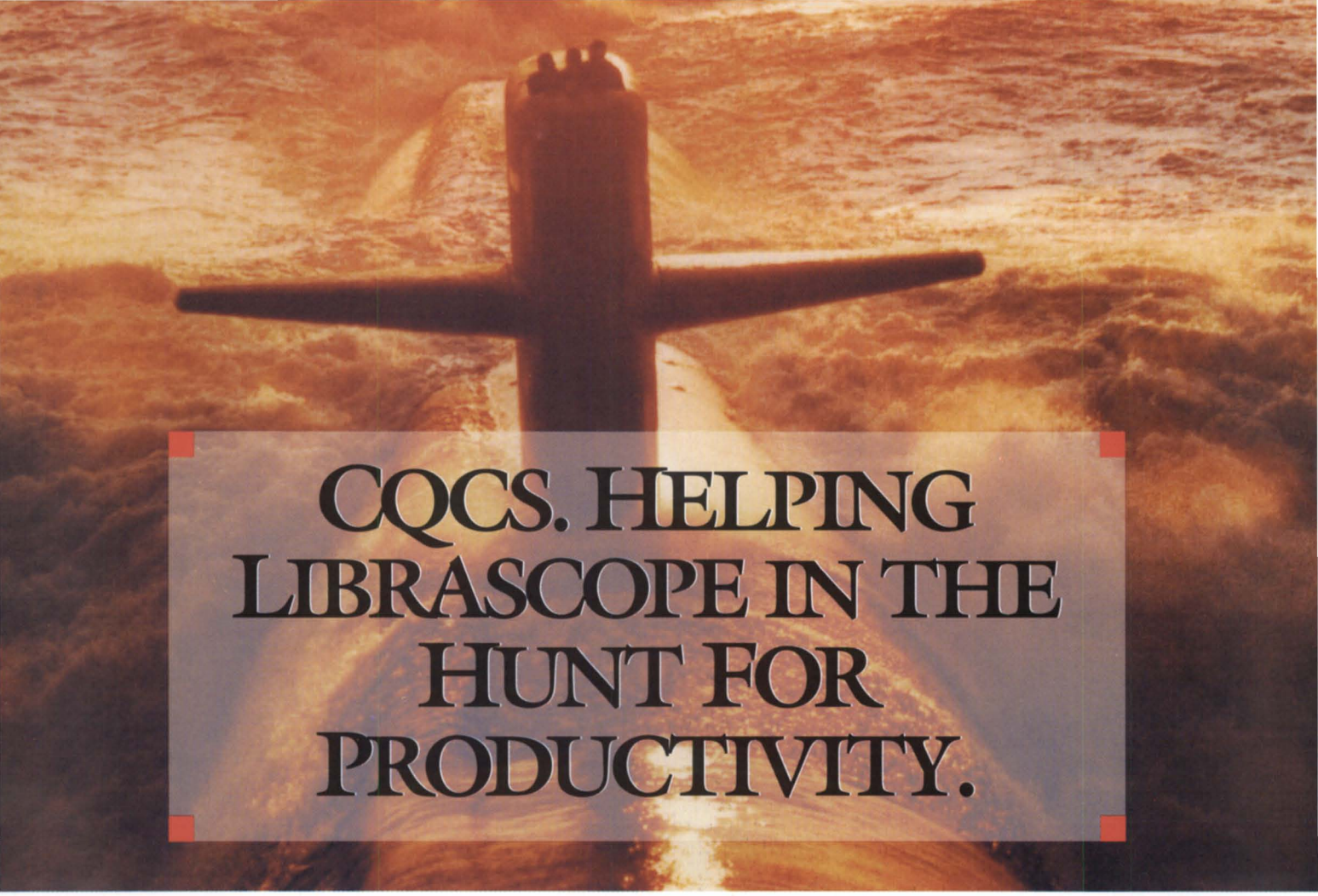
January 1991

# FOCUS

The Magazine of the North American Data General Users Group

## Close up on manufacturing



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The Magazine of the North American Data General Users Group

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*FOCUS, the Magazine of the North American Data General Users Group* (ISSN 0883-8194) is the official monthly publication of the North American Data General Users Group (NADGUG) in cooperation with Turnkey Publishing, Inc. NADGUG offices are located at Livingston Building, Suite 250, 3420 Executive Center Dr., Austin, TX 78731, phone 512/345-5316.

*FOCUS, the Magazine of the North American Data General Users Group*, is distributed to members of the North American Data General Users Group. Membership fees are $60, of which $48 is allocated to a subscription for *FOCUS, the Magazine of the North American Data General Users Group*. A one-year subscription (12 issues) to *FOCUS, the Magazine of the North American Data General Users Group*, costs $48. For all memberships and subscriptions outside North America, add $50 to defray costs of mailing. For information on NADGUG membership, call 1-800/877-4787. Address all other correspondence to *FOCUS, the Magazine of the North American Data General Users Group*, c/o Turnkey Publishing, Inc., Livingston Building, Suite 250, 3420 Executive Center Dr., Austin, TX 78731.

Application to mail at Second Class Postage Rates is Pending at Austin, Texas and additional mailing offices. POSTMASTER: Send address changes to: *FOCUS, the Magazine of the North American Data General Users Group*, Subscription Department, c/o Turnkey Publishing, Inc., Livingston Building, Suite 250, 3420 Executive Center Dr., Austin, TX 78731.

The cost of single copies is $4. Requests to replace missing issues free of charge are honored only up to six months after date of issue. Send request to *FOCUS, the Magazine of the North American Data General Users Group*, c/o Turnkey Publishing.



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Volume 7, Issue 1.


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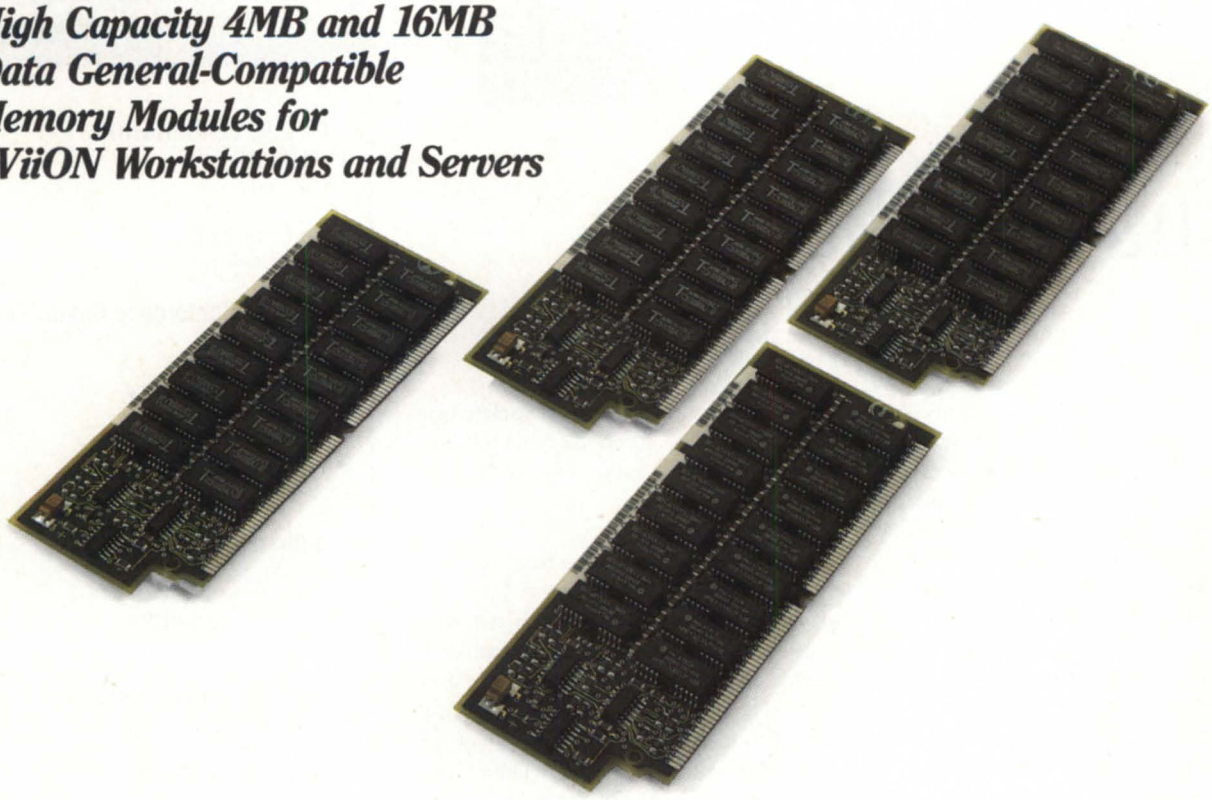

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**EDITOR'S NOTE** *by Robin Perry*

# Focus on: 1991

I don't do New Year's resolutions. I learned a long time ago that I never keep them, so one year I finally made a resolution I could keep. I resolved not to make any more New Year's resolutions.

I am a goal-oriented person, however, and I do have a goal for 1991. My goal is to continue the work started six years ago by Greg Farman of making *Focus* magazine your best resource for getting information about using Data General computers.

To achieve this goal, I rely on a select group of talented writers. In a technical magazine, writers must not only have skills with words, but also must have knowledge of a specific subject matter to back them up. These talented, knowledgeable people must also have the desire to write. They usually have full-time jobs, so they must do their writing on their own time. A pat on the back goes to those special people who write for *Focus*. You'll continue to see them, along with some new names and faces, in the coming year.

In selecting topics for editorial coverage, I lean heavily upon those of you in the DG community. Each year at the NADGUG conference, *Focus* distributes a survey asking readers to tell us what they like and dislike about *Focus*, how we stack up to other publications, and asking what we can do to improve the magazine. The *Focus* staff and NADGUG Publications Committee review your responses and make decisions about what to include in the magazine. The flaw in our methodology is that we only get comments from people who attend the conference. That means that I never hear from several thousand of you.

There is an easy way for you to send me your ideas. Between pages 2 and 3 of this magazine is a card labeled "It's your turn to talk." You may write your comments on the card, tear it out, and mail it back to our offices. Or call me. Even fax me. Help me achieve my goal of making *Focus* the best it can be.

This month, we start the new year by wrapping up some old business. You may recall a few months ago when I boasted of the phenomenal response we got from the annual NADGUG member concerns survey. NADGUG board members took your greatest concerns to a face-to-face meeting with Data General executives. Data General recently published its official response to these concerns. You can read Data General's responses beginning on page 6.

Our feature topic of the month, "Making it," is a close up look at Data General in the vertical market of manufacturing. Data General has so many interesting manufacturing installations, that we had trouble narrowing down our selection of articles. We hope you like the final three we selected. An article by Prasad Gavasker and Laura Weldy details how Motorola uses voice technology in the manufacture of integrated circuits. Staff writer Lori Rhea DiSorbo reports on the use of Data General equipment at Eskimo Pie and Ore-Ida. The third article is more in the "un-making it" category. Michael E. Marotta tells how robots are used to decommission a nuclear power plant.

Finally, there is a new look for the back page of the magazine. "In General" contains news about Data General and vendors in the DG market place, user group news, and other brief notes about the DG community. A new calendar, RIG/SIG gigs, lists meetings of special and regional interest groups, as well as NADGUG activities. I'll be counting on your input as we continue to make more improvements to *Focus* throughout the year. Δ


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# DG responds

## Software, service, and continuity lead list of user concerns

The annual concerns survey of NADGUG members raised a number of issues that were brought to the attention of Data General management. This month, we are publishing Data General's responses to these issues. The concerns are listed in the priority determined by NADGUG members, with the exception of question number seven, which Data General deemed important enough to address first, with a personal note from President and CEO Ron Skates.

Some of the responses were edited for length; otherwise, they appear exactly as provided by Data General.

**Concern: Data General's viability and survival--Due to the publicity currently surrounding Data General, users are continually being questioned about their decision to support or continue to support Data General. What can be done to help these people?**

As president and CEO of Data General, I would like to personally respond to this concern. In 1988 Data General announced a dual product strategy knowing that it would have a dramatic impact on all areas of the company. We put a plan in place to allocate the resources needed to achieve a leadership position in the information technology market of the '90s.

*Ron Skates*

First, Data General established itself in the open systems market with Aviion systems, servers, and workstations; and with DG/UX, our commercial version of Unix. Then we set about building a software library. More than 400 firms have ported over 1,000 software packages to Aviion and DG/UX.

At the same time, we broadened and upgraded the Eclipse line, and began to design the next generation of systems across the board—and there's more to come in the MV area.

We also put together a broad family of aggressively priced PC-compatibles and portables to meet our customers' needs for industry-standard PCs, and we applied advanced communications technologies to provide customers with networking advantages.

We have followed a unique strategy of meeting customer needs for networking and interoperability while providing both proprietary and open systems. In other words, we let customers choose from the "best of both worlds."

At the same time, VAR programs have been strengthened, our sales channels have been expanded to include distributors, and direct sales operations have been reorganized—all to focus efforts on targeted markets and better serve our customers worldwide.

We assembled a new senior management team with expertise in all disciplines. They join a core group of veteran Data General executives to form a team dedicated to carrying out a winning strategy.

Implementing such an ambitious plan is a complex and costly undertaking. We have had to make a lot of tough decisions in every area of the company. We need the kind of structure that will allow us to be competitive with older, vertically integrated proprietary systems vendors as well as the much younger and leaner open systems vendors who came into this industry after the vertical integration era had waned—after standards had become the norm. This has involved a series of restructuring steps over several years. The actions we have taken have the respect of customers worldwide.

With our strategy coming together and our excellent products, both hardware and software, we have good reason to be confident of the future at Data General.
—Ron Skates

**1. Software quality and availability: What is being done to assure the continuance of each?**

**Answer:** Data General is committed to providing our customers with the highest quality hardware and software. In recent weeks we have made some organizational changes that will ensure continued strong support for both MV family systems and software products.

We are pleased to announce the Eclipse Business Unit that, for the first time, brings together developments and marketing organizations aimed at better supporting you, our customers. The Eclipse Unit is directed by Vice President Joel Schwartz, who previously headed the Software Business Unit.

One of the goals of the Eclipse Business Unit is to provide additional focus on quality and support issues. As a result, we can set priorities and direct resources to those products that require additional support. In addition to extensive quality testing before product release, new software revisions will contain enhancements

primarily driven by customer needs. For example, we have recently released new revisions of CEO, CEO Object Office, AOS/VS, AOS/VS II, Infos II, DG/SQL, DG/Ingres, DG/RDOS, and the list continues . . . .

In addition, our Aviion third-party software recruitment efforts have also opened the door for MV ports as vendors recognize the opportunity in the Eclipse base. Metro-Mark Integrated Systems, Common Language Systems, and Trinity Computing Systems are a few examples of VARs and ISVs new to Data General that have agreed to port to both the MV and Aviion platforms. A comprehensive listing of solutions is available in the *Solutions Directory*, 3rd Edition, 1990. Please contact your sales representative to obtain a copy.

**2. Service and Support: Customer service is lacking; little or no help installing products or fixing bugs. Is FE short of help?**

**Answer:** Planning for FE staff levels throughout the country is based on the concept of workload. This is calculated using equipment population, projected shipments, actual time spent servicing a particular type of unit, travel time, local skill set, and proficiency as well as projections for new products. As overall workload drops (a function of increasing reliability), the number of FEs required to provide the same high level of service also decreases. The key indicators of the level of service we're providing, such as customer satisfaction, response time, and mean time to repair remain well within the favorable range as indicated in Figure 1.

