The Magazine For Hewlett-Packard Enterprise Computing

HP Professional

HP-UX
Windows NT
MPE/iX

MAY 1997

A Cardinal Publication

CHANNEL OVERVIEW

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As HP goes to the NT market, will today's Channel Partners bring home the bacon or fry up in the pan?

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LETTERS

WORTH THE JOURNEY

[Fred Mallett's] article "Journey to the Center of Your File System" [in the March 1997 issue] was excellent. Still being locked in to HP-UX 9.07 due to legacy applications, I like to read as much information as I can regarding V10.20.

Don't worry, if he teaches as well as he writes these articles (of which I've been reading for quite some time), he won't have to worry about cutting those squares from the HP shipping boxes! Please keep these articles on HP-UX V10.20 coming!

Ron Hicks
Sr. Sys. Admin.
EDS/GM Truck Group

I enjoyed [Fred Mallett's] article on journaled filesytems in the March 1997 issue. VxFS sounds like some pretty neat software, especially because of the ability to reduce filesystems, **fsck** time and the intent log that will complete all incomplete disk operations.

Is there some kind of internal database that stores these logs on another disk or how does that work? Is this software only available for HP-UX?

Tim Driscoll
UNIX Systems Programmer
Premier Systems Inc.

Fred responds: *No, the intent log is written to the disk it is logging, and there are various levels of when the log must be written. You would typically only delay or prevent log writing for "who cares" type disks like /tmp or /our-readnews-stuff. Remember, there is another product that mirrors disks for high reliability.*

And this isn't only available for HP-UX. This stuff is industry sort-of standard; it is available for many systems. Even IBM's AIX ;)

Errata Data

In the April 1997 issue, Sterling Software's phone number was listed incorrectly in the Strategic Directions article "States of Desire." The correct phone number is **(703) 264-8000**.

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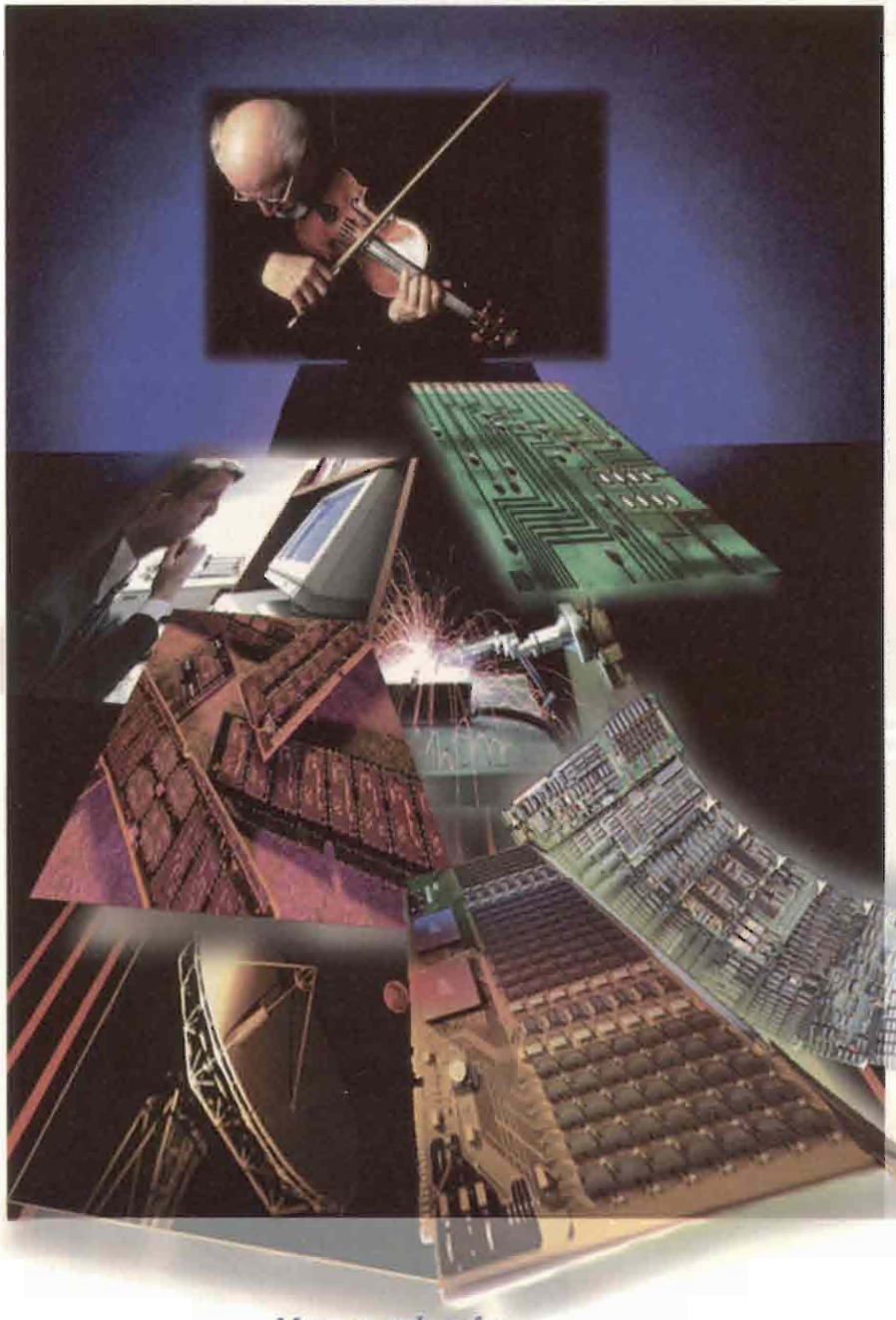

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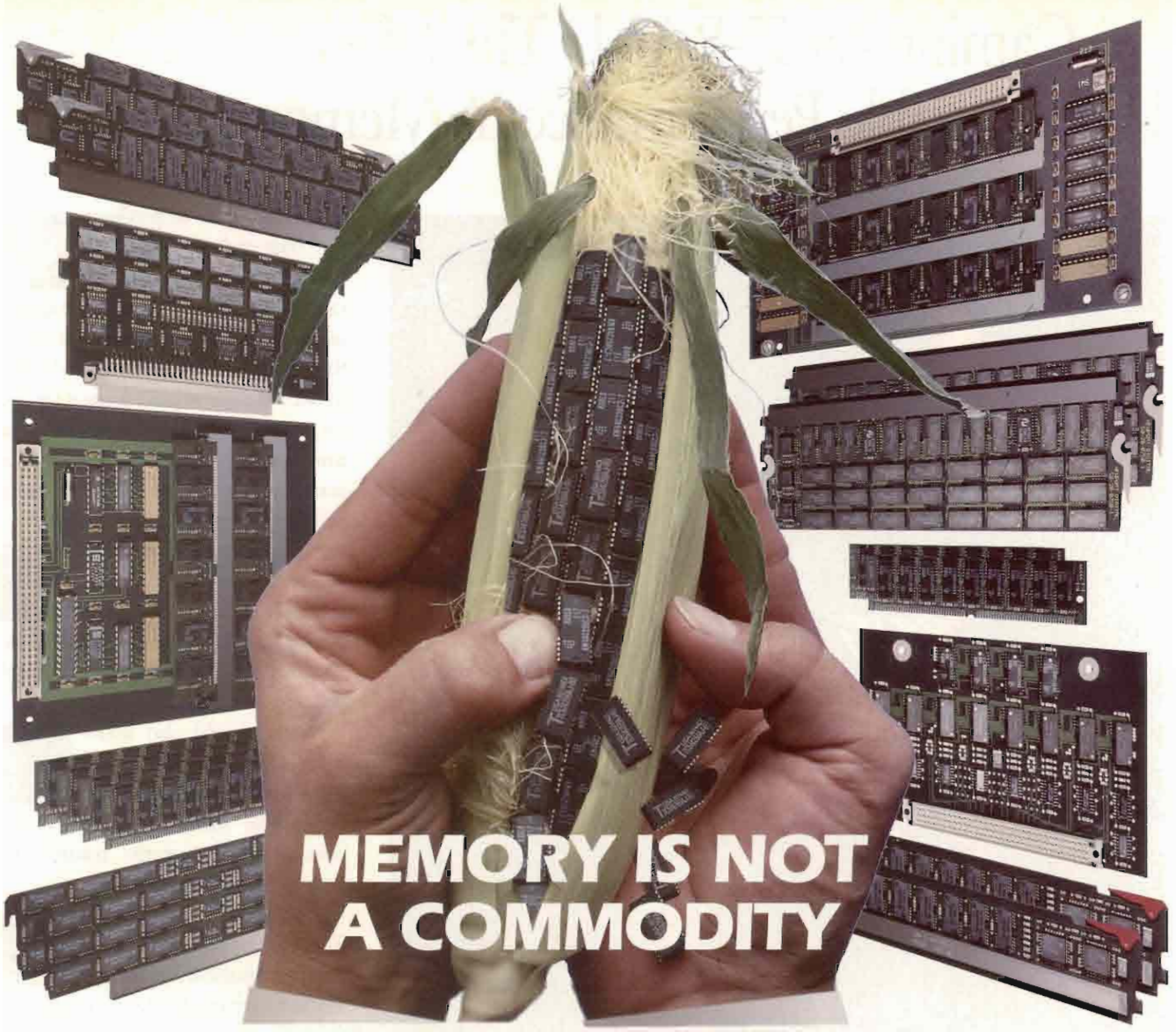

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HP-360			●	●	●		●				
HP-362		●	●	●							
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HP-425E			●	●			●				
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HP-705/710				●			●	●			
HP-715/725			●	●			●	●	●		
HP-720/730/735							●	●	●	●	
HP-742/745/747			●	●			●	●	●		
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It has to be over a year since I went on one of my obligatory bite-the-hand-that-feeds-me diatribes. So I'm due.

It all started on a recent flight from Boston (cloudy fade to the inside of a DC-9...we see a tired editor who's been up for 26 hours, but surprisingly still looks great and smells pretty good). As we make our approach to the City of Brotherly Love, a voice from the cockpit informs us that we're now making our final descent into Philadelphia; which as any good traveler knows means it's time to return your seat backs and tray tables to their full upright position and turn off all portable electronics.

But just to be sure, the voice specifically announces yet again: "Please turn off all portable electronic devices including radios, cell phones and . . . personal computers." From behind, I hear the "clickity click" of Joe VP. I figure the guy's in the middle of a file and he needs to save. But noooooooooooo. He continues to bang away, even after the flight attendant personally asks him to please turn it off. Afterall, what he's doing is so much more important than anything else on the planet, including airline regulations and the safety of the other passengers.

Before buckling in, the attendant walks by and tells him again that they need him to shut down — NOW. He huffs and puffs and closes his laptop. He then proceeds to turn to the stranger next to him and says, "I run a division of a software company, and I wish someone would design an airplane where I could use a laptop." Time out.

Yeah, sure . . . let's redesign all aircraft. Not to be safer, more efficient or even a bit more comfortable, but rather so *he* can use a laptop for the five to seven minutes during take off and landings. As if he were developing the formula for the cure for cancer or calculating how to feed the world in those 15 minutes. Let's redesign a $55 million plane just for him. How about redesigning the $400 laptop? Nah, the laptop is the single most useful tool in the business world. Right? It's perfect. In fact, it's a "really great thing," according to Bill Gates.

AND FALLING FAST

Anyway, this guy didn't seem to understand why he couldn't use his PC. He was "sure it didn't interfere with the communications" of the flight crew. Afterall, he ran a division of a software company, so he must know. Now I don't claim to know for sure why they tell us to turn them off, but I figure they have a pretty darn good reason. And if there is a 1/100 of 1 percent chance in a billion that my laptop might make the pilot hear Runway 7 instead of Runway 27, I'm not only shutting the thing off, I'm yanking the battery and wrapping it in lead.

But according to the division runner, the laptop has made us all just "so productive." I agree. The portable computer is a useful tool that helps make efficient use of travel time, unless of course you like to relax a little with a movie and beer after a three-day business trip. But just how productive are you? What are you really "producing" at 30,000 feet? Data? Information? Closing the "big deal"?

What you're doing is just spending more time working. Like duh, I'm much more productive when I work for 16 hours instead of eight or 10 hours a day. But where does it end? Not on the plane. In the car on the way home from the airport? No way. Use that cell phone to call the coast. At home? Nope, you can dial-in to the office and upload all that productivity you so productively produced on the plane. I concur, the portable PC is a useful tool. But it's just a tool, and should help make our lives a little easier in the process. I'm wary of people or things who exist in the name of productivity...you should be too.

INDUSTRY WATCH

George A. Thompson

AN UNDERSTANDING OF PRINTED CIRCUITS IN FORT COLLINS

In April, HP signed a memorandum of understanding with Celestica International Holdings Inc. (Toronto, Ontario) to acquire HP's Fort Collins, Colo. printed circuit assembly operation. While the terms of the sale were not disclosed, according to the memorandum, Celestica's business will continue to serve HP and will be expanded to include other customers. As part of this plan, Celestica will build a new and significantly larger manufacturing facility in the Fort Collins area that will support Celestica's continuing growth in the United States. The purchase is expected to be completed within the next several months.

This move by HP is the result of the company's November 1996 announcement that it was outsourcing some commodity-like manufacturing and assembly pieces of its workstation business. Because of Celestica's Fort Collins location, HP can not only offer its 600 employees local employment in Fort Collins with Celestica (or they may look for other jobs within HP), HP can also further save time and money by consolidating near its workstation R&D Labs, which are now all located in Fort Collins.

HP designs, manufactures and markets printed circuit boards, integrated circuits, networking products, advanced graphics, and hardware and software solutions for engineering workstations in Fort Collins.

EFS SHINES EXEMPLAR

In mid-April, HP announced the Enterprise File System (EFS). The backbone for EFS is HP's Distributed File System (DFS), which is based on OSF's DCE and DFS 1.2.1. EFS gives UNIX system and Windows NT users in large,

AT PRESS

INTERWORKS VISUALIZES THE FUTURE IN PHILADELPHIA

BILL RUSSELL

The HP InterWorks crowd huddled in Philadelphia, Pa. this Spring to hear about and ponder HP's newest workstation developments. Bill Russell, general manager of HP's Technical Computing Business Unit (TCBU), delivered the show's keynote address. Russell mentioned HP's recent Colliance Program with Microsoft and its efforts to integrate Windows NT — a concern to the HP-UX faithful. "Those vendors who only have a UNIX solution and those who only have a Windows NT solution would have you believe otherwise. But we have both. So, we don't need to face these religious debates."

Russell, in fact, emphasized that HP-UX is not going away anytime soon. In fact, he pointed out that the investment in HP-UX continues on three different fronts: graphics, visualization and processors. But, he admitted that the results will also trickle down to NT-based workstations in the near future. Russell also noted that "workstation prices are falling." Russell went on to explain that as ISVs migrate workstation-strength applications to Intel-based systems, like HP's Vectra desktops, performance will be far superior on an HP-UX machine. He also wanted the audience to know that the B-, C- and J-class workstations would be upgradeable to IA-64, HP's joint CPU project with Intel, when that becomes available in 1999.

