

JULY 1995

Professional

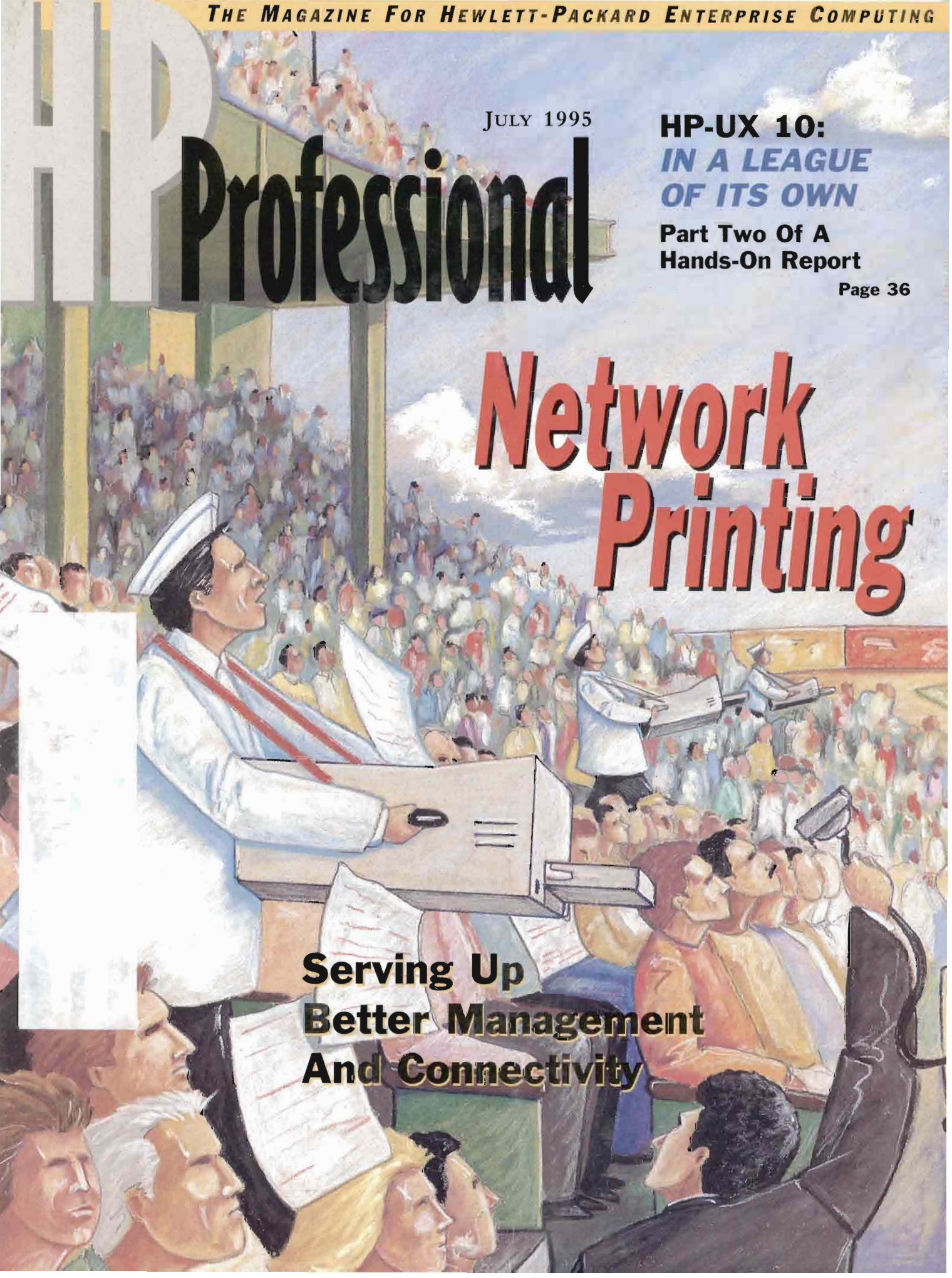
**HP-UX 10:
IN A LEAGUE
OF ITS OWN**

**Part Two Of A
Hands-On Report**

Page 36

Network Printing

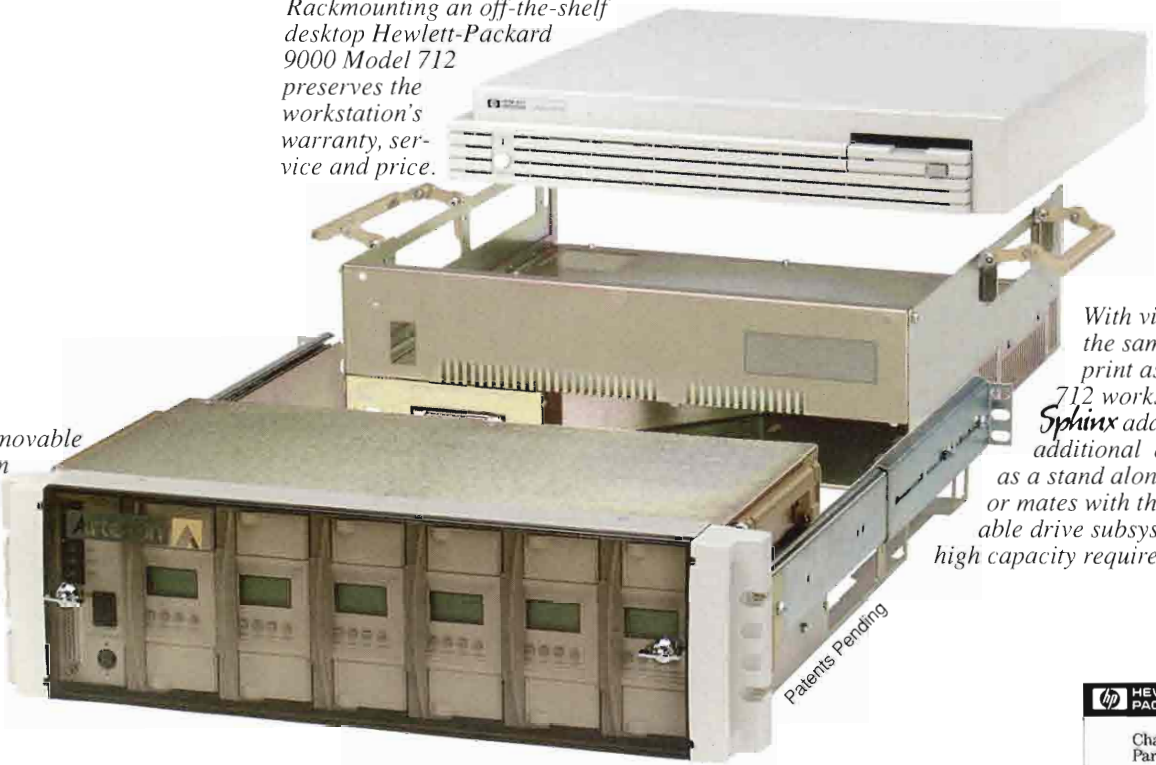
**Serving Up
Better Management
And Connectivity**



Rack & Roll.

Rackmounting an off-the-shelf desktop Hewlett-Packard 9000 Model 712 preserves the workstation's warranty, service and price.

An optional removable drive subsystem lets you add 6 additional 3.5" devices, including up to 25GB of hot plug disk.



With virtually the same footprint as the HP 712 workstation, Sphinx adds two additional devices as a stand alone chassis or mates with the removable drive subsystem for high capacity requirements.

Now Available For Hewlett-Packard.

Artecon's *Sphinx*TM now gives you rackmount capability for your off-the-shelf desktop Hewlett-Packard 9000 Model 712 workstation or server. The optional hot plug removable drive subsystem lets you add all the devices you need to build a powerful server - for thousands of dollars less than a preconfigured package. And you can have all this in only 5.25" (3u EIA) of vertical rack space.

For The First Time Ever.

The *Sphinx* neatly encapsulates your HP workstation and fits any 19" EIA rack. Its innovative design features side mounted slides, whisper quiet forced air fans, patented tuck-away lug handles, and up to two additional 3.5" or half height 5.25" devices. In the rear you'll find completely unobstructed access to the workstation backplane, as well as access to internal peripheral devices such as the Model 712's floppy disk drive.



Sphinx' modularity offers you a wide variety of configurations.

Modular, Expandable, Reliable.

The optional removable drive subsystem supports as many as six additional 3.5" disk or tape devices, including up to 25GB of hot plug, high performance, removable disks on one or two SCSI busses. Power, keyboard, and RS-232 for the workstation feed through to the front of the enclosure, supporting easy access to power on/off, terminal or modem devices, and rack-mounted keyboards.

Off-The-Shelf.

Artecon's rackmounted solutions make the most of your Hewlett-Packard workstation by expanding its use beyond the desktop. You've never seen this much potential in such a small footprint, nor so many ways to configure I/O devices. With a *Sphinx* enclosure, your existing HP workstation retains the manufacturer's warranty, service, upgradeability and price, because it never leaves the original case.

So call Artecon today and get ready to RACK & ROLL!

1-800-USA-ARTE
1-800-872-2783

Enterprising solutions for your enterprise.TM

Artecon



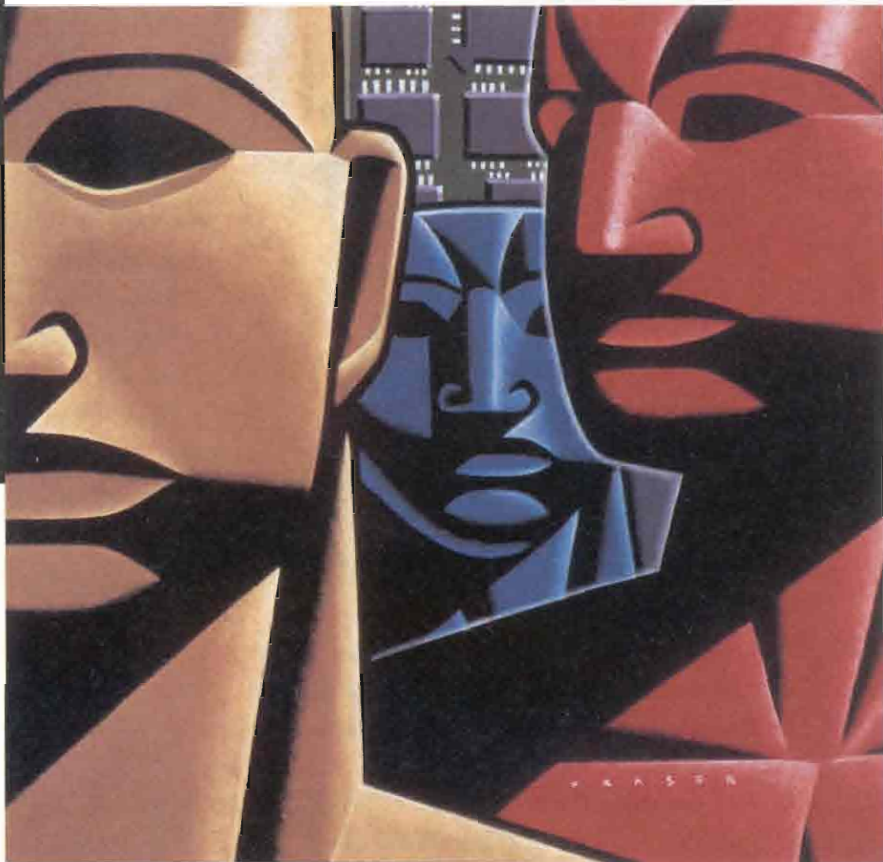
CIRCLE 242 ON READER CARD

PO Box 9000, Carlsbad, CA 92018-9000
(619)931-5500 FAX (619) 931-5527
email: sales@artecon.com
A Member of the Nordic Group of Companies

Artecon, Canada, (416) 487-7701 ▲ Artecon, Japan 81-3-3280-1210 ▲ Artecon, France 33-1-69-1818-50

Artecon and the Artecon logo are registered trademarks of Artecon, Inc. All other trademarks are proprietary to their respective manufacturers.

**THE
WORKSTATION
MEMORY
CREATED LIKE
NO OTHER**



Kingston's workstation memory upgrades lead the industry in competitive pricing, reliability, compatibility, selection and availability.



Our workstation memory is backed by a lifetime warranty and free, comprehensive technical support. We test every memory

upgrade with the systems' own diagnostics and operating systems.



At Kingston 100% compatibility is guaranteed.

**KINGSTON MANUFACTURES
MEMORY FOR:**

- DATA GENERAL
- DEC
- HEWLETT-PACKARD
- IBM
- NCD
- SILICON GRAPHICS
- SUN



For more information,

contact our workstation experts at:

(800) 435-0669



DEC ALPHA 3000AXP Memory
32MB, 64MB, 128MB, 256MB



HP/Apollo Series 9000 Model 750, 755 Memory
32MB, 64MB, 128MB



Challenge™ & Onyx™ Memory
64MB, 256MB



SPARC System 10 Memory
16MB, 64MB

Kingston
TECHNOLOGY CORPORATION

THE INSIDE NAME IN UPGRADES

17600 Newhope Street, Fountain Valley, CA 92708
(714) 435-2667 Fax (714) 435-2618

All Trademarks and Registered Trademarks are of their respective holders. Kingston is a Registered Trademark of Kingston Technology Corporation.

CIRCLE 281 ON READER CARD

It was UGLY.



Joe bit it when he tripped over a mess of SCSI and power cables (12 stitches). Two days ago, he disconnected the server from the network (4 hours downtime). Last week, he was taking apart a tape drive he thought was bad when his screwdriver slipped and hit the power supply (fried drive, power out for two hours). Stacy tried to help him out and called the vendor to get a replacement for the fried drive, only to find out it would be two days before one could be shipped (2 days without backup).

Then came IEM Building Blocks.

IEM's Building Blocks are a simple solution to your problem. Disk, tape and optical Building Blocks are the core of the Building Block product line. These are the best industry-standard devices encased in carriers with the SCSI and power cables built-in. Just slide Building Blocks into a variety of enclosures for unlimited combinations and configuration flexibility.

IEM offers a number of enclosure options.

- 3-slot Horizontal Desktop Enclosure
- 7-slot Carrier with Pedestal Enclosure
- Medium & Large Cabinets
(hold up to 24 7-slot carriers)

Each enclosure is equipped with a pre-configured SCSI backplane, so all SCSI and power connections are made when a Building Block slides into place.

Since there are no loose cables to trip over, Joe listens to his Walkman and dances around the lab freely with no fear of stitches or disconnecting the network. If a device goes down, Joe just slides it out of its slot and replaces it with another. He has retired his screwdrivers to the toolbox -- far away from the lab.

IEM specializes in HP-compatible solutions. For more information on IEM products, please contact us at one of the numbers below.



© 1995 Anis Inc. L1.0195

In the U.S. and Canada:
IEM, Inc., P.O. Box 1889
Fort Collins, CO 80522 USA
Phone: (970) 221-3005
(800) 321-4671
Fax: (970) 221-1909
E-Mail: info@iem.com

In the United Kingdom:
IEM, Inc. (European Branch),
Colorado House, Cromwell Park,
Banbury Road, Chipping Norton,
Oxfordshire, OX7 5SR
Phone: [44] 01608 645000
Fax: [44] 01608 645155

All Others:
IEM International Sales
1629 Blue Spruce Drive
Fort Collins, CO 80524 USA
Phone: +[1] 970-221-3005
Fax: +[1] 970-221-1909
E-Mail: info@iem.com

CIRCLE 122 ON READER CARD, or call 1-800-237-3017.

Contents

July 1995

Vol. 9, No. 7

The Magic Of Network Printing

By Jim Esch

Network printing doesn't have to be a life of illusion. Learn how to see through the whole of confusion. Tricks of the trade include print adapters, print management software and connectivity software.

24

The Ten Commandments

By Fred Mallett

Down from the mount, our UNIX prophet continues to share his experiences installing and working with HP-UX 10.0. In Part II, Fred concentrates on new commands as well as the SVR4 file system layout.

36

COLUMNS

Industry Watch:

IBM/Lotus Merger; New HP VisualEyes Graphics Cards; Computer Associates Bids On Legent; and the HP Way Book Review 9

Networking Management: What To Do About OpenView

By Jill Huntington-Lee

What Network Node Manager Alternatives Do You Have? Stand Fast, Switch Platforms Or Do It Yourself 40

& Another Thing: Stick With What Works

By Gordon McLachlan

Develop Softly, But Carry A Big Stick 56



Editorial 7

Letters To The Editor . . 14

New Products 42

Reader Information 49

Product Showcase 52

Advertiser Index 55

PRODUCT WATCH:

BGS Systems Inc.'s
BEST/I Performance
Assurance 18

Andataco's
RAPID Tape 20

STRATEGIC DIRECTIONS:

PNY Electronics Inc. 22

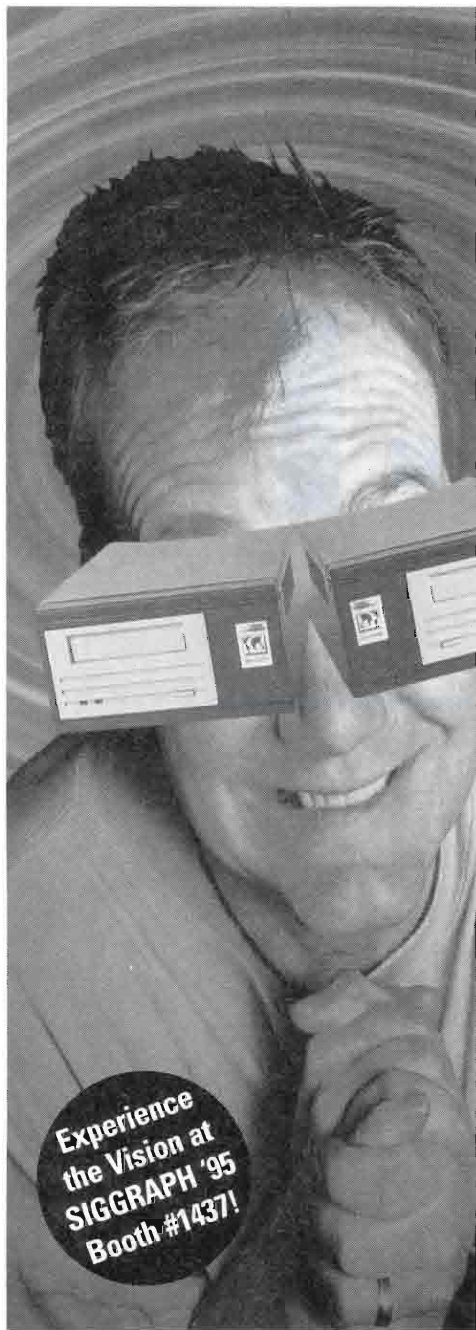
N E X T M O N T H

- Remote Access
- HP 3000 Desktop Integration

OPEN SYSTEMS FOCUS: Internetwork Management

HP
Professional

Cover Illustration By Ken Dubrowski



Experience
the Vision at
SIGGRAPH '95
Booth #1437!

Authorized Silicon Graphics
Independent Hardware Developer



Peripheral Vision in the Eye of the Storm.

It's your brainstorm. See it with LEGASYS peripherals — storage and memory upgrades for UNIX workstations including Silicon Graphics and Hewlett-Packard. With superior service, faster delivery, extensive product testing and a warranty program, LEGASYS International is the peripheral vision of the future. Now you can count on your order being shipped within 24 hours, and all LEGASYS products are covered under our exclusive 48 Hour Exchange Warranty. For ordering and product information call 1-800-955-4229 ext. 202 or 303-469-6114, fax 303-469-4699, e-mail inquire@legasys.com.



The Peripheral Vision of the Future

CIRCLE 452 ON READER CARD

HP PROFESSIONAL EDITORIAL ADVISORY BOARD

Patrick A. Adamiak
HP 3000 Product Marketing Manager

Nigel Ball
Marketing Director For HP's General Systems Division

Thomas W. Crowley
Director of MIS at Barber Colman

Frank Humphries
Director of Marketing at HP Asia Pacific Ltd.

Glenn Osaka
General Manager of HP's Professional Services Organization

John R. Logan
Vice President of Aberdeen Group Inc.

Michael J. Meinz
Principal Technical Consultant at General Mills Inc.

Bard F. White
CIO and Worldwide Director of MIS for Spalding Sports Worldwide



EDITOR-IN-CHIEF Charlie Simpson
TECHNICAL EDITOR George A. Thompson
ASSISTANT EDITOR Deborah Schwartz

COLUMNISTS
NETWORKING MANAGEMENT Jill Huntington-Lee
NETWORKING PCS Jim Carr
PC/UNIX Miles B. Kehoe
UNIX SYS_ADMIN Fred Mallett
STANDARDS Gordon McLachlan
HP 3000 John P. Burke

CONTRIBUTING AUTHORS David Baum, Sam Dickey, Jim Esch, Judith Harper, Marty Poniatowski

INTERNATIONAL EDITIONS EDITOR Karine Simpson

DESIGN & PRODUCTION
EXECUTIVE DESIGN DIRECTOR Leslie A. Caruso
ART DIRECTOR Al Feuerstein
ASSOCIATE ART DIRECTOR Jennifer Barlow
DESIGNER Patty Wall

PRODUCTION MANAGER Bill Hallman

CIRCULATION
CIRCULATION MANAGER Ron Langmacher
DIRECTOR OF FULFILLMENT Majorie Pitrone
CIRCULATION CONSULTANT Carrie Eisenhandler
DATABASE SUPERVISOR Doreen Schack

MARKETING
PROMOTIONS DIRECTOR Timothy M. Kraft
MARKETING MANAGER Veronica L. Sutsko
SENIOR GRAPHIC DESIGNER Christine Minder
GRAPHIC DESIGNER Mark Broomell

PUBLISHER Leslie Ringe

CARDINAL BUSINESS MEDIA, INC.

PRESIDENT AND CHIEF EXECUTIVE OFFICER

Robert N. Boucher

CHIEF FINANCIAL OFFICER

Thomas C. Breslin

VICE PRESIDENT, PUBLISHING

R. Patricia Herron

VICE PRESIDENT, HUMAN RESOURCES

Dorothy J. Flynn

VICE PRESIDENT, SPORTS & MUSIC DIVISION

Thomas J. Morgan

VICE PRESIDENT, RETAIL DIVISION

Marianne Howatson

For more information on how to contact your sales representative, see page 55. For address changes and other subscription information, please call (708) 564-1385 or FAX (708) 564-9002. Editorial, advertising sales and executive offices at 1300 Virginia Dr., Ste. 400, Fort Washington, PA 19034 ■ (215) 643-8000 Corporate FAX (215) 643-8099. To reach staff listed on masthead via UUNET, send MAIL to LAST NAME@CARDINAL.COM

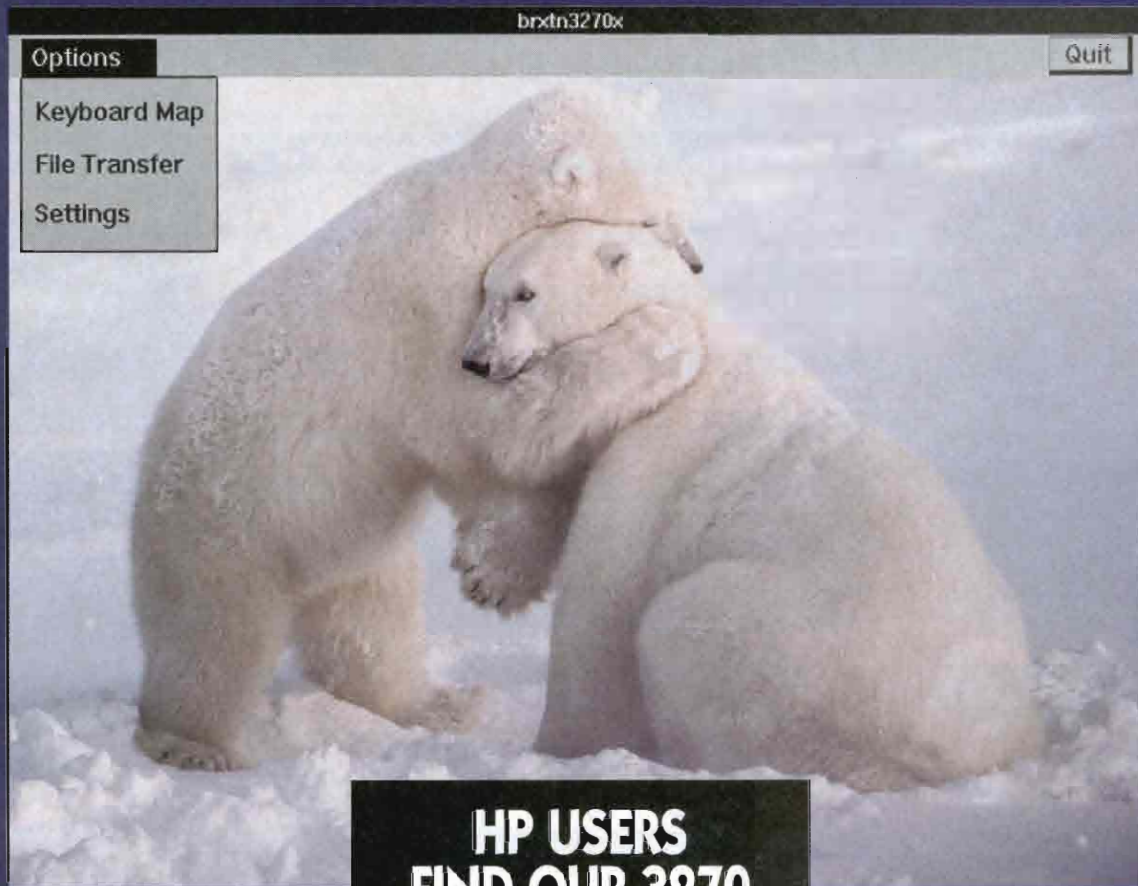
HP PROFESSIONAL ISSN 0896-145X is published monthly by Cardinal Business Media Inc., 1300 Virginia Dr. Ste. 400, Fort Washington, PA 19034. Subscriptions are complimentary for qualified U.S. and Canadian sites. For reprints, contact Reprint Management Services, 505 E. Airport Rd., Lancaster, PA 17601; (717) 560-2001, FAX (717) 560-2063. Second Class postage paid at Fort Washington, PA 19034, and additional mailing offices. POSTMASTER: Send all correspondence and address changes to HP PROFESSIONAL, P.O. Box 3052, Northbrook, IL 60062. COPYRIGHT © 1995 by Cardinal Business Media Inc. All rights reserved. No part of this publication may be reproduced in any form without written permission from the publisher. All submitted manuscripts, photographs and/or artwork are sent to Cardinal Business Media, Inc. at the sole risk of the sender. Neither Cardinal Business Media, Inc. nor HP PROFESSIONAL magazine is responsible for any loss or damage. HP PROFESSIONAL is an independent journal not affiliated with Hewlett-Packard Company. HP and Hewlett-Packard are registered trademarks and HP PROFESSIONAL is a trademark of Hewlett-Packard Company.

