March 1992

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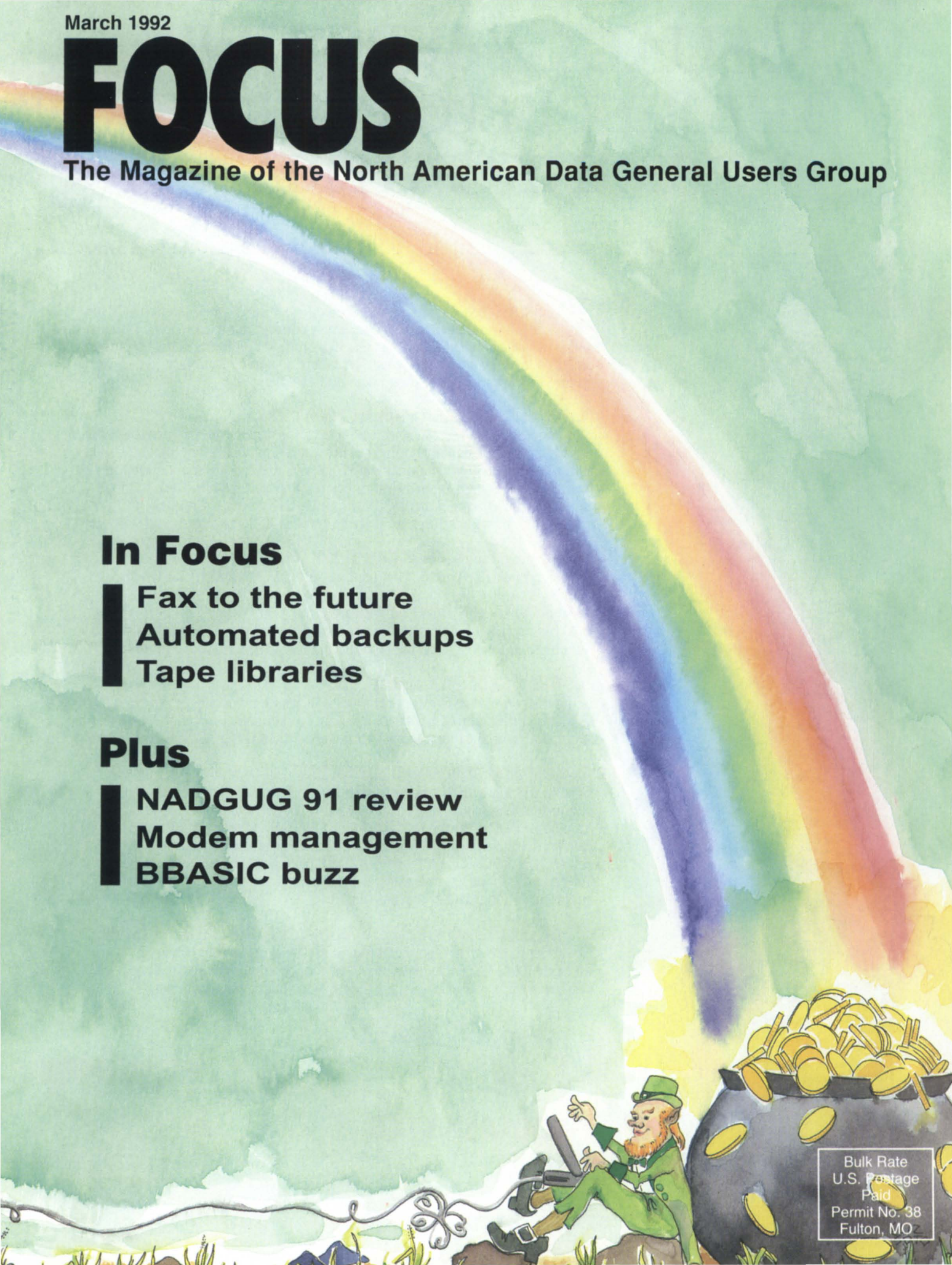
The Magazine of the North American Data General Users Group

In Focus

- Fax to the future
- Automated backups
- Tape libraries

Plus

- NADGUG 91 review
- Modem management
- BBASIC buzz



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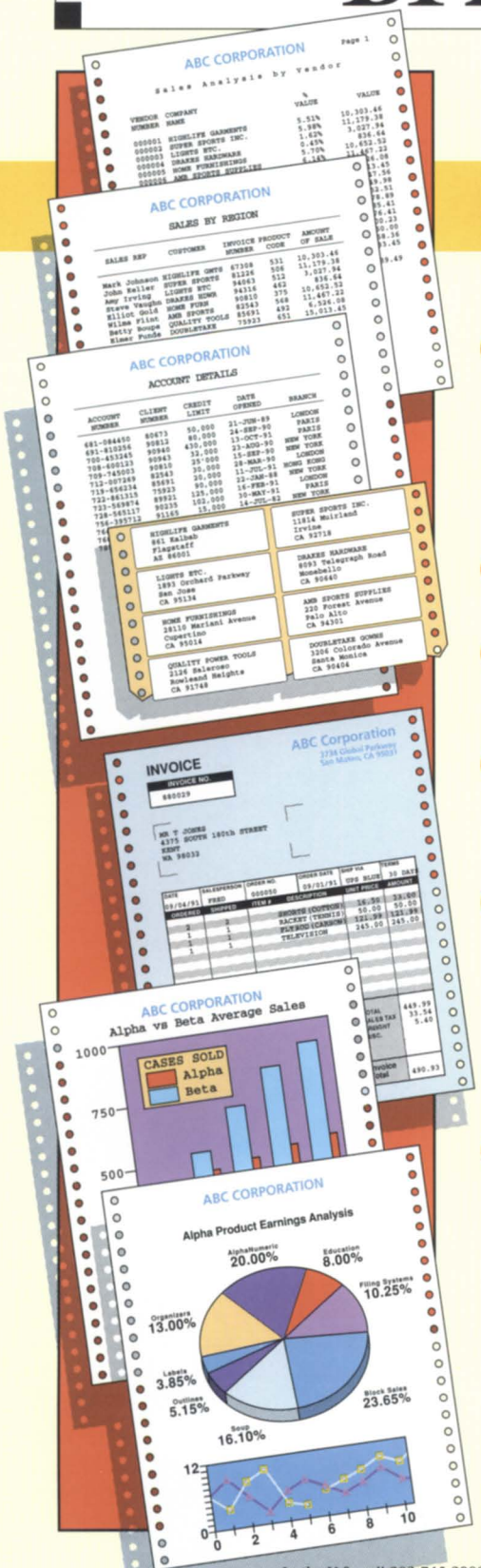

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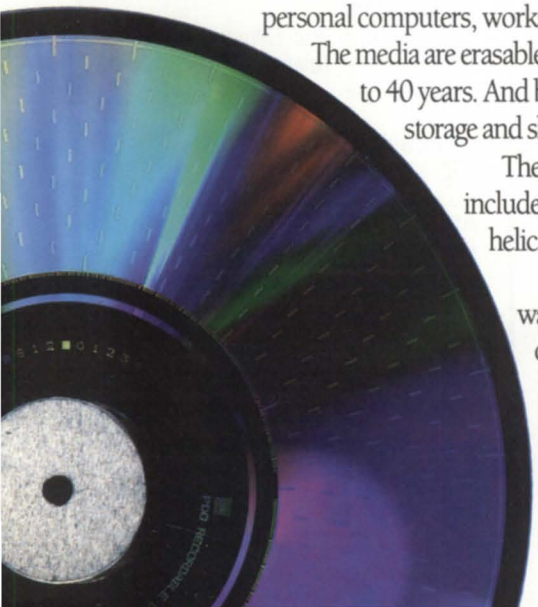

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Rocky Mountain high

The NADGUG 91 conference in Denver delivered technical knowledge to hungry users

by Jan Grossman
NADGUG Vice President

Excitement was in the air as NADGUG '91 attendees began to arrive. Banners were everywhere: the airport, Colorado Convention Center, the hotels. Hotel personnel—clerks, bellhops, waiters, hostesses—all proudly wore purple NADGUG ribbons. What a warm welcome to Denver!

But that was only the beginning. What followed were four intense days of meetings with the largest group of Data General professionals ever assembled. There were sales representatives and systems engineers, VARs (value-added resellers) and ISVs (independent software vendors), Aviion and MV Eclipse users, system managers, and exhibitors.

For those of you who could not attend "On Track For the Future," we will share with you our most memorable events in this as well as future issues of *Focus*. (See page 20 for starters.) Watch for special reports from the contributing editors, Special Interest Group news, and session highlights.

Then when you've gotten "NADGUG Fever," we'll prepare you for our '92 conference in Kansas City, October 12-15.

Work on the Kansas City Conference was already underway at the Denver Conference. At the close of the '91 conference, 35 percent of the exhibit floor space had already been sold, and the call for sessions distributed to attendees.

An intense planning session was held in mid-January, during which the theme and general structure for this year's conference were outlined. Our next step: the exhilarating task of developing a program to accommodate Unix, AOS/VS [II], and networking topics.

Kansas City—Here We Come!

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It's not too late to take home a souvenir from NADGUG '91. NADGUG Recording Secretary Tim Boyer reports that the DG Walkabout 320 fits perfectly in this high-quality, multi-functional, black vinyl carry-on, complete with shoulder strap and numerous compartments, inside and out. $15 each; orders for three or more $10 each (please call for price breaks on multiple quantity orders). For more information on how to order your bag, call NADGUG at 800/253-3902 (continental U.S. only) or 508/443-3330. Δ

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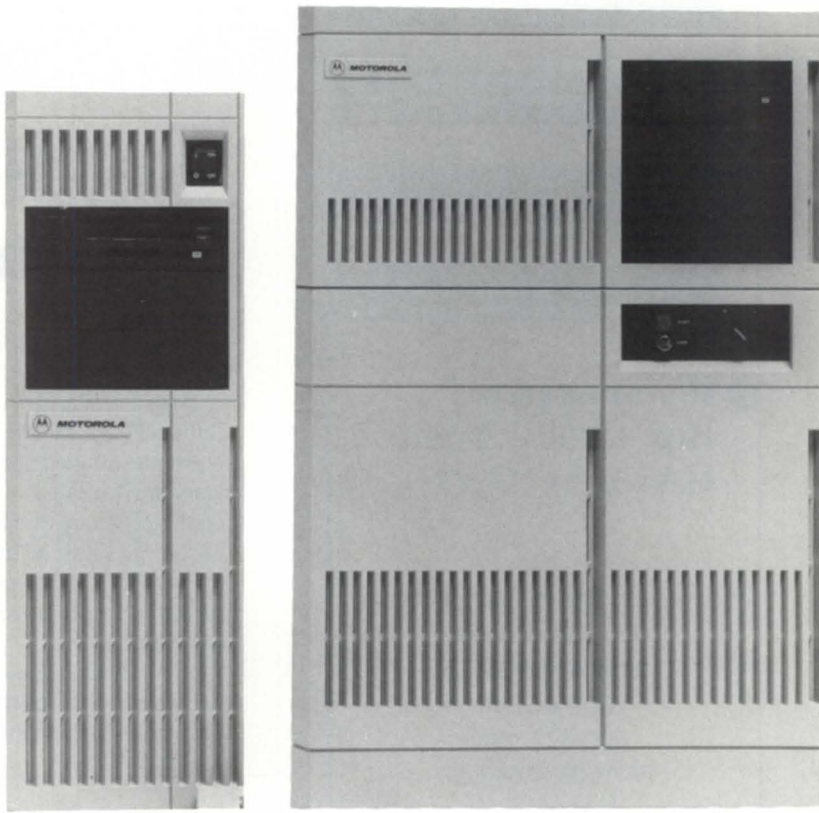

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IN MEMORY OF GRACE HOPPER

A pioneer passes

On New Year's Day, Rear Admiral Grace Hopper died at her home in Arlington, Virginia. She was 85 years old. She was also one of the world's first computer geeks.

Admiral Hopper was a member of the original team that designed the COBOL programming language in the late fifties. For the past 20 years she traveled the lecture circuit evangelizing on behalf of COBOL, and offering the source for a portable COBOL compiler, written in COBOL, to any computer manufacturer who would agree to distribute it with their products. When she made this offer while speaking at a NADGUG Conference a few years back, she made quite a few DG executives in the room squirm noticeably. Needless to say, DG didn't take her up on her offer.

