The Magazine For Hewlett-Packard Enterprise Computing

HP Professional

JULY 1994

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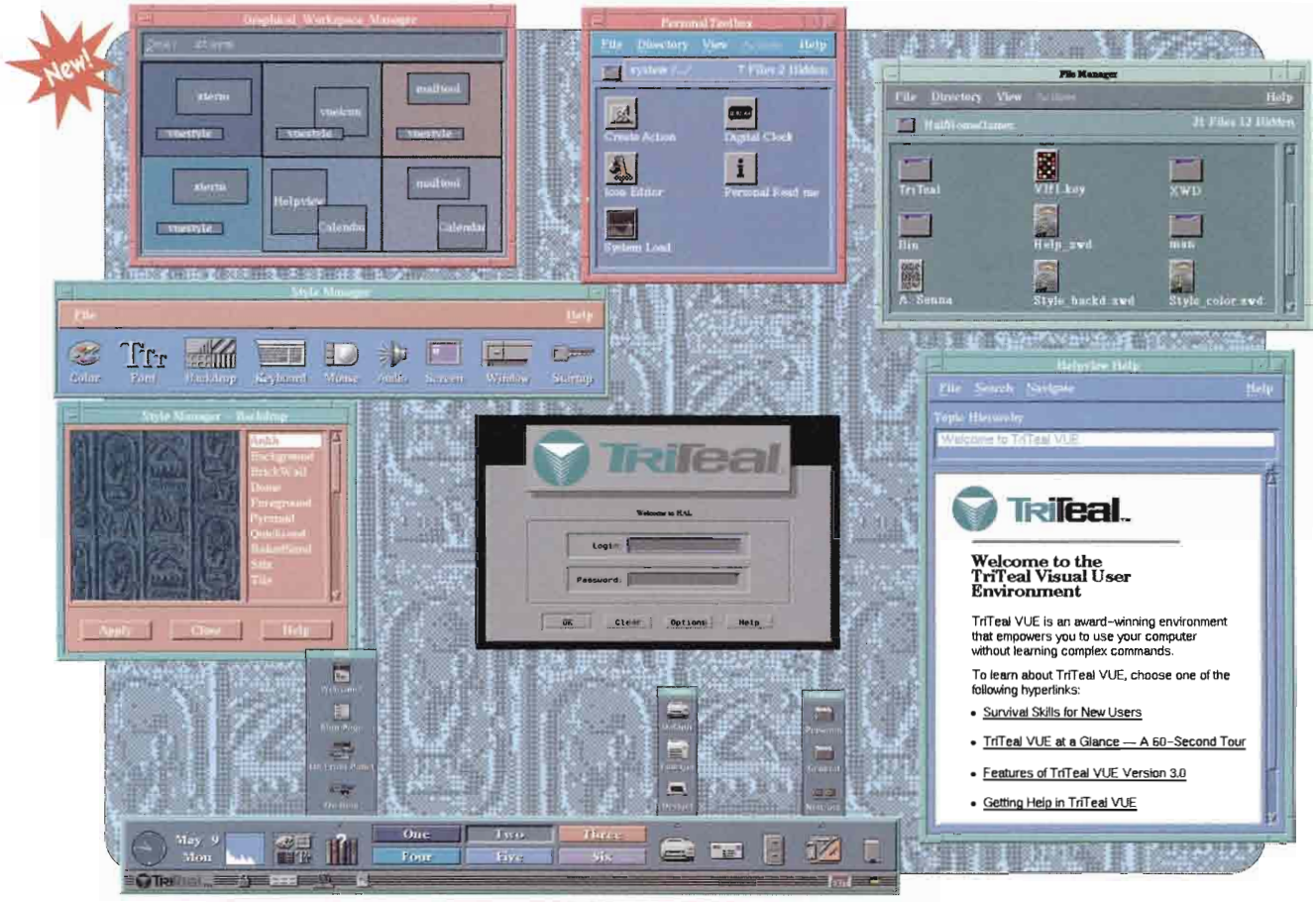

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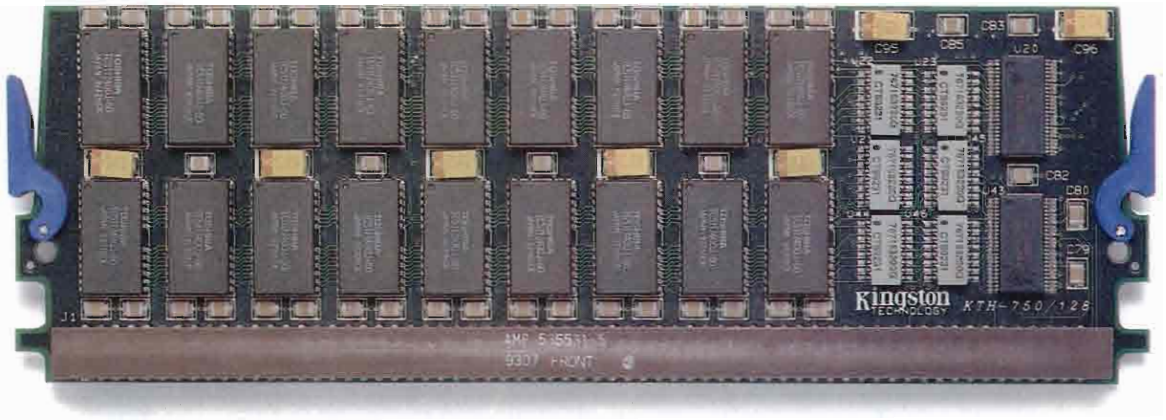

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CIRCLE 281 ON READER CARD

Contents

July 1994

Vol. 8, No. 7

Remote Possibilities

By George A. Thompson

28

Part two of a two-part series on mobile computing, looks at the various kinds of wireless technologies available for professionals on the move.

What's All The Hub-Bub, Bub

By Bill Sharp

36

Today, the need for information exchange goes over office partitions, through building walls and across international borders. Internetworking guarantees no LAN remains an isLANd.

Nothing More Than Memory

By Lynn Haber

44

Glamorous? Hardly. Necessary? Always. Memory remains a key decision for system purchases and upgrades. What's available today and what's the cost?

COLUMNS

UNIX: ODBC: Not Just For Windows
By Miles B. Kehoe
Microsoft's Open Database Connectivity Standard Is More Than Just Window Dressing. **48**

Managing Your HP 3000: The Year Of The OS At HP
By John P. Burke
Major Upgrades Of MPE/V And MPE/iX Hit The Streets For HP 3000 Users. **52**

And Another Thing: Think Again Comrade
By Gordon McLachlan
The Laws Of Supply And Demand Should Be Followed By IS. **72**

Editorial 7

Letters To The Editor 14

Industry Watch 8

INsites 24

New Products 54

Reader Information 65

Product Showcase 68

Career Opportunities 70

Advertiser Index 71

PRODUCT WATCH:

Graphic Data Systems Corp.'s GDS 16

Trinzic Corp.'s InfoPump ... 18

STRATEGIC DIRECTIONS:

Software Clearing House Inc. 20

Insignia Solutions Inc. 22

HP Professional

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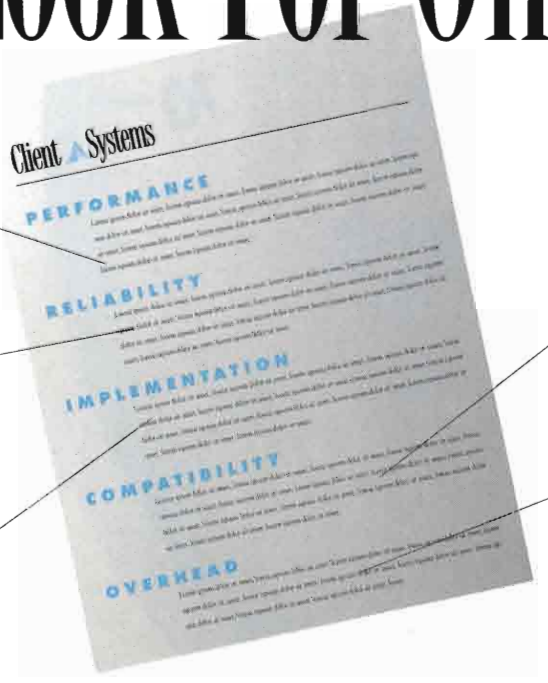

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CIRCLE 479 ON READER CARD

Takin' Care Of Business

In Today's World Of Hype, No News Is Truly Good News

By Charlie Simpson

A friend, and even bigger cynic than myself, once told me that nothing monumental has happened in the computer industry in the last year. Not only that, but nothing would happen in the computer industry for the next two to three years. No breakthroughs, no revolutions, no coveted paradigms — in other words no news.

This theory was shared with me, on the train on my way to what promised to be *the* event of last year — the COSE API announcement. I'm sure you remember that I poo-pooed that announcement a year ago. And now, I'm getting ready to poo-poo the industry. Nothing's happening. At least nothing big.

Last month, HP piqued my curiosity when they jubilantly called me early that humid morning to tell me that HP and Intel were unveiling a "BIG announcement." So at lunchtime (with hoagie in hand), I dialed in, hoping to find something to write about. Aaaaaaaaaint ... Sorry sir, you reached the COSE rerun.

The announcement wasn't an announcement at all. It was merely a friendly little chat about the "direction" the two firms were taking. No products, no plans, no pieces of information about who is doing what. It seems HP and Intel were thinking of becoming buds, while still remaining competitors.

So now what do I write about? I racked my brain, and a few of those around me, for a BIG topic and found none.

Then I realized that all the action in the computer industry was in the LITTLE, not the BIG things. Now, this is what I've been waiting for: Vendors and developers finally believe that there now exists enough high tech to keep some engineers, designers and implementors busy, at least for a little while, improving and actually finding practical uses for existing computer technologies.

Applications that help make day-to-day living easier, educational and interesting. I'm ecstatic.

For example, engineers at a small firm in Hackensack, N.J. called International Discount Telecommunications are providing access to E-mail for blind and dyslexic individuals. And, in Warminster, Pa. another small firm is delivering the Internet to those who don't even have access to, let alone own, a computer.

And although I'm personally sick of the phrase "Information Superhighway," I'm happy to see it appearing in the mainstream media, from medical journals to my local newspaper, describing applications everyone can take advantage of, in terms that everyone can understand and appreciate.

So no complaints here. Keep up the good work. Or as the saying goes, take care of the little things, and the big things will take care of themselves.

Charlie Simpson

Three From HP

Recently HP has returned to a market it once ruled — embedded systems. Offering a stripped down version of your computer that another vendor can stuff into their product was a natural for HP during the heyday of the HP 1000 and some of the smaller technical computers. When HP's growing computer business was lured toward larger commercial markets over the past eight years, other vendors took over most of HP's market share in embedded systems.

Kevin Spooner, HP's program manager for embedded board systems, says HP has been slowly gaining momentum in this market over the past three years. "Now, we're growing faster than the rest of the market. We're back in the top 10 embedded systems vendors," he says.

The reason for the change in fortunes lately is last month's announcement of the HP 9000 Model 743, a full-function HP PA-RISC workstation, including graphics on a single board. This is a VMEbus, single-board computer (SBC) with full workstation functionality for $4,355. The SBC includes VME64, mezzanine-card and graphics expansion capabilities.

This HP 9000 Series 700 workstation version is designed for systems integrators and original equipment manufacturers (OEMs) providing data-acquisition and real-time, turn-key systems for the aerospace/defense, manufacturing, telecommunications and research/medical industries. The system is available with a ruggedized enclosure.

Separate versions support the HP-UX Version 9.05 flavor of UNIX or the HP-RT real time operating systems. The HP-UX version is binary compatible with the HP 9000 Series 700 workstation products. A 64 MHz version of the board delivers 67 SPECint92 and 99 SPECfp92, while the 100 MHz version delivers 101 SPECint92 and 139 SPECfp92. HP claims the board system delivers 30 percent to 40 percent better performance than its nearest price/performance competitor, Digital's AXPVME 160 SBC.

The HP 9000 Model 743i base price is $4,355. With 16 MB RAM and a 15-inch color monitor, price is $7,254; and with 32 MB RAM and a 20-inch color monitor, price is $18,325. HP-UX versions are available immediately. HP-RT versions will be available in the second half of 1994, according to HP.

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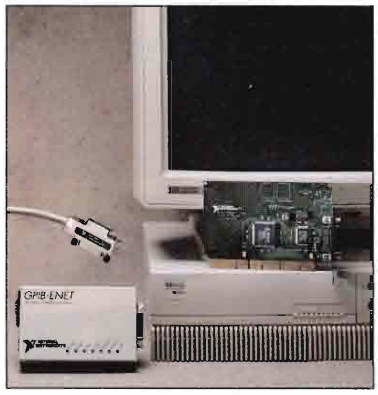

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CIRCLE 244 ON READER CARD

ALLBASE/SQL now boasts a five-year cost of ownership that is 50 percent to 80 percent below those of competing RDBMS solutions.

products, HP chose instead to run its product only on HP gear, and tune the software for peak performance and low cost of ownership.

The result is that ALLBASE/SQL now boasts a five-year cost of ownership that is 50 percent to 80 percent below those of competing RDBMS solutions. And with the hottest computer lineup in the industry right now, HP doesn't seem to be having trouble getting people to opt for its hardware.

Not wanting to sit around gloating, HP is polishing up its products to garner more converts and make existing users happier. Version G.0 provides support for Microsoft's ODBC API to allow users to develop database-independent client-server applications. The API also allows ALLBASE/SQL users to use Windows-based products to integrate data with other ODBC-compliant databases. HP had previously bundled the Gupta API with ALLBASE; now the product includes both APIs at no additional cost.

ALLBASE now includes BLOB support and by fall will support Progress' 4GL. Both help leverage application investments. Partial roll-forward recovery now speeds database recovery by allowing users to recover only a selected portion of a database for faster response. The move to 24 x 7 worldwide support is now part of HP's ALLBASE/SQL support service, which according to HP averages less than $50 per month. Low support cost is a key component in HP's attractive five-year cost-of-ownership numbers.

HP 3000 INTEGRATORS PROGRAM LAUNCHED

HP, this month, made formal a practice that has been growing on a de facto basis for some time — allowing systems integrators to replace HP sales people for small- and medium-size customers. In times of steadily decreasing hardware margins, HP sought to cut sales costs for the HP 3000, while somehow supporting its customer base.

Under the new program, HP named 17 systems integrators in the United States that have proven experience in developing HP 3000 client-server systems. These firms will in effect become the first line of contact for HP 3000 customers at smaller firms.

Some observers worried that the new program would insert another level of confusion into the sales process, alienating customers and creating new problems. HP's intent is to provide more responsive service and reduce its sales costs.

The two-tier distributor, Client-Systems Inc. (Englewood, Colo.) provides the client-server hardware and software solutions that the regional systems integrators will use to implement client-server technology on the HP 3000 systems.

Regional systems integrators named to the program by HP include: Cypress Systems Ltd. (Manchester, Mo.), Data Based Systems (Flemington, N.J.), Design Automation (Houston, Texas), Ferrell Companies (Lakewood, Colo.), Hawthorne Computer Center (Portland, Ore.), Infoworld (Mentor, Ohio), Innovative Information Systems Inc. (IISI; Norwood, Mass.), Innovative Solutions (Torrance, Calif.), Kelly Computer (Mountain View, Calif.), Lilien Systems (Mill Valley, Calif.), Orion Group (South Bend, Ind.), Perfect Software Solutions Inc. (Garden City Park, N.Y.), Productive Software Systems Inc. (Buffalo Grove, Ill.), SPS (Rockville, Md.), The Apex Group (Columbia, Md.) and Votaw Data Systems Division (Fullerton, Calif.)

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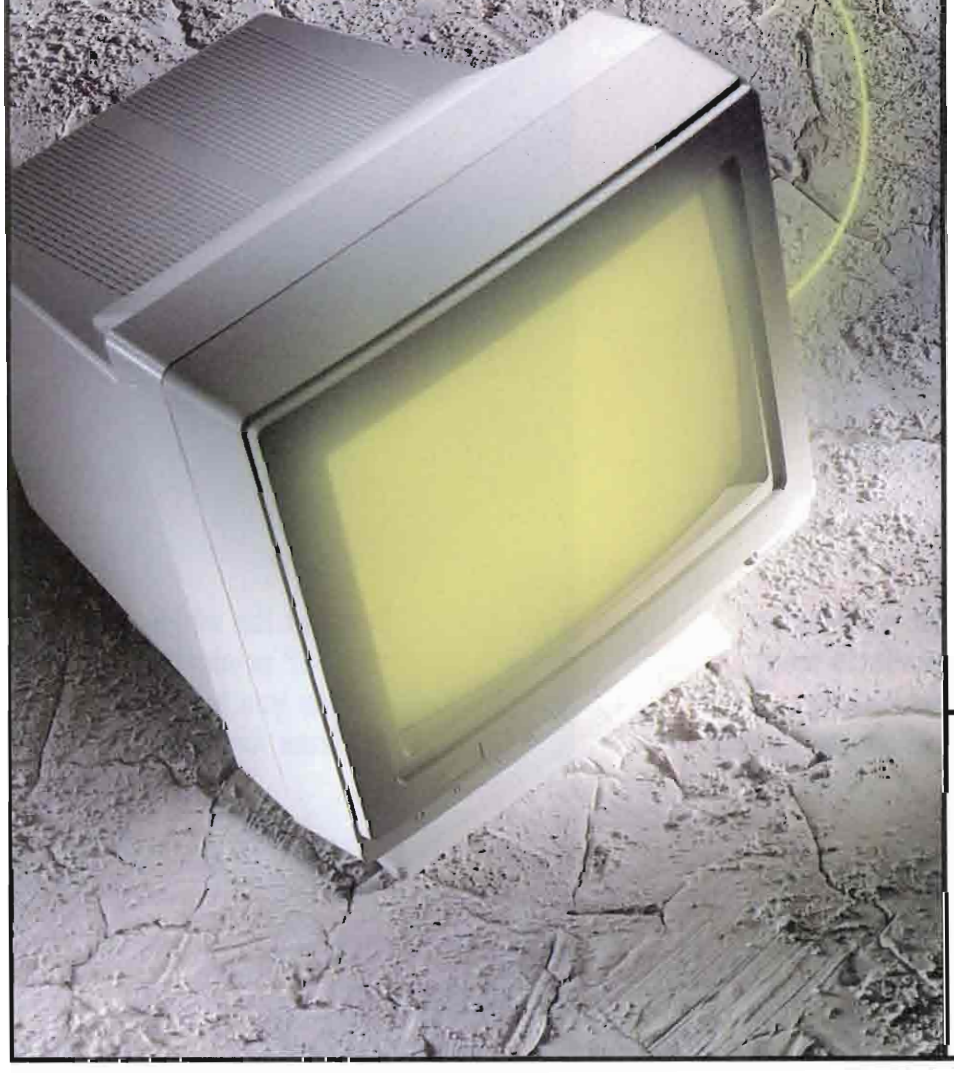

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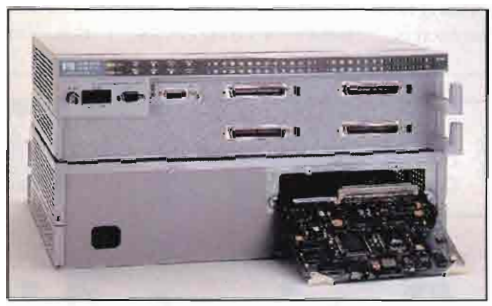

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CIRCLE 129 ON READER CARD

RADical Responses

In "Get RADical" [from the May 1994 issue], George Thompson includes the following constructions in the first four paragraphs: "sounding like a siren's call," "shell-shocked IS managers," "a Sisyphean struggle," "a completely futilitarian exercise," "software knitting circles of the computing cognoscente," "feeding frenzy is just the beginning," "to separate fact from factoid" and "popular delusions and the madness of the trade."

