

November 1989

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The Magazine of the North American Data General Users Group

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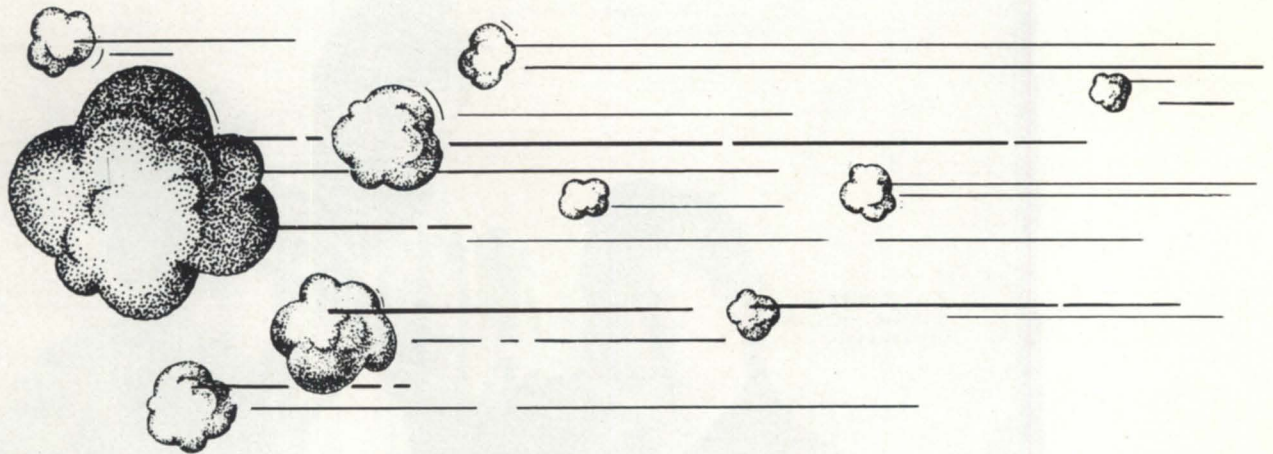
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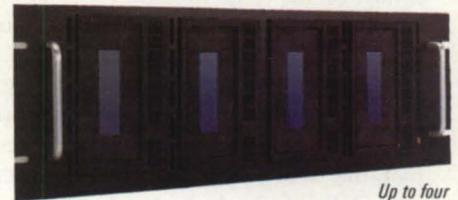
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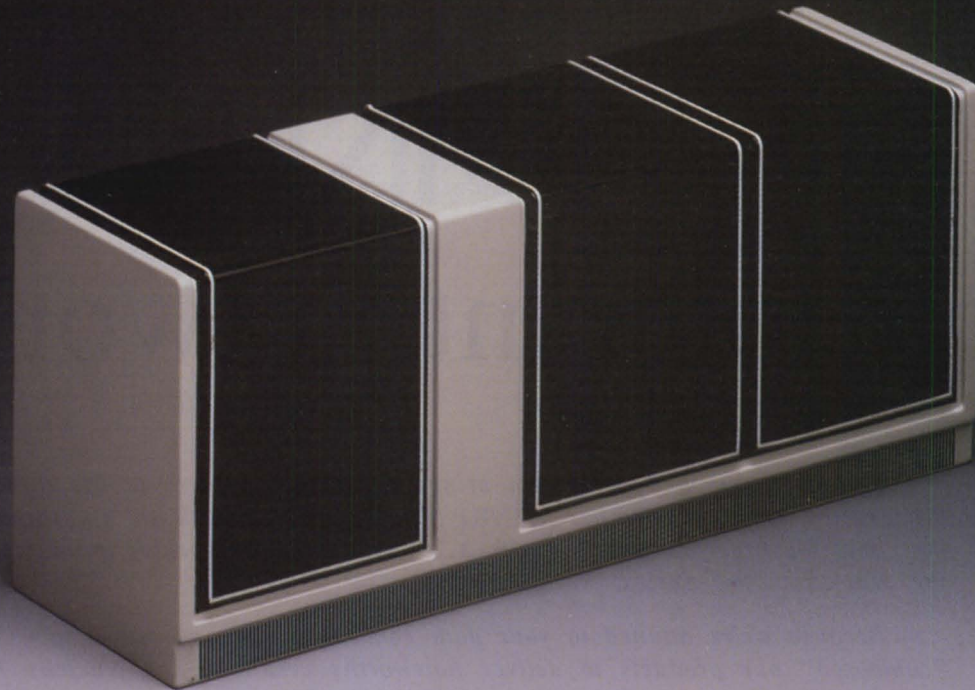
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UT Salt Lake City	Dec 14f
VA Richmond	Dec 8c
WA Seattle	Nov 1, 7* Dec 11pa
WI Madison	Nov 9

The following key indicates additional afternoon seminars that are offered with these seminar dates:

- a Macintosh Networking
- c CASE Application Tools
- f Oracle Financials
- i Oracle Int'l User's Group '89
- l Oracle Mail
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Please note:

- * Seminars held for Federal Government only.
- # Only the afternoon seminar is held that day.

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that you maintain a continuity from meeting to meeting and from one year to the next. Always have someone who can step in when an officer cannot perform his/her function. It is sometimes beneficial to elect only half of the officers in each election. That way, at least half of the officers will have a years' worth of experience.

Within committees, it usually works better when the chairperson has already done work within the committee. In other words, bring someone up from the ranks when you need a new chairperson.

Determining a program to present at your group meeting may seem like the most difficult challenge. Although you may have trouble every once in a while, just think creatively about what you and your members are interested in. Panel discussions on hot topics, tours of member sites, and "how to" sessions always have good attendance.