What most people remember Admiral Hopper for are the "nanoseconds" she used to pass out at her lectures. The nanosecond took the form of a six-inch piece of copper wire representing the distance that an electron travels in a nanosecond. The real message that Admiral Hopper was conveying with her "portable" nanoseconds is how foolhardy it is to design hardware and software systems without having an understanding of the underlying principals. This is a message that still hasn't taken hold on the authors of some modern programs that execute hundreds of thousands of instructions per keystroke.

When I think of computer evangelism, I will always remember Grace Hopper. Her name will be in the history books long after Guy Kawasaki and Apple Computer have faded.

— Brian Johnson

LETTERS

A-Plus for Tactician Plus article

I would like to comment on the recent article in *Focus*, "Tactician Plus: a spreadsheet for Unix," by Joe Cannata (January 1992, pg. 26). I have recently examined both Tactician and Grafsman on our AV 5100. Its interface is very sharp and its performance is great. I examined it for its integration with our Progress data base applications, and have found it extremely useful.

One of its greatest features (Grafsman) is its ability to read ASCII files and turn them into graphs. I can embed a chart or graph into an existing report by redirecting data and calling Grafsman with the appropriate frame layout. I wholeheartedly agree with Joe that this package is an integral part of a general office environment.

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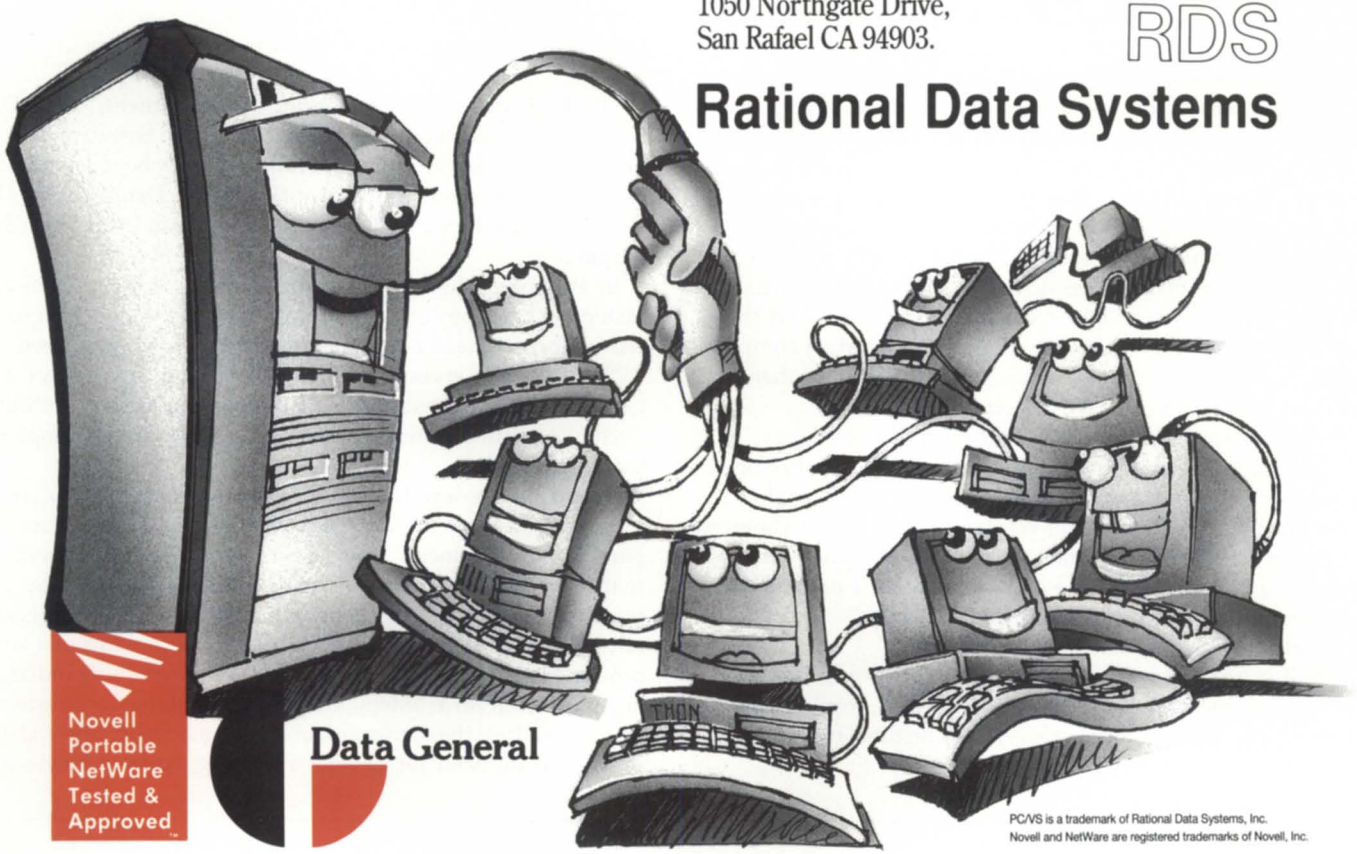

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Fax to the future

SYNOPSIS

What do you get when you cross a fax machine and your existing computer system? Less hiking down the hall, among other things.

by Doug Johnson
Focus staff

"How did you send faxes in the old days?" asks the child, eyes shining with innocence.

The question causes you to smile and chuckle.

"Well, once upon a time if I wanted to fax from my office here in Austin, Texas, to another office in . . say Sudbury, Massachusetts, first I pulled up the document on my computer screen and with a few keystrokes printed it out on a piece of paper. In those days this was called a 'hardcopy.' Then I walked allllllll the way down the hall to something we called the fax machine. I filled out my cover page by hand and wrote out special instructions, and then slipped that and my hardcopy into the fax machine slot, dialed the fax phone number, and then I waited for the machine to pull the paper sloooowwly through and print out another sheet of paper that recorded what I did. And then I walked allllllll the way back to my office, sat down at my computer again, and tried to remember what I was working on when I got up to go send that fax in the first place."

"Gee, you sure had to work hard back in the old days."

"You bet. And sometime I'll tell you about walking to work 10 miles every day in the snow, uphill both ways and against the wind, but you know what else? When I received a fax, it came out of the fax machine on this tacky, smelly, curly, yucky thermal paper that I had to go make a copy of on regular paper before I could lay it flat on my desk and actually read it."

"That *is* yucky. So what happened then?"

"Well, soon there were invented what we now call fax servers. These allow me to do all of those chores—fax, copy, print, and even include letterhead or logos—all at one time, right from my terminal."

"Instead of having to walk allllll the way down the hall?"

"Yes, that's right."

"I'm glad these aren't the old days."

"Me, too."

Automating the grunt work

Lots of us are still walking allllll the way down the hall every time we use the fax machine. Only now we don't have to. If your office does a hefty fax volume, perhaps you stand to gain by automating the process with a fax server.

It's like crossing a fax machine with your existing computer terminal. What you get is less unwanted hall hiking, but consider the grunt work now assigned to the computer: faxes can go out automatically, to an entire mailing list if you want, even to chronically busy numbers, while you attend to more important things.

"It eliminates the need to print that document," says Dale Swindler, marketing vice president for Eagle Software, Inc., of Salina, Kansas. In December 1991 the company began marketing Rush, an automated facsimile system for the Data General MV. Rush was developed by Concept Automation, Inc., of Sterling, Virginia.

In automated faxing, what you produce instead of an old-fashioned hardcopy is an electronic version of your master original fax form. It need not exist anywhere but on your screen.

"I think fax servers are going to be standard," says Ken Gavranovic, vice president of marketing and sales for Intuitive Technology, Inc., a Galveston, Texas, company that develops and markets Fax-Link.

Automated fax-on-demand technology works best for larger, more onerous tasks. "Our typical customers automate a specific part of their business," says Gavranovic, "basically anything that's redundant." That could include generating invoices and purchase orders, sending client reminders, and producing generally scheduled correspondence. If you think in terms of a word processing program's merge-letter function for doing individually addressed form letters, fax server technology promises not only to produce the correspondence automatically, but *send* it as well, with no need for envelope stuffing, address labels, and

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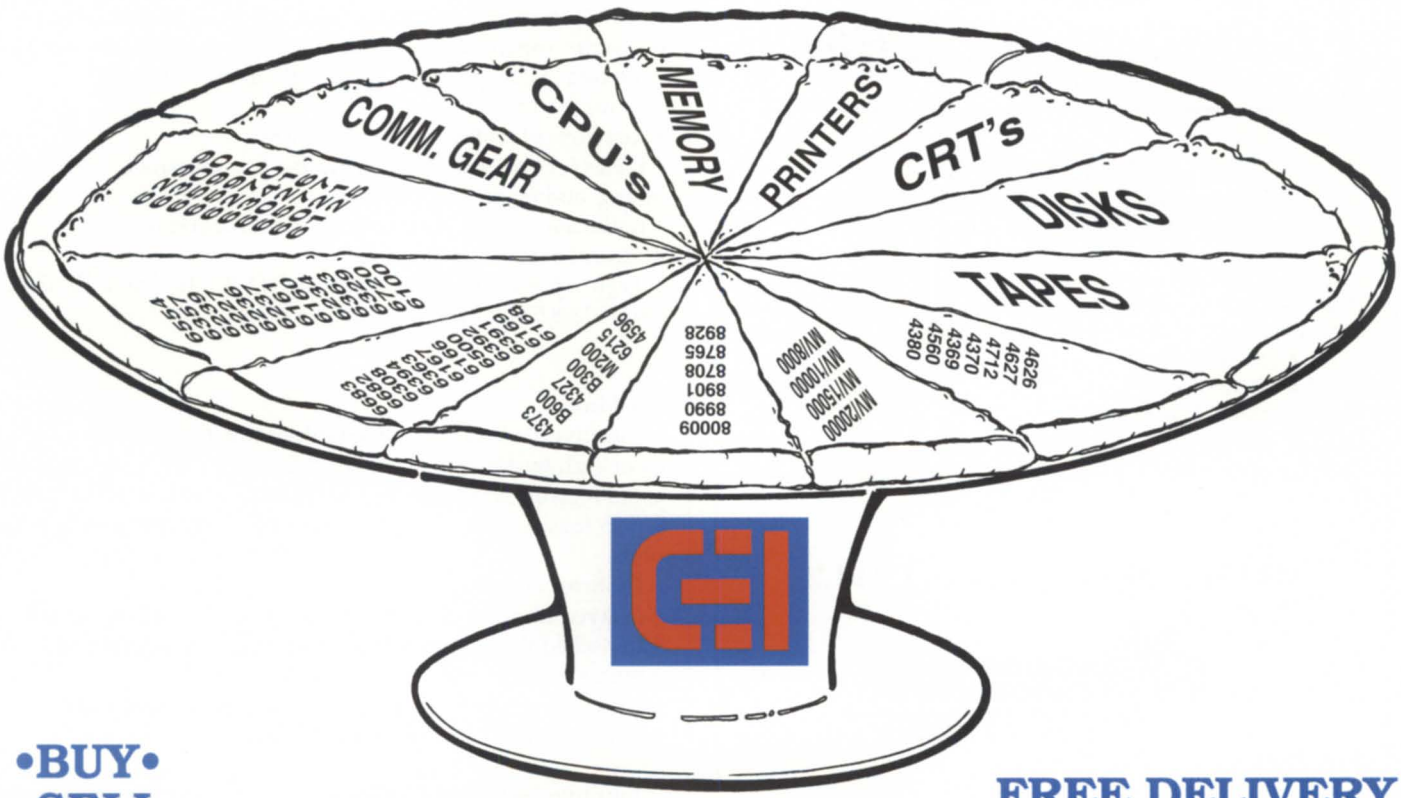

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postage—or for the people effort formerly associated with those tasks. Uncle Sam's postal service beware: you're being bypassed for mass mailings.

These days you're looking at 29 cents a stamp. With automatic faxing, by contrast, it's the per-minute cost of a telephone line. And the correspondence gets there immediately as well as automatically. Once again, think of faxing as grunt work not fit for humans. Let the computer do it. "You're going to save a lot of money on the manpower that was involved in sending faxes," Swindler says.

The development of fax server technology has roughly coincided with the rise of plain-paper faxing. The two go hand in hand because the fax server system at your end hooks into existing printers: laser, laserjet, dot-matrix, whatever. When someone sends a fax to you, there's no more wrestling with curly thermal paper, and plain-paper print quality is better.

There is a growing number of fax server product providers for DG systems. The following is by no means a complete look.

Rush

Rush, from Eagle Software and Concept Automation, transmits text files as well as CEO, CEO Light, Wordperfect Library, Wordperfect Office, and standard Wordperfect documents. It may be fully integrated to provide transmission status replies to your CEO or Wordperfect Office inbox.