It's partly a by-product of one of Russell's first moves as GM to consolidate workstation marketing and its manufacturing operations in Fort Collins, Colo. "closer to where the R&D work is done." He also hinted that the future of workstations was in the area of "engineering visualization" and "virtual prototyping." He further teased the attendees with a video demonstration of prototyping applications running on both Windows NT and HP-UX systems. With plans to stop selling HP-UX 9.05 and 9.07 in early 1998, Russell encouraged workstation users to move to HP-UX 10.20, indicating that "it's the OS for all current and future performance increases, especially for the forthcoming PA-8200 and PA-8500 CPUs [announced by HP this past March]." According to Russell, nearly all HP ISVs have requalified their technical applications to run on HP-UX 10.20. Still beating the HP-UX drum at the conclusion of his hour-long presentation, he noted that "very few [sites] have chosen NT as their strategic OS."

HP's new J282 system, using up to two 180MHz PA-8000 (32MB-2,048MB RAM) was unofficially introduced during Bill Russell's April InterWorks keynote . However, the systems are available this month.

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geographically dispersed organizations continual access to the latest versions of files so they can share project data. The file system also limits access to sensitive data, providing a vehicle for transferring proprietary information without compromising security.

In addition, EFS offers access to the DFS global namespace for UNIX system and Windows NT users. NFS (UNIX system) clients gain secure access to the DFS global namespace through the NFS gateway, and Windows NT user access is provided through HP's Advanced Server/9000 for Windows NT. EFS 1.0 is available now for HP Exemplar systems running HP-UX Version 10.20. Pricing for a single server license starts at $1,800.

PSO FALLS IN LINE WITH WINDOWS NT

In April, HP announced it is incorporating Windows NT technologies into all of its enterprise consulting and systems integration practices. It's hardly a surprise to IS managers, but according to HP, the new Windows NT thrust confirms that many Fortune 2000 companies have multiple operating systems environments and a need to manage them.

HP 3000 UPGRADES AVAILABLE NOW...

The HP 3000 may be turning silver this year, but HP 3000 users don't have to look back.

With new server **board upgrades (available now)** and MPE/iX enhancements scheduled for this September, HP 3000 users can still look ahead. High-end users can con-

HP-UX and NT Systems Appear Before the Bench

• BAAN IV SETS NEW BENCHMARK ON HP 9000 •

A record-setting total of 2,407 lightweight-benchmark users were reported as HP and Oracle announced the first BAAN IV benchmark results on HP 9000 Enterprise Servers. For the record, that's 32 percent over HP's last Baan benchmark, run against Baan version 3. The benchmark was performed at the HP Development Alliances Lab in Cupertino, Calif. with engineers from all three companies contributing to the results.

The BAAN IV benchmark was run on an HP 9000 K460 Enterprise Server running Oracle Universal Server RDBMS. HP claims that HP 9000 Enterprise Servers have been the largest installed platform for Baan applications since 1991.

• HP NETSERVER TIPS THE TPC-C •

HP also announced that the HP NetServer LX Pro, a Pentium Pro-based system, achieved outstanding performance in TPC-C benchmarks. According to Larry Gray, senior product manager with the HP Network Server Division, the HP NetServer LX Pro system supported 6,500 active users, provided subsecond response time and an 8000 plus tpm rate.

In a realistic portrayal of online transaction processing (OLTP) for an enterprise-level system, an HP NetServer LX Pro system running Microsoft Windows NT and SQL Server achieved an 8,028 tpmC in an audited TPC-C benchmark.

The tested system was powered by four Pentium Pro 200MHz processors with 512KB Level 2 cache per processor, 2GB of main memory and five HP NetRaid disk controllers with more than 100 disk drives in use. The mass storage of the system totaled more than two-thirds of a terabyte. The system achieved a price/performance rating of $72.48/tpmC.

• BEYOND TPC-C •

As of April 7, 1997, HP and Informix announced TPC-D results that reportedly are the fastest decision-support (DSS) number to date. An HP 9000 EPS Model 22, using 48 PA-8000 CPUs and running with a 300GB Informix Online Extended Parallel Server (XPS) achieved a record-breaking performance of 3,416.4 QppD@300GB (a power rating) with the leading price/performance of $3,007/QphD @300GB (a price/performance rating). Throughput was 1,673 QthD@300GB. The 300GB figure is equivalent to three times HP's own enterprisewide sales and marketing data warehouse, which contains five years of sales records for more than $130 billion in orders on 480,000 products.

• JAVA GETS DOMAIN GOING FOR HP-UX •

According to HP, its HP-UX Just-In-Time Compiler for Java (HP-UX Java JIT), now available free of charge, solidifies HP's Internet platform leadership, which was established by HP Domain's being the first to achieve a SPECweb96 performance rating of higher than 2,000. Benchmark tests, including Pendragon Software's CaffeineMark test, show that Java applications deployed with JIT technology increase performance dramatically over non-JIT environments.

The HP-UX Java JIT boosts the performance of Java applications by exploiting the performance of HP Domain systems. For example, an HP Domain PA-RISC 8200 system, running the HP-UX Java JIT benchmarks at 2,268 CaffeineMarks, outperformed the Java JIT for Sun Solaris benchmark of 1,723 collected on a SPARC Ultra-1/1170. Java 1.1 for HP-UX (expected to be available this month) will boost performance even further by improving the computational function of the Java Virtual Machine. HP has endorsed and is providing ongoing support for the 100 percent Pure Java Initiative.

tinue to move forward with a 25 percent increase in processing power with the new HP 3000/997 server (using up to five 180MHz PA-8000) upgrades.

According to HP, you'll get a 25 percent performance increase over an HP 3000/996 server (using eight PA-7150 CPUs). The HP 3000/997 contains 12 backplanes with 14 I/O slots, a doubling over the HP 3000/996. The upgraded HP 3000/996s will work with MPE/iX 5.0 or MPE/iX 5.5. HP's MPE/iX 5.5 Express 3, however, is required for the new HP 3000/997 servers (see below).

... AND ON THE HORIZON

But HP's MPE/iX 5.5 Express 3 isn't scheduled to be released until September. MPE/iX Express 3 increases the capability of the HP 3000 from eight to 12 CPUs. Because performance is application-dependent, a consultation with HP is suggested. At that same time, the new HP 3000/997 **servers will be available**. According to HP, adding more CPUs to your HP 3000/996 is a good way to add performance while waiting for the new HP 3000/997 servers.

OPENMAIL GETS WEBIFIED

In late March, HP announced a Web-enabled version of HP OpenMail 5.1, its strategic messaging solution running on HP-UX systems. OpenMail supports a variety of clients, including Netscape Navigator and Microsoft Internet Explorer, as well as e-mail clients such as cc:Mail and Microsoft Mail on Windows, Windows NT, Macintosh and UNIX system desktops.

Product	Number of Users	Price
OpenMail server mailbox license	50	$3,000
OpenMail client license	50	$500
OpenMail ICE	50	$1,000

New features include support for Microsoft Outlook, Post Office Protocol 3 (POP3), Internet Mail Application Protocol 4 (IMAP4) and Lightweight Directory Address Protocol, an Intranet Communications Environment (ICE) Web desktop which offers the same capability of a LAN client through a Web browser. The Webified version is expected to be available at the end of this month.

VERBETA

"To say that the Internet is about 'information' is a bit like saying that cooking is about 'oven temperatures'; it's technically accurate, but fundamentally untrue."

— Remarks from Michael Schrage, Research Associate at MIT, at the Merill Lynch Forum, March 1997

HP INTRODUCES JAVA-CAPABLE NETSTATIONS

X terminals or Netstations are the Rodney Dangerfields of desktops. Lost amid the PC vs. NetPC hype-fest, they don't get much respect. Nevertheless, HP announced the 120MHz Entria II and 133MHz, Envizex II Netstations. Java-capable HP Netstations based on Netscape Navigator 3.0, provide integrated standards-based Web access with full Java support, e-mail and threaded newsgroups. HP Envizex II also supports a new 21-inch monitor with 1,600 x 1,200 ultra-high resolution, allowing display of 46 percent more text and graphics.

Expected street pricing starts about $700 (U.S., without monitor) for the Entria II. By fall 1997, the next release of HP Netstation software is slated to support Navio Navigator for netstations and local Java Virtual Machine (VM). Currently, HP Netstations support server-based Internet browsers and Java VM. Both Entria II and Envizex II, along with supporting HP Netstation software, are available now to customers worldwide through VARs, distributors/dealers, OEMs and HP's direct sales force. Local Java VM is expected to be available before October 1997. Local Navio Navigator browser and 100BaseT network cards will be available this fall.

AND A JOLT OF JAVA FOR THE HP 3000

For those of you married to your HP 3000, you might like to know that the HP 3000 is celebrating its 25th anniversary. And it's still going strong with a dose of Sun's Java technology. A Java compiler and run-time environment are now available for HP 3000 systems. A freeware port, which includes the Java Virtual Machine and Java Development Kit, can be downloaded from HP's HP 3000 Web site at:
http://jazz.external.hp.com.src/java.

TSI INTERNATIONAL GETS NOD FOR SAP R/3 INTEGRATION

HP's SAP Consulting Practice has chosen TSI International Software Inc.'s (Wilton, Conn.) Mercator software tools to help with implementing SAP R/3 solutions. Mercator for R/3 is a SAP-certified product for application link enabling (ALE) used to connect R/3 with non-R/3 applications. Mercator also is used for data cleansing to prepare data for HP's Interface Management software tool (IM.3).

STUCK IN THE MIDDLE AGAIN WITH BEA

In April, following a pact with Digital, BEA Systems Inc. (Sunnyvale, Calif.) and HP signed a worldwide reseller agreement for HP to become a premier supplier of BEA's middleware suite consisting of BEA Tuxedo, BEA Jolt and BEA Connect. BEA Tuxedo supplies the underlying transaction control, messaging, application management and global systems administration needed to develop and deploy scalable, multi-tier distributed applications. BEA Jolt brings mission-critical applications based upon BEA Tuxedo to intranet and Internet environments. According

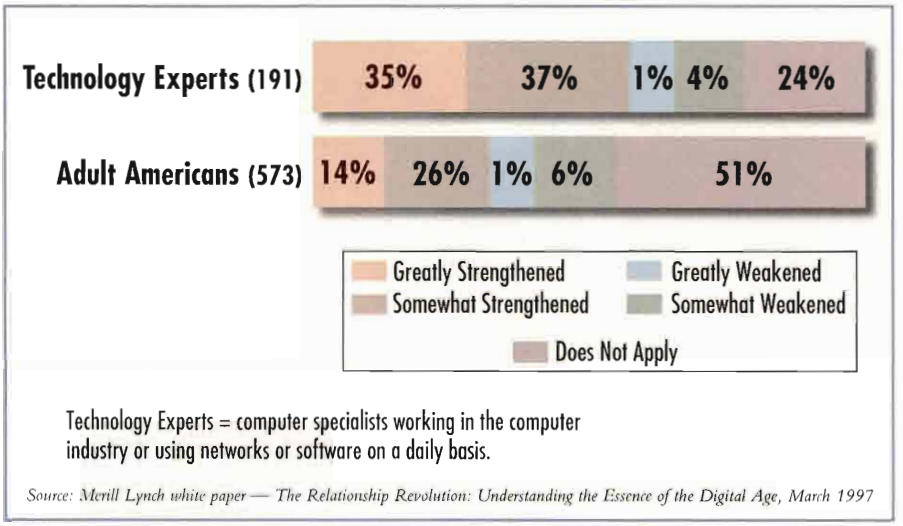
to Gerry Edwards, BEA's vice president of planning and strategy, "HP is our largest selling platforms [among 50 plus]."

According to the terms of the agreement, HP's Professional Services Organization will resell the BEA products and services to HP's enterprise customers. In addition, HP's and BEA's professional services organizations intend to work together to deliver consulting, training and integration services on BEA's products. The companies also announced integration of HP's security products with BEA's middleware suite, and certification and testing with HP's high-availability products to give customers an infrastructure for building mission-critical applications in distributed computing environments. According to the most recent survey of the Standish Group (Dennis, Mass.), a market-research firm, BEA Tuxedo has the largest market share in the open transaction-processing monitor market.

1-2-3-4: WHAT ARE WE FIGHTING FOR?

While technology "experts" tend to agree about the benefits of computer technology, adult Americans in general are not nearly as sanguine. And about half of adult Americans questioned, in a survey conducted by The Luntz Research Companies for Merill Lynch, thought that computer technology did not necessarily apply to them, when asked:

"Have computers, computer networks and e-mail greatly strengthened, somewhat strengthened, somewhat weakened or greatly weakened your relationships with the people you work with?"



Technology Experts = computer specialists working in the computer industry or using networks or software on a daily basis.

Source: Merill Lynch white paper — The Relationship Revolution: Understanding the Essence of the Digital Age, March 1997

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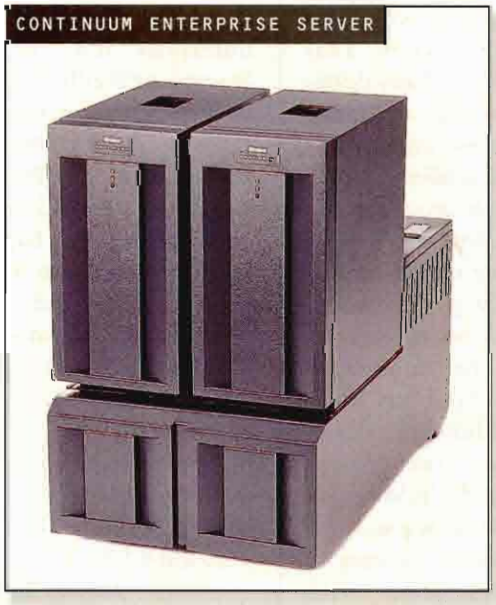

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Vaulting The Visual Wave

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ParcPlace-Digitalk's (Sunnyvale, Calif.) VisualWave, based on ParcPlace Smalltalk, a nonproprietary, ANSI-standard programming language, allows the creation, delivery and management of interactive intranet and Internet applications. And now HP has certified VisualWave 2.0 for use with its VirtualVault software. Together, VisualWave and VirtualVault provide corporations with Web application deployment and security for Web transactions.

VisualWave creates an intelligent session that enables a dialog with the developer's application. This lets developers access the session information and respond with appropriate courses of action. Sessions allow developers to design the Web equivalent of a multiwindow application. VisualWave lets developers navigate through applications, uses the application's business logic and provides immediate customer feedback.

VisualWave also includes a personal Web server for creating and testing Web applications. Developers can execute Web applications from any supported browser without a Web server. Later, applications can be deployed to a scalable environment using the VisualWave Internet Application Server.

While taking advantage of each browser-supported extension, developers can generate one user interface that is compatible with multiple Web browsers. This "smart HTML" allows developers to create advanced Web interfaces, while maintaining compatibility.

Many applications also can be run directly from the desktop without modification. With a client pull capability, Web applications can be updated in their browser in real time without user intervention. Additionally, developers can incorporate JavaScript and VRML code into their VisualWave applications, as well as incorporate and communicate with reusable Java applets and ActiveX components.

VisualWave lets you incorporate dynamic graphics into applications. An image converter allows any image drawn to be displayed in the Web interface using .GIF-compatible or Java-rendered images. The VisualWave Interface Painter allows developers to lay out Web applications graphically without writing HTML. And it provides a Canvas Editor to "paint" an interface by dragging and dropping from a widget set.