Data General's complete service offerings are equal to, or better than industry standards and other competitors. The Customer Services organization remains committed to ensuring the highest possible level of service for our customers as their satisfaction is our primary goal.

**3. Continuity for MV line: There is a gut feeling that proprietary system users are gradually being abandoned.**

**Answer:** With a worldwide installed base of over 40,000 MV family systems, Data General recognizes that customers have invested billions of dollars in the Eclipse architecture. We recognize the commit-

**Figure 1: DG service and support ratings**

| | Q4 89 | Q1 90 | Q2 90 | Q3 90 |
|---|---|---|---|---|
| Satisfaction[1] | | | | |
| Hardware Service | 8.7 | 8.8 | 9.0 | 8.9 |
| Overall Service | 8.7 | 8.6 | 8.8 | 8.7 |
| Average Response Time[2] | 3.4 | 3.3 | 3.4 | 3.3 |
| Mean Time to Repair[3] | 2.1 | 2.2 | 2.1 | 2.0 |

1 On a scale of 1 to 10
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3 In hours
Source: Data General customer survey and call tracking system


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ment that our customers have made to us, and assure you that the Eclipse MV family is, and will remain, a critical element in our long-term strategy.

In fiscal year 1990, Eclipse product and services revenues were greater than $1 billion, and accounted for nearly 80 percent of Data General's overall product revenues. This year, we project a similar contribution to Data General's revenue stream. Clearly we recognize the need for continued emphasis on this product line and have an excellent track record that proves our commitment. By bringing together in a single group all the necessary resources, the new Business Unit will ensure the fulfillment of that commitment.

We have built our reputation on allowing users to integrate new products with their existing equipment. Our communications and networking products make it easier than ever to plug the advantages of MV family systems into multivendor environments, and we will continue to provide for these requirements by supporting industry and *de facto* standards. The MV family is a key part of our Distributed Application Architecture (DAA) strategy. Today, we offer products that integrate PCs with the MV, offer MV data base access from Unix workstations, and provide CEO functionality to open networks of MS-DOS and Unix systems.

Data General realizes that our most valuable assets are our MV family customers, and we will continue to work to earn your trust and business.

**4. Pricing: Data General's pricing penalizes existing customers who want to stay with Data General. The incentive to invest in Data General systems is adversely affected by competition from PCs and compatible systems. Performance issues are not as critical as price.**

**Answer:** There is no doubt that the introduction of advanced PC products, and particularly PC networking products, has put significant downward pressure on low-end proprietary systems pricing. Data General has responded to this pressure in two ways: by introducing a new generation of MV family products, and by introducing a family of PC products. When compared to competitive proprietary products, the newest generation of MV family systems is aggressively priced from a hardware, software, and overall cost-of-ownership perspective.

Data General recognizes that our customers require a wide variety of computing environments. For some, MV family systems provide the solution. For others, PC products, networked PC solutions, and client-server architectures are the basis for the solution. For those customers, Data General provides a variety of PC products, such as the Dasher/386-16C, that are highly competitive from a price perspective and which run the gamut of MS-DOS-based industry standard software.

In addition, we have added products such as PC*I and most recently, Portable Netware, to allow MV customers to take advantage of the best of the PC and MV worlds by being able to tightly integrate both product lines. Portable Netware is

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also shipping on the Aviion product line.

**5. Sales force:**
**A) Irrespective of efforts put forth, sales and sales responsiveness are a major problem to many users.**
**B) Regional interest groups (RIGs) need more local Data General involvement. NADGUG feels Data General branch managers should personally become the sponsors in their location for the RIGs. Suggest meetings be held quarterly, sponsored by Data General as a dinner meeting, with some time devoted to new products.**

**Answer A):** Data General sales representatives have many resources to assist them in providing our customers with the solutions most capable of meeting their needs. A corporate hotline answers hundreds of questions from sales reps who are searching for the best hardware configurations and software available to service the needs of their customers. Our Data General Network Services Group provides consulting services for customers who require custom solutions. Horizontal and vertical market support groups stimulate dialogue between field sales reps and share information on new solutions and innovative uses of existing solutions.

On a pilot basis, the corporation has initiated an Inside Sales Group, to complement your field sales reps' efforts. The Inside Reps can easily assist some customers who have issues that can be settled over the phone, allowing the field reps to visit with other customers who need the rep to be physically present. If you have a question or problem, those involved in this pilot will now have two possible means of assistance.

**Answer B):** NADGUG exists as an independent forum for Data General users. While we agree that it is useful and beneficial to have local DG branch participation in NADGUG meetings, Data General sponsorship/control of these meetings may be viewed as infringing upon the intent of the group meetings.

**6. Connectivity: User community has a strong interest in more portability, more compatibility. What is coming downstream?**

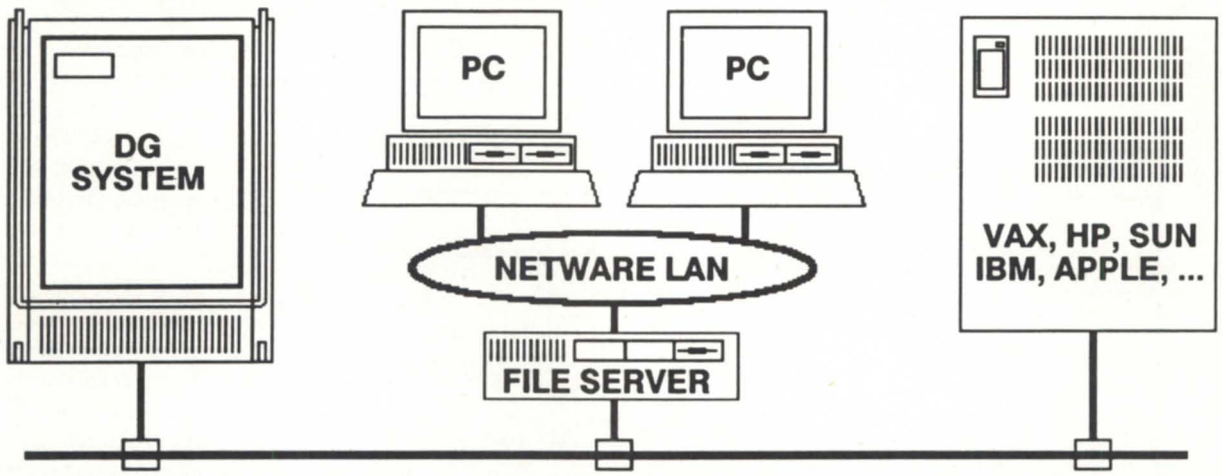
**Answer:** Data General recognizes that interoperability (cooperative processing between different environments) and connectivity are key to our success in the open systems marketplace. They are also the key to enhancing the value of our MV family systems and our customers' options.

We are committed to providing standards-based and value-added software that will allow MV family and Aviion systems to interoperate (i.e., access applications, data, and resources), as well as allow integration of PCs and popular LAN operating systems.

We have provided specific product and strategy announcements to demonstrate this commitment and direction. For example, the announcements of Portable Netware for both the MV family and

*continued on page 39*


INDUSTRY STANDARD NETWORKING

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# Word of mouth

**SYNOPSIS**

*Motorola pilot program uses voice recognition technology to inspect integrated circuits on a noisy factory floor.*

by Prasad Gavaskar
Special to Focus

and

Laura Weldy
Special to Focus

The human voice can be a valuable input medium for situations where it is difficult to use traditional keyboards. These "hands-eye busy" situations include workers wearing protective clothing in industrial environments, users whose hands are occupied with other tasks, and handicapped users who lack the manual dexterity required by traditional keyboards.

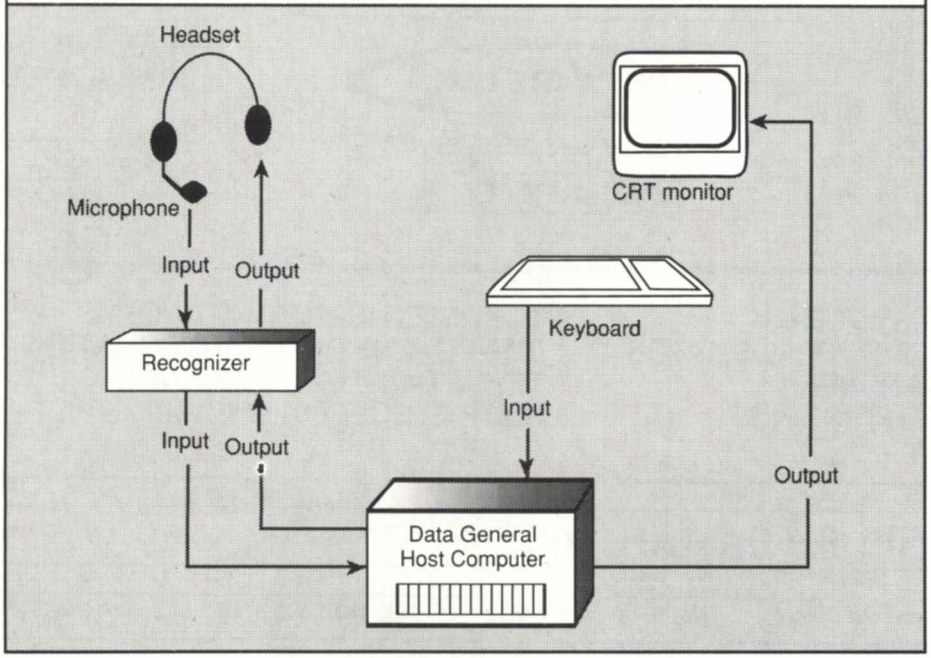
At Motorola's Logic Integrated Circuits manufacturing area, we started a pilot in June of 1989 to test the use of voice recognition technology on a noisy factory floor.

**Voice recognition technology**

Figure 1 shows the components of a voice activated data entry system (VADES). In the voice activated system, a headset replaces the CRT and a microphone replaces the keyboard for data entry.

The microphone feeds the voice signal into a recognizer, which is programmed to recognize specific words. The recognizer acts like a CPU in an intelligent terminal, passing the recognized data to the host and accepting commands from the host. (For example, sending a voice response to the operator's headset). The voice response or text-to-speech synthesis can be used to prompt the user, acknowledge the receipt of data, or get feedback from the host.

**Figure 1: Components of a voice I/O system**




Most voice recognition systems record the user's voice patterns on an EPROM (erasable programmable read-only memory) cartridge. The recognizer continuously samples the real-time voice signal input and attempts to match the signal with the patterns stored in its memory.

Recognizers are classified by either a) speaker dependent vs. speaker independent, or b) continuous vs. discrete speech recognition. Speaker dependent systems match only a single user's voice patterns

and are limited to use by one person at a time. Each user has to "train" the system to recognize his or her voice pattern; this involves repeating words and phrases three or more times. The system builds a word model that is digitized and stored as data on a disk or EPROM.

Speaker independent systems, on the other hand, are pretrained for certain words by taking a sample of 15 or more people. The system matches this precreated voice template with user patterns. Any user can start using the system without "training" it. Unfortunately, speaker independent systems are less accurate than speaker dependent systems—typical quotes are 99 percent accuracy for speaker dependent systems and about 70 percent for speaker independent systems.

Discrete word recognizers require that the user pause, very briefly, between words or phrases. Users must adapt their speaking styles to the computer, and are very much aware that they are "talking to a machine."

Continuous speech systems, on the other hand, recognize normal conversations; users need not adjust their speaking style. The choice of a system depends on the application. For our pilot, we used a recognizer from Verbex, Inc. that is described below.

**Verbex 5000, voice I/O system**

Verbex 5000 is a continuous speech, speaker dependent system with a 100 word vocabulary. It includes a voice response unit that can pronounce words from character strings, and a voice development software that runs under MS-DOS.

The voice development software allows the user to define vocabulary and build a program-like structure, called "Grammar." The Grammar checks for certain sequences of words/phrases, determines which words are active for recognition at a given time, and provides rules for changing the active vocabulary or taking appropriate action in response to recognized words. It also creates the training script, discussed later, and downloads the voice patterns into an EPROM cartridge.

**Pilot**

We set up a pilot at our Final Outgoing Inspection (FOI) operation. Our group manufactures digital integrated circuits (ICs). In the prepackaged form, about 4000 ICs, referred to below as sites, are manufactured on a four-inch circular wafer. A wafer-lot is a group of wafers, up to 50, belonging to the same product, that are processed at the same time.

The operators inspect each wafer in the lot for visual defects and surface damage. Since the circuits on the wafer are too small for the naked eye, a microscope is used for inspection. The inspection station is preprogrammed to sample 20 sites on the wafer in a particular pattern. The operator hits a button to advance to the next site.

Prior to the pilot, the operator had to look away from the microscope and record defect information manually. This was quite cumbersome and affected the operator's productivity. The operator also had to do some manual calculations and disposition of the lot, based on the infor-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mation recorded. The inspection data was later entered into the computer by a clerk.

**Inspection optimization**

The application mimics a conventional screen transaction. Upon power up, the recognizer requires that operators identify themselves with a badge number. After the operator provides the operation and step information, we enter a "lot" loop—a lot can contain anywhere from 1 to 50 wafers. An End-of-Lot command ends this loop. A "Wafer" loop is nested inside the lot loop—we inspect 20 samples/wafer and data is entered only when a defect is found.

The operator can use certain commands for exit, error correction, querying the current position, and field positioning. For example, the command WHERE-AM-I is used to query the current position from the Data General host, the command BACKUP works like an UP arrow key on the DG keyboard, the command END-OF-DATA tells the DG to put the cursor on the badge number field and expect a new operator, and the command RESET causes the DG to erase recently entered data and position the cursor at the badge number field.

Verbal data and commands that are recognized are sent to the DG. The recognizer allows the definition of a translation table to code the recognized phrases sent to the DG. The error and status messages that are sent from the DG are echoed to the operator by the voice response unit.

**Information system on the DG**

The server on the DG is multitasking and consists of five tasks. The main task, the VADES server, handles communications with the recognizer and synchronizes all of the tasks. The recognizer is connected to an IAC port and, to the DG, it appears like any other terminal. There is one VADES server per recognizer. The server comes up in the idle state and waits for a response from the recognizer. The response is either a command or data. The server decodes the response and calls an appropriate function, based on the action required.

Two separate tasks handle the interfaces to an engineering data base and a manufacturing data base. Each field is validated by comparison with the appropriate data base. For example, the lot number, operation, and step fields are checked with the lot tracking system on Tandem—whether the lot number is valid or not, and if so, if it is valid for this operation-step combination. Upon detecting an error, the server sends an appropriate message to the operator, and waits for the operator to respond back with the correction.

The console interface task displays the work-in-progress on any DG terminal. This allows people to keep track of what is going on in the absence of a local CRT. The console task also provides a way to systematically abort the server by closing all connections, and provides control over the data base task. If, for example, the engineering data base must go down, the console interface task can request the data base task to stop the data base transactions and write the data to a flat file instead. When the data base is back up, a reconnect request will cause the data base task to read the flat file and queue the pending transactions.

The data base server is installed as a separate process and handles bi-directional communication between the VADES server and the engineering data base. It can service multiple VADES servers at the same time.

Finally, the report generator task provides hard copies of the inspection information—summarizes the information for each lot and also makes the disposition decisions. After collecting the data for the whole lot, the VADES server sends an "End-of-Lot" signal to the data base task and to the report generator task. The data base task will pick up the appropriate information and complete the data base transaction. Data base errors are logged into a separate file.

**Programming the Verbex 5000**

Developing the voice application first required a complete analysis of the inspection procedures used. From this analysis, we generated a grammar file that contained the words that would be spoken (vocabulary) and the host responses for errors. The grammar file was converted into a binary recognizer file and then downloaded onto the voice cartridges. This recognizer file also generates the training script or phrases the operator uses to "train" the system to recognize a voice. The recognizer file or the voice file can be edited, later on, if changes need to be made.

