing three trends in the financial software market: globalization, rightsizing, and the shift toward client-server computing.

business strategy," says Ann Claridge, director of marketing for cross industry products. "Organizations are becoming more global, people are looking to protect their investments and are seeking a more cost effective solution," she notes.

Eric Treatt, director of program services at Wesson, Taylor, Wells, a software consultancy based in Columbia, SC, reports that many businesses are wrestling with several issues that are driving the need for open systems computing.

He points out that not only has it become more important for companies to incorporate other types of information into financial applications but companies are striving for enterprise-wide data sharing as well.

Client-server computing, Treatt notes, takes on a different spin depending on who is doing the talking. "From our perspective, openness does not mandate the employment of UNIX, however, the commercial direction seems to be moving that way," he says.

What client-server computing does imply, however, is compliance with the international Open Systems Interconnection (OSI) model, and the POSIX standard for interoperability. Standards like these enable software portability, the scalability of open architectures, the seamless availability of information.

However, Treatt notes that today, true client-server computing is elusive because of a lack of universal concurrence on standards. For example, OSI has not been widely adopted in the U.S., and although basic connectivity services are provided by a de facto standard, TCP/IP, the application layer is still up for grabs.

Process With Caution

"USERS SHOULD PERCEIVE client-server claims with caution," he says. Treatt suggests that users see what standards vendors are adhering to and what the vendors understanding of openness is and then look at their own computing environment and see how a particular application fits in.

HP's Gritsch reports that today client-server applications offer anything from simply providing a graphical user interface (GUI) to more robust functionality, such as being able to run parts of the application on the client or the server.

More than 24 vendors, including HP, offer financial software packages for HP's 3000 and/or 9000 line of computers.

Introduced in 1990, HP's Financial Management software targets HP 3000 users in the manufacturing market, according to Debora Sobottka, product manager. The product was enhanced in late 1991 to focus on the needs of the international business community including features such as currency evaluation, foreign languages and localized country requirements.

While HP has no current plans to release a client-server version of its Financial Management software product, Sobottka says that the company is investigating a move in that direction.

Lawson now offers its Accounting System for HP 9000 Series 800 systems. Integrated application packages include general ledger, with optional modules for ratio analysis, cost allocations, flexible budgeting and financial report writing; accounts payable, accounts receivable, fixed assets and project accounting.

Claridge, notes that the company is facing three trends in the financial software market: globalization, rightsizing, and the shift toward client-server computing.

Today, notes Claridge, all that users expect of client-server computing is the ability to run the software in a Windows environment. "More sophisticated requirements just aren't there yet," she adds.

However, her company is working on a full-fledged client-server version of its software. Lawson financial products today work with both the Oracle and Informix relational database. The company plans to move to other databases as well, says Claridge.

Lawson will reportedly make its financial software available to HP3000 users Q1 '93.

Oracle Financials Release 9.0 are presently available to both HP 3000 and 9000 users. According to George Coch, senior vice president of applications, the latest version follows tough quality assurance testing to combat previous product flaws.

In July, the company announced the Oracle Business Manager to provide a cooperative processing GUI to Oracle Applications under Microsoft Windows. Coch contends that Oracle offers users a client-server architecture allowing them to choose the computing environment that best meets their needs.

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One of the most adventurous of new financial accounting applications is an imaging-based financial management system from Computron Technologies Corp.

business solutions on the HP 3000. John Leslie, senior vice president of operations says the company plans to move to a client-server architecture by year-end 1993. As promised last year, Cognos released Powerhouse 7.0 which allows Multiview to migrate to a client-server environment. Powerhouse 7.0 currently delivers full Microsoft Windows functionality on the PC.

Computer Associates will make its first foray into the HP market with Masterpiece Release 3.0 for the HP 9000 by Q1 '93, according to Kurt Seibert, vice president. Previously serving the IBM and DEC marketplace, CA recognized the user demands and moved to HP-UX. "We go where the industry goes," says Seibert.

In keeping with market trends, Masterpiece Release 3.0 offers users international support such as currency conversion and language translation. The company also offers value-added applications such as MasterStation, which provides LAN-based client-server, cooperative processing; MasterEDI for users interested in electronic data interchange; and, MasterVision for multidimensional modeling and analysis.

ASK Computer Systems (Mountain View, CA) currently offers MANMAN, a manufacturing business management system on the HP's 3000. According to Diane Belknap, HP product line manager at ASK, the company plans to introduce MANMAN/X, a new version the company's product on the 9000 in October 1992, and a year later on the HP 3000. MANMAN/X includes relational database technology, 4GLs, UNIX and POSIX compliance, says Belknap. Expect to see client-server products roll out over the next three to five years, she adds.

One of the most adventurous of new financial accounting applications is an imaging-based financial management system from Computron Technologies Corp. Using Computron's multiplatform N-Dimensions Technology, digital images of all

HP MARKET ACCOUNTING AND FINANCIAL SOFTWARE VENDORS

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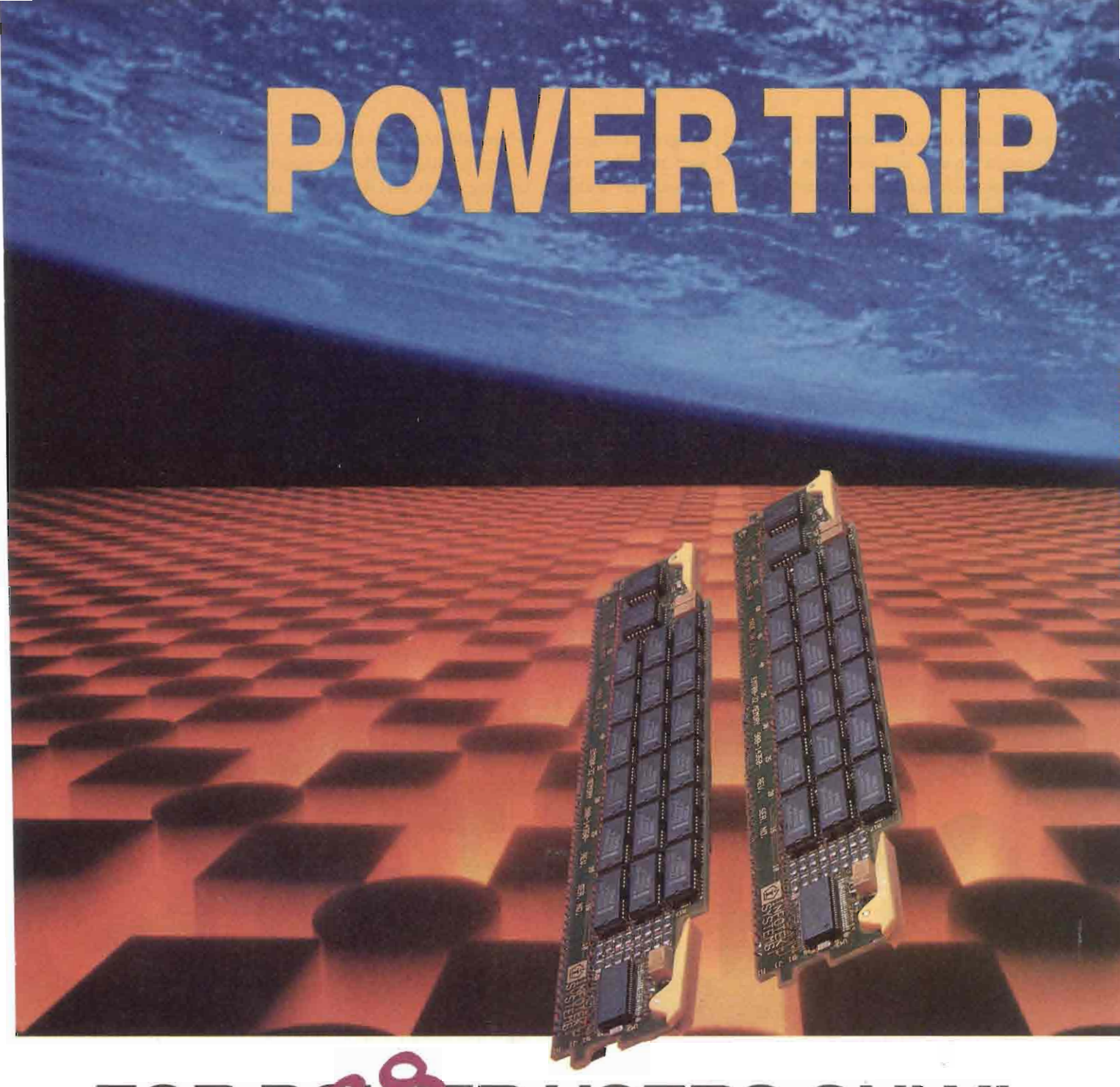

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paper-based documentation are integrated into general ledger, accounts payable and receivable, and fixed asset modules. N-Dimensions is available now on the HP 9000 and may make the move to the 3000 next year.

Long-time HP 3000 ISV MCBA (Glendale, CA) now offers its Classic Accounting Software on the HP 9000. Last year, MCBA's product was able to talk to data residing on an Informix database. In March of this year, MCBA gave users the capability to talk to an Oracle relational database as well. In June 1992, MCBA released Resolution, a product line that includes the company's financials, written in Oracle's SQL-Forms Version 3.0 for the HP 9000.

By year end, another 3000 veteran Mitchell Humphrey & Co. (St. Louis, MO) plans to release its Financial Management software on the HP 9000. Ken Benvenuto, senior vice president of operations says that a key market trend is making the software more intuitive to use. To this end, the company is working on its next generation of product.

Meanwhile, Mitchell Humphrey introduced two client-server-based tools this year. One product is a PC-based report writer that can communicate with the HP 3000. The second product allows information to be uploaded and downloaded from the PC to the 3000.

Financial management software from Sotas International (Haverhill, MA) is available for both HP 3000 and 9000 users. Arthur J. King, marketing director says that the company is keeping an eye on client-server computing but has not made a commitment to move in that direction.

In addition to being available on the HP 3000, Collier-Jackson's World Class Series software appeared on the 9000 in September.

While the move to an open systems environment is new for the company, the product itself will remain the same, Warren Fletcher, general manager, says. "What will be new is the look and feel, the software will be more self-guiding," he adds.

Collier-Jackson has made client-server versions of its Human Resource and Payroll modules available. However, the company has not set an introduction date for similarly functioned accounting software, although it is reportedly working on its next generation of product.

Ross will make it's financials available to HP 3000 and 9000 users by Q1 '93. About the same time expect to see client-server-based financial software from Dun & Bradstreet and SAP America. — *Lynn Haber is a Boston-based freelance writer specializing in computer and communications technology.*

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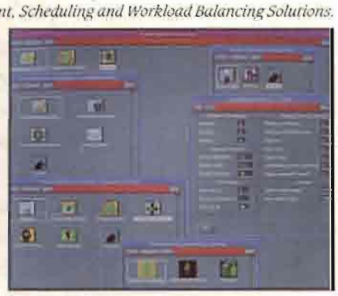

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Living On The Fault Line

BY BILL SHARP

When Downtime Causes Untimely And Costly Interruptions In Your Business Environment, It's Time To Invest In A Fault-Tolerant System

► If you use the computer to play games or to do something really challenging like balancing your checkbook, then to watch your program go bye-bye is irritating, but not devastating. But imagine you're a doctor working in an intensive care unit, with your patient on the verge of cardiac arrest, trying to check crucial patient records on the room terminal, or envision yourself sitting at a console doing air traffic control work with three airliners on converging vectors — and the system "goes down." Suddenly, the difference between being down for hours and minutes versus milliseconds becomes a crucial factor.

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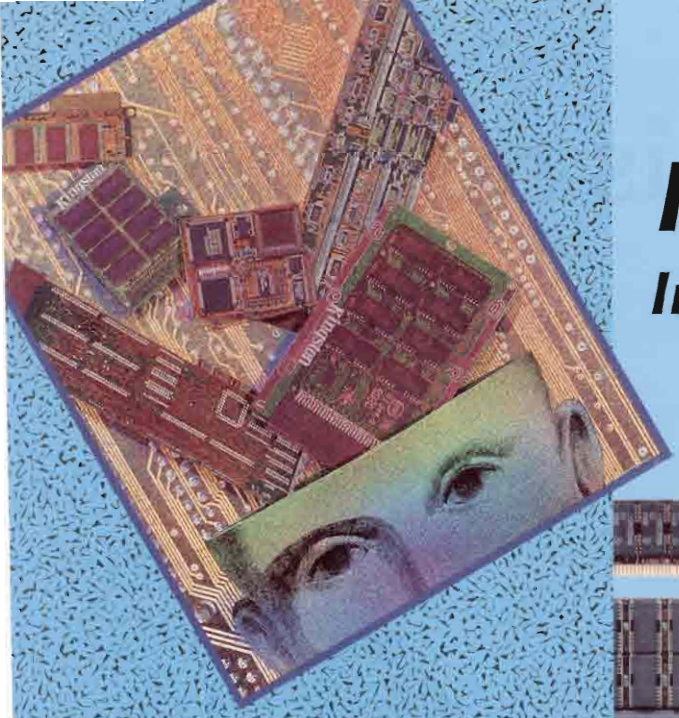
That whoopie pie is shared by Tandem, with nearly 70 percent of the market, Stratus Computer Inc., with about 24 percent of the market, and Digital Equipment Corp. and Sequoia Systems Inc.



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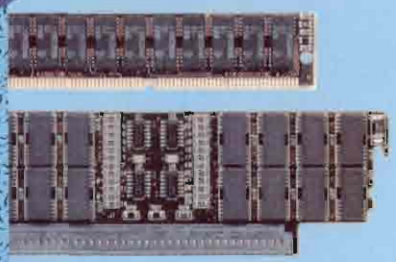

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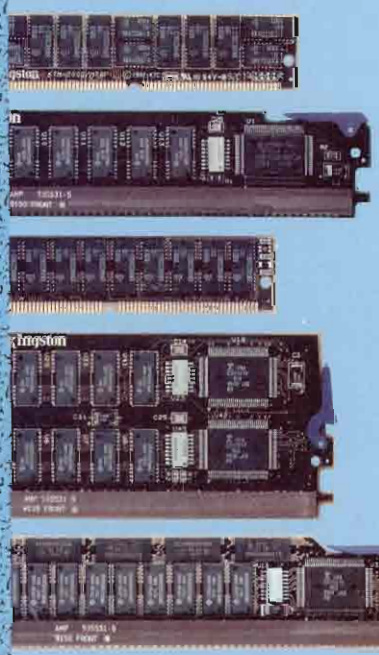

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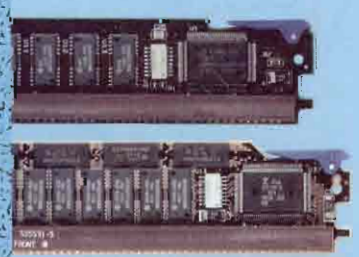

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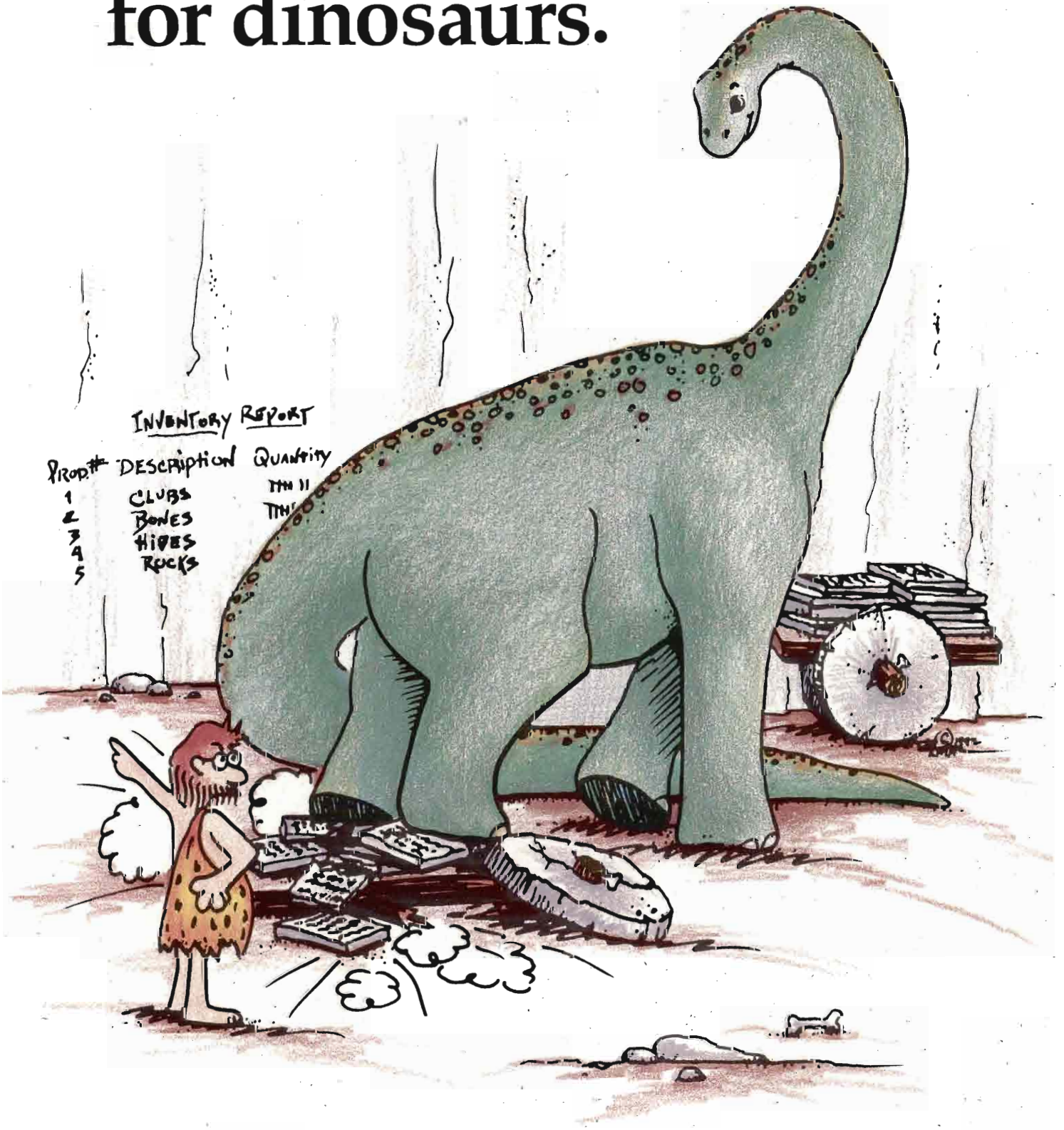