VisualWave 2.0 supports Apache 1.0 and later, CERN httpd 3.0 and later, Microsoft Internet Information Server, NCSA 1.3 and later, Netscape Commerce, Communications, Enterprise and FastTrack Servers, O'Reilly WebSite, Process Software Purveyor and Spry Internet Office Web Server, as well as Netscape Navigator 1.1 and later, and Microsoft Internet Explorer. Supported platforms include: HP-UX 9.05 and 10.01, Windows 3.1, Windows 95, Windows NT 3.51 and 4.0, Digital Alpha NT 3.51, Macintosh 7.5.1, Power Macintosh 7.5.1, SunOS 4.1.3 and later, Solaris 2.4, Digital UNIX 3.2, and IBM AIX 3.2.5 and 4.1.3.

— Deborah Schwartz, Associate Editor

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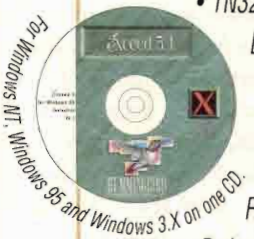

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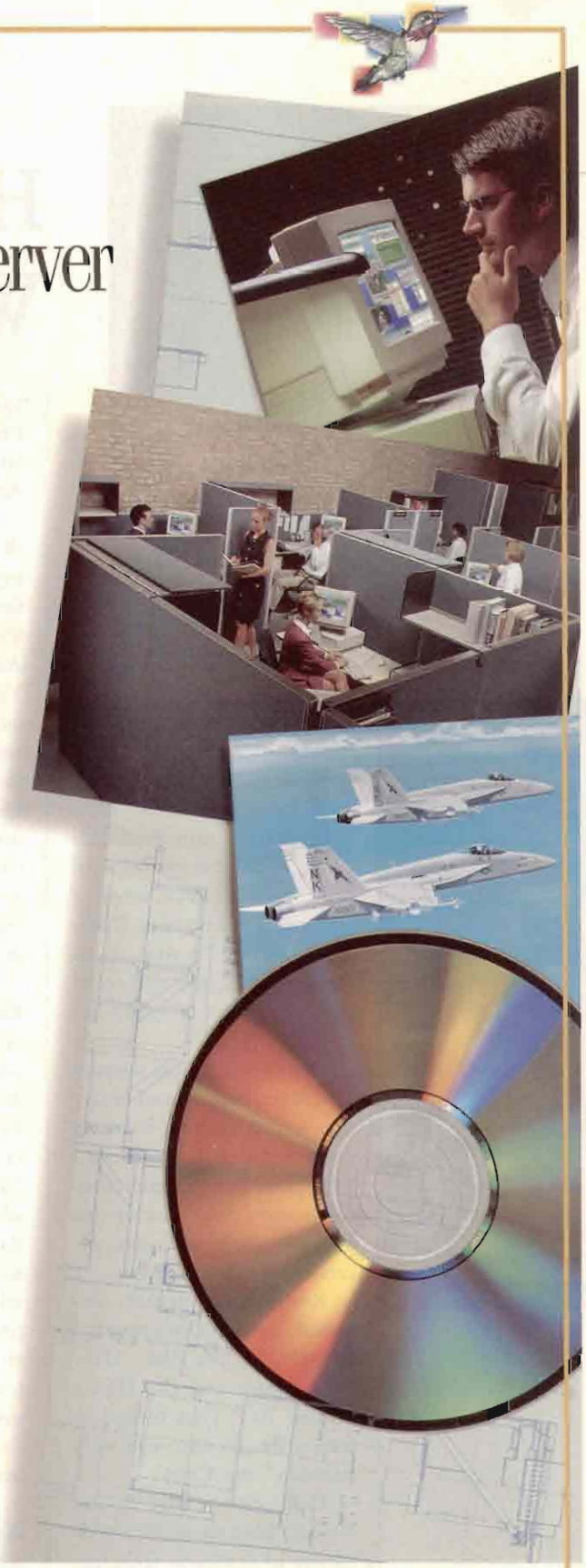

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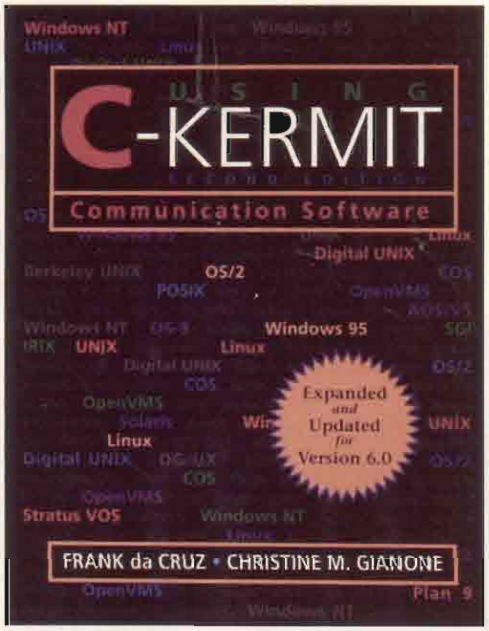

Have Kermit, Will Communicate

C-KERMIT 6.0

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"It's the world's second-most portable program," says Frank da Cruz, technical manager of the Kermit Project, based at Columbia University (New York, N.Y.). "It runs on an estimated 1,000 different platforms, most of which are UNIX."

Developed for the purpose of transferring text and binary files without errors between diverse types of computers over potentially hostile communication links, Kermit has become a suite of communications software programs.

Kermit was originally designed to run on four systems: MS-DOS, NCPM, IBM mainframes and the DEC-system 20. "That forced us into a design that was very portable," says Cruz.

C-Kermit 6.0 is the Kermit Project's latest release for a wide variety of platforms including UNIX (all versions), VMS, QNX, OS-9, Plan 9, the BeBox, Data General AOS/VS, Stratus VOS, the Commodore Amiga and others.

C-Kermit 6.0 also forms the file-transfer and command/script language basis for Kermit 95 for Windows 95, Windows NT and OS/2. Among the new features: Year 2000 compatibility; an overhaul of Kermit's dialing and modem capabilities, including support for new modems; the ability to accept incoming TCP/IP connections; autodownload; autoupload; new file management commands; and an improved speed and responsiveness.

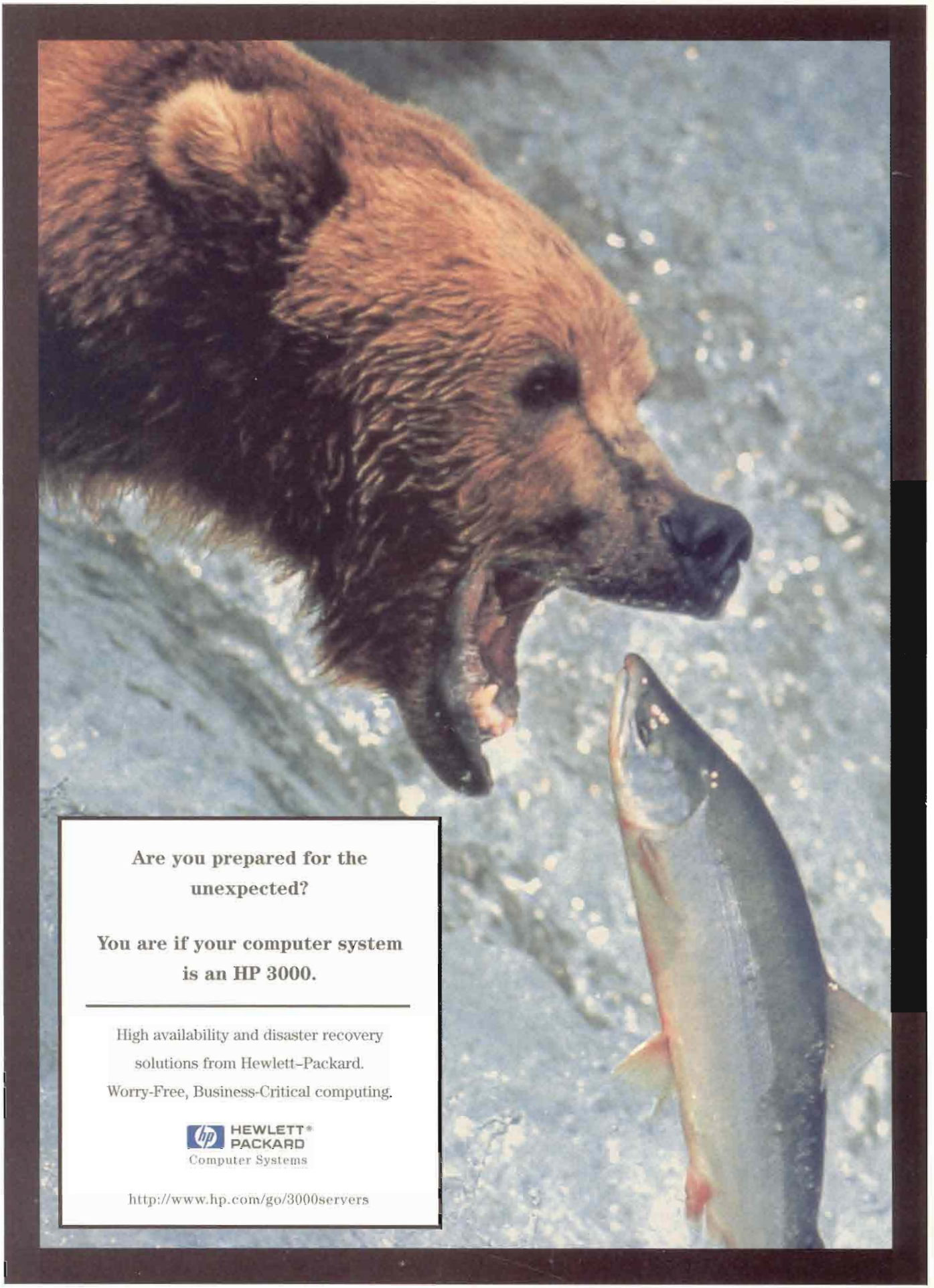
"The field technicians use Kermit for the upload and download of daily job data," says Clarence A. Dold, MIS director with Ameritel (Napa Valley, Calif.), a long distance carrier and reseller. "They have the option of selecting Kermit, XModem or ZModem, and find that Kermit is the most robust with regards to poor quality phone lines that they encounter, moving from customer to customer." Dold says he no longer worries about basic terminal emulation and file transfer.

According to Mark W. Wright, secretary/treasurer with Wright III Foods Inc. (McAllen, Texas), "We have used Kermit since December 1986, when we started polling daily data from our (then five) restaurants.

"Each evening, a regular PC in our main office dials out (using regular telephone lines) to the locations (now 12), logs in, provides the necessary passwords, sets the file transfer parameters, then initiates Kermit in server mode at the remote site. Kermit then gets a file of some 40 to 55KB of raw data including menu item sales mix, total sales, taxes, labor, sales by interval, cashier totals and inventory," says Wright. "I have not logged an error in polled data that was attributable to Kermit in over 10 years of polling, and this would be something over 25,000 file transfers."

All of the new features of C-Kermit 6.0 are documented in the revised and expanded second edition of *Using C-Kermit* (Digital Press). C-Kermit is free to download via the Web for personal use, but Kermit Project members ask those downloading the software to also buy the manual ($39.95) for its information and to fund the Project. Licenses are available beyond personal use of the software.

— Matt Hengey, Contributing Author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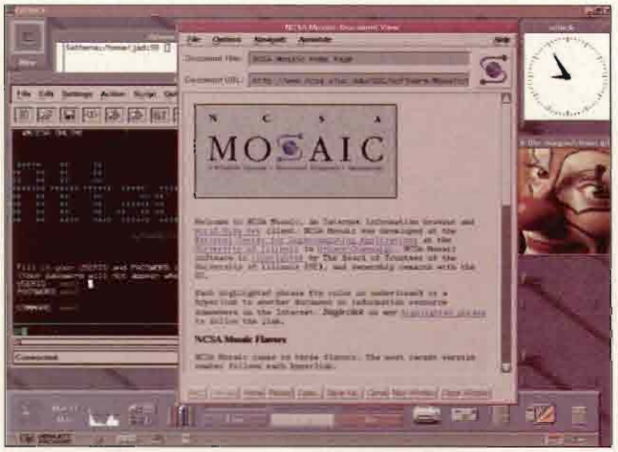

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- Price is $395

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Software Development Corp. (Provo, Utah), which produces Corel WordPerfect for UNIX, considers themselves a diverse UNIX shop. They should with HP-UX, IBM AIX, Linux, Digital UNIX, and SunOS and Solaris being used by its developers.

However, the developers do most of their work on PCs running Windows NT and Windows 95. Their connectivity came from using Attachmate Corp.'s (Bellevue, Wash.) KEA! X 3.0.

KEA! X, a fully-functional PC X server, provides 16- and 32-bit products on the same CD. By making use of an intuitive Windows-standard interface, KEA! X provides installation and configuration from a single tabbed configuration dialog box. KEA! X allows users to store multiple configuration profiles, letting users launch X applications with the look and feel they require. A simple file copy to the KEA! X installation directory restores custom settings.

These profiles can easily be distributed to any other user. Through the X Application Manager, KEA! X allows users to define and save the settings needed to launch an X application from a remote host.

According to Brad Caldwell, executive vice president of Software Development Corp., they have been using KEA! X for about four months. "KEA! X gives us the X Windows connectivity we require while avoiding the administrative and configuration headaches usually associated with this type of solution," says Caldwell. "We were instantly given a list of machines to choose from and could easily define a full CD session for our developers to work in."

KEA! X provides seamless access to X Windows-based applications from any Windows 3.x, Windows 95 or Windows NT desktop, and provides connectivity to most UNIX systems including HP-UX.

It combines Attachmate's PC X server with its TCP/IP stack and full-featured VT420 emulator. Additionally, KEA! X 3.0 supports X11R6, an industry-standard X specification. With this support, users are assured full capabilities and all functions including fonts and colors.

KEA! X allows several X Windows sessions to run simultaneously, each with a unique configuration. KEA! X leverages the full scripting and OLE capabilities of previous KEA! products. This capability allows users to create a custom execution of X applications via menus, SmartPads and dialog boxes. OLE automation allows application development utilizing components of the KEA! emulation engine through tools such as Visual Basic.

Price is $395. Users of Attachmate's EXTRA! X and IRMA/X can upgrade to KEA! X 3.0 for $118.50. KEA! X already includes localized French, German and Spanish versions of KEA! 420, with full product localization due for release this month.

— *Deborah Schwartz, Associate Editor*

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Land O'Lakes Butters Up Suppliers And Customers With IMI's System ESS.

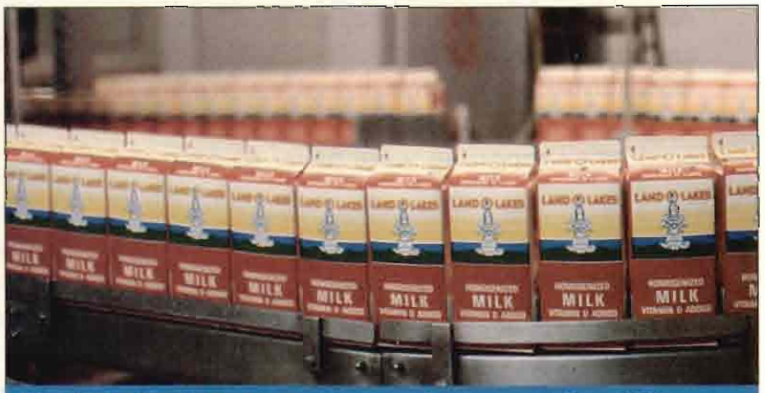
Steve Berlin

Most of the world may think of Land O'Lakes as "those butter people" with the Native American woman sitting in front of a rising sun. However, Land O'Lakes (Arden Hills, Minn.) is a large food and agricultural cooperative owned by farmers and ranchers, including 3,000 dairy producers and 1,000 member co-ops in 19 states. As such, keeping information, data and products among its many individually operating divisions poses many problems.