Rush is offered in a number of versions. There's a low-end Rush Lite for less than $5,000; a Rush transmit-only version for $6,950; Rush TR (transmit and receive) for $8,150; Rush Publisher with postscript capabilities for $9,450; and Rush Multi-Line ranging from two lines for $13,950 up to eight lines for $19,950.

Some features:

- directory of names and fax numbers
- tables for broadcasting, scheduling transmissions, logging for billing, and management reports
- notification of fax status via CEO or Wordperfect
- control of user privileges.

Eagle Software, Inc., 169 East Cloud, P.O. Box 16, Salina, KS 67402-0016; 913/823-7257 phone; 913/823-6185 fax.

Fax-Link

Intuitive Technology's Fax-Link product offers direct faxing from each terminal in a network (DG or a variety of others) to avoid logjams at printers and fax machines. Pricing ranges from $2,595 for a single-fax port version up to $15,585 for eight fax ports.

Features include:

- delayed transmission, broadcast capability, and quick-dial
- fax scheduling by day and time, with 1-99 retries and 1-100 minutes between tries
- automatic cover page, error reporting, and activity log
- H-P Laser Jet II and Postscript emulation.

Intuitive Technology is currently developing a fax-on-request system capable of interacting with a caller using a touch-tone telephone. A voice response device will handle faxing specifications, order forms, and other recurring documents.

Intuitive Technology, 30 Colony Park Circle, Galveston Island, TX 77551; 409/740-3990 or 409/762-2886 phone; 409/765-7073 fax.

Turbofax

This product from The Turbo Group in Guttenberg, New Jersey, offers a line of fax processors with enhanced concurrent operations, available in four, six, and 12-line models.

Turbofax supports background receiving, broadcasting, and optional dual laser printing of faxes simultaneously without requiring manual intervention. The processor receives downloaded text documents and transmission lists from any host computer capable of asynchronous RS-232 communication.

Features:

- fax transmitting and receiving on up to 12 lines
- utility functions including ASCII-to-fax file conversion
- on-screen fax viewing, forwarding, composition, copying, deleting, and renaming
- automated file housekeeping, and system backups to cartridge tape.

Pricing is $3,333 per port. Future improvements to this system will include touch-tone remote processing with voice prompting for fax mailbox applications, and fax-on-demand publishing; and a high-speed model for high-volume document conversion and broadcast requirements.

The Turbo Group, 7000 Boulevard East, Guttenberg, NJ 07093-4808; 201/662-8827 phone; 201/662-9373 fax.

Unifax

BCT Business Systems Ltd. offers a fax management facility for Unix system users, allowing fax messages to go directly from a terminal and providing greater output document quality. Features:

- setting future date and time of fax transmission
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For networked computer installations, the fax hardware may be physically situated anywhere on the network. BCT is an X/Open software partner.

BCT Business Systems Ltd., Bridge House, New Road, Lymm, Cheshire, England; 0925 756074 phone; 0925 756636 fax.

MV:FAX

Seidata Microsystems offers a multi-user, send-and-receive fax system for AOS/VS that enables users to send multiple letters, documents, reports, ASCII, or Wordperfect files directly from their terminals.

A scheduling feature allows for transmission organization by date, time, and document name, while fax use is audited automatically on disk. Incoming faxes are stored on disk and may be stored or sent to any printer on the MV. A programmer's interface integrates with Cobol, ICobol, BBasic, Fortran, Powerhouse, and other language applications, allowing generation of fax documents and automatic transmission of data directly from application programs. Pricing is $4,000 for an unlimited user license.

Seidata Microsystems, Inc., 15 Wertheim Court, Suite 511, Richmond Hill, Ontario, Canada L4B 3H7; 416/650-5352 phone. Δ

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Simplified backups

SYNOPSIS

Your company needs efficient backups, data compression, and archiving, but your users don't need work interruptions. One company solved its backup conflicts with Arctape.

by Robin Warren
Special to Focus

This past year, our company decided to improve the integrity of its backup procedures. This process was trying, to say the least, for we found that our backups were not as sound as first thought.

The problem was that users did not stay off the MV during backups. The standard procedure was to do a ? to see if anyone was still on the system. If so, then a call was made to inform those users to log off. If they could not be found, then that process was terminated. All users (approximately 50) had to be completely out of the menu structure because the main menus opened the major data base files. Once everyone was off the system, backups were performed, assuming that all users had departed for the day. Unfortunately, it was discovered that some users commonly logged back on during backup procedures.

Backup solution needed

A macro was constructed to terminate all processes and disable all user consoles. After 5 p.m. and after all users remaining on the system had been asked to log off, this macro was executed. This protected the integrity of our backups, but damaged the working relationship between data processing and users. Either users must wait 30 to 45 minutes to return to their overtime work, or backup personnel must wait for all users to complete work. Needless to say, over a period of time these unwieldy practices cost the company dearly in overtime pay and employee morale. Our company pledged to find a relatively inexpensive solution to the backup conflict.

Arc/Arctape

That's when we discovered Arc. At first it appeared to be just a file-compression utility that would not be able to assist us with overnight backups. In the process of reviewing the software, our needs were expressed to Data Bank Associates. Arc has a special utility, called Arctape, that compresses files while adding them to tape libraries. This reduces the space needed for a backup tape, depending on the compression percentage.

After testing and reviewing price ranges, we determined that Arc was the solution to our backup problem. Incorporating Arctape commands within a macro that occurs nightly, daily backups consist of entering a command on Monday while signed on as OP, and placing a tape in the drive before leaving each day. A different macro was written for Friday, because we have different programs that run on weekends. Consequently, a different command is entered on Friday. For most companies, these two commands may become just one, entered only at the beginning of each month.

Capabilities

Arctape allowed us to do midnight backups, thus eliminating those daytime work interruptions. The macro does a ? so that the integrity of backups can be checked in the batch listing. Processes are canceled and consoles disabled within the macro.

We compress on one tape all data base files for two companies (a CATV company and a telephone company). Because an additional tape drive is available, another tape stores compressed development directories, macros, and user directories containing Wordperfect documents.

The compression rate for either tape is between 78 and 98 percent. The majority of the files compress to at least 92 percent.

Arctape supports ISAM, text, and even DBAM files. After constructing a macro to reduce keystrokes, each file can be loaded easily. If all the stored directories are needed to be restored, an ALL option will do that.

Disadvantages

Arctape has a few disadvantages. One is that retrieving large data base files takes twice as long to restore as does a LOAD command from a traditional backup. Because most data base retrieval in our department is for testing, this is not a major drawback.

Arctape is not fast, obviously, because it compresses files *and* moves them onto tape. It took between four and five hours to compress and store two companies' data bases on an MV/8000 II. When we upgraded to an MV/15000 Mod 2, the performance time decreased to 2.5 hours. Considering the work involved, this is a reasonable time frame.

Arctape does not compress .pr as nicely as the other files. Ours averaged about 40 percent. An overnight .pr backup is not practical.

Lastly, switches to ignore certain files do not behave properly. Therefore, a large file that needs to be ignored is moved to another directory and then linked. Arctape's disadvantages did not present major problems.

The payoff

Arctape paid for itself in the first month. Overtime related to backups was eliminated. Because backups now consist of two tapes instead of five, fewer tapes are being used and more room became available in the tape vaults. With more room and tapes available, a wider range of backups is available. One of the biggest payoffs from Arctape is the elimination of user work and backup time conflict. Arctape has surely taken the inconvenience out of good backup practices. Now the only difficult part is remembering to load tapes onto the tape drives before leaving the office. Δ

Robin Warren is a programmer/analyst with Citizens Telephone Company in Brevard, North Carolina.

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The Desktop Computer Room

by Brian Platter
and Chris Gahagan
Special to Focus

SYNOPSIS

You don't have to go back to the old days. With today's automated tape library and librarian systems, you can wield centralized control but at the same time enjoy the flexibility of the distributed computing environment.

Today's modern distributed computer environments with large mass storage capacities create new problems for system management, especially for backup and archiving. A typical computer environment may consist of a mainframe or minicomputer (or a combination of both), but will also contain many more personal computers and workstations located on or beside the user's desk. PCs and workstations offer many times the mass storage capacity than that of their predecessors.

This distributed nature of the modern computer environment does not lend itself to easy system administration and maintenance. No longer can dedicated system administrators be utilized in the traditional data center setting; it is not cost effective.

Ten years ago, computing environments were mostly centralized and contained little mass storage by today's standards. A typical mainframe or minicomputer environment was housed in an environmentally controlled computer room complete with a dedicated system administration staff. These system administrators maintained operational availability and ensured the reliable backup of on-line data.

The fact that dedicated system administrators can no longer be used traditionally has caused a slow erosion of systematic distributed computer system management, especially in maintaining reliable backup and archiving on-line data. Users today, more often than not, tend to fend for themselves, a situation that lends itself at best to marginal backup and archiving reliability, and to much less control over backup and archiving media. An organization's media are no longer maintained and managed to the degree they were when centralized computing was the order of the day.

Of course, it is impossible to return to centralized computing, but conceptually providing the system administrator with the same type of environment is quite possible. Instead of having a physical computer room, create a Desktop Computer Room that serves the same purpose—centralized organization of computational resource maintenance and management.

Two fundamental components are needed to make this type of environment a reality. The first is a high-capacity, on-line mass storage device used for holding backups and archives—this is the library, which creates a central repository for an entire organization. The second component is sophisticated software responsible for maintaining backup and archiving reliability for the distributed computing environment—this is the librarian, which conceptually "gets" data from the distributed systems, stores data in the library, and manages data and media exchanges in the complete library/computer system. Both components are inseparable in the Desktop Computer Room.

The library

An automated tape library replaces the complexity of the old computer room. When using modern helical scan tape cartridges, a tape library can provide fully automated and unattended backup and archiving. Recovery and restoration are

possible for both system administrator and network user, with random access to any of the tape cartridges contained in the library. The following list describes some of the features of today's tape libraries and their usefulness.

- To meet Unix client/server network demands, at least a 100-GB cartridge is required. On-line availability to 20 or more tape cartridges increases library and librarian flexibility.
- Random access: provides fast and easy recovery and restoration to any tape cartridge in the library, from server or clients.
- Off-line storage: controlled, off-line storage in carousels, magazines, or holders provides safe storage and quick restoration of ancient data files.
- A front-access door for tape cartridge entry assists data exchanges and promotes simplicity; front-panel interface for operation, configuration, and diagnostic display is convenient.
- Industry standard: 8mm helical scan tape technology for automated tape libraries offers high capacity (5 GB per cartridge of uncompressed data) and a fast data transfer rate (500 KB/second) at an affordable media price.
- Mounting options: tabletop or standard 19-inch rackmount unit (or both for flexibility); the library should not take up too much valuable office space.

The librarian

The librarian is the tool the system administrator uses from the comfort of a workstation to control backup and archiving needs for computers in the distributed environment. The librarian provides certain base functionality, including an intuitive distributed user interface, automatic scheduling of operations, media aging and tracking, archiving and backup data tracking, and automated library.

Librarian user interfaces are graphical, providing an intuitive point-and-click method for creating schedules of backup, archiving, restoring, and management operations. Using the librarian on a single machine, the system administrator can perform scheduling and restoration operations for all computers in the environment. Using a librarian, today's distributed computing environment looks and feels like yesterday's centralized computing environment. Backup and archive management for the system administrator are controlled at a single point (the librarian) while data are stored at a single point (the library).

The librarian's automated scheduling capabilities take instructions produced by the system administrator using the graphical user interface and make them "reality." It starts the operations at the specified times on the specified machines, reports on operation status, and makes intelligent attempts to retry failed operations. The automated scheduler becomes the "hands" for today's system administrator in starting and managing the required tasks.

Media aging and tracking allow the user to locate quickly a specific piece of media, whether in a library or not. In addition, it should age the media both logically and physically. Logical aging is the process by which media are recovered for reuse when the data are no longer required, as specified by the user. Physical aging is the process of rejecting media for further use because of age or number of previous uses.

Archive and backup data tracking assists the user in locating quickly a specific file or group of files. This capability provides the user with the media element on which the file is located, and the media element's location in a library or vault. Besides tracking the backup and archive data, the librarian must also automatically reclaim space used to store tracking information, so that a user's system does not eventually overflow with tracking information.

