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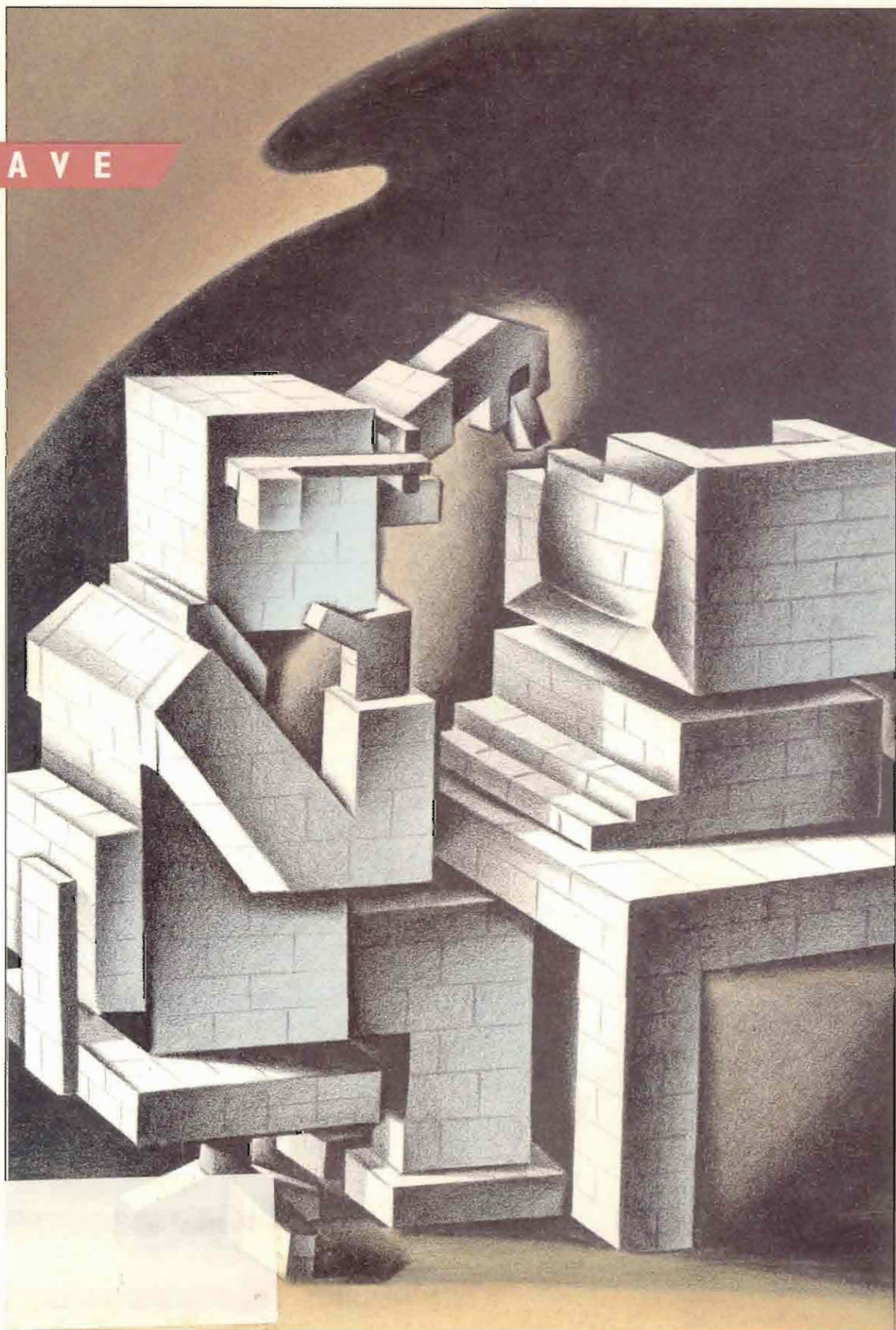
THE INDEPENDENT MAGAZINE FOR NEWWAVE COMPUTING ▲ VOL.6 NO.4

APRIL 1992 ▲

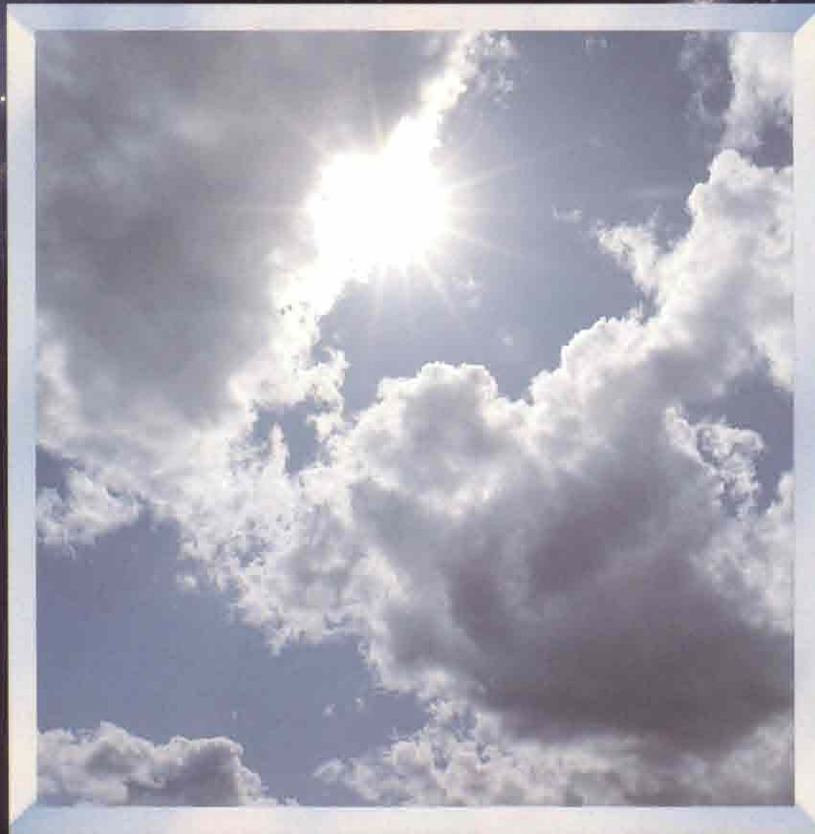
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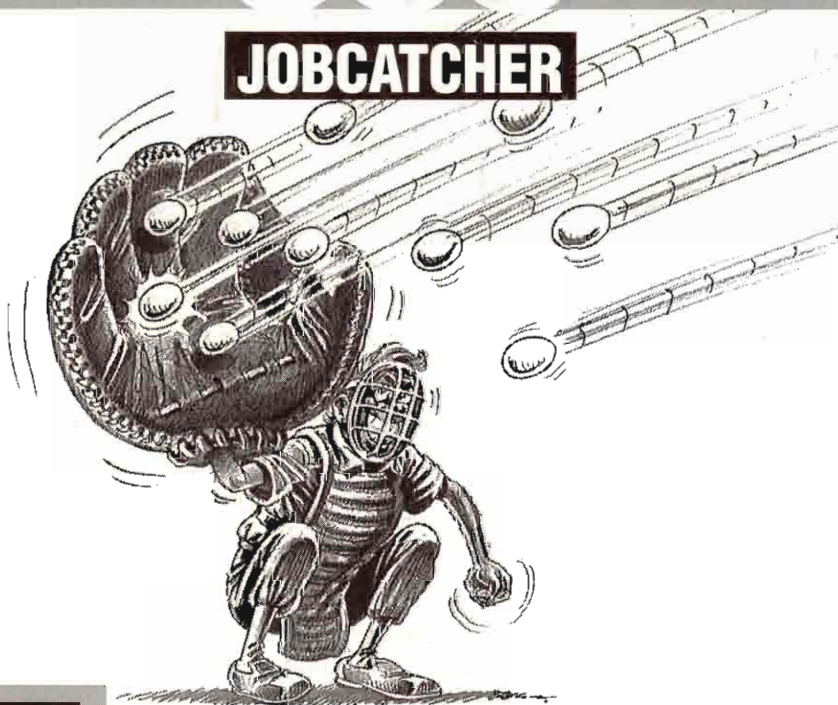
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by Mark Andresen*

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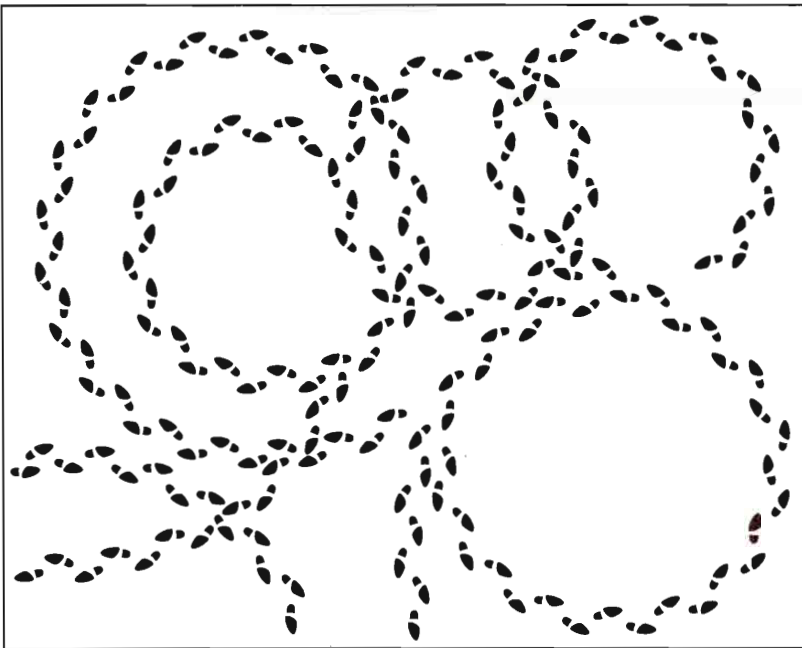
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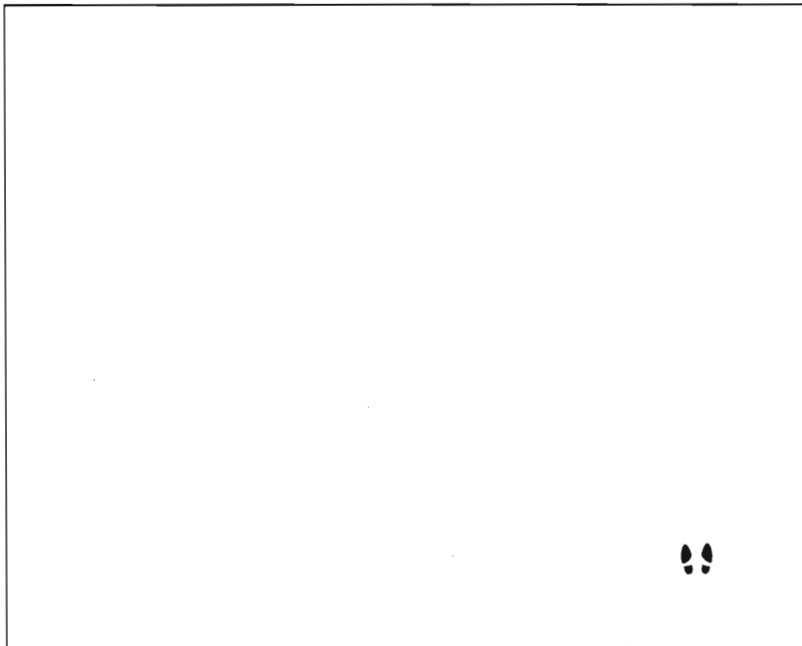
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HP PROFESSIONAL ISSN 0986145X is published monthly by Professional Press, Inc., 101 Witmer Rd., Horsham, PA 19044. Subscriptions are complimentary for qualified U.S. and Canadian sites. Single copy price, including postage \$4. One year subscription rate \$30 U.S. and Canada; \$60 foreign. All orders must be prepaid. For reprints, contact Reprint Management Services, 505 E. Airport Rd., Lancaster, PA 17601; (717) 560-2001, Fax (717) 560-2023. Second Class postage paid at Horsham, PA 19044, and additional mailing offices. POSTMASTER: Send all correspondence and address changes to HP PROFESSIONAL, P.O. 616, 101 Witmer Rd., Horsham, PA 19044. COPYRIGHT © 1992 by Professional Press, 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 Professional Press, Inc. at the sole risk of the sender. Neither Professional Press, Inc. nor HP PROFESSIONAL magazine are 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.

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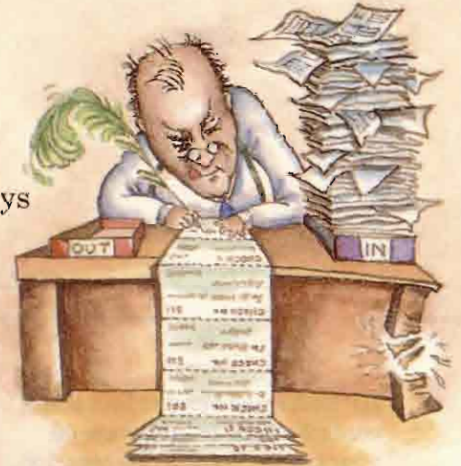
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CIRCLE 265 ON READER CARD

Choosing Allies



By Grant Evans

So far, it's been a very kinetic year in the PA-RISC world — and the timing couldn't be better. HP has gone to great lengths to ensure PA a prominent position in the future of commercial and technical computing. With all major hardware vendors embracing RISC and incorporating it into their near-term schemes, HP is firmly entrenched in the RISC field — the stage for the battle that will change this industry forever.

When you think about it, the future of computing is taking shape as we speak. In that future, the only CPUs will be HP-PA, DEC Alpha, IBM RS and Intel 586. From these building blocks, you will be able to build anything you want. In that future (read: now), CPUs are no different than memory chips — a pure commodity. There are no more CISC HP 3000s, no more CISC VAXs, and no more CISC Motorola 68XXXs. Apple and IBM are in the process of moving Macintosh to RS.

The matter of who wins the battles in this war relies heavily on enlisting vendors to use these building blocks in their products. Therefore, strategic alliances are crucial. This doesn't necessarily mean that DEC, HP, IBM and Intel should run out and establish as many relationships as possible to promote their respective architectures. The emphasis should be on quality and diversity rather than quantity. To this end, HP has wisely and carefully spread PA-RISC across a wide and diverse assortment of hardware platforms.

Close on the heels of HP's late-February introduction of a speedy new implementation of its PA-RISC chip comes an alliance that underscores HP's contention that PA-RISC is one of the most highly scalable architectures on the market today. Through this pact with supercomputer maker Convex Computer, HP not only gains a small but important ally in the RISC wars, but positions PA-RISC as the first architecture to span a range of products from low-end workstations to massively parallel systems.

Under terms of the agreement, Convex will adopt PA-RISC technology for future generations of parallel processing systems. According to Convex CEO Bob Paluck, these systems are already under development. Also, HP and Convex will exchange core technologies — with Convex gaining HP RISC compiler technology in exchange for its own supercomputer know-how and compiler technology. Convex

will be able to purchase PA-RISC components for use in future machines as well.

The deal also includes a yet-to-be signed bilateral OEM agreement through which Convex will be able to purchase and resell HP workstations and multiuser systems and HP gains the right to resell Convex products. As a way of cementing the relationship, HP will make a five percent equity investment in Convex, with an option to increase its equity in the future.

Despite the potential represented by this affiliation, HP recognizes that a single alliance will not do enough to advance the PA-RISC campaign. Remember, there's a war brewing out there.

As I write, HP is a few days away from formally announcing the formation of PRO, an industry association dedicated to advancing PA-RISC. From what HP tells me, this isn't intended to be another mega-consortium in the ACE mold, but is designed as a tight, synergic league working to make PA-RISC products more widely available than ever before.

One thing that HP hasn't yet done (who knows, maybe they'll announce it in conjunction with PRO) is position itself as a full-fledged merchant of semiconductors. DEC has done this with its Alpha chips. If I wanted to, I could pick up my phone right now, call DEC, and buy Alpha chips for my own use. It's a great way to get Alpha out there, and the same principle could go a long way toward promoting PA-RISC. When or if HP will make such a decision remains to be seen. In the mean time, there's PRO and the Convex pact.

I've heard a number of people scoff at the idea of yet another industry group formed to advance the cause of this or that technology. They say it won't work or that it's just a waste of time and effort — a lot of sizzle and little steak. But there are likely to be a number of winners in the RISC wars — in fact, that's probably the best scenario. If one vendor wins and the technological leapfrogging ceases, then we all lose. So there's no harm in entering such a crucial battle with a well-armed, organized militia.

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CIRCLE 246 ON READER CARD



INDUSTRY WATCH

Bill Sharp

In mid-February, HP made an agreement with the Sys-

tems Sales Division of Ingram Micro Inc., a wholesale distributor of micro-computer products. The deal calls for Ingram to function as a distributor of HP Apollo 9000 Series 700 workstations and X stations to VARs in the commercial marketplace.

So starts the opening number in a slow but intense ballroom competition between major players on the workstation dance floor — the dance of the dirigibles, if you will.

DEC, HP, IBM and Sun will be moving across the ballroom with various partners such as VARs and distributors. They will dance a succession of fox trots and waltzes, cha-chas and rhumbas in time to the magnificent music of money.

The prize money in this competition is significant. At the same time that demand slows in the traditional technical workstation market, it is growing rapidly in the commercial market and in other small vertical or specialized markets. Of the workstation vendors, only IBM has much experience selling in volume to the commercial market, and all of the players still are learning how to sell to small vertical markets.

So the key to stepping out in style is finding a willing partner who knows the moves well and can help keep your tangos untangled as you dance into new and unfamiliar places. This is particularly challenging when you're of such a size that you cannot look down to watch your own feet.

Perfect Pair

Ingram now serves as the partner of choice for HP. The new pair swirls and

glides from ballroom to boardroom in their smoothest commercial waltz, trying to move as one. This is the way vendors extend their markets.

Lynne Ovington, workstation channel manager for HP, has been watching this waltz for a while, and in fact is choreographer for the new team. She understands why HP needed a new partner. "Sales representatives used to sell one unit for \$50,000," she says. "But when you've got boxes selling for \$5,000 to \$10,000 a direct sales force is extremely expensive. If they aren't working on large-scale, long-term profitable business, you cannot afford them."

So HP is better off hiring on the expertise of companies who already are out in the markets it wants to reach and who can therefore do the job at a lower cost. Ingram has agreements with 600 hardware and software companies, with a reported 60,000 customers in 65 countries and distribution operations in the U.S. as well as in Canada, the United Kingdom, Belgium, France, The Netherlands and

Dance Of The Dirigibles

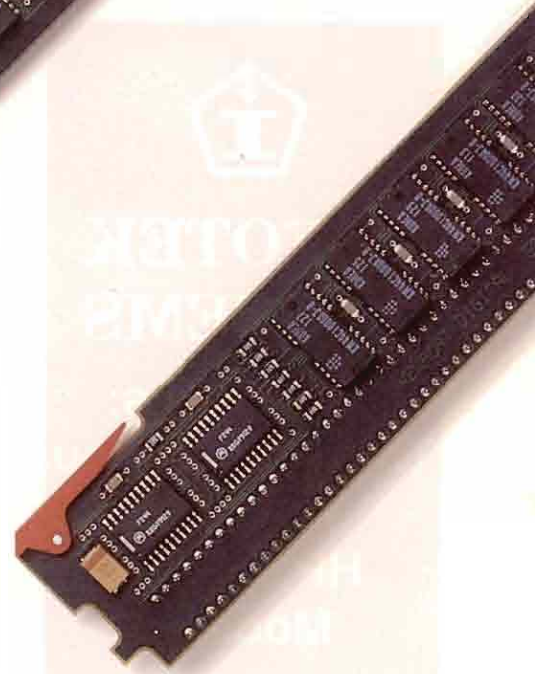
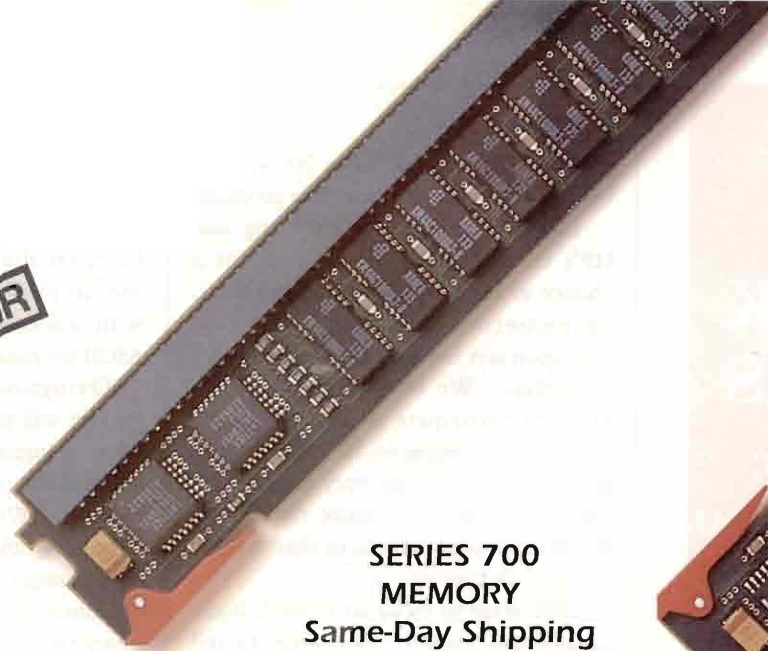


Italy. In 1991, the company reached \$2 billion in sales, which is not just the same old samba.

"We have been extremely impressed with [Ingram's] work with VARs," says Ovington. "[The company has] invested a great deal in the infrastructure and in the quality of people it takes to drive a high-end program in commercial hardware and software."

Taking Success On The Road

If it works and works well, HP greatly broadens its repertoire of fancy footwork in the marketplace, reaching dance floors across the nation that heretofore simply have been out of reach. The payoff for this is much more than increased sales of workstation products, says Ovington. "As we are able to broaden our channels, we become much more attractive to independent software vendors (ISVs)." She says HP's new Model 710 and 705 systems in low price ranges have excited many ISVs, who are coming to HP with



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CIRCLE 196 ON READER CARD

proposals to port to Series 700 systems before they get onto competing products.

Likewise, resellers are crowding into HP's corner of the dance floor for a chance to take a turn around the floor. So numerous are these offers that Ovington says her dance card often is full these days. "We are choosing who we want to participate in our programs. People are coming to us instead of us going to them. We are very discriminating because we have more distributors and resellers approaching us than we feel it is wise to take on.

"We want to focus on limited, high-quality distribution. We want to sell thousands of units to hundreds of resellers rather than hundreds of units to a thousand resellers."

Lee Levitt, director of distribution channels research for International Data Corp., (Framingham, MA), notes that HP is not alone in focusing on commercial distribution. "DEC has pretty good access to smaller commercial VARs and some long relationships. Sun wants to be there

and is being quite aggressive. IBM is still in a sit back and wait position. They have 40 to 50 dealers with some value added." He notes that many VARs in the commercial market are not yet comfortable with workstations and are "still selling ASCII terminals."

Ovington feels HP's dances with Ingram will play well with the audience because Ingram has agreed to doing the workstation quick step with no other partners. "We are the only workstation Ingram is offering," she says. They will be focusing on VARs who market vertical solutions to small and medium-sized businesses and workgroups.

Ingram has been dancing more and more frequently with HP of late. The pair agreed to do a NewWave waltz in January 1991, followed up with a faster Series 800 commercial systems cha-cha last September, and now are just starting a Series 700 fast systems fox trot.

However, sources close to both firms have made one thing perfectly clear in this election year: no jive. ■

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HP Rounds Out Performance Tuning Line

PerfView Prescribed For Multivendor Performance Management

HP added another layer to its family of performance management software products this month with the announcement of HP PerfView, a site-wide performance management solution for multivendor systems.