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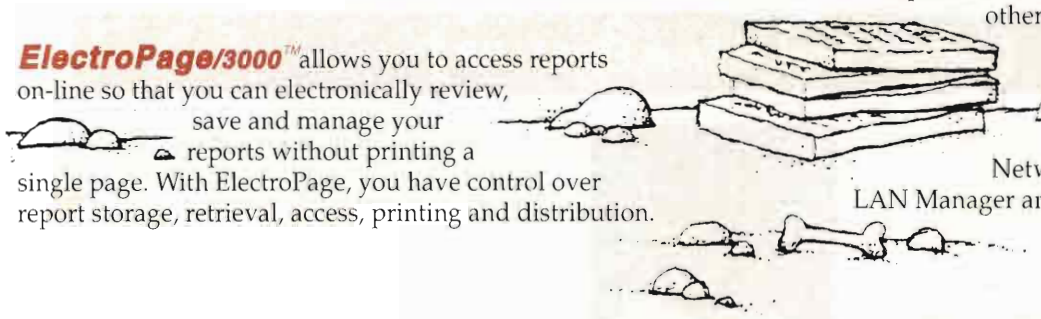

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sharing the remaining few percent. As a separate vendor, HP fault-tolerant systems are nearly non-existent. That may be changing, however, as demand for FT systems and HP's clout in the computer business both generally increase.

Fault-tolerance (FT) is simple in concept. Computer designers provide duplicates of system components so that in the event that one fails, another can take over, typically before the user is aware of the problem (in milliseconds), with no data loss. Effective FT systems also include operating system and software modifications to ensure that the entire system remains functional. This contrasts with traditional computers, which lack redundant components, may be down for hours and lose all data not backed up, and with "highly available" systems designed to lose only active transactions when they go down, and that recover within a few minutes.

"As we become a more global society, people tend to keep their computer systems up 24 hours a day," says A.J. Berkeley, vice president of marketing for Sequoia Systems Inc. (Marlboro, MA). "Our business is a good example. We have support people on the phone in shifts, with one team in the U.K., then later another in the U.S. takes over, and then [one in] Australia. But there is one computer system running at all times that holds the support information; 24 hours a day, seven days a week."

Naturally, the computer described by Berkeley is a Sequoia FT system. It isn't allowed to go down, even for upgrades, because the risk to Sequoia's customers would be intolerable. "If you have a system that fails once every two years, we say that is not good enough anymore in a service-based economy," adds Berkeley.

A Worthwhile Investment

ANOTHER FACTOR THAT DRIVES users toward fault tolerance is the need for more complex computing systems. Performance gains these days are going at the high end to multiprocessor systems, and systems with larger, more complex memory and lots of links to other systems. This complexity creates more possible failure mechanisms. As Berkeley points out, the more parts there are in the system, the greater the likelihood that one of them will fail — and the stronger the argument for FT design to protect users from these failures.

These pressures force more users to look seriously at fault-tolerant systems as a smart investment. Raanan Peleg, business development manager for HP's Series 1200 FT systems, quotes estimates from market research firm Infocorp that 1991 fault-tolerant sales totalled $2 billion, and will reach $2.8 billion by 1995. Proprietary systems still account for the vast majority of current fault-tolerant sales ($1.9 billion for 1991). However, Infocorp projects proprietary FT growth at 10 percent per year, while UNIX FT growth will steam ahead at 40 percent per year. HP's target is a 25 percent share of the telecommunications FT business, the fastest-growing market segment.

[STRATUS SHOPPING SPREE ENDS AT HP]

Cranes jut high in the sky in Hudson, MA, hoisting girders for construction of a manufacturing plant for systems based on the new Alpha architecture from Digital Equipment Corp. From their windows in the new building, DEC employees will be able to gaze across the street at Stratus Computer Inc., where engineers will be hard at work preparing to ship new fault-tolerant systems based on rival PA-RISC chip designs from HP.

The Stratus decision to move to HP technology for future fault-tolerant systems comes after a protracted window-shopping spree that included examinations of offerings from all the leading chip vendors. Although Stratus has been using Motorola chips for some time and recently announced new systems based on the Intel I860-XT RISC chip, it has formally announced its intention to move to PA-RISC.

"We think that in the mid-90s there will be several good chips, but HP will be leading the pack," says Jim Holley, director of systems products for Stratus. Holley conceded that Stratus examined designs from other leading vendors, including those mentioned above, as well as MIPS, Sun Microsystems (SPARC), IBM (POWER) and DEC (Alpha). He noted that Stratus has its own models for what it needs in future chip designs, and examined cache size as well as technologies including superscalar and superpiplining in making its decision.

He noted that replacing Intel chips with HP designs in future Stratus models would likely require no more than a board swap. "Source code will remain compatible with the previous models and require only a recompile to make the change."

It is a measure of the optimism HP, Sequoia and Stratus feel about the fault-tolerant market that they feel secure in basing their competing product lines on the same chip designs. All three are convinced there will be enough growth in the offering to satisfy their combined appetites.

You have to wonder just what kind of silicon Stratus saw to bring on such a shift. PA-RISC chips planned by HP for the mid-90s must be impressive indeed to compel Stratus to risk the wrath of Ken Olsen's cranes across the street.

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Historically, the benefits of FT technology have come at a considerable price premium. "Four to five years ago the premium was 400 to 500 percent," says Peleg. "UNIX market competition has pushed that down. Now we see a 50 to 100 percent premium at the low end, about a 50 percent premium in the midrange, and in high-end systems where components are already redundant, the price difference is virtually a wash."

HP's Place In the Market

UNTIL THIS SUMMER, HP competed only in the midrange and high-end portions of the FT market, conceding the low-end to other vendors. Until mid-June, HP offered two fault-tolerant models the 1240 and 1245, both made by Sequoia and sold by HP under an OEM agreement. The 1240 sells for $410,000 and up, and the Model 1245 sells for $570,000 and up. With the introduction of the Model 1210, also produced by Sequoia, HP for the moment has seized the low-end price point for FT systems.

HP's Model 1210 provides:

- Base price of $165,000.
- 40 TPS estimated performance.
- 80 mips.
- Object code compatibility with 1240 and 1245.
- Up to four-way symmetric multiprocessing.
- Up to 32 I/O slots.
- More than 52 GB maximum storage.

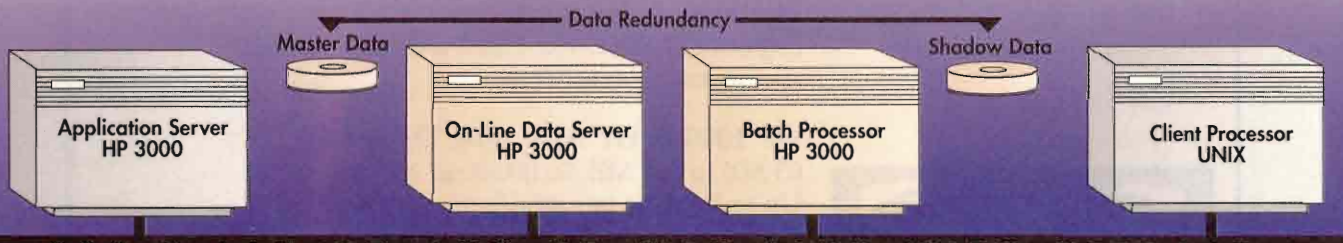
Hardware fault detection with software-based recovery are both implemented in the 1210. The system is based on Motorola 25 MHz 68040 processors for two-way or four-way multiprocessing. The system supports up to 192 MB of shadowed memory, mirrored disks up to 52 GB and up to 900 users.

HP cites the closest competing products as the Tandem Integrity Model 300, DEC FT models and Stratus XA/R Model 20, noting that the 1210 outperforms them both in nearly every category, at a lower price.

The 1210 was developed cooperatively by Sequoia working in tandem (no pun intended) with Samsung Electronics Co. (Seoul, South Korea), which co-designed and manufactures the system. Alert readers will recall that Samsung also has separate cooperative agreements with HP for PA-RISC system development.

One market where Sequoia is too small to get much attention is telecommunications, into which HP sells increasing numbers of computer systems. Sequoia granted HP exclusive rights to sell into this market, which is in fact the target for HP's introduction of the 1210.

NEED HORIZONTAL GROWTH?



802.3 LAN OR ANY HP WAN LINK WITH NETBASE

NetBase is comprehensive networking software that allows a network of computers to work together as one large system. Data centers with one or more computers can immediately benefit from NetBase's powerful capabilities.

If your organization has a need for more processing power, transparent network file and program access, or fault tolerance, NetBase is the solution. Whether it's Unix, MPE, or DOS based clients, NetBase services allow you to preserve your hardware and software investment while moving toward Open Systems solutions.

Companies needing more compute power can simply add another computer and use NetBase to distribute their applications. The result is better performance and less cost.

- Spreads file and database I/O across nodes (database engine)
- Increases application performance
- Remote file access without remote sessions or DSLINES
- No application changes required
- Immediately improves performance for users of NS/3000
- Shows network activity for security and monitoring
- Uses low overhead transport algorithms
- User exits (API's) increase functionality and flexibility
- Support for NFS clients

HP hopes to sell large numbers of the 1210 for uninterruptible management of:

- Local telephone networks.
- Development of advanced intelligent networks (AIN).
- Cellular phone networks.
- Messaging services.
- Customer support.
- Communication servers.

Outside of the telecommunications market, HP and Sequoia are teaming up to market the HP 1200 family for medical applications, where HP's medical divisions already have a sizable presence. Sequoia recently announced FT systems for the Massachusetts Utility MultiProgramming System (MUMPS) integrated programming language and database management system desired by the healthcare industry. HP and Sequoia foresee significant demand for FT systems in patient records systems, a market in which HP is already active.

Other markets for which HP sees growing FT demand include financial services, railroad tracking, airline reservations, air traffic control, and local government emergency 911 systems.

For large numbers of commercial systems, both Sequoia and HP report that FT capability will increasingly become not only a costly add-on that is nice to have, but an expected part of every viable system, provided at little price premium. For this reason, HP and Sequoia are hard at work on future models for the 1200 line.

HP's Peleg says HP has plenty of input, and the next design for the line will be aimed at meeting telecommunications needs for central office switching applications. "It will meet Bellcore requirements for placement next to switches, resistance to temperature and earthquake damage and capability for alarm and fault services," he says.

Future Sequoia/HP systems will include PA-RISC chips to improve performance, although just how soon this change will take place is unclear. However, the advantage to Sequoia of using these chips is clear to its competitors, who are responding. Stratus Computer Inc. recently announced that even as it was about to unveil its latest FT model based on Intel chips, it has decided to develop future designs based on PA-RISC. These models are expected to debut in late 1994 or early 1995.

In one way or another, HP is destined to be a major player in the fault-tolerant computer business, and may soon be controlling the switching of your telephone calls, or placement of your airline reservations – not to mention the balancing of your mission-critical checkbook.

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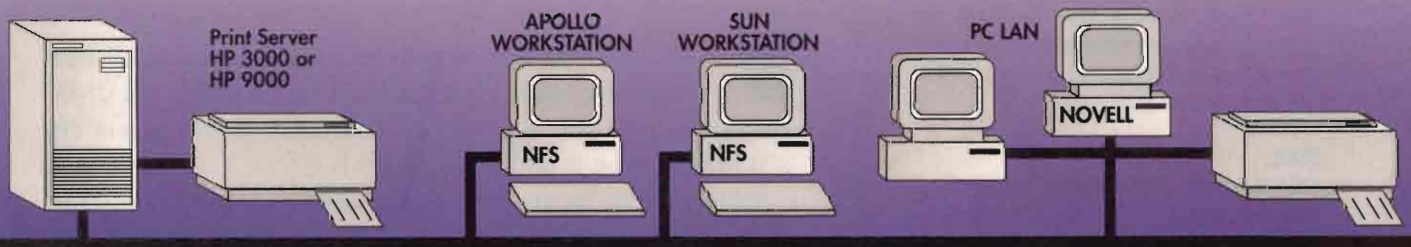

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By giving users concurrent access to both master and shadow copies of data, NetBase-Shadowing lets you off load busy systems. Batch reports and inquiry access can take place on the shadow computer while users continue to access data on the master.

In addition, disaster recovery is simplified when multiple copies of your data exist on the network. Should a machine fail, all file access can be redirected to another computer almost instantly, bringing an otherwise down application back on-line in an incredibly short period of time.

With increased performance, 24 hour uptime and on-line back-ups, NetBase-Shadowing provides options for expanding data processing needs never before possible.

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ONC/NFS

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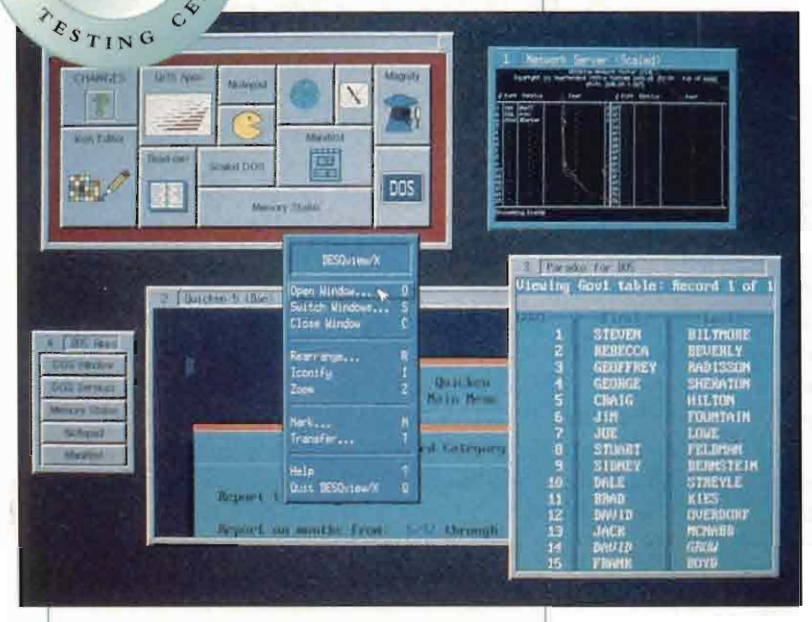


X Windows On The World

Quarterdeck's DESQview/X

SYSTEM REQUIREMENTS:
IBM-compatible PC (386SX or higher) running DOS 3.0 or higher or DR DOS 6.4; 10 MB free disk space; EGA, VGA, super VGA, 8514/A or DGIS graphics adapter; Microsoft-compatible mouse or other pointing device; network connection.

PRICE:
DESQview/X, including QEMM-386, Manifest and DESQview/X Network Manager for Novell NetWare and NetBIOS networks, retails for $275. Optional DESQview/X Network Manager for TCP/IP and DESQview/X OpenLook Window Manager is $200.
DESQview/X OSF/Motif Window Manager is $250.

Quarterdeck Office Systems Inc.