Two complaints that some groups get are that the programs are either too technical or that they are not technical enough. This is not as strange as it may sound, because each group is different and will have a different mix of people. All of the members are coming to your RIG or SIG to learn and seek information. Obviously, you can't please all of your members with every program. What do you do? Ask your members what they want in a program. If your group is large enough, have two programs simultaneously—one high-tech segment and another of general interest.

Publications usually take one of two forms, either a meeting announcement or a newsletter. The type, content, and frequency of the publications will have to be geared around the needs and interests of your group. The availability of someone who is able and willing to achieve your publication goals is another factor governing your publications.

Since every group has to send out meeting announcements, why not try to expand this notice into a newsletter? The following is a list of items you might want to include in your newsletter.

- Information on the last meeting and the upcoming meeting
- News of new installations in the area
- News from Data General
- News from NADGUG
- A message from the president of the


interest group

- A question-and-answer section
- A solution of the month.

Get your members to contribute to the newsletter. Make it something to look forward to every month.

Getting a publication of any type ready and in the mail can be a major project, but with help it can be a success. Depending

on your resources and the time and help available, your publication can be quite simple or fairly elaborate. You may have several people compile the information. You may prepare it via an editor or a wordprocessing program on a member's computer. You will need someone to make copies and handle the actual mailing. Some groups have companies that sponsor their newsletter. Sponsorship could




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NDGUG (the Nippon Data General Users Group) held its ninth annual conference June 22-23 at the Hotel Century Hyatt in Tokyo. Over 600 people attended the two-day event, which included a panel discussion, two keynote addresses, and 23 case studies given by members. Annual SIG meetings and a reception rounded out the activities. The highlight of the exhibit area was DG's Aviion computer. (Aviion is called "AV" in Japan.)

Special guests included Tom West, senior vice president for systems development at Data General, who spoke on Data General's product strategies, and Prof. Ikujiro Nonaka of Hitotsubashi University, who gave a presentation titled "Strategic Information Systems."

The NDGUG Middle Japan RIG held its sixth annual meeting on July 20. Over 120 members attended the meeting, which focused on the topic of graphics technology. The West Japan RIG held its seventh meeting in Osaka on September 8. More than 200 people participated.

The Los Angeles End Users of Data General Equipment (LA EDGE) will hold its next meeting at the Brookside Country Club in Pasadena on Tuesday, November 7, at 7 p.m. The speaker will be Jacques Roy of Data General. He will describe the Unix operating system with emphasis on how it compares to AOS and AOS/VS, and what is involved in migration to this new environment.

A meal will be served at 7 p.m. following the traditional 6 p.m. cocktail hour, hosted this month by Verdugo Computers.

The September LA EDGE meeting was attended by over 70 members who were treated to a Mexican buffet. After dinner, three speakers presented ideas about system performance. Clyde Sparks of Delphi Data explained caching techniques and concepts and told of his "Generic Cache Box" product. Ron Fitch

Cathlene Gentry is the RIG/SIG coordinator for NADGUG. She may be reached at Focus magazine, 4807 Spicewood Springs Rd., Suite 3150, Austin, TX. 78759; 1-800/877-4787, (1-800/USR-GRUP).

of Human Insights Group covered many areas of system performance on RDOS, AOS, and AOS/VS. John Quinn of Professional Healthcare Systems explained how he analyzes system performance on large health care computer systems. He included a sample analysis with many detailed graphs.

For more information about LA EDGE, contact Mark Speer at 818/897-7777 or

Carolyn Nabor at 818/793-2141. An information packet can be sent to you by mail.

Turn to page 14 for the updated RIG/SIG roster. Use this roster to locate the group in which you are interested. If you can't find the group you need, contact me at 1-800/877-4787. △

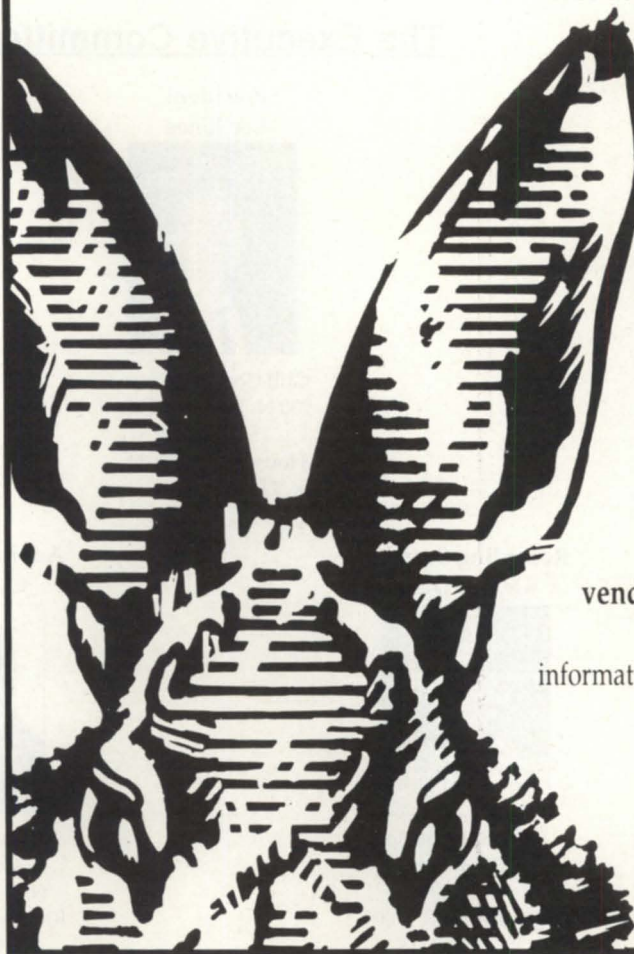
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WordPerfect Corporation has released WordPerfect Office 2.0 for the Data General AOS/VS operating system. Comparable to the recently released Office product for IBM PC networks, WordPerfect Office provides several products to automate the office environment.