For years, the company has been using a custom-built order management system running on an IBM mainframe. Land O'Lakes has been using an IBM mainframe environment "since computers started," according to Mark Wilberts, the company's vice president of information systems, estimating that as the last 20 or 30 years. However, to keep customer service a priority, a change had to be made. The change within Land O'Lakes is coming at a time when the two industries it serves — the consumer and the food service businesses — are making radical changes as well.

SPREAD THE WORD

Wilberts says these industries are trying to establish electronic standards so not everybody in the business needs to do this individually. "In some parts of our business, 80 percent is done electronically," he says. "With other parts — very little." Land O'Lakes is now changing to software from Stockholm, Sweden-based Industri-Matematik International Corp. (IMI; Tarrytown, N.Y.). System ESS (pronounced "S") running on an HP 9000, derives its name from the Swedish word for ace. "One of the things we expect as we implement systems is not only to become more efficient, but that we are also able to keep key people informed for decision making." That includes field staff and Land O'Lakes customers. Wilberts says his organization is fully PC-deployed, with smart desktops.



The Dairy Foods group collects and processes four billion pounds of milk per year.

Henry Bruce, IMI's vice president of marketing, said his company got Land O'Lakes' attention with its success at other firms, such as the Campbell Soup Co. (Camden, N.J.). While other computer application manufacturers take a broader approach to office management software, IMI has focused on the order management or integrated order fulfillment, setting them and System ESS apart. "We are not an enterprise resource planning player," Bruce says. "This is not a total suite of applications. Our focus has always been on the demand side. [What sets us apart] is our ability to establish a single face to the customer."

Land O'Lakes, like other large companies with many operating divisions, actually sells a number of products. "Each may have different sales forces visiting the same customer market. Previously, the customer might have dealt with each division separately. "To enhance our competitive position in the market, costs and flexible service levels are critical factors as we strive to meet constantly changing customer requirements," says Wilberts. "We selected System ESS because it is a proven solution that can address both of these factors in addition to offering the opportunity of quick implementation. It also enables

[us] to more effectively manage our pricing and promotions activities, allowing us to better serve our customers' diverse needs while expanding internal processes."

HI-HO THE DAIRY-O

With the implementation of ESS in progress, Land O'Lakes buyers will not necessarily have to deal with each division individually once the conversion from the mainframe is complete. According to Wilberts, Land O'Lakes has been in a total conversion process in which System ESS is but one piece. Last year, for example, the company implemented Oracle Financials. "If you go back to 1992-93, there were plenty changes in our business, so we needed to make changes," he says. The IMI implementation won't be done until late 1997.

While some new applications were built in-house, the company preferred to go outside for much of what was needed. After an extensive study, Land O'Lakes discovered IMI and the whole Oracle consumer goods package solution. "If we didn't learn how to do things differently, it was not a question of competitive advantage, it was more a question of staying in the business," Wilberts says. If you don't keep responding to customers' needs and expectations, they will go somewhere else. It's not a question of getting passed by, it's a question of getting left out.

"The success of our ability to implement new systems is dependent on the organization's readiness and the acceptance in our organization to make changes," Wilberts says. "The value we get from these tools is based on our ability to use them. For the last two years, we have

(continued on page 25)

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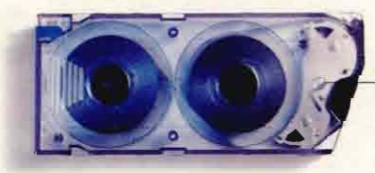

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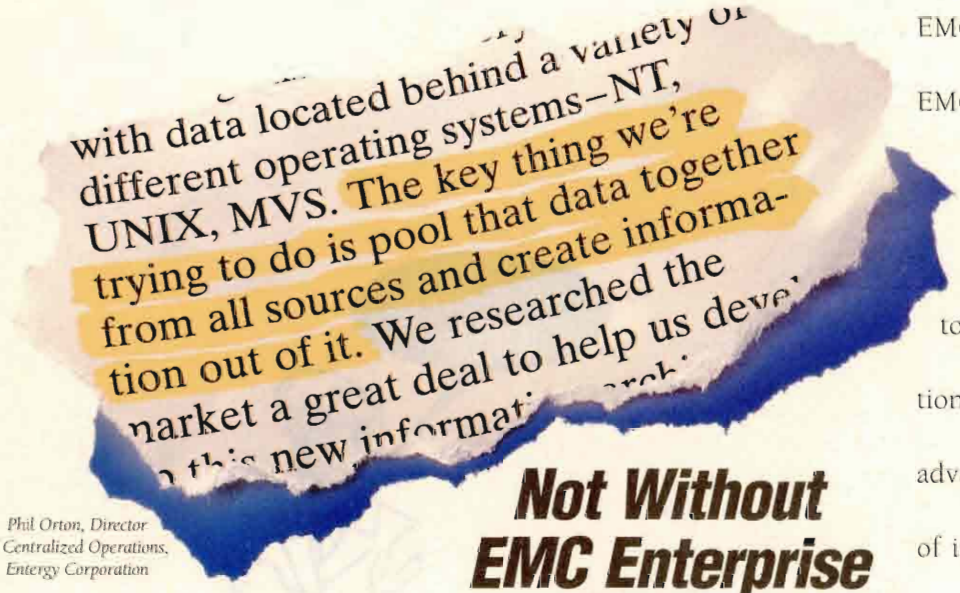

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CIRCLE 265 ON READER CARD

(continued from page 21)

been working through understanding what technology and tools can do for the business, the customers and our business practices. We have the organization readiness, certainly, but there are a lot of internal questions of concern and wonder about 'What does this mean to me?'"

Among the changes that were needed just to "be in the game" was the implementation of System ESS, the Oracle Financials, and the implementation of a GEMMS manufacturing system. "It's not cheap, but when you look at the value side of it, the type of cost savings on the customer service side alone could be $10 to $15 million in savings in administration alone," Wilberts says. The key to the system's success is its ability to provide that "single face." This means everyone in each division will be able to track orders and invoices and deliveries in not just their own area, but through the other divisions as well. This helps the company because the proverbial one hand will know what the other hand is doing. And, it can be used as a direct customer tool.

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But customers do not necessarily have to deal with company reps at all with ESS. It also supports conventional electronic commerce and electronic data interchange (EDI) transactions, user-defined customer ordering, or ordering through the Internet. This way, customers using Netscape Navigator or Microsoft Internet Explorer Web browsers can just check things out for themselves. "Before," Bruce says, "No one person could answer all the questions. Now because everything is fully integrated, anybody taking the call will be able to see the status of the order. Is it a price check? Is it in the warehouse? Customers with Internet ability could do that themselves. It gives instant feedback."

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OF BREAD AND BUTTER

For Land O'Lakes, ESS will give the company better control over pricing, promotions and the settlement process. Through the integration of divisions under ESS, pricing will be consistent. The new system will also be integrated with Land O'Lakes' enterprise information systems to enable the company to improve its invoicing and deals settlement process. In the case of Land O'Lakes, integration should be no problem because it is part of the Oracle CPG set at that company, which includes Oracle Financials, the Oracle 7 relational database software and Oracle GEMMS process solution.

"One of the keys in our success is that we have a highly functional package solution that a lot of businesses are able to take with little or no customization and are able to put live in as little as six months or even less," Bruce says. "The degree of fit is 80 to 85 percent out of the box. The kinds of things not out of the box are additional EDI messages.

"In the case of Land O'Lakes, they may be going to legacy financial systems. Given that we are a part of a total business system solution, we built a number of standardized gateways and APIs. For example, we developed a standardized integration with Oracle Financials and shipped it with the product."

Training usually starts with a firm's project team, and they are trained over two to three weeks how to use it, implement it, and the implications of the different possible implementations. The second phase is user training in which IMI will bring in the users to train them how to use it for their specific business responsibilities. That usually takes between one to three days, depending on the span of the user's responsibilities, he explains.

It also can be adapted over time based on the client's needs. Whether that means bringing IMI back in to help depends on the culture of the client and its resources, Bruce says. "After the initial project, the training and implementation is based on you helping them the first time through, so they can handle it themselves," he says. "Usually they want us more on an advisory basis."

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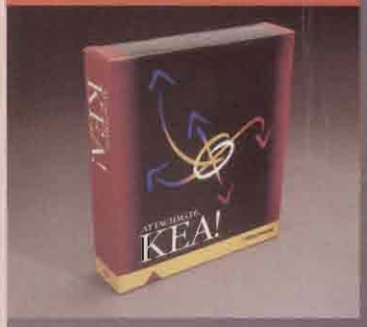

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VARiations

On An NT Theme

As Partners Hitch A Ride On HP's Journey Into NT-ville, Some May Be Left Bleeding By The Roadside

Corporate partnerships are a lot like marriages. For example, in order for the partnership to last, each partner has to be willing and able to adjust to the changing interests and requirements of the other. Such is the case with HP and its Value-Added Resellers (VAR) when it comes to Windows NT. Rumor had it that HP and Microsoft were announcing a joint strategy to help customers lower the Total Cost of Ownership (TCO) of large enterprise computing environments.

Beware The Ides Of March

OK, in this case it was more like March 19th. That's when the HP/Microsoft plans were formalized. HP agreed to offer new products and services for addressing TCO; Windows NT Server-based enterprise solutions; and solutions for UNIX-to-NT interoperability. Lew Platt, HP chairman, president and CEO, observed "HP and Microsoft bring to the marketplace important qualities that no other vendors can match. Microsoft has industry-leading products, and HP leads the industry in meeting the needs of enterprise customers. This powerful combination will make HP the leader in Windows NT, UNIX system and heterogeneous enterprise solutions."

Now HP will port some of its strategic UNIX products to work with Windows NT. That means HP's VARs, who heretofore were selling UNIX products, will have to adjust. For some resellers, the news is cause for trepidation. For its part, HP says the move does not signal a departure from its long-term commitment to UNIX and open systems. Clark Straw, HP's general manager for Worldwide Partners and Channel Programs, explains that high-end NT servers are now becoming widely available.

HP wants to meet customer needs for both

Jon William Toigo

NT and UNIX. IBM has NT and UNIX, but hasn't embraced heterogeneous environments to the extent that we have. Sun [Microsystems] has ignored NT altogether. Compaq is only NT — they don't play in the UNIX world. HP is in a position to support both operating systems and a heterogeneous environment."

But the question that HP's VARs are asking is "What about us?"

> *"Most of HP's VARs understand that NT platforms are a fact of life in the industry."*

"Most of our VARs understand that NT platforms are becoming a fact of life in the industry," says Straw. "There has been a big move to services recently, because there is a better margin in services such as maintenance, software bundling, integration and training. This move will probably help VARs in the long run." As evidence of HP's continued commitment to its channels with 7,500 partners and VARs, Straw claims that, "Our sales model provides for direct sales to large companies that obtain most of their solutions from HP directly. However, we have a major market space in medium to large accounts that need both UNIX and NT solutions and that are addressed primarily through our partners and resellers. To support them, we provide the tools they need to be effective."

Direct Revenues

Straw identifies five programs available to partners, independent software vendors (ISV) and VARs that have been initiated by HP to support their marketing (see *Don't Change That Channel, page 30).* The components of these programs include sales training and lead referrals, and a new component — market intelligence. According to Straw, "Our direct salesforce at HP has always been able to access our internal intranet-based marketing encyclopedia. That is a knowledge base of our products and pricing, and competitor data. Through our new HP Partnership Online service, our resellers enjoy the same access via the Internet."

John Adam, systems marketing manager for Maryville Data Systems (Kansas City, Kan. and St. Louis, Mo.), an HP reseller, says "I consider HP's NT announcement for the most part to be a positive thing. Hardware margins will shrink with NT platforms because they are commodity items. But services will be no less important to customers using NT platforms than to those using UNIX."

Adam says that Maryville Data Systems has provided HP-based solutions in the areas of enterprise management and customer interaction for more than two years, "We offer high-end, customized, enterprise management solutions based on HP OpenView and some point products."

Adam believes NT will expand, not diminish, business opportunities for Maryville, "The move to NT will enable customers to put less expensive OpenView servers out on the wide area network near the locations that they need to monitor. But for enterprise management, they will probably take the information from these regional servers and feed it back to a UNIX enterprise management console. The service requirements for this type of implementation — up front consulting, engineering, training [and so forth] — will be just as great as the service requirements for UNIX solutions." In other words, hardware margins may shrink, but consulting requirements are no less for NT than for UNIX. Adam's optimism is not shared universally among the reseller community.

Plunging Profits Loom For Some

Bill Bachenberg, president of Data Based Systems (Flemington, N.J.) an HP reseller focusing on manufacturing, is concerned about the impact that NT will have on his company's profits. According to Bachenberg, his company has had considerable success in adding consulting services to OpenView products. By migrating their OpenView solution to Windows NT, HP has caused Bachenberg to be concerned: "NT is a commodity product. We are concerned about whether customers will be willing to spend $30K in consulting changes for a solution that costs less than $10K in hardware and software costs."

Bachenberg generally provides a startup service with HP OpenView installations. "We implement the hardware and software, which is pre-staged first — we pre-stage everything — then we plug it in at the client site and let it autodiscover their network. You'd be surprised how many additional network architecture projects are driven by what the customer discovers during network autodiscovery. [Then, we encourage] the customer to work with the product, run into issues and questions for about four weeks, then go to an HP training program that we help them enroll in. [They get more from the class] if they already have some questions."

Bachenberg has developed his nine OpenView consulting engagements to date by conducting an annual corporate presentation to customers, "We tell them about OpenView. It appeals to them because most companies are running lean and want to extend staff capabilities without enlarging their staff. They express an interest, then come to our facility for a demo. We quote them a jump start solution." Data Based Systems charges between $50,000 and $90,000 for its solution, which includes an HP 3000 or HP 9000 platform host running HP-UX and OpenView management applications consisting typically of HP's Network Node Manager (NNM), its network metrics product, and OmniBack, an enterprise storage management application.

Additionally, the program includes approximately $30,000 worth of services including software installation and setup, customization and the definition of event handling processes. A year of

maintenance with HP also is included. "We stress to customers that they can do the installation and setup themselves if they wish. It requires some expertise in UNIX and networks. We've gotten our expertise through our certification training with HP and our day-to-day use of the product at our own facility. Usually they choose to have us do it."

Still Others Wax Philosophic

Chris Wood, program manager at Forsythe Solutions Group (Skokie, Ill.), is philosophical about HP's NT shift. Forsythe is a reseller of HP products with 19 offices serving the continental United States. Wood's customers are described as "middle market," with annual revenues in the $200 million to $2.5 billion range. "I think the move by HP is a reflection of what is going on in the market," Wood observes. "UNIX is still a growing market. NT is also growing, but at a steeper pace. Margins are thinner when you sell into the NT market space, but the client base has been enlarged."

