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HP Professional

OCTOBER 1994

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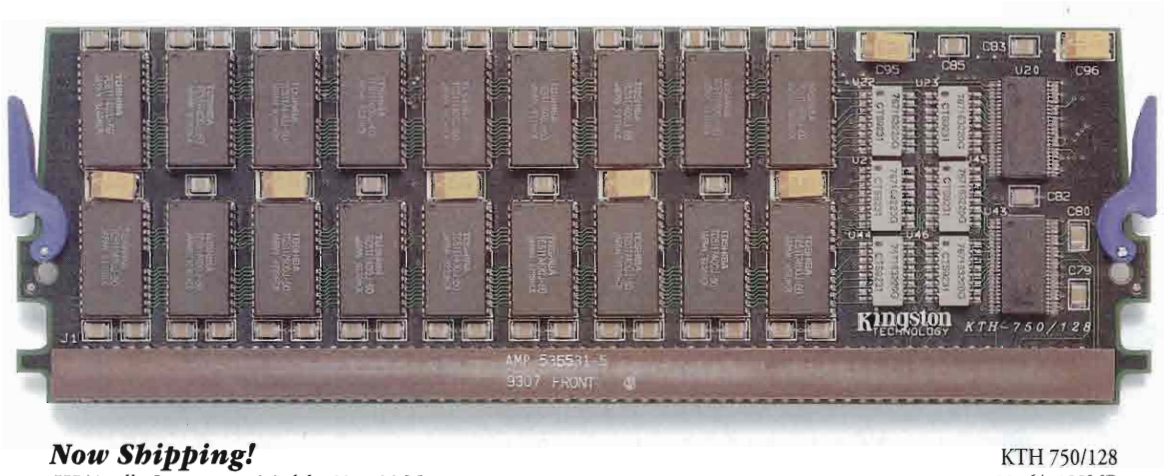

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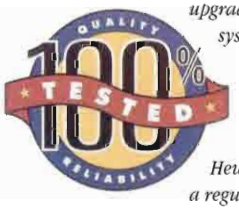

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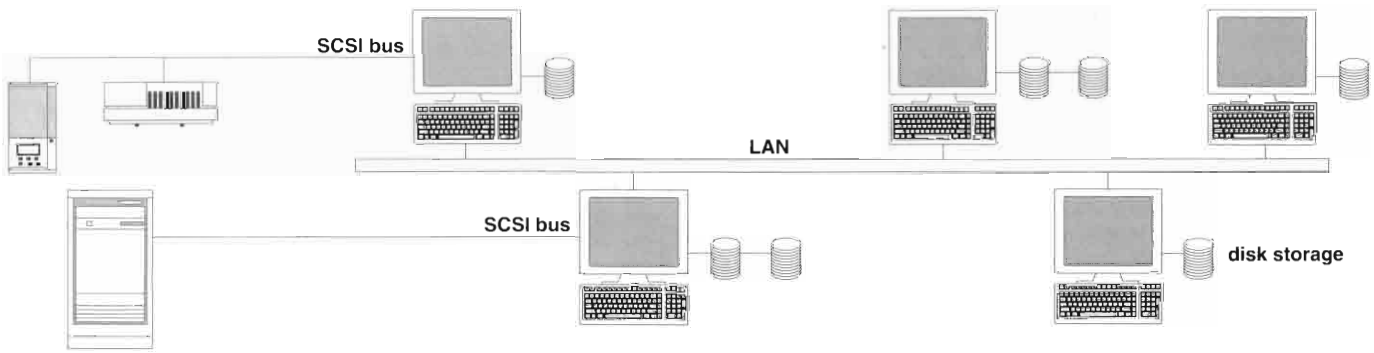

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HP PROFESSIONAL ISSN 0896-145X is published monthly by Cardinal Business Media Inc., 1300 Virginia Dr., Ste. 400, Fort Washington, PA, 19034. Subscriptions are complimentary for qualified U.S. and Canadian sites. For reprints, contact Reprint Management Services, 505 E. Airport Rd., Lancaster, PA 17601; (717) 560-2001, Fax (717) 560-2023. Second Class postage paid at Fort Washington, PA 19034, and additional mailing offices. POSTMASTER: Send all correspondence and address changes to HP PROFESSIONAL P.O. Box 3052, Northbrook, IL 60062. COPYRIGHT © 1993 by Cardinal Business Media Inc. All rights reserved. No part of this publication may be reproduced in any form without written permission from the publisher. All submitted manuscripts, photographs and/or artwork are sent to Cardinal Business Media, Inc. at the sole risk of the sender. Neither Cardinal Business Media, Inc. nor HP PROFESSIONAL magazine is responsible for any loss or damage. HP PROFESSIONAL is an independent journal not affiliated with Hewlett-Packard Company. HP and Hewlett-Packard are registered trademarks and HP PROFESSIONAL is a trademark of Hewlett-Packard Company.

Canada Post International Publication Mail (Canadian Distribution Sales Agreement # IPM#264431

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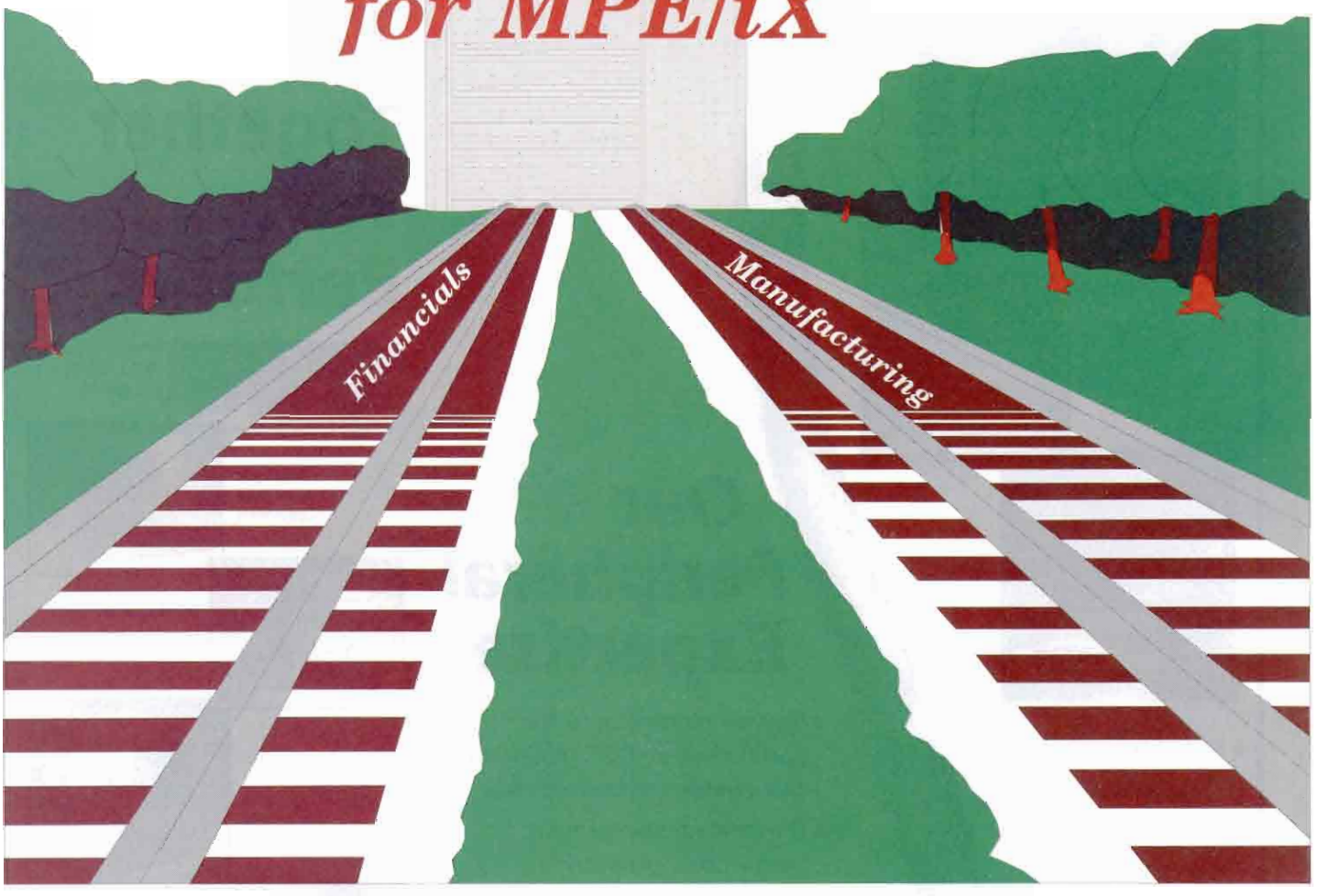

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EDITORIAL

Indecisive Decisions

Make The Choice Before It's Made For You

By Charlie Simpson

Good news for you motorheads following my car wars. Well actually, good news for me. I'm keeping the '72 Dodge Challenger. Oh yeah, and there's some good news for you HP 3000 users as well.

In my June 1994 editorial, I asked what your computing plans were for the future. Did you see the HP 3000 as part of that future? Were you migrating or changing, or just waiting and seeing? Although responses to my query were much lower than I had hoped, the little feedback I received was positive toward the HP 3000. In fact, we printed a couple of those responses in this month's Letters To The Editor section.

I believe the low response is due to a wait-and-see mentality currently permeating the industry. I know it's not because the editorial isn't being read (you should have seen the letters that came in the one time there was a typo in it). It seems people are afraid to commit — time and money — to anything, until they are finally forced to make a decision.

But getting back to the issue at hand, my car. In order to keep the Dodge, I had to sell the "Cav," an '85 Chevy Cavalier that I've had for nine years. It has over 100,000 miles, surface rust, no air, no radio and a rattling exhaust. But it didn't know the meaning of die and still doesn't and I loved it. Sound familiar three-thousanders?

Unfortunately, I couldn't afford both, and couldn't decide which to sell. It came down to keeping practical, old faithful that I knew could get the job done, or sinking a little cash into my ticket to adventure and life in the fast lane. However, the order came down from above, "We're no longer a three car family. Something has to go!"

So, the decision was made for me. Both cars went on the block. We rejected offers for the Challenger and immediately got a fair offer on the Cav. So I cleaned and tuned the Cav (its third washing in nine years), and fixed the air and radio. But then, I had second thoughts about selling it. After all, it looked good, it cost next to nothing to own and has always been dependable. But on the other hand, the Challenger is fast, can handle the open road and has a heap more power.

I had to sell the Chevy, everyone was expecting me to, the buyer, my wife, the insurance company; I was committed. So once again, the decision was made for me. So the question that remains is, what will the price be for the speed, power and performance with which I chose to go? There will be more tuning and maintenance and, of course, speed-limit watching. I could go 40 mph through a school zone at 3 p.m. in the Cav, but have authorities follow me home in the Challenger because the paint was too bright.

Perhaps the pressure isn't as great on you today as it was on me to decide, but it will be there sooner or later. Unless you can afford to maintain your way of thinking, eventually you'll have to decide. First you will be asked, then told. Will you be ready?

Charlie Simpson

simpson@cardinal.com

George A. Thompson

HP-UX Leads The ISV Pack

"Hewlett-Packard is the UNIX platform-of-choice for mainframe ISVs that are making the evolutionary transition to UNIX servers."

That's one of the conclusions reached by the Aberdeen Group, a Boston, Mass.-based market research firm, when they asked "Which UNIX servers are the most popular with mainframe-ISV customers?"

Although ISVs port their software to the vendor with the largest installed base, a high-quality support program also plays a significant role, according to Franc Romano, Aberdeen's director of server research. "It's important to take care of the needs of the software vendor. And HP has clearly differentiated itself from its competitors with its high-quality support program." All HP platform customers surveyed for the report said that HP "met or exceeded their requirements."

The report also discovered that IBM is the next most popular platform for mainframe-to-UNIX server transitions, while Sun is in third place. In 1993, HP was also the leading platform-of-choice for RDBMS vendors moving to UNIX, according to Romano. So, IS executives should expect to see more mainframe ISVs moving their software to UNIX in general and HP-UX in particular.

RAS JOURNEYS INTO RETAIL AND BANKING

HP continued its infiltration into the retail, financial and hospitality industries with its replicated application server (RAS) strategy. Based on its 7100LC CPU-based "E" class servers, HP's RAS "is designed to appeal to companies with many branch offices," explains Patty O'Brien, program marketing manager, where customer service is an important competitive factor. Prudential/UK, Fuji Bank and Banco Bamerindus are among the financial companies initially adopting RAS solutions. Wall Mart, Home Depot and Comp USA are among the retail customers also adopting RAS.

However, while it's clearly a growing market, according to Chris Christiansen, research director for IDC (Framingham, Mass.), it is not new. "The history of this environment goes back about 20 years when branch banking changed from a centralized function to a distributed one," he says. "Digital was an early pioneer but they let their lead lapse." Other vendors in the current market (estimated to be $5 billion) include NCR and Unisys, as well as IBM with the AS/400 and RISC/6000 platforms.

HEAD OF THE E-CLASS

In July, HP extended its 9000 Series E-class business server product line by adding the Model E55. Similar to other E-class servers, the HP 9000 Model E55 uses a 96 MHz version of the PA-7100LC CPU. According to HP, with a $765 per

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HP-382				●	●			●				
HP-400/425/433				●	●			●	●			
HP-425E				●	●			●				
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E-class servers can provide remote system management from a centralized site with OpenView Operations Center software.

transaction-per-minute (tpmC) figure (running the Informix OnLine 5.0 database), the Model E55 is a record breaker.

A base Model E55 configuration ($13,140) also provides a 1 MB instruction/data cache, 16 MB RAM (expandable to 512 MB) two HP-PB I/O slots (expandable to four), integrated single-ended SCSI interface with a 535 GB hard disk (expandable to 156 GB using Fast and Wide SCSI disk arrays and disks), integrated 802.3 LAN and Centronics parallel interfaces.

HP's E-class servers compete with Intel Pentium-based PC servers, but the E-class servers can provide remote system management from a centralized site with OpenView Operations Center software ($32,000 for main software applications and basic formation of agents).

STILL GROWING!

HP announced that their net revenue increased 22 percent (from $4.96 billion to $6.05 billion) and orders grew 27 percent in the third quarter (ending July 31, 1994) compared with the same period in 1993. According to estimates from Wall Street investment firm Solomon Brothers (New York, N.Y.), orders from the Asia Pacific region showed the largest increase with especially strong demand from Korea, China and Japan. European orders increased 20 percent, a significant improvement from the 6 percent in the second quarter.

HP 9000 Series 800 revenues rose 35 percent, workstation revenues by 7 percent (a modest decline from last quarter) and HP 3000 revenue by 5 percent. Demand for desktop PCs and PC network servers was particularly strong. John Jones, analyst at Solomon Brothers, predicts a year-to-year PC revenue growth of 65 percent. HP is now the number six PC computer vendor in the United States.

HP's earnings per share also increased by 28 percent to $1.33, or $347 million from $271 million a year earlier. "HP is like a 12-cylinder Ferrari," says Jones, "even if only 10 cylinders are working, they can still have reasonable performance." Even though HP is still a very healthy company, according to Jones, order fulfillment continues to be a problem. "They are growing faster than their infrastructure can handle it."

Thompson's Internet address: thompson@cardinal.com

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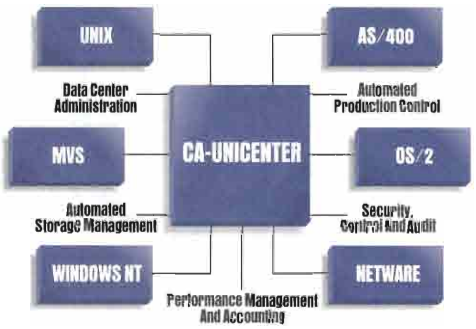

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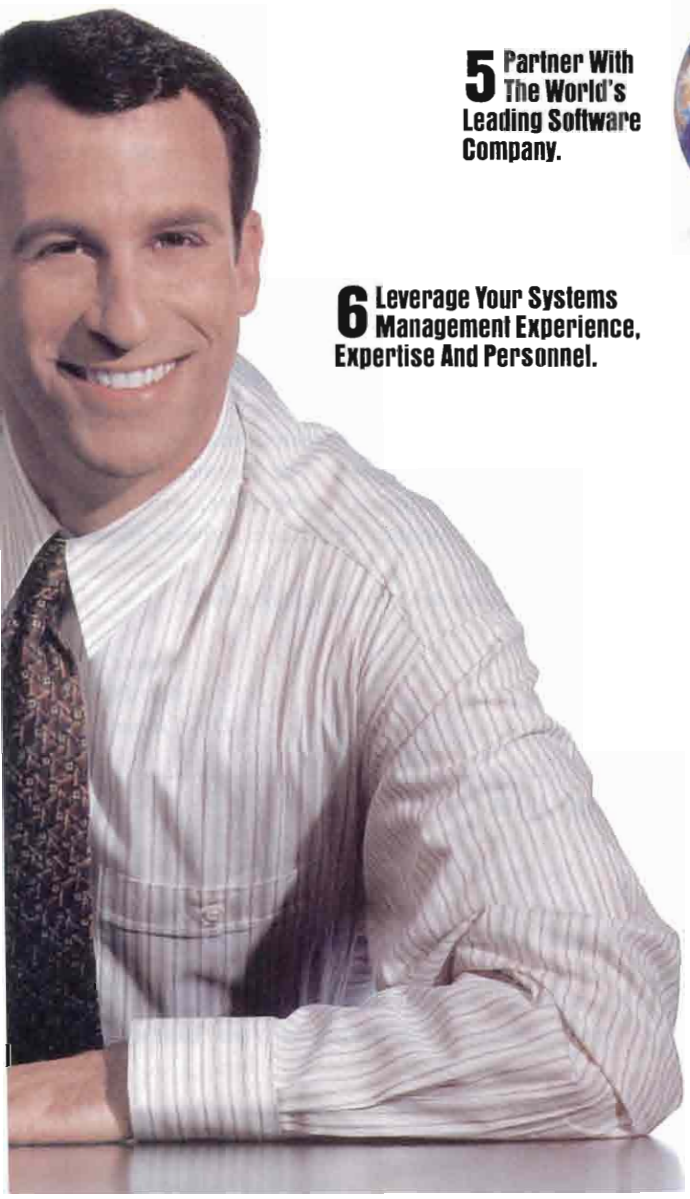

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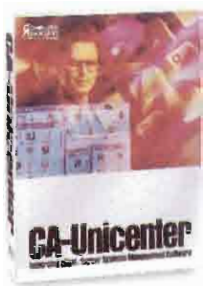

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CIRCLE 296 ON READER CARD

Alive And Kicking

I just got around to reading the June 1994 editorial and would like to comment on the HP 3000 marketplace from an employment perspective. In my 10 years of servicing the HP market, I have never seen more employment activity! I handle both the HP 3000 and HP 9000 and although both areas are healthy, the biggest demand is for Information Systems professionals with HP 3000 experience. It's phenomenal. My HP 3000 clients are "holding strong for principles" and not changing for change sake. From my perspective, the HP 3000 is not only healthy but very much alive and kicking.

Diane Amos
President
Amos & Associates

Just finished reading the June 1994 editorial. We here are somewhat HP 3000 dependent, due to our investment in IMAGE/VPLUS applications. The UNIX world holds no future for us that I can see. As long as products like NewFace/3000 continue to appear, I don't see us ever leaving the HP 3000 platform. Boeing, of course, has a slew of other platforms they are working with, and because of the contract signed with HP a year or so ago, will be purchasing many new HP 9000 boxes of various sizes.

Don Harrington
Boeing

INSITE INSIGHTS

Thank you for the article in the July 1994 issue on remote printing at the St. Lawrence Seaway. I found the information very useful.

Are you aware of any other reports or comparisons on alternative solutions? Or can you suggest a list of vendors to contact?

Harley D. Shouldice
Business Development Executive
M.B. Foster Associates Ltd.

I'm glad the INsites story was helpful to you. I hope that our feature "The Reality of Network Printing," found on page 30 of the August 1994 issue, is just as useful in answering your other questions. — George A. Thompson

ADVISORY BOARD

Congratulations on the continued excellence of *HP Professional*. Your editorial staff and writer/contributors consistently provide timely and well constructed material. As an HP Channel Partner, we not only recognize the value of your publication but we also encourage our HP clients to subscribe for extra copies for their professional and executive staff.

The recent formation of the Editorial Advisory Board is yet another extension of your commitment to listening and reporting the events within the HP marketplace. I would suggest that your prestigious board could further be enhanced by having a representative from the HP Channel Partner group. Distributors, VARs and DARs who carry the HP message to the end user with their own value-added products and services sometimes see attitude and market changes that are developing. I would suggest a Channel Partner member who is in the commercial marketplace rather than a specialized segment. The commercial venue is much more volatile and competitive, with a wider exposure to competitive hardware, software and technology issues.

Again, keep up your excellent efforts.

James Healy
Vice President
EDP of America Inc.

WHO AGAIN?