Performance management products from HP prior to PerfView either take a high-level look as in HP OpenView, the network management platform software, or get down and dirty at the node or workgroup level, as is the case with GlancePlus, LaserRX, RXForecast and Software Performance Tuner. PerfView sits between these two levels and comes in two versions.

■ PerfView 1 interacts with node-level diagnostics, reacting to site-level alarms for management by exception and using node-level intelligent data capture capabilities.

■ PerfView 2 provides proactive site performance management through historical trend analysis, alarm and event analysis, environment modeling and performance prediction.

PerfView allows users to

isolate and characterize system performance problems in complex systems by first narrowing the problem down to one node, and then making use of lower-level node systems to isolate the specific problem.

Wayne Morris, product line manager for performance management solutions at the HP Software Technology Center, Roseville, Calif., notes that while OpenView looks at TCP/IP management, PerfView supports not only TCP/IP but X.25 performance management as well.

Integration with OpenView enables use of the network mapping and graphic display capabilities of OpenView to simplify use of PerfView. Using PerfView by itself provides system status in text form. Using it in conjunction with OpenView generates results in graphic form using OpenView's mapping capabilities, with trouble-spots highlighted.

Because HP will supply data collection technology for several other vendors' platforms, says Morris, "PerfView can be used to monitor performance of proprietary sys-

tems from other vendors, not just for HP equipment." Users now have networks of up to tens of thousands of systems, he says, ranging from "a thousand or two workstations in a distributed environment to three or four hundred servers linked to 10,000 or more desktops." These often use products from multiple vendors, making performance management more fearsome.

Performance management

is high on HP's list of software market opportunities. HP OpenView has won wide acceptance as a platform for network management software and HP is clearly aiming to build on that success. Pricing for the new product varies considerably depending on the system, but start at about \$30,000 and can range to \$150 or more for large installations, says Morris.— *Bill Sharp, Technical Editor*

SNAPLUS Spells IBM Connectivity

Client-Server Products Facilitate Integration Of HP Systems Into IBM SNA Networks

HP recently beefed up its connectivity options for IBM mainframe environments with the introduction of the HP SNAPLUS product line. Based on a client-server architecture, the SNAPLUS line enables those companies seeking a mainframe alternative to integrate distributed HP workstations and mid-range systems with their existing IBM Systems Network Architecture (SNA) mainframe environments.

Essentially, SNAPLUS represents the consolidation of HP's multiple sets of IBM SNA communication products in one set of client-server products. Under the old model, HP systems — from PCs and workstations to business systems and servers — offered similar IBM communication capabilities, but with disparate feature sets. As a result, different system families could not share server access

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into the SNA environment.

The SNAplus client-server architecture provides a consistent set of capabilities and features across all HP hardware platforms.

The first three SNAplus products announced by HP include:

HP SNAplusLink — Provides the basic data-link ac-

cess across SNA networks. The link and server software are combined into an add-on card and software product.

HP SNAplus 3270 — Software enabling HP systems to emulate IBM 3278 terminals and 3287 printers.

HP SNAplusAPI — API software allowing multiple HP systems to access SNA

host and peer systems concurrently using LU6.2, a protocol used by two transaction programs to communicate as peers. It allows applications to be written and distributed across a network and work together to accomplish a single processing task.

The first SNAplus products are available for HP Apollo 9000 Series 400 and 700 workstations, HP Series 300 workstations and Series 800 business servers. The second phase of the program, scheduled for late 1992, will allow

greater connectivity with Token Ring and SNA over X.25, as well as file transfer capabilities, interactive graphics and the ability to develop applications with NetView API and LUA API.

HP plans to provide full integration of its product lines, including the HP 3000 Series 900 line. The HP 3000/900 already provides extensive SNA communications which are not based on a client-server model. —*Grant Evans, Managing Editor*



Software AG, HP Forge Software Alliance

UNIX-Based Products To Run On HP 3000

HP's Mainframe Alternative program gained more momentum at last month's Downsizing Expo in Chicago when Software AG and HP announced a joint effort to make a number of Software AG's UNIX-based products available on the POSIX-compliant HP 3000 family of business systems.

The agreement calls for Software AG's ABADAS, Natural and Network products to be ported to the HP 3000 with general availability scheduled for the fourth quarter of '92. HP says the port will allow users to port applications written in ABADAS/Natural to the HP 3000, platform, thereby extending the mainframe-class development tools and databases offered on that platform.

According to Willem P. Roelands, HP vice president and GM of the Networked Systems Group, the deal provides HP 3000 customers with the advantages of Software AG's UNIX-based products and the system reliability of MPE/iX.

Peter Page, executive vice president of Software AG, noted that many of his company's customers want to offload and extend their ABADAS/Natural applications from mainframe systems to a client-server environment without sacrificing processing power.

In addition to the deal with Software AG, HP has enlisted SAP and Accordus to port their UNIX-based software to the HP 3000 platform.

Cincom Ports To HP-UX

Mainframe-Class Manufacturing And Financials To Run HP 9000/800

Cincom Systems (Cincinnati, OH) and HP recently announced an agreement to develop and co-market mainframe-class manufacturing and financial software for the HP 9000 Series 800 line of business servers.

Under terms of the pact, Cincom will port its Control: Manufacturing (C:M) product to the HP 9000 platform running under HP-UX. HP characterizes the agreement as an integral component of its burgeoning Mainframe Alternative strategy, and said that the agreement underscores the acceptance of UNIX-based systems in the commercial sector.

Under a three-phase delivery plan, Manufacturing modules of Control will be available in winter of 1992, with financial and distribution modules slated for availability in the fall/winter 1993 frame.

C:M is a fully integrated business solution that support manufacturing, distribution and financial management applications. It provides solutions for multinational manufacturers in the discrete, repetitive, project-oriented and batch-process industries.

According Cincom vice president William L. Dorece, the decision to migrate to an open architecture was prompted by customer demand for a multiplatform solution. Dorece noted that HP's "credibility and momentum in the commercial UNIX market and proven leadership in manufacturing made them an obvious choice."

Cincinnati-based Cincom, founded in 1968, is one of the world's largest software companies, with more than 60 offices and 1,400 employees.

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SunGard Launches HP Disaster Recovery

Midrange Offerings Expanded Includes HP 3000 Sites

Disaster recovery giant SunGard Recovery Services (Wayne, PA) recently announced its entry into the HP disaster recovery arena with a complete set of services offered to HP 3000 Series 900 sites.

SunGard, which offers disaster recovery services for

a wide range of systems throughout the country, has installed an HP 3000 Series 960 and associated peripherals in its Warminster, PA MegaCenter. This facility also houses the company's Unisys disaster recovery site.

In addition, SunGard now offers its HP subscribers

hotsite and coldsite access, on-site and remote testing, and comprehensive recovery networking.

According to Joshua Dayanim, SunGard manager of product development, the addition of HP disaster recovery complements the company's existing midrange

disaster recovery offerings. "There are more than 13,000 HP 3000 processors installed across the nation," said Dayanim. "With the advantages afforded by the line's RISC architecture, and its increasing use in mission-critical application, we see this as a growing market."

For Your Information

■ Softool Corp. allied with CenterLine Software whereby Softools' CCC/Manager will be integrated with CenterLine's CodeCenter and Object-Center. Softool's CCC/Manager provides a flexible environment for software change and configuration management. CodeCenter and Object Center are programming environments. They provide tools necessary to create, debug, test and enhance C or C++ applications. (805) 683-5777.

■ Hewlett-Packard agreed to purchase Tynlabs' Formation and Formation/2680 for HP's internal use. Formation is an electronic forms solution that lets HP 3000 users eliminate the costs and delays of using preprinted forms. It runs on Classic and Spectrum systems and supports HP LaserJet printers and the HP 5000 printers. Formation/2680 adds support for HP 2680 page printers. (512) 478-0611.

■ R-Squared cancelled plans to merge with distributor Andataco Computer Peripherals. Contingency plans included an expansion into three workstation markets, including HP, and the open-

ing of sales offices. Vendor agreements for support, marketing and sales and other services are being developed with storage supplier, Maxopix Corp. and Auspex, a provider of network servers and services.

■ The Apollo Domain Users Society (ADUS) changed its name to Interworks (The International Hewlett-Packard Users Group) to reflect the broadening focus of the workstation users group to encompass all HP workstation users. Interworks membership is free and open to anyone who uses HP-UX or Domain/OS-based workstations. The annual conference, Interwork's '92, will be held in New Orleans, LA, August

23-27. (508) 256-6600.

■ HP and Advanced Digital Information Corp. agreed that ADIC will offer HP's 3 1/2-inch DAT mechanism in its DAT Autochanger. HP also will make the HP35472A and HP 35482A DAT autochanger products available to its major OEM customers providing, 24 GB or up to 96 GB of storage capacity respectively. (800) 336-1233.

■ HP introduced an enhanced memory version of its HP 95LX palmtop PC, containing 1 MB of RAM. The company also introduced a new 1 MB RAM card for the palmtop. HP says a memory upgrade for owners of the original 512-KB HP 95LX is available now through Dec. 31, 1992.

Prices for the upgrade are, \$779 for the HP 95LX, 1 MB; \$699 for the HP 95LX, 512-KB and \$599.95 for the 1 MB card.

■ Dynamic Information Systems Corp (DISC) signed an agreement with On-line Data System Inc. to include the EasyWindows product with every copy of DISC Omni-Window sold. (303) 444-4000.

■ Walker Richer & Quinn will hold its PPL for Windows Developers Conference on June 23 to 25 at the Hyatt Regency in Burlingame, CA. PPL for Windows is a client-server development tool. (206) 726-7209.

■ The Greater Houston Regional Users Group (GHRUG) will hold a meeting/vendor show June 9 at the Hobby Airport Blvd., Houston, TX. (713) 578-8090.

■ HP's Manufacturing Productivity Operation (MPO) will host its fourth annual users conference for users of MPO's manufacturing, financial and maintenance software applications. The conference will be held May 31 to June 3 at the Hyatt Regency, in Hilton Head, S. Carolina (408) 553-3812.



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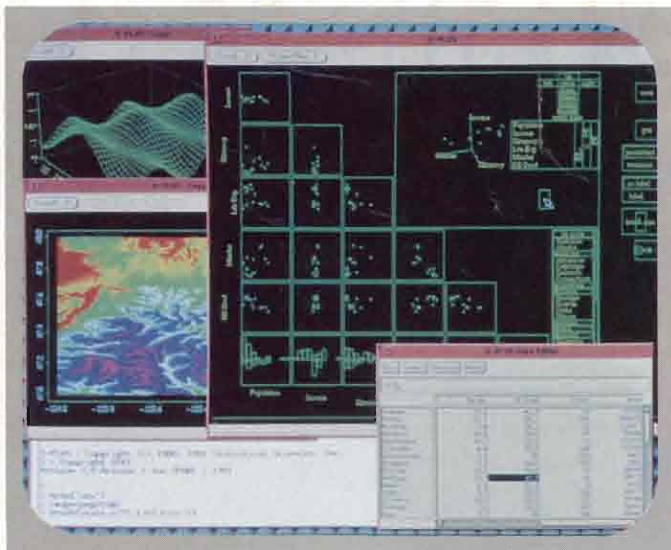
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Final Analysis



**S-PLUS From StatSci
Presents A Graphic
Tale Through Plot
Twists And Curves**

Data that can't be clearly presented to others is about as useful as a graphic presentation lacking all pertinent data.

S-PLUS from StatSci (Seattle, WA) delivers an interactive graphical data analysis, statistics and programming environment for DOS computers and graphics workstations. Used for exploratory data and statistical analysis, mathematical computing, dynamic and presentation graphics, S-PLUS will be considered a classic in fields where analysis and presentation closely follow research, such as medicine, engineering, manufacturing, teaching, business and finance.

S-PLUS 3.0 supports X11, OPEN LOOK, Motif, Apollo and SunView. S-PLUS graphics and statistical analysis are generated through expressions, entered according to the S-PLUS syntax. They form an object-oriented programming language, like the UNIX shell.

S-PLUS presents and analyzes data through data structures called components, including vectors, 2-D matrices, 3-D or more arrays, and lists, which are collections of mixed components.

Once an analysis is complete, the "results" can be saved as a new independent object; an object to be displayed on a monitor, sent to a printer, or used as statistical or mathematical input.

The basic statistic features of S-PLUS include descriptive summaries, Student's t-test, Chi-square test, Wilcoxon rank sum test, Binomial test, Mantel-Haenszel test, and probability distribution. Mathematical features include Eigenvalue analysis, IEEE special values, and Mathematica interface. The analysis chapter of S-PLUS covers time series such as ARIMA models; Spectral analysis and Fourier transforms; and Survival analysis.

Although S-PLUS is a statistics tool, viewing the analyzed data graphically is where the plot thickens. S-PLUS delivers exploratory to final publication analysis graphics that are presented on screen or sent to a PostScript or LaserJet printer. Data analysis tools such as 3-D rotatable and linked graphics and dynamic FORTRAN and C loading help you customize your graphics.

You control all aspects of a graphic, or plot, including axis labels, tickmark placement and size, titles, text within the plot region, the number of curves, point and

line types and color. System defaults, which are user changeable, take care of simple parameters so you don't get bogged down in unnecessary details.

S-PLUS has both univariate and multivariate plots. Univariate plots include histograms scatterplots, pie and bar charts, and box plots. Multivariates consist of 2-D histograms, hierarchical cluster trees, QQ, star, mulbar, symbol and step plots; as well as Chernoff's faces, USA maps, perspective and contour plots, image graphics, (both grayscale and color), time series plots and spectral plots.

S-PLUS runs on HP 9000 workstations running HP-UX 7.0 or higher, and Apollo systems running Domain 10.2 or higher. Other vendors' platforms also are supported.

S-PLUS prices range from \$2,800 for a single user through \$6,800 for five to eight users, to \$16,000 for 25 to 32 users. This price includes object code, manuals and a complete system with statistics and graphics functions. — *Charlie Simpson, Technical Editor*

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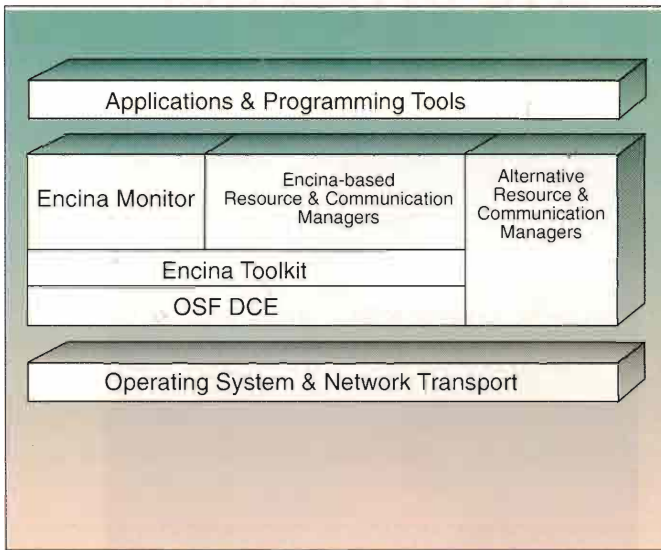
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Mainframe Buster



Transarc Corp.'s Encina Makes Distributed OLTP A Reality

The advent of small, high-powered super-servers and workstations coupled with the maturation of distributed client-server computing (through projects such as OSF's DCE) has changed the face of online transaction processing (OLTP).

The Encina family of products, from Transarc Corp., provides the services necessary to develop robust, distributed OLTP applications, thus extending and exploiting the power and flexibility of open, client-server, distributed systems.

Encina Release 1.0 takes a two-tiered approach to OLTP application development.

Tier I components provide the base services needed to extend and augment OSF's DCE technology to allow distributed OLTP applications development. The Encina Toolkit Executive includes Transactional-C, a set of

macros and library routines, providing an API to ensure proper handling of transactions, concurrency and exceptions. Also included are transactional RPCs, a distributed two-phase commit protocol and the development environment needed to shield the Encina products from the specifics of a host's operating system.

Tier I also contains the Encina Toolkit Server Core which provides the services needed to handle data integrity and recovery. Included services provide locking, transaction rollback, logging, logical volume support and the proper coordination of transactions through the use of the X/Open XA interface standard.

Tier I provides the tools to roll your own OLTP applications. Tier II then provides several Transarc developed OLTP services developed using the Tier I toolkit.

The Encina Monitor provides environments required by traditional OLTP applications. The development environment provides the binding of clients to servers, the connecting of front end platforms, the building of integrated systems, 4GL support, event reporting and audit trail processing. The execution environment concerns itself with resource availability, performance and security. The administration environment provides an overall view of the OLTP application and offers such services as graceful shutdown

and restart, client authorization and monitoring, server availability and load management.

The Encina Structured File Server (SFS) is a record-oriented file system in its own right, affording the integrity and safety required by OLTP applications, filling the gaps left by traditional file systems and RDBMs.

While client-server is the interprocess communication protocol in the limelight, the fact is that most OLTP applications rely on peer-to-peer communications and the LU6.2 protocol. The Encina Peer-to-Peer Communication Services (PPC) insure interoperability with existing systems to allow new applications to access that all-important data residing on mainframes. PPC's LU6.2 implementation includes library routines that can be used with the Toolkit Executive's and X/Open's APIs. It can run over TCP/IP and will support OSI.

Finally, the Encina Recoverable Queuing Service (RQS) offers the flexibility needed to improve application performance while maintaining data integrity. — *David B. Miller, Senior Technical Editor*

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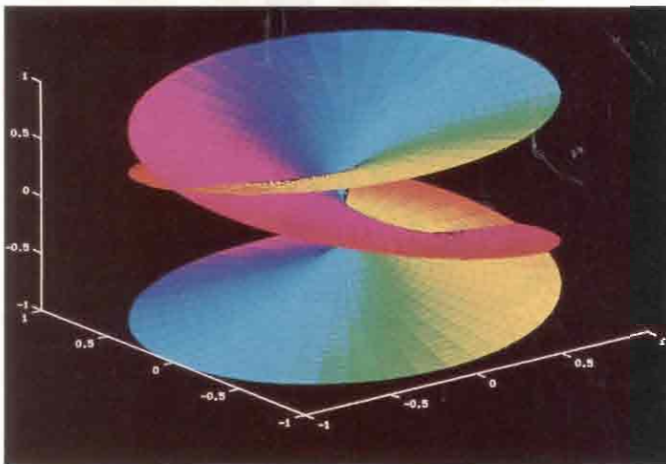
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Vital Visualization



MATLAB Version 4.0

Merges Serious

Numeric

Computation

Software With

Enhanced Graphics

In order to glean a more complete understanding of a particular problem, it sometimes helps to look at it from a new perspective or angle. This principle also applies to engineers, scientists and mathematicians, who routinely require such new views when analyzing data and mathematical models. Workstations make the job easier, but an integrated, easy-to-use graphics and numeric computation environment doesn't hurt.

MATLAB Version 4.0, from The MathWorks Inc. (Natick, MA), merges potent numeric computation software and application-specific toolboxes with versatile graphics capabilities. The resulting combination provides technical users with the ability to quickly visualize and explore data and mathematical models on a variety of workstation platforms including HP 9000 Series 300, 400 and 700 systems.

MATLAB's graphics capa-

bilities enable you to create color 3-D surfaces, mesh plots, contour plots, scatter-plots, data trajectories and images using rectangular, spherical and general parametric coordinate systems. Graphics can be animated to display changes in relation to time or another variable. Lighting sources and colors can be specified to enhance the data and facilitate interpretation. Multiple graph windows are supported.

Also new to MATLAB 4.0 is sparse matrix support, which allows users to solve problems involving thousands of variables quickly and with more efficient memory use. Without sparse matrix functionality, the time required to compute a solution depends on the number of elements in the matrix defining the system. With sparse matrix, the time is defined by the number of non-zero elements in the matrix. This feature is especially useful in finite element analysis, econometric models, partial differential equations, and other systems with sparse connectivity patterns.

For those taking advantage of MATLAB's programming language to create customized tools for specific applications, new debugging capabilities have been added. Debugging functions in MATLAB 4.0 include breakpoint control, the ability to change local workspace context during debugging, and the ability to step through MATLAB file execution line by line.

New, flexible I/O capabilities enable you to import and export data easily from any arbitrary file format. Users can exchange data between different software packages or analyze archived data regardless of how it is stored.

Binary MATLAB data files and M-files are directly transportable to DEC VAX, Sun, Apollo, Macintosh and PC implementations of MATLAB.

MATLAB Application Toolboxes extend the reach of the product with a diverse set of specialized functions for particular applications including digital signal processing and filter design, control system design and analysis, parametric modeling, optimization, spline analysis, system simulation and chemometrics.

Version 4.0 of MATLAB runs under X Windows on HP 9000/300, 400 and 700 systems, as well as Sun SPARC, IBM RS/6000, Silicon Graphics, and DECstation Ultrix workstations.