Canada Post International Publication Mail (Canadian Distribution Sales Agreement #IPM0264431)

Printed in U.S.A.



BEST-OF-BREED ON THE ENTERPRISE



HP USERS FIND OUR 3270 EMULATION VERY COMPATIBLE.

Like thousands of other HP-UX users, you're sure to embrace the Brx3270 Open Client for HP9000 Series 700/800 workstations, from CNT/Brixton Systems.

One reason is the faithful graphics with full GDDM support. Plus all the other features that let users access mainframe applications easily and productively. Like file transfer, printer support, scalable fonts and an API developer's kit (EHLAPI).

People also like the friendly GUI design of our emulator, with pull-down menus, X-windows environment, and cut-and-paste between all applications.

And since you want a lasting relationship, the Brx3270 Open Client supports

industry-standard Telnet servers and runs on nearly all Unix systems, not just HP-UX. Since we also offer open software for 5250 emulation, powerful servers and other multiplatform SNA-to-Open Systems solutions, you can standardize on Brixton for all your connectivity needs.

That's why so many of the Fortune 100 are connecting with Brixton. Now it's your turn. Call today for free information. And learn how our "best of breed" software can help you be more competitive.

The Cross Platform Leader

Brixton connectivity solutions run on:
SunOS ■ Solaris 2.x
IBM AIX ■ HP-UX
DEC OSF/1
SCO UNIX ■ UnixWare
Windows 3.x & NT

1-800-BRIXTON

CNT/Brixton Systems, Inc., 125 CambridgePark Drive, Cambridge, MA 02140 USA

(<http://www.brixton.com>)
All trademarks are the property of their respective owners.

HP Series

	MB	1	2	4	8	12	16	32	64	128	256
HP-200/310/320		●	●	●	●						
HP-319				●	●						
HP-330/350/370						●					
HP-332				●							
HP-340				●							
HP-345/375/380				●	●		●	●			
HP-360				●	●	●	●				
HP-362		●	●	●							
HP-382				●	●		●				
HP-400/425/433				●	●		●	●			
HP-425E				●	●						
HP-700RX		●	●	●	●						
HP-705/710					●		●	●			
HP-715/725				●	●		●	●	●		
HP-720/730/735							●	●	●	●	
HP-742/745/747				●	●		●	●	●	●	
HP-750/755							●	●	●	●	●
HP-8X7/9X7							●	●	●	●	●
HP-FXX/GXX/HXX/IXX							●	●	●	●	●

PICK A CARD.

Any card. The memory you need is in stock, tested and ready to go. Order today. Upgrade your system tomorrow.

You'll get the quality and service you expect from the leader in HP workstation enhancements. We specialize in HP, it's the platform we know best.

Newport Digital TURBO cards and memory products are guaranteed to meet or beat HP quality standards. Every card we ship has been rigorously tested in a fully functional workstation, just like yours.

Risk free. Our total quality program gives us the confidence to offer an unconditional lifetime warranty. If one of our products fails, we'll ship a replacement by overnight express. We'll do anything we can to keep your workstation working.

Call Today. Speak with an expert on Hewlett-Packard computers. We'll make sure you get the cards you need.

Evaluate any of our memory products for 30 days. If you're not completely satisfied, return it without obligation.

NEWPORT DIGITAL
1-800-383-3642

CIRCLE 246 ON READER CARD

If You Make Me Pay, Then Do What You Say

Remember when service stations, meant service? Service with a smile even. They checked the oil, filled the tank, cleaned the windows and you got a free sports mug or road map for your patronage.

Now you're lucky if you get to speak with an "attendant" on an intercom through a bullet proof shield, and that's after you stand in the rain pumping your own gas and putting air (for 50 cents) in your tires. However, if you look closely you can once again find the full serve islands at the service station. But now you pay extra for it.

OK, fine. I don't mind paying — *for good service*. Good service, however, can be hard to define. But I know what I don't like. Pushy sales people, for instance. Recently, a Thermogard Windows (Hammonton, N.J.) salesperson told me that my marriage would suffer if I didn't buy Thermogard windows. Yeah, right.

I also don't like companies that don't deliver what they promise. Remember the Challenger I was trying to sell. I placed an ad with an agency called AutoSearch (Miami, Fla.). For a fee, they "guaranteed" to sell my Challenger for the price I wanted "within 150 days or a full refund."

But after 160 days without a single inquiry about the car, I wrote for the aforementioned refund. Can you guess what happened next? I needed a private investigator to find AutoSearch. The company was history, their phone was disconnected and, of course, I could forget about a forwarding address. Live and learn, eh?

After six months, we finally sold the damn car. And then we bought a Chrysler minivan, an ideal vehicle for our needs. But as you may know, there were reported problems with the lift-gate. Chrysler sent us a letter of notification, scheduled a recall repair date and will fix the problem. Unlike my experiences with Thermogard and AutoSearch, Chrysler admitted a mistake, minimized my fears and anticipated my needs by providing a cost-effective solution.

So what's the point? Just as I was thinking that the lack of service in our culture was the way of the world, Chrysler treats me with respect — the way I want to be treated. And I liked it enough to write about it.

It doesn't matter whether its windows, cars or computers. To their credit, some computer vendors, like some service stations, make you pay for personal service. But we expect our vendors to deliver what they promise. Don't we?

TO SERVE MAN? OR ARE OUR CORPORATE MOGULS LOST IN SPACE?

Four well-known computer personalities — David Packard, Gordon Moore, Paul Allen and Mitch Kapor — recently pledged a total of over \$4 million to the SETI Institute. The purpose of the group is to locate extraterrestrial life.

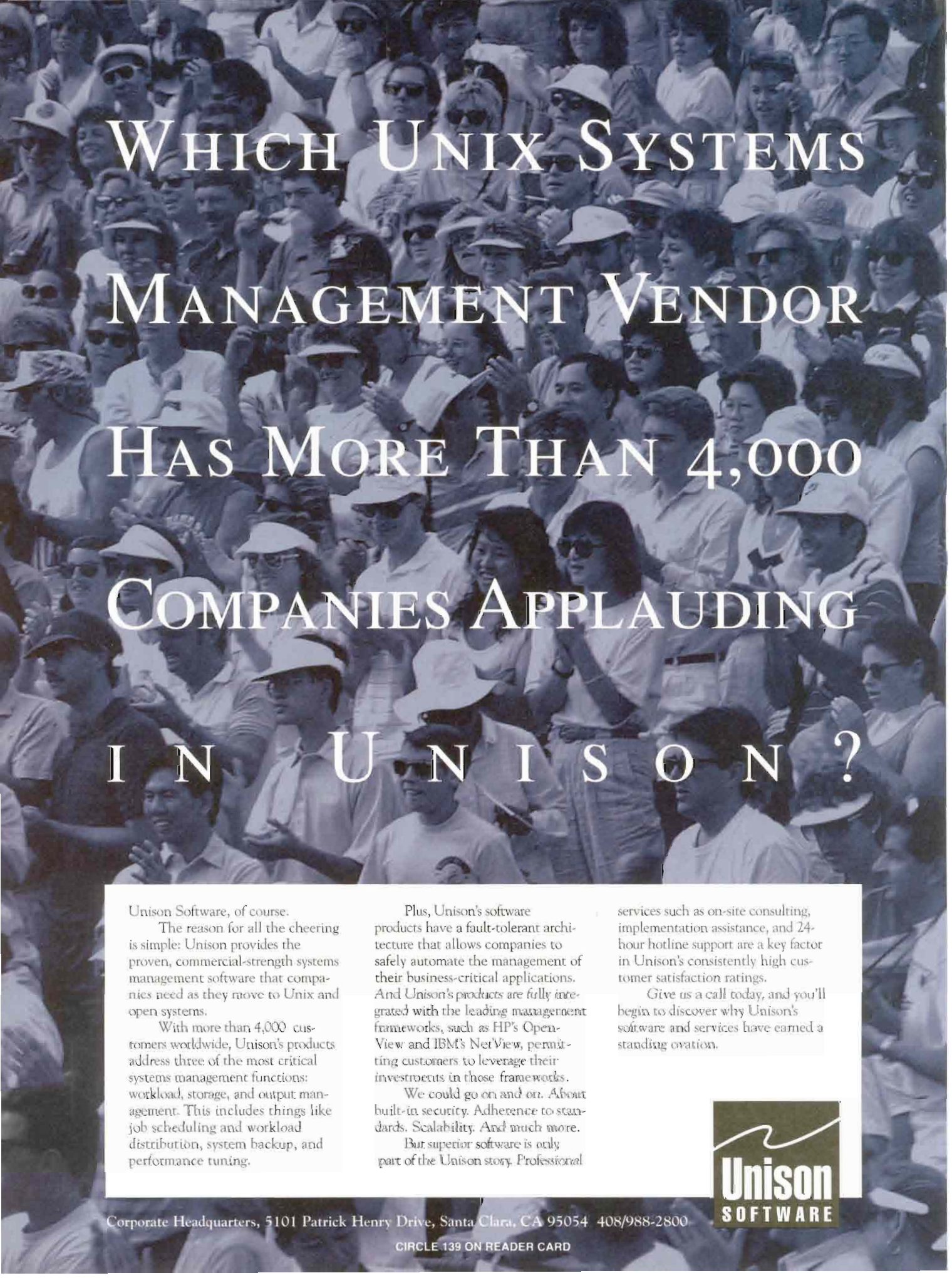
I understand these guys probably give to other worthy charities, but I got a message for these space cadets: PHONE HOME... There are enough terrestrials right in Silicon Valley's backyard who could use that money for slightly more important projects, like eating or clothing themselves.



By Charlie Simpson

Charlie Simpson

simpson@cardinal.com



WHICH UNIX SYSTEMS MANAGEMENT VENDOR HAS MORE THAN 4,000 COMPANIES APPLAUDING IN UNISON?

Unison Software, of course.

The reason for all the cheering is simple: Unison provides the proven, commercial-strength systems management software that companies need as they move to Unix and open systems.

With more than 4,000 customers worldwide, Unison's products address three of the most critical systems management functions: workload, storage, and output management. This includes things like job scheduling and workload distribution, system backup, and performance tuning.

Plus, Unison's software products have a fault-tolerant architecture that allows companies to safely automate the management of their business-critical applications. And Unison's products are fully integrated with the leading management frameworks, such as HP's OpenView and IBM's NetView, permitting customers to leverage their investments in those frameworks.

We could go on and on. About built-in security. Adherence to standards. Scalability. And much more.

But superior software is only part of the Unison story. Professional

services such as on-site consulting, implementation assistance, and 24-hour hotline support are a key factor in Unison's consistently high customer satisfaction ratings.

Give us a call today, and you'll begin to discover why Unison's software and services have earned a standing ovation.



Corporate Headquarters, 5101 Patrick Henry Drive, Santa Clara, CA 95054 408/988-2800

CIRCLE 139 ON READER CARD

INDUSTRY WATCH

George A. Thompson

LOTUS SURRENDERS ITS POSITION TO IBM

It started with a hostile takeover bid of Lotus Development Corp. on an ordinary Monday in June. Less than a week later, Lotus agreed to a friendly merger with IBM for \$3.52 billion in cash, \$220 million more than IBM's original offer. The sudden turnaround knocks the CA/Legent merger, announced a few weeks before, out of the running for the largest ever software deal.

As this issue went to press, IBM has agreed to pay \$64 per share in cash for all of Lotus' outstanding stock and preferred share purchase rights. "Lotus is a special company," said Lou Gerstner, IBM's chairman and CEO. Just how special remains to be seen, however.

For now, it's a good deal for Lotus shareholders. Lotus' stock price was in the low 30s before the takeover deal was announced. Jim Manzi, Lotus' CEO and president, originally against the IBM bid, will remain with the company as a senior vice president of IBM. And Lotus itself will remain an independent entity.

But historically, IBM doesn't have a very good track record when it comes to developing software — OS/2, XyWrite and OfficeVision come to mind. And the Lotus corporate culture — independent, quirky and non-hierarchical — will not make it any easier for their developers to "be on the IBM team." What if Ray Ozzie, the creator of Lotus Notes, leaves the newly merged company? Lotus has expected Notes, its groupware application for sharing databases and information, to be their next "killer app" a la its 1-2-3 spreadsheet. If Ozzie departs, the merger is much less valuable.

For the last year or so, Lotus has been in the process of turning itself into a communications company with Notes as

its central building block. Many analysts believe IBM wants to get back at Microsoft, which is expected to introduce its own groupware app, called Exchange, to compete with Notes. Others think Lotus' SmartSuite, a group of desktop PC productivity apps will help IBM save OS/2. Special, indeed. ●

JUST VISUALEYES THE GRAPHICS

HP workstations already well-known for their outstanding graphics performance, got a big boost last month when HP introduced their new VisualEyes series of 3D graphics cards. Shipping this month, the HCRX-8Z³ (\$5,500) and the HCRX-24Z³ (\$7,000), respectively replace HP's previous graphics cards — the HCRX-8Z (8 buffer planes) and HCRX-24Z (24 buffer planes). Users with either of the older cards can upgrade by adding a daughter card called the Z³, a 3D accelerator, for \$1,500. Performance scales from a PLBsurf93 of 88 to more than 144. The 8Z³ works on HP's GSC bus or HP's "Runway" bus in the new J-class, according to Tom

Pritchett, HP's visual engineering manager.

The HCRX-8Z³ takes advantage of HP's Color Recovery technology. Introduced last year, Color Recovery is a rendering technique providing almost 24-bit true color with an eight-plane system, according to Pritchett. "With Color Recovery technology, you can take 24-bits of image data, use a compression algorithm [via a kind of signal digital processing] to store those bits in a frame buffer and decompress them again in real time."

That makes the HCRX-8Z³ an ideal

Old Product	New Product	New Name	Price
HCRX-8	—	—	\$2,500
HCRX-8Z	HCRX-8Z ³	VisualEyes-8	\$5,500
HCRX-24	HCRX-24Z ³	VisualEyes-24	\$7,000
HCRX-48Z	HCRX-48Z ³	VisualEyes-48	\$16,000

Source: Hewlett-Packard

platform for mechanical CAD customers, says Pritchett, who are happy with the resolution of a 24-plane system but can't afford the cost. "They can save about \$2,000."

Also shipping this month is the HCRX-48Z³ (\$16,000), HP's new high-end graphics card, replacing the HCRX-48Z. J-class 48Z users can upgrade for \$2,000. Options include video out and texture mapping daughter cards. According to HP estimates, the HCRX-48Z³ scales from a PLBsurf93 of 200 to 235 and is three times faster than the HCRX-48Z, which it replaces. The 48Z³ only works on HP's Runway Bus, Pritchett points out. All the new graphic cards are object-code compatible with their counterparts.

The VisualEyes architecture leverages the floating point cells in the PA-RISC 7200 CPU to speed up the graphics pipeline. "It's the key," explains Pritchett. "We can stack up [in

NOTABLE QUOTABLES

"More than 20 years after its introduction, its descendant machines are just now entering their obsolescent phase."

— David Packard, referring to the HP 3000 in his book, *The HP Way: How Bill Hewlett and I Built Our Company*

a parallelizing fashion] two of those floating point cells [for the 8Z³ or 24Z³) or as many as six [for the 48Z³]. And he says it is an easy thing to do, because "the PA-RISC CPU designers sit right next to the graphics technology designers. They leverage a lot of ideas back and forth. It's a closely coupled design."

Andrew Allison, editor of *Inside the New Computer Industry* (Carmel, Calif.), finds replicating the PA-7200 floating point technology, "quite interesting" and a "good but unusual move" for HP. "Although it could be a little bit faster, the numbers are impressive," he says. And it keeps HP competitive with the Silicon Graphics Indigo, according to Allison. Silicon Graphics is HP's primary rival in the 3D graphics market.

In a related introduction, HP also announced The Object Caching Card for Evans and Sutherland's Freedom Series, which improves OpenGL graphics performance. ●

CA BIDS FOR LEGENT

It's suddenly stylish to be buying companies in the network/systems management market. In June, Computer Associates International (CA; Islandia, N.Y.) became fashionable by offering to purchase all outstanding shares of the Legent Corp.'s (Herndon, Va.) common stock at \$47.95 per share. CA signed a definitive agreement which was unanimously approved by the Board of Directors. A wholly owned subsidiary of CA will offer to purchase all outstanding shares of Legent. Following the completion of the tender offer, it is expected that the subsidiary of CA will be merged into Legent.

It's a good move for CA according to Jill Huntington-Lee, president of Brandywine Network Associates (Cinnaminson, N.J.). "By automating UNIX system administration in widely distributed environments, it will help CA fulfill the promise of Unicenter." Users have been disenchanted with Unicenter's monolithic, mainframe style architecture. Legent's XPE architecture, on the other hand, is much more suitable for the kind of flexible distributed management systems now

being implemented in two- and three-tiered client-server models. ●

HP EQUALS MC²

Huh?! And you thought it was E for Energy. Well, maybe in Einstein's cal-

culatation. But in HP CEO and chairman Lew Platt's equation, MC² — as in measurement, communications and computers — is HP's future. If it's hard to imagine what that means, don't worry. HP is happy to demonstrate with products like the HP M1490A

Book Review

r o u n d u p

Focus On OpenView: A Guide To Hewlett-Packard's Network And Systems Management Platform

by Nathan J. Muller,
1995; CBM Books,
Fort Washington, Pa.
ISBN 1-878956-48-5
\$40.00

Muller brings 23 years of computer industry experience to bear on HP's OpenView. And that serves him rather well as he introduces HP OpenView (it's a framework), explains and dissects its various pieces (there are four) and discusses some of the 3,500 third-party applications available (largely responsible for OpenView's success). While not officially endorsed by HP, Muller enlisted the help of several key HP people and reputable industry analysts which keeps the book free from the all-too-familiar vendor hyperbole.

In fact, Muller isn't shy about mentioning OpenView's shortcomings, citing OpenView's lack of a fully distributed management capability and a common data repository. The preface, briefly but succinctly, puts OpenView in perspective against its competitors — DEC's PolyCenter, IBM's NetView and Sun's SunNet Manager.

There is a chapter devoted to HP OperationsCenter and a chapter on other complementary HP systems management tools: PerfView,

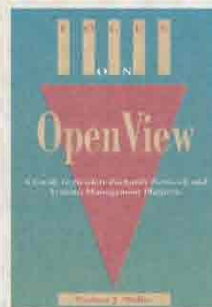
PerfRX, GlancePlus, OmniStorage, OmniBack, OpenSpool and Software Distributor, all which can be integrated with OperationsCenter. Other chapters include discussions of remote monitoring and data collection, problem management, hub management, managing the physical network, managing distributed UNIX as well as NetWare and SNA environments.

In the chapter on distributed management, Muller does spend some time on the integration of Computer Associates' Unicenter and OpenView, an important relationship for OpenView users. But similar discussions are lacking for other OpenView related UNIX management tools such as those from Tivoli and Legent.

The book itself is written in a straightforward style and tone. No doubt a reflection of the 600 articles Muller has written on networking topics. Minor complaints: a better list of acronyms and a glossary.

However, if your looking for a quick overview about systems and network management and the kind of useful information not readily apparent from product brochures, *Focus on OpenView* is book that can serve as both a teacher and a guide.

The book can be ordered via CompuServe (7670,1564) or the Internet (cosgrove@cardinal.com). Or in the United States call (800) 285-1755 or fax (215) 643-8099.



PalmVue System, that combines HP patient monitors, and personal and palmtop computers with wireless communications and printing.

At first glance, the PalmVue looks like an ordinary, run-of-the-mill HP 200LX palmtop with a wireless modem attached. But rather than just exchanging E-mail, checking appointment dates

or noodling with Pocket Quicken, the PalmVue System will help doctors, nurses and other medical personnel to send and receive medical data about patients via wireless transmissions.

Patient data at the dispatch station is encrypted and sent via a radio common carrier to the paging receiver in the palmtop where it is reassembled into a



HP's PalmVue System uses a "doctored" HP 200LX palmtop to receive wireless transmissions of patient data.

The HP Way: How Bill Hewlett and I Built Our Company

by David Packard
1995; HarperCollins,
New York, N.Y.
ISBN 0-88730-747-7
\$17.00

If you're tired of CEO authors bragging about how they did it, about how their genius made the difference in their companies, then you'll find *The HP Way: How Bill Hewlett and I Built Our Company*, a refreshing change of pace. Written in an unassuming style by HP co-founder David Packard, the book's 212 pages are a quick read.

In the first half of the book, Packard spares few details recounting his early life growing up in Pueblo, Colorado with his lawyer father, and high school teacher mother.

Packard's direction isn't set, however, until he reaches Stanford University as an undergraduate electrical engineering student and gets invited to Professor Fred Terman's graduate class in radio engineering. At Stanford, he also meets Bill Hewlett. The rest, as they say, is history. And Packard makes the most of it by writing about the audio oscillators that were HP's first products in 1938; the incorporation in 1947; its first public stock offering in 1957.

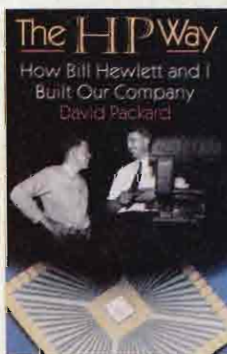
The second half of the book will interest most people who have any kind of relationship with HP today.

Packard describes HP's transition from a successful Palo Alto instrumentation company into a successful computer corporation hatched in Cupertino. That began ironically enough with an automatic controller for measurement systems known as the Model 2116. Around the same time, Packard writes that "it appeared we might be able to acquire DEC for \$25 million." HP eventually began its computer age with the launch of the HP 3000 in 1972.

Most importantly, as he talks about "the values, the corporate objectives, plans and practices" that make up The HP Way, Packard shares his personal thoughts about corporate management and life in general. Unlike most companies, which practice management by fiat, the HP Way, as Packard describes it, is "management by walking around, and management by objective." It also includes a commitment to innovative products, quality, mutual understanding and responsibility.

Internally, The HP Way was and still is practiced as both Packard and Hewlett evolved it — with open-plan, doorless offices, flex-time and company picnics. All quite fashionable in the nineties, but revolutionary when HP first instituted them.

Everyone will take something away from this book as Packard (now 83 years old) pauses to tell, not unlike a wise grandfather, stories about and on himself. If you're curious about HP (and who isn't these days), then *The HP Way* is a must read.



comprehensive display. Designed to be used in community and large teaching hospitals, this "doctored" 200LX palmtop uses a PCMCIA-compliant paging receiver that emits a tone (like a traditional pager) alerting a physician that a message has been sent by the attending clinical staff. Up to 50 messages can be stored for retrieval.

Data Critical (Redmond, Wash.) developed the technology that translates patient data into a form that can be transmitted by the industry-standard paging service, Telocator Access Protocol (TAP), which currently is used by many healthcare organizations and has virtually nationwide coverage. The Paging Network Inc. (PageNet; Plano, Texas) is contracted for and managed by Data Critical. In many instances, PalmVue can be installed and maintained using an institution's existing radio common carrier.

Introduced and available in May, the PalmVue System (\$25,000) includes an HP dispatch station with modem, five palmtops loaded with PalmVue critical care application, an HP LaserJet 4L printer, training and installation.

