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APRIL 1990

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- User Friendliness Comes Of Age
- Renewed Emphasis On RTE And HP 1000

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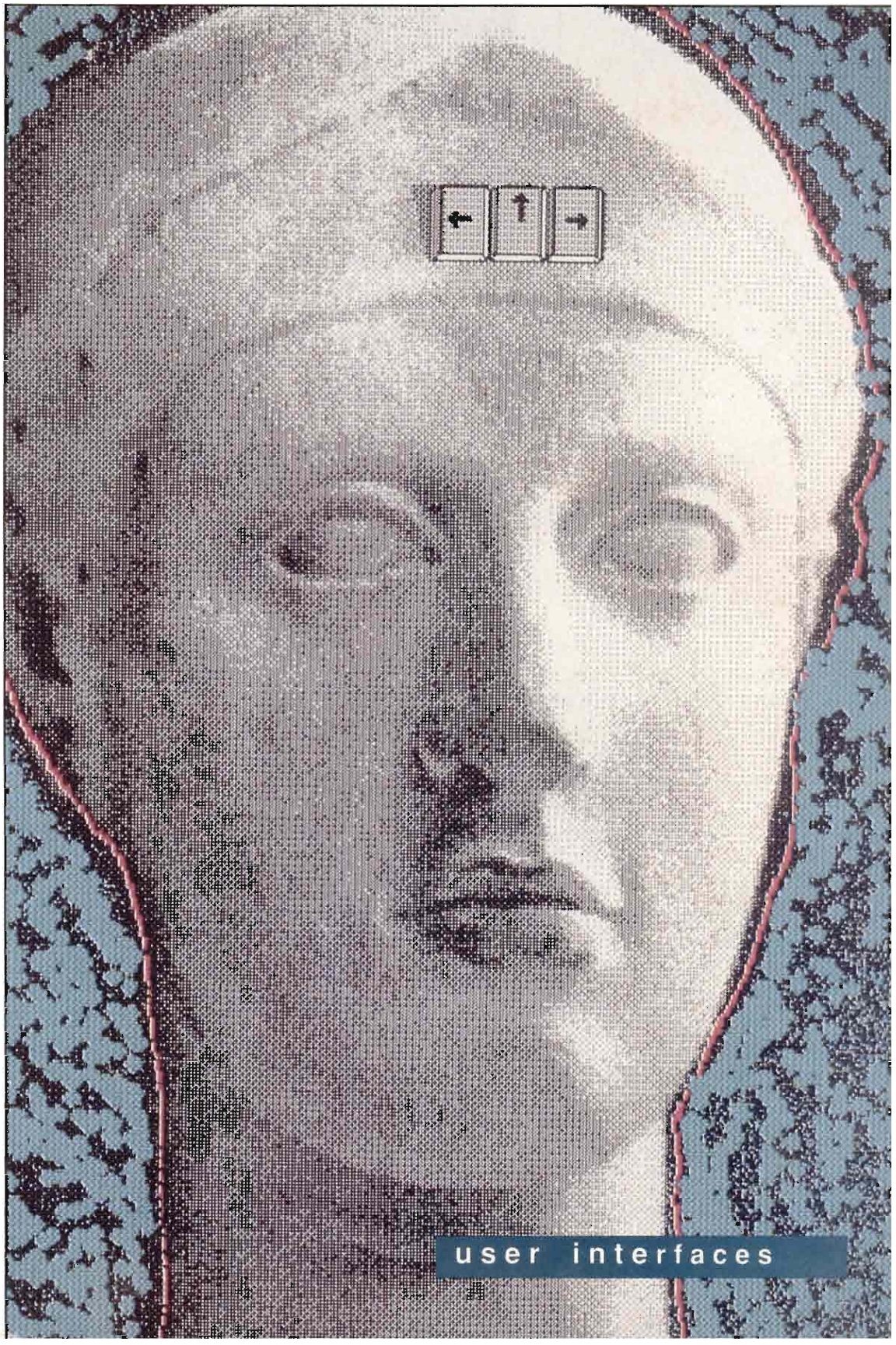

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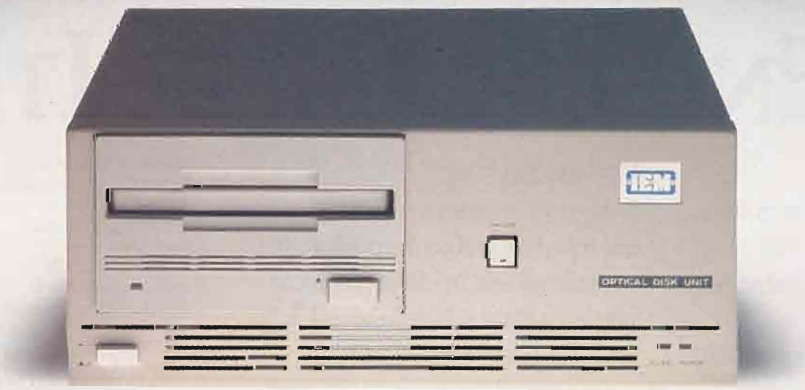

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A Stroll Down Memory Lane

In the mid 1970s, the United States learned just how vulnerable it can be to a foreign cartel that controls a vital resource. Then, it was oil. Today, I wonder if the next critical shortage and accompanying price gouging will be with memory.

The U.S. used to produce plenty of memory, but in the early 1980s, the Japanese were caught "dumping" chips below cost into the American market. Even though they were eventually censured and fined for this illegal act, the caper worked perfectly: U.S. memory manufacturers were mortally hurt. When short-term profits turn down, U.S. companies react quickly, cutting their losses without appreciating the long-term effects.

Some of this rapid reaction to short-term results comes from Wall Street, which has too much influence on publicly traded issues than its brains deserve. Having left the (then) unprofitable memory business, U.S. semiconducter manufacturers turned to other chip making, leaving the U.S. without any memory producing capability at all. The lone exception was IBM, which still continues to make memory for its own use, but still second sources to the offshore manufacturers to meet demand.

In 1988, we saw the first results of our lack of memory production as the price of 1 MB RAMS dramatically rose to almost four times the expected cost of these new devices. At close to $350/MB instead of $100/MB, prices of almost everything went wacky. A 2 MB laser printer cost $500 more than just a month before, a PC cost about $250 more, add-on memory prices jumped, and those suppliers caught without inventory were often faced with selling unprofitable products, unable to pass along the cost increases fast enough.

Just when we were beginning to scream, the cost of 1 MB RAMS fell rapidly, causing more headaches. Apple Computer lost a huge amount of money because the value of its memory inventory had to be written down to about one-fourth of what Apple had originally paid. Deliveries of many data processing devices were slowed while suppliers bought just enough memory to last for that day's production — afraid of being caught with overvalued memory.

Concerned about our lack of control, a consortium was formed to begin production of memory in the U.S. once again. Led by HP, DEC and IBM, U.S. Memories tried to make a go of it.

Using technology for 1 MB and 4 MB RAMS from IBM, this consortium tried to raise the necessary funds to begin production. When the time came to "put up or shut up," "fish or cut bait," only Digital and IBM stood for U.S. Memories. HP, Data General and Apple, among others, refused to make the necessary committment, and U.S. Memories died an untimely death.

Thank you DEC and IBM for trying. Jeers to HP, DG and Apple who didn't have the guts and the foresight to help out.

Companies work hard for their "image," and some PR firms make a living making sure that the image stays bright. HP, DG and Apple are tarnished considerably by their lack of moxie, but the real losers will be all of us in the future.

Memory prices now are stable, 4 MB RAMS are beginning to flow and 16 MB RAMS are around the corner. Things are OK for now, but the future is anything but certain. Few remember that the U.S. oil embargo on Japan had a lot to do with the Japanese entry into World War II, but most of us can remember the block-long gasoline lines and the price gouging that went along with them. When a cartel holds all the cards — just as the offshore memory producers hold them — price gouging and shortages can be "managed" into existence.

Memory isn't just for computers anymore. The new car you bought probably has a couple of megabytes in it, and everything from microwave ovens to alarm clocks use memory. A recent ad for a TV set told of the 11 MB of memory that gave it the best digital picture in the industry. At todays prices that could be as much as $1,100 — at embargo style pricing it could cost more than $5,000.

If we produce five million cars next year and each of those uses only one MB (I'll bet they use more), a doubling of RAM prices could cost the auto industry five hundred million dollars! And all of those dollars will add to the already pititful trade deficit.

Wake up Washington — one stealth bomber costs more than U.S. memories, and we are a lot more likely to need U.S. Memories than an extra bomber.

Someone in the Nixon cabinet was reported to have said that "when you have them by the ----s, their hearts and minds will follow." Independence isn't something you want to give up, whether it's oil or memory. Sadly, the U.S. lost a chance to preserve some of that independence when U.S. Memories became only a memory itself.

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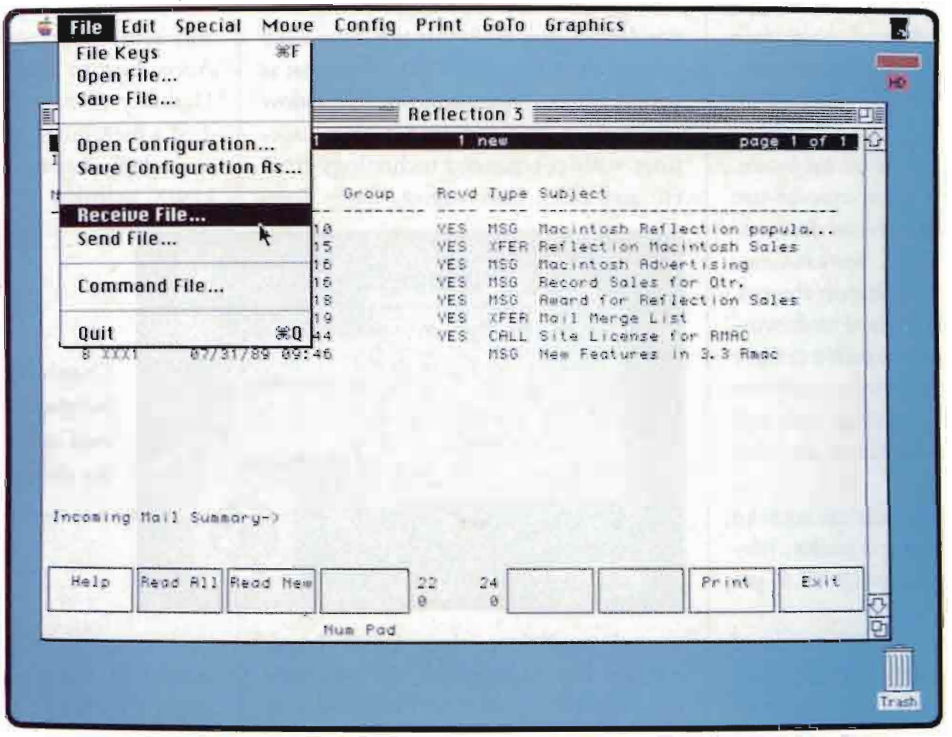

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CIRCLE 146 ON READER CARD

INDUSTRY WATCH

Peggy King

VUE To The Future...

Discovering that UNIX can have a friendly user interface is about as unexpected as finding a McDonald's in Red Square, but such things are happening these days.

As long as a user doesn't need to type in cryptic commands and negotiate through complicated file structures, UNIX workstations can be surprisingly easy to use.

Because of their advanced hardware, graphic workstations have ease-of-use advantages over character-based terminals and DOS PCs. UNIX workstations, because of their high-resolution screens, greater memory capacity and multiwindow capabilities, make it possible to have a genuine 3-D look and feel, complete with icons to click and drag, and still provide quick response times and fast refresh rates.

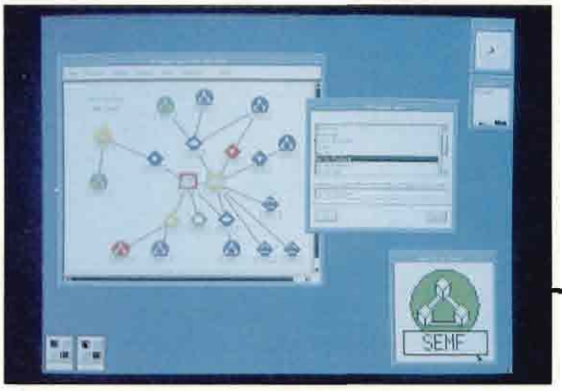
If graphical user interfaces are such an improvement over **grep** and **make**, why has it taken over 20 years for UNIX to get friendly with its users?

Well, until recently, the fellowship of UNIX users was restricted to those stoics willing to learn the intricacies of the operating system. They used their machines to design circuits, develop portable software, calculate the stress on a part, or conduct a scientific experiment. Knowing UNIX was simply the cost of doing business, the first wave of UNIX users could take their UNIX straight, so there was no reason for vendors to make things easier.

Although these longtime UNIX system users occasionally upgrade their equipment, vendors have come to realize that there's no growth market there.

The next growth spurt for UNIX will come when office workers are convinced to abandon DOS, OS/2 and Macintosh, and from industries that are automating for the first time. But the only way to sell UNIX into these markets is to promise the users that they will never need to learn the operating system in order to do their work.

Graphical user interfaces (GUIs) and windowed user environments have been around since the early 1970s — almost as long as UNIX. Next came the X Window system from MIT and the MIT X consortium with contributed technology from HP and DEC. Last August, Open Software Foundation released OSF/Motif version 1.0. Meanwhile, the opposing camp rallied behind AT&T's OpenLook, the GUI that is incorporated in UNIX System V Release 4. Suddenly, the leading vendors were incorporating GUIs in their products as a way of making UNIX useable.



Graphical user interfaces have been around since the early 1970s.

Before OSF was founded in May 1988, HP already had begun to concern itself with ways to make UNIX more useable. Software engineers in HP's Information Networks Division (IND) learned the hard way about the importance of a GUI. They designed a command-driven network management software that was to become an HP-UX product, but they had to scrap the project because it was too difficult to use. (Its replacement, OpenView network management for HP-UX, uses the OpenView GUI originally designed for DOS and is scheduled to become available in mid-1990.)

In the first version of the network management software, users had to read screens full of information, specify a host computer by name, figure out routing and remember complicated addresses. According to Dan Berne, a Network Usability manager in IND, the project died a merciful death.

In 1989, a corporate-wide council on UNIX usability was formed to discuss how to make UNIX more appealing to customers. Members of the usability council gathered information on customer visits and analyzed data from usability tests. From the visits they learned that customers wanted to be able to move from icon to application and from window to window without needing to know any UNIX commands. Through usability testing they discovered that for most people a point and click approach was the simplest way to move through an application, although some more experienced users preferred keyboard macros to mouse clicks.

Another measure of HP's emphasis on usability is its operation (at HP, operations are somewhat smaller than divisions)

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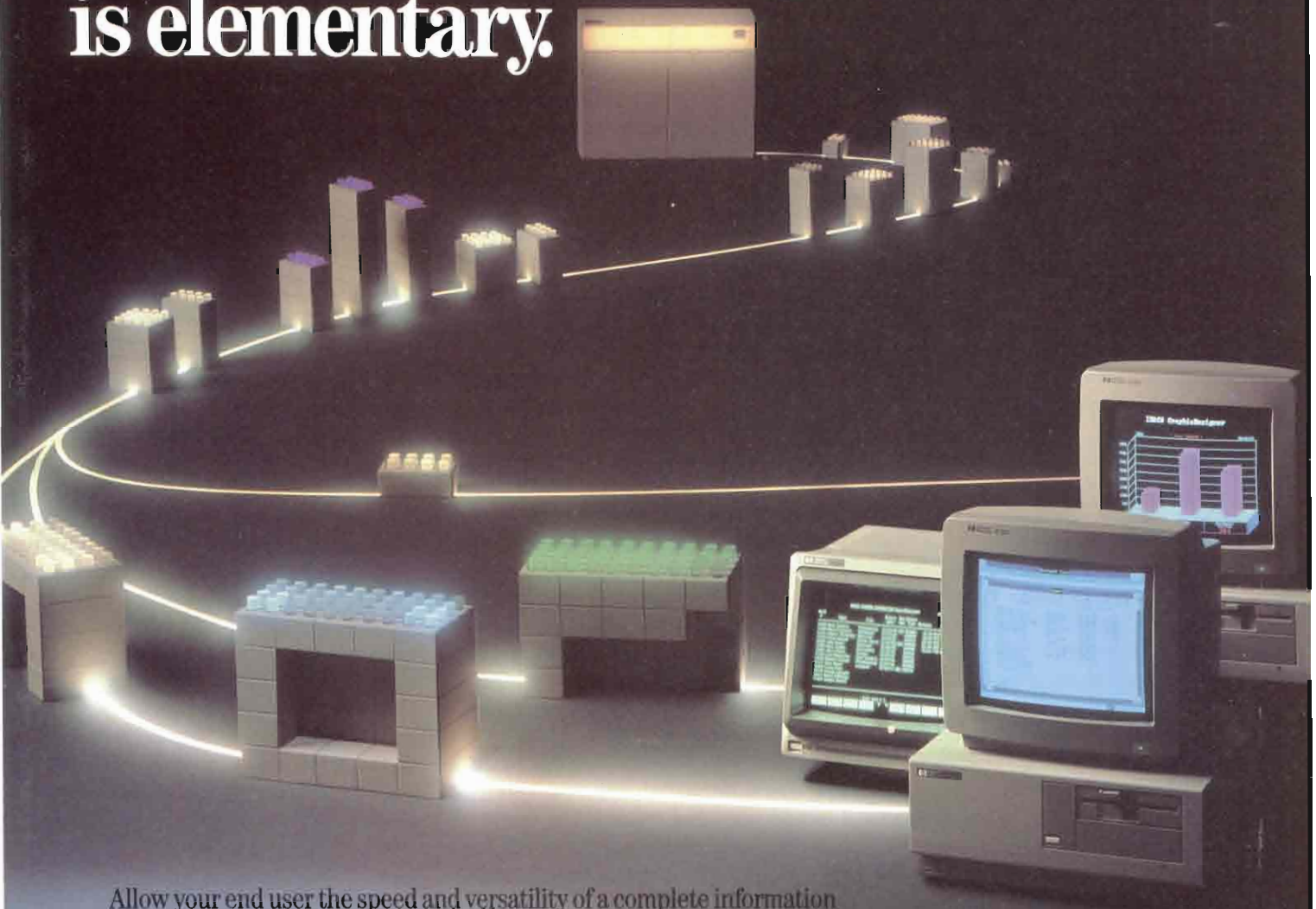

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devoted to user interface technology. When the Corvallis Workstation Operation changed its name to Interface Technology Operation (ITO), it became the corporate-wide center for creation of graphical user interfaces and developers' tools across hardware platforms. All UNIX tools from ITO are designed to work with industry-standard X11 Windows from MIT and OSF/Motif. ITO introduced release 1.0 of Visual User Environment at the National Computer Graphics Association (NCGA) conference last month.

VUE 1.0 is an evolutionary rather than a revolutionary product. On the Apollo side, it evolved from the Display Manager that has been part of the Domain operating system since 1984. On the HP side, VUE evolved from Windows/9000, a prestandards (1985) windowing environment for HP-UX, and from CXI (Common X Interface), a toolkit that was accepted as a component of the OSF/Motif toolkit along with XUI, DEC's windows toolkit.

VUE 1.0 is a direct descendant of Desktop 1.5, the GUI that shipped with HP-UX 7.0 as part of HP's Instant Ignition program. Starting last summer, customers who purchased HP workstations with the Instant Ignition option got a preconfigured X window environment at no extra charge. (For more information on Instant Ignition, see "Team Computing" in the March 1990 issue.)

The default screen display for Desktop 1.5 includes a clock, a datebook, a calendar and a calculator. The applications are "stored" in an application toolbox and are accessible with a click of the mouse. Users who miss their old command-line to HP-UX can get to the traditional interface via a terminal window. They can monitor CPU, LAN, memory and disc I/O activity through the XLine system resource utilization window. Online help is available through selecting HP-UX manual pages on another window of the screen.

VUE 1.0 for Domain/OS operating system workstations from the Apollo Division includes all of the Desktop 1.5 utilities and incorporates features of OSF/Motif. Like Desktop 1.5, VUE is based on X11 Windows, and it also complies with OSF/Motif except that the UIL (User Interface Language) component from DEC has not yet been implemented.

VUE 1.0 goes two steps beyond Desktop 1.5 by providing integrated applications and a file browser. VUE 1.0's graphical file browsing feature that opens file icons on a local system or across a network to other computers running X11 is an improvement over the rudimentary browser created for the UNIX operating system.

A version of VUE that works on both HP-UX and Domain and will become available later this year with the next release of HP-UX. VUE 2.0 will include a "drag and drop" capability so that users can manipulate icons to create, move, delete and copy files. There will be a "control panel" with selectable functions lined up at the bottom of the screen where the soft function keys on block mode terminals used to be, but now the functions are represented by 3-D buttons. This customizable control panel will provide a way to access utilities such as help, email, a clock and a system utilization window without having too many icons cluttering the screen.

Users who do more than one task on a typical work day can have multiple workspaces. For example, an engineer with management responsibilities can have one space for engineering work, another for project management tasks and a third for report writing, and can change between them with one mouse click or keystroke.

In VUE 2.0, context-sensitive help will replace the UNIX "manpages" style of help used in VUE 1.0. With context sensitive help, users can click on key words within help. Help is available not only for keywords within applications but also for scroll bars, buttons and icons.

VUE 2.0 also will have a Customizer feature to allow users to modify their workspace by choosing colors, fonts and sounds for applications and for the default environment. With the customizer it will be possible for the user to add or remove utilities and features from the default environment. The customizer also allows a user to lock the screen upon leaving the office and reinstate it upon return and to increase the security features in a workspace.

Release 3.0 of VUE will include compound objects (hot links between applications) and task automation (intelligent agents).

Is VUE beginning to sound like NewWave? That's the idea. When networked workstations can be integrated with personal computers and minicomputers as part of what HP calls the Common NewWave Environment, the evolution from VUE to UNIX under NewWave will be complete.

HP's efforts to make UNIX more useable should make life easier for the programmer as well as the end user. HP is working with another company to develop a product that builds code for user interfaces and incorporates a C interpreter for testing the interface. The product will cut down on the amount of front-end programming that a programmer needs to do and the C code it generates can be tested and compiled across UNIX platforms.

In the quest for a useable UNIX, it's important to strike a balance between customization and consistency. Having a custom-designed screen doesn't automatically ensure the usability of UNIX. Adherence to standards also can increase usability. For example, the GUI for OpenView is becoming an HP standard interface for all networking products. When OpenView Network Management for UNIX becomes available, network managers who have used the DOS-based product will need minimal retraining to switch to the UNIX-based product. When users can drag and drop icons without needing to know whether they are using DOS or UNIX, vendors have a better chance of convincing customers to abandon their standalone, single-tasking PCs in favor of networked, multitasking workstations that are faster, sharper and not too much more expensive. ■

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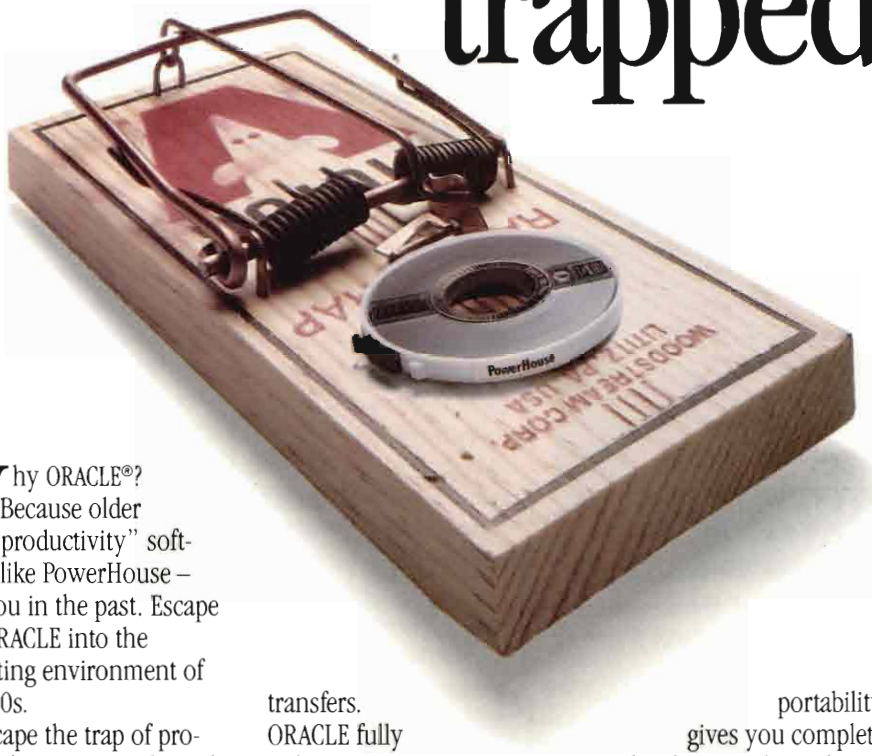

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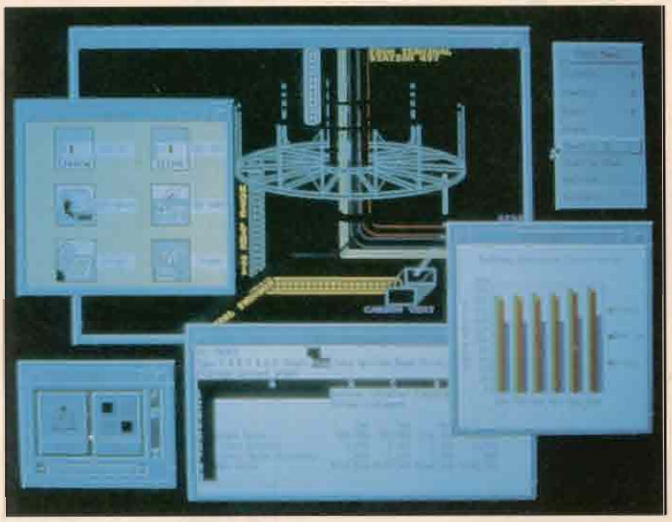


Santa Cruz Operation Inc. offers graphical operating system with workstation capabilities for PCs.

SCO Announces First Customer Shipments Of Open Desktop

Graphical Operating System Brings Workstation Capabilities To 386 And 486 PCs

Santa Cruz Operation Inc. has announced the first customer shipments of Open Desktop, a graphical operating system for industry standard 386 and 486 PCs.

Open Desktop offers multitasking, graphical windowing interface, database management services and seamless connectivity with other systems.

Open Desktop incorporates SCO UNIX System V/386 Release 3.2; the OSF/Motif and X Window System-based graphical user interface with Microsoft Windows and Presentation Manager-compatible operation; LAN Manager/X Client, TCP/IP and NFS networking services; SQL database management capabilities, and complete DOS-under UNIX System integration.

Contact SCO, 400 Encinal St., P.O. Box 1900, Santa Cruz, CA 95061 (408) 425-7222.

Circle 375 on reader card

HP Expands Dealer Role In Educational Markets

Authorized Dealers Have Access To All Schools

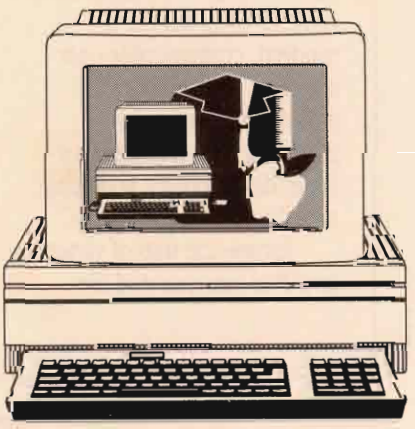
HP is transferring direct sales of HP Vectra PCs and peripherals in the educational market to the company's authorized dealers.

Authorized HP dealers, previously not eligible for rebates when selling to selected colleges and schools, now will have direct access to all educational institutions and will receive rebates for such sales. This move is part of HP's strategy to establish authorized dealers as the company's primary channel of distribution for personal computing products and institute programs that enhance channel profitability.

Expanding authorized dealers' role in sales to this market will increase by nearly 60 percent the current educational-market potential available to HP dealers. This includes potential sales through existing HP campus resellers, such as campus bookstores and technology centers, that have to date been managed under HP direct contracts.

HP has revised the discount schedules in the direct channel to encourage the transition of the educational business to the dealer channel. Dealers now may sell to accounts previously held by HP.

In addition, existing HP campus resellers can select a single dealer for obtaining HP products as part of a pilot program for sales to eligible full-time faculty, professional staff and students. Authorized dealers also will be allowed to offer HP's extended three-year hardware warranty and receive rebates on sales to all eligible educational institutions, including those that had been reserved for HP direct sales.