150 Pico Blvd.
Santa Monica, CA 90405
tele: (213) 392-9851
fax: (213) 314-4219

CIRCLE 305 ON READER CARD

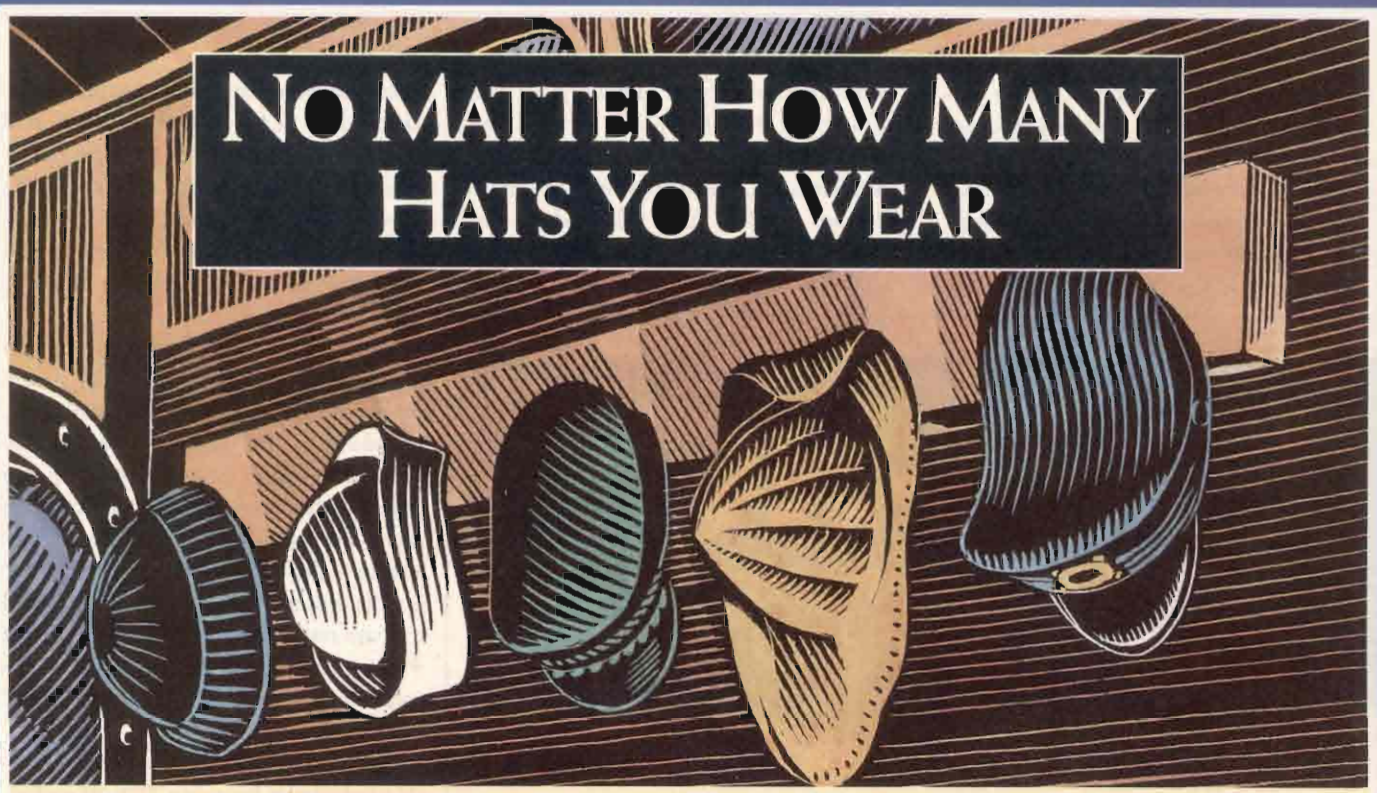
Quarterdeck Office Systems' DESQview/X: At Last You Can Integrate HP-UX Workstations And Servers With Your DOS PCs

With DESQview/X, Quarterdeck Office Systems Inc. has delivered a seamless technique for integrating DOS-based PCs and UNIX environments. The result is a full client-server implementation of the X Window System in the DOS world.

DESQview/X adds workstation power and graphics to a standard DOS PC, making use of your existing hardware and software. Running on top of MS/DOS 3.0 and later or DR DOS 6.4, it allows 386SX and higher PCs to multitask DOS and Microsoft Windows programs, as well as local X applications.

Included with DESQview is QEMM-386, Quarterdeck's extended memory manager, and Manifest, a memory reporting and analysis program. These programs, which require approximately 4 MB of memory, must be included in a minimum installation. Companion programs, which require 2 MB, include a graphical desktop Application Manager, a File Manager, a graphics tool for creating icons and buttons called the Icon Manager, and an Adobe Type Manager for providing scalable DOS windows for text applications, as well as outline font capabilities. Utility programs, including link libraries, help and X Window System

MARTY LEVINE



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KLA/Express is the smart way to teach your CPU to wear almost as many hats as you do. Simply put, it's the system manager's system manager for MPE V, MPE/XL, or stand-alone UNIX.

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demonstration programs, require approximately 4 MB of memory and are included.

We performed a full installation on a 486 clone running MS-DOS 5.0 by typing **A:install** and swapping the floppy disks. Because QEMM-386 provides the same functionality as HIMEM.SYS, we removed HIMEM.SYS from our CONFIG.SYS file before beginning the installation. QEMM-386 and Manifest files are installed first, followed by the DESQview/X files.

When the installation is complete, the optimize program runs automatically. Optimize scans CONFIG.SYS and AUTOEXEC.BAT files to determine which TSRs and device drivers can be moved into high memory from conventional memory. This maximizes the amount of memory available to run DOS programs.

To use resources of other systems on the network and allow machines to use the resources on the DESQview/X PC, we identified the name of the PC. Because the PC rests on top of PC/TCP, we assigned the same unique system name when configuring both packages. We also included the name in the host's file on the systems with which we wanted to share resources. We also ran the **xhost +** command on each host to permit remote clients to use the DESQview/X PC as a display.

Each communications service you enable requires at least one TCP/IP socket, although FTP Software provides four free sockets by default. Network buffers also can be increased to improve network performance. We increased the parameters by modifying the line that loads the FTP kernel for the network interface card in our AUTOEXEC.BAT file to 16 sockets and eight network buffers.

After all the files are copied, **install** automatically adds the existing programs on the PC to the DESQview/X open window menu and the applications manager window. The setup program is run, accepting defaults that can be changed at a later time, if required. All options, including display, keyboard, mouse, printer, network, startup, window manager and time performance, can be reconfigured by running the setup program from the DOS prompt or from within DESQview/X.

Sharing DESQ Space

Beyond its windowing and multitasking capabilities lies DESQview/X's distributed computing capability. This is perhaps the most remarkable feature. Two DOS-based PC users can share files, applications and devices that reside on either system. There are other products on the marketplace that permit DOS users to take over

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CIRCLE 472 ON READER CARD

other unused DOS workstations on the LAN, but the other DOS workstations become dedicated to the controlling user. DESQview/X allows a user to run an application on another user's PC while that user is performing some other task.

Even more remarkable is the capability provided to X terminal or workstation users which allows them to run DOS applications as clients on the DESQview/X workstation. X users see DOS applications running in front of them on their display. However, the actual application is executing on the DESQview/X DOS machine. In the past, the only way to come close to performing such a feat was to use DOS under a UNIX emulator. DESQview/X allows you to add a DOS application server to your network, a server that can be accessed by several X terminal users at the same time.

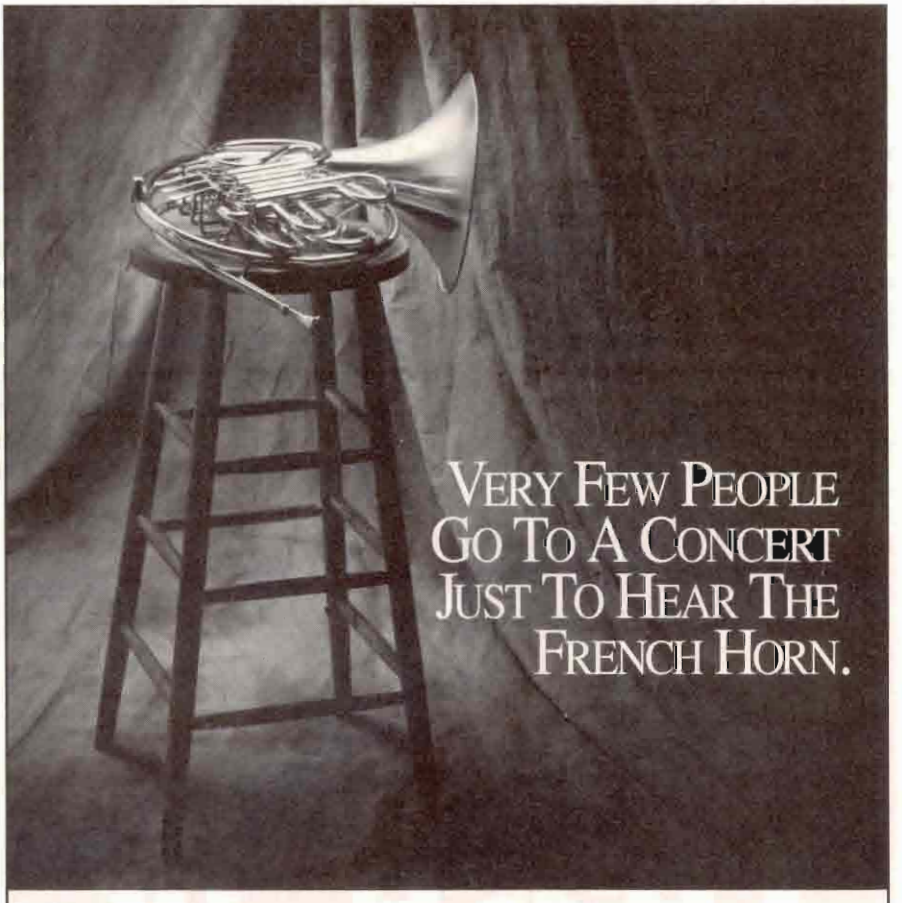
We verified that the system was prepared to accept X-Server connection requests by running Qconnect, a DESQview/X-provided utility. Ready to begin our remote computing capabilities, we started by typing **dvx**. The menu displayed the master list of available commands, including the ability to open and close windows, switch to another window, rearrange, help, quit, and so on.

Outside Your Window

To run a program, we had to choose Open Window. The Open Window menu lists all the programs that have been installed in the software, as well as other menus to get to more programs. From the Open Window menu, we selected remote DOS and were prompted to enter the name of the DESQview/X PC. We connected to a laptop PC and without difficulty, began programs on the remote machine from the DOS window displayed on our system.

Because connecting between a DOS PC and a UNIX server seemed mysteriously exciting, we gave it a go. Using non-DESQview/X systems, such as X workstations or X terminals, requires some additional information before connecting. We gathered information about the various host names and passwords of the hosts systems we wanted to connect to. Using **ping**, we verified the connection to our HP 9000/834, Sun IPC, and DEC 3100 hosts. We opened a DOS window on our DESQview/X PC and made a Telnet connection to the HP 9000 host. By entering the name of an X Windows program on the remote system and sending the display to our DESQview/X PC, we easily started the X programs.

We also could use the remote shell command, **rsh**. This sends a command line to a remote machine, which will in turn execute the command for the initiating user. By entering **rsh labsun -l**



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CIRCLE 180 ON READER CARD

Thanks to DESQview, files, printers, processors and memory on DOS PCs no longer have to be locked away from the UNIX users on your network.

marty maze -display labdv:0, we displayed the maze program running on the HP 9000 to our PC. The **rexec** command can be used in place of the **rsh** command if the system you're connecting to prompts for a password.

Connecting to the DESQview/X PC from a non-DESQview/X system was just as easy. Any DOS character-based program, Microsoft Windows application or X Window System program can be used. A totally unmodified DOS program can become an X client usable on any X server. To start a DOS session on the DESQview/X PC and display it on the HP 9000, we entered **rsh labdv -l marty DOS**. A DOS window displayed on the HP host, permitting us to run any application on the DESQview/X PC. The function keys worked just as though we were sitting in front of the PC. We were able to print to the connected printer and even dial out on the modem connected to the PC.

We opened multiple DOS windows to the DESQview/X PC from a variety of UNIX host systems simultaneously. At the same time, we could use the PC for local applications. And, we could run the DESQview/X companion programs from any location. The File Manager companion program permitted us to display a listing of the files on the DESQview/X PC and the HP 9000 on the same screen. We could then move and copy files between the systems by clicking on the appropriate buttons.

Thanks to DESQview applications, files, printers, processors and memory on a DOS PC no longer have to be mysteriously locked away. Instead, these resources can be transparently accessible for each user. So, if you want UNIX to DOS windowing, one solution is DESQview/X from Quarterdeck Office Systems Inc. ■

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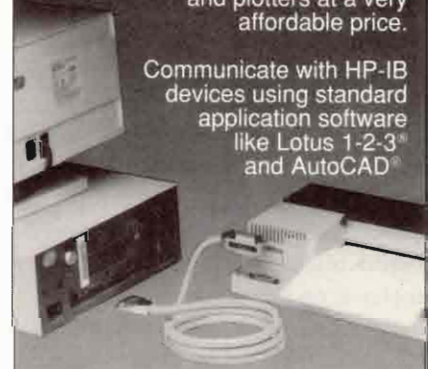
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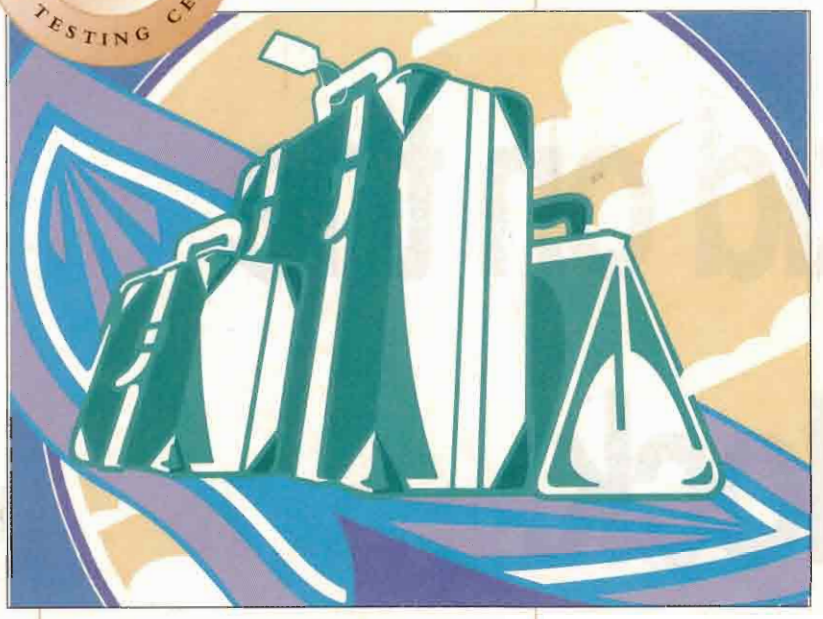

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Paralog's TRIP

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- User interface built on OSF/Motif.

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PRICE:
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CIRCLE 306 ON READER CARD

Paralog's Text-Based Database Delivers Mind-Blowing Performance — No Matter How Far-Out Your Data Is

TRIP, a text-based database management system from Paralog Inc. (Sherman, CT), isn't a psychedelic experience, but it could alter your perceptions — of database performance, that is.

TRIP is well-conceived and even more remarkably well-accomplished. The package can handle several databases simultaneously. Those databases can, in combination, literally take up as much disk space as your HP machine can offer; the theoretical upper limit is 2-to-the-32nd-power blocks. With a block size of 2 KB, this works out to quite a gaggle of gigabytes, to say the least.

And, those databases don't need to share a common structure; neither record or field names, nor record or field data types, nor even record or field lengths, in any one database must resemble any one of its peers in any other database, in order to allow TRIP to be able to search across them simultaneously. In a nutshell, schemas don't need to match. Further, in a search of a single database, TRIP averages only two seconds to find a single item in a database that is 16 GB in magnitude.

TRIP uses what Paralog calls an inverted file index. This means that every field in the database can be indexed, and further, that searches can be carried out based on the contents of any field. Think of the consequences of this capability. No item of information in a TRIP database

MICHELE PETROVSKY

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- Create mailing labels.
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- Works from terminals, PC's or even batch jobs.
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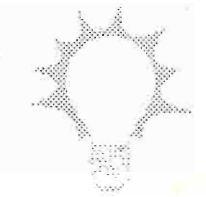

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CIRCLE 459 ON READER CARD

needs to be considered inconsequential. If, for whatever peculiar reason, you want to conduct a search of your database based upon occurrences, and variations of those occurrences, of the string "42fortytwo", TRIP will be more than happy to take on the job. And, it can do that job not only under HP-UX but also through SUN OS, RISC Ultrix, VMS and Windows. So even if yours is a mixed environment, TRIP can navigate it.

Born To Be Wiid

TRIP's database engine is, as we've mentioned, specifically designed to handle large amounts of variable-length text data. Like more garden-variety databases, a TRIP data file is organized into records and fields. However, TRIP also supports many unconventional data types. In addition to integer and real numbers, and date, time, and string fields, TRIP accepts free text and phrase as data types, and can allow graphics and other unusual materials to be stored as strings. The data type free text can be further subdivided into paragraphs, sentences and words.

A benefit of this subdivision is the fact that TRIP can do positional searches; it can literally find Word A and Word B in the same paragraph or sentence, with the further criterion that A and B be separated by two other words.