This is writing so bad that it beggars description. You do a disservice to the technical community and yourselves when you publish a stream of mind-numbing cliches like this and pretend that it is a technical article.

Stephen Porterfield
Software Developer
Walnut Creek, Calif.

What we do here requires a certain way with words. It's part of my job, year in and year out, to turn a phrase or write a wrong. Although I try to mind my Ps and Qs, my policy has always been to live and learn — to turn swords into ploughshares so to speak. So, I'll try to knuckle down and not add more fuel to the fire. In other words, I'm setting out for the straight and narrow. —GT

ISO 9000 Certification

I read [Gordon McLachlan's] And Another Thing... column in the May 1994 issue. Interesting reading. My only question is: Is he a Rush fan?

Andy Van Fossen
Ohio State University

Actually the editorial staff are the Rush fans, at least when we need a title. — HP Pro Staff

Software Configuration Management

I saw Richard Riehle's article on SCM in the April 1994 issue, which I enjoyed. In the article, he briefly mentioned aspects of 3GL and object-oriented configuration management. I am responsible at HP for various aspects of SoftBench (a CASE environment) including configuration management. We have a variety of SCM mechanisms currently, but are migrating SoftBench to distributed object development. I was wondering if he has thoughts about object-oriented configuration management in more depth.

I would be very interested in any thoughts or pointers to other articles or research.

Tim Mikkelsen
Open Integration
Product Team Manager
Software Engineering Systems Division
Hewlett-Packard

Be sure to look for more Objectively Speaking columns on this topic in upcoming issues of HP Professional.

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) 643-8099. Internet address for staff listed on the masthead: LASTNAME @ CARDINAL.COM

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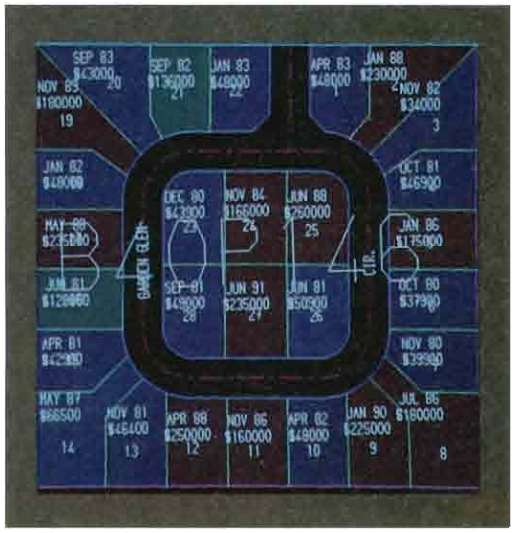
Graphic Data Systems Creates The Model Map



GDS

- Feature-based data model
- Models 2D and 3D graphics
- Runs on HP-UX, DEC,Open VMS and Sun Solaris 2

Graphic Data Systems Corp.

13736 Riverport Dr.
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tel: (800) GDS-4491
fax: (314) 344-8429

CIRCLE 354 ON READER CARD

Converting maps to a digital format can be a taxing undertaking, but it doesn't have to be that way. After a two-day benchmark testing period which looked at the ability of a Geographic Information System (GIS) to identify areas on a map and to answer detailed queries about specific parcels of land, Jack Gordon, data processing manager at the Tulsa County Assessors Office (Tulsa, Okla.), chose Graphic Data Systems Corp.'s (Maryland Heights, Mo.) GDS. Gordon selected GDS over Intergraph Corp.'s Intergraph and Environmental System Research Institute's ARC/INFO.

According to Gordon, "based on the benchmark results that we established, [GDS] performed better than the other two products. In fact, after the benchmark was finished, they were the only vendor that completed the benchmark successfully."

GDS' power comes from it's feature-based data model that stores and retrieves graphic features and tabular data. GDS stores features once, so subsequent occurrences refer to the original. Layer-based data models usually store features as part of a layer and create multiple copies of the same feature.

GDS can be configured as a standalone workstation or in a client-server environment. It can be easily integrated into existing or planned computing environments. They currently are running GDS on seven HP 9000 Model 710s and 720s, as well as six X terminals.

GDS provides data security by assigning dataset read and write access privileges to each user. Duplicate datasets and separate systems are eliminated because GDS combines GIS, Automated Mapping and Facilities Management and Computer Aided Design and Drafting into one product.

Libraries containing menus, symbols, line styles and character styles are provided with the system and can be modified. You can create macros to simplify common or repetitive tasks. Gordon used GDS and worked with PlanGraphics (Frankfurt, Ken.) to create a specific application.

The GDS customization language is used to build custom applications and integrates with FORTRAN, PASCAL and C++. Sophisticated applications can be created by combining the feature-based data model with the customization tools.

GDS models 2D and 3D graphics; uses double precision data definition resulting in precise representation of geographic features; allows for distributed, multi-jurisdictional and multiuser access to the same geographic region; enables sharing through data and graphic translators; and provides fully interactive integrated COGO functionality, allowing precision input of coordinate geometry data.

GDS interfaces with several SQL-based RDBMSs including Oracle, DB2, Rdb, Informix, Ingres and Sybase. Through a live, two-way integration, you can retrieve or update the RDBMS with graphic operations. Graphics may be updated through an RDBMS session. GDS uses all RDBMS functions such as data dictionary, report generation and business graphics applications.

GDS runs on HP-UX, DEC Open VMS and Sun Solaris 2. Networks supported include DEC*Net, TCP/IP, mainframe access via SNA gateways and Token Ring.

— Deborah Schwartz, Assistant Editor

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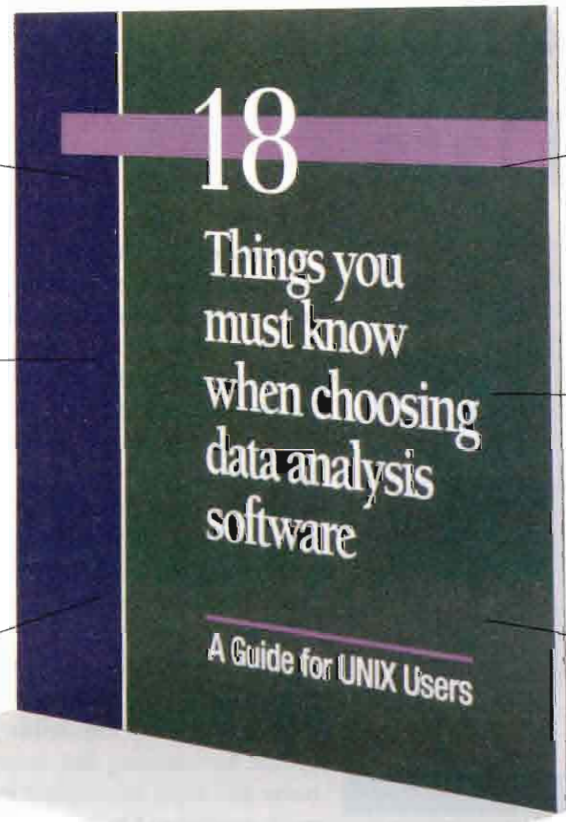

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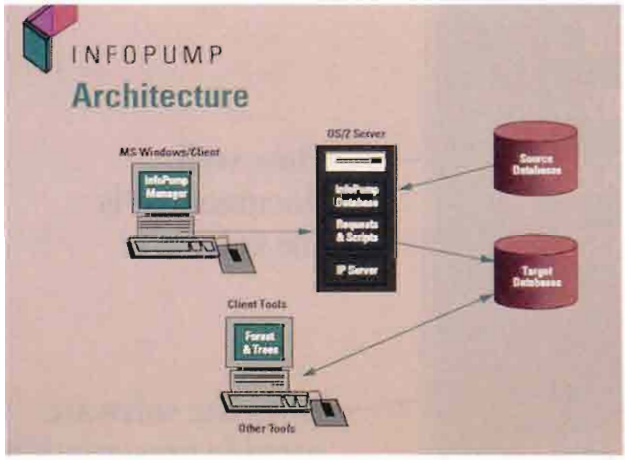

INFOPUMP

- Ability to stage and synchronize data on a scheduled or event-driven basis
- Requests can be routed to single or multiple destinations
- OS/2 Server license costs $25,000

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CIRCLE 355 ON READER CARD

InfoPump from Trinzic Corp. (Waltham, Mass.) is a server-based data agent for moving, replicating, synchronizing, transforming and integrating data to and from multiple databases.

InfoPump simplifies data movement and the development of data routing applications that manage data staging, rightsizing and data synchronizing. With InfoPump you can automatically move and manipulate data to and from databases on a scheduled or event-driven basis.

When used for data staging, InfoPump performs necessary table joins and expands the data for a more complete and understandable result set. Data is more user-friendly, access to host data is faster and less expensive, and end-user reliance on IS staff is reduced. InfoPump also improves the performance of front-end tools and host systems by eliminating redundant queries — data is extracted from the host once, then delivered to all interested users. Furthermore, you can build on your existing legacy systems with the InfoPump scheduler automating data downloads and extracts.

Developing data routing applications with InfoPump is straight forward. First, define a profile by entering the server name and login information for each database. Then create a simple request to move data from a source to a destination using the native language of the source profile to describe the data. Next, generate the InfoPump scripting language and modify it to customize the application. Finally, test and validate the application using the rest of InfoPump's development environment.

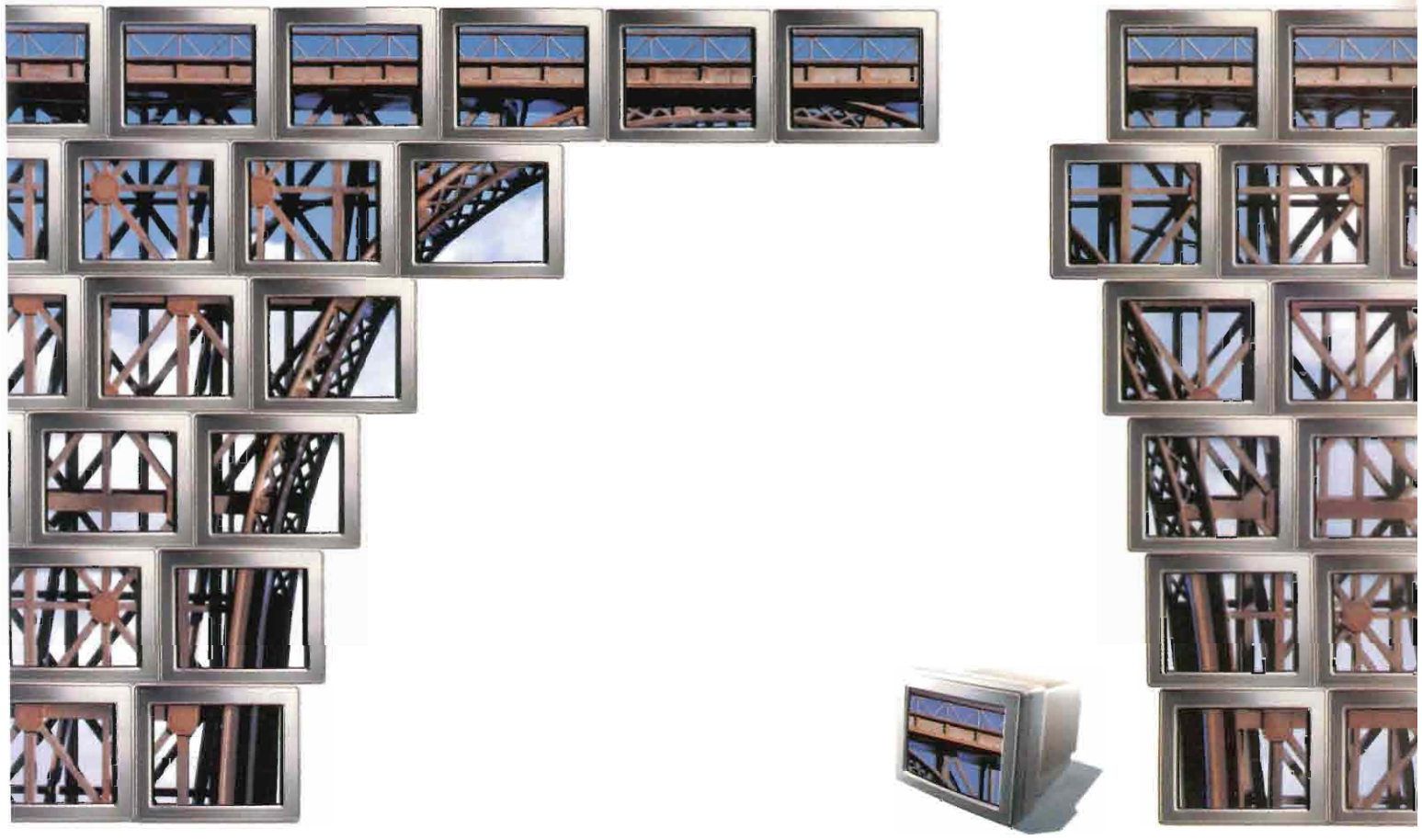
InfoPump has several main components, including InfoPump Manager, a Microsoft Windows-based development environment used to define, build and debug data routing requests, monitor server activity and administer user access.

Simple routing requests move data from a single source to a single destination, while scripted requests provide instructions for moving data between multiple data sources and destinations, as well as manipulating the data en route. Scripted requests are generated automatically and can be edited and expanded using the InfoPump BASIC-like Script Language, offering a set of built-in functions that eliminate low-level database-specific APIs. The InfoPump Manager environment also includes a p-code compiler, static testing facility, interactive debugger, global variables, execution and error logs.

The InfoPump Server is the actual data pump, sitting between the internal database and the source and destination databases. Result sets from multiple sources can be combined and manipulated before being moved to the target database. The InfoPump Database Interfaces manage all database-specific activity from logons to data transformations. InfoPump supports most databases including Oracle, Sybase, SQL Server, Lotus Notes, DB2/2, SQLBase, NetWare SQL, DB2 and ASCII files.

InfoPump requires an OS/2-capable server and a 386 or higher PC. It will be available for UNIX and Windows NT servers in the fall. An OS/2 Server license for InfoPump is $25,000.

—John P. Burke, HP 3000 Editor



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As You Like It

Software Clearing House Provides Customized Solutions With "Best Of Breed" Products

"We think of ourselves as knowledge brokers. We stay on top of both the products and services people are looking for, and the hottest solutions currently available in the marketplace."

Edward Bauer
President/CEO
Software Clearing House Inc.

"We think of ourselves as knowledge brokers," says Ed Bauer, president of Software Clearing House Inc. (SCH; Cincinnati, Ohio). "We stay on top of both the products and services people are looking for, and the best and hottest solutions currently available in the marketplace."

Founded in 1979, SCH has taken a "distributed development" approach to new product development. This means discovering emerging technology, working with the developer, typically a small independent operation with focused expertise and interests, and then bringing the new product to market. The strategy has been to avoid imposing a rigid architecture on its products. Rather, it has followed a flexible path toward evolving industry standards, offering its customers a mix of what Bauer calls "best of breed" products.

"We employ a consultative sales methodology, an information-based relationship with our customers," Bauer says. "In our conversations with customers we pick up information on what they are looking for and use that to keep our developer associates up to date."

Attention to customers' interests led SCH, in 1989, to shift its primary focus from products for the Unisys and AT&T/NCR proprietary market to the UNIX and open systems market. This year, according to Bauer, over 62 percent of the company's revenues will be UNIX-based. "Our customers told us UNIX offered them an opportunity, but they didn't see a good solution — either a provider or a software solution."

SCH products now support most major UNIX platforms, including HP 9000s. "HP is one of the primary platforms on which just about every one of our products is available, " Bauer says. "If you look at a profile of the SCH-UNIX customer, typically the common denominator is HP."

Because of SCH's strategy, the company offers horizontal UNIX products that are not tied to specific industries. The product mix is concentrated in four main areas: integrated office automation, connectivity, distributed systems management and network management.

SCH markets the Uniplex office automation package; OS/EYE*NODE, a network management tool, built on SNMP and OSI network management standards; and the SCH: Systems Administration Manager (SCH: SAM) application suite, an integrated system management environment for UNIX systems.

The REEL Manager package, built around the REEL-librarian tape library management system, provides enterprise-wide tape management, including network backup, distributed tape access, drivers for StorageTek Automated Cartridge Library Systems and legacy tape format conversion.

Bauer says, "People who are replacing mainframe installations with UNIX boxes have tape needs beyond simple backup and recovery. REEL Manager will handle whatever those needs are, be it interim storage, backup or data transfer in and out of a data center. There is nothing else available that does the same thing."

Daniel Raymond, MIS director at University of Montreal, discovered this when the University decided to migrate finance, payroll and personnel data from a Control Data mainframe to HP 9000 Series 800 servers. Eighteen months into the migration and still running the Control Data and HP systems in parallel, Raymond bought REEL-librarian.

There have been some bugs, Raymond says, but "If we didn't have that product, we would have had to move the files from the UNIX environment to the old mainframe environment and use the Control Data tape subsystem. We didn't want that. We wanted to have all the operations working on the UNIX system. So it was important that the system be up and running rapidly. Without REELlibrarian, we were stuck."

—Sam Dickey,
Contributing Editor

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CIRCLE 263 ON READER CARD

Often Emulated, Never Duplicated

Insignia Proves That Windows Emulation Does Get You Somewhere

"We'll support the next major release of Windows. We need to bring our solution into the daily lives of users."

Robert Lee
Chief Executive Officer
Insignia Solutions Inc.

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Mountain View, CA 94043
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CIRCLE 351 ON READER CARD

In the computer industry, it's emulation not imitation, that's the sincerest form of flattery. No sooner than SunSelect (Chelmsford, Mass.) announced its Windows Application Binary Interface (WABI) in April 1992, Microsoft announced that it licensed its Windows API source code to Insignia Solutions (Mountain View, Calif.). The result: a full MS-DOS and Windows emulation product called SoftWindows.

Founded in 1986, Insignia is a wholly owned subsidiary of Insignia Solutions Ltd. (Wycombe, England). Although the company recently moved its headquarters to Mountain View, R&D is still done in the UK, according to Robert Lee, Insignia's CEO.

Insignia, known for its SoftPC series of DOS PC and Apple Macintosh emulation products, is counting on strategic partnerships with key industry vendors to help them in their corporate mission: adding value to RISC-based workstations for users who want to use their favorite DOS and Windows programs. Consequently, Insignia is playing an important role in what Summit Strategies is calling a transition from personal PCs to "enterprise-ready desktops."