Wood says that if anyone should be concerned about hardware margins, it should be hardware resellers. Because Forsythe installs the "plumbing" for customers, he's concerned about lower margins. "But what we are seeing right now," Forsythe says "is robust growth in both HP and NT hardware. The HP 9000 is selling briskly and that isn't being eroded by NT. In fact, I haven't heard of anyone pulling the plug on UNIX to go to NT. I have seen a rebirth and re-strengthening of UNIX at the high end and a migration from Novell NetWare to NT [elsewhere]." Wood says the primary opportunity that has been created by the HP move is UNIX-to-NT integration. He believes the demand for services in that area will increase dramatically.

All Evolved Happily Ever After?

Markets — like relationships — evolve. Maryville Data Systems' Adam reiterates Data Based Systems' Bachenberg's concern that the real losers in the HP adoption of NT technology may be the application bundlers. "A company that has written a financial application and bundled it with HP UNIX hardware," says Adam. "Those resellers who have no service base will probably be most threatened."

The winners, on the other hand, will be those companies that have focused on value-added services as well as those who make an investment in learning the ins and outs of UNIX-to-NT integration.

—Jon William Toigo is an independent writer and consultant specializing in business automation solutions. He can be reached at jtoigo@interpath.net.

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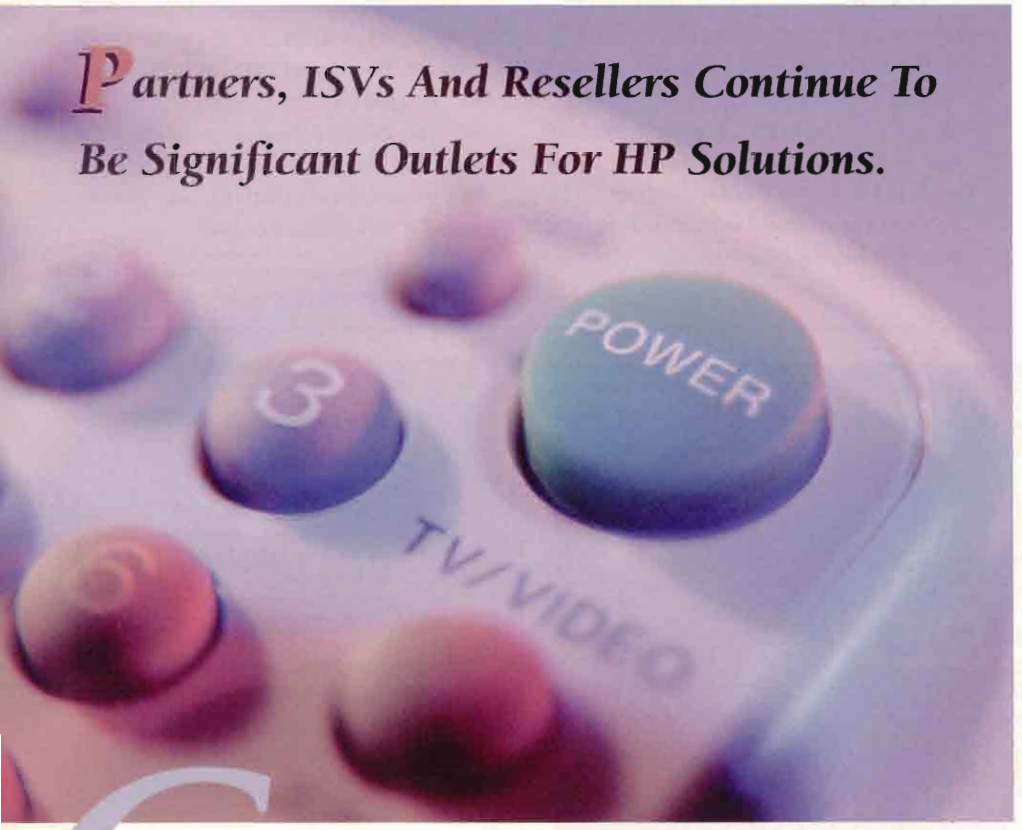

Partners, ISVs And Resellers Continue To Be Significant Outlets For HP Solutions.

Jon William Toigo

Channel sales represent a substantial revenue source for HP. If Clark Straw, HP's general manager for Worldwide Partners and Channel Programs, has anything to say about it, partners, independent software vendors (ISV) and resellers will continue to be significant outlets for HP-based systems, software and networking solutions.

Straw offers a sales model (see *Figure 1*) to represent the primary opportunities for channel sales to augment traditional HP direct sales. In the model, Straw depicts sales opportunities characterized by highly complex solutions and high volume sales as the primary domain of HP's direct sales organizations. Customers in this domain range from long-standing accounts that depend on HP as a strategic partner. Also in this group are large companies which are big consumers of HP products, though not necessarily HP integration services, and require special arrangements for ordering and delivery.

According to Straw, HP Direct Sales accounts aside, "a large partner-reseller space" exists in the model that caters to channel partners. Straw divides these companies into two groups: resellers and leveragers of HP technologies. Straw observes that success comes to those channel partners who offer solutions in specialized vertical markets or who provide value-added UNIX and Windows NT integration solutions for medium to large accounts.

Straw says the company is dedicated to providing support to its partners. "Our Channel Partners told us that they need a business partner to help them extend their market reach and give them resources that are easy to use. A strong business relationship is rewarding, mutually beneficial, and most importantly, manageable," says Straw.

Straw notes that HP has responded with five programs that provide deliverables to HP resellers and partners. Each program caters to the specific needs of a subset of channel partners.

For example, the HP Partnership

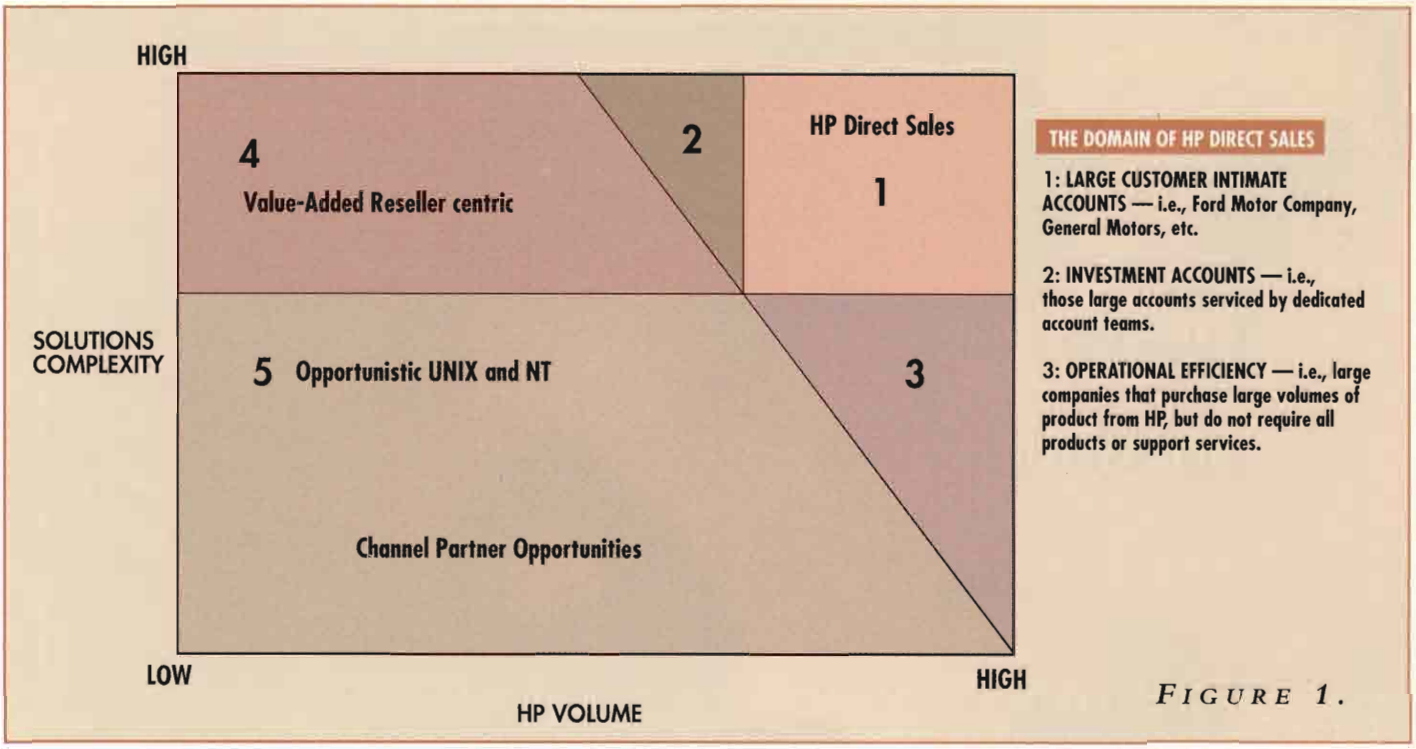

FIGURE 1.

Reseller Program is geared to value-added resellers (VAR) of HP products. The offering includes an equipment program, providing equipment rental and purchase arrangements and financing options designed to facilitate the reseller's need for equipment for use in developing demonstration platforms. Sales and marketing development is also included to equip the reseller with quote and configuration tools, joint marketing assistance, order status data and access to the HP ESP Knowledge Database to facilitate competitive bid situations and to obtain technical input for sales proposals.

NO TRAIN... NO GAIN...

The Reseller program also includes training and education components and technical support and service arrangements to ensure that resellers understand the technology they sell and are providing expedited technical service and support for the HP-based solutions that they implement.

These same components also are included in the Certified Solutions Program, which is geared to the needs of resellers who want to distinguish themselves from competitors by obtaining certification in specific HP technologies. Straw says this program provides assistance to resellers in finding ISVs to partner with on bids and to develop HP-branded solutions, combining bundled solutions and HP intellectual property that can be marketed sold and delivered through repeatable processes.

Success comes to partners who offer solutions in vertical markets or provide value-added UNIX and Windows NT integration.

HP's Software Provider program is aimed at ISVs. Its objective is to help vendors develop and port their products to HP platforms quickly and cost-effectively. In addition to equipment, sales and marketing development support, and technical support, training and education, this program also provides participants with access to a special developers conference and to joint sales partnerships that enable the software vendor to work with resellers to create certified solutions.

The final two programs offered by HP to its channel partners are Internet- and telephone-based services designed to deliver capabilities to resellers that are comparable to those available to direct sales personnel. The HP Partnership Online provides Internet-based access to software tools such as the ESP Knowledge Database, SalesBUILDER and QuoteBUILDER applications for preparing proposals, as well as order status tracking. Pre-sales technical assistance and access to support, training and education, and equipment programs can be accomplished through a single point of contact in the HP Partnership Hotline.

To HP, these programs represent a substantive commitment to its channel partners, which now number in excess of 7,500. Straw also points out that HP "backs up our resellers with territory management." Straw maintains, "We have a 'partner first' philosophy. Our salesforce knows that they will be paid more for using resellers instead of direct sales channels."

—Jon William Toigo is an independent writer and consultant specializing in business automation solutions. He can be reached at jtoigo@intnet.net.

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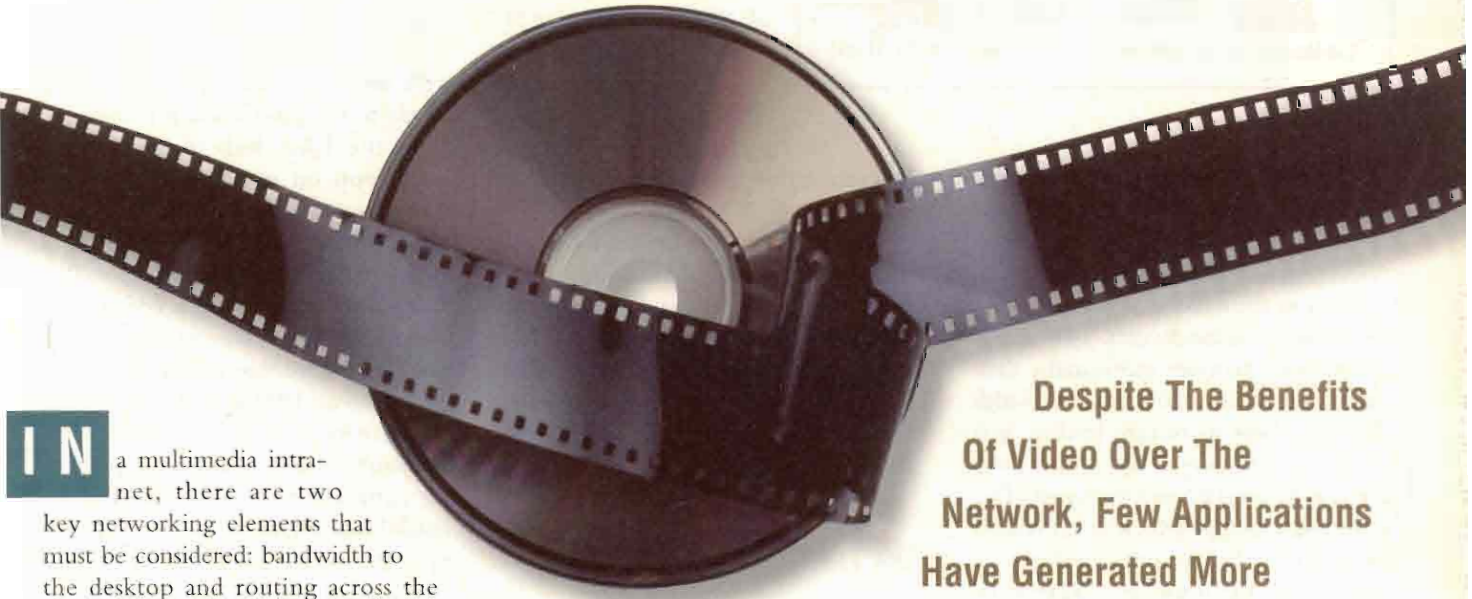


Despite The Benefits Of Video Over The Network, Few Applications Have Generated More Confusion Over Implementation.

MARC P. PFEIFFER

IN a multimedia intranet, there are two key networking elements that must be considered: bandwidth to the desktop and routing across the enterprise. Ethernet will continue to be the dominant technology for bandwidth to the desktop and should suffice for networked multimedia. However, the higher class-of-service demands of networked multimedia calls for a rethinking of traditional routing configurations.

Traffic in multimedia intranets does not flow in accordance to the 80-20 rule that has governed routing over collapsed backbones for some time. The 80-20 rule states that roughly 80 percent of LAN traffic stays within a subnet, while 20 percent leaves the subnet. Because router ports were expensive, suffered in terms of performance when compared to switching and were more complex to manage, the axiom associated with the 80-20 rule was "bridge where you can, route where you must."

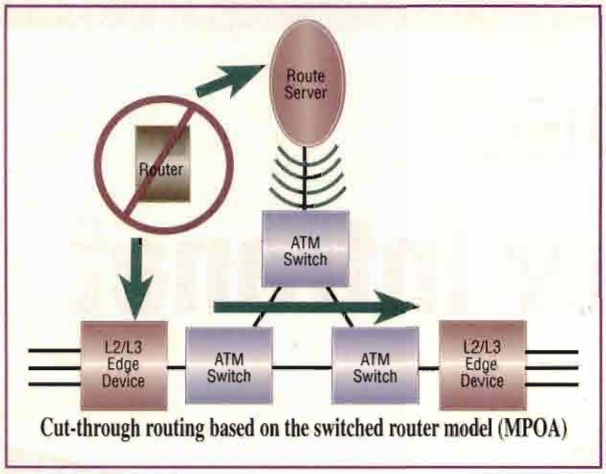
But there are limits to collapsed backbone networks for multimedia and routing. And with multimedia intranets, the introduction of the Internet has resulted in a shift away from the 80-20 rule. Intra-subnet versus Inter-subnet multimedia traffic has a ratio that is closer to 5-95.