Fred Mallett's UNIX SYS_ADMIN article in the August 1994 issue covered the **who** and the **w** command. I would like to add something more to that topic.

Just like the **/usr/bin/w** command, there is a **no man** command called **uptime** (**/usr/bin/uptime**).

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CIRCLE 104 ON READER CARD

The **uptime** command has the same options as that of **/usr/bin/w**.

```
Usage: %s [-hlsuw] [user]
```

The **-h** option strips off the header, whereas the **-w** options gives the system load summary line plus the long format user-level load details with the header (wide format?). the **-u** option gives the summary of users, which is the default. The **-l** option does not seem to do anything or this may be the same as the default **-u** option. Likewise, the **-s** option also does not have any effect. One more interesting point to know is that the **/usr/bin/uptime** gives the same result as that of

```
/usr/bin/w -u
```

If you know the command **ex** (extended line editor) or **edit** (a similar editor), then you may be interested to know that there is a command **/usr/bin/e** which acts the same way as **ex** in the tests I have performed. According to the man pages of HP 9000, many HP systems have both the editors, **ex** and **edit**, work the same way, with the same defaults. Not only that, I see that the six editor command files: **e**, **edit**, **ex**, **vedit**, **vi** and **view** in the /usr/bin directory have the hard links, meaning all six of them have the same executable files. They must be checking the arg[0] and branching out separately.

On reviewing some of these commands, I think that these one letter commands (**w** and **e**) might have been created by the developers of the operating system and because they were frequently used and easier to invoke, they left them on the machine as they are, with no man pages. There is more room to explore.

Also, I always wanted to have the batch copies and batch moves. Thanks for showing me the trick to achieve it.

Naga Rajan
Software Consultant
Wesson, Taylor, Wells

MICROSOFT TRIO

I was surprised to read the article "The Winds of Change" in the August 1994 issue.

In actuality, Windows NT *does not* depend on MS-DOS (like Windows 3.1 does). Windows NT can be installed on a PC without installing MS-DOS. It was built from the ground up as a new 32-bit, pre-emptive multitasking, multithreaded operating system. None of these properties exist in the MS-DOS world.

The story also states that NT suffers from many MS-DOS limitations such as eight character file names. This is only true if the user decides to install the old DOS FAT file system. Instead, you can install the NT File System which fully supports long file names (as well as advanced Access Control) across the file system.

The story goes on to state that Daytona will finally break the ties between NT and MS-DOS, however this has been the story with NT all along.

Art Fumarolo
Senior Staff Engineer
Motorola Inc.

A number of alert readers caught this mistake in my August column. Windows NT does not require MS-DOS. Windows NT can exist on a system with an MS-DOS "FAT" file system, but will also work fine in Windows NT-only environments with the advanced NT file system, NTFS. However, installing Windows NT 3.1 on top of an existing MS-DOS-based system has some advantages: the preservation of all Program Manager groups, all Registration database information mapping file extensions to applications and many sections of WIN.INI file. In fact, many sites that use Windows NT 3.1 for both server and client nodes choose to install Windows NT on top of MS-DOS, although it is not required. — Miles B. Kehoe

HP Professional welcomes comments from its readers. Letters may be edited for brevity and clarity, and should be addressed to: HP Professional, 1300 Virginia Dr., Ste. 400, Fort Washington, PA 19034. Fax number: (215) 643-4827. Internet address for staff listed on the masthead: LASTNAME @ CARDINAL. COM
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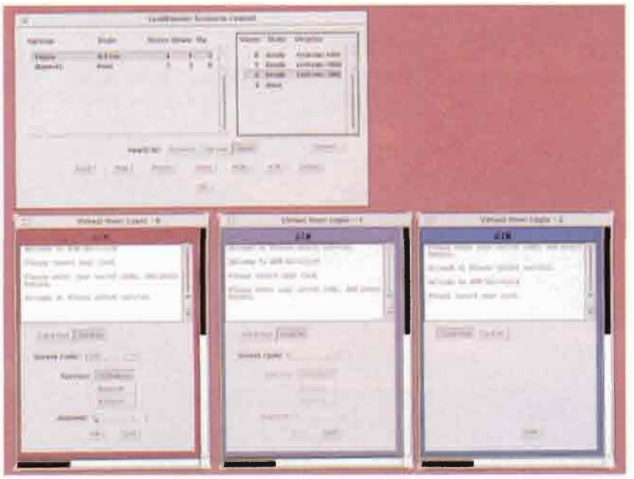
CIRCLE 247 ON READER CARD

Take A Load Off Annie



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CIRCLE 355 ON READER CARD

Without automation, software testing takes so much time and effort that developers are often tempted to put it off for as long as possible. Often the first installation becomes the test site, when the first customers start using the application. With technology advancing so rapidly, companies are looking for better ways to test their products. One way is to use LoadRunner/UX from Mercury Interactive Corp. (Santa Clara, Calif.).

LoadRunner is an automated software testing application for client-server UNIX system developers. By using LoadRunner, uncertainties of system performance under typical full load conditions can be eliminated before product shipment. If an application behaves differently when several people use it, LoadRunner automates the testing and improves the quality of the application.

According to Tom Summers, application systems manager at Wells Fargo (San Francisco, Calif.), there is a big learning curve associated with the LoadRunner product. "This product was marketed toward users of XRunner and was meant to build on that," Summers says. "But there have been a number of modifications and enhancements since we started using it." Wells Fargo is running LoadRunner on Sun workstations to test applications that will run on HP 9000 Series 800s.

Summers notes that the enhancement to the timing function to check response times has been beneficial. "The timing used to start at the beginning of a test," Summers says, "but now you can start the timing at any point during the test."

LoadRunner also uses virtual user technology which tests server behavior and client response time under various load conditions to balance, debug and fine-tune a system. Rather than one machine per user, LoadRunner runs many virtual users on each machine to test large numbers of users with only a few machines. It enables control of all emulated users from a single station, and collects results and organizes them for analysis.

Each virtual user behaves like a real user: it is fully independent, runs its own test script, and has its own complete environment. Unlike human users, however, multiple virtual users can work together on the same machine at the same time, because they run in background mode.

LoadRunner controls the test scenario to meet testing needs by synchronizing several users running concurrently. For example, inter-user synchronization can be used to create a load peak on the application server by coordinating all users to send transactions at the same time for an exhaustive load test. Or, several virtual users can be used to pinpoint an application bug that surfaces in a multiuser test session.

LoadRunner simplifies the analysis by graphically displaying single-run and cumulative multiple-run results. It also tracks test execution at the single user level by generating an execution and failure report for each virtual user. Because reports are fully customizable, you can organize them to show data on individual users, on groups of users and on the test as a whole.

Pricing for the base package starts at $70,000 for one controller and 25 virtual user licenses.

—Deborah Schwartz, Assistant Editor

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CIRCLE 353 ON READER CARD

Surely you've read about the specially designed conference rooms costing $100,000 and up, crammed with video and telecommunications gear. Until now, only the largest companies could afford such a set up. And even then, they have often tried to rent the facilities to other organizations to recover some of the costs.

But with the Communique! family of modular, scalable products, InSoft (Mechanicsburg, Pa.) brings full-motion, video conferencing to the desktop. Communique! is a collaborative, desktop conferencing solution that runs on HP 9000 Series 7xx, Sun, DEC Alpha AXP and IBM RS/6000 workstations. It will be available on Intel-based systems running Microsoft Windows 3.1 in early 1995.

At the heart of Communique! is the Virtual Conference Room where users can initiate a conference or join one in progress by using a point-and-click interface.

All participants are depicted as icons in the "room." Meetings can be saved and reviewed at a later date. Communique! can integrate real-time digital video technology with fully interactive, point-and-click conferencing groupware such as shared whiteboard, shared writeboard, audio and graphics tools.

The shared writeboard module is a text-oriented tool similar to an online chat session on a BBS. Text can be posted to a common, shared notepad where it is displayed in the order received. Text can be posted anonymously or with a user tag attached. The shared whiteboard module is a graphics tool letting users display and mark up documents, drawings, video frames or images.

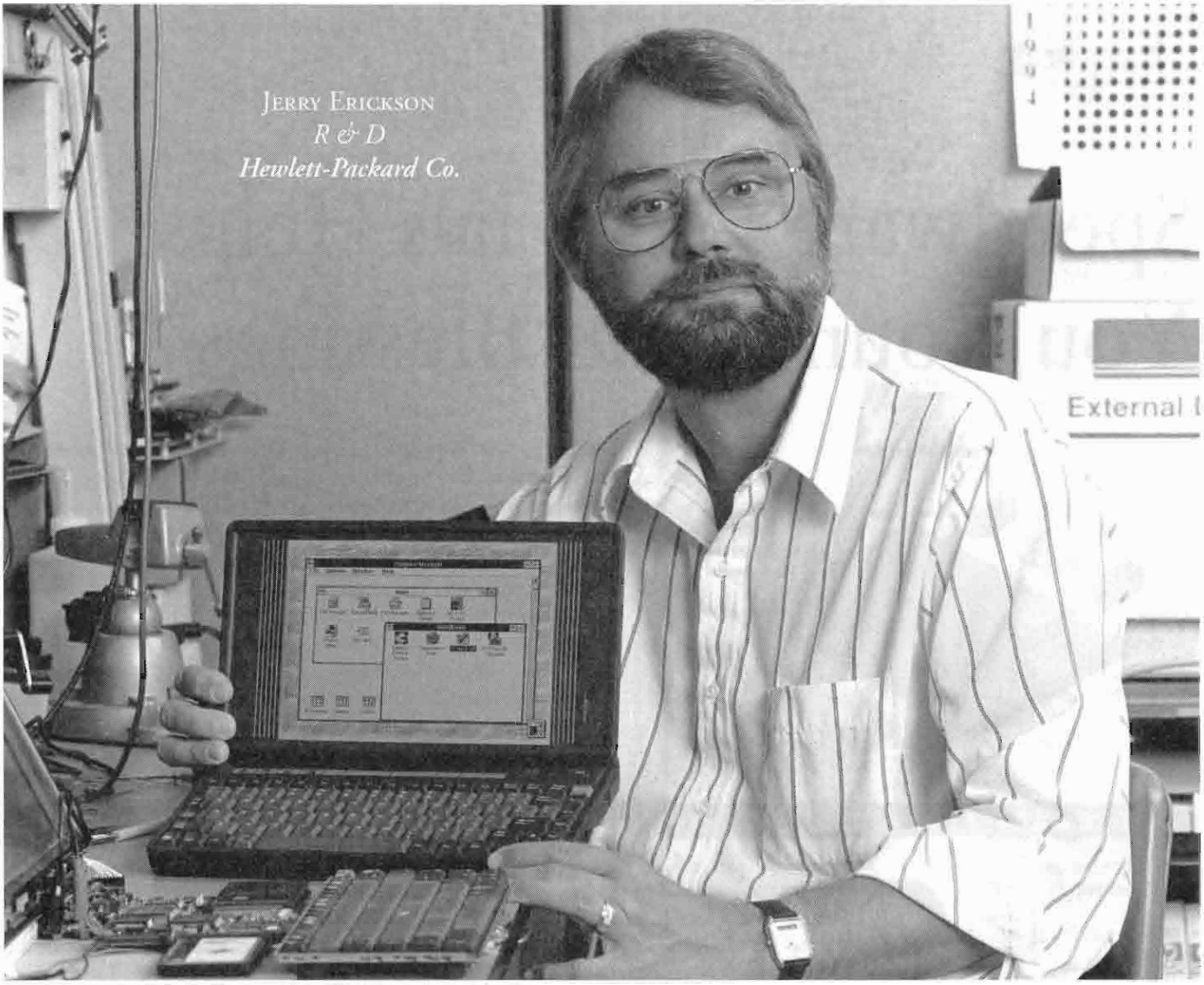
Conference attendees also share and edit graphics and image files, ASCII files and video frames. Another module, called SHARE (SHared Application Resource Environment) allows conference attendees to "share" and manipulate an application as though it were running locally, with the results displayed on all screens.

The Communique! family of products is based on InSoft's Digital Video Everywhere (DVE) software API architecture. InSoft is proposing DVE as a standard API for the industry.

Daniel Harple, InSoft's president and CEO, likens DVE to a "software bus" allowing developers to integrate new video boards and permitting various compression algorithms to interoperate in multiplatform conference sessions. With DVE, desktop conferences, application sharing and digital video can be distributed across TCP/IP, Ethernet, ATM, FDDI, Frame Relay, ISDN and SMDS networks.

Communique!'s modular approach gives you the option of starting with low bandwidth, conferencing applications such as the shared writeboard that won't blow up your existing network. As your needs evolve, you can then migrate to the powerful video conferencing applications requiring higher bandwidth. By making it convenient and cost-effective, InSoft also has expanded the possible uses for video conferencing.

—John P. Burke,
HP 3000 Editor



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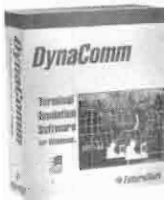

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CIRCLE 190 ON READER CARD

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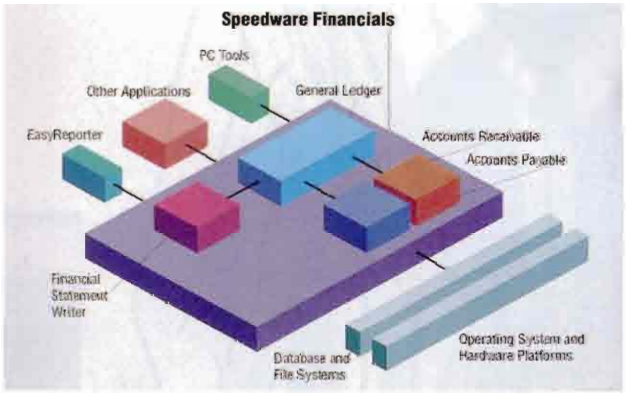

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CIRCLE 354 ON READER CARD

Countless companies are laboring today under inflexible, unresponsive and inefficient accounting systems whose best days are long past. Cobbled together over many years using 3GLs and a design methodology based on the Band-Aid approach, the inadequacies of these systems helped promote the PC revolution of the 1980s.

Speedware Corp. (Toronto, Ontario), developers of the Speedware 4GL and the Speedware application development environment, recently introduced Speedware Financials for companies wanting to bring their financial ledgers up to date. Speedware Financials is a tightly integrated, comprehensive set of accounting software products including Accounts Receivable (AR), Accounts Payable (AP) and General Ledger (GL). According to Lori Ellsworth, general manager for Speedware Financials, the product suite is designed for medium to large companies ($50 to $500 million).

Built using the Speedware 4GL, Speedware Financials includes online data inquiry and analysis; an easy-to-learn-and-navigate user interface with pop-up windows and pull-down menus; edit checking and audit trails; multicompany and multicurrency support; user definable security; tight integration of modules; platform and database independence; and import and export facilities.

Speedware GL's chart of accounts includes a cost-center extension and allows viewing and manipulation of data from multiple perspectives. With online reporting capabilities you can access all levels of data, right down to the transaction level. You can zoom in on a picture of expenses allocated to detailed accounts and cost centers.

With the allocator, you can redistribute expenses between accounts. You also can view profit and loss statements and balance sheets online. Accounts can be organized into consolidation groups for reporting purposes. The Financial Statement Writer is a specialized report writer that allows you to design customized statements.

Speedware's AR module emphasizes customer management. The online inquiry shows the customer profile, open activity reports, credit information, contact log, history and hierarchy relationships. AR handles initial credit applications and monitors payment performance, alerting you to problem accounts before they become a problem. AR analysts use the tickler and callback functions to call customers in an organized manner and use the inquiry function to view up-to-date customer information.

Speedware AP's online inquiry module controls cash flow by letting you decide when and how a vendor should be paid. Checks can be issued automatically or manually, and in multiple currencies. Outstanding checks are tracked to assist with vendor inquiries and bank reconciliation.

Speedware Financials is currently available on HP 3000s or HP 9000s using HP's ALLBASE DBMS. Support for Oracle's RDBMS is scheduled for late 1994; support for IBM's RS/6000 platform is scheduled for 1995, followed by support for the IBM AS/400. Speedware Financials can be purchased as a complete package or modules can be purchased separately. Pricing varies depending on the existing hardware and software environment.

—John P. Burke, HP 3000 Editor

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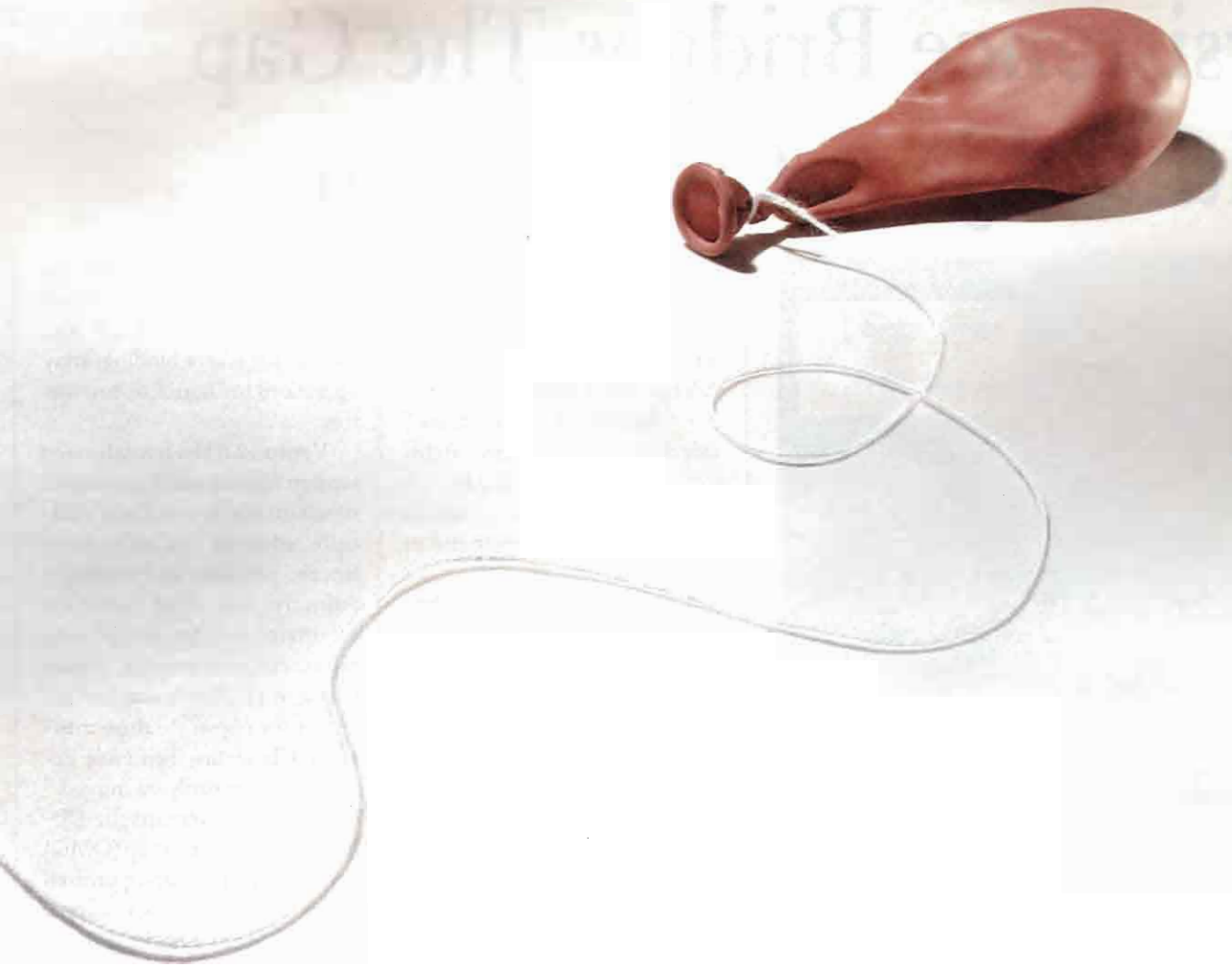

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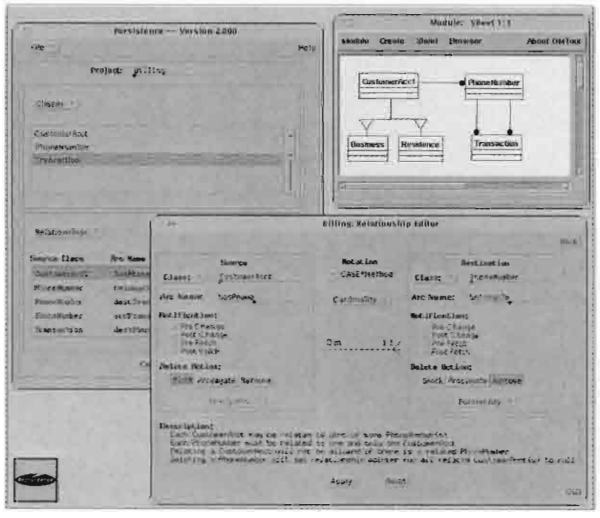
CIRCLE 174 ON READER CARD

Persistence Bridges The Gap With Object-Orientation



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- Improved performance for high-volume object-oriented transactions
- Price ranges around $15,000 for the generator, $3,000 for each object manager

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CIRCLE 351 ON READER CARD

What do you need when you've got data sitting on a relational database on the one hand, and object-oriented applications waiting to communicate with that data on the other? A little persistence helps. And Persistence 2.0 from Persistence Software (San Mateo, Calif.) helps too.