SoftWindows debuted in December 1993 and in January 1994 became part of HP's new Enterprise Desktops — the 712/60 and 712/80 workstations. And in March, SoftWindows was again included as part of Apple's new PowerPC-based Macs. SoftWindows also is available for DEC's Alpha, IBM's RS/6000, NextStep's Intel, Silicon Graphics' MIPS and all Sun SPARC platforms.

Like it's SoftPC precedessors, SoftWindows emulates PC hardware including the disk and peripheral subsystems. "We start with the ICs," explains Lee. "We emulate the entire PC environment." But unlike the SoftPC products, SoftWindows takes advantage of Microsoft source code.

Apparently, it's good enough for Microsoft, which has included SoftWindows in its NT operating system to provide users with backwards compatibility with MS-DOS and 16-bit Windows applications.

Unfortunately, emulation software has a notorious reputation for slow performance and poor compatibility. But SoftWindows is expected to perform at 25MHz 486DX CPU levels or better. Lee says that "except for the most exotic applications [like those involving graphics], performance is now very satisfactory." Performance critical Windows API calls run natively in SoftWindows; non-API calls use the Intel 80286 emulation engine found in their SoftPC products. In fact, performance depends heavily on the speed of the workstation's CPU.

Sun Select's WABI is Insignia's primary competitor in the Windows emulation market. In fact, HP 712 workstations also include HP WABI 1.1. WABI is basically a reverse-engineered emulation product that makes native calls into the UNIX environment. Consequently, some Windows applications run faster under WABI than on PCs. But SoftWindows, says Lee, can be used with over 50,000 Windows *and* DOS applications while WABI runs about 13 "certified" Windows applications.

Lee also notes that SoftWindows supports sound input and CD-ROM formats for multimedia applications, as well as Microsoft's OLE and DDE data exchange interfaces. Most importantly for MIS, SoftWindows includes support for Novell NetWare, MS LAN Manager and TCP/IP. "By installing SoftWindows on a server, you can deploy it across an organization," says Lee.

In the future, Lee expects to continue to bring DOS/Windows compatibility "to those who want to bridge the UNIX and DOS/Windows world." However, growing with the ever increasing Windows market will be a challenge. "We'll support the next major release of Windows," says Lee. "We need to bring our solution into the daily lives of users."

George A. Thompson,
Technical Editor

WAnna Be Insignia.

We Finally Figured Out What Wabi Means.

	SoftWindows	Wabi
Number of compatible applications you can run	Thousands	13 ?
Networking capability	Yes – supports NetWare, LAN Manager, Banyan VINES, TCP/IP	Not yet
Number of UNIX platforms you can run them on	Sun, HP, IBM, Digital, and SGI	3 ?
Availability	Shipping	On & Off
Microsoft Windows 3.1 and MS-DOS 6.21 included	Pre-installed	No

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CIRCLE 218 ON READER CARD

IN sites

Smooth Sailing For Printers At The St. Lawrence Seaway Authority

Printers and computers don't always speak the same language. It's especially frustrating if you're working with a Novell LAN. And still more frustrating, if you're trying to provide printing services for remote offices. Wally Osadczuk, MIS coordinator for the St. Lawrence Seaway Authority (Cornwall, Ontario) found that out the hard way when he set up an Ethernet-based Novell network three years ago.

"NetWare is not very clever when it comes to printing," says Osadczuk. For example, he had to reserve several desktop PCs to double as remote print servers (as required by Novell's Pserver), which not only tied them up but slowed them down. But last year, according to Osadczuk, his printing problems went away when he discovered NetQue 3000 from Wilco AMS Inc. (Vero Beach, Fla.). And he saved $30,000 in printer costs by using the same printer for HP 3000s and Novell LANs.

In addition, tying up users' PCs with remote print services went away and overall performance improved. A welcome relief for Osadczuk whose production and development environments depend on an HP 3000/960 and an HP 3000/927, respectively. "Setting up a gateway to pass 3000 spool files to Novell servers would

continued on page 26

A Culture Change At Dannon

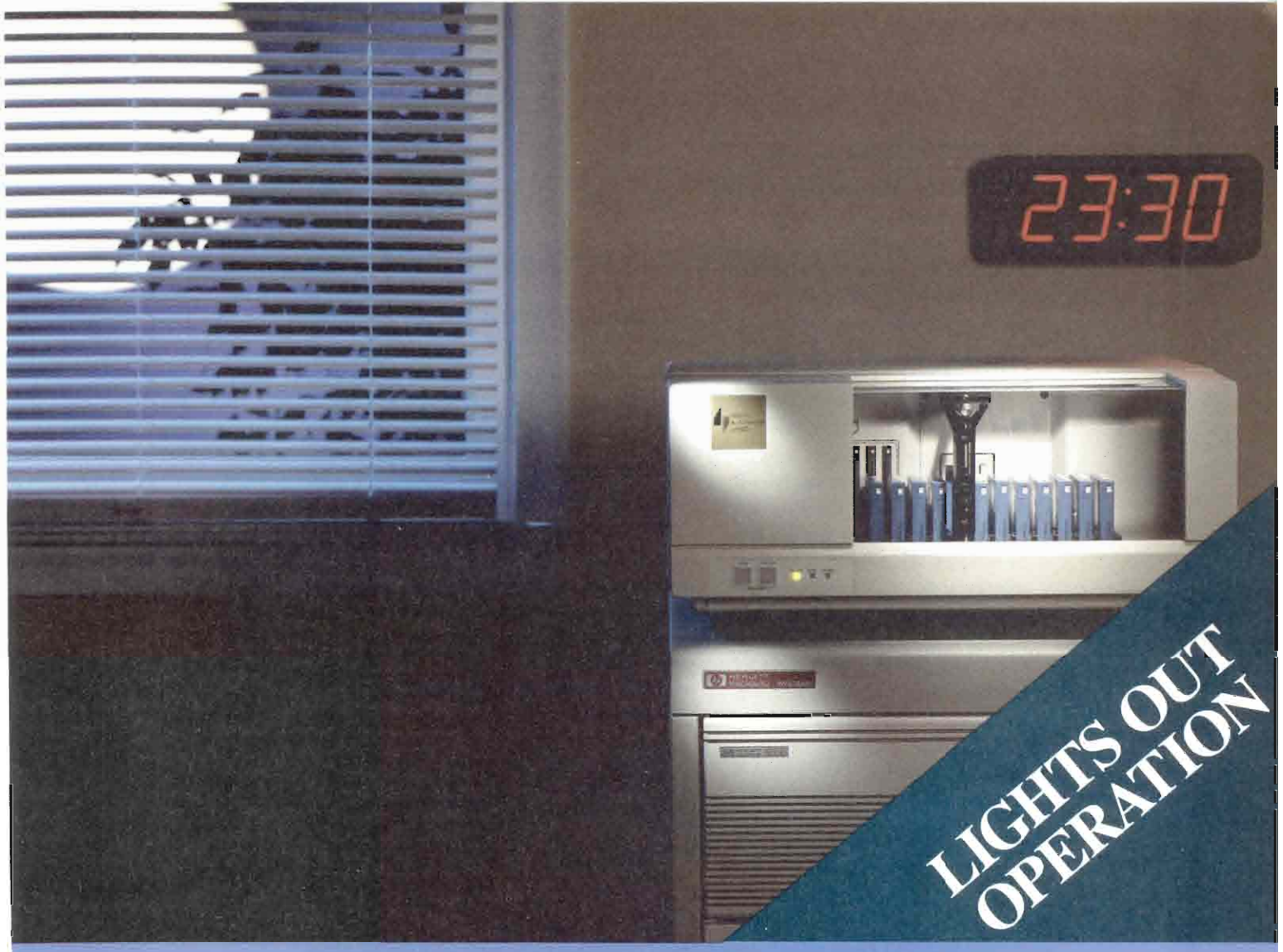
Client-Server Migration Accomplished With Progress Software

The question: What is client-server? The answer ... well, no one is quite sure these days. Ask 100 people, get 100 different answers. But according to Crystal Kennedy, director of Information Services at Dannon Industries (Tarrytown, N.Y.), client-server is being able to take advantage of all aspects of your business, so they work the best for you.

Dannon Industries, a leading manufacturer and distributor of yogurt products with sales last year of $450 million, runs their applications, such as a finished goods inventory, wholesale distribution and trade marketing systems, as well as a small parts maintenance package, on a variety of platforms.

In 1986, Dannon first started using Progress Software's (Bedford, Mass.) Progress, a platform-independent application development environment (ADE) for rapidly developing and deploying mission-critical applications across client-server, host-based and mixed com-

continued on page 26



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CIRCLE 173 ON READER CARD

Seaway *continued from page 24*

work locally, but without a T1 line, it's difficult to do remotely," explains Osadcuzk.

However, by using NetQue 3000's serial input port (with Terminal Type 22/26 remote spooling status checking) Osadczuk says, "it buys us a 3000 port directly to a laser printer from a remote location." NetQue can be used with two line printers or plotters when used in departments that require only Novell networks. By using the NetQue 3000's serial port, Osadczuk was able to redeploy 25 existing printers at substantial savings. Consequently, it is no longer necessary to have two printers in each department. Osadczuk's mix of printers includes HP LaserJet Series II, III, IIId, IIp and some dot matrix printers.

NetQue can be used with two line printers or plotters when used in departments that require only Novell networks

The NetQue 3000 can be configured as a remote printer or as a print server. When working as a print server, the NetQue 3000 broadcasts its sevices network-wide."Unfortunately, there's no way to turn it off," says Osadczuk.

For administrative purposes, the Seaway chose to implement their NetQue 3000s as remote printers and these broadcasts are additional unncessary noise on the wire.

With three different remote locations and 50 remote printers, "we do a fairly high volume of printing," says Osadczuk. "Well beyond what's recommended," he admits. The St. Lawrence Seaway Authority provides all the computing and end-user services necessary in maintaining the St. Lawrence Waterway. And now Osadczuk has the ability to access and share printers anywhere across their WAN. "We get good throughput, it doesn't clog the line, and it helps us keep communications costs down."

— *George A. Thompson, Technical Editor*

Dannon *continued from page 24*

puting environments. At that time, they integrated Version 2 into their manufacturing and distribution system which was running on DOS PCs. Since then, Dannon has migrated the Progress updates to SCO UNIX and HP 9000 Model 835 machines.

Recently, Dannon has migrated their applications running on an RS/6000 to a client-server environment to ensure that "information is more readily available to the clients." According to Kennedy, client-server provides Dannon with a competitive edge. "In order to stay the number one yogurt manufacturer, it is necessary to maintain every aspect of your business and to monitor changing priorities. And client-server is one of those priorities."

To help with the migration, Dannon currently is using Progress Version 6.3 running on HP G30s. "Progress is easily transportable from platform to platform as is apparent because we've been able to move

across platforms," Kennedy says. She adds that Dannon needed to be able to access data from any point within the network and "Progress has allowed data to move across platforms."

Dannon has looked at a beta version of Progress Version 7, which includes GUI and character development tools to enable developers to build applications with the Progress Version 7 RDBMS, but has no definite plans to upgrade yet due to the necessary commitment to rewrite applications.

Overall, Kennedy feels that the migration went smoothly because of the amount of support she received. "You can't do 100 percent, but what you can do, can only be done with the help of your support staff."

— *Deborah Schwartz, Assistant Editor*

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GEORGE A. THOMPSON

Wireless LANs No Longer Shocking To End Users

Now that more corporations and computer users are "Goin' Mobile," Toffler's vision of Adhocracy — after more than 20 years in the making — is finally coming to fruition inside the "wall-less offices" of "virtual corporations." According to some estimates there are already 24 million people who work on the move in the United States alone, plus another 37 million who work from home or from remote locations.

The net effect? Corporations are finally learning "to let go" as mobile computer users are demanding, and getting, remote access to E-mail, paging, messaging and fax services, as well as office computing resources — namely LANs.

Simply put, mobile users require mobile data. And, accord-

ities

"We are, in fact, witnessing the arrival of a new organizational system that will increasingly challenge and ultimately supplant [corporate] bureaucracy. This is the organization of the future. I call it "Ad-hocracy." ...the fast moving, information-rich, kinetic organization of the future, filled with transient cells and extremely mobile individuals."

Alvin Toffler,
Future Shock, 1970.

Editor's Note: In this second part of a two-part mobile computing feature, George A. Thompson examines the impact and options of wireless computing.

ing to Datacomm Research (Wilmette, Ill.)., their appetite will create in the United States a $3.7 billion mobile data industry (which includes hardware and software, wireless infrastructures and network service revenues) by the year 2002. Although international standards remain murky, wireless is expected to have worldwide impact as well.

Typical applications for mobile data already encompass customized solutions in long-haul trucking, public safety, courier services and taxi dispatch. New applications are being pioneered in:

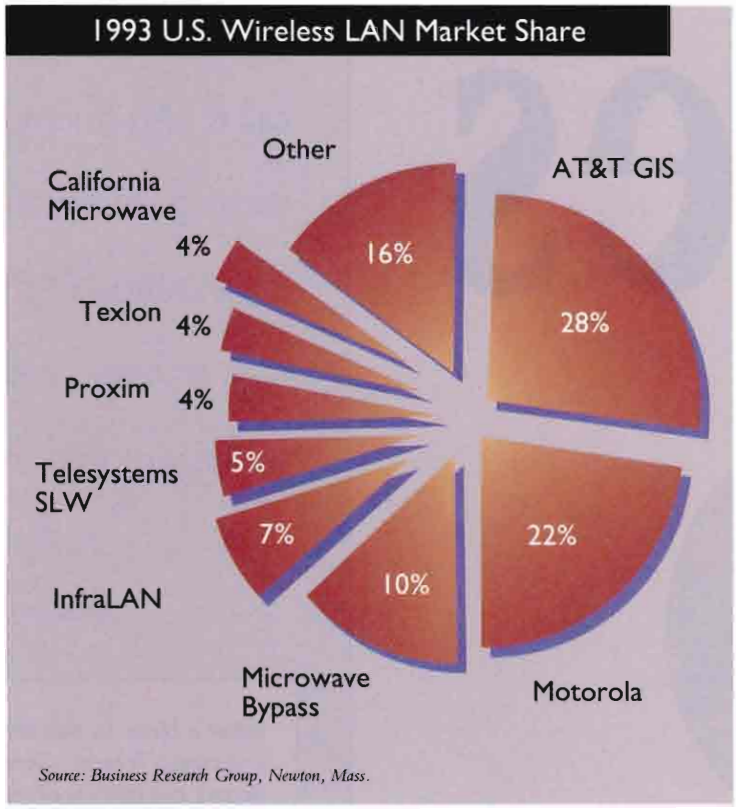
- Health care — patient record management and point-of-care computing.
- Retail — point-of-sale and point-of-service applications.
- Field Service — remote data entry of customer orders.

New horizontal applications are being pioneered in several segments by general business users like:

- Travelling professionals — so called "road warriors" — who need a convenient way to transfer files to and from the corporate LAN before and after business trips.
- Sales and service people who visit branch offices and need to exchange information with the corporate LAN when they arrive.
- Members of workgroups exchanging electronic documents and spreadsheets, and accessing information via database servers.

Wireless networks can be classified into three broad categories: Wide Area Networks (WANs), Metropolitan Area Networks (MANs) and Local Area Networks (LANs). Satellite-based WANs provide continuous, low-speed, two-way messaging virtually anywhere in the United States. Satellite-based networks are used within the transportation industry for tracking and monitoring vehicle and package information.

Wireless MANs provide radio networks within major cities and surrounding areas. Under license from the Federal Communications Commission (FCC), gas utilities, police and fire departments install, operate and maintain private radio networks throughout the United States. Public packet-switched radio networks provide one-way and two-way communications originating from a central site which are then broadcast to receivers on any number of portable devices (notebook laptops, palmtops, PDAs). Beepers and pagers take advantage of one-way communications to provide alphanumeric information and short messages to their users.



The first and now largest nationwide paging and voice messaging service was provided by SkyTel Corp. (Washington, D.C.) in 1987. SkyTel's main competitor is Motorola's Electronic Mail Broadcast to a Roaming Computer (EMBARC) service which delivers messages to users in the United States and Canada. Messages can be directed to a single individual or simultaneously to a geographically dispersed group. Like SkyTel, EMBARC allows you to receive messages from any public E-mail system (e.g., MCI, CompuServe) compatible with the X.400 standard.

Via Motorola's NewsStream (marketed by SkyTel as SkyStream), subscribers also can choose to receive information from services like USA Today, Reuters, Individual Inc. and ScoreQuest. NewsStream is a portable receiver that connects to a RS-232 interface (NewsCard is a Type II PCMCIA version). Motorola is working with manufacturers and service providers to incorporate NewsStream with current and future devices. For example, HP's 95LX and 100LX palmtops offer a NewsStream receiver as an option. NewsStream adapters also can be used on Casio's Z-7000 PDA and Apple's PowerBook notebooks.

It's been a two-way race between ARDIS (Lincolnshire, Ill.) and RAM Mobile Data (Woodbridge, N.J.) when it comes to providing two-way wireless MAN services. Notebook computers or palmtops use an attached two-way transceiver (or it may be dedicated unit like Motorola's InfoTAC) which supports ARDIS or RAM or both. ARDIS, first provided information to IBM field representatives before coming to a 50/50 joint venture between IBM and Motorola in April 1990.

ARDIS covers 80 percent of the U.S. population. Transmitters are networked via dedicated land-based lines. ARDIS is located in the top 400 metropolitan areas and is available to large corporate customers and OEMs. For example, ARDIS is used by Avis Rent-A-Car, Otis Elevator and United Parcel Service to provide information to field service representatives.

RAM Mobile Data, a joint venture of RAM Broadcasting Corp. and Bell South began in October 1992. RAM Mobile Data depends on Mobitex technology developed by Ericsson GE (Paramus, N.J.) the Swedish telecommunications giant. RAM Mobile is available in 6,000 cities and towns covering 90 percent of the U.S. urban business population. Unlike ARDIS, the Mobitex technology automatically registers the location of subscribers who log on, and stores and forwards E-mail until a user is back in range of a transmitting site.

Both ARDIS and RAM operate in the 900 MHz range and transmit packets from 240 to 500 bytes. ARDIS transmits faster at 19.2 Kbps then does RAM at 8 Kbps, making such services appropriate for field sales, service representatives and knowledge workers to send and receive E-mail and small file transfers. However, one solution to expand those capabilities lies in Cellular Digital Packet Data (CDPD).

CDPD is being developed by an industry consortium consisting of all RBOCs (except Bell South), GTE, Mobilnet/Contel Cellular, AT&T GIS, McCaw Cellular, Nynex Mobile Communications, PacTel Cellular and others. CDPD is a scheme to use idle voice time on existing cellular phone systems with packets of digital data transmissions. Rather than having to construct, manage and maintain separate networks as do ARDIS and RAM, cellular carriers are taking advantage of the 10,000 nationwide "cells" already established (a $20 billion infrastructure).

Location is Everything.

Any printer, Any location, Any time! The frustration of having the right printer for the job but not being able to access it is over. NBSpool from Quest Software lets the HP 3000 user send spoolfiles to a multitude of different destinations. All of the translating and handshaking required by the various environments is handled invisibly by NBSpool and its optional modules.

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Consequently, both voice and data traffic can be carried on the same network. Existing dial-up fax/modems can then be used rather than specially designed and often bulky radio modems required by ARDIS and RAM (and they don't have a fax capability). Channel speed for CDPD is 19.2 Kbps. In December 1993, Bell Atlantic deployed AT&T's CDPD technology in five cells around the Washington/Baltimore areas.