SWITCHED ROUTING

Most of today's video conferencing technology travels between subnets across the Internet, supporting activities such as training and providing information on Web sites. So, by definition, a multimedia intranet will have to support much more traffic across subnet boundaries, and routing will have to become more scalable for, and compatible with, streaming protocols such as video and audio. Such challenges have led many IT managers to consider the use of switched routing.

Switched routing, which is based on the ATM Forum's Multiprotocol over ATM (MPOA) standard, makes ATM subordinate to the routing function. MPOA takes the traditional packet router out of the forwarding path. Its place on the Network Layer is taken by cut-through switching (see *Figure 1*, page 34).

The idea behind switched routing is to take high-performance, standards-compliant ATM switches and establish them as the core of a routed infrastructure. You can then run a protocol known as NSAP at the edge of this infrastructure that translates Network Layer addresses such as IP to ATM addresses. Because the vast majority of networked desktops are running Ethernet with 10BaseT wires, you will most



Cut-through routing based on the switched router model (MPOA)

FIGURE 1.

likely need an Ethernet-to-ATM edge device. The edge device supports protocols such as NSAP and Ethernet-to-ATM segmentation and reassembly.

Back at the desktop, the most obvious concern is bandwidth. Few applications will generate more traffic than video and audio. Although bandwidth directly relates to picture quality, it is only one of several key parameters related to overall performance. For example, latency, which is critical to desktop video conferencing, is extremely difficult to control in routers.

In A Class Of Its Own

Regardless of the desired desktop picture quality, all video is digitally compressed by algorithms that are optimized for a given application. Video to the desktop can live comfortably within 10 Mbps, and runs fine within an Ethernet segment. None of today's operating systems on a general-purpose desktop machine can handle more than an aggregate of 4 to 6Mbps of streaming video. And for some very good reasons, video streams are under 2Mbps for most applications to the desktop.

Even when high quality is required, the video bit-rate in client-server applications is still only 1.5Mbps or less. This translates into roughly $500 per hour of storage for MPEG-1 files on a video server. At this rate, there is a healthy incentive to use as much compression as possible, though the MPEG video quality at 1.5Mbps is surprisingly good. Of course, applications that can get away with lower quality will use lower bandwidth.

Desktop video conferencing has even more constraints. And because video conferences almost always involve distant sites, there is a high cost-of-WAN. The WAN element generally limits video conferences to 128Kbps. When you are staying on the LAN, desktop video conferencing rarely peaks above 500Kbps.

Even running a server-based MPEG video clip and a video conference simultaneously on the same desktop (if your PC is configured to handle it), results in under 2Mbps of bandwidth. So, today's video streaming applications are well within the range of a single Ethernet segment.

On The Edge

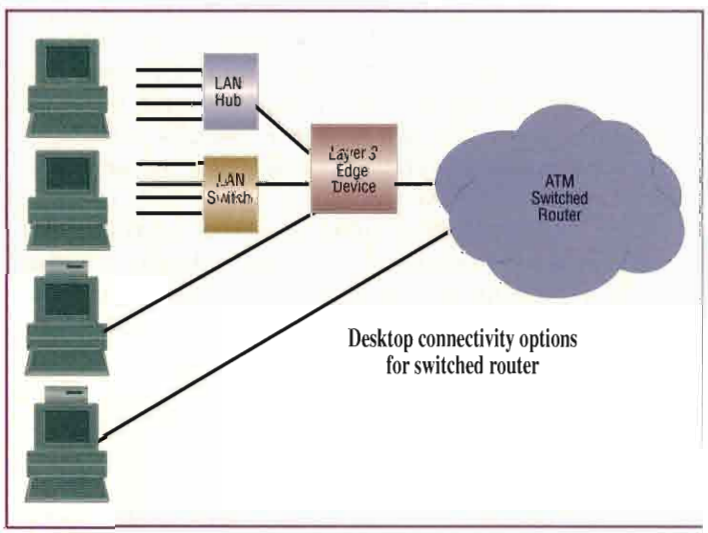
The issue then becomes how to share an Ethernet segment among several video-enabled users and a router port. This is not an easy issue to resolve, because video generally runs under TCP/IP's UDP protocol, where packet collisions result in lost packets, which results in decreased quality. As a general rule, collisions on an Ethernet segment are minimized when utilization of the segment remains under 30 percent. This is a good number to remember when analyzing potential video traffic loads in a segment for purposes of micro-segmentation.

In the case of the switched router, the marginal cost of a 10BaseT port can be as low as $500, which approaches the cost of LAN switching. With the reduced cost of switched routing, it is not unreasonable for a power video user to have a dedicated Ethernet segment directly into the router. Because subnets in a switched router are virtual and are mapped to any number of ports, direct connections do not eat into address space as they do with a traditional router.

You can set up a video-enabled user with 10Mbps wire-speed routing by simply moving the desktop connection from the LAN hub to a switched router port on an edge device in the same closet. Desktop network interface cards, protocol stacks and the LAN's wiring remain the same (see *Figure 2*).

You can create a single edge device with 12 Ethernet collision domains and one OC-3 155Mbps uplink. Each port will deliver 10Mbps of wire-speed connectivity over a routed ATM backbone and connect to any other point in the network. ATM switches offer the scalability and Quality of Service (QoS) options necessary to handle large amounts of video. In turn, MPOA allows Network Layer protocols such as IP to run over ATM.

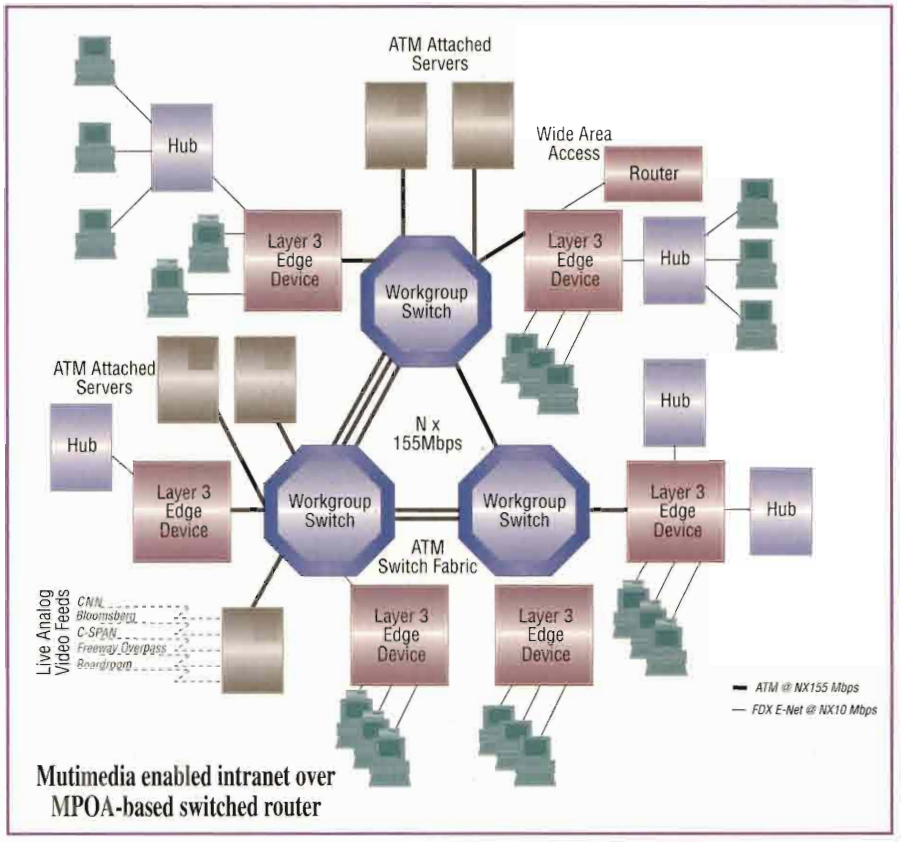
An example of a multimedia intranet is shown in *Figure 3*. Note: light-duty users remain on their hubs and have no interaction with video-enabled users, even though they all run



Desktop connectivity options for switched router

FIGURE 2.

FIGURE 3.



Mutimedia enabled intranet over MPOA-based switched router

over the same switched routing infrastructure.

The next step will be for client applications to use a protocol such as RSVP to signal the edge device. RSVP in the stream can guarantee bandwidth and QoS in the ATM fabric without requiring end stations to be attached to ATM.

As more network planners and application providers experiment with multimedia-enabled intranets, the need for low-cost, scalable network layer switching will become more and more apparent. Routing is the key to the success of intranets. Making it cost-effective and abundant to address the new 5-95 world of multimedia is at the heart of switched routing.

—Marc P. Pfeiffer is the director of product marketing of Newbridge Networks. He can be reached at marc_pfeiffer@qmail.newbridge.com.

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Fred Mallett

Kneeless In Seattle

It's amazing what a little bit of flattery can do. I get lots of questions by e-mail, and my answers are usually

terse. Sometimes it takes a couple weeks before the in-bin gets low enough to answer those questions. Sometimes I even delete stacks of them during a "work overload anxiety attack." But when a question shows up phrased like the one below, things change:

Hi, I love your articles. I keep a collection of them. Anyway, in your article about JFS you said "You can't use VxFS if you want to use ACLs on that file system." I have no idea what ACL is, but I don't think you meant "Anterior Cruciate Ligament." —Name removed from Seattle

So, oh great kneeless (ACL-less) reader in Seattle, for flattery like that I'll dedicate a column to your answer.

PERMISSIONS IMPOSSIBLE

ACL stands for Access Control List. But we're already ahead of the discussion. Protecting files from access by processes (and by extension, the people running those processes) is done with permissions. Permissions in UNIX could officially be called Discretionary Access Control, or DACs. But, if we did that, no one would know what we were talking about, because the term DAC has been lost over time. We just shorten it to Modes of access, or the more common name of Permissions.

Most new users learn about permissions. There are many good descriptions, but here is a rather brief one, as the purpose of this article is to discuss the superset of permissions — ACLs. Whenever you (or a process you are running) try to access a file, the operating system has to determine if you have permission to perform the requested operation on that file (or directory). These operations are various flavors of read, write or execute. For files, the meanings are obvious: read (see contents), write (edit/change) or execute the contents of a file. For directories, they are a bit different.

"Read" on a directory means you can only see the names. For example, you can do an **ls** command. "Write" on a directory means you can change its contents, which means you can create new "stuff," and remove any file in the directory, no matter who owns it! Having "execute" rights on a directory is like having a key to the lock. It means you can **cd** to the directory, and "see" the objects in that directory as well as the one below it.

One way to look at it is that you can **ls -l** the directory (with only read rights you could not **ls -l**).

These three rights are abbreviated as **r**, **w**, **x**. They are further abbreviated with octal values of **4**, **2**, **1**. Thus you can shorten having both read and write rights to **6**, which is 4 + 2 (r + w).

There are actually three categories of users to which you can assign rights. They are the owner of the object (**user**), members of the same group as the owner (**group**) and the rest of the world (**others**). These categories are abbreviated as **u**, **g** and **o**, respectively. The rights are always listed in that order, with hyphens "holding" empty places. For example:

```
rwxr-xr--
```

would mean the owner of this object can read, write and execute; other users in the same "assigned" group can only read and execute, not change, and the rest of the world (others) can only read. Using the octal method this can be shortened to **754**. A summary table would look like this:

```
Categories of users:     u  g  o
Permissions list:        rwxr-xr--

Octal mode permissions: 7  5  4
```

People often use the term rights to describe the "rights" literally. For example, in the top line above: Do you have **w** rights to that file?

However, the term "modes" is often used when the octal representation is used (you better set your startup files to mode **750**).

That is the quick review on permissions. If you are still unclear, you might want to pick up a book on this before reading the rest of the article.

MOVIN' ON TO ACLs

ACLs are an extension to the basic UNIX DACs (permissions). ACLs extend permissions only in the sense of who can be granted access (or denied access), not in the types of access. The types of access granted or denied are the same as that in the basic UNIX permissions (**r**, **w**, **x**). ACLs on HP-UX allow up to 13 extra categories for determining who can be assigned access to a file or directory; ACLs

should not be used on device files.

These 13 additional categories (16 total) can name users or groups with specific sets of rights to a file. Unlike the basic permissions, ACLs can specify a user and group together in one entry. For example, if the whole system operations group log in with accounts that put them in the "sysop" group, and they are prone to indiscriminate use of **rm**, I could specify that that group has no rights to my directories and files. I could do this by setting the rights on every file and directory, or denying **x** rights at the top of the tree, effectively turning off access to the entire tree.

This could be done with a wildcard for the username and a specific group — **%.sysop**. In reality, there is one nice individual in that group, who is a superb admin, and trustworthy to boot. In that case, I can say that **sam.sysop** has full rights to my files, even though the rest of the group is denied access.

How do you do this? With the ACL specific commands. These are **lsacl** and **chacl**, to list or change ACLs. There also are a couple other commands: **getaccess** shows you "your" rights to a file, and **find** can search files based on what settings they have in their ACLs.

Enough background, lets look at some examples. Use the man pages, starting with the **acl** man page, for all the specifics.

When assigning ACLs, there are five symbols used:

```
. separates user names from group names
% means any group or user assign the following rights
- remove the following rights
+ add the following rights
, separates items, different meaning depending on method used
```

When reading or assigning ACLs, there are three formats. They are short, operator and long. Here is an example of rights being displayed with the **lsacl** command in short format:

```
$ lsacl dueapril
 (fredm.%,rw-)(%.training,r--)(%.%,---) dueapril
```

Note that the only "categories" here are the default categories of user (**fredm**), the group fredm is in (**training**) and **others**. Also note that **others** does not have any rights (is denied all access) to the file **dueapril**. That is to keep those **sysop** pukes out. Except for Sam. I want to let Sam read this file before it gets published, so I will issue the following **chacl** command:

```
$ chacl (sam.sysop,6) dueapril
 ksh: syntax error: `(' unexpected
```

Which makes me remember that parenthesis are "special" to the shell, so I have to quote them:

```
$ chacl '(sam.sysop,6)' dueapril
```

That worked better, now we list the new ACLs:

```
$ lsacl dueapril
 (sam.sysop,rw-)(fredm.%,rw-)(%.training,r--)(%.%,---) dueapril
```

Note that because **sam.sysop** is more specific than **fredm.%**. It is listed (and checked for) first. This means that there is order to how ACLs are searched to determine which rights a user has to a file. The order of the search is:

```
All specific-user,specific-group sets (sam.sysop)
All specific-user,any-group sets (sam.%)
All any-user,specific-group sets (%.sysop)
Required others entry (%.%)
```

The other format commonly used for the **chacl** command is the operator format. Here is an example:

```
$ chacl sam.sysoprw,%.sysop-2  dueapril
```

This command added the same entry as above for **sam**, but also would have removed the **w** rights from an existing **%.sysop** entry. Note that there were no spaces in the entire ACL string. Also note that you can specify the rights in octal (**2**) or in symbols (**rw**).