For more information, contact HP's Medical Products Group (Andover, Mass.) at (508) 687-1501. ●



If your company's survival depends
on system availability,
the HP 3000 is the one to rely on.

What computer system do you have?

The HP 3000 delivers 99.9% uptime. In fact, the
latest Datapro User Survey of midrange systems
ranked the HP 3000 #1 in system reliability
ahead of IBM, Tandem and everybody else.

If the business decisions are yours,
the computer system should be ours.



Computer Systems

The Great Windows NT Debate

I've read your [May] editorial several times, and I'm still not sure I understand it. But I'd like to add my \$.02 worth on a couple of items:

■ You've characterized Windows NT as "a new untested, unproven system." Is that accurate? My understanding is that Windows NT is a child of Microsoft Windows and DEC's VMS, neither of which are "new" or "unproven." And Windows NT itself is being beaten upon every day by more users, testers and developers.

My point is that Windows NT didn't just spring out of the void, like UNIX did, and therefore will

probably not require a 10-year ramp up period to become a commercial success, like UNIX did.

■ You've slammed both Oliver Stone and Arlen Specter in the same article, and then compared Windows NT to the "magic bullet." Assuming you could collapse both men's arguments to the validity of the magic bullet theory, your editorial fails to definitely "pick a side" on the issue. However, further into your editorial you go to some lengths to demonstrate the implausibility of a zig-zagging bullet, which, by your comparison (Windows NT-to-magic bullet), would seem to have you affirming Stone's

Create CD-ROM Discs on Your Desktop

The first complete turn-key CD-Recordable (CD-R) solution for Unix allows you to create inexpensive CD-ROM discs for data archive or distribution.

Includes premastering software, an intelligent controller and a CD recordable unit. Supports all major Unix platforms including HP 9000, Sun, IBM RS/6000, Silicon Graphics, Digital and others.



For more information, call Concorde Technologies, Inc. at **(800) 359-0282**.



CIRCLE 232 ON READER CARD

PNY LOADS HP WORKSTATION MEMORY WITH THE WORKS:

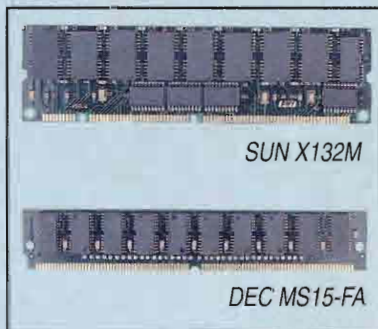
Quality, Pricing, Selection, Compatibility, Support and Service.

PNY is committed to quality. That's why **PNY** manufactures every memory module in-house to ISO 9001 standards. When it comes to your bottom line, **PNY** prices are among the lowest in the industry. Searching for selection? **PNY** product availability is second to none.

That's because **PNY** is the world's largest producer of standard memory modules. If you're concerned about compatibility, relax. **PNY** also creates flawless customized configurations. In case you didn't know, the art of technical support is alive and well at **PNY**. Simply dial 1-800-234-4597 to speak to a trained **PNY** tech support rep or to access the **PNY** Fax-Back Service for instant product information. Add to this a **full lifetime warranty**, 24 hour delivery and you'll see why **PNY** wrote the book on service. So, if you're going to buy more memory for your HP workstation, shouldn't you get it with the works?



HP 9000 Memory



HEWLETT PACKARD WORKSTATIONS

Workstation Model	Upgrade
HP 9000 700/RX stations	1MB, 2MB, 4MB, 8MB
HP 9000 700 Series	8MB, 16MB, 32MB, 64MB, 128MB
HP 9000 8X7 Series	16MB, 32MB, 64MB, 128MB
HP 3000 9X7 Series	16MB, 32MB, 64MB, 128MB
And many more...	

To find out more about **PNY** workstation memory products, call 1-800-769-0142



"The Memory Leader...Worldwide."

PNY ELECTRONICS, INC.

Moonachie, NJ: Worldwide Headquarters & Manufacturing (201) 438-6300 • Irvine, CA: Sales Office (714) 727-3610 • Bordeaux, France: European Sales/Manufacturing Facility (33) 56 13 75 75

CIRCLE 176 ON READER CARD

LETTERS

position and calling him a liar at the same time.

■ In the statement “fired from a \$12 rifle,” I’m sure you are making reference to Lee Harvey Oswald’s infamous Mannlicher Carcano. I believe Oswald paid \$19 for the aforementioned rifle.

Steve Harris

According to Gary Mack, archivist at the 6th Floor Museum, the rifle itself cost about \$12 but the purchase order paid by Oswald was \$19.95, which included scope, clip, and shipping and handling. Thanks for your letter.

I just wanted to take the time to say “Bravo!” in reference to your editorial in the May issue. For once it’s nice to hear that not all is for nought in

regards to the UNIX operating system. Your analogy using the “magic bullet” theory was right on the mark and the article overall was objective. I liked it. I suppose it’s possible that my letter would have a different slant if I worked in an environment other than UNIX, but that’s not the case and I wouldn’t have it any other way.

Erik Palomba
Technical Support Engineer, PDC
Services

A recent IBM ad in *Business Week* stated that some evaluation by a prestigious organization had determined that IBM has the best UNIX. HP and Sun could no doubt argue that they have the best UNIX.

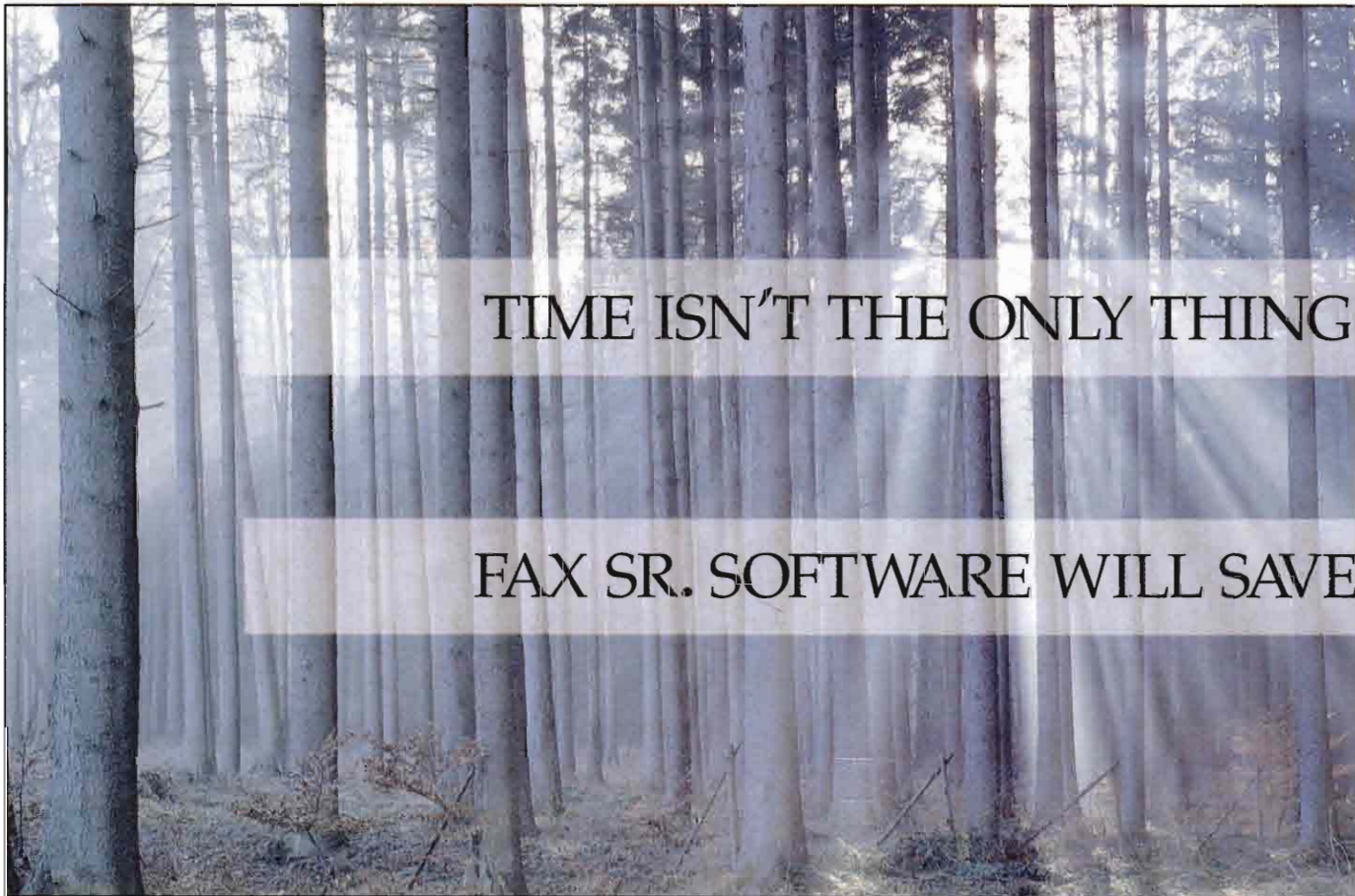
I have not yet seen an ad from HP or

Sun claiming that their UNIX is exactly like Sun or HP UNIX. They are all the best, and they are all different.

Imagine you are the CIO of Chase Bank or Boeing or GM. Bill Gates calls you up and says “How would you like, five years from now, to have every computer in your company running exactly the same operating system?” Would you be interested?

Dudley M. Jones
Senior Member Engineering Staff,
Princeton, NJ

I just read your editorial in *HP Professional*. Are you suggesting there is ever going to be a server OS of choice? What would it be? Not the current UNIX. It’s not a single operating system. From where I sit, different UNIX



implementations sometimes seem almost as different as NT and OS/2.

If you aren't prepared to continue to support multiple operating systems and multiple clients, then you aren't prepared. I'm not saying strategy, direction and consolidation (where possible) aren't desirable. It's just a Newton and a Silicon Graphics are different types of workstations. Same is true for NT and UNIX; it's just that there's a lot more overlap.

Stop bashing NT and give us some useful information or opinion.

*Mark Birnbaum
Information Services Manager,
Sims Deltec Inc.*

GENDER-NEUTRAL PRODUCT NAMES?

Regarding the splash "They Got the Look (and Feel)" in the May issue's Industry Watch: Is anyone else out there bothered by the names Bob and TED? Can't someone come up with a Pat or Chris or other simple non-sexist name for a new technology?

*Susan Dorsky
Software Engineer*

used everyday are being distributed. Computers don't get used everyday.

I guess none of the Amway distributors made it past the front door with you or else you'd understand that. But then again, maybe you do and you're just pulling our legs.

*Alan Bell
Lab Supervisor,
Computer Science Dept.
Cal Poly State University*

RESELLING THE BIG SELL

The idea behind the Multilevel Marketing approach in Amway [mentioned in & Another Thing in the March issue], and the reason that it works, is that consumables which are

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

INTRODUCING PAPERLESS NETWORK FAXING THAT'S POWERFUL, SIMPLE TO USE, AND SURPRISINGLY AFFORDABLE. FAX SR. FROM OMTOL.

With the Fax Sr. family of multi-platform fax automation software, you'll not only save the volumes of paper associated with traditional hand-fed faxing, you'll save your organization lots of time and money. Available for VAX/VMS,



Eliminate the paper and time waste of traditional hand-fed faxing.

AXP/Open VMS, AXP/OSF-1, and now Windows NT and HP-UX, Fax Sr. is the only network fax software that can truly grow with your company. Best of all, Fax Sr. is easy to install and even easier to use.

Everyone will be using Fax Sr. in less than an hour, to fax documents, pictures, graphics and scanned images all with laser quality. Without leaving their desks. All this productivity and more starts at just \$995.



Save more time with the ease of true point-and-click operation.

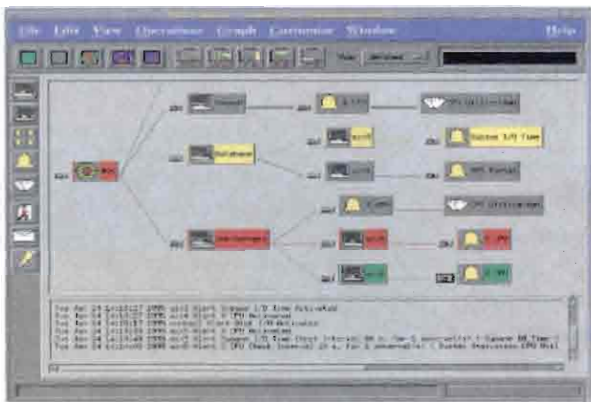


OMTOL

Call 603-898-8900 or 800-886-7845. Ask about our FREE Guide to Network Faxing.
Internet: sales@omtool.com

CIRCLE 130 ON READER CARD

BGS' BEST/1 Pieces Together The Puzzle



BEST/1 PERFORMANCE ASSURANCE

- ▶ Supports SunOS 4 and Solaris 2.x, IBM AIX 3.2.5 and 4.1, and HP-UX 9.x
- ▶ The Oracle and Sybase support gathers RDBMS performance statistics
- ▶ Entry price is \$25,000 for the management console

BGS Systems Inc.

128 Technology Center
Waltham, MA 02254
tel: (617) 891-0000
fax: (617) 890-0000

CIRCLE 351 ON READER CARD

Most UNIX performance and capacity management products provide only a piece of the total capacity management puzzle — they provide real-time monitoring or performance trending as well as the ability to do some “what if” modeling. When Southern California Edison (Rosemead, Calif.) looked for a performance trend analysis tool to analyze CPU utilization on over 35 RS/6000 servers, most other products had real-time monitors, but they couldn’t group the data into workloads.

In that scenario, according to Elaine Wynn, UNIX Systems administrator, “you’re forced to look at every single process. Well, you might have hundreds of processes running

each day by different users. With BEST/1, you’re alleviated from that kind of detail.” BEST/1 Performance Assurance is available from BGS Systems (Waltham, Mass.). Its new version, Release 4, includes a performance monitor; integrated Oracle and Sybase facilities; and support for SunOS 4 and Solaris 2.x. BEST/1 already supports IBM AIX 3.2.5 and 4.1, and HP-UX 9.x.

Southern California Edison is a Sybase shop migrating over 30 applications off mainframes. With BEST/1 they group what’s running on the server into workloads, thereby seeing what Sybase is doing as a whole. The new release has drill-down capabilities with Sybase.

They’ve been using BEST/1 since November 1994. The software was easy to install and usable out of the box. “We’re not even using half the reports that are available,” says Wynn. BEST/1 has X Windows and PC components.

The new BEST/1 Monitor uses intelligent “alert and display” agents to find and diagnose problems as they happen. The monitor can be used by itself or along with BEST/1-Visualizer, the performance database, or BEST/1-Predict, the “what-if” modeling tool for sizing, test-driving and

planning the capacity of applications. The Oracle and Sybase support gathers RDBMS performance statistics. Informix capability is currently under development.

“There’s tabular and graphical reports. Not all people want to see those graphs. Some people want just the numbers. BEST/1 has both,” says Wynn.

According to Michael J. Toomey, senior manager of product marketing at BGS Systems, the normal environment for BEST/1 is someone who has multiple UNIX servers installed. “You can install it on all of your servers. You have the option of the complete management suite or just the pieces.

The company plans to release BEST/1 for Windows NT in 1995. Future development also will expand platform support to AT&T, SNI and DEC in the next three to six months. Network measurement and reporting is planned for late 1995.

Pricing is modular. The entry price is in the \$25,000 range for the management console piece. The agent software ranges from a few hundred to \$1,200 each.

—Jim Esch,
Contributing Author

HP USERS – GANG UP WITH VCX



AND EXPAND YOUR WORLDWIDE CONNECTIONS!

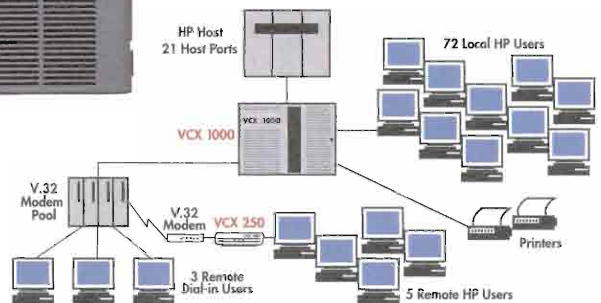
Has your business grown to the point that you now have multiple remote sites? What do you do?

Buy a Penril remote port concentrator and gang up on your host.

The VCX is an extraordinary port concentrator that extends the reach of your HP system directly to all of your remote offices. This is done without changing your existing communications network — and without ever adding more ports to your HP host. You connect more asynchronous terminals, printers and PCs in your network than computer ports available. AND SAVE MONEY!

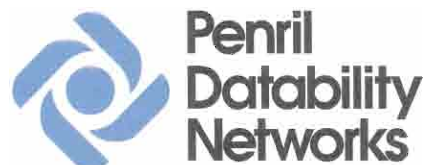
Plus, VCX does port contention.

Although you can only connect the same number of concurrent users on your host that you are licensed to support, with VCX, everyone has a chance to grab those connections. The host ports are shared over your network — and if a port isn't available, you're put into a queue and told of your position. If you don't have time to wait, just select another resource or service on your network. AND SAVE TIME.



And with VCX, modem pools for dial-in users are no problem. Depending on your location and tariff, the VCX can provide the lowest cost trunk to get remote users on your host computer. Protocols such as ISDN, Frame Relay, X.25, Leased Lines and Dial-Up Lines are all supported.

Isn't it time you expanded your horizons? To receive more information on our exciting VCX product line, call **1-800-4-PENRIL**. We'll be happy to show you how to gang up on your HP host.



Faster Than A Speeding Bullet



RAPID TAPE

- Data can be mirrored to up to five drives simultaneously
- Support cross-platform compatibility with no need for device drivers
- Pricing starts at \$24,750

Andataco

10140 Mesa Rim Rd.
San Diego, CA 92121
tel: (800) 334-9191
fax: (619) 453-9294

CIRCLE 354 ON READER CARD

Tape storage is cheap. Tape storage is reliable. But, tape storage is slow. That is, until Andataco (San Diego, Calif.) introduced their Redundant Array of Parallel Independent Device (RAPID) technology which provides up to four times the capacity and data transfer rate of a single tape drive.

According to Michael Meyer, chief software scientist at Science Applications International Corp. (SAIC; San Deigo, Calif.), it was the speed and capacity of the RAPID Tape products that got his attention when he started to evaluate tape products for a possible contract with a health-care company. "The RAPID Tape products have a projected capacity that should exceed 160 GB in the near-term," Meyer says. "And that is better

than any other product out there now."

Meyer is currently using an evaluation stacker model of the Model 6000 DLT Tape Array, and has plans to purchase the product within a six month time frame. RAPID-Tape Arrays, available in three models — Model 4000 DDS 4mm Tape Array, Model 8000 8mm Tape Array and Model 6000 DLT Tape Array, use this new tape technology and support multiple tape technologies for UNIX workstations and servers.

The RAPID-Tape family offers several choices — complete systems or controller-only versions which integrate with a user's existing tape drives. With RAPID stacker systems, 560 GB of unattended backup is possible, and 80 GB capacity with an array of RAPID-Tape DLT drives. A parallel tape architecture, similar to RAID architectures, is also present.

RAPID-Tape consists of an array interface and an array controller. Five single-ended SCSI tape drives channels, up to four for data and one for parity, are also included in the interface. The data exchange port, with one single-ended SCSI tape drive channel, facilitates media format conversions to and from devices on the array channels.

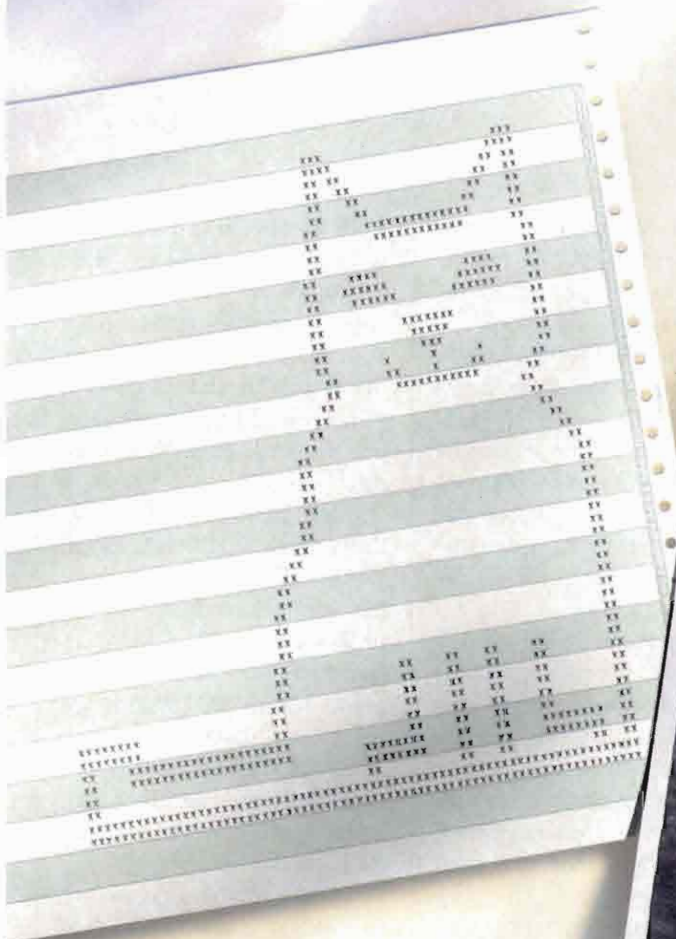
RAPID-Tape systems are

compatible with all major operating systems and backup software utilities and support cross-platform compatibility with no need for device drivers. SCSI-1- and SCSI-2-compliant interfaces provide plug compatibility with UNIX servers and workstations from HP, IBM, Sun and SGI.

RAPID-Tape has a menu-driven display for set up and configuration. The front panel, with its four-line by 20-character display and four-button key pad, allows you to monitor the system as well as select the operating mode and invoke offline operations. There are hot-swappable, user replaceable tape canisters on Model 6000 and power supplies on all models.

Pricing starts at \$24,750 for a 32 GB configuration with five 4mm DDS2 tape drives, a RAPID controller and a host channel. A 56 GB configuration with five 8mm tape drives, a RAPID controller and a host channel costs \$36,600. An 80 GB configuration with five DLT tape drives, a RAPID controller and a host channel costs \$52,750.

—Deborah Schwartz,
Assistant Editor



Impact printing?

For superior business results from Hewlett-Packard computing systems, the best improvement you can make is staring you in the face. It's the difference between the flexibility and cost-effectiveness of cut-sheet laser printing and the old technology of impact printing.

After all, why compromise your Hewlett-Packard investment with printers that don't do justice to the documents they produce?

Particularly when you can generate forms electronically, eliminating the cost of printed ones. Reduce postage costs by printing postal bar codes. And print MICR-encoded checks on demand without pre-printed check stock.

At Xerox we have a family of laser printers with the flexibility to print high resolution graphics, variable fonts,

Impact printing!

and even color to create documents that communicate better and pay off your Hewlett-Packard investment.

Xerox midrange printers handle multiple data streams, are easy to use, cost less to maintain, and connect seamlessly into a variety of Hewlett-Packard environments.

So when you consider all the above, plus our unique Total Satisfaction Guarantee, and that we support our marketing affiliates with the most complete program around, making an impact on your business is as easy as calling **1-800-ASK-XEROX, ext.182.**

Xerox laser printers make the difference

THE DOCUMENT COMPANY

XEROX

Bust The Memory Block

PNY Electronics Inc. Pumps Up The Volume For Workstation Memory



"We are converting our SIMM designs to 16 Mbits in 1995. And we are dabbling in 64 Mbit technology."

Joe Klein
Director of R&D
PNY Electronics Inc.

PNY Electronics Inc.

200 Anderson Ave.
Moonachie, NJ 07074
tel: (201) 438-6300
fax: (201) 438-9097

CIRCLE 355 ON READER CARD

Remember when 64 KB was a lot of memory? Did you ever think you would need that much memory? Remember when 256 KB was a lot of memory? Did you ever think you would need *that much memory*? Remember when 1 MB was a lot of memory? Did you ever ... well, by now you probably see where this is heading.

Windows95 is expected to require at least 8 MB. And Windows NT demands at least 16 MB. But whether its PCs or servers running DOS or Windows95, or workstations, which have always been memory-challenged, you are going to need more memory. "And there appears to be no end in sight," says Ray LeBlanc, vice president of sales and marketing for PNY Electronics Inc. (Moonachie, N.J.).

Of course, some demand comes from the sales of new PCs and workstations. But according to LeBlanc, the bulk of the memory demand [in the installed base] last year has been driven by software. That's why PNY, a near-exclusive PC commodity DRAM memory supplier since 1985, has expanded into the resale market (VARs and distributors) for workstation memory products.

