

July 1990

# FOCUS

The Magazine of the North American Data General Users Group



**DG courts  
the legal trade**

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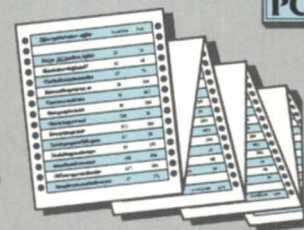
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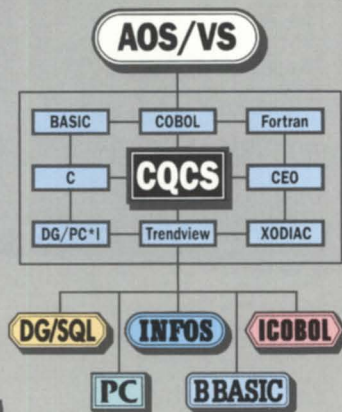
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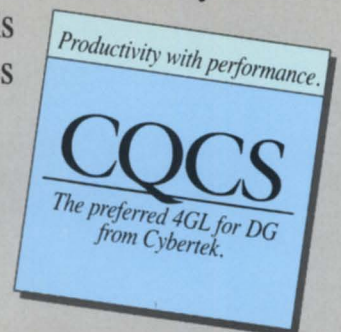


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About the cover: Photograph of Judge Roy Bean on the front porch of the Jersey Lily saloon/Justice of the Peace office in Langtry, Texas. Hand-tinting by Eliz. Soto.

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Circle 42 on reader service card.



# Dusting off an image

Hearing that our special topic of coverage this month is Data General's efforts in the legal field, one writer suggested that we dedicate an entire column to lawyer jokes. I would never be so callous, and besides, did you know that if it weren't for lawyers, we wouldn't need them? (sorry)

The legal market is full of potential for Data General, for several reasons. Automation is a logical and cost-effective way to deal with the sheer mass of paperwork associated with litigation. The number of lawyers is rapidly multiplying. Raised in the age when automation is taken for granted, they will expect nothing less in their offices than the basics: word processing, electronic mail, and document search and retrieval.

Those are some of the reasons why I'm encouraged that Data General is making an effort to capture a larger share of the legal market. It is fertile ground, and Data General has the hardware and relationships with key ISVs and VARs to serve it. I'm also encouraged by the new marketing efforts of Data General, including videos, seminars, and consultant briefings. Lin Underwood, Data General's Legal Industry Marketing Consultant, said "it's hard to put a price on image, but that's what we're trying to start in this market."

If you're wondering about the picture of Judge Roy Bean's court of law on the cover, it basically came about this way: The *Focus* staff was researching different ways to illustrate this month's special topic—DG in the legal market—when our art director stumbled across this original photograph at the Austin History Center. The white-bearded figure on the front porch is Judge Roy Bean himself. We loved the picture so much, that we decided to put it on the cover.

At first, we thought the illustration would show how far the legal profession has advanced. One man's opinion is no longer the law of the land. Exhaustive

research and tedious document-pulling are the norm. On-line data bases with automatic search and retrieval make the job easier and more efficient.

But there's another reason to feature this photograph on the cover. Look at the signs on the saloon. Look at all the people there. What could possibly attract them to this dusty one-room shack in southwest Texas? Here's a little history.

Roy Bean became Judge when he was commissioned by the Texas Rangers to clean up railroad construction camps near the Mexican border. Over 200 miles from the nearest justice court, he billed himself The Law West of the Pecos. He was tough as a sand burr, opinionated and raunchy, but he got the job done, building a legend of himself in the process.

How did he do it? He was one of the country's greatest self-promoters. He established the settlement of Langtry—named for actress of the day Lillie Langtry—and built his combination saloon and justice of the peace office right by the railroad tracks. He was always on the front porch when the train stopped in town, so that passengers would see him. Himself isolated, his antics were famous throughout the country.

See how far a good marketing campaign can get you?



Attention bulletin board mavens: There's a reason you could not log on to the NADGUG bulletin board during portions of May and June. Doug Kaye, CEO of Rational Data Systems, reports that there was a minor fire in the computer room at RDS. No serious damage to the computer equipment occurred, but the two modems that operate the NADGUG bulletin board overheated, and were sent out for repair. If you tried to log on and got discouraged, please try again. Mr. Kaye assured me that the bulletin board will be back in operation by the time this column appears. Δ

# FOCUS

The Magazine of the North American Data General Users Group

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# RIG activity, from coast to coast

There is no general topic for discussion this month, but I have some interesting activities to report from regional interest groups. I'd like to commend these groups for showing a great deal of creativity in their choices of meeting topics and formats. Please read on, and maybe you'll get some ideas for your own interest group meetings.



The **Pittsburgh Area Data General Users Group (PADGUG)** held its users meeting May 11. PADGUG President **Ken Krugh** stated that **Milton Larson**, vice president of Product Development, Eagle Software, "gave an excellent presentation on Eagle software," which specializes in writing utility and productivity software for AOS/VS and Infos II.

PADGUG also participated in Data General's Customer Appreciation Day, in which PADGUG members got to meet personally with DG representatives. A display of new products with demonstrations were a part of the program, along with a raffle of a DG/One Model 2T Walkabout.

The next meeting, scheduled for September 12, will be held at the DG offices in Pittsburgh. For more information on this meeting or PADGUG, please contact Ken Krugh of Turchetta Associates at 412/864-1905.



The **Colorado Data General Users Group (CODGUG)** met on May 10 at the U.S. Forest Service in Lakewood. The program focused on distributed applications architecture and the new DG MV computers, the MV/5500 and MV/9500, as discussed by **Ken Bartlett** of Data General. CODGUG member **Cathy Kipp** reported that "there was a great turnout for the meeting, which offered a nice overview of the new equipment."

The next meeting is set for July 12 at the Olympic Training Center in Colorado Springs. A demonstration of how the training center uses its DG equipment will be followed by a tour of the facility. For more information on CODGUG, please contact **Bruce Cary** of The Association of Operating Room Nurses at 303/755-6300.



At the May meeting of the **Los Angeles End Users of Data**

**General Equipment (LA EDGE)** representatives from Eagle Software, DMS Systems, and Data General gave presentations on their utility products. In order to bring a new level of insight to the presentations, each vendor was asked to have a customer address the group on his/her experiences with the vendor's product.

LA EDGE will hold its next meeting at the Brookside Country Club in Pasadena on July 17 at 7 p.m. The theme for the July meeting will be tape backup technology. The meeting will focus on the latest hardware for doing tape backups. This will also be the last regular meeting of LA EDGE until September.

For further information on meetings or on LA EDGE, please contact **Mark D. Speer** of Zero Halliburton at 818/897-7777 or Carolyn Naber at 818/793-2141.



The **Northern California Frequent Users of Data General Equipment (No Cal FUDGE)**, in conjunction with the DG Oracle Users Group, delivered an exciting program for its May meeting at Oracle Corporation in Belmont. Featured speaker was **Brian Johnson (BJ)** of BJ Inc. Using common tools that you probably have in your :UTIL directory (or your kitchen drawer), BJ performed a "dissection of a live data base system." The data base system dissected, naturally, was Oracle.

Gearing his presentation to all DG users, BJ, using PED, DISCO, HISTO, and his own product PERFMON, examined the output of several common utilities that monitor the performance of Oracle. No Oracle-specific tuning tricks were used. Additionally, attendees were shown how to perform a similar analysis on their own systems. For additional information on this meeting, No Cal FUDGE, or future meetings, contact President **Steve Tyler** of Airco Coating Technology at 415/680-0501



If you'd like your group's activities mentioned in this column, just give me a call, or send the information to the address below.



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*Greg D. Goss is the RIG/SIG coordinator for NADGUG. He may be reached at **Focus** magazine, 4807 Spicewood Springs Rd., Suite 3150, Austin, TX 78759; 1-512/345-5316 or 1-800/USR-GRUP.*

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**Special Wage Increase Report**  
As of 8/14/88  
Department Number 10  
PAGE #1

Note: Managers received a 10% increase.  
Others received a 5% increase.

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Fannie Allison ID# 6235005	F	SECRETARY	4/19/81	\$ 5.80	\$ 6.09
Ellen Falls ID# 146783	F	SECRETARY	1/14/82	\$ 7.25	\$ 7.61
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Nicole Falls ID# 146792	F	SECRETARY	1/14/82	\$ 6.00	\$ 6.30
Nicole Falls ID# 146793	F	SECRETARY	1/14/82	\$ 6.00	\$ 6.30
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Nicole Falls ID# 146798	F	SECRETARY	1/14/82	\$ 6.00	\$ 6.30
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**DEPARTMENT 10 SUMMARY**

	Hourly Rate	Annual Salary
Total Old Rate	\$ 84.00	\$ 175,968
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# A new Source

George Stadnik  
Special to Focus

When I was approached by Ed McManus, director of Data General Sales Support, with the details of coordinating the timing of Source '90 (Data General's worldwide reseller conference) with two other major Data General conferences, I was intrigued by the possibilities. VARs (value-added resellers) have been looking for joint conferences, and this year they'll get them. In October, Source '90 will take place concurrently in Seattle with the U.S. Sales and Services Division (USSD) sales kick-off and the conference

of the North American Data General Users Group (NADGUG).

I believe this gathering presents a wonderful opportunity for VARs and ISVs (independent software vendors) to display their latest products to potential customers. VARs will also have the occasion to exhibit their product applications to interested end-users. Just as important, resellers will have a chance to strengthen *relationships* with other VARs, and DG marketing and sales personnel.

Source '90 is a conference sponsored by Data General for its VARs, ISVs, and distributors worldwide. Traditionally, it is an expansive source of information about the latest products and trends in technology. Participants discuss common matters concerning business, marketing, and development opportunities. This year, VARs will also have the opportunity to network closely with Data General sales reps and exchange ideas on a one-to-one basis. VARs looking to expose a product to sales people, and sales people looking for a product, can easily encoun-

ter one another.

Source '90 will draw 300 resellers and ISVs representing over 150 different companies. Participants come from Europe, Asia/Far East, and South America, as well as North America. Last year, 21 countries were represented. We expect at least that many this time around.

I realize for some of you there might be hesitation over combining end-users and VARs into one effort. I, too, considered the delicacies of this situation. However, with the conference coordinated so carefully—the three groups will have separate programs and meet at different sites—I see no cause for concern, only excitement at the possibilities this venture in Seattle presents. △

---

*George Stadnik is senior marketing specialist in Data General's channel marketing department. For more information about Source '90, call 508/898-4214. For more information about the NADGUG conference, call 1-800/USR-GRUP or 1-512/345-5316 (outside U.S.).*

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New SmartTerm 470 for File Servers is easy to manage and offers precise color graphics and text terminal performance on networks. SmartTerm 470 and SmartTerm for File Servers provide full D470C emulation in 16 colors, extended color mapping, arcs, bars, lines, reduction scaling plus horizontal and regional scrolling to give people sitting in front of PCs the look of a dedicated terminal at a fraction of the cost.

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## It's the law

### SYNOPSIS

*Bolstering its image with new marketing strategies, DG builds a case for itself in the legal market.*

by Robin Perry  
Focus staff

There are more students in law school today than there are practicing lawyers. This generation of students has grown up with technology. Not only are they comfortable with automation, they *expect* it, making legal office automation a robust market for solutions providers.

With its foot in the door early, DG is focusing a major effort in this area. Data General already claims a 10 percent share among mid-size to large law firms (typically 20 to 100 attorneys), and is attempting to broaden its penetration. New efforts are targeted at smaller law firms, as well as maintaining the established base, according to Lin Underwood, DG Legal Industry Marketing Consultant.

The strategy includes trade shows, direct mail, and other traditional marketing methods, as well as "some not-so-traditional things," said Underwood, including production of a video, a seminar series that will be taken to 14

cities, and extensive consultant briefing.

"The consultant briefing is a very critical thing in this marketplace. There are some very strong consulting firms that control a great deal of . . . the business, and we want them to know Data General, and to know Data General's products, and to know Data General's strategy in this marketplace," Underwood said. "Therefore, we are constantly



Lin Underwood  
Legal Industry Marketing Consultant

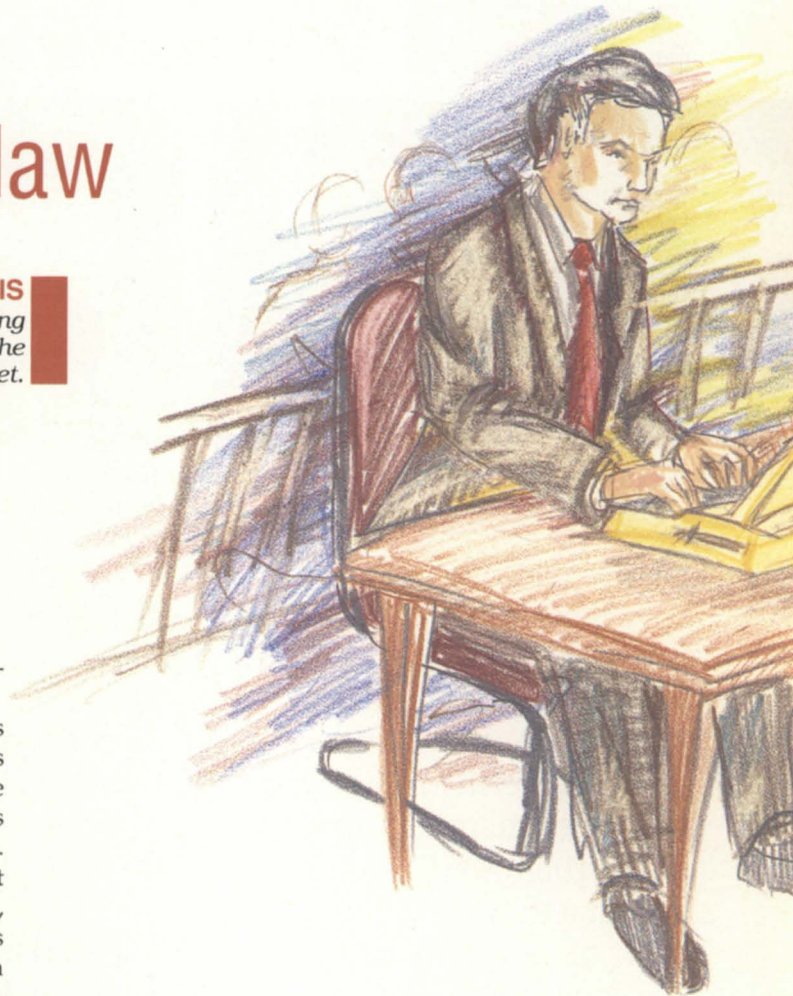
calling upon product marketing, particularly the DAA and Open Systems product marketing organizations, to assist us in that market."