The flexible Shell menu can be used to organize all the programs available to a particular user. Single key access to any program on the Shell menu, and easy interrupt from one program to another, gives a user power to suspend temporarily one process while entering another. Any AOS/VS program can execute from the Shell menu, and submenus allow the user access to as many programs as they like.

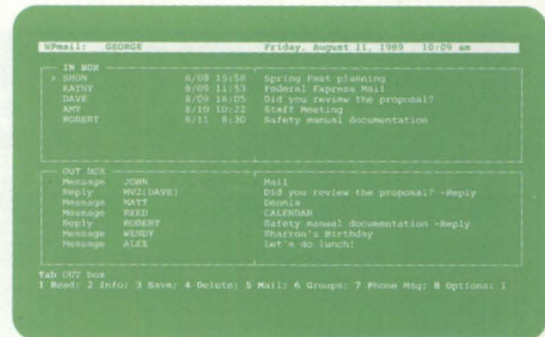
In addition to the Shell menu, WordPerfect Office has enhanced the electronic mail feature to support sending messages, document, and files all at the same time in one envelope. A user can now send carbon copies and blind copies, along with his regular mail. Screens have been improved to make the sending and receiving of mail flow more smoothly.

The improved Calendar screen now displays up to eight weeks at a time. The user can set appointment memos, and to-do's for each day and view them all simultaneously. A new auto-date feature has been added to

schedule repeating appointments. The alarm feature is available to notify the user of important appointments. Best of all, the to-do feature prioritizes the to-do items and will roll them to the next day if they are not completed.

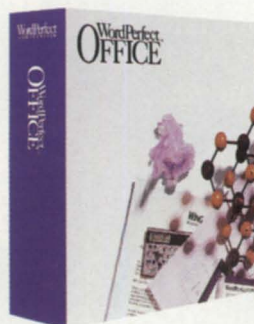
A simple, easily defined database, Notebook provides a convenient way to organize information. All Notebook files are saved in WordPerfect merge format so they are ready to use with WordPerfect documents.

In addition to doing basic math operations, Calculator lets the user perform advanced scientific, financial, statistical, and programming functions. Calculator entries are recorded in an on-screen tape display which can be transferred to other programs via the Shell Clipboard.



Three programs have been added to the Office software. File Manager is a list files-type feature accessible directly from the Shell. P-Edit is a full-screen program editor, and M-Edit lets a user customize macros without having to rewrite them.

Evaluation copies of WordPerfect Office are available by calling (801) 222-4100, or contacting your Reseller.



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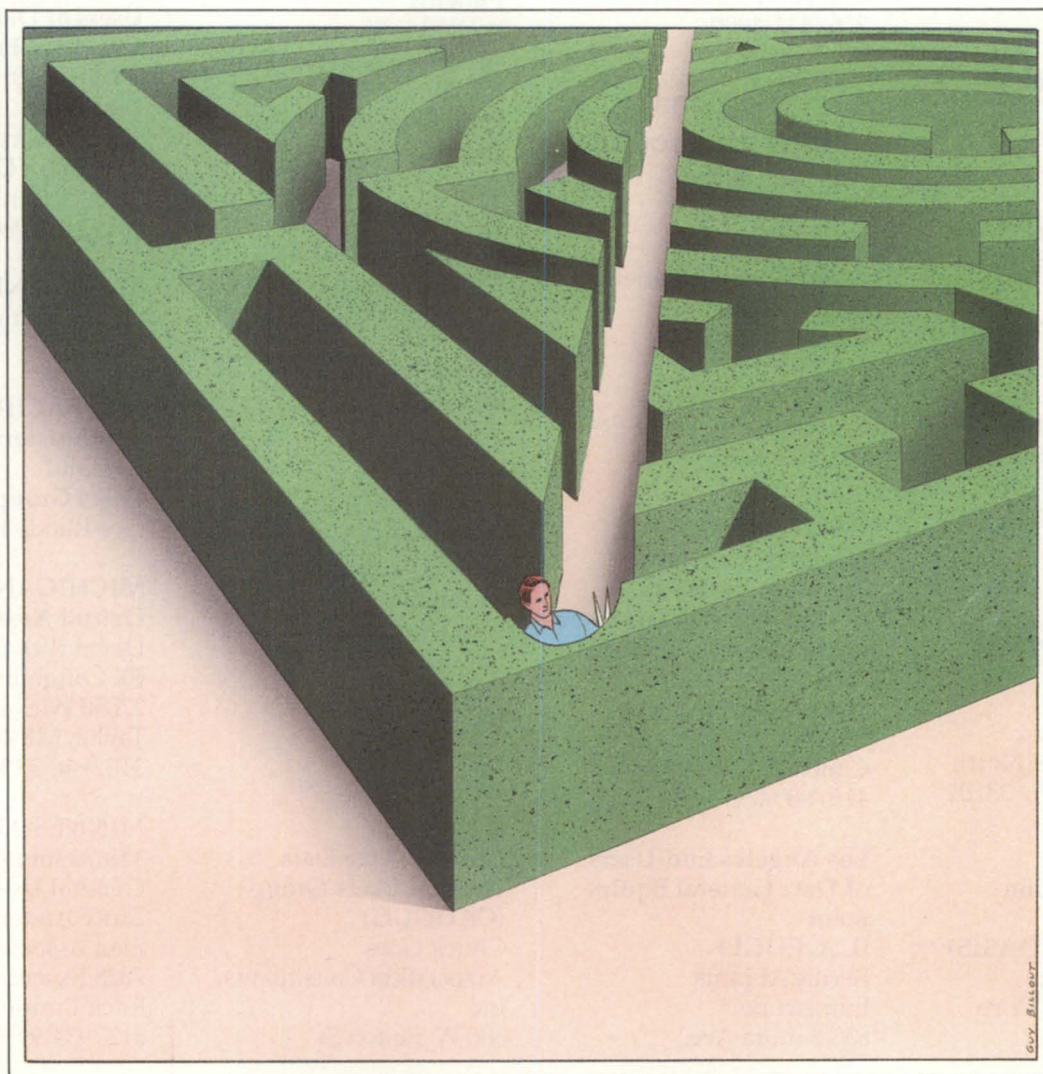
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fragmented because of the CEO activity, Infos comes to a halt when it can not find a chunk of the required element size. I have to reformat the disks periodically. Although I have not noticed much improvement in performance of CEO or Infos from the user point of view, I can tell you that the CEO backup time is cut in half and the system overhead is less.