A library incorporating the features described in this article can be managed by a librarian to provide fully automated and unattended backup, archiving, recovery, and restoration for months without any operator intervention. Individual users can access files from their own workstations without needing a system administrator to locate and load tape cartridges manually. What used to take hours and many dollars now takes minutes and pocket change with an automated tape library as part of a Desktop Computer Room. Δ

Brian Platter and Chris Gahagan are product managers for Spectra Logic, a division of Western Automation. They can be reached at 1700 N. 55th Street, Boulder, Colorado 80301; 303/449-7759.

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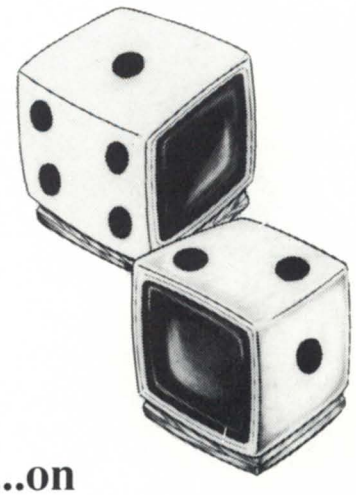

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David Novy

A modest proposal

(with apologies to Jonathan Swift)

SYNOPSIS

Data General possesses leadership potential in the commercial information environment. But the company needs an excellent information software package, an optical disk technology strategy, and coordinated corporate marketing.

Data General says it is committed to the commercial computing market. The company underscored this commitment by developing a family of powerful Unix file servers with communications and office automation capability. This is an excellent beginning, but to become a leader in the commercial computing market it must become a leader in the commercial information management market.

In addition to producing powerful file servers, a company must give its customers a strategy by which they can acquire, store, distribute, and manage information. At present, Data General lacks a focused information management strategy for the commercial environment.

Certainly, this article is not the last word on information management. Instead, perhaps it will stimulate discussion. Successful information management is a mixture of thorough planning supported by the coordinated use of applications software and reliable hardware. Planning and cooperation are key to success—not only by Data General, which supplies the technology, but also by the user, who must apply the technology.

Following are some important success factors for implementing a commercial information management system:

1) Powerful, reliable open system file servers and workstations
2) Optical disk storage technology with magnetic cache capability
3) Information management software
4) Office automation software
5) Vision and cooperation.

Powerful file servers and workstations

Data General offers one of the most powerful families of open system file servers on the market. The strength of its file server product line is a combination of computer speed, high availability, high availability disk arrays (HADA), the fast recovery file system, and excellent communications capability. If you want to know more, contact your DG salesperson. Needless to say, this is an area where DG excels.

Data General needs workstations that can compete in the technical marketplace, even though its main emphasis is in the commercial arena. This is because workstations help sell servers. The use of open system computers in any corporation tends to begin with workstations. When demand increases to a point where a file server is needed, the workstation vendor will recommended staying with the same hardware supplier. The vendor's argument is that although open systems suppliers sell similar products, serious problems could occur should you attempt to connect servers and workstations from different suppliers.

Sophisticated users know that no single open systems vendor can provide all the answers, and running open systems from different vendors is not very difficult. However, there are few sophisticated system managers for open systems. There appear to be even fewer managers, directors, and vice presidents who understand how to use computers effectively.

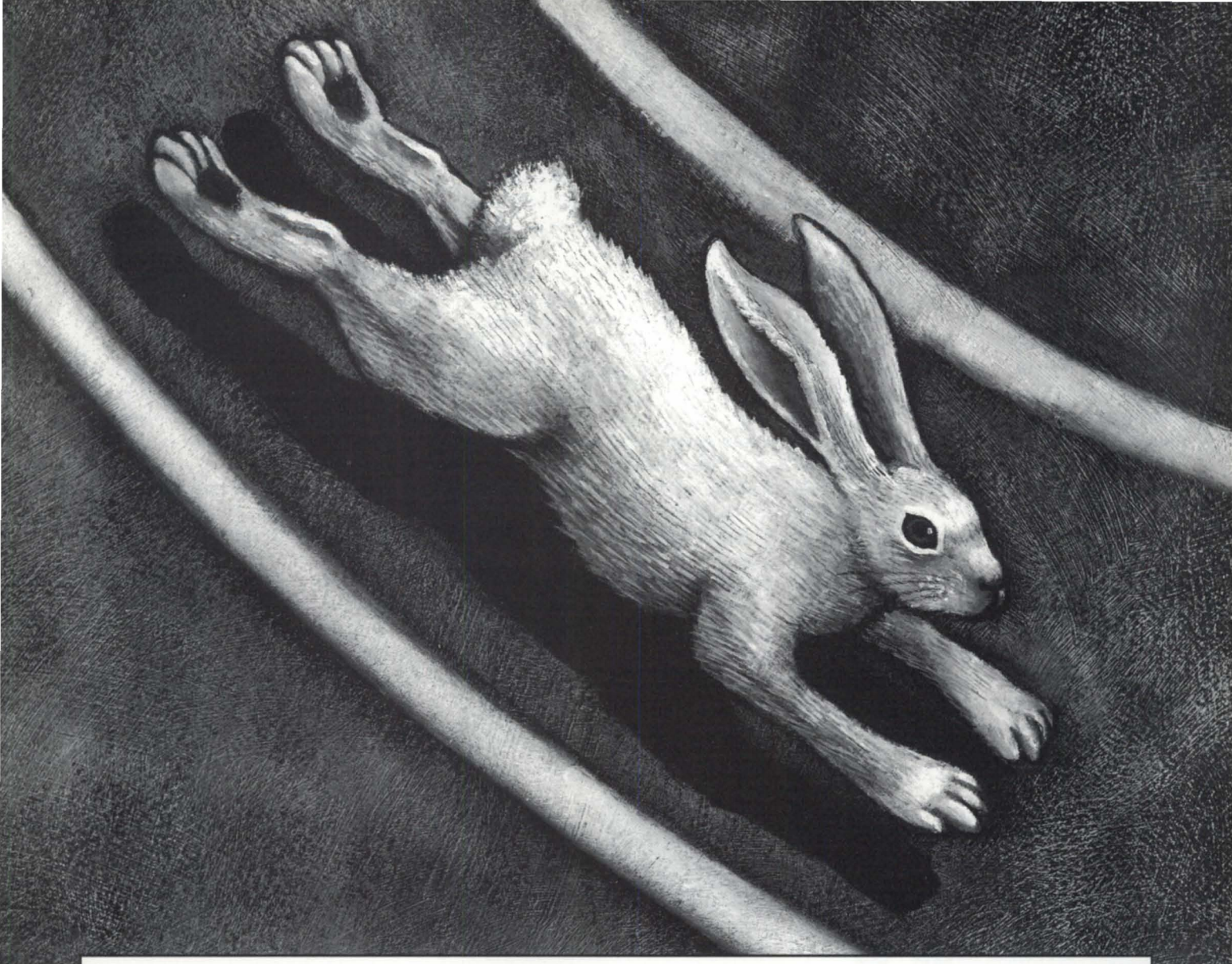
In addition, the proprietary systems advocates upon whom corporate executives previously relied generally have zero credibility because of cost and time overruns. Executives, now skeptical, know that to remain competitive they must reduce time to market and increase the quality of their products. Many trade journals and outside consultants are telling corporate executives that using open systems can improve their competitive positions. So with hesitation and wariness, the executives overrule the proprietary systems people who predict that open systems will not succeed in a commercial environment, and approve the use of pilot systems that use open system computers.

However, in such a volatile environment, the corporate executives want simplicity, and simplicity means open systems computers from a single vendor. This costs Data General in potential sales because a lot of key applications software still is not available on Data General workstations.

Optical disk storage technology with magnetic cache capability

The commercial information marketplace demands large, on-line storage capability with rapid access. Optical disk technology is one of the best solutions. At present, DG sells an optical disk for its Aviion product line, but it does not have a formal corporate marketing business plan for its optical disk technology.

In addition, DG's optical disk product needs magnetic cache capability. DG's current system lacks this capability. Formally incorporating optical disk



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technology into Data General's corporate marketing objectives will increase the company's competitive position.

Information management software

DG file servers must ensure that the right information goes to the right person at the right time. There is no off-the-shelf software available from Data General that can do this on a companywide level. What DG should do is take one of the leading software packages for the engineering information environment and adapt it for the commercial information environment.

Why do this? First, recognize that to a computer there is no difference between commercial and engineering information. Second, today's best information management systems come from the engineering information environment. (Some of these systems have more than 130 years of development time.) Third, all of the major engineering information file server vendors have information management software. Most of these vendors are trying to develop file servers for the commercial market. The file servers lack the power and reliability of Aviion file servers, but they will have information management software packages that can be used in a commercial environment.

One axiom of the open system environment is that *applications sell machines*. Data General needs applications software that can control information in a commercial environment, on an enterprise level.

Office automation software

Users want three capabilities from office information software today: word processing, spreadsheet analysis, and electronic mail. The leading word processing packages are Microsoft Word and Wordperfect. The leading spreadsheet packages are Lotus 1-2-3 and Microsoft Excel. The leading mail packages are Digital's All-In-One, IBM Profs, and Unix mail.

If I had unlimited resources, I would make sure that Microsoft Word, Wordperfect, Lotus 1-2-3, and Microsoft Excel were ported to the Aviion product line (at minimum, Wordperfect and Lotus 1-2-3, with translation products available for the Microsoft products). Unfortunately, only Wordperfect at present is ported to the Aviion. Data General boasts that the leading Unix office automation software package has been ported to the Aviion. This is a fine achievement, but the total market share of all the leading Unix word processing and spreadsheet software packages barely registers on the sales charts for overall word processing and spreadsheet software.

For the foreseeable future, the delivery platform for word processing, spreadsheets, and mail will be either PC-based or Macintosh-based. There probably will be increased use of workstations for office automation power users. But demand is small in the open systems environment for office automation on character-based terminals connected to file server hosts, and there is negligible growth potential.

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automation documents on their PCs and Macs, and store them on file servers. Successful vendors in the commercial marketplace for office automation software will see that key software packages, or translators for key software packages, are available on their products, provide mail system interface software, and provide interfaces to information management packages.

Vision and cooperation

It was stated at the NADGUG conference that, in spite of billions of dollars spent on computer systems that were supposed to enhance commercial computing productivity, office worker productivity actually declined at least 3 percent during the last 10 years. Some of the major reasons for this decline were:

1) New systems merely automated manual processes. They did not take advantage of the new ways of doing business that computers make possible.
2) New systems were massive and complex, inflexible, and their approach was all-or-nothing, instead of evolutionary.
3) Systems tended to be optimized locally, rather than globally.
4) Systems rarely considered the needs of the users they were intended to help.

Technology can supply only about 50 percent of what is needed for an effective information management environment. The remaining 50 percent must come from a flexible, global vision of how to use the technology, as well as cooperation among the people who must implement and use the technology. Successful corporations in the 1990s will be those that build information management visions that overcome provincialism and the not-invented-here syndrome. They will build expandable information management systems that are globally optimized and serve the needs of the user rather than the needs of the technology itself.

Fortunately, it is a realizable goal. First, you need a plan defining what is needed in small, attainable steps. Second, you must choose a commercially available information management software package that can serve as the infrastructure for all the information management subsystems that need to be developed. This will ensure that all systems will be developed with the same underlying technology. Third, you choose the hardware needed to meet your goals.

Data General possesses the potential to be a major player in the commercial information environment. However, it needs an excellent information software package, an optical disk technology strategy, and a coordinated corporate marketing plan to deal with information management if it wishes to become the market leader in the commercial computing market. Δ

David Novy is a technical computing specialist at 3M in St. Paul, Minnesota. He is past chairman of the AOS/VS special interest group and current chairman of NADGUG's SIG/UX.

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NADGUG fever ... catch it!

All aboard

The NADGUG conference heats things up in snow-covered Denver. Here's a few snapshots from that unforgettable week in November.