For instance, at the Association of Legal Administrators trade show in April, Data General demonstrated interoperability between MV, Aviion, Macintosh, and IBM computers. Data General had a highly visible presence at the show, which was attended by some 2,000 legal administrators representing 300,000 lawyers, Underwood said.

Interoperability is an important part of DG's legal strat-

egy, she said. "With the integrated law office, you have the front office doing the word processing and automation, tied to the back office [accounting and data base maintenance], also allowing you access through that same system to outside data bases, and so on."

While attorneys have automated portions of their offices over the years, they are now connecting those pieces. "Many law firms still use large time-share companies for their lit support operations, but this is declining," said Rick Townley, vice president of



AOS/VS and DG/UX, but Townley says the Aviion is the platform of choice for his Data General customers. "In terms of DG's MV series, we see our role as providing new or additional functionality for the existing MV user. This includes our software solution and/or a growth path for the future. We see the AV series as the ideal platform to use as a high-performance, high-storage standalone system that can be networked to other in-house systems," he said. "For firms with minis or mainframes, the AV offers an ideal way to launch a new application/support operation without bogging down the existing central system. However, it can be gatewayed and accessed by the central system."

Underwood contends that the MV series is "most definitely still a very viable product in our sales to law offices," adding that "as we roll out Netware on the 386s and portable Netware on Aviions, we are able to address the needs of the open systems market."

**Just the facts**

Considering that it is not unusual for over 500,000 documents to be associated with a single case, it is obvious how automation can help the judicial process in its goals to discover the truth and dispense justice. Points out Michele Berry, manager of sales and marketing for Justlaw, Inc., a DG independent software vendor (ISV) in New York, "The whole thing of litigation is learning the facts."

Justlaw, Inc. markets Evidence, an automated litigation support software package. Designed by an attorney, Evidence uses a relational data base with text capabilities and reporting functions to organize those countless documents that clutter a legal professional's desktop—depositions,

witness statements, reports, correspondence. Evidence, written in C, runs under AOS/VS and Unix.

Products like Justlaw's Evidence and Mainstreet's BRS/Search have the ability to download a portion of the data base onto a portable PC, which an attorney or legal assistant can then use to research or update information while in the courtroom.

Mainstreet's Townley believes attorneys are very keen to become involved in automation, but Data General must increase its market presence to capture their interest. "In terms of marketing, we have seen DG put on a terrific ad campaign for the AV. However, it is focused in technical and reseller magazines rather than in law journals, etc. One of the keys to selling a product in this market is getting the attention of a lead attorney or partner. I doubt if many partners in a 600-attorney law firm regularly read *Byte* magazine or *Reseller News*," he said.

"In legal, there is a strong desire to keep up with the 'Joneses' as it were—no firm wants to be caught by a competitor because its technology is outdated or even non-existent. DG should highlight any legal installations they get to attract the attention of other firms, or even to reassure existing clients that they have not selected a one-of-a-kind system."

In a way, it may seem that legal firms are several years behind other professional organizations in discovering the joys of networking and automation, but that may have something to do with the industry itself. Explains Justlaw's Berry, "because the legal business itself is ponderous and moves very slowly, it is slow to move in other areas."

Harry Talley, partner, Attorney Management Systems, a DG ISV in Los Angeles, agrees that attorneys are "very conservative types. It's a hard sell." But a bad experience, like missing a court appearance or filing deadline, makes a believer out of a cyberphobic attorney. If you miss the "drop dead date" for filing a document, then "you cannot have privileged information that you could have had," says Talley.

Attorney Management System's Unix-based case management software keeps a diary of information on each case, and notifies the user of important deadlines.

**The ball is in DG's court**

While Data General will not release specific numbers, it claims to have consistently increased its revenues in the legal vertical market in recent years. According to Underwood, from fiscal '88 to fiscal '89, revenues in the legal market doubled. Between 80 and 90 percent of that income was generated through value-added resellers (VARs).

Data General's corporate installations include Pacific Bell and H.G. Heinz & Co., along with its subsidiaries Weight Watchers and Star Kist Tuna. Underwood said DG is building a case for itself in the legal field by aligning with VARs and ISVs who market strong solutions to law offices, both corporate and private. In addition to the ones mentioned above, these solutions providers include CAPA of Powell, Ohio, CIP Systems of Beverly Hills, CMS/Data of Tallahassee, Florida, Generic Business Solutions of Wilmington, Delaware, Legal One of Orlando, Florida, Rainmaker Office Information Systems, Inc., of Boston, and Softsolutions of Orem, Utah. Δ



Mainstreet Software of New York. "More and more firms are moving this operation in-house with the advent of smaller, cost-effective, and powerful computers and workstations."

Mainstreet Software is a DG independent software vendor (ISV) that provides an automated litigation support package called BRS/Search. BRS/Search features information search and full text retrieval. Using key words or phrases, it can research a data base and retrieve documents appropriate for a particular case.

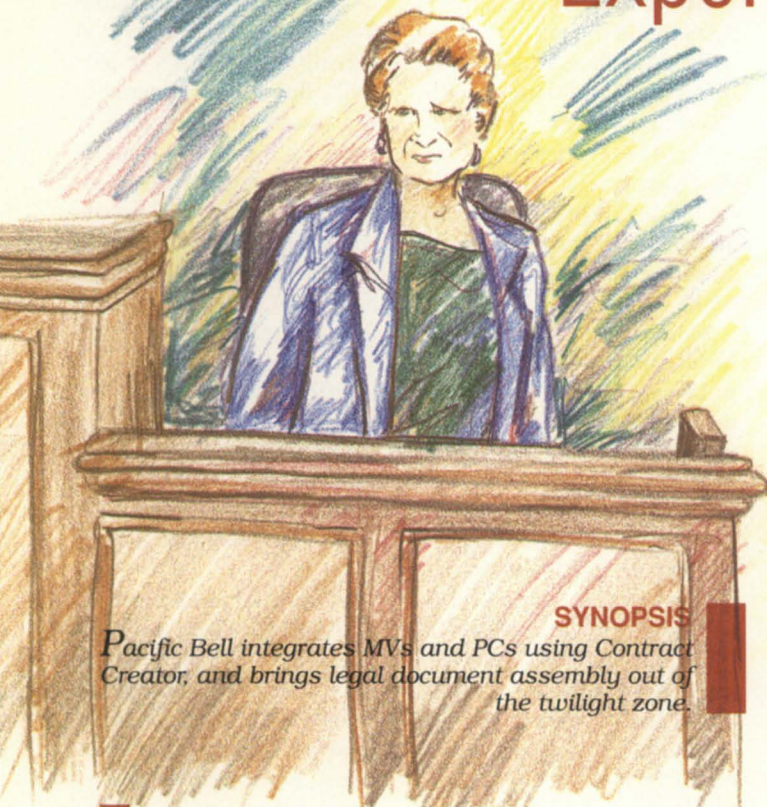
BRS/Search runs on both

# Expert witness

by Linda Stadler  
Special to Focus

and

Tom Serface  
Special to Focus



## SYNOPSIS

*Pacific Bell integrates MVs and PCs using Contract Creator, and brings legal document assembly out of the twilight zone.*

**I**magine, if you will, that you are a lawyer, paralegal, or contract manager in a large corporation. Your task is to draft contracts for the purchase of goods and/or services. Imagine also that many of these contracts are similar, and yet, they vary based on the specific needs of vendors and the organizations. In addition, you do not receive a request for these contracts until the need for them is urgent.

Your first chore is to hunt through endless binders and file cabinets full of old contracts and legal data. Next, you must plow through the legal review process, and eventually you have a contract ready for execution. Even at your best pace, this process typically takes two weeks.

Perhaps the above scenario seems just a little more than imaginary to you. It did for Pacific Bell, and prompted the inception of Contract Creator.

Contract Creator is based on a few basic principles:

- Computers excel at repetitive tasks
- Computers are an invaluable writing aid
- Computers can't make decisions
- Contracts are always based on subjective data that only the legal experts can divine
- Certain generic information could be used in various types of contracts
- A computer program that was particularly easy to use could ask a series of questions and make logical decisions based on the responses. The decisions could be the inclusion of a text file or the need to ask additional questions.

## The creation

Creating the specific provision language and sections of the various types of contracts was an arduous task, to say the least. Many hours of knowledge engineering, writing, and rewriting took place before the provisions for specific contracts were decided upon.

One of the problems with this environment is that the contract provisions change often; and change causes confusion. To minimize the confusion and difficulty in making changes, the provision text, what used to be in the "endless binders and file cabinets full of old contracts," was transferred to a Data General MV/10000 running AOS/V5 and CEO. This provided easy access and maintenance of data files, and the assurance that the most current language would be used.

The next step was to have the computer make decisions. For this portion of the job, Pacific Bell sought the help of Pereline Data Systems, Inc. Since the main Contract Creator system was to run on an IBM or compatible personal computer, some sophisticated communications programming had to be accomplished in order to retrieve the contract text files from the Data General mainframe. Electronic mail capability was furnished so that contracts could be mailed in a matter of minutes to the Legal Department for approval.

Pereline, in tandem with the Pacific Bell Legal Department, designed and coded the personal computer portion of the Contract Creator system. It was decided to use an expert system technique that would allow the program to actually make decisions learned from the input of the user.

The struggle paid off. Contract Creator was able to reduce the contract generation and approval process from two weeks to two days!

## How it works

The personal computer portion of Contract Creator is programmed in the C language with a very small portion in Assembler. Because Contract Creator has to be robust, and not particularly memory dependent, a Btree file handler in the interpreter is used. Logical decisions and result decisions are predefined using the Template Development System. A set of rules, called a template, defines all of the criteria, screens, prompts, menus, and data entry fields used in creating a particular type of contract.

For example, a contract for the purchase of services uses a particular template file that contains the *actions* needed to produce master or specific agreements and work orders. When the decisions are finalized, a set of *include files* is created and passed to the MV. On the MV, the include files are retrieved from CEO and compiled in CLI into a larger file.

This is accomplished using a custom PL/1 program on the MV and some of CEO's built-in features that allow us to extract files from CEO and create text files under the CLI environment. The completed contract file is then transferred to the personal computer, where Contract Creator once more resumes control. The file transfer is done using the Kermit protocol because of Kermit's high tolerance of mainframe and LAN environments. The mainframe is accessed either through Pacific Bell's internal LAN network, across a modem, or directly through an RS-232 connection.

Contract Creator takes the file that was transferred from the mainframe and inserts specific information gathered from the user such as names, addresses, dates, insurance requirements, etc. After the contract is "filled in," Contract Creator formats the text to a predefined layout, builds a table of contents, and allows for last-minute adjustments using a built-in editor or any word processor, including CEO. Then, Contract Creator prints the finished contract ready for execution, and mails a copy back to the Legal Department for final approval. This is accomplished by transferring the file back to the Data General mainframe and using the CEO electronic mail system.

**Wrap up**

There are over 200 copies of Contract Creator in use within Pacific Bell in California. After their recovery from "initial disbelief," users (including contract managers, paralegals, and attorneys) found that the program saves hours of time, increases their competitive position and image, and produces a professional customized contract. Probably the most difficult training job for Contract Creator

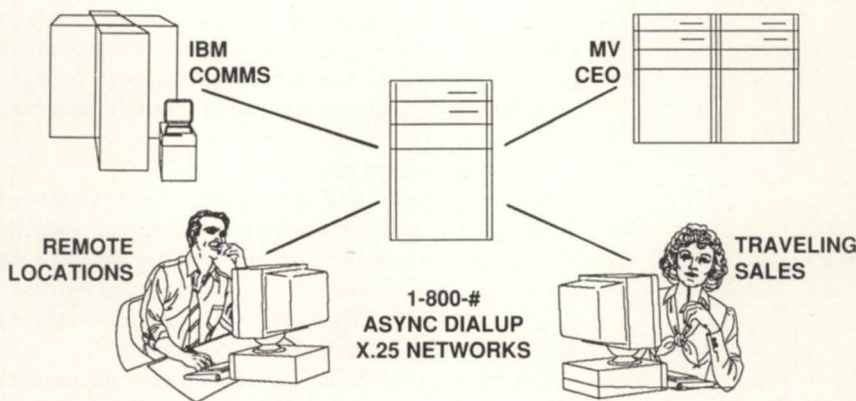
users has been simply acclimating them to personal computers. Once they find the answers to questions like "Are you using a modem or LAN connection?" the program runs consistently and prompts them with logical English phrases.

The most recent version of Contract Creator includes a module that converts the finished document to any word processor. Three levels of help are available

that explain the specific questions being asked, display text files associated with the question, provide standards and guidelines in the contracting process, and identify the use of function keys. It is interesting to note that Pereline Data Systems programmers worked for Pacific Bell on a different project and discovered that their contract was written by Contract Creator. △

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*Linda Stadler is the manager of Legal Software Development for Pacific Bell. Tom Serface is the president of Pereline Data Systems, Inc.*

# “American-style” litigation

**SYNOPSIS**

*The legal process can be hampered by voluminous research requirements. Using a 4GL and specialized software, a British law firm gains the edge over competitors.*

XXX100 DATE: 07/15/90 CIVIL SETTINGS FOR DISTRICT COURTS ON JULY 16, 1990 8:31 A.M. NON - JURY

LN	1	PLAINTIFF	ATTORNEY	NATURE OF HEARING
EN	11,345	VS. DEFENDANT	SEE CASE FOLDER	TEMP. ORDERS - 1 HR SET BY PLAINTIFF

by Lori Rhea DiSorbo  
Focus staff

**L**ast year, when contaminated animal feed was found in the wares of cattle farmers, English law firm Osborne Clarke rose to the challenge of handling the resulting claims.

With the purchase of the relational data base product Genisys, from DMS Systems, a compatible relationship was cemented between the urgent needs of Osborne Clarke and the expertise of Norwel Computer Services Limited's (a DG VAR specializing in the legal market) Legal Support system software. This combination allowed attorneys to organize a case whose complexity and potential for monetary gain more resemble what is found in an American court of law, rather than that of the U.K.

**Background information**

“American-style” litigation some call it. In October 1989, lead-contaminated feed was imported to England. The contamination and subsequent restriction orders placed on farmers created considerable monetary loss. Such great losses concerning a non-drug related product liability case are very unusual in the U.K. Further, the complexity of the case—it involves six defendants and over 600 plaintiffs—is a rarity. Finally, losses will be calculated tediously, over and above “out-of-pocket” expenses, seen by some as more of an American tactic.

Clearly, steering through the volumes of documentary evidence, expert opinions, and other information in the case presented a major challenge.

**Making the grade**

With a modern legal and computer infra-structure backing it, the firm of Osborne Clarke won the rights to partake in the case. By employing Norwel Computer Services Ltd. in Manchester to develop a software system using Genisys, Osborne Clarke manages information and documentary evidence to calculate claims. Osborne Clarke recently purchased two MV/15000 model 10s and an MV/2500, all running Wordperfect and Legal Support systems.