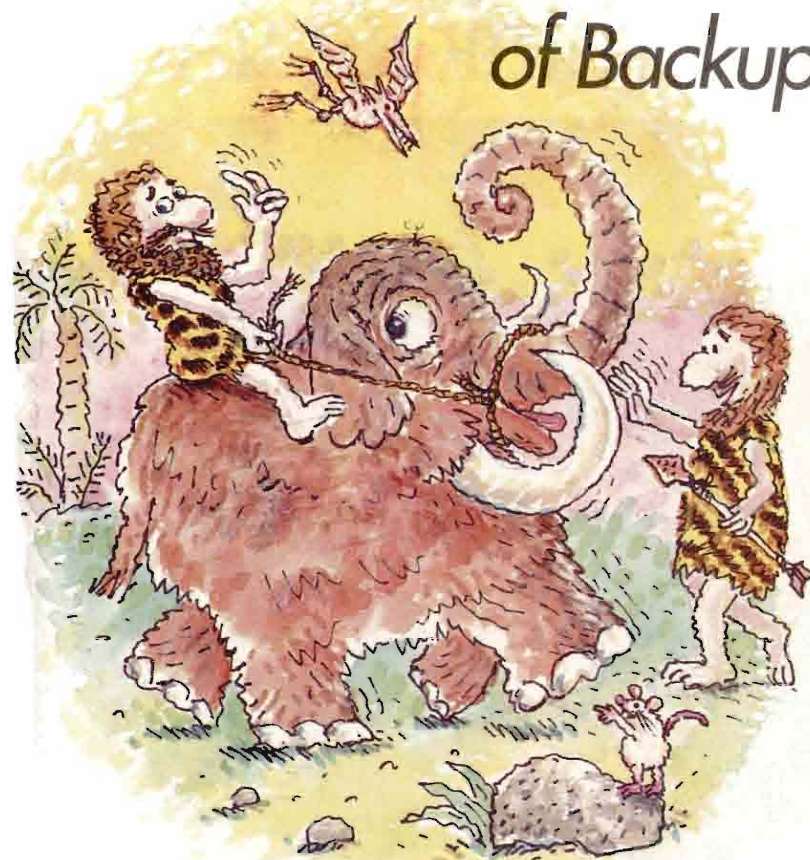
The single-user price is \$2,995 in the U.S., and MathWorks offers quantity and educational discounts in addition to floating network and multiuser licenses. — Grant Evans, Managing Editor

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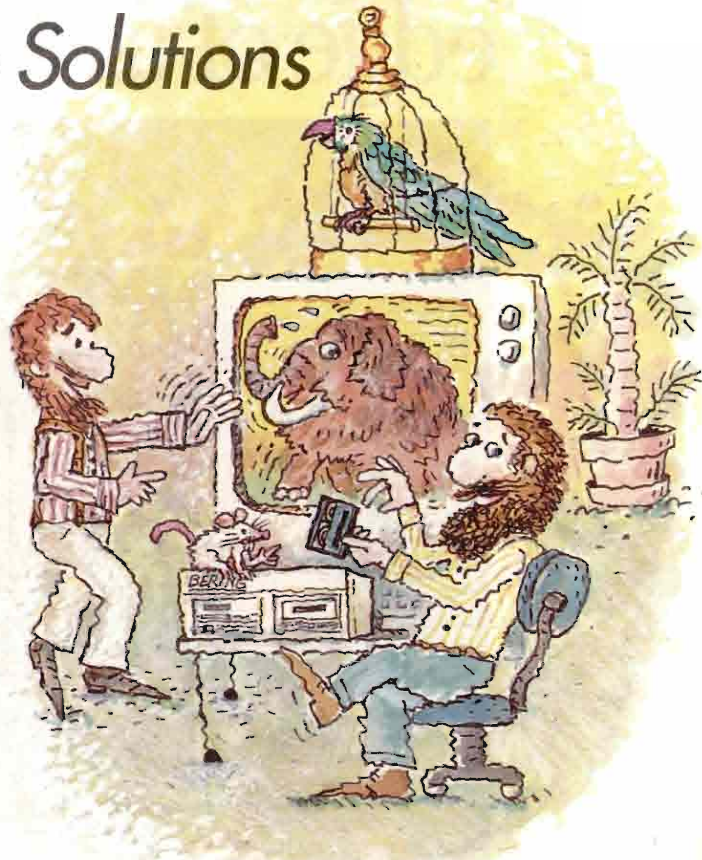
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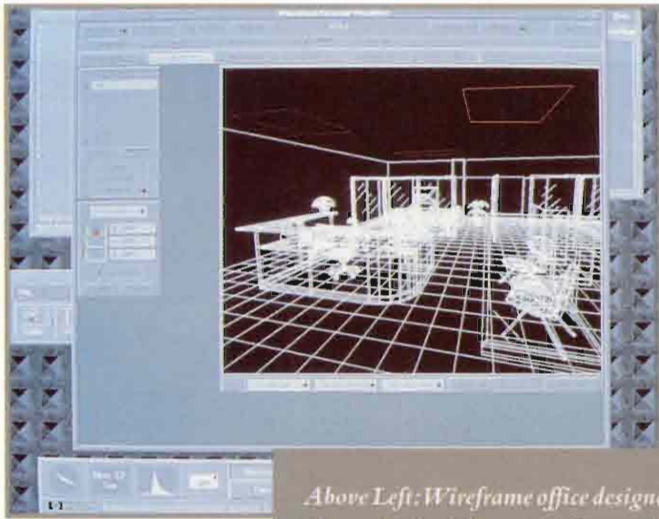
Workstations

ANDREW BARLOW

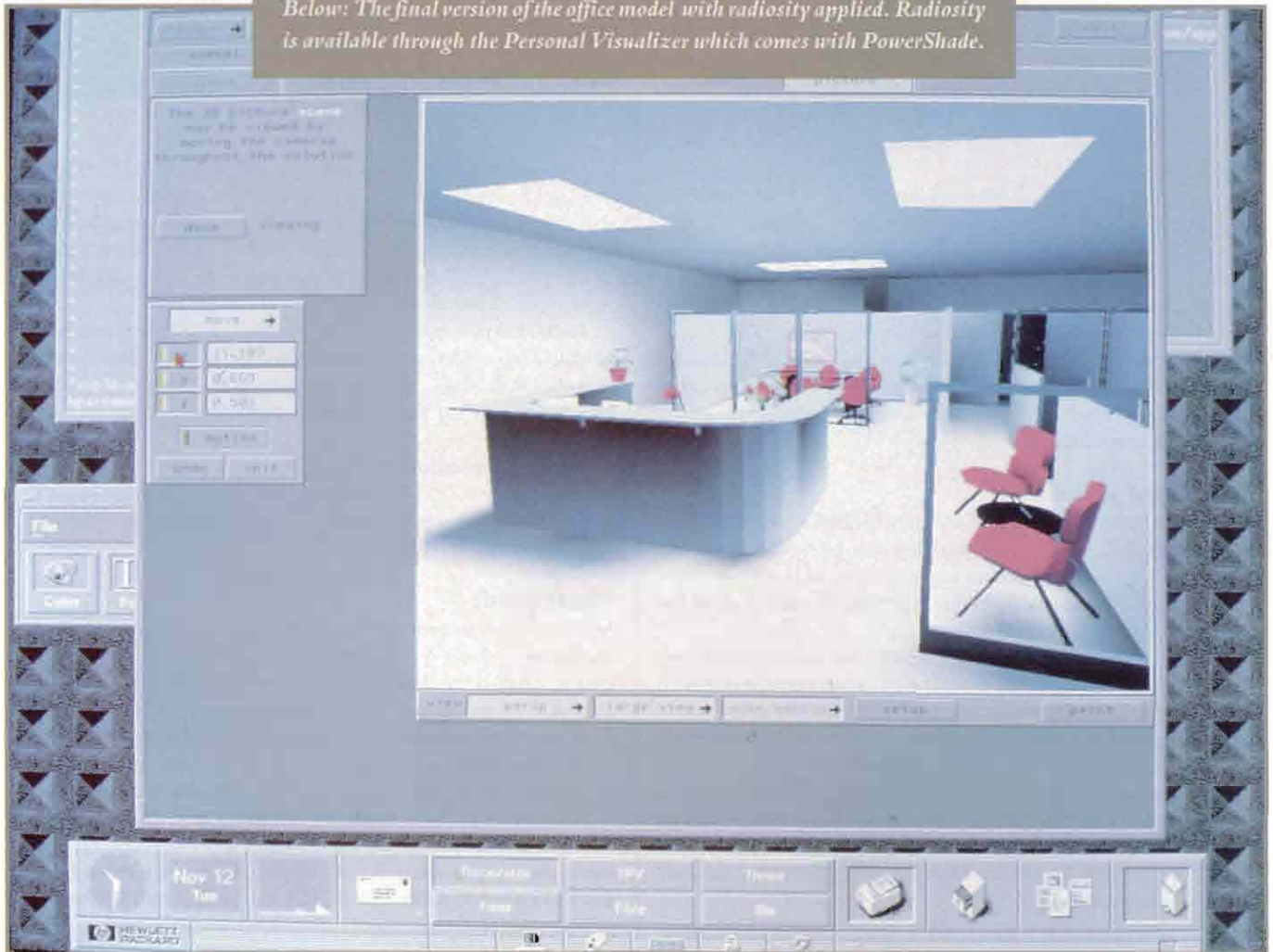
In March 1991, Hewlett-Packard introduced its Series 700 workstation family and declared a PowerShift. The performance of the Series 700 exceeded, by a substantial margin, anything on the market in its price range.

Ten months later, Hewlett-Packard announced another PowerShift — a piece of software called PowerShade, which effectively extends Hewlett-Packard's PowerShift from hardware to software. Through PowerShade, even entry level systems can access high levels of graphics functionality and dynamic performance. Low cost, high performance workstations obtain a broader and more flexible set of visualization capabilities.

PowerShade allows users and developers to access HP's graphics technology in two ways. One way is through HP's



*Above Left: Wireframe office designed using Autodesk's AutoCAD software.
Above Right: The same office model lighted and shaded with PowerShade.
Below: The final version of the office model with radiosity applied. Radiosity is available through the Personal Visualizer which comes with PowerShade.*



Starbase or PHIGS graphics libraries. The other, is through The Personal Visualizer, an end user application. For an HP Starbase or HP-PHIGS user, PowerShade provides a set of shading and lighting libraries that boosts graphics performance. It enables

3-D visualization on any HP Apollo Series 700 color workstation. PowerShade provides benefits to both the application supplier and the end user.

For the application supplier it means device independence

[DUAL-HEADED GRAPHICS]

As workstations become more pervasive in both technical and office environments, and as users become more sophisticated, some users are realizing the need for two or more CRT displays (also known as monitors, screens and heads). Workstations with the capability to simultaneously display more than one head often are referred to as multiheaded graphics workstations.

Multiple heads are offered to provide a user with more screen real estate. A multihead system usually supports one set of input device — typically a keyboard and a mouse — and input is directed to one screen at a time. The input is usually directed to the head where the cursor is positioned, although other schemes may be used.

The multiple head workstation concept fits in well with the X11 Windows environment. In the X11 Window model, the server is the software running on the workstation where the display of X11 Windows takes place. X11 clients, which are typically window managers or applications, may run on the same workstation as the server or on other workstations on the network. X11 clients use the X11 library and other X11 tools to communicate with the server via the X11 protocol.

The X11 server is a special program that controls the output and input resources of the workstation on which it is running. The X11 server model provides for multiheaded systems by defining one "display" consisting of one or more "screens." Each head on the workstation then can be considered a "screen" while the collection of all screens is considered the entire "display."

Working within the X11 Windows environment also simplifies the direction of output. The programmer opens a window on a particular screen and then direct output to the window to insure the output appears on the desired screen.

Multihead Mutability

The multiheaded offering from Hewlett-Packard is joined by those from IBM, Sun, DEC and Silicon Graphics. Intergraph has a long history of providing dual-heads as part of its turnkey solutions. For all vendors, the multihead offering is limited to a subset of all the graphics devices supported.

With multihead systems, the end user has access to increased visual information and detail. For instance, a system may be used with one screen displaying a user interface while the other screen contains a large, detailed graphics image such as a map. Multiple heads may be used to display a global view in one screen and a zoomed-in local view on the other. For some applications, it is critical that the users can observe both views simultaneously. In the case of process control, multiple screens may be necessary to monitor the activities of a large number of processes. More detail may be needed than one screen can provide.

For example, the Intergraph Micro Station software supports up



to eight independent views and provides support for multiple dialogues boxes and pallettes for input. This typically requires a large screen surface. To aid the user in working on a dual screen system, this application has added another item to the generic window menu to allow switching between the different screens. Other applications require you to specify screen locations at start up time.

In another example, a major oil company uses a system with two heads to compare different large maps, one with topographic data and the other with seismic data for the same region. This company also uses dual heads to provide completely different color maps for each screen.

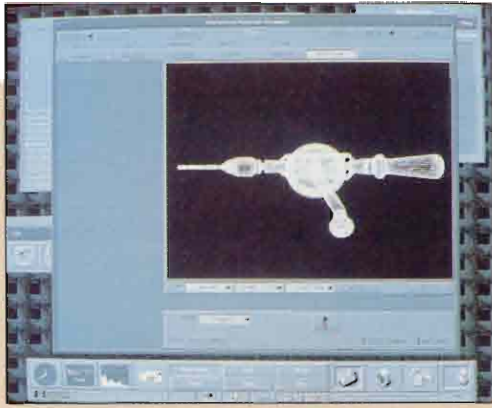
Another application for dual heads is in the design of graphical user interfaces (GUIs). In such an application, one screen may be used to do the actual design work while the other displays the resultant GUI.

Visual Needs

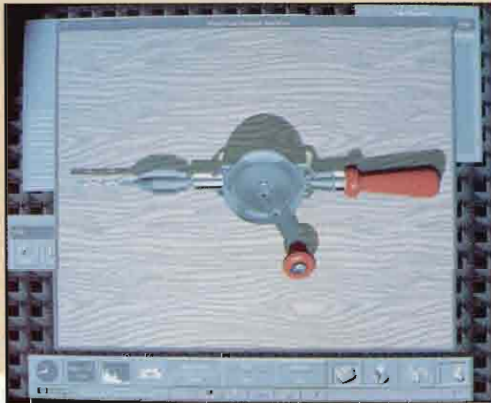
Multihead Systems provide distinct advantages in instances when an application requires the simultaneous display of a large numbers of critical, detailed visual elements. The increased screen surface areas provided by multihead systems are often very desirable in for applications in markets such as geographical information systems (GIS); command, control, communication and intelligence (C3I); process monitoring and control; and financial services trading.

To support multiple heads, HP created a new graphics board which combines two CRX frame buffers and controllers on one board and has two sets of RGB outputs. This board is called Dual CRX. This board, dubbed Dual CRX, can be used with HP Apollo

Continued on page 32.



Top: A wireframe model of a hand drill created using AutoCAD software.



Bottom: The Personal Visualizer is applied to add textures and surfaces to the wireframe model. Wood grain has been applied to the background, and ray tracing has been used to give the metal components a shiny surface and to show the sharp shadows.

across the HP product line. This insures a smooth upgrade path, one application binary, and lowers porting costs. Major application suppliers such as McDonnell Douglas (Unigraphics), SDRC (I-IDEAS) and Parametric Technologies (Pro Engineer) have committed to PowerShade. The effort no more difficult than adding another new device, in fact it is usually easier.

A customer who purchases PowerShade and an application that supports it, can shade and dynamically rotate their models. The result is improved design comprehension and faster time to market. Nearly all the features that are found in expensive high-end graphics workstations can be found in PowerShade software. Lighting models, Gouraud shading, transparency,

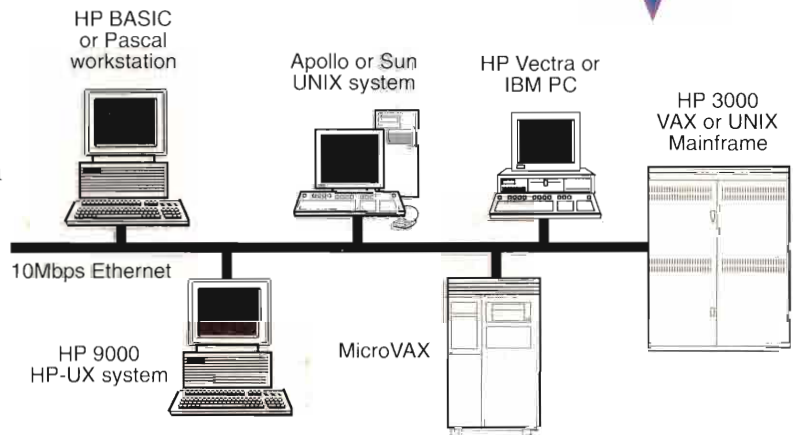
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[DUAL-HEADED GRAPHICS] *Continued From Page 30*

Model 720, 730 or 750 workstations to create a dual-headed workstation with eight-plane color graphics. Two Dual CRX boards can be used with a Model 750 to provide a four-headed workstation. Two of the new CRX-24 graphics boards also can be used with the Model 750 to provide 24-plane dual-head workstation.

Each head of the multiheaded Hewlett-Packard solutions offers the same outstanding graphics performance as the single-head offering. Both Dual CRX and CRX-24 in a multihead configuration supports the new PowerShade software. This means that all of the multihead configurations support surfaces rendering features such as lighting and smooth shading.

Each window in X11 Windows appears only on one screen. An application developer using X11 Windows capabilities has the option to select the screen on which a window will appear. Normally, output is directed to the default screen, the only one available. With multiple heads, the developer must make a decision about the appearance of the application graphical user interface and choose a screen explicitly or provide a mechanism for the end user to direct output as in the case of the Intergraph Micro Station software. A single screen application can gracefully co-exist with a multiple screen application. In the single screen case, output continues to be directed to the default screen.

These are the basic steps for using a multihead system:

- Create a device file for each screen of the workstation. This is a configuration step that is required only once.
- Properly set the server mode for use with multiple screens by editing a few lines in the X0screens file. This step also is required only once.

■ Write applications to direct output to the desired screen or provide a mechanism for the user to select the screen that each window appears on.

HP-VUE also can be run in the multihead environment. Although the HP-VUE control panel and session manager only will operate in a single screen, the window manager working in conjunction with HP-VUE can support multiple screens. Resources that define the appearance and behavior of the window manager can be defined on a per screen basis. The window manager menu can be modified so that the window manager operating in the screen without the HP-VUE control panel has menu selections for switching between HP-VUE workspaces.

For the programmer, graphics libraries such as Starbase and HP-PHIGS run almost transparently on the multiple-head configuration. All of the screen direction is handled at the X11 Window level. Because the output for the libraries is directed to an X11 window, the output screen for the graphics is simply the screen where the window is displayed.

Multiple heads have become a required feature for certain types of users. As workstations continue to gain popularity and users become more sophisticated, the need for large amounts of graphical information will increase further. These sophisticated users will require the multiheaded feature, but also workstations that provide high performance user interfaces and graphics; and excellent compute performance all at a reasonable price. — *Mark Schulz is product marketing engineer and graphics product marketing for Hewlett-Packard in Fort Collins, CO.*

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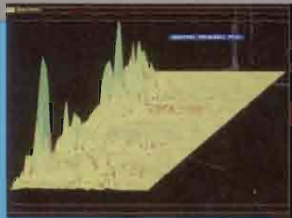
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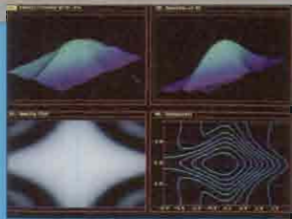
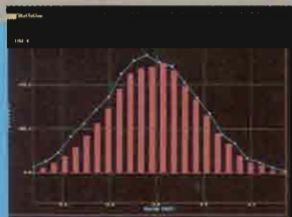


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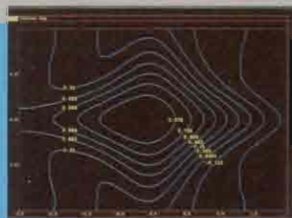
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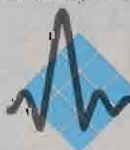


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CIRCLE 110 ON READER CARD

Continued from page 31

depth cueing and hidden line and surface removal are a few examples of the advanced graphics capabilities offered by PowerShade.

For instance, a fast 16-bit software Z buffer gives users low-cost hidden line and surface removal and eliminates the need for expensive frame buffer memory. The software Z buffer permits objects to appear to be three dimensional. Gouraud shading is also included. Gouraud shading makes polygonal models appear smooth and life like. Transparency allows engineers to "see through" some of the model's surfaces. This can increase a designer's comprehension and insuring that the model is designed correctly.

The Personal Visualizer

Included with every PowerShade license is The Personal Visualizer, an application program that uses technology from Hewlett-Packard and Wavefront Technologies. The program allows users to import data files and create highly realistic images using materials, surface textures, radiosity and ray tracing. Data also can be animated to show motion or time varying events through the "Key Frame" animation feature.

All the capabilities are made available through icons and pull down menus. The Personal Visualizer also provides an integrated modeler translators for a variety of data formats. The "dxf" translator, for example, comes with the program and allows AutoCAD files to be imported. Using this translator, ray tracing and over 700 colors, textures and surfaces can be applied to create a model that is indistinguishable from a photograph. If radiosity is applied, the user can "walk" through the model.

Key frame animation provides users the ability to do first level dynamic analysis. They might, for instance, operate the suspension system of an automobile to insure design integrity; or they might test the opening and closing of an automobile door.

PowerShade provides tremendous benefits for the end user as well as the application supplier. It represents an emerging shift in the graphics paradigm, because it allows graphics performance enhancements through software and not just hardware. It gives more users access to high-performance graphics without the high overhead typically associated with sophisticated high-end graphics workstations, and helps to insure that their investment is protected. — Andrew Barlow is a product manager for the Series 700 workstations in Chelmsford, MA.

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MAXIMIZING

MEMORY

Third-Party Memory Offers A Cost-Effective, Reliable Solution For Minimizing Cash Investment In A System



ften, when users migrate to higher-performance machines, they find performance and response times to be significantly lower than expected. Typically, performance fails to match the transactions-per-hour benchmark figure promised by host system vendors, and it is only later that users learn that their systems require a significant investment in memory to achieve peak performance. How can a user know (with any degree of certainty) what the cause of performance degradation can be?

There are several opportunities to improve performance, such as fine-tuning the machine and assessing the total system operating environment. However, an economical and easy approach to greater efficiency and better performance is to gauge the availability of memory. Understanding some of the environmental factors that affect performance helps you recognize the need for and benefits of more memory.

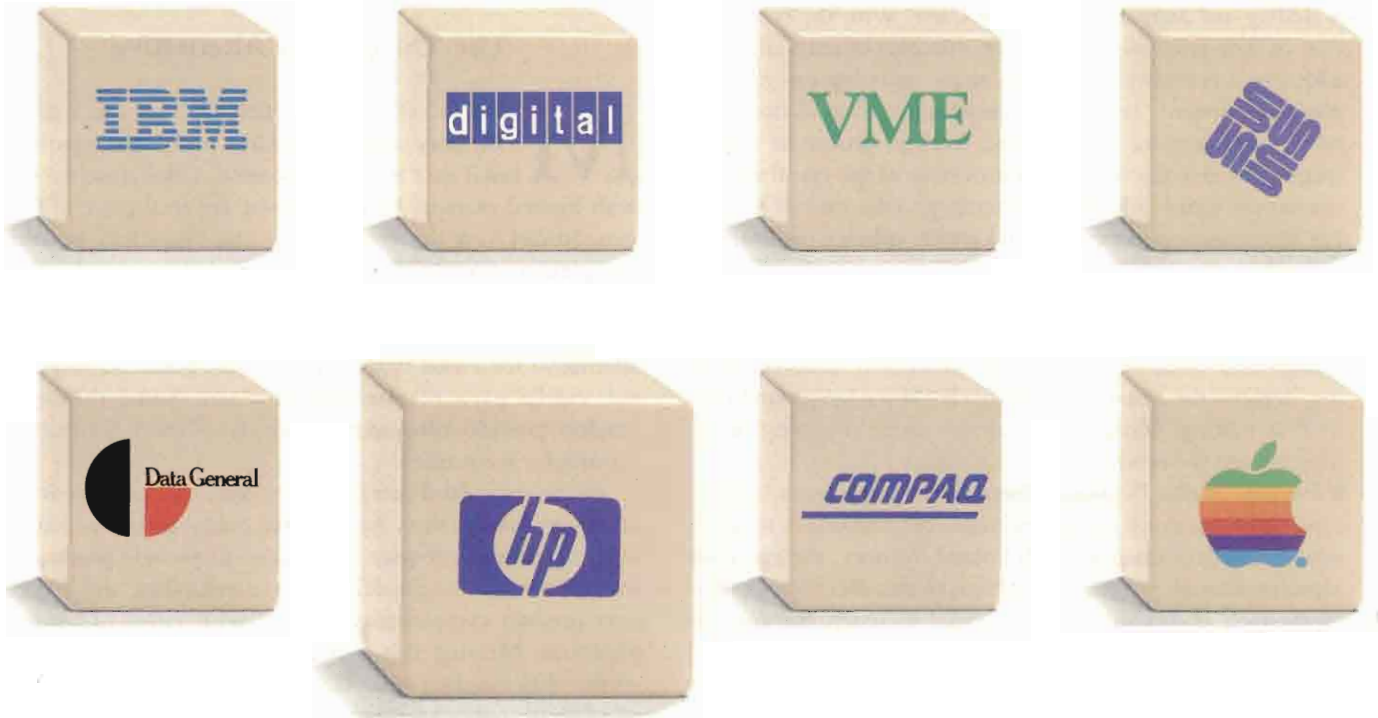
■ **Graphical User Interfaces (GUIs):** Window managers such as PHIGS and GKS are notorious memory hogs. The amount of information necessary to maintain several windows is extremely high. With limited RAM, you pay in the speed with which the system can process input.

■ **Object-Oriented Programming (OOP):** Object-oriented applications ease programming challenges and increase productivity by incorporating complex program segments that can be linked together. Because there isn't a natural restriction on the size or number of objects attributed to a program, applications can grow quite large. In all cases, large applications benefit from greater availability of memory.