Voice training is done from user friendly, menu driven screens that are generated by the Verbex development software, and takes about one hour. Two training passes are required—one in a quiet environment and the second in the environment of use, so that the system can calibrate itself to the noise level.

**Operator reception to new technology**

The operators felt comfortable with the system within a day of use. In some cases, we had to retrain a couple of words due to the fact that, once the operators were comfortable with the system, they relaxed and pronounced some of the words more naturally than in the initial training. Operators are excited about this technology and like it because it makes their jobs much easier. Operator acceptance was achieved through communication throughout the introduction process, and ongoing afterwards.

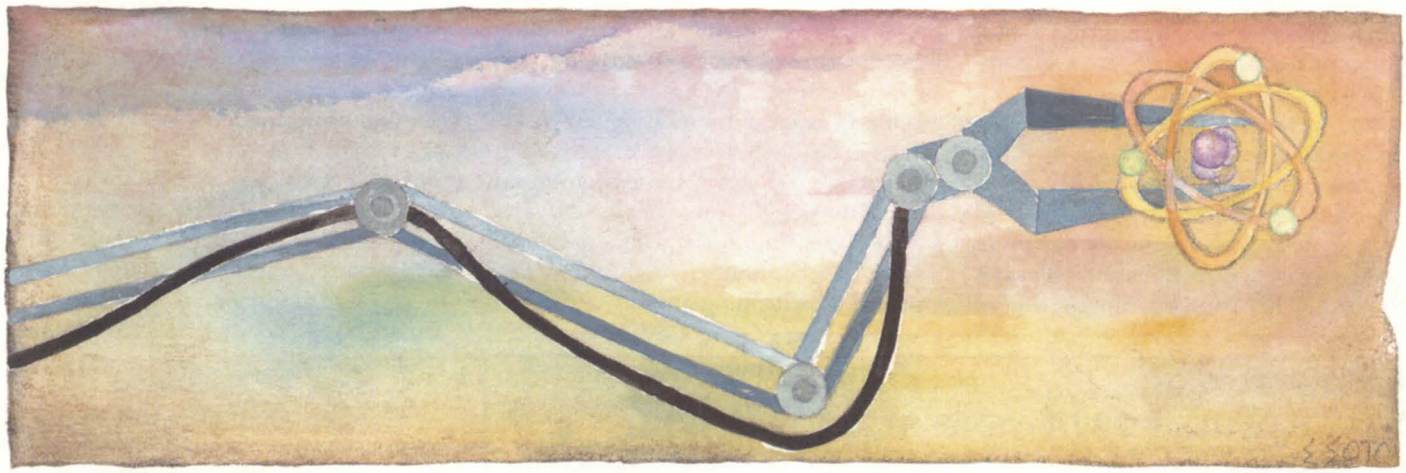
**Pilot results**

In line with the goals of the pilot, we evaluated the system in terms of productivity, data entry accuracy, and availability of the information for analysis. The pilot resulted in a 23 percent improvement in productivity.

Data accuracy was evaluated by monitoring the number of times an operator had to repeat an entry. Early problems were resolved, so that the data accuracy reached and stabilized at 99 percent. The prior method involved additional opportunities for error, due to manual data entry by clerks, and had an estimated data accuracy level of 85 percent.

Several demonstrations of the system have been conducted for other groups in Motorola's semiconductor sector. Visitors seeing the system in action are impressed—voice recognition technology has advanced sufficiently to be realistically considered for use on the manufacturing floor. The increase in productivity, availability of real-time information, and the benefits realized in hands-and-eyes-busy situations, make such applications extremely attractive. Δ

*Prasad Gavaskar is manager of the Computer Integrated Manufacturing group and Laura Weldy is a programmer/analyst at Motorola's Bipolar Logic Integrated Circuits manufacturing area in Mesa, Arizona.*



# A unified solution

**SYNOPSIS**

*General Atomics uses Data General MVs and an Indocomp subsystem to dismantle a high temperature gas-cooled reactor.*

Michael E. Marotta
Special to Focus

The first commercial high temperature gas-cooled reactor (HTGR) went online in 1976. Today, it is being dismantled with the help of Data General hardware. The Fort St. Vrain plant was built by General Atomics for the Public Service Company of Colorado. General Atomics also developed a robot to handle and account for the reactor elements. The present system uses Data General MV/2500 computers.

General Atomics was founded as a branch of General Dynamics in 1956 in response to "Atoms for Peace." Since its founding, it has been part of Royal Dutch Shell and Chevron oil companies. Today it is privately owned. GA is probably best known for its line of TRIGA reactors. These low-enriched uranium reactors are used by university researchers and hospitals in the United States and Europe.

General Atomics was able to use Data General computers for this project only because they had special hardware from Indocomp, a Detroit-area supplier of factory automation systems.

Indocomp was founded in 1976 and by 1980 had grown to $1 million in sales. It was bought by a machine tool company and sold off by the end of the decade. The old owners re-purchased their equity and launched into new markets.

"The existing equipment at Fort St. Vrain had hard-wired TTL logic," said James B. Zgliczynski, staff engineer at General Atomics. "When we went to replace it, we needed something to communicate with the existing system and we needed a fast speed. The Data General rep mentioned the Indocomp system."

According to Indocomp's president, Larry Borkowski, "General Atomics came to us because we have a bus interface that meets their needs. With our IS-3200, the DG host can read and write each memory location on the bus interface as if it were main memory."

Speed and accuracy are always important when dealing with nuclear power plants. In the case of Fort St. Vrain, cost factors added another limitation. Because the plant was being decommissioned, it was not generating any electricity, which means it was not generating any revenue. The system for tearing down the fuel cells had to be cost-effective.

The crux of the problem was to find a bus that would support the fastest transfer rates combined with the electrical power to drive a robot that weighed several tons. Zgliczynski looked at the open-architecture VME bus. "It turned out that the VME market companies had pieces of equipment that could be adapted to our needs but they had little interest in supporting us as an end user . . . Indocomp was applications oriented. Their product was proven, and it had input/output capability on the processor board. We could be assured that the software would run as fast as the processor could go."

**Controlling robots**

Three computers work in tandem to direct the robot that removes the fuel cells. Using the first computer, a reactor engineer picks the elements and the order in which they are to be moved. The computer checks this plan to determine that all moves are valid. The computer then creates a set of high-level commands that will be used by the other two computers.

A Data General MV/2500 is the supervisory computer. It provides the

reactor operator with an animated simulation of the transfer process. Once approved by the operator, the plan is converted by the supervisory MV/2500 into instructions for the control computer. The control computer is also an MV/2500. The control computer takes the commands given to it by the supervisory computer and generates instructions and set points for the fuel handling machine.

The movements of the fuel handling mechanisms are monitored and controlled by Indocomp's IND68000 subsystem. With a response time of 500 microseconds, it enables the system to move each 300 pound element 20 inches per second to within 1/10 inch accuracy. The IND68000 also transmits data to the supervisory computer. This data is displayed as a realtime graphic of the fuel transfer process.

"After a while you run into a bandwidth problem," said Borkowski. "So our solution is to provide a local bus on the board. When the processor accesses the bus, I/O doesn't go through the controlling computer." The bus also simplified the system requirements because of its ability to handle large electrical loads. Relay coils running on 40 volts at 1 amp can be switched directly, according to Zgliczynski.

Sophisticated systems solutions do not evolve overnight. General Atomics has over 30 years of experience in high technology. Fort St. Vrain was in operation since 1976. When the system was originally designed, a Digital PDP-8 was used. The PDP-8 had 8K of memory, TTL logic, and a wire-wrapped backplane that extended directly into the controlled robot, providing it with commands for speed and location. Offline was a Univac computer, programmed with punched cards. The moves were coded into the Univac, which checked them for accuracy and then produced a paper tape for the Digital mini. You can see the obvious advantages to a unified, integrated Data General MV solution.

Also unavailable in 1976 was the Motorola 68000 CPU, the precursor to the RISC chips that run the Aviion. Borkowski explained that "the IND68000 provides high-speed throughput at more than 1 MB per second. There is intelligence on every board—a Motorola 68010 processor. This means that every IND68000 has the smarts of a Macintosh."

### Power for people

This kind of systems integration is singularly important to the continued success of Data General. The fact is that neither AOS/VS nor Unix lend themselves to realtime applications. (Both can do realtime, but neither is designed for it.) Furthermore, even an MV processor is challenged by the opportunity to service 2,000 interrupts per second while reading a couple of analog channels. With Indocomp's IND68000, the DG host is offloaded for the work it was designed for—supervisory and high level tasks. Δ

*Michael E. Marotta is a technical writer with a decade of experience on Data General and other equipment. He works in manufacturing and business environments.*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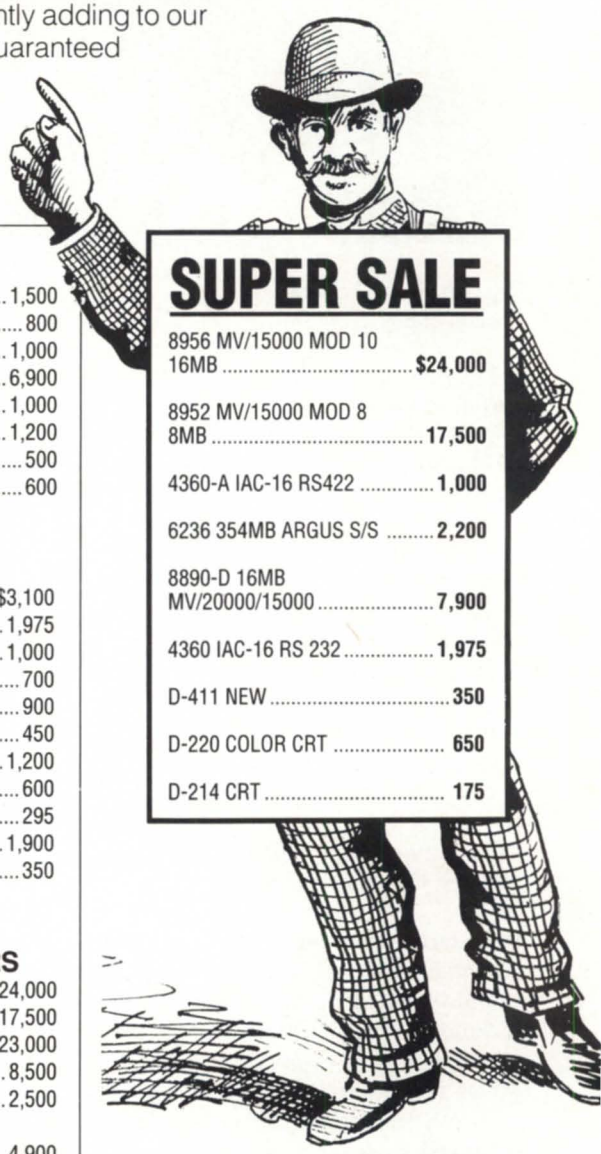

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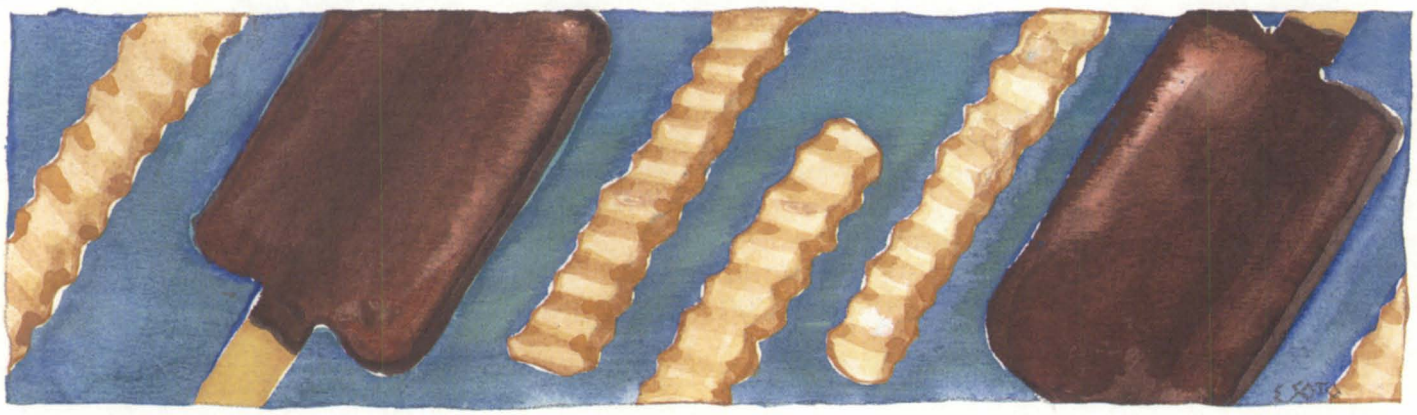
# Inside Eskimo Pie

**SYNOPSIS**

*It takes more than chocolate, ice cream, and a wooden stick to make a delicious ice cream treat. Food manufacturers in a variety of applications make DG equipment part of their recipes for success.*



by Lori Rhea DiSorbo
Focus staff

For food manufacturers, the key concern is obviously to deliver a tasty, fresh product. Time constraints on freshness once restricted consumers to purchasing goods from companies in their general vicinity. Automation and preservation techniques allowed mass-produced goods to be transported longer distances. Now, computerization makes it possible for companies to maintain a single geographic headquarters, regardless of the number and location of production sites.

In the vertical market of food manufacturing, DGs are utilized in both head offices and in production facilities. Two well-known food manufacturers that rely on DG equipment are Eskimo Pie Corporation and Ore-Ida Foods.

**From factory to freezer**

David Martin is system manager for Eskimo Pie Corporation's head office in Richmond, Virginia. With an MV/15000 mod 8, 16 MB of memory, and three disk drives, he ensures that consistently similar, fresh Eskimo Pie frozen snacks are produced.

Martin communicates with three remote sites and numerous dairies to develop Eskimo Pie products. Two sites—one in Los Angeles and the other in New Berlin, Wisconsin—produce the flavored coating for the Eskimo Pies. A site in Bloomfield, New Jersey supplies the wrappers, bags, and boxes for the snacks. Once the coating and containers are made, they are sent by freight to designated dairies where they meet up with ice cream and are then distributed as Eskimo Pies.

As different locations use and produce goods, they must update an inventory data base maintained by headquarters in Richmond. Richmond generates reports concerning the cost of ingredients and finished goods. Also, New Berlin and Los Angeles as well as the head office accept customer orders. These must be coordinated among the branches.

To accomplish an effective networked environment, Eskimo Pie utilizes a Comdex system with a series of dedicated leased lines, modems, and multiplexors. The different locations also communicate internally and with each other through electronic mail.

**The DG behind the EP**

At the plant in Richmond, the MV/15000 runs a manufacturing business system called EPICS (Eskimo Pie Information and Control System). EPICS manages accounts payable, accounts receivable, production performance, general ledger, orders, inventory, payroll, purchasing, sales analysis, inventory cost information, and other aspects of Eskimo Pie manufacturing. The Virginia office also uses CEO, CEOwrite, Present, data tables, and decision base software to take care of business.

Since 1979 when Eskimo Pie first implemented DG computers, the Virginia office has seen two major upgrades. The first replaced a DG Nova with an MV/4000. The second, in July of 1989, switched the MV/4000 to the MV/15000, and added AOS/VS II and Infos II. Martin says that future plans include the installation of Portwatch, Password Control System, Office Publisher, and a Postscript printer.