Though the case will probably not be decided for another two years, immediate response was necessary to begin the case. Osborne Clarke chief executive Nigel Jones, who is primarily responsible for the computer installation, related, “We had to react very quickly to the exacting demands of an intensive administrative exercise. Norwel offered the right product for the job, which ran on our Data General equipment and confirmed their [Norwel's] commitment to time scales and quality.”



Karl Kaegler, sales and marketing director of Norwel said, "We received the initial inquiry one week before Christmas. Software development of this type would usually have taken up to six months, but by using Genisys and responding to the customer's need for an urgent solution, the software was produced and installed on January 10."

The ultimate time saver, explained by Anne Keir of DMS Systems, was foregoing the need to create a legal application from scratch. By using Genisys as the foundation, only changes specific to the case at hand had to be made. Another time saver cited in getting the case off to a quick start was Genisys' ability to read existing data in ICobol, thus, time was not wasted re-entering sizable amounts of documentation.

#### A winning product

Linked with Wordperfect, the Genisys system can examine 10- to 40-page testimonies, and respond on paper to each one. Whereas previously, a typewriter and filing cabinet would have been used for such legal tasks, now Genisys does the filing and Wordperfect does the typing. Information entered into Genisys can be merged with Wordperfect to create individual letters to each of the many plaintiffs. Other legal applications of this software include debt collection, litigation support, trusts, etc. Finally, Genisys was tailored to include several non-legal applications such as e-mail and personnel applications.

Leslie Perrin, partner of Osborne Clarke and leader of the team handling the case, stated, "The case presents enormous challenges which normally would only be handled by a large London practice. However, we are in effect a London practice operating from Bristol, and our expertise, linked to our investment in information technology [computers], means that we are eminently suited to handling this type of case. Due to the extremely complicated and novel aspects of the claim, we are working at the cutting edge of product liability and multi-plaintiff litigation, as well as pushing forward the frontiers of information technology usage in this area. Fortunately, there has never been a day when we were sorry we had chosen the Norwel/Data General route, and some days when we felt positively triumphant."  $\Delta$

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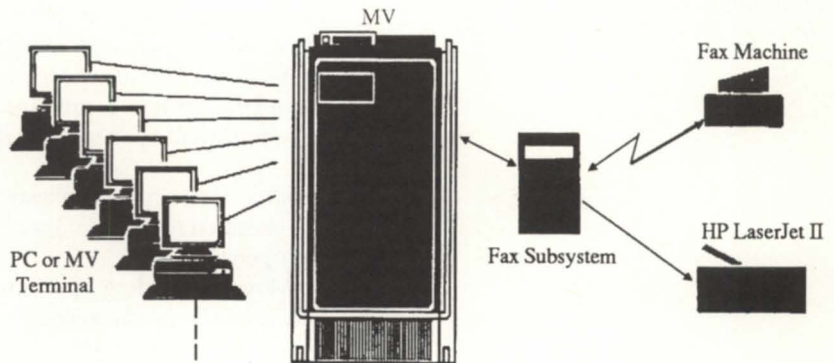
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# Breaking into open systems

by Mike Normile  
Special to Focus

Hype about open systems makes its benefits—improved price/performance and greater accessibility to ISV software—seem obvious. What's not so obvious is *how* to make a system "open." The question is of special concern to DG users who've already made heavy investments in the Eclipse MV family.

This series attempts to clarify the issues, and serve as a guide to compatibility and porting between the Eclipse MV family and Data General's Unix products, including both the Aviion and Dasher 386 series.

## Interoperability, compatibility, porting

An Eclipse MV user might move to open systems in one of three ways:

- *Interoperability.* Utilize a mixture of Eclipse MV family and open systems in a network.
- *Compatibility.* Write new applications that can be executed on both Eclipse MV family and open systems.
- *Porting.* Move an existing application from the Eclipse MV family to open systems.

Data General's product strategy emphasizes interoperability over both compatibility and porting. Interoperability combines the best of both the Eclipse and Unix worlds; compatibility helps maximize the potential of new applications for installed Eclipse MV family systems. Porting an existing application to the Unix platform requires efforts that can range from trivial to very difficult, depending on a variety of factors that we'll examine later in this article.

## Software standards and protocols

DG plans to introduce and enhance products that support Eclipse MV family/open systems interoperability. TCP/IP, the primary communications protocol for connecting Eclipse MV family and open systems, is already available on both MV and Unix systems. Support for CPIO and TAR, the two most common Unix tape dump formats, will soon be supported by AOS/VS. Products that allow applications on open systems to access data in Infos II data files and DG/SQL data bases will be available later in 1990.

As software standards gain wider acceptance, proprietary software is finding less and less favor in the marketplace. The 88open Binary Compatibility Standard, AT&T's System V, OSF/Motif, TCP/IP, IBM communications, and ISO communications are some of the standards that are shaping open systems.

Meanwhile, DG customers are also showing a preference for ISV (independent software vendor) implementations of certain standards, as opposed to hardware vendor implementations. Thus, with at least nine third-party versions of SQL available on Aviion, Data General has no plans to port DG/SQL to open systems. DG's proprietary software product Infos II is another product that will not be made available on Unix systems.

## Application Program Interfaces (APIs)

A concept common to both compatibility and porting is application program interface (API). An API is the set of languages, commands, and calls that a programmer uses in implementing an application. Languages include assembly language (second generation language), third generation languages such as Cobol or C, and fourth generation languages such as DG/Ingres, Powerhouse, or the 4GL component of Oracle.

Commands and calls form the interface between the application program and other programs that service the application. These service providers include operating systems, data base and file management systems, communications packages, and user interface systems. Each has an associated API. For example, SQL is the standard API for interfacing

## SYNOPSIS

*How do you make your Eclipse talk to your Unix system? The three options—interoperability, compatibility, and porting—are explained in this first of a series.*

an application program to a relational data base management system.

When two different hardware platforms have a complete set of APIs in common, compatibility and porting between those platforms are relatively easy. Where common or similar APIs do not exist, compatibility and porting are difficult.

The Eclipse MV family and open systems have enough common APIs to make writing new and compatible applications possible in most cases. In some instances, however, some Eclipse MV family APIs are not implemented on open systems, and porting existing applications will be difficult.

### The general process

The general process to create compatible or portable applications is relatively straightforward:

- Identify the APIs that are used or will be used in the application;
- Identify the implementation(s) of these APIs on both Eclipse MV family and open systems;
- Identify the differences in the implementations;
- Identify how to avoid these differences in the application, or how to isolate the impact of the differences as much as possible;
- Implement or port the application.

When writing a compatible application, you begin by choosing a set of APIs from those implemented on both Eclipse MV family and open systems. When porting an application, you start by identifying the APIs in the application to be ported. The freedom of choice in the compatibility process generally makes it easier than porting.

### Compatibility recommendations

The APIs that Data General recommends customers use when implementing compatible applications are listed below. Each of these APIs has implementations on both Eclipse MV family and Aviiion systems, and all except the communications interfaces have implementations on Dasher/386 Unix systems.

- Data management: ANSI SQL or ANSI ISAM.
- 3GL: Interactive Cobol, Business Basic, and the ANSI standards for Basic, C, Cobol 85, Fortran 77, PL/1 (Subset G), and Pascal.
- 4GL: Ingres.

- Communications: TCP/IP, Netbios, SNA, ISO

- User interface for character terminals: the built-in facilities in Business Basic, most Cobols (SCREEN section) and Ingres; JYACC'S JAM for other 3GLs.

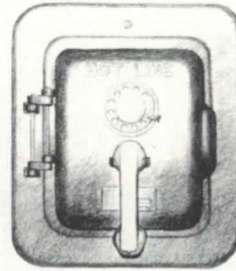
Any set of recommendations comes with a list of caveats, and this one is no exception.

- These recommendations do not guar-

antee complete compatibility. Some applications simply cannot be made completely compatible.

- The recommendations for data management and 3GLs are based primarily on ANSI standards. Products that implement these standards frequently implement extensions. If possible, you should either avoid using extensions, or ensure that the extensions you use are imple-

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mented on both platforms, or isolate the extensions by the use of subroutines, copy libraries, or conditional compilation.

- The recommended APIs are not the only ones you might use to successfully implement compatible applications. In the 4GL area in particular, Powerhouse, Oracle, and CQCS may be appropriate choices.

- Data General strongly recommends

that you develop and test compatible applications on both platforms in parallel.

### Porting

It cannot be emphasized too strongly that Data General views porting an application from the Eclipse MV family to open systems as an option, *not* a requirement. The following information is for

**Figure 1: Eclipse MV family application porting effort**

Existing APIs	Effort required
MV assembler Infos II DBAM (3 or more index levels)	Total rewrite
AOS/VS system calls	Major effort
Most AOS/VS 3GLs Infos II ISAM DG/SQL & 3GL Oracle RDBMS & 3GL	Some effort
BBasic (*) DG/SQL & DG/Ingres 4GL Oracle RDBMS & Oracle 4GL	Slight effort
ICobol	Move files

\*If code contains operating system dependencies (such as system calls) then additional porting effort may be required.

In the above table, "major effort" means that both syntax changes and redesign of at least some of the program logic will be required. "Some effort" means that the application program logic will remain largely intact, but that numerous small changes in the code syntax will be required. "Slight effort" means that a relatively small number of syntax changes will be needed.

those who desire to investigate or pursue that option.

Both the amount of effort required to port and the appropriate porting path (i.e., which Unix languages, data managers, etc. to use) depend on the APIs used by the existing application. Porting is difficult when APIs used in the Eclipse MV family applications are not implemented in the Unix systems. In some cases, applications must be redesigned and rewritten using different APIs in order to be ported. In these cases, porting an application will be very similar to implementing a new, compatible application.

Figure 1 summarizes the effort involved in a port to Unix. Δ

*Mike Normile is the Information Management Product Manager in Data General's Corporate Marketing division.*

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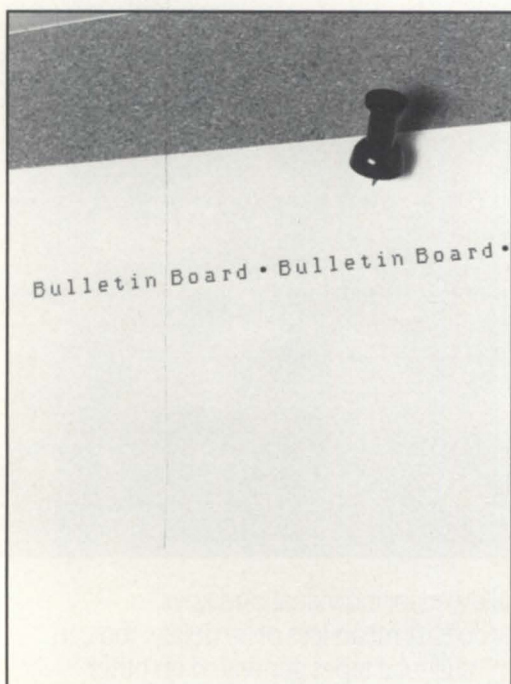


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# Bits and bytes from the bulletin board



not much you can do when the disk is still initialized and other processes are writing to it. If you do manage to "scram" your system and really need that file, you can call some third-party people like Eagle and they might be able to get it back for you. DMS would also be a good place to call.

From: Phil Horvitz

I've got one that I use, but it's not automatic. I've also been considering a "delayed delete" feature for CLI—it would delete your files 10 seconds after you requested the delete. Hitting Ctrl-C Ctrl-A would undelete all of your files for the last 10 (or "n") seconds. Anyone interested?

From: Tim Boyer

I'm simply using a dippy little macro called ERASE—it moves the file to a junk directory, which is cleaned up nightly by Janitor.Job. It's not the prettiest solution, but it's saved my bacon more than once!

## OCR devices

From: John O'Keefe

Does anyone know of any optical character reader devices that hook into Data General terminals or asynchronous ports? I need something that can read a scan line from a bill. There are all types of bar code readers, but I can't seem to find a scan reader.

Any help would be appreciated.

From: Wendell Putney

Suggest you call Soricon Corporation in Boulder, CO; (303/440-2800). Ask for Rob King. They will soon be releasing a line of hand-held scanners including one called the Datasweep 2 that will cost between \$1,350 and \$1,500. It includes software to run under DOS. It might be worth developing a PC-based front-end program to feed your application.

From: Kent Florian

Here's a starting point for you. Call Compsee in Palm Bay, Florida (407/724-4321). You need one of their OCR boxes in an RS-232 wedge type configuration.

They have both the wand type and the slot reader types. I have used both, and I am very happy with them. Now, the big question is—what are you going to use to print the OCR characters? I know both of the products I have will read OCR-A (like on the bottom of a check) but I am not sure about OCR-B. In either case, there are bands available for DG /Dataproducts band printers.

From: John O'Keefe

Thanks, Kent. I'll check it out. Our users who are interested in this already have OCR-B bands on their Dataproducts printers, so I hope that will work. Do you have these devices connected directly to DG terminals? If not, are they connected to a DG system? What language do you use to access them, or are they true wedge devices so it doesn't matter if the data is keyboard or wand?

From: Kent Florian

Yes, we are currently using the devices. They hook in between the terminal and the DG system, and the scanned input looks just like keyboard input to the DG. You can configure them to send a prescript or postscript to the system also. That way, you can have it automatically input a set prefix, and then hit a couple of Newlines afterwards. Overall, they are pretty slick devices. One suggestion that I have is to see if you can find an OCR-B element for a typewriter. It really helps if you need to reconfigure the setup. Or I guess you could print a configuration page to the line printer also.

## XTS II users

From: Jeff Campbell

Guess what? I just installed my brand new MV/40000 HA2 with 256 MB memory. I loaded up AOS/VS II CEO and other software and it ran fine. I loaded XTS II and it ran fine until . . . I had a problem with my network link. I resolved that problem and went to recycle XTS II. When I tried to bring it back up, it told me to go jump in the lake. It said that I had to re-boot the system before it would work. After a little investigating, I found out that XTS II will not work on MV/40000 systems with more than 128 MB of memory. If anybody from DG wants to dispute that statement, I will

## Undeleting

From: Wally Beddoe

Has anyone out there ever seen a utility for undeleting a file once it has been deleted? I heard it can be done but have not yet seen any program that can do it. Talking about the VS file structure, of course.

From: Doug Rady

FED, but then again, you have to have things just right after the file is deleted, an un-initialized disk, and a deep knowledge of the on-disk file structure. Best way to make sure the deleted file is not written over is to halt your system right then and there. Other than that, there is

be glad to schedule downtime on my machine here in Miami and let you prove me wrong. There wasn't word one about any memory restrictions in the release notice. My salesman, SE, and SSR knew nothing about problems with 256 MB systems.