JENNIFER DAVIES

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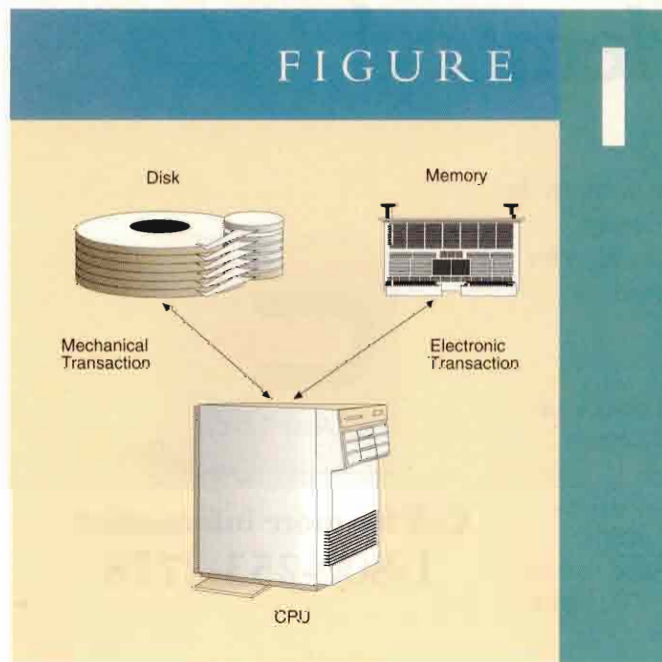
CIRCLE 151 ON READER CARD

■ **DBMS Applications:** Database management systems are memory intensive, sometimes rivaling the operating system in size. Because of the many indexes necessary to access record fields, relational DBMSs in particular benefit from more memory. With the recent announcement of HP's OpenODB, memory availability becomes even more critical.

■ **Adding and Supporting Multiple Users:** With the consolidation of data processing tasks, large numbers of users often are added to a computer system. As more users log on, memory pools are stressed, resulting in performance degradation. The system spends more time moving work in process to storage (paging) to give the next user a time-slice of the cpu than processing the actual task. Adding memory to the interactive pool can lessen resource contention and greatly enhance performance and efficiency.

■ **Foreground/Background Overload:** Even with a stable number of users (as in a workstation environment), the number of background tasks, such as compiles or system resource tracking, depletes the amount of available RAM for foreground tasks such as editing. More "users" means more swapping of resources, and the need for more memory.

■ **Physical Media Response Time:** When exercising a system's capabilities, memory quickly becomes the bottleneck to superior system performance. With limited memory, the cpu must access application program instructions or data files from physical media such as disk drives. With added memory, the cpu can place information in the more quickly accessible "electronic" environment and significantly increase processing speeds (see Figure 1).



With added memory, the cpu can place information in the quickly accessible electronic environment.

■ **Computer Aided Software Engineering (CASE):** CASE tools add a level of overhead, complexity and size to a programming environment. Because they insert an extra layer between the user and the machine, they are resource intensive. Sufficient RAM is necessary to benefit from CASE tools.

The Third-Party Alternative

MANY HOST SYSTEM VENDORS are quick to offer a memory solution to address performance problems, but it isn't always economical. Often, machines ship with limited memory to bring down the total price of a system. Studies have shown that while cpu prices may be staying competitive, peripheral prices are skyrocketing to make up for lost margins.

Third-party memory manufacturers offered a lower-priced alternative for a vital system component. Some manufacturers use vanilla parts to assemble products. Some third-party vendors provide value-added products — more densities and features for less money.

But to some third-party memory vendors, cost-effectiveness is only half the picture. An educated public and ever-changing host environment require the vendor to provide product differentiation (where possible), proven reliability, and 100 percent product compatibility across a wide range of hardware platforms. Meeting this challenge takes memory out of the commodity category and places it amidst the components list of a fully-integrated system.

This becomes apparent when considering the characteristics of a commodity: offerings from many vendors, price competition, product stability, and lack of product differentiation among vendors. Memory was once considered a commodity item, but has recently lost that status. The demand for specialization has instigated the development of a variety of RAMs — dynamic, static, pseudo-static, flash, video, and now application-specific semiconductors. Even in the SIMM (Single In-line Memory Modules) market, the commodity label is a misnomer. Within the last few years, technology has brought SIMMs from 256 KB densities to 4 MB, and recently up to 16 MB. Design decisions include board thickness, number of layers, and single- vs. double-sided component structures.

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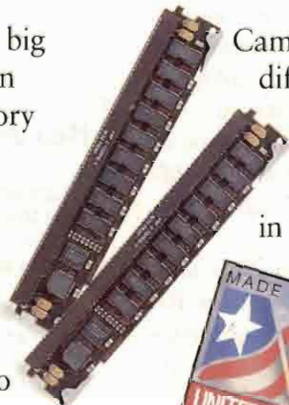
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Camintonn/Z-RAM memories include upgrade products for IBM® PS/2® and Apple® Macintosh® computers, laser printers and most PC-compatibles.



When making a purchasing decision, be sure to identify the cause of memory limitations in a system.

Written and agreed upon by the International Standards Committee, ISO 9000 (Quality Management and Quality Assurance Standards) identifies quality systems and details their implementation.

Host vendors may impose artificial limitations in an effort to prevent the erosion of high-margin sales; third-party memory vendors often can circumvent those restrictions. When making a purchasing decision, be sure to identify the cause of memory limitations in a system. Often a given limitation is a product of the host vendor's highest density board multiplied by the number of available slots — a hardware limitation.

System software limitations may be higher in anticipation of a future memory product release. Third-party vendors often differentiate products by offering a wider range and higher density boards.

More memory doesn't always guarantee better performance. When offered a higher density board than available from the host manufacturer, make certain that your system can recognize, test, and use the additional memory. The Apple Macintosh, for example, can recognize more than 8 MB, but can't use the additional memory.

The memory management unit (MMU) of the cpu must be efficient enough to handle the increased memory. If not, end-users may see little or no performance gain. The system diagnostics also must be able to test the larger amounts of memory. And, users must establish the proper ratio between physical memory and swap space (space allocated on the hard disk). For example, Sun requires a minimum of 1.5 times as much swap space as memory — a higher ratio may result in increased performance.

When purchasing a memory product, unlike a train load of grain, the transaction shouldn't be over when the dotted line is signed. Post-sales support can be an integral part of the total product package. Do yourself a favor (and avoid possible future headaches) by investigating service, support and upgrade options before making a final purchasing decision.

Because the host environment is constantly changing (especially in the volatile workstation market), products must be continually tailored to meet density, size, and speed require-

ments within a system. Engineers specializing in memory technologies design what necessity dictates as an ever-changing product. Third-party memory manufacturers often can offer the design expertise needed at a cost to benefit the user. —*Jennifer Davies is documentation program manager with Clearpoint Research Corp. in Hopkinton, MA.*

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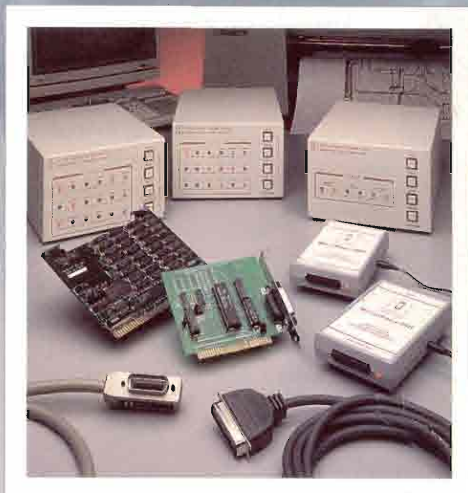
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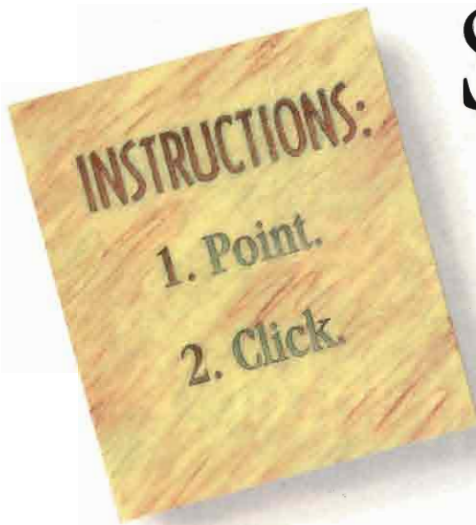


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Session. Where Hosts



Session provides easy, point-and-click access to host data via your PC or Macintosh.

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Bridging the information gap between hosts and PCs has never been easier. Thanks to Session, Tymlabs' PC-to-host connectivity software.

Whether you use Microsoft® Windows, HP NewWave®, or the Apple® Macintosh®, Session simplifies the challenge of sharing information with your HP 3000, DEC VAX, HP 9000, and other UNIX® hosts.

You may have used other PC-to-host alternatives. And they may have worked just fine – as long as you had just DOS-based PCs. Take a closer look at Session, however, and you'll quickly discover that it's designed to work in today's graphical, point-and-click PC world.

Moreover, every Session package provides superior HP terminal emulation, plus DEC VT100® and HP ANSI terminal support for access to almost any host computer.

Session's point-and-click interface gives you easy, familiar access to host information.

Session adheres to the interface standards for MS Windows, HP NewWave, and the Macintosh, offering a common interface to all three platforms. Using Session on one is as easy as using it on another.

And because Session offers an easy-to-use, graphical front end to your host applications and data, it's your company's first, hassle-free step toward client/server computing.

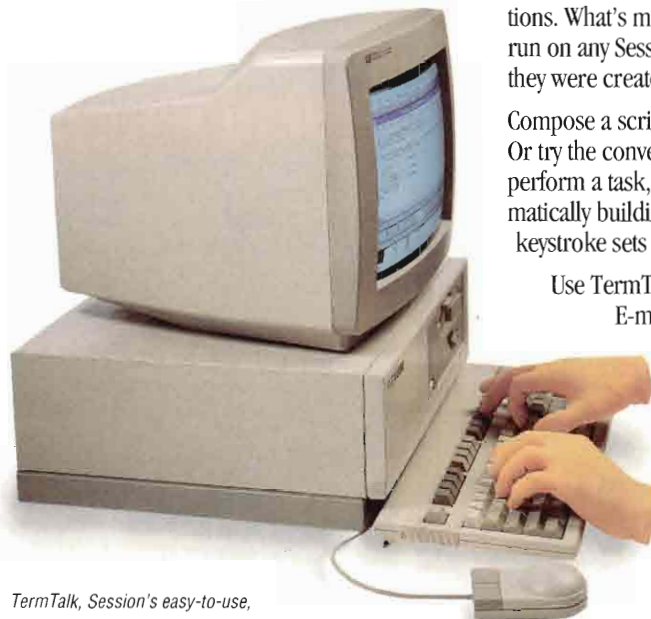
Hand your communications tasks over to TermTalk.

Session includes TermTalk, a unique scripting language that streamlines your routine operations – or your most sophisticated PC-to-host interactions. English-based, block-structured, and friendly enough for non-programmers,

TermTalk provides extensive control over Session's communications with hosts and other PC applications. What's more, compiled TermTalk scripts run on any Session platform, no matter where they were created.

Compose a script using TermTalk's built-in editor. Or try the convenient script recorder. As you perform a task, TermTalk follows along, automatically building the script. Next time, a simple keystroke sets it in motion.

Use TermTalk to automatically log on, send E-mail, retrieve host data and add it directly to your spreadsheet, print PC files on host printers, and much more. We even give you the tools to convert existing AdvanceLink® or Reflection® command files to TermTalk scripts.



TermTalk, Session's easy-to-use, compatible scripting language, is just like having your own personal assistant. Use it to handle all your PC-to-host tasks.

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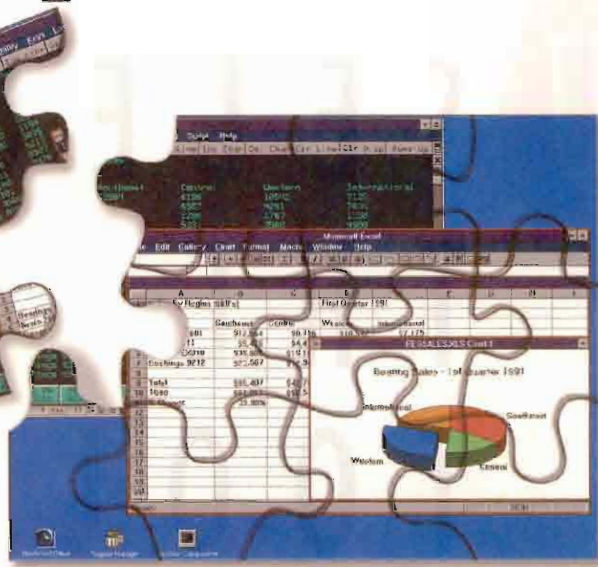
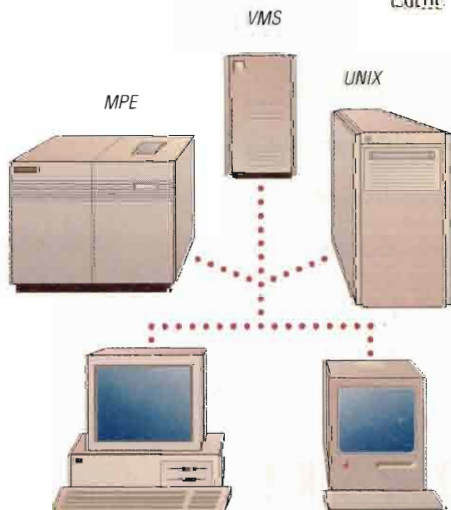
Access and integrate the information you need, when you need it.

Working on a report? Need monthly sales and expense figures? Need data from several sources? No problem. Session delivers the data-sharing capabilities you've been waiting for.

For example, you can use cut-and-paste for a simple one-time exchange of data. Or use Session and Microsoft's Dynamic Data Exchange (DDE) to build real-time links between your host and your other Windows applications. And, Session for HP NewWave lets you bring host data within reach of NewWave's advanced object management capabilities.

Weary of access limitations? Forget what PC-to-host connections used to be.

When it comes to connecting to HP, DEC VAX, and UNIX hosts – all from the same package – some products are plagued with limitations. Not Session. In fact, Session allows multiple – *even simultaneous* – connections with different host applications *and* different hosts, including your HP 3000, HP 9000, HP 1000, DEC VAX, and any UNIX host.



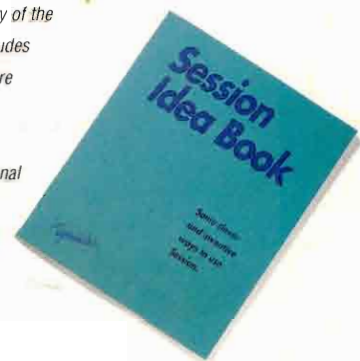
Wide-ranging connectivity and networking capabilities.

Wondering about Session's networking capabilities? Session supports all the popular networks: Novell™ Ungermann-Bass™, Banyan™, Microsoft LAN Manager™, AppleTalk™, and HP's AdvanceNet products. You can also perform multiple sessions over virtually any LAN.

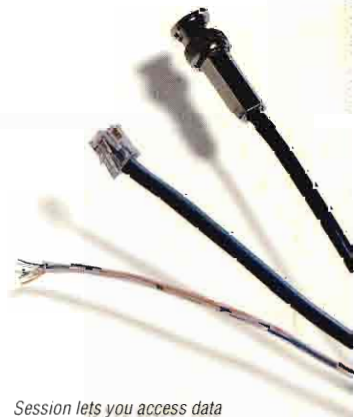
Impressed? Well, these are just a few of the ways Session can make PC-to-host connectivity simpler – and more productive – for your organization.

Session is where hosts and desktops really come together.

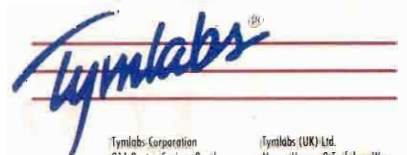
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Session offers Microsoft's Dynamic Data Exchange (DDE) and support for HP NewWave to help you retrieve, view, and integrate information from a variety of sources.




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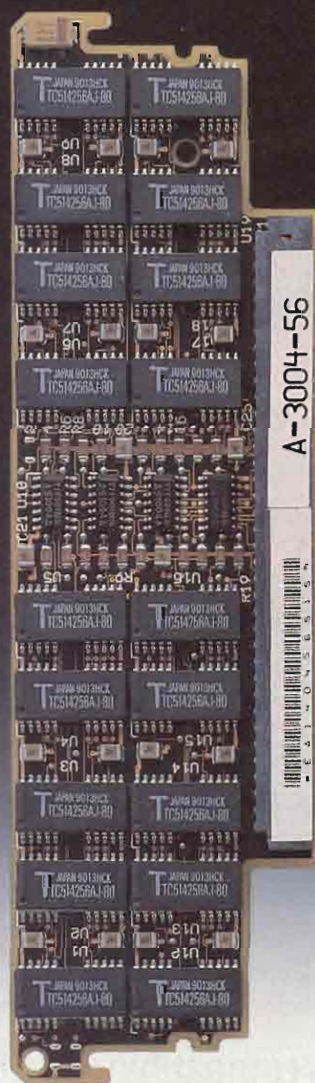


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The primary reason software developers are reluctant to embrace a full CASE solution is breadth of tools. Although you can expect a CASE environment to help in some areas of development, such as editing and debugging, you also can expect a CASE tool to fall short in other areas such as testing and documentation — depending on your specific needs. You then

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wind up adding testing and documentation tools that are *not* integrated into your CASE environment.

The basic problem is that most CASE solutions will not provide all the integrated tools every software developer needs. Therefore, the software development community is clamoring for *two* added dimensions to a CASE product:

- An integrated set of tools every software developer needs (such as an editor and debugger).
- A method for integrating additional tools into the CASE environment (such as documentation tools).

HP SoftBench provides both. The developers of SoftBench recognized that there's a core set of software development tools that should be part of the product *and* that there should be a mechanism for easily integrating any tool into the SoftBench environment.

A simple tool integration method called "encapsulation" allows third-party products, such as desktop publishing tools, to be integrated into the SoftBench environment. You also are free to encapsulate your homegrown applications. By encapsu-

lating an application, the tool will have the ability to communicate with other SoftBench tools without any source code modification. This means that you don't have to replace your current tools with SoftBench tools, and you can enhance your existing software development environment with SoftBench.

A Sample Program Development

TO GIVE YOU A FEEL for the way both core SoftBench products as well as encapsulated products work together, I'll walk you through a simple program development. The program is a "quicksort" routine I lifted from the latest Kernighan & Ritchie "C" book. I'll call the program "krsort." The first four tools used in the development are part of SoftBench and the last is encapsulated.

Development Manager: The first task is to place "krsort" related files under some type of control. The Development Manager provides version and access control in addition to several version control mechanisms. Also, if this program was developed by a team, you want to be sure the program was "checked out" and "checked in" whenever accessed. You also can compare revisions and perform several other management-related functions.

Program Editor: The Program Editor is optimized for *program* editing, not just general editing. Because of this, we can perform many program editing functions because it understands program structures such as procedures and blocks. In addition, the Program Editor is language sensitive. When editing the "krsort.c" program, I used several language sensitive functions such as selecting procedures using the pull-down menu.

If you prefer another editor, such as vi or emacs, you can use the tool substitution capability of SoftBench to incorporate your editor.

Program Builder: After "check out" and editing of "krsort.c" you're ready to compile the program with the Program Builder. The Program Builder automates the process of compiling a program by using utilities such as make. In the case of the simple "krsort.c" program, you simply supply the Program Builder with the options you want, as shown in Figure 1. In this case, the program build failed even though I lifted this program directly from the K&R book. The Program Builder goes directly to the line where the error occurred. In this case, I simply typed one ")" too many on the line that begins with "swap." After removing the extra ")" I save the program in the Program Editor and recompile.

If I had a Program Editor window open, I would

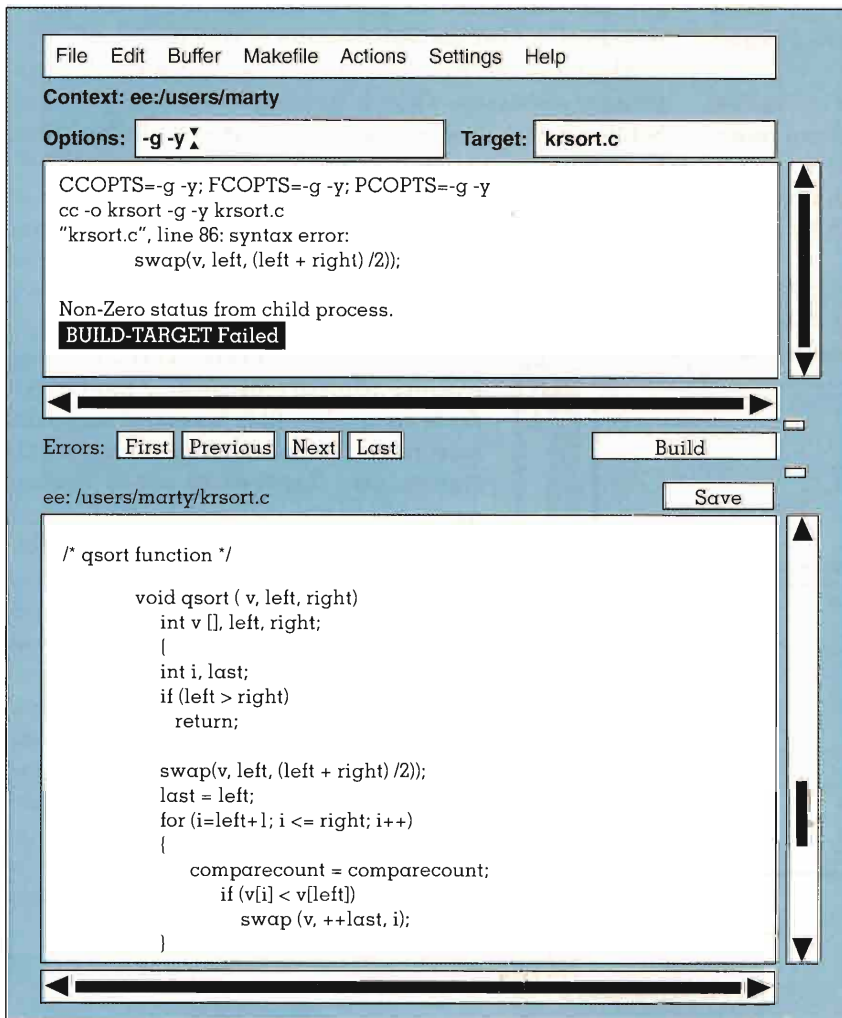


Figure 1.

BMS provides a means for intertool communication such as the communication between the Program Editor, Program Debugger and FrameMaker.

have the choice to save the modified program in either the Program Builder or Program Editor window and SoftBench would then update the window that was not saved.

Program Debugger — After successfully compiling the program using the Program Builder, you can run the Program Debugger. The Program Builder provides a simple user interface to the symbolic debugger. You can insert breakpoints and step through the program using the Program Debugger menus without remembering any debugger commands. The Program Debugger is divided into three windows:

- The source code window where you can insert breakpoints with the mouse by using the “Breakpoints” pull-down menu. I’ve done this at the line “swapcount = swapcount++”.
- The debugger I/O window where program status is shown.
- The user program I/O window where program I/O is shown.