Wireless LAN technology provides a means to connect an office, a building, factory or warehouse; internetworks can be used to cover multiple sites in a campus-wide situation. Wireless LANs can, therefore, be a good substitute for desktop LANs in temporary situations, eliminating a myriad of cables. Or they can be a extension of an already wired Ethernet or Token Ring LAN, appropriate for those people moving throughout a building or campus, which by some estimates includes about 50 percent of office-bound workers.

But the proliferation of notebook laptops, palmtops and PDAs make the most compelling case for wireless LANs. In fact, Datacomm Research expects that wireless LANs will be one of the defining factors of the mobile data industry of the future. Data rates of wireless LANs are currently limited and costs have been prohibitive, but costs are now declining while data rates are increasing. Thus, making wireless LANs a growth opportunity for vendors and a business decision for buyers.

A Spectrum Of Solutions

IN THE WIRELESS WORLD, mobile data is carried on the backs of signals transmitted within several portions of the electromagnetic spectrum. For wireless LANs, infrared, microwave and radio frequencies provide the medium of exchange for mobile data.

Within an office or a building, infrared (IR) transmission is the best means for interconnecting a roomful of PCs and other IR-capable devices. IR frequencies cover that portion of the electromagnetic spectrum that is less than visible light and greater than microwaves. In practice, there are two kinds of IR-based wireless LAN solutions: diffuse IR and directed (or line of sight) IR.

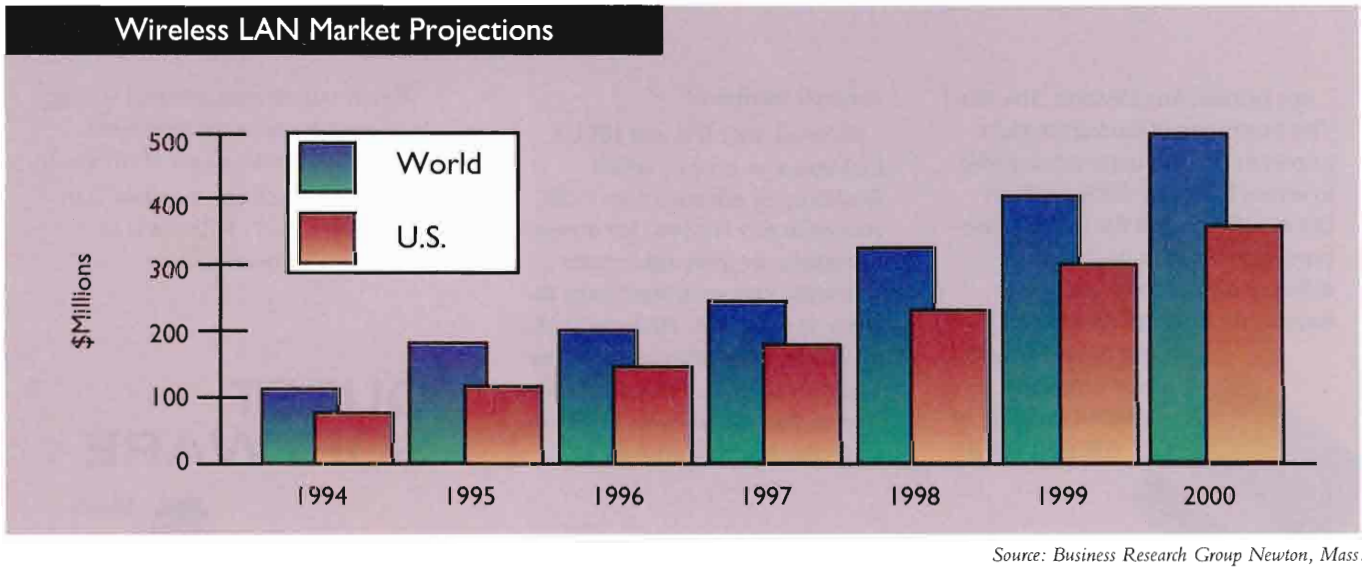
Diffuse IR uses the surfaces of objects (office walls and ceilings) to bounce an IR signal between a transmitter and a receiver to create a wireless networks within a single room. For example, SpectrixLite from Spectrix Corp. (Evanston, Ill.) uses diffuse IR to provide wireless coverage of indoor areas with a 4 Mbps data transfer rate at up to 50 feet. Collaborate is another diffuse IR product from Photonics (Campbell, Calif.). Collaborate can provide data rates up to 1 Mbps at 900 to 3,600 feet.

Line of sight IR, on the other hand works like a TV remote control. Devices must be directed at each other to communicate and transfer data. While directed IR provides higher data transmission rates, InfraLAN Technologies' (Acton, Mass.) InfraLAN offers a 16 Mbps data rate (typical Token Ring LAN speeds). But, its range is limited. InfraLAN provides communications at up to 80 feet.

In general, wireless IR is inexpensive to implement and it is relatively easy to add additional nodes. In addition, IR is not regulated by the FCC.

On a smaller scale, HP's serial IR interfaces included with its LX series of palmtops and OmniBook portables, as well as on some models of their Vectra PCs, allow wireless point-and-shoot data communications at up to 115.2 Kbps. This low-power IR transmission is a low-cost and convenient way to connect desktops, portables, printers and PDAs over a range of several hundred feet. The Infrared Data Association (IrDA), chaired by HP's John Romero, is an organization of vendors whose goal is to create a serial IR standard.

Narrowband Microwave (18 GHz) is another alternative for within-building LANs. Motorola's Altair Plus II provides an Ethernet-compliant LAN with a maximum throughput of 5.7 Mbps. According to Motorola, Altair Plus II has a range of



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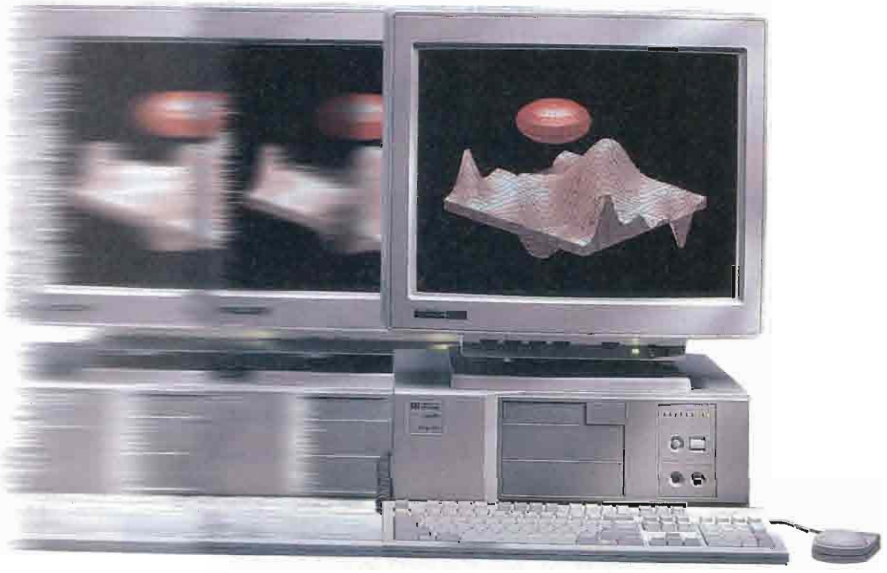

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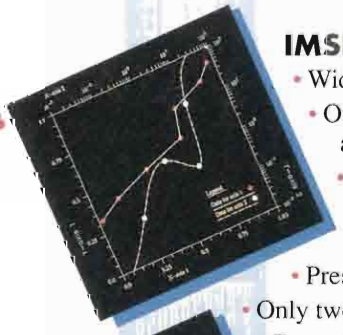

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3,940 feet in the United States and 6,900 feet in most other countries. The product also offers SNMP compatibility, a unique feature among wireless products.

While Motorola's Altair provides a wireless solution for the desktop it does not address the needs of mobile wireless communications like wireless technologies based on IR and radio.

Radio Daze

UNLIKE IR, WIRELESS technologies using radio frequencies fall under the governmental licenses and regulations of the FCC. However, the greatest potential for wireless LANs lies in an unlicensed portion of that part of the spectrum known as the ISM (Industrial, Scientific and Medical) band.

In 1985, the FCC set aside frequency ranges (900-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz) for commercial uses of spread spectrum technology. Developed by the military during World War II to prevent signal jamming and interference, spread spectrum wireless technology is being widely adopted by vendors and users alike.

Limited to 1 watt of power, spread spectrum modulates a radio frequency signal such that it occupies a wider band than it actually is. Like IR, spread spectrum wireless options fall into two main categories: direct sequence and frequency hopping.

Direct sequence spread spectrum transmissions sequentially sends packets of data and spreads it across the frequency band. By contrast, frequency hopping spreads the signal by randomly moving from one frequency to another several times a second.

Products using direct sequence spread spectrum include WaveLAN from AT&T GIS (Dayton, Ohio), DEC (Maynard, Mass.) and Proxim (Mountain View, Calif.). ATT GIS inherited WaveLAN (which began shipping in 1991) in its merger with NCR. DEC is reselling and enhancing the WaveLAN product. Both vendor's products provide a 2 Mbps data rate within a range of 800 feet. Proxim was one of the first vendors to offer a wireless technology based on spread spectrum technology. Proxim's direct sequence product, RangeLAN operates at 242 Kbps within a range of 300 to 500 feet.

However, all three companies are enhancing their wireless products by providing roaming capabilities. Roaming allows for mobile users to switch automatically between access points creating a seamless wireless network. Moving about freely with ad hoc access to corporate databases is a key aspect of mobile computing and wireless networking. For instance, without roaming capability, much of the advantage of working with pen-enabled devices is lost.

In 1994, Proxim introduced its RangeLAN2, a frequency-hopping product operating the 2.4 to 2.483 GHz band. RangeLAN2 provides a 1.6 Mbps data rate with a maximum range of 500 feet in office environments (1,000 feet in open spaces). NetWave is a competitive product from Xircom Inc. (Calabasas, Calif.) that also uses frequency hopping, spread spectrum wireless technology in the 2.4 GHz range with a 1 Mbps data rate at up to 40 to 50 meters through walls. Both companies offer PCMCIA Type II versions for portable devices equipped with PCMCIA slots.

Whether you find yourself walking the halls (LAN), travelling to city hall (MAN) or trekking across the Mojave Desert (WAN), the connectivity will be seamless. BRG expects that by the year 2000, the U.S. wireless LAN market will grow to $350 million and to $500 million worldwide.

The trend is clear: BRG predicts that by 1996, wireless LANs and wireless packet data services will grow faster than other wireless data network types such as paging and satellite services. So MIS must be prepared for the coming adhocracy which will require links to other networks and the sharing of applications and information. In the virtual corporation, workers and information will be location-independent which will bring its own challenges and opportunities for the virtual MIS manager.

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Hub-Bub, Bub

paradigm shift. There's a new big deal in computing, the nub of the thing, the heart of the matter, the filling at the center of the whole computational Twinkie — internetworking.

Computing is a yawn anymore, and networking in any local, homogeneous sense is a bore. But linking up LANs is where the action is today. LANs have limits to how large they can grow without having performance slow to a slug-like pace. The only cure is to keep LAN size reasonable enough to be efficient. Instead, the secret to computing is linking LANs. We're talking internetworking with bridges, routers and hubs.

A bridge is a connection between two networks that functions at the media access control (MAC) level of the OSI model's datalink layer (see *Figure 1*). The bridge looks at the MAC layer for each data packet to decide which local LAN is right for the message. All three elements are, in effect, part of a single, larger network. Most often, this is done with local LANs joined into one larger WAN using a bridge. The systems on either end of the bridge have no idea that the other LAN is not sitting right beside them and, therefore, treat each other like local systems, even if they are on opposite sides of the globe.

Figure 1

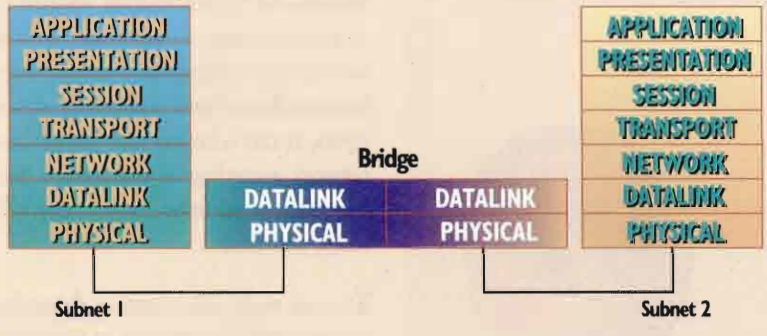


Figure 2

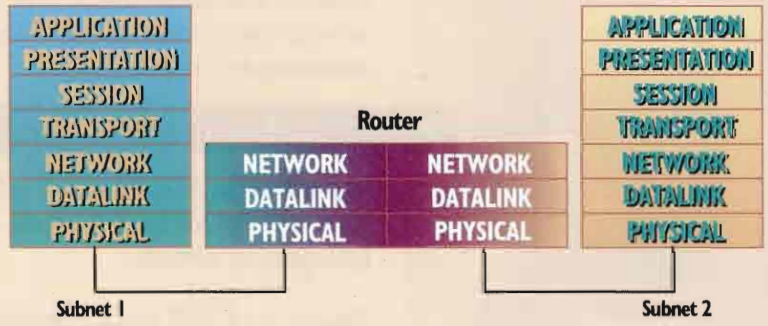
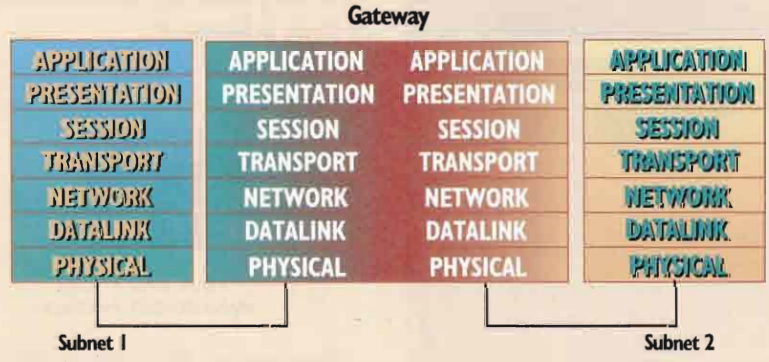


Figure 3



An advantage of bridges is that, because they function below the networking level, they can ignore protocol issues and simply relay the data, relying on recipient computers to have the correct protocol to interpret the data. In other words, the bridge doesn't care what the blips are; it just sends them across.

A router, like its dumber cousin the bridge, connects two or more LANs. But in this case, some intelligence is involved, because the router will not simply pass along everything that shows up. In fact, it is designed to be selective about what moves from one LAN to another. Routers look at the next layer up in the OSI model, the network layer (see *Figure 2*). Routers make use of internetwork or global addresses that are unique across all the interconnected LANs.

This means if Fritz in Peoria, Ill. wants to send a message across the network to Sasha in Paris, the router between their local LANs must comprehend the individual addresses of their computers. The router only sends across Fritz's message to Sasha because it is clear that the message is for the Paris LAN because of the internetworking address. Better yet, the router can determine the cheapest or fastest route for the message. Not all network protocols support global addressing yet, so some computer vendors' protocols can't be used with a router.

On the downside, routers are protocol dependent and, therefore, will be dedicated to sending messages of a particular type, such as TCP/IP or OSI. Then again, bridge and router products, like so many other areas of computing, are blurring these definitions. Some people are calling products that cross the definition lines be-

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A new standard is on the way. It's called 100VG-AnyLAN networking.

tween the two "brouters." Expect to see more merging of these families as products become more capable.

A gateway is a way of linking two LANs where incompatible protocols are in use. The gateway converts one protocol to another — and is also called a protocol converter (see *Figure 3*). Converters or gateways are commonly used as links between E-mail systems or for terminal access.

A hub is a device that can establish links across several different systems in a star topology.

HP Makes Another Standards Move

JUST WHEN YOU THOUGHT you'd found a market you might be able to understand for a minute or two, somebody goes and changes it. Yes, a new standard is on the way. It's called 100VG-AnyLAN networking, and it promises to dramatically increase capacity to 100 megabits per second while maintaining message-frame compatibility with 802.3 Ethernet 10Base-T and 802.5 Token Ring networks and cables. The standard is currently defined as IEEE 802.12.

Earlier this year, HP introduced a 15-port 100VG-AnyLAN hub and selectable 10 megabit, 10Base-T/100Mbit 100VG EISA and ISA adapter cards as part of HP's AdvanceStack network connectivity product line. These may be the first products to use the standard.

However, they are far from being the only new networking products out there. Here is a sampling of what is available in this highly competitive market:

Bridges

- Combinet Inc. (Sunnyvale, Calif.) offers its EveryWare 160 ISDN bridge incorporating NT1 capability in a small unit for low-end users.
- HP's 100VG Bridge/SNMP module sells for $1,495 and should be available next month.
- Apertus Technologies (Eden Prairie, Minn.) markets ez-BRIDGE Transact messaging and queuing middleware software to deliver transactions across multiplatform environments.

Routers

- 3Com Corp. (Santa Clara, Calif.) earlier this year purchased Centrum Communications (San Jose, Calif). CentrumRemote 3000 has been renamed AccessBuilder. The product provides network node emulation for remote routing of outlying users. AccessBuilder supports LAN-to-LAN concurrent bridging and routing on dial-up and leased lines. 3Com also produces SuperStack fault-tolerant routers, LinkBuilder FMS II stackable Ethernet hubs, LinkBuilder FMS TR stackable Token Ring hubs, NetBuilder Remote Office for remote office internetworking and LinkConverter an SNA-to-LAN/WAN converter.
- Brixton Systems Inc. (Cambridge, Mass.) offers a software router for WAN routing on a budget. The software uses UNIX or Windows NT on existing computers to link users.
- Data Race (San Antonio, Texas) sells its NETracer family of connect-on-demand multiprotocol Ethernet bridge/routers for branch office communications.
- Gandalf Technologies Inc. (Nepean, Ontario) produces its LANLine "i" Series of intelligent bridges and routers for remote office connections.
- HP offers AdvanceStack Router 650, a multiprotocol router designed for headquarters facilities of geographically dispersed companies. The product provides an aggregate speed of 100,000 packets per second and supports most standard networks. Fully configured for an entry-level system, including software, the product sells for $12,000.
- HP cut the prices on its AdvanceStack branch routers, which now range from $2,395 to $5,195.
- Newport Systems Solutions (Newport Beach, Calif.) sells the LAN2LAN/MPR^2, a multiprotocol router.
- Network Systems Corp. (Minneapolis, Minn.) offers the 6600 bridge-router family for bridging WAN links, while the 6200 branch office router and the 6300 regional office router support a range of protocols for tasks of varying sizes.
- Nupon Computing Corp. (Tustin, Calif.) offers its LTS Communications Server, a multiprotocol dial-up router that also services terminals, printers and modems on the network.
- Proteon Inc. (Westborough, Mass.) produces the CNX600 Bridging Router for mixed IBM and non-IBM networks, the DNX350 bridging router, Release 15 router software for its CNX and DNX routers, and OneVIEW Group Manager router configuration software.
- SCii Telecom a French-based company with U.S. offices at ISCOM (Riverdale, Md.) introduced its Translan NLM software, a NetWare multiprotocol router for ISDN.