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HP And Uniplex Market Electronic Mail On Multiple UNIX Systems

OpenMail Closer To Becoming An Industry Standard

HP has moved closer to establishing HP OpenMail as an industry-standard electronic mail system for UNIX system environments. HP signed a letter of intent to negotiate with software developer, Uniplex, to act as a HP original equipment manufacturer (OEM).

Under the agreement, HP and Uniplex are considering three joint marketing and development initiatives. Uniplex would port HP OpenMail onto multiple platforms. The HP OpenMail port would be marketed by both HP an Uniplex to customers requiring UNIX system-based services. The HP OpenMail port would enable most vendor's computers, such as HP, DEC, IBM and Sun, to connect together into a single mail system.

HP OpenMail is a standards-based mail server that provides an X.400-based mail service for terminals MS-DOS and Apple Macintosh PCs.

HP OpenMail also is a key component of HP NewWave Office. The combination of Uniplex's integrated office system with HP NewWave Office would enable HP to provide a solution for both terminal and PC users.

HP Supports Motorola 68332

Gives Designers Time-To-Market Advantage

HP has announced complete development support for the Motorola 68332 microcontroller, giving designers a time-to-market advantage for products incorporating Motorola's new chip.

HP will market a complete set of hardware and software development tools supporting the entire development process for Motorola 68332-based designs. HP manufactures development tools for more than 40 microprocessors from several vendors.

HP is offering a 16.7-MHz real-time emulator plus HP AxCASE software-engineering tools. These tools include an HP AxLS optimizing C language system, an HP AxDB C and assembly source-level debugger and an HP basis branch analyzer a software-test system.

HP's emulator architecture is based on the HP 64700 series of standalone emulators and analyzers. Features of the emulator architecture include a host-independent interface, software-performance analysis, a 25-MHz emulation bus analyzer that uses HP's analyzer-on-a-chip technology and an optional 16-channel state/timing analyzer.

User Expenditures For PC LAN Customer Services To Increase

Customer Service Vital To Purchasing Decision

In a market research study, *PC LAN Customer Services Opportunities: User Need and Buying Plans* by Mentor Market Research, users project that their expenditures on customer services for PC LANS will increase by 21 percent in 1990.

Mentor found that 56 percent of the respondents provide most of the services for their PC LANS themselves with only nominal outside support. The remaining 44 percent rely heavily on outside customer service organizations for their PC LAN support. Both groups represent major markets for PC LAN customer service vendors.

Mentor also found that customer services are vital to the purchasing decision of PC LAN products. On a scale of zero to 10, where 10 is very important, 75 percent of all respondents rated the importance of customer services to their purchase decision an eight or higher (*see Figure*). Only three percent did not consider it very important by giving it a rating or four or less.

Another important finding is that although users have a strong interest in Single Vendor Supprt Services, few of them are aware of current offerings by major vendors such as Hewlett-Packard, IBM and DEC. Eighty-eight percent of all respondents express a moderate to strong interest in this type of service.

Contact Mentor Market Research, 6214 Meridian Ave., San Jose, CA 95120-2326; (408) 286-6333.

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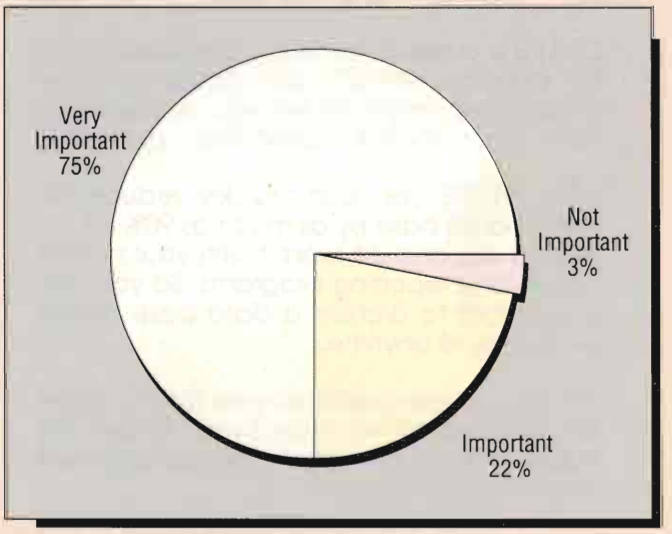

Importance of customer services to purchase decisions for PC LAN products.

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HP, Cognos Renew Corporate Software License Agreement

Encourages Use Of PowerHouse 4GL

Cognos Inc. and Hewlett-Packard have renewed an agreement granting HP a worldwide corporate license to use Cognos' PowerHouse 4GL on an unlimited basis.

This is an extension of the corporate agreement originally signed between Cognos and HP in January 1988 for internal distribution. The recommended status of PowerHouse means that HP divisions that develop applications will continue to be encouraged to use PowerHouse 4GL.

Contact Cognos Inc., 3755 Riverside Dr., P.O. Box 9707, Ottawa, Ontario, Canada; (508) 535-7350.

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NEC, HP To Cooperate On Development-Tool Support

New Emulators To Work With NEC's Tools

HP and NEC Corp. have announced an agreement to develop comprehensive development tools for several NEC original microprocessors and microcomputers.

In 1984, HP and NEC agreed to cooperate on development-tool support for NEC 16-bit original microprocessors in the V series. Under this agreement, HP has been supplying emulators for NEC's V20, V30, V40, V50 and V25 within the HP 64000 and HP 64000-UX microprocessor-development environments based on technical information offered by NEC.

Under the new agreement, HP will develop, sell and support new HP 64700 series emulators for many of NEC's original microprocessors and microcontrollers.

NEC will provide integrated software-development tools, including assemblers, linkers and C compilers, hosted on HP 9000 Series 300 engineering workstation. These workstations use the HP-UX operating system. HP's new emulators will work with NEC's software-development tools. HP will distribute the assemblers/linkers via HP sales channels worldwide. NEC also will distribute the assemblers/linkers and the C compilers.

HP's new emulators are part of the HP 64700 emulator series. The series offers highly integrated emulation and analysis capabilities, using HP's logic-analyzer-on-a-chip technology.

Users will have a choice of operating the emulators from computers with either MS-DOS or HP-UX operating system. HP and NEC will share technical information to assist in the design of all development tools.

DISC, MTI To Include Omnidex With MTI Package

Current Clients Can Phase-In Enhancement

Dynamic Information Systems Corp. (DISC) and Management Technology International (MTI) have announced an agreement in which MTI will begin including a run-time license of DISC's Omnidex database management software as a package with MSD.

MTI, an HP National Account, made the decision to base future development of MSD on Omnidex capabilities and design techniques.

According to Robert Cato, vice president of Research and Development at MTI, the company chose Omnidex because it provides access to critical information that cannot be achieved with KSAM or any other tool on HP systems. He feels that Omnidex will help fulfill the need expressed by hardgoods distributors to have instantaneous access to up-to-the-second stock status and other fulfillment information by any criteria including generic item descriptions.

Current MTI clients will have the option of phasing in the Omnid exenhancement. New clients will receive the Omnidex module automatically.

Contact Dynamic Information Services Corp., 910 15th St., Suite 640, Denver, CO 80202; (303) 893-0335.

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Q-CIM Awarded National Account Status

Highest Designation For VABs

Q-CIM Development Laboratories Inc. (Princeton, NJ), a supplier of manufacturing, distribution and management software for process manufacturers, has been designated a National Account by HP.

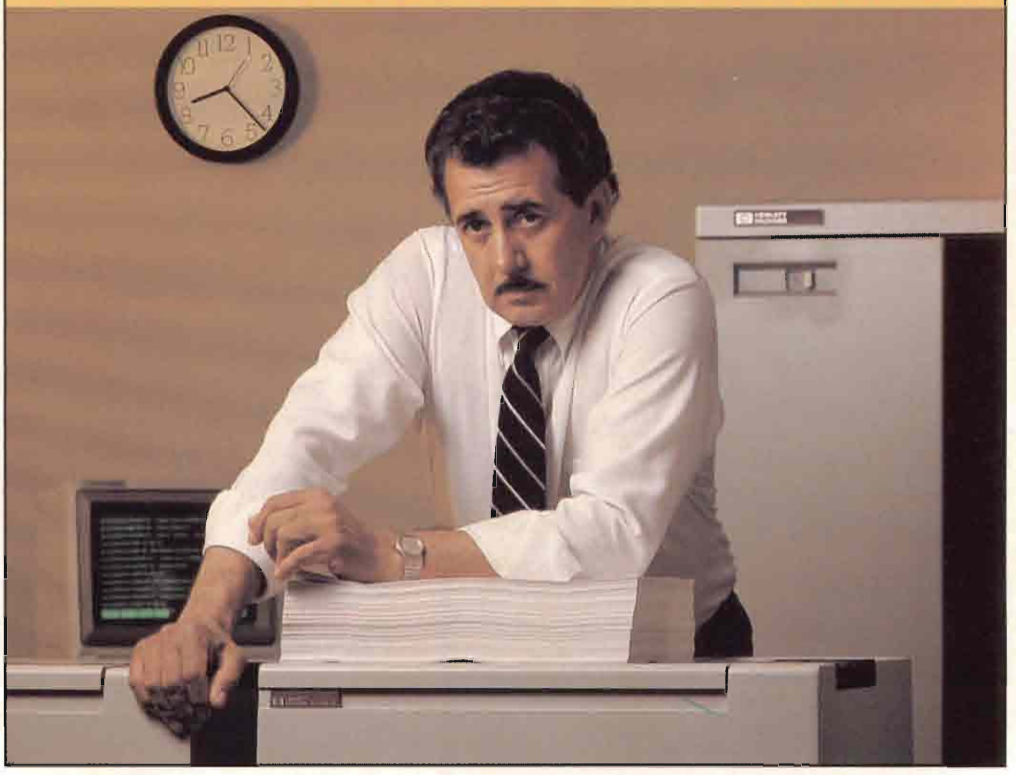
The National Account status was awarded to Q-CIM under HP's Solution Marketing Program. It's HP's highest designation for Value-Added Businesses (VABs).

Candidate companies for the National Account Program are evaluated on the functionality of their software, quality of their support and the amount of HP hardware they leverage.

Q-CIM software is focused on larger food, chemical and paper companies. It has over 100 systems installed worldwide, including installations at Procter & Gamble, Hercules Chemical, Exxon Chemical, Hoechst-Celanese, Pillsbury, General Mills, Diamond Walnut, Huntsman Chemical and Sumitomo Fiber Optics.

Q-CIM operates in native mode on the HP 3000 Series 900 family of multiusers minicomputers.

QUIZ PERFORMANCE CHALLENGE #2



"My nightly batch reports – all coded in QUIZ – are still running when the users arrive in the morning. Help!"

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You invested in QUIZ to cut your programming backlog down to size. With it, you put new reports into production faster than you ever thought possible. And as long as all the reporting could be completed at night, performance wasn't an issue. But your organization has grown and so have your databases. And suddenly, there aren't enough hours in a night.

To get batch reporting under control, call for your demo copy of PDQ. On any HP 3000, including Series 900 models, PDQ can make the difference between CPU overload and smooth operations.

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PDQ is a registered trademark of Tymlabs Corporation. QUIZ is a trademark of Cognos Corporation.

HP Chooses ProfitKey As Value-Added Business Partner, Software Supplier

Joint Effort Offers Proven Manufacturing Solutions

ProfitKey Int'l. Inc. has been selected as a Value-Added Business Partner, Software Supplier by Hewlett-Packard. The two companies now are positioned to offer comprehensive solutions to maufacturers who make-to-order, make-to-stock or combine both environments.

ProfitKey Int'l. was certified after passing a review/audit of its products, support service and manufacturing knowledge.

Contact ProfitKey Int'l. Inc., 382 Main St., Salem, NH 03079; (603) 898-9800.

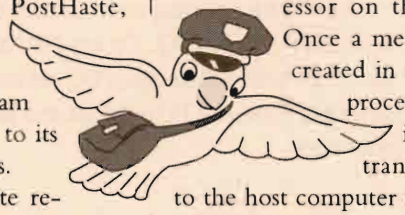
Circle 368 on reader card

INLEX To Resell WRQ's PostHaste

Targets Automated Library Management System Clients

Walker Richer & Quinn Inc. has announced a VAR agreement with INLEX Inc., producers of the INLEX System, an automated library management system.

The agreement enables INLEX to resell PostHaste, Walker Richer & Quinn's electronic mail program for the HP 3000, to its customer libraries.



You can create reports with the INLEX System and distribute them through PostHaste to PC or terminal users in other branches, agencies or libraries. In addition to distributing library data, messages can be sent on Walker Richer & Quinn's electronic mail system. Mail can be archived, saved to a disc, copied, deleted, forwarded and replied to. Users can compose messages with either the program's editor or a word processor on the PC. Once a message is created in a word processor, it is then transferred to the host computer for distribution.

Contact Walker Richer & Quinn Inc., 2815 Eastlake Ave. E., Seattle, WA 98102; (206) 324-0407.

Circle 372 on reader card

Numetrix, HP Sign Marketing Agreement

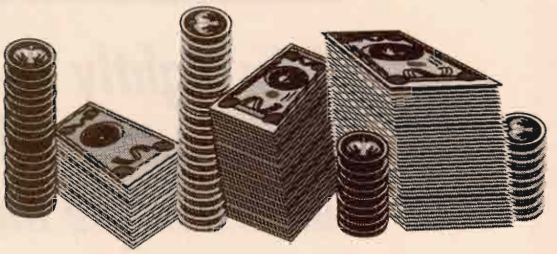
Schedulex Ported To HP-PA

HP has signed a marketing agreement with Numetrix Inc. (Toronto, Canada). Under the terms of the agreement, Numetrix's Schedulex production-scheduling software will be ported to HP 9000 Series 800 computers and HP Vectra PCs.

HP and Numetrix will market the HP-based Schedulex software solution to process manufacturers in the food, beverage, pulp and paper, chemical, pharmaceutical and consumer packaged goods industries.

KES Helps Customs Target Money Laundering Schemes

CAIS Examines Thousands Of Transactions



Suspicious cash transactions that could indicate illegal money laundering activity are being uncovered by a computer system that was built using a software development tool produced by Software Architecture & Engineering Inc.

Software A&E's Knowledge Engineering System (KES) was used by U.S. Customs Service analysts to develop a system that automates the examination of thousands of U.S. currency transactions reported on forms collected under the Bank Secrecy Act.

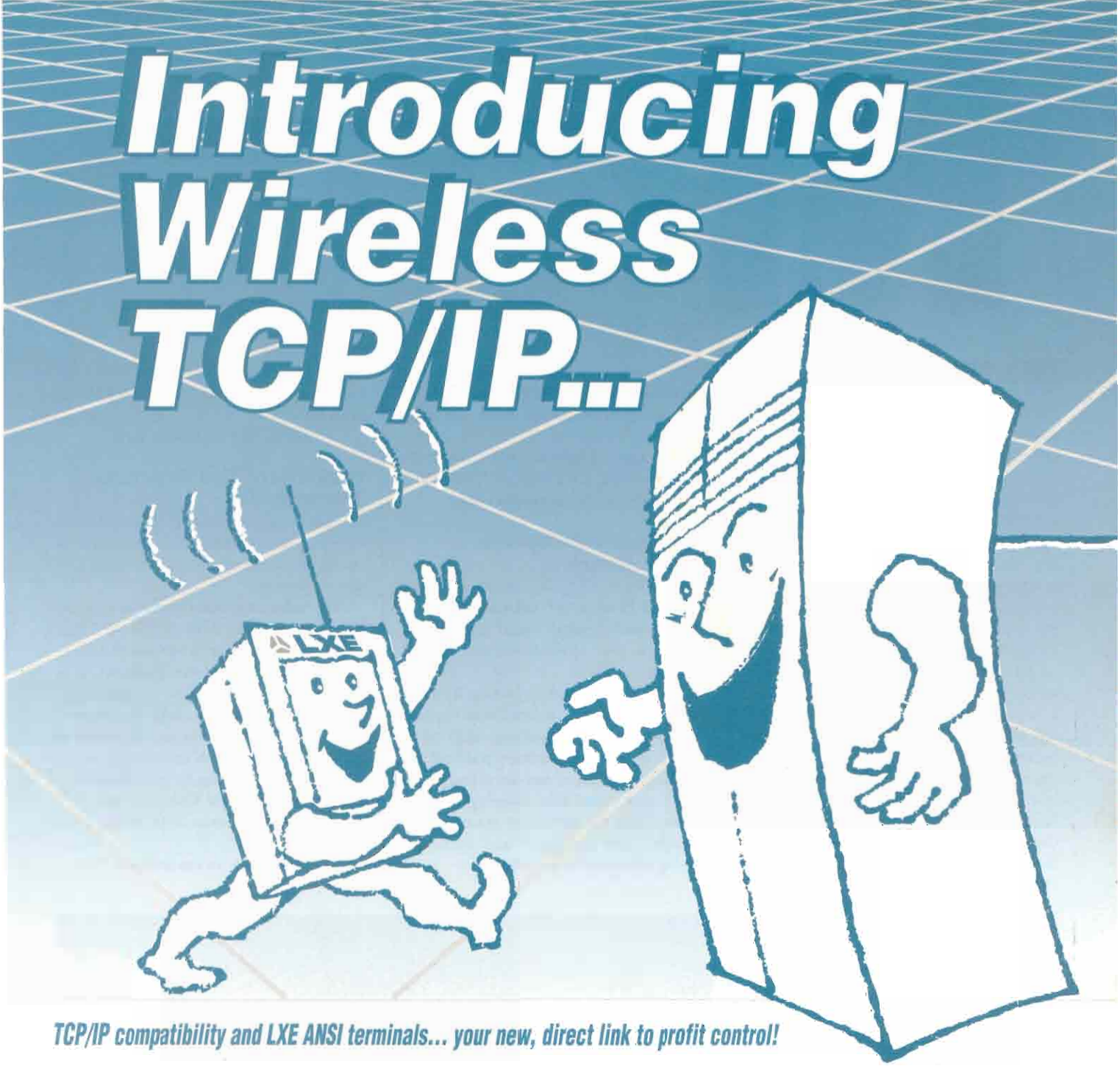
The Customs Artificial Intelligence System (CAIS) uses expert systems technology to analyze massive amounts of data to make judgments. The system allows the Customs Service to examine thousands of cash transactions with a level of scrutiny never before possible.

KES was first released by Software A&E in 1983. It's been frequently updated and can be run on most major computer hardware platforms including PCs, workstations, minis and mainframes. It has been used for a wide variety of government and commercial data collection and interpretation projects.

Contact Software A&E, 1600 Wilson Blvd., Ste. 500, Arlington, VA 22209-2403; (703) 527-4344.

Circle 374 on reader card

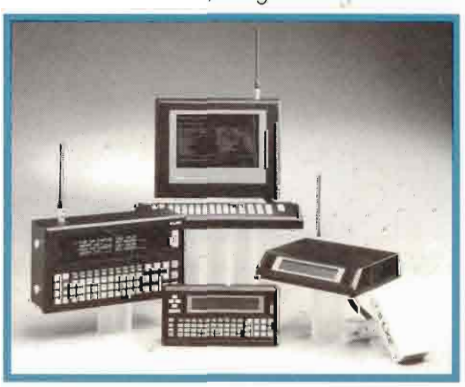
Introducing Wireless TCP/IP...



TCP/IP compatibility and LXE ANSI terminals... your new, direct link to profit control!

Let's face it, data captured precisely at the point of action eliminates profit-killing paper trails. But connecting a wireless asynchronous terminal has not always been easy... until now. LXE's new ANSI terminals connect to most networks and virtually any host computer through standard TCP/IP Telnet protocol. That means real-time control and improved profits in your warehouse or on your factory floor without custom programming, cabling costs, time delays or software changes.

Under TCP/IP, LXE Systems are transparent to a multitude of host operating systems. That means you can run your current applications with the added mobility of LXE wireless terminals. LXE terminals can be hand carried, mounted on a forklift truck, or go wherever it is impractical to run wires. And LXE terminals are fully compatible with automatic ID input devices such as bar code scanners.



Introduce your TCP/IP network to LXE wireless ANSI terminals by contacting one of our Project Coordinators at **(404) 447-4224**.

LXE

WIRELESS DATA FOR INDUSTRY

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CIRCLE 189 ON READER CARD

NEW PRODUCTS

NRC's FUSION Available For HP BASIC Workstations

Network Research Corp. (NRC) is now shipping its FUSION network software for HP BASIC workstations with TCP/IP. HP contracted NRC to port its FUSION network software to the 9000 Series BASIC and PASCAL workstations. FUSION for the Series 200/300 PASCAL workstations has been shipping since April 1989.

HP 9000 Series 200/300 BASIC workstations now can connect with VAX/VMS, Sun, Apollo or any other computer system on a TCP/IP network.

All features are bundled into a single package that includes a 3 1/2-inch diskette, a user's manual and complete technical support covered by the 90-day warranty. Extended customer support also can be purchased at a minimal additional price. A minimum of 600K memory is required. The price is $1,000.

Contact Network Research Corp., 2380 North Rose Ave., Oxnard, CA 93030; (805) 485-2700.

Circle 400 on reader card

Unison Enhances Tape Library Management System

Unison Software has announced a new edition of TAPES, the tape library management system for HP 3000 Classic and Spectrum computers that automates each tape library function, including cataloging, selecting, labeling, scratching and reporting.

To meet the sophisticated user's need for advanced software support of labeled tape operations, HP is modifying MPE to provide "hooks" for labeled tape processing. Using these "hooks," Unison's future version of TAPES will be able to provide considerably enhanced support for labeled tape operations by automatically informing MPE of the specific tape reels to mount when reading or writing a tape set, automatically checking each tape against a "scratch list" before writing on it and cataloging each tape used for output in the tape library database.

HP's enhancements to labeled tape operations enable TAPES' mainframe-like tape management features to be integrated with MPE.

Contact Unison Software, 415 Clyde Ave., Mountain View, CA 94043; (415) 968-7511.

Circle 396 on reader card

Entek Scientific Updates EASY Software

Entek Scientific Corp. has introduced a new version of Entek EASY software for modal, acoustic and general signal analysis for operation on MS-DOS-based 80386 computers.

A full structural analysis package is offered including modal analysis with forced response and structural modification capabilities. Acoustic intensity measurement is also offered including third octave analysis, sound power ranking and sound field mapping. General signal analysis for automated testing, measurement block operations and automated plotting capabilities is also offered.

Contact Entek Scientific Corp., 4480 Lake Forest Dr., Ste. 316, Cincinnati, OH 45242; (513) 563-7500.

Circle 389 on reader card

Marketrieve Plus Automates Telemarketing

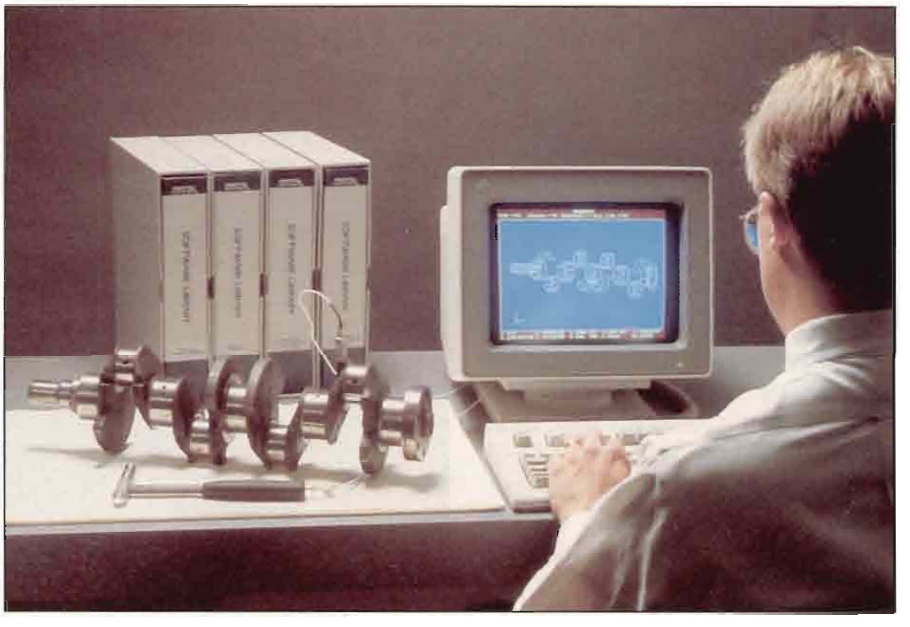
Marketrieve Plus from IDSC Rental Company Inc. is designed to automate all aspects of companies' telemarketing and field sales departments.

The software product currently runs on HP hardware under MPE V and MPE XL, Digital hardware under VMS and MS-DOS and PC network hardware platforms. It is written in PowerHouse from Cognos Corp..

Sixteen standard coded fields, plus 50 user-definable fields, allows extensive definition of information about each account. You can customize the user fields for your business.

Contact IDSC Rental Company Inc., 350 Harvey Rd., Manchester, NH 03102; (603) 645-6677.

Circle 395 on reader card



Entek Scientific Corp. now offers Entek EASY for MS-DOS-based 80386 computers.

The HP 7600 Model 355 plotter produces drawings with 406 dots-per-inch resolution and plots a typical drawing in less than a minute.

New HP Plotters Include HP-GL/2

HP has introduced six plotters that replace the products in its two high-end product families: the HP 7600 series electrostatic and HP DraftMaster pen plotters. HP based these products on an advanced graphics language, HP-GL/2, and has announced that all future HP plotters will include this language.

The HP 7600 series Model 355 plotter is a color electrostatic plotter. HP also has introduced two monochrome electrostatic plotters, the HP 7600 series Models 250 and 255. The electrostatic plotters are designed for CAD professionals who create many plots per day and want a plotter that works consistently.

The HP DraftMaster SX (sheet-feed) and RX (roll-feed) plotters give users faster access to their CPU after sending a file to the plotter and have more dependable pens.

Up to four users can share a new third plotter in the series, the HP DraftMaster MX, by using the built-in 20-MB hard-disc drive and four I/O ports. The HP DraftMaster MX plotter is intended for users who aren't on a network but want an easy way to share a plotter.

HP-GL/X is based on HP-GL and is HP's new vector-graphics language for hardcopy devices. It provides faster plotting, sophisticated images and better software support.

The HP 7600 series Models 250 and 255 monochrome electrostatic plotters are $25,900 and $29,900 respectively. The HP 7600 series Model 355 color electrostatic plotter is $45,900. The HP DraftMaster SX and RX plotters are $8,495 and $9,995 respectively.

Eagle Introduces RF EXPRESS Programmers Toolset

Eagle Consulting & Development Corp. has announced RF EXPRESS—Programmers Toolset. RF EXPRESS allows 100 percent portable, 100 percent online hand held terminals with laser scanners that can be integrated into HP 3000 systems.

RF EXPRESS consists of a driver and programmers toolset and an optional application interface.

The Programmers Toolset allows any programming language easy access to an RF terminal. Custom programming requires only replacing reads and writes with an RFIO call. RF EXPRESS causes low CPU overhead, while providing response time that rivals direct connect terminals.

Contact Eagle Consulting & Development Corp., 107 Kinnelon Rd., Ste. 3, Kinnelon, NJ 07405; (201) 838-5006.

Circle 393 on reader card

Zubair Interfaces Ships Z-RAM/4Meg

Zubair Interfaces Inc. has started shipment of the Z-RAM/4Meg upgrade memory board for the HP 9000 200/310 series machines. The Z-RAM/4Meg is a 4 MB memory expansion board and uses 1 megabit RAM chips for high-reliability. The board features address selection and multiple boards can be installed on the same machine to increase memory to 8 or 12 MB.

Z-RAM/4Meg is DIO bus compatible and features onboard memory control and refresh logic based on the latest National Semiconductor DRAM 1 megabit controller.

The board is also available as a 2 MB card where the user can later add 2 MB using 16 1 megabit RAM chips. The 2 Meg board cost is $999. Introductory price for the 4Meg board is $1,299.

Contact Zubair Interfaces, 5243-B Paramount Blvd., Lakewood, CA 90712; (213) 408-6715.

Circle 383 on reader card

Tutorial Offered For IMAGE Users

User Training Services Group (Palo Alto, CA) has announced its audiodigital tutorial for the HP 3000: "IMAGE For Programmers."

Tutorials include live interactive sessions that capture both audio and digital information onto the stereo tracks of an audio-cassette tape.

Contact User Training Services Group, 125 University Ave., Suite 145, Palo Alto, CA 94301; (415) 322-0460.

Circle 376 on reader card

New DP290 Employs Curve Fitting Technique

Data Physics Corp. has announced the DP290 Digital Distortion Analyzer with Auto Frequency Calibrate, a technique that eliminates the need for users to accurately know the frequency of the precision sine wave source used to stimulate the device under test. This new version employs a curve fitting technique to precisely determine the stimulus frequency for accurately identifying harmonic components in computing total harmonic distortion.