These are not very scientific observations, but common sense tells me that if in a fixed span of time a task takes less time to perform than before, then there is more time to do other things. I don't think you will see a dramatic improvement in performance after reformatting, but I think it will make it a little easier on the system. Is it worth the time involved? It depends.

My other point is that in fine-tuning the system, one adjustment by itself will not make much difference. To see noticeable improvement in performance, fine-tuning must be a comprehensive process involving process management, memory management, disk management, and user management. I can tell you that this alone can be a full-time job.

So, reformat if you must, or if you have nothing else to do. One thing that has made reformatting much easier is the 2 GB backup. Now I do it from home while being a couch potato.

Re-sizing data bases

From: Margrit Eade

I am in the process of figuring out how or how much to re-size our CEO Index (Infos) data bases. Our data bases (we have 17 systems) range up to 60 MB for the Dvol, and I am thinking of re-sizing to an element size of 1,280 (which means it would take about 600,000 bytes each time it took another extent). This was the smallest element size I could find that would allow growth to 70 MB without going from one third to two thirds. How can you resize the differential volumes, since they get recreated?

From: Jeff Campbell

What I did was take the size of the Vol01, divide by 512, divide that by 128, and then round up to the nearest multiple of four. That is a formula, and it was given to me in a DG performance class. It would be difficult to make the index completely contiguous. As for the differential file, I haven't ever figured out a way to deal with that one. Δ

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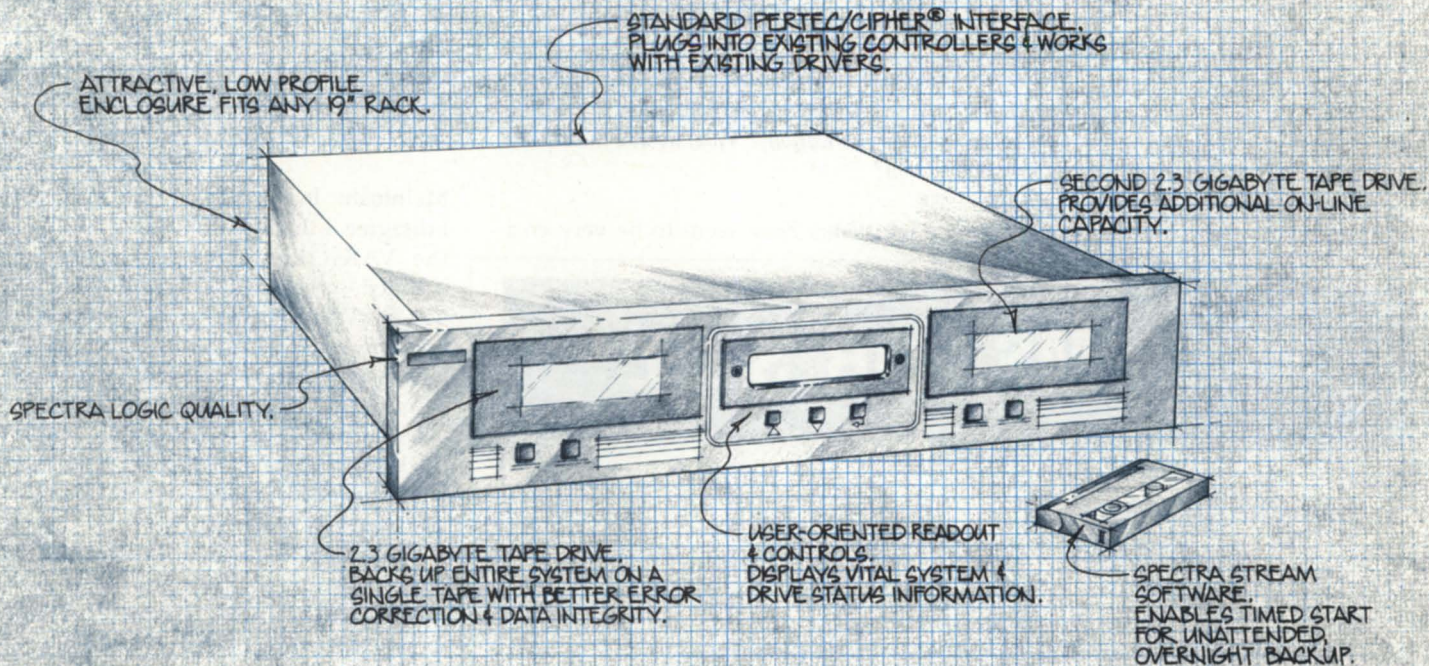
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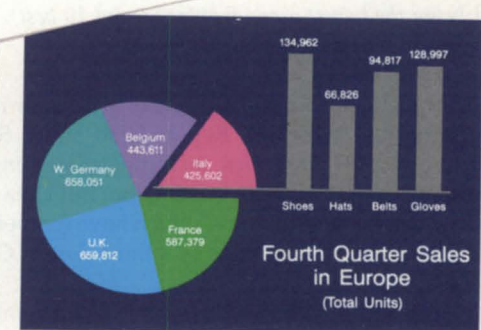
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402.00	11177.00	6216.00	1757.00
1810.00	529.00	430.00	10129.00
5530.00	1155.00	134.00	329.00
8217.00	1169P	9.00	1003.00
581.00		10607.00	836.00
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			10960.00
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BROWNING PHARMACEUTICALS