Hubs

- Cameo Communications Inc. (Nashua, N.H.) markets its UltraHub 1040 Integrated Local Bridge Hub for workgroups and departmental networks.
- Chipcom Corp. (Southborough, Mass.) offers its Oncore Switching System, a 17-slot, scalable, high-capacity switching hub for linking Ethernet, Token Ring and FDDI networks.
- Computer Network Technology Corp. (Maple Grove, Minn.) produces UltraNet high performance hubs.
- Fibronics International Inc. (Pembroke, Mass.) introduced two stackable hubs for Token Ring (FR9230 Token Ring Man-

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agement Unit) and Ethernet (FER2061 Stackable Ethernet Hub) networks. The hubs can be connected to create ex panding networks. Fibronics also sells GigaHUB, a 12 giga bit per second, ATM-ready, intelligent switching hub.

- HP's AdvanceStack 100VG-AnyLAN 15-port hub lists for $3,750.
- Linksys (Irvine, Calif.) offers a Workgroup Hub that supports eight twisted-pair ports, one BNC connection, and can be uplinked to other hubs and workstations.
- Network Peripherals Inc. (Milpitas, Calif.) produces the EIFO (Ethernet In, FDDI Out) client-server switching hub, designed to speed network communications without abandoning existing Ethernet investments.
- NetWorth Inc. (Irving, Texas) makes the Series 2000 Snappable Hub, an economical line of stackable hubs.
- Pinacl Communications Inc. (Elmsford, N.Y.) offers Maxi-Hub Dataguard high-performance stackable hubs.
- Wingra Technologies Inc. (Madison, Wis.) offers Missive, a VAX-based, software-only intelligent messaging hub that reformats and transfers E-mail and file attachments.

Other Connectivity Devices

- I-Kinetics Inc. (Cambridge, Mass.) provides I-Bridge Adapter to allow cross-platform automation between Windows and UNIX applications. I-Bridge agents can control execution of a UNIX program and then transport the output to a Windows application. Windows users can continue to work in Windows while the agent executes.
- Netlink Inc. (Raleigh, N.C.) provides a line of SDLC Link Servers for integrating SNA networks with LAN/WAN internetworks, and Frame Relay Access Node for SNA links over frame relay nets.
- Symplex Communications (Ann Arbor, Mich.) markets its Direct Route family of WAN access switches.
- Telco Systems Inc. Magnalink Communications (Norwood, Mass.) provides 3000 and 4000 series Compression Bridge/Routers for connecting LANs over WANs. The company also sells series 5000 LAN/WAN Optimizers to increase the throughput or a bridge or router.

To maximize your LANs, you must network your network. So, now that you've finally figured out LANs, the next bridge is waiting to be crossed. And internetworking is waiting on the other side.

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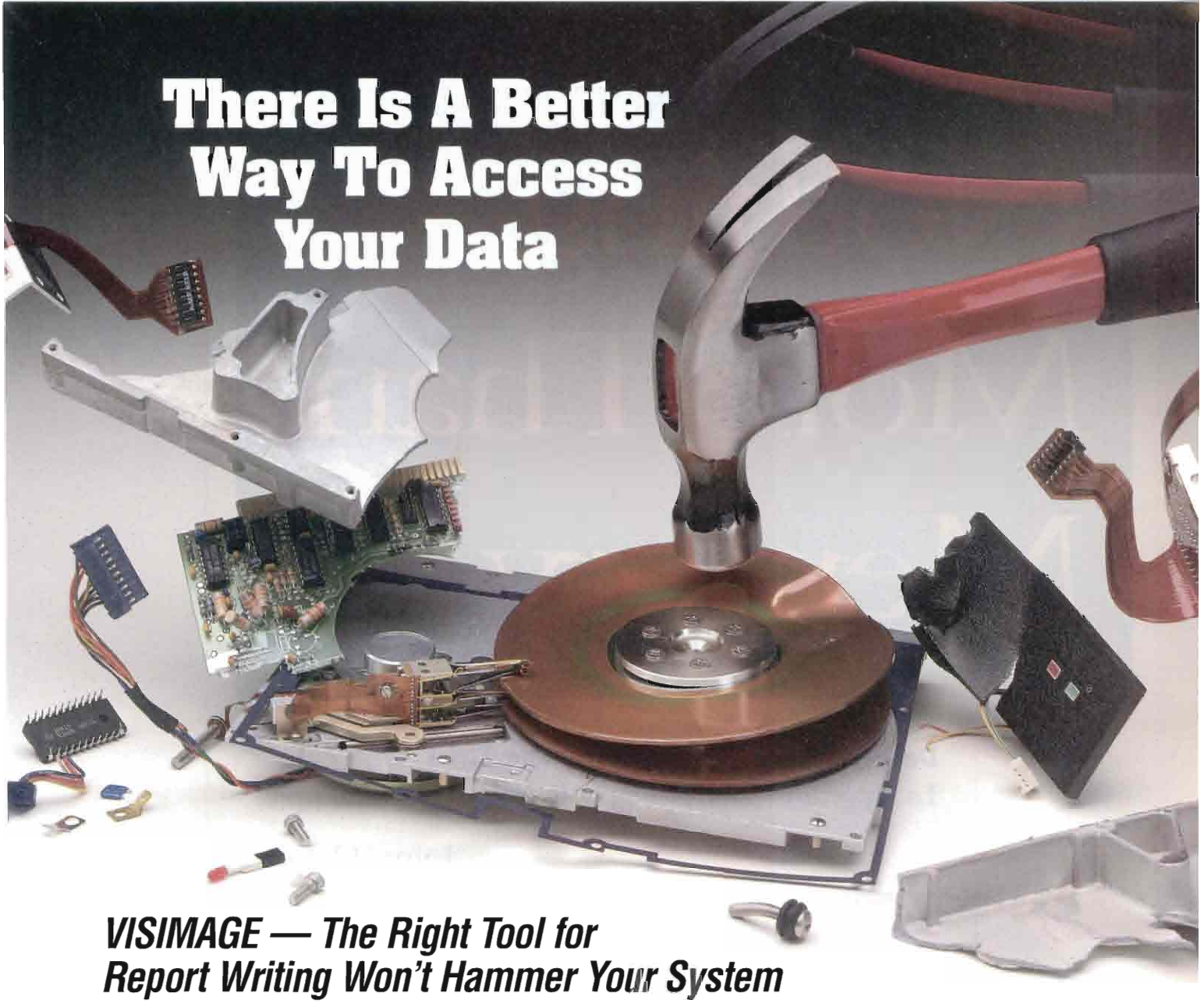

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Nothing More Than Memory

Despite Price Fluctuations, The Time To Upgrade Your Memory Is Now

Lynn Haber

It may not be the sexiest or hottest computer-related technology of the moment. But memory for the HP 3000 and HP 9000 computer systems is a much sought after product, and third-party suppliers are working hard to satisfy customer demand while overall product availability remains constrained.

"The big question being asked today is how to get more memory and how to get it cheaper," says Victor De Dios, president of De Dios & Associates (Newark, Calif.) a research firm that focuses on the memory market.

According to industry players, growth in the memory market in general is good, with HP shaping up to be one of the fastest growing segments of the business. "HP users have more third-party sources to turn to compared to other computer users, because HP has more standard modules making it an easier product line to support," says De Dios.

About a dozen or more third-party vendors cater to the HP market with Dataram Corp. (Princeton, N.J.) and Kingston Technology Corp. (Fountain Valley, Calif.) dominating the marketplace garnering 35 percent and 25 percent marketshare, respectively.

In 1994, De Dios estimates that 84 million MB of DRAM will be shipped to the workstation market compared to 66 million MB in 1993. By 1995, DRAM shipments may hit 103 million MB.

The most noticeable trend in today's memory market is the move to 16 megabit DRAM from 4 megabit DRAM. "The switch over started last fall and we expect the cross over to occur later this year, as more capacity comes on line," says Dan Carson, memory product manager at Dataram. Not only do users get more capacity in a smaller package, a 25 percent reduction in DRAM packaging, but the 16 megabit products require less power consumption.

While this time last year, there was a lot of upheaval in the memory market and 4 megabit DRAM was in short supply, resellers like Concorde Technologies Inc. (San Diego, Calif.) report that as supply for 16 megabit DRAM picks up, users will see the market stabilize and prices decline.

"It used to be that the average cost per megabyte was around $1 — so 32 MB DRAM was $3,200. In some cases, today, we're seeing a street cost per megabyte of about 75 cents," says James Dunham, workstation product manager at Concorde.

Vincent Sandoval, director of sales at Martech Inc. (Alhambra, Calif.) reports that a 32 MB card, a popular memory configuration for HP's 9000/700 series of workstations, is $1,550, down from $1,650 at the beginning of the year.

While chip manufacturers are gearing up production of 16 megabit DRAM, Ron Bohn, senior industry analyst in the semiconductor group at Dataquest Inc. (San Jose, Calif.) expects supply to remain tight for the remainder of the year.

Suppliers of memory report that over the last 12 months, customers are more willing to add memory to maximize system performance as prices decline. "It used to be that people would underconfigure their systems, but today, systems tend to be configured with memory beyond what's standard to gain better response times," says Mike Robert, president and CEO of Datasys Computer Corp. (Dallas, Texas).

Both Robert and Carson agree that users often buy their systems from HP with minimum memory and turn to third-party suppliers for lower cost, and better support and service. "Most HP customers have become educated and believe that there is no difference between buying memory cards from a reputable third-party vendor versus buying from HP. And they don't want to pay a 30 percent to 40 percent premium to HP," says Robert.

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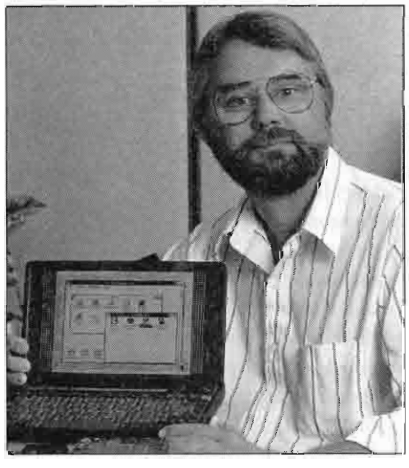

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What customers are looking for is value-good price, good technical service and good product warrantees. "Everyone has a limited budget and they're looking to get the best value they can find to enhance their machines and their productivity," says Dunham.

At Kingston, memory sales to the HP user community is the company's second largest market, accounting for $1 million dollars in revenue a month, according to John Sutherland, manager of the workstation products group at Kingston. What's hot on HP's 9000/700 series, he says, are 32 MB kits followed by 64 MB and 128 MB kits.

Carolyn Aliotta, marketing and communications manager at Camintonn Corp. (Irvine, Calif.) says that the sale of 32 MB and 64 MB kits are in great demand for users of HP 9000 models 720, 715 and 705. Camintonn's new products include 8 MB, 16 MB, 32 MB and 64 MB kits for the model 712. "New 128 MB kits also are available for HP 9000 models 735 and 755," she says.

Also, a user's increasing appetite for workstation RAM is being driven by higher performance systems, RISC computing power and 3D accelerated graphics applications, says Bohn. At the high-end, third-party vendors report a demand for 128 MB and 256 MB configurations.

A popular sale to users of HP 9000/800 series G and H servers are 32 MB and 64 MB boards. Dataram's Carson reports that RAM for the new E series has been a hot seller, as well. Kelly Computer Systems Inc. (Mountain View, Calif.) recently dropped the price of its 128 MB kits, popular with the F, G, H and I servers, from $12,800 to $6,400 which reflects the demand for these models.

As the number of users on a server increases — regardless of whether it is an application, file or compute server — so do memory requirements. Depending upon the number of users and the type of usage, server RAM can rise over 200 MB to half a gigabyte.

Vendors like Martech, Kingston and Dataram report that although memory sales to users of HP 3000 servers are well below that of the workstations, products are available and that configurations of 128 MB and above are most popular. However, Cathy Beier, director of marketing and communications at Kelly, notes an upturn in demand for HP 3000 Series 9x8 servers.

Third-party vendors report that users typically purchase RAM at three points in a product's lifecycle: when they first purchase the product; midlife, as new clients are added to the server or as additional applications are run on the workstation;

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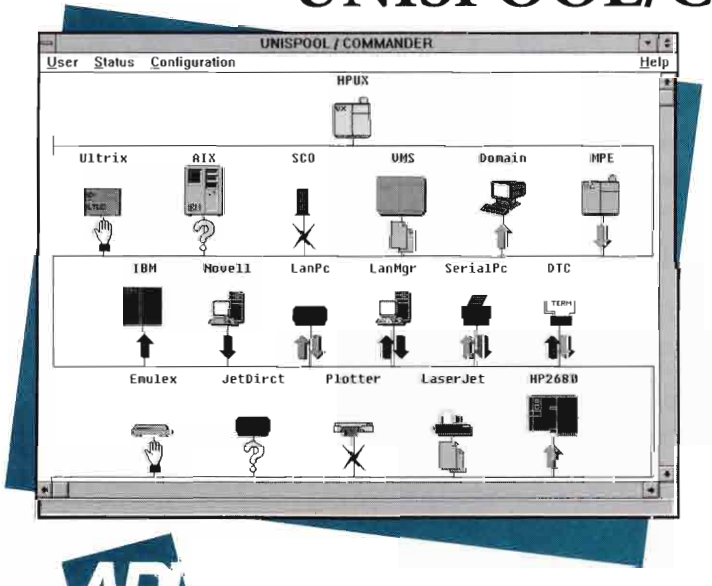

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and at the end of the product's lifecycle as a final attempt to squeeze more juice out of the system before having to shell out money for a new one.

Having gained a new confidence in third-party RAM suppliers, customers are taking their business to those vendors that can demonstrate longevity in the marketplace, stability, quality service and support, and adherence to stringent manufacturing and testing procedures.

Taking a look down memory lane, market forces are developing a demand for specialty DRAM, such as synchronous DRAM, graphics DRAM and high-speed cache DRAM. "Expect to see the trend toward specialty DRAM and away from traditional standard RAM evolve over the next few years," says Bohn. The trend toward specialty DRAM is driven by the fact that system performance requirements won't be able to match system processing speeds, he says.

Despite price fluctuations, RAM pricing has come down and industry watchers agree that the opportunity to upgrade looks good. *—Lynn Haber is a freelance writer specializing in computer and communications technology, based in Boston, Mass.*

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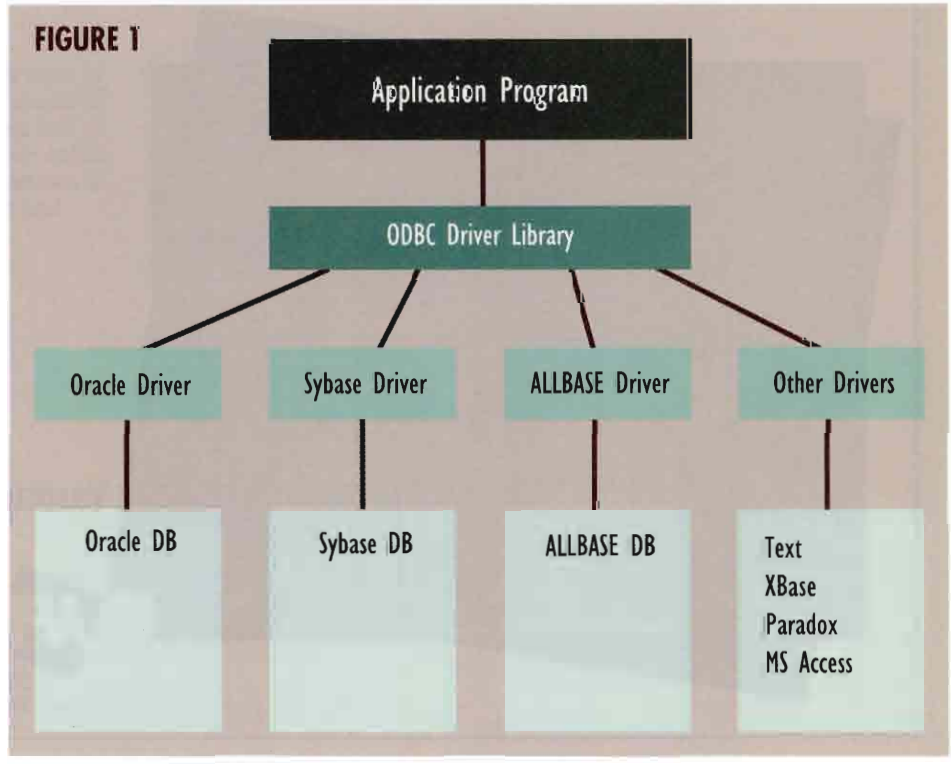
ODBC: Not Just For Windows

This month we're going to discuss Microsoft's Open Database Connectivity (ODBC). You might wonder why, as an HP-UX user, you should be interested in a Microsoft standard — after all, Microsoft has continued to shun the UNIX marketplace in favor of its own operating system and application software.

Consider for a moment what ODBC really is: the Microsoft's PC implementation of the SQL Access Group's (SAG) proposed standard for database connectivity. In fact, Microsoft's ODBC Release 2.0 is identical to the standard proposed by SAG and X/Open. If you use HP-UX and virtually any RDBMS, you should know about ODBC.

Years ago, IBM created an entire industry when it introduced Structured Query Language (SQL) as a way to create, add, manipulate and remove data from large relational databases. The existence of such a standard language for the access of structured data created an opportunity

FIGURE 1



By using SQL, developers could write high-level applications that could theoretically be transported to any of the available SQL database environments.

for companies like Sybase, Oracle, Informix and Ingres. SQL also is a driving force behind ALLBASE, HP's RDBMS software. By using SQL, developers could write high-level applications that could theoretically be transported to any of the available SQL database environments.

The Problem With SQL

The problem with SQL was that, as you might expect, each RDBMS vendor enhanced the SQL language to enhance their implementation. And, if that wasn't bad enough, the RDBMS vendors began supporting embedded SQL, which provided better performance by embedding proprietary calls to each specific RDBMS server. Thus, software vendors and major accounts who wanted performance in their high-end database applications had to sacrifice compatibility for added speed.

SAG, an industry standards organization with virtually all major database vendors among its membership, has proposed to standardize the way vendors support embedded SQL. Their proposed API provides a number of features:

- Access to virtually any data source
- Base level standard SQL grammar
- Standard Error Handling
- Standard logon and security features
- Portable to virtually any platform

Microsoft, a member of SAG, recognized how useful a standard call-level interface (CLI) would be to PC programmers who need to access remote data from any number of sources. By embracing SAG's proposed standard, Microsoft has made the development of PC-based client software much easier than it would have otherwise been. In response to Microsoft's support of the standard, virtually every relational database supplier including Sybase, Oracle and HP have announced plans to support client-server development to programmers through ODBC.

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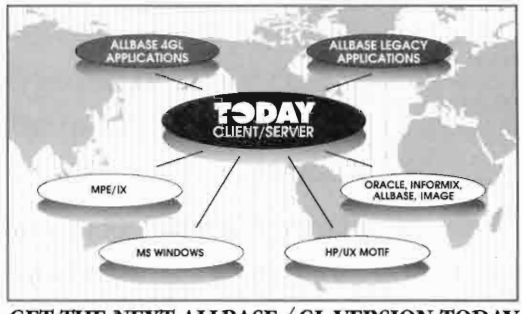

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ODBC makes no asssuptions about or demands on the type of data connection, the network or the file format.