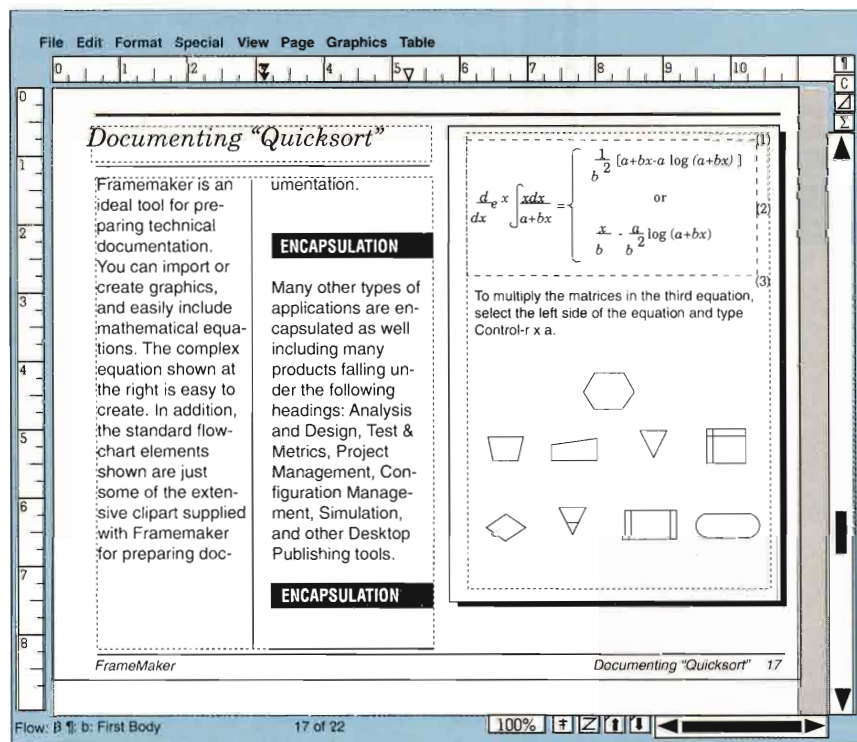


Figure 2.

The Static Analyzer could be used along with the Program Debugger. The Static Analyzer provides information related to the structure of your program. If a variable is set to an illegal value, you can use the Static Analyzer to find all occurrences of that variable and make the appropriate change(s).

Documentation With FrameMaker

DOCUMENTING YOUR PROGRAM is largely simplified by using the encapsulated version of FrameMaker (Frame Technology, San Jose, CA). Because FrameMaker is encapsulated, you can freely share information between SoftBench and FrameMaker. In addition, FrameMaker includes facilities to create and import graphics. Figure 2 shows you can create a document that includes text and graphics in what-you-see-is-what-you-get (WYSIWYG) format. Although documenting your work sometimes can be the least desirable part of program development, with encapsulated FrameMaker you easily can include the graphics you need and produce documentation to meet the high standards of your programs.

Until now, we have focused on the use of SoftBench as opposed to its *make-up*. There is, however, one building block of SoftBench that is of particular importance — the Broadcast Message Server (BMS).

BMS provides a means for intertool communication such as the communication between the Program Editor, Program

Debugger and FrameMaker. BMS dispatches messages from one tool to another in such a way that it enables easy encapsulation of applications into the SoftBench environment by requiring minimal programming effort in order to encapsulate. BMS has gained such wide acceptance that an industry forum, CASE Communique, has been formed to develop standard operation specifications for intertool communication in BMS-based frameworks. Originally sponsored by HP, IBM, Control Data Corp. and Informix, Case Communique boasts a growing membership of tool vendors and BMS-based framework customers.

SoftBench runs on HP Apollo and Sun Microsystems workstations. In addition, SoftBench has been licensed by all the co-sponsors of CASE Communique. All of these companies announced CASE environments based on SoftBench. — *Marty Poniatowski is a technical consultant in workstation related products and tools for Hewlett-Packard in Stamford, CT.*

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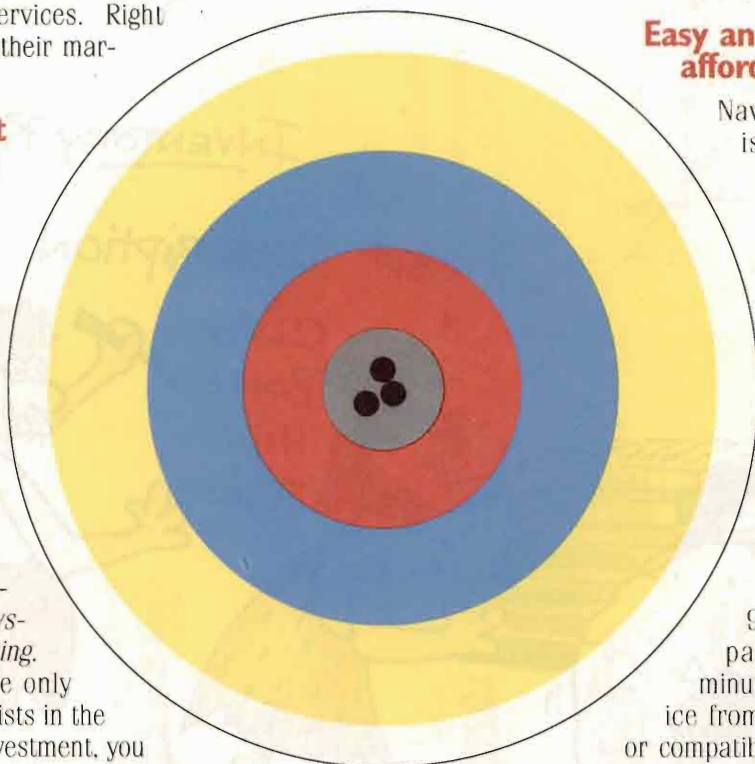
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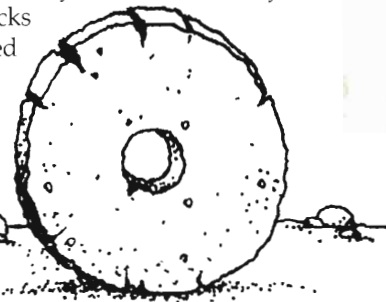
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BY BILL SHARP

At HP's Software Technology Division, (Roseville, CA), home of software support and products for MPE V, old products don't exist. Employees caught using the phrase "mature product" are fined \$1. This is the home of the software that keeps MPE V alive. Although HP stopped selling MPE V hardware in 1989, the systems are alive and well in thousands of user sites around the world.

As a computer maker, what should you do when an obsolete architecture not only won't die, but positively thrives? You could fight the trend, trying to muscle users over onto the latest and greatest proprietary designs. But, this is messy and inevitably infuriates some formerly contented customers. An alternative approach is to build a profitable business around happy customers who continue to require help in the care and feeding of their beloved computing dinosaurs. At the same time,

you might make it easy for these customers to move on to your newer architectures whenever they feel ready.

This gradually has become the marketing strategy for the business of caring for the large population of HP 3000 users still happily computing with MPE V. Because there are so many MPE V users, a strategy alone is not enough. HP has in fact created an entire division around the idea.

In a time of tight budgets and economic downturn, HP has chosen to invest heavily in a new organization, known internally as SWT, with a mission that means far more to HP than Medicare for extinct species. Ironically, HP's support for its obsolete minicomputers has become a savvy investment in the company's near-term future. Happy MPE V users are certain to at least consider HP's newer MPE/iX or HP 9000 HP-UX operating systems and hardware with the latest RISC hardware

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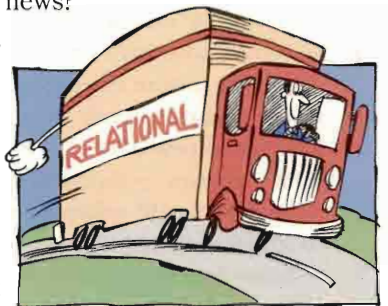
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Devoting an entire division to producing software products is a relatively new concept for Hewlett-Packard.

when the time to switch finally arrives. But the SWT facility is much more than a clever idea for keeping customers happy while they squeeze the last oomph out of old HP products.

Supplementing, Not Switching

IT IS TEMPTING TO comment derisively at the fuss over a few old computers. It is also tempting to comment that the vast majority of HP minicomputer customers surely by now have moved over to MPE XL or HP 9000 minis. Facts say otherwise. When HP stopped selling MPE V in 1989, says SWT management, there were "in excess of 40,000 MPE V systems out there," in use at 18,000 customer sites. And, while SWT and HP officially decline to comment on the number of customers who have switched over to newer architectures, an interesting picture emerges. In many cases, customers have not made a massive switch from one architecture to another, but have added new XL or HP 9000 minis while keeping the older MPE V systems — supplementing rather than switching.

And while HP refuses to confirm it officially, some 20,000 to 30,000 of those MPE V systems appear to be humming along in happy harmony with newer HP systems as HP expands modestly with new XL sales and at an impressive pace with HP 9000 sales. This is not so much the power of penny pinching as it is the lure of longevity. The hardware value of those thousands of MPE V systems may have taken a nosedive with the introduction of newer, faster systems, but the software for most customers represents much the greater investment. MPE V support is investment protection for those not yet in the mood to move.

"The establishment of SWT is a statement that HP will be there for MPE V," says Tony Engberg, R&D manager for the division. "There is a long obsolescence window." SWT was founded in July 1991, and as it nears its first birthday, it boasts an excited staff working on some interesting programs:

- MPE V support.
- Commercial application development tools.
- Manufacturing software tools.
- Human factors research.
- Performance management products.
- Client-server applications.

A Software And MPE V Devotee

THESE INDEPENDENT EFFORTS together make up most of SWT, which, true to its name, has no hardware programs. Devoting an entire division to producing software products is a relatively new concept for HP. While the number of impressive software products around the company is growing, they have until recently existed as appendage operations — part of more traditional hardware divisions.

SWT's efforts exist solely to provide software applications to existing systems, focusing on MPE V. "People think of HP as being in the hardware and systems business," says Engberg. "But SWT is in the software business and getting them to take HP seriously in software has been difficult."

Division General Manager Mark Solle says the objectives of SWT are to protect investments and provide new options for existing system users through innovative software while maintaining "unsurpassed customer loyalty."

"HP will support MPE V as long as there is a customer that requires support," he says.

MPE V Support

BECAUSE THEY VALUE THEIR investment in MPE V, what users of this operating system want more than anything else is stability, says Paul Primmer, R&D section manager for MPE V. They don't want modifications to MPE V that require costly changes in their operations. After stability, says Primmer, they want a migration pathway to MPE XL. "They're not sure just when they will make the move, but they want that migration door open."

Once these two primary needs are met, HP believes MPE V users are happy to take any improvements in their OS that won't give them sudden and intense thoracic pain. MPE V release 21, which shipped last summer, gives an effective demonstration of the extent to which MPE V is still growing. It included:

- TurboIMAGE support for multiple database transactions.
- VPLUS/Windows.
- NLS enhancements.
- Expanded number of user logging processes.
- Enhanced security with labeled tapes.
- LaserJet duplex printing.
- HP GlancePlus/V.
- NewWave Office 3.0.

- HP DeskManager enhancements.
- HP Predictive Support enhancements.
- HP Laser RX/MPE enhancements.

MPE V release 23 improvements due out this spring in response to customer requests include:

- The new DELETE command for SPOOK V.
- SHOWOUT command now displays complete percentage for active spoolfiles.
- JOBINFO now returns job initiation information.
- Known Vendor Table data structure. Allows third-party developers to store a world of information.
- STORE /RESTORE/SYSDUMP now allows up to nine exclusion file sets.
- RESTORE performance improved for DDS.
- RESTORE now allows creation date display with keyword TAPEDATE.
- HP EXPLAIN provides online explanation of MPE V system error messages.
- Measurement Interface Expansion now supports 1024 processes for MPE V.
- Console Revert returns logical console to ldev 20.
- Dispatcher now supports the oscillation and priority boost property.
- Improved COBOL program performance.

■ Streaming a job with Release 23 will not cause date modification in the job file label.

■ SUPPACCT.PUB.SYS is enhanced with Release 23.

Bob Stamps, head of product marketing for MPE V, says there's no particular magic to what HP is doing for MPE V users. The idea is to find out what they want in their OS and give it to them without harming OS stability. Stamps points out that what is in this effort for HP is very simple and substantial. Not only does HP preserve customer loyalty, but it derives support revenues as well. And support is one of the fastest growing and most profitable segments of the computer market.

MPE V development tools include a hefty collection of software, including:

- Business Report Writer.
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55

The objectives of SWT are to protect investments and provide new options for existing system users through innovative software.

The most infamous of these is Transact/V, a high-level programming language and interpreter for transaction processing, briefly discontinued by HP in 1990 and quickly reinstated after howls of protest from loyal SIGRAPID members who continue to rely on Transact and the rest of the RAPID family. RAPID is now part of SWT.

HP's RAPID reversal now includes working closely with SIGRAPID on future plans for the product family, says Richard Fisher, R&D section manager for MPE V commercial tools. HP's Transact plans for 1992 include eight enhancements as well as defect fixes.

An important lesson for HP came out of the Transact embarrassment, says Fisher: "Support cannot be allowed to lag." He says SWT now conducts "realistic, honest discussions about what we can and cannot do" in software support. "We cannot meet all of their demands, so we have to make sure that we understand customer priorities and choose well."

HP's SWT division provides more than just MPE support. Here's a sampling of software development work under way at SWT. Note that these efforts support not only MPE V but MPE/iX and HP-UX as well.

Manufacturing Software Tools

MANY OF THE MANUFACTURING software tools that HP sells to its 2,000-plus manufacturing customers around the world originally were developed for use within the company. The software is used in more than 50 HP divisions, so the developers included a capability called the Customizer to make it conform to the local lingo. That capability has served these products well in moving to adoption by many multinational corporations.

Manufacturers insist on controlling costs, so many of them continue to use MPE V systems alongside newer MPE XL or HP-UX systems. Many of them continue to rely solely on MPE

V systems, so supplying effective software is important to HP if it hopes to keep their hardware business.

Human Factors Laboratory

IT IS TYPICAL FOR HP to analyze the way it does things, looking for some permanent pathway to perfection. So as software development becomes more important, new approaches are the subject of experimentation. Most software ventures suffer from a consistent and sometimes fatal flaw — developing software takes a whole lot longer than seems reasonable, so many development efforts bring products to market later than planned. And, after development work is complete in the lab, the whole effort may be for naught if for whatever reason customers don't like using it.

Mike Bishop and Carl Walker at the SWT Human Factors Laboratory spend their time getting HP software into the hands of customers long before it becomes an official product, and long before HP customarily lets any product out of its doors. The reason, says Walker, is to "get more feedback earlier in the development cycle." They have discovered that by getting reactions from customers sooner, they can avoid major product mistakes that might force expensive changes late in the development process or lengthen the beta testing process at selected customer sites. Early feedback has in fact reduced development costs, says Walker.

They also conduct detailed post-mortem examinations of each product development process, looking for ways to improve their methods. Continuous improvement, says Bishop, "is where our profit comes from."

Performance Management

EVEN SYSTEMS IN operation for years can be improved. Users are accustomed to thinking of most performance as being related to hardware. When you want faster performance, you upgrade hardware to get it. Flawed or inefficient software is beside the point if you can shove it along with mountains of mips. But performance management software is likely to be a far more cost effective route to travel, and may be the only route if you're using a system where hardware improvements have come to a halt, as is the case with MPE V.

Another of SWT's markets is performance management software, available for MPE V, MPE XL and HP-UX. HP divides performance management into three levels. The bottom level includes products that meet the performance management needs of nodes and workgroups. These existing products include:

■ **GlancePlus** — online diagnosis for problems that need to be solved immediately to clear system bottlenecks or identify system problems.

■ **LaserRX** — resource management capabilities for looking at system performance over time, including logging historical data to help determine such things as response times.

■ **RXForecast** — capacity planning including trend forecasting and modeling to determine when upgrades may be necessary or predicting response time degradation as more users come online.

■ **Software Performance Tuner** — application optimization helps to reduce application demand for system resource to improve performance, particularly during application development.

Moving up a level brings us to HP's just announced PerfView performance management software for site-wide use with multivendor computer systems:

■ **PerfView 1** moves online performance management up a level to reactive site management, interacting with node-level diagnostics, reacting to site-level alarms for management by exception and using node-level intelligent data capture capabilities.

■ **PerfView 2** provides proactive site performance management through historical trend analysis, alarm and event analysis, environment modeling and performance prediction. (See news story for more detail)

On top of the whole thing sits (what else?) OpenView, HP's highly successful open system network management software.

HP's colorful collection of products and improvements for MPE V is no idle exercise in altruism. The perpetual pursuit of profit is behind it all, but profits that show up on the balance sheets of both HP and its MPE V customers. MPE V makes many improvements possible without wholesale system change. And while this pathway may not be the best for all customers, it allows at least some to upgrade productivity while controlling costs by holding off that eventual purchase of new hardware.

It's no accident that HP recently shocked Wall Street with strong profits in the face of a miserable market. And even while it upgrades computing hardware, HP also chases after improvements in computer utility, the usefulness of computers delivered to the customer through whatever means possible. As long as MPE V customers are willing to pay the service and support costs of retaining their systems, it is much to HP's advantage to make those services and related products available while smiling broadly. HP's Software Technology Division sees dinosaur daycare for its past products as a efficient way to ensure a profitable future.

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Systems Center products are managed with a package called UCONTROL, which is installed first. UCONTROL provides a menu-driven method of install-

ing, upgrading and removing Systems Center products.

Installation is nearly automatic. During installation, you're prompted to enter the serial number and activation codes necessary to validate UCONTROL and any other System Center package you've purchased.

Because USECURE replaces some of the traditional UNIX security control files and programs, and because it can modify users' security information, it is important to strictly follow the installation checklist and to read the release notes and other USECURE documentation before proceeding with the installation.

Some installation tasks are worth explaining because they highlight USECURE features. For example, you're asked to specify the login name of the system security officer (SSO). The SSO

By David B. Miller



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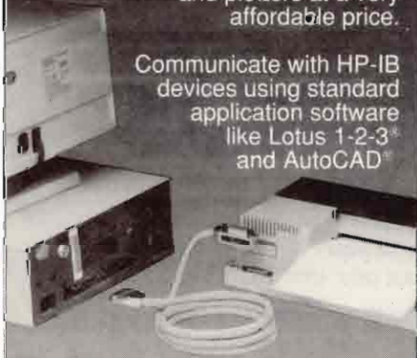
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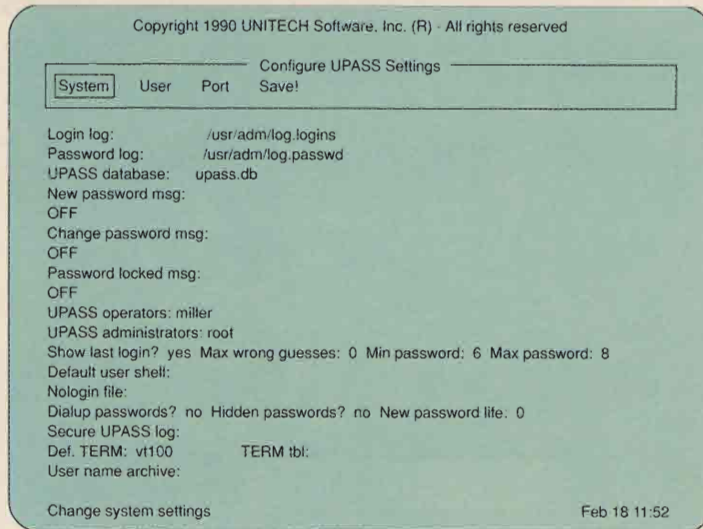
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FROM THE LAB

FIGURE



has full security rights and is the only person authorized to make system wide changes. However, the SSO does not have to be root, so an extra measure of security is realized here.

USECURE encrypts its datafiles. You are required to enter an encryption key for USECURE to use. Passwords can be user defined or automatically generated. You determine your preference initially at installation.

Configuration

USECURE is comprised of two components: UPASS, for password and user management and USHELL — The Really Restricted Shell.

We configured UPASS first. UPASS provides a menu system in which to do this, but you also can edit the UPASS main configuration file manually, once you know the names and possible settings of each parameter.

Figure 1 shows the system wide parameter configuration screen, accessed from UPASS's primary menu. System settings determine the locations of various UPASS files and the messages users will receive related to their passwords.

You also establish those users who can help you maintain system security. Persons designated as UPASS operators re-

ceive system security messages, but they can do little else. UPASS administrators can perform security related duties for other users, but they cannot affect the security of the SSO or other administrators, nor can they change the system configuration.

Other password related items you might consider are placing a limit on the number of times a user can guess his password, what the minimum and maximum password lengths should be, how long a password may exist before the user must change it, and the use of separate dialup passwords. User settings such as the default shell and default TERM variable value can be set up in this menu also.

Control can be exercised on the user level also. The User configuration menu lets you determine if particular users can have dialup access, what their password lifetime is, when they get reminded to change their password, what ports they are allowed to use, specific settings for some environment variables such as PATH, the initial umask for files, their login shell and what days and hours they are allowed access.

Individual ports can be secured. The Port menu allows you to determine ports that can be used for dialup, the number of failed login attempts allowed, how

long the user must wait before trying to login again and how long the user has to login. You can even restrict a port to specific users and restrict the hours that the port is available for logins.

Reports you can generate from UPASS's menu system include a system log, password change report, a report of logins and who performed them, and an su listing. Other report formats provided by UPASS include listings of successful and unsuccessful logins and successful and unsuccessful pwd attempts.

UPASS's primary menu Password Management option provides specific control over users' passwords. The SSO can change a password, lock/unlock it to restrict/allow access or reinitialize it to force a user to enter a new password immediately upon his next login.

Individual users are managed from the User Management primary menu option. In addition to modifying, deleting or acquiring the status of existing users, SSOs can enter typical new user information such as user IDs, group, home directory and login shell. A comments field is included to enter information such as the user's department, phone number, etc.

Login groups are cared for via the Group Management primary menu op-

tion. You can modify and delete user groups as well as create new ones.

USHELL Sea Shells

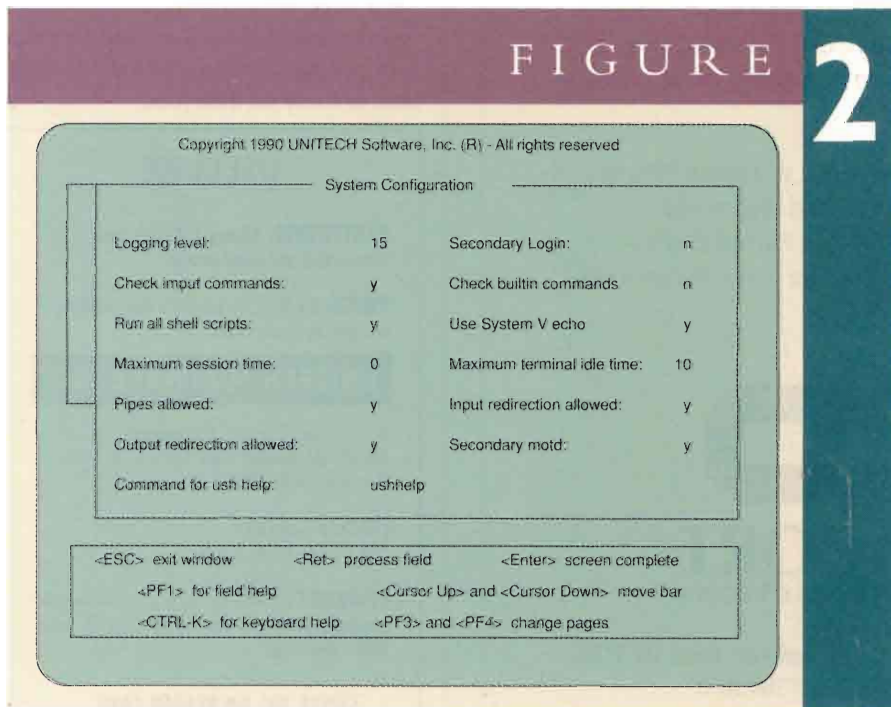
USHELL (ush) is a replacement for the Bourne shell and provides a high level of control over what your users can do on your system.