"Everything we have is basically a DG product," Martin says. About 50 users work on the system performing the various functions mentioned above.

**All-right-a**

At a factory in Plover, Wisconsin, Data General computers work around the clock making Ore-Ida French fries. Ore-Ida has three potato processing factories. Corporate offices in Boise, Idaho indicate where shipments from each plant are to go. The corporate office, three manufacturing sites, and distributor connect electronically by DG computers with networking equipment including SNA, RJE, and Xodiac.

Tom Henke is factory programmer

analyst for Ore-Ida Foods, Inc. and explains their manufacturing process with DG at the helm. He tells that with third party software from Geo Control Systems of Houston, Texas, DG computers run a control application in the factory that monitors the conversion process of whole potatoes into potato products such as French fries. The equipment ensures that proper times and temperatures are used throughout the process.

At the Plover factory, a number of MVs control operations. An MV/15000 mod 10 runs manufacturing. The MV is hooked to PLCs (programmable logic controllers) that operate a conveyor system. The PLCs execute steps in a process, for example, as one valve closes, another operation is activated. Potatoes arrive at the plant and move in a line where they are peeled, cooked, cut, and fried, all at the control of the MV/15000.

An MV/2000 tracks inventory of the product when it reaches the packaging stage. The system is connected to a bar coding device that tags the finished product. Once the products are produced, bagged, and boxed, they are put into freezers to await distribution. Ore-Ida uses another MV to run business applications such as word processing, employee data, and information on potato sellers.

Henke says that since the factory's beginning in 1979, DG is the only consolidated computer system they've had. "Everything seems to run fairly smooth," he says.

### Exponential growth

Henke tells that when he started working with Ore-Ida four years ago, they had two MV/4000s, and had just purchased two MV/2000s. They soon upgraded one of the MV/4000s to an MV/15000 mod 8, and the other MV/4000 to an MV/15000 mod 10. Recently, they upgraded the MV/15000 mod 8 to an MV/15000 mod 20, and will probably be upgrading the MV/15000 mod 10 within the next year.

"Everything seems to grow exponentially," says Henke. Along with the upgrades to MV/15000s, they also upgraded operating systems to AOS/VS II. Moreover, Henke relates that the MV/30000 at the NADGUG 90 conference appealed to them, and they hope to be upgrading one of their systems to this latest MV within the next year.

To accompany their leaps in growth, the manufacturing plant in Plover has continued to choose Data General. Henke explains that, "one thing about DG in our manufacturing environment is that it is a very stable computer system, and stability is crucial." He explains that the factory runs a 5-day 24-hour process. Employees work around the clock. The computer has to be up almost constantly.

Henke is pleased with the performance of the DGs, especially as a manufacturing control system. He tells that not all Ore-Ida remote sites use DG computers in their control environment, and a noticeable difference has surfaced. He states, "by putting in a control system with DGs, the quality here has been very steady compared to the other locations. The DGs have greatly helped us improve the quality of our products." Δ

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# Learning to share

**SYNOPSIS**

*Wordperfect's Office calendar can save you time and money by providing a scheduling technique free from paper and phone calls. Read on for a trick to get your users to try it.*

by Kent Finkle
Special to Focus

Once before, I wrote an article in *Focus* called "Forget Kindergarten." As you recall, in school we were told not to copy other people's notebooks. My article, on the other hand, encouraged people to copy the Notebook Wordperfect provides with Office, rather than reinventing the wheel.

Now, just to show you that I don't reject all the moral lessons I learned in school, let me come out in favor of sharing. Computer networks, unlike standalone machines, promise to let you share information easily. Last year, I wondered about how we could get more out of our hardware investment. Then, the school department called. They asked if I could set up a calendar that everyone in the school system could share. This article shows you how we created a shared calendar using the Wordperfect Office on an MV system. It also shows how you can set up your own.

**What date did you say?**

The Wordperfect Office, a collection of office automation programs sold by Wordperfect Corporation, includes a calendar. Calendar, of course, computerizes the familiar paper desktop calendar. But, it goes far beyond simply displaying information using the metaphor of a calendar. Users can set alarms that will warn them of an imminent appointment or meeting. The alarms go off even if the person is using another program at the time. The to-do list, judging by the length of my to-do list, knows enough to roll forward the undone user-assigned priority from 1 to 255. You can even program Calendar to post repetitive events automatically via the Auto-date feature.

By the way, here's a tip to help you attract the interest of the new Calendar user. Ask them on what day of the week they were born. They usually don't know. Calendar goes back to Saturday, January 1, 1600, which should cover the range. Even here in town hall, we have only a few employees older than that. Anyway, if they will tell you their birthday, use:

UDD : PAT : CALENDAR

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|---|---|---|---|---|---|---|
| 23 | 24 | *25 | 26 | 27 | 28 | 29 |
| 30 | 31 | | | | | |
| January 1991 | | | | | | |
| | | 1 | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | *9 | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 20 | *21 | 22 | 23 | 24 | 25 | 26 |
| 27 | 28 | 29 | *30 | 31 | | |
| February 1991 | | | | | | |

1 Date ; 2 Setup ; 3 Print ; Auto-Date:

1-Date
1-Go to Date

to look up their birthday. If the year is not in this century, enter all four digits, i.e., 1899. If they prefer to keep their age private, show them how to do it themselves. Then step away from the terminal for a few seconds and let them look up the date away from prying eyes. In a moment, Calendar will show them the day of the week they were born. That trick often sparks interest in the program. Often, they will then ask for the day of the week of grandchildrens' birthdays, weddings, and other sentimental occasions. Since I enjoy history, I looked up historical dates. For instance, the Fourth of July in 1776 fell on a Thursday, for those of you keeping score.

**Utilizing Calendar**

We in North Andover have taken the Calendar program one step further and created a multi-user shared calendar. We want our network to make information easily available. Users throughout the town can now put the same calendar information on their own terminals. If they opened the Calendar first, they can make changes to this information.

You can search Calendar by date or by key word, using the familiar Wordperfect Search Key, F2. There is a trick to it. Press the Break/Esc key after you enter the search word or phrase. Don't press New Line. If you prefer, you can simply browse until you find what you are looking for.

Calendar maintains order in the multi-user environment by allowing only one user to make changes at a time. That user is the first user to open the calendar. When that user exits the Calendar, write privileges become available. But, many other users can view or print the calendar at once without conflict. The changes made by the user with write privileges do not appear to other users until that user has finished.

Users save time and money by having access to current information at the press of a button. Also, the shared calendar ends the labor-intensive task of producing, distributing, and updating paper calendars throughout the school system.

Multi-user applications have obvious benefits, not limited to the ones described above. You can create one with time and a thorough knowledge of data base pro-

gramming in C or Cobol. Since I don't have that much time, and I'm not a programmer, I enjoyed discovering that Calendar handles the hard work for you. It locks and unlocks files and otherwise manages access to the data. Setting up the calendar for multi-user access took me less than one afternoon's work.

If you aren't sure how to do it, this article spells out all the steps necessary to create a shared calendar. Our shared calendar functions smoothly. If you think that our people are more computer literate than yours, think again. Employees without previous computer experience other than basic Wordperfect word processing can use the shared calendar.

You'll enjoy creating a shared calendar. Use the following example as a guide. Of course, the username doesn't matter. It can be anything you like.

**Here's how to do it**

First, use Preditor to create a user, say, SharedCal. Log on as SharedCal. We'd like the Wordperfect Office menu program to turn on automatically when SharedCal logs on. So, let's create a setup.cli file that contains the command to run the menu.

```
*) cre/i setup.cli [newline]
*)) office [newline]
*)) ) [newline]
```

Now, whenever SharedCal logs on, the user will see a menu. What will that menu look like? We will use the Office menu generator to design it.

We need to put two choices on the menu: Calendar and Help. Office puts an exit choice on the menu automatically.

```
*) office/s [newline]
```

You see the Wordperfect Office setup menu. This program lets you create a custom menu:

```
1-Edit
Menu letter: C
Menu description: Calendar [newline]
Selection: 2-CLI Command
CLI command: runcal [newline]
Prompt to Continue: N
Menu letter: Function key 7
```

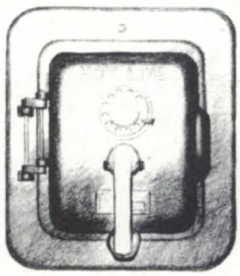
Next create a help screen:

```
1-Edit
Menu letter: H
Menu description: Help [newline]
Selection: 2-CLI Command
CLI command: Type CalendarHelp [newline]
Prompt to Continue: Y
Menu letter: Function key 7
```

Then exit from the menu to the CLI with another F7. This step created a file called SHELL.FIL. This file contains the description of your menu for reference by the Wordperfect Office.

Then, use your text editor. I used Wordperfect's wonderful PEDIT, but you could use SED. You could even use Wordperfect's word processor if you know how to save a text file with Ctrl-F5-1, and then remember not to save on exiting. Create a text file consisting of the following information (or words to this effect):


IN CASE OF EMERGENCY



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* Use this shared calendar as often as you like.
* To use the calendar, type "C" at the Wordperfect Office menu.
* If you opened the calendar first, you may make changes to it.
* If someone else has opened the calendar before you, you may READ ONLY.
* To exit from a calendar you have made changes to, press Function Key 7 (F7).
*To exit from a READ-ONLY calendar, press F1.

Type any directions that suit you. Just don't make the file longer than your terminal can display on one screen. Save the text file under the name CalendarHelp. Create another text file in your text editor, one that looks like this:

* If another user has opened the calendar, you will see the words "FILE IS READ ONLY."
* You will NOT be able to make changes to a READ-ONLY calendar.
* IMPORTANT: Exit from a read-only calendar by pressing function key F1.

Again, don't make the help screen too long. The top of it will scroll off the screen. Exit and save this file under the name CalendarHelp2.

This last text file runs the calendar. In your text editor, create a file exactly as shown:

```
Type CalendarHelp2
[!read,Press New Line to open the calendar, ]
Cal
```

The second line bears some explanation for those new to CLI macros. The [!read] command waits for the user to press New Line before continuing. It just stops and lets the user read the help message before running the calendar. Save this file as runcal.cli, and exit your text editor. You might want to put permanence on these three files in case a user decides to erase them for some reason.

```
PERM CalendarHelp CalendarHelp2 +.cli +.fil on
[newline]
```

That's all you need to do to create the application.

Next, get the word out to your user community. Tell them about the shared calendar. If your group resembles mine, you won't have to push them to use it. The school system quickly put the program to work because they had asked me to set it up in the first place. When I had it ready, they couldn't wait to start. I can usually teach it over the phone in about five minutes. Also, make sure they know about the excellent pop-up help, available by pressing F3. Many times, users figure out much of what they want to know on their own. Most of them already used the similar commands of the Wordperfect word processor.

We have used the shared calendar for over a year. We have experienced few problems in all that time. Support time has been close to zero. And we *are* sharing. My kindergarten teacher is much happier. Δ

*Kent Finkle is computer system manager for the Town of North Andover, Massachusetts.*


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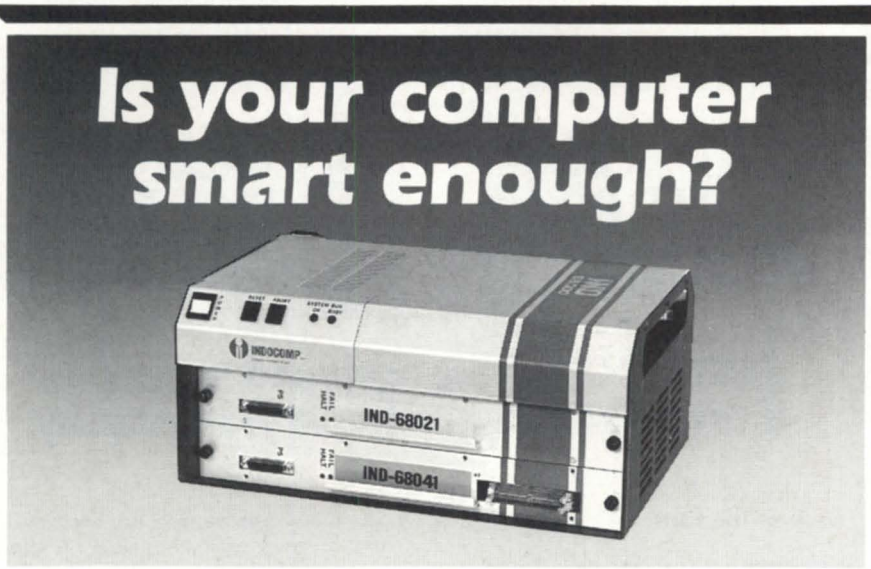


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# Use your connections

On the following pages you'll find our semi-annual listing of the NADGUG roster. The roster is provided by NADGUG so that you may connect with other DG users with similar interests.

The Executive Board and the Standing Committee chairpersons are the NADGUG leadership. Special interest groups are made up of users who represent a particular software, operating system, or industry. They usually meet once a year. Regional interest groups are geographically defined users of Data General equipment, and may meet several times a year. Each listing contains a contact individual.

To report changes in the roster, please contact Greg D. Goss, coordinator of NADGUG member services, at 1-800/877-4787 (512/345-5316 outside the U.S.).

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*continued on page 42*


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# NW/VS transports

**SYNOPSIS**

*Netware Transport for AOS/VS supports several protocols—even some it doesn't use.*

It's January for you, but early November for me and the memories of the NADGUG conference in Seattle are still fresh in my mind. While many of my fellow exhibitors are laid up this week, somehow I managed to escape the annual "NADGUG Virus." Not the computer kind, mind you, but the flu and cold type to which so many succumbed this year.

The level of enthusiasm for the still-not-yet-released Netware for AOS/VS (NW/VS) was quite high, and the response to my random sampling of "Should I keep writing about this?" was emphatically "Yes." So, here goes . . .

**The architecture**

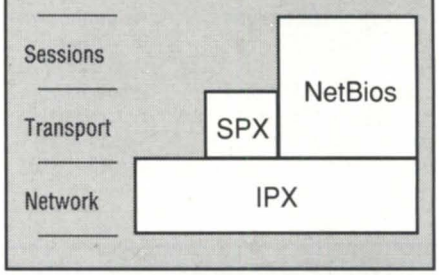
Netware Transport for AOS/VS is one of two components of Netware for AOS/VS, the other being the Netware Services. If you are planning to use NW/VS only as a platform for specific distributed applications (most notably CEO Object Office), transports may be all you need. If you want the more traditional file and print services, however, you will also require the separate NW/VS Services package.

In fact, the transports support the first five layers of the well-known OSI model. At the physical and data link layers we have adapted the support provided by XTS-II for ethernet and token ring. (AOS/VS Classic users fear not! We support VS and VS II equally.)

**IPX: The network layer**

The network layer of Netware is IPX, a derivative of Xerox's Internet Datagram Protocol (IPD). While all Netware services ultimately make use of IPX, most in fact, use it directly. IPX is an unacknowledged datagram protocol. It's about as simple as you can get, since each packet stands by itself. If there's a relationship of one packet to the next, that concept is not known to IPX itself but must be maintained by higher level protocols such as SPX or Netbios. In fact, there are only two things that IPX adds to the underlying data link protocols (ethernet and token ring).

**Figure 1: Netware protocols**




The first value of IPX is isolation of the higher layers from the data link layer. Whereas ethernet, token ring, and arcnet, for example, are quite different from one another, IPX can work with any and all of them, and most important, the software interface to IPX from the higher layers is identical no matter which data link layer is in use. It is difficult, for example, for a programmer writing to the IPX interface to determine which data link protocol is actually being used.