Photos courtesy Data General

Going up to new discoveries

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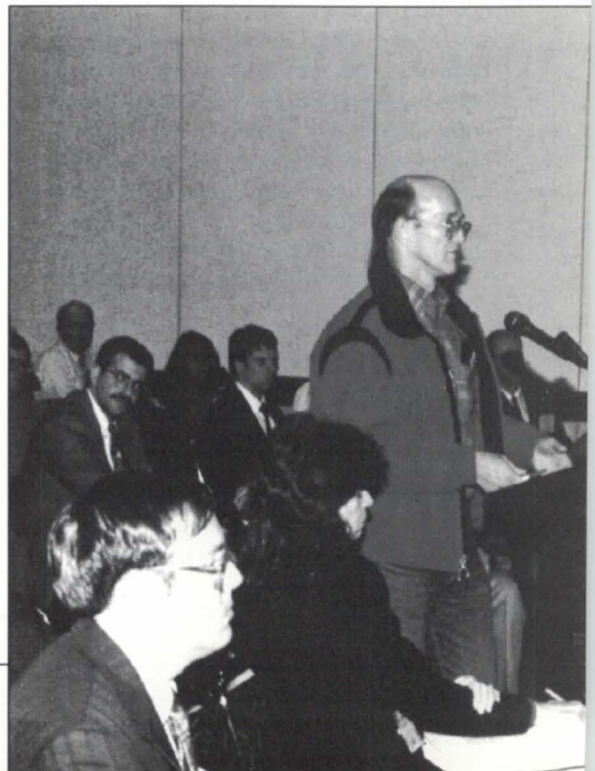
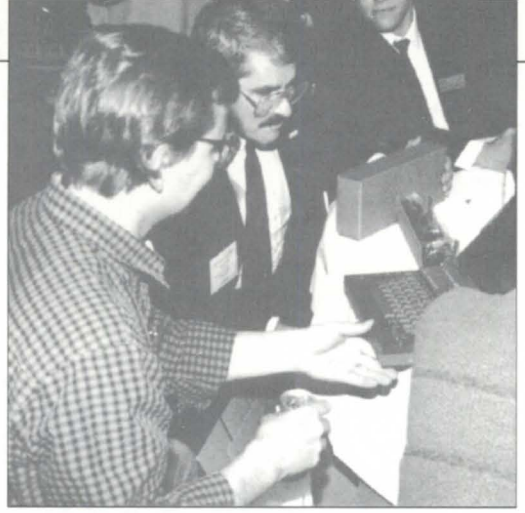
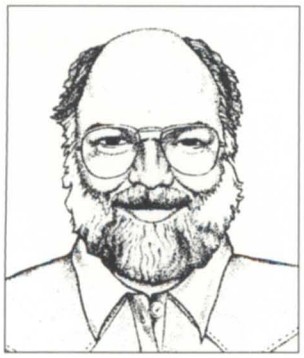




Prize winner checks out new laptop computer

NADGUG leaders addressing the membership



Brian Johnson

So what's all this V-dot stuff about anyway?

SYNOPSIS

BJ leads a tour of standards, modulation, protocols, baud, throughput, and a host of other interesting attractions in the wonderful world of modem configuration.

:MODEMS:UPDATE

Last month, I had the occasion to troubleshoot some modem problems for a couple of clients, and upgrade a few of my modems to new Okidata modems that use the newly stable V.32bis and V.42bis standards. For those of you in the same boat, I figure it will be worthwhile to review the experience.

:STANDARDS

Until early last year, there were several competing standards for modem communication at 9600 baud and higher. A couple of years ago I chose to go with the Microcom AX series modems sold by DG Direct.

Microcom had two things going for it at the time: it invented Microcom Networking Protocol (MNP), so I figured that it had the best chance of doing things right; and it supported hardware flow control that was compatible with DG's notion of how hardware flow control should work (i.e., only at character boundaries). This latter capability was probably a result of the fact that Microcom was started by an ex-DG guy.

Microcom's main competition for the 9600 baud and above market came from US Robotics' Courier HST series modems and the Telebit modems, both of which used different schemes to accomplish high-speed communication.

Both fortunately (for you) and unfortunately (for me and other Microcom owners), the 9600 baud communication modulation scheme used by the AX series modems did not win out in the battle for a place in the standard.

The Achilles heel of most early standards was that they relied on asymmetric bandwidth allocation to achieve high speed. This allowed cheap circuitry, but provided for full-speed communication in only one direction at a time. The modem adjusted the bandwidth to compensate for whichever direction currently had the most traffic. This scheme worked great when the caller was a user at a terminal and most of the traffic in one direction was just keystrokes, but it performed poorly when confronted with lots of simultaneous traffic in both directions (e.g., when the modem link was part of a network).

The standard that eventually won approval requires more exotic (read expensive) echo cancellation and digital signal processing hardware, but is capable of full-speed communication in both directions at the same time (i.e., full duplex).

:V.HUH?

So what's all this V-dot stuff about anyway? Simply put, V.something indicates a CCITT standard for communication between two modems. CCITT is the international body responsible for communication standards. It seems to do a better job of getting standards ratified within our lifetimes than do U.S.-based standards organizations. One of the downsides of democracy and capitalism, I suspect.

Before I give you a short survey of the various standards, we need to agree on some terminology.

The term "modulation" refers to the tones or frequencies used by the two modems to communicate over the telephone circuit. Selection of the modulation technique is controlled by the called modem that emits tones to indicate its preference. The calling modem indicates its displeasure simply by not responding, and waiting for the called modem to emit a tone more to its liking.

The term "protocol" refers to any conversation that two modems might have that is hidden in the streams of data passing back and forth. The two modems negotiate the highest protocol common to both of them during the first few seconds after connecting. The sending modem starts the process by sending a special character (.e.g, ODP for V.42 and SYN for MNP) shortly after carrier is detected. The called modem monitors the initial data

stream for up to 200 characters looking for these special characters. If the called modem sees one and responds appropriately, then both modems enter into a discussion (invisible to the user or software connected to the serial ports) to arrive at a mutually acceptable protocol. After that, data transmission commences normally.

One of the earliest CCITT modulation standards was V.22. This standard specified the communication between 1200 baud modems and was intended to replace the much older Bell 212A and the obscure, but popular, Vadic 3400 modulation standards. None of these standards included a protocol. Most modern modems that support 1200 baud allow you to specify whether to use Bell 212A or V.22 when connecting at 1200 baud.

Later, something called V.22bis was approved to describe communication at 2400 baud. The term "bis" can be taken as a euphemism for "enhanced," since it simply indicates a relatively minor change to the applicable standard. Again, no protocol was involved.

Microcom entered the fray at around this time. It designed and put into the public domain a series of modem protocols known as Microcom Networking Protocols (MNP) and referred to by their Class number.

V.27 and V.29 describe half-duplex synchronous communication at 4800, 7200, and 9600 baud.

V.32 (circa 1984) describes the standard for modulation at 9600 baud full duplex, and includes logic for downshifting to 4800 baud on very noisy phone circuits. A companion standard, V.42 (circa 1988), describes a protocol to be used on top of V.32 for error-free communication and adaptive data compression known as LAP-M. In addition, V.42 allows two modems to agree on using MNP Class 3 for error-free transmission in lieu of LAP-M.

As standards go, V.32 was a relatively early one, but it took a while to get fleshed out and settle down. It's now quite stable, so chances are it will be around for a while.

V.32 includes an optional technique called "trellis-coded modulation" for error reduction on poor phone lines. This adds a redundancy bit that results in fewer errors on noisy lines.

V.32bis (circa 1989) describes an enhancement to V.32 modulation that allows communication at 14400 baud. A companion standard, V.42bis (circa 1989), specifies the protocol for error-free transmission and data compression. These two standards are now the state-of-the-art in stable high-speed standards for dial-up applications, and should be around for quite a while.

:CAVEATS

V.42 and V.42bis compliance or compatibility do not imply V.32 or V.32bis capability. Some 2400 baud modem manufacturers advertise their stuff as 9600 baud modems by adding V.42 on top of V.22 to achieve best-case line speeds of 9600 baud. Don't be fooled; these are simply 2400 baud modems with compression. Ditto for all the new fax-capable PC modems that advertise themselves as 2400/9600 fax.

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Circle 29 on reader service card.

A couple of manufacturers, notably Compucom with its Speedmodem, promote an alternative approach for high-speed modems that can be built with much cheaper components. I'd steer clear of these since they can only do high speed when talking to each other, not to other modems based on CCITT standards.

:THE_QUEST_FOR_SPEED

No doubt, newer standards will arrive that attempt to achieve even higher speeds, but before you spend thousands of dollars on a modem that goes at some God-awful rate, consider the following:

Beyond 9600 baud there is generally little to gain. For a dial-up user at a terminal, anything beyond about 7200 baud is overkill; you can't read the screen that fast. For file transfers using half-duplex protocols such as Xmodem, Ymodem, or Kermit, the time for acknowledging each packet effectively limits the transfer speed to a fraction of the modem speed.

The use of streaming protocols such as Ymodem-g, Super Kermit, and Zmodem is effective only when the receiver can accept data at the full baud rate for an indeterminate period of time. That lets out timesharing systems of all flavors (AOS/VS, Unix, or whatever). Some badly implemented versions of supposedly smart protocols, such as Blast, actually perform worse on 9600 baud lines than they do at 2400 baud. Blast can be suffering 50 percent input data overruns under AOS/VS and still claim that the line quality is "good." Try using a stopwatch to time a transfer of a known size and then computing the net throughput: it's abysmal.

How good the throughput is depends greatly on the compressibility of the data. Transferring already compressed files (e.g., using the Unix compress program or a file compression progam like WFFCA) will result in a maximum rate of 9600 baud (V.32) or 14400 baud (V.32bis) because V.42 and V.42bis can't compress what has already been compressed. In general, you are better off to compress the data file before sending it, rather than allowing V.42[bis] to do it if line costs are more significant than the extra CPU time involved. Most BBSes, including mine, store their files in compressed format so there is little to gain from V.42 when downloading from them.

Finally, most AOS/VS systems cannot sustain an output rate of much more than about 14000 baud, even when the port speed is 19200 baud due to other processing that's occurring in both the IAC and the host. At high speeds, the time required to read the next chunk of data from disk becomes significant because the time to empty the default IAC buffer size (128 bytes) at 19200 baud is only 67 milliseconds.

:SETUP:DIAL_IN

I'm going to describe how I set up the Okitel 9600 modems for use as dial-in modems under AOS[/VS] and dial-out modems on a PC using Pereline. The nitty-gritty of modem setup was described in more detail in previous columns, so I'm just going to describe the general aspects.

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Circle 12 on reader service card.

Although the Hayes AT command set is a faux standard at best, the commands shown should generally apply to a lot of other modems with a few minor variations.

Around here, the first step when configuring modems is to get them back to the factory default settings, if they're not already there. I only depend on configuration switches to program a modem as a last resort, because when it comes time to swap out the modems, chances are no one will be able to find the scrap of paper that describes what the switch settings are supposed to be. In the case of the Okitel 9600s, the factory default switch settings are DDUUDD. Then, just to make sure, I hooked the modem up to a terminal and entered AT&F&W0&W1 to reset both stored profiles (W0 and W1) to the factory default settings.

The cable between the modem and the IAC needs to have at least pins 2 through 8 and 20 wired straight through. Full 25-pin cables are also acceptable.