Internal Memorandum

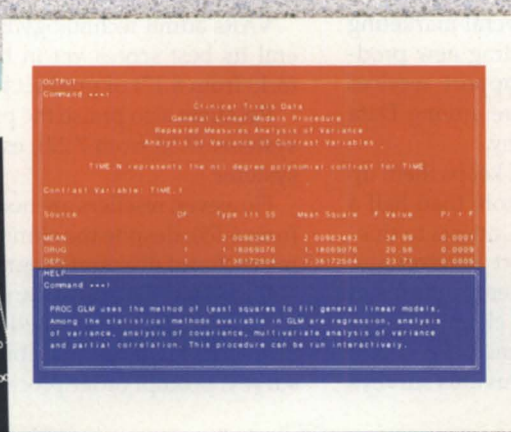
TO: Drug Application

FROM: Lab 041B

RE: Product #2298 Clin.

Attached are the clinical trials results for FDA submission. We will have results from remaining test groups by Friday...two weeks of schedule!

Note that the initial lab...



schedules, 7.16 from 7.34; product availability, 7.52 from 7.67. Point losses may be due to Data General's "cumbersome" administrative process—"They're a paper shuffling organization," one dissatisfied VAR says.

Data General's score for hardware maintenance did not show much improvement (7.75 from 7.72). This was surprising, considering the new service programs it unveiled last year. However, VARs' complaints about the amount of paperwork necessary for the end user to get maintenance probably contribute to the small increase in score, which nevertheless was Data General's best yet in the category.

VARs' main concern is Data General's image problem and the effect it could have on the company's ability to remain competitive in the industry. One VAR describes the company as the best kept secret, while another says he has to convince customers the company exists. "They're a dinosaur slowly dying," one VAR says. "In 10 years, most people won't know them."

VARs blame Data General's marketing group for the company's poor corporate image. They say "the marketing group hasn't done its job" in running an aggressive campaign to increase the public's awareness. Dunkle says Data General needs to convince the market it's still an active player with leading-edge technology.

Ajit Kapoor, vice president of BIS CAP International, a market research firm in Norwell, Massachusetts, is optimistic about Data General's position as a key player in the industry. He attributes VARs' uncertainty to the company's move into the Unix/RISC environment. On the plus side, Kapoor says VARs and systems integrators are now more likely to form relationships with companies like Data General because of their Unix systems.

"Data General has the technological capability to be a significant player," Kapoor says. "Its success will depend on its ability to react to the market's need and build confidence among VARs and system integrators." On that point, everyone agrees. Δ

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They established themselves as an indispensable part of the industry. Companies had an alternative to spending months or years developing their own applications. But many of the applications available were either too specialized or too generic, since they, too, were in their infancy. Still, starting with an application system from a VAR often made economic sense. After all, the development team was already familiar with the computer system and had already discovered the best approach to the application.

The late seventies and early eighties saw two new major trends. First, hardware costs began to drop dramatically, the result of technology from the space program and other major research projects, and the advent of Japanese manufacturing techniques. Second, the micro-computer with Visicalc was born, followed by a host of other landmark software products that provided an inexpensive, all-purpose, powerful, and flexible computing tool for the office worker.

Many VARs found this climate ideal. Some computer vendors realized they didn't have the capacity to provide total solutions. Nor did they need to provide the level of support and training required 20 years ago in the mainframe days. Data General, in particular, relied on VARs during the seventies and early eighties to be the main avenue for new customers, a strategy that proved to be quite profitable.

The software revolution

In the mid eighties, businesspeople began to pay more than lip service to the theory that software was more important than hardware. Regardless of hardware it was written for, good software would sell.

As the decade comes to a close, this trend is beginning to reverse. More attention is being paid to hardware than 5 years ago. There are several reasons for this.

- Many companies have in-house machines. They would rather add an application to an existing system than install a new one. Changes in tax laws do not encourage the acquisition of hardware.
- You no longer have to own "state-of-the-art" hardware to have a usable system. Image is less critical in this area.
- There is now so much more software

available, that you can get nearly anything on any major system.

- Computing power with minis and micros is so cheap that today you can spend \$50,000 and have enough power to do what several \$500,000 systems were needed for 10 years ago.
- Many sources encourage or demand excess hardware capacity, even total redundancy in some cases, to eliminate downtime.

These factors have given businesspeople freedom to choose a hardware platform for a department or company and host all applications with the same system. VARs have software and can sell it without hardware. Computer vendors need VARs more than ever, even if not every software sale includes the hardware to support it. If the application is big enough, they will eventually get the hardware sale from it.