Physically, a TRIP application consists of several files. A "BAF" file contains the actual data. Two other files hold indexes to that data. One of these, the Base Index File (BIF) stores positional information for items in the BAF file. The other, the Vocabulary Index File or VIF, is the index file for BIF. In effect, VIF contains pointers to items that are only parts of fields indexed in BIF.

TRIP also makes use of another file, which is itself a TRIP database, but which, rather than containing user-initiated data, holds control information regarding many aspects of how TRIP operates. That is, this Control File is TRIP's way of managing users, user groups, output formats, entry forms, search forms, and procedures/macros. TRIP gives you the ability to create all of these entities. It then administers them for you by means of the Control File.

Question Authority

As its query language, TRIP uses something called the Common Command Language (CCL), which follows the ISO standard for query languages for text databases. CCL includes all the standard search and query capabilities that any database would be expected to handle. Those in need of complex Boolean facilities will be glad to know that CCL can handle such relationships easily, no matter the degree to which they are nested or chained. Further, as one would expect of a text database worth its salt, CCL can:

- Use left and right truncation, and wildcards, in searches.
- Carry out proximity searches.
- Report on the frequency of occurrence of a search term.
- Do thesaurus searching, that is, find not only requested items but synonyms and even near-synonyms for those items.

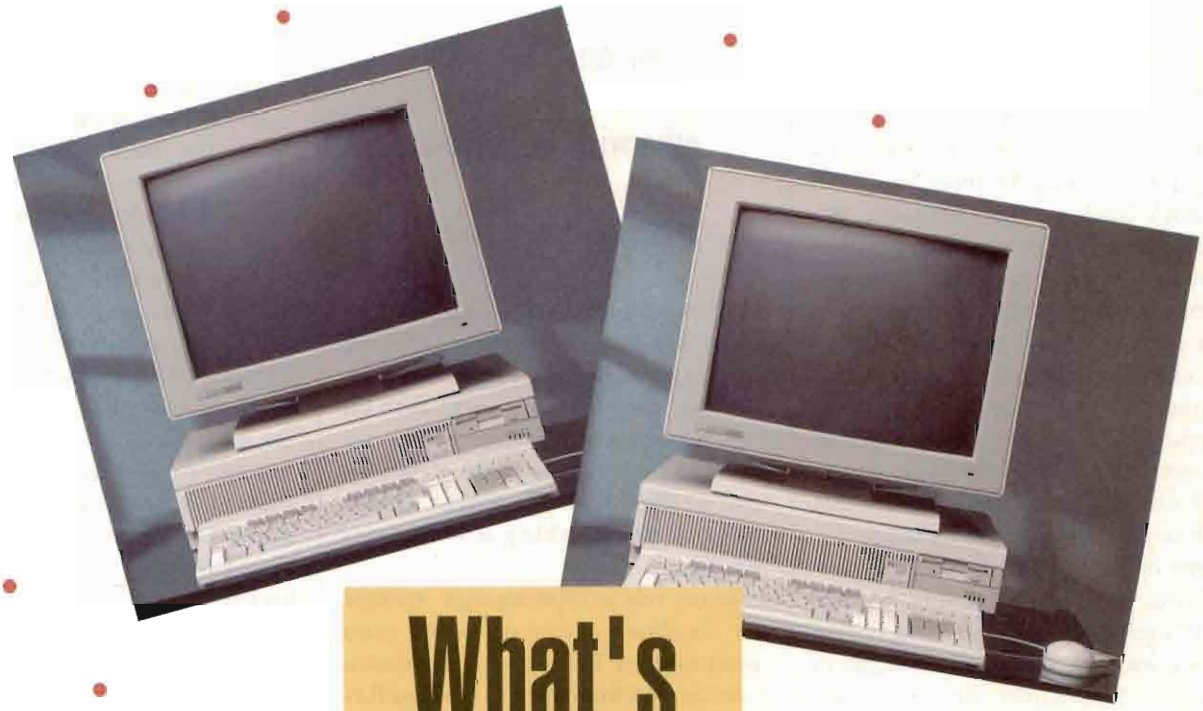
For the programmer, TRIP offers an interesting feature called an Application Software Exit (ASE). An ASE is application-dependant code that becomes part of a TRIP database structure. ASEs define exit points from the standard TRIP code into user-written subroutines. Typical uses of ASEs include:

- Passing a "hit" from a TRIP search to the user-written routine as an argument.
- Automatically passing hits from TRIP searches to predefined output formats.
- Using the ASE to carry out error checking of user-defined extent on data entry.

Finally, Paralog now is working on what might be called an extended Boolean search capability that not only finds occurrences of search terms, but also weights those hits according to user-defined rankings. Just another side-TRIP, but one with real potential usefulness.

Tune In And Turn On

The installation procedure on our HP 9000/830 was pretty much a standard HP-UX install, and included using [[tar/cpio]], starting a TRIP queue daemon by means of editing /etc/inittab, and plac-



What's the Difference?

First let's talk similarities. Both machines are Hewlett-Packard/Apollo Series 720's configured with 400 megabyte disks, 32 meg of RAM, and CRX color graphics options. End of similarity discussion..

So you're still asking, what's the difference? The difference is that the machine on the right is a *quality remanufactured* Series 720 by Tryonics. A quality machine that's guaranteed for a full 90 days. Quality that guarantees that you'll be able to obtain a service contract through Hewlett-Packard.* Quality that puts customer satisfaction above all else, and puts all of this at a price that keeps you *way* under budget.

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ing a TRIP service on the Internet by using vi on /etc/inetd.conf and /etc/services. Any system administrator who is at all UNIX-conversant should be able to load TRIP without faltering.

TRIP's user interface, called TRIPClient, is built on OSF/Motif. As a map for our own TRIPing, we used Paralog's Guide for TRIP Managers. We created a database through the Database Design form specifying a database name, home directory, a default data entry form (not yet created), and the searchable special characters "~" and "|". We determined that because TRIP permits searches based on what would otherwise be reserved symbols, we might as well push it to the max and use characters that both it and UNIX might ordinarily interpret rather than simply accept.

Next, we proceeded to the second of TRIP's standard forms, its Field Design screen, which allows the user/designer to designate field names, data types, and whether the field is indexed or contains white space to be ignored during searches. We saved the contents of these windows from the menu item Save on the Database Design screen. Then we modified the design by means of the Edit item on these same two screens, changing data types and adding accounting information.

TRIP permits searches based on what would otherwise be system-reserved symbols.

In our role as TRIP manager, we used the Databases option of TRIP's main menu to arrive first at its Administration function, and from there to travel to Rename, Copy and Transfer. There we respectively changed the name of an existing database design, created a new database by simply copying an existing design, and gave Manager rights for the databases in question to a different user. As was the case with our first TRIP, this second one was a complete success.

We concluded our journey by devising data entry and query forms, noting a couple of interesting side-lights along the way. The only limit to the number of fields on such forms is a spatial one; if your monitor can hold them, you can lay them out. TRIP currently relies on the standard Motif color map in creating and presenting forms. However, Paralog is working on its own such map in an effort to get around the problem of Motif's color map getting overloaded, and thereby presenting you with psychedelic color combinations only a tie-dye enthusiast could find aesthetically pleasing. ■

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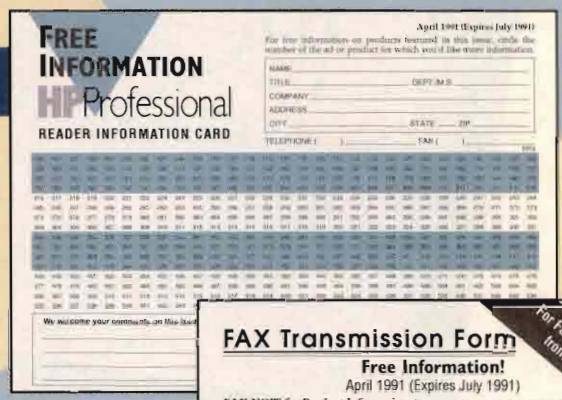
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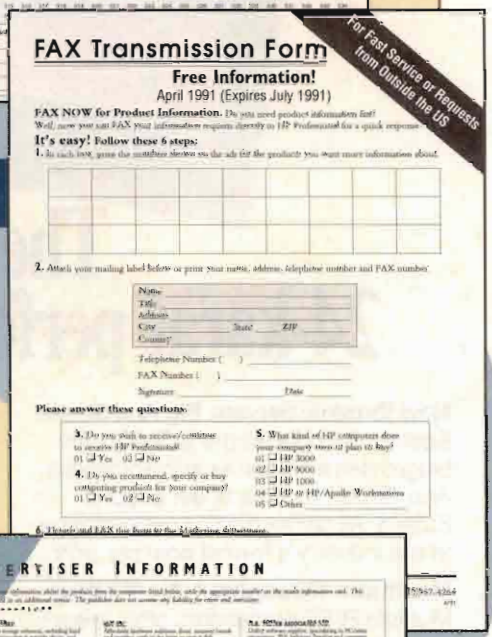
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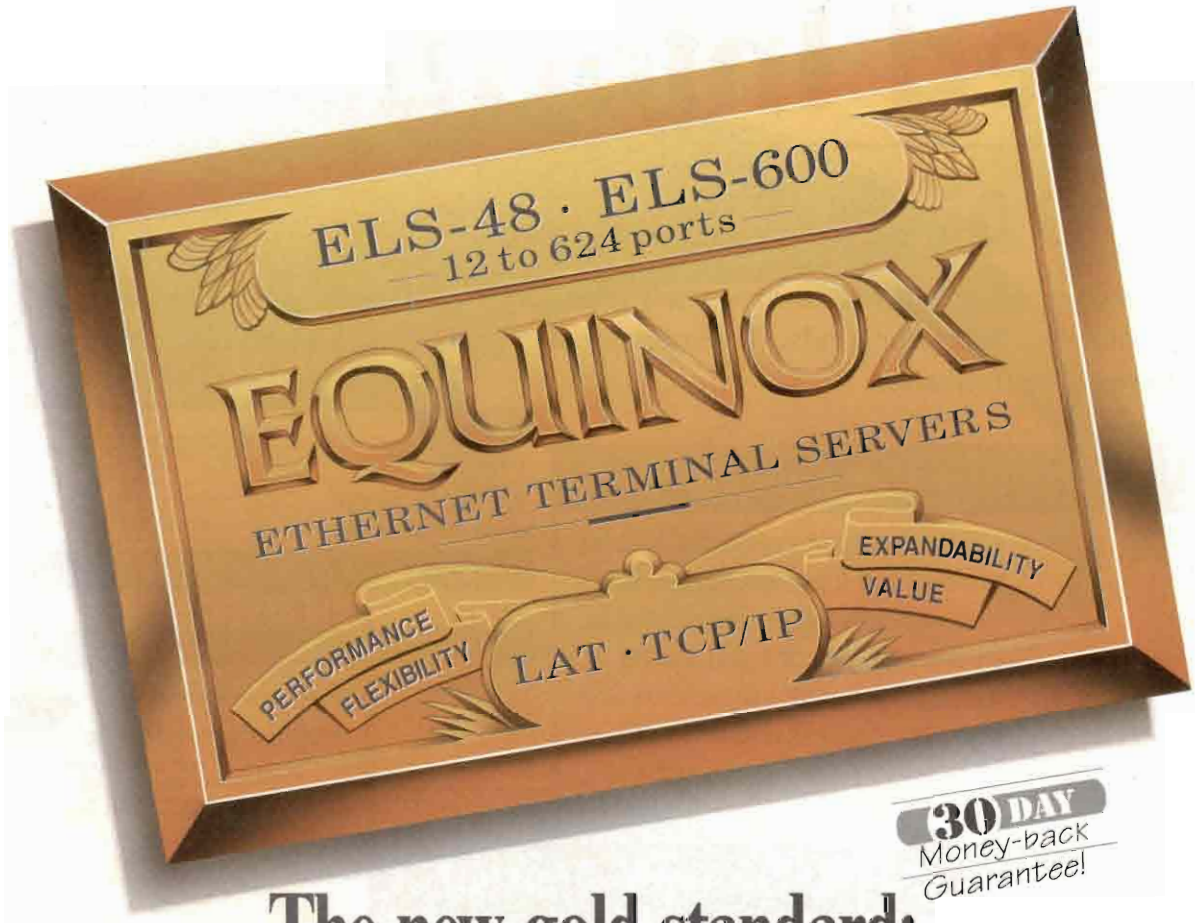

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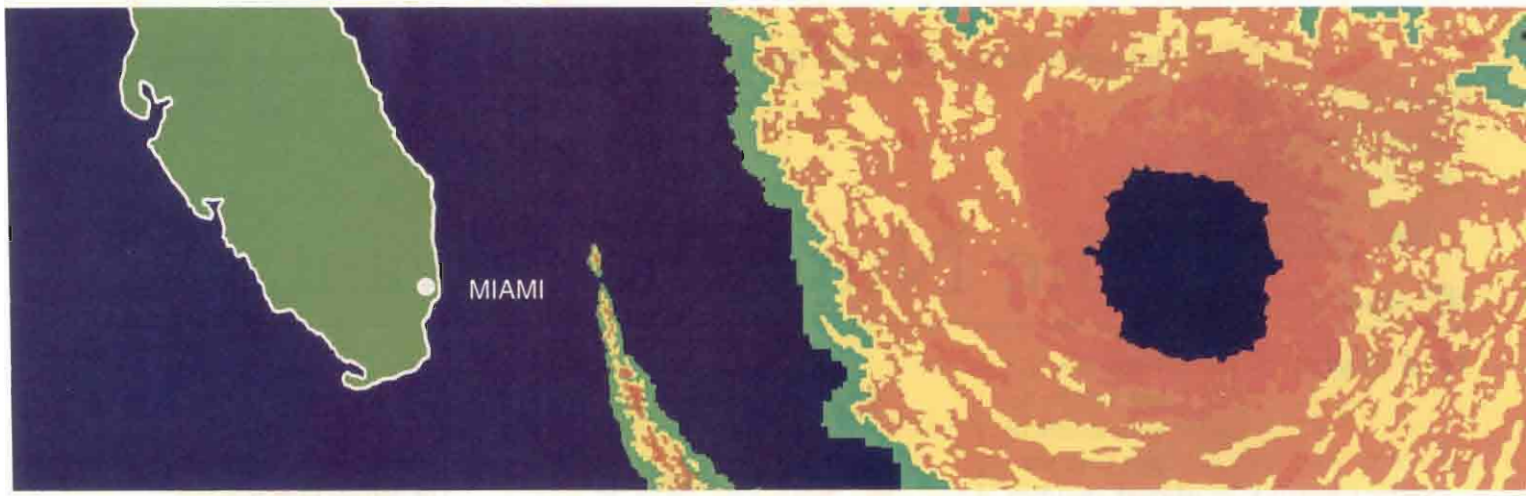

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HP Apollo

The Numbers Advantage

Fred Mallett

I recently got my hands on some unofficial (not from marketing) network benchmark numbers that may help you determine how to organize a mixed network of Series 700 machines and Domain/OS systems. These tests were performed casually (no white lab coats and clipboards here), in a way you would typically use a network. Keep in mind that all of these numbers were compiled on an isolated network with no other traffic. Of course, the 700s were running HP-UX, and all other machines were running Domain/OS.

Table 1 lists NFS performance using Sun Microsystems' NFS benchmark test. Just for laughs, I threw in one set of Domain/OS DDS numbers. Remember, these numbers are not for quantitative analysis, just comparison. By changing block sizes for reads and writes, and altering the memory amounts, these numbers can vary greatly. All machines in this test were configured with 8 MB RAM (to slow things down), the 700 was on HP-UX 8.07, and the Domain/OS machines were all on SR10.4 with NFS 2.3.

I decided that it's best to leave the Series 400 machines on Domain/OS until it no longer makes sense for application reasons. I suggest waiting at least until the next HP-UX release is available and well-tested. It seems fairly obvious from *Table 1* that Domain/OS using DDS services to access remote files for reads or writes is the best solution. But, what happens when you introduce Series 700s?

Performance Reviews

NFS performance, when reading from a 700 acting as an NFS server for a set of data files, is good for both 700s and Domain/OS machines. Writes to NFS served data files on a Series 700, on the other hand, leave a lot to be desired.

Domain NFS is great for those who need to access many files around the network.

The best way to achieve decent performance with a mixed set of clients would be to leave a database on a Series 400 running Domain/OS and let that be an NFS server. Let the other Domain machines access the database through DDS services, and let Series 700s use NFS to access the database.

You could also customize the network so that one Series 700 could support read-only databases (such as man-pages) for other 700s, but all 700s would access true (read-write) databases from Domain/OS NFS servers. This way the other Domain machines still could use DDS to access the database. Note that the Domain/OS NFS machine should be the fastest machine available to you.

The general rules are:

- Maximize Domain to Domain access.
- Maximize HP-UX to HP-UX NFS access for reads.
- Maximize HP-UX to Domain NFS writes.
- Minimize writes to HP-UX NFS servers.