The software system operates on HP 9000 Series 300 workstation, has a wide dynamic range in excess of 150 dB and uses highly optimized algorithms for fast processing of signals up to 256K samples in length. Measurements and analysis include Fast Fourier Transform, Total Harmonic Distortion, Signal to Noise Ratio, Signal to Noise Distortion, Intermodulation Distortion, Differential Non-Linearity, Integral Non-Linearity and Probability Density Function.

DP290 is priced at $6,000.

Contact Data Physics Corp., 1210 S. Bascom Ave., Ste. 224, San Jose, CA 95128; (408) 977-0800.

Circle 394 on reader card

Da Vinci Graphics Launches RasterPro 720 Plotter

Da Vinci Graphics Inc. has introduced its first product, the RasterPro 720 color graphics plotter.

The RasterPro 720 is a penless plotter that produces A and B size plots and is positioned as a replacement for conventional pen plotters supporting HP-GL. It uses a proprietary image processing technology to convert vector-based plotting specifications into an optimized raster format.

The RasterPro 720 is targeted to CAD, scientific and engineering applications, as well as instrumentation, mapping and geophysical studies. It's priced at $3,495.

Contact Da Vinci Graphics Inc., 870 Hermosa Dr., Sunnyvale, CA 94086; (408) 737-8800.

Circle 399 on reader card

TRW Adapter Card Supports Netware, Net BIOS, NFS

TRW Information Networks has announced PC2001 Version 4.0, a hardware/software package providing MS-DOS users complete TCP/IP-based IEEE 802.3 Ethernet networking capabilities.

The hardware is a full-slot intelligent PC card supporting both 8-MHz and 12.5-MHz CPUs. The card features an on-board 80186 processor and is designed for PC, XT and AT compatible systems. The PC2001 card is available with a choice of connectors for Ethernet, thin Ethernet or 10BaseT compliant twisted pair.

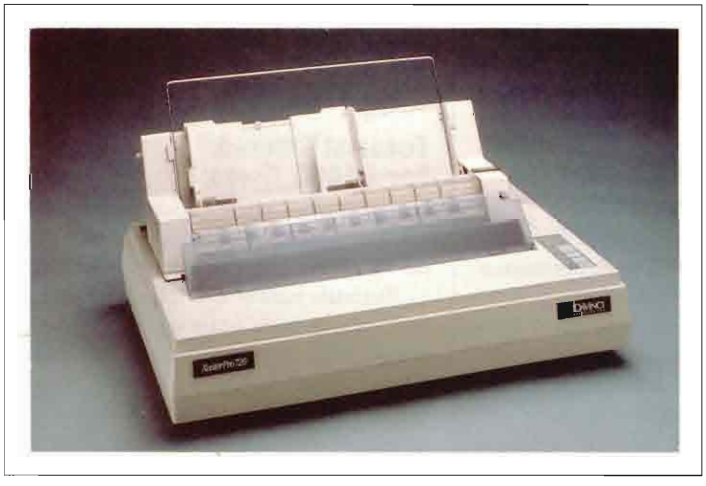
PC2001 Version 4.0 loads all protocol-related software onto the adapter board. Subsequent processing of packets is then conducted by the adapter board with only minimal host intervention. The PC2001 uses 28K of resident memory.

The PC2001 delivers full TCP/IP functionality and support for Novel NetWare, NFS or NetBIOS along with support for network applications such as FTP, TELNET and Mail; and X Windows applications and most network distributed database management systems.

The PC2001 is priced starting at $595.

Contact TRW Information Networks, 23800 Hawthorne Blvd., Torrance, CA 90505; (213) 373-9161.

Circle 392 on reader card



Because the RasterPro 720 from Da Vinci Inc. uses no pens, it provides savings in the cost of pens and the special plotter paper normally required by pen plotters.

Bradmark And ODS Announce SuperNotes For HP 3000

Bradmark Computer Systems and O'Brien Downs Systems Inc., (ODS) have announced SuperNotes, a keyworded, electronic, smart notepad for the HP 3000.

SuperNotes extends and annotates your existing appplications with no programming. SuperNotes is a hot-key link from your application to do: notes (public, private, with full security), window lookups and more. Lookups are available from any point within your application by using the hot-key.

Contact Bradmark Computer Systems Inc., 11205 Byfield Ct., Richmond, VA 23233; (804) 273-9298.

Circle 381 on reader card

QUICKFORM Creates Customized Forms

ACOM Computer Inc. has announced QUICKFORM, a forms design package for HP LaserJet users. QUICKFORM provides an automated method of creating customized forms for data and word processing applications.

The QUICKFORM package utilizes a single-screen menu to access its multiple features. It's based on a WYSIWYG forms design concept and utilizes a mouse interface. It provides all the features of state-of-the-art form packages, including a variety of fonts with text manipulation, landscape and portrait orientations, typewriter spacing, region definition, rectangles and perfect squares, and advanced editing options that include color screen adjustment, gray scales, grids and an on-screen Metric or English measuring system.

QUICKFORM also provides a duplex (two-sided) printing capability that allows printing different forms on each side of the page with a single menu command. This feature can be used on the LaserJet IID and 2000 Model D.

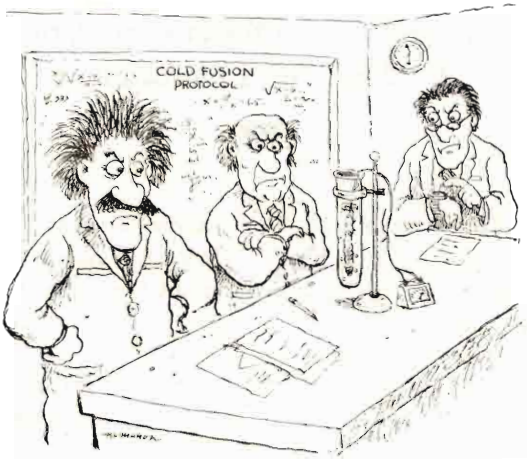
Contact ACOM Computer Inc., 2250 Obispo Ave., Long Beach, CA 90806; (213) 498-3638.

Circle 388 on reader card

Continued on page 88.

FREE UPGRADE FEATURING PROGRAMMATIC INTERFACE

Introducing the Hot New HP9000 TCP/IP Networking Solution.



FINALLY A FUSION THAT WON'T LEAVE YOU COLD

Turn your **HP 9000 series 200/300** workstation into hot property with FUSION® Network Software from Network Research Corporation. FUSION lets you **transfer files** and communicate with any other system on a TCP/IP network–be it a DEC VAX, IBM, Sun, Macintosh, or any other system regardless of CPU or operating system of the remote host (if Ethernet and TCP/IP supported).

NRC has shipped thousands of copies of FUSION Network Software for DEC VAX, PC's and other systems since 1983. **Now we've got the solution for HP 9000's**—for both BASIC and PASCAL language versions.

Still got cold feet? How about this offer: Purchase the product before May 31, 1990 and we'll throw in a **free upgrade** featuring a programmatic interface.

For more information or a free brochure, give us a call at **(800) 541-9508** or **(805) 485-2700 (CA)**, **FAX (805) 485-8204**.

FUSION™ network research corporation

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VAX is a registered trademark of Digital Equipment Corp.
Macintosh is a registered trademark of Apple Computer, Inc.

CIRCLE 182 ON READER CARD

OPEN Dialogue

Bringing C++ Object Orientation To The User Environment

As the computer industry establishes user interface standards for a new decade, vendors and users alike face the question of how best to implement these standards to serve corporate goals.

Hewlett-Packard not only has responded by embracing the OSF/Motif environment for its workstations, but also by integrating the OSF/Motif user interface style into other user interface software products like Open Dialogue. HP aims to help Open Software Foundation secure OSF/Motif as the dominant standard and advance customers toward a distributed, object-oriented model of computing. Open Dialogue, an object-oriented user interface management system (UIMS) from HP's Apollo Systems Division, is at the center of these objectives.

Open Dialogue Version 2.0 provides an alternative development environment in which to build applications with the OSF/Motif look and feel. As a full UIMS, it addresses important aspects of the user environment where OSF and standards bodies have not yet reached agreement.

Key characteristics of Open Dialogue include:

- C++ object orientation.
- Applicability to rapid prototyping.
- Ability to separate a user interface from the application code through dialog management.
- Extensibility to support alternative user interface styles.
- Support for application programming languages besides C and C++.

HP released Version 2.0 of Open Dialogue in January on Apollo Domain and Sun workstations, including both Motorola and RISC architectures. Shipment of Open Dialogue on HP-UX systems is expected mid-year as HP continues to merge the HP and Apollo product lines.

[By Cathy Betz]

An Advancement For User Interface Development

OPEN DIALOGUE WORKS WITH THE OSF/Motif style and window manager and supports a number of industry standards: UNIX, the X Window System and C++, which is the emerging standard for object-oriented programming languages.

The 3-D bevelled appearance and "drive-ability" of Open Dialogue user interface objects are consistent with OSF/Motif. Whether user interfaces are built with Open Dialogue or the OSF/Motif toolkit, end users can easily transfer the skills they've learned from one interface to another.

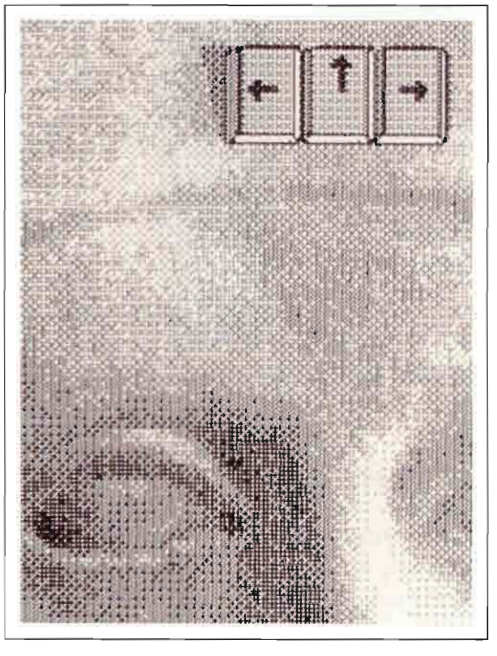
To the software developer, Open Dialogue offers a higher level of user interface abstraction than does OSF/Motif. It also provides *dialog management* — a powerful architectural concept unique to UIMSs. Dialogue management allows a user interface to be independent of the application software and therefore manage itself at runtime. At runtime, dialog management allows an Open Dialogue user interface to "manage itself," independent of any application software. Because of Open Dialogue's formal way of relating the user interface to the application, developers forego the

toolkit type of application programming interface (API) that is provided with OSF/Motif.

Many companies — McDonnell-Douglas, NCR Microelectronics Division, Westmount Technology and Structured Software Systems, to name a few — favor Open Dialogue for building the presentation component of their applications. The UIMS is giving in-house development groups, CASE system vendors and ISVs a start on building the kind of distributed, object-oriented environments that analysts predict will dominate the next computing era.

User interface toolkits like OSF/Motif define only the style of a user interface and the layout of particular screens. The *dialog* aspect of a UIMS defines the dynamic behavior of the user interface in response to a user's interaction with the application. Dialog allows graphical user interface elements such as buttons, menus and scrollbars to trigger each other without the intimate involvement of the application. In effect, it creates a domino-like network of user interface objects that captures all user events, collects user input, and makes calls to the application only when application functions are needed to process the input.

HP's implementation of dialog also allows user-supplied data to be *preprocessed within the user interface* before it reaches the application. A non-graphical user interface object can capture a user action — such as a menu selection or type-in — and transform it into a data format that the application software expects to receive.



With the Open Dialogue UIMS, an application typically is reduced to subroutine libraries that respond to the demands of the user interface instead of defining the program flow. An exception to this rule is when a developer finds it necessary to manipulate elements of a user interface directly from his application. For these situations, Open Dialogue can behave as a conventional toolkit.

Open Dialogue's dialog management enables a developer to logically and physically isolate the entire user interface in a separate user interface definition file. The separation eliminates the need to embed user interface code into the software, and the application can remain blind to user actions and events. This design makes it easier to build modular software applications, parts of which then may be shared or distributed to other processors on a network via facilities like NCS.

In the absence of dialog within the user interface, an application must make direct calls to and receive them from each graphical user interface object or widget on the screen.

For some customers, a UIMS can solve response time problems that may arise from distributing an application over a network via the conventional X client-server model. As the last illustration in *Figure 1* shows, an Open Dialogue user interface can handle all user interaction locally, while the application functions may reside at remote locations on the network. With Open Dialogue's capacity to contain most events within the user interface, traffic over the network is minimized.

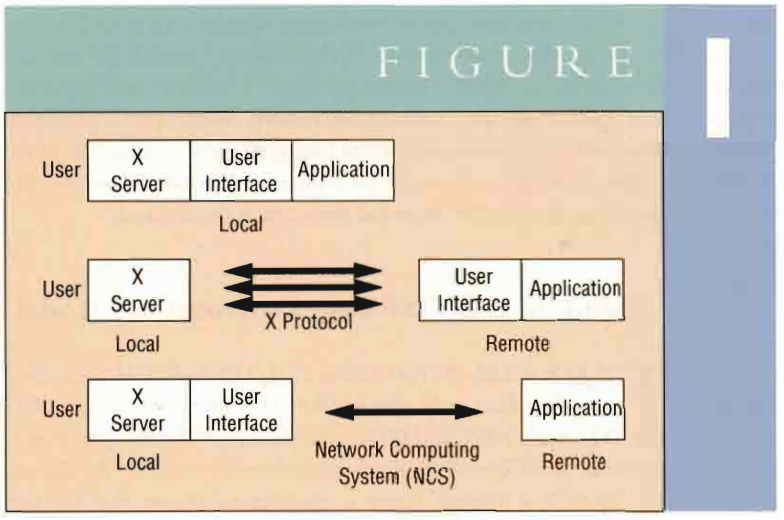
Dialog In The OSF User Environment Model

IN PARALLEL WITH EFFORTS TO ESTABLISH a standard user interface style and toolkit API for the industry, OSF, X/Open, NIST and IEEE have provided for dialog management in their User Environment reference models. As shown in *Figure 2*, a Dialog Layer is positioned above the Toolkit (widgets or objects) and Window System (e.g., X) and between the Application code and the Presentation Layer (style and layout) of the user interface.

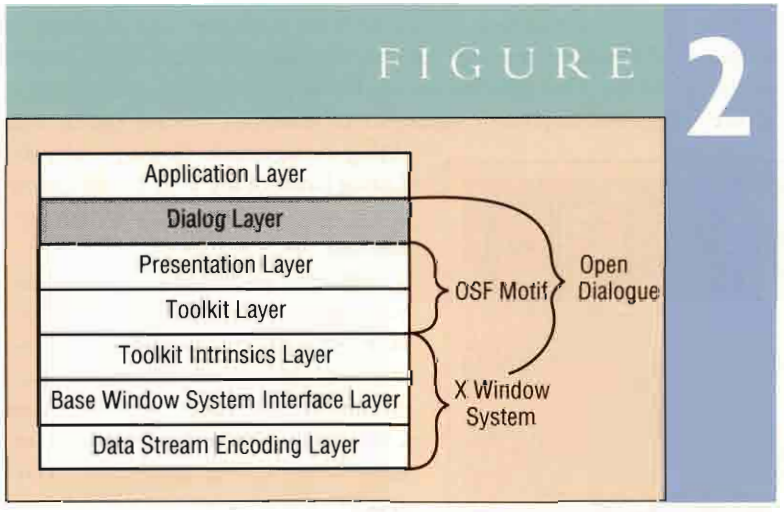
Of all standards bodies, OSF has made the most headway in defining technology for the Toolkit and Presentation Layers of the User Environment. However, OSF has not yet progressed beyond a statement of direction toward UIMSs and dialog management. Consequently, the Dialog Layer of the User Environment is left open to innovation by companies like HP.

For rapid prototyping and rapid development, Open Dialogue user interfaces, complete with dialog, can be exercised dynamically before software engineers commit to coding. The Open Dialogue runtime component, independent of any application, manages the display with highlighted graphical entities, pop-ups, screen transition, cursor tracking and input from the mouse, keyboard or other device. As a result, companies like NCR are able to create working user interface prototypes with Open Dialogue in less than a day.

With conventional toolkits, it's tempting for programmers to write software so that the logical structure of the application code affects the sequence, branching and flexibility of the user interface. In contrast, Open Dialogue makes it possible to create the user interface *before* the programming effort begins or in parallel with it. The interface can be refined early in the software development cycle through project reviews and focus group testing. This approach tends to result in applications that are better designed and user interfaces that are more intuitive.



Three potential models of computing with Open Dialogue.



The OSF User Environment reference model.

Software maintenance is less painful because changes to the code needn't affect the user interface, and vice versa. Application code is cleaner, smaller and more modular because user interface details are absent. In addition, developers can write and debug their code without having to learn the complexities of the X Window System.

Multiple Platform Support

OPEN DIALOGUE USER INTERFACES PORT easily from one platform to another, often without recoding. The developer recompiles the application and reparses the original user interface description file separately on the target platform.

Westmount Technology, a source code licensee of Open Dialogue 2.0, completed its OSF/Motif-style user interface for its CASE product line soon after the release of Open Dialogue 2.0. Westmount has successfully ported Open Dialogue to DEC's VAX/VMS, and plans ports to at least eight more platforms.

To comply with a government contract, a division of McDonnell-Douglas began developing software with Open Dialogue on HP Apollo systems without knowing which platform they ultimately would target. When the platform was chosen, McDonnell-Douglas moved Open Dialogue to a Silicon Graphics system without difficulty.

HP's own R&D team allows only a week or two to port Open Dialogue to a new UNIX-system platform with X.

Style Consistency And Flexibility

AT ONE TIME, DEVELOPERS WERE forced to use several sets of vendor-approved tools, one set for each platform, because the style of the user interface varied. This also meant that developers had to maintain several different versions of the source code for each of their software products. This practice is changing because many tools are now available across platforms, and a few are flexible enough to support different user interface styles.

HP provides a ready-made set of OSF/Motif-style object classes with Open Dialogue because the company expects the OSF standard to dominate workstations. According to Open Dialogue 2.0 customers, supporting the OSF/Motif look and feel "almost comes for free" because developers don't need to study the OSF/Motif style guide in detail.

Developers of software products deliberately can extend Open Dialogue to bridge multiple user interface styles when they need to support Open Look or proprietary user interface conventions on non-HP systems. Open Dialogue *templates*, macro-like combinations of user interface objects that are reuseable, help to enforce a given user interface style and to simplify the task.

Dialog management makes it easy to support multiple user interfaces for a single software product. Software vendors can deliver variations of a user interface, usually without recompiling the application, and the appropriate interface can be selected at runtime. Custom user interfaces can address differences in native languages (for multinational applications), levels of sophistication (e.g., novice vs. expert), or user preferences. Variations can go beyond the user interface style and layout

There are some powerful reasons to install SpoolRescue.

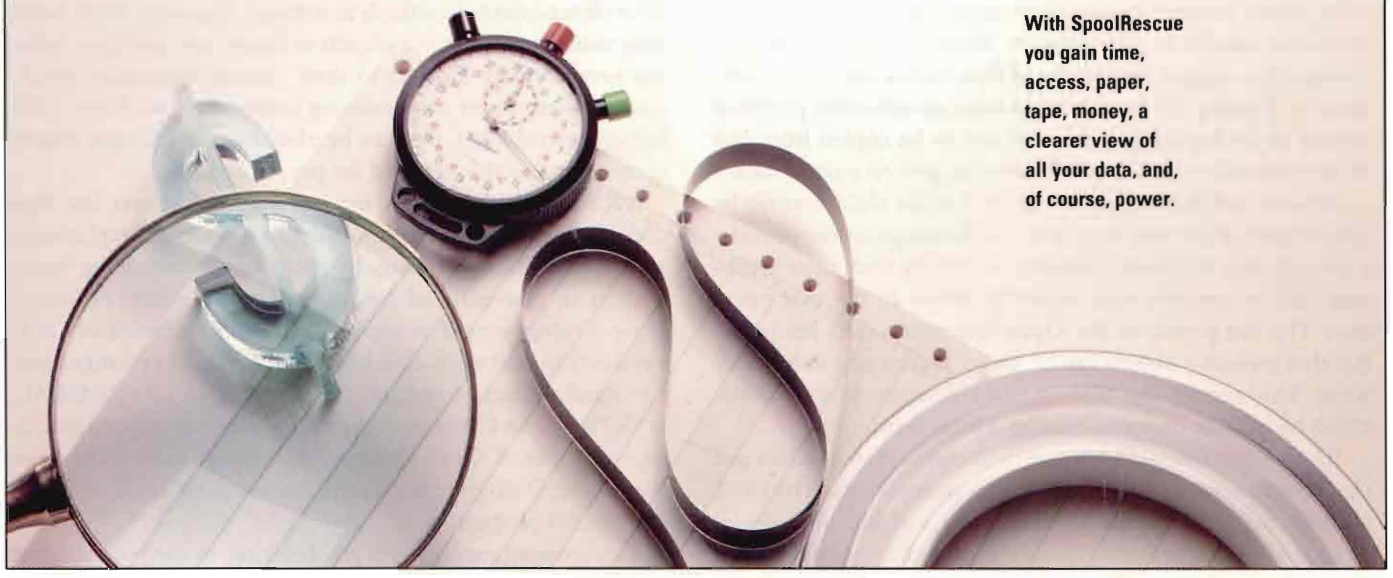
How would you like to have a lot more power at work?

With **NSD's SpoolRescue**™,software for the HP3000, you'll be able to do things you never could before. Such as view OPEN spoolfiles--even the INPUT files of jobs you have already streamed; then make sweeping changes based on size, status, device, priority, copies and spool and creator name.

Another powerful advantage is how much more control you gain with SpoolRescue. Because with access to OPEN spoolfiles, you can validate reports while they're being generated. That way, you can see precisely how far along that job is. Rather than aborting it when it's just about to finish.

What's more, this performance-oriented package features friendly, easy-to-use commands. So saving spoolfiles or WAIT and SCHED jobs to disc is remarkably easy. As is restoring them back into the spooler. SpoolRescue also vastly improves all tape-handling for microfiche with a special mode for creating just about any format tape you want.

So take some power into your own hands and call NSD toll-free today. After all, you have everything to gain.



With SpoolRescue you gain time, access, paper, tape, money, a clearer view of all your data, and, of course, power.

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CIRCLE 152 ON READER CARD

SpoolRescue is a trademark of NSD, Inc.

to the menu branching hierarchy and the degree of interactive complexity.

Object Orientation

HP'S OPEN DIALOGUE CONSISTS OF development tools and a runtime component. The development tools include a user interface description language (UIDL) specification for describing a user interface in a text file, a UIDL parser, a user interface object class library for creating instances of objects for user interfaces, a viewer for pro- totyping, and source code for sample interfaces and extensions.

Open Dialogue's parser reads a UIDL text file to create and populate the user interface. The resulting binary data file is commonly called an object workspace. Object workspaces contain information describing the on-screen user interface and dialog; they are not object modules in that they don't contain executable code. The Open Dialogue viewer or runtime can manipulate the object workspace by adding new objects or changing existing ones to make the user interface run.

The underlying object model to the workspace includes three major types of user interface objects: interaction, data conversion and application objects. These objects are responsible for presenting elements on the screen and accepting user action, collecting and processing data or converting input from one format to another, and interfacing with the application. Open Dialogue includes a rich set of objects and can be extended by using C++ to create new ones.

Objects in the object workspace communicate with each other through the use of *active variables*. For example, a push-button object has an active variable that triggers other objects when the button is pushed. In general, objects have several variables. *Source variables* in any given object can be connected to *destination variables* in other objects. When an object's variables change, they trigger movement of data from a source to a destination. Pushing the button could cause several other graphical objects to be displayed, a piece of text to be copied from one object to another, and the application to process a set of data.

Sources and destinations are defined in the UIDL text file by the designer of the user interface. The language syntax provides a concise way to create instances of objects with their attributes, and to connect each object to others in the user interface. The full power of the Open Dialogue UIMS lies in the fact that primitive objects can be set up to pass data in arbitrary ways. This permits the user interface designer to exploit the UIMS by making complex interfaces from simple parts.

The objects themselves define their own active variables and the conditions under which they trigger other objects. The UIDL language parser simply allows the objects' variables and triggers to be set from a UIDL text file at the time the parser populates the object workspace. The parser program is therefore self-extending; it gets the information it needs about each class of object from the object itself, not from the UIDL text file.

When a user extends Open Dialogue by adding new classes of objects in C++, the parser picks up the characteristics of the new objects in just the same way as it does for objects supplied with the product. This means that UIDL, the language, also extends itself automatically for new objects.

Automatic extensibility was made possible by basing Open Dialogue on object-oriented technology. HP is one of the few platform vendors already shipping commercial object-oriented software products written in C++.

Acceptance of object-oriented technolgy is growing because of the technical superiority of object-oriented techniques over traditional procedural programming methods. Object-oriented principles of *data hiding, inheritance* and *polymorphism* make it possible to build larger systems more reliably.

No Rules Without Tools

OBJECT-ORIENTED PROGRAMMING languages are significant because they recognize "objectness" and reinforce design principles instead of leaving them up to individual programmers to follow.

The predecessor to Open Dialogue, Apollo's Domain/Dialogue UIMS, presented an object model to users although it was developed in PASCAL. Development of Open Dialogue in C++ began in 1986 when Apollo R&D reached a point beyond which they could not enhance Domain/Dialogue and still manage the project or maintain the software. The programmers used C++ to enforce object-oriented conventions and to extend the PASCAL code.

Not all companies are ready to start using C++ right away. For these, Open Dialogue has been a practical way to introduce object-oriented methods to software engineers. R&D teams have used Open Dialogue objects to create user interfaces without revolutionary changes to their current application development methods or programming languages. And, Open Dialogue's textual UIDL files can be placed under the same source control systems that are used for program code.

NCR Microelectronics Division is removing user interface code from existing PC design analysis software and replacing it with Open Dialogue. Large portions of the remaining code, written in conventional languages, remain intact. Although Open Dialogue itself is implemented and extended in C++, application software can be written in other languages. On Apollo Domain systems, for example, C, C++, PASCAL, FORTRAN and Ada language bindings are supported. A large number of Open Dialogue developers successfully have put Open Dialogue user interfaces on their tried-and-true FORTRAN programs.

Government expenditures are shrinking, so the potential cost savings of adopting Open Dialogue is important to the defense industry. In particular, Open Dialogue's Ada support makes it

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> With the commercial availability of Open Dialogue, HP customers can begin moving toward a new, object-oriented model of computing...

easier for defense projects to use a C++ based UIMS, despite internal commitments to program exclusively in Ada.

IS OPEN DIALOGUE STRONG ENOUGH to lead the growing trend toward object-oriented environments?

When Apollo submitted Open Dialogue to OSF under the original User Environment RFT, OSF validated the technology, but chose to omit dialog management and C++ from the scope of the selection at that time. Dialog and objects still may be some time away for OSF, but HP expects Open Dialogue to be a logical candidate for the next round of standardization.

HP continues to take an active role in educating itself and the industry about the significance of dialog management and object-oriented technology to the user environment. In a recent presentation of Open Dialogue to the UIMS working group of OSF, HP gave a technical review of dialog and its implications for user interface description language standards. In February, an early port of Open Dialogue to HP-UX systems was made available to other HP R&D teams, many of whom now use it or continue to evaluate it for key development projects.

HP is committed to the UIMS as an integral part of its object-oriented strategy. When Version 2.0 of Open Dialogue was introduced, it became part of the Team Computing Program. The commercial viability of Open Dialogue and its place in the user environment makes it a pivotal product for HP customers. With it, they can begin moving toward a new, object-oriented model of computing in networked environments. —*Cathy Betz is product line manager for portable application tools at HP's Apollo Division, Chelmsford, MA.*

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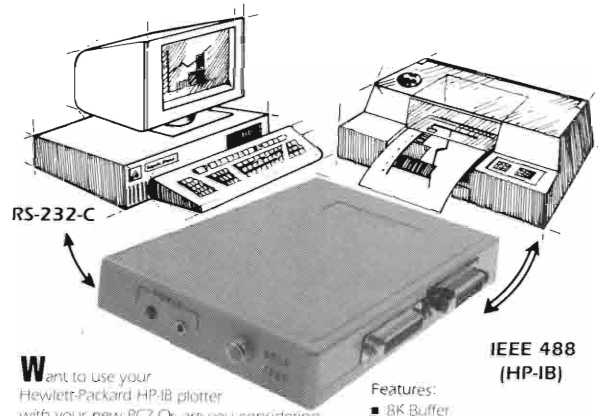

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WHAT'S NEW ABOUT NEWWAVE?

Available (And Promised) Applications To Create A NewWave Environment

[BY PEGGY KING]

What's new about the NewWave user environment? Is it merely the graphical representation of a working environment? Sure, graphical user interfaces (GUIs) complete with icons to drag and drop are a great improvement over typing DOS or MPE commands at a prompt, but they're not new.