Figure 2 is USHELL's System Wide configuration screen that establishes parameters for all USHELL class users. These parameters establish how detailed an activity log you need for audits, whether or not you force users to follow a secondary login procedure and whether or not you want USHELL to check commands (including internal shell commands such as cd and pwd) against an allowed command list.

Other features you can configure are the maximum number of minutes a user can stay logged on or have an idle terminal before being automatically logged off. Input and output redirection and the use of pipes can be restricted also.

If you configure USHELL to check each command entered by the user, USHELL compares the command against a system-wide, group-wide and/or individual allowed commands list.

Here, you establish the name of the



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command the user will enter, the specific directory in which the command resides, the specific file that will be run and whether or not the user can invoke the command with switches and parameters. The last column lists users who are *not* allowed to use this command.

Further tailoring is possible. You can specify up to five profile command files

that each USHELL user will run upon logging in. You also can establish a list of specific terminals that a user will be allowed to login to. For example, you could restrict a user's dialup access to a specific port.

Users become USHELL users when they are assigned /bin/ush as their login shell. This can be done through the

UPASS/USHELL menu system or from the command line. In the event you are not using UPASS (UPASS and USHELL can be used independently), you can simply edit your /etc/passwd file to modify the user's password record.

Security officers have access to detailed audit trails of each user's activity. Log files are maintained on a user-by-user basis. A new log is created each time a user logs into the system. USHELL's menu allows the security officer to print, display and delete log files.

While you'll do a fair amount of work getting things configured, the user notices nothing unless they try to access things they shouldn't. From a user's perspective, nothing has changed.

Documentation

UCONTROL's documentation is separate from System Center's other packages, such as USECURE. I appreciated the inclusion of typical configuration scenarios to use as guides in configuring my own system. The documentation is clear and understandable.

UNIX and security. Businesses banking in UNIX systems can't allow this contradiction in terms to exist any longer. In addition to knowing your users, a package like USECURE can give you the peace of mind needed to tackle your real MIS challenges while allowing users to freely do their jobs. ■



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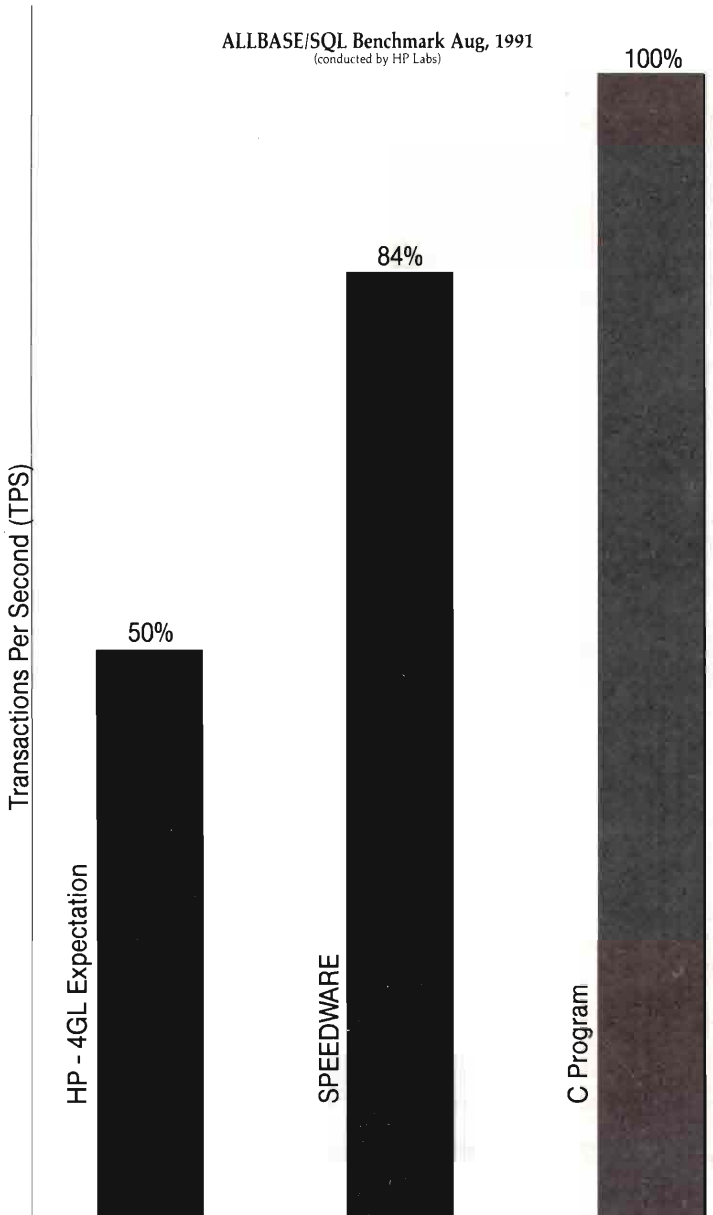
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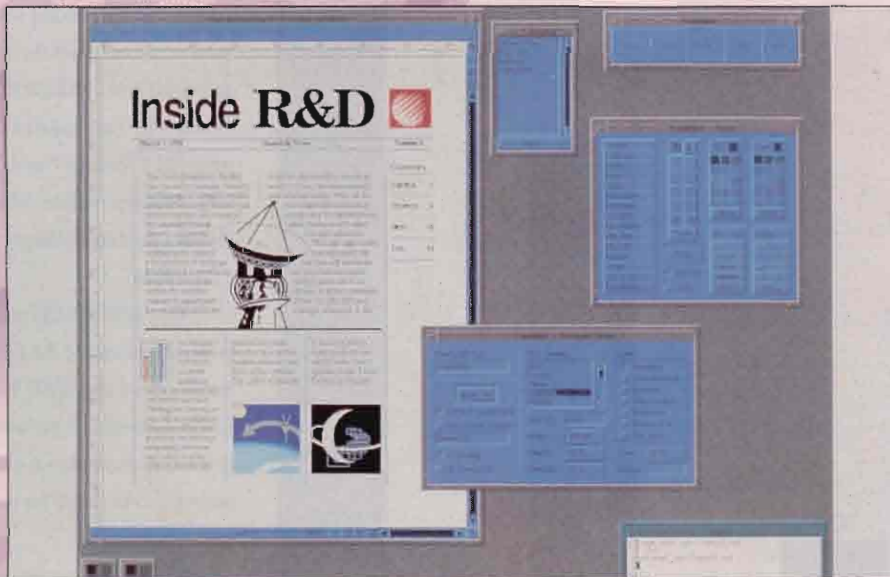
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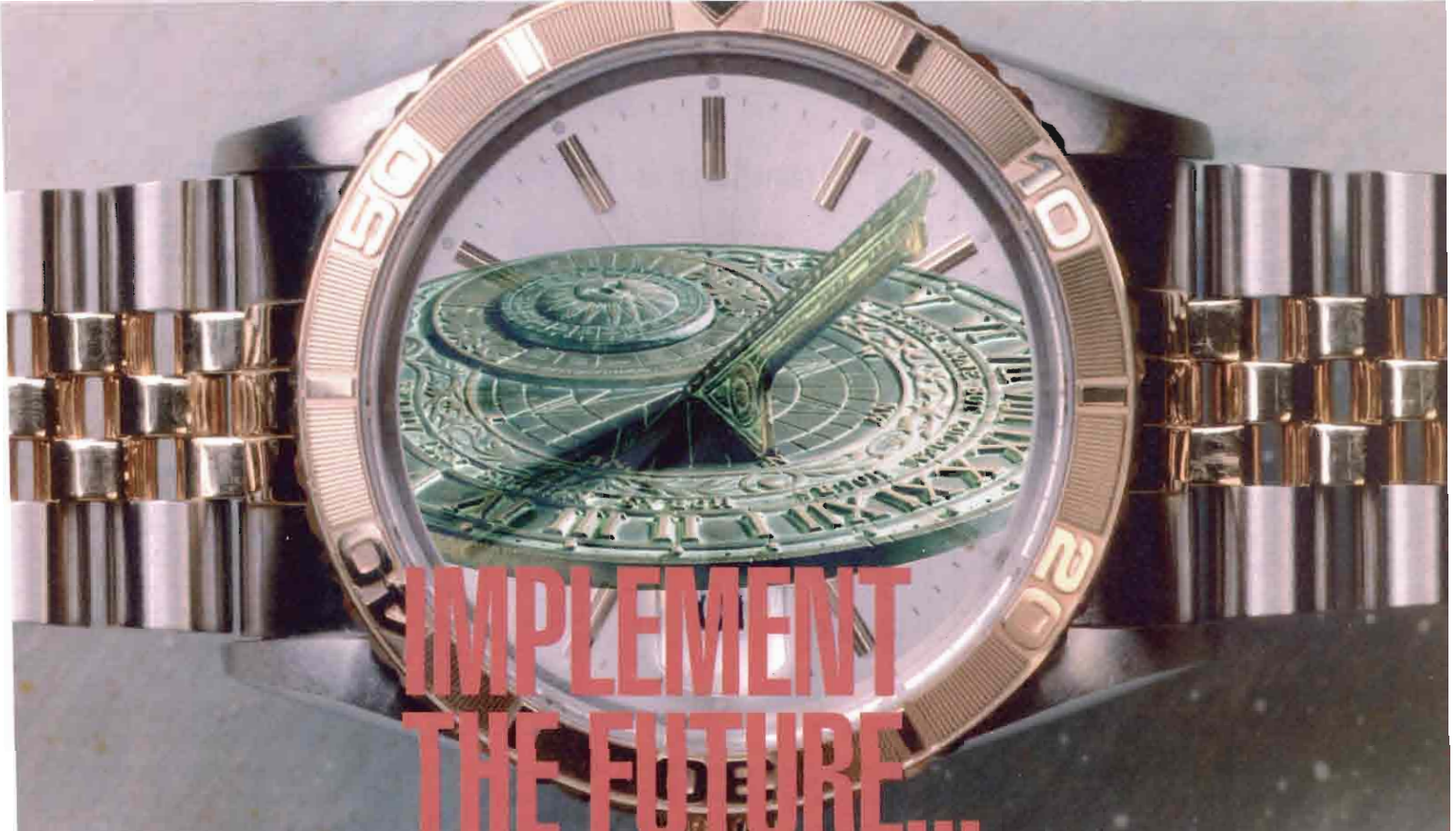
about developing a circle of friends that includes skilled artists and writers. What we have in mind is FrameMaker for HP-UX workstations, from Frame Technology Corp. (San Jose, CA).

Features And Requirements

FrameMaker publishing software can be used to create several types of professional-quality documents including letters, memos, reports, newsletters and manuals. More than that, the application allows the easy inclusion of a range of

By Michele Petrovsky





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FROM THE LAB

FrameMaker is the first publishing package with which we've worked whose menus and dialog boxes contain only the items we thought they should and would contain.

fonts, graphics and artwork in any document it manufactures. Add to this other operations such as footnoting, generating tables and indices, and creating and storing for reuse paragraph, line, and even character formats, and you begin to see that FrameMaker is indeed a more than fully functional publishing package.

In order to load and use FrameMaker in a Hewlett-Packard environment, you'll need the following:

- An HP Series 300, 400, 700, or 800 workstation with at least 8 MB of RAM and 16 MB of swap space.
- Version 7.0 or 8.0 of the HP-UX operating system running on that station.
- The X11 version of X Windows running on that same station.
- An ICCCM-compliant window manager on your chosen workstation.
- From 10 to 30 MB free disk in a single disk partition on the workstation.
- Access to your station's root password.
- A PostScript printer.

Given the above, you've got everything you need to successfully install and work with FrameMaker.

Installation

Loading FrameMaker to our lab's HP Apollo was on the whole a smooth, glitch-free process. We began by logging into the Apollo as root. Then, follow-

ing the (at this point exceptionally clear) installation documentation, we carried out a cd to the root directory. We assume that this step is included in order to ensure that the installer is in a position within the file system which, in turn, ensures that the commands can be carried out. But given the nature of UNIX file systems and home directories, a simple pwd may have been sufficient.

I made sure that we were indeed sitting at the base of the UNIX tree, and the next command issued — **/etc/shutdown 0** — put our system into single-user mode. We ran into two problems while loading FrameMaker. The next command which the installation guide prompted us to enter was **convertfs**. The only comment made by Frame's documentation thus far was that the above command converts the file system on the disk to which FrameMaker was to be loaded to allow the use of long (more than the default maximum of 14 characters provided by HP-UX) file names. The installation instructions refer you to the HP-UX Reference Manual for more information on **convertfs**, but nothing more is stated.

Imagine our surprise when we looked up **convertfs** in our online manual (that is, by means of the **man** command) and discovered that the changes to the file system made by **convertfs** are irreversible, and may prevent applications not built around long file names from functioning.

In our case, this wasn't a concern. Our Apollo was due to have HP-UX reloaded from scratch as soon as we were through with our work with FrameMaker. But in how many cases can the decision as to whether to proceed with this installation, and thereby forever altering the nature of a file system, be this easy to make? And in how many other cases might the load proceed with the user oblivious to the danger to other applications, by virtue of his not taking the time to check out **convertfs** more thoroughly? We ended this part of the installation feeling that Frame should have included in its install documenta-

tion a caveat regarding the nature of **convertfs**.

However, the rest of the load was not only as easy as what had preceded it, but even more thoroughly documented. The next step we took was to use **mkdir** to create a directory for FrameMaker, in the /usr file subsystem. Then, a simple **cd** to this new directory /usr/frame, followed by the command line:

```
tar xvfb /dev/update.src
```

After inserting a QIC cartridge in the proper drive, we loaded a shellsript called **readtape**, and that script's supporting files, to our system. Completing this tar took about eight minutes.

Running **readtape** allowed us to select only those FrameMaker files from the distribution medium that corresponded to the FrameMaker configuration options we intended to use. For example, **readtape** asked if we wanted to run multilingual versions of FrameMaker, to which we answered no. The script also questioned us on the extent of the font set we intended to use, and whether or not we wanted sample documents extracted from the tape. Then **readtape** told us how much disk space it would use in installing the options we'd asked for, and asked us a few more things, the last of which was whether it should proceed with the installation. Upon our saying yes to this, **readtape** took off, finishing the load of FrameMaker in about 12 minutes.

There's another shellsript related to installing FrameMaker. This script, called **fmverifyinst**, does what its name suggests. It verifies that FrameMaker has been properly loaded, with no missing, misread or damaged files. The installation guide points out that running **fmverifyinst** is optional, and can take as long as 30 minutes. Nonetheless, we put the script through its paces. After about 25 minutes, our FrameMaker installation was pronounced complete and correct.

Configuring User Environments

Frame provides the installer with another shellsript, called **fmusersetup**, which

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modifies individual users' paths and sets an environment variable, FMHOME, so as to allow users access to FrameMaker from any directory. This script changes each user's .profile file when running under the Bourne shell as we were, or .login and .cshrc files if under the C shell. Our tests not only used fmusersetup to carry out these edits, but also followed the instructions given in the installation documentation for doing them manually. Both methods of making FrameMaker universally accessible worked exactly as documented.

Next, we set up a license and a password. The installation documentation describes the two types of FrameMaker licenses available — fixed and floating — and defines the former as allowing the package to be used only on a specified workstation and display, and the latter as relying on a license server process, a license server host, and a users' file, in order to provide multiuser and even multistation access to FrameMaker.


Given these definitions, we decided that a fixed license was what we'd be using, and therefore ran the shellscript (fmfixedlicense) appropriate to that type. Unfortunately, the error message we got was "unable to verify license password," so we contacted Frame's technical support staff only to learn that we should have been setting up a floating license. Glitch resolved.

Tests

Frame provides a thorough, clearly laid-out and documented tutorial. Considering the breadth and scope of what the package does, we decided to use this tutorial as our means of evaluating the application.

Frame constructed its learning module in the same way that it built FrameMaker. Usage proceeds from simple to more complex operations, with each succeeding level building on the previous. The organization of both tutorial and application as a whole are eminently logical. FrameMaker is the first publishing package with which we've worked whose menus and dialog boxes

Frame's tutorial is so well done as to make these complex operations easy to understand and carry out.



contain only the items we thought they should and would contain. For example, the EDIT menu includes Cut, Paste, Search, Replace and Spelling Check/Replacement features.

We began the tutorial (documented well in the volume of FrameMaker documentation called "Learning FrameMaker") by examining the application's Help facility. We found 44 major topics there, collectively containing dozens more of subtopics. No doubt about it — FrameMaker's Help feature is thorough enough to be of real use.

Next, we tried opening a document; moving around within it by several different means; finding other FrameMaker documents in the file system; "zooming" a document (enlarging or decreasing its display size); exiting a document, with and without saving it; and exiting FrameMaker itself. Then it was back into the package for work with template documents: applying formats from catalogs thereof to paragraphs, parts of paragraphs, or individual words; copying formats from one document to another; entering new text into a pre-existing template; creating footnotes; creating a Table of Contents; printing a document; blocking text; copying, moving, and deleting blocked text; and using FrameMaker's powerful spelling checker.

We then began to explore FrameMaker's graphics capabilities. We imported illustrations into our current

document from the package's built-in library of clip art; created an anchored frame (an area within a document, reserved for illustrations, which is anchored to, and therefore moves with and remains properly located in, text); used FrameMaker's drawing tools and commands (creating, copying, moving, resizing and aligning several shapes and lines); and grouped graphics within an anchored frame. Throughout this part of our desktop publishing education, we never faltered. As mentioned, Frame's tutorial is so well done as to make these complex operations easy to understand and carry out, for even the most fumble-fingered among us.

Wrapping Up

As we've frequently noted, FrameMaker is a well-organized package whose abundant collection of capabilities are presented and executed in a classy way. And as our work with FrameMaker demonstrated, the application fulfills its promise of providing professional-quality publishing tools. If the preparation and enhancement of a variety of types of documents is on your organization's regular agenda, FrameMaker for HP-UX could be all you need to accomplish those tasks. ■

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Neutral Observations



STANDARDS

Donald Marks

Editor's Note:
This month, we
welcome back
former managing

editor Don Marks, who from time to time will contribute columns on UNIX and other standards-related issues.

No, it's not what you think. Despite its ominous, Orwellian overtones, the Architecture-Neutral Distribution Format (ANDF) is not a plan to populate the countryside with Levittown look-alikes, nor is it a pernicious plot to propagate the shopping-mall school of building design. No, the architecture in this case is computer hardware, and distribution refers to the delivery of software applications. The ANDF is the Open Software Foundation's (OSF) scheme for fostering the development of truly portable, hardware-independent application software.

The idea of a development specification that would allow any software to run on any hardware, regardless of its manufacturer, long has been the dream of independent software vendors (ISVs) and their customers. For developers, the advantages of such a technology are clear: reduced development costs, a wider customer base, and ease of application maintenance and enhancement. Developing one version of an application that can run on any platform obviously costs much less and requires far fewer resources than developing a separate version for every platform you support.

With truly portable code, software developers could save big on distribution costs as well. An ANDF would eliminate the need to maintain separate packages for platform-specific versions of an application, because one package containing a single tape cartridge or CD-ROM could serve for all platforms. Simplified distri-

bution also would be a major plus for dealers and VARs. Just ask anyone in the commercial UNIX biz: Trying to track and inventory several versions of the same software — not to mention finding sufficient shelf space for them all — has proven to be a big, costly headache.

Most important for developers, however, could be the access to new markets that hardware-neutral software would provide. If your application runs on everybody's hardware, your list of potential customers suddenly expands from users of a few platforms to users of all or most computer systems. Of course, your competitors also would have access to broader markets and you could lose the protection afforded by developing for a niche platform. But for most developers, the opportunity to tap new customers would outweigh the risk of increased competition.

For the user, the benefits are less obvious but equally significant. First, you inherit the ISVs' reduced development and distribution costs, which are passed on in the form of lower prices. (All that

savage competition between software developers and reduced overhead for VARs won't hurt the price tags, either.)

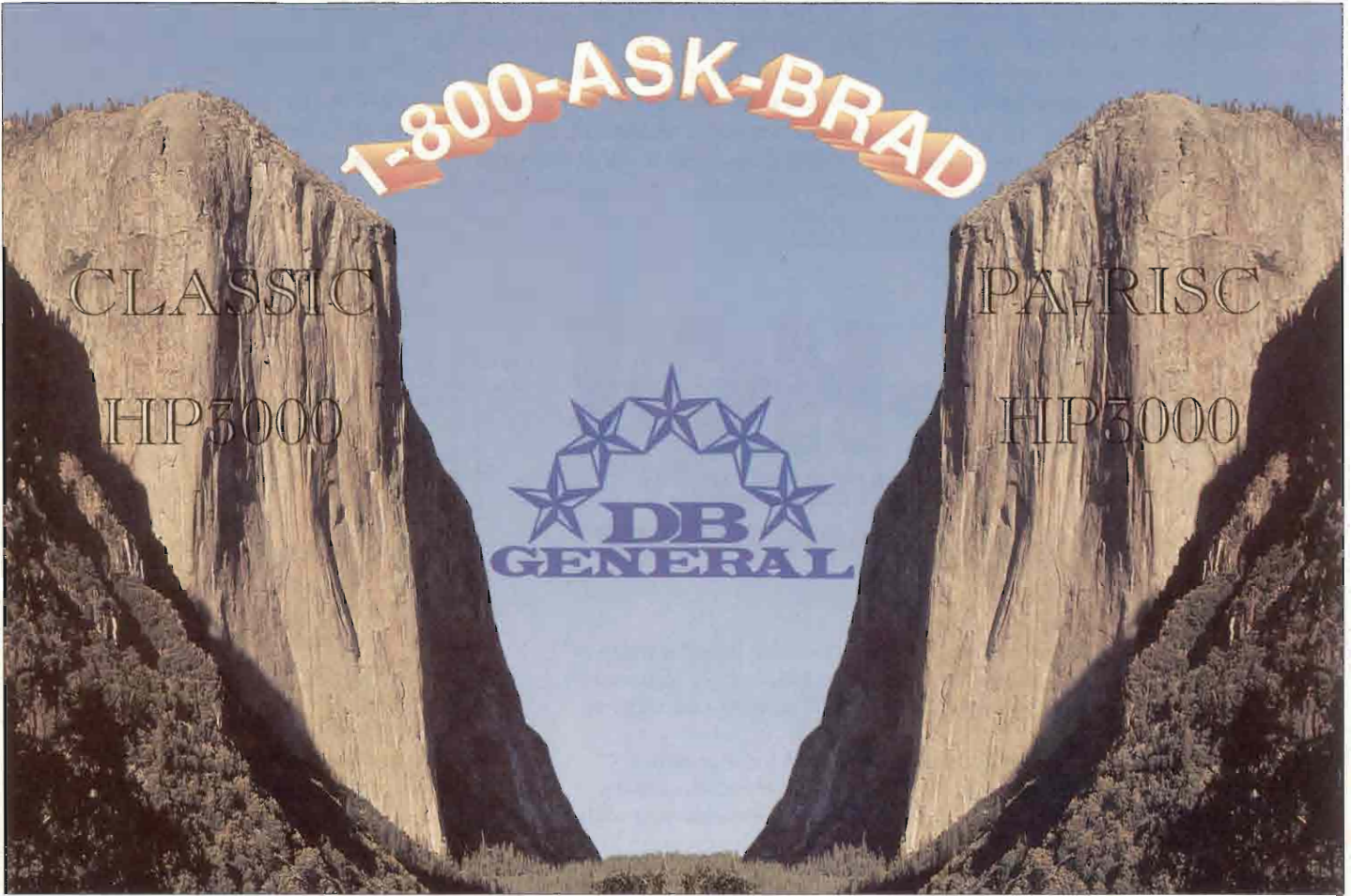
Second and most important, you gain enhanced flexibility. If your application of choice or even your own in-house applications can run on almost all existing hardware platforms, guess what? You just broke free of the iron monger's manacles. You've uncoupled hardware and software and granted yourself the independence to buy whatever system offers you the best performance at the lowest price. What's more, you can distribute your applications freely and easily across a multivendor network, you can standardize on a single application across several platforms and you can use your new-found leverage to demand that all your hardware vendors make nice and cooperate.