Software dictates, management obeys

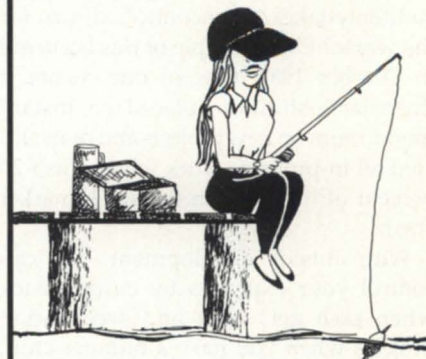
Software has become much more sophisticated in the last 10 years and the cost of developing software has skyrocketed. Many companies are content to purchase off-the-shelf software. In some cases, this means changing the way companies do business.

I know of a company, for example, that eight years ago told the MIS director that automation plans must not change the way the company did business. The same company did an about-face in 1986. The management chose a software package that necessitated redefining several jobs and restructuring departments. This re-vamping eliminated a lot of the dead wood and old habits, streamlining the whole procedure. And so, companies are more willing to let the software development be done by outside programmers, even if it means changing the way business is done.

I have encountered organizations that believed they could never be automated. In many cases, software failures are due to a poor manual system. Automating a bad system only amplifies the problems. By purchasing a proven package from a VAR, a company avoids repeating past mistakes.

When companies buy pre-packaged software, they avoid the hassles of managing a staff of programmers. What do you do with them when a project is fin-

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VARs in space?

by Seemee Ali
Focus staff

SYNOPSIS

Integral Business Computing's recent installation of its Space Track reservation system in New Zealand was largely possible because of its Cooperative Marketing VAR status with Data General.

"When the time comes to package that first astral tour, you'll be ready with Space-Track."

These words in a promotional catalog, accompanied by graphics of a spaceship in flight, introduce prospective clients to Integral Business Computing, Inc., a company that specializes in software systems for the travel industry. Space Track, its "eighth generation" real-time reservations system, provides reservations, operations, and accounting functions for tour and travel firms.

Space Track does not (yet) serve to shuttle people into the outer reaches of the universe, though its most recent installation at Interisland Line, a New Zealand passenger, car, and rail ferry, may be proof of IBC's inclination towards more exotic locales. Thomas Moch, the company's president, says that IBC is "just beginning to open up the overseas markets," concentrating predominantly on the South Pacific (Australia and New Zealand) and England—partly with the aid of Data General's Cooperative Marketing VAR (CMV) program.

As a CMV, Moch maintains close communications with members of Data General's staff, who, play "almost a management consulting role," helping companies like IBC improve their internal organizations and develop stronger marketing and sales strategies. In New Zealand, the close link with DG proved to be invaluable. "Certainly," Moch says, "there's an attitude abroad . . . of being wary of American[s]. Data General's local offices and very enthusiastic support by their whole national organization

helped largely overcome that."

Even with DG's local presence, it took a year of marketing in the South Pacific before IBC was able to install its first system there. Grasping subtleties, like the differences in the way Americans write dates (MM/DD/YY) as opposed to the European shorthand (DD/MM/YY), posed some of the biggest challenges IBC faced in communicating with the New Zealanders. These sorts of things, Moch said, "took a little bit of getting used to."

Moch became a DG VAR in 1976, when he says "we were very welcome . . . and had a great business relationship with Data General." He remembers a cold spell, however, during the late seventies and early eighties, when DG saw itself more as an end user supplier. Resellers were "not treated as well as they had been in the past." The turning point in Data General's attitude to a more favorable view of VARs, Moch said, coincides with the appointment of Ward MacKenzie as vice president of marketing. "He listened a lot to us," Moch says, and "provided us with a lot of information that had always been available to the DG sales force, but was terribly valuable to VARs as well."

Now, Moch characterizes the channels of communication between himself and Data General as very open and "constantly improving." And though his company was selected by a worldwide search led by Peat Marwick on behalf of the Interisland Line, he adds that "it was especially through the support and assistance of Data General New Zealand that it was even possible for IBC to enter the international marketplace."

In spite of his company's rather privileged position as a CMV, Moch still sees some room for improvements in DG's VAR strategy—such as having access to DG's competitive analyses of other manufacturers' equipment. He says he is inundated with requests from all sorts of companies to participate in their VAR programs, to the extent that he believes "the age of the VAR is here for all the computer manufacturers." The orientation of the nineties will be solution selling, he explains, and "as a result, [manufacturers] are embracing those distribution elements, namely VARs, that are experts in solution selling. I think I would envision even a closer business relationship than is available today." △



configurations having to do with file transfers and the Blast modem script file modifications that are required to get Blast to use the modem properly.

:ELEMENT_SIZES

There are now a bunch of freeware macros and at least two third-party software packages that attempt to optimize element sizes.

Several of the macros are available on the :SYSMGR BBS: notably a package stored as AOSVS16:MACROS:BESTELEM.

The two third-party packages are :SYSMGR's HAZEL (mine) and the latest version of DMS' DISKOPT disk de-fragmenter.

All of these macros and programs have one thing in common; they "close the barn door after the horse is stolen." The best time to set the proper element size on a file is when the file is created, not days or weeks afterward.

This doesn't mean that these software packages are useless; they also deal with lousy hash frame sizes (HAZEL and DISKOPT) and disk fragmentation (DISKOPT).

So, two questions arise; what is an optimum element size, and how can we do a better job of setting element sizes when files are created? Let's take a look at both questions.

When it comes to picking element sizes, the two conflicting goals are to minimize the number of index levels on one hand, and minimize the element sizes on the other hand.

Minimizing the number of index levels has three beneficial effects: it reduces the number of blocks competing for the limited system cache, thereby increasing the cache efficiency (hits/searches); less system CPU is expended on searching the cache; and the disk space required to store the file is reduced.

Unfortunately, the only way to minimize the number of index levels for a file is to increase its element size, and big elements have a number of disadvantages; the system has to expend more effort in order to locate the space for the larger elements, the system has to expend extra effort zeroing the element residue when allocating the element, and bigger elements increase the likelihood of program aborts due to the dreaded INSUFFICIENT CONTIGUOUS BLOCKS error on disks that are nearly full (i.e., normal disks).