The NewWave user environment is not the first use of a computer screen as a multipurpose control center for tools of a trade. In 1984, Analog Design Tools (now part of Valid Logic in San Jose, CA) introduced Analog Workbench, a software tool set that provided an alternative to the manual process of breadboarding (prototyping) an analog circuit design. Analog Workbench replicates the analog designer's workspace with a set of icons to represent the machines that analog designers use, such as a network analyzer, oscilloscope, frequency meter, DC meter and spectrum analyzer. Instead of having to go from machine to machine in a lab, analog designers can do it all from their individual terminals.

Similarly, with NewWave Office, selectible icons represent functions typically performed by office workers. For example, an executive's NewWave Office could include icons to send a fax, print a letter at a shared laser printer, print a memo at a personal printer, read electronic mail messages, scan a magazine article to be filed, perform a keyword search through

a file, enter appointments on a calendar, initiate a conference call, view a videotape or do financial calculations. Before NewWave, an executive had to walk away from his desk to perform some of these functions.

Prior to the integration of software applications under a windowed environment, moving between software applications required logging out of one program before entering another. With NewWave running under MicroSoft Windows (MS Windows), you can move between functions by clicking on an icon.

Because of industry standard windowing, it's much easier to modify an end user's toolset in the NewWave environment than it was in products with windows based in hardware. When Analog Workbench was developed, there was no standard windowing implemented in software. Therefore, developers wrote a Sun version of Workbench based on Sun's windowing environment, and then an entirely new version to support Apollo workstations, and later one for the HP 9000 workstations. By contrast, NewWave Office will run in graphical mode on any 80286- or 80386-based PC with sufficient memory.

With NewWave, office workers can customize their NewWave desktops. Any of the nearly 300 commercially available applications software packages that run MS Windows will run in a windowed environment under NewWave. An office worker can use software from a variety of vendors interchangeably without being aware of which tools come from which vendors. As long as a tool is represented by an icon and "launches" when the icon is clicked, it looks like part of the NewWave environment. But looks can be deceiving...

There are two kinds of software that run under NewWave: encapsulated applications and fully integrated applications. Both types are represented with an icon. Applications that merely are encapsulated rather than fully integrated take over the screen when you launch them by clicking on an icon. When fully integrated applications (or applications that are based on MS Windows) are launched, they run in a window and other integrated applications can be displayed on the screen simultaneously.

NewWave is based on MS Windows, but it extends this environment by offering shared objects ("hot links"), an intelligent agent for automating tasks, computer-based training (CBT) that works with applications, and the capability of integrating multimedia features in compound documents. Fully integrated applications include these advanced features of NewWave. For an application to acheive full integration with NewWave, the developer must modify the code to include the object management capabilities that make agents and hot links possible.

For networked systems in a client/server configuration, the NewWave environment offers a degree of integration that goes beyond the capability of MS Windows. For instance, MS Windows users can use data in an Excel spreadsheet to make a graph in Graph Plus, but it takes the hot links capability in NewWave to update the graph whenever the spreadsheet changes.

HP HAD EXPECTED THAT about 25 fully integrated software applications would be shipping from third parties by March 1990. However, Microsoft's failure to publicize details about its Release 3.0 of Windows laid these plans to waste. Under nondisclosure agreements, Microsoft showed third-party software vendors the new version, which industry watchers expect will be announced in April. This unforeseen development left NewWave software vendors with a dilemma — stay on schedule with NewWave and release their product with the current

[Defining The Terms]

When HP refers to *NewWave Office*, the term has different meanings depending on the context.

On the HP 3000 side of the company, the term is used to mean the entire office computing environment. HP has termed this definition the *organization focus*. On the PC software side of HP, the term is used to refer to one screen in an MS-DOS user environment. This use of the term is referred to as the *desktop focus*. A third definition of NewWave Office is the *user environment* that office workers can create for themselves within the NewWave environment.

In order to avoid confusion, this article uses the term NewWave office only when the third definition applies.

When the term NewWave Office is used in reference to the HP 3000 or another networked server, it refers to an entire integrated office system based on the client/server model of computing: graphical user interface, office applications, electronic mail, document filing and retrieval, image management, object management, shared resources and network management.

When users logon to the standard HP NewWave PC software product, the first screen they see is labeled NewWave Office. This "desktop" includes a group of icons that represent office accessories such as a file drawer, a waste basket, and an in tray. In this article, the term NewWave desktop is used to refer to the screen display that shows selectible icons.

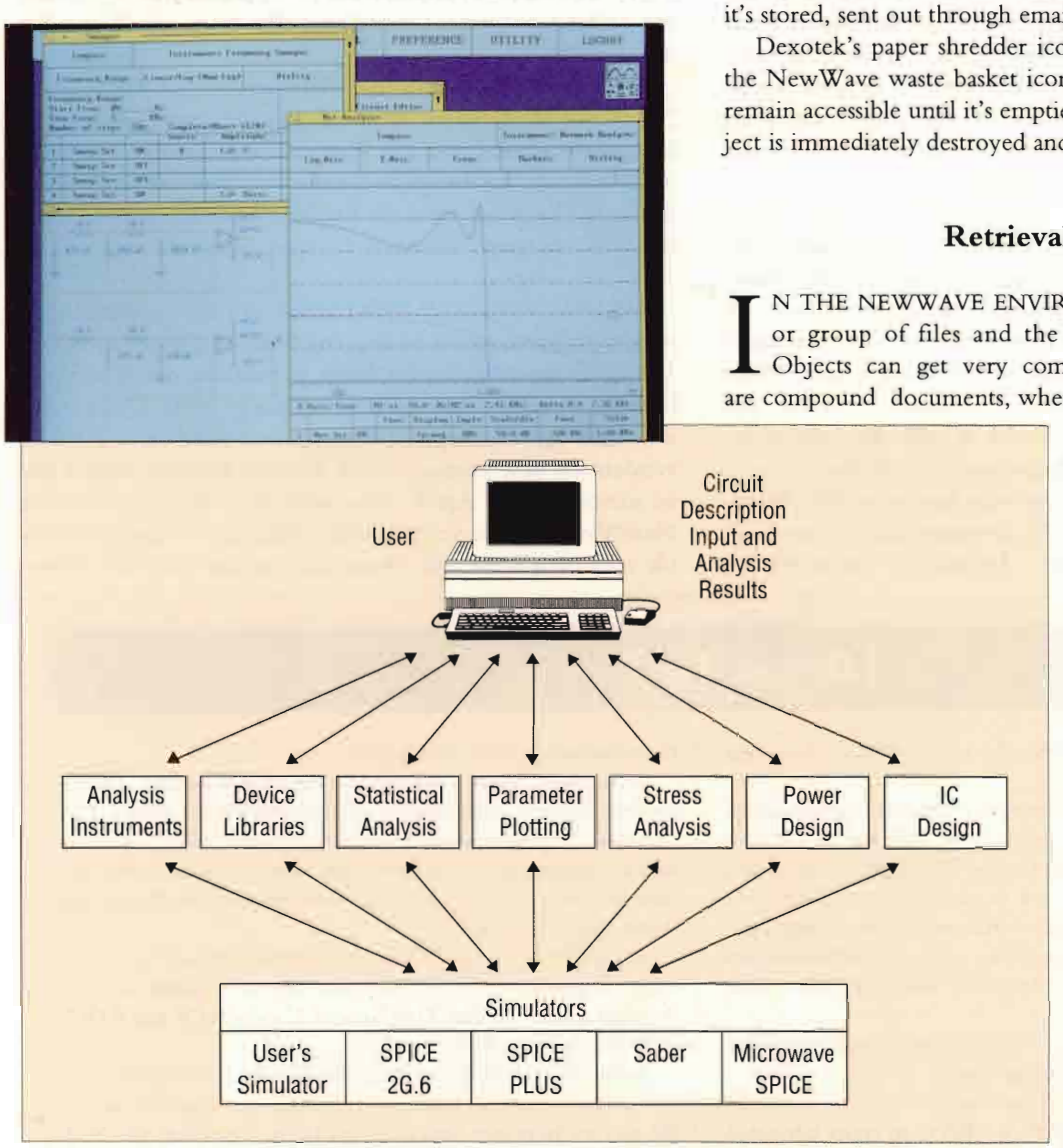
In the future, customers can obtain NewWave software from other companies besides HP. They also may see a different label on their first screen. To date, Data General, Canon, NCR and AT&T have licensed NewWave.

As part of the licensing package, HP includes a customization kit that allows companies reselling NewWave to change features of the user environment such as screen labels. Therefore, the New Wave Office label is not an essential feature of the environment, and HP could clear up the confusion by changing the label on its PC software product.

version of MS Windows, or wait a few months and have a Windows 3.0 version.

The advance word on 3.0 is that it's faster, smarter and visually superior to the current version. Therefore, it's not surprising that companies would rather wait a few months for 3.0 than bring out NewWave versions of their product on schedule and have to send updates to customers who had just purchased the product.

Despite a number of delayed shipments, it's now possible to furnish your NewWave desktop with available software and multimedia products. However, there should be a dozen more products shipping by this summer. Here's a brief rundown of what fully integrated NewWave tools you can buy to fill your NewWave desktop with icons. This list doesn't include any products with a projected shipment date beyond June 1990.



Electronic circuit designers using Valid's Analog Workbench have a collection of familiar lab-like instruments for displaying analysis results. When an instrument window is "closed," an icon appears. By clicking the mouse on an icon, you can call up the appropriate window.

Office Accessories

DEXOTEK CANADA (Dorion, Quebec) sells a collection of accessories that add useful functions to the ones that HP provides with the standard environment. Dexotek's accesories include a pack folder, a safe folder, a pair of calculators (business and scientific) and a search feature.

The pack folder compresses big files and therefore preserves disk space. The safe folder encrypts private information before it's stored, sent out through email, or archived.

Dexotek's paper shredder icon is not to be confused with the NewWave waste basket icon where discarded objects will remain accessible until it's emptied. With the shredder, the object is immediately destroyed and its disk space is reclaimed.

Retrieval Tools

IN THE NEWWAVE ENVIRONMENT, an object is a file or group of files and the application that runs them. Objects can get very complex, especially when there are compound documents, where, for example, a word processing document contains a spreadsheet, a scanned image and a digital video file.

Several companies offer search and retrieval programs that work with NewWave objects. Search, the Office Accessory that Dexotek Canada represents with a road sign icon, is one such tool. McCallum-Varey (Surrey, U.K.) sells a search product called Locator. Access Softek (Berkeley, CA) offers it's product Dragnet. These products allow you to search for text in NewWave objects or in files. After you've found the object you were searching for, you can click on the "launch" function to start the application. Also, these products allow you to specify a search for a group of objects and to locate the parents of an object.

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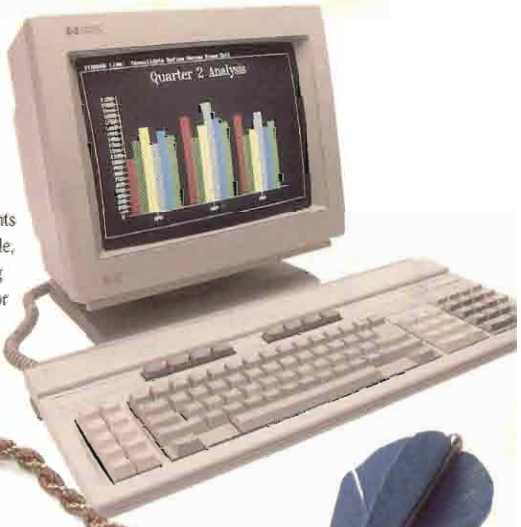

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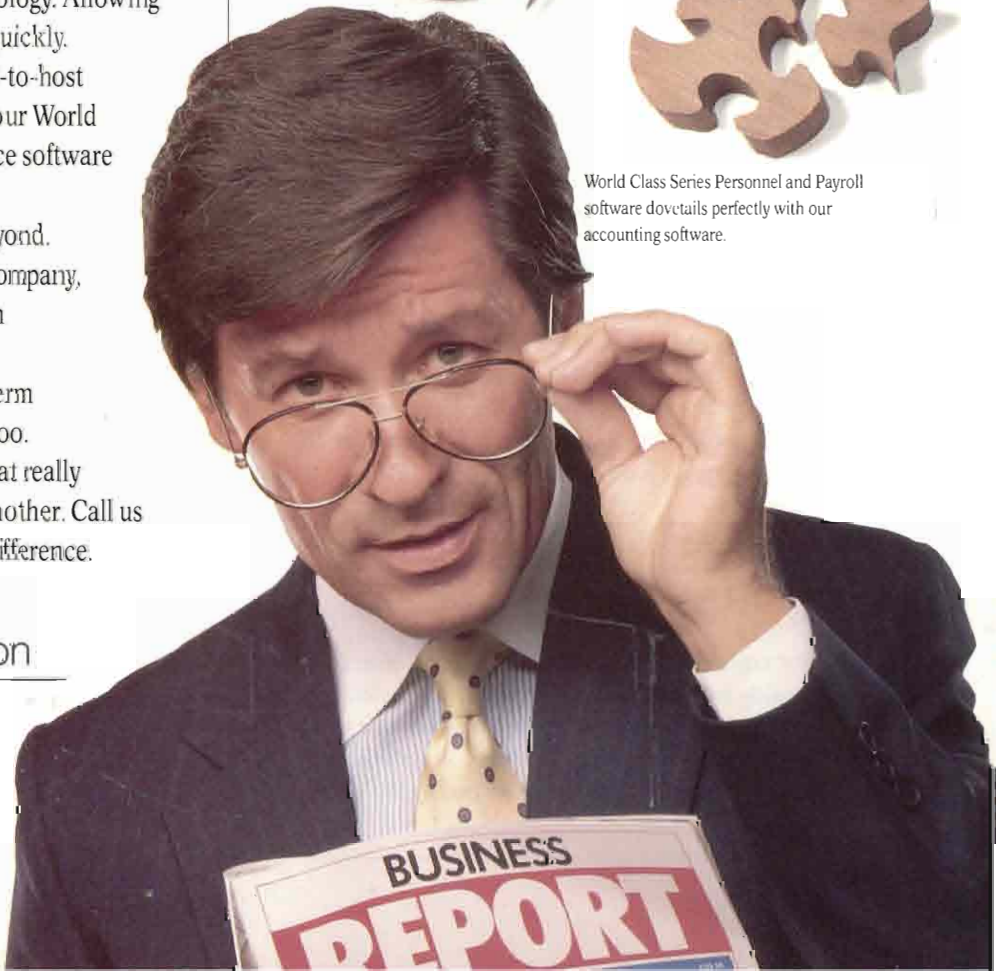

HP 3000 NATIONAL PROGRAM

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PC-To-Host Communications

ONE OF THE DIFFERENCES between NewWave Office and a standalone windows environment is its support of the client/server model of computing. In networked systems where information resides on host databases, communications programs link the clients and servers. Although it's not necessary to have a fully integrated communications program in order for a PC running NewWave to talk to hosts, users can communicate more easily if they are relieved of having to invoke communications protocols and structure their database queries. These are tasks that agents can do.

DynaComm Asynchronous is a full-featured MS Windows-based communications package from Future Soft Engineering. DynaComm can communicate with more than one host simultaneously. There's also a phone dialer integrated with the communications package. A future release will incorporate NewWave agents to initiate sessions with the host.

Tymlabs (Austin, TX) has delayed its shipment date for the NewWave version of its MS Windows-based Business Session until June. The next release will support task automation and object sharing across a network.

TransActor from Systems Interface (Nepean, Ontario) is the first NewWave product that supports communication with a UNIX host. Specifically, TransActor supports communication between a PC and an Informix database residing on an HP 9000 Series 800. Using a menu-driven query format, the user writes an SQL query within a NewWave window. Systems Interface plans to use TransActor as the communications link in the Executive Information Systems it designs for systems integration customers. In the future, TransActor also will work with other UNIX-based databases.

Electronic Mail And Fax

HP HAS BEGUN TO SHIP NewWave Mail that works across HP 3000s and sends messages to IBM networks. Da Vinci eMail from Da Vinci Systems (Raleigh, NC) is a LAN-based e-mail system. The first release doesn't support the intelligent agent capability. MicroView Fax software from MicroView (Houston, TX) supports a number of PC fax boards. It is accessible from an icon that shows a fax machine with a lightning bolt.

Document Processing

DOCUMENT PROCESSING IMPLIES the ability to handle compound documents. HP's NewWave Write is the plain, vanilla document processor that's included with the purchase of NewWave. It serves as a place for creating compound documents and its word processing capabilities are adequate for memo writing. HP intends for NewWave Write to coexist rather than compete with other more powerful document processing programs such as Ami from Samna Corp. or the more full-featured Ami Professional that's capable of working with hypertext and has integrated drawing and charting.

Multimedia And Animation

AIMTECH (NASHUA, NH) EXPECTS TO ship a NewWave version of its MS Windows-based product, IconAnimate, by the end of May. IconAnimate adds movement to graphics. Instead of having to enter location coordinates to select what part of the graphic is to be animated, the user simply clicks on the position and the location coordinates are entered in the dailog box.

Full-motion video products from VideoLogic (Cambridge, MA) and New Media Graphics (Billerica, MA) are available with software that allows you to integrate full-motion digital video as a NewWave object. VideoLogic's DVA-4000 and VideoWindows NW from New Media Graphics both plug into slots on the back of PCs. VideoLogic includes the NewWave Systems software for the DVA-4000 in the price of the video board; New Media Graphics prices the board and the software separately.

Both products allow users to capture a frame and include it as part of a compound document in a NewWave object. Both boards are controlled by software that allows for freeze frame images to be edited. It's even possible to shrink an image to the size of other icons on the NewWave desktop. With either product it's possible to run a video in one window of a multimedia application. Software for both boards includes an authoring language so that video can be integrated with CBT.

Graphics And Spreadsheets

MICROSOFT (REDMOND,WA) has not announced a date for the debut of a NewWave version of its popular Excel spreadsheet, but look for it shortly after the announcement of MS Windows 3.0.

Micrografx (Richardson, TX) is waiting until the Microsoft announcement before it brings out a NewWave version of its business graphics package, Graph Plus 1.3. If you need agents and object sharing, you'll need to wait for Graph Plus 2.0, to be released later this year with full NewWave capabilities.

Here are some examples of customized NewWave desktops for different kinds of "office workers," a system manager (whose "office" no longer has to be in the computer room), an auto insurance claims processor and a marketing manager. Each example demonstrates how integrated applications and the power of client/server computing provide more capabilities

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and better access to information. However, none of the office environments described in these sneak previews is up and running yet.

Networked System Management Console: Carolian Systems International (Mississauga, Ontario) is developing Integrated Network Services (INS), a user environment that the company hopes will be the HP 3000 system manager's version of a NewWave office, complete with fully integrated tools from Carolian and other vendors. INS is based on the client/server model and the graphical user interface in HP's OpenView Network Management environment .

The graphical user interface on the system manager's PC console uses icons and pulldown menus to represent functions. This GUI makes it possible for a system manager to oversee multiple networked HP 3000s as if they were one machine because the system manager can view graphic representations of the system to look for exceptions (security violations, failures and aborts) rather than focusing on the normal operations.

Over the next two years Carolian plans to release performance optimization and capacity planning tools and to work with other vendors in the HP market who wish to integrate their tools with the INS environment. The system manager's console is the client that controls all HP 3000 servers and gathers information from them.

Each management or performance tool integrated with INS will work as an independent module. GALCON, the module that provides network-wide console access from a single machine, will be the first module to be implemented. When GALCON detects an alert on the HP 3000, it sends a message that appears as an icon on the system manager's console. The system manager then clicks on that icon to view a pulldown menu and select a response to the alert.

Compound Documents In The Claims Department: In addition to selling Video Windows NW, New Media Graphics works closely with applications developers and systems integrators who are using their product in multimedia applications. An application designed for an insurance company lets claims processors view three types of information about a claim simultaneously.

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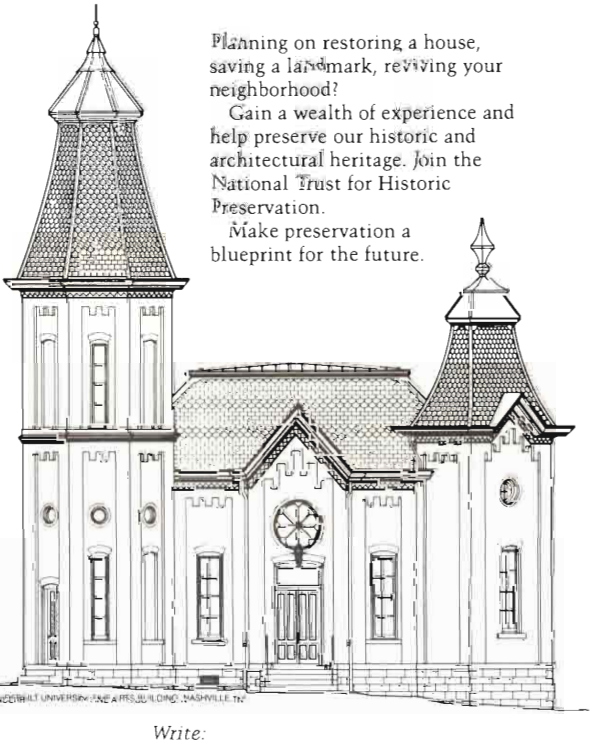

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cars involved in the accident, and a still-frame video of the damaged car or cars. When the claims processors finish with the document, they send it over the network to claims adjustors. If all portions of the compound document are created with software that supports network object sharing, the claims adjuster's version is automatically updated every time that the claims processor makes changes to it.

Multimedia Research Assistance For Advertising Agencies: Crowe, Chizek Inc.(Indianapolis, IN) is putting together a NewWave application for customers of Research Systems Corporation (Evansville, IN), a leading advertising research company that collects and analyzes data about the effectiveness of it's client's advertising.

Within the client/server model, Research Systems Corporation (RSC) has the server machines, IBM mainframes and HP 3000s that store data about advertising and its relation to sales. RSC uses HP 3000s for storing videos of commercials aired by their clients and the clients' competitors and statistics on an ad's persuasiveness points and points for how long the same ad can continue to be effective (burnout points). An IBM mainframe collects grocery store sales data, Neilson ratings and other information for tracking the effectiveness of advertising efforts.

Marketing managers at companies that use RSC's services get client PCs. These marketeers can replay digital videos of commercials stored on the HP 3000 through a video window if their PC is equipped with Video Windows NW or VideoLogic's DVA-4000.

Via NewWave Mail, RSC sends the marketing manager at each of its customers' companies a compound document that includes videos of the commercials run for the company's products and competing products, advertising data from RSC's IBM mainframe captured on an Excel spreadsheet, and reports written by analysts at RSC. The NewWave agent capability automates the task of preparing updates. For example, the agent can be programmed to create a chart of the previous week's advertising effectiveness statistics and to send it out every Monday.

ALTHOUGH THE FIRST end user product that incorporates agents and networked object sharing has yet to ship, it's not too soon to start planning a NewWave environment that makes use of it's advanced features.

If your office already has PCs networked to an HP 3000, you can focus on envisioning the type of environment that would make you and your entire organization more productive: What tools do you want on your desktop? Which office machines would you like to control from your screen instead of leaving your desk? What routine tasks would you like to automate? What coworkers need to see automatically updated copies of files you create? Could you use a video window on your PC?

By the time you formulate plans for your own NewWave office, the NewWave environment and some of the applications you may want to include in it will probably run under Microsoft Windows 3.0. And by then, you might finally get to meet that versatile agent HP has been telling us about for a couple of years.

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Beneath The Surface Of NewWave Office

Preparing HP NewWave Applications For Task Automation

The release of HP NewWave Office has provided new extensions over the industry standard graphical user interface of Microsoft Windows. Besides menus, dialog boxes, buttons and overlapping windows, HP NewWave provides a typical office metaphor, where data files and their corresponding applications are shown as "objects" in the form of icons. However, the true beauty of NewWave lies beneath the surface: the ability to share (hot-link) one object with another, a consistent Help facility, computer-based training (CBT), encapsulation of traditional MS-DOS applications and Agent task automation.

The first release of HP NewWave Office doesn't have a fully functional Agent Object, nor do any of the NewWave objects have record or playback capabilities.

However, a developer can start adding record and playback features to his NewWave applications with the HP NewWave Environment Developer Kit, in anticipation of a complete Agent Object soon.

AN OFFICE EMPLOYEE TENDS TO GO through typical daily routines. When he enters his office in the morning, he logs into a remote system with his personal computer, opens his electronic mail, reads his mail, replies to some messages, closes his mail, closes his remote computer session, opens a spreadsheet application, and so on. Wouldn't it save time and increase personal productivity if many of these mundane tasks could be automated? This is where the NewWave Agent fills an important need.

[BY FREDERICK F. CHEW]

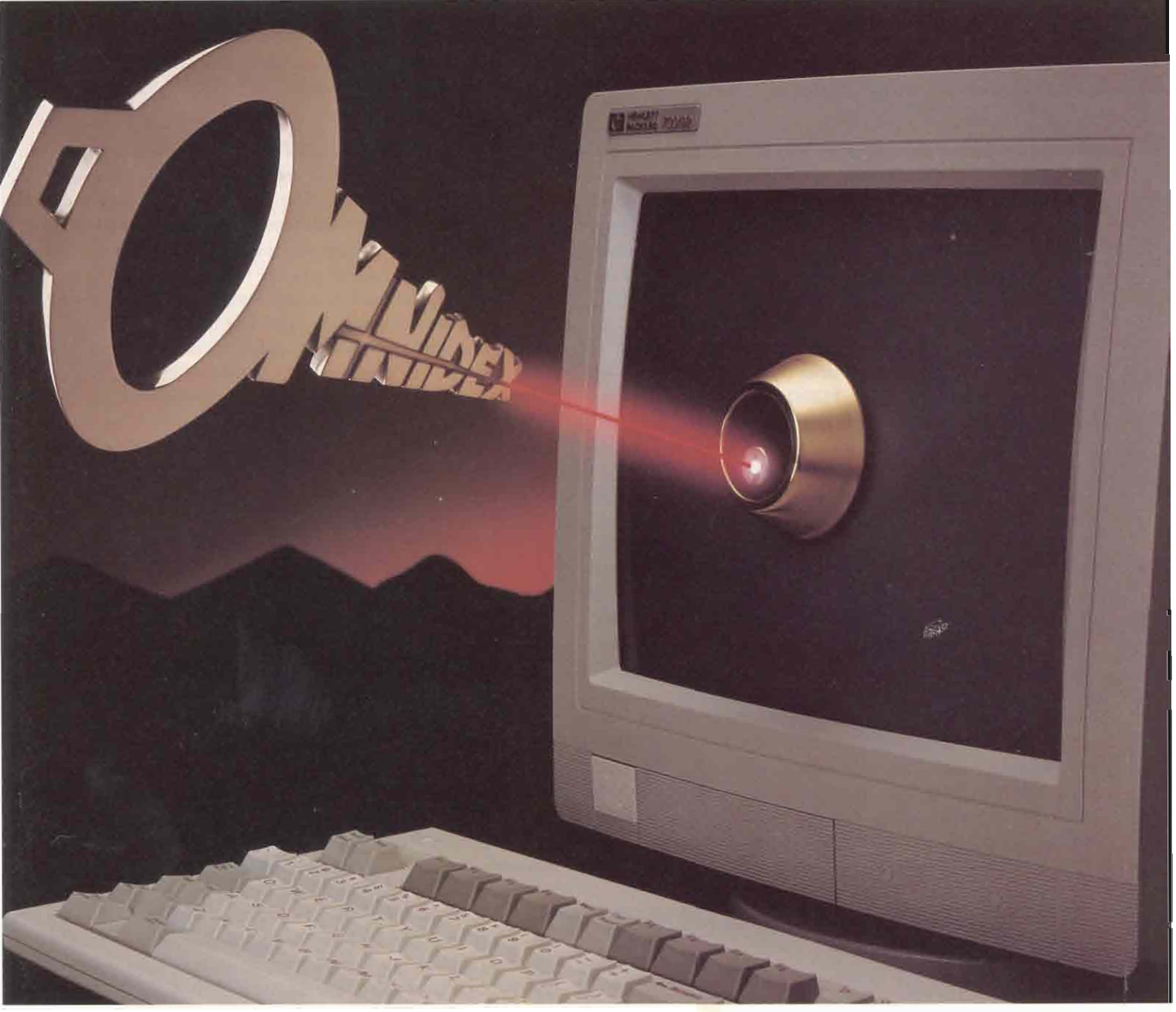
The NewWave Agent (represented by the icon of a man with shades) is like a servant who acts for the user. The user writes a Task Language script that is handed to the Agent for execution. These scripts are special objects called Agent Tasks.

An Agent Task consists of five interdependent components: three data files and two executable code files.

The Agent Task Language file consists of control keywords and appears as a human-readable, BASIC-like script. The user creates his script with a Task editor and then uses the Task compiler to translate this ASCII source into a PCODE file.