Data Sources

While the SAG CLI is intended primarily for relational database access, there is nothing inherent in the standard to prevent the use of the standard to access virtually any source of data, from ISAM and proprietary database files to flat ASCII text files and tables. As *Figure 1* shows, the application makes calls using the standard 53 call API. Each vendor then provides the ODBC driver code to access their particular database engine or file format.

Note that ODBC makes no assumptions about or demands on the type of data connection, the network or the file format. All of these implementation details are implemented in the respective drivers. SQL Access provides three levels of implementation compatibility so that vendors can access specific enhancements in their implementation while maintaining virtually universal data access at lower levels.

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Simple Access

To give you an idea of what it takes to use ODBC to access data, let's look at a brief example shown in *Figure 2*. I've written the example in a BASIC-like language which you can translate to whatever language you like to use.

Note that this is not working code — I've omitted a number of required parameters. Still, you can see that it's not too difficult to write a quick program to access information, regardless of the actual source of the data. ODBC, while usually presented as a Windows solution, is really there to make your job easier on HP-UX.

Kehoe's Internet address:
kehoe@cardinal.com

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FIGURE 2

```
Sample ODBC Program

rc = SQLAllocateEnv(hEnv);                  // Allocate an environment handle
If (rc  SQL_SUCCESS) then
            end;                            // If we couldn't get an environment, quit
rc = SQLAllocateConnect(hEnv, hDbc)         // Allocate a connection to a db control block
If(rc  SQLSUCCESS) then
            end;                            // If we can't get allocate a connection, quit
sConn = "DSN=CorpDB;UID=mbk;PWD=miles;DATABASE=employees";
// Prepare to connect to data source CorpDB, using user id mbk, and password miles,
rc=SQLDriverConnect(hDbc, hWnd, sConn....)
rc=SQLAllocateStmt(hDbc, hStmt);            // Allocate memory for an SQL statement
// And define the statement to execute
hSQL = "SELECT * FROM Employee_Mst WHERE Yrs_Served > 5"
rc=SQLExecDirect(hStmt, hSQL,...);          // Execute the statement and wait for completion
rc=SQLNumResultCols(hStmt, iNCols);         // Find out how many columns (fields) exist
                                            // in this table
//Now loop as long as there are valid rows to fetch
While SQLFetch(hStmt) == SQL_SUCCESS
            sRetStuff = "";
            For i = 1 to iNCols             // For every column get the data
                    rc = SQLGetData(hStmt, i, 1, sBuff,...);
                    sRetStuff = sretStuff + sBuff          // append it to previous columns
                                                           // from the same row
Next i
Print sRetStuff                             // Show all columns fetched
End While
```

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CIRCLE 260 ON READER CARD

John P. Burke

Year Of The OS At HP

This year promises to be a good one for HP 3000 users, whether MPE/V or MPE/iX. Release 3P of MPE/V has been on the street for about a month. Release 3P continues the Software Technology Division's (SWT) commitment to provide functionality enhancements for MPE/V as long as there are enough users to support the effort.

Release 5.0 of MPE/iX is available now as a "pull" release. The general distribution "push" release is scheduled for this fall. Release 5.0 contains full POSIX.1 and POSIX.2 support and a host of additions to the core OS.

OLD DOGS, NEW TRICKS

Release 3P of MPE/V, a "platform" release sent to all users on support, combines enhancements from limited distribution releases 30 and 31, and adds a few extras. Among the features:

EDITOR/3000 includes a REDO facility and supports command entry through the INFO string. The FIND command has a new range specification and KEEP automatically passes security attributes from the TEXT file to the KEEP file.

The MPE/V spooler now supports the SPSAVE feature of MPE/iX. This allows users to specify that a copy of a spool file is to be saved after the spool file has finished printing.

SPOOK5 has been enhanced to have a full HELP facility as well as a REDO facility. The FIND command has been enhanced and line numbers can be suppressed when using the LIST command. ALTER and SHOW support the new SPSAVE feature of the spooler.

LISTF supports options -3, 3, 4 and 6 from MPE/iX. The CHGROUP command has been added to MPE/V, allowing users to change logon group without logging off and on again. DELETEVAR is a new command for MPE/V that will delete JCWs for a particular job or session (yeah!). And, beating MPE/iX market, PURGE now supports wildcards.

The ALTACCT, ALTGROUP and ALTUSER commands have been enhanced to allow for the addition or subtraction of capabilities. ALTJOB now can alter the attributes of waiting or scheduled jobs. And last, but certainly not least, with Release 3P, TurboIMAGE/V now supports Critical Item Update.

NEW DOGS, NEW TRICKS

With fewer than 300 MPE/iX 4.5 tapes (introducing POSIX and the HFS) distributed, most HP 3000 customers have been clearly underwhelmed by POSIX. This, even though they may accept the twin rationales for POSIX: standards attract new business and encourage the porting of additional applications to the HP 3000.

For most MPE users, MPE/iX 5.0 will be their first exposure to POSIX and the

Hierarchical File System (HFS). To deal with this, HP has included a self-contained Computer-Based Training (CBT) module on managing the HFS.

MPE/iX 5.0 is more than POSIX and HFS. While POSIX is needed to attract new customers, according to George Stachnik, product manager for MPE/iX, existing customers appreciate the HP 3000's high availability and reliability for its "stayup-ability." In addition to fixes (STORE @.@.@ was "fixed" from 4.5 to "do what it always did"), new commands (SETCLOCK), new functionality for old commands (wild card PURGE) and new utilities such as SPIFF (a "better" SPOOK for the NM spooler), MPE/iX 5.0 now includes two features that improve its robust availability: Memory Page De-allocation (MPD) and Threshold Manager.

Both features are the result of extensive analysis of hardware and software aborts. Instrumentation was built into MPE/iX 4.0 to log and even capture the cause of most system failures. It was discovered that the leading cause of hardware aborts was the multibit memory error. MPD provides a mechanism for de-allocating any memory page (4 KB) containing a solid single-bit error, a soft failure reoccurring within a 24-hour period or a double-bit error. In most cases, the system will continue running. On the software side, it was discovered that software-induced system aborts were typically caused by shortages of system resources.

Threshold Manager is a customizable utility that will provide notification when certain resources go critical (for example, exceed 90 percent of capacity) and optionally disallow non-HIPRI job and session logons until the resource usage falls below the critical level.

If all went according to plan, June 23 marked the first customer ship of MPE/iX 5.0 on new systems and to customers who have "pulled" the release. The fall "push" release is scheduled for added functionality (attend the TCU broadcast July 20 for details): a workload manager for scheduling; SETCOUNTER command for spoolfiles; and an LDEV 1 defrag tool to ensure sufficient disk space for updates.

Burke's Internet address:
burke@cardinal.com

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Burke's Bits

This new addition to John P. Burke's Managing Your HP 3000 column provides you with a sampling of news and "alerts" in the HP 3000 arena, such as upcoming events, enhancements, additons and deletions to products.

- ALERT! The IMAGE/SQL upgrade program is scheduled to end July 31, 1994. This program gives TurboIMAGE/iX customers IMAGE/SQL with no upfront purchase cost, simply an increase in support fees.
- ALERT! A live video broadcast titled "HP 3000 Technology Close-Up: MPE/iX 5.0" is scheduled for July 20, 1994 at many HP sales offices in North America. If you have not yet signed up to attend (it is free), call the HP 3000 Customer Connection Hotline at 800-224-HP3K.
- The Third Party Indexing (TPI) interface for IMAGE/SQL is not part of MPE/iX 5.0. Not only is IMAGE/SQL unbundled from MPE for pricing and ordering purposes, it also is unbundled for update purposes. According to Jim Sartain, IMAGE/SQL lab manager, the TPI should be in an Express release before the end of the year.
- HP has significantly dropped the price of the AIF product with the widest potential appeal, AIF:OS from $2,150 to a more manageable $500. You still need C/iX or PASCAL/iX to make use of them.
- For the small- to mid-size customer, HP is formalizing, with an official announcement this month, a program that has quietly been in existence for some time: the Client-Server Integrators Program. Leads from a variety of sources (mostly existing HP 3000 users) are passed along to one of the program partners (17 to start) on a geographic basis.

CIRCLE 480 ON READER CARD

new Products

SOFTWARE

CompuSci Releases PowerEdge Software

CompuSci Inc. released PowerEdge Power Monitoring Software for UNIX, Novell, OS/2 and VMS systems.

PowerEdge, a Power and Alarm Monitoring software, allows UPS users to monitor power quality and perform unattended shutdown of computer systems when necessary. PowerEdge NetServer for Novell and UNIX allows multiple computer systems to be supported by a single UPS, without any additional hardware.

PowerEdge supports HP-UX, Novell 3.11, 3.12 and 4.0, DEC VMS and Alpha OSF, IBM AIX, SCO UNIX, SunOS and Solaris, and OS/2. It also supports TCP/IP, NetWare and SNMP networks.

It optionally supports PowerEdge SmartSocket+ and SmartRoom to allow switching of AC power receptacles as well as computer room environmental monitoring.

Contact CompuSci Inc., Manufacturers Dr., St. Louis, MO 63026; (314) 343-5022.

Circle 400 on reader card

Metrix Ships OpenUPTIME 3.0

Metrix Inc. shipped release 3.0 of its OpenUPTIME service application which includes support desk, field service and repair center modules.

OpenUPTIME automatically decrements from the contract each time training services are provided. OpenUPTIME also is offering task-based contracts which support contract segmenting and allow you to define specific tasks to be performed during a preventive maintenance visit or installation period.

OpenUPTIME also has enhanced the Schedule Board, Manpower Planning, Repair Center and Open Call Monitor features.

OpenUPTIME is written in the Uniface 4GL to support multiple platforms, relational databases and GUIs. Hardware platforms supported include HP, IBM, DEC, Sun and LAN. Relational databases supported include Oracle, Sybase, Ingres, Informix and Allbase. It also supports graphical interfaces to Windows, OpenLook, X Windows/Motif and Macintosh.

Contact Metrix Inc., 20975 Swenson Dr., Waukesha, WI 53186-4047; (414) 798-8560.

Circle 399 on reader card

Data Race Adds Voice Switching

Data Race introduced Voice Switching for its MACH DS plus line of voice/fax/data/LAN multiplexers. This feature allows MACH DS plus users to place free long-distance telephone calls within their communications network, between branch offices.

MACH DS plus Voice Switching provides private telephone network, toll-free long-distance calls, direct person-to-person dialing, user-selectable destinations and integration with data/fax and LAN traffic.

The Voice Switching feature works with MACH DS plus Free Speech Single and Dual Channel voice/fax modules which digitize and compress voice calls using 4.8 to 13 Kbps of channel bandwidth.

Voice Switching supports touch tone and rotary pulse dialing. Compatibility is further ensured with FXS and FXO, PBX and central office.

Contact Data Race, 11550 IH-10 W., Ste. 395, San Antonio, TX 78230; (210) 558-1900.

Circle 398 on reader card

Brixton Enables "Routerless" Routing

Brixton announced a suite of internetworking software that uses existing UNIX or Windows NT computers to link users over dial-up phone lines using the Point-to-Point (PPP), Frame Relay or X.25 networks.

Brixton's software — BrxPPP (PPP), BrxFR (Frame Relay) and BrxX25 (X.25) — is platform independent. These products are available for HP-UX, Sun SPARC (SunOS and Solaris), IBM RS/6000, Windows NT and Intel-based PCs running UnixWare, SCO UNIX or Solaris X86.

Brixton's Internetworking Suite software transforms UNIX and Windows NT workstations into standard IP routers. Companies can link distant or mobile systems into an enterprise-wide TCP/IP network by using the routers as gateways to public and private data communications lines. Users can transparently share applications, databases, printers and files, as well as use all TCP/IP services such as remote login, file transfers and E-mail.

Price is $495.

Contact Brixton Systems, 125 Cambridge Park Dr., Cambridge, MA 02140; (617) 661-6262.

Circle 397 on reader card

Acucobol Inc. Offers AcuServer

Acucobol Inc. announced AcuServer, a network file system support for Acucobol applications running in UNIX TCP/IP networks.

AcuServer gives COBOL applications remote file access support in client-server environments. With Acuserver, applications gain the ability to create and store data files on any network system equipped with AcuServer; full function remote access to all indexed, relative and sequential files; complete record locking support of indexed and relative files; and transparent access of remote and local files.

AcuServer does not require any changes to the existing application code. Pathnames to remote files are defined in the runtime configuration file, the operating system environment or the application code.

Also, AcuServer does not require recompilation of existing programs. When executing with runtime version 2.3 and AcuServer, programs, including those compiled with earlier versions of ACUCOBOL-85, get

instant remote file access capabilities.
Contact Acucobol Inc., 7950 Silverton Ave., Ste. 201, San Diego, CA 92126; (619) 689-7220.

Circle 396 on reader card

MAC-PAC OPEN Provides Software For UNIX

Andersen Consulting announced that MAC-PAC OPEN, an integrated manufacturing, distribution and financial software system, will be available on UNIX platforms from HP, IBM and Sun, running on Oracle, Informix and Sybase.

MAC-PAC OPEN features an open systems architecture based on Andersen Consulting's MACH-II (Machine Independent Interface) execution architecture. MACH-II is a non-proprietary, advanced online processing architecture developed to take advantage of the flexibility and power of UNIX, as well as offer the ease of moving across platforms and databases.

The software is written in C and C++ and conforms to ANSI C and ANSI SQL standards. MAC-PAC OPEN also provides users with a GUI for added ease of use.
Contact Andersen Consulting, 69 W. Washington St., Chicago, IL 60602; (800) 541-7512.

Circle 395 on reader card

Ergodyne Introduces WorkSmart Stretch Software

Ergodyne introduces Ergodyne WorkSmart stretch software, a PC-based program designed to prompt computer-users to take frequent "stretching" breaks from their compters.

Using easy-to-follow text and colorful 3D graphics, the WorkSmart stretch program leads users through a series of stretching exercises for major muscle groups commonly affected by prolonged computer use, including the neck and shoulders, upper extremities, low back and lower extremities. The program can be customized to allow users to focus on the stretches most useful to them. There are 12 stretches included on the program.

The program is designed to operate in a Window 3.1 environment. System requirements for the 16-color version include 20 MHz 386-based PC, 2 MB RAM, 16-color VGA display, 640x480 resolution and a mouse. Systems requirements for the 256-color version include 25 MHz 486 DX-based PC, 4 MB RAM, 256-color VGA display, 480x640 resolution and a mouse.

WorkSmart stretch software costs $39.95. A site license costs $16.95 per user and includes a handbook for each employee.
Contact Ergodyne, 1410 Energy Park Dr., Saint Paul, MN 55108; (612) 642-9889.

Circle 394 on reader card

WorkSmart features a 3D animated model to lead users through exercises.

Visual Engineering Launches Ovation

Visual Engineering Inc. introduced Ovation, PC- and Mac-like presentation graphics software for UNIX systems.

Ovation offers presentation graphics capabilities on the same UNIX workstation as the user's core applications, making it easier to create and edit presentations, especially ones that integrate material from the user's mission critical applications.

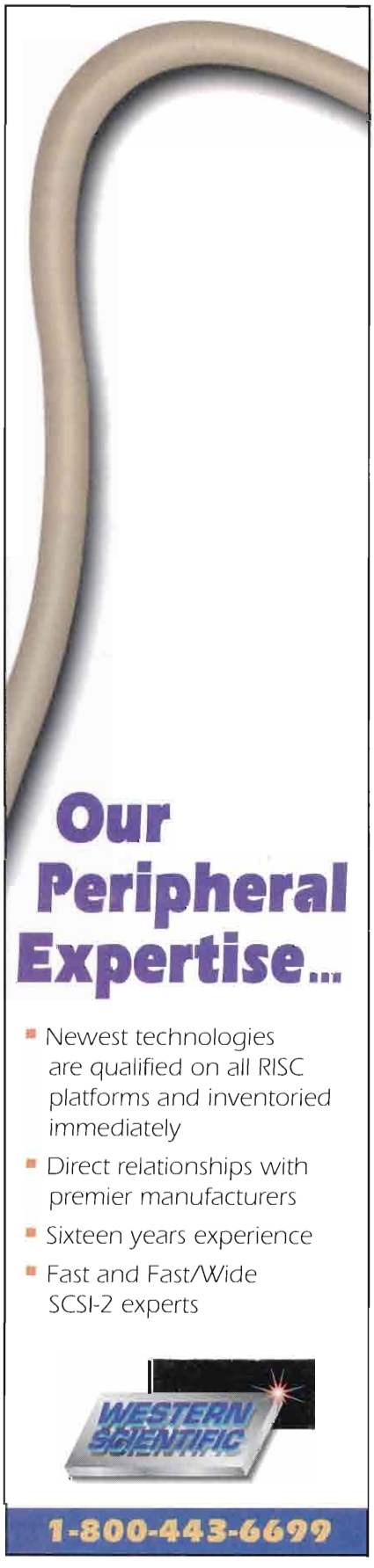
Ovation runs on X terminals, workstations or PCs running X software anywhere on the network. It also has the ability to drag and drop graphics from other UNIX applications; multidisplay presentations; hyperlinks to trigger UNIX multimedia features; extensive graphical online help; integration with UNIX databases and analytical applications; and rich graphics arts features such as translucency and texturing.

Ovation is available on UNIX platforms from HP, Sun, DEC, RS/6000 and Silicon Graphics, and on PCs running SCO OpenDesktop or UnixWare. Price is $795 per user.
Contact Visual Engineering Inc., 2025 Gateway Place, Ste. 318, San Jose, CA 95110; (408) 452-0600.

Circle 393 on reader card

MultiQuest Corp. Announces ShowCASE

MultiQuest Corp. announced the release of ShowCASE, a multiuser software engineering tool that supports the Booch method of object-oriented design. It allows software developers to create graphical models of their systems using smart diagramming tools that understand the semantics of the Booch methodology. High quality C++ code can



CIRCLE 480 ON READER CARD

then be generated directly from the model. ShowCASE operates on heterogeneous networks of PC, Macintosh and UNIX workstations.

The automatic C++ code generation facility encourages engineers to spend more time in the critical analysis and design phases and less time writing code. Also, ShowCASE can be used to conduct online interactive design reviews.

Users can chose between Microsoft Windows, Macintosh, OSF/Motif or OPEN LOOK platforms.

ShowCASE costs $749 on Microsoft Windows and Macintosh, and $2,995 on HP 9000 and Sun SPARC.

Contact MultiQuest Corp., 1699 E. Woodfield Rd., Ste. A-1, Schaumburg, IL 60173; (708) 240-5555.

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Racal-Guardata Introduces Data Security Solutions

Racal-Guardata announced access control, encryption and message authentication data security solutions for HP 3000 computers.

The three products provide increasing levels of protection for access by local and remote terminals as well as data exchanged between applications and platforms. Each version uses tamper-resistant CryptoServer II modules and offer DES-based cryptography complying with ANSI and ISO standards.