Second, IPX provides routing. If a packet must pass from its source, through a variety of routers (called "bridges" by Novell) such as modems and leased lines, this should also be of little concern to the IPX programmer. It is the network layer protocol (IPX) that both takes responsibility for routing and hides this function from the layers above.

**SPX: The transport layer**

I hesitated using the accurate terminology, calling IPX an unreliable protocol, as that implies some sort of flaw. (Remember when people wouldn't buy ethernets because they thought "collisions" were a bad thing?) "Unreliable datagrams" simply means that it is the

responsibility of a different layer (transport) to handle lost packets, retransmission, and sequencing.

SPX is the standard transport protocol for Netware. Although it is available on every Netware system, server, and client side alike, it is rarely used. Like IPX, SPX is a derivative of a Xerox XNS protocol, in this case the Sequenced Packet Protocol (SPP). The differences are slight but enough to keep an SPX node from communicating easily with a real SPP host. Under NW/VS, in fact, there is virtually no standard component or utility that uses SPX, but it is there for those who require a simple, reliable full-duplex protocol.

**Netbios: The session layer**

Netbios is the final protocol supported by the Netware Transport for AOS/VS. Like SPX, Netbios is not used by any of the Netware itself, but is provided for third-party distributed applications. Netbios supports both a datagram service and a full session interface. The difference between the Netbios session interface and SPX's transports is that Netbios does a more complete job of managing connections. Whereas the SPX and IPX programmer must find a way beyond these protocols to identify physical nodes on the network, Netbios includes a name service allowing nodes to be named and connections to be established between name pairs. Netbios also provides more robust support for establishment and termination of sessions than the transport functions provided by SPX. Like SPX, however, Novell's Netbios makes use of the underlying IPX datagram protocol.

**Interfaces**

It may seem peculiar that two out of the three protocols supplied with Netware are not used by Netware itself, but both SPX and Netbios are important tools for developers of distributed applications. Oracle's SQL*Net, for example, uses SPX to communicate from node to node, while applications such as CEO Object Office can make use of Netbios.

The interface to Netbios under DOS or OS/2 is reasonably well standardized, and you can expect existing Netbios programs from other environments to operate under Netware's Netbios emulator. That is, PCs can communicate with one another using standard Netbios calls.

Under AOS/VS most applications will make use of the Transport Layer Interface (TLI) calls that have been ported from the Unix environment. Via TLI you can get to IPX, SPX, or Netbios using C language library calls that are virtually identical to those you will find on any other implementation of Portable Netware.

In a future column, we'll take a look at how Netware for AOS/VS supports access to Netbios for AOS/VS applications, including those originally written for Data General's DG/PC*I. Δ

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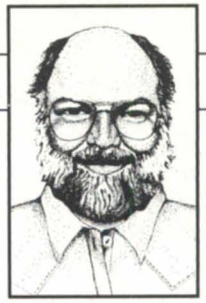
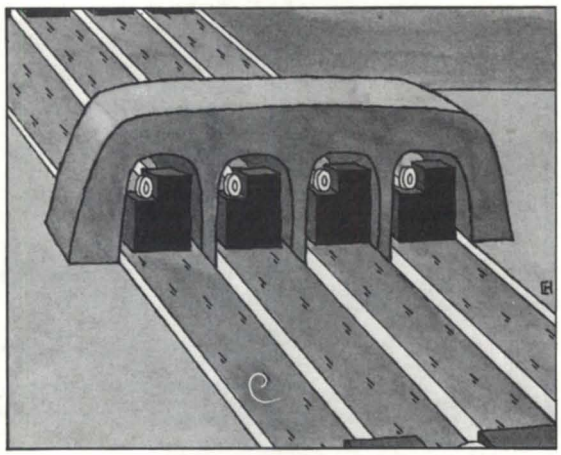


# More DUMP lore

**SYNOPSIS**

*What data blocks can tell you about a DUMP file. Plus, a fruitless search for the perfect cherry pie, or, at least working cable.*



Last month's column ran too long and had to be split across two months. If you will recall, I described a program that analyzes block types that occur in a DUMP file. A copy of this program is available on the SYSMGR BBS as item AOSVS16:UTILS:CLIDUMP. This month, as promised, I'll wrap up the topic with a discussion of LOAD/DUMP lore and techniques.

**:BLOCK_TYPES**

A DUMP file always begins with a dump header block and ends with an end-of-dump block. The general order of the other block types depends on the type of file. Here are some common examples:

Directory:

```
Filestatus
Filename
Start
. . .
[UDA]
[ACL]
End-of-file
```

Link:

```
Filestatus
Filename
Link
```

Data file:

```
Filestatus
Filename
[Start]
[Data header,data] . . .
[UDA]
[ACL]
End-of-file
```

Note that links do not use start and end-of-file blocks.

In the data file case, data header blocks and data chunks are only present if the file has a non-zero length and is not entirely sparse. (Remember from last month that data chunks are the data blocks that follow a data header.)

**:TIPS_AND_TECHNIQUES**

The file position field in the data header is always a multiple of 512 bytes, but it does not necessarily advance by the amount written as a result of the previous data header. Both DUMP and DUMP_II skip over disk blocks that are entirely zero (sparse blocks), although the mechanism that they use is different. DUMP actually checks that the disk blocks are zero. DUMP_II uses the "read next allocated element" option of the ?BLKIO system call, and then checks to see if the blocks are

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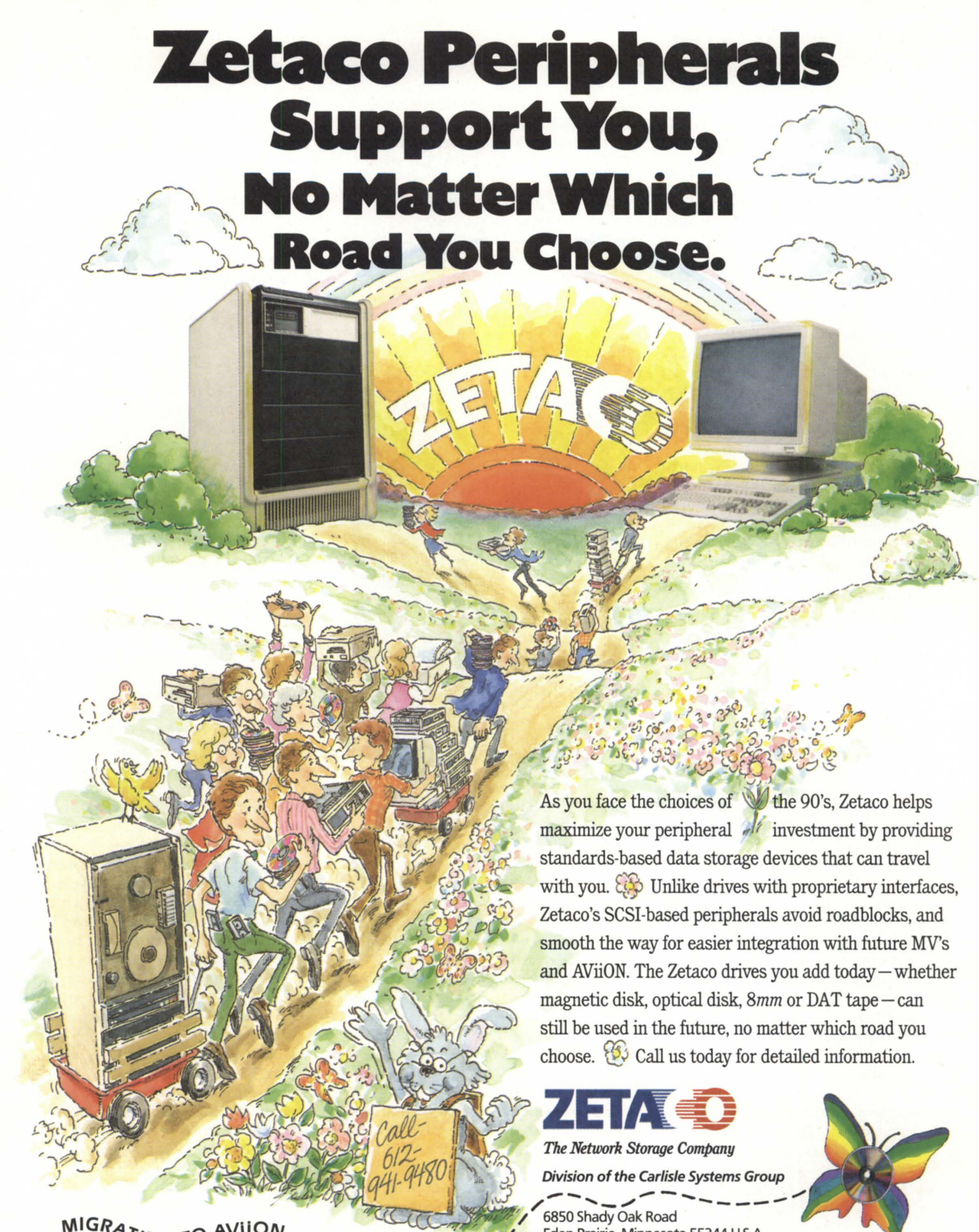


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zero in spite of being allocated. It's this use of ?BLKIO by DUMP_II that is responsible for DUMP_II's much higher speed when dumping largely sparse files. However, because the ?BLKIO system call was not added to AOS/VS until rev 6.00, DUMP_II is limited to rev 6.00 or later. ?RDB/?WRB have been supported since AOS rev 0.00.

I have a comment in the source code of one of my earliest (circa 1977) attempts at writing a program to read AOS DUMP files that warns that LOAD makes allowance for the possibility of a -1 in the data header file position field, but I've never seen it used. A -1 is used to indicate that the data is to be written using relative file positioning instead of absolute positioning.

The last data block of a file can present some problems if the file is sparse. DUMP_II unconditionally generates a data header and data chunk for the last block in the file, even if it's sparse. LOAD doesn't, and instead checks to see if the last block was actually written. If not, it writes the final (perhaps partial) block to establish the actual file length as indicated by the filestatus block. As it happens, LOAD_II includes this same logic, so it's a mystery why DUMP_II bothers to force a final data header for a sparse last element.

Another data header quirk is the relationship between the /BUFFERSIZE= switch on the command line and the size of data chunks occurring in data headers. Does the /BUFFERSIZE= switch apply only to the block size of tape input/output files, or does it apply to the data chunk size? The answer is "all of the above." DUMP seems to apply the /BUFFERSIZE= value to both the tape block size and the data chunk size, but DUMP_II doesn't. Go figure. For practical purposes, I guess you should assume that the data chunks can be any size up to the maximum supported by DUMP_II (32,768 bytes), regardless of the tape block size.

DUMP_II adds two junk bytes after the end-of-dump block for no apparent reason.

Notice that the PERMANENCE status, UDA and ACL are only applied if the file or directory was created, and the ACL is not applied until after the close. This explains a number of recurring problems experienced by users who abort LOAD[_II]s using Control-C Control-A or Control-C Control-B. They don't notice that the ACL of the file that was being loaded, and any superior directories that had to be created to get to it, are still set to their default ACL, not the ACL contained in the DUMP file.

A second problem is peculiar to Infos files; if you load a backup copy of an Infos index or data base structure on top of an existing version using /DELETE, the volumes will be restored correctly, but the directories will not be. /DELETE does not cause directories to be deleted (thank God!), only files. As a result, the Infos directories end up with their current UDAs, not the ones contained on the backup. This mismatch is fatal because the Infos directory UDAs are used to store critical information regarding the current extent of the volumes that they contain. The whole raison d'etre for DDUMP /DLOAD was to guarantee that the UDAs would get updated even if the directories weren't created. It also explains why the /UPDATE switch was added to LOAD_II. /UPDATE forces the CPD max size, PERMANENCE, ACL, and UDA to be applied, even if the file or directory was not created as part of the current load.

*SYSMGR: BJ, Corinne Martin, and Carla Perumean.*

What part does multi-volume labeled tape play in the DUMP file format? None. Labeled tape handling for DUMP and LOAD is handled entirely by the AGENT in a transparent fashion. DUMP_II /LOAD_II chose to muddy the water a bit by doing their own quasi-standard tape labeling, perhaps in frustration at the difficulties they encountered doing any kind of bad tape recovery when using the AGENT's labeled tape facility. However, the DUMP file format is blissfully unaware of volume transition issues.

Finally, the reason for not including NUL delimiters in the link and ACL blocks is a mystery to me. Theoretically it saves space, but there is far more space to be saved by eliminating the pad byte count in each data header and just allowing the data header length to be either 10 or 11, depending on whether a pad byte was needed or not.

**:COLUMN/2**

Normally, this month is reserved for coverage of the System Manager's Roundtable at the NADGUG Conference. However, NADGUG decided this year to combine the SMR with the Operating Systems Roundtable held as the last session on the last day after a lot of people had already caught early flights home. Attendance was substantially less than previous years, even with the addition of the five or six Unix users who showed up. So, instead of the SMR playback, I've decided to indulge in a bit of humorous non-fiction.

**:FEAR_&_LOATHING_IN_TWIN_PEAKS**

Long before the Conference, we decided around here to go up to Seattle a few days early and spend Saturday night in Snoqualmie and North Bend, Washington, the adjacent towns on which David Lynch's TV series, Twin Peaks, is based. We figured that we'd all check into some motel in town and watch Twin Peaks on TV while sitting in the actual locale surrounded by beer and junk food.

I've been a fan of David Lynch's movies ever since I saw Eraserhead about 10 years ago. Eraserhead is about an 11 on weird and bizarre movie scales. If you haven't seen it, try renting a copy from your local video store and see what kind of looks you get from the clerk behind the counter. Anyway, I was really looking forward to sitting in Twin Peaks and watching the show.

As soon as the BJ Inc./:SYSMGR group (all three of us) assembled in Seattle, I rented the biggest white Lincoln I could find, intending to execute a sort of Hunter Thompson style trip to Twin Peaks to begin the adventure (I had been reading one of Hunter's books on the flight up).

Carla, our marketing director, was armed with a page describing Twin Peaks

that she had torn out of the *Conde Nast Traveler* magazine, and I had the standard rental car company map of the area, so we didn't expect any serious navigation difficulties at either gross or fine scale. Corinne, the advertising director, was elected staff photographer for the purpose of documenting the adventure with a view toward selling future book and movie rights.