The binary PCODE file results from the compilation of the Agent Task Language file. It contains instructions for the Agent to do during a playback.

The external binary command file is the product of an object's recording session. This binary script contains commands that are specific to the object it originated from. It can't include run time-dependent data such as memory pointers. In order to integrate the external binary command file into an Agent Task, it must be translated by Task recorders into a Task Language



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script. The script is then amended within the Task editor and compiled into PCODE. Furthermore, the external binary command file may be created by the Agent in playback mode. If the Agent is unable to interpret an object-specific command, it will translate the PCODE command format to the external binary command format and pass it to the appropriate object for execution.

The Task editor is executable code for writing, modifying and merging Agent Task Language scripts. It's similar to an editor like Windows Notepad.

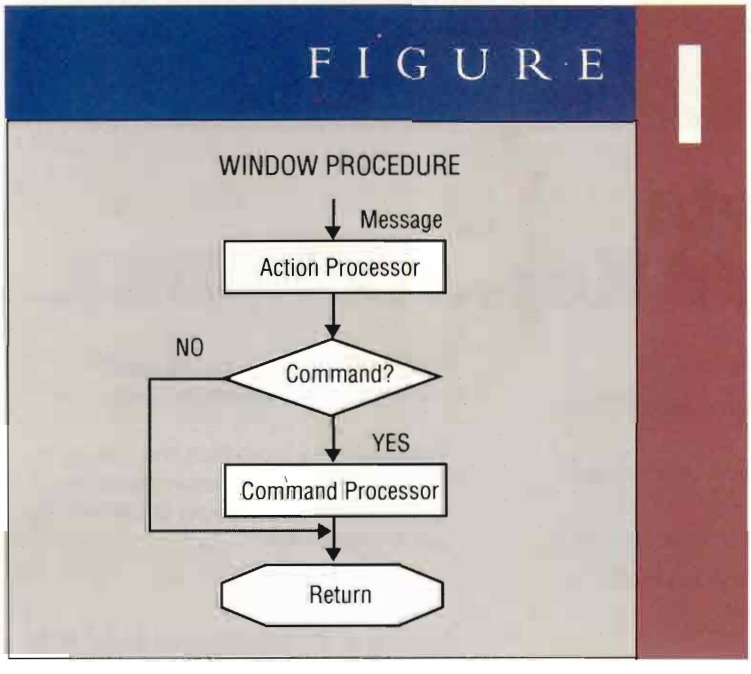
The Task compiler is executable code for compiling Task Language scripts into a binary PCODE file so that the Agent has a format it can interpret.

The commands of the Agent Task Language land in two categories: class-independent commands and class-dependent commands. Class-independent commands are keywords that aren't specific to any NewWave application. They determine the logic of the Agent Task. Such keywords might be IF...ELSE...ENDIF and WHILE...ENDWHILE and are part of the NewWave environment. Class-dependent commands are specific to certain NewWave objects and are defined by the developer.

Because the Agent Task Language has a class-independent aspect and a class-dependent aspect, the executable modules that do the translation from one data format to another likewise must be differentiated. The Task compiler uses two parsers, a class-independent one and a class-dependent one, in order to translate the two types of commands into a single PCODE file. Similarly, there has to be two recorders, a class-independent one and a class-dependent one, in order to convert the external binary command format to the Task Language format.

The class-independent recorders and class-independent parsers will be an integral part of the NewWave environment, whereas the class-dependent recorders and class-dependent parsers are built and furnished by the developer. You can expect future releases of the HP NewWave Environment Developer Kit to provide guidelines for building class-dependent recorders and class-dependent parsers.

There's a remaining key component in the Agent's world: the Applications Programming Interface (API). The API is the vehicle that allows a NewWave application and the Agent (also Help and CBT) to communicate and pass information to each other. The HP NewWave Environment Developer Kit contains API-specific functions that must be integrated into the source code of a NewWave application.



A message is either an action or command.

Record And Playback Within A NewWave Application

EVEN THOUGH not all Agent pieces are available, a developer can start integrating record and playback within a NewWave application and structure the code for API calls at the proper locations. Record and playback is designed into a NewWave application called Equations!, a program that accepts a system of two linear equations, graphs the lines and displays the solutions in a dialog box. (The complete source code is available through ARIS/BB. The file name is EQUATIONS.DOC.)

A first glance at the main window procedure of Equations! (B00_EquationsWindowProc) reveals a fundamental difference between the typical Windows application and a NewWave application. While the main window procedure in a Windows application is a big switch statement to process messages of interest, the corresponding window procedure in a NewWave application consists of several major procedures and functions (B10_ActionProcessor, B20_CommandProcessor, B50_Modal-DialogBox-Processor, APIRecordInterface, APIReturnInterface, etc.). We'll first take a global overview of this procedure and then zoom in to see how the components fit and interact with each other.

The processing of messages in the main window procedure of a NewWave application is divided between two procedures: the Action Processor and the Command Processor (see *Figure 1*). A message falls into one of two classifications: either it's an action or it's a command. Actions are messages that you don't desire to record. They may be typical Windows housekeeping messages (WM_MOVE, WM_SIZE, WM_PAINT), user actions (menu selections and mouse-related messages), Object Management Facility (OMF) messages (CREATE_OMF, OPEN, TERMINATE) or API messages API_PLAYBACK_MSG, API_INTERROGATE_MSG).

On the other hand, a command is a message that is

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Expect the HP NewWave Environment Developer Kit to provide guidelines for building class-dependent recorders and class-dependent parsers.

recordable. Commands can originate from either menu selections or from dialog box input. When a message enters the main window procedure, the Action Processor has the responsibility to process the message if it's an action, or to build the command if the message is for recording. "Build the command" means that the message is given a unique integral constant so that the message is processed in a later portion of the main window procedure. Commands that represent definitive results are executed in the Command Processor.

A command can appear in two binary formats: internal or external. The internal binary format is inside the NewWave application and is represented by whatever is convenient for the application. It may be a format consisting of memory references or pointers. The external binary format is a form specifically understood by the API. It's outside the NewWave application and is the basis for the Agent Task Language format. It consists of a command number and any additional parameters. It must not have runtime-dependent data such as memory pointers or indices to array elements. Within Equations!, for example, the graph colors are chosen by indices to an RGB color array. There may be another NewWave application that shares the same class-dependent color information as Equations! on the level of the NewWave Office, but that application may choose its own method of color selection (possibly with a larger RGB table where the elements are in a different order). Hence, the purpose of the external binary format is to provide a common denominator for different objects that share the same class-dependent commands.

The NewWave application has the responsibility to convert the internal binary command to its external equivalent and vice versa. The procedures that perform these duties might be called TranslateToIntProcessor and TranslateToExtProcessor. If the application is already in playback mode (set by an earlier API_SET_MODES_FLAGS_MSG), the incoming message would be API_PLAYBACK_MSG and the command to be executed would be referenced by LOWORD(lParam). Because the command to be played back is in the external binary format, the command has to be translated to an internal binary format in TranslateToIntProcessor. Otherwise, if the application is in any non-playback mode, the message gets processed in the Action Processor. Together, the Action Processor and TranslateToIntProcessor constitute the API Playback Test Component.

The Playback Test Component must be complemented by a portion of code called the API Return Interface Component. If the application is in either playback or record mode, the API must be informed that the application is ready to receive the next playback message or ready to deliver the next command for recording (by calling APIReturnInterface). If the application is in record mode, the command is in internal binary format and has to be translated to external binary format with TranslateToExtProcessor. After translation, the external command is handed to the API with APIRecordInterface.

The mode of the application changes whenever the user chooses a selection from the Task (or Help) menu. The APIHaveMenu macro tests for a Task (or Help) menu selection. If the test is true, the message is given to the API via the APIUserActionInterface function. The API replies by sending an asynchronous API_SET_MODE_FLAGS_MSG to the main window procedure of the application. This message is then processed in the Action Processor where a global flag (gAPIModeFlags) gets set. The global flag functions like a railway switch and serves to regulate the flow of control in the main window procedure. Detection of the Task menu selections is handled by a piece of code called the API User Action Interface Component.

Adding Modal Dialog Boxes To A NewWave Application

WE NOW HAVE SUFFICIENT information to design a program to generate commands from menu selections. However, a user often needs to provide an application with a varied collection of information. For Windows and NewWave applications, this is done with the help of dialog boxes. Dialog boxes add new dimensions to NewWave application design.

In Microsoft Windows, a dialog box is generally a pop-up window with child window controls. Like the main window procedure of the application, it has its own window procedure and receives messages for processing. However, there are two types of dialog boxes: modal or modeless. When a modal dialog box is opened, the message queue to the application's main Windows procedure is disabled and any activity in the main window is suspended. On the other hand, if a modeless dialog box is opened, the application's main window procedure can continue to receive messages. Here, the main window procedure and the dialog box procedure essentially are sharing the CPU.

All the rules of dialog box implementation for Windows applications remain true for NewWave applications. More information on modeless dialog boxes can be found in the reference, *HP NewWave Environment: Program Design Examples.*

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Before we amend the main window procedure, we must refine the definition of a NewWave command. NewWave commands can be differentiated as either dialog commands or resulting commands. A dialog command is simply a command to open a dialog box. In contrast, a resulting command is a command representing a set of information to be executed. In Equations!, API_TWO_LINES_CDDCMD and API_COLORS_CDDCMD are dialog commands to open the dialog boxes for equation input and graph color selection, respectively. However, API_ERASE_CDCMD is a single parameter resulting command generated from a menu selection, while API_COLOR_COMBO_CDCMD is a multiparameter resulting command generated from the graph color dialog box.

To be able to process dialog commands and resulting commands, the main window procedure of a NewWave application must be modified to include a Modal Dialog Box Test Component. Like all commands, the dialog command originates from the Action Processor. However, unlike the resulting command, the dialog command isn't executed in the Command Processor. When the flow of control reaches the Modal Dialog Box Test Component, the APIHaveDialogCommand macro determines if the command is a dialog command. If so, the flow of control goes to the Modal Dialog Box Processor, where the appropriate dialog box is opened.

The Modal Dialog Box Processor is the main thoroughfare to all the modal dialog box procedures. After the dialog box is closed, the dialog box procedure may return to the main window procedure a resulting command with any additional parameters. The resulting command then will be executed in the Command Processor.

The Equations! program allows you either to record the dialog commands that open the dialog boxes or record the resulting commands that originate from these boxes. If the application is in record mode, the RECORD button in these boxes become selectable. If the user clicks on OK, the dialog command is recorded and the information accepted will be applied only for that session. Otherwise, if you click on RECORD, the original dialog command will be overwritten and the resulting command with its parameters, will be recorded. Finally, clicking on CANCEL aborts all pending input and prevent any command from being recorded.

Because a dialog box procedure can return only a BOOLEAN value, you have to set a global internal command pointer to the working internal command pointer in order to pass back any resulting command to the main window procedure. The resulting command then would follow the flow of control to the Command Processor.

There are four scenarios that depict the flow of control for dialog and resulting commands under record and playback modes.

- Because the Modal Dialog Box Processor has the job of opening modal dialog boxes, the Command Processor ignores the dialog commands.
- When a resulting command is played back, the modal dialog box that originated the resulting command is never opened.
- When a resulting command is recorded, it may be built from the Action Processor or from a modal dialog box procedure contained in the Modal Dialog Box Processor.
- All resulting commands are executed in the Command Processor.

To complete the main window procedure of a typical NewWave application, you should add the Command Interface Component, which is the interface to CBT. Like the Agent, CBT understands the external binary command format and uses API functions as its interface to NewWave applications. An application will interact with CBT if it's in monitor mode. The internal command format is first converted to its external command equivalent with the TranslateToExtProcessor routine.

Afterwards, the external command format is passed to CBT with the APICommandInterface function. CBT then may choose to cancel the command. If so, CBT nullifys the external command by setting it to API_NO_CMD.

Designing The Modal Dialog Box Procedure

MODAL DIALOG BOX IMPLEMENTATION requires making calls to the API at certain locations within the dialog box procedures. *Figure 2* shows some fragments of the F00_EquationColorProc dialog box procedure, which represents the graph color selection box. The five major components of a modal dialog box procedure are summarized below.

- ***The Modal Dialog Box User Action Interface Component.*** This section of code tests for any API_HELP_BUTTON requests. If the test is true, the message, a help context number and other information are passed to the API for processing with the APIDlgUserActionInterface function. Also, if the application is already in intercept mode, the information is automatically

[REFERENCES]

Programmer's Guide to Windows, second edition. Alameda, CA: Sybex, Inc., 1988.

Programming Windows. Redmond, WA: Microsoft Press, 1988.

Hewlett-Packard. HP NewWave Environment: Programmer Guide. Santa Clara, CA, 1988.

Hewlett-Packard. HP NewWave Environment: Programmer Reference Manual. Santa Clara, CA, 1988.

Hewlett-Packard. HP NewWave Environment: Program Design Examples. Santa Clara, CA, 1988.

Hewlett-Packard. HP NewWave Environment: User Interface Design Rules. Santa Clara, CA, 1988.

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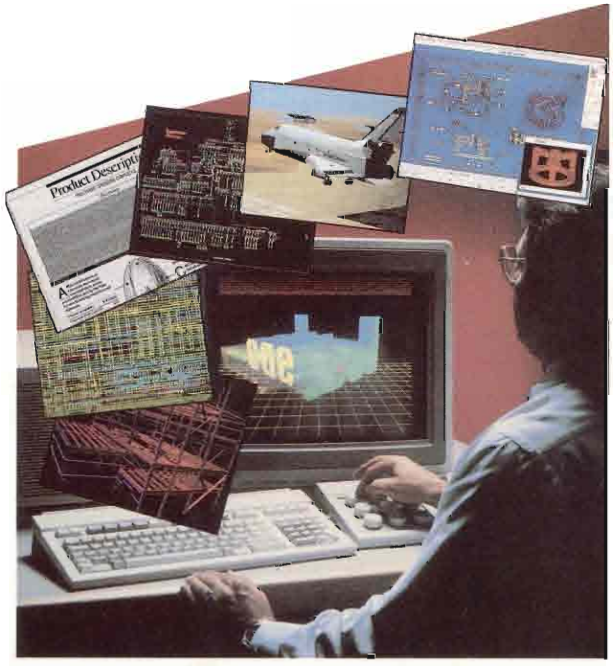

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routed to the API.

■ ***The Modal Dialog Box Initialization Component.*** This code is part of the response to WM_INITDIALOG. If the application is in either playback, record or monitor mode, the APIDlgInit function is used to notify Help and CBT of the dialog box screen locations.

■ ***The Modal Dialog Box Action Processor.*** This component is under the controls ID_OK and ID_RECORD_COLORS. Resulting commands get built into this section of code. If the user clicks on the RECORD button, the API_COLOR_COMBO_CDCMD resulting command is returned to the main window procedure with the help of the global pointer, gpiDialogCommand.

■ ***The Modal Dialog Box Command Interface Component.*** This module serves the same purpose as the Command Interface Component of the main window procedure, except the external command format is sent to CBT with the APIDlgCommandInterface function. On return, CBT may choose to reject

FIGURE 2

```
/* Modal Dialog Box User Action Interface Component */
if ( APIInterceptOn(gAPIModeFlags) || APIHaveButton(iMessage, wParam) )
  APIDlgUserActionInterface(ghAPI, HelpId, hDlg, (LPAPIUNSIGNED)&iMessage, wParam, lParam, API_NO_MODE);

switch(iMessage) {
        case WM_INITDIALOG:
                .
                .
                .
                /* Modal Dialog Box Initialization Component */
                if ( APIPlaybackOn(gAPIModeFlags) || APIRecordOn(gAPIModeFlags)||API_NO_MODE);
                  APIDlgInit(ghAPI, HelpId, hDlg, API_NO_MODE);
                break;
        case WM_COMMAND:
                switch(wParam) {
                        .
                        .
                        .
                        case ID_OK:
                        case ID_RECORD_COLORS:
                                /* Modal Dialog Box Action Processor */
                                .
                                .
                                .
                                if ((APIRecordOn(gAPIModeFlags)) && (wParam == ID_RECORD_COLORS))
                                   gpiDialogCommand->wCmd = API_COLOR_COMBO_CDCMD;

                                /* Modal Dialog Box Command */ /* Interface Component */
                                if (APIMonitorOn(gAPIModeFlags)) {
                                   B40_TranslateToExtProcessor(gpiDialogCommand, &extDlgCmd);
                                   APIDlgCommandInterface(ghAPI, (LPAPICM DSTRUCT)&extDlgCmd, API_NO_MODE);
                                   if (extDlgCmd.wCmd == API_NO_CMD)
                                           gpiDialogCommand->wCmd = API_NO_CMD;
                                   }

                                /* Modal Dialog Box Termination Component */
                                if (APIHaveCommand(gpiDialogCommand->wCmd)) {
                                   if ( APIPlaybackOn(gAPIModeFlags) || APIRecordOn(gAPIModeFlags) ||
                                           APIMonitorOn(gAPIModeFlags) )
                                             APIDlgTerm(ghAPI, HelpId, hDlg, API_NO _MODE);
                                   EndDialog(hDlg, TRUE);
                                   return(TRUE);
                                   }
                                break;
                        .
                        .
                        .
```

Fragments of the F00_EquationColorProc dialog box procedure.

the external command by nullifying it.

■ ***The Modal Dialog Box Termination Component.*** If there's still a command and the application is in either playback, record or monitor mode, the APIDlgTerm function tells the API that the modal dialog box is about to close.

Forward To The Future

PROGRAMMERS WHO ARE NEW TO HP NewWave applications development will have to spend some time studying and experimenting before they'll feel comfortable working in this message-driven, object-oriented system. However, the rewards will be worth the effort. HP NewWave not only improves on the user interface of Windows, but provides many inherently valuable system services (Agents, CBT, Help, hot-linking) that developers once had to develop from scratch. After understanding how to use these services, developers can devote their creativity to the features of their applications. *—Frederick F. Chew is an HP Customer Support Engineer, Mountain View, CA.*

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Editor's note: Hewlett-Packard has recently released the second version of the HP NewWave Environment Developer Kit. The latest release has a fully functional Agent Object and includes all the necessary tools and guidelines to build class-dependent parsers and class-dependent recorders.

How To Use ARIS/BB

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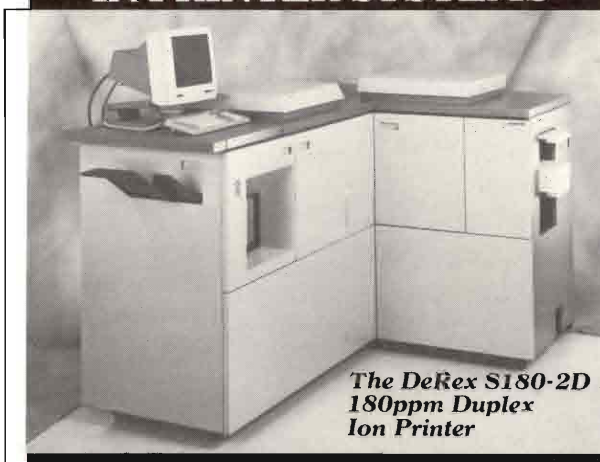

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Don't Look Now, But Your Interface Is Changing

User Friendliness Comes Of Age

[By Bill Sharp]

Let's face it, UNIX and DOS can be a royal pain to use. Endless, meaningless prompts requiring obscure knowledge of senseless, symbolic synonyms can only excite people so long.

For most of us, the inevitable, obscure prompt and expectant carrot on the computer screen present a nightmare each time you dare try a new piece of software. Every user interface assumes you know how to use it and they all work differently. Each procedure is determined by software designers who carefully check with one another on coded phones to ensure that nothing they do will ever resemble anything done before by another designer. And never, *never* may it be intuitive.

THEN IT HAPPENED. People in the *real* computer companies realized that those cute little icons on Apples weren't just toys, but actually helped get work done — and lots of people liked them. Gradually, the real computer companies started to realize that the idea of easy-to-use, pictorial or graphical interfaces was worth a careful look.

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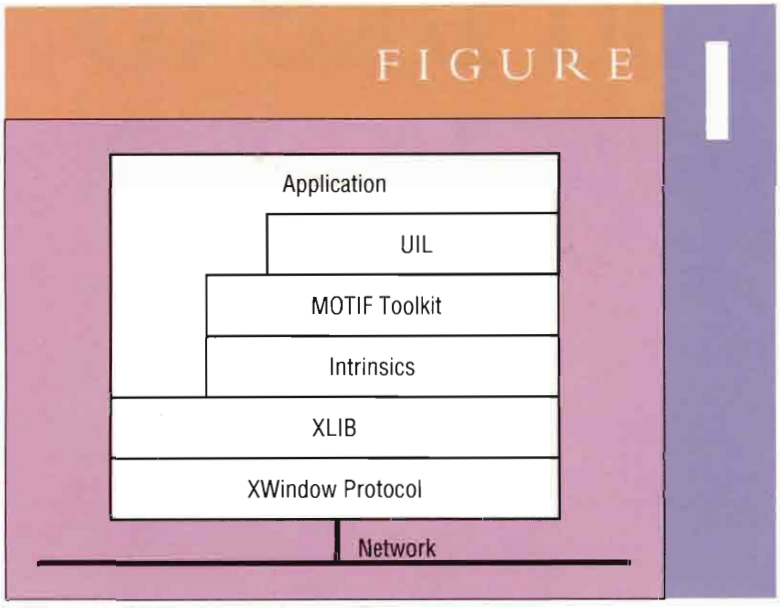

Hierarchy of software structure.

In July 1988, the Open Software Foundation, a UNIX-industry consortium (Cambridge, MA), sent out requests for technology (RFTs) for a graphical user interface (GUI) and began to determine how a GUI should work for UNIX systems. Barely a year later, OSF began releasing code for Motif, a GUI that combined the best work of several companies into a system for developing consistent user interfaces that would look and behave the same, no matter whose software or computer you used.

At about the same time, several other GUIs appeared and all less widely supported than Motif. Competition for a standard GUI was under way — at least for a while. Today, Motif is nearly a de facto standard for the UNIX market, and seems almost certain to be an industry stan dard before long.

So, if the computer screen in front of you begins to look different, don't be alarmed, it's just your user interface being transformed from that mnemonic nightmare you've been using, into a GUI.

Graphical User Interfaces

GUIS ARE BASED ON THE CONCEPT of using icons (graphic symbols) to represent data on the computer. For most people, selecting an icon from a menu is faster and more intuitive than scrolling down a list of file names or trying to remember one. GUIs incorporate windows capability, allowing you to switch quickly from one application to another.

Writing this article on my PC, I must correctly push a sequence of four buttons to move my cursor from the window where I'm writing, to another where I keep a file of notes for reference. My Macintosh, on the other side of the room, accomplishes the same change with a quick flick of the wrist on the mouse, and one button — no mnemonics to remember. The Mac's GUI makes this possible.

Just as important as the simplicity of the GUI is that it must be a standard to be effective. A GUI is a set of capabilities or tools, not an application in and of itself. The move by the industry to develop a common GUI forces it to cooperate on a standard human interface.

Historically, each application tends to have a different user interface, so that each behaves differently in the hands of the user. The development of a common GUI is the industry's acknowledgement of the need for a tightly defined set of standards. Ideally, when a user turns on a system, the pathway to common applications should be easy to understand and simple to execute.

"A GUI is a non-threatening visual methodology to allow a person to interact with a machine, hopefully in a more intuitive way," says Bill Kemper, OSF Motif product manager at the HP Workstation Group's Interface Technology Operation (Corvallis, OR). "Hieroglyphics just don't cut it anymore."

Kemper uses an automotive analogy to explain the desire for a standard, intuitive user interface. Because he travels a lot in his work, he says, "I often find myself arriving at the local airport at 10 p.m., and it's guaranteed to be raining. I never know what rental car I'm going to get, and still I am able to get into that car and drive home without once consulting a manual or calling my salesman. Even in England, I still use a similar steering wheel, gas pedal, etc."

"In the user interface arena, it has been argued that humans can readily adapt to minor changes," he continues. "But it would be far better if I did not have to jump those hurdles. I have a master's degree in operating systems, and the last thing I want to do is deal with them — I know better."

The user interfaces that deal with the operating system have come a long way. Early computer users toggled in from a control panel. Then came those huge stacks of computer cards, and after them, paper tape. DEC developed video display terminals (VDTs) and more reasonable interaction, but interacting with the computer still required a deep understanding of operating system syntax and techniques.

Layers of language typically separate most users from machine language now, but some of the interaction still resembles hieroglyphics before the application software is fired up on PCs and UNIX systems.

The pathway to GUIs started when Xerox coined the term "window" and developed the first product of this type. Apple and Microsoft have done much of the work that brought these methods to where they are today on Apple products and Mi-

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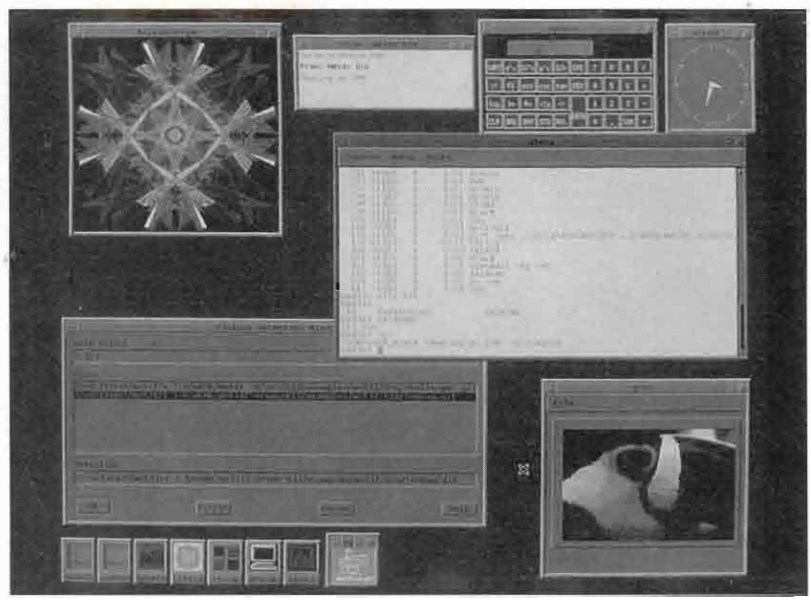


OSF/Motif Enviroment

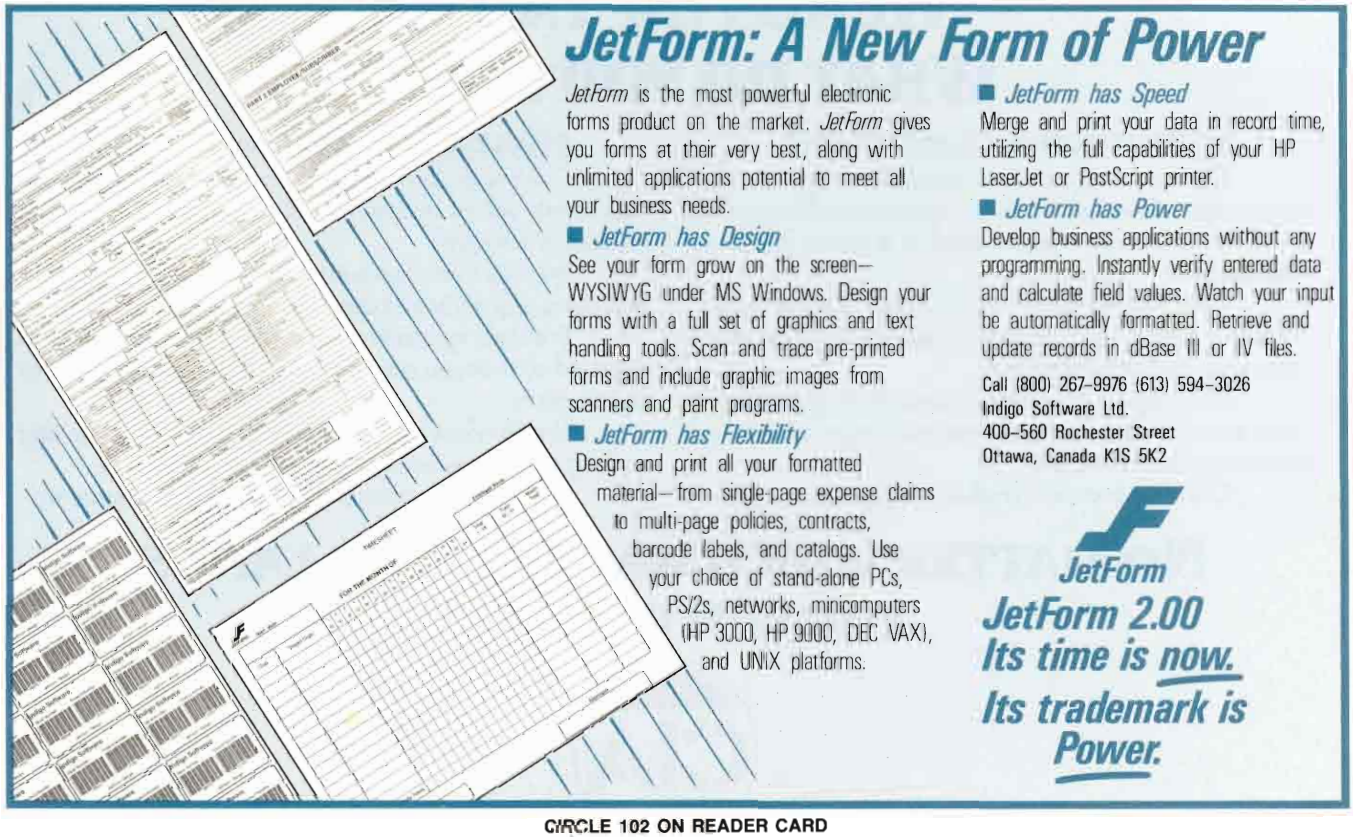
So What Is Motif?