FTP Transfer Rates

One thing to keep in mind in a UNIX network is that Domain NFS is great for those who need to access many files around the network. But it isn't the fastest method of transferring large files. To prove the point, *Table 2* shows FTP transfer rates achieved in an informal test.

Note the 720 to 720 speed, twice of that seen with reads in NFS. The point is, when speed is an issue, Domain administrators need to avoid the habit of copying files with network-wide pathnames. Note that the speed dropped

TABLE

READS

Server	Client	Protocol	Speed (KB/s)
400T	400T	DDS	537.9
400T	720	NFS	232.4
720	720	NFS	542.2
720	400T	NFS	357.3

WRITES

Server	Client	Protocol	Speed (KB/s)
400T	400T	DDS	312
400T	720	NFS	274
720	720	NFS	131.4
720	400T	NFS	105.2

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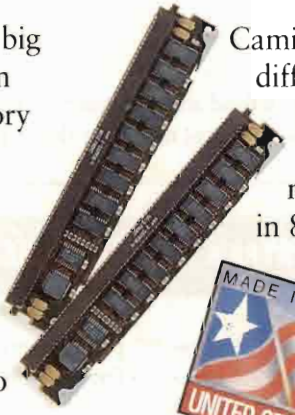

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TABLE 2

From	To	Network	Speed (KB/s)
720	720	Thinnet	1100
720	720	ATR	740
425s	720	Thinnet	486
720	435s	Thinnet	556

FTP Transfer Rates In Test.

greatly when a Series 700 used the Apollo Token Ring (ATR). The TCP packets had to be wrapped in DDS type packets before being sent. This is much like the speed drops seen when using TCP/IP instead of DDS on Domain nodes in an ATR.

Many sites don't have FTP running and don't want to. In that case, you could use **rcp** to copy files (directories) across the network instead of using the "thorn in the foot of UNIX" (NFS). **rcp** will be faster than NFS. Using the **-p** option should preserve ownership and modes, but I've seen this not work. In that case, here's another method that takes advantage of the stream I/O methods used by UNIX. This command looks cryptic, but does work.

To copy the file **copy_this**, which lives in the directory "dir" on HP-UX host H700a to this host, and put it in directory "/dira":

```
remsh H700a "(cd /dir ;tar cf   copy_this
)" | (cd /dira ; tar xvf   )
```

This method always preserves owner and times, as it uses **tar** to do the copy.

Patch Works

Here are more warnings about SR10.4. GPIO seems to be wicked broke. Most programs that make **gpio_$** calls don't work. Also, many **vfmt_$** calls that weren't corrected in earlier releases, which count on the old aegis stream 3 to be duplicated on stream 2, are broken. Fortunately, there's now a patch tape available with many patches that address the printing problem as well as many other problems.

There's also a problem with alternate GLB cells. A node that's assigned to a cell will occasionally pick up a global from another cell. The time period for clock skew between globals also has been dropped from 10 minutes to less than three. — *Fred Mallett is president of FAME Computer Education in Corpus Christi, TX. He also serves on the InterWorks board of directors.*

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[HP-UX FORTRAN 90: A FUTURE FOR FORTRAN]

HP announced at the August INTERWORKS Users Conference that future releases of its HP-UX FORTRAN/9000 compilers will adhere to the FORTRAN 90 standard. A superset of the well-known ANSI 77 FORTRAN standard, FORTRAN 90 is the International Standards Organization (ISO) standard for multiplatform FORTRAN compilers. The standard is designed to enable application developers to more easily develop and maintain portable, open systems FORTRAN applications.

According to Sandhya Klute, Computer Languages Operations marketing manager for HP's Systems Technology Division, HP customers in scientific and engineering markets were requesting conformance to the standard. "FORTRAN remains a dominant language for applications in computation and analysis in the scientific marketplace. FORTRAN 90 is big news for prospective HP customers who want to replace older, costly supercomputers or downsize from costly mainframes and minis to client-server platforms like HP-UX."

HP plans to phase in FORTRAN 90 compliance over time in order to deliver the features software developers want most while maintaining a seamless upgrade path to future FORTRAN implementations. The first phase of the FORTRAN 90 implementation will begin with release 9.0 of HP-UX, which is expected later this year. Included in that release will be support for key features such as array notation, automatic arrays, allocatable arrays and character objects, as well as type declaration syntax and control constructs. Remaining FORTRAN 90 features will be added according to customer demand.

HP-UX FORTRAN also will support other features designed to simplify porting applications across Cray, Digital, IBM, Sun and HP platforms. BSD's libU77, a FORTRAN interface to system routines, provides for enhanced SunOS and DEC Ultrix compatibility. And an AUTODOUBLE feature allows developers to transparently maintain the floating-point precision offered by supercomputers from Cray and IBM on less-costly workstation platforms. Several of Digital's VAX/VMS extensions to HP-UX FORTRAN, including RECORDS, NAMELIST, BYTE and REAL*16 data types, variable-format expressions and LOGICAL representation also will be incorporated.

"HP now offers the most accepting FORTRAN in the industry," says Klute. "FORTRAN 90 should put the Series 700 in an excellent position to capitalize on high-performance FORTRAN markets as users move toward low-cost hardware and open systems standards."— *Don Marks, Managing Editor.*

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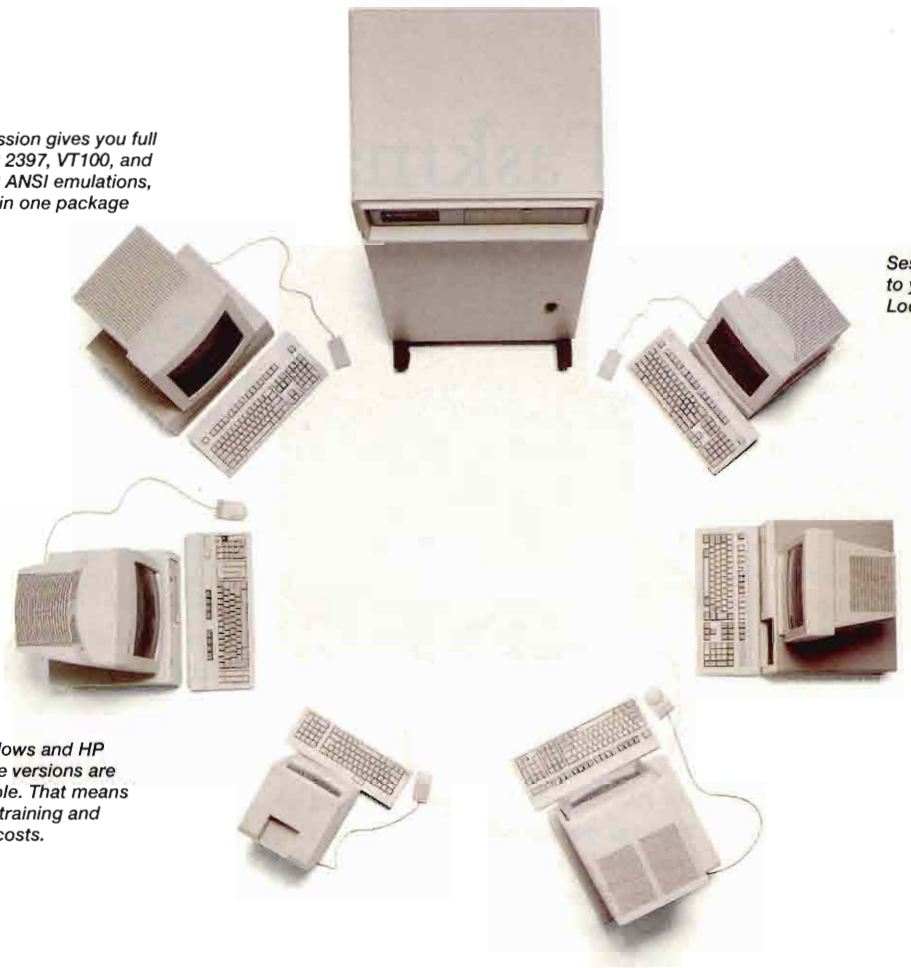

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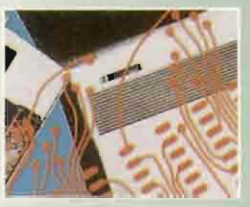

PC TIPS

Agent Taskmaster

Miles B. Kehoe

NewWave 4.0 includes many enhancements in the Agent Task Language (ATL). You can use a few of these new commands to access routines in any DLL including those that make up Windows. This lets you write powerful Windows applications using only the ATL.

The three new statements and functions that allow you to work with external DLLs are DLLLOAD, DLLCALL and DLLFREE.

You use DLLLOAD to open the DLL that contains the routine you want to access. DLLCALL lets you actually make the call to any routine within the DLL. And DLLFREE closes the DLL when you're finished accessing its routines.

Supporting these calls are several additional data types so you can create almost any type an external DLL may require.

You Make The Calls

Before you can use a subroutine or function from a DLL, you need to establish a way to refer to the DLL file that contains the routine. You do this with the DLLLOAD statement, which returns a variable called a "handle." Use this handle in subsequent calls to refer to the DLL. The general format for this statement is:

```
handle = DLLLOAD(DLLFILE)
```

For example, to open the USER.EXE DLL, you would use this statement:

```
hUser# = DLLLOAD("USER.EXE")
```

This statement opens the USER.EXE file in the Windows directory, and assigns a unique identification number to the NewWave variable hUser.

If the DLL you want to open isn't in the PATH or in the current working directory, you need to specify the fully qualified filename for the DLL. Another caveat: Windows refers to the KRNL file for your particular system type using the generic name KERNEL.EXE. This frees you, as a user of DLL calls, from determining what class of system you're running on, but it's an inconsistency you need to remember.

Once you have a handle, or reference to a DLL, you can call any of the subroutines or functions in that DLL. In the past, I've described how you can use a program like TDUMP, which is included with many of Borland's compiler products, to view the routines within any DLL. That listing, along with the Windows programming documentation, enables you to fully utilize Windows' built-in DLLs.

The general form of the statement used in NewWave to execute routines is:

```
returnvar = DLLCALL(handle, CallName,
RetType, [var1, vartype1....]
```

Don't panic! It only *looks* complicated. Let's take a look at the parameters, and how you might use them.

Stay Within The Parameters

The first parameter to DLLCALL is the handle to the DLL file that was returned from the DLLLOAD call.

Next comes the name of the subroutine or function you want to execute within the opened DLL file.

The third parameter is a flag representing the type of data to be returned to your task in "returnval." The "RetType" parameter should be one of the data types listed in *Table 1*. NewWave stores all variables internally as strings or long numerics. Because routines require certain data types.

TABLE 1

VOID!	Void	LPINTEGER!	Integer pointer
INTEGER!	Integer	LPINT!	Integer pointer
INT!	Integer	LPFLOAT!	Float pointer
FLOAT!	Float	LPLONG!	Long pointer
LONG!	Long	LPDOUBLE!	Double pointer
DOUBLE!	Double	LPBYTE!	Byte pointer
BYTE!	Byte	LPARRAY!	Array pointer
LPSTRING!	String pointer	LPMEM!	Memory pointer
LPSTR!	String pointer		

NewWave Data Types for DLLCALL.

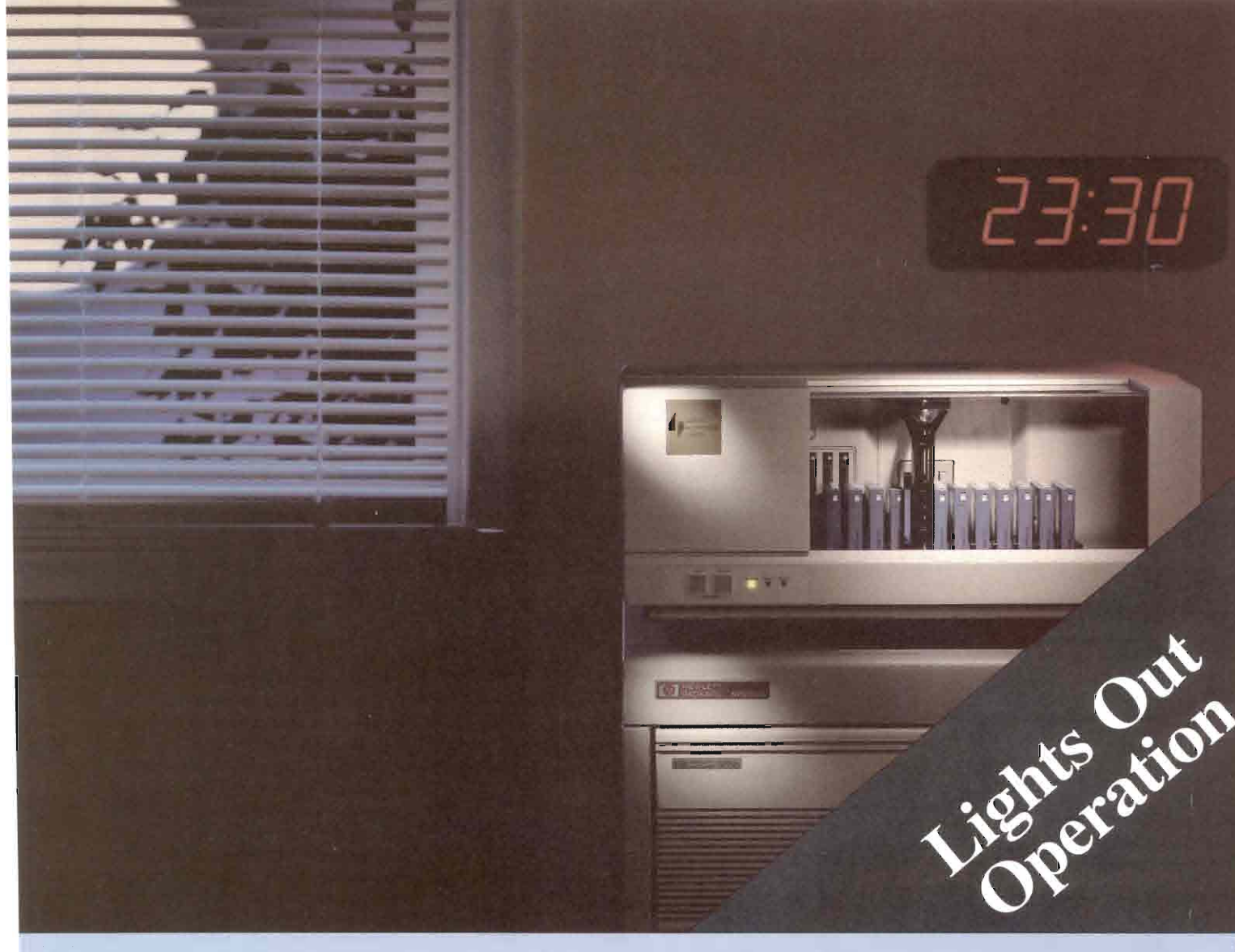

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FIGURE 1

```
TASK
FOCUS
hUser# = DLLLOAD("USER.EXE")
freemem# = DLLCALL(hUser#, "GetFreeMem", LONG!, 0, INT!)
MESSAGE OK# HAND "Total free memory = "+str(freemem#)
```

ATL statements to call GetFreeMem.

NewWave allows you to specify the format in which variables should be passed to the DLL routines.

Any other parameters are optional, and the number of parameters depends on which subroutine or function you're calling. Again, because DLLCALL needs to know the data type for each parameter, the arguments appear in pairs: The first variable contains data (or a buffer for returning data from a subroutine), while the second variable indicates the data type of the previous argument. The data type should be one of those supported by NewWave and listed in *Table 1*.

The data types supported by NewWave are listed in *Table 1*. Be sure to match the data type, or you may find your DLL call doesn't work and may even crash your system!

Here's a real life example. In USER.EXE, there is a routine call GetFreeMem that returns the a number of bytes of free memory. Checking a Windows Programming manual, you'll find the GetFreeMem takes an integer parameter indicating which type of memory you're interested in, and it returns a long value indicating the amount of memory. Passing a zero causes the function to return total free memory. Thus, our ATL program would look like the segment listed in *Figure 1*.

When you're finished using a handle to a DLL, it's good programming practice to "clean up" by closing the link and freeing the handle. To do this, you use the DLLFREE statement:

```
DLLFREE(hUser#)
```

Using these basic methods and variable types, you can directly manipulate DLLs from NewWave ATL tasks. Good programming! — *Miles B. Kehoe, based in Mountain View, CA, is a Sysop on CompuServe's HP Systems Forum (GO HPSYS). He can be reached there at 76711,405.*

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NETWORKING

Tim Cahoon

PCs With Ease, Please

Although there are client-server products available to run HP 3000 applications from the desktop, many companies still are struggling just to use their PCs as dumb terminals. It is possible, however, and fairly easy to accomplish the task of making your PC an HP terminal.

Connecting your PC to an HP 3000 using a serial link is the most common application. First, string an RS-232 cable from your PC's serial port to a terminal port on your HP 3000 or your HP DTC. Next, install a terminal emulation product on your PC, make the necessary configurations and you're on your way.

The real questions come when you want to use your LAN to connect the PC to your HP 3000. My examples will deal with Ethernet as opposed to Token Ring networks. Although people are more familiar with Ethernet, the concepts can be applied to Token Ring networks, as well.