At the AOS/VS end, I use the CONSTR utility described in my August, September, and October 1990 columns to program the modem. I created a macro called SETUP_OKITEL9600.CLI containing the following commands (HSDIA is a link that points at the actual CON port):

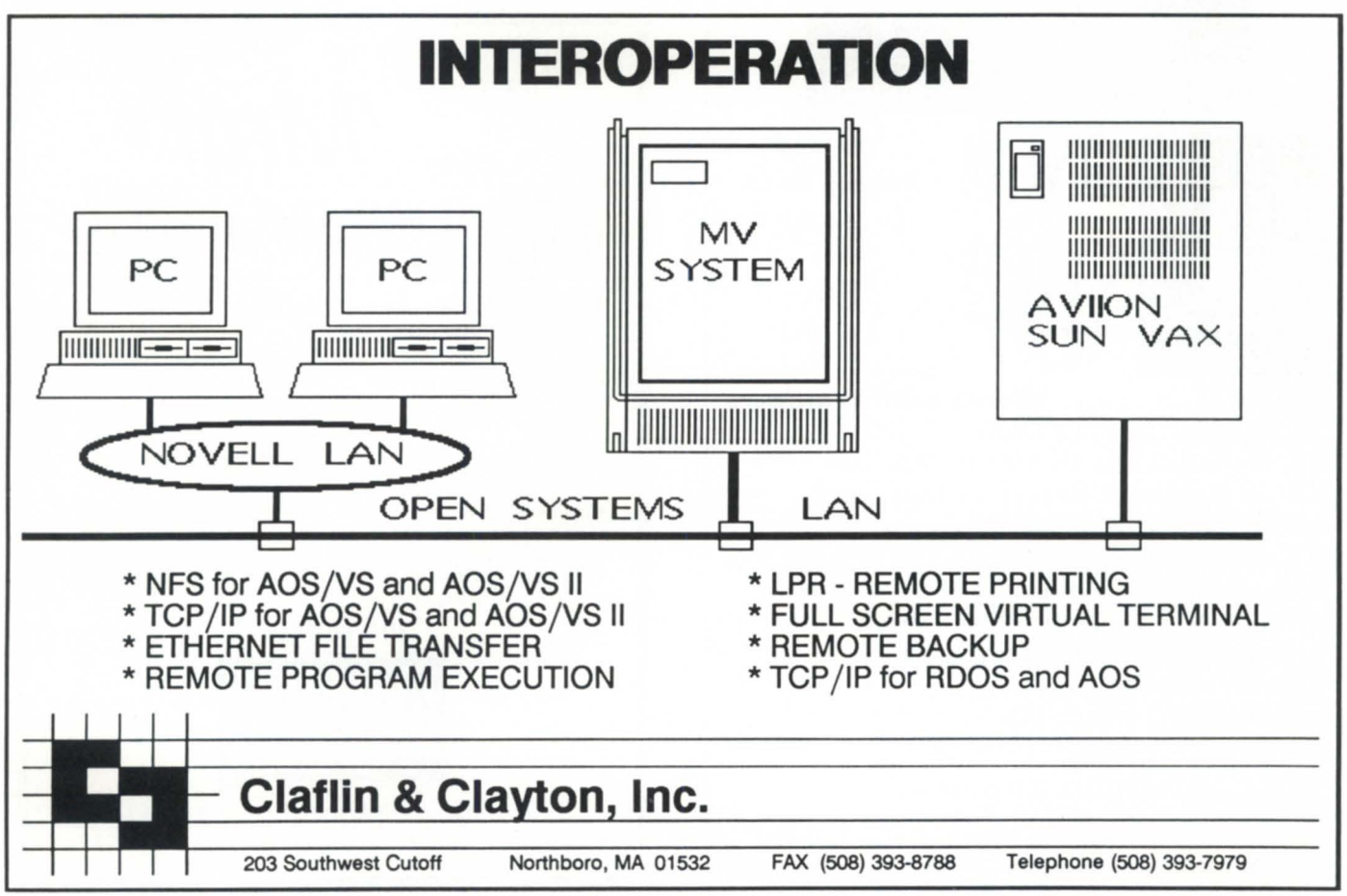
```
CHANGE_DEFAULT_CHAR/BAUD=19200/OFF/
    MOD @HSDIA
CONSTR @HSDIA 3 AT&F&W0&W1{15}
    CONSTR @HSDIA 3
AT\C1&D2\D2\N3\Q3&Y2S0=1&W{15}
CONSTR @HSDIA 3 AT&C1E0Q1&W{15}
```

These commands need to be executed only when the modem is installed; they don't need to be part of your UP macro. The setup is specifically designed to persist even after power up or pressing the RESET button on the modem.

The first command changes the port speed to 19200 baud and turns off the /MODem characteristic so that I can talk to the modem.

The first CONSTR resets the modem to the factory default configuration and stores it in both profiles. The command may or may not echo, depending on whether you are reprogramming the modem, but you should always get an OK response.

The second CONSTR command takes care of all the settings that don't affect my ability to continue to communicate with the modem. I do these separately so that I can see the resulting OK and be sure that all the commands are formatted correctly. The \C1 is auto-reliable buffering and applies only to answering modems. It tells the modem to buffer incoming characters during the negotiation period, and then to send them to the serial port if the negotiation fails. This covers the case of callers with dumb modems who start typing their logon sequence even before attempted negotiation fails and the banner is displayed. It has no effect on callers with smart modems. The &D2 tells the modem that it should not answer the phone unless DTR is on, and it should hang up when DTR drops. The \D2 tells the modem that DSR and CTS should reflect carrier detect. The \N3 tells the modem to automatically negotiate the protocol when answering,



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and to attempt the highest level of modulation and protocol supported by both the caller and itself. The \Q3 tells the modem to use bidirectional hardware (CTS/RTS) flow control. The &Y2 tells the modem that profile 0 takes precedence over the configuration switches at power-up or when the RESET button on the modem is pressed. The &W writes the current settings to profile 0.

The third CONSTR command takes care of the final settings, but no OK will be seen due to lack of CD (an IAC feature). The number of commands in this line is kept to a minimum in order to ensure correctness. The &C1 tells the modem that the CD signal should reflect the presence of carrier signals from the calling modem. E0 disables echoing of input in command mode in order to avoid having EXEC and the modem start chattering at each other when no call is connected. Q1 disables result codes so that EXEC won't mistake the Carriage Return/Line Feed at the end of a CONNECT result string as the New Line key used to start the Username/Password queries. The final &W tucks all the current settings away in Profile 0.

Note: &C1&D2\D2 are the minimum settings required to make the modem behave in a way that is compatible with what the /MOD characteristic expects; DTR control of the modem, DSR and CD present only during connections.

All that remains is to turn on the /MOD characteristic and enable the port (CX ENABLE) and start taking incoming calls. All callers, regardless of modem type, will find themselves connected to a 19200 baud fixed speed port. Note that /MRI is superfluous (as it almost always is), and that neither /OFC, /IFC, /HOFC, nor /HIFC are used. That's because /OFC and /IFC are only needed by certain software that doesn't know any better—all of which that I know of take care of turning them on themselves (e.g., WordPerfect 4.2). /HIFC and /HIFC are superfluous for IACs, and are only explicitly needed for newer hardware like LACs and Termservers.

Incoming callers on V.32 and above modems should find the logon banner displayed a few seconds after the modems connect and finish negotiating. Hitting New Line should start the logon sequence. If you're missing the logon banner, or EXEC steps down through the first few Username/Password prompts before you've keyed anything, then your dial-in modem is probably not set to disable result codes, or your cable has CTS shorted to RTS at one or both ends.

Typing BYE should cause the phone to hang up. Hanging up without typing BYE should result in EXEC logging the caller off. Any other behavior indicates that your modem is not set up properly.

Finally, you may notice with these new buffered modems that you don't see the entire logoff message before the phone line drops. That's because it was still in the sending modem's buffer when DTR dropped, and the modem terminated the call before flushing the buffer. Some Microcom modems had a command to specify a delay between DTR drop and hang up (%Dn) to allow time for the buffer to flush, but the Okitel 9600 doesn't seem

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to have it. Perhaps we can convince the PMGR group to add yet-another-console-characteristic (YACC?) that would allow us to specify the delay time between the process terminating and EXEC closing the port to force DTR to drop?

:SETUP:DIAL_OUT

I'm afraid that I've run out of space again, and the PC end setup is a bit lengthy. There are only a couple of differences, so I'll summarize them.

As with the AOS/VS end, the modem is configured to operate at a fixed speed of 19200, regardless of the actual connection speed. At the PC end, the preferred scheme is to use software flow control so that the user can use CTRL-S/CTRL-Q to pause the screen. This means that \Q3 (CTS/RTS) becomes \Q1 (XON/XOFF) for the Okitel 9600. Unfortunately, this precludes X/Ymodem uploads, so in the second Pereline window I keep an alternate modem setup that uses hardware flow control for those times when I need to do lengthy uploads efficiently.

Pereline needs to see the modem result codes, so V1 becomes V0.

The Pereline modem setup files, including significant amounts of comment text regarding usage, can be found on the :SYSMGR BBS as item PEREOKI in MSDOS:FILEXFER. With only minor changes, these setup files can be modified for virtually any V.32[bis]/V.42[bis] modem that I've seen so far.

:MODEMS:EPILOGUE

The CONSTR item on the :SYSMGR BBS was updated to include the complete versions of both the CHANGE_DEFAULT_CHAR.CLI and SETUP_OKITEL9600.CLI macros. The CONSTR program was also modified to accept much larger responses from the modem without overrunning the IAC/LAC input buffer. This was necessitated by the fancy full screen display that results when you use the \S command to report the Okitel 9600's current configuration.

:1-800-DASH-CSC

For those of you who haven't tried the new DG on-line service, I recommend it highly. Personally, I've kissed OIS goodbye in favor of the new service. The user interface is much nicer than OIS (that was mostly the fault of the way Compuserve's lowest-common-denominator interface works). The STR submission process is also a lot cleaner. I haven't been able to check out some of the other features because I don't have a DG support contract, but I assume they're similar. Δ

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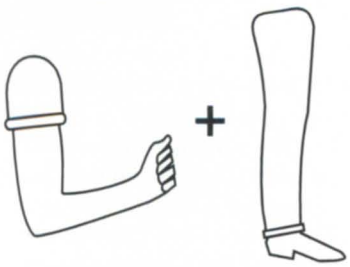

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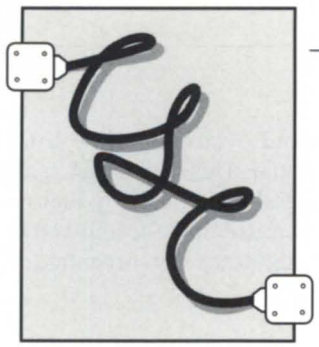

Remote Assistance diagnostics

by Ron Gilmore
Special to Focus

SYNOPSIS

With dial-in features providing advance data, DG engineers can know more about a problem before they go to a site.

An important element of Data General's service and support strategy is the ability to dial into a customer's system through an asynchronous modem connection from the Customer Support Center (CSC) in Atlanta, Georgia. This service is called Remote Assistance. It provides CSC technical support personnel the ability to diagnose system problems by analyzing systems logs, identifying operational and procedure errors, and executing diagnostic programs.

Remote Assistance is provided on most MV systems (excluding the MV/2000 and MV/1400 families) and most Aviion servers (excluding the AV 4000 family).

CSC's Remote Assistance technical support staff responds to customer service calls. The major benefits for a customer who has purchased a Data General service contract are summarized as follows.

- The CSC provides coverage 24 hours per day, 365 days per year, regardless of contract hours, for every Data General system covered by a service agreement on systems with Remote Assistance capability. Response from the CSC is usually within 15 minutes.
- In some cases, the CSC can provide an immediate fix without the need to dispatch a Data General account engineer. Experience shows this is possible in ap-

proximately 20 percent of system service calls to 1-800-DG-HELPS.

- CSC technical support engineers can run proprietary system diagnostics. The results of the diagnostic run are provided to the account engineer along with a report of the probable failing part. The account engineer knows in advance which components to take on-site.
- Certain types of noncritical repair and diagnostic activities can be scheduled to times convenient to customer production schedules. Examples: Remap of bad disk blocks scheduled after prime production hours, or an extended diagnostic run to verify system operation.
- Remote Assistance provides customer-selectable security options. Examples are passwords, customer-defined access levels, and full customer visibility of all Remote Assistance activities on the local Master Console. Preservation of system security was a key consideration in development of the Remote Assistance program.
- In addition, there are a number of enhancements available to the standard features of Remote Assistance.

CoResident Diagnostic Program, (CORES). Under the CORES program, diagnostic programs are installed on the customer's system. These files occupy approximately 5 MB of dedicated disk space and provide the CSC technical support engineer with the ability to boot and load CORES diagnostics without the delay of system operator intervention to locate, mount, and load the ADEX diagnostics tape. This saves considerable system downtime. CORES simplifies the benefits of diagnosis before dispatching the account engineer. The account engineer can also boot and load CORES diagnostics during on-site repair activities. This ability minimizes on-site repair and fix verification time.

Machine_Initiated (MI). Another important enhancement to Remote Assistance provides the ability for Data General systems to initiate a service incident *automatically* by dialing the CSC to report the problem electronically. Critical failure information is transmitted to and recorded in the CSC for use by technical support personnel diagnosing the probable cause of the failure. This failure information is retained for further reference should additional failures associated with the problem occur. This is an especially valuable enhancement for unattended systems. It provides Data General with the ability to notify the customer of the failure before the next business day. MI is generally available on the newer MV-class systems, beginning with the MV/20000 and Aviion 5000 systems and higher.

If you have questions or want additional information about Remote Assistance, contact your U.S. Services branch manager or the CSC. We solicit your comments and welcome your suggestions on this element of our customer service. Δ

Ron Gilmore is an eight-year veteran with Data General and is manager of national hardware support in the Customer Support Center. He was formerly a regional field engineering manager.