From: Wally Beddoe

Jeff, what rev of XTS II are you running? You should be running 2.00. Update 1.03 supports system configurations with up to 256 MB of memory. However, some XTS controllers require memory in the 0 to 128 MB range for proper operation. If XTS is unable to allocate memory in the 0 to 128 MB range for these controllers when it is started or when a controller is initialized, it will terminate with the error "XTSee: Large system memory error—system must be re-booted to restart the XTS process." It is recommended that you bring up the network before bringing up other programs. Give that a shot Jeff. Let me know what happens.

From: Jeff Campbell

I was trying to run rev 2.00 of XTS II. I still received the same errors you mentioned.

From: Doug Rady

The "newer" revs of XTS II say they support 256 MB. Also, it may be that the download code for the controllers has not been updated to use over 128 MB addresses or it cannot be enhanced. If you have support, or if the system is under any warranty . . . escalate the problem through the usual DG channels . . . Again, on the download code, I've seen this problem before where the download code or microcode for a device was not current enough to support the "latest" memory sizes. This is true for disk controllers as well.

From: Jeff Campbell

This is a brand new system, so you can bet I'm pursuing the issue. Thanks for the info. △

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# Legal review

## SYNOPSIS

*The latest PC integration strategies found in law offices include highly severable wiring, wide area networks, and fractional T1 technology.*

Along with health care, the law office is one of the vertical markets in which Data General continues to do well after getting a foot in the door early. This is probably because Wordperfect (then Satellite Software International) developed its first word processor on DG systems. As Wordperfect gained in popularity, it became the clear choice in the legal profession, and as DG minis were the only ones that could run it for quite some time, a number of VARs adopted Data General as the preferred platform for their vertical applications.

Because of the heavy dependence upon word processing and the great fit of MS-DOS Wordperfect 5.1 for use in law firms, PC workstations have infiltrated the law office even faster than they have in other markets.

Rather than recite my personal preferences and prognostications, I telephoned two serious users of PC integration in the legal market to hear what they had to say on the subject. For the sake of variety, I selected both a VAR (CMS/Data of Tallahassee, Florida) and a sophisticated end user (Paul Hastings Janofsky and Walker, a large law firm with offices in seven U.S. cities).

### Why workstations?

CMS/Data has offered a popular law office package written in Business Basic

(now B-32) for 12 years. I asked Steve Bliss, director of research and development, why they started working with PCs.

"It was becoming harder to sell terminal-based solutions to law firms," Steve said. "It wasn't that they objected to purchasing an MV for its intended applications, but they wanted access to the variety of generic MS-DOS software that was available. Law firms also wanted file and printer sharing, in addition to the specific solutions provided by CMS/DATA."

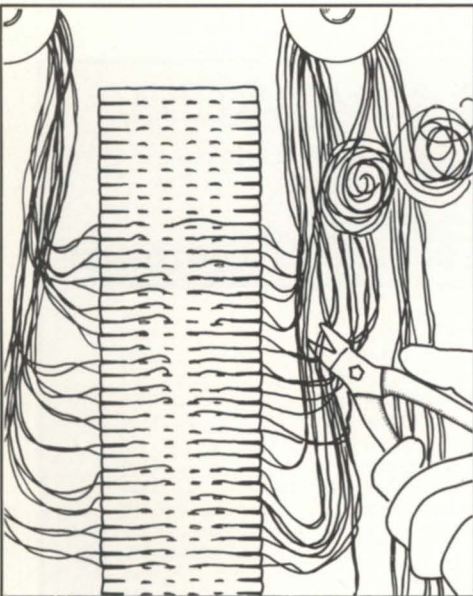
When CMS/DATA began initial investigations into PC integration, it was quickly discovered that minicomputers just don't make good file servers—minis are too slow and expensive compared to high-end 80386 CPUs with operating systems dedicated to this task. While continuing to offer its DG-based time accounting package via terminal emulation, CMS/Data began to support Novell's Netware for standard multi-user functions such as file and print service.

Time entry/billing is one of the most important applications in the law office, and CMS/Data decided that this would be the first application to be distributed to the PC workstation. CMS/Data's new CLO\*2 PC Time Entry runs as an application integrated within the Wordperfect shell. It is a complete PC "front end" that uses PC/VS as the "connection mechanism" between the PC and MV. As Netware was the choice for a LAN platform, CMS/Data selected PC/VS over other PC integration platforms, because it was the only solution that coexisted with Netware. CMS/Data also chose Popterm as its LAN-based emulator, again because of its ability to work over a Novell network.

### Lessons learned

The people at CMS/Data are now "old hands" at the networking business, but that has not always been the case. I asked Steve what they learned in the process of moving to a distributed platform.

"The performance of our distributed solution is even better than we had expected. We get substantially more users





per MV than when the application was terminal based," Steve replied. "But it required much more effort than we had imagined. There was a steep learning curve. LANs are significantly different from the terminal environment.

"The best decision we ever made," Steve continued, "was to go with Synoptics' Lattisnet for our cabling. It has the high performance of ethernet but the ease of installation of point-to-point wiring." CMS/Data coined an interesting new phrase to describe this new wiring technology. They refer to it as "highly severable," referring to the fact that you can cut any wire and only lose a single PC. "This is critical for systems with 200 to 300 nodes," Steve said. "This allows easier planning and uses existing wiring."

CMS/Data found that training is critical to the success of its PC integration efforts. "Books just didn't do it," according to Steve. CMS/Data mounted an intensive training effort and retrained its existing staff as well as hired new employees with previous Novell experience.

For CMS/Data, customer satisfaction is up. "Not only is performance much better, but the new systems are also more reliable," according to Steve. When I asked him how this could be so, considering how many more pieces there were to fail, Steve replied, "In either case, you've got an operating system and other vendors' software to depend upon. Netware and PC/VS are no less reliable than AOS/VS or B-32."

**The large end-user**

For the perspective of a sophisticated, large law firm, I telephoned Mark Cartier, Director of MIS, at Paul Hastings Janofsky and Walker (PHJ&W), headquartered in Los Angeles. When Mark first joined Paul Hastings in 1986, word processing was being done on typewriters. It was clear even then that the firm's future was with PCs. The application software for word processing, data bases, and spreadsheets that was available on PCs far surpassed that available for the mini-computer. Not only were there more packages, but they were substantially less expensive, and perhaps more importantly, they were less expensive to run. Mark could see that networking was on the way, and in fact, PHJ&W became one of the primary beta test sites for Data General's DG/PC\*I strategy, and installed

eight LANs in their L.A. and Atlanta offices with more than 150 PCs.

As the firm continued to grow, however, Mark questioned the economics of adding larger and larger MVs and finally just said "No." When he studied the price/performance of the MV line and that of a typical 80386, there was no comparison. They ultimately scrapped DG/PC\*I and selected Novell's Netware and

RDS' PC/VS, thus allowing their workstations to communicate with both file servers and minicomputers simultaneously.

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yond a mere local area network, the Paul Hastings network will extend this transparency to each of its seven U.S. offices.

Key to this design is the use of fractional T1 technology to link all of the firm's offices. Now that it is possible to lease 56 KB chunks of a T1 circuit, PHJ&W finds this a far more cost effective technology than public data net packet switching. It can easily expand by leasing addi-

tional bandwidth as required by the growth of the firm and of its communications needs.

In the long-term, Mark plans to provide more varied types of software on top of these underlying services. In addition to integrated applications, he is looking into other technologies as fax servers and the use of CD-ROMs for legal data bases, all accessible to any user anywhere

on the network. They are already implementing a cost recovery system to manage fax, telephone, and copier costs.

### What does it take?

I asked Mark what was important in making a project like this a success. "Standardization" was his first response. In addition to standardizing on 80286 and 80386/SX workstations, the firm has selected some key applications including Wordperfect, Lotus 1-2-3, Q&A, Rbase, Advanced Revelation, and Harvard Graphics. "Without the standardization," Mark says, "file sharing is virtually useless."


Like Steve at CMS/Data, Mark emphasized training as a major issue. "We had a mindset to overcome," says Mark. "Not just end users, but the technical staff as well had to be trained in this new way of doing things." The MIS department has grown from Mark and one programmer in the fall of 1986 to over 30 people in the L.A. office alone. "There's definitely a steep learning curve. This is not as easy as connecting MVs to MVs via Xodiac. There are lots of different protocols from lots of different vendors."

Finally, I asked Mark what this implementation has brought to the firm. "Increased productivity and flexibility are the most obvious advantages. We are also far more responsive to our clients than we ever could be in the past," he replied. Mark also feels that the integration of PCs has done much to ease the expansion of the firm. "Aside from the growth within MIS, administrative growth has been much slower due to automation." By the end of this year, Mark says he will be able to communicate with virtually any type of computer, anywhere. PHJ&W designed a strategy that will leave open tremendous options for the future, including the ability to connect directly to the computer systems of their clients.



"Head first with blinders on, it's not going to work," Mark says. "You've got to involve the entire firm, not just the MIS department." △



*Doug Kaye is CEO of Rational Data Systems and can be reached at 415/499-3354. For a free copy of the "RDS Report on PC Integration," contact RDS at 140 South Los Robles Ave., Pasadena, CA 91101; 818/568-9991. Copyright 1990 Rational Data Systems, Inc.*



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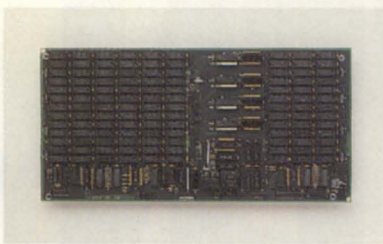
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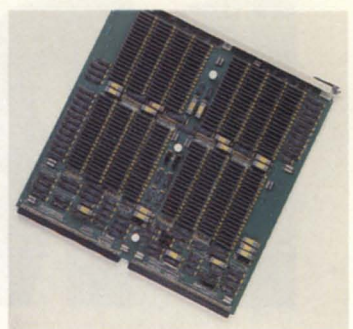
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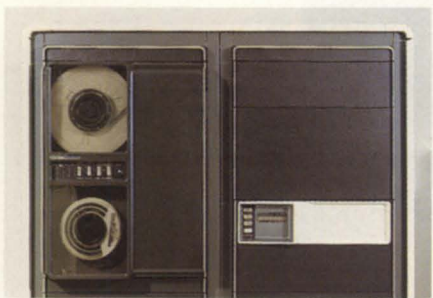
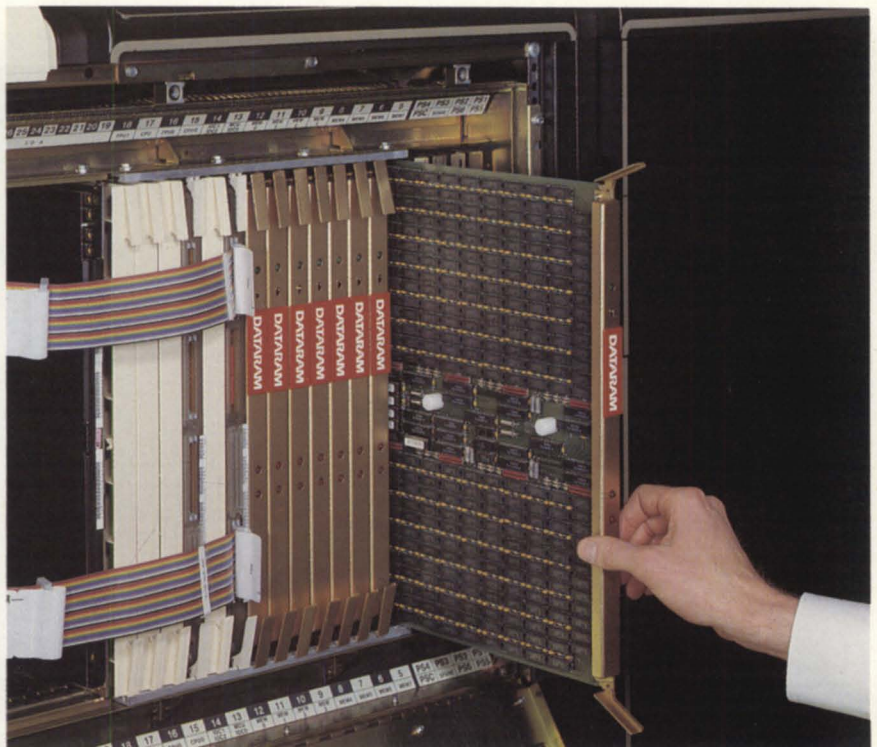
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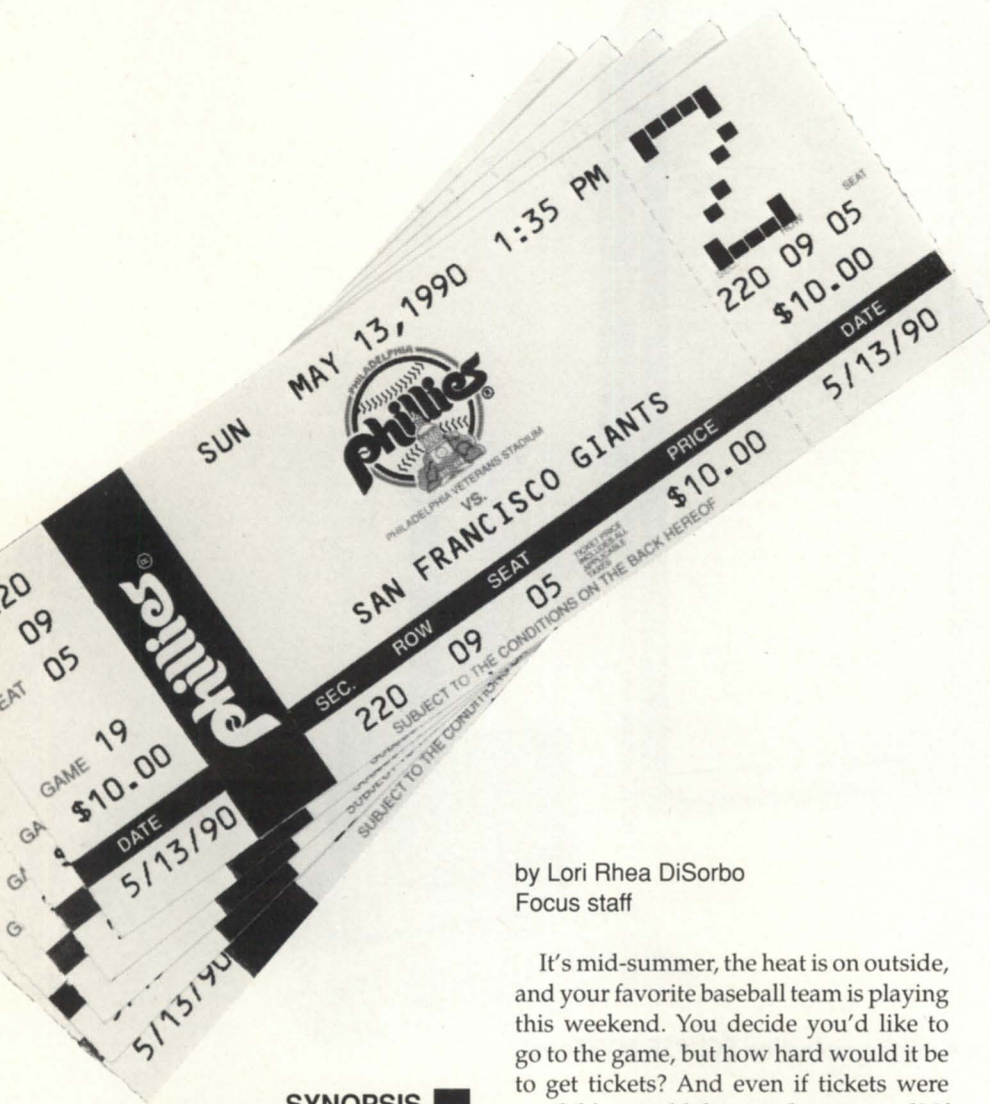
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# DG up to bat



**SYNOPSIS**

*Using custom software and MV computers, the seat selection process at Veterans Stadium is less like a game of musical chairs . . . and more of a science.*

by Lori Rhea DiSorbo  
Focus staff

It's mid-summer, the heat is on outside, and your favorite baseball team is playing this weekend. You decide you'd like to go to the game, but how hard would it be to get tickets? And even if tickets were available, would the seats be any good? If you happen to be a Philadelphia Phillies fan, these important aspects of America's favorite pastime are not left to chance.