The first requirement is to have your HP 3000 attached to an Ethernet network. The new PA-RISC systems come network ready. Older, classic machines need the installation of a LANIC card to give it a network interface. You also need to have the appropriate HP network software installed, such as ThinLAN Link and NS3000 Network Services.

Next you need a PC, with network card, and a terminal emulation program. Understanding how these pieces fit together is particularly important.

Driver's Ed

The first part of the puzzle is your network card. Available from many different companies, this piece of hardware

connects to the network to send and retrieve your data. A special software driver provided by the manufacturer controls the card and provides an interface to applications that want to use the network. There are four types of drivers, Proprietary, Packet, NDIS and ODI. Of these drivers, Packet, NDIS, and ODI allow software applications to concurrently share the network card.

Proprietary drivers only allow one program to use the network at a time. Older drivers required you to reboot the system if you wanted to run another network application. Packet drivers came out of the Internet environment and are used with TCP/IP Telnet and FTP software. NDIS drivers were developed for use with LAN Manager. Novell networks were the breeding ground for the ODI specification.

Because your PC is probably part of a PC-based network, such as LAN Manager or Novell, NDIS and ODI drivers are probably of most interest. These drivers allow you to load and unload your application software at will, eliminating frequent reboots of your machine.

Don't Blow Your Stack

The second part of the puzzle is the terminal emulation software. Because you are using a network, this software must also supply a protocol stack. The most common protocol stack is TCP/IP. If you haven't kept up with the news, the HP 3000 now supports TCP/IP.

The HP 3000 has a program called NS/VT that handles the job of running virtual terminal sessions. Your terminal emulator has to provide software that can communicate with this NS/VT program on the HP 3000. For now, let's call this PC-based program, NS/VT link. This NS/VT link program provided by your terminal emulator uses the protocol stack to communicate with the network card and interfaces directly with your terminal program.

Because NS/VT is proprietary it can be frustrating because no one outside the

HP market supports it. Remember that it has to handle blockmode transmissions, be attentive to performance (both CPU and Network), and reliable. Fortunately, it does do these things very well.

Now that all the pieces are together the process works like this. When you type something on your terminal screen, it's taken by the NS/VT link software and passed to the protocol stack. The protocol stack with the use of the network card and its drivers transmits the data over the network. When the response comes back from the host, the network card receives it and, using the drivers, passes it up to the protocol stack. The protocol stack then passes it to the NS/VT link, which gives it to the terminal emulator for display on your screen.

No Hard Choices

This basic configuration I've described will meet the requirements of about 90 percent of the sites looking to network their PCs to an HP 3000. All the pieces are widely available on the market today.

Your biggest choice is whether you use NDIS or ODI drivers. Your current environment of PC LANs may determine that rather quickly. All the major terminal emulation packages can be purchased with the NS/VT link and the correct protocol stack. But not all the protocol stacks supplied by these vendors will support both ODI and NDIS drivers. They may support one and not the other. Customer demand is—if you'll pardon the pun—"driving" vendors to repair this defect quickly.

Other methods of PC connection exist but they aren't as straightforward. Remember, HP terminal emulation is only important if you're using block-mode applications. For years Cognos' Powerhouse product Quick has supported a staggering variety of non-HP terminals. The use of terminal types when logging on, also eliminates many problems. Ten years ago I used my Commodore 64 to dial into and remotely maintain an HP 3000 using the term type of 18.

A few years ago HP sold a product that allowed PC network users to access the HP 3000 through a special gateway PC. It worked, it was expensive, but it was appropriate for its time. Today, that product no longer exists, but it still comes up in discussions on PC connectivity. You don't need a gateway and you don't need to spend one million dollars. You probably only need to buy a terminal emulator and change the drivers for the network cards you already have in house. It really is that simple! — *Tim Cahoon provides wide area network and HP technical support for the manufacturing operations of a Fortune 500 company.*

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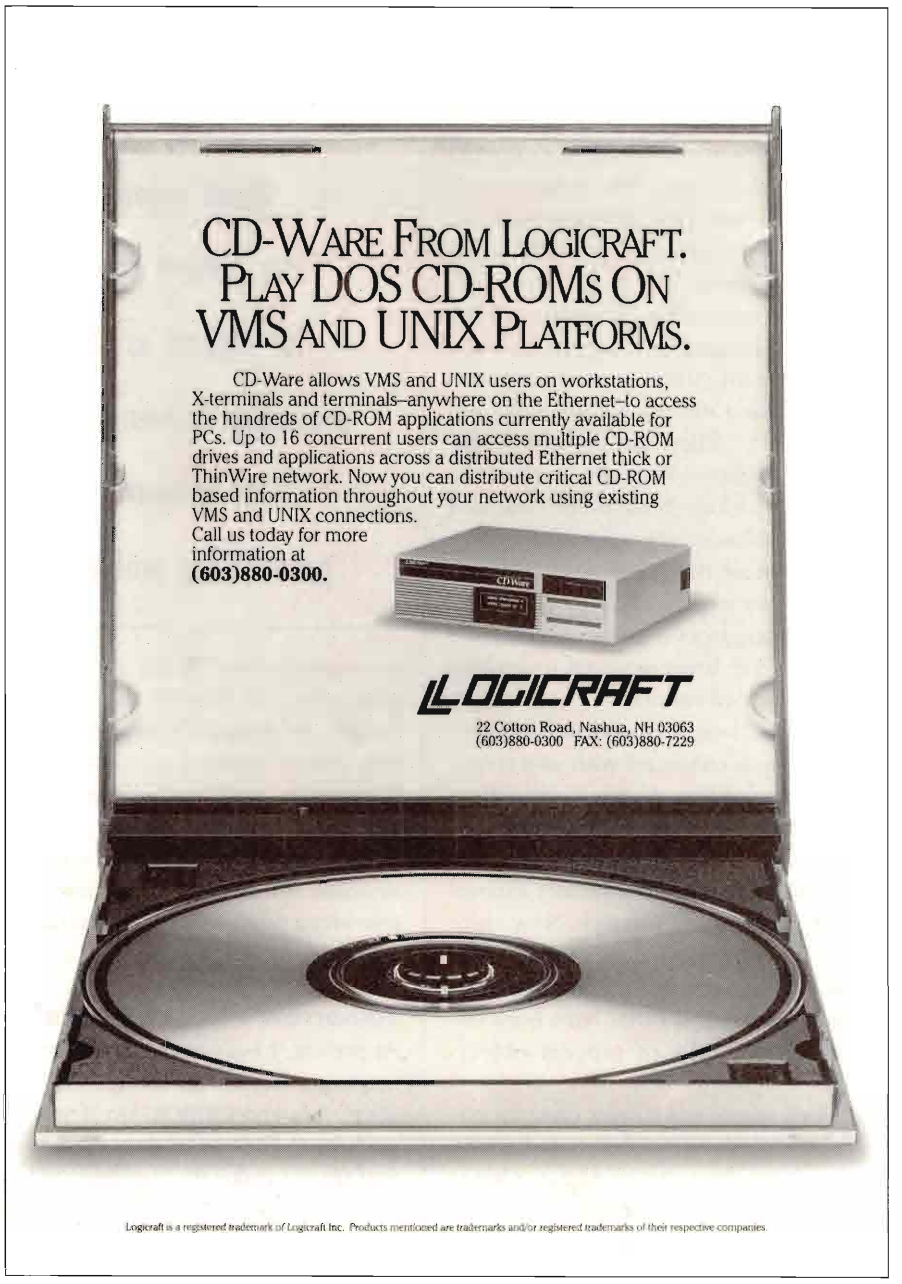

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OBJECTIVELY SPEAKING

Richard Riehle

The Polyglot Programmer

Programming languages currently in widespread use include FORTRAN, COBOL, PASCAL, Assembler, MPE SPL and C. These generally are regarded as *procedural languages*. They represent a linear style of thinking that translates nicely into flow charts and hierarchical diagrams. The dominant approach to software development for nearly 40 years, this type of design is not about to go away.

In the early 1970s, however, a new group of languages began to emerge, starting with Simula, evolving into SmallTalk and arriving at C++, Eiffel and Objective C. These are the object-oriented or *objective* languages. Objective languages include both object-oriented and object-based languages, and support the notion of designing around classes and software objects. The list of object-oriented languages is growing, and older languages are being updated to include object-oriented features.

COBOL, long a procedural language, is now being enhanced with object-oriented capabilities. Various dialects of PASCAL already have become more object-oriented. And the next standard for Ada (Ada 9X) will have greater support for object-oriented features. Now there is even an object-oriented version of the FORTH language. And entirely new languages, such as ACTOR, have been designed specifically to support object-oriented development.

Many regard the current craze for objects as the proverbial "silver bullet" for software productivity problems. Ostensibly, this is a new paradigm for software development that parallels the way we think about other problems. Although I am a strong supporter of the object-oriented paradigm, I resist the view that it's the cure for all our programming ills.

Another set of languages, which will become increasingly important, is the so-called 4GL language category. Currently, these range from simple report preparation languages to fully-developed languages for total system design and implementation. Some of these languages, such as Powerhouse, Protos and Insight, are designed to support information systems applications. Others, such as the recently introduced language, S, from Statistical Sciences, are designed for mathematical data analysis. In fact, S is available for HP-UX environments and provides a powerful set of capabilities for advanced statistical analysis.

Many regard the current craze for objects as the proverbial "silver bullet" for software productivity problems.

Tomorrow's Lingua Franca?

At present, I believe three programming languages have high survivability rates: C++, Ada and COBOL-85. If you program in C and you have C++ available, you should make the transition to C++. If you program in PASCAL or FORTRAN or C (without C++ available) and can switch to Ada, you should make the transition to Ada. If you program in COBOL and have a COBOL-85 compiler, make the change as soon as possible.

From a compiler point-of-view, the easiest of these transitions is from C to C++ or from COBOL to COBOL-85. Ada requires some substantial additional training. From a software engineering point-of-view, the transition to any of these languages requires considerable training.

In almost any situation, if you use a C++ compiler on your existing C code, there won't be a noticeable difference. However, from a design point-of-view, there will be some significant differences. First, C++ can be used as a better C. Eventually, it can be used to move your software engineering applications in the direction of object-oriented programming, and ultimately, object-oriented analysis and design. The long-term benefits of using C++ early will put your organization ahead of the game. It could give you a competitive edge.

Ada is a different story. This is an excellent language for large projects that require a high degree of reliability and maintainability. It's also a language with exceptional portability across various platforms.

There is, unfortunately, no "royal road" to Ada. It requires an early commitment to object-oriented design, and an investment in training. The move to Ada will require an in-depth view of its benefits, but once those benefits begin to accrue, it will be seen as having been a wise choice.

The central issue for both Ada and C++ is the need to change the way you think about software design and implementation. Because neither of these languages is a traditional "procedural" language, you'll need to understand some new concepts. The concepts aren't inherently hard, but they are different from what you have understood in the past about software.

COBOL-85 is a required move for any shop currently using COBOL. No, COBOL-85 isn't one of the objective languages. It is, however, a significant improvement over the earlier incarnations of this language. The problem is, most programmers and designers who have made the transition to COBOL-85 still are not aware how powerful the new language can be.

The transition to the COBOL-85 language won't simply change the way programmers lay code. It can and should change the way systems analysts specify and design systems. The more powerful features of COBOL-85 are not in the syntactical improvements such as END-IF, etc. The real advances in COBOL-85 are in the ability to build more maintainable, more reliable code through the software engineering principles of information hiding, localization and modularity. This raises serious design issues. Systems designers who have been raised on older versions of COBOL usually fail to recognize how to use these new concepts, so this requires some additional education.

C++, Ada and COBOL-85 are not "the best" languages. My favorite, general purpose language is an object-oriented language called Eiffel. One problem with Eiffel is that it is a proprietary language. Only one company makes Eiffel compilers, and these are not available on as many platforms as the other languages cited.

Language Lessons

If you're a software engineer, you need to understand the fundamental benefits of different classes of programming languages. Although you also should have some experience programming in several of them, but your main job is not programming.

If you're programmer, you would do well to be fluent in several languages. For example, if the only language in your repertoire is COBOL, your thinking will be severely limited. The same would be true, however, if you only knew C. Think of yourself as a carpenter with a toolbox. As they say, if your only tool is a hammer, every problem will look like a nail.

The best language? As a programmer, if your toolbox is well stocked, you can select the language appropriate to the problem at hand. As a software designer, if you know the characteristics of different tools, you can specify the correct tools along with the architecture of the system.—*Richard Riehle is president of AdaWorks in Palo Alto, CA.*

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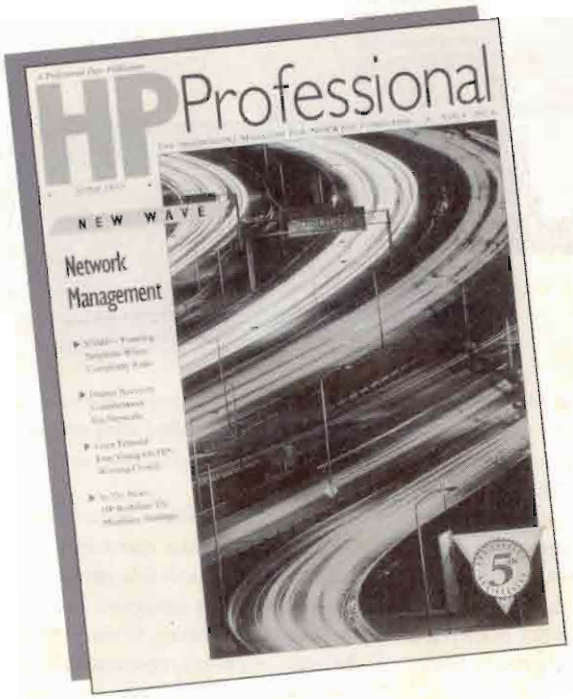

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NEW PRODUCTS

HP Introduces Industrial Workstations

HP introduced its first PA-RISC-based industrial workstation and real-time computer systems specifically designed for factory floor and control applications.

The new HP 9000 Models 745i and 747i industrial workstations and HP 9000 model 742rt board computer systems are based on HP's 50-MHz implementation of the new PA-RISC 7100 chip. Both the industrial workstations and real-time computer systems are targeted at the manufacturing, aerospace, telecommunications and medical laboratory industries.

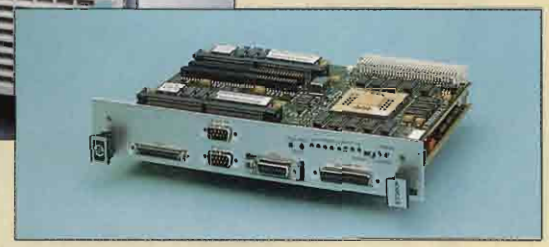
The systems give users maximum flexibility because they can be configured to meet specific requirements such as ease of serviceability; standard rack-mount configurations, durable design and application specific I/O capabilities for factory floor and real-time control, including VMEbus, IEEE.4888 and EISA.

The HP 9000 Models 745i and 747i workstations run the HP-UX 9.0 operating system and are compatible with the entire Series 700 workstation family.

Precision Visuals Upgrades PV-WAVE Point & Click

Precision Visuals announced Version 2.0 of PV-WAVE Point & Click, which features the Database Visualizer for tabular data display and a reduced price.

PV-WAVE Point & Click is an end-user application featuring data import, management, analysis and visualization functionality driven by a GUI. PV-WAVE Point & Click supports both Motif and OpenLook windowing systems. The Database Visualizer in Version 2.0 is a set of interactive tools that lets you display a specified subset of tabular data (i.e., row/column or record-based data). This can be specified visually with an icon interface to SQL commands. The Database Visualizer enables analysts to explore large or complex data sets in search of hidden trends.



HP's PA-RISC based industrial workstation, Model 747i, and board-level real-time system, Model 742rt.

Several other new features include: Date/time management and display, which allows you to automatically collect, process and display time-series data with flexible calendar axes ranging from years to seconds; quick actions, which automate a variety of complex or repetitive tasks; and Encapsulated Postscript Interchange (EPSI) output, which allows users to integrate PV-WAVE Point & Click images directly into desktop publishing products like Framemaker or Interleaf.

The new price for the product is $2,495 for a single floating license.

PV-WAVE Point & Click supports UNIX-based workstations from HP, Sun Microsystems and DEC.

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TOP END provides a standard-based distributed management environment for open systems. Its graphical-based, administration system is paired with unique tools for ease of administration and run-time management.

TOP END offers open interfaces for OLTP and provides commercial processing features such as scaleable performance, high availability, data integrity and two phase commit coordination. It also offers security, dynamic reconfiguration, administration tools and distributed system support for the transaction processing network.

Contact NCR, 1700 S. Patterson Blvd., Dayton, OH 45479; (513) 445-2696.

Circle 379 on reader card

Sherpa Corp. Presents Sherpa/View

Sherpa Corp. announced Sherpa/View, a document viewing and mark-up tool that is tightly integrated with Sherpa's product information management system (Sherpa/PIMS). Sherpa/View enables users to comment on documents electronically, eliminating serial, paper-based approval processes.