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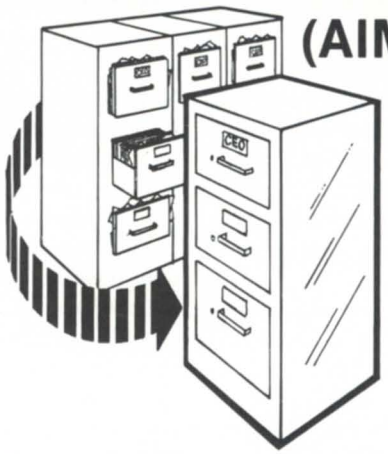

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BBusiness is booming

SYNOPSIS

There's a tremendous amount of innovation going on in the BBASIC field, but what about standards? The author recounts recent discussions of the BBSIG, and gives a vendor-by-vendor rundown of new features.

by George Henne
Special to Focus

If you had any doubts about the health of Business Basic, attending the NADGUG meeting in Denver should have put your mind at ease. There were more vendors displaying new innovations for the product than have ever been seen at one time.

We took the opportunity to hold a meeting of the Business Basic Special Interest Group (SIG). Before I report the vendor announcements, let me summarize the outcome of the meeting. Membership in the Business Basic SIG is at an all-time high, with more than 150. It should be noted that the group is even bigger than it seems: most members operate more than one system. Many who are resellers actually represent hundreds of users.

The treasury being in good shape, it was decided that no dues will be charged for the coming year for current members. New memberships and vendor contributions to the newsletter are sufficient to fund activities.

Last year, vendors (Data General, B32, Bluebird, and Transoft) were of great help to us in getting reestablished by mailing BBSIG application forms to their users. This year they, plus Marc Alan Software, have agreed to do it again to help increase our membership.

In a close election, I was reelected president by acclamation. Calvin Durdin will continue to be the treasurer.

With the ordinary business out of the way, we were able to tackle more contentious matters. One issue of the BBSIG Newsletter has been published. However, if the newsletter is to survive, we need more material from members. To encourage this, a free membership will be given to anyone submitting material suitable for publication. Here's an easy way to join if your boss won't fund your membership.

There was a lot of discussion about BBASIC standards. With no fewer than five development teams on three continents, there is a tremendous amount of innovation going on. Inevitably, the same features are being implemented in different ways, resulting in incompatible programs.

The current health of the BBASIC marketplace for language vendors is a direct result of its having a large, consistent user base. I think everyone recognizes that if the base were to separate into five distinct, incompatible dialects, the splinters might be too small to survive in the long run. On the other hand, how can we institute restrictions without stifling innovation?

There were a few good suggestions. Vendors agreed to share their published syntax specifications with each other. Therefore, if a vendor is adding a feature that another has pioneered, the vendor may do so in a compatible manner. Of course, there is nothing to stop a vendor from improving on a feature.

It should also be possible to establish a numbering system (for STM*'s, SYS functions, etc.) under which each vendor would have its own range to do whatever it likes. This would avoid two versions using the same number for different purposes. Nick Divitci of Business Facts volunteered to look into the situation and develop some suggestions. Look for a report in an upcoming newsletter.

Tom Lee of Bluebird Systems noted that Business Basic might be more acceptable in the marketplace if an ANSI standard were established. This wouldn't include all the extensions that are currently floating around, but would include the core statements. He offered to do further study on this subject.

Finally, it was agreed that a membership directory would be printed and sent to all members. If you aren't convinced to join yet, this might be the best reason. This book will make it easy for you to locate other users with similar equipment, applications, or location to your own.

Now, for a quick rundown of what's new by vendor (in alphabetical order, with DG first):

Data General

DG Business Basic is now on AOS/VS, 386 machines using 386ix, and Aviions. Version 5.20 is out for AOS/VS. It's a bit faster, and has added DO WHILE and KPREV statements. Version 1.1 for DG/UX is also out. It's much faster and has quite a number of minor enhancements.

An interesting innovation is a switch to

make the ASC function correctly pick up the sign bit, no matter how many bytes are referenced. Currently, it will only do so on four bytes in double precision and six bytes in triple. This would go a good step in eliminating the difference in double and triple precision.

It seems clear now that new features in DG's Business Basic will appear first for DG/UX, and then later be ported to AOS/VS. DG is similar to B32 in this practice; from now on, the leading edge will be on Unix-based systems.

B32

B32's main activity this year was porting to a wide variety of platforms. Together with Transoft, it runs on most commonly available machines today, from DOS on up.

New features include external subroutines, fourth-generation language interfaces, full windowing, a menu system, and optional line numbers. Other enhancements are coming soon, as well as performance increases.

Bluebird

With the announcement of the AIX Basic 1 compiler, Bluebird has moved into the mainstream of Business Basic. It's supposed to be more compatible with modern BBASIC code than its SuperDOS product.

Bluebird has an ambitious development program. Already out are screen save, box draw, and user-defined help. Coming soon (maybe already) are a DOS version, a GUI for ASCII terminals, mouse support, event-driven programs, external subroutines, and windows.

Marc Alan Software

This is a new product, aimed at DOS users. It's compiled. Line numbers are optional and labels can be used in GOTO and GOSUB statements.

Perhaps the most interesting feature is mouse support. There are functions to read mouse clicks and position directly into your program, making entirely new interfaces possible. The version I saw wasn't as direct and quick as on a Macintosh, but it does seem to work.

Transoft

Transoft has always been the innovation leader. This year, it showed how statements to its U/SQL query language can be imbedded in programs.

It's a good concept to explore. I think it is the method most likely to enhance BBASIC programmer productivity in the coming years. It should be interesting to see how B32 and Transoft's different approaches to this will develop.

Note: After this column was written, Transoft announced its impending purchase of B32. Please turn the page for more information. Δ

George Henne is president of the BBSIG. You may join by sending $10 to Calvin Durdin, Tractor & Equipment Co., Inc., 5336 Airport Highway, Birmingham, AL 35212. George Henne is also president of The Eastwood Group, specializing in converting AOS/VS users to Unix. You may reach him at 416/694-5777.

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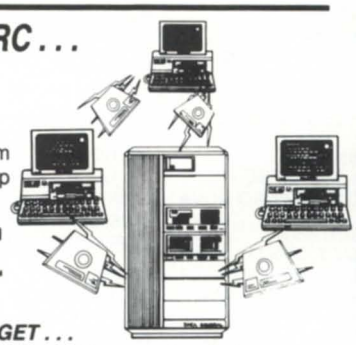

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Transoft buys B32

by George Henne
Special to Focus

In a development that astounded me as much as the Berlin Wall coming down, B32 has agreed to be acquired by Transoft. As this has happened just as we go to press, not all the details are available yet. From what I can see, it looks like a good deal for all sides.

Transoft gets B32's product for AOS/VS machines. Transoft has always prided itself on all the platforms it runs on: now it can run on the one that has the largest base. Murray Haszard, the developer of B32, will be spending the next few months adding Transoft's features into the AOS/VS version so it will become truly compatible.

Haszard, in addition to getting the obvious pile of money and tax liability, will get the opportunity to develop some new ideas. Technically, both Transoft's and B32's products are well developed: the competition between them was increasingly becoming a marketing battle.

It's the users who will benefit the most. As you read about the BBSIG meeting (previous page), you will see the depth of concern over the deepening disparity of features offered by vendors. The combination of the two most innovative forces into one product will do a lot to unify the market and ensure its continued strength.

The agreement between the two companies appears to have been made with current B32 users in mind. For example, Transoft has hired Felix Decsi from B32 North America, and will be making him its main support man, based in Atlanta. Transoft already contains most of the features of B32 (via a B32 mode emulation switch), and the next revision should incorporate all of them. When B32 users convert to the Transoft version, they will get the benefit of all of Transoft's features, as well as the B32 features they are used to.

Joint development efforts on new products between B32 and Cyberscience will also be continued. The Transoft record lock server has been made compatible with B32's, so that few changes should be needed to the interface.

I'll keep you posted in future columns on how the merger of the two products and customer bases is coming along.

According to a Transoft statement released in mid-January:

Transoft, international supplier of portable Business Basic and compatible 4GL tools to the Data General and Bluebird SuperDOS markets, acquired the business of its major competitor, B32 Software (NZ) Ltd., and its U.S. subsidiary, B32 Software (U.S.), Inc.

The $800,000 deal was signed in January at Transoft's office in Slough (United Kingdom). B32 products and customers were transferred to Transoft. The purchase coincides with Transoft's formation of a U.S. subsidiary—Transoft, Inc.—and its opening of a U.S. office in Atlanta, Georgia (1100 Circle 75 Parkway, Suite 800, 30339; 404/933-1661.)

Mike Edwards, Transoft's managing director, said that the takeover "will enable us to produce an even stronger, compatible product line with integrated 4GL tools, spanning not only DOS and Unix, but also the DG proprietary MV AOS/VS operating system."

Both Transoft and B32 were formed in 1986. Other Transoft products include: U/SQL Query Language, UBB Embedded U/SQL, and UDM Universal Data Base Manager. Δ

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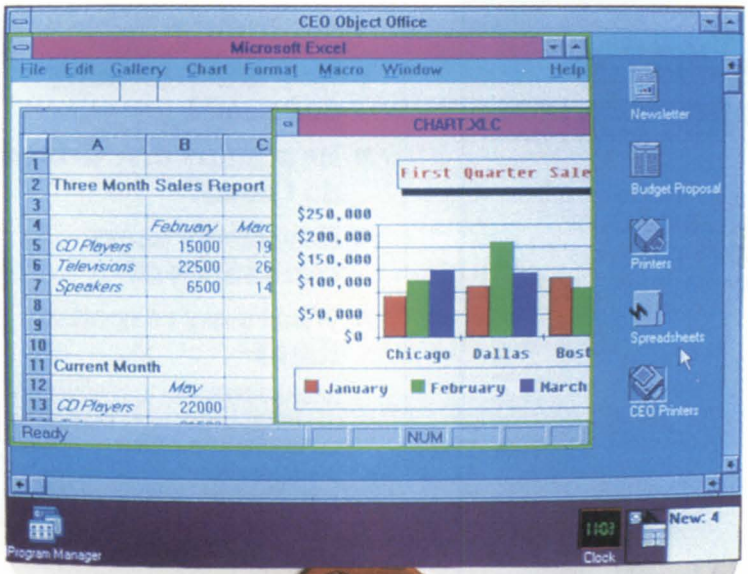

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Bits and bytes

EXEC error forces logoff

From: Marlin Whitaker

We are getting the error message, "Internal consistency error in EXEC. Dequeuer received bad request." Then EXEC does a memory dump and forces everyone to log off. This is on an MV/2500, AOS/VS rev 7.64. Does anyone know what would cause this error?

From: Wally Beddoe

This problem occurs when CONTROL @EXEC START, STOP, or TERM commands are sent to a cooperative when it is off-line. The 7.65 release notice states that the CONTROL @EXEC START, STOP, and TERM commands should not be sent to a cooperative if it is off-line. There is a patch available from DG that will suppress EXEC from crashing and instead, the error, "Cooperative termination in progress" will be given.

ICobol beginner

From: Daniel Bors

Can anybody recommend the best text on ICobol for a beginner? I just "inherited" a Desktop 20 running under RDOS 1.3 with ICobol 1.31, and would like to play with it a little. Also, are there newer versions of the software, and where's the best place to get them (if they exist)? Finally, where can I get a listing of developers who may still have applications for this antique?

From: Tim Boyer

Congratulations! You've just embarked upon a journey with the world's best language, bar none. Not that I'm prejudiced or anything.

Texts: I dunno. My college text for Cobol was the Burroughs Medium Systems Cobol manual, which requires a professor standing over your shoulder. ICobol is moving towards ANSI '85 compliance, so I'd guess that any "how to" book for ANSI '85 would get you close enough. Then use the ICobol manuals to get down to specifics.

Versions: I think 1.31 is about as high as you can go on an RDOS machine. The advantage of ICobol is that it's extremely portable—applications written on any machine can be moved, without recompiling, to another machine. Δ

Do you have an answer, comment, or question? Call the NADGUG/RDS electronic bulletin board, available to all NADGUG members. The phone number is 415/499-7628. There are no fees for use other than the telephone charges.

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The latest products for DG systems

HADA disk array configuration

Westboro—Data General expanded its high availability disk array (HADA) product line with the new HADA 2.5 GB disk array (Model 7904). Packaged with five 500 MB disk drives, the array is designed for those seeking the advantages of RAID technology but also needing more configuration flexibility and/or lower storage capacity.

In all other respects, the HADA 2.5 GB disk array offers the same functionality as the original HADA 5.0 GB subsystem, such as dual porting and repair-under-power capabilities. The HADA 2.5 GB array subsystem also supports RAID 1 and RAID 5 configurations, as well as individual disk operations. When configured as a RAID 5 array, the 2.5 GB disk array provides 2.0 GB of data storage and dedicates 0.5 GB of its capacity to redundancy.