**Home field advantage**

Data General equipment plays several positions for the Phillies. A few of these positions include accounting, invoicing, and inventory/transactions. However, DG equipment is most often used in the multi-purpose role of ticketing, something the Phillies take very seriously.

These days, it's not uncommon for sports teams to enlist the services of a private ticket office, like Ticketron or Ticketmaster, to handle fan seating. However, the Phillies handle all ticket sales in-house. Whether advance group sales, season tickets, or point sales (over-the-counter), the Philadelphia Phillies like to stay in control for several reasons.

"As a team, we have an inventory to sell. We feel like, by hiring our own people [to do ticketing] we can better answer questions and give better service," says Brian Lamoreaux, manager of information systems for the Phillies. He explains that ticket services like Ticketron and Ticketmaster have New York phone numbers. It makes sense that employees actually working in Philadelphia (especially at the home box office) are better able to answer questions about directions to the park and traffic patterns.

Also, Phillies tickets cost less because a fee for a ticket broker is not added to the regular ticket price. Tickets are printed directly from DG equipment, so there is no reliance on outside sources.

**DG on the field**

A loyal relationship between Data General Corporation and the Philadelphia Phillies began back with a Nova 830, the RDOS operating system, and 14 terminals. Eventually, the Phillies upgraded to a C /330, doubling the number of possible terminals, but as business grew, and computer technology changed, AOS/V5 became the operating system of choice.

Installation of AOS/V5 allowed the Phillies staff to utilize larger, faster hardware and run multiple tasks. Programs are written in PL/1 and run primarily on an MV/10000, with an MV /4000 used for backup and minor tasks. As the use of Unix spreads, the Phillies plan to convert to DG/UX late in 1991.

With DG/UX, the Phillies feel they will attain the flexibility they need to accompany their rapidly growing organization. Donna Conte, manager of system and software development, related that the Unix option will allow them to preserve their minis, as well as connect to PCs. Also, the new flexibility will provide them with the option of branching their large operation into smaller systems. Conte said that not only do the Phillies use the computer system, but so do the Philadelphia Eagles football team and the '76ers basketball team.

"They [the Phillies] stay with DG because of their satisfaction with the equipment," said Conte. With the Phillies, Eagles, and '76ers all operating on the same system, the equipment runs almost constantly, and the Phillies have found that even with increased workloads, the equipment is reliable.

#### A new lineup

When DG equipment was introduced to the Phillies ticket office, a lot of adjusting had to take place. Phillies ticket office employees tell stories of the old days when stacks of tickets were piled in storage rooms, and staff members literally roller skated from stack to stack, pulling out the appropriate order. Along with problems created by the time delay of filling requests in this manner, physical storage of tickets for a stadium that holds close to 70,000 fans was not a negligible concern. "On demand ticket printing" solved both of these dilemmas. Now the Phillies need only produce and store tickets that are actually ordered.

On a similar note, handing out 70,000 tickets per game, ranging in price from \$4-10, calls for some tricky security solutions. After all, as Bill Dripps, Phillies consultant, said, "when you bring a ticket up to the window, you [essentially] get money. Fifty-two million tickets a year presents a big security problem." Automating the ticket office relieved the tremendous burdens of inspecting for duplicate tickets, and ensuring that tickets for past games are not re-used.

#### Best seat in the house

"Let's face it, all sports facilities are unique," Dripps said. Probably the most bragged about aspect of the Phillies in-house ticket office is its "best available seating" system. Instead of using a generic

software ticketing program, the Phillies preferred to design a system tailored to Veterans Stadium. "Customization is always better than going with a product made for the industry in general," said Dripps. He explains that when the Phillies first decided to automate, they sent researchers to visit several other baseball franchises. They discovered that the Phillies' interests would be best served with a customized system.

For instance, some baseball teams sell the majority of their tickets on game day. The Phillies, on the other hand, sell most of their tickets through advance seating, so a program adequate for game day sales would not have applications necessary for all of the intricacies associated with advance reservations.

Phillies employees believe that their system really does find the best seats for each customer. Unlike some ticket agencies that merely arrange the best seats in a line and sell them one after another, the Phillies system analyzes best seating based on the assumption that most people don't come alone to a ball game.

Moreover, the Phillies system "picks them [fans] in" so that rarely is a "single" seat left. This allows more people to fit into the park. The ticket sales system works on a graphics program that displays on a screen groups of seating available at any given time. Say, for example, a customer called wanting seats near the home team's dugout. The ticket operator would put these seats on hold, watching them disappear from the graphic of the stadium, then reappear if the customer changes his/her mind. In this way, no seats are snatched from underneath a customer debating over where to sit.

Dripps asserts, "We [the Phillies] wanted a higher level of customer service." To determine the best seating, staff went beyond the most obvious parameters such as left or right baseline, and proximity to the field. They used these factors as a starting point to divide the stadium into "sectors" of seating, then narrowed the "best seating" down even further by analyzing the particular characteristics of Veterans Stadium. By consulting ticket sellers and other long-term associates of the Phillies, a master plan of seating was developed for Veterans Stadium of which the franchise is very proud. Δ

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# Backup strategies

## SYNOPSIS

*Even though accidents are not expected, the conscientious system manager plans for them. Regular backups of data are a vital component of this strategy.*

by Tom Gutnick  
Special to Focus

Over the years, there have been a number of changes in both the hardware and software available for backing up files on AOS/VS systems. This article provides a brief history of backup software offered by Data General.

If you don't need all the details, but just want to know what you should use, skip directly to the "Conclusions" section at the end. (Note that most references to AOS/VS in this article also imply AOS/VS II.)

## DUMP/LOAD

In the beginning was DUMP/LOAD. A similar (though not compatible) format actually existed under RDOS, but we're talking about the AOS CLI DUMP format. AOS was introduced in 1976, and DUMP and LOAD commands were included in the Command Line Interpreter (CLI).

Using DUMP, any number of files on a system can be backed up into a single logical disk or tape file; using LOAD, any or all of those files can be restored. A number of options allow a high degree of selectivity as to which files should be dumped or loaded, such as by file type, date and time last modified, filename template, etc.

Note that the CLI was (and still is) written in 16-bit Eclipse assembler. Being tightly overlaid, the code can be difficult to maintain. When AOS/VS was released in 1980, the same CLI was used, with the result that the DUMP format is compatible between AOS and AOS/VS. In addition,

the DUMP format is upwardly compatible with all the DUMP derivatives described later in this article.

Although DUMP/LOAD is still supported today, there are better, although still compatible, alternatives that are described below. You should consider using them. In fact, the new 32-bit CLI does not have built-in DUMP and LOAD commands. It is assumed that you will be using one of these alternatives instead.

## DUMP\_II/LOAD\_II

In the early 1980s, DUMP\_II/LOAD\_II was released with both AOS and AOS/VS. DUMP\_II/LOAD\_II was written in PL/I. By separating the code from the CLI, the programmers were relieved of some of their address space constraints and were able to make a number of changes to achieve better performance. (Back then, I found that DUMP\_II would fill a reel of tape in about half the time of DUMP.) In addition, LOAD\_II has options to reload files while specifying different file-system performance parameters like file element size and directory hash frame size—a very useful feature when "tuning" a system for performance.

## DUMP\_3/LOAD\_3

Over the years, Data General users made a number of suggestions for improving backup utilities. System managers wanted dump operations to stop updating the time last accessed, so that it would be easier to identify files that had not been recently accessed by the user. If a bad spot was encountered while dumping to tape (resulting in a hard error), they wanted the dump operation to continue, instead of having to be restarted from the beginning. When using a multi-volume set of tapes, operators wanted to be able to load an operation on a particular reel. And finally, if a hard error was encountered while loading a tape, there needed to be an easier way to get at the data past the bad spot on the tape.

DMS Systems in Utah developed DBR (data backup and recovery) to address these issues. DMS has had some success selling this product, and has developed a loyal customer following.

A while back, Data General acquired the rights to DBR. DBR was written in RATFOR (a Fortran derivative). When DBR was acquired, Data General ran it



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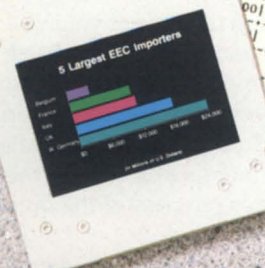


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through testing in Design Assurance Engineering, made some changes to match its standards for supported software, and added some features. It was released as DUMP\_3/LOAD\_3 in 1988. DUMP\_3/LOAD\_3 is a separately licensed product (model number 31527). The price ranges from \$315 for an MV/1000DC license to \$3,655 for an MV/4000HA-4.

The major additional features of DUMP\_3/LOAD\_3 are

- Continuous backup, regardless of operational or device errors. It can also resume after an interruption
- It allows multiple-volume tape sets, with or without tape labels
- It allows creation of index files, which can be used to locate and retrieve files

from any tape without a lengthy sequential search (either through prior tapes or through the current volume)

- Support of unattended batch operations, allowing backup operations to recover on their own when a problem arises
- Backup of files over a Xodiac network
- An interface that allows the operator to monitor progress of the dump/load operation
- With appropriate operating system support, files can be dumped without updating the time-last-accessed information stored in the directory
- It allows loading of a directory structure without loading any data. (This is useful when tuning a system for performance)
- It allows a file being loaded to overlay a file of the same name already on disk. (This will generally provide faster loading than if the file on disk were deleted first)
- If a DUMP format tape is inadvertently overwritten, it allows recovery of files past the portion of tape that was overwritten.

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EMPLOYMENT.AGR aka EMPLOYME_00	5793	Crunched	45%	3221	18-Jan-89	3:55 p	1D1C
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## DUMP\_2/LOAD\_2

A few years back, much attention was given in Data General's software development group to the area of file backups, in recognition of the increasingly large disk configurations being used by our customers, and in anticipation of users migrating from AOS/V5 to AOS/V5 II with its new file system.

Data General recognized that users were going to dump all their files to tape, reformat the disks (that is, wipe them clean!), and reload the tapes. If they ran into a problem while reloading, they would be up the proverbial creek, without the proverbial paddle!

The plan was to provide an enhanced DUMP\_II/LOAD\_II which, like DUMP\_3/LOAD\_3, would be more tolerant of hard tape errors. Data General released an interim version, called DUMP\_2/LOAD\_2. It shipped with AOS/V5 rev 7.62 in 1988, and was located under: :UTIL:NEWFS\_MIGRATION.

DUMP\_2/LOAD\_2 improved on DUMP\_II/LOAD\_II by providing hard tape error recovery and multi-volume unlabelled tapes.

DUMP\_2/LOAD\_2 was superseded by the enhanced DUMP\_II/LOAD\_II, described next. Because DUMP\_2/LOAD\_2

was an interim product, it should no longer be used. (Even if you are still running rev 7.62, you can safely use the backup utilities shipped with rev 7.65.)

**Enhanced DUMP\_II / LOAD\_II**

The enhanced DUMP\_II/LOAD\_II was shipped in 1989 with AOS/VS rev 7.64 (and AOS/VS II rev 1.10). The major enhancements are

- Both DUMP\_II and LOAD\_II can recover from hard tape errors. When DUMP\_II encounters a hard tape error, it will cause the dump to be resumed from a new tape. When LOAD\_II encounters a hard tape error, loss of data will be restricted to the data actually on the bad spot on the tape. In neither case will a hard error result in the dump or load operation being aborted.
- Using LOAD\_II, you can start loading from any reel in a dump set. Thus, if you know that the file you want starts on the third reel, you don't have to read through the first two reels to get to it.
- DUMP\_II/LOAD\_II can now deal with multiple-volume dumps without using labelled tape. (When I was an operations manager, I insisted on labelled tapes for all backups. Because of the extra protection provided by tape labels, I still strongly recommend the use of labelled tape.)

Compatibility note: The new LOAD\_II can handle tapes made by the CLI DUMP command and by previous revisions of DUMP\_II. The new DUMP\_II skips over bad spots on a tape. The CLI LOAD command and previous versions of LOAD\_II cannot handle these gaps, so if a dump operation encountered hard errors, you must use the new LOAD\_II to reload the tape. If there were no hard errors, you can use a previous version of LOAD\_II or the CLI LOAD command.

Reliability note: The enhanced DUMP\_II/LOAD\_II is essentially a new product, based on DUMP\_3/LOAD\_3. For the time being, DUMP\_II/LOAD\_II is unbundled from AOS/VS, in the sense that interim updates to DUMP\_II/LOAD\_II can be issued between AOS/VS releases. If you are experiencing problems, contact the Support Center or your local systems engineer for the latest release. When in doubt, make sure you are using the latest version.

**Physically oriented backups**


Although most user sites prefer file-oriented backup utilities, a few sites find physically oriented backups to be more advantageous.

**PCOPY**

My memory is a bit hazy here, but PCOPY was introduced around 1979 under AOS, and around 1980 with AOS

/VS. PCOPY makes a physical copy of a logical disk unit (LDU) to tape or disk. (Disk-to-disk is normally useful only if you have removable disk drives, which is true for very few of us these days.)