For Cincinnati Bell Information Systems (Cincinnati, Ohio), Persistence 2.0 was the solution to get data talking with objects by acting as a go-between. Persistence is being used to build Precedent 2000, a client-server cellular billing information system using an Oracle database.

Sha Kelkar, Precedent 2000 architect, says "we wanted to isolate ourselves from a single database, so we went looking for an interface layer. Persistence provides an object-oriented view into our relational database tables." Eric Eriksen, Application architect at Cinncinati Bell adds, "It provides a one-to-one match between a table in Oracle and an object class.

Using Persistence involves three steps. First, the developer enters the application model. Second, Persistence's Relational Interface Generator creates a C++ data access class for each object in the model. Third, the developer programs the application using the data access classes and a Relational Object Manager for transaction management. The developer does this by communicating object requests as SQL queries and changing returned data into objects.

While Persistence can cut development time on the front-end, some customers have reported unexpected performance hits. One customer, cited Persistence's "bulletproof data integrity" and ease of use, but needed faster remote message handling and had to rewrite the "choke points" by hand.

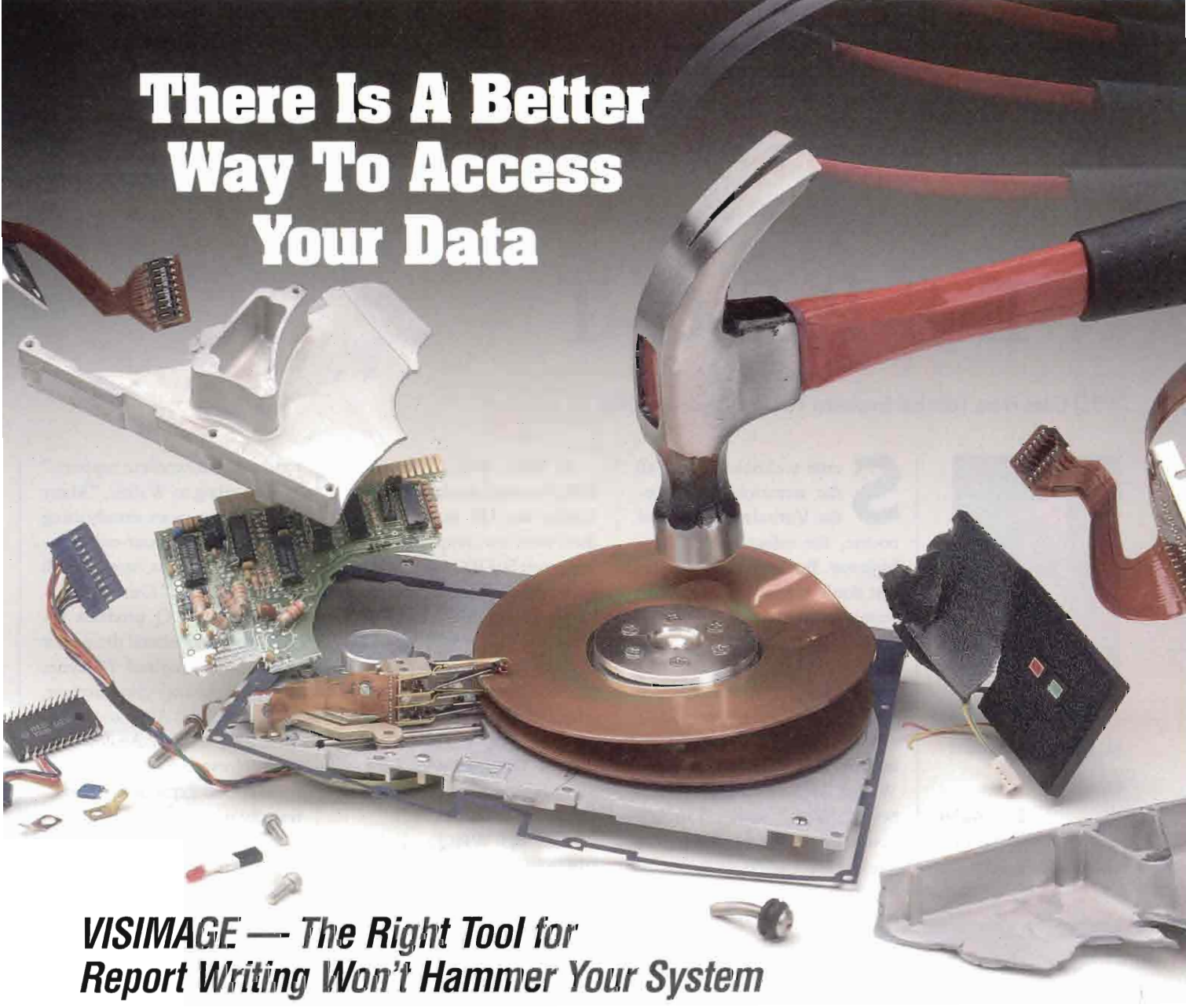
However, the recently launched version 2.0 supports Informix OnLine and improved performance for high-volume object-oriented transactions. The Relational Object Manager now uses optimistic or pessimistic database locking to manage object concurrency. Version 2.0 adds support for cursor binding, array operations and transaction monitors.

Version 2.0 also has enhanced support for multiple databases and simultaneous access from multiple sources." Christopher Keene, president of Persistence Software, says "Our customers are driving us toward supporting high transaction systems, toward trying to provide a standard interface for object database managers. Classes are then fairly generic and can easily be moved."

Persistence supports the Object Management Group (OMG) standards and provides optimized connections to leading relational databases from Oracle, Sybase, Informix and Ingres. It works with leading CASE tools like STP/OMT and Paradigm Plus. "We're announcing a Windows 3.1 version at the end of this month," Keene adds.

Persistence supports HP 9000 workstations, SunOS and Solaris 2.3. Price depends on the size of the project, but ranges around $15,000 for the generator and $3,000 for each object manager.

—Jim Esch, Contributor



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CIRCLE 143 ON READER CARD

R-E-S-P-E-C-T

WRQ Goes From Terminal Emulation To Desktop Connectivity

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CIRCLE 352 ON READER CARD

Some technologies get all the attention. Multimedia. Virtual reality. And of course, the information superhighway. But some technologies just don't get any respect. Take terminal emulation — please. Talk about terminal emulation these days and you get treated like Rodney Dangerfield.

But a lack of respect didn't stop Dangerfield from making money and it hasn't stopped Walker Richer & Quinn (WRQ; Seattle, Wash.) either. Laugh if you want to, but for fiscal 1994 (ending December), WRQ is on target to exceed $80 million in revenues, a 21 percent increase over fiscal 1993's $66 million. And over the last five years, sales have increased nearly 500 percent.

WRQ, founded in 1981 as a consulting firm, offered a number of products before it put its first terminal emulation product for the HP 3000 on the market in 1983. Although it wasn't the first HP terminal emulator on the market, "it was superior to the others," says Doug Walker, president of the privately-held firm.

Ironically, a breakthrough for WRQ came with one of HP's less successful products — The Portable PC Plus. "All HP sales reps got a portable with our software on it," says Walker.

In 1985, WRQ entered the DEC terminal emulation market. Unlike the HP market, where there were few competitors, there were over 50 DEC terminal emulators, recalls Walker. "It took us longer to get established." One year later, WRQ introduced The Reflection Network Series of products for the DEC market. After "getting sidetracked" with OS/2, WRQ released Reflection for Windows with full support for networking protocols in 1990.

Although WRQ's emulation and networking products are available for MS-DOS and the Macintosh platforms, "Windows dominates the desktop, so you need to have everything in Windows," explains Walker. The move to Windows underscores WRQ's evolution from a terminal emulation software vendor to a desktop connectivity solution provider.

For example, in 1993, WRQ took to the desktop with Reflection X, a PC X server product. "The X market is a long-term investment for us," says Walker. Although it must compete with established vendors like Hummingbird (Toronto, Ontario), WRQ is one of the faster growing companies in the X server market, according to Greg Blatnick, vice president at the X Business Group (Fremont, Calif.). "They are a well-established vendor with a reputation for good products and excellent support."

According to Walker, "Many of our customers are already using Reflection X for front-end commercial applications, especially call tracking systems." Other companies using WRQ products include the Agricultural division at American Cynamid (Wayne, N.J.), laser printer manufacturer, QMS (Mobile, Ala.) and semiconductor maker, Analog Devices (Norwood, Mass.).

WRQ is expanding internationally with new sales offices in Germany and France, and distributors in South America. "Offering a series of localized products is new for us," says Walker. "But we also expect to offer double-byte language versions to meet HP's requirements in the Asian market."

This past May, WRQ introduced the Reflection Network Series for Windows which includes transports, applications and management tools. A Windows-based IBM 3270 emulation product for the AS/400 is due to be delivered by the end of this year. Walker also is keeping his eye on DCE and Windows NT. "Until the right standards are in place, the safest choice is X," says Walker. As for Windows NT, "there doesn't seem to much of a market so far."

—George A. Thompson, Technical Editor

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IN sites

Aviation Adjustments

HP and I-Cube Help Northrop Grumman's Commercial Aircraft Division Re-engineer

It all started with a rather simple question: How to reduce data processing costs? For Joe Dugan, manager of Business Systems at Northrop Grumman's Commercial Aircraft Division (Hawthorne, Calif.), the answer was anything but simple: Dump the mainframe. Unfortunately, it wasn't just one "mainframe." Dugan was faced with replacing over 400 legacy systems (mostly IBM-specific data centers). "There was so little integration, a client-server environment was the best way to go," says Dugan.

In late 1992, the Commercial Aircraft Division (CAD), which builds 153-foot-long fuselage sections as well as cargo and passenger doors for Boeing 747 aircraft, was spun off from Northrop Grumman Corp. (Los Angeles, Calif.) its aerospace conglomerate parent. "We had to be viable outside of the military umbrella," explains Dugan who was looking for an annual $20 million reduction in data processing costs. "And it had to be done by June of 1994."

So, Dugan contracted the Los Angles office of International Integration Inc. (I-Cube; Cambridge, Mass.) and HP's Professional Services Organization (PSO) to help him implement a three-tiered client-server architecture consisting of a presentation layer, a functionality layer and a data layer. The functionality layer uses several HP 9000 Model 735 workstations as application servers which contain the business rules, boot procedures and application logic, while an Oracle database is distributed across several HP 9000 Business Servers (one I70, three I50s, four I30s and two I50s off site).

"A fiber optic network ties it all together for speeds' sake," says Dugan. Clients accessing the presentation layer include 110 HP 9000 712 and 715 workstations, 250 HP Envizex X terminals, 250 Macintoshes and 150 PCs. HP's OpenView applications also are being installed to manage the over 700 SNMP nodes and devices.

While HP's PSO handled the delicate political relationships involved in process re-engineering so the new systems could be tested and accepted at the same time, I-Cube helped Dugan create a new architecture for Northrop's business applications. "We concentrated on the strategic applications first," says Dugan. Strategic applications like materials resource planning needed to be customized for the CAD's business.

So, I-Cube re-engineered CAD's IMPCA (Integrated Management Planning and Control for Assembly), its paperless shop-floor-control system which helps in the manufacture of fuselages and provides information critical for FAA traceability and reporting.

IMPCA consisted of 1 million lines of proprietary Tandem COBOL source code, 170 character-based screens and 300 flat files. So I-Cube designed another modular, standards-compliant three-layer client-sever architecture: an X Windows/Motif-based presentation layer, an ANSI C-based functionality layer and an ANSI SQL-based data layer. "When we began, we were working with Oracle 6. After Oracle 7 (its distributed processing version) became available, it was easy to make the necessary changes to the data layer without affecting the other two layers," says Allan Pressel, co-founder of I-Cube.

According to Grumman's Dugan, the strategic re-engineering took about six months. "We started in January and we were completed by June." Next, over 400 off-the-shelf software packages were evaluated for their tactical capabilities. Oracle Manufacturing and Financials, and SAP's R/3 were among 273 applications eventually chosen by Dugan. "And they all had to operate without modification," he says. At the end of August, Dugan pulled the plug on the "mainframe."

The result speaks for itself: annual data processing costs were reduced from $29 million to $8 million. The bill-of-materials process for one product was reduced from 50 days to 10 days. A 15 percent reduction was achieved in support costs, and product lead time was reduced from 7 months to 3 months. After completing the project this past September, Dugan expects Northrop will achieve the return on its $15 million investment by November 1994. Dugan says with just a hint of understatement, "We could not have done all this on a mainframe."

—George A. Thompson, Technical Editor

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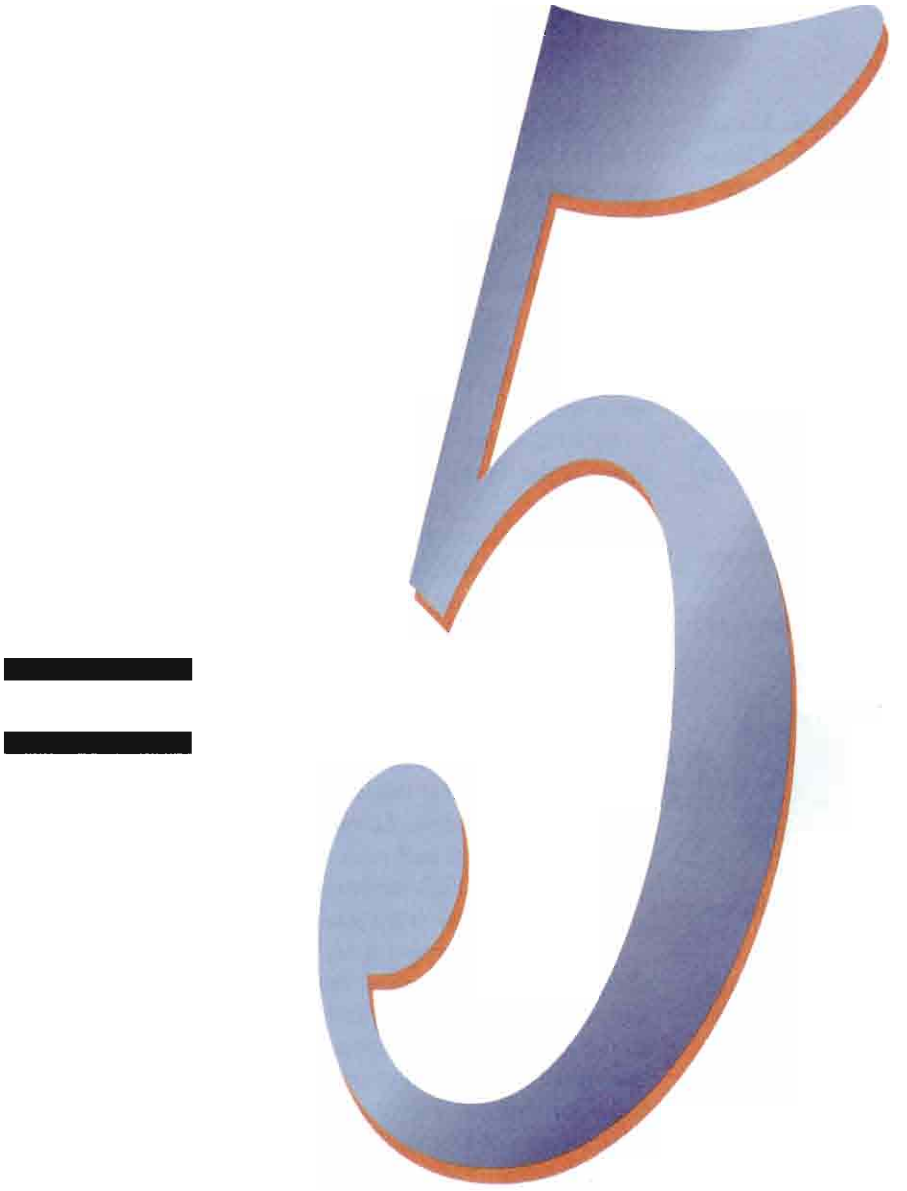


Most businesses have two information systems. One is organized around the data stream; [the other] is organized around the accounting system.

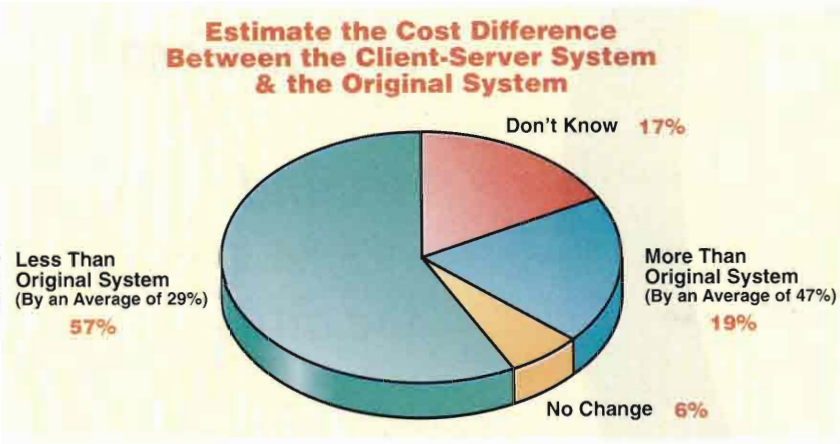
Peter Drucker, Forbes ASAP, August 29, 1994

And never the twain shall meet. Until recently that is. Accounting systems, which have been serving businesses for some 500 years, and data processing, which has been serving business for some 50 years, are merging. Slowly. Maybe too slowly for some. But with the right technology — client-server or open systems, call it what ever you want — and a little business insight, today's financial software and solutions are proving that even 500-year-old habits can be broken.

Improved software integration. Better reporting tools. A focus on process over production. These are just some of the advantages being cited by IS managers who understand the relationship between the datastream and their accounting systems. And although reducing costs is still an important part of the financial equation, making better business decisions has replaced the bottom line as the primary goal for astute IS managers.

Bill Long, vice-president and controller for Robbins Manufacturing (Tampa, Fla.), a wholesaler of pressure treated lumber, utility poles and marine pylons, was running Lawson (Minneapolis, Minn.) financial software on a Unisys A Series mainframe. Four years ago, he began to consider UNIX as a way to reduce his data processing costs by 20 percent and replace his 18-year-old batch environment.

Because of his familiarity with Lawson software, Long chose to run Lawson's General Ledger, Accounts Payable, Accounts Receivable, Fixed Assets, Distribution, Purchase Order, Human Resources, Payroll, and Personnel and Benefits modules on an HP 9000 Model 842 server. All of Robbins' divisions are tied together by two LANs with a mixture of PCs and terminals now running on an HP 9000 Series 800 Model H40 server. According to Long, "quality of service, not price, was a major determinant.



Source: Business Research Group (Newton, Mass.)

For the past two years, Guy Wood, managing director of MIS at United Grain Growers Ltd. (Winnipeg, Manitoba) has been replacing his company's IBM mainframe applications to run on a cluster of six HP 9000 Business Servers. His IT strategy for the $1 billion grain handling company has been to implement client-server technologies in areas "where it's appropriate."

Financials is one of those appropriate areas for Wood who is in the early stages of implementing the General Ledger, Accounts Payable and Fixed Assets portions of Dun & Bradstreet's (D&B; Atlanta, Ga.) FinancialStream. After using D&B mainframe products for six years, Wood wants to overcome the mainframe-inspired thinking that "a General Ledger is a black hole."

With D&B's FinancialStream, Wood expects to deliver information to users and have them understand what lies within the hole. "Data not reports" is how Wood describes his future vision. "I want to give people the tools to do whatever analysis they like. Instead of asking for and getting a multipage report to discover why a particular departments' travel expenses were $40,000 this month, they can do it themselves and won't have to ask anybody." Wood is using Powersoft's PowerBuilder to develop a Sybase accounting database with about 300 Windows-based 486/66 PC clients.

Now a publicly traded company on the Toronto Stock Exchange, United which operates 250 grain elevators across western Canada, was formerly a co-op. The transition required a change in the company's financial reporting structure. A new fiscal responsibility to shareholders meant more detailed information on the company's financial health, as well as new products, being needed. "It also required a change in overall corporate accounting as well as in MIS administration," says Wood who expects to unplug his IBM mainframe by December of this year.

At KFC Corp. (Louisville, Ky.), one of largest restaurant chains in the world, Bill Melvin, manager of Financial Systems Development, wanted to provide better access to KFC's tax, restaurant sales and construction data. Wanting to keep his operation "database pure," Melvin chose financials from FourGen Software (Seattle,Wash.) because he could continue to use the data already stored in an Informix database, "Programmers already understood the technology, so training wasn't a problem," says Melvin.