OSF Asks What If ...

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struggled with the problems of standardized application development and distribution — with few successes beyond methodologies for structured programming. Hardware inconsistencies and the need to protect developers' source code from software bandits have, so far, sty-

mied the industry's best and brightest. But, true to its crusade to promote open systems and interoperability, the OSF felt that hardware-neutral code was a windmill that warranted another tilt.

OSF's chosen path to portability is the ANDF, and although the quest hasn't un-

earthed the Holy Grail as yet, it seems to be on the right track. OSF published its Request For Technology (RFT) for the ANDF three years ago in April 1989. From the start, the idea was to develop a two-part technology, consisting of a standard application development environment (called an ANDF Producer) and a hardware-specific installation mechanism (known as the ANDF Installer). According to the original conception, the ANDF Installer would be the responsibility of the hardware vendor, with each manufacturer devising the most effective installer for its hardware architecture and operating system. Among other requirements for the technology were:

- Hardware independence — This means portability as well as the ability to encapsulate source code for hardware-dependent features, so that it can be installed on the appropriate platform.
- Protection of source code — Software vendors want to be sure that their code is not available for distribution in easily-pirated human-readable form.
- Minimal performance degradation — One concern about a generic development environment is that it minimizes hardware and operating system calls frequently used to improve performance.
- Functional consistency of applications across platforms — The software works the same way on HP hardware as it does on DEC or Sun or IBM.
- Extensibility to other standard programming languages, such as C++ and COBOL.

The OSF's idea was to promote a generic technology that would allow developers to maximize the portability of their applications while deferring any machine- or operating system-specific features to the ANDF Installer. Using the ANDF Producer, the software developer would generate generic application source code, along with any hardware-specific source code required for special target platforms. With the aid of other ANDF-compliant tools, these generic and hardware-specific elements could then be optimized and linked, before being distributed to customers in a single package. When the user installed the

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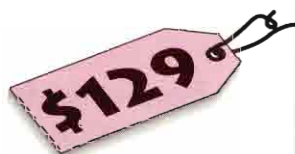
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The ANDF is OSF's scheme for fostering the development of truly portable, hardware-independent application software.

package, the ANDF Installer — provided by the hardware vendor — would incorporate the generic application source code with any appropriate platform-specific code and install the application.

ANDF The Winner Is ...

Of more than 20 responses to the ANDF RFT, the OSF selected four prototypes that met all of its technology requirements. One of the final four was a joint submission by HP and the University of Virginia, which used HP Code-Plus as its ANDF Producer and included two Installers, one for the Motorola 68030 architecture and one for PA-RISC. But alas, after rigorous performance testing, HP — usually the darling of the OSF — didn't wind up the winner. Instead, OSF chose as the top prototype a technology developed by Britain's Defense Research Agency (DRA), which outperformed or outranked the other submissions in all of the specified ANDF functions.

According to Julie McNamara, OSF technology manager for the ANDF, efforts are currently underway at several OSF members, HP included, to productize a snapshot of the DRA technology. Some forward-thinking industry observers, including Nina Lytton of the *Open Systems Advisor* and Judith Hurwitz of *UNIX in the Office*, speculate that an ANDF could be in widespread use within the next few years. OSF's McNamara claims these fortune-tellers may not be far wrong.

"We're in the snapshot phase in 1992, and it usually takes vendors about a year to productize and deliver, which means the technology could be generally available by late 1993," says McNamara. Noting that other OSF components have followed a similar schedule, she adds, "I think three years is a conservative, realistic estimate."

ANDF You Believe That One ...

Obviously, the idea of a universal, portable development standard is nothing new — the DRA technology itself has been under development for more than five years. The principal obstacle to such efforts in the past always has been the sheer number of proprietary hardware and operating system platforms. Hardware vendors have been loathe to compromise on any features that differentiate their platforms from their competitors' and that distaste has historically extended to sharing software offerings.

So what makes McNamara so sure her pet project is suddenly going to succeed? One possible answer is that the time is finally right. The push for standards and movement toward open systems in recent years already has granted users greater independence from hardware vendors than ever before. Also, with hardware profits falling, many large vendors are concentrating more of their efforts on software development, including the development of applications for competing platforms. These vendors stand to accrue the same benefits from ANDF as do their ISVs. Surprisingly, in the case of ANDF, the market may actually have matured to the point where what's in the customer's best interests may just come to pass.

Other obstacles to portability still remain, however. Despite the benefits for their application development organizations, large hardware vendors like HP and Sun may be reluctant to uncouple hardware and software buying decisions.

For one thing, HP already supports a vast array of applications for both its Motorola and PA-RISC platforms — with more ISVs entering the growing



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Series 700 market all the time. Why support a technology that makes all that precious application software available for use on other platforms? As soon as Sun or IBM — or some third-world upstart, for that matter — markets a high performance RISC chip with lower cost per mips, your customer base is going to want to run its software on the faster, cheaper box. Pressure from users and ISVs can go a long way, but in the hardware market of the '90s, competition rules. ANDF could impose true commodity status on workstations and servers before hardware vendors like HP are ready for the consequences.

But there may be one good reason for HP, IBM and other OSF members to cooperate rather than compete when it comes to software availability. For the UNIX market — or as the OSF prefers to call it, "the open systems industry" — a truly workable ANDF and the low-cost shrink-wrapped software it would make

possible could have crucial implications. At present, the lion's share of anticipated growth in the workstation market is in the commercial arena. This means that (if the U.S. economy ever recovers) workstation vendors can expect to sell a lot of desktop systems into business environments where users run word processors, spreadsheets, golf games, etc.— or, as the marketeers like to say, integrated office productivity tools. And that means competing with PCs and Intel, and that, in turn, means competing with Windows and Microsoft.

ANDF could permit the workstation world to present at long last a united front against that icon of the industry, the wizard of Windows himself. Bill Gates, if Windows NT lives up to its promise, will otherwise almost certainly rule the desktop and perhaps someday, the world. Clearly, this will not stand. But if, thanks to ANDF, the street price of your average shrink-wrapped UNIX application

were to fall from \$1000 to, say, \$350 or \$400, and multiple hardware architectures and disparate varieties of UNIX ceased to be a burden for developers, then workstations could at last take on PCs *mano a mano*.

Of course, widespread application availability and hardware independence would entice other vendors — particularly high-volume clone producers into the UNIX market — further forcing down the price of workstations. And all that PC software? Suddenly it runs on any RISC workstation platform you choose.

You there, with the blazing PA-RISC-driven Model 720 sitting on your desk, let me ask you this: when it finally comes down to price/performance, will it be PCs or workstations? — *Don Marks is an independent communications consultant based in Yardley, PA.*

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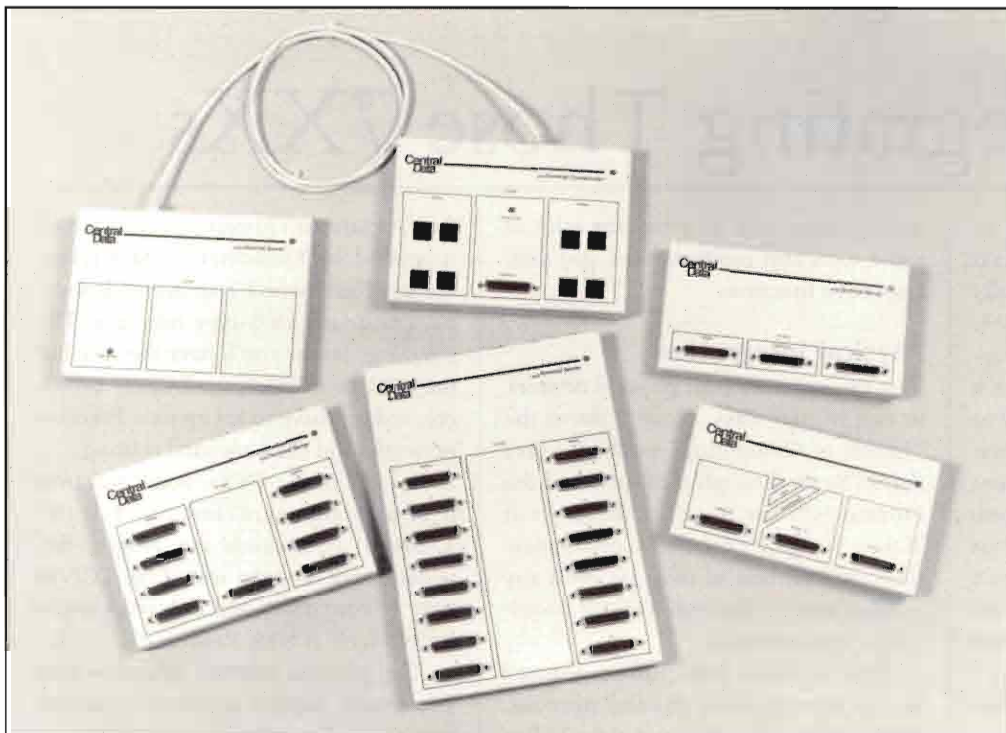
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APOLLO

Fred Mallett

Integrating Those 7XXs

Believe it or not, just last night I actually loaded SR10.4.

new. stuff on my DN2500. What a transformation. The machine now takes a mere 3.4 seconds to boot compared to four minutes for the SR10.3.5. Login was improved greatly. I entered my account name, then had to think of the password. My simulation test program ran seven times faster. The keyboard was only used to login, after that the built-in keyboard microphone (\$3.25 option) accepted verbal commands.

Then I woke up. Talk about vaporware.

But, since no one has shipped SR10.4 at the time of this writing, who could call me a liar? My nightmare was probably caused by deadline stress. When I first looked at the expected shipping dates for SR10.4 and OSF/1 last June, I did a bit of quick column planning and decided that February would be a good time to write a column on SR10.4, and April would be about my OSF experience.

Looks like you may have to wait until next year to read those articles.

Workstation Merge

Because the focus of this issue is workstations, it would be appropriate to write about SR10.4 (which, in my humble opinion, will be the best operating system to hit the silicon for years to come — OSF will need four or five years to develop a full flavor). But I can't write about it yet — I haven't loaded it.

So, the next natural step for many of you Domainites probably will be to merge some Series 9000 Model 7XXs into your network. Here is an overview of how to integrate an HP-UX machine into your Domain environment. This is

not intended as a how-to, but a list of some tools and products used and their respective functions.

Physical Integration

You can structure your physical network in one of two ways. *Figure 1* shows the "Islands of Computing" method. Leave the 7XXs in their physical net, and the Domain/OS machines in theirs, be it Token Ring or Ethernet. Communications will remain as they are with any foreign host — through TCP/IP protocols across gateways.

Figure 2 shows both platforms mixed in one heterogenous physical network. This could be Ethernet or Apollo Token Ring (ATR). Hopefully the ATR board will be available for some 7XXs in the near future. But before you get too excited about the ATR board for 7XXs, keep in mind that only Models 730 and 750 (and, as an option, 720) can use the ATR because it requires the EISA (Extended AT) bus. (The 700, 705 and 710 don't support EISA.)

Also, by running a Model 7XX on the ATR network, you won't have any of

the Domain to Domain Services (DDS) supported by Domain/OS. As a result, the machines won't respond to lnode, pst, crp or any DDS-type messages. The advantage is that you'll have the speed of the ATR to use for your TCP/IP protocol, and not have to set up new Ethernet networks and the associated routing.

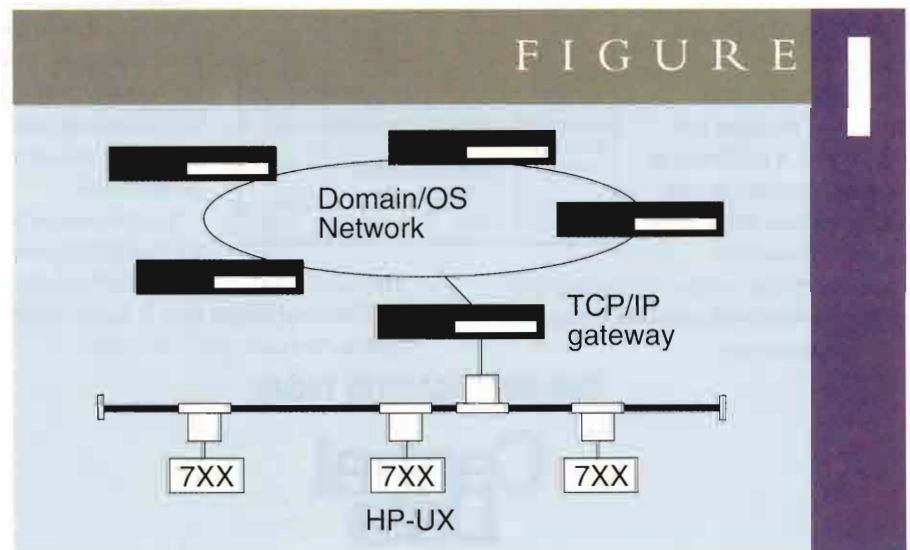
To talk to the 7XXs, you'll still treat it as a foreign host and use TCP/IP. Types of commands are: rlogin, ftp, telnet, rexec, and the rest of the TCP/IP suite of commands and associated applications such as NFS, Passwd/ETC, NIS.

The physical method of connection you employ depends mostly on your current network topology.

Loading Software

The easiest way to do this is to give HP \$75 when you order the machine. This buys you Instant Ignition, which keeps you from loading software, enables and configures the window system (HP VUE). With Instant Ignition you must de-install the parts you don't want.

After the usual hookups of hardware, insert the media labelled "install" into the



CD-ROM or DAT drive. Apply power and perform an escape to attended mode boot (hold the escape key) so that you can choose to boot from the "install" media. The machine will boot from media, and automatically run the install program. Note, there's no network functionality, as network is based upon TCP/IP, and like on Domain/OS, this must be enabled and configured.

The install program is menu and prompt driven. After putting minimal software on the disk, it will reboot and ask for the media labelled "core." Next, it will prompt you for information needed to set up the filesystem (logical volume in "Domainese"), set-up the amount of swap space you request, and let you choose the filesets you want installed (this is equal to running `/install/tools/config`). The amount of swap space needed depends upon how many processes will run at the same time, and which applications will run in those processes. Release media of an application will tell you how much swap space is needed by that application. This number easily can become huge.

After supplying these parameters, the install program will go off and run "newfs" to perform the equivalent of an "invol with option 1 -f" to set up the disk without reformatting (that is done by `mediainit`), as it is recommended that you don't reformat. Next, it will mount the disk and load software to it, giving you amount of space required, done, remaining and estimated time to completion. After loading all software, it will reboot again, and this time will prompt you for Hostname, Internet address, and date and time information.

After boot, you must login as root (no password yet, so put one on) and enable the window system, assuming you chose to load HP VUE. There is an easy way to do this, as the Instant Ignition shell script is shipped with the software. Execute the script:

```
"/etc/newconfig/ignition/configure.sh"
```

To check for any installation prob-

lems, look in the log file `"/tmp/update.log"`

Now, you have an installed stand-alone host. To get network functionality, you must set it up. If this isn't the first Model 7XX in the network, you already might have enabled network functions to make setup easier. Otherwise, it

is time to manually edit the network files to get a functioning LAN.

Remember, there isn't a network on HP-UX until you set it up. If you're using TCP/IP on your current network this won't pose a problem because the file names are the same. Assuming this is the first Model 7XX, or that you don't have

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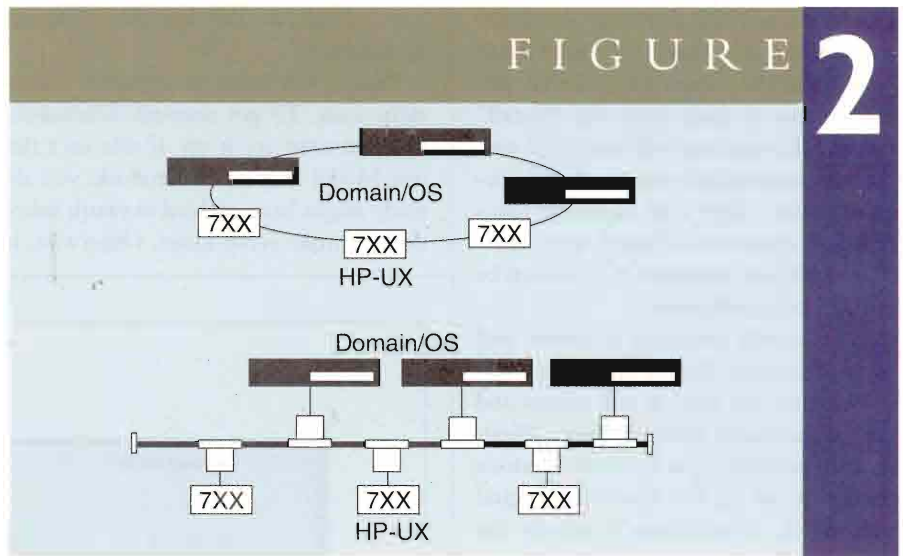
CIRCLE 452 ON READER CARD

the above mentioned services set-up, you must edit the following files to reflect your network:

```
/etc/hosts /etc/networks /etc/inetd.conf
```

Now, instead of editing all "big number here" host name to internet addresses into the /etc/hosts file, put in your Domain/OS TCP/IP host name and address, then edit the /etc/inetd.conf file, and enable inetd. Now you can reboot, then use the inetd enabled ftp to get a copy of the hosts file from the Domain/OS master. This is much less typing.

The problem occurs when you start routed. It isn't supported at this release. Use "gated" instead, and only enable RIP protocols. This lets "gated" talk to "routed" nicely. If you try to put in multiple interfaces, the command is still **ifconfig**. Manual routes still are done with "route". All of the commands, and daemons mentioned here were in "/etc/rc.local" on Domain/OS. If you don't



find such a file, they are in "/etc/netlinkrc" or the rc files called from "netlinkrc" such as "/etc/netbsdrc".

This hopefully will get your Model 7XX installed and running in the network. Setting up more services and listing Domain/OS to HP-UX administra-

tive commands will have to wait. — Fred Mallett is president of FAME Computer Education in Corpus Cristi, TX, and a member of the InterWorks board of directors.

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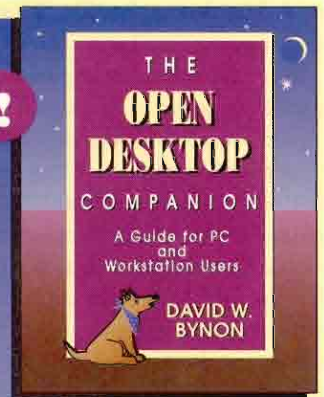
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Contact M.B. Foster Associates, Ltd., 50 Water St., Chesterville, Ontario K0C 1H0; (613) 448-2333.

Circle 399 on reader card

HP Offers Five Ergonomic Terminals

Hewlett-Packard announced five new ergonomically designed text terminals for the HP 3000 and HP 9000 business systems and servers, including its first terminals with reduced low-frequency electromagnetic and electrostatic emissions.

All of the new terminals offer enhanced ergonomics such as a full 14-inch "overscan," or borderless, full screen that is easy to read, and sharper and has larger characters.

Four are block mode terminals designed for use with HP 3000 business systems; they are the HP 700/96, HP 700/96ES, HP 700/98 and HP 700/98ES. The fifth terminal, the

HP 700/60ES is for 9000 users and is a reduced-emissions version of the HP 700/60, introduced last year.

The 700/96 and 700/98 are \$895 and \$1,150 respectively. The 700/96ES and 700/98ES are \$945 and \$1,200 respectively. The 700/60ES is \$589.

Helios Introduces Memory For HP 9000 Models 705, 710

Helios Systems announced memory upgrade kits for the HP Apollo Series 9000 Model 705 and 710 workstations.

The upgrade kits consist of four boards each, and are available in 8-, 16- and 32 MB sizes. All kits are 100 percent compatible.

List prices are \$1,080 for the 8 MB kit, \$2,160 for the 16 MB kit and \$4,320 for the 32 MB kit.

Contact Helios Systems, 1996 Lundy Ave., San Jose, CA 95131; (408) 432-0292.

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MAESTRO Batch Management Software Available On HP-UX

Unison Software announced the availability of MAESTRO, the batch job management software, on HP-UX systems.

MAESTRO automatically handles tasks usually performed manually in both standalone and network environments, such as integrating job requests, scheduling job production, preparing job streams and documenting job status.

HP-UX users now are able to manage processing with custom scheduling calendars, file and resource dependencies, cpu and schedule limits, and full reporting and audit trails. MPE jobs can be dependent on UX files and UX jobs on MPE files.

MAESTRO/UX supports a mixed network of HP 3000 MPE and HP 9000 HP-UX systems. Inter-CPU job and schedule dependencies are supported between MPE and HP-UX systems as well as between HP-UX systems.

MAESTRO/UX also includes tools that can be used to redirect the standard UNIX



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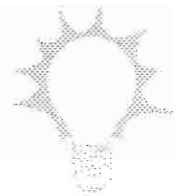
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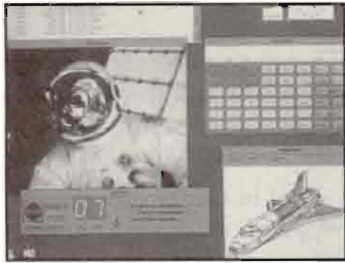
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JetEye Opens HP95LX LaserJet Printer Connectivity

Extended Systems introduced a "point and shoot" printer interface for the HP95LX palmtop computer.

Using the built-in infrared interface, the HP95LX palmtop can transmit printer information through the air to Extended Systems' JetEye, an infrared receiver. You plug the JetEye printer module between existing Centronics printer cable and the parallel interface of a HP LaserJet series II, IID, IIP, IIID, IIIP or IIISi printer.

JetEye's pass-through design does not interrupt the normal flow of office PC-to-printer operation. JetEye acts as a double input port to the printer.

JetEye model ESI-9500A is \$129.

Contact Extended Systems, 6123 N. Meeker Ave., Boise, ID 83704; (406) 587-7575.

Circle 397 on reader card

Datalogix Presents GEMMS Process Requirement Planning

Datalogix International announced the Global Enterprise Manufacturing Management System (GEMMS), a next generation Process Requirement Planning (PRP) management software system offering support for multiple platforms, languages and currencies and multilevel access to organizational information.

GEMMS provides process manufacturers with the ability to share data across multiple server and client platforms, enabling integration of an assortment of plant management systems. GEMMS can run and share data on HP 3000 and 9000 series running MPE XL and HP-UX, across all DEC hardware under VMS, and on the IBM RS/6000. Users can implement applications on one or more hosts, on a combination of client and server or just clients with the host acting as storage server.

The Core System currently includes six modules with another four in development. The six current modules include: Formula Management, Inventory, Production, Management, Sales Order Processing, Product Costing and Purchase Order Management.

Contact Datalogix International Inc., 100

Summit Lake Dr., Valhalla, NY 10595; (914) 747-2900.

Circle 396 on reader card

VECTRA ES Transforms 80286 Vectra To 20 MHz 80386SX

Oregon Digital Computer Products introduced the Ringo Technology RT386SX-2, designed to upgrade existing HP Vectra ES and ES/12 PCs from an 8 or 12 MHz 80286 to a 20 MHz 80386SX-based computer.

The RT386SX-2 is a complete mother board replacement providing full 20 MHz 386SX performance. The processor is an Intel 80386SX running at 20 MHz. The RT396SX-2 is designed with a VLSI chip set from Chips and Technologies. Keyboard connectors, power connections and the shape of the upgrade board are identical to the Vectra mother board being replaced.