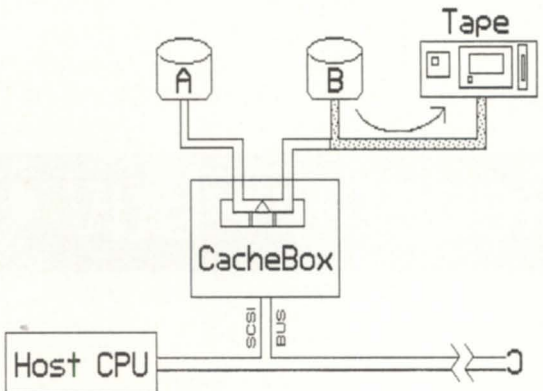
PCOPY's initial advantage was its speed, compared to DUMP. However, today's DUMP variants will equal or outperform PCOPY in many cases, depending on the mix of large vs. small files, the



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model of tape drive, etc. (On the other hand, restoring from PCOPY is likely to be faster than restoring with a LOAD variant, but how often does a site have to restore an LDU, compared to backing it up?)

Note, also, that dump and load operations can be selective, but with PCOPY, it's all-or-none. It backs up the entire LDU. (You can use one of the DUMP/LOAD variants to reorganize a fragmented disk, whereas PCOPY maintains any fragmentation.) PCOPY is not available under AOS/VS II (See LDCOPY below).

## MSCOPY

MSCOPY was introduced with AOS/VS rev 6 (about five years ago). Conceptually similar to PCOPY, it has the advantage that, for Argus disk drives only, it can dump to tape only those disk sectors that have been modified since the last full backup (sort of an incremental PCOPY). It is not available under AOS/VS II.

## LDCOPY

Despite the small number of sites run-

ning PCOPY, there were many requests made at the AOS/VS colloquium in 1987 and the 1988 NADGUG conference for a version of PCOPY that would be supported with the new file system.

LDCOPY is the AOS/VS II equivalent of PCOPY, taking into account many features of the new file system, such as multiple LDUs on one physical disk drive. It shipped with AOS/VS II rev 1.20 in October 1989, as an option under Disk Jockey (the integrated disk management program). It remains to be seen how widely it will be embraced by users.

## Conclusions

No matter which revision of AOS/VS or AOS/VS II (or even AOS) you are running, you should use the most recent version of DUMP\_II/LOAD\_II. For added convenience, consider licensing DUMP\_3/LOAD\_3. Always use the optimum settings of the /BUFFERSIZE= switch (16,384 for cartridge devices, 32,768 for any other drive if the hardware supports it, otherwise 8,192) and /BLOCK=

switch, and use the /MAXCAP switch for streaming devices.

For sites using PCOPY or LDCOPY, it may be beneficial to supplement the physical backups with file-oriented backups. Regardless of which backup utilities are used, what is most important is that you have clear procedures that are consistently applied and for which recovery is occasionally tested. (If an accident occurs, it's too late to discover that you weren't backing up all the files you thought you were!)

A future article will look at the various types of tape drives available for backup purposes. △

*Tom Gutnick has been using Data General systems for over a decade. He is currently a systems engineering consultant, specializing in AOS/VS and MV family systems, in the Eastern Operations Technical Services Group. He can be reached at Data General Corporation, 7927 Jones Branch Drive, Suite 200, McLean, VA 22102; 703/827-9600.*

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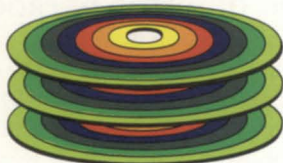
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- **DIRECTOR** re-directs indirect records in an INFOS data base.
- **INSPECTOR** and **INVESTIGATOR** monitor the organization of an INFOS file and determine when reorganization is necessary.
- **CROSS.EXAMINER** logically compares two copies of an INFOS file.
- **ENFORCER** will find or force a "quiet-time" when INFOS backups can be performed with confidence.
- **EXTENDER** adds a volume and **MANAGER** enables space management for an INFOS index or data base.
- **PARAMEDIC** recovers data records from corrupted INFOS files.



# A slew of topics

## SYNOPSIS

*Bug-for-bug compatibility; three (of the many) interpretations of "Log on/off is in progress"; and guidelines for using the VFU printer option.*

### :UPDATE:CLI32

Recently, I've had some trouble writing macros with CLI32; I've found several cases where the lack of downward compatibility has caught me by surprise. Most of the cases have to do with the !U pseudo macros. However, I've had zero problems with upward compatibility, and that's probably the true test of how good a job DG did creating CLI32.

One funny thing happened; I found a serious bug in the way that CLI32 expands network templates in the FILE-STATUS command, but it exactly matches the same bug in CLI16. Talk about true bug-for-bug compatibility!

### :UPDATE:VS\_DOCS

Two columns ago, I gave a rave review to a beta version of 7.67. We're still running it and nothing has happened to change my opinion. If anything, I like it even better now because Jonathan Roses from the DG Documentation Group sent me a preview copy of the new documentation for AOS/VS [II]. There are about 20 pounds of new manuals and updates, so I have been wading through them slowly, but the first thing I did was to check out a few of my favorite mistakes in the updates to see if they'd been fixed. Most were. The only thing that's still missing that I'd dearly love to see is a master index; for example, a place where you could go to find all the references to "modems" in the entire AOS/VS [II] documentation set.

While reading through the new AOS/VS and AOS/VS II *Error and Status Messages* manual (093 540), it occurred to me that when we users ask for a new manual in order to make using the software easier, what we are really asking for might not be possible. For example, this new 540 manual sounds like just the ticket when confronted with a pesky new error message that you haven't seen. But consider this: I looked up the message "Log on/off is in progress," and here's what I found in Table 1 on page 116:

"Source and Meaning: From EXEC. Status message after EXEC CONSOLE-STATUS command; it means that a user is logging on or off this terminal.

How to Recover: Proceed with whatever you have planned."

Good, I think I'll go to lunch.

The problem here is not so much that the authors of the manual screwed up; it's that there are bound to be cases where the recovery information doesn't fit the format of a summary manual. I could easily write a significant chunk of this column on the causes and solutions of the "Log on/off is in progress" message (hmmm—there's an idea), so I don't know how the manual authors could have given a complete description of the possible solutions. A better approach might have been to cite references to look up in a master index, but that would make the 540 manual simply another bead on the indirect chain of information nuggets to be followed in order to solve the problem.

### :LOG\_ON\_OFF\_IS\_IN\_PROGRESS

This message from EXEC can indicate a) that a user truly is in the process of logging off or logging on, or b) that EXEC detected a New Line in response to the logon banner and PMGR is now unable to complete one of the subsequent reads or writes, or c) that the port is modem controlled (/MOD), a call was answered, and a disconnect occurred, but the modem connected to the port is misconfigured in terms of the way that it handles Data Terminal Ready (DTR), Carrier Detect (CD), or Data Set Ready (DSR). The last two reasons are by far the most common source of phone calls to our office.

Problem b) occurs on ports that support CTS (e.g., IAC 8s) and is usually caused by the CTS signal not being on. For example, if you hooked up a terminal, hit a New Line in response to the log on banner, and then disconnected the terminal, chances are good that the port

would be stuck with "Log on/off is in progress" until you either hooked the terminal back up or re-booted.

Problem c) is most commonly caused by modems configured to hold DTR, DSR, and CD high all the time, instead of having them configured for "normal" operation. Normal means that DSR comes on when a call is answered, CD is on any time that a carrier signal from the calling modem is detected, and DSR and CD both drop when the caller hangs up, or when AOS/[VS [III]] drops the DTR signal to force the modem to hang up the phone.

But alas, life is not often even this simple. I've also seen the "Log on/off is in progress" problem occur on IAC 16 RS-422 ports where no device was plugged in, ports where the send/receive data signals were grounded or reversed, and hundreds of other situations, so there is no Universal Elixir that I can cite to solve this problem in every circumstance. All I can tell you for sure is that this problem never occurs on a properly cabled and configured system.

#### :PRINTERS:VFU

For some reason, the hot topic around here for the last month has been line printers.

In the process, I spent some time working with the VFU option that's supported by XLPT using the hardware Direct Access VFU (DAVFU) on LPB type printers, and simulated by XLPT in software for the other printer types. Because proper use of the VFU can have such a dramatic effect on the time it takes to print certain kinds of repetitive print jobs (e.g., paychecks, invoices, packing slips, and anything else that uses a "form"), I figured it's worth stimulating a few of you to investigate the benefits.

#### :PRINTERS:VFU:HISTORY

Back in the days before spoolers, printer speed was often the limiting factor in job speed. Then it occurred to someone that what was needed was a way to move the printer forward to a particular line, or to a particular column on a line, as fast as possible. Traditionally, the only way to position down 10 lines was to issue 10 line feeds, and the only way to position to a particular column was to issue spaces.

Since the paper slew rate of a printer is far faster than the paper step rate, an early solution was to allow the software to


move the paper to the next vertical tab stop using the vertical tab character (ASCII 013 octal).

To avoid the time it takes to send multiple spaces to a printer, the solution was to define horizontal tab stops and use one or more horizontal tab characters (ASCII 011 octal). Few early printers did anything other than allow fixed horizontal tab stops, so DG built user selectable

tab stops into its data channel printer controllers.

Early printers solved the paper motion problem with the addition of a vertical format unit. The early VFUs took the form of a loop of 12-channel paper tape with holes punched to indicate the position of vertical tabs, including the top of form (TOF) and bottom of form (BOF) positions. Eventually, the paper tape VFUs

News



News

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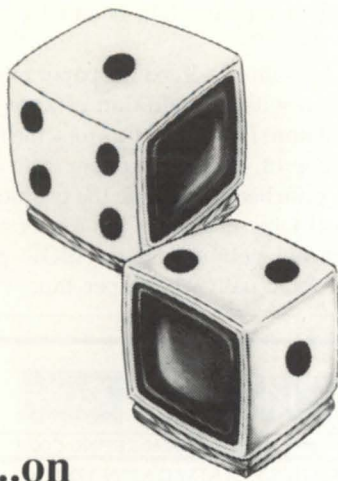
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# SYSTEM MANAGER'S LOG

were replaced by electronic VFUs (EVFUs), and then by direct access VFUs.

Fundamentally, all VFUs are similar in that they define "channels," usually 12, for each printable line on the form. Several of the channels have a special meaning. For example, channel 1 is used for TOF and channel 12 is used for BOF. Channel 2 is used by vertical tabs (ASCII 013), although DG chose not to implement this feature. (VT characters are unconditionally discarded by XLPT.) Positioning to a line is accomplished by commanding the printer to "skip to channel n," which causes it to scan forward and locate the next line with a "hole" punched (or a bit set) for that channel. Although not strictly a VFU function, Data Products-compatible printers also allow slewing a specified number of lines in one command, or a slew to a specified line number.

DG made a decision in the seventies to support the Data Products DAVFU, or compatible ones, at the hardware level, and defined a software scheme to send paper movement commands.

### :PRINTERS:VFU:HOW\_TO\_USE

So how do you take advantage of the VFU to reduce the size of your print files and speed up the printer? Well, if you program in Cobol, it's easy. Cobol knows how to generate VFU commands in print files, and is just sitting around waiting for you to tell it when to do it.

VFU channels are defined in the SPECIAL NAMES paragraph of the CONFIGURATION SECTION within the ENVIRONMENT DIVISION. The syntax is simply:

```
SPECIAL-NAMES.  
CHANNEL 5 IS NEXT-CHECK.
```

Then you can say things like WRITE PRINT-REC AFTER ADVANCING TO NEXT CHECK and Cobol will insert a "skip to channel 5" VFU command in the print file. What line the printer actually skips to will then be determined by the FORMS file you specified for the printer associated with the queue that you're printing to. The FORMS files are created and maintained by the VFU.PR program, and are stored in the :UTIL:FORMS directory along with the BINARY cleanup files. If no FORMS file is specified for a printer, XLPT uses a

default form that specifies only channel 1 (TOF).

To issue VFU commands from other languages, you have to embed the software VFU commands in the print lines yourself. The format of software VFU commands is <DC2><command>, where DC2 is ASCII 022 octal and "command" is:

Command	Function
0101nnnn	Slew to chan nnnn+1 (1 ..12)
0100nnnn	Slew nnnn lines (0 ..15)

Have you ever seen the message "Non VFU control character after VFU NEXT" come out on a print job? That's XLPT's way of telling you that it saw a DC2, and that the command byte was either in an illegal format (e.g., not 010 in the three high order bits), or that it specified an illegal movement (e.g., skip to channel 15).

Note that even though Data Products printers support a slew to an absolute line number, DG's software scheme does not include a command sequence to use this facility. I suspect the reason is because Cobol does not have a syntax to cover this, and the software VFU supports was originally defined to support Cobol.

### :PRINTERS:VFU:HT

Although not a significant performance issue, the proper use of HT characters can significantly reduce the size of print files; far more than the reduction due to the use of VFU commands. The primary advantage of VFU commands is reduced print time.

Even though most printers now contain electronically settable tab stops, DG actually handles the tabs in the data channel line printer controller. As a result, tabs are handled in hardware on any type of printer connected via a data channel controller.

### :PRINTERS:VFU:SYSGEN

Whether or not a printer has a Data Products-compatible DAVFU unit is determined by the type of printer specified at VSGEN time. LPB printers are the only printer types assumed to have DAVFUs. For all other printer types, software VFU commands are translated to the appropriate combination of line feeds by XLPT. This means that it generally isn't worth



the trouble of using VFU commands in your print files for these printers; there is no performance advantage.

If you specify a printer as an LPB at VSGEN time and then find a row of "@"s printed across the top of the first page of every job, then your printer does not support a Data Products DAVFU.

## :PRINTERS:VFU:TRICK

Here's a performance trick for those of you who have DAVFU-compatible printers, but who don't want to go to the trouble of using VFU commands in your print files. A bizarre characteristic of many DAVFU printers is that positioning to the top of a form is much quicker if the DAVFU has *not* been loaded! Once the DAVFU is loaded (i.e., XLPT (re)loads it at the beginning of every job), form feeds seem to cause the printer to slowly slew, looking for TOF. To see if your printer has this quirk, do this: Power the printer off and back on to clear the DAVFU; take the printer off line and hit the form feed button; put the printer on line and print a

small file; take the printer off line and hit the form feed button.

Was the second manually induced form feed noticeably slower than the first? If so, you'd benefit greatly from re-VSGENing your printer as an LPE type printer (i.e., no DAVFU). Cute, eh?

## :CREDITS

Until the new AOS/VS [III] documentation set, the information on software VFU commands was a well kept secret available only from experts like me. Now it is fully covered in the new *Using The CLI* manual, 093 646, under the FCU utility description. Good for you guys, but bad for my billings.

## :UPDATE:SLEAZE

Back in December, someone voiced an objection on the NADGUG BBS to the coverage of the yearly Sleaze Tour by me, both in this magazine and on the NADGUG BBS. The individual complained that "professional" journals (*Focus?*) and the NADGUG BBS are inappro-

prate vehicles for such tacky matters.