"We've been selling workstation memory products since the second quarter of 1994," says LeBlanc. PNY provides

DRAM for DEC VAXstations, Sun SPARC 10s and 20s (mostly in Europe and South-east Asia) as well as for HP 9000 and HP 3000 systems. According to Joe Klein, director of R&D for PNY, most HP 9000 users are upgrading with 128 MB and 64 MB kits. SRAM (mostly for L2 caches) and flash SIMMs (in demand by printer vendors) fill out the PNY product line.

Competition for the privately-held PNY comes primarily from Kingston (Fountain Valley, Calif.), a \$900 million company, which entered the market for workstation memory last year. According to PNY figures, 1994 sales revenues were \$305 million. That's up 53 percent from 1993, and more than three and a half times 1992's \$86 million in sales. Twenty five percent of PNY revenues come from outside North America.

In 1995, PNY expects to be a \$500 million company and is "seriously investigating a public offering," says LeBlanc. "We do virtually all our manufacturing in house. Most of our competitors use subcontractors. And, we have more module manufacturing capacity than anyone else in the world." As for quality standards, PNY has been ISO 9001 certified since December 1994.

While there is still strong demand in 4 Mbit DRAM,

PNY is converting their SIMM designs to 16 Mbit in 1995. "And we are dabbling in 64 Mbit technology," Klein says, "but the pricing is so high and the availability and reliability is unrealistic for the commodity and workstation markets right now."

New trends include something called SODIMMs (Small Outline Dual Inline Memory Module) which have half the profile of regular SIMMs. A late 1994 development, explains Klein, SODIMMs are replacing PCMCIA memory upgrades. "They are cheaper to manufacture and to build, therefore they are also cheaper for the customer to buy."

Until recently, supplying workstation memory has been filled by niche players with smaller companies (under \$100 million) providing product. But when larger companies like Kingston and PNY move into a market, "the smaller players are going to struggle," says LeBlanc. "We have a 6 to 10 percent cost advantage."

Consequently, LeBlanc expects the number of workstation memory vendors to decline to three or four, down from about 10 or so now. "The workstation memory market is going to get pretty interesting over the next couple years."

—George A. Thompson,
Technical Editor

There Is A Better Way To Access Your Data



VISIMAGE — The Right Tool for Report Writing Won't Hammer Your System

Visimage, the original client-server report writer in the HP market, keeps getting better. Visimage now provides a Microsoft® Windows™ interface. Familiar mouse-driven icons empower users to select, report and download data in a controlled environment. Visimage is easy to set up and easy to use. Advanced reporting capabilities assure that users never outgrow the power of Visimage.

Our unique client-server technology minimizes resource demand through serial or network connections. Data remains on the host server, maintaining security and accuracy while eliminating potential network overloads. Users can schedule Visimage reports on the host that run independently of their PCs. Efficient data retrieval can be further enhanced by integration with HP third party indexing tools.

Choose Visimage, the right tool to access IMAGE, IMAGE/SQL, ALLBASE, ORACLE®, KSAM, C-ISAM® and flat files on your HP 3000 or HP 9000 computer.

HP, HP 3000, HP 9000, IMAGE, IMAGE/SQL, ALLBASE, and KSAM are products of Hewlett-Packard Company. MS-DOS is a registered trademark and Windows is a trademark of Microsoft Corporation. ORACLE is a registered trademark of Oracle Corporation. C-ISAM is a registered trademark of Informix Software, Inc. VISIMAGE PC and Visimage for Windows are trademarks of ARES, France.

***Call now for your FREE
Windows™ or MS-DOS®
demo diskette!***



VITAL
Soft
INCORPORATED

1-800-VITALSOFT
1-800-848-2576

1153 Bordeaux Drive, Suite 101
Sunnyvale, CA 94089-1210 Fax: (408) 745-6681
75362.762@compuserve.com
CIRCLE 143 ON READER CARD

The Magic of network printing

Hey Rocky,

Watch Me Pull

A Rabbit

Outta My Hat ...

Houdini. Blackstone. Copperfield. Penn and Teller. Bullwinkle. Master magicians practicing the mysterious art of illusion, taking their secrets to the grave or passing them on to a select few. Do you sometimes feel there is a secret society that knows the key to network printing and you aren't a member? Well hocus pocus, presto chango. Welcome to the club.

Conjuring up a printing network requires no supernatural powers. In fact, there are a few natural ways to accomplish it. They include print adapters, print management software and connectivity software.

You see, the reality of the performance demands of printing must be tailored to the tasks of workgroups within the enterprise. For example, the needs of a marketing department may require PostScript printing from Macintoshes. Sales may need label printers. Software developers might need line printers for code output. Engineers may need plotters. Accountants may need PCL on HP

Jim Esch

LaserJets. And to make matters worse, each department's network is running on different protocols: AppleTalk, TCP/IP, IPX — you name it.

Fortunately, there is a solution. First, you can start at the end of the printing line, with the printer itself. Printers can be made more adaptable by providing support for direct network connections via internal network interface cards. HP's JetDirect line of network interfaces are the most popular instance.

THE INS...

INTERNAL CARDS ARE available for the HP LaserJet 4Si, 4Si MX, IIISi, 4 Plus, 4M Plus, 4 and 4M models; HP PaintJet XL300 and XL300/PS; the HP DeskJet 1200C and 1200C/PS; and the HP DesignJet 600 and 650C plotters. You install these cards in the printer's expansion slot and print from anywhere on the LAN.

The JetDirect family supports major operating system protocols, including: Novell NetWare 2.15c, 2.2, 3.121, 3.12, 4.0 and 4.01 (IPX/SPX); Microsoft LAN Manager 2.0C, 2.1 and 2.2 (DLC/LLC); IBM LAN Server 1.3, 2.0 and 3.0; HP-UX V9.x; Solaris 2.2 and 2.3; SunOS 4.11, 4.12 and 4.13; SCO UNIX V/386 3.2.2 and 3.2.4; IBM AIX 3.2.5 (TCP/IP); Apple EtherTalk System 6 and 7; and Apple LocalTalk System 6 and 7. JetDirect printers also are compatible with SNMP agents for network management applications.

The JetDirect interface has the advantage of unclogging the bottleneck of a parallel port; data gets to the printer in LAN-sized packets at the speed of the network. Network server load is

*To share printers,
you could do complex
spooling and spend a
fortune on training and
implementation.*



Or not.

Your problem. For increased productivity and hardware utilization, you need to share printer resources on your HP 3000-based network. But the spooling software available today doesn't always match your networking needs. It usually involves complex spool management procedures, and requires expensive, time-consuming implementation and training.

Our solution. NBSpool streamlines spool file management, distributing the printing function across networks and all printer devices. It releases operational resources by automating the control of printing functions. It makes complex spool management intuitive, and provides easy access to corporate information without steep learning curves.

- ~ Empowers your users to select the right printer for the right job.
- ~ Provides transparent printer connectivity across MPE, Windows NT, UNIX, IBM, VAX, NetWare, LAN Manager, Banyan Vines and more.
- ~ Eliminates lost reports and facilitates information routing.
- ~ Provides an intuitive user interface that accelerates implementation and lowers training costs.

At Quest Software, we offer a complete family of networking and output management products for the HP and Open Systems marketplace. For more information, call us today. Because your printers really do need to learn to share.

NBSpool supports these environments:

- Jet Direct •NetWare •TCP/IP
- Windows NT •LAN Manager
- Banyan Vines
- Any platform that talks lpr/lpd

Quest Software - 610 Newport Center Dr.,
Suite 1400, Newport Beach, CA 92660
Phone: 714-720-1434, Fax: 714-720-0426,
e-mail: info@quests.com.

All names are registered trademarks or trademarks of their owners.

**QUEST
SOFTWARE**
Expect a solution.

Magic

subsequently reduced as well. The printer can switch automatically between diverse protocols. Another benefit is that you can place the printer anywhere on the LAN, because it's connected via standard network cables. The JetDirect card includes LPD (line printer daemon) support for UNIX and Novell NetWare security features like encrypted passwords and NCP Packet Signatures, and flash EPROMs for software upgrades.

A JetDirect-connected printer can be controlled via the JetAdmin utility, a suite of HP software management utilities, available for UNIX and NetWare. The JetAdmin utility loads and distributes printer drivers, configures new printers by means of a GUI, providing access to printer front panel settings and the monitoring of printer status. Network statistics and diagnostics are easily fetched because the printer is a network node. JetAdmin also can set and lock user access rights. JetAdmin for UNIX is a host-based application requiring HP-UX 9.x, SunOS 4.1x and Solaris 2.2 or 2.3 on Ethernet and Token Ring TCP/IP networks.

HP isn't the only vendor adding multiprotocol power to their printers. For instance, Dataproducts' (Woodland Hills, Calif.) Virtual Printer Technology takes a single printer and sets it up to act like it's up to 64 individually-configured printers. It supports Novell IPX, UNIX TCP/IP, Macintosh EtherTalk and DEC LAT (Ethernet only). Twenty network operating systems (NOS) are supported, including HP-UX A.B8.05 and A.0900-A.09.03.

Several parameters are controllable: emulation mode, resource accounting, priority level, default paper hopper, paper size, default paper output stacker, duplex/simplex operation, bidirectional mode and line termination mode. In theory, a user has a customized printer setup that may differ from a user down the hall on a different platform

altogether, yet both use the same printer. Dataproducts builds the Virtual Printer Technology into their Typhoon Series laser printers.

... AND OUTS OF PRINTING

ANOTHER APPROACH to making your network printing more flexible involves using a multiprotocol print server attached to a printer's parallel or serial port. Print servers, like interface cards, turn a printer into a network node. A multiprotocol print server allows printing through Token Ring or Ethernet, regardless of platform or printer type. Consequently, you can't be locked into a particular printer model.

In fact, an external print server can leverage your existing printers and add features they don't natively have. It's much cheaper to update or replace a print server, about the size of a video tape cartridge, than it is to replace an entire printer. And the printer is going to be obsolete before the printer adapter.

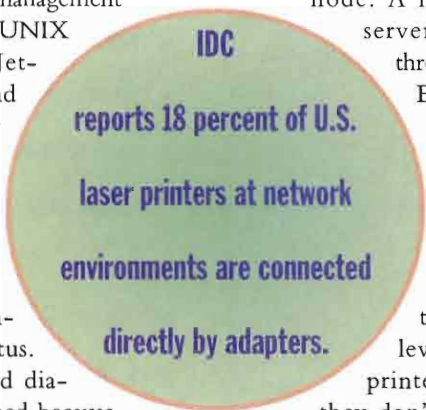
Even though you may suffer some throughput speed loss compared to an

internal card, there will be a vast improvement over standard parallel or serial printing off a dedicated host PC.

What are the main benefits to external print servers? For one, you have increased printer sharing and accessibility, printer management through SNMP, increased throughput by reducing the load off workstations and file servers (especially if the print server contains a RISC processor) and increased reliability versus a PC-based server. Print servers have a mean time between failure (MTBF) rating that's 10 times greater than PCs. Besides that, they're cheaper.

The features you should look for in a print server are: interoperability (does it support multiple protocols to meet my present and potential needs?); number of printers supported per server; ease of installation; and advanced features like adjustable data streams from specific applications, bin switching, RISC technology, SNMP and software upgrades through flash memory.

A server like the AXIS NPS 550 RISC offers simultaneous multiprotocol printing; two parallel ports and one serial port; and compatibility with TCP/IP, Novell NetWare, LAN Server, LAN Manager, Windows NT, Apple EtherTalk, 10Base-T and 10Base-2. The 32-bit RISC processor is integrated with Token Ring and



GAIN, NO PAIN

In November 1994, HP's General Systems division and Xerox announced an agreement to cooperate on bringing mission-critical production printing to HP-based networks. But what does that mean in an area that has previously been dominated by the IBM mainframe platform.

To explain, Andy D. Sachs, director for Strategic Alliances at Xerox (El Segundo, Calif.) cites an example of what he calls "document pain." "We've had situations where customers have had to send print files across the country or across the world, back to an IBM mainframe in order to accomplish the print and then have that print be distributed by [surface mail] back to the end user. That's what we call 'document pain.'" In other words, instead of print and distribute, you can distribute, then print.

Sachs says printers used to be tied to very specific computing platforms. They were not widely accessible by the rest of the enterprise. Customers are asking for enterprise-wide access, but at the same time they have the same strict requirements they've had in the past relative to price/performance, security and integrity.

The HP/Xerox strategic agreement will integrate Xerox's production laser printing systems into HP 9000 networks. Xerox's production printers offer high-speed cut sheet printing, highlight color, 600 dpi resolution, multiple input trays and multiple fonts, forms, logos and graphics. HP and Xerox are presently working with Quest Software to develop a print server interface.—JE



Multiprotocol network print servers provide flexibility through Token Ring or Ethernet.

Ethernet interfaces. RISC is good to have for demanding graphical-oriented applications with complex page descriptions. AXIS is working on a GUI to enhance the existing SNMP features of the product.

Ease-of-use is one of the more important criteria for print server customers, says Steve Simpson, executive vice president of sales and marketing at Extended Systems Inc. (Boise, Idaho). Simpson used to be the general manager of HP's Boise Printer division, and was responsible for the midrange and low-end LaserJet business.

"Much as I'd like to think that print servers are the center of the universe, I know that's not the case," says Simpson. "I think the key thing is that our customers don't want to have to think about print servers, that they want them to be easy to install and have them work easily, that their networking is protected, that there's an upgrade path using flash memory or that there's even upgrade programs."

Simpson also sees a push for TCP/IP away from NetWare and other NOSes, as well as an increased popularity for infrared technology. One hidden market niche has to do with Banyan Vines. "Even though Banyan has a small market share, they tend to be very large networks — enterprise-wide — and we're seeing many more users being added to those networks." Extended Systems markets ExtendNet MPX, a multiprotocol network print server that can connect four printers anywhere on a network (up to 500 feet away). The product

includes flash memory and Windows-based management utilities that allow centralized control. Network administrators can now install, manage or upgrade their utilities from one location.

Joe Toste, director of marketing at MiLAN Technology (Sunnyvale, Calif.), sees heterogeneous networks as the primary need for customers today. "Our focus is the multiprotocol market, those heterogeneous operating system environments like TCP/IP, IPX and AppleTalk." Since 1991, MiLAN has been producing multiprotocol print servers to meet this demand. Their FastPort 3100 Ethernet network print servers offer two ports, support for TCP/IP, IPX, AppleTalk and OS/2 environments, and a throughput of up to 210 KBps. Network flash EPROMs allow firmware upgrades over the network.

Each unit of the 3100 Series includes a modular network uplink in the back, enabling network managers to connect each FastPort to any Ethernet cabling — including fiber. MiLAN provides UNIX host software for users to customize their printing setups. A menu-driven installation script, ASCII-

HOW DO THEY DO THAT?

Two types of standards are essential to provide continued growth in network printing applications. The first is ISO DPA 10175, a network-based print management spooling architecture that supports standardized services such as job submission, viewing a job queue, notification and matching job requirements with device capabilities. The standard is actively under study.

The second type is not an official standard per se. It's the realization that certain de facto page description standards have coalesced depending on computing level. At the office environment, there's PCL and PostScript. At the datacenter level, there's Xerox's Metacode and IBM's AFPDS. The open systems shift is bringing a convergence of the two levels. Soon, all of the page description languages will need to be supported on enterprise-wide, UNIX-based networks.

*To use Xerox
production
printers,
electronic forms
and highlight
color, just buy
a mainframe.*



Or not.

EnterPrint

EnterPrint is a fully-scaleable, enterprise-wide printer server that:

- ~ Provides a modular and robust solution for Xerox production printers on heterogeneous TCP/IP networks.*
- ~ Supports ASCII, AFP and PCL documents.*
- ~ Supports UNIX, mainframe, minicomputer, workstation and LAN application servers.*
- ~ Provides an ideal solution for downsizing environments, site consolidations and departmental integrations.*

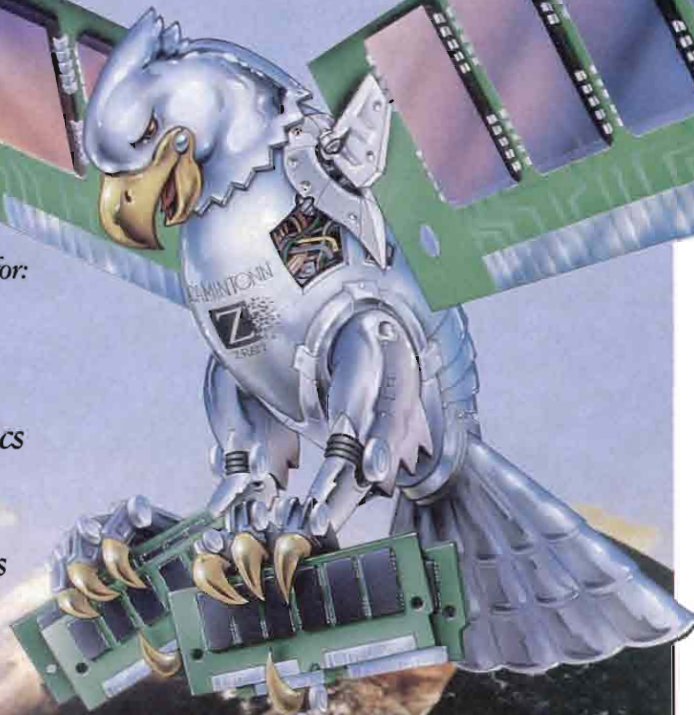
Phone: 714-720-1434, e-mail: info@quests.com.

All names are registered trademarks or trademarks of their owners.


**QUEST
SOFTWARE**
Expect a solution.


Camintonn Z-RAM.[®] Delivering Memory To The World.

Memory products for:
digital
HP Apollo
IBM RISC
Silicon Graphics
SUN
PCs and
Laser Printers



Camintonn Z-RAM customers  come back again and again because of our 14-year record of proven leadership. Not just in high quality products, but also in prompt customer service, knowledgeable technical support, and a 24-hour repair-or-replace guarantee. Backed  by a lifetime warranty.

And since Camintonn Z-RAM has the broadest line of memory products available, designed and rigorously tested in the United States, the quality product you need is ready for immediate delivery world-wide. What's more, we're almost  always the first to offer 100% compatible memory for the newest systems – often before they're available from the original manufacturers.

 Guaranteed performance and a 14-year track record of growth and financial stability. Call us at 1-800-368-4726 for an immediate quote for your system.

FREE Camintonn Z-RAM Atlas Your Guide To The World Of Memory

Fax this form back to us and we'll send you a Windows version of The Automated Upgrade Guide – (3.5" disk) a \$49.95 value!

Name _____
Title _____
Company _____
Street _____
City/State/Zip _____
Phone _____ Fax _____

Which computer platforms are currently in use at your company? (check all that apply)

DEC _____ SGI _____
HP _____ SUN _____
IBM _____ PC LANs _____

**See us at INTEREX,
Booth #433.**

CAMINTONN[®]
CORPORATION

The last word in memory[®]

Tel: 800/368-4726 or 714/454-1500

Fax: 714/830-4726

U.K. Tel: 44/ 1 865-784747 * Fax: 44/ 1 865-784750



Camintonn Z-RAM world headquarters located at 22 Morgan, Irvine, CA 92718-2202. European headquarters located at Oxford Science Park, OX4 4GA, U.K. © 1995 Camintonn Corporation. Product and company names are trademarks or registered trademarks of their respective companies.

CIRCLE 294 ON READER CARD

Magic

to-PostScript conversion, and support for Adobe TranScript and Sun's NeW-Sprint are included. Users can print to FastPort-attached printers with the host software or by using LPD directly.

According to Robert Fazen, vice president EasySpooler (Dallas, Texas), "Print management is a burgeoning market, which sounds strange. Why haven't users asked for this before?" Fazen maintains it's the migration theory. "Former mainframe users expected the same control of print management on minis and mainframes on UNIX platforms; but it isn't there."

EasySpooler, from EasySpooler, lets users manage print queues directly without intermediate software. It communicates with HP JetDirect cards and Axis print servers. EasyNet sends servers. EasySpooler targets companies that have large print jobs, whether numerous jobs or single large documents.

PRINT MANAGEMENT SKILLS

MAYBE PRINTER adapters aren't your problem. Maybe you need better management of your existing print resources. Especially on UNIX platforms, printing may be more of a headache than it should be. Mainframe printing has traditionally been more flexible and powerful than UNIX. Simple operations like restarting a job at any page; report viewing before, during and after printing; and keeping a job in a queue by setting a purge delay time — are not to be taken for granted under UNIX.

The mission isn't as easy as it sounds. According to one product manager, "we've missed the boat with regard to UNIX print management and multiple UNIX vendors. Now they're throwing other OSes in there, and the biggest player that's going to share time with UNIX is going to be NT. And you can't forget about Novell either."

Multiprotocol printing in itself adds a layer of complexity that wasn't previously there in the days of mainframes. Downsizing has its hidden costs: training, support, maintenance — all of them more difficult in a multiprotocol environment. Then there's the struggle between vendors who are differentiating themselves and users who demand standards to make all products work together better. While standardization is improving with the convergence of SNMP, TCP/IP and SQL, analysts expect the market to keep plunging ahead of the standards.

Despite the shortcomings and obstacles, there are many products available to better control the network printing environment.

HP offers OpenView OpenSpool network print-administration software, a "workgroup-to-enterprise" print-management and troubleshooting tool. OpenSpool extends its end-user print-request functionality to the multiplesite enterprise for selecting fonts, forms and paper size. Users can print documents on any device on the network, even from remote sites. They can monitor or cancel remote print jobs, an alternative to intracompany faxing and document

NOTHING UP YOUR SLEEVE...

To properly assess print server performance, you need to take two parameters into consideration: print server bandwidth and printer I/O bandwidth.

Print server bandwidth is the maximum speed that the print server can possibly send characters to the I/O port of the printer, regardless of port type. This should include all network overhead. Beware that manufacturers don't mislead you by claiming that the hardware throughput of the DMA channel is the actual print server bandwidth.

Printer I/O bandwidth is the maximum speed that the printer's I/O port can receive data. Newer printers that boast of high-speed parallel ports (100 to 200 KBps) are quoting the printer's I/O bandwidth. Customers should evaluate print servers on the printers that they're meant for, otherwise bottlenecks could still occur. For example, if you've got the hottest, fastest print server attached to a printer with a slow parallel port, you're actual bandwidth is going to be limited to the speed of the I/O port.

21 users need data.

*That means
printing 93,109
pages of reports,
assembling and
delivering them by
2 o'clock.*



Or not.

VISTA Plus

VISTA Plus is the easy electronic report management solution that:

- ~ Provides common access to MPE and UNIX reports without application changes.*
- ~ Users are up and running in no time.*
- ~ Full Windows functionality.*
- ~ Page content based security.*
- ~ Allows timely decision making with fast, efficient data access.*
- ~ Saves paper, resources and time.*
- ~ Integrates with spreadsheets, word processors and other PC applications.*

Phone: 714-720-1434, e-mail: info@quests.com.

All names are registered trademarks or trademarks of their owners.

**QUEST
SOFTWARE**
Expect a solution.

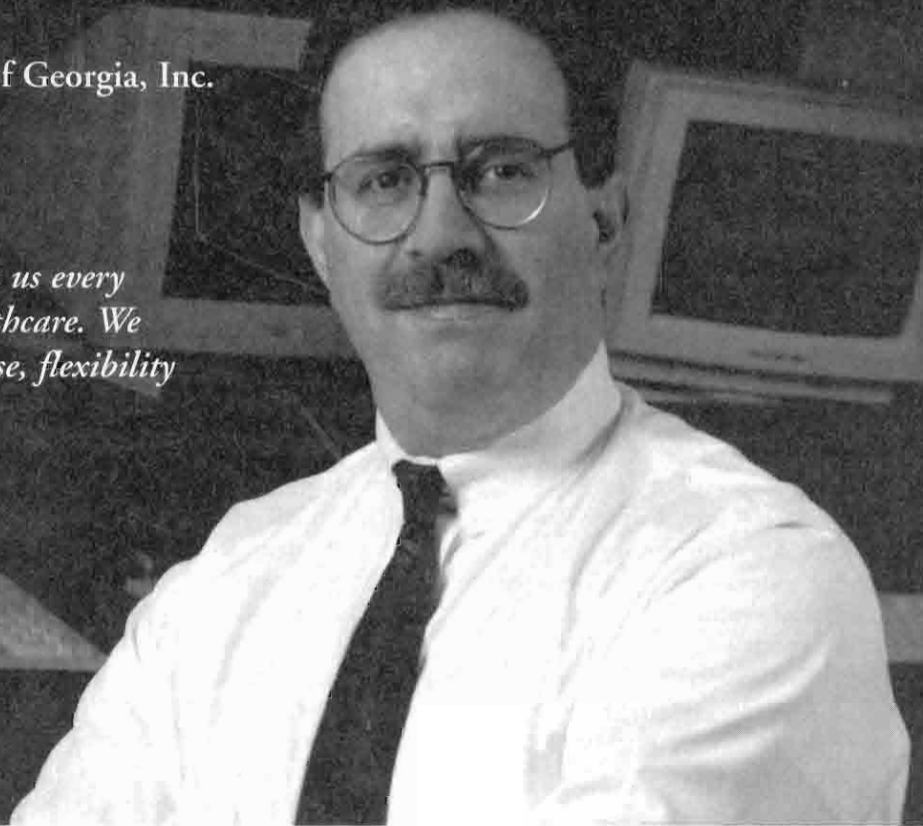
CIRCLE 462 ON READER CARD

JOSEPH SLIVE

Senior Systems Analyst

Kaiser Foundation Health Plan of Georgia, Inc.