:IIT?_DIM?

Before I launch into the macro example of how to solve this problem, I can't leave the list of pros and cons that I just gave you without a taking a moment to put them in perspective.

If you've been reading any of my stuff for a while, you already know that my favorite filter for technical advice from experts is "Is it true? Does it matter?"

Lots of things are true, but only a small subset really matter. Let's take a look at each of the alleged pros and cons.

Pro: Limiting index levels improves cache efficiency. True, but if we take this logic to the limit, then every file should be contiguous. Clearly, that's not possible on most systems. What's the difference between contiguous and single index levels on systems with adequately sized

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be unnecessary, and their upside doesn't appear to outweigh their considerable downside, except on data base systems with available disk space above 10 percent, or on small files that are not likely to be sparse. Single index level files seem to be the way to go in most cases, as long as the cache is adequately sized.

:THE LOGIC

Okay, let's start by writing the logic in English. Assume that the macro will take the pathname of a file as its only argument, and return the recommended element size in VAR0. The macro allows one global switch, /DEFELEM=blocks, which allows the user to specify that all element sizes be rounded up to the next multiple of some specific value (the "Default Element size").

0. If no filename has been specified, then explain the macro by TYPEing its .DOC file. (This should be step 0 in any macro that takes arguments.)

1. Set the default value for the DEFELEM

to either 1, or to the value of the /DEFELEM= switch.

2. Set the Random Index Block (RIB) branching factor to either 128 (AOS/VS) or 124 (AOS/VS II).

3. If the file doesn't exist, set the element size to 4 and exit.

4. If the file exists, but is empty, set the element size to 4 and exit.

5. If the file size is an exact multiple of 2,048 bytes, then the file is a candidate for shared page I/O, and might even be sparse. Set VAR0 to the minimum element size that will result in one index level, and round the default element size up to the next multiple of 4. Skip to Step 7.

6. If the file is "small" (32 blocks or less), then set VAR0 to the file size in blocks. Otherwise, set VAR0 to the minimum element size that will result in one index level.

7. Round the element size up to the nearest multiple of the default element size (at this point that's either the default value or the switch value, and it may have been rounded up by Step 5).

Some of these steps are a little subtle, so let's describe them in more detail.

Step 0 TYPEs a separate .DOC file for two reasons: it makes the macro smaller (read faster), and it allows us to use all those nasty CLI special characters without resorting to the cumbersome [!ASCII n] syntax. The smaller part is really important because often the CLI can spend as much time (re)parsing the COMMENTS in a macro as it does the real commands.

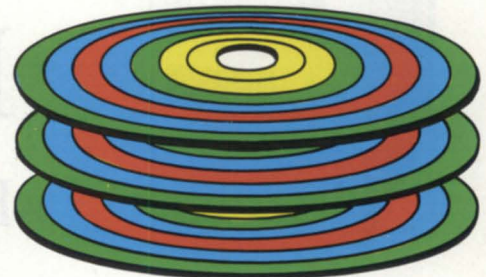
Step 1 uses a default value of 1 instead of the more traditional value of 4 for DEFELEM because many of you might either be running AOS, or using the patch I published in the January '89 issue that allows creating files with any element size on AOS/VS, or because you're running AOS/VS II. In the case of AOS, or AOS/VS without my patch, the system will simply round any odd element size up to the next multiple of the default element size specified at VSGEN time without comment, so no harm is done. In all other cases, small files will get exact element sizes (even 1, 2, or 3), resulting in signifi-

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After the DISK_PAK™: Directory information and frequent files are clustered on a few cylinders, and available space is contiguous. System performance is dramatically improved because of lower average seek distance.

```

-- Bkts/Char = 288, (440 octal) -----
000000000 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
000004000 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
000010000 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
000015400 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
000020000 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
000026400 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
000030000 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
000037400 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
000040000 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
000050400 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
000055000 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
000061400 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
000066000 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
000072400 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
000079000 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
000103400 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
000110000 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
-----
Logical Address: 000000000
Filename: K1SMET:U00:EAGLE:DATA:CUSTOMER.DB:VOL01
    
```



The **DISK.VIEW™** illustration to the left shows that the entire disk and the underlined file are now well organized. **DISK.VIEW** can also be used to see which file is using a certain block.

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file to allow odd element sizes under AOS/VS).

:TYPICAL_USES

Probably the three most common uses of this macro on our system are for COMPILEs, LINKs, and SORTs. The macro is used to select the element sizes for the .LS files produced by compilers and assemblers, .PR files produced by LINK, and output files produced by SORT. Error files (.ER) are assumed to be tiny in most cases, so they are simply slam-dunked to the minimum possible element size of 1 (our AOS/VS system is patched to allow this). Here are some examples:

COMPILE:

```
ELEMENT? FOO.LS
DELETE/2=IGNORE/V FOO.<ER,LS>
CREATE/ELEMENT=1 FOO.ER
CREATE/ELEMENT=[!VAR0] FOO.LS
COBOL/E=FOO.ER/L=FOO.LS FOO
```

LINK:

```
ELEMENT? MYPROG.PR
CLINK/ELEMENT=[!VAR0] MYPROG MYSUBRS
MYLIBS
```

SORT:

```
ELEMENT? FOO
DELETE/2=IGNORE/V FOO.SCF
WRITE/L=FOO.SCF INPUT FILE IS "FOO"
WRITE/L=FOO.SCF RECS ARE 123 CHARS.
WRITE/L=FOO.SCF OUTPUT FILE IS "FOO"
WRITE/L=FOO.SCF ELEMENTS ARE [!VAR0]
BLOCKS.
WRITE/L=FOO.SCF KEY 1/12.
WRITE/L=FOO.SCF SORT.
WRITE/L=FOO.SCF END.
XEQ SORT/C=FOO.SCF/O
```

You can even take the logic in the macro and rewrite it into the language of your choice and use it as a handy boilerplate subroutine for (re)creating files. 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. The :SYSMGR bulletin board number is 415/391-6531 (300/1200/2400 with optional MNP class 4, CHAR/605X/CHARLEN=8/PARITY=NONE/AUTO-BAUD) or 415/550-1454 (voice).