He began working with FourGen's General Ledger, Accounts Payable and Fixed Assets two and half years ago and is now rolling it out to KFC's international divisions. "FourGen Software was a small software company looking for an opportunity to work with larger multinational corporations to grow their product line," says Melvin. And with production sites in Australia, Puerto Rico, Mexico, Louisville, Canada, Singapore and India, Melvin wanted to "globalize" the financial operation providing a consistent foundation for multicurrency, mulitlingual financial reporting.

According to Melvin, the Informix RDBMS runs on multiple HP boxes (E35s to I60s, some 835s and new E-class Series) with terminal emulation. Although the architecture, which also includes desktop PCs and LAN Workplace for DOS running over a TCP/IP-based network, is client-server capable, Melvin decided not to run in that fashion. "We aggregate, summarize and provide detail similar to using a data warehouse. But we have not gone the data repository route."

Because financial data needs to be processed quickly and posted to the general ledger, "we need heads-down throughput and easily intuitive access tools." Instead of waiting overnight, Melvin now closes on the same day. "It also gives us more analytical capability over the data as opposed to just reporting results. We can show the activity behind the numbers more quickly to senior management."

When the REN Corporation (Nashville, Tenn.), managers of nationwide kidney dialysis clinics, outgrew their PC LAN-based accounting system they chose an HP 9000 and MCBA Classic Accounting Software from MCBA (Glendale, Calif.) to improve performance and consolidate their financial reporting for 45 offices in the United States and Mexico.

"MCBA offered a competitive price and the advantage of being similar to their past system," says David Worsham, presi-

You Might Be Surprised By What Some Financial Management Software Vendors Mean By Client/Server Architecture.

Before you invest in accounting software that promises client/server functionality, you better be sure it isn't based on a makeshift architecture.

While most software vendors claim they have "true" client/server systems, you may be surprised to find many who simply patch front-end gadgets onto their existing accounting software and label them "client/server." The fact is that these imitation client/server systems were not designed with the flexibility to meet the diverse needs of your users or to access real-time financial information without being hindered by performance issues.

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dent of Quality Consultants (Atlanta, Ga.) an MCBA VAR who helped with the REN project. About 80 users (40 users dial-in remotely) access MBCA financials on a HP 9000/847 via HP terminals and PCs. "We provided a good deal of custom modification for their financial statements and for locational security," says Worsham. REN is using all of MCBA's accouting except for AR which is a "specialized function," according to Worsham.

Fast And Flexible

AT THE FRICK CO. (St. Louis, Mo.), an unemployment compensation consulting firm that helps businesses control the cost of unemployment compensation claims made against them, an eight-year-old financial system running on a DEC Micro PDP-11 is being replaced by an HP 9000 Series 800 server running financial software from Mitchell Humphrey & Co. (St. Louis, Mo.). "The processing wasn't fast enough" says Jennifer Miller, CFO for Frick.

Miller is planning to install Mitchell Humphrey's FMS II GL, AP, AR, Fixed Assets and Budgeting & Financial Planning modules because it supports an already existing client database residing in an Informix RDBMS running on several NCR servers. Miller expects the FMS II software to provide the flexible reporting capability needed to "help people save time gathering the information they need."

After 15 or 20 years of modifying mainframe financial applications and running batch jobs that lacked online query and look-up capabilities, Joe Porter, vice president and accounting supervisor for securities broker dealer AG Edwards (St. Louis, Mo.), is currently testing the client-server waters with PeopleSoft's Accounts Payable module.

Using an Oracle RDBMS running on an HP 9000 server over a TCP/IP network connected to HP terminals, Porter wants to customize GUI screens for specific groups or individual users working with AP records so that, "users could design their own reports and for example, track travel expenses in real time with 'live' data." If the accounting pilot proves successful, Porter could roll it out to the $2 billion firm with 12,000 employees and 500 locations.

Steve Barry, coordinator of Information Technology, is using FlexiWare Corp.'s (Shelton, Conn.) FlexiFinancials at the University of California (San Francisco, Calif.) department of medicine to integrate payroll, personnel, space management and clinical income functions. After looking at PeopleSoft and Plati-

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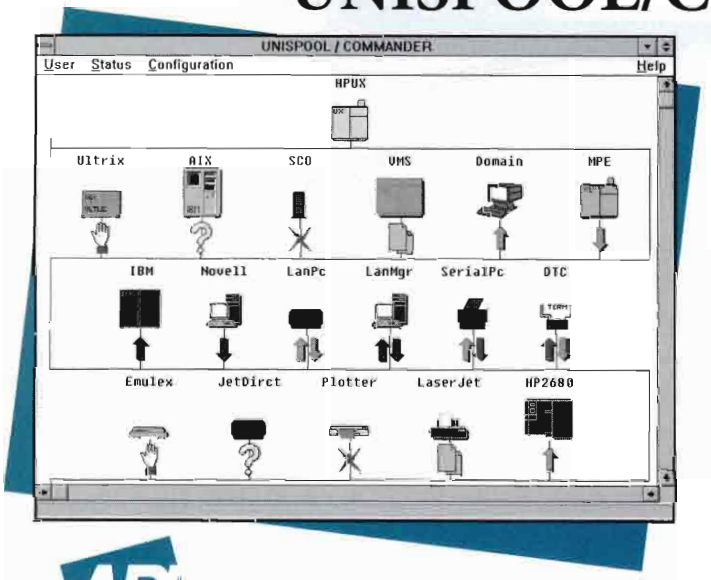

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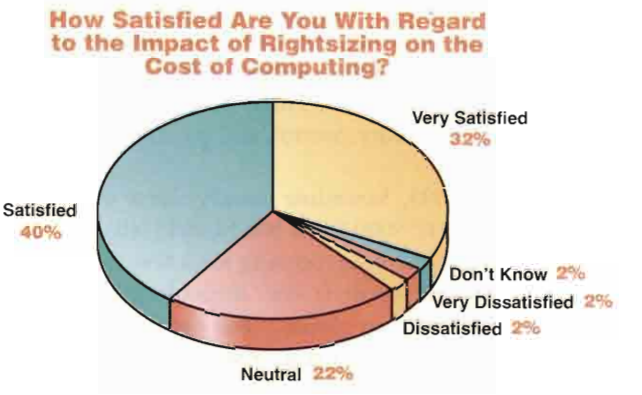
num, Barry decided to use FlexiWare because "we could continue to use the tools we already knew, like PowerBuilder, to replace their user interface."

Most of the University's data entry, was paper-based, so Barry used Delrina's Form Flow software to scan in paper forms that provided data into Flexiware's General Ledger. The forms were duplicated on screen so that all 35 users would have a consistent look and feel. "It eliminated a lot of redundant tasks in collecting information that the campus had to have," says Barry. He eventually expects his system, now running Sybase on a Pentium-based HP NetServer, to be adopted university-wide, replacing its IBM 3090 mainframe.

When the business of selling retail agricultural products began to change, Jerry Sanscrainte, director of information systems for The Andersons' Agricultural and Lawn Products Group (Maumee, Ohio), wanted to change with it. But his HP 3000 MPE platform was no longer able to meet the increasing production requirements for one the largest U.S. exclusive brand fertilizer manufacturers.

So about two years ago, after Sanscrainte discovered that the industry was moving toward UNIX, he first chose a RDBMS from Informix. "At the time, Informix was the only database vendor including radio frequency (RF) and BLOB support as a standard part of their product," he says. Sanscrainte also liked Informix's single-minded focus on its database and tools. "We chose a technology first, then we went looking for someone who could help us."



Source: Business Research Group (Newton, Mass.)

Concepts Dynamic Inc.'s (CDI; Schaumburg, Ill.) Financial Control System (FCS) was the only software package that could handle the multicompany, multidivision financial tracking he had in mind. CDI's FCS is developed completely with Informix's 4GL, so applications can be written in its native lan-

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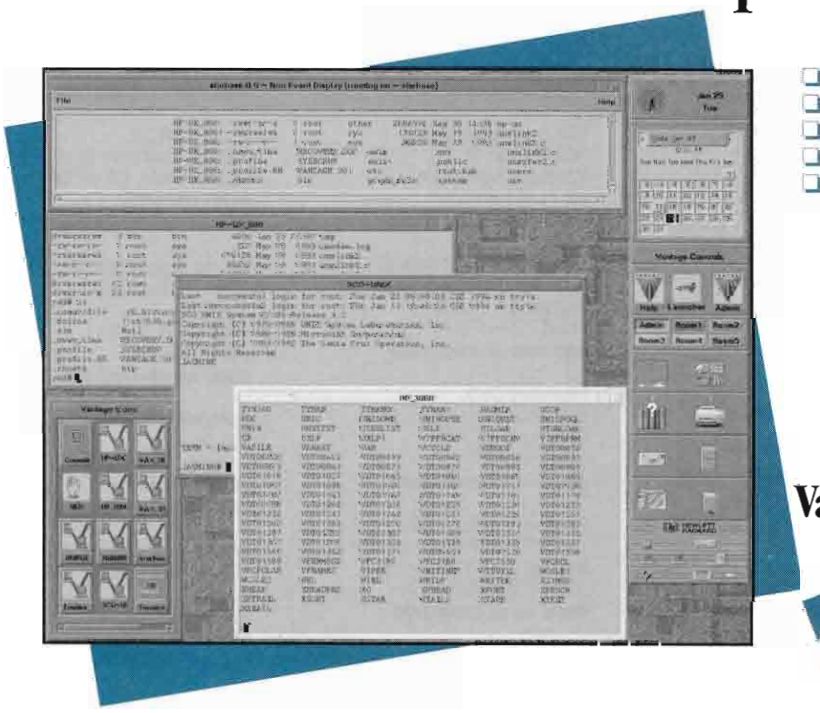

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guage. And it could be fully integrated with the manufacturing system. Sanscrainte is using CDI's GL, AP and AR credit management modules while systems integrator The Toledo Technology Group (Toledo, Ohio) provided customized order processing, inventory control, and purchasing and receiving software.

In February 1993, Sancrainte literally threw the switch on his HP 3000. An HP 9000 Series 800 Model H40 took its place. "There was some parallel processing for a few weeks, but the process was so different it was difficult." According to Sancrainte, there was no choice. "For our business, which is growing about 20 percent a year, it was a survival tactic." Besides cost savings in labor reduction and removing a cumbersome batch-oriented system, Sancrainte is expecting a payback in 14 to 19 months. "We're comfortable that we will meet that target."

The Next Generation

VENDORS LIKE Collier-Jackson (CJ; Tampa, Fla.) and The Dodge Group (Waltham, Mass.) are pushing accounting and the datastream down to a new generation of power users seeking better and more flexible access to corporate data. Jim Douglas, vice president of research and development feels that "users rooted in Excel" want software tools that are familiar to them. That's why CJ's VisionShift is built upon Microsoft's Office product.

Any ODBC-compliant RDBMs will work with VisionShift including Sybase, Oracle and Microsoft's SQL Server. VisionShift was introduced in April 1994 and will be available for most UNIX platforms, including HP-UX, as well as the HP 3000 this October. "A user can format a financial statement, a check in accounts payable from Microsoft Word with the data coming from Microsoft's Access database via object linking and embedding (OLE)," says Douglas.

Similarly, Joe Cauteruccio, director of marketing for Dodge says, "It's important for those users who need the data to have a tool set that supports the organization's objectives." The OpenSeries Financials from Dodge was announced in April 1994. OpenSeries Financials works with Sybase and Oracle RDBMS and currently runs on Sun, RS/6000 and DEC Alpha platforms. HP-UX support is scheduled for next year.

Cauteruccio admits the cost benefits of client-sever computing may be elusive. "With client-server, you don't see the infrastructure, which is much more easily distinguishable in a mainframe environment. "If cost savings is your only goal, there are probably better tools for your business."

For example, Sandy Lawson, Information Systems Supervisor for Scott Paper Canada, was working with Speedware Corp.'s 4GL product when he began looking for AR packages. Because Speedware agreed to make the modifications he needed for cash discounts on invoices, he decided to work with their AR package running on an HP 3000/957.

Although Lawson is moving toward a UNIX environment in the future, he cites Speedware's portability to the UNIX environment, especially its ability to work with HP's ALLBASE RDBMS. As he redefines where the IS functions sit within Scott, he is thinking about an integrated systems solution. However, "Speedware does not offer an integrated manufacturing module," says Lawson.

In a survey conducted by the Business Research Group (BRG; Newton, Mass.) almost 60 percent of 305 IS managers surveyed indicated that the cost of client-server systems was less than their original systems cost. Still for those basking in the limelight of success, they should keep in mind that client-server technology is still evolving. "Client-server is still immature in performance, reliability and breadth of functionality," says Claire Gillan, a market analyst at IDC (Framingham, Mass.).

Yet the same BRG study also found that 72 percent of IS managers were satisfied with the impact of so-called rightsizing on the cost of computing with only 4 percent indicating they were dissatisfied. So, for those who understand the limitations and evolution of technology, the rewards clearly outweigh the risks.

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In Manufacturing, Automation Alone Is No Longer Enough. Companies Must Track And Control The Production Cycle As Well.

Execution Is Everything

By Jim Esch

Global competition. New trade agreements. Distributed Manufacturing. Forces in a volatile mix for today's manufacturer. To succeed, you need to know the right combination of automation and methods. However, between automation and methodology, exists another level — execution.

That's where Manufacturing Execution Systems (MES) come in. MES unifies plant management, engineering, supervisory control, scheduling and quality management. The rationale for an MES assumes that the more you know about the status of your product as it moves through the production cycle, the better you can control production and adapt to change.

Doug Christensen, manager of technical marketing at Consilium Inc. (Mountain View, Calif.), defines MES as primarily a tracking system. "It tracks the five elements of production — materials, people, equipment, specifications and

working environment." However, MES goes far beyond simple tracking, it actually improves and controls a production environment.

Targeted at discrete manufacturers, more and more MES systems are moving toward the HP 9000 platform. Many include a GUI-supported, client-server architecture. Newer versions support SQL relational data.

The semiconductor industry has been one of the first to realize the necessity for MES. "The paper on the plant floor that was used to track the process is a basic contaminant," Christensen notes. "So they *had* to get rid of it and track information electronically." The semiconductor industry experiences the value of MES by having all of that information in a central database that could later be analyzed to determine how to better use plant resources.

Gary Gustafon, information technology engineer at HP Components Group, explains how his division implements an MES solution over its worldwide distributed manufacturing operation: "In general the front-end (wafer fabrication) manufacturing is here in California, and the back-end assembly and test is done primarily in Singapore and Malaysia, so we had a number of disjointed manufacturing systems that did not communicate with each other. That made it difficult for the manufacturing managers to have and control adequate, integrated information."

HP researched the market for the proper MES. It had to run on the HP platform, focus on open systems and be suited for the demands of the semiconductor industry. They decided Consilium's Workstream Open fit the bill.

According to Gustafon, this MES solution is a real paradigm shift in terms of how manufacturing systems work. "It's open, we've implemented it on a client-server basis, so that the data is as close to the actual manufacturing area as possible." Gustafon adds, "But still it's kind of transparent to the user where the data is located."

The solution HP chose is a model-driven product which makes modification fairly simplistic. "It's relatively easy for a person to go and modify a model, modify processes and also be able to see where any product is at any point in time. I wouldn't say real-time because it's not automated — there's human interaction at this point. People have to actually do a transaction."

Because of a significant overhead associated with the dispositioning and approval of batch records, documentation and dispositioning of discrepant material, the pharmaceutical industry has turned to MES to improve their batch record process. "In many cases they're finding that they have 2-to-1 or 3-to-1 overhead associated with support people just monitoring and sheparding the batch record process. If they don't do it, the FDA can shut them down," maintains Christensen. MES systems for batch/hybrid process manufacturers, can help determine their cost of compliance and how to improve on it.

When Ford Electronics and Refrigeration Corp. (Bedford, Ind.) needed to improve and automate their shop floor control, they turned to an MES solution from Automated Technology Associates' (ATA; Indianapolis, Ind.). ATA's RQM software provides data acquisition, analysis and interpretive tools so incremental problems on the line can be detected before they become massive problems.

The company, a subsidiary of Ford Motor Co., manufactures automotive parts and employs about 1,000 people. In the spring of 1992, they implemented an MES solution. John Weakley, information systems supervisor, characterizes the solution as a statistical process control system. "Basically [MES] lets us check that parts are being made within specification. In the old days we used to do checks on a part after it was made. Now, if the part is going down the line, there are numerous checks done automatically or with manual data."

Ford Electronics and Refrigeration implemented its MES solution on HP 9000s. An HP 9000 Model 720 collects data from machine controllers automatically, and an HP 9000 Model 847 is the plant host with Oracle and the SPC packages running on it.

Weakley cites the benefits provided from the MES software, "Reduction in scrap, that's the biggie right there. The other is that you have some historical means of looking at your process. It gives us the ability to catch machines before they go down — you start seeing trends. Quality has gone up immensely."

The only minus to implementing the MES solution according to Weakley, is that initially people didn't want to use it. "It's a report card, so to speak, for an engineer, and they look at it as a hindrance instead of as a helping tool. We're just now getting into the environment where people are starting to realize this is a handy tool to help them stay ahead of the game, instead of fighting fires after the system has shown them they have a problem."

Courtesy of Rust International

MES unifies plant management, engineering, supervisory control, scheduling and quality management.

Above And Beyond The Call Of MES

ANOTHER PROVIDER, EMS: Effective Management Systems (Milwaukee,

Wis.), offers their own version of MES — TCM-SFIS (Time Critical Manufacturing-Shop Floor Information System). TCM-SFIS offers 10 functions for discrete manufacturers, covering materials flow, production cycles, change orders, routings, job costing, estimating, purchasing and history — all performed in real-time. EMS software is server-based and supports HP-UX.

EMS also has brought to market TCM-EMS (Time Critical Manufacturing-Enterprise Management System); the MES part (TCM-SFIS, mentioned above) is included under this umbrella, which includes 23 modules covering five basic areas: customer orders, shop floor control, purchasing and receiving, inventory management, and finance and accounting. Products like this indicate a trend toward building MES functionality into an overall enterprise-wide integrated solution, all driven by the customer's demands.

According to Mike Taylor, MAC-PAC OPEN product director at Andersen Consulting (Chicago, Ill.), "If you just took an MES system on its own, then theoretically you could have a shop floor control system that's telling you whether you're making things well or you're making things badly, and giving

What's Inside The Box?

Most manufacturing managers have long looked upon the factory as a "black box," where materials are poured in one end and finished goods come out the other. What went on inside was perhaps not entirely invisible, but there was no good way of effectively achieving real-time visibility to ensure real-time, proactive control. You planned, and hoped for the best.

When unplanned events such as material shortages, bad lots, machine downtime and skilled operator absences occurred — all of which are the rule, not the exception — then you were forced to expedite if you wanted to have any hope of meeting your plan and keeping customers happy. But expediting comes with tremendous expense: other orders for other customers must be pushed out; overtime balloons; quality plummets; and costs soar.

That's not good enough anymore. Fortunately, it's not necessary either.

Manufacturing execution systems (MES) pick up where planning systems leave off. Once management decides what they're going to build and establish when it is needed for shipment to the customer, MES effectively receives the order as a production requirement for the plant. MES manages all the process information relevant to satisfying that order as planned, from scheduling (and rescheduling) to routings to work instructions, WIP tracking, quality assurance, and labor and machine utilization — to list only a few.

People have been doing MES-type tasks for years, if only on the back of an envelope or a scratch pad they kept in a hip pocket. But before the advent of computer-based MES, there was no way to easily share information relevant to someone solving one problem in one area with people working on other problems elsewhere in the plant.

Manufacturing execution systems also are not entirely new to the scene. They grew up out of automated data collection systems. And like the evolution of MRP into MRP II, functionality was added bit by bit, until a functional critical mass established a clear point of system differentiation.

As critical as MES technology has been to prying the lid off the black box of production, the real power of MES comes when planning systems are integrally linked with proactive decision support systems. MES becomes the critical component to event-driven decision support when it is a part of a seamless architecture that reaches from the front office to devices on the factory floor. In an integrated architecture, MES serves to translate production plans out of MRP into execution priorities for the factory; and it manages data collected by factory control devices and equipment to feed back into corporate business systems for real-time decision support.

Making production a strategic component of your business is the real benefit of an integrated MES solution. Fundamentally, this means improving productivity. It is achieved by exploiting all the opportunities MES-based information provides. This includes reducing cycle times, setups, rework and costs, as well as improving yields, throughput and quality. At every moment, given every event — planned and unplanned — it means optimizing capital, equipment and human resources to ensure the highest level of customer satisfaction.

Until recently, manufacturers have had to assume the lion share of the responsibility for achieving an integrated architecture that ties planning systems, MES and controls into a coordinated strategic solution. Though the potential benefits are significant to manufacturers, so are the risks. It is an expensive, technically challenging endeavor. And even if successful, it has limited use due to the unique, custom fit of the solution. Technological innovations and system enhancements engineered by software vendors of the original solution threaten the competitive advantages of the custom solution.

Leading MES vendors, however, have begun to take it upon themselves to engineer this level of integration through alliances, partnerships, and investment in research and development. The success of the MES market in the immediate future will be driven by the success of commercial, off-the-shelf integrated enterprise execution systems solutions.