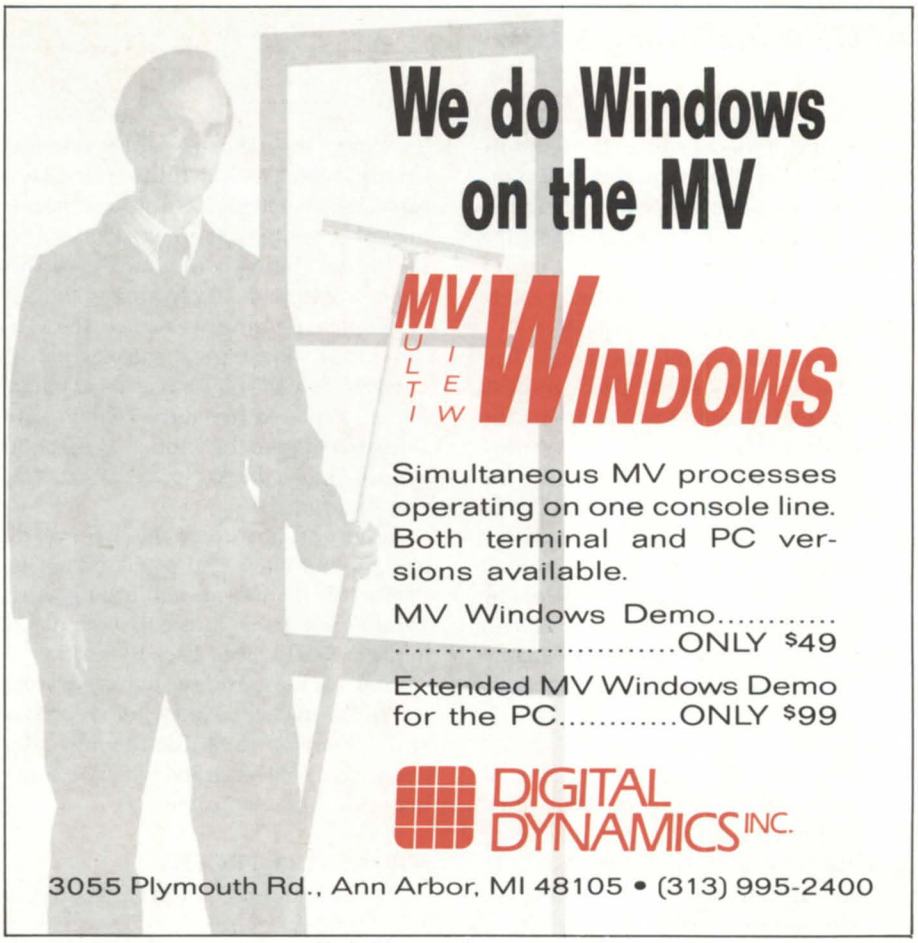
Finding Snoqualmie and North Bend using the rental car company map was a piece of cake. We cruised both towns (they're only two miles apart), saw several items from the series like the abandoned railroad car where Laura's murder occurred, and generally gathered data on the layout.

*The MarT diner.*

Finding the waterfall and Great Northern hotel featured prominently in the series was a bit more difficult. The local signposts were confusing, and the description of how to get there in the *Traveler* magazine page was flat out wrong (documentation errors seem to be a way of life). After driving about 10 miles out beyond the main Weyerhauser plant and through a bunch of forests on a dirt road, we popped out onto the main highway right at the falls and the Salish Lodge (used for the exterior shots of the Great Northern hotel). We ogled the view in a light rain, and then headed back toward town down the main road, only to find that we had been within inches of the site during our earlier reconnaissance, but had stopped just short and turned around when it looked like we were leaving town.

Snoqualmie has zero motels, so we motored over to North Bend where we had spotted the MarT diner (home of Agent Cooper's cherry pie) and two motels. The staff picked the least sleazy of the two motels (I thought they were a tie), and we checked in at about 7 p.m.

Twin Peaks comes on at 10 p.m., so we decided to visit the MarT diner for a bit of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dinner, only to find a sign in the window saying that they had closed at 5:30 p.m., and that they were out of pie. We found another place to eat, but I didn't like the looks of the joint so I just ordered a cup of chili. It was the worst chili I've ever eaten; just beans and bitter tomato paste.

When we checked into the motel I had spotted a brochure at the check-in desk listing a BBQ place in town claiming the "Best Ribs in the Northwest." We swung by there and I picked up a sliced pork sandwich. Any of you who have been in North Carolina will know that "sliced pork sandwich" is a keyword phrase; a good one can be a religious experience. This one was a hellacious experience; an ounce of pork on a hamburger bun with ketchup for sauce. So much for truth in advertising.

Back at the motel at 9 p.m. we assembled in my room and turned on the tube. At 9:20 p.m. the cable went dead. We waited until 9:50 and it was still dead, so we leapt into the car and rocketed back to Snoqualmie to the Mount Si Bowling Alley (four lanes and a Spanish speaking team playing) to watch the show. Dead cable. We visited the local bar and asked if they planned to watch Twin Peaks. They said no, but that we could, and they turned on the TV to find . . . yep, dead cable.

The next morning, we went to the MarT cafe for breakfast (great sausage patties, but didn't try the pie) and as I was paying the bill I spotted two nifty Twin Peaks t-shirts hanging in the window. I asked for a couple and was told "we're out of them." Great marketing.

At the gift shop down the street we did manage to finally find some great Twin Peaks t-shirts and an audio tape of the Twin Peaks theme music that we played in the car all the way back to Seattle.

Well, we never did see that week's episode of Twin Peaks. And when we arrived at the Sheraton in Seattle the next afternoon, you'll never guess what we found in our rooms; dead cable.

**:UPDATE.CLI_TROPHY**

The 2nd Annual UPDATE.CLI trophy was awarded at the Conference to the groups responsible for what I call "COMM II":TCP/IP II 1.00, XTS II 2.00, and AOS/VS II 2.00 QNET.LB (the kernel support for networking). Jim Hassey, AOS/VS program manager and author of the much loved UPDATE.CLI macro, accepted the trophy on behalf of the groups.

For any of you networking types out there who are still on AOS/VS Classic, there's finally an excuse to upgrade to AOS/VS II and COMM II. You won't have to comb your hair in the morning anymore; logging on across the network will blow it into place for you.

For other DG development groups working on winning the trophy next year, I can give you a clue that the first group to come up with a high performance alternative to UPDATE.CLI is a shoe-in.

**:SLEAZE_TOUR:89**

Expectations were not high this year due to poor reports from the scouting parties, but it ended up being good enough that a splinter group of die-hards mounted


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(pun intended) a Sleaze II on Wednesday night to gather additional data on the art of Couch Dancing. Scouting is already underway on Denver sites for next year's Conference.

**:RUMORS**

A couple of rumors surfaced at the NADGUG Conference. One was that I wouldn't be writing this column much longer. The same rumor surfaced last summer and the truth is the same as it was then; I'll be writing this column as long as *Focus* will have me.

The second rumor was that BJ Inc. was getting out of the DG business. News to me. Our current strategy is quite simple; as long as there's enough business from DG users to keep us going, we'll be there.

Another recurring topic at the Conference was whether our :SYSMGR division would be producing any products for the Aviion market. As of now, the answer is no, but we keep re-visiting this issue about every six months.

There are several problems with us getting into the Unix market via the Aviion. One is that there is no standard set by AT&T for true system performance data that is portable across multiple Unix implementations; each implementation does something different. That means that a version of :PERFMGR would have to be developed from scratch for each version of Unix, including DG/UX. Given the current size of the Aviion market as evidenced by the lack of Aviion customers at this year's Conference, this just doesn't make sense yet.

*You won't have to comb your hair in the morning anymore; logging on across the network will blow it into place for you*

The second problem is that it's difficult to justify writing system management tools and utilities for a marketplace where you're constantly looking over your shoulder for some shareware product to appear and blow you out of the water. Even if your package is better than the shareware version, which is usually the case, it's tough to beat a price tag of zero.

If the situation changes, you'll be the first to know. Δ

*BJ is the president of B.J. Inc., a San Francisco based consultancy specializing in system auditing, system management, and performance analysis. :SYSMGR is a division of B.J. Inc. BJ can be reached at 109 Minna St., Suite 215, San Francisco, CA 94105; 415/550-1444 (voice) or 415/550-1072 (fax). The :SYSMGR bulletin board number is 415/391-6531 (300/1200/2400 with optional MNP class 5, CHAR/605X/CHARLEN=8/PARITY=NONE/AUTOBAUD) or 415/550-1454 (voice).*

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# We interrupt our normally scheduled routine . . .

**SYNOPSIS**

*Presenting two macros for cleaner computing. The redo macro for CLI32 lets you re-execute command lines. Return_Error CLI quickly and quietly stops any CLI macro.*

Data General produces an internal electronic daily publication called "News-On-Line". In Canada, the NOL has recently been prefixed with a "smile-of-the-day" type of joke or comment on life. A typical entry is: "To be a successful woman in business means that you have to look like a lady, think like a man, and work like a dog." That entry lost out in the September muffin-of-the-month contest to another entry that went something like "Recession is when people get laid off, Depression is when it happens to you."

On Thursday, October 4, 1990, I was "offered" a chance to experience the difference between recession and depression. It only took a few minutes for management to explain what the severance package was, and that the arrangements with an out-placement counseling service had been made—they would be calling me that evening. Eight and one-half years of working for the company were over.

One of my first actions was to call Lori Rhea DiSorbo, (assistant editor for *Focus*), and ask her to remove some paragraphs from my December column, which I had submitted a few days before. I then cleaned out the personal files that I had on the office computers, removed the PC software that was licensed personally, and packed up my personal effects. By the time I had finished packing, *Focus* editor Robin Perry returned my call. "Is this for real?" she asked. "Yes, Robin, I was laid off this morning." In response to her question as to what I was doing, I replied that I was taking a break after having packed up my stuff, smoking my pipe, sipping from a one-shot bottle (1.5 ounce) of Grand Marnier that I had in the office, and getting ready to go home.

Of course, I had to call Turnkey Publishing to let them know that the unthinkable had happened, and, to make the changes to the text of the recently submit-

**Figure 1: REDO.CLI**

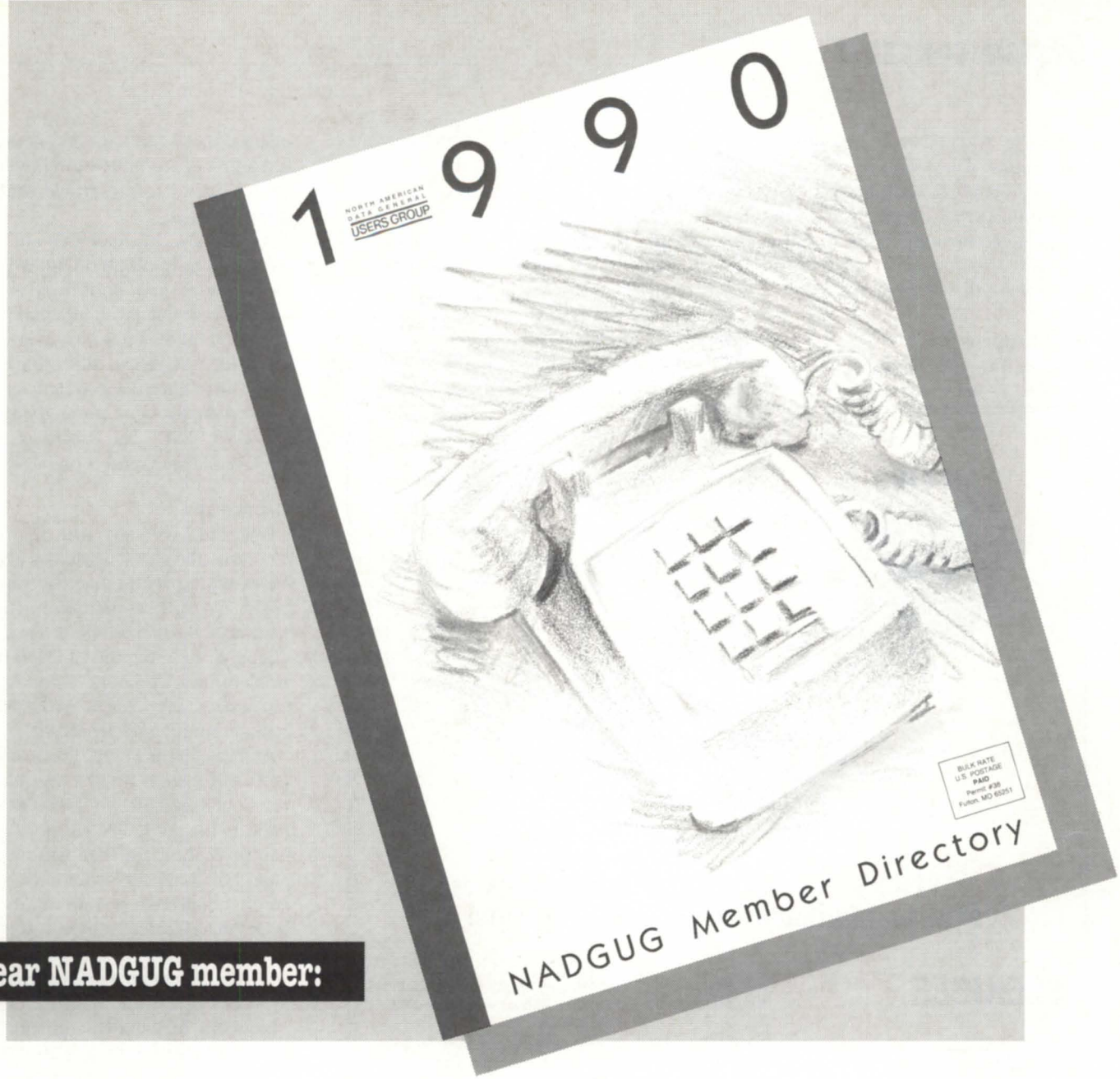
```
REDO.CLI: A macro which takes advantage of
the CLI32's history feature to allow the user to
re-execute command lines.

Usage: If you know the command line number
(for instance, if you are running with PREFIX
/HISTORY=ON), type:

REDO nnn . . .

If you do not know the command line number,
type REDO without arguments. The macro will
print out your history buffer and prompt you
for the command line number.
Author: J.C. Cunningham, Data General
(Canada), Inc.
Date written: 26-SEP-90

[!equal,,%1%]
      history
      string/name=redo.tmp [!read Which
        command line(s)? ]
      [!nequal,([!string/name=redo.tmp]),()]
        %0% [!string/name=redo.tmp]
      [!end]
      string/name=redo.tmp/k
[!else]
      delete 2=ignoreudd:[!user]:? [!pid]
        .redo.tmp
      history/write = :udd:[!user]:?[!pi]
        .redo.tmp %1%
      [!equal,[!size:udd: [!user]:?[!pid]
        .redo.tmp] ,0]
      return_error Command line %1% is
        not available.
      [!end]
      historyread=:udd:[!user]:?
        [!pid].redo.tmp
      write/nonewline [!ascii 234]
      copy @output:udd:[!user]:? [!pid].
        redo.tmp
      write/nonewline [!ascii 235]
      :udd:[!user]:?[!pid].redo.tmp
      delete :udd:[!user]:?[!pid].redo.tmp
[!end]
[!nequal,(%2-%),()]
    %0% %2-%
[!end]
```




## Dear NADGUG member:

I hope 1991 is off to a great start for you. At NADGUG, we're in the middle of one of our yearly projects—producing the NADGUG member directory. If you have not already received a mailing from NADGUG requesting your current information for the directory, call the NADGUG office today. The directory will be mailed this Spring, and we want you to be in it.

Our annual directory contains valuable information that can help you connect with other Data General users with similar operating systems, languages, and applications. If you are not yet a member of NADGUG, here's a great reason to join. *The NADGUG member directory will be yours for free—just one of the many benefits of NADGUG membership!* A limited amount of directories will be sold to non-members, while supplies last.

For information about joining NADGUG or ordering a directory, please call Greg D. Goss, our coordinator of member services, at 800/877-4787 (or 512/345-5316 outside the U.S.).

Best wishes for a wonderful year,

Frank Perry
NADGUG President

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ted article. You will never miss the erased paragraphs. They simply stated that I would probably be writing some DG/UX and Aviion articles in the future, due to the expected arrival of a workstation on my desk. Needless to say, I am no longer anticipating that Aviion.

**What happens now?**

Before the long weekend was over, I received a telephone call from someone I knew. The end result is that I accepted an offer from Fulcrum Technologies. Fulcrum writes the text indexing and retrieval engine that is used in a wide variety of products, of which CEO FIND*IT is one. In all likelihood, I will not be involved in a Data General environment in an ongoing basis, but (even though I don't start working there for two more days) I have ensured that I will have access to an MV and an Aviion, so that I might verify the technical details of any articles that I write in the future.