The Access Control Manager-3000 (ACM-3000) creates and administers user access accounts, with protected local and remote access to an HP 3000 through the mandatory user of one-time passwords.

SecurIt-3000 provides file encryption, file authentication and access control using DES. Data is protected cryptographically, whether locally stored or exchanged between users or applications locally or with remote sites.

The Host Security System-3000 (HSS-3000) allows the secure exchange of encrypted and authenticated information between HP 3000 platforms. Automated key management and exchange is combined with the features of the ACM-3000 and SecurIt-3000 to provide a comprehensive data security system for the HP 3000 networking environment.

Contact Racal-Guardata, 480 Spring Park Place, Ste. 900, Herndon, VA 22070; (703) 471-0892.

Circle 390 on reader card

Bradmark Delivers MPE/iX Utility

Bradmark Technologies announced the availability of a utility designed to manage MPE/iX disk space and file distribution combined with a revolutionary feature to defragment disk free space.

Files may be truncated either individually, by volume or by volume set, which reclaims wasted disk space beyond end of file. System managers can balance I/O loads at a higher level of detail. The reverse requirement of focusing a file on a single drive is achieved through a File Combine option.

It also provides a view of the graphical disposition of the disk space within the system, similar to Norton utilities, and offers a safe method of reducing the number of free fragments, like the VINIT condense family previously available under MPE/V.

Contact Bradmark Technologies Inc., 4265 San Felipe, Ste. 800, Houston, TX 77027; (713) 621-2808.

Circle 389 on reader card

CIRCLE 253 ON READER CARD

QIS Releases F.A.S.T. Engine

Quality Information Systems Inc. (QIS) released its Full Access Search Tool (F.A.S.T.) Engine.

Users can find the documents most likely to contain the required information without having to worry about where the document is located and how many documents are maintained in the library.

The F.A.S.T. Engine consists of a database and a set of support routines. It contains a configurable preset dictionary, a user-defined dictionary and an inverted index of all words in all documents contained in your computer library. It supports searches by words, phrases, two words in proximity to each other, a word and its synonyms, partial words, weighted searches and fuzzy logic searches.

The F.A.S.T. Engine is available in a C or C++ library, and is platform independent. Contact QIS Inc., 10680 W. Pico Blvd., Ste. 260, Los Angeles, CA 90064; (310) 287-0728.

Circle 388 on reader card

MDI Produces ADAMS/Animation

Mechanical Dynamics Inc. (MDI) introduced an add-on option to its ADAMS line of mechanical simulation software. ADAMS/Animation combines realistic animation and visualization features with critical engineering capabilities to improve an engineer's ability to understand and improve the motion behavior of a mechanical system "virtual prototype."

ADAMS/Animation provides multiple light sources, cameras, texture mapping and translucency. Simulations can be run in real time or faster, enabling the detection of even subtle motion differences caused by design variations.

Contact MDI, 2301 Commonwealth Blvd., Ann Arbor, MI 48105; (313) 994-3800.

Circle 385 on reader card

Comtec Unveils HSM Software

Comtec Automated Solutions announced a hierarchical storage management (HSM) software package: Emperor, The Storage Migration Manager. When combined with a variety of tape or optical media, the product will provide a data management solution.

HSM allocates files across a combination of online magnetic disks and less expensive near-line tape and optical libraries. Files can be migrated based on time of last access, disk capacity or size, depending on the user specifications.

It supports heterogeneous networks of HP, Sun, Novell, IBM and SCO with other platform additions planned. Comtec offers hardware from HP, Exabyte, StorageTek, Metrum and Odetics. The product line includes 8mm, VHS and 3480 tape libraries as well as optical jukeboxes.

The Comtec HSM solutions range from $50,000 to $300,000. Backup solutions range from $5,000 to $75,000.

Contact Comtec Automated Solutions, 10,000 Old Katy Rd., Ste. 150, Houston, TX 77055; (713) 935-3666.

Circle 383 on reader card

HP AccuPage Enhances Scanned Images

HP announced HP AccuPage Technology, an image-processing technology that allows user to design optical character recognition (OCR) software. OCR technology enables users to scan documents directly into their PCs or Mac computers as editable text without re-keying the data.

HP AccuPage is used for HP ScanJet II scanners — ScanJet IIc and IIcx color scanners and the ScanJet IIp grayscale scanner — which have built-in HP AccuPage-enabled hardware functions.

HP AccuPage 2.0 adds small text enhancement, automatic page optimization and faster page processing.

OCR packages using HP AccuPage require a minimum 386 or 68020 processor. Windows 3.1 or Macintosh System 7.0 or later also is required.

PowerVideo700 Available For HP 9000 Series 700s

Parallax Graphics announced the PowerVideo700 series, a family of digital video products exclusively for the HP 9000 Series 700 workstations.

The PowerVideo700 features four 24-bit, EISA-based products offering full-size, full-motion, true-color video. Users can display digitize, compress and store video and take advantage of optional analog output. The software tools are integrated with HP MPower V2.0 to support multimedia applications.

PowerVideo700 uses VideoStream technology which supports simultaneous video windows and fast frame rates, making it suitable for performance-intensive applications like desktop videoconferencing and video-on-demand.

Contact Parallax Graphics Inc. 2500 Condensa St., Santa Clara, CA 95051; (408) 727-2220.

Circle 382 on reader card

CIRCLE 480 ON READER CARD

Magic Software For The HP Releases SortMagic/XL 3.0

Magic Software for the HP announced SortMagic/XL 3.0 which is now compatible with HP SORT and SORT intrinsics.

SortMagic/XL 3.0 allows existing CM or NM programs to take advantage of SortMagic. CPU and elapsed times are reduced by 50 percent or more. No changes to existing programs are necessary.

IMAGE database processing is improved with version 3.0, providing a simple interface for selecting, extracting and sorting IMAGE data. SortMagic can be run programmatically or as a standalone process.

Contact Magic Software for the HP, 4786 S. Olathe Way, Aurora, CO 80015; (303) 766-3222.

Circle 381 on reader card

CIRCLE 293 ON READER CARD

teem Connectivity Tools Include API Option

Pericom Software announced that the application programming interface (API) is now an option with it's teem connectivity products. This provides an invisible link between the user program and host application.

Pericom's API enables the teem range of terminal emulators to be integrated into user written applications using a comprehensive set of commands including: connection to 26 separate host sessions simultaneously; copying all or part of the visible presentation space; searching presentation space for strings or fields; initiating keystrokes; and configuration of emulation parameters.

Available for teemX for UNIX environments and teemtalk for Windows, the API enables access from UNIX- and Microsoft Windows-based platforms. Multiple simultaneous emulations supported include ANSI, Data General, DEC, IBM, HP, Microcoulour, Prime, Tandem, Viewdata and Wyse.

Contact Pericom Software PLC, The Priory, Cosgrove, Milton Keynes MK19 7JJ, United Kingdom; 44 908 265533.

Circle 392 on reader card

Chestnut Data Releases CDS/Scan

Chestnut Data Systems announced CDS/Scan, an online Report Display and Archival system designed specially for the HP 3000 computer systems and sites attempting to reduce costs associated with report printing, distribution and microfiche archiving.

CDS/Scan supports the HP Optical Disk Library system (jukebox) containing up to 150 GB of information. It also can archive to IEM single unit optical disk drives without requiring any special device handlers. CDS/Scan also is available, packaged with an IEM 650 MB or 1 GB optical disk drive system and the HP Optical Disk Library.

Other features include file download to PC with report mapping and field delimeter insertion

Price starts at $2,500 and increases depending on CPU size.

Contact Chestnut Data Systems, 6981 North Park Dr., Ste. 613, Pennsauken, NJ 08109; (609) 662-1611.

Circle 387 on reader card

DataExpress Interfaces With HP SQL Databases

M.B. Foster shipped a new version of DataExpress that interfaces with HP's SQL databases giving HP 3000 end users easy

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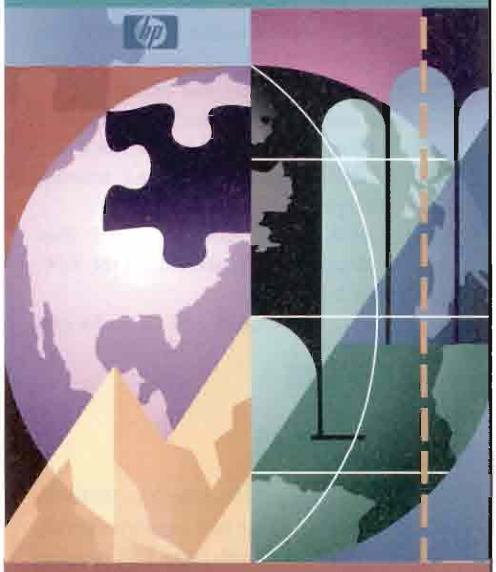

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The International Association of Hewlett-Packard Computing Professionals

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access to host-based enterprise information.

The software transfers HP host data into PC formats like Lotus, Excel, dBase or WordPerfect, using a consistent interface from either PCs or terminals.

Version 1.73 also taps ALLBASE/SQL databases running on HP 3000s. The ALLBASE data can be output in HP 3000 file formats such as MPE self-describing files, KSAM files and PowerHouse sub-files.

Other enhancements include increased control of batch jobs, which can be run under different session, group, user and account names with proper password controls.

Contact M.B. Foster Associates, P.O. Box 589, 50 Water St., Chesterville, ON K0C 1H0; (800) 267-9377.

Circle 384 on reader card

HARDWARE

IMC Introduces XL-100E/IP

IMC Data Manager offered the XL-100E/IP, an Ethernet print server that supports Novell, TCP/IP UNIX, network DOS PCs running XPRESS and non-network workstations. It connects printers directly to the network, and can turn a laser printer into a plain paper fax machine via a fax modem.

The XL-100E/IP is a dedicated hardware device, therefore it requires no additional software because built-in firmware interprets the supported protocols. Novell utilities such as Pconsole, Capture and Nprint spool print jobs to the XL which is set up as a Pserver or Rprinter. The XL also is an LPD server which supports standard UNIX systems such as HP-UX 8.x for HP 9000 Series 300/400/700 workstations, SunOS version 4.1.2 or Sun SPARCstations, DECstation Ultrix, IBM RS/6000 and AIX, and SCO UNIX.

Direct peer-to-peer high-speed printing on the Ethernet is available to DOS PCs loading with XPRESS, a 4K TSR proprietary program that captures jobs directed to ports LPT1 through LPT4 and sends them on the Ethernet to any selected printer on the XL.

The XL is controlled by a Motorola MC68000 CPU and includes 512K memory, one BNC thin net connector, two high-speed (170 KB per second) parallel ports and eight (up to 115 Kbits per second) serial ports. Expansion options include 4 MB of memory and eight serial ports.

Price is $995.

Contact IMC Data Manager, 4151 Business Center Dr., Fremont, CA 94538; (800) 537-5999.

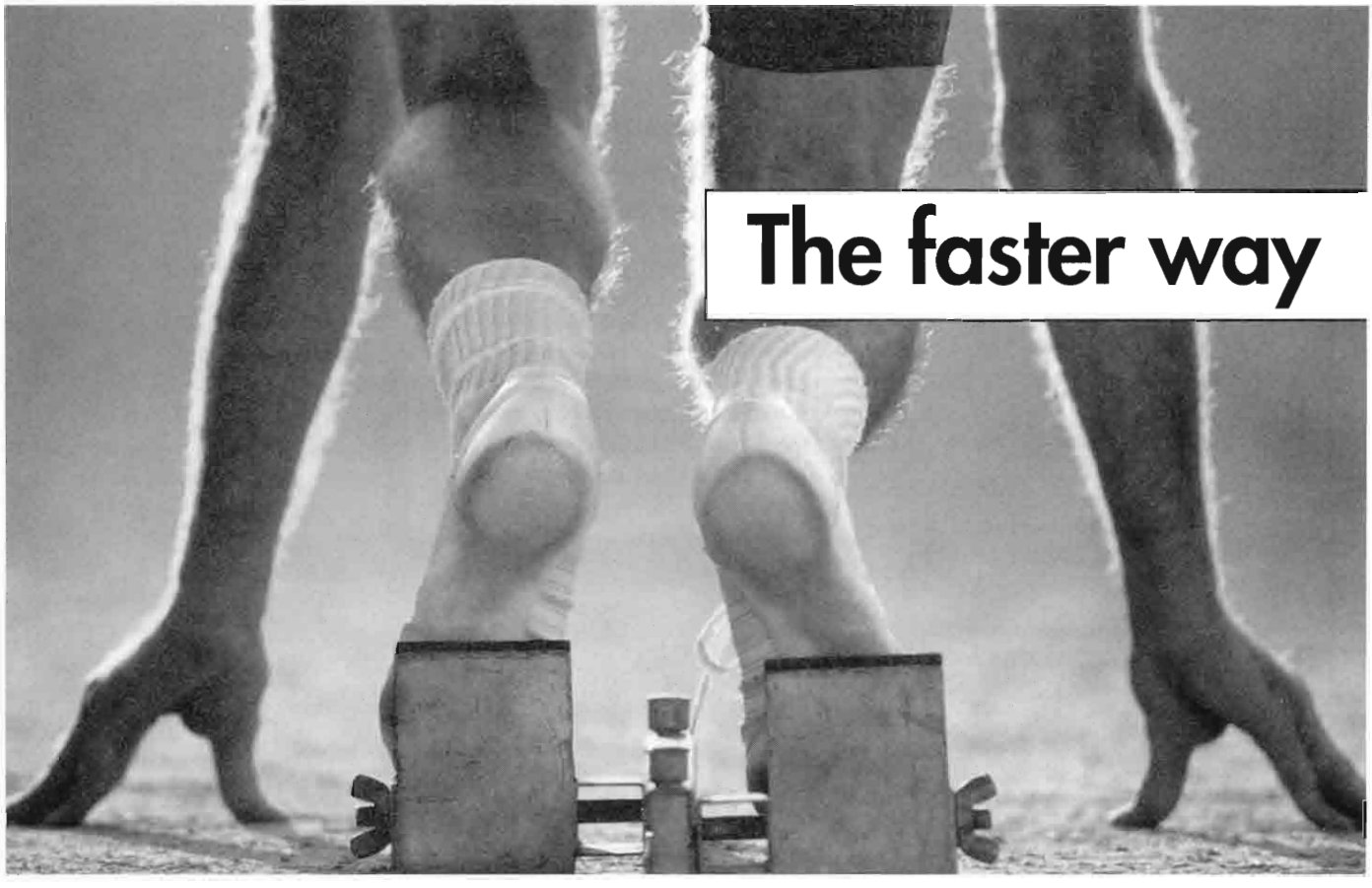
Circle 379 on reader card

Antex Offers Z.SoundSystem

Antex Electronics Corp. offered its pro-audio Z1 Sound Board and Z.WAV wavetable synthesizer/sound module daughtercard to OEMs, integrators and PC users with a fully-integrated, high-performance digital audio and MIDI-compatible digital audio sound solution for use in multimedia applications and products.

The bundled products include the Antex Series 3, Model Z1 16-bit digital audio adapter, the Z.Wave 32-voice, 15-part polyphonic synthesizer sound module, Voyetra Multimedia Sound Software and Windows 3.1-compatible software driver.

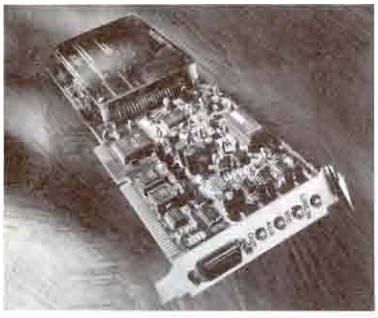
The Z.Sound Systems offers specifications



including S/(ND) of 72+dB, a dynamic range of 80dB, a frequency response of 20 Hz to 20 KHz, and meets Microsoft and Interactive Multimedia Association standards.

Z1 costs $395 and The Z.WAV daughtercard sound module costs $295. Contact Antex Electronics Corp., 16100 S. Figueroa St., Gardena, CA 90248; (310) 532-3092.

Circle 378 on reader card



The Z.Sound Systems provide high-performance digital audio to PCs.

HP Provides AdvanceStack

HP introduced three 10Base-T hubs that incorporate manageability and functionality of chassis hubs while retaining the flexibility and economy of stackable hubs.

An expansion slot lets AdvanceStack hubs upgrade to SNMP management, security, bridging and routing, and will accommodate remote monitoring (RMON) in the future; and high-speed backbone connections to 100VG-AnyLAN, FDDI and ATM.

HP AdvanceStack hubs can be chained together — up to 185 meters apart — with industry-standard coaxial or unshielded twisted pair cable. Up to 16 hubs (784 nodes) in a stack can be managed with one SNMP management module installed in any one hub in the stack.

AdvanceStack hubs offer three levels of network management: a Windows-based management application, HP Stack Manager, that lets network managers configure, monitor and troubleshoot the entire stack; the addition of a single SNMP module provides the benefits of SNMP management and the network traffic-analysis capabilities of HP's Embedded Advanced Sampling Environment (EASE); and the addition of more SNMP modules provides redundant management support and workgroup security features, such as eavesdrop prevention and auto-port dialing.

Prices are $1,079 for the 12-port version, $1,699 for the 24-port, $2,899 for the 48-port and $695 for an SNMP Management card.

DCI Announces One-Port Controller

Development Concepts Inc. (DCI) announced a one-port version of its Twinax Terminal Controller line which will support up to seven 5250 terminals and printers running the following UNIX platforms: HP 9000 Series 800, RS/6000 or any PC running SCO UNIX.

This board is designed to complement DCI's existing two- and four-port Twinax Terminal Controllers which enable UNIX systems to continue using 5250 terminals and printers which were previously installed on IBM S/36 or AS/400 computers.

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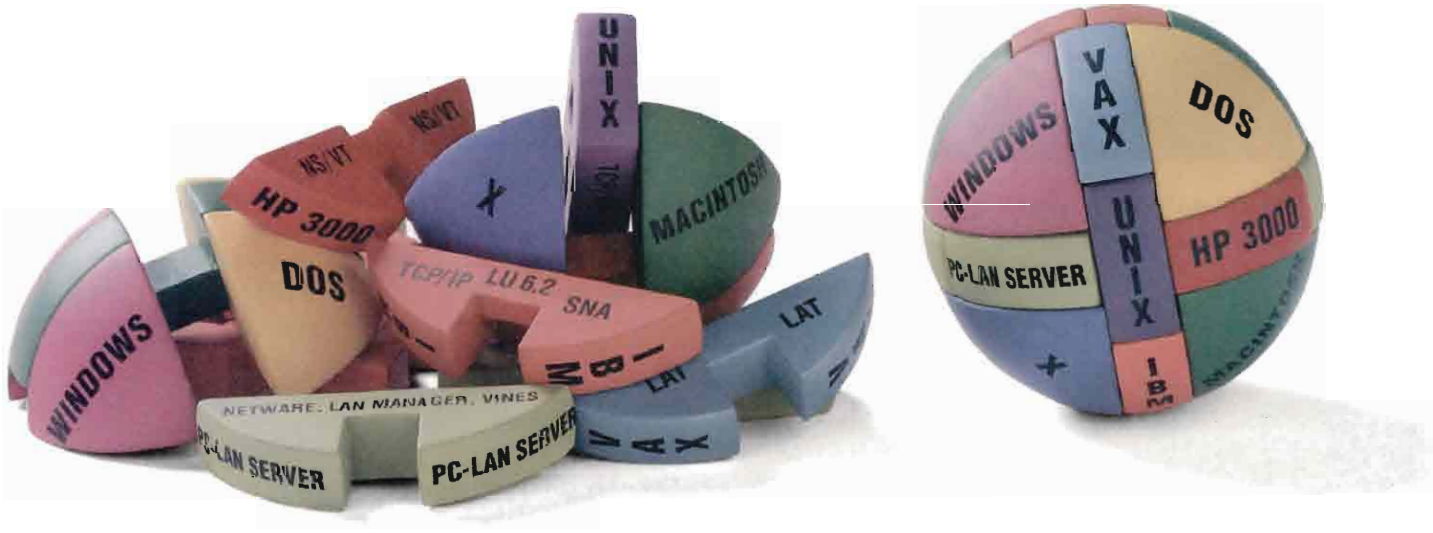
PC connectivity?