With the inescapable compression of time and as emerging new technologies and enhancements to existing technology continue to be a prominent force in altering the competitive landscape, manufacturers must be able to implement solutions that are "future-ready."

Future-ready solutions are capable of dynamically adapting to changing requirements, able to adopt and embrace new technologies, ensuring that manufacturers stay on the curve of change, and can ride it successfully, rather than be thrown by it. — Mike Wells is Executive VP of Industrial Computer Corp. (ICC). Wells is current past chairman of the Manufacturing Execution System Association (MESA).

you performance data; but there's nothing to guarantee that you're making the right stuff for the right customer at the right time."

MAC-PAC OPEN, integrates MES functions into a wider customer oriented manufacturing management system. MAC-PAC OPEN has over 1,000 users, 90 percent to 95 percent of them manufacturing companies. Andersen is re-engineering the product to work in the UNIX environment because "There's a big hunger in the UNIX world for the customers who want to have the benefits of the UNIX architecture, but at the same time perhaps they're a large multinational or they're a multisite operation, or they're a high volume, make-to-stock company that wants to do quick response," Taylor explains.

Another provider of manufacturing automation signaling a move of wide-scope integration of the enterprise on to HP-UX, is Systems Software Associates (SSA). SSA's Business Planning and Control System/Advanced Solution (BPCS/AS) breaks down to 55 integrated products covering various components of an enterprise, including financial, distribution, sales, decision support, facilities management, data interchange and manufacturing process control.

Perhaps the most important criteria in buying an MES these days is to have agility built-in to the system, in case the manufacturer decides to change the mode of production.

"Otherwise you just bought something that could be redundant," says Andersen's Taylor. Logically, the migration toward open systems adds to this flexibility, because an MES doesn't have to come from one supplier. "In many respects," Taylor says, "it will be an implementation of a number of applications. And that's the whole benefit behind an open environment."—*Jim Esch is a freelance writer based in St. Louis, Missouri.*

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Milwaukee, WI 53224
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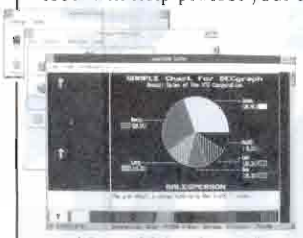

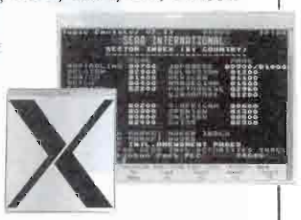

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For the everyday user, computers have reached the status of the common telephone. No one cares how they work, only that they can deliver the message. In addition, the computer's ability to deliver results is dependent on the applications that run on it. The infusion of new business applications, therefore, is the key to the future of the HP 3000. To ensure this key is ready, HP has spent the last few years putting together a portfolio of third-party applications and tools for their MPE/iX customers.

Today's software developers begin each project with a goal of creating an application that can handle the "bility" factors — portability, flexibility and scalability. These factors are best handled by sticking to industry standards in the areas of networking, database management, screen handling and popular third- and fourth-generation application development environments.

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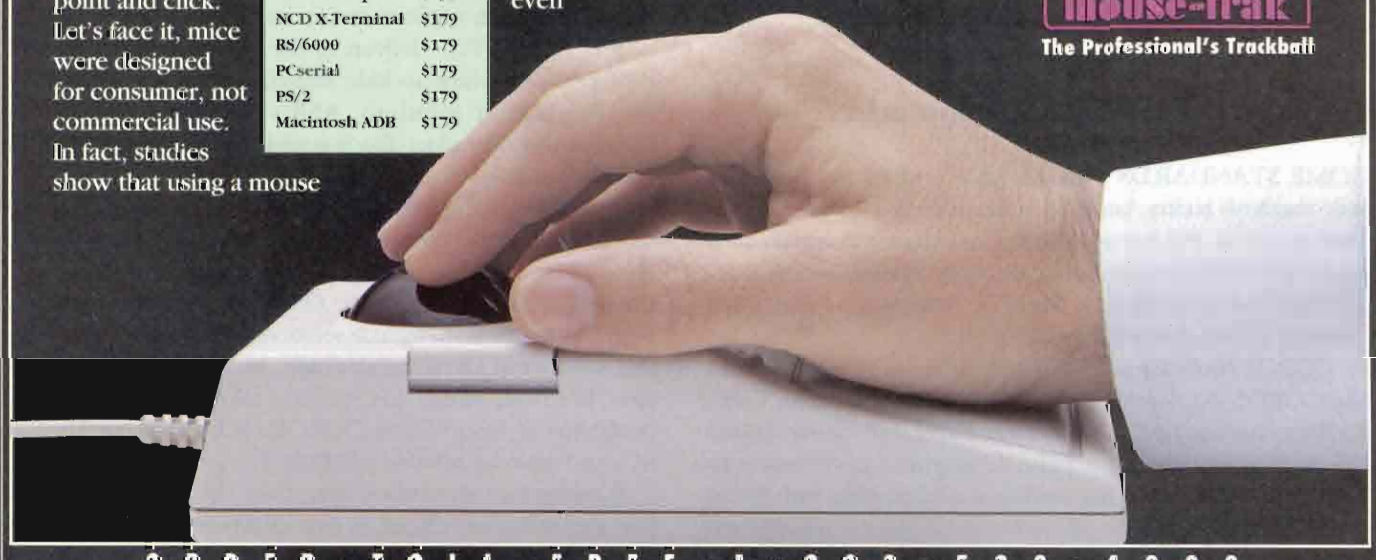

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CIRCLE 107 ON READER CARD

With the HP 3000's support of industry standards, the migration of new applications to the HP 3000 has been eased by the inclusion of the POSIX interface and other industry standards as part of the MPE/iX package. The recent port of Coda's (Manchester, N.H.) new client-server accounting applications to MPE/iX in two days is a perfect example of how the HP 3000's adoption of standards has made it extremely easy to migrate modern software to the platform.

Along with the adoption of standards and the availability of new development environments, have come a host of new open applications for the HP 3000.

Designed from the beginning with the "bilities" in mind, Coda's product is written in C and adheres to the POSIX standards. It also uses industry-standard SQL calls for data management and specifically supports the Oracle database. By developing software to these standards, Coda has maximized its market potential by developing an application that runs on any system supporting those standards. HP believes that this is clearly the way all software will be developed in the future.

Essential Development Environments

SOME STANDARDS TODAY have evolved not from specific standards bodies, but from market demand for certain vendors' products. HP has made some investments in certain areas of the HP 3000 to make sure these high-demand products are available and optimized for MPE/iX. One specific area is the world of COBOL compilers.

COBOL remains popular in the MPE/iX environment. Within the COBOL development area, Micro Focus (Palo Alto, Calif.) COBOL has emerged as a dominant player. HP has recognized the need to provide this popular development environment to MPE/iX customers and has established a relationship with Micro Focus that makes sure the Micro Focus compiler is available and optimized for MPE/iX. Of equal importance to MPE/iX customers are the applications which use Micro Focus COBOL and are now easily migrated to the MPE/iX environment.

Sterling Software (Palo Alto, Calif.), a provider of EDI software, recently completed a port of the Micro Focus COBOL portion of their software to MPE/iX in just one week. "The move to MPE was easy," said Ron Sohner, director of Midrange Development for Sterling. "Our COBOL code required no changes and is 100 percent compatible with the code we use on other platforms."

Micro Focus COBOL isn't the only new development environment available on the HP 3000. Also available is Acucobol (San Diego, Calif.), a COBOL compiler used by more than 500 third-party applications that recently completed a port in less than three weeks and is now available on MPE/iX.

Another significant new offering is the Progress development environment. Progress (Bedford, Mass.) has grown at a rapid pace over the past three years with a number of new applications having been written using Progress, tools. Support of POSIX has eased the port of Progress to MPE/iX.

"Supporting MPE/iX fits perfectly with our strategy of supporting robust open environments that have a strong future in the commercial marketplace," said Joe Chappel, vice president for Progress. At the same time, HP has made a significant investment in adapting HP's ALLBASE/SQL RDBMS to the Progress environment so the portfolio of Progress applications can be migrated easily to the MPE/iX environment.

New Applications

ALONG WITH THE ADOPTION of standards, and the availability of new development environments, have come a host of new open applications for the HP 3000.

SAP (Lester, Pa.) delivers to the MPE/iX marketplace its R/3 products which include manufacturing, accounting and human resource solutions. ASK's (Alameda, Calif.) new MANMAN/X product also is available and being installed by HP 3000 customers.

Available for the first time on MPE/iX is Oracle's (Redwood Shores, Calif.) manufacturing solution targeted at the discrete manufacturing market, along with a new version of Oracle's accounting solution. Other new packages recently ported to the platform include solutions from Baan (Grand Rapids, Mich.) and Datalogix (Valhalla, N.Y.). Spectrum Associates (Woburn, Mass.) has recently taken advantage of the availability of Micro Focus COBOL on MPE to quickly port its new Pointman solution to MPE/iX.

Ross Systems (Redwood City, Calif.) is finishing a POSIX port and will soon roll out its new client-server manufacturing and accounting solutions on the HP 3000 platform. Peoplesoft's (Walnut Creek, Calif.) human resource products turned that industry upside down two years ago and its new accounting applications, based on the same client-server technology, also are being made available on the HP 3000.

Imaging is an application area in which HP 3000 users have recently expressed interest as they realize the productivity gains imaging brings. HP has made available a solution from Filenet (Costa Mesa, Calif.), Wang (Lowell, Mass.) and a combination of accounting, imaging and workflow applications from Computron (Rutherford, N.J.) for its HP 3000.

Old Acquaintances Not Forgotten

IT WOULD BE WRONG to think that only the solutions from vendors not previously available on MPE/iX offer users the latest in technology and functionality. Many long-time MPE/iX application providers, including vendors like Mitchell Humphrey & Co. (St. Louis, Mo.) and Collier-Jackson (Tampa, Fla.), have recently re-engineered their products to take advantage of the flexibility and functionality improvements that client-server architectures and relational databases can offer.

HP also has made a significant investment to make sure that the portable relational database Oracle will not only be available to MPE/iX customers, but also will meet the high quality standards that customers demand. Engineers from both companies work on the latest Oracle versions of database and Oracle applications. "We are excited to offer Oracle products for the HP 3000 which build on the data-center-ready foundation of MPE/iX," said John Pilat, vice president of Oracle's HP division.

For non-UNIX platforms that have not adopted POSIX and other important standards, this may be a crippling blow from which they cannot recover.

The ability of Oracle products to communicate with HP's ALLBASE/SQL and IMAGE/SQL make it an obvious compliment to HP's own databases. Oracle's large share of the relational database market has resulted in almost every new application being developed today offering Oracle as one of its database options.

The days of operating system-dependent software are over. For non-UNIX platforms that have not embraced POSIX and other important standards, this may be a crippling blow from which they cannot recover. As HP continues to invest in "opening" the HP 3000 and porting new applications, while also enhancing its functionality and reliability, HP MPE/iX customers can expect leading-edge applications being available on the HP 3000 now and in the future. *—Vincent Gritsch is the Channel Development Manager in HP's Commercial Systems Division.*

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Windows A La 386 Enhanced Mode

When you start Microsoft Windows on a system with an Intel 80386 or higher CPU, chances are you expect to be running in 386 Enhanced mode. This mode, not available on systems using only an 80286 CPU, lets you use virtual memory, makes the most of expanded memory and lets you run multiple MS-DOS applications either full-screen or within windows.

The bad news is that 386 Enhanced mode is less tolerant of hardware conflicts, configuration errors and software versions. When you first install Windows 3.1, or Windows for Workgroups 3.11, you are likely to find configuration errors. Less easy to find, and more likely to pop up at any time, are the conflicts and problems caused by adding new software to your system. Nothing is more frustrating than installing a new application, especially one from Microsoft, and finding that Windows won't run in 386 Enhanced mode like it did before.

Of course, one easy solution to making 386 Enhanced mode work is to uninstall whatever software or hardware caused your system to stop working. Still, you installed the software or hardware for a reason, so uninstalling it may not be appropriate. A better choice may be to find out what is *really* causing the problem.

DEBUGGING 386 ENHANCED MODE

How do you tell if you are using 386 Enhanced mode? If Windows starts, pull down the Help menu item in Program Manager, and view the About Program Manager item. It will report which mode Windows is using. If Windows will not start and you are using a 80386 or better processor, see if Windows will start in Standard mode by typing:

```
win /s
```

To start in 386 Enhanced mode, your system needs to have an 80386 or better processor, 200K of free conventional memory, 1 MB of free extended memory and about 2 MB of free disk space. Installing your new software might have reduced the amount of conventional memory, in which case you need to experiment with loading different drivers into free high memory. Also be sure HIMEM.SYS is in your CONFIG.SYS file if you are not using a third-party memory manager. If the problem is lack of conventional or expanded memory, you may be able to force enhanced mode by starting Windows with the command:

```
win /3
```

If a shortage of memory seems to be the problem, it's generally best not to force Windows into 386 Enhanced mode; use Standard mode unless you can create

TABLE 1

Command Line Switches and SYSTEM.INI Equivalents

Option	SYSTEM.INI Entry
x	EMMExclude=A000-FFFF
v	VirtualHDIrq=FALSE
s	SystemROMBreakPoint=FALSE
f	Turn off 32 bit disk access

TABLE 2

Common Bootlog Error Codes

Error	Meaning
0	Out of memory
2	File not found
3	Path not found
8	Insufficient memory to start application
10	Incorrect Windows version
11	Invalid EXE file or error in EXE file
15	Attempt to load EXE file for a pre-3.0 version of Windows

additional space in conventional memory by loading drivers into high memory.

If Windows won't start in 386 Enhanced mode at all, use three little-known command line options when starting Windows:

```
win /d:xvs
```

These three options — **x**, **v** and **s** — let you start Windows with many of the memory options disabled. If Windows starts, experiment with these parameters in combinations until you find which one is causing the problem. *Table 1* shows the equivalent functionality for each of these parameters in SYSTEM.INI.

The **x** parameter excludes all of upper memory from address A000 through FFFF. Note: any Upper Memory Block utility like EMM386.EXE will override this parameter. Before you use it, remove EMM386.EXE from CONFIG.SYS.

The **v** parameter forces control of hard disk access to the system and controller ROM and not within Windows. Disk access may be a bit slower, but will let you detect errors related to conflicts with hard disk ROM.

Finally, the **s** switch causes Windows not to use any memory between F000 and

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FFFF for breakpoints. If Windows still will not start, try using the command:

```
win /d:f
```

This turns off 32-bit disk access, and may solve the problem if your disk controller is not fully 32-bit access capable.

If Windows still fails to start, one or more of the device drivers may be the source of the problem. Using another little-known feature of Windows, you can create a log file as Windows starts. Do so by starting Windows with the command:

```
win /b
```

This will create a text file in your Windows directory. It will detail the loading of every driver and Windows component; if one or more drivers will not load, the BOOTLOG.TXT file will detail the problem. Note that every time you start Windows with this option, it will append the start-up log to any existing BOOTLOG file.

Some of the more common errors are listed in *Table 2*.

OTHER OPTIONS

If Windows still refuses to run, start Windows from the WINDOWS directory. Windows loads drivers and other files specified in INI files from the current directory first, and then from the Windows directories. If there is an old driver in the root directory, Windows may be loading the wrong driver.

Try to disable ROM or video shadowing if your system supports it, and disable auto sensing on your video card.

Finally, make sure you are using the right A20 switch when you load HIMEM.SYS. This should only be a problem when you first install your software, but if you've installed an updated version of Windows you might find that something has changed in your CONFIG.SYS. Better safe than sorry.

Kehoe's Internet address:
kehoe@cardinal.com

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EDITOR'S NOTE

While it sounds less high-tech, Standard mode may actually be acceptable for you. Standard mode lets you run larger MS-DOS applications than 386 Enhanced mode, and will run all of your applications faster. Standard mode lets you use expanded memory and even extended memory with third-party drivers. In fact, the only feature of 386 Enhanced mode you are likely to miss is the inability to run multiple MS-DOS applications, or to run any MS-DOS application within a window.

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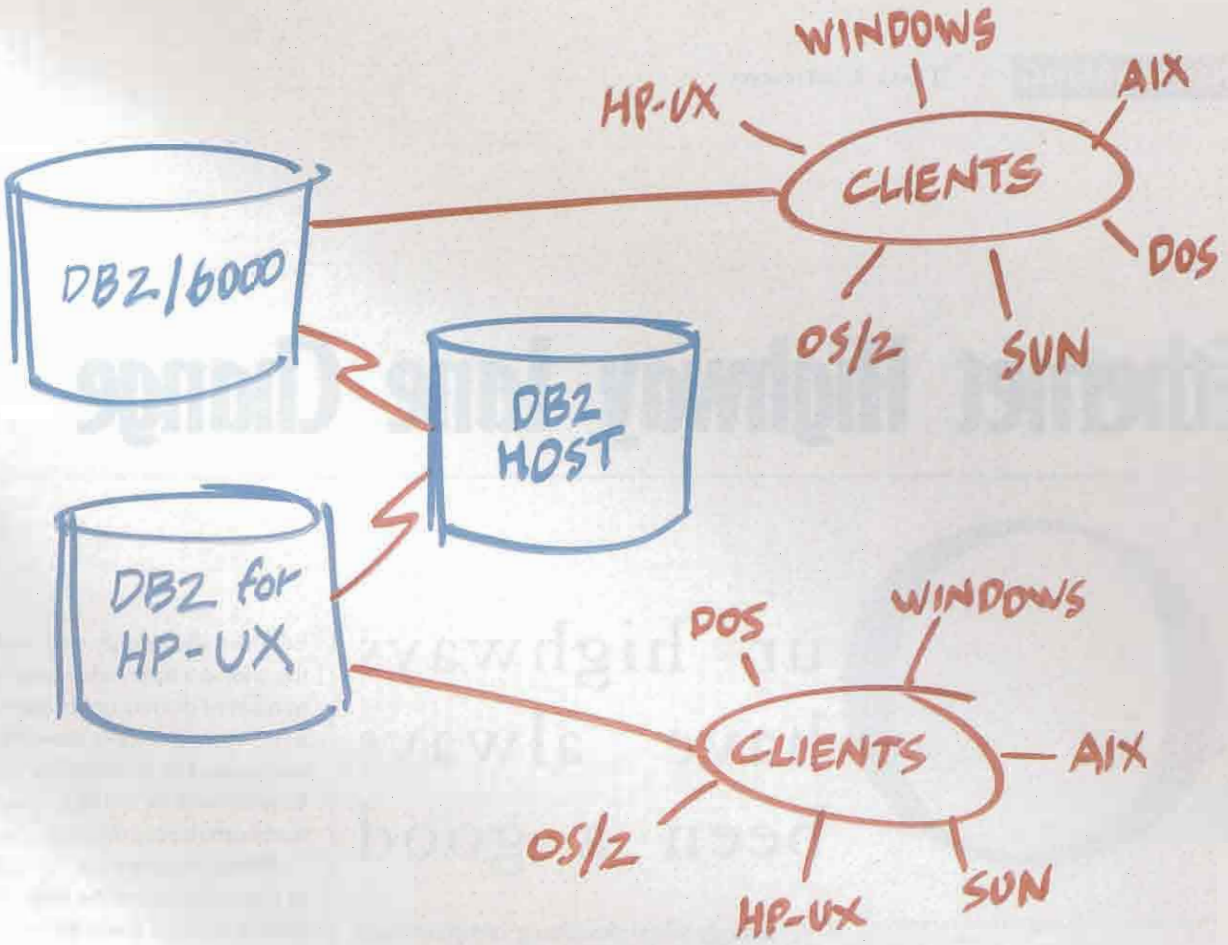

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Tim Cahoon

Ethernet Highway Lane Change

Our highways have always been a good analogy when describing computer networks. So let's talk about building a data highway using several new technologies called Full-Duplex Ethernet, Ethernet Switching and 100 MB Ethernet. You probably read about products using these technologies but so far there has been very little discussion about how they work or when to use them.

Today you have a series of devices, workstations and servers connected to a single backbone. That backbone can physically be one wire — in the case of a thick or thin Ethernet cable — or a logical one consisting of Ethernet network hubs. Every device on the network listens to all the data traffic transmitted on the wire.

If a workstation has data to send, it waits until there is no traffic and then transmits a data packet. However, as you might suspect, two or more workstations will sometimes try to transmit at the same time, thereby causing a collision. If a collision occurs, each workstation waits a specified period of time before trying to retransmit its data.

Ethernet is a half-duplex technology, which means a device can send or receive data. But not simultaneously. Because Ethernet allows only one data packet on the wire at a time, when you increase the number of devices on the network or you have many intensive network-based applications, you increase the collision rate. In other words, it's like a highway with many cars sharing the same one-lane road.

When it's time to go to work, you have to wait at the end of the driveway until the road is clear. If someone else decides to leave at the exact same time, you'd better call a wrecker because a collision is bound to occur.