There also is a long format. Here I used it to display the rights on the same file we have been playing with:

```
$ lsacl -l dueapril
dueapril:
rw- sam.sysop
rw- fredm.%
r-- %.training
--- %.sysop
--- %.%
```

Note that the **%.sysop** entry is useless in this case, as the **%.%** entry is the same. Below, we see a case of denied access:

```
$ lsacl -l dueapril
dueapril:
rw- sam.sysop
rw- fredm.%
r-- %.training
--- %.sysop
r-- %.%
```

Because I don't like the members of the **sysop** group, I give the whole world (**others**) read rights to my file, but not those darn **sysop**s.

SOME GOTCHAS

ACLs are not supported on VxFS file systems. They also vary in implementation between vendors, though all are typically based on the federal government's trusted system specifications. Some vendors only support them on trusted systems. A big issue is that they can be removed by archive and backup commands. Take a peek at the man pages for the proper options (if any) to preserve ACLs. A really big issue is that NFS sometimes does not understand them. So, the additional ACL entries might be silently removed during an NFS network pathname copy. At least **tar** tells you when it is ignoring ACLs.

When accessing a file though an NFS pathname, remember that the access is determined on the machine that has the file locally, so ACLs still control access. Due to the format in naming, if you have user names with periods (.) in them, there will be name problems. Therefore, you should assign ACLs with UID numbers instead. Another gotcha is that if you use **chmod** on a file with several ACL entries, they are all removed. ACLs are not for every situation, but often come in handy.

By the way, Sam, thanks for the e-mail. How're the knees?

—Fred has been rumored to send checks instead of answers. Send your flattery to Fred at frederm@aol.com.

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CIRCLE 404 ON READER CARD

Mark McFadden

Internet "Community Standards"

The Internet community wants to exert some self-control, but Washington is getting suspicious.

The regulatory crew has been sniffing around the edges of the Internet. With its responsibility for supervising the nation's telecommunications environment, the FCC has been at the center of all the big Internet issues, including access charges and the Communications Decency Act (CDA).

Now, it seems everyone wants to get into the regulatory act. The Federal Trade Commission (FTC) is worried about consumer privacy. The Food and Drug Administration (FDA) is concerned about false claims for drugs published on the Web or in newsgroups.

AND THE LAW WON

Not long ago, a set of unwritten conventions, called "netiquette," demanded that people using the Internet play by a set of rules that governed the content of what they sent by e-mail, posted on newsgroups and published on the Web. Like life in a small town, the netiquette rules were enforced by peer pressure, self-governance and self-limiting participation.

Now, with 50 million e-mail users and more than 10 million businesses on the Internet, peer pressure is about as effective as it is in New York City. When Congress passed the CDA last summer, the intent was to protect users, especially children, from pornography. The reaction from the Internet community was swift and sure. The Justice Department immediately found itself in court defending the constitutionality of the law.

A Federal court in Philadelphia struck down the law last year, but the Justice Department appealed to the U.S. Supreme Court. In fact, on March 19, the U.S. Supreme Court began to hear arguments regarding this case. However, not content to wait for the federal fog to clear, the states have taken matters into their own hands.

Laws in 11 states reflect a wide variety of concerns including: materials deemed "indecent" or "harmful to minors," information related to "terrorist acts" or "explosive materials," sexual solicitation of a minor by computer, and online transmission of child pornography. The Georgia legislature even considered attempting to outlaw online pictures of marijuana.

The key problem with regulating Internet content is that a message sent from Philadelphia this morning may be in all 50 states by tonight and available around the world the next day. If state laws come into play, you'll have to ensure that it's not "indecent" in Indiana, "threatening" in Ohio, "annoying" in New York or related to "terrorism" as defined in Georgia.

WHAT'S GOING ON HERE?

Police and other law enforcement agencies see the Internet as a rapidly expanding arena for criminal activities. To cope, they demand expanded powers that will prevent the technology from getting out of their control. On the other hand, civil libertarians and Internet veterans insist that the unfettered nature of the Internet not be changed just because of paranoia about the darker side of cyberspace.

The emerging struggle pits those who seek a "hands-off" approach versus others who seek to impose regulatory controls over content. Those who oppose controls insist that the Internet's self-governing mechanisms still work. New tools, such as rating services and filters that limit the newsgroups and Web sites available for surfing, are part of the Internet community's attempt at self-control. Others appeal for government intervention, arguing that the new tools can never ensure a safe Internet.

Before regulation and self-control achieve their desired effects, education will be required. Well-meaning legislators need to appreciate the difficulty, and perhaps futility, of regulating the Internet's dynamic features. Internet veterans have to understand that the Internet has become a messy fusion of commercial, educational, military and personal interests.

This summer will bring the next, inevitable round of legislation. Unfortunately, we'll probably get more laws that attempt to govern the digital transmission of plant life.

—What kind of information would you like Mark to transmit? Let him know at 73740.1101@compuserve.com.

Would you like to continue to see articles on this topic?
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new Products

SOFTWARE

WRQ Releases NFS For Windows NT

WRQ announced an NFS for Windows NT software product that provides an integrated Windows NT and UNIX solution. The product offers "r" commands and APIs for NFS and RPC used for development of custom Windows application. Reflection NFS Connection for Windows NT also provides support for networks managed by Network Information Services (NIS), the management standard used on many UNIX-based networks.

Price is $219.

Contact WRQ, 1500 Dexter Ave. N., Seattle, WA 98109; (800) 972-2829; info@wrq.com; www.wrq.com.

Circle 400 on reader card

Lund Acquires Carolian Line

Lund Performance Solutions announced the acquisition of the entire product line with the exception of Smart Alert from Carolian Inc. This purchase augments Lund's suite of performance software and services already offered on the HP 3000 and HP 9000 platforms.

Contact Lund Performance Solutions, 240 Second Ave. SW., Albany, OR 97321; (541) 926-3800; info@lund.com; www.lund.com.

Circle 398 on reader card

Prism, Sagent Sign Reseller Agreement

Prism Solutions Inc. announced that it will resell the Sagent Data Mart Solution and provide seamless integration of its meta data into the Prism Warehouse Directory, via Prism's CDIF standard interface.

The Prism/Sagent Scaleable Data Mart provides integrated software that lets users populate data marts and create meta data; access, distribute and collaborate on this data; and centrally administer a network of data marts. An optional Web facility provides access to information via the Internet and intranets, allowing users to display information through a Web browser on any operating system.

Price is $50,000, and includes software for a single server and 20 clients.

Contact Prism Solutions, 1000 Hamlin Ct., Sunnyvale, CA 94089; (408) 752-1888; info@prismsolutions.com; www.prismsolutions.com.

Circle 394 on reader card

Compression Storage Manager Integrates With MPE/iX

SolutionSoft Systems Inc. announced the integration of its Compression Storage Manager (CSM) product with MPE/iX, resulting in seamless interoperation between the online archiving package and the HP 3000 operating system.

CSM/MPE integration is available for MPE/iX 5.0 and 5.5 via the MPEJXA2 patch from HP and is being incorporated into the MPE/iX 6.0 code base.

Contact SolutionSoft, 370 Altair Way, Ste. 200, Sunnyvale, CA 94086; (408) 988-7378; info@solution-soft.com; www.solution-soft.com.

Circle 396 on reader card

IFS Launches CMMS Solution

IFS Industrial and Financial Systems launched their Computerized Maintenance Management System (CMMS), IFS Maintenance version 5.

IFS Maintenance is an Oracle-based client-server solution comprised of seven core modules, plus a number of data capture and productivity enhancing modules.

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Contact IFS Industrial and Financial Systems Inc., 4325 Lake Boone Trail, Raleigh, NC 27607; (919) 786-4400; www.ifsna.com.

Circle 395 on reader card

CA Announces Unicenter TNG Exchange Option

Computer Associates International Inc. (CA) announced the Unicenter TNG Exchange Option that enhances the reliability and availability of Microsoft Exchange 5.0 environments by automating functions required to keep Exchange servers up and running.

Unicenter TNG Exchange Option delivers complete monitoring and response capabilities to simplify the management of server host and application operations.

Contact CA, One Computer Associates Plaza, Islandia, NY 11788; (516) 342-5224; info@cai.com; www.cai.com .

Circle 393 on reader card

Memco Announces SeOS Version 2

Memco Software Ltd. announced new versions of its SeOS Access Control and Security Administrator products. SeOS (Security for Open Systems) secures information assets on distributed systems.

With version 2, Memco introduces advanced capabilities that actively control user access, monitor user actions and effectively enforce information security policies across distributed networks.

Contact Memco, 52 Vanderbilt Ave., Ste. 510, New York, NY 10017; (800) 862-2602; info@memco.com; www.memco.com.

Circle 397 on reader card

WinWhatWhere Ships Release 97

WinWhatWhere Corp. shipped Release 97 of WinWhatWhere for Windows 95, Windows NT and Windows 3.x.

WinWhatWhere is a tool for time and billing tracking, for identifying misuse of company systems, for counting the number of concurrent users for site licensing and for ergonomic considerations.

It costs $99 for a single user license and $495 for a 10-workstation license. Network and site licenses also are available. Upgrades from earlier versions are $25 per user.

WinWhatWhere Corp., 925 W. Kennewick Ave., Kennewick, WA 99336; (509) 585-9293; w3@winwhatwhere.com; www.winwhatwhere.com.

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ExperTelligence Expands WebBase

ExperTelligence Inc. expanded WebBase with new product add-on ExperForms in conjunction with Caere's OmniForm Internet Publisher, which enables users to build fully functional, dynamic Web sites and databases from a scanned paper form.

WebBase is a dynamic Web server that connects ODBC databases to the Web, providing for automatic Web page generation by ExperForms. Webber/Active's tag editing model, based on the WebberHTML editor, gives complete access to tags. E-Merge is a product add-on, designed to allow users to conveniently send e-mail directly from a WebBase form.

WebBase with ExperForms, Caere's OmniForm Internet Publisher, Webber-Active, E-Merge and WebWizard cost $2,495.

Contact ExperTelligence Inc., 203 Chapala St., Santa Barbara, CA 93101; (805) 962-2558; webmaster@expertelligence.com; www.webbase.com.

Circle 390 on reader card

Siemens Nixdorf Announces TrustedWeb

Siemens Nixdorf announced TrustedWeb.

TrustedWeb is made up of three software components: TrustedWeb Client is installed and configured automatically over the network from a central location; TrustedWeb Server checks access on the basis of the role assigned to the user; and TrustedWeb Domain Security Server grants access permission to the authenticated user.

Contact Siemens Nixdorf, 200 Wheeler Rd., Burlington, MA 01803; (617) 273-0480; www.trustedweb.com.

Circle 392 on reader card

EYT And Bluecurve Sign Reseller Agreement

Bluecurve Inc. announced the signing of a system integration agreement with Ernst & Young Technologies Inc. (EYT) which will enable EYT to deliver Bluecurve's Dynameasure 1.5 product family to Ernst & Young and its clients.

Dynameasure Enterprise is a measurement tool that supports concurrent testing of multiple Windows NT services.

Dynameasure for File Services offers over 50 tunable file tests based on file work that users typically perform.

Dynameasure for SQL offers tunable OLTP SQL tests with support for Oracle7 Server and Microsoft SQL Server.

Contact Bluecurve Inc., 2101 Webster St., Ste. 1690, Oakland, CA 94612; (510) 267-1500; sales@bluecurve.com; www.bluecurve.com.

Circle 385 on reader card

ParaSoft Releases CodeWizard For Windows

ParaSoft Corp. released CodeWizard for Windows NT and Windows 95. Based on Scott Meyers' book, *Effective C++*, CodeWizard reads your C++ source code and automatically advises you of violations

New From HP

Cash In & Trade Up Program — HP announced that it will offer a new rebate program for users who wish to upgraded their printer technology. The Cash In & Trade Up program allows customers who have purchased any new HP LaserJet or HP DeskJet 1600 series printer to trade in their old equipment for cash. The program also allows customers who have purchased a new HP JetDirect print server to receive cash for their old print servers. The offer runs through October 31, 1997.

HP 8920B RF Communications Test Set — HP introduced enhancements to its HP 8920B radio frequency (RF) communications test set. The enhancements allow manufacturers to characterize completely wireless phones designed to operate in PCS and cellular for Time Division Multiple Access (TDMA) and to determine whether the anti-fraud feature built into the mobile phones is working properly. Adding the HP 83236B PCS interface adapter to the HP 8920B allows manufacturers to measure capabilities for PCS and cellular.

The HP 8920B, which comes standard with the authentication-code-verification, costs $19,380.

For more information, contact your local sales office or call (800) 533-1333.

based on the rules described in the book.

CodeWizard for Windows NT and Windows 95 is available at no charge. CodeWizard for UNIX is available at $995.

Contact ParaSoft Corp., 2031 S. Myrtle Ave., Monrovia, CA 91016; (888) 305-0041; info@parasoft.com; www.parasoft.com.

Circle 387 on reader card

Optimal Networks' Announces Optimal Application Expert

Optimal Networks Corp. introduced Optimal Application Expert, a Windows-based distributed application performance analyzer. Optimal Application Expert monitors, analyzes, reports and models application traffic throughout the entire application cycle.

Optimal Application Expert is a Windows-based distributed application analyzer. Application developers and network managers can use Optimal Application Expert as a common tool to troubleshoot and predict end-user response-time of distributed applications.

Contact Optimal Networks, 1057 E. Meadow Circle, Palo Alto, CA 94303; (415) 845-6333; info@optimal.com; www.optimal.com.

Circle 384 on reader card

HARDWARE

Tatung Offers TNB-5600

Tatung Co. of America announced the TNB-5600 notebook. The six-pound TNB-5600 delivers a 133MHz MMX Intel Pentium processor, 12.1-inch TFT display, 32MB RAM, 1.44GB hard disk, and a built-in 33.6Kbps modem, LAN 10BaseT and external VGA monitor interface for less than $3,000.

The TNB-5600 is a build-to-order notebook which offers customers a range of powerful Intel MMX processors, from 133MHz to 200MHz, four options on hard disk drive configurations, from 1GB to 2.16GB and an optional 10X CD-ROM

Contact Tatung, 2850 El Presidio St., Long Beach, CA 90810; (800) 827-2850; hclee@thq.tatung.com.tw; www.tatung.com.tw.

Circle 383 on reader card

Zitel Corp. Offers Year 2000 Compliance

Zitel Corp. announced its Year 2000 compliance statement of direction for its CASD-II/E (Cached Actuator Storage Device-II/Enterprise) storage subsystem. CASD-II/E's "building block" architecture incorporates a modular design that allows for expansion of storage capacities from ten of gigabytes to terabytes, enabling an entire organization to standardize on a single storage architecture.

Contact Zitel Corp., 47211 Bayside Pkwy., Fremont, CA 94538; (510) 440-9600; www.zitel.com.

Circle 399 on reader card

Brocade Unveils SilkWorm

Brocade Communications Systems Inc. introduced SilkWorm, a two- to 16-port Fibre Channel gigabit switch designed to build scalable and resilient Fibre Channel Fabrics — the intelligent infrastructure required to create a scalable network.