The integration of Sherpa/View with Sherpa/PIMS provides a solution to manufacturers trying to manage electronic

files. Sherpa/PIMS "electronic vault" and workflow capabilities provide the mechanism for cataloging, linking, accessing and routing product information, while Sherpa/View allows virtually any user to view the data from low-cost PCs and workstations.

Sherpa/View runs under the MS Windows 3.0 and 3.1 interface on PCs, and under Motif on HP RISC-based workstations. Price is $745 to $1,445 depending on options and platforms.

Contact Sherpa Corp., 611 River Oak Pkwy., San Jose, CA 95134; (408) 433-0455.

Circle 397 on reader card

Backup Time Reduced With Hi-Back/UNIX

HI-COMP enhanced HI-BACK/UNIX by adding the ability to perform SPLIT backup to up to four devices simultaneously. Data is sorted automatically into equal quantites based on file size before being written to the specified devices concurrently. Individual files are not spread over multiple devices.

Backup time may be considerably reduced by utilizing surplus processing power and writing to distributed devices of relatively low capacity or write speed.

The release of SPLIT backup complements the release of RAW DISC backup, which copies a complete disk partition, block-by-block, to the backup media, performing real-time data compression.

SPLIT backup also complements SERIAL backup, where any number of similar devices, mounted locally or remotely on the network, may be written to consecutively.

Contact HI-COMP America, 419 Canyon Ave., Ste. 215, Fort Collins, CO 80521-2670; (303) 224-9700.

Circle 400 on reader card

SLM Introduces TAG For HP 3000s

Straight Line Methodology Inc. (SLM) released its Multi-Lingual Turbo Applications Generator (TAG). SLM's TAG/3000 offers an HP solution for generating application source code in the language of your choice, or for migrating from language to language.

TAG/3000 generates Vplus forms, Application Ready Buffers and Application Source Code for on-line transaction processing (OLTP), and on-line/off-line reporting, from a database object, in the languages of: C, SPL, SPLash!, COBOL, PASCAL, FORTRAN and TRANSACT.

SLM's TAG turbocharges your 3GLs and allows the use of 4GL concepts and techniques even on current 3GLs. SLM's TAG can accept data declarations from IMAGE/3000, Dictionary/3000 or a combination of Vplus/3000 and IMAGE/3000.

Contact SLM Software Inc., 141 Edenvale Rd., Rock Hill, SC 29730; (803) 328-9063.

Circle 399 on reader card

Net Change MRP Module For MM/3000 Released

Dennis and Schwab Inc. (DSI) announced that Net Change MRP modules designed as complementary products to HP's Materials Management/3000 (MM/3000) system are available.

The modules include the Data Collection Interface (DCI), Barcode Tool Kits (BTK and RF/BTK), and Procurement Requirements Processing (PRP) software.

The software is implemented in COBOL and is designed to run in the background and without interruptions to any MM/3000 user. The software provides a tightly coupled Master Scheduling, Regenerative, Net Change and What-If MRP capability, completely integrated with the MM/3000 database, with no redundant processing requirement such as cross-over programs.

Spread-sheet style screens are provided to review and modify master production schedules for groups of items, and histogram inquiry displays provide "reasonableness" reviews for weekly, monthly or quarterly periods.

The MRP modules including COBOL

First there was translation software. Then there was mapping software. Now there is a solution that includes even more ...

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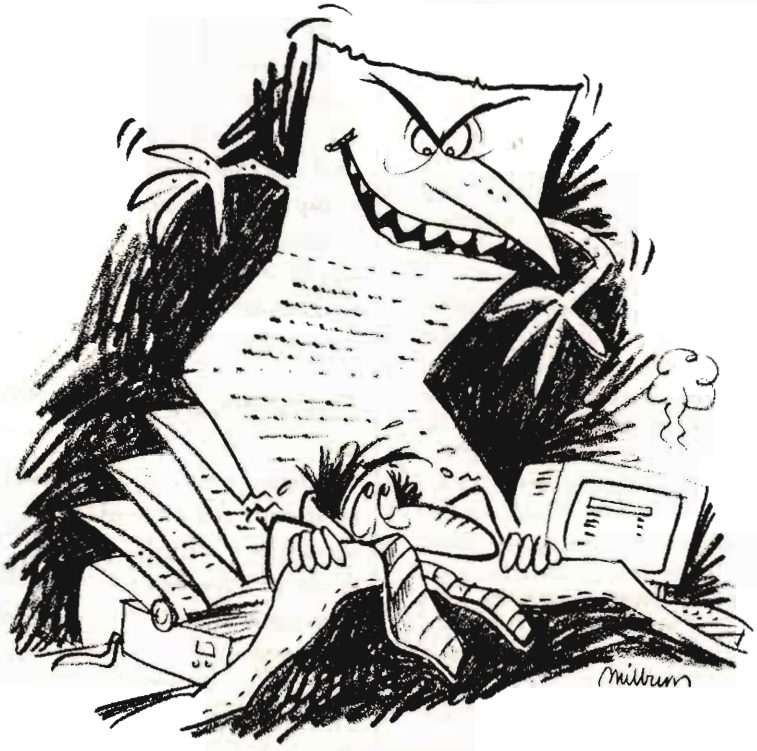
CIRCLE 155 ON READER CARD

If Network Printing Problems Are Giving You Nightmares...



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UNISPOOL is installed on thousands of machines throughout the world and is used by 40% of America's Fortune 500 companies.

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CIRCLE 286 ON READER CARD

source code are value priced by HP processor model from $8,750.

Dennis and Schwab Inc., 17330 Newhope St., Ste. A, Fountain Valley, CA 92708; (714) 241-4550.

Circle 396 on reader card

Online-BACKUP+/XL Requires Zero Downtime

ORBIT Software enhanced its Online-BACKUP+/XL package by providing zero downtime online backup for HP 3000 systems running MPE/iX.

In the past, ORBIT offered online backup capability for MPE V and MPE/iX systems and, this feature has, on MPE/iX, required about five minutes of downtime at the end of the backup. Now, this downtime isn't required. Online-BACKUP+/XL eliminates system downtime because of backup.

Contact ORBIT Software Inc., 319 Diablo Rd., Ste. 218, Danville, CA 94526; (510) 837-4143.

Circle 391 on reader card

Information Resources Upgrades Consort For HP 9000s

Information Resources Inc. introduced Version 2.5 of CONSORT, a sort/merge solution for high-volume data processing for all of the HP 9000s.

CONSORT also features a mainframe language for selection and reporting; interactive/batch programing with context help and shell access; drop-in replacement for the system sort; C, COBOL and FORTRAN language interfaces and data types; unlimited binary, numeric and character keys in fixed/floating position; fixed or variable length records; unlimited number of input files and records from any source; co-routine architecture for user exits and minimal I/O; and program and run-time management of memory and disk workspace.

License fees for CONSORT on the HP 9000/700s start at $1,490.

Contact Information Resources Inc., 319 Decker Rd., M/S RR1, Craryville, NY 12521; (800) 333-SORT.

Circle 398 on reader card

Phasell Turns ClockWise For HP 9000 Series 700/800

PhaseII Software Corp. announced that ClockWise 1.3, a multiuser work group management application is available for the

HP 9000 Series 800 and 700 workstations running HP-UX 8.0 or higher. ClockWise combines group scheduling and calendar technology with task delegation and tracking to give managers more effective control and improve communications within their organizations.

ClockWise incorporates many of the same features as personal information managers — ToDo list, calendar, notes and address book — and extends them to a group computing environment.

The calendar serves as a group scheduler that arranges meeting times and allocates rooms, equipment and resources. The ToDo list becomes part of a comprehensive task management function that allows managers to delegate tasks, enforce accountability, encourage follow-up and track tasks to completion.

A single concurrent user license is $279. A license for five concurrent users is $759. Contact PhaseII Software Corp., 444 Washington St., Ste. 407, Woburn, MA 01801; (617) 937-0256.

Circle 395 on reader card

Software Technologies Group Unveils MAGRST For UNIX

Software Technologies Group announced MAGRST for UNIX Release 2.0, a utility to extract data from Prime Computer's MAGSAV-format archive tapes.

It maintains the original PRIMOS directory structure saved on the tapes. Both full and partial restores are supported, providing the user with complete flexibility when restoring files from the tape.

MAGRST for UNIX supports a variety of file types including SAM, DAM and Segmented Directories (both SAM and DAM). The product converts Prime ASCII files to conventional ASCII.

In addition to explicitly specifying which files should or shouldn't be translated, MAGRST for UNIX supports two automatic translation modes that can distinguish most text files (programs source code, ASCII data files, etc.) from binary data and perform the conversion automatically.

MAGRST for UNIX is available on HP 9000, Sun SPARC, IBM RS/6000, Data General AViiON, Sequent and Prime EXL systems.

Contact Software Technologies Group Inc., P.O. Box 265, 1010 Lake St., Ste. 612, Oak Park, IL 60301; (708) 386-2220.

Circle 394 on reader card

OCS Directs CHARGEBACK To HP-UX

OCS announced CHARGEBACK-UX, a resource accounting and cost allocation system for HP-UX.

CHARGEBACK allows managers to analyze and anticipate resource requirements. CHARGEBACK also allows managers to create accounts of users, similar to the chart of accounts used in financial accounting systems, and assign flexible price schedules for a variety of resources. CHARGEBACK supports networked HP-UX environments to make statistics collection and reporting for networked machines virtually transparent. It collects and maintains usage data for all networked machines and resources in the data center including: CPU time, terminals, disk storage, commands and printers. It also allows you to define and generate custom reports. Contact Operations Control Systems, 560 San

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CSI — Computer Solutions, Inc. (201) 672-6000

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Antonio Rd., Palo Alto, CA 94306; (415) 493-4122.

Circle 393 on reader card

Security Dynamics Delivers ACE/Server For HP-UX

Security Dynamics Inc. (SDI) announced a new version of its access control software for TCP/IP client-server networks. ACE/Server for HP-UX offers system managers a means of positively identifying and authenticating HP 9000 workstation clients on TCP/IP networks, while providing a user-friendly and convenient format for end users.

ACE/Server for HP-UX is used in conjunction with SDI's SecurID Card, a credit card-sized token that displays a randomly generated, unpredictable access code that automatically changes every 60 seconds. Users enter their password or personal identification number (PIN) and the current code displayed on the SecurID Card. After the system verifies that both factors are entered correctly, authorized users are granted access to the system, while unauthorized users are denied access. Prices begin at $5,000.

Contact Security Dynamics Inc., One Alewife Center, Cambridge, MA 02140-2312; (617) 547-7820.

Circle 392 on reader card

HP9122C HP9153C Replacements

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ISA 2025
(HP9153C Compatible)
40MB with 3.5 inch single
HP-IB CS/80 SS/80

ISA 1060
5.25 inch single
HP-IB SS/80

ISA 1015S *(NEW SCSI)*
3.5 inch
single
(HP internal FD compatible)
SCSI-for HP9000 300/400/
700/800

ISA 1060S *(NEW SCSI)*
5.25 inch single
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EUROPE:	EURISA SARL:	Tel: 1-48-61-48-95	Fax: 1-48-61-49-06

CIRCLE 245 ON READER CARD

Talaris Systems Introduces 3rd Wave In Laser Printing

Talaris Systems Inc. released Wings Architecture for Intelligent Connectivity for its family of advanced network laser printers.

The Wings Architecture for Intelligent Connectivity brings together all of the features found in departmental printers (high speed print engines, large paper capacity with advanced paper handling features, at least one standard emulation and lower per user costs), but adds multihost, multinetwork, multiapplication support using industry and open systems standards. Enterprise printers are different than network printers because of the added capabilities.

It accepts multiple communications protocols over Ethernet, including TCP/IP, DECnet and EtherTalk, at the same time. It supports all the applications in the enterprise by providing up to nine emulations that can be used in any combination, or that users can use the best application for the task at hand.

Contact Talaris Systems Inc., 6059 Cornerstone Court West, P.O. Box 261580, San Diego, CA 92196; (800) 934-3345.

Circle 390 on reader card

S.M. Gordon & Assoc. Offers New Products For The HP 3000

S.M. Gordon & Associates released four new products for the HP 3000: SIGNON, EZQUICK, BACKMAN and a new version of FYIMAIL.

SIGNON is a system manager tool that allows you to take a snapshot of the current signon environment and then reproduce it at any time. When the system needs to be taken down, you can record how users were signed on and put them back once the system is up and running. All sign on files are kept in an encrypted format.

EZQUICK is designed as an add-on product for QUICK from COGNOS Corp. It gives QUICK programmers the ability to work in a PC Windows-like environment on an HP terminal, to select items from the QDD dictionary and then to interactively design the screen by using the cursor keys to place and move the labels, data and text. When screen design is finished, code necessary for the screen to work under QUICK is generated using a function key.

BACKMAN is a generic background job manager, enabling you to place background jobs into one job stream. BACKMAN supports passing STDIN LIB=, PARM=, INFO=, XL=, and a special RESTART option that will tell BACKMAN to automatically restart a process if it fails. You can use XEQ files to dynamically load and unload various background environments.

Version A.02.01 of FYIMAIL, the electronic mail package, now supports the ability to upload files from the PC directly into mail being typed on the 3000. Users also can define and create their own template files.

FYIMAIL version A.02.01 is priced at $875. SIGNON is at $275. EZQUICK and BACKMAN are available at an introductory price of $450 and $400 respectively, regardless of CPU size.

Contact S.M. Gordon & Associates, 1320 Brewster Avenue, Anaheim, CA 92801; (714) 533-6234.

Circle 382 on reader card

Cantata Adds Reports To SPG Code Generator

Cantata Computer Corp. released Reports for SPG — Source Program Generator. SPG is a PC-based graphical programming environment that generates COBOL source code for the HP 3000, allowing programmers to simplify the development of new applications as well as the maintenance of older COBOL applications. The Reports module combined with the basic SPG Meta-Engine is available as a standalone package as well as an enhancement to version 2 of SPG's previously available Screen and File code generation products.

SPG operates under Windows on a PC and provides a GUI for the design and code generation of screens, files and reports. Procedures are provided to download existing IMAGE database root files into an SPG MetaDictionary repository allowing user data file attributes to be available for further design modification at the click of a mouse. In addition to IMAGE, KSAM and Sequential files also are supported.

Contact Cantata Computer Corp., 165 Eighth St., Ste. 304, San Francisco, CA 94103: (800) 282-9520.

Circle 389 on reader card

AimTech Corp. Debuts IconAuthor For OSF/Motif

AimTech Corp. announced its interactive multimedia authoring tool, IconAuthor, under the OSF/Motif X Window System interface. AimTech also announced support for the HP 9000 Series 700 workstations.

IconAuthor's icon-based, visual programming environment allows the non-programmer to develop interactive multimedia applications that combine text, graphics, animation, full-motion video and audio. IconAuthor is used to create applications for computer-based training, simulations, self-service terminals, performance support systems and desktop presentations.

IconAuthor on OSF/Motif also comes equipped with Smart Text Editor, an object-oriented text editor used to create dynamic text; and IconAnimate, an animation editor used to create animation scripts.

IconAuthor for OSF/Motif prices range from $7,500 for one user to $75,000 for unlimited users at one site.

Contact AimTech Corp., 20 Trafalgar Square, Nashua, NH 03063-1973; (603) 883-0220.

Circle 388 on reader card

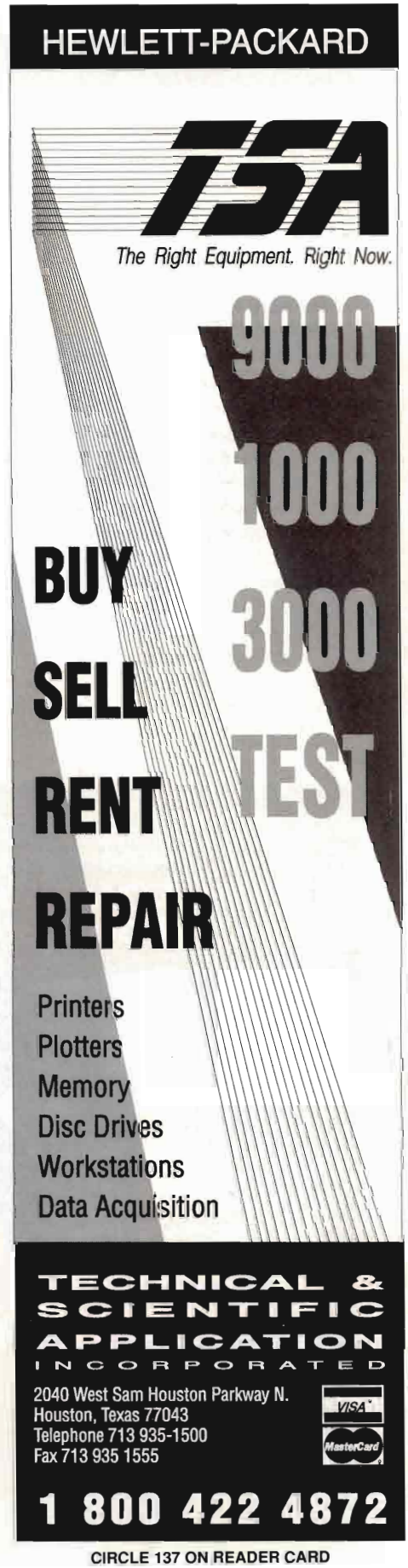
HP Simplifies Computer-Aided Process Management

HP introduced SynerVision for SoftBench, a software tool that enables users to construct computer-aided process-management environments.