FULL SPEED AHEAD

Full-Duplex Ethernet tries to speed things up by allowing a network device to transmit and receive packets at the same time. This gives a workstation a 20 MB network connection, double the normal 10 MB link with regular Ethernet — 10 MB going in and 10 MB going out. Full-Duplex Ethernet requires each device to have a new network interface card (NIC) and an Ethernet Switch which supports Full-Duplex Ethernet.

This means your wiring scheme must have separate pairs that support the transmit and receive functions. You cannot run Full-Duplex Ethernet over thick or thin Ethernet cable. This technology is used in conjunction with Ethernet Switching. Full-Duplex Ethernet is like having a two-lane driveway (NIC) so that visitors can leave while others are still arriving. However, Full Duplex Ethernet isn't much good unless you add extra lanes or increase the speed limit.

Ethernet Switches can add those additional lanes to your information highway. A switch works by logically creating a unique Ethernet connection between a switch port with incoming data and the destination port. Data can simultaneously travel down this unique logical Ethernet connection at the same time data is traveling down another unique connection between two other ports in the switch.

The first thing a switch does when it is powered up, is to learn the addresses of the devices attached to its ports. Most switches can have either single devices attached to a port or whole network segments. When data comes into the switch, it quickly scans for the destination address so it can determine which port the packets will depart through.

If the destination port is busy, it buffers the packet. Otherwise it immediately begins to transmit the packet as quickly as it is being received. In most cases the packet being received has already begun to leave the destination port before the entire packet gets there. This on-the-fly switching technology keeps the packet latency through the switch very low. This functionality is provided in the HP EtherTwist LAN Switch through the use of Kalpana Inc.'s (Sunnyvale, Calif.) switching technology.

While this data transfer is going on between port A and port B, the same thing can be happening simultaneously between ports C and D, and E and F in the switch. Instead of having one 10 MB path you would have three, giving you a total of 30 MB of network bandwidth. The connections made between ports A and B, C and D, and E and F are full-duplex inside the switch. So if devices A and B both support Full-Duplex Ethernet, you would have an end-to-end 20 MB network connection.

Because someone always has a better idea, there is a second type of switch available. This switch works the same way except in how it moves packets from one port to another. This switch uses more intelligent software which captures the entire input packet and then decides what port to deliver it. In this sense, it works like a very simple router.

The advantage to this technology is that more advanced filtering can be applied to packets. Packets could be filtered by network address, protocol or for security reasons. In the regular switch, the technology passes on everything including broadcast packets. The intelligent type of switch can filter these out and help eliminate broadcast storms. To accomplish this, however, packet latency in the switch is significantly increased. This latency varies with the size of the packet and the type of filtering configured in the switch.

If switching seems appropriate, which technology do you use? There is no simple answer. Using the intelligent switches adds significant latency to packets traveling through your local LAN, but its benefit of stopping broadcast storms and filtering could be very helpful. But you might think, "If you are having broadcast storms you should address the problem not the symptoms."

Well, I think most sites will probably use both technologies. If a segment of the network is standalone, then the simpler technology could be used. If security or broadcast storms between segments are a problem then more intelligent routers can be used to connect these segments. This way you keep the latency down within a workgroup, yet provide a buffer between segments.

When to use switching is more easily defined. A one-to-one relationship is ideal. If all the ports communicate with a single destination (as in many-to-one relationships) then the switch serves little function. For instance, you might be thinking of connecting 19 users and one file server to a switch for performance benefits. Keep in mind, that while a switch provides additional lanes to your highway, your traffic can only use one of them. So you need to raise the speed limit. Use a 100 MB solution.

HP's 100VG-AnyLAN is the only 100 MB Ethernet technology in the final round of the standardization process. It provides an easy-to-use, standards-based 100 MB network solution. Because it will work with your current wiring infrastructure, it seems to be the best alternative to speed up your network. With 100 MB your data, even if running in just one traffic lane, moves along at a much faster rate, improving network performance.

Most sites will use both simple and intelligent switching technologies. This way you keep the packet latency down within a workgroup, yet provide a buffer between segments.

Cahoon's Internet address: cahoon@cardinal.com

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EDITOR'S NOTE

If you want to know more about Ethernet Switching or how to design high-speed networks, you can obtain an HP white paper entitled Improving Ethernet Performance with Ethernet Switching. *You also should ask for an updated datasheet on the HP EtherTwist LAN Switch.*

You also will find the following book helpful: Planning and Designing High Speed Networks Using 100VG-AnyLAN *(Prentice Hall Publishers) by Janis Furtek Costa of HP. The book covers 100VG-AnyLAN in detail as well as discussing how to design an 100 MB network.*

Richard Riehle

A Tour Of Eiffel

Bertrand Meyer, designer of the Eiffel language, is one of the most respected people in the world of object-oriented methods and tools. His early book, *Object-Oriented Software Construction* should be required reading for anyone who wants to understand this subject.

However, the language he designed has not gotten the respect it should have in the software community at-large. But, most programming language specialists who compare Eiffel to C++ have little trouble giving the advantage to Eiffel.

Eiffel's design doesn't carry a lot of leftover baggage from procedural languages. For example, C++ includes the worst properties of C. Object Pascal falls short because it is derived from the procedural model of Pascal, and Ada 9X, newest of the object-oriented standards, still carries all of the algorithmic character of Ada 83.

Like Smalltalk, Eiffel is fully object-oriented. Unlike Smalltalk, it includes support for formal assertions, static typing, generics, multiple inheritance and exception handling. In fact, with Eiffel, Meyer set a standard that other language designers have tried to follow, usually without success.

The ability to design with "assertions" is a powerful feature of Eiffel. Meyer describes this as "design by contract." A problem with most object-oriented languages is the requirement for hidden algorithmic code to enforce the fundamental properties of a defined class.

In some languages these properties are enforced through some typing mechanism that may include something like range constraints or intrinsic boundaries. In Eiffel, the type is the class and the designer of that class can include assertions for the class. Because assertions are part of the definition of the class, they are bound to the "what" level rather than the "how" level.

In object-oriented design, "what" is associated with the design process of a class and "how" it is related to class implementation. The formal assertion model eliminates the requirement for the many pages of complex housekeeping code (if...end if) for checking the validity of a computation, assignment or other operation.

ASSERTING EIFFEL

Eiffel's assertions come in two forms: pre-conditions and post-conditions. Pre-conditions states formal properties of a class that must be satisfied for successful invocation of that class. A post-condition states the properties required of a successful completion. The language definition includes an exception handling capability that's incorporated, at compile time, into a program to support the assertions for the class.

C++ still invites the hacker mentality, especially with all the little features that let one break the rules, or even break an abstraction. For example, C++ "friends" is a device to compensate for weaknesses in the way C++ supports the object-oriented model.

As a design language, Eiffel continues to be a better model for object-oriented programming than Ada. It is even better than the new Ada 9X standard, which still requires a separation of the class definition from its enclosing program unit. Eiffel classes are the program unit, thus eliminating confusion for the designer. It also makes the inheritance hierarchy easier to follow.

The Eiffel library is supported by a set of visual tools. EiffelBuild, allows the software developer to pick components from a video control panel. Existing library components can be used to construct new classes, and ultimately, software applications. Eiffel developers are then able to extend this library, via inheritance and genericity, to build domain specific libraries.

Eiffel goes beyond Ada in providing explicit calling interfaces to and from another language. Although this connectivity between Eiffel and procedural languages is sometimes useful, the designer must exercise care that the benefits of object-oriented programming are not lost by making too many procedural connections.

If you're thinking about developing with object technology, you've probably already examined C++. If you thought: "There has to be a better way," then look at the new object-oriented standards for COBOL and Ada. And take a long, hard look at Eiffel.

Riehle's Internet address: riehle@cardinal.com

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Public Access

Once thought of as a proprietary language — seen as the sole property of Meyer's company, Interactive Software Engineering (ISE; Santa Barbara, Calif.). — Eiffel is now in the public domain. Compilers are available for nearly any UNIX platform, including HP-UX, SunOS, SCO UNIX, MS-DOS and OS/2.

In 1990 the Nonprofit International Consortium for Eiffel (NICE) formed to standardize Eiffel. The effort has resulted in a number of users. Their Usenet group is: comp.lang.eiffel

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A Perfect 10?

You'll be getting real serious about HP-UX AFTER 9 in about six months. I get the impression HP doesn't want us to say HP-UX 10 just in case they come up with a better name.

Here then are some inside facts about some of the changes that will be in HP-UX AFTER 9.

You may have read that it will have a SVR4 file system. Yes and no. It's still the HFS (High Performance File System) we have in HP-UX 9.x, but the directory structure will be like the SVR4 structure instead of the current BSD layout. Only the names have been changed, hee, hee.

The changes in file locations are the

FIGURE 1

/bin	Gone	See /usr/bin
/dev	Same	
/dev/term	New	All terminal device files
/dev/pts	New	Psuedo-terminal device files
/dev/xt	New	Device files used by layers (Asynchronous windows)
/dev/sxt	New	Device files for shell layers used by shl
/etc	Changed	No executable files are stored here in SVR4
/export	New	Used as the standard location for sharing files from a server to diskless clients under the NFS Diskless system, which is implemented in HP-UX 10
/home	Still	Still the recommended location for user home directories that very few sites use
/mnt	Still	Still recommended place to temporarily mount filesystems
/opt	New	Root directory for all add-on application home directories (/opt/mycoolapp)
/proc	New	Root directory for process filesystem tree
/sbin	New	All executables needed for boot, many used to live in /etc
/tmp	Same	
/usr/bin	Changed	Most system commands and utilities
/usr/sbin	New	System administrator executables, many used to live in /etc
/usr/include	Same	
/usr/lib	Same	
/usr/share	New	Architecture independent code (perl stuff:-)
/usr/ucb	New	Berkeley compatible binaries, there is also a ucbinclude and ucblib directory
/var	New	Root of subtree for files unique to this host such as log files. Stands for varying files. Many of these subtree components should look familiar from the BSD /usr tree:
/var/adm		Log and accounting files
/var/cron		Yup
/var/mail		Yup
/var/opt		Application log files and such
/var/preserve		Good old vi and ex crash (backup) files
/var/spool		subdirectories for cron, lp, mail, at
/var/tmp		Directory is re-initialized at boot

result of conforming to COSE SPEC 1170, which, among other things, standardizes file locations. Remember, change is good (it keeps us employed). And it will make life easier in the future (until it changes again).

HP plans on supplying tools, such as a shell script, code and text file parsers to "check" and "fix" pathnames in HP-UX 9.x scripts, and code so they will work under HP-UX 10. There also are some tools to layout symbolic links on an HP-UX 10 disk, so hard coded pathnames in programs will work. These tools are called: **tlinstall** and **tlremove**; the **tl** is transition link.

Figure 1 shows a list of directories found under SVR4. If there is no description, the purpose of the directory has not changed from BSD.

As you can see from *Figure 1*, there are many changes in HP-UX 10. Below is a summary of those changes. Future articles will deal with them one at a time.

In addition to the change from proprietary diskless to open NFS-based diskless, and from BSD to SVR4 directory layout, two other open-based products will be supported. These are the SDU software distributor utility and the COSE Common Desktop Environment (CDE).

SDU provides a GUI interface for **installs** and more flexibility than the update program. Most important to me, it allows a pull type software load. It has more dependency checking and configuration parameters than update. I may have been hasty to say it is an open product, more correctly, it is being evaluated as a POSIX standard.

It looks like the COSE CDE, expected to replace (and still look like) HP VUE, will ship sometime after HP-UX 10. However, this is just a guess on my part. Some of the areas that SPEC 1170 will hopefully standardize among platforms that conform are: terminal communications; file system (as seen above); signals; and TCP/IP issues and sockets.

HP-UX 10 will continue the convergence of the HP 9000 Series 700 and 800 operating systems. Those of you that were around for HP-UX 8.x know that HP-UX 9.x was an improvement in this area. Just as the HP 9000 Series 700 and 800 had the same commands and libraries under HP-UX 9; they will have the same kernel under HP-UX 10. Because they support different external busses (NIO versus EISA), by design, some I/O drivers will be different.

The HP 9000 Series 700s will get the Logical Volume Manager and (rats!) soft disk partitions. The HP 9000 Series 800s will benefit from a true vfork, memory mapped files and the HP 9000 Series 700's dynamic buffer cache. Keep in mind that HP-UX 10 is an update. This means that *you will be making the transition*, it is not an alternative operating system.

Mallett's Internet address:
frederm@aol.com

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new Products

SOFTWARE

Performance Software Offers UNIX Version Of V-TEST

Performance Software Inc. announced V-TEST for UNIX/HP-UX, the first in a series of UNIX-based versions.

V-TEST for HP-UX provides an environment for the rapid development of tests using recordings of actual user sessions, the use of a user-focused 4GL or a combination of both.

Once developed, tests can be executed interactively or as batch processes. The run-time system allows tests to be organized in hierarchies or in sequence, and complete audit facilities are provided for investigation of defects. Tests can be run on pseudo-terminals, allowing the test to exceed the physical capacity of the system.

Prices start at $22,500 for a five-user license.

Contact Performance Software Inc., 26 Parker St., Newburyport, MA 01950; (508) 462-0737.

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Maptronix Releases FMAP/Analyze

Maptronix Inc. released FMAP/Analyze, a statistical mapping package which integrates with its FMAP suite of software. The FMAP system runs on UNIX workstations from HP, IBM, Sun, Silicon Graphics, Intergraph, and 80486 PCs running Linux.

FMAP/Analyze integrates directly with existing CAD and Records systems. For users without an existing system, popular database and statistical software can be used to formulate queries which are then displayed on a map. FMAP/Analyze provides pin maps and thematic polygon overlays for crime analysis. The system supports a screen snapshot mode which allows map graphics to be imported into presentations.

FMAP/Analyze costs $2,495. The FMAP Programmer's Toolkit costs $12,500.

Contact Maptronix Inc., P.O. Box 14287, Research Triangle Park, NC 27709; (800) 951-2050.

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E-Mail Inc. Presents One-Stop Mail V2.0

E-Mail Inc. presents version 2.0 of its external/internal electronic mail system, One-Stop Mail.

V2.0 allows greater connectivity along with the ability to use office automation more effectively with the touch of a button. Other features include: the ability to save messages without having to send it, if further modifications are needed; folder enhancements; and the addition of public groups, public lists, multifile attachments, filters, auto-forwarding and a spell checker.

Contact E-Mail Inc., 1111 S. Arroyo Pkwy., Ste. 470, Pasadena, CA 91105; (818) 403-1999.

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OCS Launches EXPRESS For UNIX

Operations Control Systems (OCS) introduced EXPRESS job scheduling software for UNIX.

Using an intuitive, color-coded GUI, operators can spot exceptional conditions, such as a job that is running too long or has aborted. Online, context-sensitive help is available at the touch of a key.

EXPRESS provides automated control over production jobs on a 24-hour basis; seamless integration with multiple UNIX platforms; and complete auditing, security and recovery facilities.

Cost of EXPRESS for UNIX starts at $5,000 and varies depending on system configuration.

Contact OCS, 560 San Antonio Rd., Ste. 106, Palo Alto, CA 94306; (415) 493-4122.

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ISG Unveils APTuser 3.5

International Software Group Inc. (ISG) announced the availability of APTuser 3.5, a powerful data retrieval and report generating product. This client-server version of APTuser enables any PC with Microsoft Windows to access data stored in multiple databases and file management systems residing on UNIX and VMS platforms. It features an intuitive GUI that accelerates and simplifies the development and generation of crucial reports.

Users can extract data from a variety of relational and non-relational databases simultaneously and produce custom reports for that data.

APTuser supports Adabas, Informix, Ingres, ISAM, DSM, GT.M, Oracle, Rdb for OpenVMS, RMS and Sybase. It runs on HP-UX, OpenVMS (VAX and Alpha), Sun Solaris, IBM AIX, DG-UX and DEC Ultrix.

Contact ISG, 100 Fifth Ave., P.O. Box 9097, Waltham, MA 02254; (617) 622-1900.

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VMARK Supports ODBC Standards

VMARK Software Inc. announced STAR/ODBC, the latest addition to its HyperSTAR family of client-server interoperability products. STAR/ODBC provides HyperSTAR users with a multidatabase ODBC driver for use with ODBC-compliant front-end tools.

STAR/ODBC resides on the client platform and allows client applications to have consistent, simultaneous access to multiple relational and other databases. It incorporates ODBC message objects through a single ODBC driver and intelligent network environment.

HyperSTAR provides PC and workstation users with a full range of client-server

functionality, including enterprise data access from popular Windows-based software such as WordPerfect, Excel, Lotus 1-2-3; development tools such as Visual Basic; and simultaneous interoperability with Oracle, Sybase and Informix as well as VMARK's uniVerse.

Contact VMARK Software Inc., 30 Speen St., Framingham, MA 01701; (508) 879-3311.

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Hamilton Technologies Announces Datafacer

Hamilton Technologies Inc. (HTI) announced the release of Datafacer, a fully automatic user interface generator for UNIX.

Tightly integrated with HTI's 001 systems engineering and software development environment, Datafacer generates a user interface based on the data description contained in a 001 TMap.

The 001 TMap is the repository for information about the structure of data and the operations that may be performed on that data. Datafacer chooses appropriate default visualizations for each data item to be displayed.

001 runs on platforms from HP, IBM, DEC and Sun, but also can be instructed to support any database, GUI, operating system or language.

Contact HTI, 17 Inman St., Cambridge, MA 02139; (617) 492-0058.

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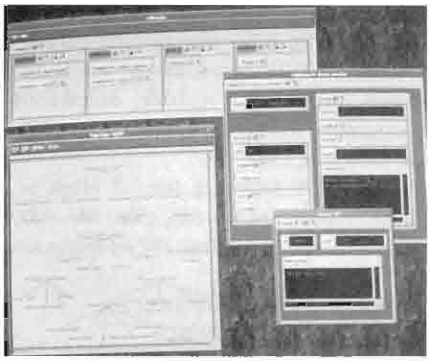


HTI's Datafacer automatically generates user interfaces.

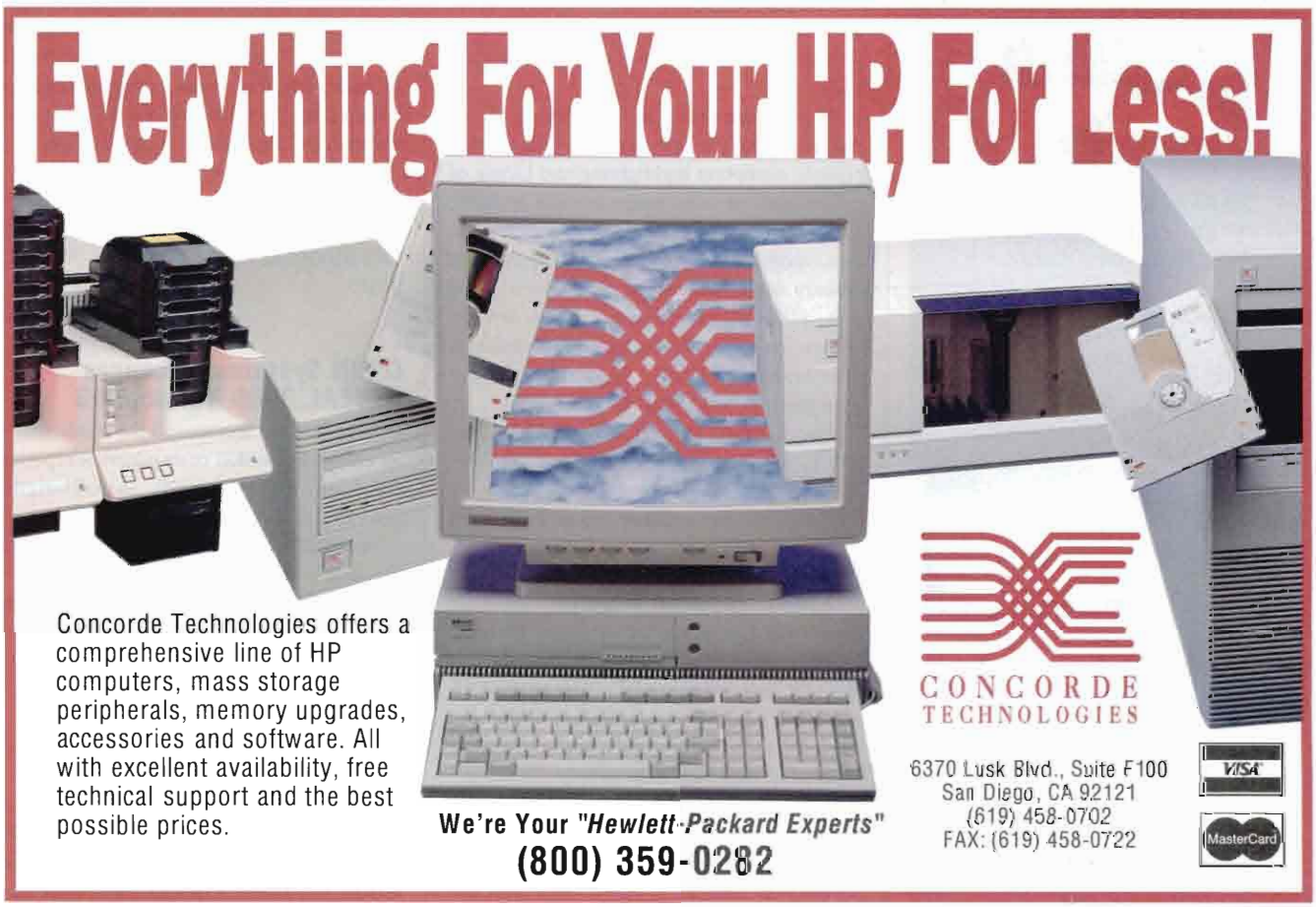
Template Software Offers WFT

Template Software announced the availability of Workflow Template (WFT), an object-based development environment for the rapid creation of enterprise-wide workflow systems.