In April, I asked for anyone who agreed with this opinion to call/mail/fax me a message to that effect. In spite of the fact that I only asked to hear from people who shared this person's opinion, what I got was a pile of responses from people who think he ought to lighten up.

June 26 is BJ Inc.'s tenth anniversary. To celebrate, I've got a special treat in store for the Sleaze Tour attendees this year. Be There, or Be<sup>2</sup>. 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 4, CHAR/605X/CHARLEN=8 /PARITY=NONE/AUTOBAUD) or 415/550-1454 (voice).*

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# New Age allegory

## SYNOPSIS

*Are you putting your horsepower out to pasture before its time? Join the recycling movement and make use of your old software. Plus, read how ring seven takes a byte out of pollution.*

based upon the first few chapters of the *AOS/VS System Concepts* manual.

### In times of olde

Having realized that I just completed my eighth year of service to Data General, I got to thinking about the changes that have occurred in the industry . . . and some that have not occurred. I remember the first computer that I played with, back in 1973. It was a Nova (1200, I believe) with 4K of core, and a fully loaded teletype (paper tape reader and punch on the side!). Seventeen years later, I am sitting in front of my personal 10 MHz PC/AT clone with 154 MB of disk space, VGA, 5.25-inch and 3.5-inch floppies, printer, modem, fax, MIDI interface, and a mouse. Yes, we can all be astounded by the changes in the hardware end of the industry, when you can now get RISC workstations at less than \$500 per MIPS (derived from that Nova), and architecture that spans 50 MIPS workhorses down to an MV on a chip.

There have also been great changes in the software side of the industry, what with the fourth generation and object oriented languages, plug-in file and network servers, international software standards, and all of the other wonderful features too numerous to mention.

My personal experience and observations are that as we outgrow hardware, we upgrade it. When new software tools come into existence, we obtain them and use them. We are more software literate than ever before. We have fantastic tools at our disposal, and great software models available to us when we go to something new.

I see incredible power on people's desktops, and very high speed telecommunications over coaxial cables and telephone

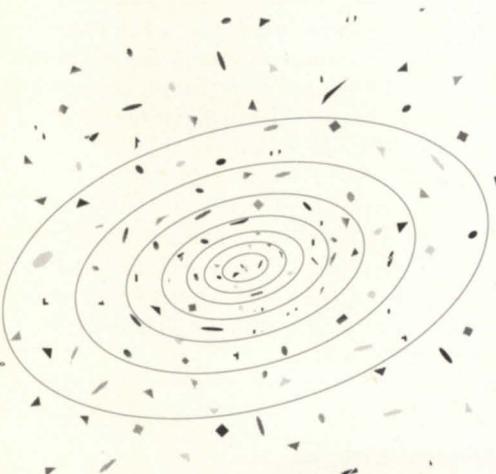
lines. I see people using tools with graphical user interfaces and colors and sounds galore. All great stuff, and I know it. But, it seems that we are adding SAGANeske machines (See Note 1) to our environments and not applying the new concepts to the existing foundations. (Confused as to where this is going? Bear with me a moment.)

### Environmental consciousness

Did you know that every day, countless billions and billions of MIPS are wasted? We have, at our disposal, phenomenal, multi-tasking, multi-processing capabilities, but we seem to be wasting them. Just think of all those No-Ops going into the bit-bucket. Our computers are not used to their potentials. Isn't it time that someone, like you, get involved in the environment?

Take a byte out of pollution, and recycle those old programs. Bring all of the old programs in line with the present level of technology. They have possibilities that you may not have considered. Instead of letting the old inventory system go to waste, give it a shiny new GUI. Revamp those old punched-card formatter programs. See if you can re-use that benchmark program to do the General Ledger. (Don't they say that time is money? If that is so, then this should be a simple conversion.) Isn't it time we look at how we think about our programming environment? I am not saying that we should stop writing new programs, but the converse.

We should be mindful of wasted bits and MIPS. Examine how your programs work; understand them. You spend so much time with them. They are your friends, so why not let them be more efficient? Make the most of your MIPS. Show



**S**o, here I was, see. Minding my own business, like staying in bed with a cold, you know. When the editor calls me up on the telephone. "Where's your July article?" she politely demands. If I was going to write one, it would have been due days ago. Now, if it were up to me, I would have stayed where I was, taken it easy, and thought up a really good article for August. But instead, you will have to take what comes.

### Details, details, details

*MV/88000*—I hope that everyone caught the small labeling error for one of the figures in my article in the April issue of *Focus*, which misrepresented the fictional *MV/88000*, as an *MV/8000*. If you didn't spot the error, didn't read the editor's note in June's issue, or didn't catch the correction in the previous sentence, then just forget all about it.

### A wonderful whiz of a quiz it was

I did not realize there would be so much controversy regarding the quiz that I presented in the May issue of *Focus*. One point of controversy relates to the synopsis given the quiz: it was not really a quiz for system or field engineers, just a generic quiz,

# Your Equation for Success:



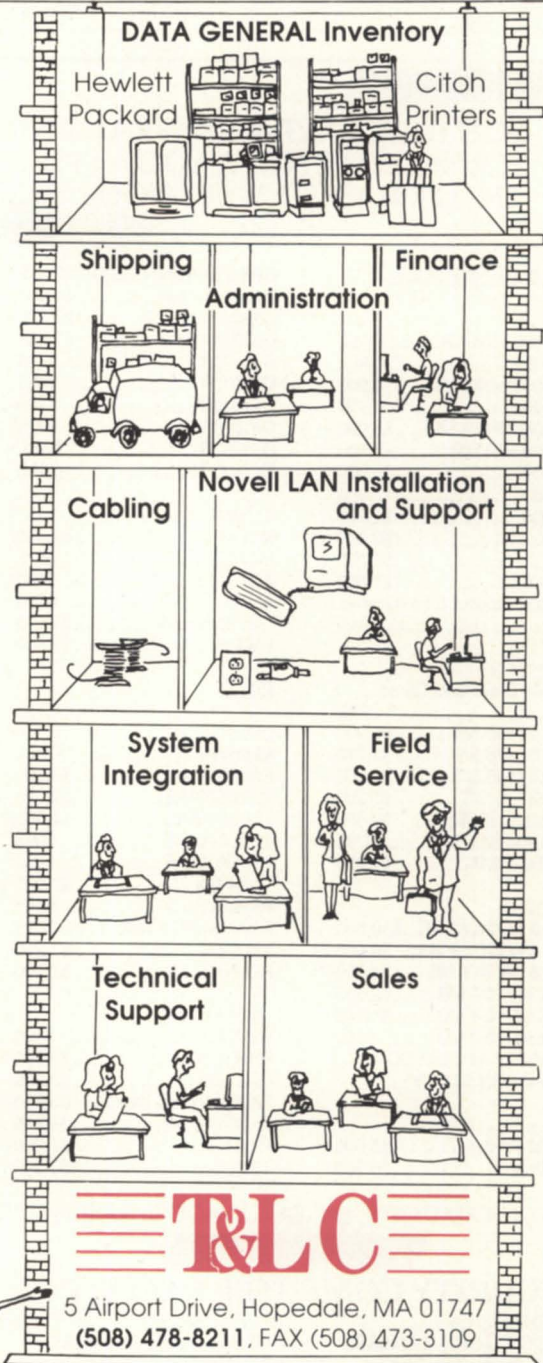
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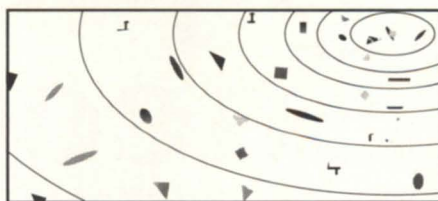
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that you care, cut down on disk seeks, save a page of memory (did you think that they were free?). When MIPS are well-used, bit-buckets do not get filled. If a bit-bucket is not filled, then it doesn't have to be emptied. (I don't know anyone who likes to empty out bit-buckets).

AOS/V5 and the MV family do their part to protect the environment. I'll show you how.



### The great ring debate

I received a note regarding a question

in the aforementioned quiz about the number of rings and segments in AOS/V5. (See Note 2.) The person's specific comment was "An MV has seven rings that control the access between the eight segments." This implies that the person thought that there were indeed eight segments, but only seven rings, whereas the documentation and I say that there are eight rings. My reply to this comment was that one can view it as such: Ring zero protects and serves the data within segment zero, ring one is for segment one, two for two, etc. If there were not a ring around segment seven, then all of the user's bits of data would float away and be just so much pollution. (See Note 3.)

If it were not for ring seven, imagine how much worse off the world would be!

### A few quick items before I close

I have a button on my wall that I have not told you about:

"A mind is like a parachute . . . it functions best when it is open."

With the recent announcement of the MV/5500 and MV/9500, there is another question to be added to the previous quiz:

Is a microprogrammer the person who enters programs by toggling the front-panel switches on a Washi (the MV-on-a-chip)?

### Scoring:

No—award yourself 1 additional point

Yes—any non-zero value

Don't know—zero points.

### Notes

1) definition: SAGANeske machines: Millions and Millions of instructions per second. (Remember, you read it here first!)

2) My thanks to CP in RTP for his comment.

3) Of course, that is not the company's official description in its documentation of why there are eight segments and eight rings. In the end, we agreed that you cannot dispute the documentation. Δ

Michael Dupras is senior consultant for the Software Products and Services Division of DG Canada. He may be reached at Data General, 490 boul. St-Joseph, Suite 104, Hull, Quebec, Canada J8Y 3Y7.

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# Seattle



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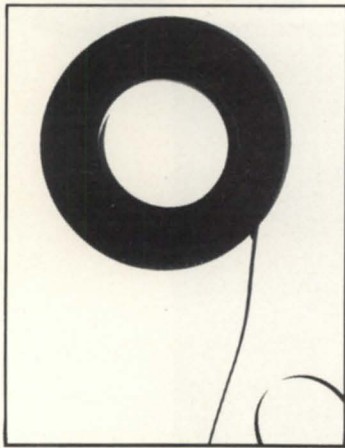
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# A complete listing of the NADGUG software library



**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.

**CRREDIT** • 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 Man-

ville. 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. 1774 blocks.

**FTNCVT** • A Fortran 5 to Fortran 77 translator. 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, User-space, 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 Kermit** • An expanded version of AOS Kermit, this now includes other versions of Kermit including DG/One Kermit. 6,709 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.

## New listing

**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. 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 1200 ft. 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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List Price	8900	13995	8950	9995
Price Includes Controller	YES	YES	YES	YES
Rack Mountable	YES	NO	YES	YES
Tabletop Enclosure	YES	YES	YES	YES
Automatic CPU Sharing	YES	NO	Manual	NO
Number of Shared CPU's	6	0	2	0
Supports ANSI Labeled Tapes	YES	NO	YES	NO
Runs DG DMTRELI	YES	NO	NO	NO
Runs all Revs AOS/VS & VSII	YES	NO	YES	NO

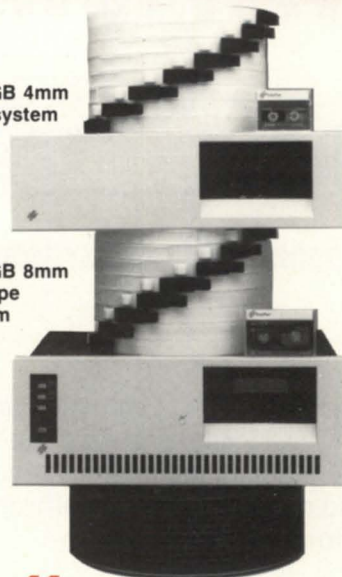
**FEATURE COMPARISONS OF 1.3GB - 4MM TAPE BACKUP UNITS**

	DATA PLUS	DATA GENERAL	MEGA TAPE	CONTEMPORARY CYBERNETICS
List Price	7600	Not Available	Not Available	Not Available
Price Includes Controller	YES	Not Available	Not Available	Not Available
Rack Mountable	YES	Not Available	Not Available	Not Available
Tabletop Enclosure	YES	Not Available	Not Available	Not Available
Automatic CPU Sharing	YES	Not Available	Not Available	Not Available
Number of Shared CPU's	3	Not Available	Not Available	Not Available
Supports ANSI Labeled Tapes	YES	Not Available	Not Available	Not Available
Runs DG DMTRELI	YES	Not Available	Not Available	Not Available
Runs all Revs AOS/VS & VSII	YES	Not Available	Not Available	Not Available

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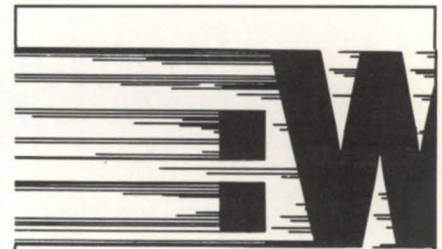
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San Francisco, CA 94105 (415) 550-1454

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# Insurance on Avions

Boston—Building on its presence in the healthcare and insurance-related markets, Data General announced three new insurance software systems. DG debuted these products at the Risk and Insurance Management Society (RIMS) conference April 29-May 4 in Boston.

The software is from DG VARs L & L Computer Systems, Inc., Armada Software, Inc., and Logical Solutions, Inc.

L & L Computer Systems provides GIS, the General Insurance System, an integrated, on-line package designed to automate all functions required by mid-tier property and casualty companies.

Armada Software furnishes Speedclaim software for medical bill, supply, and pharmacy review. Speedclaim is designed to meet new workers' compensation regulations. Users include self-insureds, state insurance funds, state labor boards, and commercial lines insurance carriers.

Logical Solutions offers a comprehensive claims automation package for third-party administrators and self-insureds. Supporting a range of medical services, the software features a fully integrated look-up system for reasonable and customary medical codes.

All three software systems run on the Avion line of workstations and servers.

*Data General Corporation, 3400 Computer Drive, Westboro, MA 01580; 508/898-4051.*

Circle 56 on reader service card.

## D470C terminal emulator

Columbia, MD—Rhitek, Inc. announced version 3.0 of the EMU/470 color graphics terminal emulator. The program now includes a command language of eight command groups, allowing unlimited length macros to be written. This benefit provides complete control of operations of the terminal emulator and increased automatic response to host requests.

The new EMU/470 emulates all of the top-of-the-line DG Dasher terminals, providing a superset of their capabilities. Additional features include: support for European keyboards and character sets (including code page 850), graphics printing on IBM Proprinter and HP Laserjet compatible printers, a 135-column compressed mode on any graphics adapter, selectable baud rates from 300-38,400, support for 10 to 12 function keys, support for four COM ports, file capture/transmit of text and binary files, and protocol transfers using Xmodem or Kermit.