Reflection makes it child's play.

If connecting PCs to minicomputers, mainframes, and servers has you puzzled, choose Reflection® and Reflection Network Series® software from WRQ.

No other software vendor offers such a complete solution to integrate personal computers with HP 3000, HP 9000, VAX/VMS, UNIX, and IBM systems. Reflection provides the most precise terminal emulation for text and graphics, fast file transfer, a versatile command language, and more—for DOS, Windows, and Macintosh platforms. Reflection also offers a reliable PC X server. All backed by a solid company with exceptional technical support.

If you want to run host and server applications at the same time, add the Reflection Network Series. Run NS/VT, LAT, Telnet, and TCP/IP concurrently with LAN protocols from a single PC, over Ethernet or Token-Ring networks. The Reflection Network Series also includes support for Berkeley Sockets, NetBIOS, and NetIPC—yet it takes remarkably little memory.

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Reflection and Reflection Network Series are registered trademarks of Walker Richer & Quinn, Inc. All other trademarks are the property of their respective holders.

Contact DCI, 730-D Louis Dr., Warminster, PA 18974-2829; (215) 443-9652.

Circle 376 on reader card

Talaris Systems Expands Laser Printer Family

Talaris Systems Inc. unveiled two high-performance members of its Imagestation laser printer line — the Talaris 3290FT Imagestations, a 32 ppm network laser printer, and the 2090FT Imagestation, a companion 20 ppm printer. All Imagestations accept TIFF files directly with no host software or set-up commands.

The two printers use an Intel i960 RISC-based image processing accelerator to provide a rated engine speed printing for up to 100 KB per page TIFF files.

The 3290FT and the 2090FT have Ethernet built in and optional transceivers are

HP9122C HP9153C Replacements

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CIRCLE 245 ON READER CARD

Pro_EDI

Intelligent EDI

*Pro*_EDI is an advanced, flexible EDI utility which runs on many different computers. *Pro*_EDI gives you the power to integrate EDI seamlessly with any application software.

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With *Pro*_EDI , you have complete control over the conversion of EDI data formats to the formats used by your own software. You can define transaction sets *exactly* as your trading partners do. You have total flexibility to define the files you use to interface with your applications. You can control, at the element/sub-element level, the conversion of data to and from the EDI formats and the application software formats.

*Pro*_EDI supports all ANSI X.12 standards and derivatives (such as TDCC, VICS, AIAG, etc.), and UN/EDIFACT.

*Pro*_EDI runs on HP 3000 and HP 9000 computers, PCs, and UNIX (HP-UX, SCO, ATT).

Single-tier pricing

*Pro*_EDI has one price tier for each hardware platform on which it runs. There are no added charges for CPU upgrades, new trading partners or EDI documents.

PSI

Pro Software, Inc.
Suite 240
725 Barclay Circle
Rochester Hills, MI 48307

(810) 299-0020 (Voice)
(810) 853-2442 (FAX)

*Pro*_EDI is a trademark of Pro Software, Inc. UNIX is a trademark of UNIX System Laboratories in the USA and other countries.

CIRCLE 277 ON READER CARD

available to connect to thin-wire or twisted pair. The Ethernet protocol support includes Novell SPX/IPX bi-directional lpd, lpq and ftp, and DECnet host connections.

The Talaris Automatic Switching capability also recognizes six other optional printer languages. It either switches to that language or displays a warning page if the optional language is not present.

The Talaris 3290FT costs $25,550 and the 2090FT costs $18,900.

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

Circle 377 on reader card

TSSterm 420 Emulates VT420s on HP 9000s

Thursby Software Systems Inc. (TSS) released TSSterm 420 a VT420 terminal emulator for HP 9000 workstations.

TSSterm 420 provides HP 9000 users with exact DEC VT420 terminal emulation in the X Window environment. TSSterm 420 allows the user to easily map their keyboards to their own preferences, while retaining the Motif GUI of the HP 9000 workstation.

TSSterm 420 emulates DEC VT52, VT100, VT220, VT320 and VT420 terminals. Other capabilities include true 132 column mode, multiple sessions, multiple pages, print capture and session logging. TSSterm 420 also provides true representation of all character attributes, including bold, blink, underline and reverse.

Price starts at $495 for a four session license.

Contact Thursby Software Systems Inc., 5840 W. Interstate 20, Ste. 100, Arlington, TX 76017; (817) 478-5070.

Circle 380 on reader card

MultiTech Systems Offers MultiModem II

MultiTech Systems announced V.34 of MultiModem II, a 28.8 Kbps modem that has a FlashROM-based processor that allows you to upgrade quickly and easily by downloading a file from a BBS.

The MultiModem II comes with an optional Intelligent Serial Interface (ISI) to ensure proper serial port performance at the higher data rate. It incorporates remote configuration and document conferencing (whiteboard) capability.

Contact MultiTech Systems, 2205 Woodale Dr., Mounds View, MN 55112; (612) 785-3500.

Circle 375 on reader card

MDL Releases XE Exabyte

MDL Corp. released XE Exabyte Domain Tape Driver which enhances the life and functionality of the HP/Apollo workstations running under the Domain operating system. In addition, the XE Exabyte generates greater performance to HP 9000 Series 400 and DN 2500, 3500, 4500 and 5500 series workstations.

The XE Exabyte Domain Tape Driver provides users with read and write capabilities to Exabyte tapes. Additionally, this system is compatible with tools such as wbak, tar and Workstations Solutions Exatape software. It is a full function driver with libraries and a utility program that allows access to all capabilities of Exabyte tape drives.

Contact MDL Corp., 15301 N.E. 90th St., Redmond, WA 98052; (206) 861-6767.

Circle 374 on reader card

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Reader Information

This month's issue contains many advertisements for hardware and software products available for your HP systems. Your investment in these products today could mean a more lucrative future for your company. Use the information below to learn more about the advertisers' offerings, then use the reader information card to initiate your direct link to valuable information about these advertisers' products.

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Fourth Shift is a leading developer of integrated industrial management software. Founded in 1984, FOURTH SHIFT has approximately 2,000 customers in 37 countries. The company has two product lines: the Manufacturing Software Series (MRP II) for DOS/Windows/NetWare, and the JIT Enterprise System (ERP) for UNIX/ORACLE environments.
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ARTECON INC.
CIRCLE 242
Artecon is a leading systems integrator and manufacturer of value-added hardware and software products for the UNIX marketplace. Product lines include: Opticals, Removables, Backups, Storage and Accessories.
Call (800) USA-ARTE, FAX (619) 931-5527.

CLIENT SYSTEMS, INC.
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Client Systems, Inc. is the leading two-tier distributor of client/server hardware and software solutions to value-added resellers and systems integrators in the HP commercial computing marketplace throughout the US and Canada. We provide "best-in-class" products and services to the channel, including Oracle, Cognos, Edify, Distribution Resources Company and other commentary products. Centrally located in Englewood, Colorado, systems are expertly assembled, configured, tested and shipped.
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COGNOS CORP.
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Cognos provides application development software for HP MPE V, MPE XL and HP-UX platforms.
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FUTURESOFT
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FutureSoft manufactures a complete line of terminal emulation and communications software products. The DynaComm family of products provides comprehensive terminal emulation and network connectivity for PC to mainframe links.
Call (800) 989-8908 for additional information.

GE RENT/LEASE
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GE Rental/Lease provides the benefits of short-and long-term rental and leasing of workstations PCs, notebooks, accessories, and multimedia equipment from manufacturers like HP, Sun, Silicon Graphics, Tadpole and more! Save working capital on the latest technology with overnight, nationwide delivery and convenient toll-free ordering! We can provide customized equipment solutions like Sun's SAPRC station 10 models 512MP, 402MP, 51, 40, 41 and SPARCserver 1000s.
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IEM is the manufacturer of the largest line of HP third-party peripherals. IEM offers affordable solutions for the HP environment. IEM's product line includes 4mm tape drives and autofeeders, 8mm tape drives, autofeeders and carousels, QIC tape drives, optical drives (WORM, MOD, Multi-function and CD-ROM), fixed winchester drives, floppy disk drives, combination drives and more. Most IEM products are available with either an HP-IB or SCSI interface for HP 1000, 3000 and 9000 computers. IEM also offers a number of unique software solutions, including an automated backup and archive program.
Call (303) 221-3005 or (800) 321-4671.

KINGSTON TECHNOLOGY CORP.
CIRCLE 281
Kingston Technology designs and manufactures memory upgrades for PCs, laptops, workstations and laser printers. The Kingston product line also features mass storage subsystems and processor upgrades. **Call (800) 835-2545, FAX (714) 435-2699.**

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Lawson Software is a full-service supplier of enterprise-wide, client/server business management solutions. The Lawson systems have the power to assist you in managing financial and capital resources, personnel-related information, and the distribution of materials and inventory. As a recognized industry leader for support and services, Lawson Software is dedicated to achieving 100 percent client satisfaction.

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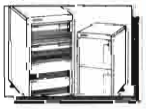
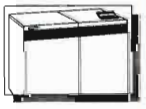
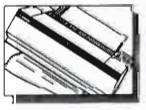

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ADVERTISERS INDEX

Reader Service Number		Page
182	Fourth Shift	11
163	Aldon Computer Group	50
174	Andersen Consulting	35
286	API International	46,47
242	Artecon	COVER 2
129	Avnet Computer	12,13
103	BBN Software Products	17
171	Black River Computers	50
479	Client Systems, Inc.	6
454	CMI	49
117	Cognos Corporation	19
232	Concorde Technologies	64
213	CSU Industries	51
254	Data General	41
190	FutureSoft	45
464	GE Rental Lease	14
173	Herstal Automation, Ltd.	25
119	Herstal Automation, Ltd.	67
459	Hewlett Packard/CSG	15
	Hewlett Packard/CSG	5
156	Hummingbird Communications Ltd.	23
122	IEM, Inc.	2
218	Insignia Solutions Inc.	22
150	Interex	59
260	Island Software	51
281	Kingston Technology Corp.	1
463	Lawson Software	COVER 3
472	MiniSoft, Inc.	4
244	National Instruments	10
488	Newport Digital Corporation	9
277	Pro Software	63
178	Pure Software, Inc.	60,61
268	Quest Software	31
245	Texas ISA, Inc.	63
153	TODAY Systems	49
477	Tryonics Inc.	27
138	Technical & Scientific Applications (TSA)	58
499	Unison/Tymlabs	37
248	UNIX EXPO	66
225	Visual Numerics	33
143	Vital Soft Incorporated	43
115	Walker Richer Quinn/Reflection	COVER 4
194	Western Scientific	53
194	Western Scientific	55
480	Western Scientific	57
253	Work Station Solutions	56
263	WRQ	21
	WRQ	62

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Laws Of Supply And Demand Should Be Followed By IS

By Gordon McLachlan

Socialism is dead, right? Well, maybe it's time for IS departments to get the message and start behaving like capitalist pigs instead of Soviet bureaucrats.

Any economy is bound by the fact that money and goods are scarce. Economic systems differ in the way they ration those resources. Capitalism lets the free market determine who gets what. Soviet-style socialism left rationing in the hands of its central planning bureaucracy.

In a free market, if demand is higher than supply, prices go up. If supply exceeds demand, prices go down. What regulates a free market is competition. If demand and prices are high, new suppliers enter the market, which increases supply and eventually drives prices down. If supply grows too much, prices drop substantially, forcing inefficient producers to drop out of the market. That makes risk unavoidable in a free market economy.

The 18th century economist Adam Smith called these market forces the "Invisible Hand of God." But it's not easy to put your faith in an invisible hand — even God's. The idea of a free market determining our future can be scary, and human conceit being what it is, when things don't seem to be turning out the way we expect them to, we try to give the hand a little help.

Central planning and control looks like a scientific methodology compared to the anarchy of a free market. Too bad it doesn't work. Unfortunately, that seems to be the approach that IS insists on taking. Instead of letting the Invisible Hand do its thing, we want to eliminate risks by planning and standardizing everything to death.

So IS organizations spend too much time worrying about the future and plotting their courses, when those things are really out of their hands. Standards are consistently and repeatedly set in the marketplace, but we persist in believing that we can manage them rationally and scientifically. That is conceit, and largely a waste of time. We ration systems out to our users by first determining what *we* think they ought to want, and then delivering these systems when *we* can find the time, resources, and finally get around to it.

The free fall of hardware prices reminds me of the old USSR, where you could get a loaf of bread for less than the cost of the grain it took to make it. In fact, Soviet farmers were known to feed bread to their animals, rather than feed, because it was so cheap. Yet you couldn't find a roll of decent toilet paper and had to get on long waiting lists to get an apartment or a telephone.

Well, you can buy all the cheap PCs and workstations you want, but unless your users are happy with their spreadsheets and word processors, they're out of luck. Need an application? Get on the waiting list while the planners figure out what they think you need.

I think we ought to let the free market play a little more prominent role here. Let's try something radical and let users start paying what it really costs to develop systems and let them decide what we should do.

First off, IS organizations have to start charging back for the services they provide. Too many don't, partly because it's too much trouble to figure out what should be charged, and partly because if they do charge back, users might start demanding to get their money's worth.

This approach is not without its problems: IS departments might actually have to compete with outsiders for their users' computing dollars, and start delivering efficient service; and users would have to start thinking about what they were really asking for. It's amazing how restrained requirements can be when users see what development really costs.

Management has made it known it won't tolerate quixotic excursions that result in failure by the way it goes through IS managers. The two-year tenure you can expect in that position is about as long as you would last as head of a collective farm under one of Stalin's Five Year Plans. But, we have to be allowed to take some risks.

So I guess it's nice to be able to pretend there is such a thing as a free lunch, and just bury the real costs of IS throughout the corporation. Never mind that IS costs are soaring despite cheap hardware and nobody seems satisfied. The IS motto seems to be that of the Russian factory laborer: You pretend to pay us, and we'll pretend to work for you.

McLachlan's Internet address:
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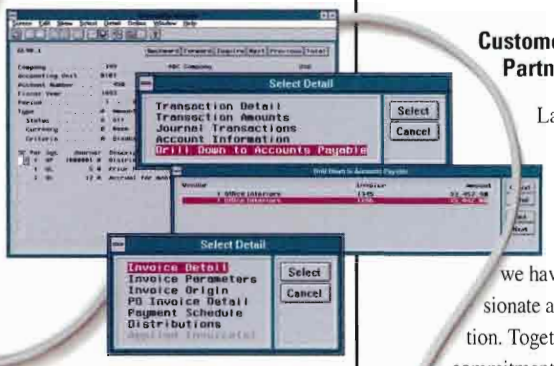

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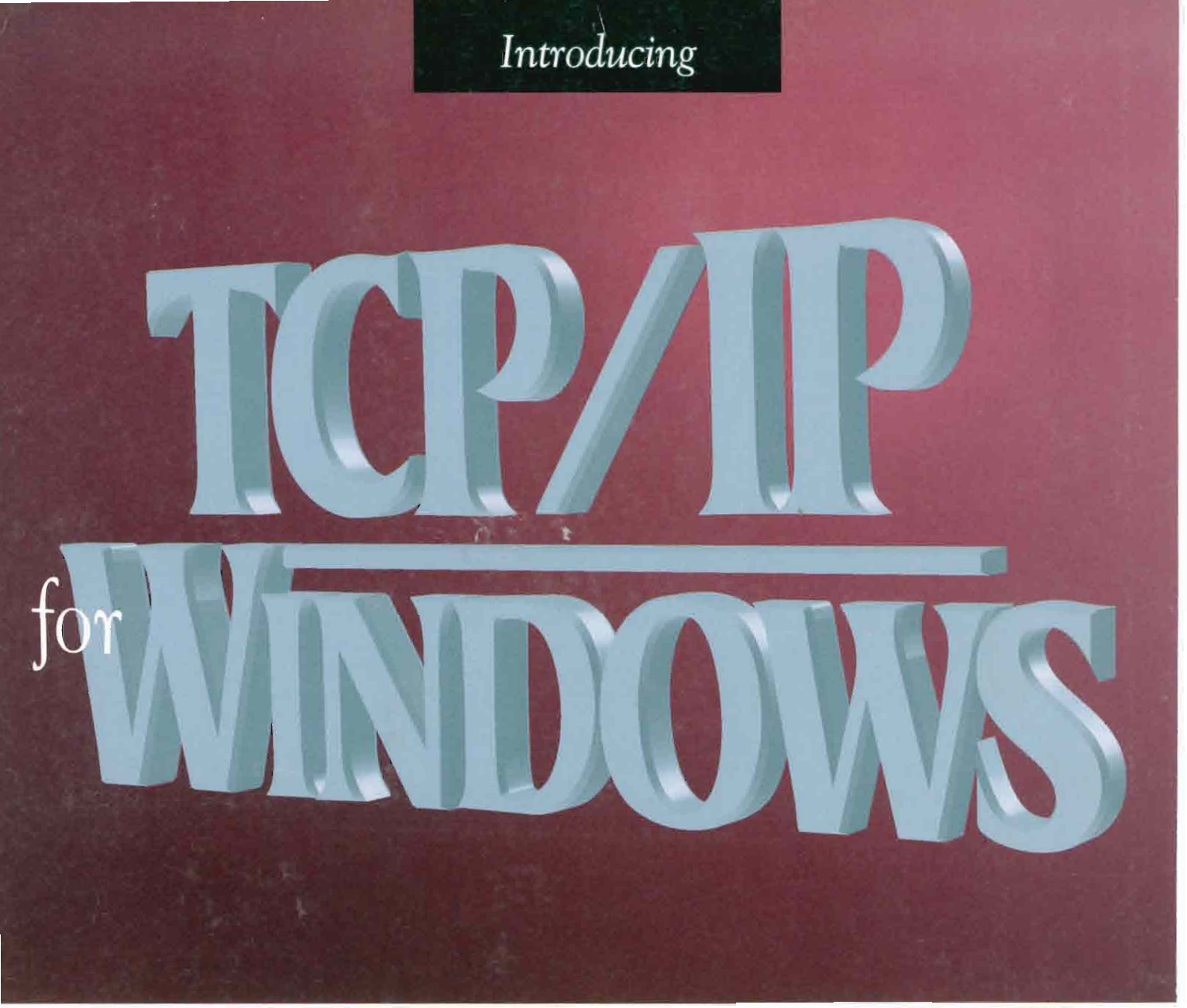

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