MOTIF IS A SET OF STANDARD tools for building user interfaces. It isn't a product for end users. Motif is intended to help system and software developers introduce products that look and feel the same to end users, that will perform the same operation in the same way, even with different hardware and software. According to Craig Lamont, interface technology business area manager for OSF, Motif tries to solve three problems:

- The lack of a single user interface that runs across many hardware and software products.
- The lack of a powerful, X-Windows-based user interface for the industry.
- The lack of a wide base of applications running across many different UNIX systems.

He notes that the acceptance of Motif soon may solve the first two problems, and vendors will solve the third after an industry standard is widely accepted.

One of the reasons for Motif's success is that it comes from



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an industry consortium, OSF. OSF, which includes member firms from around the world, borrowed the best parts of GUI products from several of them in formulating Motif.

"Motif includes human factors development work from a large number of companies, all doing their best to create a good user interface," says Lamont. "No user interface has ever had as much invested in it as Motif."

Lamont's feelings about the Motif development process are echoed by Heidi Dix, HP's Motif product manager for Domain/OS at the Apollo Systems Operation (Chelmsford, MA).

"The process of selection was an open one, with dozens of submissions looked at carefully by experts in the field. The way in which it was chosen makes it more viable," she says.

Also, because OSF is a consortium of many firms, its members are likely to support Motif, giving it a good chance as an industry standard right from the start.

Widgets And Gadgets?

MOTIF INCLUDES FOUR distinct sections: toolkit, windows manager, presentation description language and a style guide. The toolkit and presentation description language (PDL) are bundled together in an applications programming interface (API) that is much like the DECWindows system and in fact borrowed heavily from it.

Motif's toolkit is a library of graphical items such as menus, forms and objects used to build application user interfaces. This software traces back through DEC to the X Windows work done at MIT, and is based on MIT's X11 Instrinsics toolkit.

The objects created as part of the toolkit library are called "widgets." There are dozens, each with its own specific function. The toolkit also includes a class of windowless widgets, dubbed "gadgets." While preparing an application, developers can create further objects to meet the need for specific new functions.

The second component of Motif is the presentation description language (PDL), also known as the user interface language (UIL). The PDL eases the job of the software developer by separating the user interface code from the application code itself. The developer creates a PDL text file that defines the widgets and their resources for the interface. This file is compiled into a resource file that loads automatically when the application is run.

Application developers reap several benefits from this scheme. Application source code remains untouched in the development of the interface, and the PDL file, because it is small and relatively simple, can be prototyped and completed more rapidly. For particular large customers, the PDL could be customized. PDL also makes modifying the user interface for international marketing much simpler.

A minor backroom flap comes along with the PDL at no extra charge. The original name for the PDL is UIL, which is a DEC name, reflecting the wholesale borrowing of the UIL scheme from Digital. HP became dissatisfied with the UIL/PDL during its adoption by OSF. When OSF released Motif, HP changed its own packaging of the product for its software vendor partners, sending along PDL/UIL and labeling it as a beta version, while the rest of Motif was labeled final code. HP's Kemper says that HP has "every intention of shipping UIL and including it in our product before the end of the year." He says HP didn't feel PDL/UIL was "solid" in August 1989 when HP began shipping Motif. OSF's Lamont says the next release of PDL/UIL, scheduled for mid-year, addresses HP's concerns, and he expects the problem to disappear.

Meanwhile, Motif includes two more parts in addition to the toolkit and PDL/UIL. Motif Windows manager controls the way the application looks and runs. It allows windows to be resized and manipulated. Windows Manager also controls where certain windows and icons can be placed, and regulates things like window overlap. Appearance of windows can be modified, including an optional 3-D effect. The Windows Manager behaves much like Microsoft's Presentation Manager.

The last part of Motif, while not a part of the Motif code, is no less important for that. Motif's Style Guide defines the behavior of user interfaces to ensure that all Motif applications present the same look and feel to the end user. It includes a set of guidelines for application programming, widget development and customizing and extending the user interface.

HP Running With Motif

THIS IS NOT ONE OF THOSE times when HP sat around trying to decide what to do while the market has danced merrily away. According to Kemper, HP is the only major computer vendor shipping Motif as part of its products.

"HP is fully committed to providing Motif as the default environment for all HP 9000 300 and 800 Series products," he says. "Other vendors are behind Motif and planning to incorporate it into their products, but they are some time off. We've been shipping a developers' version of Motif since August of last year.

"Standards mean a lot to HP. Customers are demanding that computers not be proprietary. It is essential that we as vendors provide a simpler system. The rest of the industry is being slow to adopt the inevitable, but they are saying the right things — I cannot fault what they are saying."

Already, new HP-UX and Domain/OS operating systems are shipped with Motif capability. This means the window manager in either operating system will take full advantage of any software designed to use Motif. In fact, Motif-based applications on HP-UX and Domain/OS systems should look identical. The HP Vectra 386 line provides X-Windows capability and will support Motif, as will the X-terminal products. Third parties offer products that will help get Motif running on other PC

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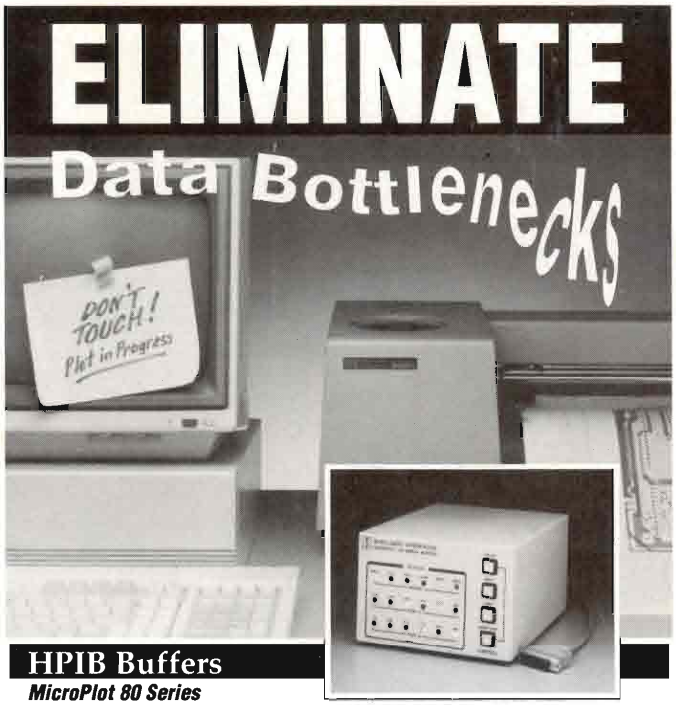

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products. Generally, any computer that supports X Windows will run Motif.

HP's 3000 line does not yet support Motif, nor X Windows, for that matter. HP's commercial business has a very large installed base, says Kemper, and may move more slowly in adopting capabilities like Motif.

Software Developers At Work

SOFTWARE DEVELOPERS ARE understandably pleased about a system that enables them to develop one user interface that will carry their product to a large number of different hardware systems. Typically, they have had to spend labor and resources to tailor their software to run on one particular system — and then hope that system sells well.

HP's Dix notes that some Motif-based software is out already, "and as the year goes on, there will be a lot more. Many ISVs are writing new applications on Motif, or putting existing applications onto Motif as a way of getting their software onto many more platforms. It makes it easier for their customers to learn the application."

Dix expects developers to sell both existing and Motif versions of their software until the hardware customers are using all supports Motif.

OSF's Lamont points out that independent software vendors hold some 280 of the 400 Motif licenses so far granted by OSF, with 2,000 more licenses pending. Of new government contracts, he says 70 percent specify Motif.

Snowballing

MOMENTUM CLEARLY IS building for Motif, and while competition exists, it will have a tough time overtaking OSF's creation. AT&T's Open Look runs only on UNIX, and not on PCs.

Motif has been endorsed by the European Economic Community, Taiwan, Korea and Singapore, and seems close to endorsement from Japan.

HP's Kemper notes that in discussions with independent software vendors, he found "tremendous activity with Motif, and some lingering work with Open Look. We have not talked with anyone working only with Open Look. They are either working only on Motif or on both."

The Gartner Group's Susan Weil has little doubt of Motif's success. "Within the next two years, new products will be expected to have it. Lots of new products have it already."

So keep your eye on that screen — your interface is changing, and chances are you'll like it.

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REAL-TIME COMPUTING

HP's Renewed Emphasis On RTE And The HP 1000

RTE

Christopher Nelson

Although the 50th anniversary of Hewlett-Packard took center stage last year, another milestone — the 20th anniversary of the RTE operating system — passed with little fanfare.

However, at the fall INTEREX conference, RTE was a popular topic of conversation as Hewlett-Packard renewed its commitment to the HP 1000 computing in particular, and real-time computing in general. Conference presentations by Data Systems Operation managers and staff outlined specific plans for product releases and general trends in future support of real-time data collection and scientific computing.

A Bit Of History

RTE has a long and colorful past. Some time ago, HP purchased rights to the Basic Control System (BCS) from a third party and modified it to produce RTE, the operating system for 2114, 2116 and 2100 systems. These systems were really little more than lab instrument controllers. However, they soon developed a loyal following. George Anzinger, still a major player in HP's real-time systems, combined the best parts of BCS, RTE and something called just "DOS" to produce RTE-2 for the 21xx series computers.

The M-series brought RTE-3 that was GENd on paper tape; a process that often took a day or more to complete. About the same time, a customer support database was being developed by another member of the still small real-time team.

Numbering changed from Arabic to Roman numerals when RTE-IV was released for the E-series. These systems featured a 16-bit CPU and Extended Memory Addressing (EMA). RTE-IVB followed with a "Session Manager" of which the command interpreter CI is a descendant. The largely compatible F-series differed primarily by the addition of a hardware floating point processor.

When numbering returned to Arabic, "5" was skipped and RTE-6 was released. RTE-6 introduced VMA (Virtual Memory Addressing), program segmentation and sharable EMA.

Finally, numbering was given up when RTE-A was developed for the A-series around 1980. Advances in hardware gave the A-series several advantages over the older E and F including flexible options for floating point processing and more powerful interfaces.

Progress sometimes leaves some people feeling left out in the cold. HP has had problems with users of older systems feeling let down when newer systems are released. This was certainly the case for RTE-6 users when the A-series came out. And A-series users got a taste of that when the 800 series of HP 9000 systems was released a couple of years ago. Presently, RTE-6 and RTE-A are being maintained in parallel with a great deal of overlap in products and personnel. Nonetheless, both user communities have been concerned that HP was not doing all that they could, or should, to support and further develop their real-time systems.

The Future Of RTE

One of the sessions at the INTEREX conference was given by HP Data Systems Operation managers, who attempted to make users of HP real-time systems feel more comfortable by discussing the future of RTE in particular, and real-time computing in general.

According to HP's Bruce Campbell, HP 1000 systems are used for their real-time capabilities, as general purpose computers, and as imbedded systems in products like HP's own medical systems. The user base in each of these markets has somewhat different needs for longevity,

portability and support. While general purpose computing could arguably be moved to newer systems, like the HP 9000/800 series, real-time computing has not been adequately addressed on any new systems, and embedded systems are inherently difficult to replace.

If it is true that RTE systems are hard to replace, it is equally true that many of them are long overdue for upgrade or replacement. Since the release of the A-900, only shortly after the initial release of the A-series, there has not been a growth path for RTE applications. Support for new peripherals and networking protocols has also been slow in coming.

HP will work to support new peripherals and interfaces, enhance connectivity...

After restating HP's commitment to manufacture the 1000 through the year 2000, and support it through 2010, Campbell went on in detail about HP's plans for the immediate future. In addition to the requisite bug fixes and enhancements, he said that HP will work to support new peripherals and interfaces, enhance connectivity, and extend the A-series architecture.

Regarding an A-series extension, he cautioned that HP has undertaken "active investigation" of a new, high-end processor, but that it has stringent design goals that may not be achievable. In particular, the "A-1200" must provide superior performance to the A-900 while being a plug-compatible replacement requiring only a board swap for field upgrades of existing systems.

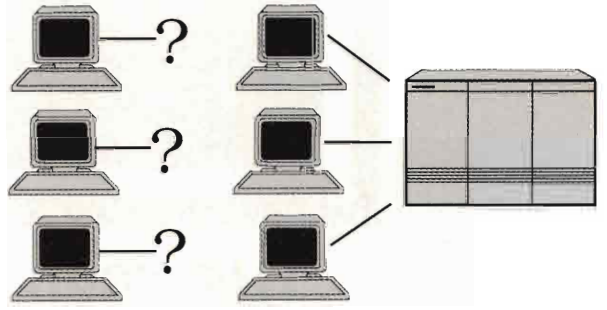
Revision 5.2 And Beyond

Revisions to RTE and related products have been slower in coming than many users would like, but they have kept coming and the scope and scale of the 5.2 release is encouraging. David Fastenau, DSO product marketing manager, discussed various aspects of RTE 5.2 as the second part of the session.

In keeping with HP's stated direction to enhance connectivity, NS will have a number of new features. A new ramdisk driver and other changes will allow diskless, memory-based NS systems to be loaded and booted over a LAN. He indicated that there are plans for remote VCP from HP 9000/800 systems in a future release.

A major new NS subsystem, Mail/1000, will provide RTE users with a means of communicating not only among themselves, but with the Internet

Short on Ports?



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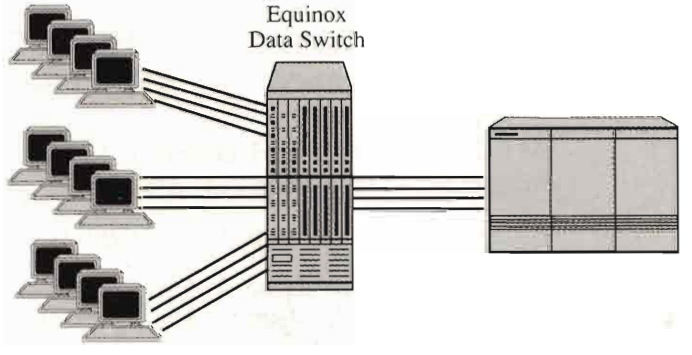

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community including ARPANet, NSFNet and BITNet.

This subsystem implements SMTP, the Simple Mail Transfer Protocol, which is part of the ARPA or TCP/IP protocol suite. In the initial release, there is not support of uucp or similar dial-up services. But in a separate presentation, Todd Poynor, one of the program's authors, said that it is extendable to use transport mechanisms other than DS and NS. This development is particularly heartening because HP said at another conference that SMTP was not on their list of protocols to be implemented on RTE. This change of direction seems to be directly in response to user requests for a standard, 1000-based mail product.

The last major part of Fastenau's presentation discussed new peripheral and interface support. In particular, RTE 5.2 will include support of 700/96 and 700/98 terminals, the C2203A 670-MB disk, and the 650A optical/magnetic disk. The 650A will be interfaced through a SCSI (Small Computer Standard Interface) board to be released in the second quarter of 1990.

After the presentations, the session was opened for questions from the floor. The audience seemed pleased with what they had heard, but questions remained. Discussion roamed over networking and graphics, marketing and program development, but perhaps the most profound question was the future of real-time computing at HP.

It was pointed out that MPE was ported to Precision Architecture and that "RTE-PA" might address issues of memory limitations and processor speed that the current 16-bit architecture cannot hope to. Another suggestion involved a 1000 processor that would reside in the PA I/O rack but be better integrated and more functional than the RTI (Real-Time Interface) processor that is available now. Campbell noted that HP realizes that the 1000 will not be around forever and that real-time computing is an on-going problem. He went on to say that HP expects to state their direction in real-time computing in the next six to 12 months.

The future looks bright for RTE and the HP 1000; brighter than it's been in several years. HP's stated marketing and development directions are more encouraging than they have been for some time. More than that, HP's actions are consistent with their words: Recent and upcoming releases satisfy a number of user requests. HP seems to be listening and RTE users are, at least cautiously, optimistic. *—Christopher Nelson is president of S/Wizardry Ltd., a computer consulting and custom programming firm in Troy, NY.*

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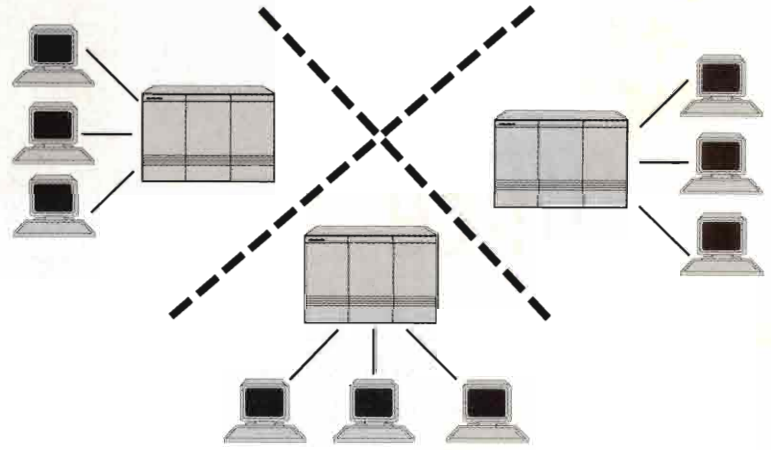

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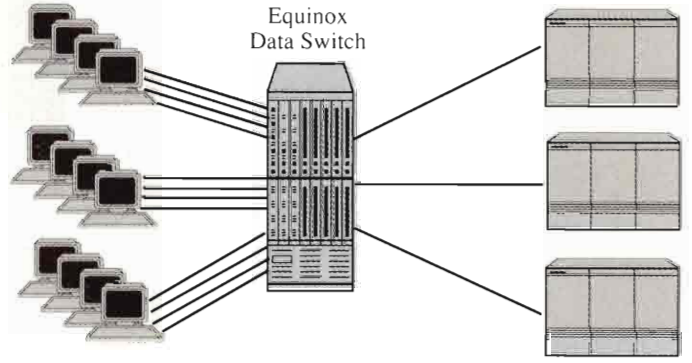

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REVEAL
The Possibility Of A Paperless Office

O'PIN Systems Offers A User-Friendly Utility For Your HP 3000

The "paperless office" is a concept that has held more promise than reality. Now there's a product that could help you realize some of that promise.

REVEAL, from O'PIN Systems (Burnsville, MN), is marketed as a user-friendly utility for the HP 3000. It allows end users to view what normally would be printed reports online from a terminal or PC, locate needed information quickly and print one or more pages at a local or system printer.

OK, but what does this mean in practice? Does any of this sound familiar?

■ You're frustrated. You have these *big* standard reports and you have to produce dozens of copies and distribute them (rush overnight mail, of course) to dozens of different locations across the country.

■ Maybe you don't have to send the copies anywhere, but your paper costs, both purchase and disposal, are going through the ceiling, or budget.

■ Maybe you hate the idea of destroying all those trees to fuel a bunch of egos who just have to have their own copy.

■ Maybe there really *is* information in

John P. Burke

HP PROFESSIONAL DP LABS TESTING CENTER

the reports critical to each individual on the distribution list, but you know that each will need to access only a dozen pages tops. Plus, you need a second shift operator just to baby-sit your printers while they churn out these reports.

■ Maybe you've decided to set up an online inquiry system to eliminate some of your paper reports and copies, but you already have more than a six-month backlog of projects and have no idea when you'll actually get to this one.

If any combination of these scenarios describes your situation, then REVEAL may be just what you need.

Features And Impressions

REVEAL's user interface is a delight to use and was bullet-proof during testing. REVEAL requires an HP or HP-compatible terminal or a PC running terminal emulation software that can mimic an HP terminal. For this review, I used an HP 700/92 terminal and a PC running REFLECTION by WRQ. Both direct connect at 9600 bps and dial use at 1200 bps were tested.

REVEAL doesn't use block mode, nor does it require an "HP" termtype. This is important because they allow REVEAL to be used effectively across almost any kind of data communications link. For example, I tested REVEAL at 1200 bps on a dial-up link using termtype 18 and the performance was acceptable.

REVEAL uses the "point and shoot" technique in its user interface. REVEAL makes extensive use of function keys to control choices, the keyboard arrow keys for both vertical and horizontal scrolling and NEXT/PREV keys for paging, all of which contribute to a system that's very easy to learn and to use.

Note that REVEAL supports both vertical and horizontal scrolling with the keyboard arrow keys. This is done almost instantaneously at 9600 bps and quite acceptably fast at 1200 bps.

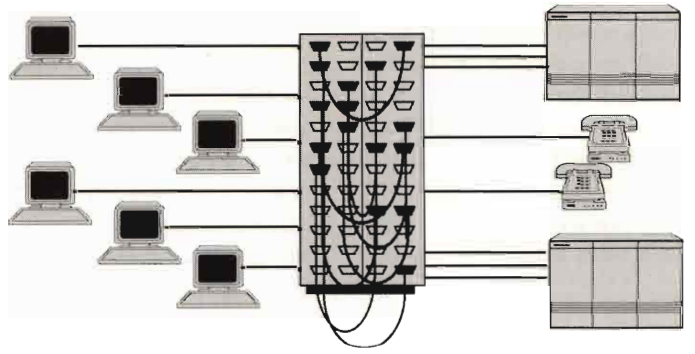
REVEAL does windows. That is, it supports vertical windowing so that the key columns of a report can be displayed on screen at the same time. Windows are set up easily and sized using function keys. Horizontal scrolling and windowing make even the widest reports (up to 240 characters) easily accessible.

If you have an HP 700 Series terminal or other appropriate terminal, REVEAL will support 132-column display.

Report selection can be accomplished in a variety of ways. If you happen to know the name of the report file, you can load it directly. Or, you can let REVEAL prepare a qualified list (wild card characters may be used) of reports for you. Then, just point and shoot.

REVEAL can be called as a son process and transform an existing batch report program into an online inquiry program (once indexing is taken into account).

All patched up?



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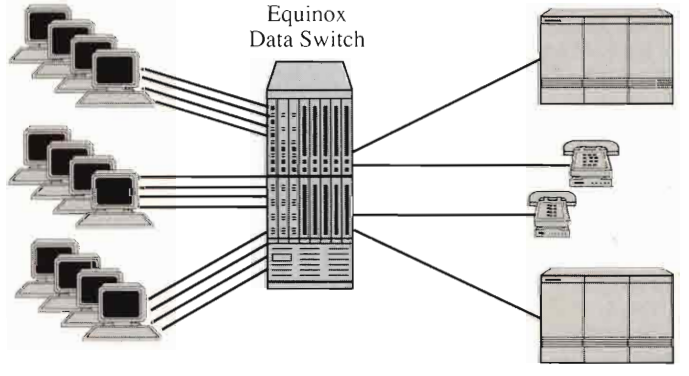

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COBOL source code is provided to create REVEAL as a son process. Thus, you can use REVEAL to spruce up some of those old report programs.

Report catalogs can be defined and are simply standard ASCII files created with any editor, with column one reserved for carriage control (remember "1" denotes form feed). Information on reports or procedures that may be useful to end users can then be accessed any time from the main menu.

Perhaps the most powerful features of REVEAL are its string search and index search facilities.

REVEAL allows you to locate a specific string in a report without having to page through the report manually. The program searches forward in the document beginning on the current page until a match is found. If the search starts anywhere other than page one and a match hasn't been found by the last page, REVEAL will wrap around to page one and continue until either a match is found or the starting position is reached. The search is performed on the whole document or on the active window.

A search based on an index is much faster than the string search method for finding data because it takes advantage of the normal sort order of the report to rapidly zero in on the desired location. REVEAL allows you to define up to four indices per report and save the definitions as part of the report or in a separate index description file (IDF).

These indexes must correspond to the sort keys of the report. The first index defined must be the primary sort key of the report. The second index must be the secondary key, etc. An index is defined by specifying a line number, starting column number and field length for each page. What REVEAL calls the "page table" then will be created the first time the index function is used or the first time the "Last Page" key is pressed. Note that for production reports, the page table can be created within the same job stream that creates the report and so the index will be available immediately to all viewers of the report.

Installation And Set-Up

Installation consists of setting up the REVEAL account, restoring files and SETCATALOGing the REVEAL UDC file. The major functions within the REVEAL system are accessed via UDCs. The REVEAL UDCs are stored in the file RVUDC.PUB.REVEAL, which should be made system level if possible. On a bad day, the whole physical installation process might take 10 minutes.

The first step in using REVEAL on a report is to direct the output to a specially prepared disc file instead of to the spooler. In many cases this will require only minor additions to the production job streams, although in some situations, the program will have to be changed. Note that existing spoolfiles can be converted easily into REVEAL files but it's more efficient if the reports initially are created as REVEAL files.

A REVEAL file is a fairly normal CCTL file (with a special file code of 181) and with user labels to handle REVEAL's indexing scheme. In addition, REVEAL can access and process any fixed length record disc file containing carriage control characters in column one.

To get the maximum use of REVEAL, some thought and preparation is necessary. This isn't a complaint, it just goes to point out the flexibility available with REVEAL to handle many types of situations. Some things that must be considered are changes to JCL, printer definitions, report catalogs, whether programs use pre- or post-spacing control, and what configuration and security features to set via JCWs. This may take a little time but only has to be done once.

REVEAL comes with a number of predefined printer options and setup menus for both system and local printers, including the QuietJet, DeskJet and LaserJet. Adding to or subtracting from the list is fairly straight forward and is explained in detail in the technical section of the REVEAL manual.

Documentation

REVEAL has a modest but adequate online HELP capability. REVEAL is so easy to use (because it is based upon the function and cursor control keys) that no paper documentation should be necessary. A half hour tutorial should be sufficient training for anyone already familiar with using a terminal or PC.

Future Directions

Version 2.3 (released after this review was completed) supports X.25 networks, has a native mode version for XL machines and has the capability to support larger reports (6,000 pages in CM and 10,000 pages in NM).

Version 2.4 is scheduled to be a major upgrade which, among other things, will remove the page limit, introduce a new database system with increased management features and an optional add-on security module.

REVEAL is well worth considering for your organization if report distribution, paper use and/or ease of end user access to information are concerns.

REVEAL

SYSTEM REQUIREMENTS: REVEAL runs on all MPE V (U-MIT or greater) and MPE/XL versions of the HP 3000. Native mode XL support will be provided with version 2.3. Online report viewing with REVEAL requires an HP or HP-compatible terminal or a PC running one of the available HP- terminal emulation programs. REVEAL supports the HP Series 700 terminal's 132-character mode.