The new HADA 2.5 GB array offers a lower-cost entry point to disk array technology. Disk capacity may be added as data storage needs increase. The 500 MB disk drive allows fine-tuning of configurations to match data storage needs. Featuring twice the number of drives (for a given capacity) than the original 5.0 GB subsystem for performing overlapped I/O requests, the HADA 2.5 GB disk array provides greater subsystem performance.

The HADA 2.5 GB disk array is supported on Aviion 6200 and 8000 servers with DG/UX 5.4.1. The U.S. list price for the subsystem (Model #7904-V, W) is $42,000. The add-in 5-drive group (Model #7904-A) for HADA subsystems is available for $23,000. The single 500 MB disk drive (Model #7904-ZA) is priced at $5,000.

Data General Corporation, 3400 Computer Drive, Westboro, MA 01580; 508/898-4246.

Circle 45 on reader service card.

Intelligent display terminal

Westboro—Data General announced the D1400i, an intelligent video display terminal for the Aviion family. The terminal supports industry standard terminal emulations, including Wyse 60/50, PC-terminal, and DEC VT320/220/100/52, making the D1400i compatible with many third-party system environments. Unix compatibil-

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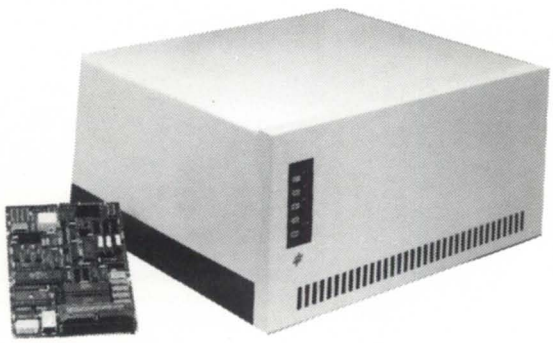

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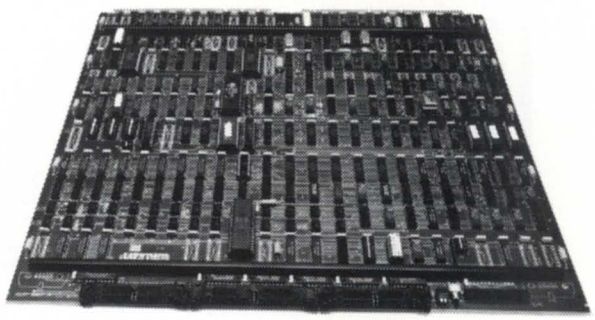

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ity in both Wyse and DEC emulation modes allows use of all terminal features in Unix environments.

The D1400i is an editing terminal offering ergonomic design, screen clarity, and a small footprint. The unit is configured with DG's AT-style keyboard (Model G6488) and includes a 14-inch diagonal, flat-faced screen in a choice of amber, green, or white phosphors. The D1400i offers advanced screen management features, a choice of text attributes, and horizontal scrolling. Full-page menus stored in nonvolatile RAM allow the user to customize the terminal to a particular environment and application. The terminal supports seven character sets, including ASCII, PC multinational, and special graphics.

Adaptable to a multiple-host environment, the terminal has two asynchronous, bidirectional RS-232C serial ports that can be simultaneously connected to two host computers. This feature enables the terminal to access two live sessions on one or both host systems at the same time.

The D1400i terminal (Model 6693) is supported on the Aviion family only. The terminal has a U.S. list price of $565.

Data General Corporation, 3400 Computer Drive, Westboro, MA 01580; 508/898-4246.

Circle 46 on reader service card.

Heavy-duty dot matrix printers

Westboro—Two heavy-duty, 132-column dot matrix printers for multi-part forms output are available from Data General. The Model #6788 is a 9-pin printer that can handle up to 9-part forms, the highest level of any DG printer. The #6788 prints up to 300 CPS (characters per second) in draft mode and 62 CPS in near-letter-quality mode, for a monthly duty cycle of up to 9,000 pages.

The Model #6789, designed to handle up to 6-part forms, is an 18-pin printer with three print speeds: 622 CPS in data processing mode; 467 CPS in draft mode; and 117 in near-letter-quality mode. Its duty cycle capacity is 20,000 pages per month.

The #6788 and #6789 also produce international character sets, bar codes, multiple fonts (including OCR-A and OCR-B), and a variety of pitch sizes, such as expanded and compressed print. A standard operator control panel allows the user to select printer parameters.

With their standard Centronics parallel and RS-232 serial interfaces, the #6788 and #6789 are supported on all Data General systems, as well as IBM-compatible personal computers. The printers' DEC LA-120, Epson FX, and DS 180 emulations ensure their compatibility with a wide range of industry standard applications. U.S. list prices are $1,895 for the #6788, and $2,995 for the #6789.

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HD-DOMS allows OMG-compliant development

AV PC

San Francisco—Eliminating roadblocks to interoperability and integrating diverse hardware and software platforms is the ultimate goal associated with introduction of Hyperdesk Corporation's distributed object management system (HD-DOMS).

The first product based on the Object Management Group's object request broker (ORB) standard, the HD-DOMS serves as central communication and integration manager for software objects, allowing developers now to build OMG-compliant applications for distributing across various hardware and software platforms.

Tools include:

- graphical user interface for development and testing
- dynamic interface to create and modify applications at runtime
- definition language to create objects.

Hyperdesk services include an object data base with repositories and class libraries for object storage, an authentication service for user validation, and a location service to track objects.

The HD-DOMS is designed to be easily portable and interoperable across a broad range of PC, workstation, and server platforms running MS-DOS and Unix. The system also supports Windows and Motif.

The Hyperdesk distributed object management system development kit is priced at $1,995 per user, depending on system configuration. The HD-DOMS is licensed to hardware and software system OEMs, who will include the product as an integral part of their systems. The product is also licensed to independent software vendors, value-added resellers, systems integrators, and corporate end users. Source code and site licensing options are available as well.

Hyperdesk Corporation, 2000 West Park Drive, Westborough, MA 01581; 508/366-5050. Δ

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Data Specific

WEVV chooses CEA

WEVV-TV of Evansville, Illinois is the fourth FOX-affiliate television station to install the CEA Newsroom System from **Computer Engineering Associates**. CEA Newsroom uses Data General MV series computers to automate newsroom operations.

Dataram in Canada

Memory and peripheral manufacturer **Dataram Corporation** opened an office in Mississauga, Ontario. The office is headed up by national sales manager for Canada **Angelo Teoli**, and located at 6185 Ordan Dr., Suite 209; 416/795-8700. Teoli joined Dataram after 11 years with **Zentronics**, one of Canada's largest distributors of DEC computers.

"For sale" sign

According to Data General's 1991 annual report, the company is holding four facilities for sale: Portsmouth, New Hampshire; Milford, Massachusetts; Westbrook, Maine; and Woodstock, Connecticut. The sale of the facilities is unlikely to generate further layoffs at Data General, said corporate spokesperson **Jim Dunlap**. The sites in Portsmouth and Woodstock are unoccupied, he said, and the Westbrook operation was sold to **PRECIS Metals**, a company made up of former DG employees.

The annual report states that Data General's cash position and overall liquidity improved substantially in 1991 through the sale of **Nippon Data General**, sales of facilities, results of operations, and issuance of $125 million 7 3/4 percent Subordinate Convertible Debentures. Cash and temporary cash investments increased from $74 million to $149 million.

Higher education embraces DG

Loma Lima University (Loma Linda, California) and **Douglas College** (Westminster, British Columbia) chose Aviion systems running Banner administrative software from **Systems & Computer Technology (SCT)** for student administration, admissions, and records departments.

SCT is a Data General independent software vendor (ISV). The Banner software series is an Oracle-based fourth-generation language with five integrated systems: student information and administration; finance; financial aid; human resources; and alumni/development.

Certifications

DG/UX 5.4 complies with two major standards

Aviion systems running the DG/UX 5.4 operating system are certified for compliance with POSIX and X/Open Portability Guide 3 (XPG3) standards, **Data General** announced. The certifications make Aviion systems more appealing to many federal and international organizations.

POSIX (Portable Operating System for Computer Environments) certification by the **National Institute of Standards and Technology** is issued to operating systems that meet guidelines established in the Federal Information Processing Standards Publication 151-1. Any source code written to the POSIX standard will run on DG/UX 5.4 with little or no modification.

"Considering that the U.S. federal government—the world's largest consumer of information technology—is the driving force behind the POSIX standard, the value of POSIX cannot be understated," said **Steve Baxter**, DG vice president of Corporate Marketing.

XPG3 branding, as it is known, is of most benefit to European customers, where the standard originated.

"The emphasis of X/Open is on specifying a comprehensive application interface. XPG3 supports the POSIX interface, yet has a wider scope. This results in the availability of an increased number of applications for compliant systems like Aviion, and maximizes the return on investment in software development made by both users and vendors," said Baxter.

DG/UX 5.4 is the first operating system based on Unix System 5, Release 4 that complies with the two standards and implements fully symmetric multiprocessing, DG says. (Fully symmetric multi-processing means that a system with multiple CPUs can assign any task to the next available CPU.)

DG passes OSI audit

Data General is the first major U.S. computer systems manufacturer to have all of its worldwide manufacturing and product distribution operations qualify for international ISO 9002 quality standard certification. ISO certification is a quality benchmark for companies doing business in the European marketplace.

The certificate was formally presented by **Underwriter's Laboratory** at ceremonies held in January at the company's Southboro manufacturing plant. In addition to Southboro, Data General plants in Chihuahua, Mexico; Manila, Philippines; and Schwalbach, Germany, passed ISO 9002 audits. The company's largest manufacturing operation, in Apex, North Carolina, received ISO 9002 certification last August, making it the first U.S. computer manufacturing plant to do so.

Present at the Southboro ceremonies was Massachusetts Governor **William Weld**, who praised Data General for its success in the international marketplace. Δ

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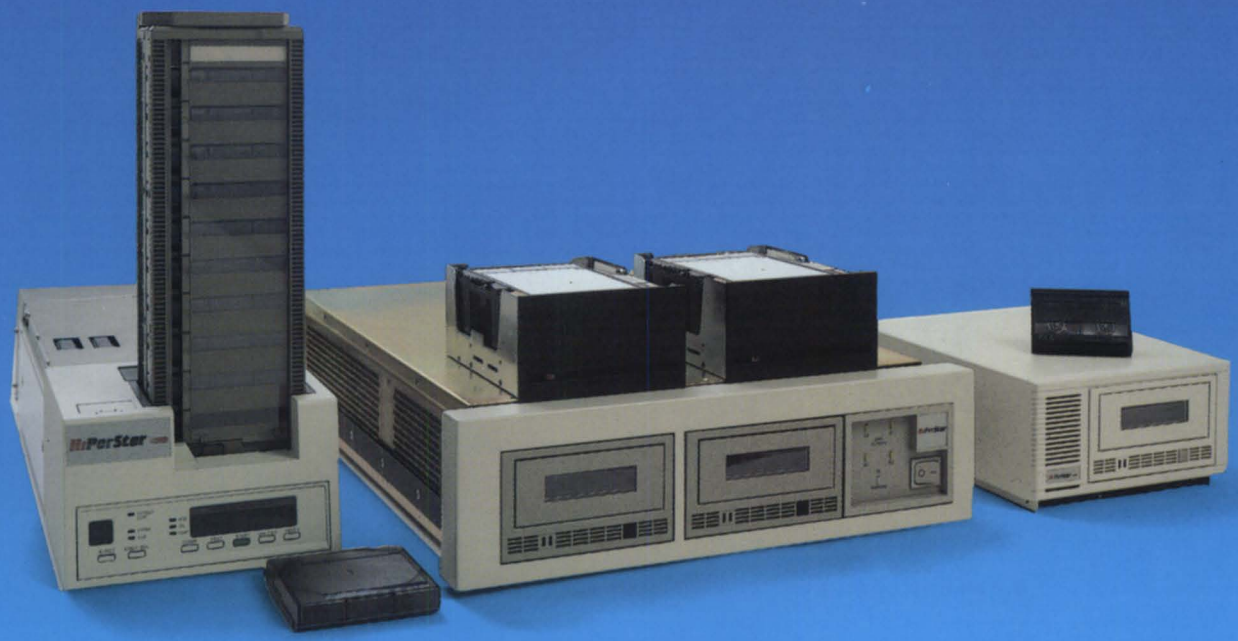

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