"Our 175,000 members depend on us every day for quality, cost effective healthcare. We depend on DynaComm's ease of use, flexibility and reliability."



DynaComm delivers for Kaiser Permanente.

HMO giant Kaiser Permanente uses DynaComm as the cornerstone of their terminal emulation needs to access business-critical applications residing on UNIX and IBM hosts.

At FutureSoft, we know that PC connectivity has become a critical component in enterprise-wide computing. Our DynaComm product family provides extensive terminal emulation and network connectivity solutions for both asynchronous and IBM mainframe environments.

Take advantage of over a decade of experience, and discover what Kaiser Permanente, Digital, Hewlett-Packard, Thoroughbred and numerous Fortune 500 companies already know.

Call for a free DynaComm demo disk.

1-800-989-8908

Our latest version has all the features that serious computing environments demand:

- ◆ Optional support for Microsoft's Visual Basic
- ◆ User desktop tools which are easy to configure and support
- ◆ Selective, DLL-based installation on your PC or server to minimize application footprint
- ◆ Graphical tools including dialog editor and keyboard mapper for easy interface customization
- ◆ Scripting capability to call external DLLs which is unequalled in the industry

DynaComm.
by  **FutureSoft.**

The Ultimate in Power and Flexibility

CIRCLE 190 ON READER CARD

Magic

distribution. Intelligent software agents enable the operating system to identify and react to events automatically.

OpenSpool, as you might expect, is closely integrated with HP OpenView OperationsCenter. This means that printing activities and task management can be managed from a single location

IDC

says the network printer adapter

market grew over 50 percent in units and 40 percent in value from 1992 to 1993. And the

Ethernet market was responsible for 80 percent of sales.

through a graphical print-status icon. Administrators can determine the status of individual print requests; print requests generated from within an end-user application; and use the built-in banner support to identify print requests and create print accounting reports and print logs. OpenSpool is integrated within HP's OperationsCenter software services, along with OmniBack II (distributed backup) and OmniStorage (hierarchical storage management).

Control over print resources is definitely the key for Robby Wadzinski, product manager for UNIX systems software at Digital Controls Corp. (Springboro, Ohio). Administrators want to control things from the one machine where they are. Digital Controls offers the LP Plus Print Management System to accomplish this. It emulates the LPD/LPR protocol as well as features like viewing reports, counting pages and reprinting as many times as you want.

"Let's say you've got 10 machines, and each of them has a printer attached to it — all hooked together by Ethernet. If you put LP Plus on each and every host, you can assume that host," says Wadzinski. "In other words, if a printer gets jammed, to remedy the problem you can call up

that host without having to do RLOGINs or Telnets. You can control that host print operation." The product runs on HP-UX, AIX, SCO UNIX, Sun, Solaris, DG-UX and any Intel SVR4 machines. It has a character-based command line interface and competes directly against Software Clearing House's (SCH; Cincinnati, Ohio) SCH Print.

While products like LP Plus are targeted to the midrange user, Computer Associates' (CA; Islandia, N.Y.) Unicenter plays to the enterprise level. Unicenter systems management software, while encompassing much more than simple print management, does have important features that serve the network printing needs of customers.

In March, HP and CA announced Unicenter for OpenView. Jay Yesselman, director of systems strategy at Computer Associates, says "Unicenter enables you to secure your print resource, so that only users who have the proper security clearance can use the resource. For example, if one of the printer queues was important for accounting on certain days of the month, then all other access to that device would be shut off by security rules. The same thing could be for a documentation printer if they had a critical job to do." Unicenter controls who has access and when. Report distribution is an added capability. In a policy-based manner it sets up what pieces of reports get distributed to designated printers at designated times.

As a top-down enterprise management product, CA Unicenter tries to make all the heterogeneous networks look as homogeneous as possible — a shield from the complexities of open systems, and a common metaphor across diverse platforms.

Unispool, from API International (Austin, Texas), helps to integrate MPE/V, MPE/XL, MPE/iX, HP-UX, Apollo DOMAIN, IBM AIX, DEC ULTRIX, OSF/1 and VMS, Sun Solaris 2, Seimans and SCO UNIX. Unispool permits bi-directional printing between hosts and Microsoft LAN Manager OS/2, Windows NT or Novell

To use NFS, you could dump all your HP 3000s, set up a new network, and retrain all your MIS staff.



Or not.

NFS*iX*

*NFS*iX* is a high-performance implementation of NFS for the HP 3000 that:*

- ~ Provides industry-standard, transparent interoperability on heterogeneous networks.
- ~ Eliminates lengthy, time-consuming file transfers.
- ~ Lets the HP 3000 operate as a high-performance file server.
- ~ Allows centralized management of diskless clients for improved security and backups.
- ~ Facilitates workgroup development and client/server deployment.

Phone: 714-720-1434, e-mail: info@quests.com.

All names are registered trademarks or trademarks of their owners.

QUEST SOFTWARE
Expect a solution.

CIRCLE 464 ON READER CARD

JULY 1995 31



The Power of Integration

Unlock your HP3000 with DataExpress

If your end users can't reach the data they need, reach for DataExpress, the link you've been looking for between your HP3000 and Mac/PC desktops.

With DataExpress, users can pull information off your HP3000 without rekeying and without tying up your MIS people.

Best of all, they can bring data into PC and Mac applications that they already know and count on: Lotus, dBase, Excel, WordPerfect and more. With thirty output format options, DataExpress opens your data to more applications than any other integration package.

In addition to PC and Mac file formats, DataExpress can generate reports, and with the Report Designer option you get WYSIWYG capability, so you can see design improvements as you make them.

DataExpress is the #1 End-User Computing Environment available for the HP3000 today.

**For powerful solutions,
call 1-800-ANSWERS**

Your Integration Software Supplier®

M. B. Foster Associates Limited
50 Water Street
P.O. Box 580
Chesterville, Ontario
Canada K0C 1H0

Tel (613) 448-2333
Fax (613) 448-2588



CIRCLE 168 ON READER CARD OR CALL 1-800-925-1786 CODE 1113 FOR FAX ON DEMAND

Magic

LANs. Spoolfile Management is the main module of Unispool. It automatically re-routes jobs if the original printer fails. Single-seat, enterprise-wide control gives administrators access to all printers. The control client can be run off a low-cost Windows PC instead of a workstation. The latest version includes an NLM to link Novell servers.

THE MISSING LINK

FLEXIBILITY AND control. In themselves, they're keys to network printing success. But there's one other aspect that can't be forgotten, and that's transparency, which yields connectivity products — those that help break down the barriers between heterogeneous platforms.

Puzzle Systems (Morgan Hill, Calif.) markets two connectivity products that have beneficial network printing side effects. The first is Softnet Utilities, which allows UNIX platforms to

The
Gartner Group says that
79 percent of organizations plan
to implement client-server
networks.

emulate a Novell 312 server. This means bi-directional UNIX/Novell printer sharing and terminal emulation, all accomplished using IPX only. Jim Leslie, director of marketing, outlines the strategy. "You do nothing to the Novell network; just leave it alone. You take the software only on the HP side. You do not reconfigure the kernel, and you don't partition the disks. The HP now has the ability to see and understand IPX." Softnet Utilities competes against Portable NetWare.

The second Puzzle product is Softnet NFS. It runs only on the Novell Server 3.1x or 4.x as an NLM. The Novell server can then function as an NFS server. It's an alternative to Novell's NetWare NFS. Bi-directional printing is included in the package. According to Leslie, the task is to allow file and printer sharing without forcing the users to use anything other than their standard, native commands. That means no hybrid commands — in other words, transparency. "It's less of

*You could shop
around endlessly
to solve all your
networking
and output
management
needs.*



Or not.

Quest Product Family

Our complete family of HP networking and output management solutions means one-stop shopping:

- ~ VISTA Plus, the easy-to-use electronic report management solution.
- ~ NBSpool, the high-performance spool management solution.
- ~ NFS/iX (Client and Server), the only NFS for MPE XL and POSIX.
- ~ NetBase, the comprehensive clustering and disaster recovery solution.
- ~ NetBase Client, straightforward access to MPE data from UNIX and LANs.
- ~ EnterPrint™, a robust and scaleable server for Xerox production printers on TCP/IP networks.
- ~ QUARK Plus, the multi-platform compression solution.



Phone: 714-720-1434, e-mail: info@quests.com.

All names are registered trademarks or trademarks of their owners.

**QUEST
SOFTWARE**
Expect a solution.

COMPANIES MENTIONED IN THIS ARTICLE

API International
P.O. Box 91027
Austin, TX 78709
(512) 280-4391
CIRCLE 346 ON READER CARD

Axis Communications Inc.
99 Rosewood Dr., Ste. 170
Danvers, MA 01923
(800) 444-AXIS
CIRCLE 345 ON READER CARD

Computer Associates
One Computer Associates
Plaza Islandia, NY 11788
(800) 225-5224
CIRCLE 344 ON READER CARD

Dataproducts Corp.
6219 De Soto Ave.
P.O. Box 746
Woodland Hills, CA 91365
(818) 887-8000
CIRCLE 343 ON READER CARD

Digital Controls
305 Pioneer Blvd.
Springboro, OH 45066
(800) 421-0203
CIRCLE 342 ON READER CARD

EasySpooler
5327 N. Central Expwy.
Dallas, TX 75205
(214) 522-2324
CIRCLE 334 ON READER CARD

Extended Systems
5777 N. Meeker
Boise, ID 83713
(800) 235-7576
CIRCLE 341 ON READER CARD

MiLAN Technology
894 Ross Dr., Ste. 101
Sunnyvale, CA 94089
(408) 752-2770
CIRCLE 340 ON READER CARD

MiniSoft
312 Maple St.
Snohomish, WA 98290
(800) 682-0200
CIRCLE 339 ON READER CARD

Puzzle Systems Corp.
16360 Monterey Rd.
Ste. 250
Morgan Hill, CA 95037
(408) 779-9909
CIRCLE 338 ON READER CARD

Quest Software Inc.
610 Newport Center Dr.,
Ste. 1400
Newport Beach, CA 92660
(714) 720-1434
CIRCLE 337 ON READER CARD

Software Clearing House
Three Centennial Plaza
895 Central Ave.
Cincinnati, OH 45202
(513) 579-0455
CIRCLE 336 ON READER CARD

Xerox Printing
Systems Division
101 Continental Blvd.
El Segundo, CA 90245
(310) 333-7000
CIRCLE 335 ON READER CARD

CIRCLE 268 ON READER CARD

CD-R is Fast Becoming the Optical Storage Medium of Choice for HP Users. Now...



Which CD-R Software Can You Trust?

You've invested in CD-Recordable technology for all the right reasons — flexibility, capacity, and standardization. It's not complete without the right mastering software. There's only one solution that provides the power, flexibility and reliability you need to archive large data sets... It's GEAR!

GEAR provides the fastest formatting speeds, highest data integrity rating, and file-naming support up to ISO-Level 3 — making it the most flexible CD-R solution for CAD/CAM and engineering data storage, as well as the archiving of audio, video, and multimedia files. GEAR also supports all CD-ROM formats including Rock Ridge, 9660, Orange Book Multi-session and CD-DA on all popular CD-R drives and jukeboxes.



Whether you run on UNIX, Windows or Macintosh computers, GEAR ensures unmatched cross platform readability. In fact, as your data storage requirements grow from 650 MB to 650 GB, GEAR grows with you by providing support for jukeboxes and disc-transporters from vendors such as Pioneer and Kodak.

So, if you want an affordable CD-R software solution with the most power, flexibility and reliability for archiving your large data sets, buy GEAR today... CD-R software you can trust!

(800) 606-6116 ext. 141

Fax Inquiries: (610)617-0856

Europe: +31 (0)40-515065

email: sales@elektroson.com



ELEKTROSON

©1995 Elektroson. Gear is a trademark of Elektroson.
All other brand names are trademarks or registered trademarks of their respective holders.

CIRCLE 252 ON READER CARD

Magic

an 'US and THEM' environment," says Leslie, when it comes to UNIX and Novell users.

For HP 3000 users, NP92 from MiniSoft Inc. (Snohomish, Wash.) allows the printing of HP spoolfiles to any printer configured for TCP/IP or LANs through NetWare, NT, Banyan Vines or the LPD protocol. NP92 sits as a background task on the HP 3000 and spools output to print destinations over the network. There is support for carriage control conversion, HP environment files and banners.

Both HP 3000 and HP 9000 users also may want to check into NBSpool from Quest Software (Newport Beach, Calif.). It allows you to take spoolfiles and view, move, copy, store and purge them. Manipulation can be performed on single files, all files or groups of files.

You may specify a subset based on DFID numbers, job/session numbers, output priorities, logical device numbers, device classes, filenames, usernames, creation dates and spoolfile sizes. Two options are available: LPR/LPD for standard UNIX processes and automatic routing to or from UNIX, Novell, LAN Manager or Banyan Vines printers; and iQueue, two NetWare NLMs — a LPD NLM that allows a NetWare file server to accept jobs from systems supporting the LPD protocol and a LPR NLM for NetWare file server service to local print queues for transmission via LPD to remote hosts.

BELIEVE IN MAGIC

THE FINAL REALITY is that with factors such as changing landscapes, acquisitions and downsizing no one can really predict what their printing needs will be in the future. So it's important to remain flexible and expect the unexpected.

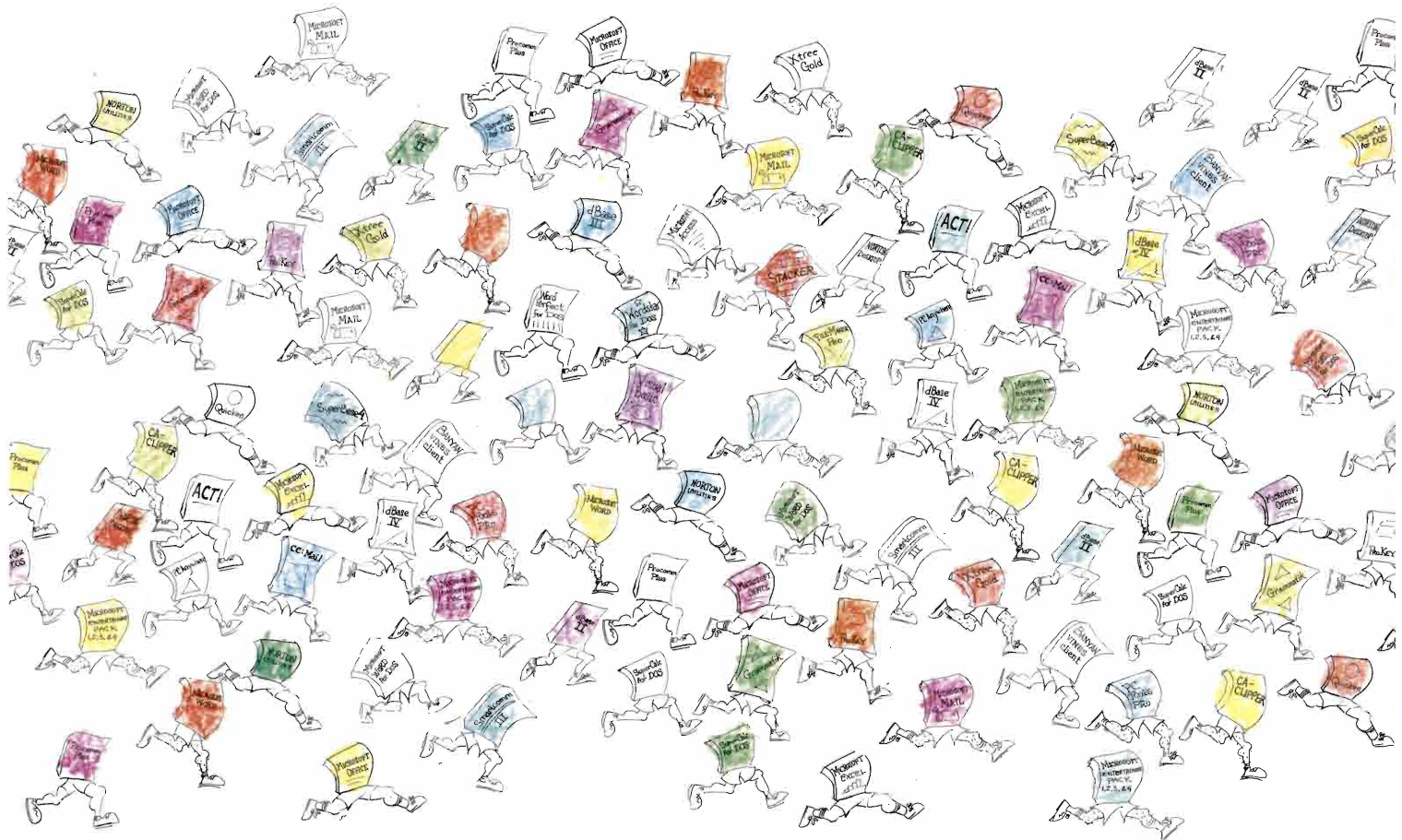
With an open strategy based on connectivity and expandability, network printing will be as easy as abracadabra. — *Jim Esch is a freelance writer specializing in high technology, based in St. Louis, Missouri. He can be reached at jmesch@artsci.wustl.edu.*

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

Circle on reader card

yes 350 no 349

UNIX



All Your Favorite DOS & Windows Programs Running Under UNIX. What Could Be Better?

Imagine how productive you could be with thousands of great Windows and MS-DOS applications running on your UNIX workstation.

SoftWindows for UNIX helps you be more productive because you can run the same standard mode Windows applications the rest of your company uses. From e-mail to databases, presentation packages to spreadsheets, you've got it all at your fingertips without leaving the UNIX environment. Or crowding your desk with two machines.

That means instant integration

with your corporate standard applications. Full use of PC networks and peripherals. And easy access to the applications and files that you need to stay on top of your work.

So call now for a FREE evaluation copy of SoftWindows for UNIX on HP, Sun, IBM, Digital, SGI, Motorola and Siemens Nixdorf platforms. Or, SoftPC for NEXTSTEP. And see how easy it is to get a stampede of Windows and MS-DOS applications running under UNIX. **Call 508-682-7600.**



Includes Microsoft Windows 3.1, MS-DOS 6.21 And NetWare Client Software.



INSIGNIA
SOLUTIONS

CIRCLE 218 ON READER CARD

Insignia Solutions, River Bend Business Park, 6 Campanelli Drive, Andover, MA 01810 • Phone: (508) 682-7600 • Fax: (508) 688-8294. In Europe, contact Insignia Solutions Limited, Phone: +44 494 459426 • Fax: +44 494 537817

© 1995, Insignia Solutions Inc., Mountain View, CA. Insignia and Insignia Solutions are registered trademarks of Insignia Solutions Inc. SoftWindows is a trademark used under license.

Windows is a trademark and MS-DOS is a registered trademark of Microsoft Corporation. All other trademarks are the property of their respective holders.

The TEN Commandments

This month Fred Mallett continues to share his experiences while working with HP-UX 10.0. Part I (published in March 1995) focused on the general differences between HP-UX 9.x, and HP-UX 10.0. This month, Part II concentrates on new and different commands, as well as the new SVR4 file system layout. Part III, the last installment, to be published this November, will summarize the various features in HP's first major OS release in three years.

Don't Let A New File System Plague You When Using HP-UX 10

So where were we? Changes.

The changes to the file system layout are among the most readily noticeable:

```
hpux10$ ls /system
/system not found
```

Luckily, they also are the easiest to learn. Just retrain your fingers to type in the new SVR4 based pathnames. Use **man 5 hier** to locate things. Then, you can thank HP for putting in symbolic links for those times you're cursing and trying to remember the new pathnames.

This disk organization is commonly called the AT&T SVR4 File System (also known as V.4, V4FS and the OSF/1 File System). V4FS is commonly accepted as the de facto industry standard for organizing files in directories under UNIX.

This is not an internal disk data structure change. However, keep in mind that all vendors (including HP) add their own little twists to V4FS. HP calls it "HP-UX

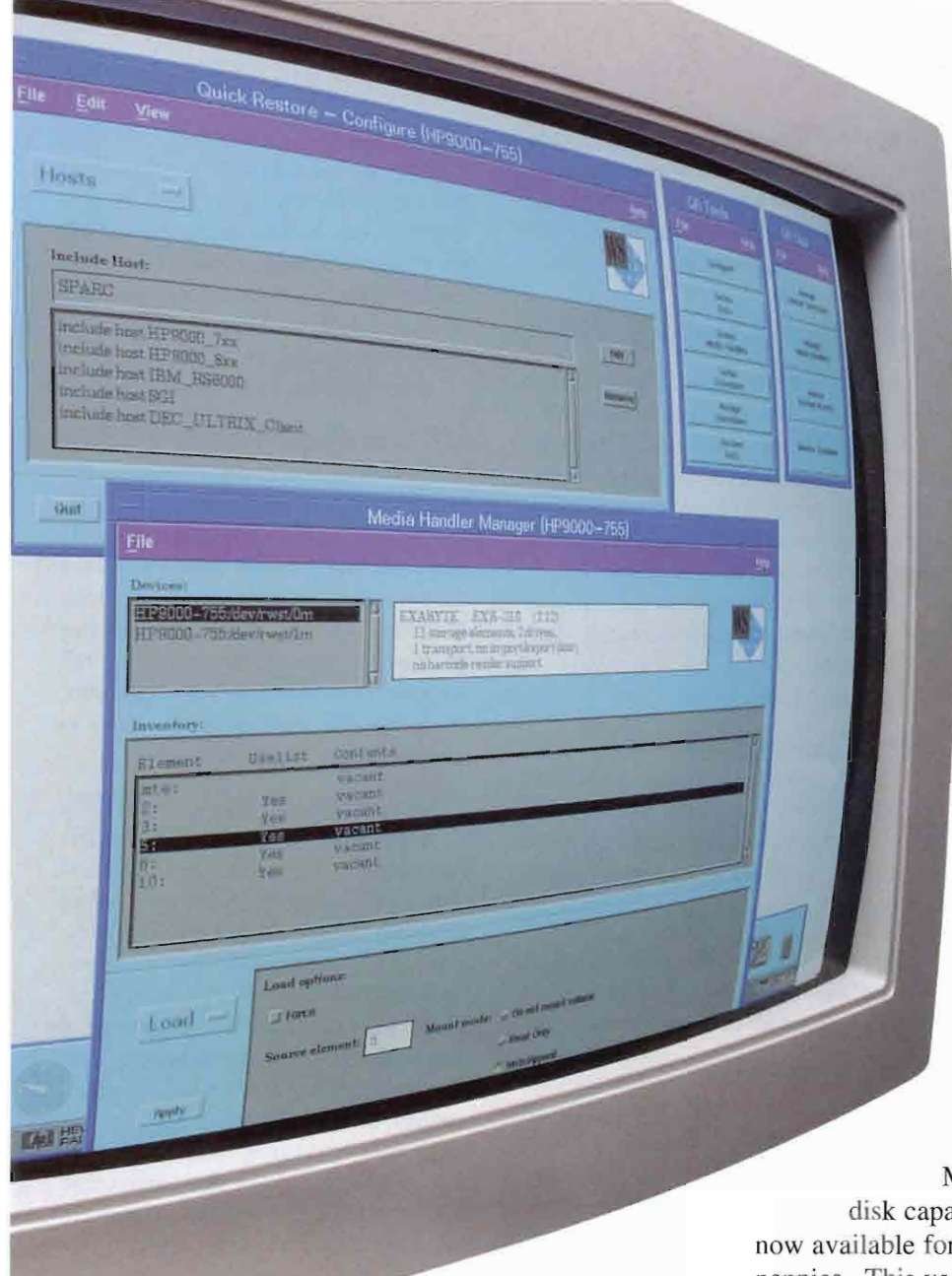
10.0 File System Layout" or "HPFS."

For the most part, however, you can now move between V4FS compliant vendors without getting too many "'directory' not found" errors. So, what are the benefits of moving to the SVR4 format?

To provide a hierarchy that allows specific directories to contain files organized by their "shareability." Directories containing files can be shared with binary compatible hosts, and others for dissimilar machine types. There also are directories that contain files that can be edited by this host upon boot. And for configuration purposes, those files are not to be shared at all. If you're thinking "this must provide support for the NFS method of diskless booting," you're right.

Built into these changes are new startup file methods and configuration scripts. The new startup model is necessary for supporting the new NFS-based diskless model that HP-UX 10

Fred Mallett



10 cartridge 8mm



6 cartridge 4mm



15 cartridge 4mm



7 cartridge DLT

OUR BACKUP SOLUTIONS HIT THE BIG SCREEN

Western Scientific's SuperStore Tape Autoloaders are UNIX Network Superstars!