The Abstract Workflow Design tool provides for interactive graphic layout of the workflow system, including development, abstract workflow design, work item definition, work item flow among tasks and hierarchical representation of workflows and subflows. The Workflow Simulator allows the designer to assign assumptions to workflow creation/deletion, task processing and distribution delays, so the workflow can be simulated. The Task Creation tool, through the use of the SNAP, can be used to create functional capabilities of any kind. The Work Item Definition tool is used to create work items, a collection of information that flows among tasks and represents them as objects.

Contact Template Software, 13100 Worldgate Dr., Ste. 340, Herndon, VA 22070; (703) 318-1000.

Circle 392 on reader card



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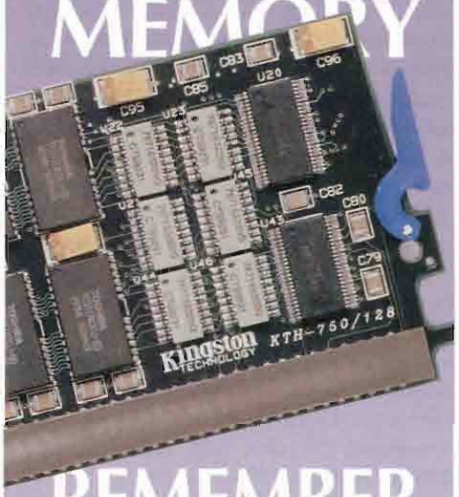

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new products

HP Bundles FTP's TCP/IP Stack

FTP Software Inc. announced HP will bundle it's TCP/IP stack within HP OpenView for Windows Workgroup Node Manager Version 1.0.

HP OpenView For Windows Workgroup Node Manager Version 1.0 is a full-featured Windows-based SNMP network management software application. A key feature of the new application is its ability to pass information to other management consoles, such as a UNIX-based OpenView workstation, providing a scalable, distributed-management solution form the workgroup to the enterprise level.

Contact FTP Software Inc., 2 High St., North Andover, MA 01845; (508) 685-4000.

Circle 391 on reader card

PowerPlay 4.0 Delivers Business Intelligence

Cognos announced PowerPlay 4.0, the new version of it's Windows-based Business Intelligence software used to provide corporate data to managers and executives. PowerPlay is a multidimensional reporting tool that presents data in the organizational context critical to understanding what's happening in a manager's area of responsibility.

New features include: easy ranking of best sellers and top performers across various time periods; exception highlighting and hiding of values based on value ranges selected by users; a new briefing book called Portfolio; a unique data compression algorithm that expands the desktop multidimensional data capacity; and new administrative capabilities to subset, secure and distribute multidimensional information within departments and workgroups. PowerPlay 4.0 costs $695.

Contact Cognos Inc., 67 S. Bedford St., Ste. 100W, Burlington, MA 01803; (617) 229-6600.

Circle 390 on reader card

PeopleSoft, RESTRAC Present Resume Reader

PeopleSoft Inc. shipped PeopleSoft Resume Reader as a component of PeopleSoft HRMS, its integrated family of human resources management software. This will improve an organization's productivity in processing resumes, help match candidate's skills to open jobs and provide functions for better recruitment management.

Developed by RESTRAC Inc., Resume Reader works as a front-end resume processing system to PeopleSoft HRMS and integrates seamlessly into the Human Resources Applicant Tracking System via an interface developed by PeopleSoft. Using high-volume scanning, OCR imaging and search/find functions, PeopleSoft Resume Reader enables corporate recruiters to scan incoming resumes for automatic processing, storage and retrieval at a rate up to 10 times faster than manual or partially automated systems.

Contact PeopleSoft Inc., 1331 N. California Blvd., Walnut Creek, CA 94596; (510) 946-9460.

Circle 389 on reader card

Talarian Releases RTworks 3.0

Talarian Corp. released RTworks 3.0, a family of software tools for building high-performance client-server applications that manage time-critical data.

RTworks is used to build systems that acquire, analyze and display large amounts of data. Key features include: an intuitive graphical environment for RAD; an open architecture for easy integration with legacy and third-party software; RTie, a powerful rule-based technology for high-speed analysis of incoming data; RThci, for building and modifying GUIs without writing a single line of code; and RTserver, a robust message-oriented middleware that quickly distributes information throughout an application.

Pricing starts at $8,000 for individual products.

Contact Talarian Corp., 444 Castro St., Ste. 140, Mountain View, CA 94041; (415) 965-8050.

Circle 388 on reader card

O'PIN Systems Enhances REVEAL 3000 Version 3.3

O'PIN Systems announced the availability of an enhanced version of its paperless reporting software for HP 3000 environments, REVEAL 3000 version 3.3.

Enhancements include: wildcard searching for quick access to an unlimited range of characters; rational searching to find values greater than, less than or equal to a specific value; faster printing with less terminal I/O; and vital statistics, a means to track report usage, printing and disk space.

REVEAL enables users to view and use online reports from any PC terminal linked to the system. The software's Pinpoint distribution module ensures that users gain access only to those report pages they need and are authorized to use.

REVEAL runs on the HP 3000 MPE V

or MPE/XL and requires an HP or compatible terminal, or a PC that runs terminal emulation software.
Contact O'PIN Systems, International Plaza, Ste. 635, 7900 International Dr., Minneapolis, MN 55425; (612) 854-3360.

Circle 387 on reader card

Munro Garrett Int'l. Launches ARGUS

Munro Garrett Int'l. (MGI) launched ARGUS, a true client-server solution for desktop mapping.

With ARGUS, users can manage business data in an open database architecture. Information stored in any SQL database is accessed directly, eliminating the need to download, retrieve or move information from several data stores.

ARGUS combines GIS capabilities with EIS functionality in a Microsoft Windows environment. The EIS functionality allows geographic objects to be analyzed, evaluated and presented in maps, tabular reports and graphs.

ARGUS Version 3.0 features: simultaneous direct connectivity to multiple database systems, expanded script language functionality, enhanced symbol support for graphics created in other Windows programs, new "virtual" Map Windows, and additional thematic and multivariate analysis capabilities.
Contact Munro Garrett Int'l. Inc., 2200645 7th Ave. S.W., Calgary, AB T2P 4G8; (403) 263-0070.

Circle 385 on reader card

Software AG Delivers ESPERANT

Software AG announced ESPERANT, a graphical query tool that delivers end-user access to complex client-server databases. ESPERANT enables users with no knowledge of SQL or of the physical database structures to create accurate queries using a Windows-based point-and-click GUI. Information can be accessed from any SQL or ODBC-compliant database.

ESPERANT SQL Expert protects users from generating semantically incorrect SQL statements that would return misleading or incorrect information. It constantly monitors every selection the user makes in specifying a query.

ESPERANT automatically creates robust and complex SQL statements, such as dynamic CREATE/DROP VIEW, UNION operations, and subqueries (nested selects) which gives end users the ability to handle a wider range of business queries.

It also transforms the physical database structure into a simple business-oriented or conceptual view.

Pricing begins at $595 for one to eight copies and drops to $255 each for 513 to 1,014 copies.
Contact Software AG, 11190 Sunrise Valley Dr., Reston, VA 22091; (703) 860-5050.

Circle 384 on reader card

OPENService Offers Apps For SYSTEMWatch AI-L

OPENService SJI Inc. introduced four new applications for SYSTEMWatch AI-L, its automated early-warning, early-action software package for UNIX operating systems.

The applications are: file system and disk manager, which tracks file and disk usage behavior, identifies potentially dangerous growth patterns and takes action to avoid critical congestion; swap and memory manager, which monitors virtual memory and swap space and automatically increases swap space when existing space approaches capacity; CPU and resource manager, which identifies runaway processes or other problems that may impede efficient CPU operation, then initiates automated actions such as temporary stopping, reprioritizing or killing processes to manage system load; and daemon manager, which controls background processes and averts such crises as E-mail failure, print queue slowdown or communications breakdowns.

Cost for the SYSTEMWatch AI-L client package is $395 per host and $7,995 for the system administrator's system management console.
Contact OPENService SJI Inc., Three City Square, 1st Floor, Albany, NY 12207; (518) 465-1400.

Circle 383 on reader card

Madge Upgrades Support Software

Madge Networks Inc. shipped Smart LAN Support Software 4.2 (LSS), a set of high-performance drivers and processing software that gives network users higher packet processing speeds and expanded configuration options in single- or multiprotocol environments.

Smart LSS 4.2 extends previous capabilities with the inclusion of TCP/IP modules and a set of Fastmac Plus high-performance software drivers. Smart LSS 4.2 also expands the functionality of Smart 16/4 Ringnodes by including drivers for Novell's NetWare 3 and NetWare 4 which support

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fault tolerance, server card mirroring and Microsoft Windows NT. The new release is backward-compatible with all old Smart 16/4 Ringnode hardware.

Contact Madge Networks Inc., 2310 N. First St., San Jose, CA 95131-1011; (408) 955-0700.

Circle 382 on reader card

IEM Releases Alexandria 2.5

IEM Inc. announced backup capabilities for Oracle and Informix databases with the release of Alexandria 2.5.

Alexandria's database "personalities" interface directly with vendors' database backup utilities, allowing database administrators to use Alexandria for online backups of their databases and integrate database backups with UNIX file system backups.

Alexandria is a comprehensive software package designed to fully automate backup on UNIX systems. The software starts scheduled full and incremental backups, reschedules failed backups, manages media and storage devices, tracks device usage, and schedules drive cleanings to minimize device failure.

Added with V2.5 are personalities for 3480 tape, DAT libraries with internal DDS-2 tape drives and standalone tape drives. Other enhancements include improved mail capabilities and added command line and interface options.

Alexandria's X-11/Motif interface with pull-down graphics and menus provides intuitive access for general use, while the command line interface provides programmatic access.

Alexandria accommodates multivendor UNIX networks comprising HP 9000, Sun SPARC, IBM RS/6000, Sequent, DG AViiON, Silicon Graphics, Motorola 88K, Pyramid S Series and IBM-compatible PCs running SCO.

Contact IEM Inc., 1629 Blue Spruce Dr., Fort Collins, CO 80524; (303) 221-3005.

Circle 436 on reader card

Autodesk Announces AutoCAD Designer

Autodesk Inc. announced the availability of AutoCAD Designer for HP 9000 Series 700 workstations.

AutoCAD Designer enables users to design mechanical parts more intuitively, make revisions, design iterations and automatically create 2D drawings from a 3D model.

Key features include: parametric, feature-based design and drafting; coordinate-free sketching; automated drawing creation; sophisticated solid-modeling shape description; bi-directional associativity between model and drawing; fully integrated with AutoCAD Release 12.

AutoCAD Designer also is available on MS-DOS and Sun Solaris 2.3 operating systems. Price is $1,500.

Contact Autodesk Inc., 2320 Marinship Way, Sausalito, CA 94965; (415) 332- 2344.

Circle 368 on reader card

HP Terminal Emulation Available For HP-UX

Software Licensing Corp. released IX/92 for HP 9000 Series 700 and 800 computers.

IX/92 offers users of HP-UX computers full-featured HP 2392A terminal emulation for connectivity with HP 3000 MPE host computers. This product joins the IX/92 terminal emulators for other UNIX environments including SCO UNIX, Interactive UNIX and Sun Solaris.

IX/92 provides: full character and block mode support; multiuser capability; serial and LAN connectivity; local printer function support; file transfer in ASCII or binary format between the HP 3000 host and the local UNIX system.

IX/92 also incorporates a script language to automate all or part of any session, including file transfer. It is compatible with X windows-based environments, but also will run as a standalone UNIX application.

Contact Software Licensing Corp., Ste. 280, 930 Tahoe Blvd., Unit #802, Incline Village, NV 89451; (702) 832-0881.

Circle 367 on reader card

AXENT Technologies Introduces OmniGuard

AXENT Technologies introduced OmniGuard, a comprehensive policy-driven security solution that provides a complete range of enterprise-wide, information security products and services across a variety of hardware and software platforms.

OmniGuard is comprised of six integrated software modules: OmniGuard/Enterprise Security Manager (OmniGuard/ESM) for enterprise-wide security policy management and enforcement; OmniGuard/Enterprise Access Control (OmniGuard/EAC) for user administration and access control; OmniGuard/Intruder Alert (OmniGuard/ITA) for systems monitoring and intrusion detection; OmniGuard/Single Sign-On (OmniGuard/SSO) for user identification and authentication; OmniGuard/Enterprise Backup Manager (OmniGuard/EBM) for network-wide unattended backup/restore; and OmniGuard/Autostor (OmniGuard/ATS) for automated file migration and retrieval.

It works with information security products from other vendors or integrates seamlessly into HP OpenView, IBM NetView/6000, Tivoli Management Environment, Sun Netmanager and Microsoft SMS.

Pricing is based on the number of managers and agents ordered. OmniGuard managers cost $1,995 per module and agents cost $395 per module for UNIX platforms.

Contact AXENT Technologies, 2440 Research Blvd., Rockville, MD 20850; (301) 258-2620.

Circle 365 on reader card

MANTA PDM Goes 100 Percent Visual

B.A. Intelligence Networks Inc. (BAIN) released MANTA V3.05G which expands MANTA VPDM visual technology to its workflow tools.

MANTA workflow, because it is visually-oriented, allows engineers and managers to define and track their process easily and offers all users simple interaction with the workflow plan.

Using MANTA, an engineer or manager defines the workflow routing via visual representations of design steps and assignments. The user manages and views the project steps using graphical diagrams rather than text-oriented listings.

MANTA runs on all HP workstations and operates on the HP-UX operating system. Price is $2,700 per network license.

Contact BAIN, 21555 Melrose Ave., Ste. 16, Southfield, MI 48075; (810) 799-8900.

Circle 364 on reader card

Liant Adds OLTP, VSAM And GUI Tool Support

Liant Software Corp. announced additions to its Open PL/1 product which provides a migration solution for companies wanting to transfer mainframe-based PL/1 applications to client-server platforms. New features include support for OLTP, VSAM, GUI tools and additional DEC VAX/VMS extensions.

Open PL/1 V6.0 is available for the following platforms: HP 9000 (HP-UX), DG AViiON (DG-UX), Sun SPARC (SunOS 4.x and Solaris 2.x), Microsoft Windows NT, IBM RS/6000 (AIX) and Intel X86 and Pentium systems (UNIX SVR4).

Cost is $20,000 for an eight-user system.

Contact Liant Software Corp., 959 Concord St., Framingham, MA 01701; (508) 872-8700.

Circle 366 on reader card

ISA Inc. Ships SQL*Operator V4.0

Innovative Systems Applications Inc. (ISA) shipped its latest upgrade of SQL*Operator Version 4.0, which will be the first version to support industry-standard GUIs including Windows, Motif and OpenLook.

SQL*Operator is a system management tools designed to provide mainframe-caliber scheduling, output management and background processing capabilities for open systems.

Version 4.0 is database independent and is compatible with most major databases including Oracle, Sybase, Informix, Ingres, DB2, Rdb and flat files. It also will be available for UNIX, VMS and DOS, and will support GUI or character-based interfaces. Also, networking capabilities are enhanced to support TCP/IP, DECnet, Novell and SQL*Net.

Contact ISA Inc., 2509 152nd Ave. N.E., Ste. D, Redmond, WA 98052; (206) 867-1515.

Circle 363 on reader card

HARDWARE

Cylink Provides CIDEC-MLS Network Security System

Cylink Corp. introduced the CIDEC-MLS Network Security System, designed to provide totally secure access control and data confidentiality for host- and server-based information systems.

CIDEC-MLS supports DES and Cylink's strong proprietary encryption algorithms. The MLS can hold up to 12 encryption plug-in cards, supporting communications speeds ranging from 300 bps to 768 Kbps.

CIDEC-MLS features Cylink's fully automatic public key management system, SEEK (Secure Electronic Exchange of Keys). SEEK eliminates the need for manual key distribution, usually the most expensive aspect of data security and the most vulnerable to compromise.

Each encryption plug-in card can provide access control for 255 remote sites, encrypting each link with a unique session key, thus providing totally secure access control and data confidentiality.

Price for the plug-in cards starts at $525. Contact Cylink, 310 N. Mary Ave., Sunnyvale, CA 94086; (408) 735-5800.

Circle 381 on reader card

Clovis Renames Flagship Product

Clovis Inc. announced that their IntelliStor product is now called MultiStor. MultiStor is a multiple storage device that isolates all storage requirements and manages them intelligently.

MultiStor uses an open architecture, connecting to virtually all major platforms and network operating systems using a standard SCSI connection. Users can simultaneously mix all types of drives — hard, optical, tape and WORM — as well as CD-ROMs and RAID disk arrays. It works completely independent of the file server increasing network performance, because the server doesn't have to handle storage as it manages the rest of the network's activities.

MultiStor incorporates an IBM motherboard with a 486SLC/2 66 MHz CPU and up to 64 MB of cache, a high-performance

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Written by R.T. Crowley, a recognized authority on Electronic Data Interchange. He is current Chair of the EDI standards committee ACS X12.

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dual-channel Fast SCSI controller, a dedicated SCSI bus and a five-channel RAID disk array controller with a dedicated Intel RISC 960 processor.

Contact Clovis Inc., 25 Porter Rd., Littleton, MA 01460; (508) 486-4367.

Circle 379 on reader card

Maxoptic Launches Network Backup System

Maxoptic Corp. established a separate business unit called Maxoptic NWorks to develop, manufacture and market a complete family of network storage solutions. The first product, the 26 GB Maxoptic Axxis system, is an automatic backup solution capable of locating and retrieving any library file within seconds.

Axxis operations are controlled through its high-performance Palindrome Backup Director server-based NLM software package. The software features an intuitive, menu-driven interface.

Axxis also signals when to change media and which disk to use, warns if the wrong disk is chosen and signals when to take a disk off-site for disaster protection.

Price is $13,995 for the Axxis system with the drive, jukebox, cabling, 20 optical disks and on-site installation.

Contact Maxoptic Corp., 2520 Junction Ave., San Jose, CA 95134; (408) 954-9700.

Circle 378 on reader card

HP Expands Palmtop Family

HP announced the HP 200LX, a handheld PC that includes a built-in version of Pocket Quicken, Intuit Inc.'s mobile financial tracking application.

HP also introduced an enhanced palmtop connectivity kit for seamless integration between the HP 200LX and desktop PCs or laptops, including connectivity to Windows and MS-DOS versions of desktop Quicken. The 200LX also features Lotus cc:Mail and Lotus 1-2-3, as well as a standard DOS platform for PC software compatibility.

Enhancements include: ability to merge and synchronize appointment, phone, database and Pocket Quicken files with a desktop PC; easier installation of the connectivity kit software on the PC; improved memory management for the translation, merging and synchronization of larger files; and addition of a built-in version of LapLink Remote, a connectivity application which provides access to the 200LX from within desktop applications.

The HP 200LX-2MB costs $699 and the HP 200LX-1MB costs $549.

Racal-Datacom Transmits Video Over PremNet

Racal-Datacom introduced three video interface modules for PremNet, a high-speed fiber-optic premise distribution system. The modules are: a one-way video (transmit) module for monitoring and broadcast applications; a one-way video (receive) module for monitoring and broadcast applications; and a two-way video (full duplex) module for video conferencing and similar applications. The modules support an audio frequency range of 50 to 15,000 Hz.

Monitoring applications for the video interface module include traffic control monitoring and security surveillance. The network manager can select point-to-point or multipoint mode.

Broadcast applications send video/audio signals from a central site to one or more remote locations. Multipoint broadcasting allows one real-time broadcast to be sent to as many as 45 outputs per virtual circuit.

Video conferencing applications for the full-duplex video interface module can be within a campus environment or across a MAN (or WAN environment via forthcoming SONET system capability).

Price is $5,950 for the transmit module, $6,650 for the receive module and $8,975 for the transmit/receive module.

Contact Racal-Datacom, 1601 N. Harrison Pkwy., Sunrise, FL 33323; (305) 846-1601.

Circle 376 on reader card

Aggregate Computing Releases NetShare SDK

Aggregate Computing Inc. announced NetShare SDK, which provides a single distributed processing engine that is used as the foundation on which numerous applications can be built.