At this time, I cannot give out any details of what I will be doing at Fulcrum Technologies, and since there is no real sense in rambling on about what has happened, I think that it is time to go directly on to the "Macro of the Month." This macro was kindly submitted to me for publication by J.C. Cunningham of DG Canada's SPSD. The macro is entitled REDO.CLI (See Figure 1 on page 32).

**REDO.CLI**

Where do we start with this macro? Why, with the global overview, of course. We see that half of the macro is comments. Great! We also see that from the commenting style, this is indeed a macro that will only run under the CLI32. If that is a problem, my December column guides you in how to let a macro make decisions as to the running environment.

At the beginning of the macro body, we see that if there is no first argument, the macro will execute the HISTORY command to list out CLI32's history of command execution, and then ask for the command line number of your choice. If you supply a selection of line numbers, the REDO macro calls itself with the values that you selected. If you do not supply anything, the macro wipes out the temporary REDO.TMP, and finishes.

Now, we arrive at the portion of the macro that starts with the [!else] line. We get here by supplying one or more values to either the initial command line, or by responding to the question referenced in the previous paragraph. The macro does the usual thing about deleting a presumably unique temporary file (ignoring any errors), and then it writes the history log for the specified command number into the unique temporary file. The macro (or more specifically, the macro's author) realizes that the command line number may be invalid. If this is so, then there is nothing in the unique temporary file. This can be checked by testing the size of the resulting temporary file to see if it is zero or not. If the size of the file is zero, then another macro (See Figure 2) is called, with an explanatory message.

When you have a valid command line number, the macro uses the /READ switch of the history command to retrieve the

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**Figure 2: RETURN_ERROR.CLI**

```
[!nequal,,] Blow a macro out of the water,
back to top level of CLI. Optionally write an
error message passed in as arguments. [!end]
[!nequal,(%1-%),()]
        write Error: %1-%
[!end]
FILEstatus/1=error/2=error/L=@null ::
```

command that was saved in the unique temporary file. Using the WRITE command, to output terminal bolding /unbolding codes, and the COPY command, the specified command is displayed on the screen. The command could have been shown by TYPEing the temporary file, but the author did not want too much stuff to scroll off of the screen, so he used the /NONEWLINE switch and COPY @OUTPUT to display the command on the tube. And, without too much difficulty, the unique temporary file is executed, and since it contains the original command, we have essentially REDONE the requisite command.

The macro cleans up after itself by deleting the same unique temporary file, and that brings us to the end of the processing of that specific argument. The last three lines of the macro check to see if it was asked to REDO more than one command. If there was a second (or more) argument to this invocation of the macro, then it is invoked again, with the second through last arguments. In this way, the REDO macro recurses through the list of arguments that it was passed.

### RETURN_ERROR.CLI

RETURN_ERROR.CLI is a macro (usable by CLI.PR, CLI32.PR or CLI16.PR) that will allow *any* macro to stop, immediately, cleanly, and quietly. Before it does its thing, it tests to see if it has any arguments. If it does, it WRITES out "Error:" followed by the error message that you supply as arguments. The last line of the macro combines a few rather elementary and mundane switches to perform an interesting sequence. The line in question is the last line of the macro—"FILESTATUS /1=ERROR/2=ERROR/L=@NULL ::"

The switches /1=ERROR and /2=ERROR tell the FILESTATUS command to complain if there is any problem in attempting to execute the command. Any error messages are told to go to the list file known as the bit bucket (/L=@NULL). But wait, there's more! The file it is told to get the status of is "::", which we all know *does not exist*, and is an invalid filename. This forces the filestatus command to an error condition, which, by way of the /1= and /2= switches, results in an error that will stop execution of this and any parent macros. Because of the /L=@NULL, the CLI will be very quiet about it, and simply stop processing the macro. The result: a clean and quick way of telling any macro to stop.

And now, it is my turn to cleanly, quietly, and quickly stop this column for this month. Δ

*Michael Dupras can be reached at Fulcrum Technologies, 560 Rochester St., Ottawa, Ontario, Canada K1S 5K2.*

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# A complete listing of the NADGUG software library

**ACK** • Updated version 1.70. Terminal emulator/file transfer program for both AOS/VS and AOS machines. 365 blocks.

**Big Brother** • Automatic log-off program written in Fortran 77. Donated by the U.S. Forest Service. 169 blocks.

**B.J.'s BBS contributions** • About 20 items, including various programs, documentation, and macros. Some of the more interesting items include the :SYSMGR benchmark suite, a continuous incremental backup, a clean-up file maintenance program, a program to find strings in files, and a type-backward program. 6,761 blocks.

**CRTEDIT** • The old RDOS screen editor ported over to VS. 49 blocks.

**DBCHECK** • Checks the open status of an Infos file and examines the checkpointing status of a file. 187 blocks.

**DUMPLOAD** • A Macintosh program to dump and load AOS/VS-compatible dumps on a Macintosh. 137 blocks.

**ERP** • A process-termination program developed by NASA and modified by Manville. In Fortran 77. 454 blocks.

**FILEMNGR** • With this new version, you can move, copy, delete, view, and perform several other options faster. This is distributed as shareware. If you try it and continue to use it, you are requested to pay a registration fee. From Kim Geiger. 654 blocks.

**Focus** • *Focus* magazine articles. 1,774 blocks.

**FTNCVT** • A translator to convert Fortran 5 to Fortran 77. 232 blocks.

**Games** • A collection from various places. Enjoy. 19,216 blocks.

**IMSLUTIL** • A collection of CLI macros, Cobol routines, and assembly routines callable from Cobol. By IMSL of Houston. 4,893 blocks.

**JAG_UTIL** • JAG_UTIL by John Grant consists of several programs: Filecount, Userspace, Scan, Glossary, Laminate, and Qhelp. 4,325 blocks.

**Kermit** • A file-transfer protocol developed at Columbia University. 9,697 blocks.

**Logout** • Another auto log-out system. 178 blocks.

**Look** • Used to view text files, Look allows you to move forward and backward in a file. Donated by Data General. 202 blocks.

**Macros** • A collection of macros from various sources. 441 blocks.

**MENUDIR** • An initial user menu that can chain to other applications and features a password-control system. From the Fed SIG. 486 blocks.

**Misc Kerm** • An expanded version of AOS Kerm, this now includes other versions of Kermit including DG/One Kermit. 6,709 blocks.

**MS-DOS** • A VS program that lets you read and write MS-DOS diskettes on an MV system with a 5.25-inch floppy disk drive. 984 blocks.

**Notify and Prior** • Two contributions from Concept Automation. Notify tells you

when a process has terminated. Prior lists the priorities of processes. 162 blocks.

**RDOS Kermit** • Now available. You must request the Kermit tape (rather than the library tape) to get RDOS Kermit.

**Softrans** • A file-transfer protocol written in Fortran 77 used to communicate with proprietary PC communications packages. 462 blocks.

**Spell** • Checks the spelling of a word or spell-checks documents. Submitted by Richard Kouzes. 5,108 blocks.

**TEX** • Version 2.26a is now available. TEX (Terminal Emulator with Xmodem) is a terminal-emulation program written by David Down. He has revised the TEX software to include a command language. TEX is distributed as shareware. At the end of 30 days, either remove it from your system or send the author a $45 fee. 463 blocks.

**VT100KER** • VT100 emulator from John Grant. 1,043 blocks.

**Xfer** • A tape-conversion utility. 607 blocks. Δ

**All NADGUG members interested in receiving the NADGUG software collection should send a 1,200-foot tape to:**
Randy Berndt, Building 4, Suite 321, 5300 North Braeswood, Houston, Texas 77096

MV/2000 and MV/1400 users should send one formatted, error-free tape cartridge. Software contributions should be sent to the same address. Be sure to include your membership number. Allow 4-6 weeks for delivery.

Thanks to Brian Johnson and :WFFCA, the library is now able to provide 1200ft. copies to AOS/VS rev 6 users. Thanks to Kevin Danzig for duplicating MV/2000 tapes. To leave a question regarding non-standard library distribution call 713/988-5342.

Please include a self-addressed envelope with sufficient return postage. In compliance with postal regulations, do not date the postage. Either disable the date printing completely, or set the date to "--" or zeros. Tapes cannot be returned UPS collect.


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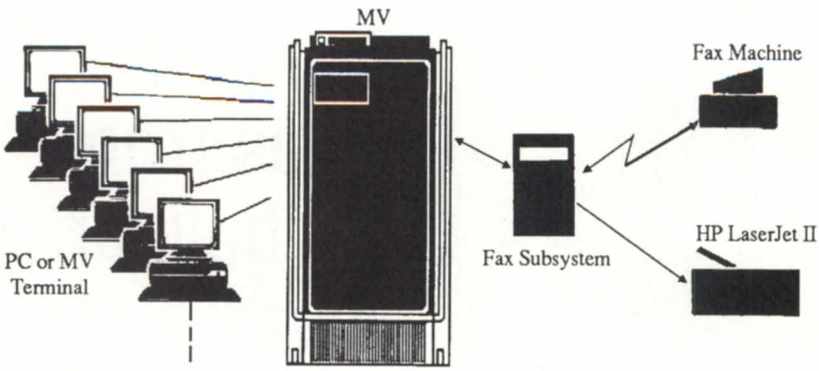


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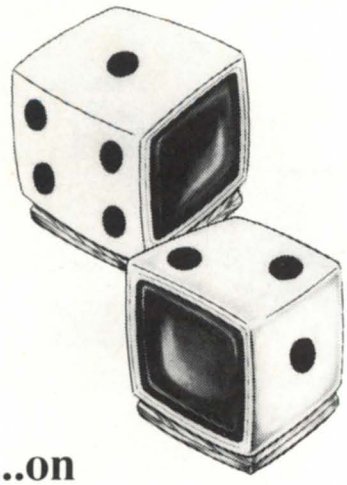

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Data General has qualified DAC as a provider of **DG/hot site**, based on criteria established by DG. DAC is an independent company offering its disaster recovery services to users of

DataGeneral

equipment.

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# Bits and bytes from the bulletin board

### The direct line on remote printing

From: Carlos Urrutia

I need to connect a remote printer to an MV/7800. We are considering connecting a serial printer to a telephone line and two 9600 baud modems. To do this, a first modem must be connected to a DG console port on one end, and a telephone line on the other. The telephone line must then be connected to a second modem, and finally to the printer.

My problem is that I don't know how to give the necessary commands to the modem to dial the other end phone number, in order to establish communication for the printer. Is there a way to write some sort of program to send ATDT commands to that specific port? Or do I need to purchase specific software? I will use a regular (not leased) voice grade telephone line.

From: Rich Kolarik

We have MultiTech modems on our system and I don't seem to have to go through the hassles that everyone else does. I don't tell AOS/VS that there is a modem out there, and it doesn't ask. I just create a file using Pedit, type the letters ATDPxxxxxx, and put a CR at the end. Then by typing /l=@conxx filename, the modem dials the number. This came in very handy when we had a trade show and no one was able to watch the department while we were gone. I wrote a quick macro to dial my beeper every half hour to let me know that the system was still up and running.

From: Carlos Urrutia

I also want to print a 132 cpl report on a HP Laser Jet II printer connected through its serial interface port to an MV IAC console port. We created a queue on the port with the following: CHARS /DEF/ON/OFC/IFC @con24. To activate the laser and print on compress landscape mode, I included the following string at the beginning of the report: <27>&l10(s16.66H. It doesn't work! It prints one or two pages with some text overlines and a lot of blank pages. Any idea what I am doing wrong here?

From: Tom Moore

The correct setup string is 027&l1o (lowercase o). I think I had to set up a font file for use with CEO. (If you are not using it under CEO, then this is not going to help.) You also must have a font either resident or in the form of a cartridge that allows compressed print. If you are using it under CEO, after you set up a font file, you must create a printer definition.

From: Gross Alain

First, using binary queuing—a "normal" AOS/VS file is line-ended with 0Ah (line feed) which causes the printer to go down one line, but without jumping to the left margin. The result is a "down staircase like" presentation, and when the text reaches the right margin, it simply "disappears" from the paper and the printer ejects white pages.

Another problem is the difference between HP and DG extended character sets. With binary printing, mapper files are disabled.

One solution is that the file must be a ready-to-print file, line terminator must be 0Dh 0Ah. Note: you can also tell the printer to send CR+LF when LF is encountered. The command is: <27d>&k3G. Extended ASCII must be converted before queuing the file. Caution: if you need to print graphics, use QPR/PASSTHRU instead of QPR /BINARY to avoid 0FFh being interpreted as an XLPT command, or send 0FFh twice. CHAR/CPL=, CONTROL @EXEC CPL, and FORM CONTROL are not used in binary printing. Create a CLEANUP file to reset the printer back to normal mode (orientation, pitch, font, etc.). 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.*

*continued from page 9*

Aviion, the ONC/NFS enhancement to the MV family, and the Infos connection capabilities for Aviions.

**7. Data General's viability and survival: See page 6 for response.**

**8. Maintenance contracts: Pricing is not competitive with third parties—why?**

**Answer:** When Data General establishes maintenance prices on a Data General hardware product, it examines the projected cost of maintaining the product and the competitive posture of the product. Data General considers its competitors to be in the systems business; i.e., providing complete hardware, software, service, and support solutions to end-user customers either directly or through a value-added reseller (VAR). "Competition" in this instance is the other system vendors in which Data General competes in the marketplace including, but not limited to: IBM, Digital, HP, Sun, Unisys, etc.

Data General considers its price for service to be very competitive and reflective of the quality of service it delivers to the marketplace. We are always examining ways of improving the quality of our service in a cost effective manner. We recognize that third-party maintenance organizations frequently "quote" customers lower maintenance prices. However, we ask the customer to examine the service quality, solid reputation, personal attention, and outstanding service delivery mechanisms in place at Data General prior to making any decision to change service vendors.

**9. Doing business with Data General: If paperwork and administrative areas worked as well as Data General equipment, users would be happier campers. Is efficiency being studied in this area?**

**Answer:** Over the past two years we have endeavored to improve administrative accuracy and quality. We believed that enhancements to our reporting and invoicing systems were necessary to address primary customer concerns relating to the clarity of our maintenance invoices and the timeliness of processing new contracts and changes to existing accounts. We have achieved significant results, as we are averaging 20 days from installation date to activate new contracts, 3 days to process changes, and the entire customer base has undergone site inventories with appropriate adjustments. We have also completely revamped the invoice logic to improve the clarity inclusive of applying credits directly to the invoice totals.

We implemented the final enhancements to address the primary customer concerns in February 90. Some are mandatory and some are optional. Our intent is to expand these programs and standardize them throughout the customer base in FY '91. We believe that they address the 1990 NADGUG Survey concerns.

**10. Marketing direction:**

**A) There continues to be uncertainty about whether to use MVs or Aviions.**


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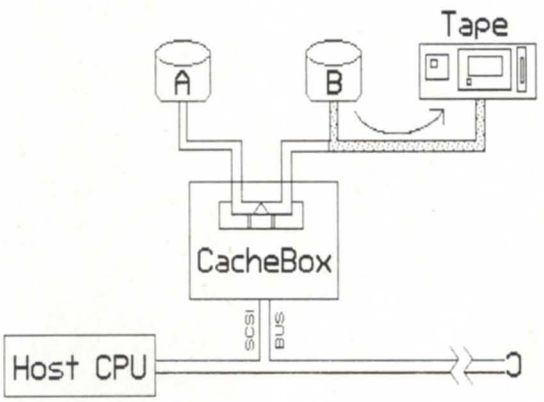


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**NADGUG feels everyone needs quality help from Data General to understand:**
**•Do we need to move from MV to Aviion? Why/Why not?**
**•Should we be moving to Unix? Why /Why not?**
**B) NADGUG's reaction to Data General's three-part strategy is positive, but users question whether Data General can implement it.**

**Answer:** Data General's strategy is to provide a wide range of functionality to meet the varied needs of our customers. It is not our intention to encourage existing MV family customers to port their applications to Unix systems. For reasons of commercial robustness, high availability, and applications integrity, etc., most MV family customers will be MV family customers years from now. For those MV family customers who are looking toward open systems in terms of new applications, we provide interoperability between our Aviion and MV family lines. Customers in situations where open systems may be more appropriate can do that with Data General.