**Meet us at SIGGRAPH '95
August 8-10
Booth # 2564**

CIRCLE 480 ON READER CARD OR CALL 1-800-237-3017

Massive disk capacities are now available for micro-pennies. This year your network database will probably *triple* in size. How will you back it up?

Our SuperStore solutions will automate, monitor and manage your networked UNIX workstation disk backup with blockbuster sizzle.

SuperStore offers ultra-fast software installation, event scheduling and file backup/restore, with full support for 4mm, 8mm and DLT technologies. And our GUI interface is so easy to use, you won't need a script.

For a free demo package for *your* Big Screen, call today!

1-800-443-6699

Corporate Office:

Phone: 619-565-6699

Email: info@wsm.com

Regional Offices:

Los Angeles: 714-263-0303

N. California: 510-746-7161

New Mexico: 505-884-6699

Colorado: 303-838-6473



Your No-Risk RISC Peripherals Company

uses. Each script leaves messages as it boots, so you get a better granularity of progress than in HP-UX 9.x. Unfortunately, a shutdown takes substantially longer than it did in the past. (For more detailed descriptions of the startup files in HP-UX 10.0, see the UNIX SYS_ADMIN column in the April 1995 issue of *HP Professional*).

Files are grouped into the following directories: static vs. dynamic, executable vs. data, sharable vs. private, application vs. operating system, temporary datafiles vs. permanent datafiles, fixed in size vs. expandable and user vs. system.

If you look at the list below, the beauty of this layout should become apparent. It's now easier to protect OS data and executables. It's also easier to manage disk space and logical volumes when you can tell which directories might grow larger and which you will not.

Directories you will ever need to edit files in (and backup) are more restricted now. Client-server software is easier to organize, and diskless NFS is easily configured (or as easy as diskless NFS can get).

Next, let's discuss the new file layout (see diagram) as well as the kind of files found in each group. Please note that while this is not a complete listing, the primary groups are covered.

The upper level directories are broken into two groups: static (shared) and dynamic (private). This may seem odd at first glance, but the contents of

these directories also have changed. The /etc directory now only contains data. There are no binaries in there. But there are plenty of links to binaries. So don't feel dumb when you type:

/etc/if-config:

```
hpux10$ ls -l /etc | grep -c "\.1" 167
```

All the binaries from /etc are now located in other directories like /usr/sbin (for those needed to boot the system), and /usr/lib/netsvc (for network tools like ypserv, ypbind, rwall and rstat). Data files like termcap have been moved to /usr/share/lib.

Below are descriptions of some of the root level and subdirectories with the contents of each.

Dynamic Directories:

/etc

Host-specific configuration files and databases. Note that things like vue sam mail and lp now have their configuration files under here (/etc/vue??? yes!!).

/etc/opt

Application-specific configuration files for optionally loaded or purchased products like audi dce sharedprint.

/var

Subtree root files that change dynamically. Types of files found under directories in var include log files, temporary files and spool files. This is where the mail files, lp spooler, cron files and news went to. There are many subdirectories under here, including:

adm, mail, ncs, news, opt, ppl, preserve, rbootd, run, sam, spool, statmon, tmp, uucp, vue and yp. A new one of note is /var/spool/sw which is the default location for a software distribution depot, the near equivalent of an HP-UX 9.x netdist.

/dev

Still has the device files, but the name conventions have been standardized in HP 9000 Series 700s and 800s.

/stand

Has the binaries and configuration files for building a kernel. It also contains the kernel itself, the default now called /stand/vmunix. The name comes from standalone. Also under the dynamic directories is the /tmp and /tmp_mnt directories.

Static (thus sharable) directories:

/sbin

Commands needed to boot the system and mount file systems. There are lots of surprising commands here, like **date** and **cat**, but they are needed by the startup scripts (some of which live here). The full set of commands live in /usr/bin, and are not available until after the /usr directory/disk is mounted. Note that /bin does not exist, except as a symbolic link to /usr/bin.

/usr

Entry point for a subtree of sharable commands, libraries and optional products. Mostly binaries, some databases. No system specific data here. Can be some site-modified databases, such as /usr/contrib and /usr/local. Note that the /usr/ccs directory is where the C compiler programs now live. /usr/ccs/bin has **make**, **cc**, **yacc**, **strings**, **strip** and others.

When browsing this directory remember that these directories and files are considered static. There are other similarly named directories under /var for making configuration changes. Here is a sample list of subdirectories to /usr: adm, bin, bms, ccs, conf, contrib, etc, examples, include, lbin, lib, local, mail, man, newconfig, news, obam, old, preserve, pub, sam, sbin, share, spool, tmp, tsm and vue.

Some subdirectories worth noting here are:

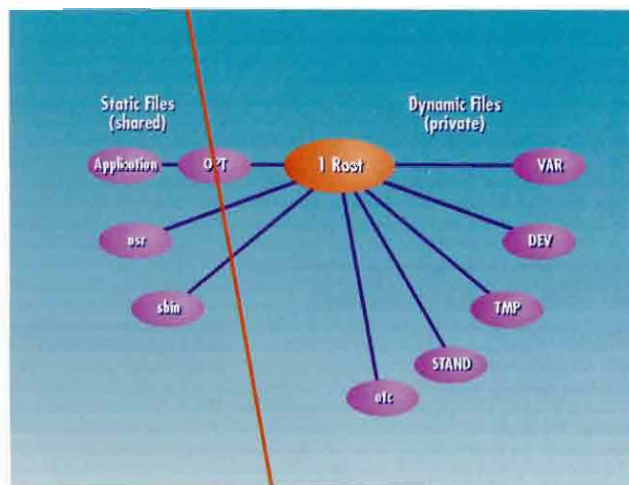
/usr/lbin

This is for backend executables to other commands. A backend executable is not usually invoked by a user, instead it is called by another /usr/bin command. An example would be **extrecover** which is called by **vi -r**.

/usr/newconfig

New versions of customizable configuration files and databases are

Static vs. Dynamic File Layout



shipped here so as not to overwrite currently configured versions. These are the files you need to copy after an update. It used to be /etc/newconfig.

/usr/old

For files and programs that are being phased out or are obsolete.

/usr/sbin

System administration commands.

/usr/share

Architecture-independent sharable files.

/opt

Root of subtree for optional application packages. This organizes all applications nicely. No applications should be loaded under /usr or in /anymore. /opt could be considered a dynamic directory, because the subdirectories (applications) it has in it are host-dependent, but the subtrees in it are commonly mounted across the network and shared. If you don't like it called static, get out a crayon and change the picture ;^)

That's about it for the five-minute tour of the new file system layout. I'll admit that the transition links have helped me out a great deal, and that I have done some searching for files. But overall, the new file system layout is not too tough to get used to.

Just remember **man 5 hier**.

UPDATE ON /ETC/UPDATE

THE OLD /etc/update SW install tool is gone. The Software Distribution utility (SD-UX), which replaces it, has been hanging around for years. I think I first saw the predecessor to this tool around 1992 when it was being offered to the OSF as a technology. Now, SD-UX bundled with the OS (not a purchased upgrade), finally gets to come out of the labs.

SD-UX also has been sold as the HP OpenView Software Distributor (a slightly different version). This tool has the usual ability to run in both character and graphics mode, so you can run it during boot and under X Windows. Or you also can specify everything on the command line. The interface is slightly different, but takes no real studying to figure out. There is context-dependent help.

Lets talk about the new capabilities and changes from DUI, the HP-UX 9.x tool. **swinstall**, which lives in /usr/sbin, is what you now need to execute. It is used for both initial installation and updates, as well as adding products. **swinstall** replaces **update** and **install**.

swremove replaces **rmfn**. The old customize scripts, for loading or removing a fileset, are now called control scripts. **swconfig** runs these control scripts. For those of you that

used **swinstall** to create filesets to install with update the tool is **swpackage**.

netdistd which allowed you to load from a disk based source (called a netdist area), across the network has been replaced by **swagentd** as the server program to allow this type of loading from a "software depot."

New features:

Some of the features that we have been asking for are included with SD. Like the ability to do a pull installation across the network, and that non-root users can be allowed to install software.

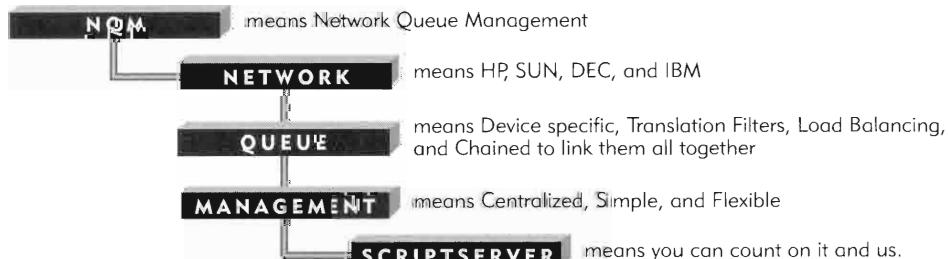
There now is a **swverify** tool to check out an installed product. You can also use **swacl** to view and change permissions on software products. A new concept to SD is that of "bundles."

Filesets make up a product (or subproduct). A bundle is a set of one or more products. This makes loading a configuration to a host much easier. And I'm told the HP product bundle names will actually match the names on the corporate price list. — Fred Mallett is owner of FAME Computer Education, which provides UNIX usage, administration and programming classes, and HP Professional's UNIX SYS_ADMIN columnist. He can be reached at frederm@aol.com.

Would you like to continue to see articles on this topic?
Circle on reader card
yes 348 no 347

SCRIPTSERVER NQM

The definitive cross platform network printing solution



SCRIPTSERVER NQM
Crossing platforms to solve
your network printing problems.



Free 30-day Demo
800 477-0248 Ext. 127
or info@graysoft.com.



GrayMatter
Software Corporation

© Copyright 1995 GrayMatter Software Corporation. All rights reserved. Product and company names used are trademarks or trade names of their respective companies.

CIRCLE 132 ON READER CARD



Jill Huntington-Lee

What To Do About OpenView?

You may recall my April column where I vented my frustration with HP's delay in delivering true

multiuser, distributed management in their Network Node Manager (NNM) product. I also questioned HP's strategy of steering customers to their OperationsCenter and AdminCenter products instead of spending more time and effort on fixing NNM's deficiencies.

So this article is for those OpenView customers who applauded my last column, but now want to know what their options are.

1. Stand Fast.

Don't change a thing, and try to hold out until the day when HP delivers distributed management based on the Object Management Group's (OMG) Common Object Request Broker Architecture (CORBA).

To be honest, there's an element of risk involved here. The OMG recently decided that *portability is more important than interoperability*. That's fine if you've got a bunch of unconnected systems, but it's a real problem if you want to manage a network. In other words, the OMG has hit a stumbling block. And if HP continues to bide their time until the OMG comes to an agreement, the wait could be long indeed.

Unfortunately, the OMG's CORBA is the best hope for delivering an open, ubiquitous standard for distributed, object-oriented management. Yet, several vendors — like DEC, for example — already have object request brokers (ORBs) that support interoperability between most major UNIX platforms.

2. Switch Platforms.

Comparable products from Sun, IBM and Cabletron already support distributed management *today*. Solutions from DEC and AT&T also have features that NNM lacks (but that's a future column).

Most organizations, however, are unwilling to go to this extreme, which is understandable. Infrastructure changes are not only difficult but can be embarrassing for the person who makes that purchase decision. And besides, the competition has problems too. For example, IBM's SystemView Series supports distributed management via SNMP-based smart agents; but it still can be difficult to leverage these capabilities effectively unless you're an SNMP guru.

Sun Solstice Enterprise Manager uses Common Management Information Protocol (CMIP), which supports the OSI stack rather than TCP/IP. But we all know that CMIP gurus are incredibly hard to find.

Cabletron's (Rochester, N.H.) Spectrum, on the other hand, does something entirely different — it sup-

The OMG's CORBA is the best hope for delivering an open, ubiquitous standard for distributed, object-oriented management.

ports multiple distributed servers as well as clients. Spectrum is relatively easy to use, but the object technology is all Cabletron's anyway (i.e., not an open standard). It doesn't seem to bother many Spectrum users. However, if you're hooked on standards, it shouldn't be your first choice.

3. Do It Yourself

By using third-party product add-ons like NetLab's NerveCenter (recently acquired by Seagate Technology of Scotts Valley, Calif.) or smart agents from vendors like Legent Corp. (Computer Associates announced its intention to acquire Legent in May), it is possible to extend NNM to manage at least a few more hundred nodes.

While this is an attractive (and successful) alternative for some organizations, it takes expertise to integrate those tools effectively. With smart agents, the idea is to distribute polling across the enterprise. Otherwise, you need to use

one centralized copy of NNM to poll all network devices for status.

Usually, the agents reside on workstations scattered throughout the network. Each agent then polls devices nearby, comparing the results to user-defined thresholds, and forwarding only the most critical alarms to the central NNM. This approach works well, as long as you've figured out how to optimally configure your agents.

By allowing a network administrator to configure NNM polls more intelligently using conditional state diagrams, NetLabs NerveCenter, which costs about \$15,000, achieves scalability in a different way. For example, instead of just telling NNM to poll a critical router every minute and create an alarm if the router goes down, NerveCenter can be configured to wait a few seconds after it discovers that the router went down, try polling again and send an alarm only if the

second (or third) poll fails as well.

When polling critical servers, NerveCenter can suppress an alarm that was triggered because a server was unreachable, if it also detects that the router attached to that server is having problems. If you know your network and understand SNMP, you can dream up some creative algorithms that minimize the number of alarms NNM must deal with during times of network failure.

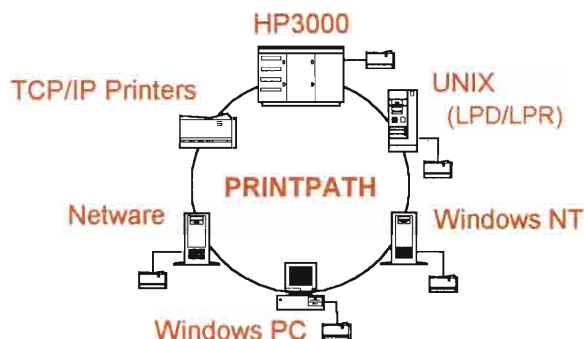
Six months ago, NerveCenter was not an attractive option for many NNM users. Because it performed functions that were duplicated by NNM, unnecessary overhead in network traffic and storage requirements would have been incurred. But since the last release of NerveCenter, much of that duplication has been eliminated. And according to early reports — the results are positive.

In fact, one customer I've talked with is using the NNM/NerveCenter combination to manage over 1,000 nodes at 30 remote sites. And if HP delivers distributed management capabilities next year, he may not upgrade right away because he has already decided his current configuration works quite well, thank you.

*Huntington-Lee's Internet address:
0004463809@mcimail.com*

Would you like to continue to see articles on this topic?
Circle on reader card
yes 304 no 303

JUST PRINT IT!



RAC CONSULTING (360) 357-9572
BOX 10099, OLYMPIA, WA. 98502 Fax (360) 352-8453

Join the HP3000 users who DO print it, anywhere on the network!

RAC's PRINTPATH is the complete network printing solution for your HP3000. All popular TCP/IP printer interfaces and network operating systems are supported. Includes full error detection and recovery for reliable delivery and full printer control, such as file delete/skip, suspend, resume (anywhere in the file) and special forms support.

PRINTPATH fully integrates your HP3000 with lan printers, UNIX systems, Netware/Lan Manager print queues, Windows Clients/servers and any LPD/LPR device. HP3000 output can be delivered to any of your network printers and HP3000 printers become network printing resources.

The best news is the low cost of all this functionality! The five year cost of PRINTPATH ownership is so low, there is NO reason to wait any longer...

**Get PRINTPATH and
JUST PRINT IT!**

CIRCLE 451 ON READER CARD

new Products

SOFTWARE

Search Software America Produces SSA-Name

Search Software America (SSA) produced SSA-Name, which enables businesses to more effectively sell and service their international customers. SSA's software allows you to retrieve names and addresses in large databases despite mistakes in spelling and variations in names. It also can be used to eliminate duplicates when mailing to international prospects. There

also has been a special version developed for Hong Kong companies to handle the unique problem of name-search based on Chinese characters.

The SSA-Name products compensate for problems that occur from common name, partial names, abbreviations and errors in phonetics, transcription and word sequence. The product is a callable subroutine which can easily fit into systems that are used for customer information, marketing, fraud investigation and government systems.

SSA-Name is priced at \$24,000 to \$93,000 for a perpetual license and is available for UNIX, MVS, VAX, Unisys, Windows and MS-DOS.

Contact Search Software America, 1445 East Putnam Ave., Old Greenwich, CT 06087; (203) 698-2399.

Circle 400 on reader card

LeeTech Software Releases CSF

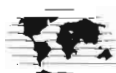
LeeTech Software Inc. introduced LeeTech/CSF for IBM mainframe systems.

HERE'S YOUR SOLUTION!

Quality products at affordable prices for
HEWLETT-PACKARD/APOLLO®

Workstations,
Peripherals and Upgrades

- NEW and REFURBISHED
- Repairs
- 100% Customer Satisfaction
- Free Technical Support
- Immediate Delivery



CMI

Computer Marketing International, Inc.™

85 Flagship Drive
No. Andover, MA 01845 USA

Tel: 800-497-4264
508-687-3700

Fax: 508-689-2031
Int'l. Fax: 508-687-4395

CIRCLE 454 ON READER CARD

UNIX/Novell CONNECTIVITY

SOFTNET

SoftNet Utilities and SoftNet NFS

NetWare Server Emulation for UNIX systems
and NFS Services for Novell file Servers

- NetWare 2.2/3.11/3.12 **server** emulation
- PC's can "attach" and "map" UNIX directories
- Workstations can NFS mount NetWare servers
- Bi-directional UNIX/NetWare printer sharing
- Also includes IPX-based DOS terminal emulation
- No UNIX kernel reconfig. or disk partitioning
- FAST; Easy to install/administer; All IPX-based

LAN Magazine 1994

Connectivity Product of the Year

HP 9000, Sun SPARC, SCO, Silicon Graphics,
Sun Solaris for x86, UNIXware, DEC Alpha

**PUZZLE
SYSTEMS**

PH: (408) 779-9909
FAX (408) 779-5058
email: sales@puzzle.com



CIRCLE 135 ON READER CARD

LeeTech CSF (Client Server Foundation) is a structural foundation that provides LAN/WAN connectivity, messaging and other management and programming services for the development of client-server applications. This release provides server support on IBM MVS/CICS systems. Previous releases operate on HP 3000 and HP 9000 systems, Tandem, IBM AS/400, Windows NT and UNIX systems.

It is independent of the DBMS and can be used with DB/2, Oracle, Informix, TurobIMAGE, IMAGE/SQL, ALLBASE/SQL and other databases. It also can be used with most programming languages including COBOL, Fortran, Pascal, C and Ada.

LeeTech CSF is a messaging middleware product that includes extensions that facilitate independent client and server development testing efforts. The CSF PC client is implemented as a standard DLL library. The API can be called from any language capable of calling DLLs. The CSF server implementations are specific to the supported platform, but all support a common API to facilitate code portability between platforms.

Contact LeeTech Software Inc., 20410 Town Center Ln., Ste. 220, Cupertino, CA 95014; (408) 253-1987.

Circle 399 on reader card

Chevy Provides InterBackup VI.5

Chevy announced InterBackup version 1.5, a new generation approach to managing enterprise-wide backups and restores for UNIX-oriented client-server networks.

InterBackup version 1.5 features include an object-oriented approach to defining and scheduling multiple simultaneous backups over a distributed network to multidrive tape libraries. InterBackup's multidrive stacker support allows the software to independently arbitrate simultaneously scheduled backup orders or "objects" to available drives, providing maximum use of the stackers and libraries.

The use of "classes" enables users to "own" tapes in the libraries that can be automatically assigned to that user's backup requests, and autoloaded by the library's robotics, transparently controlled by InterBackup version 1.5. Enhanced search and restore tools allow the user to navigate through time in the comprehensive database using a virtual file system, allowing the user to restore the most recent backup to any directory on the network.

Users don't have to know UNIX commands to perform backups and

restores. InterBackup V1.5 runs as a server on: SunOS, Solaris, HP-UX, IBM AIX and SCO UNIX.

Contact Chevy, 4764 Park Granada, Unit 202, Calabassas, CA 91302; (818) 225-6060.

Circle 396 on reader card

Island Software Corp. Introduces IslandCalc V3.0

Island Software Corp. announced the availability of IslandCalc 2.0, the latest version of Island's graphical spreadsheet for UNIX workstations. IslandCalc offers multiple sheets within worksheets, intelligent cell copy, data drag and drop, split view worksheets, 3D graphics and full support for Lotus 1-2-3 file formats and macros.

IslandCalc 3.0 includes over 99 functions including arithmetic, trigonometry, logical, statistical, database, business, date and time.

IslandCalc 3.0 is available for SPARC-stations running SunOS 4.1.3 or Solaris 2.3, HP 9000 Series 700 and 800 workstations running HP-UX 9.0, and IBM RS/6000 workstations running AIX 3.2.5. Price is \$495.

Contact Island Software Corp., 90 Digital Dr., Novato, CA 94949; (415) 884-4400.

Circle 394 on reader card


**THE
TOTAL
SOLUTION**

sales, service, support

◀ On-time service, on-line equipment.
Black River takes the risk and worry out of ordering, implementation and maintenance.
You're assured:

- Full line of new and previously owned, refurbished 9000, 3000 and 1000.
- Technically trained maintenance team.
- Free installation
- Nationwide service.

Call 216-365-9950 or fax 216-365-3916 for more information.



BLACK RIVER
COMPUTERS

THE TOTAL SOLUTION
sales, service, support

7630 RACE ROAD • NORTH RIDGEVILLE, OHIO 44039
216-365-9950

CIRCLE 171 ON READER CARD

MYTH:

Data warehousing does not exist for the HP3000.

FACT:

Turnkey HP3000 online data warehousing and offline archiving is here!

DB/Access extracts, transfers, deletes and restores data, *without scripting or programming!*

✓ Simple.

The block mode screen interface provides unlimited field value selection.

✓ Powerful.

Automatically builds single and multiple database and file targets. Links databases, datasets and files in one pass.

✓ Flexible.

Moves data between IMAGE, KSAM, and flat files. Integrates with OMNIDEX and SUPERDEX. Cross-platform download capability.

✓ Easy.

Creates meaningful test data in one step, without selection limits on values or criteria. DB/Access saves many programming hours.

For FREE demo contact:

Datastructure

246 First Street, Suite 205
San Francisco, CA 94105
(415) 495-7484 Fax (415) 495-7485



All trademarks are the property of their respective owners.

CIRCLE 231 ON READER CARD

When Your Data's Under Siege, You're Protected.



In the battle for the desktop, don't leave your data unguarded.

The explosion of user data has created a backup task of enormous magnitude. You need a client/server solution designed for the complexities of today's distributed computing environments. You need **NetWorker for HP 9000**.

NetWorker efficiently and effectively counters all threats to your data. Backup and recovery of the entire organization is centralized on the HP 9000 server. The storage management requirements of an entire multi-vendor network can be met using this integrated, enterprise-wide solution.

More Unix desktops and servers are protected by NetWorker software than by any other solution. Combine that with NetWorker's proven protection for NetWare, OS/2, DOS/Windows, and Windows NT, and the battle to defend your data is won.

NetWorker's legendary protection. Available for HP-UX from Innovus.

For more information on NetWorker for HP 9000, contact an authorized reseller, or INNOVUS at: (905) 529-8117, Fax: (905) 572-9586, or E-Mail: URL:<http://www.innovus.com>



NetWorker[®]
for HP 9000

The Ultimate in Network Data Protection

Legato NetWorker is a registered trademark of Legato Systems, Inc. All other trademarks are the property of their respective owners.

INNOVUS Technologies Inc.



CIRCLE 167 ON READER CARD

ISSI Announces Safari Reportwriter

Interactive Software Systems Inc. (ISSI) introduced Safari Reportwriter, which combines presentation-quality reporting capabilities with the security of their three-tier information access and delivery architecture.

Safari Reportwriter resides on the desktop. It uses data delivered by ISSI's server-based central data dictionary and engine to generate boardroom-quality reports from operational and decision support data.

ISSI's server allows Safari end users to access data from multiple data sources and platforms while meeting the security and efficiency requirements of the entire enterprise.

Safari's layout features include a full range of formatting capabilities. Graphical, pixel-oriented layout capabilities, full-color support, drawing tools and embedded bitmaps are all supported.

Data from desktop or server applications with ODBC interfaces also can be accessed with Safari. The report writer also functions as an OLE 2.0 container, allowing embedded documents to be linked back to their original applications.

ISSI's server is supported on HP-UX, MPE/iX, IBM AIX, SCO Open Desktop, Sun Solaris II and DEC VAX, Alpha AXP and Digital UNIX.

Contact ISSI, 7175 W. Jefferson Ave., Denver, CO 80235; (303) 987-1001.

Circle 393 on reader card

Software Professionals Offers ENlighten

Software Professionals Inc. announced the availability of the ENlighten Open Systems product line, a fully integrated suite of automated system administration software.