Applications built with NetShare SDK become network-smart, distributed applications that find and use the best available processing power across the network to run tasks in parallel, producing performance gains.

Contact Aggregate Computing Inc., 300 S. Hwy. 169, Ste. 400, Minneapolis, MN 55426; (612) 546-5579.

Circle 374 on reader card

Raymond Engineering Debuts Flash RAID Storage System

Raymond Engineering Inc. introduced a flash RAID storage system which incorporates nine 40 MB storage cards.

The Fault Tolerant Mass Memory is designed for severe environments where conventional RAID systems based on rotating

disk drives cannot meet requirements, because they lack performance, ruggedness and reliability.

The product includes Raymond's Sentinel memory cards, which use SunDisk Corp.'s PCMCIA-ATA industry standard flash memory cards.

Contact Raymond Engineering, 217 Smith St., Middletown, CT 06457; (203) 632-4643.

Circle 380 on reader card

TEAC Expands CD-ROM Line

TEAC America Inc. announced two Multimedia Duet packages that bundle the SuperQuad quadruple speed CD-ROM drive with either TEAC-STOR removable IDE hard disk or 3.5-inch floppy disk drives.

The SuperQuad features a data transfer rate of 600 KBps and an access time of 195 ms. Key benefits are: smooth motion video, fast data retrieval and easy of system integration.

The first Multimedia Duet package bundles a TEAC-STOR removable IDE hard disk drive kit with the SuperQuad. The STOR drives offer 540 MB of storage capacity.

The second package bundles the SuperQuad with a TEAC FD05 series .5-inch-high micro floppy disk drive. These are available in 720 KB and 1.44 MB formatted capacities with standard floppy interface.

Price for the 4X CD/FDD Model CD-505 Duet is $750. Price for the 4X CD/HDD Duet is $1,499 for 540 MB.

Contact TEAC America, 7733 Telegraph Rd., Montebello, CA 90640; (213) 726-0303.

Circle 370 on reader card

Xylogics Announces MicroANNEX NCS

Xylogics Inc. announced the MicroANNEX NCS, a dual-port remote networking server for NetWare users that combines dial-in, shared dial-out and dial-up routing capabilities in a single communications server.

The MicroANNEX NCS includes FASTLINK software, which allows remote users to dial in over standard phone lines, connect to a Novell network and work as if they were in the office. The remote computer becomes a node on the network with access to all the network resources. The MicroANNEX NCS also supports remote control packages such as LAN Assist and pcANYWHERE V4.5.

It includes a standalone hardware unit (with or without an internal v.32bis modem), FASTLINK client software and Fastconfig administrative software. It supports Novell NetWare and Microsoft Windows 3.1, connects to Ethernet (AUI, BNC, TWP) configurations and supports user-supplied modems with speed up to 57.6 Kbps. It also is available in a Token Ring configuration.

Price is $995.

Contact Xylogics, 53 Third Ave., Burlington, MA 01803; (617) 272-8140.

Circle 372 on reader card

Boca Research Extends Ethernet Adapter Line

Boca Research Inc. announced two high-performance ISA Ethernet interface cards. Featuring Intel plug-and-play compatibility, the cards are based on the AMD PCnet ISA Plus chipset, a highly integrated one-chip solution including high performance software drives for all popular network operating systems. The products feature bus master technology providing faster, more efficient data transfers with less CPU use.

Both adapters ship with network support for Novell 3.x and 4.x server drivers, Novell ODI Client (DOS and OS/2), Packet Drivers, PCNFS, Microsoft Windows NT (NDIS 3.0) and Windows For Workgroups 3.1 and 3.11, Microsoft LAN manager, Personal NetWare, IBM LAN Server, Banyan Vines and Artisoft LANtastic/AI. The cards are compliant with IEEE 802.3 and 802.2 LANs.

Providing an RJ-45 jack for connection to 10BaseT LANs as well as a BNC connector for 10Base2 networks, the BOCALANcard Combo (Product BEN120) costs $89. Available in twisted pair configuration, the BOCALANcard TP (Product BEN110) costs $79.

Contact Boca Research Inc., 6413 Congress Ave., Boca Raton, FL 33487; (407) 997-6227.

Circle 369 on reader card

Tribe Offers Cross-Platform Remote Network Server

Tribe Computer Works announced TribeLink which gives Macintosh, PC and

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UNIX users eight ports of high-speed access to AppleTalk and TCP/IP networks over standard phone lines. Based on Point-to-Point Protocol (PPP), TribeLink offers powerful security features, SNMP management and easy use of existing modems.

Four Zilog Z8 microprocessors handle serial I/O duties leaving the Motorola 68340 CPU free to handle protocol processing. This allows eight simultaneous dial-in sessions (at speeds up to 57.6 Kbps) with no performance degradation.

Both the Challenge Handshake Authentication Protocol (CHAP) and the Password Authentication Protocol (PAP) are standard, preventing unauthorized users from accessing the network. LinkTracer, TribeLink's included management software, shows who is currently connected to the server and allows the administrator to disconnect a user.

TribeLink costs $1,995.

Contact Tribe Computer Works, 960 Atlantic Ave., Ste. 101, Alameda, CA 94501; (510) 814-3900.

Circle 361 on reader card

Philips LMS Announces CDD522

Philips Laser Magnetic Storage (LMS) introduced their second generation Philips CD Recorder, the CDD522.

The upgradeable cache buffer (2 MB standard, upgradeable to 8 MB or 32 MB) eliminates the need for hard disk caching on every PC platform.

"Orange Book" standards are guaranteed with the CDD522. It records and plays back at double or single speeds for all CD formats, including CD-ROM, CD-ROM(XA), CD-I, CD-Audio, CD-Bridge Multisession, CD-Video and Photo CD.

The CDD522 costs $3,899.

Contact Philips LMS, 4425 Arrowswest Dr., Colorado Springs, CO 80907; (719) 593-7900.

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Box Hill Introduces Mod Box 500

Box Hill Systems Corp. introduced Mod Box 5000 a modular data storage and backup module that is easy to configure and maintain, hot-swappable and fault-tolerant.

Each Mod Box 5000 can house a variety of components including: disk, tape or optical drives, and auto-loading tape media changers.

Modules feature independent power supplies and cooling fans. With an intelligent front-panel display, modules are easy to configure and maintain. Interlocking legs are designed for quick horizontal or vertical set-up. The Mod Box 5000 can mount in any 19- or 24-inch rack or sit on a desktop.

The Mod Box 5000 is fully compatible with the following UNIX client-server platforms: HP 9000 Series 700/800, Sun, IBM RS/6000, SGI, NEC, DEC Alpha and Cray CS6400, as well as Novell networks.

Contact Box Hill Systems Corp., 161 Ave. of the Americas, New York, NY 10013; (212) 989-4455.

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TD Systems Provides Omniserve 3

TD Systems announced a new SCSI server offering, the Omniserve 3 which features SCSI-3 Fast and Wide synchronous data transfers to 20 Mbps.

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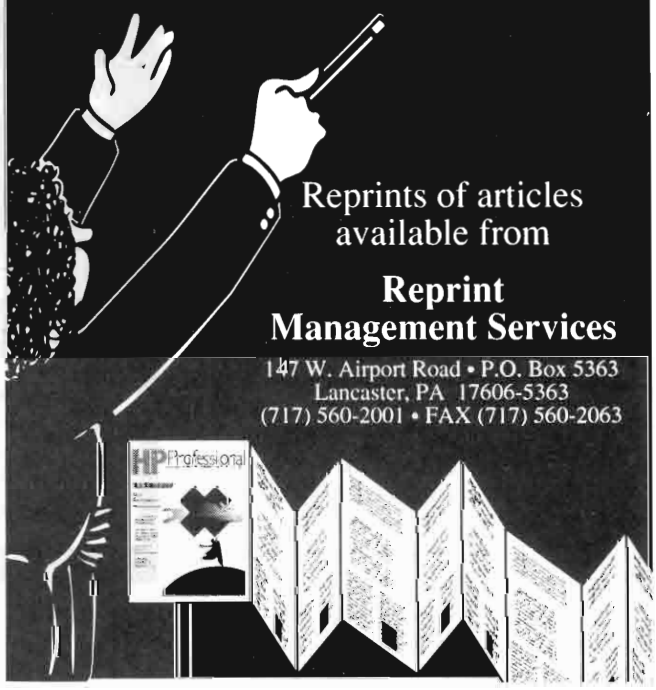

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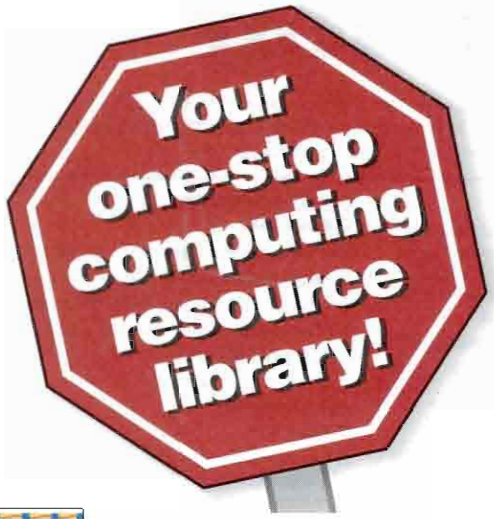

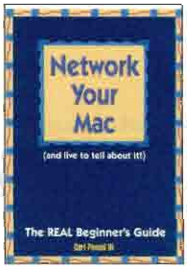

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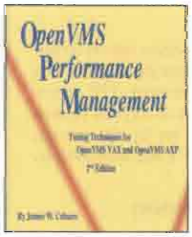

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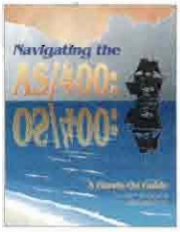

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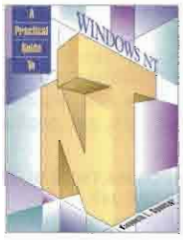

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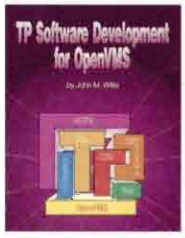

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The basic Omniserve has an integral 80 character alphanumeric LCD that displays self-test results on power-up, then switches to display current configuration and status information.

Also, each SCSI port (up to seven), single-ended or differential, is contained on an individual adapter board that mounts within the base unit.

The Omniserve is available in two flavors: the "sharing" models including SH, LX, AB and VT; the RAID-1 Disk Mirror models include MX and DR versions.

Contact TD Systems, 24 Payton St., Lowell, MA 01852; (508) 937-9465.

Circle 357 on reader card

T3plus Connects Remote LAN Users

T3plus announced BMX45 Broadband Bandwidth Manager LAN interface which allows companies to connect LAN users in a metropolitan area or across the nation at full 10 Mbps Ethernet data rates.

The new LAN interface module, combined with the BMX45's Multimegabit Inverse Multiplexing (MIM) capability, can be used to support LAN users high-bandwidth applications such as client-server computing over discrete T1 links.

Users can take advantage of selectable bandwidth increments of 1.544 Mbps (T1) to 10.5 Mbps (7 T1s) for heavy LAN communications, or combine LAN with voice and image communications using multiple T1 lines or a 45 Mbps T3 link.

The T3plus Ethernet interface module cost $1,740. The module also is available with the MIM module in two bundles: an entry-level configuration of 1 LAN user port, 7 T1 trunks and a channelized T3 trunk port which starts at $18,000; and a mid-level configuration of 1 LAN user port, 14 T1 user ports and a nonchannelized T3 trunk port which starts at $24,000.

Contact T3plus Networking Inc., 3393 Octavius Dr., Santa Clara, CA 95054; (408) 727-4545.

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Imperial Technology Announces MegaCache

Imperial Technology announced MegaCache, a high-capacity, multidisk caching system that improves performance on an entire string of disk drives. With MegaCache, it is not necessary to identify and isolate hot files. Any active file, anywhere on the disk string is automatically transferred to high-speed cache.

MegaCache is an in-line, string-level cache system that is totally transparent to the host computer system and provides a central high capacity cache for the entire string of disk drives. It features a 0.1 ms access time for both cached read and cached write operations. With MegaCache, the system operator is not forced to buy separate caching units for each disk drive or to constantly move the most active files to a cached drive.

MegaCache stores the "hot" data blocks from up to seven SCSI disks simultaneously. It can be configured to cache only read operations, or to cache both read and write operations.

Prices start at under $18,000 for a 134 MB system.

Contact Imperial Technology, 2305 Utah Ave., El Segundo, CA 90245; (310) 536-0018.

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Who's Driving This Bus Anyway?

Knowing Your Final Destination Can Help You Choose A Vendor Strategy

By Gordon McLachlan

The movie *Speed* has a Los Angeles bus with a bomb on board, set to explode when the bus' speed drops below 50 miles per hour. Of course, things get pretty hairy, but better to die trying than to slow down and get blown up, right?

That same philosophy seems to appeal to product planners across the industry. Nobody seems to know where they're going or how they're going to get there, but they'll be damned if they're going to slow down for anything. Customers expect progress, so you have to look like you're going somewhere, even if you don't have a clue.

Nobody seems to know where they're going or how they're going to get there, but they'll be damned if they're going to slow down for anything.

Remember when we used to complain about vaporware, before it became enshrined as a product-planning art form? But even when a vendor announces a product well before its release date, you could eventually count on something that vaguely resembled the pre-announced product.

Now we're well into an era of vapor strategy. Vendors start talking about strategic directions before products are even on the drawing board. But, invariably something comes up and all of a sudden the bus is lurching off in a new direction and all we can do is hold on.

Take HP's server strategy for instance. First we started heading toward LAN Manager. Oops. Wrong turn. Back to TCP/IP, but that's where we were. How about DCE? NetWare? That's where we should have headed in the first place, but it's a dirt road. So back to TCP/IP again, but maybe we can go to NT and LAN Manager if the passengers demand it. Didn't we just go by here?

And it's certainly not just HP's problem. As I'm writing this, I'm on Digital's bus, desperately trying to get where I'm supposed to be. One of my customers bought an Intel-based UNIX machine from Digital a year and a half ago, largely because it was upgradeable to multiple processors with plenty of memory.

Now that they're ready to upgrade, we find that Digital has just walked away from it. So, we're forced to buy upgrades from field engineering stores at exorbitant prices, or else. Not only did the bus break down, they expect us to pay to fix it as well.

IBM's E-mail strategy is another provoking issue. First IBM sold mainframe-based OfficeVision with promises of a LAN-based version. Then that bus broke down, and they started pitching Lotus' cc:Mail. But they weren't getting the fares from that route. So now that they've supposedly fixed OfficeVision, they want us to transfer again.

Object-orientation is the next big destination. Now we get to climb aboard another bus headed toward CORBA, NeXTStep, Taligent and other destinations yet unknown. Maybe they'll let Bill Gates drive again, and we'll get to go to Cairo.

But at least HP appreciates safety, so enter the next generation do-all, be-all chip from the HP/Intel joint venture. It's a PC, it's a workstation, it's a mainframe and it's supposed to go anywhere.

HP may not know where that bus is headed, or how fast, but they do know that if they want to get it there in one piece, they're going to need flexible bumpers on the thing. Just pray they don't hit anything really big.

Afraid you can't get off the bus? Unfortunately, the sign says "Don't bother the driver."

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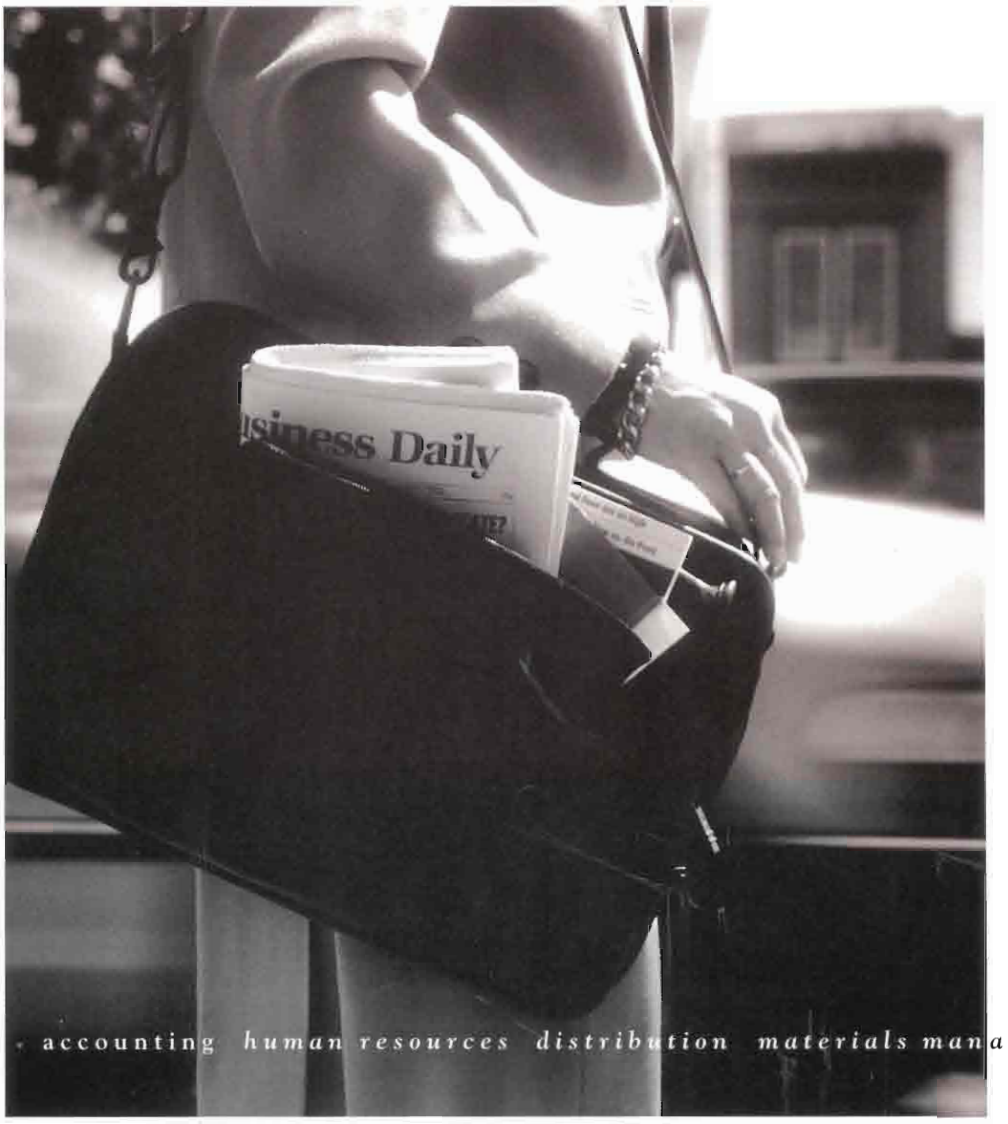

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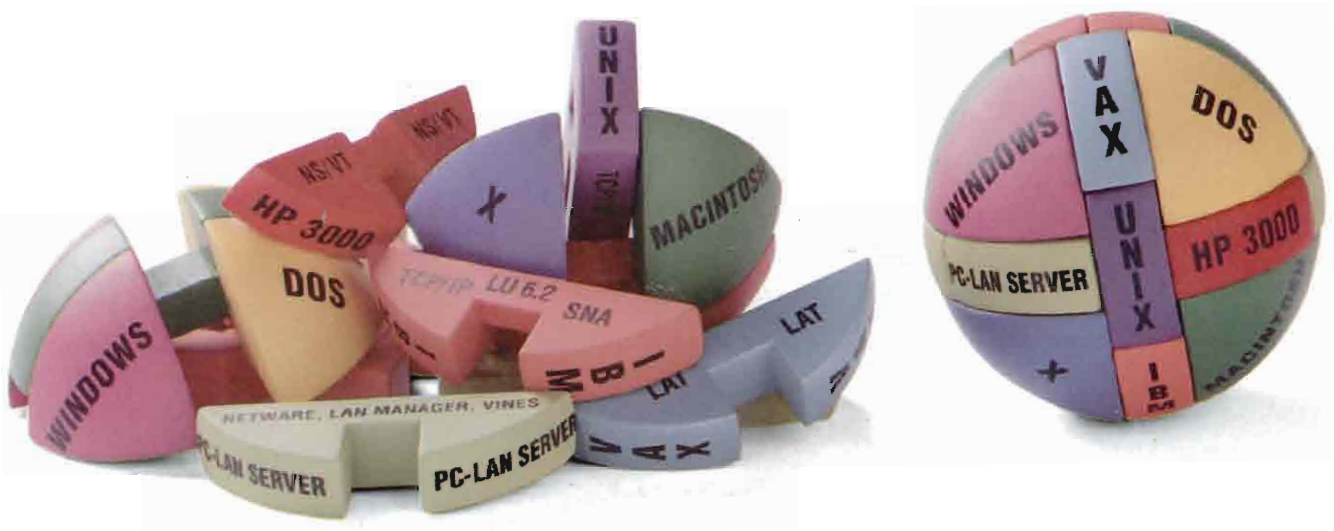

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