Is Data General's strategy working? That can best be answered by looking at what has been accomplished over the last two years.

First, we continue to strengthen and preserve the advantages of Eclipse MV family systems—recent examples are the MV/5500 and the MV/9500 systems introduced in April 1990, the MV/3500 in August, and now the MV/30000.

Second, we continue to provide open systems to take advantage of all the power of industry standards—we have a solid line of Aviion multi-user systems, servers, and workstations that are open to Unix, communications, networking, and graphical user interface standards.

Third, we continue to stress openness and connectivity across all of our product lines—our strong system platforms mesh with our networking products and services and other vendors' products.

We're trying to make it easy for you to integrate workstations and servers—to create open working environments where users can easily share common data, applications, and resources. And we're succeeding.

**11. Industry Marketing: If there is vertical industry marketing support, there is little impact being felt in the field, either from the VAR or the end-user.**

**Answer:** The corporate Industry Marketing group in Westboro supports the banking, brokerage, insurance, legal, healthcare, government, education, manufacturing, and distribution industries. Each of these industries is staffed with specialists that have significant industry knowledge and experience. They are the sponsors for a variety of marketing programs that are usually centered around solutions available from value-added resellers and independent software vendors. These programs include publicity oriented activities, sales force training, trade shows, seminars, direct mail and telemarketing campaigns, and collateral creation. Δ

*"I firmly believe that a strong users group can help Data General and our customers as we move together into the future. We rely on NADGUG to give us honest opinions about what our customers think. I would like nothing better than to have every one of our customers become an active member of NADGUG."*

*—Ronald L. Skates*
*President and Chief Executive Officer*
*Data General Corporation*

NORTH AMERICAN DATA GENERAL USERS GROUP

1-800/877-4787 • 1-512/345-5316 outside U.S.

# Multi View Windows for MV

Ann Arbor, MI—Multi View Windows is now available from Digital Dynamics for Data General MVs. This software product gives MV users the ability to run up to eight different AOS/VS processes at a time on one console line using standard terminals.

AOS/VS programs written in any language are supported by Multi View Windows. Hot keys are used to switch between the different full screen windows. Additional features include a review buffer of up to 72 screen lines, and cut and paste between windows. There is also a feature that allows one terminal's output to be displayed on other terminals installed with Multi View Windows.

Digital Dynamics also offers a new terminal emulator that extends the features of Multi View Windows. MVTerm is a DG 210 terminal emulator for IBM PCs and compatibles. MVTerm allows you to size the windows to partial screens and view more than one window on the screen at once. You can also define your own screen colors and size of review buffer.

*Digital Dynamics, Inc., 3055 Plymouth Road, Ann Arbor, MI 48105; 313/995-2400.*

Circle 40 on reader service card.

## Watchdog sniffs out errors

Lilburn, GA—Watchdog, a new software product from National Software Technical Services (NSTS), provides full time monitoring of memory and system peripheral devices on Data General MV systems. Watchdog was written by Bill Means, author of DG's performance monitor.

Watchdog allows system managers to schedule maintenance visits to address potential problems. Watchdog gives the system manager the software equivalent of "high availability." It keeps key people appraised of potentially destructive developments within the system.

*NSTS, 4485 Lawrenceville Hwy., Suite 108, Lilburn, GA 30247; 404/923-1383.*

Circle 42 on reader service card.

## QMS rev 3.01

Lancashire, England—Snowflake Analysis Limited announces the release of QMS rev 3.01. Written in CQCS, QMS is portable across a large range of hardware platforms up through DG's MV/40000-HA4.

Enhancements to QMS 3.01 include: improved user ergonomics, end-user reporting, on-line performance analysis by staff, job type, department, etc., and intelligent job scheduling.

QMS's optional software module was enhanced to include full revision history of all source codes, including Cobol copy files, comprehensive quality assurance procedures, and end-user computing support.

*Snowflake Analysis Limited, 66 Woolman Road, Blackpool, England, FY1 4AH; 44-253-22482.*

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## Erdas on the Aviion

Anaheim, CA—Erdas, Inc. is porting its GIS (geographic information system) and image processing products to Data General Aviion computers. The product is scheduled for delivery in mid-1991.

Erdas on the Aviion will feature core, raster GIS modeling (GISMO), image processing, and tapes modules. Also to be supported are topographic, three-dimensional and data conversion modules, input/output devices, software subscription service (SSS), and a software toolkit.

Erdas software comes with a written guarantee and complete documentation including a comprehensive reference to GIS and image processing principles.

*Erdas, Inc., 2801 Buford Highway, Suite 300, Atlanta, GA 30329; 404/248-9000.* Δ

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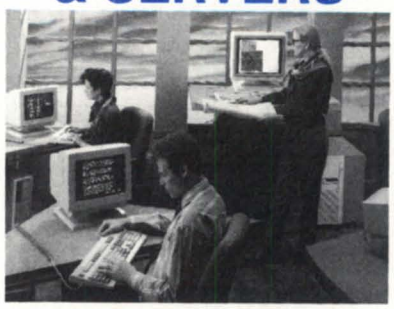
DATA GENERAL AViiON

WORKSTATIONS & SERVERS



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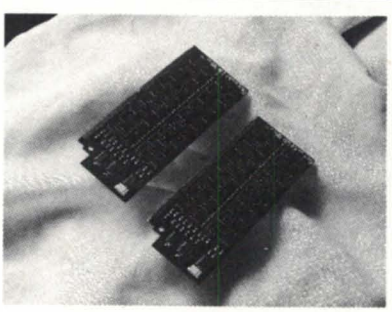

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Finland

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905/512-9866

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Esistemas, Lda., Lisbon-Sintra
Casal Do Garoto-Estrada
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Amadora
Portugal

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05-00 Harapan Bldg.
0104 Singapore

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**United Kingdom**
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Δ

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# ON-LINE HELP

***Who to call for answers about* NADGUG *and* FOCUS**

**NADGUG**

**Membership, RIGs, SIGs**
Greg D. Goss ..... **800/877-4787**
(Outside the U.S.) ..... **512/345-5316**
**Electronic bulletin board**
(300 or 1200 baud modem)
Rational Data Systems ..... **415/499-7628**

**FOCUS Magazine**

**512/345-5316**
**Editorial comments, article suggestions** ..... Robin Perry
(please send product announcements to the address listed below)

**Information about advertising** ..... Michelle Sentenne

**FOCUS back issues** ..... Turnkey Publishing staff

**NADGUG staff and Focus Magazine address:**
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# Make the Connection!

- AOS/VS
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- ICOBOL
- Law Enforcement
- Lions Gate
- Music & Recording Industry
- OASIS (Office Automation)
- :PERFSIG (performance and capacity planning)
- SIG/UX (Unix)
- SMBASIC

Let the North American Data General Users Group (NADGUG) connect you with other Data General users who have a similar special interest and who want to share information, ideas, problems, and solutions. No matter what the special interest is behind the group — equipment, systems or application software, major language, operating system, industry type — the reason is the same: to work together to exchange ideas on how to get the best performance out of your DG system.

Listed above are NADGUG's current special interest groups. If you are interested in making the connection with one of these groups, or if you have an interest that needs a group, please contact NADGUG's RIG/SIG coordinator, Greg D. Goss, at 1-800-USR-GRUP (512/345-5316 outside U.S.) for further information.

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# Data Specific

## Bedside manner

**Health Data Sciences Corporation (HDS)** is installing a $7 million Data General MV computer network at **Hospital of Saint Raphael** in New Haven, Connecticut. The network, based on HDS's Ulticare system, will include over 700 terminals in the 491-bed facility. Initial operations will involve patient registration/admittion, discharge, and transfer. When the installation is complete in 1991, terminals will be located at nursing stations and patients' bedsides.

## NPA West in the Northwest

NPA West opened an office in Seattle and hired **Timothy H. Smith** as senior field engineer. The new office is located at 800 Stewart St., Suite 303, Seattle, WA 98101; 1-800/999-4NPA. Smith will be responsible for customer support in the Seattle area. He previously served more than 10 years as a senior field engineer for Data General in the Oakland and Washington, D.C. areas. NPA West provides disaster recovery, third-party maintenance, and sales of new and used equipment for the DG marketplace.

## DG posts fourth quarter loss

Data General posted a fourth quarter loss of $89.3 million. A restructuring charge of $71.7 million for the layoff of over 2,000 employees contributed heavily to the loss. DG's total loss for fiscal year 1990 was $139.8 million, compared to $119.7 million in fiscal year 1989.

## DG behind bars

Take a look at NADGUG's roster of regional and special interest groups and you can see the variety of Data General users. The newest group of users may be inmates of United States federal prisons.

System's integrator **Digital Analysis Corporation (DAC)** was awarded a $10 million contract from **Unicor** Federal Prison Industries, Inc., to supply an Aviion-based computer system for up to 54 factory sites in federal prisons throughout the United States. Unicor is a government owned agency that provides employment and training for federal inmates. The seven-year contract for configuration, maintenance, and support was won under a competitive bid situation.

The main applications will be manufacturing and business planning functions—the daily operations of factory prison sites. Inmates will have access to the system, said **Keith R. Musson**, director of systems engineering for DAC. The Aviions will run a customized version of DG/UX. The system will have a C2 level of security provided by **Secureware, Inc**. The system will also use DAC's Eyenode software, a network management and control system. Remote system administration will be provided through a network to Unicor's headquarters.

Federal prison manufacturing operations include aircraft cables, furniture, clothing, and printed forms. But no license plates—those are left to the state prisons. DAC officials learned two things when they bid the Unicor contract, Musson said. "Federal prisons don't execute people and they don't make license plates."

■

# Alliances

## Synercom Technology

**Synercom Technology, Inc.** of Houston is marketing its integrated spatial systems solutions on Aviion servers and workstations.

## Interleaf, Inc.

**Interleaf, Inc.**, the leading corporate publishing supplier, is porting its software to Aviion systems, according to an OEM agreement with Data General. Interleaf publishing software for Aviions is scheduled to ship in spring of 1991.

# User Notes

## News from Chicago

Congratulations to the following new officers of the **Chicago Area Data General Users Group**: **Carol Switzer**, president; **Gail Crawford**, vice president; **Marje Paganoni**, secretary; **Ruth Kaczmarek**, treasurer. **Chuck Goes** will serve as past president and bylaws chair.

## And if elected, I promise . . .

We're not the only people who think **Frank Perry** is fit to hold office. In November, Perry was elected to his local town council, representing the second district of Coventry, Rhode Island. Perry is the 1991 president of NADGUG.

## RIG/SIG gigs

JANUARY/FEBRUARY

**January 15, 1991**

L.A. EDGE (Los Angeles end-users of DG equipment)
7 p.m.
Brookside Country Club
Contact: Mark Speer, 818/897-7777

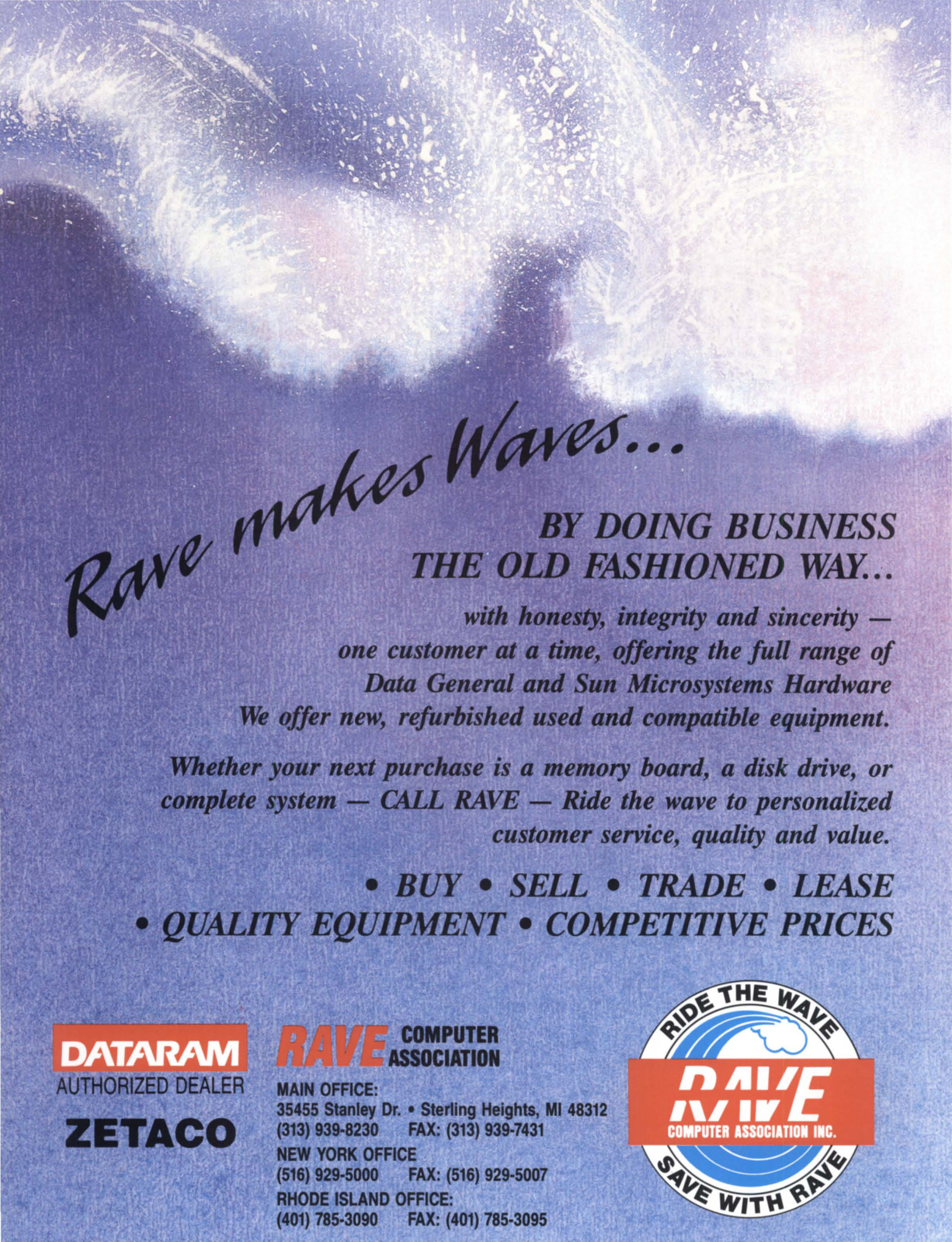
**February 8, 1991**

Deadline to submit session proposals for NADGUG 91.
Contact: Debra Bedrosian, 508/898-4067

**February 12, 1991**

L.A. EDGE
7 p.m.
Brookside Country Club

RIG/SIG gigs are notices of regional interest groups (RIGs), special interest groups (SIGs), and NADGUG events. If you would like your group's meetings posted here, please send a notice to *Focus* magazine, Livingston Building, Suite 250, 3420 Executive Center Dr., Austin, TX 78731; fax 512/343-7633. We must receive your notice by the 5th of the month, two months prior to the actual event.

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