ENlighten supports IBM AIX, HP-UX, SunOS and Solaris, and SCO UNIX. It is designed using open standards-based protocols, for the management of systems, users, disks, backup/restores, security, processes and printer functions distributed throughout a heterogeneous UNIX network.

The ENlighten/Sys Admin Package includes a range of monitoring and administration features that run under the ENlighten/UI (User Interface), a standardized GUI that spans multiple UNIX platforms. The Sys Admin Package contains the following integrated modules: /User, /Disk, /Archive, /Security, /Printer, /System and /Watchdog.

The ENlighten/Events software module monitors devices, processes and multiple heterogeneous UNIX systems. It automatically collects and saves status, configuration, performance and capacity information. This information can be viewed by most commercial network management products such as SunNet Manager, HP OpenView and IBM NetView.

The ENlighten product suite is offered in packages of five, 10, 25 and 50 managed

nodes. The Sys Admin Package, which includes seven applications, costs \$360 per each managed node in quantities of 50. The /Events module, sold separately, starts at \$175 per managed node in quantities of 50. Contact Software Professionals, 999 Baker Way, Fifth Fl., San Mateo, CA 94404; (415) 578-0700.

Circle 391 on reader card

TOTAL CONNECTIVITY

HP 700/92 & VT220

NS/VT & TELNET
virtual terminal support

TCP/IP INCLUDED

STILL ONLY \$159

PLUS:

HP3000 & HP9000 file transfer • Winsock compliance
Keyboard remapping • Scaleable fonts
DDE and OLE automation • Network file transfer (FTP & NFT)
• Versions for Windows, DOS, OS/2 & Windows NT

CALL 800/682-0200

MINISOFT

MiniSoft Inc.
312 Maple Avenue
Snohomish WA 98290
FAX 360/568-2923
800/682-0200

Papiermühle
CH-6048, Horw
Switzerland
+41/41.47.2320
FAX +41/41.47.3866



MiniSoft 92 is a registered trademark of MiniSoft Inc. All other trademarks are the property of their respective owners.

CIRCLE 472 ON READER CARD

**Reasoning Systems
Introduces Refine/Cobol**

Reasoning Systems announced the release of Refine/Cobol, the customizable re-engineering workbench for programs written in COBOL on UNIX workstations from Sun, IBM and HP. Refine/Cobol is a graphical workbench for maintaining, improving and re-engineering existing COBOL systems.

The graphical workbench lets you

understand code structure, analyze the impact of changes, generate documentation, re-engineer, assess and improve code quality, and export design information to CASE tools such as Teamwork from Cadre Technologies.

Refine/Cobol comes with a fully documented re-engineering API, so user can add customized re-engineering capabilities.

Contact Reasoning Systems, 3260 Hillview

Ave., Palo Alto, CA 94304; (415) 494-6201.

Circle 390 on reader card

**Setpoint Inc.
Releases Desk**

Setpoint Inc. released Desk layered software module, an ad hoc tool for SQL access at the desktop. For users of Setpoint's InfoPlus-X and Setcim real-time information systems, this product provides an easy-to-use tool for obtaining reports and analyses of current and historical process data in InfoPlus-X and Setcim, as well as any integrated relational databases.

Desk creates a middleware bridge between the PC or workstation application and SQLplus, an ANSI SQL-based query module for the InfoPlus-X and Setcim real-time database systems.

Desk operates with a variety of applications on Microsoft Windows, Mac, OS/2, UNIX and VMS platforms. InfoPlus-X and Setcim support DEC VMS and OpenVMS, IBM AIX and HP-UX platforms.

Contact Setpoint Inc., 14701 St. Mary's Ln., Houston, TX 77079; (713) 584-1000.

Circle 389 on reader card

**Tryonics Expands
Asset Management**

Tryonics announced two new programs in the expansion of its Asset Management Services. It's Gold Tryangle Program manages all aspects of customer product returns including off-lease, upgrades and trade-in equipment. The Green Tryangle Program renews, remarkets and recycles customer surplus and retired computer equipment. Tryonics offers its customers complete services including site pickup, inventory, tracking, refurbishment, remarketing and customer reporting.

Contact Tryonics Inc., Ste. 15, 170 West Rd., Portsmouth, NH 03801; (603) 427-6850.

Circle 387 on reader card

**WRQ Reflection Series
Adds Features**

WRQ announced Version 5.0 of its Reflection Network Series, which provides seamless access from your PC to enterprise-wide information via networked, mobile/wireless or Internet communications in one package.

Version 5.0 includes a Windows NFS client with OLE support, so users can share documents across network drives as easily as on their own desktop.

Reflection NFS lets users connect to an unlimited number of remote volumes, print



GE Capital
Computer Rental Services
Our Business Is Helping Yours®

**Workstation Rentals
for Business**

HPP7/95

Now's the time to RENT the newest UNIX Workstations!

- Cost-effective rental of latest Hewlett Packard, Sun, and Tadpole workstations:

<ul style="list-style-type: none"> - HP Model 735/125 CRX - HP Model 735 CRX - HP Model 715/100 HCRX - HP Model 715/75 CRX - HP Envizex X-Station 	<ul style="list-style-type: none"> - Sun SPARCstation 20 - Sun SPARCstation 10 - Sun SPARCstation 5 - Tadpole SPARCbook 3 - Tadpole SPARCbook 2
--	--

Plus new products available as released by manufacturers!

- Large inventory – Fast delivery
- Flexible rental and leasing options – Rent-To-Own
- Major credit cards accepted



Call 1-800-GE-RENTS!

Authorized Rental Company for:



**HEWLETT®
PACKARD**



**Sun Microsystems
Computer Corporation**



**TADPOLE
TECHNOLOGY**



CIRCLE 166 ON READER CARD

(Advertisement)

NEW \$1,000 2 GB SCSI-2 SUB-SYSTEM FOR HP-UX SYSTEMS

To introduce the new 9000 Series of Floppies, Hard Disks and Tape Storage Products for HP-UX Systems, Texas ISA is offering a special introductory pricing on their new **high performance 2 GB** subsystem. It's *fast* with an average seek time of **9.5 ms**. More importantly, it's extremely **reliable** with an MTBF of 800,000 hours. That's why it's backed with a **five-year warranty**. But best of all, its compatibility with your HP 9000 Series 700/800 systems is **guaranteed!** Contact Texas ISA at (800) 361-2258, or (713) 493-9925.

Circle 403 On Reader Card



INTRODUCTORY PRICING FOR HP712 MEMORY BOARDS

ISA introduces their newly released memory cards for the HP712 with a special introductory pricing. Call for their 32 MB and 64 MB guaranteed best prices, with lifetime warranty. Call (800) 361-2258 or (713) 493-9925.

Circle 401 On Reader Card



AUTOMATIC UNIX STARTUP/ SHUTDOWN DEVICE PROVIDES SECURITY, SAVINGS AND CONVENIENCE

Texas ISA, Inc. announced the availability of its new Model 7030 with an Ethernet interface to allow the operation and control of networked UNIX system(s), with a single flick of a switch. The system power ON/OFF process can also be automated by the built-in timer, UPS Power Fail Signal, a shutdown request from the RS-232 or modem ports, and also by environmental triggers such as temperature and humidity. Additionally, alarms or preset messages can be sent to a pager. A Model 7020 (with no Ethernet interface) is also available. Prices for the Models 7020 and 7030 range from just under \$1,000 to \$2,500. Contact Texas ISA at (800) 361-2258, or (713) 493-9925.

Circle 402 On Reader Card



NEW TOTOKU HIGH RESOLUTION, FULL-FEATURED COLOR MONITORS

If you are looking for a high-quality 17- or 21-inch color monitor, check out the new Totoku line of enticingly priced monitors from Texas ISA. Totoku has been an OEM for Sony and other vendors, and now introduces their very own models, the CV172U (17-inch priced at \$1,190) and CV211U (21-inch priced at



\$2,125). Texas ISA can be contacted at (800) 361-2258, or (713) 493-9925.

Circle 404 On Reader Card

HP9122C HP9153C Replacements

ISA Floppy Disk Family



ISA 1015
(HP9122C Compatible)
3.5-inch dual
HP-IB SS/80

ISA 1015S (NEW SCSI)
3.5-inch single
(HP internal FD compatible)
SCSI-for-HP 9000 300/400/
700/800

ISA 2055/2075
(HP9153C Compatible)
118/270 MB with
3.5-inch single
HP-IB CS/80 SS/80

ISA 1060S (NEW SCSI)
5.25-inch single
SCSI-for-HP 9000 300/400/
700/800

ISA 1060
5.25-inch single
HP-IB SS/80

• Memory • Floppy • Hard Disks • Optical • QIC • 8mm • 4mm DAT •

ISA, the Largest HP Enhancements Manufacturer



Texas ISA, Inc: Tel: 713-493-9925 Fax: 713-493-2724
ISAHK CO., LTD: Tel: 852-2330-1977 Fax: 852-2330-1077
EURISA SARL: Tel: 1-48-61-48-95 Fax: 1-48-61-49-06
ISA CO., LTD: Tel: 03-3208-1150 Fax: 03-3208-1335

See us at INTEREX. Booth #1433.

CIRCLE 245 ON READER CARD

to remote devices and perform NFS management operations. A graphical NFS Administrator allows IS managers to view and change file permissions, configure local/global NFS parameters and quickly obtain information about the file systems, printers and host-based remote services.

Other new features include client support for DHCP (dynamic host configuration protocol) and NetBIOS. Also added is NFS data caching and ftp directory caching. Version 5.0 supports on-demand

dialing for all of the leading CDPD modems. It also includes a set of courtesy Internet applications, including Enhanced Mosaic and the WinVN newsreader.

Price starts at \$249 for a single user copy.

Contact WRQ, 1500 Dexter Ave. N., Seattle, WA 98109; (800) 872-2829.

Circle 385 on reader card

HARDWARE

Intelligent Interfaces Offers HP-IB Converter

Intelligent Interfaces announced the MicroPrint 45CV HP-IB (IEEE-488) to Centronics converter, which converts HP Centronics printers, HP computers and ATE with HP-IB interfaces. The unit is totally transparent to the application or ATE software, and requires no software changes or additions.

MicroPrint eliminates common test and measurement equipment output problems: illegibly small or too large, off-the-page graphics when using the HP-IB test equipment with HP Centronics printers. HP printers default to their lowest or highest resolution on power up. The MicroPrint Variable Resolution mode allows convenient switch selection of resolutions and graphics output size.

HP-GL mode allows inexpensive HP LaserJets to be used in place of expensive plotters. ThinkJet, PaintJet, QuietJet and DeskJet printers are supported for portrait orientation raster (bit mapped) graphics. LaserJet printers are supported for portrait and landscape raster graphics. Additionally, HP-GL mode allows LaserJet Series 3, 4 and 5 to be configured as plotters in landscape and portrait orientations.

The MicroPrint 45CV is priced at \$299, and includes a 10-foot Centronics parallel cable.

Contact Intelligent Interfaces Inc., P.O. Box 1486, Stone Mountain, GA 30086; (800) 841-0888.

Circle 384 on reader card

Elektroson Ships Gear and Gear MM

Elektroson shipped Gear and Gear MM (multimedia and multiformat) versions of its Gear software for six UNIX platforms. New features on Gear 3.2 for UNIX include full Rock Ridge extension and mapping support; drivers for Kodak PCD-6000, Kodak Disc Transporter; and the Pioneer DRM-5004X CD-R jukebox for data storage applications.

Gear 3.2 for Sun is available on SunOS 4.1.3 and Solaris 2.3 and 2.4 operating systems. Gear 3.2 for HP is available on the HP 9000 Series 700 and 800 workstations running HP-UX 9.x. Gear 3.2 for SGI will run on Irix 5.2 and 5.3. Gear 3.2 for DEC OSF will run on Alpha processors and will be available for OSF 1.3 and 3.0. Gear 3.2 for IBM AIX and NEC EWS will run on all IBM RS/6000 and NEC EWS machines and will support the

Thanks to Harmonizer, over 1400 Aldon customers are humming a new tune about installing new packaged software releases.

A classic from the Aldon repertoire. Harmonizer.

Harmonizer allows you to make modifications to your software applications and still take advantage of new releases.

In fact, Harmonizer can save you 60-80% of the time you now spend putting up new releases.

Harmonizer identifies and reports all changes made by you and by the vendor on a new release, then merges your changes with the new release to create new production versions of your programs. It's that simple.



Aldon Computer Group
401 15th Street
Oakland, California 94612
(510) 839-3535
(800) 825-5858
FAX: (510) 839-2894

And the elegant Harmonizer user interface makes it easy to learn and use.

Conduct your own examination —for a free software trial, call toll free, 1-800-825-5858.

Reader Information

ARTECON INC. CIRCLE 242

Artecon is a leading systems integrator and manufacturer of value-added hardware and software products for the UNIX marketplace. Product lines include Opticals, Removables, Backups, Storage and Accessories. **Call (800) USA-ARTE, FAX (619) 931-5527.**

COMPUTER MARKETING INTERNATIONAL INC. CIRCLE 454

Independent distributor of new and refurbished HP Apollo workstations and peripherals. We provide in-house technical support and depot repair services. We are committed to providing 100% customer satisfaction on every order.

Call 800-497-4CMI.

CONCORDE TECHNOLOGIES CIRCLE 232

Concorde Technologies, Inc., "The Hewlett-Packard Experts" is an HP Channel Partner and Value Added Reseller of HP and third party products for the HP 9000. Concorde's line of products includes HP 9000 systems, application software, CD-ROM solutions, RAM memory, mass storage peripherals, and accessories. For the best prices, availability, warranty and support **call Concorde Technologies at (800) 359-0282.**

DATASTRUCTURE, INC. CIRCLE 231

Datastructure's DB/Access provides online data warehousing and offline archiving for the HP 3000 with no scripting or programming. The powerful screen interface offers unlimited field value selection, accessing multiple input and output files. Multiple database and file targets are built automatically. DB/Access selectively extracts, transfers, deletes, and restores data between Image KSAM and flatfiles.

With unlimited value selection, DB/Access generates meaningful test data; capacities are set at the console. Omnindex and Superdex integration provide fast data retrieval. Comma delimited files can be used for PC downloading.

Call (415) 495-7484.

IEM CO. CIRCLE 122

IEM offers affordable solutions for the HP environment, including 4mm and 8mm tape drives, autofeeders and carousels, QIC tape drives, optical drives (WORM, Multifunc-

tion and CD-ROM), fixed winchester drives, floppy disk drives and combination drives. IEM's new Building Block product line is a modular storage solution into which you can slide a number of different disk, tape and optical units for unlimited storage configurations. IEM also offers an automated backup and archival software solution. Most IEM products are available with an HP-IB or SCSI interface for HP 1000, 3000 and 9000 computers. **Call (970) 221-3005 or (800) 321-4671, or send E-mail to info@iem.com.**

KINGSTON TECHNOLOGY CORP. CIRCLE 281

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

M.B. FOSTER ASSOCIATES LTD. CIRCLE 155

DataExpress, the #1 End-User Computing Environment and report writer. EDI Windows, translation software. Reflection and the Network Series.

**Call (800) ANSWERS,
FAX (613) 448-2588.**

NEWPORT DIGITAL CORP. CIRCLE 246

Accelerator cards for HP 9000 Series 200 plus HP 310 and HP 320. Ten-fold performance improvement. **Call (714) 730-3644.**

OMTOOL CIRCLE 130

Omtool's Fax Sr. is the versatile network fax software based on client-server architecture. Clients are available for Windows, DOS, Macintosh, Windows NT and Motif with server options including Windows NT and HP-UX.

Call (603) 898-8900.

PUZZLE SYSTEMS CIRCLE 158

SoftNet Utilities is a NetWare server emulator for UNIX platforms providing IPX-based services without inhibiting existing TCP/IP or other capabilities, DOS terminal emulation and bi-directional UNIX/Novell printer sharing. SoftNet NFS brings file service capabilities to PC-based Novell servers. NFS enables the Novell server to be mounted and accessed as a standard file server on any Novell network. **Call 408-779-9909.**

QUEST SOFTWARE CIRCLE 268

The only complete HP 3000 solution for:

- 1) High speed network file and database access.
- 2) IMAGE, KSAM and MPE file shadowing.
- 3) Low overhead and network spooling.

Call (714) 720-1434.

TEXAS ISA INC. CIRCLE 245

HP-IB and SCSI Tape and Disk Storage Solutions Experts! Manufacturers of storage solutions for the HP environment for 15 years. ISA provides excellent technology and support at excellent prices. Products include: Floppy, Hard Disk Drives, Optical, DAT, 8mm, QIC, Autoloaders/Libraries/ Jukeboxes and HP 9000/3000 Memory with lifetime warranty.

Call (800) 361-2258 or (713) 493-9925.

UNISON SOFTWARE INC. CIRCLE 499

Unison-Tymlabs is a supplier of networked systems management solutions for both UNIX and MPE. Product areas include workload management, storage management, print automation and desktop integration.

Call (408) 245-3000.

WRQ (WALKER RICHER & QUINN) CIRCLE 263

Makers of Reflection Series Software. HP terminal emulation for PCs and Macintoshes. **Call (800) 872-2829.**

WESTERN SCIENTIFIC MARKETING INC. CIRCLE 480

Western Scientific offers a line of high-performance peripherals to upgrade and enhance your Sun, HP, Silicon Graphics, DEC, IBM RS/6000 and Novell workstations. We configure, integrate and test innovative disk, tape optical, RAID, jukebox and memory subsystems to meet your application requirements. **Call (800) 443-6699.**

The logo for HP Professional, featuring the letters "HP" in a large, bold, serif font, with the word "Professional" in a smaller, sans-serif font to its right.

PASS THE WORD — SAY YOU SAW IT IN HP PROFESSIONAL

latest version of their respective operating systems.

Gear for UNIX offers complete multi-media support, including mastering support for Digital Audio, CD Enhanced, CD-I and VideoCD authored files and MPEG; as well as 3DO, Nintendo and other game platforms. It also offers support for XA Interleaving and XA formats, such as Sony EB, XA Bridge and MMCD.

All Gear software, which is also available in Mac and Windows versions, support 1x, 2x, 4x and 6x writing from virtual and physical modes. It also offers advanced proprietary image mastering options, subcode support and DDP format mastering tape.

Gear 3.2 for UNIX costs \$1,695. The MM version costs \$2,695. Contact Elektroson USA, 10 Presidential Blvd., Ste. 125, Bala Cynwyd, PA 19004; (610) 617-0850.

Circle 383 on reader card

Applied Concepts Releases PowerSwitch

Applied Concepts announced PowerSwitch, a low-cost dual server fault tolerant solution for networks.

To install, simply plug in two or more servers into the Applied Concepts PowerSwitch, add the external storage devices and power up the system. In the event of a primary server failure, or if a server has to be taken down for maintenance, users switch to the back-up server and realize virtually zero down time.

When used with IBM's NetFinity network manager, user can program their configurations to switch to the backup server automatically and notify the network administrators of the main server failure.

Platforms installed with the PowerSwitch include IBM, HP, Sun and Compaq. Novell NetWare 3.x and 4.x, IBM OS/2, SCO UNIX and Windows NT are current installed operating systems. PowerSwitch is available in configurations starting at \$1,995, which includes electronic switching hardware, installation cables and IBM's NetFinity.

Contact Applied Concepts Inc., 9130 SW Pioneer Ct., Wilsonville, OR 97070; (503) 685-9300.

Circle 382 on reader card

Super SEU Supports HP 9000 Series 700s

SBE Inc. announced support for the HP 9000 Series 700 workstations by introducing the Super SEU family of EISA asynchronous serial expansion units. The Super SEU-8 and Super SEU+ provide from eight to 64 ports of asynchronous serial communications for the HP workstations. Both controllers support data rates up to 230 Kbps (115 Kbps full duplex) to accommodate the V.34 standard with 4:1 compression.

The Super SEU-8 features eight ports of asynchronous serial communications. Port connections are established via EIA-232 (DB-25) fan-out cables attached to a DB78 connector on the card edge.

The Super SEU+ is an expandable system of asynchronous I/O that allows HP users to add from 16 to 64 ports with a single EISA card. A cable attaches the EISA board to a 16-port DB-25 expansion module. Additional modules are attached to each other. The expansion module can be set on any flat surface or wall-mounted to save space.

The Super SEU family of boards include HP-UX drives and full installation software.

OUR 15th YEAR

QUALITY HP WORKSTATIONS - WITHOUT THE HP PRICE


RENT · LEASE · BUY

Immediate Delivery On Most Items

- 700 SERIES: Models 705, 710, 715/50, 715/75, 715/100, 735/99, 735, 735/125, 712/60, 712/80, 742rt, 745i, 747i.
- X-STATIONS: ENVIZEX, C270X
- All 300, 400T and 400E Series
- Memory, Features & Disc Upgrades for all Workstations
- CPU Upgrades: 715S/50, 715T/50, 715/50, 715/75, 735, 735/125, 425, 380, 360

More Than 1500 Satisfied Customers Throughout The USA and Worldwide

For technical info, specs or pricing call Mordy or Carol




C.S.U. Industries, Inc.
207 Rockaway Turnpike, Lawrence, NY 11559
(516) 239-4310 FAX (516) 239-8374

CIRCLE 213 ON READER CARD

Introducing the First and ONLY Source of OpenView Information Available!

Focus on OpenView:
A Guide to Hewlett-Packard's Network and Systems Management Platform



Focus on OpenView is the only source for system integrators and application developers that discusses OpenView and the myriad applications that plug into it.

Book Highlights:

- *The OpenView Framework*
- *Systems Management*
- *OperationsCenter*
- *Managing the Physical Network*
- *Managing the Multivendor Enterprise Network*

\$40

HPHQ0795

"This book is the most comprehensive reference on HP OpenView available . . . It is an indispensable resource and real time-saver."
- Jill Huntington-Lee, Consultant, Brandywine Network Associates.

CBM BOOKS Cardinal Business Media Inc. 1300 Virginia Drive, Suite 400
Ft. Washington, PA 19034
Phone: (215) 643-8105 • FAX: (215) 643-8099

Place your order now! Call toll-free
1-800-285-1755

CIRCLE 133 ON READER CARD

Surge protection and full modem control are featured on all ports. The Super SEU-8 and Super SEU+ cost \$995 and \$1,865, respectively.

Contact SBE Inc., 4550 Norris Canyon Rd., San Ramon, CA 94583; (510) 355-7635.

Tektronix Enhances Multimedia Desktops

Tektronix introduced the next generation of high-performance integrated multimedia desktops for the commercial enterprise market. The TekXpress XP400 series X terminals deliver a combination of rapid display manipulation and high-quality digital audio/video capabilities.

The XP400 employs an optional MPEG audio/video co-processor and is capable of displaying multiple high-performance X windows and simultaneously, broadcast-quality video and audio. In addition, the XP400's wide 32-bit I/O architecture is designed to support emerging standards including ATM and 100 Mbps Ethernet.

With Tek XpressWare, an X Window-based information software, the XP400 series can access network mainframe, legacy and UNIX applications.

Standard features include a high performance LSI 33120 RISC processor; 8 MB of RAM (expandable to 136 MB); 2 MB of VRAM; twisted pair Ethernet interface; two RS-232C ports; display; integrated power supply; power cord; and mouse. Options include an advanced MPEG digital video co-processor, audio co-processor, thinnnet and thicknet interface, externally accessed dual-slot PCMCIA interface, flash memory, parallel port, keyboard (as an F-kit) and Sony 20-inch monitor (for the XP419C). A Token ring PCMCIA adapter card also is optional.

The four models — XP400, XP417C, XP419C and XP421CH — range in price from \$2,695 to \$4,795.

Contact Tektronix, P.O. Box 1000, Wilsonville, OR 97070; (503) 685-2838.

Circle 379 on reader card

Lightwave Distributes SystemConsoleSwitch

Lightwave Communications Inc. introduced SystemConsoleSwitch, a controller that allows a single RS-232 terminal to monitor and control an entire data center. The SystemConsoleSwitch connects a terminal to as many as 96 different computers, LAN bridges and routers, and workstations. It attaches to the equipment console port and allows network or data center managers to monitor and

control the attached devices and to observe equipment operation. The SystemConsoleSwitch stores multiple pages of buffer memory for each attached device. Information stored in this memory can be scrolled through to observe activity or diagnose problems with equipment operation. An attached printer can be used to obtain a hard copy of any screen and an external modem can be used to remotely access the SystemConsoleSwitch.

Each SystemConsoleSwitch chassis can

attach up to 12 devices by adding up to six dual-port modules. Dual-port modules can be added at any time to accommodate customer needs.

The SystemConsoleSwitch chassis containing the control circuitry and slots for six dual-port modules cost \$1,195. Dual-port modules cost \$295.

Contact Lightwave Communications, 84 Research Rd., Milford, CT 06460; (203) 878-9838.