EMU/470, licensed for a single system, is not copy protected, for convenient hard disk installation and backup. Free, unlimited product support is provided for registered users. Present license holders of EMU/470 may update to the new version for a fee of \$35.

*Rhitek, Inc., Computer Engineering, P.O. Box 220, Columbia, MD 21045-0220; 301/730-2575.*

Circle 59 on reader service card.

## Monitoring AOS/VS files

Salina, KS—Eagle Software, Inc. released File Monitor, an on-line file activity monitor for AOS/VS. File Monitor helps balance disks by showing which files are receiving the most accesses.

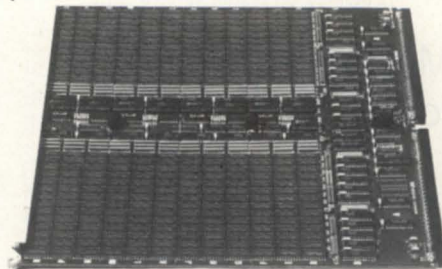
File Monitor shows the number of disk accesses to a particular file or group of files, who is using a file, and what files are currently in use on the system. When the system is slow, File Monitor can help determine the cause by showing what files are in use. When exclusive access is required to a file that is already open, File Monitor can show who is using that file. When releasing a disk that is in use, File Monitor can show which process is using a file on that disk or has a directory on the disk included in its searchlist.

File Monitor can be used as an option to Disk Pak, Eagle Software's disk reorganization utility, or as a separate product. Available as of July 1, price ranges from \$450-1,950, depending on CPU. Customers who have already purchased Disk Pak

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can purchase File Monitor at half price.

Eagle Software, Inc., 169 East Cloud, P.O. Box 16, Salina, KS 67402-0016; 1-800/477-5432 or 913/823-7257.

Circle 57 on reader service card.

## Mathematica 1.2 for Aviion

Champaign, IL—Wolfram Research, Inc. announced Mathematica software for Data General's family of workstations, servers, and multi-user systems.

Mathematica is a general mathematical computation system and language. It performs interactive numerical, symbolic and graphical computations, and incorporates a high-level programming language and applications generator. Mathematica runs under DG/UX and Xwindow systems. Mathematica running under DG/UX also supports connectivity to remote Mathematica front ends on the Apple Macintosh via TCP/IP.

The new Aviion version of Mathematica is distributed on .25-inch (QIC) cartridge tape. Along with machine-specific documentation, a hardcover copy of the book, *Mathematica: A System for doing Mathematics by Computer*, is included with the product. Mathematica for DG Aviion systems is available for \$2,800.

Wolfram Research, Inc., P.O. Box 6059, Champaign, IL 61826-6059; 217/398-0700.

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## Faster Medicare

Atlanta, GA—HBO & Company announced a Medicare electronic attestation enhancement for its Clinstar-Patient Care software running on the Data General MV series of computers. Recently approved by the Health Care Financing Administration and ready for use at the end of June, this addition expedites a hospital's Medicare billing process.

For a hospital to generate a final bill,

the Medicare Prospective Payment System requires that the attending physician attest to the diagnosis and procedures performed during hospitalization, and sign off on the attestation form. With electronic signature, physicians can review and sign the Medicare attestation forms from areas outside the medical record department, such as their offices.

HBO & Company, 301 Perimeter Center North, Atlanta, GA 30346; 404/393-6000.

Circle 58 on reader service card.

## Falcon flies with I/O bus

Bellevue, WA—Strobe Data, Inc. announced an on-board Nova I/O bus interface to drive DG's 16-bit I/O expansion chassis and other Nova-compatible special purpose peripherals.

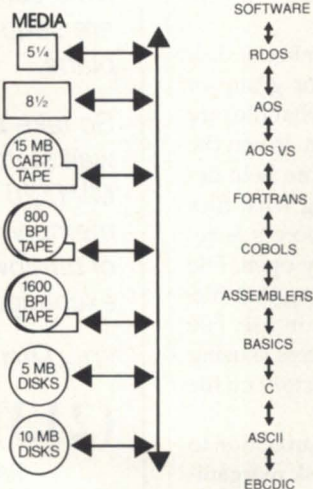
Previous versions of the Falcon (a 16 MHz DG Nova 4X system Eclipse instruction emulation), and the Swift (a 20 MHz

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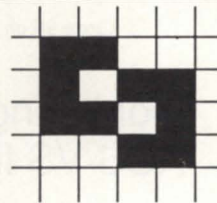
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replacement for unmapped Nova systems) did not allow direct access to the I/O bus. This deficiency excluded high speed data acquisition/analysis applications, a major target for DG's original Nova architecture. Communications, process control, and test equipment subsystems can now all use the Falcon or Swift with a PC and its hard disk and other peripherals as a direct Nova replacement. No programming is required.

Prices vary depending on purchasing arrangement, but run typically between \$2,000-\$2,500. The bus option is offered for an additional \$1,000. Immediate delivery is offered for small quantities; orders of four or more should allow up to six weeks for delivery.

*Strobe Data, Inc., 13240 Northup Way, Suite 19A, Bellevue, WA 98005-2077; 206/641-4940.*

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## Don't forget—memory boards

Acton, MA—Two new memory modules for the Aviiion are now available from Signal Computer Products, Inc. These modules, the Avram/4 and Avram/16, feature capacities of 4 MB and 16 MB respectively. Both modules feature surface mount technology and high speed chips.

The Avram/4 and Avram/16 are fully hardware and software compatible with the Aviiion and DG/UX. Both are covered by the Signal lifetime warranty policy and a hot spares policy that provides a replacement board in 24 hours.

*Signal Computer Products, Inc., 411 Massachusetts Ave., Acton, MA 01720; 1-800/228-8781 or 508/263-6125.*

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## IOC—an office solution

Lancashire, U.K.—Systems consultant Andrew Sowden released the Integrated Office Concept (IOC) aimed at distribution and manufacturing companies looking for a complete solution to information collection and presentation.

IOC comprises a collection of modules

that integrate information and prepare it for retrieval. Included with IOC are two products: IMP (Intelligent Marketing Protocol), and Exisyst (Executive Information System). The former is considered the start of the business cycle, where information is used to generate sales and coordinate execution of a marketing plan. The latter is viewed as the brains of the operation. According to Mr. Sowden, Ex-

isyst provides information where and when you need it.


IOC is available in DG/ICobol and Oracle for use on any Data General MV or Aviiion family computer.

*Andrew Sowden, 66 Woolman Road, Blackpool, Lancashire FY1 4AH, U.K.; 0253-22482.*

△

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“ The level of expertise presented at the NADGUG conference could only be equaled by attending several different conferences at once. As a VAR, we would not pass up this opportunity for new information and contacts. Every year we discover a new utility that benefits our company. For example, last year we found a printer style that we have since switched to. Moreover, the NADGUG conference is very easy to justify attending because it is a *working* conference with little wasted time. ”

— Maggie Morris  
Information Services Manager  
Champion Auto Stores

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## ON-LINE HELP

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

#### NADGUG

##### Membership, address changes

Jennifer Foye ..... 800/877-4787  
(Outside the U.S.) ..... 512/345-5316

##### Information on RIGs or 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

#### NADGUG staff and Focus Magazine address:

c/o Turnkey Publishing, Inc.  
Stillhouse Canyon Office Park  
4807 Spicewood Springs Road  
Suite 3150  
Austin, TX 78759

#### FOCUS Magazine

512/345-5316

Editorial comments, article suggestions.....Robin Perry  
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- 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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At the end of calendar year 1990, Data General will introduce a version of AT&T's LAN Manager/X for Aviion systems. The licensing agreement enables Data General to offer LAN Manager/X customers an industry-standard software development platform and client-server applications built on Data General servers. The package "adds tremendous value to Data General's strategy to penetrate the fast-growing commercial Unix server market," said **Stephen Baxter**, vice president of corporate marketing.

Data General is donating \$350,000 worth of Aviion workstations and servers to the **State University of New York (SUNY)** at Buffalo. The workstations will be used to develop a 4.4 Berkeley Software Distribution (BSD) Unix port for the Aviion family, as well as other research and development projects. DG's primary offering will continue to be the industry-standard DG/UX operating system, which is Berkeley 4.3 and AT&T System V.3.2 compliant.

"Certain customers in this [university] market demand a 4.4 BSD compliant version of Unix. As part of an aggressive marketing push, and to demonstrate our commitment to the university marketplace, Data General joined forces with SUNY at Buffalo to meet this demand," said **Uday Watwe**, programs marketing manager for Data General.

Data General and the **University of Lowell** in Massachusetts signed a joint marketing agreement under which DG will market IKS, the Imaging Kernel System, for the Aviion. IKS is a sophisticated library of image processing routines developed at the University of Lowell.

Data General reports that the Aviion has been well received by the university market. Systems have been installed at **Carnegie Mellon's** University Center for Excellence in Optical Design, **California State University** at San Luis Obispo, Portugal's **National Institute for Computers and System Engineering**, as well

as universities in Arizona, Holland, and Australia.

**Ambit Systems, Inc.**, of Carrollton, Texas, acquired the rights to the Data General Genioss Integrated Office Controller (IOC) product line. The IOC is an integrated computer and communications system that allows "MV computer systems and MS-DOS PCs to communicate with and exercise control over the switching systems," according to Ambit President **Robert Pedersen**. Ambit has also agreed to be a DG value-added reseller (VAR).

Another VAR agreement was reached between Data General and **Plus III Software, Inc.**, of Atlanta. Plus III Software will port a version of its Terramodel applications—including site design, digital terrain modeling, and automated drafting—to the Aviion family of workstations. This is Plus III Software's first venture into the Unix market. It claims its new version of Terramodel, TM/Unix, will be significantly faster than its PC-based predecessor.

**Wordperfect 4.2.19** for DG is scheduled for release in the second quarter of this year and includes several new printer definitions, as well as Postscript drivers. Due to the development of Wordperfect 5.0, there will be no further 4.2 enhancements or printer drivers issued after the release of 4.2.19.

**BJ Inc.** announced that it will remove the part of its logo that resembles **The Coca-Cola Company's** trademarked "Dynamic Ribbon Device." The rest of the logo will remain unchanged. BJ Inc. requested permission from The Coca-Cola Company to use its existing stock of several hundred sheets of stationery and business cards. If The Coca-Cola Company agrees to allow BJ Inc. to do this, then any remaining stock will be made available to attendees of NADGUG's Conference 90 in Seattle on a first-come, first-served basis.

Atlanta-based **National Software Technical Services (NSTS)**, founded by **Don Thomas** and **Russ Horton**, is a new company that provides specialized services for Data General customers. A key employee of NSTS is **Bill Means**, former project leader and 13-year veteran of Data General. Means said he will be doing high-level problem analysis and consulting, with a concentration on AOS/VS systems.

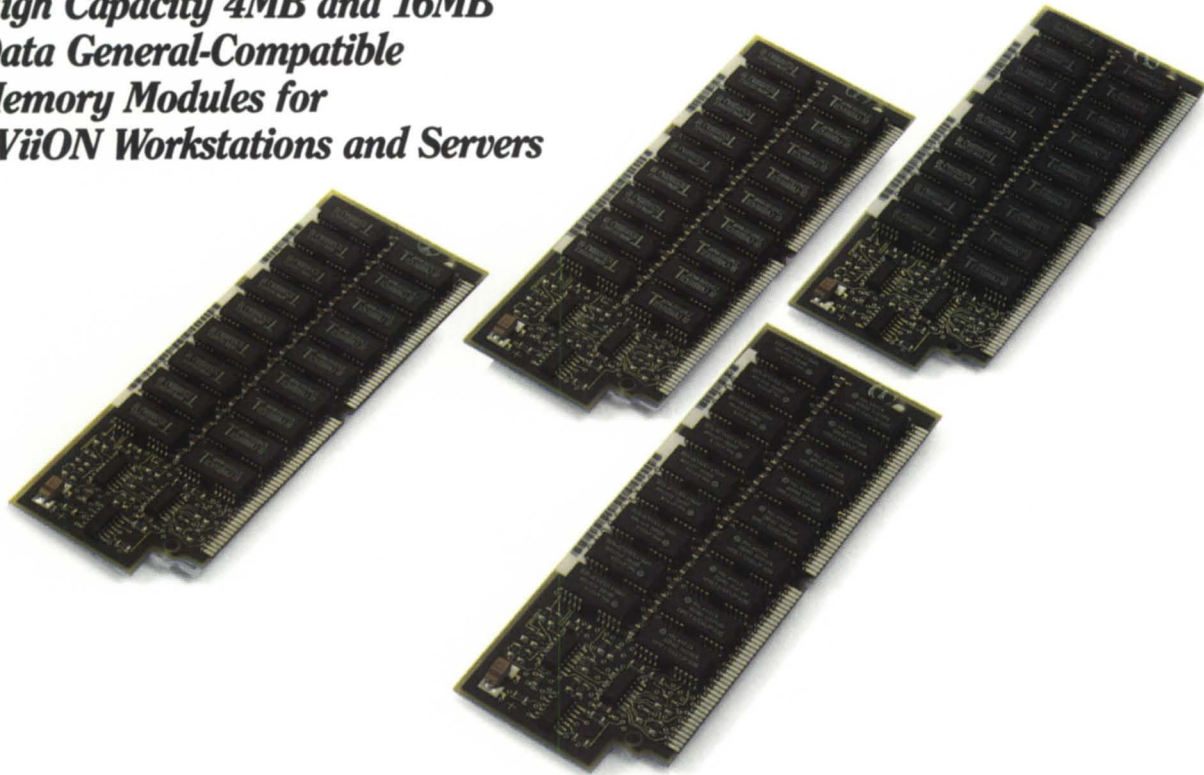
Data General and **Cognos, Inc.** signed a worldwide cooperative marketing and distribution agreement under which DG will resell Powerhouse, a 4GL application and development language, on the Eclipse MV family and Aviion family systems.

Cognos, Inc. rebounded financially in its fourth quarter, reporting revenues of \$35 million, pre-tax operating income of \$2.1 million, and net after-tax income of \$1.1 million. This after showing losses for three consecutive quarters. For the fiscal year, Cognos reported revenues of \$112.5 million, and a net loss after tax of \$17.1 million.

Data General moved into the **Pick** operating system marketplace with the signing of an original equipment manufacturer (OEM) agreement with **VMark Software**. Pick is the third most popular operating platform world-wide, behind MS-DOS and Unix. Under the agreement, DG will market and support **DG/Universe** software, enabling over 4,000 commercial applications running Pick and Prime Information software to run on Aviion systems.

The SAS System of application software will be available on Aviion workstations in the fourth quarter of 1990. This announcement was made by **SAS Institute** President **Dr. Jim Goodnight** at the annual meeting of the SAS Users Group International in Nashville. The SAS System is a hardware-independent applications system for data access, management, analysis, and presentation. ▽

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