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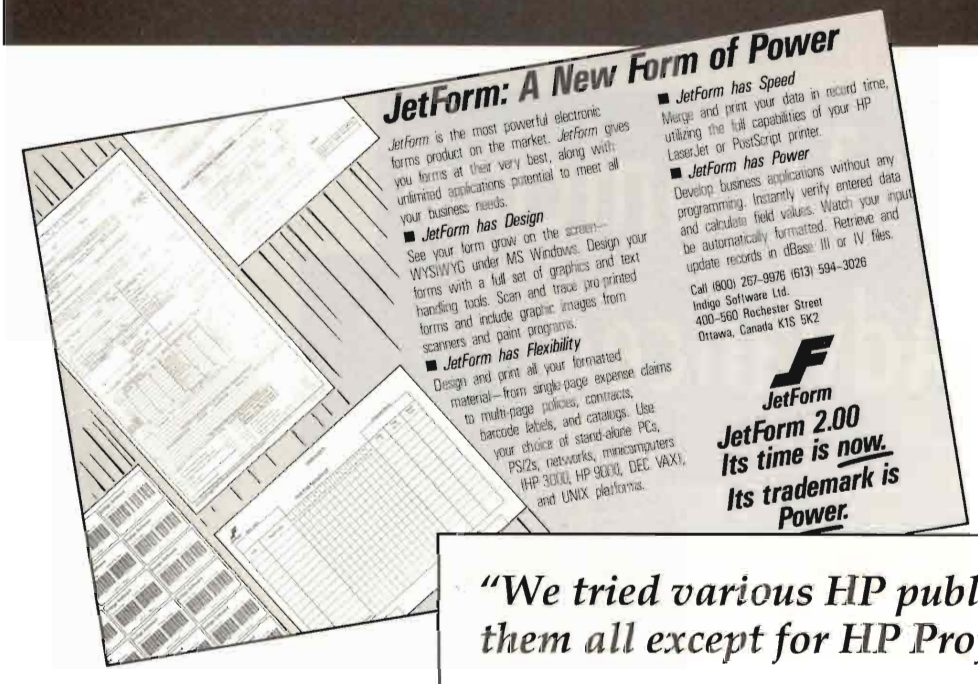

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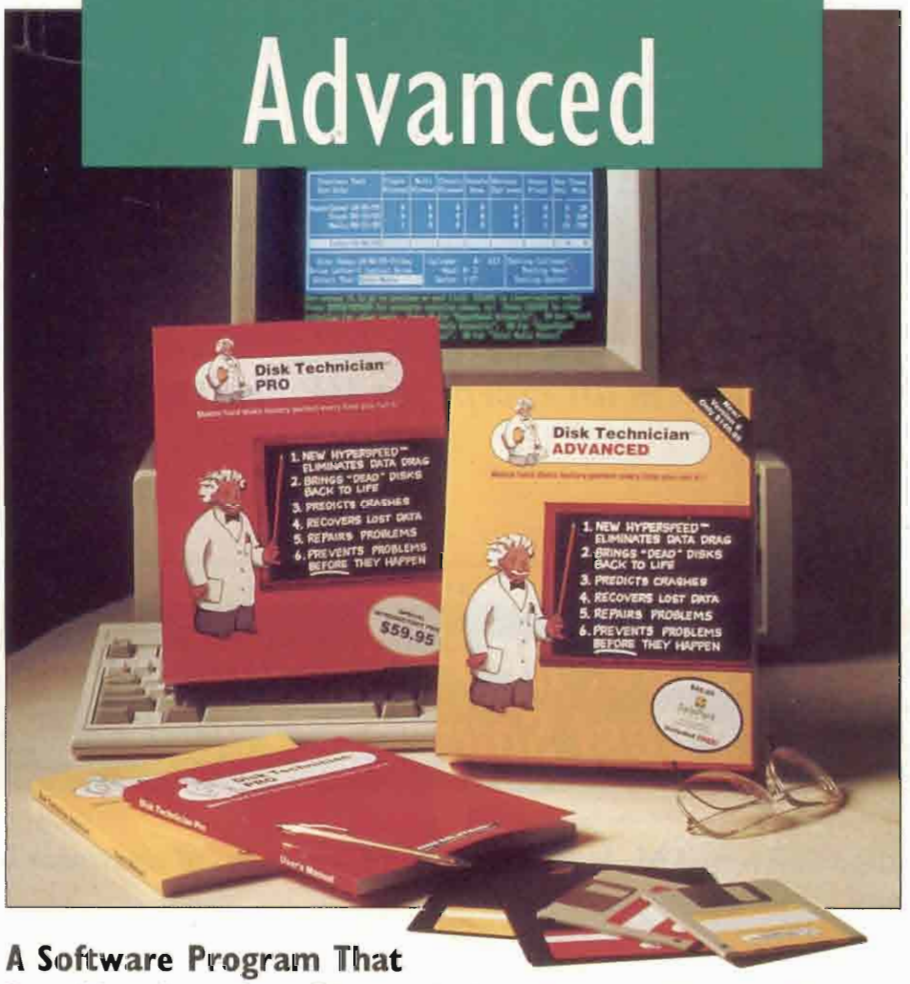

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If you can answer yes to any of these questions, you're playing with fire. Well, I can't sell you an insurance policy or install an alarm system, but I can recommend you take a look at Disk Technician Advanced (DTA) from Prime Solutions (San Diego, CA) to help you protect valuable data.

Unfortunately, I learned the hard way. Right before I had planned to test and review DTA, the system I use daily died. Sometimes I think someone is trying to tell me something.

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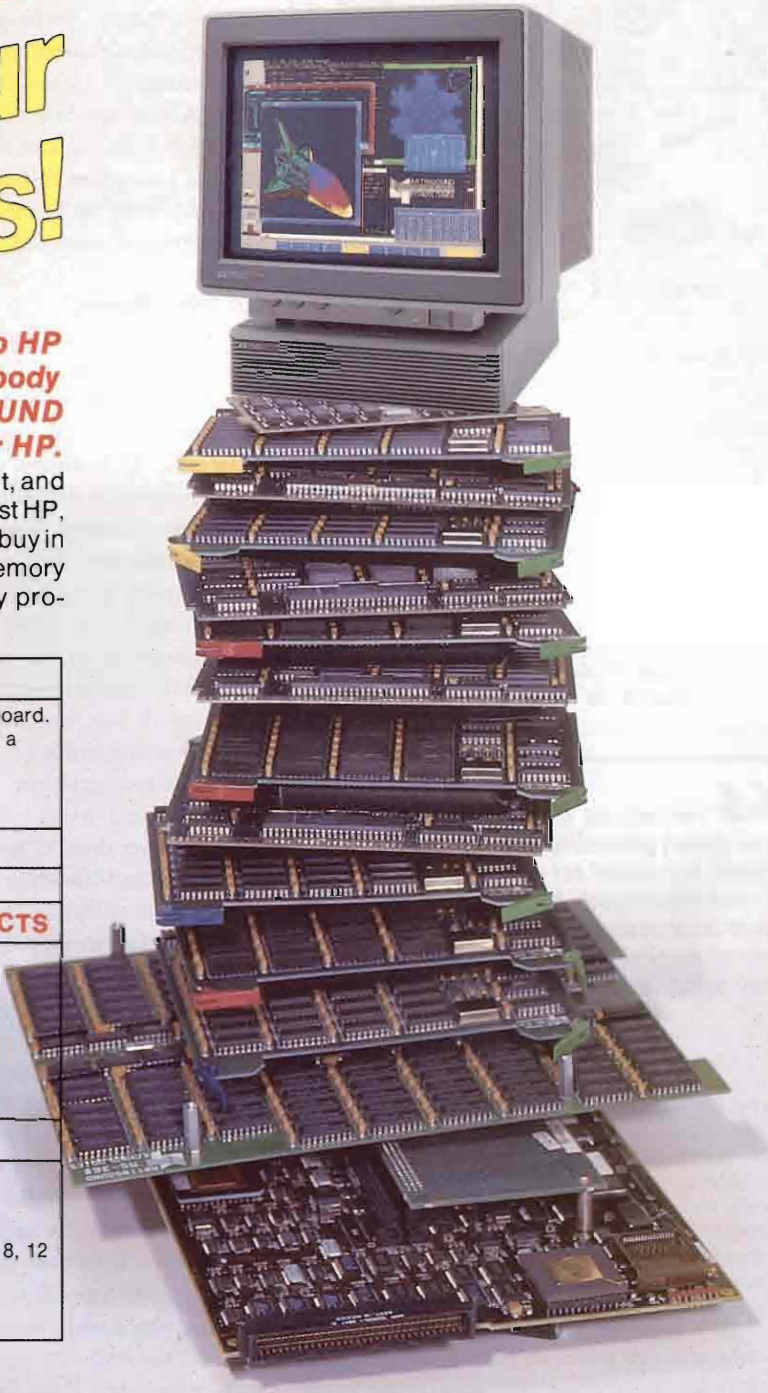

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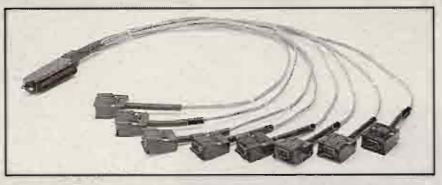

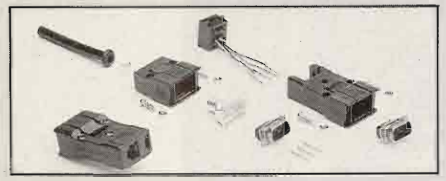

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CIRCLE 160 ON READER CARD

When you use DTA regularly, it keeps track of areas on your disk that may be good enough for MS-DOS but which, in fact, are deteriorating. The folks at Prime are serious about keeping your data intact, and just browsing through the manual is enough to make a cynic a believer.

DTA also comes with a program called SafePark that can help make your disk less susceptible to failure by parking the heads over an unused and reserved section of your hard disk.

Configurations

I used DTA on a Vectra ES/12 and two clone '386 systems. The Vectra has a 80-MB Seagate drive and the other systems have similar disk configurations.

Because it performs such low-level error checking and correction, DTA has some very stringent requirements with respect to the type of disk you have.

According to the manual, your computer must be an "IBM PC, XT, AT, PS/2 derivative or true hardware/software BIOS compatible IBM clone that conforms to the IBM standard of low-level formatting and 512 bytes per sector."

In addition, your system can have up to two physical drives as long as no partition is larger than 32 MB. It will work on disks with MFM-type controllers up to 272 MB or with RLL/ARLL-type controllers with up to 496 MB of disk.

Even with all this detail, there are some additional caveats. Your hard disk controller accurately must report the number of cylinders, heads and sectors per track. If, like some HP drives, your controller translates and reports different numbers to MS-DOS for efficiency, you must have a way to take the controller out of this translation mode.

Once you have these stipulations met, DTA requires very few other requirements. It runs under versions of MS-DOS from 2.1 through 4.02 and requires only 512K of memory. Both color and monochrome monitors are supported fully.

DTA won't work on any HP-IB disk drive. Unfortunately, it won't work on early Vectra models or on some internal drives produced by HP because of the sector size and controller incompatibility. Be sure to check with your dealer to make sure Disk Technician Advanced will work on your Vectra.

Installation

Disk Technician Advanced is very easy to install. In fact, for many common systems, including all of my systems, the Quikstall installation program does almost all of the work.

DTA can be installed on either a hard disk or floppy disk. However, Prime Solutions suggests the installation be done on a special flexible disk. This way you don't have to worry about files important to DTA being lost and limiting the corrections that the program can make to a failing hard disk.

The process of installing DTA involves creating a new system diskette and copying the master disk to the floppy. DTA isn't copy protected or otherwise restricted, although you normally are licensed for use on a single system.

Once you have created this bootable floppy disk with DTA installed, you simply reboot your system and let it go to work. When the process starts, it analyzes every track and sector of every hard disk on the system. It does an excellent job of providing status — it reports which sector and which drive is under scrutiny and how many sectors and heads exist on each drive. The bad news is this is a very long process. I suggest you fire it up on Friday afternoon, then go home and enjoy your weekend. The built-in screensaver in DTA automatically will erase your screen after a few minutes so no VDT burn-in will occur, and on Monday you'll be able to use your system again.

A primary difference between the basic and advanced versions of Disk Technician is that the entire installation and running process happens automatically in the advanced version. I'd say the ability to leave it running all weekend may well make it worth your money to go for the top of the line product right from the start.

DTA In Action

Once the initial analysis is complete, DTA records its results on the flexible diskette. You can review the results on your screen

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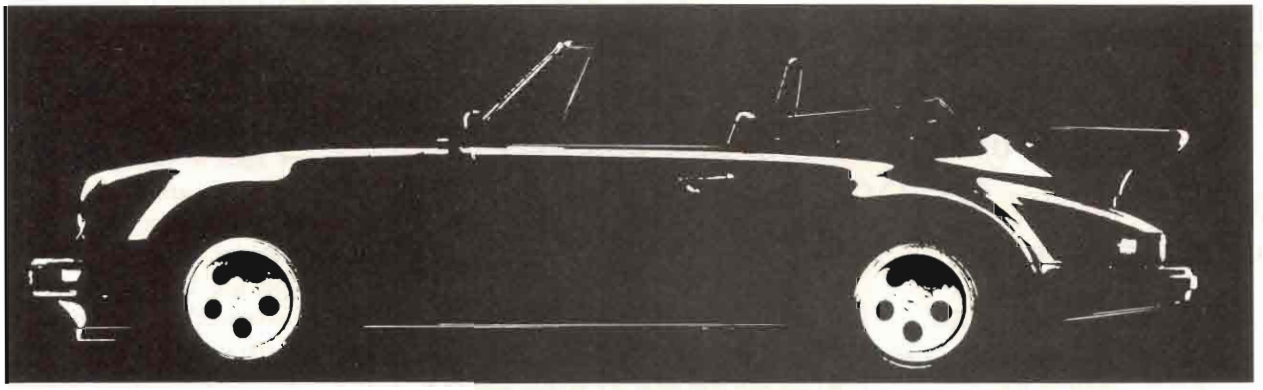

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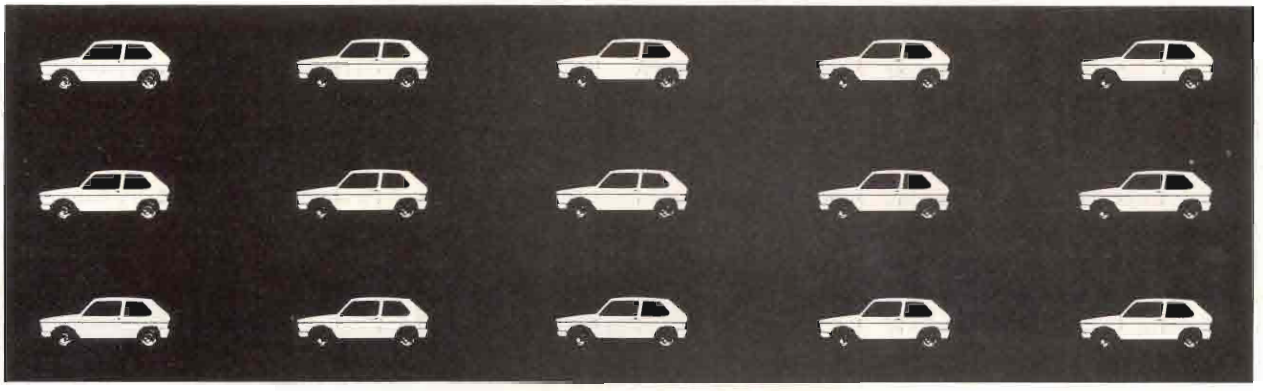

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When you use DTA regularly, it keeps track of areas on your disk that may be good enough for MS-DOS but which, in fact, are deteriorating.

or print copies to file after every run.

In daily operation, I suggest you start your system every morning with the DTA boot disk. The daily check that Prime Solutions calls HyperSpeed runs very quickly. Again, all of your disks are checked automatically and a report is available on your screen or your printer.

The reports that DTA produces show you some very interesting things about your hard disk. You may think that your 40-MB disk gives you a full 40 MB of data storage.

What you'll find is that virtually every hard disk has some bad spots. Normally, MS-DOS automatically will perform retries and can often get your data without your ever seeing that "Abort, Retry, Ignore" warning. In fact, before MS-DOS gives you that message, it may try up to 80 times to read the data.

DTA categorizes every sector on your disk into one of the following categories:

- Single Misread indicates the sector didn't read or write perfectly on the first attempt but did work properly on a second try.
- Multi Misread indicates the sector was misread several times before it was accurately read or written. In this case, DTA performs a low-level format of the failing sector and restores the data in anticipation of success in future reads or writes.
- Chronic Misread indicates that a Multi Misread occurred more than once in the past on this sector. In this case the failing sector and its adjoining cluster is marked as bad in the MS-DOS file allocation table (FAT) so no files will use the failing area in the future. Any data in the cluster is written in other good areas of the disk so no data loss occurs.
- Unsafe Areas are areas that failed more than once but that weren't able to be repaired with low-level formatting. Like Chronic Misreads, these areas also are marked in the FAT as bad.
- Obvious bad areas are sectors that produce "hard failures" and the MS-DOS "Abort, Retry, Ignore" message.

You can see that this is a far better method to manage problem spots on your disk than MS-DOS offers. By the time MS-DOS warns you of a problem, your data is probably well past any chance of recovery.

In addition to making your data more secure, DTA also can help improve your disk speed. When MS-DOS locates an error reading a sector, it automatically will retry a number of times. If the failing sector is actually what DTA considers a Multiple Misread or Unsafe Area, you will begin to see your system performance drop while MS-DOS tries over and over again to read your data. With DTA, these areas are marked as bad and your application doesn't have to wait for multiple retries.

As you use Disk Technician Advanced over weeks and months, it automatically tracks the patterns of your hard disk to watch for telltale signs of impending failure. Special tests are run every week and every month that add a little to your start-up time but that should help you feel better about the integrity of your data.

SafePark

The bonus program included is SafePark. This is a Terminate- and Stay-Resident (TSR) program that monitors disk activity. When you install SafePark, it reserves a sector of your primary hard disk for its

[After Thoughts...]

Have you ever had one of those weeks? I mentioned that one of my hard disks failed just before Disk Technician Advanced arrived. Well, shortly after I wrote this review, the second disk in the same system failed.

I would like to have been able to say that DTA saw the failure coming and gave me some warning, but I'm afraid it didn't. This time, the disk went from fully functional to fully failed in less than five minutes. When I first saw a sign of trouble, I booted my DTA disk. Before it could finish its HyperSpeed test, the disk failed completely.

There are at least two lessons here I'd like to share with you.

First, even a very powerful program like DTA can't recover from a complete hardware failure. Backup your data and system frequently.

I make a complete copy of my hard disk on one of our UNIX systems over PC-NFS every month, but you should use whatever method you can to insure your data is safe. In fact, if you run your business with your Vectra, you should think about keeping a full set of backup disks at a different location.

Second, let me advise you to backup your data on a safe medium. While my complete backup goes over the network, I copy important data to a different physical drive on my system whenever I have a file I don't want to lose.

Remember my first disk failure? It was on Drive C:. I was smug. I had a full copy of all my important data from C: on my second physical drive, Drive F:. When my dealer replaced Drive C:, I didn't lose any really important stuff.

Remember my second failure? It was on Drive F: on February 2. Did I copy those really important files from Drive F: back to my new Drive C:? Nope. Not yet. Was my network backup safe? Yes. Except I made it on January 2. Don't try this at home — I'm an experienced software professional. —*Miles B. Kehoe*

own use. Then, whenever there's a period of no disk activity, SafePark positions the disk read/write heads over the reserved sector. This way, if there's a power failure or any other problem that could cause a failure, it will happen in the reserved, unused area of your disk and not where you have important data.

Improvements

While I like the concept and the implementation of DTA, I think Prime Solutions can do more to help the novice. I'll be honest, I get nervous when I try to figure out RLL or MFM controllers and drives or when I think about low-level formatting. There is considerable benefit in this application for both novice and expert alike, so I hate to see very detailed instructions scare away the people a program can help.

I know such low-level problem tracking and correction is a complicated business. Maybe, with time, Prime Solutions can find a way to let its program run on any system no matter what kind of disk is installed.

Also, I'd like to see DTA work with more Vectra systems. Perhaps as they see more business on the HP Vectra, Prime Solutions can work with HP to provide versions that work with all HP internal disks.

Disk Technician Advanced represents a state-of-the-art application in disk fault detection and correction. I know this will sound like another product you have seen, but DTA can probably be very effective in safeguarding your data when used as part of complete hard disk management program that includes frequent backups and Disk Technician Advanced.

When it comes to using a Vectra, I can think of very few failures that are more costly in terms of time to recover than a disk failure. I suggest you look into DTA to help reduce the chance that you will lose your data.

Disk Technician Advanced

SYSTEM REQUIREMENTS: IBM PC, XT, AT, PS/2 or compatible; MS-DOS version 2.1 to 3.32; 512K RAM

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NETWORKING

Gordon McLachlan

Cooperative Processing

Editor's note: HP Professional welcomes Gordon McLachlan as Networking columnist. An independent consultant based in Canton, MI, McLachlan has been a frequent contributor to HP Professional.

There are major changes afoot in the way networks will be constructed and used in the next few years.

The biggest change will be caused by the use of truly distributed computing systems: cooperative processing. That's what the network revolution is all about.

HP, DEC, IBM and others all have announced network architectures that amount to about the same thing: Advanced peer-to-peer communications capabilities and the interprocess communications (IPC) features and application programming interfaces (API) that allow programs on two different computers to act as one process.

In other words, the workstation does some of the processing and the host/server does the rest.

Typically, the workstation will handle the mundane stuff like data entry and the server is a database engine. The user gets a snazzy interface, nice response time, and your mini won't have to deal with the overhead of user I/O. Everything will be wonderful.

As an added bonus, standard IPC routines and APIs are to be incorporated throughout each vendor's product line. For HP users, that means being able to transparently mix small servers with big servers under UNIX, OS/2 and MPE. That *really* will be wonderful.

Where Did It Come From?

Oddly enough, the catalyst that's going to bring cooperative processing together is OS/2. It's a real operating system on a cheap platform and it has some real nice networking features. It also has momentum — IBM-style momentum.

IBM uses the OS/2 interprocess communication and APIs as its SAA models. It has no choice. About the only SAA-compatible code that IBM has runs under OS/2.

HP and others are happily following along, adhering to "industry standards." The OS/2 LAN Manager is even being ported to UNIX by Microsoft and HP. Get the idea? Momentum.

Even if it has received a lukewarm response so far, OS/2 will be a juggernaut. HP, in particular, seems to have learned some lessons about swimming against the industry currents. Who says the PC revolution is over?

Is It Standard?

Almost. The OS/2 interfaces do provide a standard base, but IEEE 802.3 and NETBIOS are "standards" too, and we know how compatible those implementations are.

OS/2 stands a better chance of staying compatible because the hardware vendors are supposed to keep their hands out of it. Even IBM is supposedly keeping away from it, now that it's had its way with Presentation Manager. We'll see.

Whatever happens, you can be sure that HP will do what it can to keep its client-server architecture from becoming another SAA, and that IBM will do what it can to stop SAA from being SAA.

Your favorite vendors don't want to sell interchangeable clone boxes and software. It screws their profit margins into the ground. Product differentiation dictates that they "add value" to the standard and make it non-standard.

Luckily, the fact that it's workstation-based gives you one big advantage. There will be a tremendous aftermarket for tools and applications.

What's The Catch?

The biggest problem is figuring out what to do with this stuff, and when to do it. This is a really different way of putting together computer systems and developing applications.

Much of what passes for online systems today are warmed-over batch programs with data-entry front-ends. Distributed typically means dispersed and redundant.

The network and database design ideal always has been to model the real data-flow and decision-making in a company, but the logistics of system-building often got in the way.

Now the barriers are being removed, but we still act like cows near an electric fence. After a while we stop checking to see if the barrier is still there. We just assume it is.

Putting networks and cooperative processing to good use requires careful rethinking of some long-held prejudices about systems development. A network is no longer a peripheral device. The network is the system. You'll buy computer systems and applications because they fit into your network, not vice versa.

Changing The Hardware

If you're going to use cooperative processing, you won't be needing those dumb terminals any more.

As long as you have dumb terminals hanging around, your systems will be forced to accommodate them, and your applications design will have to be dumbed-down to cater to that lowest common denominator.

As inexpensive as 80286-based workstations are, there is little excuse for spending good money on more terminals. Terminals, of course, have become ridiculously cheap, but there's a reason for that. They aren't worth much.

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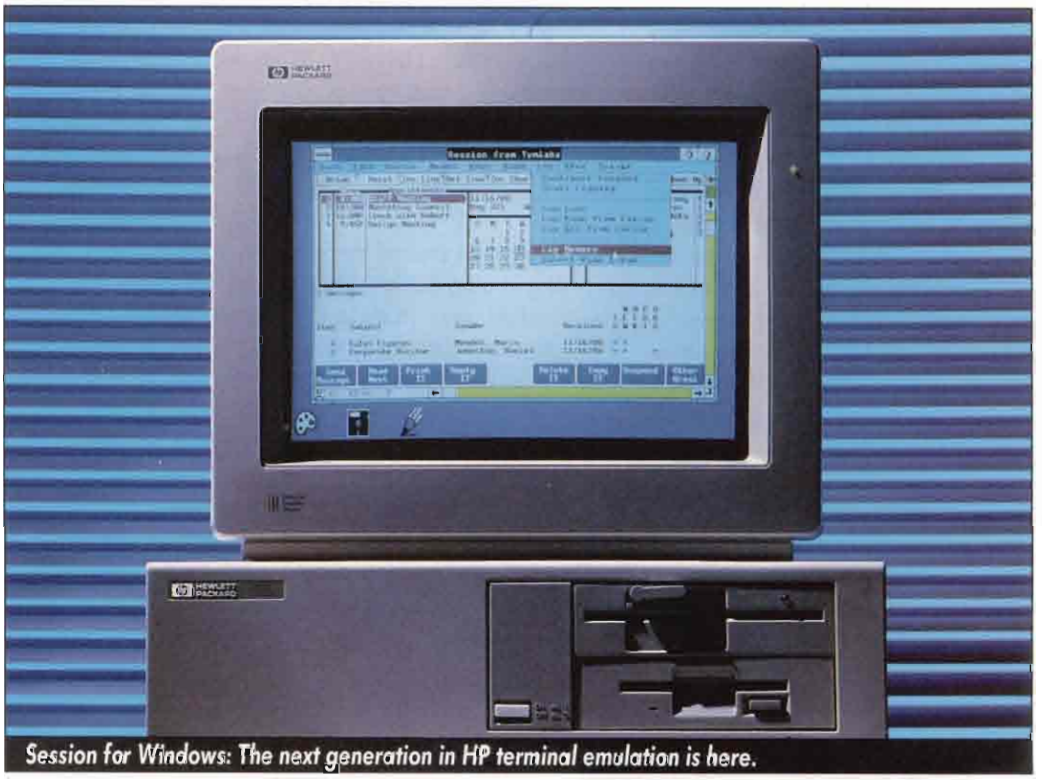

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Another question: How much are you going to need your minicomputers? The closer you stick to the OS/2 industry standard, the more luck you'll have with compatibility. If the mini and mainframe boys want to stiff the standards, why not just throw them out on their ears?

You might be better off with a battery of networked OS/2 workstations. Minis will offer more raw horsepower in a single box, but you may not need it, if you can spread your applications around. If you can dump the big iron, you can afford a whole bunch of workstations.

HP says its i486 EISA system can handle 12 terminal users under SCO UNIX. I'm impressed. A few of those little fellows on a LAN could be very interesting.

System Design

Writing programs for one computer is confusing enough for most people. Just wait until you get adventurous and start blasting transactions to a half-dozen da-

A network is no longer a peripheral device. The network is the system.

tabases spread around the country.

Distributed databases and the applications that serve them are going to be much more difficult to design, develop and maintain than the systems you are used to. Every additional server or program in the system is another potential point of failure.

A sound development methodology is essential for networked applications. Testing will be more complicated and program failures more insidious.

Even though it might be a blow to the MIS department's machismo, it's time to start thinking seriously about using computer-aided software engineering (CASE) tools and adopting a formal development methodology. And don't forget to write some documentation.

Where's The Data?

Distributed databases have a bad feature: distributed data. Distributed databases can become botched databases if you don't have real good controls in place.

An effective network system is going to require good data management discipline. Security, naming standards and data dictionaries are essential. We've all managed to lose data on a single computer. Given a whole network, there's no telling what we could do!

System Life-Cycle Planning

More than ever before, networks will start pushing applications into obsolescence.

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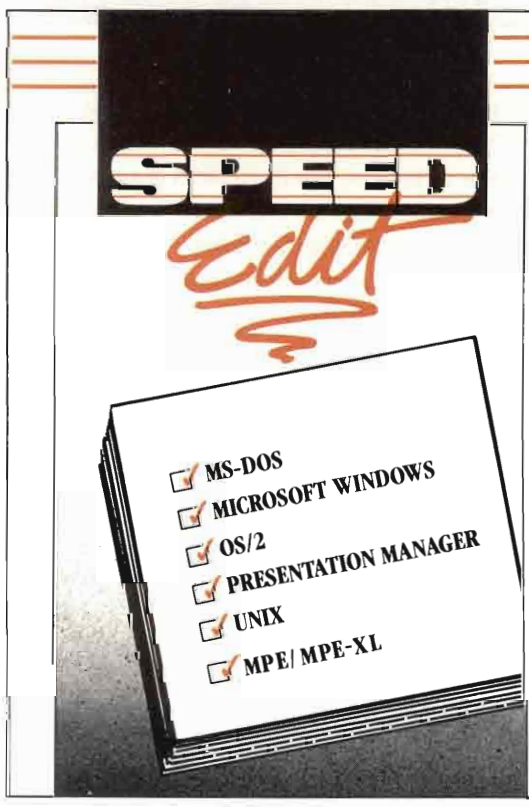

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sible by cooperative processing are going to make those old rehashed batch programs from 1968 look pretty bad.

If you want to take advantage of the economics of down-sizing, you may have to replace some systems that you otherwise might have kept around for awhile.

Sometimes we get so hung up on patching up and adding on to our systems that we forget it might be kinder to kill them off and replace them.

Because of the degree of interaction between distributed database systems, tight version controls are critical. All of your sites will require compatible software. Electronic software distribution (ESD) is the name of the game. You should see ESD products from a few different vendors once OS/2 heats up.