Circle 378 on reader card

HP RENTALS
HP RENTALS
HP RENTALS
HP RENTALS



HP WORKSTATION RENTALS



WORKSTATIONS

755	750	CRX	433	S	GRX	382	360	332
735	730	CRX-24	425	T	VRX	362	350	330
725	720	CRX-24Z	425	S	GRX	380	345	320
715	710	CRX-48Z	425	E	PVRX	375	340	310
712	705	GRX	400	S/T	EVRX	370		

AND MORE . . .

Printers	X Terminals	PC's	Discs	800 Series
Plotters	APOLLO DN Series	Memory	Test Equipment	Data Acquisition

TSA is THE place for daily, weekly, monthly or long term rentals of Hewlett-Packard equipment. Ask about our 6-12 month purchase plans. Equipment available for same day shipments!

1-800-422-4872

713/935-1500 • Fax 713/935-1555 • Email: info@tsa.com









2040 West Sam Houston Parkway N. • Houston, Texas 77043

HP RENTALS
HP RENTALS
HP RENTALS
HP RENTALS

CIRCLE 266 ON READER CARD

HEWLETT-PACKARD
BUY SELL
RENT REPAIR
9000 1000 3000 TEST
MEMORY - PLOTTERS - PRINTERS
DISC DRIVES - WORKSTATIONS - DATA ACQUISITION



THE RIGHT EQUIPMENT. RIGHT NOW.
2040 West Sam Houston Parkway N. • Houston, Texas 77043
1-800-422-4872
713/935-1500 FAX 713/935-1555

CIRCLE 228 ON READER CARD

OUR 1988 YEAR
QUALITY HP
EQUIPMENT
WITHOUT THE
HP PRICE

*DON'T UPGRADE YOUR HP SYSTEM
UNTIL YOU GET A SECOND OPINION
FROM THE SECOND SOURCE FOR
HEWLETT-PACKARD
1000-3000-9000 EQUIPMENT*

Consult with us about cost-saving alternatives

- Complete Configurations
- Individual CPUs-Peripherals
- Memory Upgrades and Feature Enhancements
- Classic and Spectrum Equipment

WE BUY
Highest Prices Paid

WE SELL
*All Items Sold Are Guaranteed for HP Maintenance
*Short and Long Term Leases Available

WE TRADE
Over 1000 satisfied Hewlett-Packard users are our
customer references throughout the
United States, Canada, Europe, and the Far East.



C.S.U. Industries Inc.
207 Rockaway Turnpike Lawrence, NY 11559
Ask for Mord: (516) 239-4310
FAX (516) 239-8374

CIRCLE 205 ON READER CARD

HEWLETT-PACKARD 9000
IT'S OUR SPECIALTY.

PRINTERS PLOTTERS
LaserJets DraftPros
DeskJets DraftMasters
Rugged Writers Electrostatics
 DesignJet

WORKSTATIONS
Series 200, 300, 400, 700

We offer large discounts, outstanding service and immediate
delivery. Call us before you buy a printer or plotter!



**TED DASHER
& ASSOCIATES**
4117 2nd Avenue South
Birmingham, AL 35222
(205) 591-4747 or (800) 638-4833
E-mail: sales@dasher.com Fax: (205) 591-1108

CIRCLE 233 ON READER CARD

BUY • SELL • TRADE

COMPLETE HP SYSTEMS AVAILABLE
ALL PERIPHERALS

*All items in stock — immediate delivery
All warranted to qualify for manufacturer's
maintenance.*

ConAm Corporation
Canada/US 800-926-6264
California 310-419-2200
FAX 310-419-2275

CDLA

RENT • LEASE • MAINTENANCE

CIRCLE 210 ON READER CARD

HEWLETT-PACKARD

1000 • 3000 • 9000

BUY • SELL • RENT • LEASE
MAINTENANCE
PROCESSORS • PERIPHERALS • SYSTEMS

EURODATA INC.
(613) 745-0921
Fax: (613) 745-1172
2574 Sheffield Road, Ottawa, Canada K1B 3V7

CIRCLE 283 ON READER CARD

ADAGER

The Adapter/Manager for
IMAGE/SQL Databases
obsoleted the need for database
reloads back in 1978 and became
the de facto standard for
HP3000 systems worldwide.




Sun Valley, Idaho 83353-3000 U.S.A.
Toll-free from Canada and the USA:
Tel 800 533-7346 Fax 800 247-7346
From other parts of the world:
Tel 208 726-9100 Fax 247-8191

CIRCLE 121 ON READER CARD

HP Re-Marketing Specialists Since 1978

9000/1000

**WE BUY
AND SELL:**

700,400,300 WORKSTATIONS
1000 A,E,F SERIES
PRINTERS
MASS STORAGE
MONITORS

MONTEREY BAY
COMMUNICATIONS
tel: 408-429-6144
fax: 408-429-1918

CIRCLE 229 ON READER CARD

HEWLETT PACKARD

Depot Repair

- Expert Depot Repair
- 5 Day Turnaround
- Emergency Exchange Program



1-800-837-0061
216-365-9950 Ohio
216-365-3916 FAX

CIRCLE 171 ON READER CARD

**NORCO COMPUTER
SYSTEMS, INC.**
*Hewlett-Packard Quality
at a NorCo Price*

1000 • 3000 • 9000 • 250

**BUY—SELL
TRADE—LEASE**
Processors, Peripherals
and Systems

21337 Drake Road
Cleveland, OH 44136-6620
FAX: 216-572-0636
216-572-4040 1-800-892-1920
(Outside Ohio)

CIRCLE 221 ON READER CARD

PRODUCT showcase

For more information about
advertisers in this section
PHONE 1-800-237-3017

Allon Computer, Inc.

Quality, Integrity, Reliability
Since 1989

Buying and Selling HP 1000/
3000/9000 Terminals, Plotters,
Disc Drives, PCs,
Workstation Specialists

1-800-808-0851

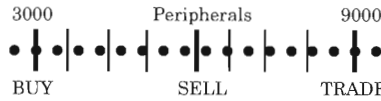
Fax: 813-724-6567

Direct Dial: 813-724-6566

CIRCLE 251 ON READER CARD

TUNE INTO HP

Pre-owned Equipment



WORKSTATIONS
CPUs
DISC & TAPE DRIVES
TERMINALS & PRINTERS
3000/9000 MEMORY

Lynne
Company

(Phone #) 805-489-1564
(Fax) 805-481-3799

CIRCLE 219 ON READER CARD



HARBORSIDE COMPUTER MARKETING

Buy/Sell/Lease All
HEWLETT PACKARD!

Harborside Marketing, Inc.
1010-A Park Court
Safety Harbor, FL 34695
813-799-2009
FAX 813-791-6699

CIRCLE 215 ON READER CARD



I/O Data Systems, Inc.

Buy - Sell - Lease - Trade
HEWLETT-PACKARD
Systems, Workstations
Peripherals, Solutions



(216) 835-2211

27378 W. Oviatt
Bay Village, OH 44140
FAX: (216) 835-0220

CIRCLE 272 ON READER CARD

Surety systems, Inc.

Hewlett Packard Equipment
And Maintenance Services

- HP 9000
- HP 3000
- HP 700 Series Workstations
- HP Peripherals

(713) 466-9455

A World Apart. A Phone Call Away.



Houston, TX. FAX (713)466-9454

SURE-TY (Shoe's-It), n.l. sureness, certainty, 2. security against loss or damage, 3. one who makes himself responsible for another, syn. assurance, commitment, bond, earnest, guarantee, pledge, security.

CIRCLE 226 ON READER CARD

The "HP Experts" for Over 25 Years!



Migration assistance with new HP
hardware, system benchmarking,
software testing, conversions,
system rentals, outsourcing, and
disaster recovery services.

Computer Solutions, Inc.
201-672-6000

CIRCLE 209 ON READER CARD

CONSULTANT showcase

HP CAREER SPECIALISTS

INFOTECH SEARCH GROUP, Ltd.
"Professionals serving Professionals"

- We specialize in the placement of **PERMANENT** and **CONTRACTING** HP talent.
- Let experienced professionals with a proven track record of success **work for you.**

Call Brian M. Donahue or Ned Poole
Phone: 910-538-0123
Fax: 910-538-0126
P.O. Box 2195
Burlington, NC 27216-2195

CIRCLE 109 ON READER CARD

HP SPECIALIST

**CONTRACT &
PERMANENT**

**26 YEARS OF
PROFESSIONAL
EXPERTISE**

DAN KESLER
KEN WALTERS & ASSOC.
6685 FALLS OF NEUSE
SUITE 208
RALEIGH, NC 27615
919/847-7772
FAX: 919/676-1662

CIRCLE 195 ON READER CARD

CAREER opportunities

HP CAREERS NATIONWIDE

PERM AND CONTRACT
OPPORTUNITIES ABOUND!!!!

- MPE or HP-UX SYSTEMS MGMT.
- UNIX and C Development
- Relational (RDMS) DB Administration
- 3GL and 4GL Application Development
- NETWORKING -LAN/WAN's
- PC Support and Development
- Manufacturing or Financial Applications

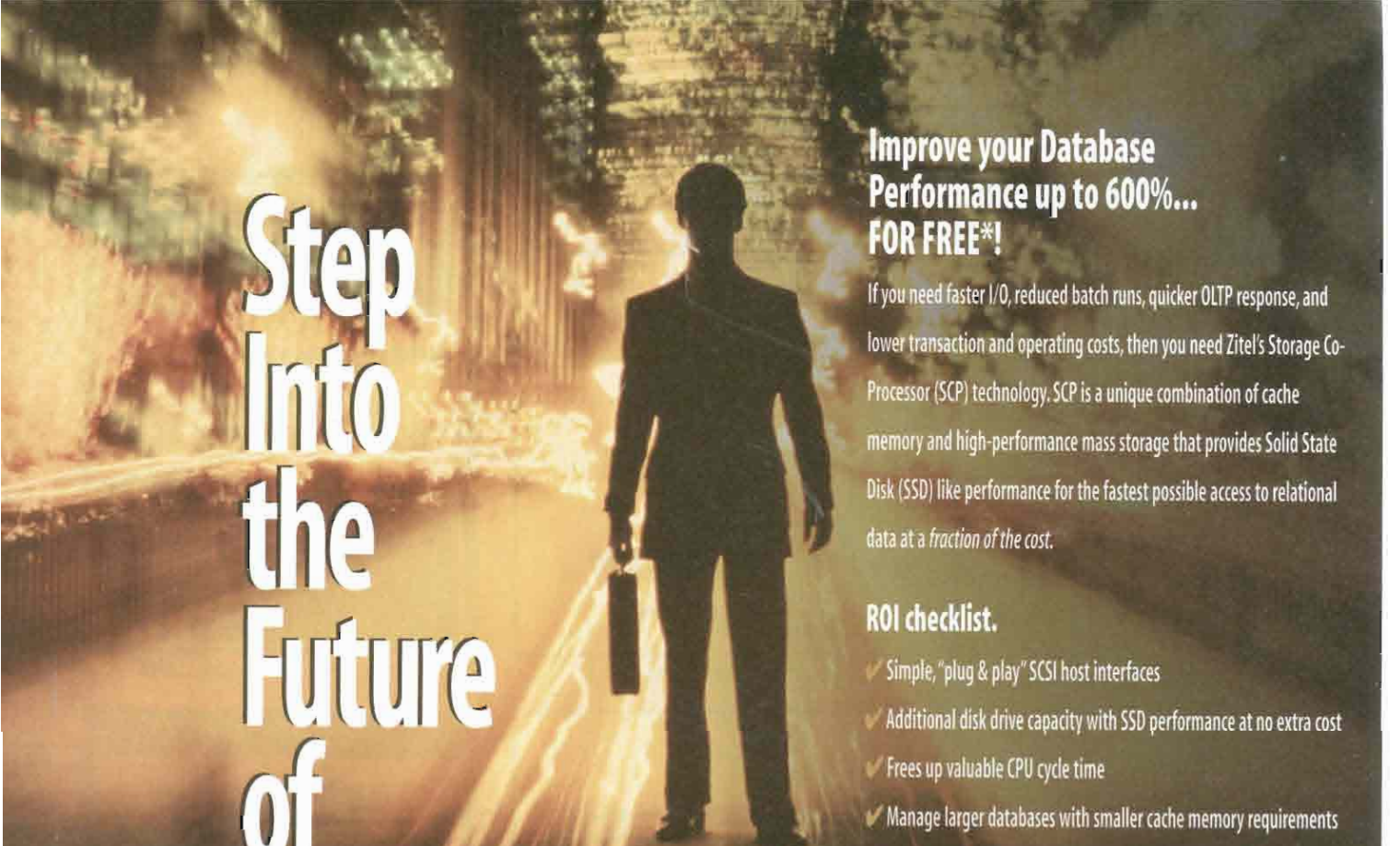
Call - **Amos Associates**



Diane Amos, C.P.C.

633-B Chapel Hill Road
Burlington, N.C. 27215
(910) 222-0231
FAX: (910) 222-1214

CIRCLE 204 ON READER CARD



Step Into the Future of Database Performance.

Improve your Database Performance up to 600%... FOR FREE*!

If you need faster I/O, reduced batch runs, quicker OLTP response, and lower transaction and operating costs, then you need Zitel's Storage Co-Processor (SCP) technology. SCP is a unique combination of cache memory and high-performance mass storage that provides Solid State Disk (SSD) like performance for the fastest possible access to relational data at a *fraction of the cost*.

ROI checklist.

- ✓ Simple, "plug & play" SCSI host interfaces
- ✓ Additional disk drive capacity with SSD performance at no extra cost
- ✓ Frees up valuable CPU cycle time
- ✓ Manage larger databases with smaller cache memory requirements
- ✓ Reduce the number of drives required for RDB performance tuning
- ✓ Instantly improve database performance without manual tuning

Proven designer and manufacturer of High-Performance Storage Products.

A leader in the high-performance storage market for more than a decade, Zitel is known for providing innovative, cost-effective database performance solutions for *mission-critical environments* with over 3,000 units shipped the world over. If you have a need for speed, Zitel has a solution for you.

Increase your Database Performance Today!

We are so convinced you will experience a vast improvement in your database performance with our powerful SCP performance products, that for a limited time to qualified buyers.... *its free**.

Call: 1-800-655-5020

*For more information and details on our FREE 30-day Product Trial Program and the capability to launch your database performance into the Future Today!



zitel

Zitel Corporation
47211 Bayside Parkway
Fremont, CA 94538
Tel: 510-440-9600, Fax: 510-440-9696

©1995 Zitel Corporation. Zitel is a registered trademark of Zitel Corporation. All other product names and brand names are trademarks of their respective owners. All rights reserved.

CIRCLE 249 ON READER CARD

ADVERTISERS INDEX

Reader Service Number		Page
163	Aldon Computer Group	48
242	Artecon	COVER 2
171	Black River Computers	43
220	Brixton Systems, Inc.	5
242	Camintonn Corporation	28
	Cardinal Business Media	50
454	CMI	42
232	Concorde Technologies	14
205	CSU Industries	50
231	Datastructure	43
252	Elektrosen USA	34
192	FutureSoft	30
166	G.E. Capital	46
132	Graymatter Software	39
	Hewlett Packard - CA	12, 13
122	IEM, Inc.	2
167	Innovus, Inc.	44
281	Insignia Solutions Inc.	35
270	Kingston Technology Corporation	1
452	Legasys International	4
123	M.B. Foster Associates	32
472	MiniSoft, Inc.	45
246	Newport Digital Corporation	6
130	OMTOOL	16, 17
256	Penril Datability Networks	21
176	PNY Electronics, Inc.	15
158	Puzzle Systems	42
481	Quest Software	25
483	Quest Software	27
462	Quest Software	29
464	Quest Software	31
268	Quest Software	33
451	RAC Consulting	41
214	Texas ISA, Inc.	47
477	Tryonics, Inc.	COVER 3
137	Technical & Scientific Applications (TSA)	51
139	Unison Software	8
143	Vital Soft, Inc.	23
	Walker Richer & Quinn, Inc.	COVER 4
194	Western Scientific	37
115	Xerox Corporation	19
249	Zitel Corporation	54

UNIX is a registered trademark of AT&T in the U.S.A. and in other countries.

MS-DOS is a trademark of Microsoft Corp.

Macintosh is a trademark of Apple Computer Inc.

X Window System is a trademark of MIT.

Windows is a registered trademark of Microsoft Corp.

Windows NT is a registered trademark of Microsoft Corp.

NetWare is a registered trademark of Novell Inc.

ADVERTISING SALES OFFICES

Leslie Ringe, Publisher
(215) 643-8070

EAST COAST, MIDWEST (201) 746-5635

Joseph Bigley, Regional Sales Manager
64 Elston Road
Upper Montclair, NJ 07043
FAX (201) 746-5937

SOUTHCENTRAL (215) 643-8070

Leslie Ringe, Regional Sales Manager
1300 Virginia Drive, Suite 400
Fort Washington, PA 19034
FAX (215) 643-8099

NORTHERN CALIFORNIA, NORTHWEST, WESTERN CANADA (415) 873-3368

Judy Courtney, Regional Sales Manager
903 Sneath Ln., Ste. 220
San Bruno, CA 94066
FAX (415) 873-6608

SOUTHERN CALIFORNIA & SOUTHWEST (714) 974-0555

Karin Altonaga, Regional Sales Manager
446 S. Anaheim Hills Rd., Ste. 161
Anaheim Hills, CA 92807
FAX (714) 974-6853

EUROPE 33 42 93 27 63

Fran Grega, European Sales Manager
4 Terrasses St. Jerome
8 Avenue de la Cible
13100 Aix-en-Provence France
FAX 33 42 27 21 17

ASIA 65 291 9861

Margaret Liu, Asian Sales Manager
Keith Chin, Account Manager
BLK 105, Boon Keng Road
#04-17, Singapore 1233
FAX 65 293 1445

Cheryl DeMaioribus, Marketing Services Manager
Judy Courtney, Card Deck Manager
Cathy Dodies, List Rental Manager
Lisa Merck, Product Showcase Sales Manager



1300 Virginia Dr., Ste. 400
Fort Washington, PA 19034
(215) 643-8000 FAX (215) 643-8099

Stick With What Works

Develop Softly, But Carry A Big Stick



By Gordon McLachlan

When I look at all the languages and development tools out there: Object-oriented programming (OOP) languages, visual programming languages, event-driven programming languages, and standard, non-standard and substandard programming languages, I'm more than a bit confused. Which brings to my troubled mind a story from my childhood about *The General*.

The General was a shell-shocked veteran who wandered around our neighborhood. He was smartly dressed in a military uniform. Carrying a swagger stick, the General always looked like he was going somewhere. And sometimes, he even looked like he knew where that might be.

The accepted protocol was to give the General the benefit of the doubt. Our mothers had warned us about strangers. And at the time, it seemed they didn't get much stranger than the General. But one day, one of my buddies got the nerve to ask the General what the stick was for.

"It keeps me from getting lost," said the General.

"How's it work?" asked my friend.

"I don't know," said the General, "the damn thing is broke."

Wandering around was the General's job. And as you might imagine, anything that would keep him from getting lost would make that job a bit easier. Can you blame him for wanting a decent tool to get his job done. That's not crazy. That's prudent. Maybe he just picked the wrong tools.

People buy crystals for their healing power and go to church to worship inanimate objects, which are supposedly filled with some kind of holy spirit or another, but we don't call them crazy. So why get on the General's case for his stick?

We're always looking for some magical solution to keep us out of trouble or — mostly — to get us out of the trouble we're already in. It's not surpris-

ing then that we expect supernatural salvation to always be around the corner. Too bad we can't always find it.

The General, at least, knew his stick wasn't working, showing he wasn't completely deluded. And he never made any claims about why it should work, which puts him ahead of most of us. We're always full of reasons about why tools that don't work should have worked just perfectly.

I don't know if the General's swagger stick ever worked. Maybe someone told him it would keep him from getting lost (probably the guy who sold it to him). Or maybe the General thought he got lost a little less often when he carried it with him. Either way, I doubt he had any empirical evidence to back up his faith in that stick.

But how many of us place the same blind faith in the software development tools we use? Are you coding in Visual Basic, C, COBOL or some 4GL because you absolutely, positively know that it's the best tool for the job. Or, is there another reason? Is there any empirical evidence that lends credence to your choice?

I think not. Maybe you're just using what's available on your platform, or something cheaper than the alternatives, or maybe you're just following tradition. Like the General, maybe? What choice did he really have? To his credit, the General's stick was certainly cheap enough. He would have been in big trouble if he had been trying to get a magic Jeep to drive him home. A talking dog might have been better, but then he would have to feed it. A burden for the General on his disability pension.

So, the General stuck with his stick. We should all be so crazy.

McLachlan's Internet address:
mclachlan@cardinal.com

Renewable Resources

You wouldn't let a good thing go to waste. And neither would we. That's why Tryonics is dedicated to bringing you the highest-quality remanufactured UNIX workstations on the market today.



Whether you're looking for affordable workstations to add to your current

environment — or looking to offload excess, rarely used, or old equipment — we can help. Tryonics can even help you efficiently market and dispose of your surplus equipment.

Tryonics, the leader in workstation remanufacturing and Asset Management Services, can bring you the best return on your investment. If you're selling excess equipment, we'll help you get the maximum return. And if the equipment has to be discarded, we'll ensure that it's done properly. Because we're committed to using environmentally friendly processes to recycle more than 99% of returned equipment into usable parts and products. Renew, reuse, recycle. With Tryonics.

Deal with the best — Tryonics.
Call us at 800 551-6236.

Tryonics

MONDAYS,
AS DESIGNED BY
NETWORK PROFESSIONALS.

ENTERPRISE-WIDE
CONNECTIVITY, AS DESIGNED
BY NETWORK PROFESSIONALS.

If it were up to you, your hard work would finally pay off. Mainframes, PCs, minicomputers and servers would all fit together seamlessly, and Monday would be just another day at the beach.

REFLECTION® SOLUTIONS

REFLECTION PC-TO-HOST CONNECTIVITY SOFTWARE

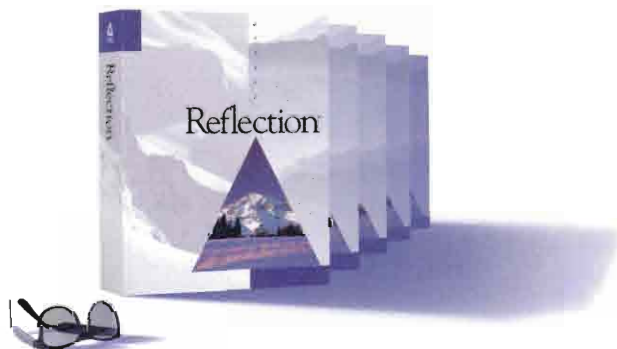
- ▲ UNIX, X, HP, DIGITAL, AS/400 AND 3270 CONNECTIVITY
- ▲ WINDOWS, DOS, AND MACINTOSH PLATFORMS
- ▲ INTUITIVE OPERATIONS, FAST FILE TRANSFER, ADVANCED TEXT AND GRAPHICS EMULATION, AND POWERFUL PROGRAMMING TOOLS

REFLECTION NETWORKING SOFTWARE

- ▲ COMMUNICATIONS: TCP/IP, UDP, LAT, NS/VT, IPX/SPX, SLIP, CSLIP
- ▲ ARCHITECTURE: VxD/DLL DESIGN; 100% WINDOWS SOCKETS COMPLIANT
- ▲ FULL-FEATURED APPLICATIONS (FTP, LPR/LPD, INTERNET ACCESS)
- ▲ EASY CONFIGURATION AND MANAGEMENT
- ▲ OPTIMIZED FOR MOBILE/WIRELESS COMPUTING

AVAILABLE AS SLIDES AND INDIVIDUAL PRODUCTS, TAILORED FOR ANY ENTERPRISE CONFIGURATION.

CALL 800.926.3896 IN EUROPE, CALL +31.70.375.1100
OUTSIDE EUROPE, CALL 206.217.7100.
INTERNET: sales@wrq.com WEB: <http://www.wrq.com>



Impossible? Not with Reflection® from WRQ. Reflection offers complete, integrated PC connectivity software for your entire enterprise—including transport protocols, PC X server software, and terminal emulation. All with the management features, open standards, and service and support you need.

To try connectivity designed from your point of view, call today for a free evaluation copy. We'll make sure that from here on out, your Mondays go swimmingly.

For a FREE evaluation copy,
of any Reflection® product, call

800.926.3896

 **Reflection®**
CONNECTIVITY FOR A CHANGING WORLD



WALKER RICHIE & COMPANY, INC. • 11500 DODDSTER AVENUE NORTH, SEATTLE, WASHINGTON 98108 U.S.A.
FAX: 206.217.0253 ▲ BUITENPOST 47,2513 APT DEN HAAG, THE NETHERLANDS / FAX: +31.70.375.1100
WUHLHART & HAUKE, HEINRICH-HEINE ALLEE 35, 40213 DÜSSELDORF, GERMANY / FAX: +49.2123.3660
▲ WRQ AND REFLECTION ARE REGISTERED TRADEMARKS OF WALKER RICHIE & COMPANY, INC.
© 1998. OTHER TRADEMARKS ARE THE PROPERTY OF THEIR RESPECTIVE HOLDERS.