The upgrade board comes with 2 MB of 70ns RAM installed and can be upgraded to 8 MB using readily available 1 MB x 9 70ns SIMMs. The RT386SX is priced at \$899 with 2 MB of 70ns RAM installed.

Contact Oregon Digital Computer Products Inc., 885 NW Grant Ave., Corvallis, OR 97330; (503) 753-5554.

Circle 395 on reader card

Arens Debuts Presentation Graphics For The HP 3000

Arens Applied Electromagnetics Inc. announced Release 5.7 of Presentation Graphics (PG) for the HP 3000. PG is a standalone, minicomputer-based business graphics package that runs under the MPE or MPE XL in native mode.

PG is a business graphics package offering bar, line, pie and word charts. PG is able to read external data files, to spool output, and to plot multiple charts on a page. PG allows you to automate charting, eliminating the need to re-enter data already on your HP 3000.

PG has statistical capabilities, including regression analysis, log charts, and high/low/close charts. With an easy-to-use question/answer interface, you can quickly create charts on "dumb" terminals and output your finished charts to graphics devices including all HP plotters, HP LaserJet printers including PaintJet and LaserJet, and the HP 256X series of line printers. In addition, the HP LaserJet III is now supported using the capabilities of the HP-GL/2.

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Contact Arens Applied Electromagnetics Inc., P.O. Box 329, Gaithersburg, MD 20884; (301) 258-0970.

Circle 393 on reader card

JetCard/Si Plug-In Card Speeds Printer Sharing

Excellink Inc. announced an integrated, faster version of JetCard/Si, a family of plug-in interface cards for the HP LaserJet IIISi. JetCard/Si now provides higher data transfer speeds and is fully configurable from the IIISi control panel, eliminating the need to use keyboard commands. JetCard/Si self-test is now fully integrated with the self-test of the LaserJet IIISi printer. The printer's self-test report now also includes the configuration of all ports of JetCard/Si.

Each of the 15 ports on the JetCard/Si can be independently configured to print PCL or PostScript jobs. Switching the LaserJet IIISi from PCL to PostScript to PCL from one user to the next is handled by the JetCard/Si through its automatic software switching

capability. Each port can be switched between PCL and PostScript from the IIISi control panel or by sending a software command. Contact Excellink, 1430 Tully Rd., Suite 415, San Jose, CA 95122; (408) 295-9000.

Circle 389 on reader card

MicroPrint Converts From Centronics To HP-IB And Back

Intelligent Interfaces introduced two plug and play printer products, MicroPrint 45CXA(CH) HP-IB to Centronics converter and MicroPrint 45H Centronics to HP-IB converter.

The MicroPrint 45CXA converts the HP-IB interface found on HP 1000/9000 series computers to the standard IBM PC-type parallel interface. This unit allows printers with parallel interfaces such as the HP LaserJet (II or III Series), ThinkJet, PaintJet and 293X to be used with HP 1000 computers and HP 9000 workstations.

The unit is transparent and requires no software, so it can be used with HP

computers running HP-UX, Rocky Mountain BASIC, PASCAL, and virtually all third-party software. The MicroPrint 45CXA is fully addressable allowing multiple units to be daisy chained on the bus.

Contact Intelligent Interfaces Inc., P.O. Box 1486, Stone Mountain, GA 30086; (404) 381-9891.

Circle 387 on reader card

Eiffel Version 2.3 Ported To HP 9000/400 And 700

Interactive Software Engineering released version 2.3 of the Eiffel object-oriented language. Version 2.3 has been ported to HP 9000 Model 400 and 700 machines.

Eiffel is an object-oriented language and environment for software engineering aimed at developers concerned about software reusability, extendability and efficiency. With version 2.3, Eiffel is available on all major UNIX platforms including Sun, NeXT, DEC, IBM and Data General. Contact Interactive Software Engineering

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Inc., 270 Storke Rd., Suite 7, Goleta, CA 93117; (805) 685-1006.

Circle 392 on reader card

Unispool Enables UNIX And Novell Spooling

Holland House announced a UNIX versions of Unispool, and a Novell LAN module for Unispool.

Unispool/Novell is a LAN module for Unispool that enables spoolfile transfer to and from Novell LANs from a non-Novell host. Hosts may be an HP 3000, HP 9000, Apollo workstation or DECstation. Host versions of Novell Netware are not required, although if they are present on the host systems, Unispool/Novell will co-exist.

Unispool for UNIX runs on HP-UX, Domain and DEC Ultrix.

Contact Holland House Inc., P.O. Box 135, Tynan, TX 78389; (512) 287-3417.

Circle 391 on reader card

Proactive Systems Extends Backbone Capability

Proactive Systems released a new version of Backbone which provides data distribution and replication capabilities for HP 3000 users.

The new version now supports transparent network access to IMAGE databases located on HP 3000 systems from an HP-UX system via the HP NS networking software. Programs written to make the normal IMAGE intrinsic calls can be run on an HP-UX system to access a remote IMAGE database as if it was local. Backbone can assist organizations who have acquired HP-UX systems and wish to interact with their HP 3000 application databases or move applications from HP 3000 to HP-UX systems.

Backbone provides data replication of IMAGE, KSAM and MPE files to provide real-time mirroring of data from one HP 3000 system to another. This can be used to provide data backup or load spreading. Contact Proactive Systems, Four Main St., Los Altos, CA 94022; (415) 949-9111.

Circle 388 on reader card

Holos Provides Executive Information System

Holistic Systems Inc. announced Holos, a system that couples the capabilities of Executive Information Systems and Decision Support Systems.

Holos links corporate financial and

operational databases into a single unified environment. With a common database that is accessible to multiple levels within the organization, Holos minimizes duplication and redundancy. Executives operate on the same system and data-set as the financial analyst who performs complex forecasting and statistical modeling.

Specific Holos applications include actuarial modeling, portfolio analysis, stock analysis, asset valuation, forecasting and variance reporting, manpower analysis, project cost tracking, management accounting, pricing and tariff analysis, sales and marketing, cost analysis and product profitability.

SPOOLFILE MANAGER FOR UNIX NETWORK

If you have a UNIX machine or network, you'll be looking for a spooling solution which provides sophisticated spoolfile management capabilities on each of your UNIX machines, allowing you access to printers and plotters across your network, including those Laserjets attached to your PCs.

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Holos is now available under HP 9000 running HP-UX, IBM RS/6000 running AIX, and Sequent running Dynix 3.0 or Dynix PTX.

Holos is closely integrated with relational databases through dynamic SQL links. Holos supports leading providers including ORACLE, Ingres and DEC's Rdb. Window access to DBMS and Host are provided. SQL commands are embedded directly into the language for programmed execution. Data for models is accessed directly from source.

Contact Holistic Systems Inc., 6766 S. Revere Parkway, Suite 100, Englewood, CO 80112; (303) 790-7939.

Circle 383 on reader card

Verilog Implements PCTE On HP Apollo And Domain

Verilog announced PCTE/Verilog as a support framework for its CASE product line.

PCTE (Portable Common Tool Environment) is a framework standard which has been supported by many computer manufacturers including HP, DEC, IBM and

Honeywell Bull. The goal of the framework is the definition of a set of common services to integrate tools on a common workbench. These services include object management, tools activation, access and integrity management and distribution.

The Verilog implementation of PCTE version 1.5 includes an interface to Oracle's relational database and is supported on HP Apollo, Domain, VAX/VMS and Sun/OS4. Contact Verilog, 3010 LBJ Freeway, Suite 900, Dallas, TX 75234; (214) 241-6595.

Circle 385 on reader card

HP Releases Development Tools For NEC V Series

HP announced emulation and analysis tools for NEC V series embedded microcontrollers and microprocessors for the V25, V25+, V35+, V33, V40, V50, V53 and the V70.

The emulators/analyzers for NEC controllers and processors extend the HP 64700 series of microprocessor development tools. The HP 64700 emulator features include real-time, nonintrusive emulation,

analysis of the processor's address, data and status buses, symbolic debugging and code-coverage testing.

The NEC V series microcontrollers and microprocessors are used in applications ranging from smart terminals, facsimile and copy machines, printer and factory-automation (FA) controllers to personal computers and workstations.

The HP 64700 series emulators work with IBM-compatible PCs and with HP 9000 Series 300 and HP Apollo 9000 Series 400 workstations. An ASCII interface allows the HP 64700 series emulators to be used with other computers. Each HP 64700 emulator/analyzer consists of a card cage, emulator card and an emulation-bus-analyzer card.

Cumulus Unveils Windows Terminal

Cumulus Technology Corp. introduced the AlphaWindow which offers true windowing to traditional alphanumeric users in the UNIX market.

It's a mouse drive system and offers all the

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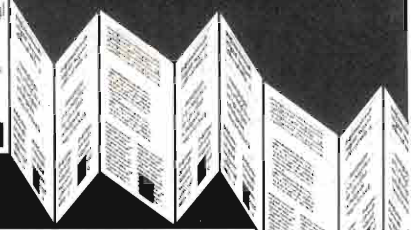
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windowing features such as running multiple applications at once, resizing windows, moving data between applications, closing and opening windows. It supports up to 16 sessions running 22 windows each with a different application.

Price is \$759 for the terminal and \$459 for the limited license software.

Contacts Cumulus Technology Corp., 1007 Elwell Court, Palo Alto, CA 94303; (415) 960-1200.

Circle 382 on reader card

BackPlane Supports HP 700 Series

Atherton Technology announced that its next release of its BackPlane CASE framework software will support HP's Series 700 workstations.

Managers of complex software development projects use Software BackPlane to improve work flow control for programming teams. Software BackPlane is an integrated project support environment that includes a data repository, graphical user interface and version control and configuration management facilities.

Contact Atherton Technology, 1333 Bordeaux Dr., Sunnyvale, CA 94089; (408) 734-9822.

Circle 381 on reader card

Kingston Extends Memory Line

Kingston Technology added to its line of HP Apollo 9000 compatible upgrades with the introduction of 16 MB modules for Models 720 and 730 plus 16 MB and 32 MB modules for the Model 750.

The new 700 series products join the company's existing memory line that supports the HP 9000 Models 375, 380, 400dl, 400s, 400t, 425e, 425t and 433. Kingston's family of data storage subsystems support HP Apollo systems and provide flexible enclosures for hard disks, tape backups and optical drives.

Price is \$5,490 for the 16 MB upgrade kit, \$10,995 for the 32 MB upgrade kit.

Contact Kingston Technology Corp., 17600 Newhope St., Fountain Valley, CA 92708; (708) 435-2600.

Circle 380 on reader card

STR Software Initiates Automatic Faxing

STR Software Company announced that FAX/3000 has been interfaced to Print

DataTrak, a product of DSI Datatrak Systems Inc. that manages printed media information for advertising agencies.

With the release of Datatrak version 2.04, advertising professionals can use FAX/3000 to fax insertion orders automatically.

Print Datatrak integrates insertion order forms, their agency logo and authorizing signatures with the data to be faxed.

Contact STR Software Co., 3133 Briarwood Lane, Midlothian, VA 23113; (804) 330-0666.

Circle 379 on reader card

Bering Expands Line Of Hard Disk Drives

Bering Industries announced EconoPac II a new series of high capacity hard disk subsystems for the full range of HP computers.

EconoPac II hard drives are available with either HP-IB or SCSI interface and are compatible with HP 3000, 9000 and 1000 systems, including the newer Series 400 and 700. Bering offers a variety of drives with capacities for 80 MB to 1.7 GB. An optional 2 MB floppy drive can be added to systems with the HP-IB interface.

The EconoPac II 2000 Series hard drives support the SCSI-based HP computers with HP-UX, Apollo Domain, BASIC, PASCAL, RTE-A and MPE/iX operating systems.

The EconoPac II 7000/7300 Series are designed for HP's with an HP-IB interface. The 7000/7300 Series are hardware and software compatible with HP 9000, 1000 and 3000 computers using the CS/80 command set and support SRM networking environment.

Contact Bering Industries, 246 East Hacienda Ave., Campbell, CA 95008; (408) 379-6900.

Circle 378 on reader card

Cascade Runs On HP Apollo PA-RISC Workstations

HP and Mantix Inc. announced the availability of Cascade software, a program management system, on HP Apollo 9000 Series 700 PA-RISC workstations.

Cascade allows users in engineering, manufacturing, defense and telecommunications companies to generate management reports showing resource and schedule information extracted from an Oracle relational-database management system. Cascade can be used for cost planning, scheduling and monitoring cashflow.

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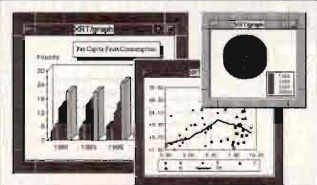
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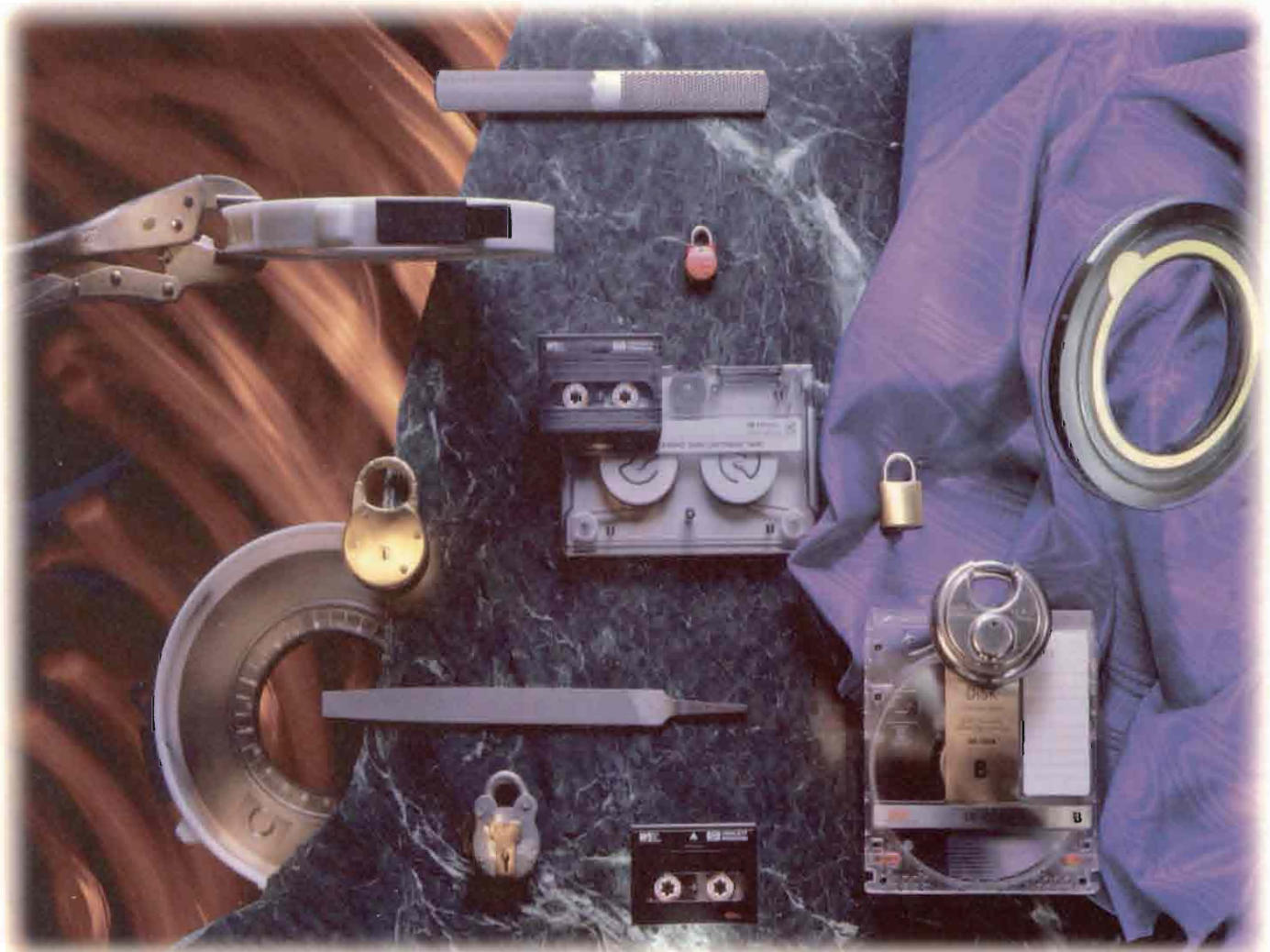
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Gordon
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The Emperor's New Computer

Once upon a time, there lived an emperor who needed a new computer system. He didn't want just any system, he wanted special computer systems that showed how smart he was, and how well he managed his empire. He wanted computer systems that were open, and based on standards.

Hearing that the emperor wanted a new system, the vendors all rushed to the palace. Each wanted to convince the emperor that they had the very best computer systems that anyone could want.

"You're a very clever emperor," said the Big Computer Company, "to want a standard computer system. That's why you should buy our computers. We set the standards."

The emperor thought this over. How could he go wrong with the Big Computer Company? They set the standards!

"Is it an open system?" he asked.

"It's the industry standard!" said the Big Computer Company.

"But, is it open?" asked the emperor.

"It will be!" said the Big Computer Company.

"Begone with you!" said the emperor.

"You are indeed a clever emperor," said the Workstation Computer Company, "to want a standard computer system. That's why you should buy our computers. A standard is anything that ships in quantity, and we sell more workstations than anybody. We set the standards."

The emperor thought this over. How could he go wrong with the Workstation Computer Company? They set the standards!

"Is it an open system?" he asked.

"It ships in quantity!" replied the Workstation Computer Company.

"But, is it open?" asked the emperor.

"It ought to be!" said the Workstation Computer Company.

"Begone with you!" said the emperor.

"You're especially clever," said the Open Systems Computer Company, "to want a standard computer system. That's why you should buy our computers. We use *all* the standards.

The emperor thought to himself: "How could I go wrong with the Open Systems Computer Company? They use all the standards!"

"Is it an open system?" he asked.

"It uses all the standards!" replied the Open Systems Computer Company.

"But, is it open?" asked the emperor.

"It will be when everybody else uses all the standards, too!" said the Open Systems Computer Company.

"Begone with you!" said the emperor.

After all the vendors were gone, the emperor was very sad. "Is there no one in my empire who can sell me an open system based on standards?" he cried.

The emperor thought he would never get his fine new computer system. But then, a large group of people arrived with briefcases and slide projectors, calling themselves the Consortium for Open Standard Computer Systems.

"You are the most clever emperor ever to have ruled this land!" said the Consortium for Open Standard Systems, "to want a standard computer system. That's why you should buy our computers. Between us, we have all the standards you need. As a matter of fact, if we don't have a standard for something, we'll make up a new one."

The emperor wondered how he could go wrong with the Consortium for Open Standard Systems. They had all the standards he needed!

"Is it an open system?" he asked.

"We have all the standards you need!" said the Consortium for Open Standard Systems.

"But, is it open?" asked the emperor.

"Some will say it's not, your majesty, but they are blind to the true beauty of our consortium, and lack the wisdom and foresight to see the truth in front of them." said the Consortium for Open Standard Systems.

The emperor saw nothing, but he couldn't admit it, for fear the Consortium for Open Standard Systems might think he was not as clever as he was.

"I'll buy it!" exclaimed the emperor.

"This is indeed the open system based on standards I've been looking for!"

Soon, the emperor got his new system, and wanted to show it off to his subjects. After his lackeys set it up, he invited everyone to see it.

"Here is my new open system based on standards," said the emperor. "Only those with wisdom and foresight can see it, but to them it is most wondrous to behold." With a flourish, he fired it up.

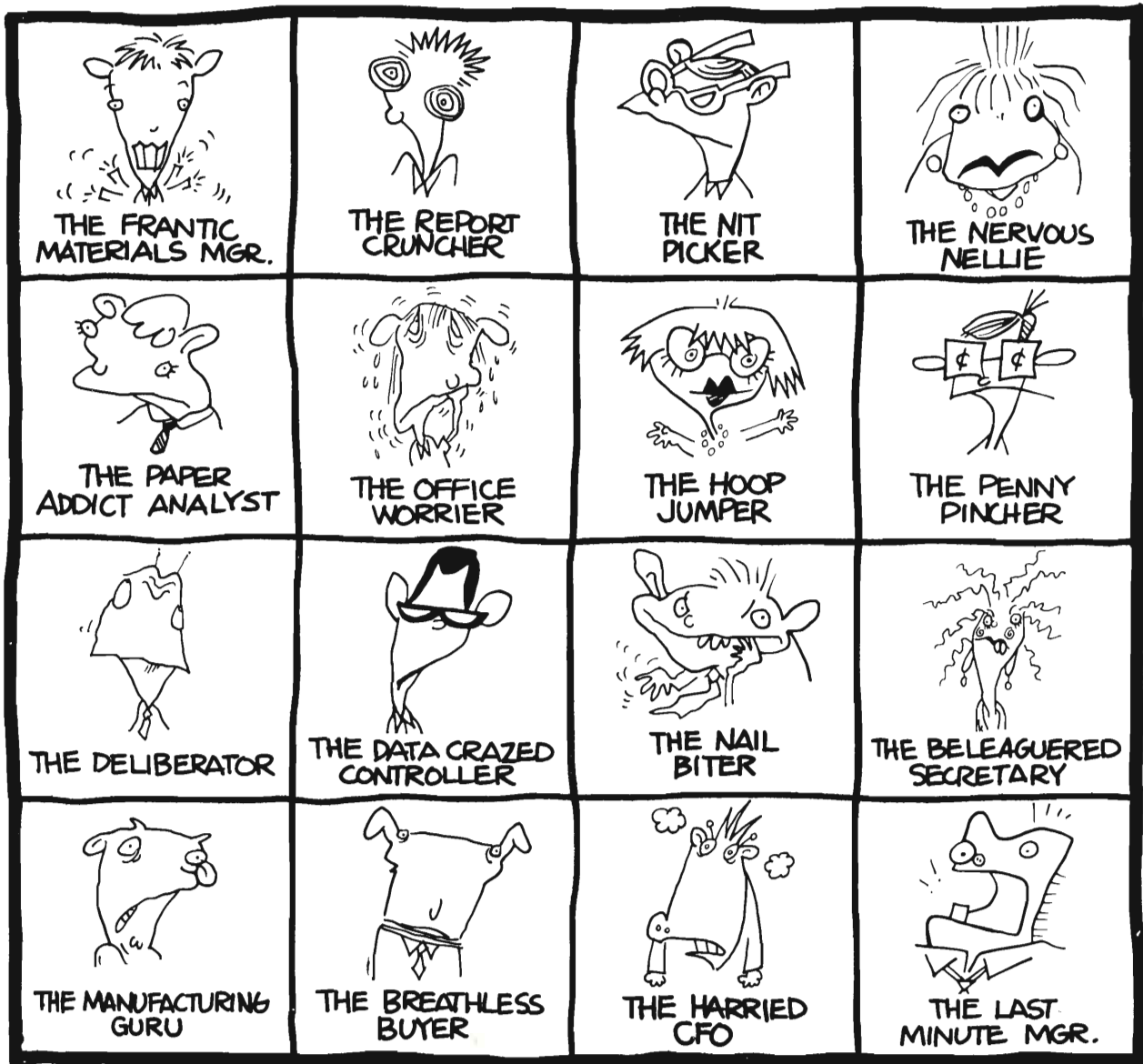
To their surprise, the assembled masses saw nothing.

"There's nothing there!" whispered one to another. "There's nothing there!" But, not wishing to show that they had no wisdom or foresight, none dared say a word.

But then, as things were getting awkward, a young computer jockey cried out "The Emperor has no applications!" and suddenly the crowd, and the emperor himself, realized that there was nothing there, and His Majesty beat a hasty retreat to his office.

There's a moral here someplace. ■

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