Changing Programming Languages

I wonder if COBOL will survive? A whole different set of programming languages and tools will be used on workstations and the OS/2 and UNIX network servers. COBOL, unless heavily butchered, won't be up to the task.

If you're using fourth-generation language you're at your vendor's mercy. If they successfully can manage the conversion to the new environment you're all set. However, I'm probably not to be trusted when it comes to prognosticating about the future of programming languages. I thought COBOL should've been put out of its misery when PL/1 showed up, and I wrote FORTRAN off 10 years ago.

People are loyal to their programming languages and will go to extremes to keep them alive.

What Now?

By now, you're probably wondering how you're going to do all of this. Don't worry, you're not. At least not all at once.

A good place to start is by upgrading PC-based applications. Some of the SQL-fronted databases for OS/2 are going to be excellent tools. An OS/2-based application will be the cheapest and easiest way to get started.

When you are ready to add new systems, look at the benefits of a distributed approach before spending money on upgrading your minis. Does it make sense to move to a smaller platform? If you can do it, hardware and software for the workstations generally will be cheaper than for larger machines.

Downsizing can be a great idea, but don't push it. If it costs you more to downsize than you will save, it isn't worth it.

In the same vein, some applications will require the raw horsepower and storage capacity than only a mini or mainframe can deliver.

What's the moral? Same old story. Look before you leap.

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CIRCLE 142 ON READER CARD

PC TIPS

Miles B. Kehoe

REMarks Et Al.

As MS-DOS is loading, any customization that you've specified in CONFIG.SYS occurs. As long as there's no line specifying a custom shell, the final step in the start-up process is to load and transfer control to COMMAND.COM. By now you should've moved the reference to PAMCODE from your CONFIG.SYS to your AUTOEXEC.BAT. If you have, read on. If not, check last month's column.

Starting COMMAND.COM

Once COMMAND.COM has control, it searches in the root directory on the boot disk for a file called AUTOEXEC.BAT. This file, like any other batch file, contains one or more MS-DOS commands or statements. Unlike most other batch files, AUTOEXEC.BAT normally is executed only at start-up. In fact, some of the things that are often appropriate at start-up can cause problems if executed again, so you should be careful to not execute the file once your system has started.

If the command interpreter doesn't find AUTOEXEC.BAT, it will prompt you for the time and date. This stems from the earliest days of MS-DOS when a clock and calendar were optional in the original IBM-PC. For today's systems and for all Vectra computers, this isn't necessary.

Personally, I like to use ECHO statements liberally in all of my batch files. This might be a symptom of some fatalism on my part: If the file fails to run, or stops unexpected during execution, I can tell which step failed by what messages were echoed to the screen.

Before Version 3.30 of MS-DOS, the first two lines in all my batch files were:

```
ECHO OFF
CLS
```

Without the ECHO OFF statement, you will see every command in the batch file displayed on the screen. Once ECHO OFF has been executed, this is no longer the case. Then, to clear up the screen, I use CLS.

In MS-DOS Version 3.3 and later, you can preface any command with an "at" sign (@) and the command interpreter will suppress echo of that command or statement. This lets me replace the two lines I used before with a single line:

```
@ECHO OFF
```

This will turn off any subsequent echoing of commands, but the @ symbol causes the actual ECHO OFF to be suppressed as well. Because there's no clutter on the screen, there's no need to do a CLS.

Below is what I think of as a minimum AUTOEXEC.BAT. Setting the PATH variable and changing the default prompt I'd always suggest. Using PAM is optional.

```
@ECHO OFF
PATH=C:\BAT;C:\BIN;C:\DOS;
PROMPT $p$g
C:AMAMCODE
```

If you use your Vectra in a network, or as a "dual boot" system with OS/2, you may have additional variables you want to set. Generally speaking, when a program requires some modification to your AUTOEXEC.BAT, usually it will notify you of the changes.

Nonetheless, it's a good idea to keep a copy of your AUTOEXEC.BAT file, as well as your CONFIG.SYS file, in a safe place in case you ever need to restore them.

Oops...

If you make an error in your CONFIG.SYS, there's a good chance that your system may not start properly. That is why I suggested having an emergency boot floppy in last month's column.

Occasionally, you'll find a change to your AUTOEXEC.BAT that causes your system to hang before it has completely started. Fortunately, you often can catch this kind of error with careful use of CTRL-C. Once your system drivers have loaded and you see that AUTOEXEC has started, press the CTRL-C key over and over. If you're lucky, you will get the message "Terminate batch job?" which is just what you want to do. Correct the problem, usually by removing the offending program, and try again.

On those rare occasions that you cannot interrupt the execution and your system continues to fail, reboot your system from the emergency boot floppy and correct the problem. If worst comes to worst, you always can start your system from your original Vectra MS-DOS master disk.

Comments

If you find your AUTOEXEC.BAT file growing in complexity, you might want to use comments in your file. You might recognize a particular program now as the one that loads a driver in one of your new interface cards, but chances are good that in six months you'll be less sure.

To include a comment, use the REM command. MS-DOS will ignore anything on the line, but you'll find the information helpful sooner or later! By the way, there's no REM equivalent in CONFIG.SYS. However, using a pound sign (#) or the word REM in front of any line in CONFIG.SYS will cause MS-DOS to ignore the line. All you need to do is ignore the error message while you boot your Vectra.

Afterword

For those of you who use PAM, you might find it desirable to have a different environment in PAM and in the MS-DOS command interpreter. For example, you may want to use a different path when you don't have PAM loaded.

To accomplish this, add the MS-DOS specific information after the PAMCODE line in your AUTOEXEC.BAT. As long as PAM is running, MS-DOS has not completed execution of your AUTOEXEC.BAT. When you exit, the lines after PAMCODE are executed. Below is an example of how I do this on my Vectra.

```
@ECHO OFF
REM AUTOEXEC.BAT I/17/90
PATH=C:\BAT;C:\BIN;C:\DOS;
C:AMAMCODE
REM Change to Drive D: and re-set the PATH
D:
CD \
PATH=C:\BAT;D:\WIN286;C:\BIN;C:\DOS;
ECHO Ready to go!
```

Notice I use remarks to comment my file. This helps me remember why I have included some lines, and should help anyone else figure out my file later on.

Setting A Data Path

Now let's take a look at one or two useful commands that are available in MS-DOS starting with Version 3.2. I hope you've seen the utility of the PATH statement in action. However, one of the big limitations in MS-DOS has been the inability to have any program search in multiple places for a DATA file. Starting with MS-DOS version 3.2 on both the Vectra and your HP 150, you can use a new command to permit any program to locate files anywhere on your disk.

The command I mentioned is called APPEND, and normally is included in your AUTOEXEC.BAT. The syntax of APPEND is just like that of the PATH statement:

```
APPEND C:\DAT;D:\MEMOS;
```

When the command interpreter executes this line, it loads a terminate-and-stay-resident program in memory: This will reduce your available memory slightly in all of your subsequent programs.

You can see the benefit of this command just by using the MS-DOS TYPE command. Suppose there's an ASCII text file in the directory D:\MEMOS: before APPEND, you had to specify the correct extended filename to type it at the console:

```
TYPE D:\MEMOS\FILE.DAT
```

Once the D:\MEMOS directory has been APPENDed to the data path, you can enter:

```
TYPE FILE.DAT
```

Like with the PATH command for executable files, MS-DOS will look in the current directory for a file called FILE.DAT. If it can't find such a file in the current directory, it will search in C:\DAT. If there's no file by that name there, it will search in D:\MEMOS.

This can make it much easier for you to locate your files in virtually any program. However, with power comes responsibility and some risk. If you're using a program to edit a file, for example, it will load FILE.DAT from the D:\MEMOS directory. However, if you have your editor SAVE the file, it likely will save it in your current working directory. As programs are updated, I'm sure developers will correct this problem: Because this capability didn't exist when most of today's programs were designed, it was not a situation that needed to be handled.

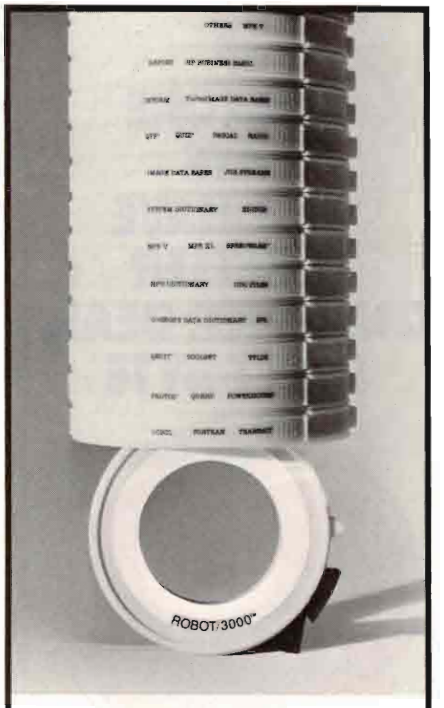
Renaming Drives

One additional command is the SUBST command that allows you to treat subdirectories as entire disk drives. It is a capability that was introduced in MS-DOS version 3.1 and later, so it applies to Vectra and HP 150 systems.

The format of the SUBST command is:

```
SUBST M: D:\MEMOS
```

This creates a drive known to MS-DOS as Drive M: that's then equated to the existing subdirectory C:\MEMOS. Once this command is active, I can treat any file in the D:\MEMOS directory as a



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file in the root directory of Drive M:. This can be very useful for those programs that don't allow the use of subdirectories when specifying file names. Older versions of Wordstar by Micropro come to mind, but many other programs also had this limitation.

To delete this assignment, simply enter the command:

```
SUBST M: /D
```

This will remove the association between Drive M: and the D:\MEMOS sub-directory. To see which, if any, substitutions are in effect, you can enter:

```
SUBST
```

You'll see a list of all active substitutions.

One thing that you may find is the drive letter you use in the SUBST must be in the range specified by the LASTDRIVE statement in your CONFIG.SYS. The default for LASTDRIVE is F:, so you may need to either insert a LASTDRIVE in your CONFIG.SYS, or limit yourself to drive letters between A: and F:.

By the way, you can get yourself into a bind with SUBST because it does allow you to replace existing physical drives. For example, you could enter the command:

```
SUBST C: D:\
```

This makes the D: disk equivalent to your C: disk. If the SUBST command itself exists in C:\DOS, a likely place for it, you'll find you cannot recover because the real C: disk is no longer addressable by MS-DOS. You will have to reboot your system and use more care!

Finally, several MS-DOS commands cannot be used on SUBST disks. Check your Vectra MS-DOS reference manual, but commands such as CHKDSK, ASSIGN, BACKUP and RESTORE and FORMAT are among those commands that aren't allowed on drives created with SUBST.

For HP 150 Owners

On my HP 150, I use the SUBST command to avoid erasing files on my hard disk. Let me explain.

I use Vectra and other IBM clones at work and at home every day. I've pretty well internalized the fact that A: is my floppy disk, and C: is my hard disk.

Then, every now and then, I sit down on my HP 150. As you know, the HP 150 considers the boot disk as Drive A: and depends on your configuration for any other drive designations. On my system, my hard disk is Drive A: and my flexible disk is B:.

The problem I have is that, to delete files from a floppy disk, I habitually am tempted to enter:

```
DEL A:*.*
```

However, on my HP 150, this invariably deletes the only normal files in my root directory on my hard disk: CONFIG.SYS, AUTOEXEC.BAT and COMMAND.COM. Then, after a few choice words, I spend 10 minutes recovering my files and starting over.

Once I updated to Version 3.2, I decided to use the SUBST command on my HP 150 to make the floppy disk Drive A: and my hard disk Drive C:. I have a file called AUTOBOOT.BAT that's listed here.

```
ECHO OFF
CLS
ECHO Re-assigning drive names. Please
  insert a disk
ECHO in the floppy drive.
PAUSE
SUBST C: A:\
SUBST A: B:\
PATH C:\BAT;C:\DOS;C:\BIN;
```

This lets me treat my floppy disk as Drive A: just like my Vectra; and, even though it was my boot device, the hard disk is Drive C:. I haven't accidentally deleted a file on my HP 150 since then. Well, not because of confusing the drive letters at least.

Next month we'll look at more MS-DOS commands, and how you can use them to be more productive with your Vectra. —*Miles B. Kehoe is an online support manager for Verity Inc., Mountain View, CA.*

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HP-UX

Andy Feibus

Real-Time Applications

Although HP-UX includes several features conducive to real-time applications, only a few of the more important features are ever mentioned. As used in this column, a traditional UNIX system strictly adheres to the System V Verification Suite (HP-UX, like most other vendors' UNIX operating systems, contains extensions targeted for that vendor's customers).

UNIX systems contain two main parts: the *commands* and the *kernel*. In previous columns, I've discussed useful UNIX commands. In this column, commands and user programs are referred to as *tasks*. To understand the HP-UX real-time features, you must understand the traditional UNIX kernel.

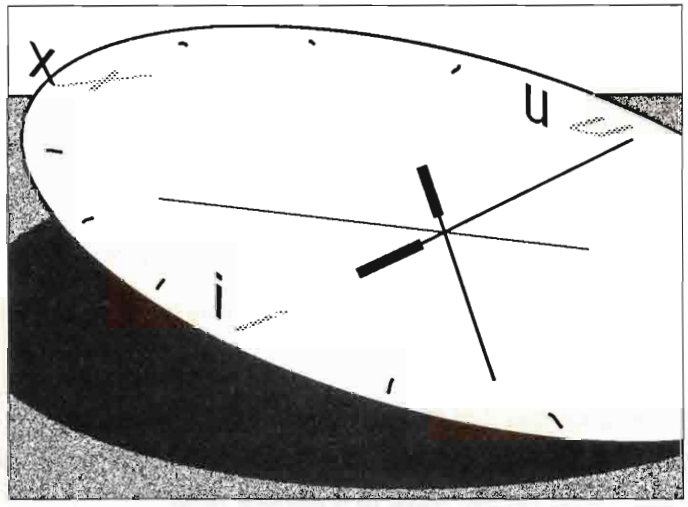
The kernel is a program (or, frequently, a set of programs) that controls the system and how commands (and user programs) are executed within the system. Some of the kernel's tasks include:

- Buffering output to and input from the disc and other system peripherals.
- Controlling how input and output requests to a system peripheral are performed without requiring the user to understand the peripheral's communications protocol.
- Managing the resources available within the system (e.g., shared memory, semaphores, message queues, pipes, etc.).
- Passing signals (interrupts) between different tasks.
- Managing how the system's physical memory is used by the tasks that are executing.

The kernel is also responsible for one other important function: task scheduling.

UNIX Task Scheduling

Traditional UNIX systems, like most multitasking operating systems, use the round robin algorithm for scheduling when a task can execute. This algorithm can be summarized by the following:



1. When a task is started, it's added to the end of the process list.
2. The first task in the list is checked. Then:
   a. If the task is ready to run, it executes until a request for an unavailable system resource (e.g., a read from a disc, input from the user) is made.
   b. Otherwise, if the first task in the list is not ready (the last requested resource is still not available), the task is moved to the end of the process list.
3. When a task completes, it's removed from the process list.

Traditional UNIX systems use this algorithm modified in the following manner:

- The central processing unit (CPU) is considered a system resource to be requested only in small chunks. On some UNIX systems, the size of this chunk can be defined when installing the system. This scheme is known as *time slicing* (because each task receives a slice of the CPU's total available time).
- A priority is assigned to each task. This priority is dynamically adjusted by the kernel to favor those tasks that are interactive in nature at the expense of those tasks that use the CPU heavily. The user can force a task to run at a lower priority by executing the task using the **nice**(1) command. When the system is ready for a task to run, the process list is checked for the first task that's ready to run and has the highest priority.

Because of this algorithm, traditional UNIX systems don't provide any method of *predictive scheduling*: A task executes when the kernel is ready to execute it. Tasks can't pre-empt other tasks because of emergency situations or for any other reason.

To provide priority-based pre-emptive scheduling, HP-UX includes a new range of task priorities, called *real-time priorities*, which are fixed by the user (or the application), not by the kernel. These priorities don't fluctuate and these tasks execute at a priority higher than normal time-sliced tasks.

When a task with a higher priority is ready to run, the system automatically interrupts (pre-empts) any task with a lower priority and starts the higher-priority task. If more than one task with the same real-time priority is ready to run, these tasks are time-sliced (but still pre-

To prevent just anyone from obtaining real-time priority for their tasks, rtprio requires privileges that are controlled by the system administrator.

empt other tasks with lower priorities).

Additionally, in traditional UNIX systems, a task can't be interrupted while the kernel is performing an operation for the task (because the kernel can't be interrupted). A kernel operation, however, could require as much as one second (or more!) to complete. For real-time applications, this delay can be intolerable, and possibly destructive.

To overcome this deficiency, HP-UX on the Series 800 includes a *pre-emptable kernel.* At certain "safe" places in the kernel's code (pre-emption points), a task waiting for a kernel operation to complete can be pre-empted by a higher priority task. Kernel pre-emption is only permitted by real-time tasks.

In over 99 percent of all kernel operations, the kernel can be pre-empted within 10 milliseconds (ms).

To provide a task with real-time priority, use the **rtprio**(1) command or **rtprio**(2) subroutine call. **Rtprio** is documented in the *HP-UX Reference Manual.*

One last note: To prevent just anyone from obtaining real-time priority for their tasks, **rtprio** requires privileges that are controlled by the system administrator. For more information, refer to the **setprivgrp**(1M) utility documented in the *HP-UX Reference Manual.*

UNIX And Time

As discussed in the December 1989 HP-UX column, UNIX includes the time-based user utilities **at** and **cron**. The smallest time resolution for **at** and **cron** is one minute.

When programming within UNIX, several time-based subroutines are provided. These include **sleep**(2), **alarm**(2) and **time**(2). **Sleep** pauses a task for no less than a certain number of seconds; **alarm** sends an interrupt to the task after a certain number of seconds; **time** returns the current number of seconds that have elapsed since January 1, 1970, at 12:00 a.m. The smallest time resolution for each of these routines is one second; within traditional UNIX systems, one second is the smallest time resolution available.

Frequently, real-time applications require an operation to be performed at frequencies faster than once each second. Often, a real-time application can require an operation to occur more than 10 times each second. In these instances, traditional UNIX systems can't perform the task with any degree of consistency.

To accommodate these needs, HP-UX includes a system clock resolution of 10 ms and the **gettimeofday**(2) call to obtain the system clock with this resolution. HP-UX also includes a subroutine call (**setitimer**(2)) to provide an interrupt with a resolution as small as 10 ms (instead of **alarm**(2)). Refer to the *HP-UX Reference Manual* for details on these subroutines.

Epilogue

Within HP-UX, several other features are available for writing real-time applications. These features include memory locking, a fast file system, synchronous input and output, preallocation of disc space, and interprocess communication for synchronization between different tasks. *—Andy Feibus is president of Processware Inc., Atlanta, GA.*

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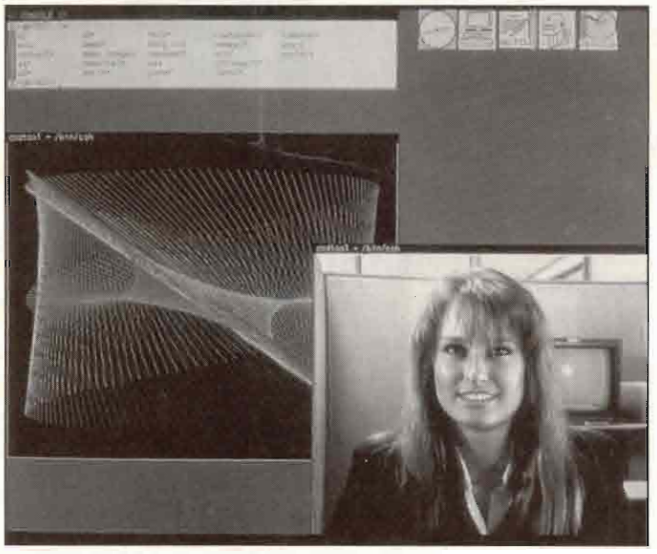

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Carolian Systems International Inc., a supplier of systems software for the HP 3000, has announced Integrated Network Services (INS) as its new strategy for multiplatform systems management in the Cooperative Computing Environment.

Carolian's INS environment offers a solution based on the client-server model that provides consolidated control and management of networked minicomputers from a single workstation.

INS will employ HP's OpenView network management architecture and its NewWave object-oriented application windowing interfaces. All management tools are presented as modules of a single system and are integrated through the INS core software. This approach to systems management provides system users with an integrated view of their networked operations, giving them a cost-effective solution for the management of multiple minicomputers.

Contact Carolian Systems International Inc., 3397 American Dr., Suite 5, Mississauga, Ontario Canada L4V 1T8; (416) 673-0400.

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Software through Pictures Available For HP 9000/300

Interactive Development Environments Inc., (IDE) has announced that Software through Pictures Release 4.2 is available on HP's 9000 Series 300 workstations. IDE also previewed a version of Software through Pictures integrated with HP SoftBench. Software through Pictures is an integrated, multiuser CASE environment, built on an open architecture, and can be extended, customized and integrated with other tools to meet users needs. Release 4.2 on HP uses X11 allowing users to implement a Software Development Center containing mix of HP and Apollo workstations.

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Computone Ships EISA Communication Subsystem

Computone Products has begun shipping Computone ALC, its Extended Industry Standard Architecture (EISA) communications subsystem.

The new product line consists of an intelligent communications controller board and four Feature Modules that bring asynchronous, synchronous, Ethernet, facsimile and scanner capabilities to EISA-based workgroup systems.

Computone's ALC supports major communications standards such as Ethernet, TCP/IP, SNA, X.25 and Group III Facsimile. Up to four Modules can be attached to the ALC Controller in mix-and-match configurations.

The ALC Communications Controller is priced at $1,595 retail. The Async Feature Module is $1,195 and the Ethernet Feature Module retails for $695.

Contact Computone Products, 1100 Northmeadow Pkwy., Ste. 150, Box 100040, Roswell, GA 30076; (404) 475-2725.

Circle 387 on reader card

HP And The MathWorks Offer MATLAB For 9000/300

The MathWorks Inc. and HP have announced the release of MATLAB for the HP 9000 Series 300 family of workstations. MATLAB, a high-performance interactive software program for scientific and engineering numeric computation exploits the power of HP workstations to create a high-productivity analytical environment.

MATLAB utilizes the X Window System Version 11 and 68881/68882, floating-point coprocessor of the Series 300 to deliver graphics and fast floating-point performance. The built-in functions and computational capabilities of MATLAB combine with the HP 9000 Series 300 to provide an ideal platform for applied analysis.

Contact MathWorks Inc., 21 Eliot St., South Natick, MA 01760; (508) 653-1415.

Circle 378 on reader card

Troubleshooting Tools Detect Problems In TCP/IP

HP has announced two software packages for the HP 4972 LAN protocol analyzer. The new packages provide the information needed to detect problems and verify solutions in the TCP/IP network environment.

The HP 18222A TCP/IP network-performance analysis package provides a set of statistical measurements on the performance of TCP/IP protocols. By building a history of network use and performance statistics, network managers can isolate problems faster and proactively manage a TCP/IP network through growth stages. For example, data-packet size can be measured and adjusted to ensure optimum utilization of the TCP/IP bit pipe.

Traffic volumes can be measured by node or application to provide the information needed for optimizing network bandwidth. The effects of newly installed equipment or software on network performance can be quantified and the configuration modified as required.

The HP 18228A NFS protocol interpreter provides a simple, consistent way to examine the behaviors of various systems and applications running NFS and other Sun Microsystems protocols. Protocol information is presented in a format that reduces troubleshooting time.

The HP 18222A TCP/IP network-performance analysis and the HP 18228A NFS protocol-interpreter software are $950 each. They operate only with the HP 4972A LAN protocol analyzer, which is priced at $17,350.

Note: *For more information about HP products, contact the Hewlett-Packard sales office listed in the white pages of your telephone directory.*

New HP Software Provides NET2 X.25 Certification

HP has introduced a dedicated NET2 (Norme Europeane de Telecommunication 2) X.25-certification software package for the HP 4954A protocol analyzer.

The new HP 18322A NET2 X.25-certification test suite provides tools to help research and design engineers create X.25 products that comply with the NET2 specification developed by 22 European PTTs (postal, telegraph and telephone agencies).

Beginning in July 1990, using NET2 will be the only recognized, mandatory requirement for receiving permission to connect equipment to public X.25 networks in Europe.

HP 18322A test environments can be modified to accommodate any stage of product development. This flexibility allows users to implement test features on an as-needed basis and only test what already has been developed.

The HP 18322A NET2 X.25-certification test suite is $1,500. The HP 4954A protocol analyzer is $22,950.

The HP 18322A NET2 X.25 certification test suite for the HP 4954A protocol analyzer from HP provides tools to help users develop X.25 products that comply with the NET2 specification.

FOR YOUR INFORMATION

■ CODA Ltd. (United Kingdom) is launching CODA IAS, its integrated accounting package running on the HP 3000 in the U.S. The company is looking for well established U.S. HP VARs with existing market leading application software. 010-44-532-455300.

■ QMS (Mobile, AL) has made available its "QMS Supplies and Accessories Catalog," an end user reference/telemarketing catalog containing product and ordering information for consumables and enhancement products for all QMS printer products. (205) 633-4300.

■ Dynamic Information Systems Corp. (Denver, CO) has announced the availability of 24-hour emergency technical support service for all of DISC's products. There is also a FAX support line. The FAX number is (303)892-5713. For emergency service call, (303) 592-1220.

■ Computer Technology Group (Chicago, IL) has announced two training courses for UNIX users. Designed for current operators of UNIX systems as well as newcomers from PC DOS, the training packages consist of videotapes, workbooks and tests. (312) 987-4084.

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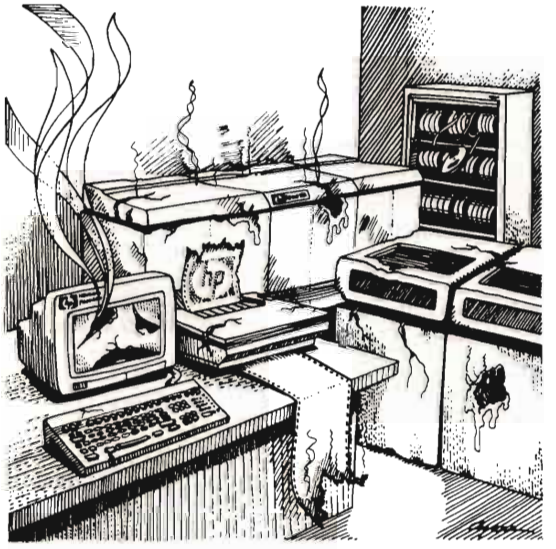

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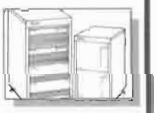

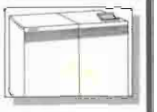

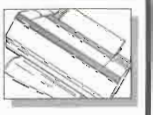

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[CALENDAR]

[MAY]

2-4: Southern California Regional Users Group (SCRUG) is holding its 13th annual technical conference and trade show for HP 3000 computer users at the Pasadena Conference Center, Pasadena, CA. For more information contact Betty Vaughan, (213) 450-3383.

9-11: BARUG (San Francisco Bay Area Regional Users Group) is holding its 11th annual conference at the Coconut Grove and Holiday Inn in Santa Cruz, CA. Registration is in advance only. Call (415) 674-3421.

14-18: HP's Manufacturing Productivity Division (MPD) is hosting its second annual users conference, "Partners in World Class Manufacturing," at the Hyatt Regency, Tampa, FL. For information, call Silvana Torik, (408) 553-3812.

22-24: Patricia Seybold's Office Computing Group presents "The Applications Development Environment of the 1990s: Can UNIX Set The Innovation Agenda?" at the Biltmore Resort Hotel, Santa Barbara, CA. Call (800) 826-2424.

28-6/1: The 11th Annual Eastern American Hewlett-Packard Users Conference is scheduled for the Bally's Plaza Hotel and Casino, Atlantic City, NJ. Call (215) 875- 5324.

[JUNE]

19-20: MTLRUG is holding its quarterly meeting at the Dorval Airport Hilton, Canada. Call Mich Kabay (514) 931- 8167.

[JULY]

18-19: MINNRUG (Minnesota Regional User Group) is holding its first conference on "Solutions for the '90s," at the Hotel Sofitel in Mpls, MN. Call (612) 337-9899.

[AUGUST]

20-23: 1990 INTEREX HP Users Conference will be held at the John B. Hynes Veterans Memorial Convention Center, Boston, MA. For more information call (408) 738-4848.

[SEPTEMBER]

9-13: The 1990 Lasers in Graphics (LIG) and Electronic Design in Print (EDP) conferences are scheduled concurrently in Orlando, FL. Call Patrice Dunn, (619) 758-9460.

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