Once the process is defined, the process-management environment provides real-time communication and status reports that link the process with the people who perform the tasks and the software tools they use.

SynerVision consists of general-purpose electronic templates, or process blueprints, that can be programmed with information that divides a process into a set of well-defined tasks.

Users add information to each task description, including the desired



CIRCLE 137 ON READER CARD

communication among the software packages involved, task priorities, and standards and measurements to collect at each stage of the process and collate into status reports.

Price is $3,950 for UNIX-based workstations from HP and Sun Microsystems.

OMNIDEX Interface Introduced To QUICK

Dynamic Information Systems Corp. (DISC) developed a streamlined interface to add OMNIDEX retrievals to any QUICK screen that is shipping with its latest version of OMNIDEX software for both classic and Spectrum TurboIMAGE customers. The interface will work with both OMNIDEX keyword retrieval and the company's sorted sequential access product IMSAM, and doesn't require any changes to the dictionary or Path and Find procedures.

The interface provides the ability to perform simple or complex retrievals through dialogue boxes overlayed on the QUICK screen, or through instructions directly within the program. Most screens can employ OMNIDEX with a simple 12-line POSTPATH procedure.

The interface is shipping with version 2.09 (classic) and 3.0 (Spectrum) OMNIDEX. IMSAM-only customers will be charged $500 to $2,250.

Contact DISC, 5733 Central Ave., Boulder, CO 80301; (303) 444-4000.

Circle 387 on reader card

MEC Releases WiziWord 2.0 For HP 9000 Workstations

Microsystems Engineering Corp. (MEC) released WiziWord 2.0, a WYSIWYG word processor, for the HP Apollo 9000 Series 700 workstations using the Motif interface, running under the HP-UX 8.0 operating system.

WiziWord combines graphical word processing with drawing and plotting capabilities. Word processing features include a tables editor, print/preview mode, powerful macros, graphics integration, multicolumns, thesaurus, and spell checker. An object-oriented illustrator can be used to create new drawings or edit and annotate imported graphics.

On workstations, WiziWord sells for $995 which includes all three modules (WP, Drawing and Plotting). The PC version costs $595. The Macintosh version costs $395.

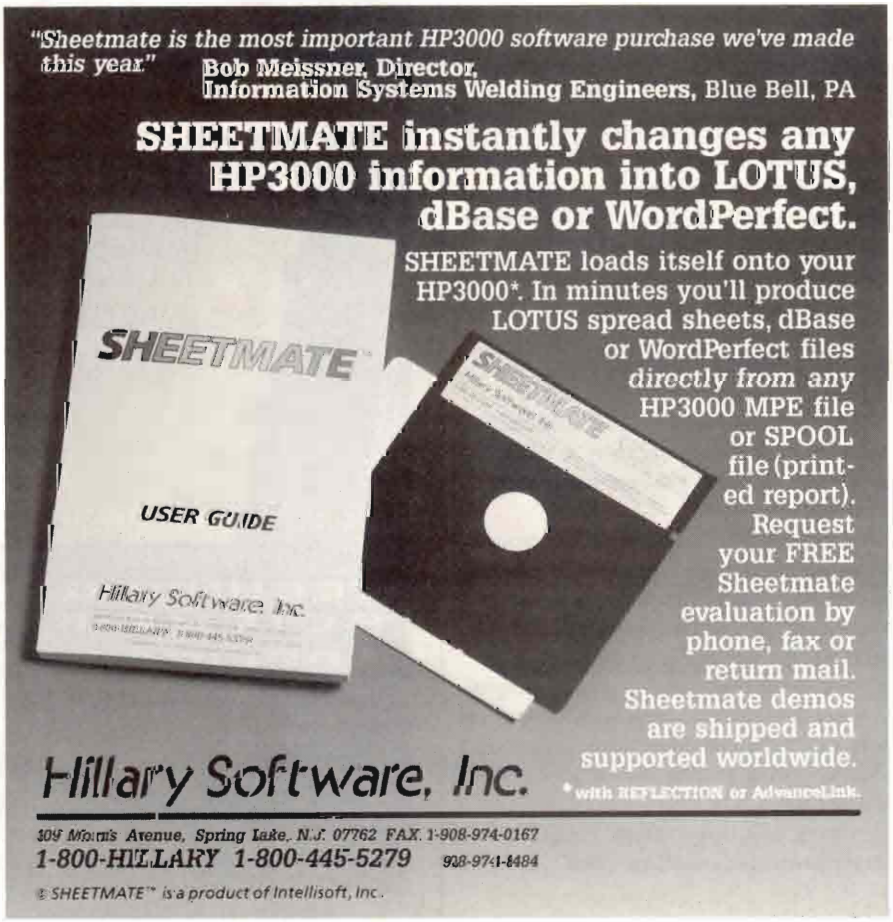
Contact MEC, 2400 W. Hassel Rd., Ste. 390, Hoffman Estates, IL 60195; (708) 882-0111.

Circle 385 on reader card

Cyborg Ships Client-Server Version Of Solution Series

Cyborg Systems released a new version of The Solution Series, its integrated human resource management, payroll processing and benefits administration system.

The Solution Series Version 8.0 now incorporates client-server architecture to run on standalone and networked IBM-compatible microcomputers linked by Novell NetWare. It also runs under Windows, providing a graphical user interface and the capability to transfer information between it and spreadsheets, word processors and other Windows-based applications.



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Good news for 2680/88 printer owners:

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With Formation/2680 from Tymlabs, you can easily convert your 2680-based electronic forms to print on any HP laser printer, including the new LaserJet IIlsi, and the high speed, high resolution page printers that are on the way. And you can print your forms wherever it's most convenient —in your computer room, or on any of your departmental laser printers.

Create new electronic forms quickly. And easily.

Formation/2680 includes Formation Design, a Windows-based drawing tool that lets you design a form in a fraction of the time it takes with HP's IDSForm. Just upload the form to your HP 3000 system and compile it into a standard MPE environment file. A single file equation merges the form with the data from your host applications.

Find out for yourself how easy it is to convert your 2680 forms and to create new electronic forms. Call today and order your free demo of Formation. **1-800-767-0611.**

Tymlabs

Tymlabs Corporation 811 Barton Springs Rd. Austin, TX 78704 USA 512-478-0611 Fax 512-479-0735
Tymlabs (UK) Ltd. 9 Trafalgar Way Bar Hill, Cambridge CB3 8SQ UK 0954-780088 Fax 0954-780001

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Enhancements to The Solution Series include flex benefits management capabilities to provide program administrators with a full suite of tools for implementation and administration of flex benefits programs. They include prototype enrollment forms, single screen enrollment capabilities for benefits choices, complete calculation and distribution tracking of employee credits, sample letters for employee communications and tracking of flexible spending account claims and balances.

The Solution Series version 8.0 is priced from $35,000, depending on CPU and number of users.

Contact Cyborg Systems Inc., 2 North Riverside Plaza, 12th Floor, Chicago, IL 60606; (312) 454-1865.

Circle 383 on reader card

WRQ Releases Reflection For HP 95LX Palmtop Use

Walker, Richer & Quinn announced the upcoming release of the Reflection connectivity software, designed for the HP 95LX palmtop computer. Reflection for the Palmtop will allow the mobile business person to connect with the host at home to read electronic mail or to look at other host-based information.

Reflection will supply terminal emulation for applications on HP 3000, Digital VAX and UNIX hosts. Reflection for the Palmtop will incorporate many of the features of WRQ's other Reflection products, such as a scripting language and keyboard mapping. It will offer enhanced modem dialing and screen handling and will be streamlined to conserve memory.

Reflection for the Palmtop will be available in the first quarter of 1993.

Contact Walker, Richer & Quinn Inc., 2815 Eastlake Avenue East, Seattle, WA 98102; (206) 726-7263.

Circle 381 on reader card

AG Communication Introduces DIG, Action Tracker and DLS

AG Communication Systems introduced three new system development and administration tools for HP Apollo workstation users.

DIG (Database Interface Generator) automatically generates an interface between a C application and an Oracle RDBMS by using the definition of table and views from the data dictionary.

Action Tracker documents, communicates and tracks project actions and/or system problems. User-defined data fields, routing and life cycle states allow users to design customized action reports to meet a broad range of applications.

DLS is a document library system to help HP Apollo workstation users with Interleaf document administration. It allows users to maintain a centralized library of documents and easily apply configuration management methods to Interleaf documents.

Contact AG Communication Systems, 2500 W. Utopia Rd., Phoenix, AZ 85027; (602) 582-7511.

Circle 380 on reader card

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POSIX And ANSI Conformance Checking: Flexelint 5.0

Gimpel Software added POSIX and ANSI conformance checking to Version 5.0 of FlexeLint. Use of non-POSIX and/or non-ANSI features and functions are flagged, suspicious but legitimate usage is reported, and non-portable constructs are identified.

FlexeLint is a C source code analysis tool and runs on any machine that supports the C language. FlexeLint will analyze C programs and report on bugs, glitches, inconsistencies and redundancies. FlexeLint looks across multiple modules and aids in developing reliable programs, making programs more maintainable, and in porting programs to new machines and new operating systems.

POSIX and ANSI checking is enabled through the use of unencumbered POSIX and ANSI header files that are included with FlexeLint. FlexeLint can be used on mainframes and workstations including UNIX, HP-UX, IBM VM, VAX VMS and Sun OS.

Contact Gimpel Software, 3207 Hogarth Lane, Collegeville, PA 19426; (215) 584-4261.

Circle 378 on reader card

LINK Presents AlphaWindows Terminal Solution

LINK Technologies released two new Alphanumeric windowing solutions: the color WT80 and the monochrome WT6 AlphaWindow terminals. LINK also announced an alliance with JSB to equip users with an integrated hardware and software AlphaWindow solution.

LINK and JSB are offering AlphaWindow Appraisal Kits (AWAKS), which include LINK's WT80 or WT6 AlphaWindows terminals, bundled with a PC style keyboard, mechanical mouse and JSB's MultiView Mascot software. The kits support five UNIX operating system versions, including HP-UX, and allow users to test drive AlphaWindows hardware and software in their existing application environment.

The WT80 and WT6 terminals provide up to six simultaneous sessions running on any host equipped with an AlphaWindows compliant windowing manager. Both terminals support input devices from Microsoft, Logitech or Mouse Systems, as well as a PC compatible parallel port for printers or other peripherals.

JSB's MultiView Mascot is a UNIX-based program that gives you a Motif-style windowing environment on an AlphaWindow terminal and provides an easy migration path from character to AlphaWindow-based terminals.

The WT80 is $999. The WT6 is $699. For a limited time, the AWAKS kit, including a single-user version of JSB's MultiView mascot software, a keyboard and mouse, will be available with the WT80 or WT6 at no additional cost.

Contact LINK Technologies, 46595 Landing Parkway, Fremont, CA 94538; (510) 651-8000.

Circle 377 on reader card

TransEra Offers The HTBasic DOS 386/486 Numeric Compiler

TransEra Corp. announced the latest addition to its High Tech Basic product line, the HTBasic DOS 386/486 Numeric Compiler.

The DOS Numeric Compiler helps any HTBasic programmer produce faster running numeric-intensive subprograms without requiring any additional programming skills. The Numeric Compiler produces code that runs in the fast 386/486 processor 32-bit protected mode and produces in-line math code to fully utilize the 387/487 math processor. In addition, the Numeric Compiler also can generate EXE files that require only the HTBasic DOS 386/486 Runtime Version to execute.

The TransEra HTBasic DOS 386/486 Numeric Compiler, including the complete DOS 386/486 Development and Runtime versions, is now available for $1,325. For current HTBasic users, the Numeric Compiler is available as an upgrade from their current DOS 386/486 Version for $450. The Numeric Compiler requires Release 3.3 of the DOS 386/486 Version of HTBasic.

Contact TransEra Corp., 3707 North Canyon Road, Provo, UT 84604; (801) 224-6550.

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Acucobol Inc. and the Mark Williams Co. (MWC) announced the availability of ACUCOBOL-85 for MWC's COHERENT Version 4.0 operating system.

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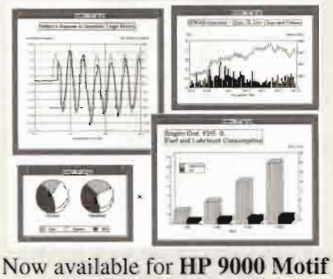

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- **Systems Integration the HP Way** — Who are the systems integrators and consultants specializing in HP platforms? Bill Sharp scans this rapidly expanding field.
- **Is HP a Network Vendor** — A look at HP's low-profile EtherTwist line of network hubs, routers and network-ready Vectra PCs.

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To NT, Or Not NT?

Microsoft has been busy mustering a coalition of forces behind its Windows NT operating system. Having already firmed up plans to produce NT for the Intel, DEC Alpha and MIPS processor families — and with parallel system vendor Sequent showing off NT on its Symmetry server — it's obvious that Microsoft wants to make the *big splash* with this puppy. So where's HP?

The Silent Treatment

Here we are, mere months from its release, and HP still isn't saying what it's going to do? At INTEREX, HP did let slip that it is "exploring" the use of NT on PA-RISC. I'm sure the purpose of the "leak" was to reassure us that HP isn't deaf and blind to Microsoft's ploy, but the company is still dumb on NT's future.

We tried to get HP to open up, but it just doesn't want to talk about NT yet. All we could get from HP's CEO Lew Platt was the assurance that "Nothing happening now — with Digital or anybody else — makes HP the odd man out. Bill Gates wants NT running absolutely everywhere, and everyone is looking for volume sales."

Translated into plain Anglais, that means that NT isn't exclusive to anybody, and that HP can ink a deal with Microsoft any time it wants. The incentive for a deal is a place at the trough if it looks like there's enough money to be made. This is not what you'd call a ringing endorsement.

I expect silence from IBM, which wants no part of either Microsoft or NT. Sun is also reticent about NT, but they've never been a big customer of Microsoft's like HP has. Is HP getting sick of following Microsoft around like a dog? That could be. NT might just be a flop. Then again, HP's bigger worry might be that NT will succeed too well.

Is UNIX Dead?

Microsoft makes no bones about trying to position NT as its UNIX-killer. If it just wanted to continue hogging the Intel-dominated desktop, it wouldn't have to court and port so aggressively. Microsoft is aiming squarely at the server market with NT, and that can't be too reassuring to HP, which makes more money from UNIX than any other vendor, and is also eye-balling that market covetously.

HP — either first or second in the UNIX market, depending on whether you're counting beans or units shipped — wants to sell more PA-RISC hardware, but it doesn't want to cannibalize its sales of HP-UX systems. If NT on PA-RISC meant brand-new sales in non-UNIX (read PC) markets, HP might get those volume sales that Mr. Platt is looking for. The risk is that NT might really work, and start eating into UNIX server sales. HP counts on that quasi-proprietary market to generate lots of software and services dollars, and no amount of hardware volume will make up for its loss.

So what's HP supposed to do? If it gets on the NT bandwagon, it gives NT a bigger boost out of the chute. If HP falls off the wagon, it might lose hardware sales and keep its UNIX revenues up, or it might just lose hardware sales.

It's not so simple a question as "Is UNIX dead?", because UNIX is undoubtedly going to be around for a while as a transaction-processing and database-serving platform. The economics of downsizing and the impact of the Open Software Foundation's Distributed Computing Environment (OSF/DCE) will see to that. What's at stake are the desktop and workgroup server markets.

Although the UNIX mongers have tried to wage war at the low end of the workstation market, their strikes are being launched from cratered airfields. Windows already has staved off repeated incursions into PC land, including tries by at least four new low-end UNIX boxes in the last year. Attempts to position UNIX as a PC workgroup server platform also have flopped. For that matter, attempts to position anything other than Novell's NetWare as a server platform have been less than stellar successes.

Under Cover Of NetWare

In a twisted way, the success of Novell may be making HP think that it can get away with a divide and conquer strategy. Knowing that NetWare doesn't scale well up into UNIX territory, HP can view it as a demilitarized zone between PC and UNIX territories. Before it can lay claim to any major server market share, NT will be forced to fight off NetWare. Without the backing of HP or IBM, doing that will be much more difficult.

Given that HP has been working with Novell to put Native NetWare onto PA-RISC, HP may feel that it's already got an entry point into the workgroup server market, and that NT will be an expensive distraction that won't buy it any more market share.

Whatever its strategy, I hope HP gets around to talking about it soon. More silence just means more confusion, and it would be nice to know what HP's game plan is. The time for contemplative navel-gazing is long gone. We deserve a decision. ■

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