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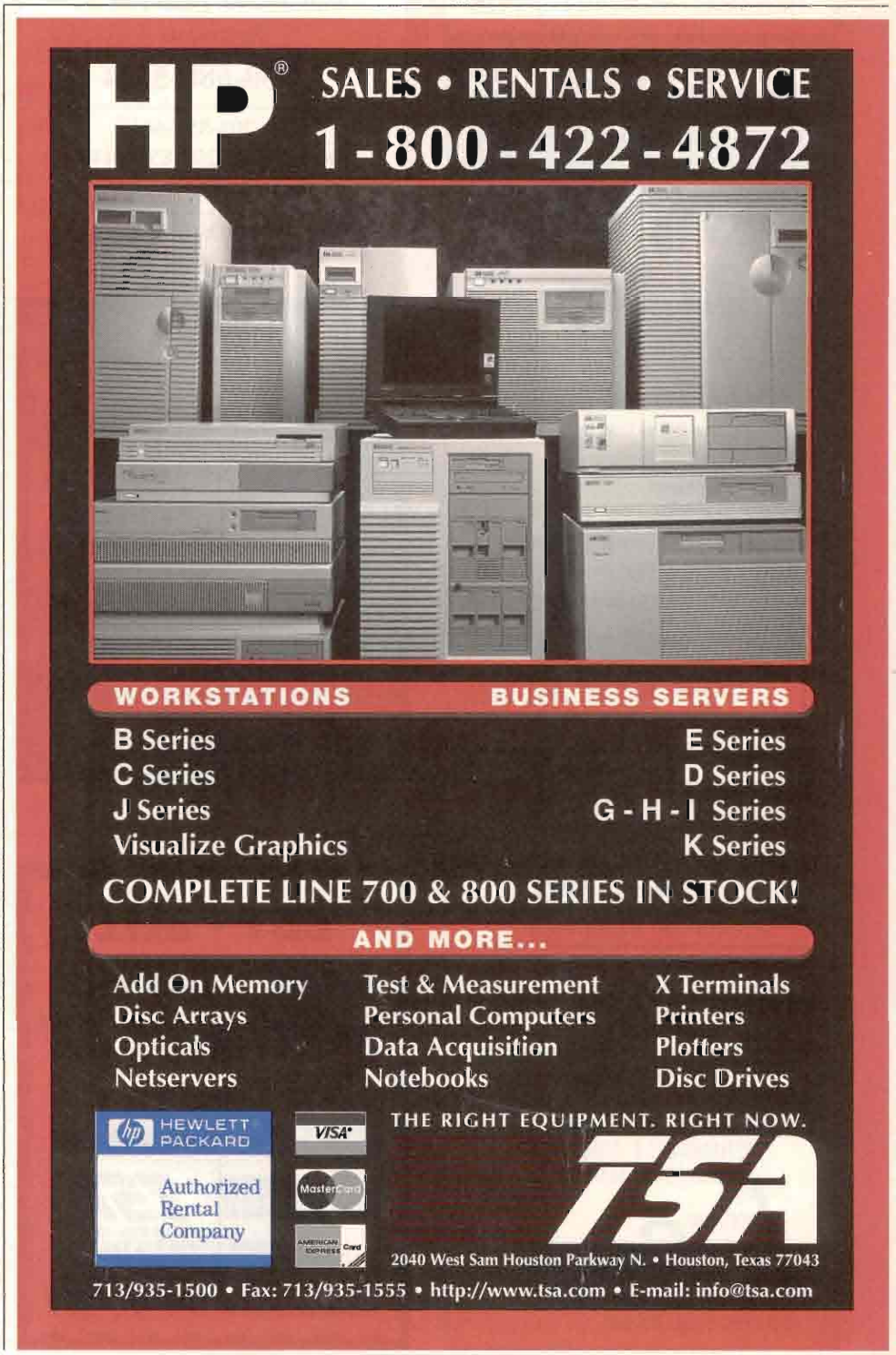

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Circle 382 on reader card

SanDisk Provides CF For HP 320LX

SanDisk Corp. announced that it will supply CompactFlash (CF) storage cards for HP's Windows CE-based palmtop PC — the HP 320LX. HP's new palmtop PC also has a 640x240 LCD display. SanDisk's CF card is available in capacities ranging between 2 and 20MB.

Contact SanDisk Corp., 140 Caspian Ct., Sunnyvale, CA 94089; (408) 542-0500; www.sandisk.com.

Circle 380 on reader card

HP ScanJet 5 Links To Biscom's FAXCOM

Biscom and HP offered integrated compatibility between Biscom FAXCOM fax server products and the HP Network ScanJet 5 scanner running in all major network operating system environments.

To send a fax, the user simply places the document into the scanner and either keys the fax number into the control panel or selects a fax number from a predefined list of destinations. The document is then scanned and sent directly to the FAXCOM fax server for transmission. Then, the FAXCOM fax server returns transmission status information — e.g., completion, failure, number of retries to the Network ScanJet 5 scanner, a networked HP printer or the sender's desktop.

Contact Biscom, 321 Billerica Rd., Chelmsford, MA 01824; (800) 477-2472; sales@biscom.com; www.biscom.com.

Circle 379 on reader card

Cybernetics Announces DTF Subsystem

Cybernetics announced its high-speed DTF tape subsystem, the CY-9000LP. The CY-9000LP can store 42GB at 12MBps, uncompressed. With optional Ultra SCSI data compression, tape capacity can increase to up to 210GB, while speed can reach 36MBps.

The CY-9000LP can be used in conjunction with Cybernetics' Accelerated File Access software (CY-AFA). The CY-AFA option creates an index of all the files stored on the tape and allows the user to fast forward or rewind to the exact tape position before beginning the restore.

The CY-9000LP is available in a single or multidrive desktop, rackmount or tape library configurations.

Contact Cybernetics, 111 Cybernetics Way, Yorktown, VA 23693; (757) 833-9000; www.cybernetics-inc.com.

Circle 378 on reader card

Verbatim Releases Autofill 500

Verbatim Corp.'s Autofill 500 refill machine and Autofill 500 refill cartridges offer savings to users of HP51626A ink jet cartridges.

The Autofill 500 is fully automatic, providing hands-free refilling of ink cartridges. Simply plug in the machine, insert an empty HP51626A ink jet cartridge into the machine, and the Autofill 500 refills the cartridge in less than 90 seconds. A microprocessor calculates precisely how much ink is required to fill each empty cartridge, so even partially empty cartridges can be refilled without fear of overfilling.

Contact Verbatim Corp., 1200 W.T. Harris Blvd., Charlotte, NC 28262; (704) 547-6500; lhealy@verbatimcorp.com; www.verbatimcorp.com.

Circle 381 on reader card

Lava Link-650 Adds NT 4.0 Support

Lava Computer announced a Windows NT 4.0 driver for the Lava Link-650 Communications Accelerator Board. The new driver allows users to exploit the performance capability of their Windows NT-based Workstation's ISDN Terminal Adapters and V.34 modems, increasing the maximum bit rate of their serial port to 460,800bps.

Price is $59.95. Drivers for the Lava Link-650 are currently available for Windows 3.x, and Windows 95 in addition to Windows NT 4.0.

Contact Lava Computer, 28A Dansk Ct., Rexdale, ON M9W 5V8; (416) 674-5942; sales@lavalink.com; www.lavalink.com.

Circle 377 on reader card

ATronics International Inc. Provides Internet Anywhere

ATronics International Inc. (ATI) introduced Internet Anywhere, a plug-n-play server that allows up to 250 LAN users to access the Internet simultaneously, using a single IP address through a built-in 33.6Kb/56Kb or ISDN modem.

Only one regular telephone line and an ISP account is needed. Netscape Navigator, Microsoft Internet Explorer, Mosaic, e-mail, ftp, Telnet and Gopher are supported. Internet Anywhere also has a built-in virtual e-mail server capability.

The standard version of Internet Anywhere comes with a 10BaseT interface and 33.6Kb modem built-in. Optional network interfaces include 100BaseT, 100BaseVG and Token Ring. Faster modem interfaces such as 56Kb and ISDN also are available.

Contact ATI, 44700-B Industrial Dr., Fremont, CA 94538; (800) 488-7776; info@ati1.com; www.ati1.com.

Circle 375 on reader card

Hansol Multitech Introduces 15PX Professional Monitor

Hansol Multitech Inc. released its 15PX professional monitor, which has ultra-high resolution of 1280x1024 dpi, refresh rates up to 60Hz for a flicker-free picture and 0.28mm dot-pitch black matrix CRT with anti-static and AR coating, for $379.

All Hansol monitors carry Microsoft WHQL PNP certification, MPRII and the Energy Star, as well as a three-year limited warranty, 24-hour technical support and an "express replacement" option. The 15PX is both PC- and Mac-compatible, connecting to either format with a single cable.

Contact Hansol Multitech Inc., 6 Centerpointe Dr., Ste. 220, La Palma, CA 90623; (888) 426-7651; www.hansolmultitech.com.

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ISPs Create A New Business Model

Pushpendra Mohta
Vice President, Internet Services
TCG CERFnet Inc.

Today's doomsday prophets are gaining considerable attention by proclaiming that the Internet is on the verge of collapse and that it was never designed to accommodate its current growth rate. Only less than a decade ago, the Internet was restricted to use by scientists and the academic world. Today, the Internet has become a valuable information, communications, marketing and sales resource for millions of people in 137 countries. By the year 2000, businesses in the United States alone will conservatively be spending at least $5 billion annually for Internet, intranet and Web access services.

To meet these growing demands, Internet service providers (ISP), cable carriers and telcos will increase their expenditures for a wide range of network infrastructure upgrades from the $1 billion last year, to more than $5.3 billion this year. Unlike some of today's recreational ISPs, who enhance their capabilities after their customer base increases, major commercial or tier-1 ISPs continually test, refine and implement technologies as they become available. To provide the level of service businesses demand, tier-1 providers also ensure that their bandwidth and server capacities are always 40 percent to 60 percent above the current sustained usage. Business users who are having problems with the Internet should look at their connection and the capabilities of their ISP.

You also should examine the speeds of the ISP's backbone links. Your organization's network connection can only be as fast as the slowest link. Working with large files and dial-up modem speeds of 14.4 or 28.8Kbps can be useful for a field sales force or light telecommuting. Anything beyond that requires high-speed dial-up ISDN, 56Kbps, fractional T1 service or T3 (45Mbps) connectivity, which is more than 3,000 times faster than an average modem connection.

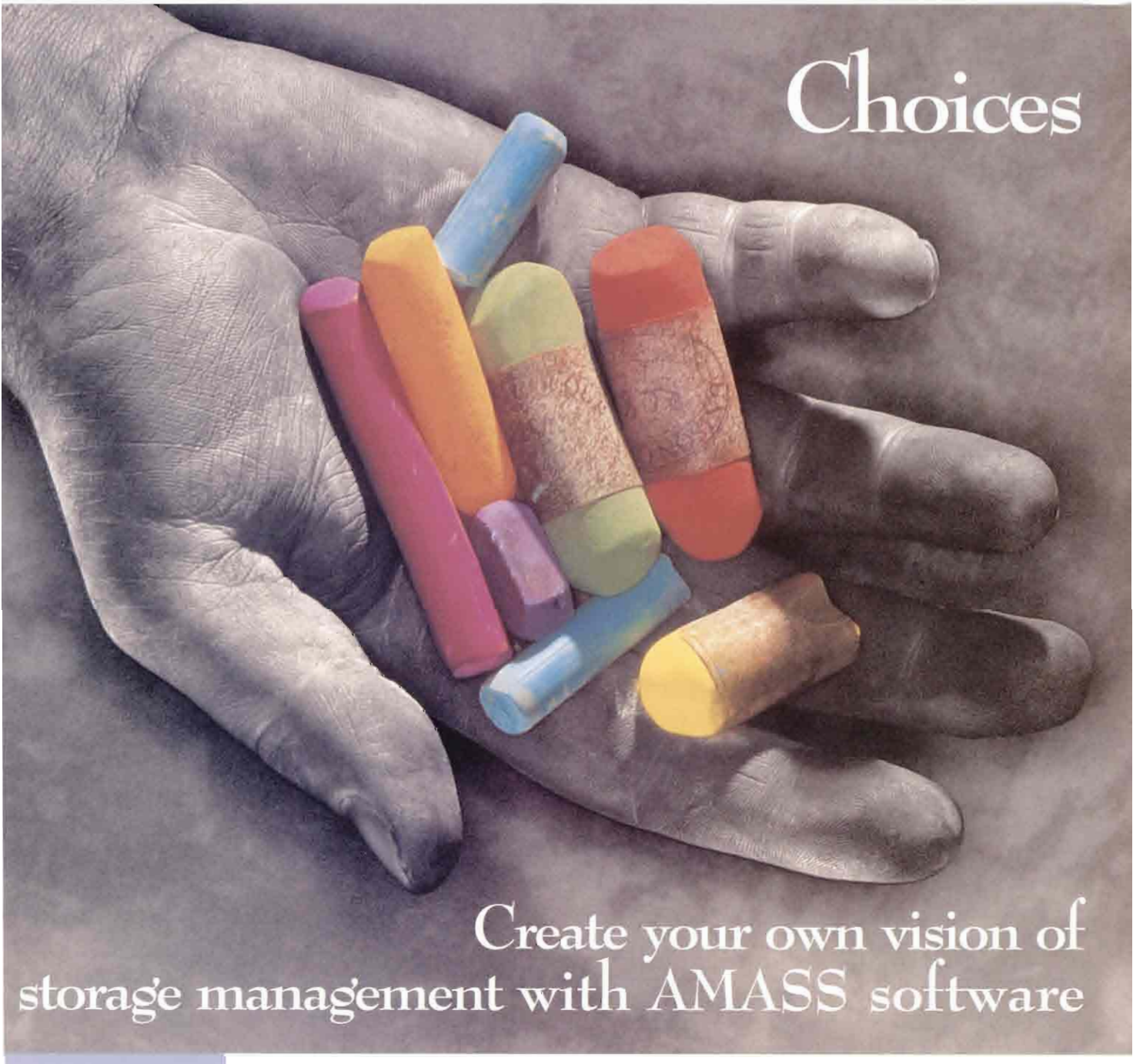
The reliability of your Internet connection depends on the reliability of your ISP. For business-quality service, your ISP must operate a portion of the Internet backbone, and that segment must be directly connected to all of the other major ISPs and Internet exchange points at T3 speeds. Direct connection to several Network Access Points (NAP) eliminates the possibility of a single point of failure. On critical routes, the backbone should be redundant so traffic can be carried even if an outage occurs.

UP TO SPEED

We expected the Internet to achieve the speed and reliability of our 100-year-old telephone network in just 10 years. While telcos have traditionally done a good job of providing telephone business links for large and small companies, they have been less than successful in helping firms integrate technologies or meet the needs of mission-critical data applications. Internet requirements and services are so varied that they just don't fit into the neat little boxes telcos are used to dealing with.

To meet the depth and breadth of tomorrow's demand for Internet services, you'll need an ISP that goes beyond providing solid Internet connectivity. They will have to control the wire. Meanwhile, although some of the less well-engineered portions may still experience periodic brownouts and outages, the overall reliability of the Internet and Web is being validated every day.

It is so reliable that a new business model has emerged. The new business model places the emphasis on the data-centric Internet, intranet and Web services that businesses can easily and economically tailor to their specific data and information needs. The new model doesn't favor telcos or ISPs. It favors the optimum delivery of business solutions. And that's favorable for all the rest of us.



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