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with WSS may delete the file. All others have only Read and Execute authority.

Under MV/UX, the three permissions "WRX" apply to only the owner and non-owner. If an AOS/VS permission list applies to the file and the user is operating under MV/UX, then an additional, non-UX, character "A" appears in the "ls" listing. A sample "ls -l fcstak01" in a/cfs/programs/wyfor/data directory results in:

```
-rwx—rwxA wsfs.dk 8624 Apr 10 20:36 fcstak01.
```

The equivalent ACL list for this file is:

```
FCSTAK01 WSFS.DK,OWARE +WS+,WARE +,RE.
```

Vulnerability

I have performed commands on both an MV/8000 II running MV/UX and an AT&T 3B2 running under V.5 version 2.0.1. In the 3B2 environment, any directory that has Read and Execute authority allows users to enter that directory, list the filenames in that directory, and view the files, if requested. No other authority is given, regardless of the permissions on the files.

AOS/VS and MV/UX are similar in that the directory may be accessed and the files may be listed. Here the similarity ends because both AOS/VS and MV/UX allow users to delete files if the "W" flag is present for them. For example, if a file has the ACLs "WSFS.JM,OWARE +,WRE," any user may delete this file even though the permissions on the directory are only "+,RE." In the 3B2 environment, if a file has only Read permission, then no one, including the owner, may delete the file. The owner must change the permissions to "W" authority before deletion.

In contrast, if the AOS/VS directory permission allows deletion, then any file may be deleted. If the "W" authority is not present, then MV/UX will prompt the user before deletion, but still allow deletion. The CLI delete command does not prompt the user but simply deletes the file.

John Huddleston is vice president of NADGUG SIGUX. He may be reached at PO Box 4611, Portland, OR 97208.

Be careful!

MV/UX is not secure from inadvertent or intentional deletion of files if directory permissions are open to all users. Caution must be used when executing commands that affect a file or directory. Even if the directory permissions are restricted to only read and execute authority, the file permissions may be open, thus allowing unauthorized users to have

write access to the files.

You can set the "umask" in your .profile to 0002. This will take off all "W" permissions for directories and files that you create. If you set it to 0007, you will be creating files that only you can access, but you will ensure that others cannot delete or modify them. The equivalent command in CLI is "DEFACL [!user],OWARE." △

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1989 President Donald Clark cuts ceremonial ribbon marking the start of the conference.

Lagniappe



Jan Grossman, conference committee chairperson

NADGUG: We are concerned about the high cost of maintenance.

DG: Data General continues to invest in service technology and support to deliver the best value for our customers. Over the past year, we have introduced a number of programs aimed at providing customers with more flexible service options to help meet their specific needs.

The Multi-year Plus contract allows customers to obtain both discounts and price protection for a term longer than the original multi-year contract, which was three years only. With the cluster discount program, customers can receive discounts for having multiple processors within a defined site, rather than individual contracts per CPU. The Metro Focus program provides discounts for customers who have multiple sites within a metropolitan area. The VAR service manager program is designed for VARs who have some service capability and can be involved in servicing their end-user. The VAR Service Seller program credits VARs for the sale of service contracts.

In addition, the Compatible Products Program (CPP) gives customers the opportunity to have us service non-Data General equipment. We can provide our customers with a single source solution for service. Currently, we have a list of over 100 products, with more being added all the time. To have a product added to the list, contact your field engineering branch manager.

NADGUG: There is a lack of spare parts in some local DG offices; replacement parts are not always reliable.

DG: The NADGUG survey showed that the lack of spare parts was a local issue isolated to certain branches, not a pervasive problem. The primary reason is the transition of the PRC and parts distribution from Colorado back to Southboro, MDG. The process was begun in April 1989 and will be completed by October.

Data General will also be establishing regional parts centers to help expedite distribution and parts availability. These centers will be in place by mid-1990.

With respect to the reliability of replacement parts, we have looked into the problem and have not found a DOA trend on a local or equipment-specific situation. We are putting more emphasis on final inspection in case there is a problem that is occurring as part of the move from Colorado.

NADGUG: Regarding contract administration—customers are constantly having billing problems; they feel as though DG keeps poor billing records. We suggest monthly billing of SSS charges.

DG: We understand the problem and have been telling you for two years that we are working on it, and we are. However, we can now give you some concrete answers on action taken.

In January of this year, we put in place

Sales and vertical marketing

NADGUG: We are concerned about the availability of sales reps—customers are rarely called upon; their only contact is with a field engineer.

DG: If you purchased your system from a value-added reseller (VAR), your first line of support should come directly from that particular VAR. If you are not receiving satisfactory support from your VAR, you should alert the Data General branch sales manager in your area.

If you purchase directly from Data General and your sales rep is not available when you need him/her, please bring that to the attention of the branch sales manager for resolution.

NADGUG: Customers feel as though DG needs to focus more on marketing complete solutions and less on hardware only. Train SRs to sell solutions; they need more industry knowledge.



The Wordperfect booth, featuring Guy Pribyl

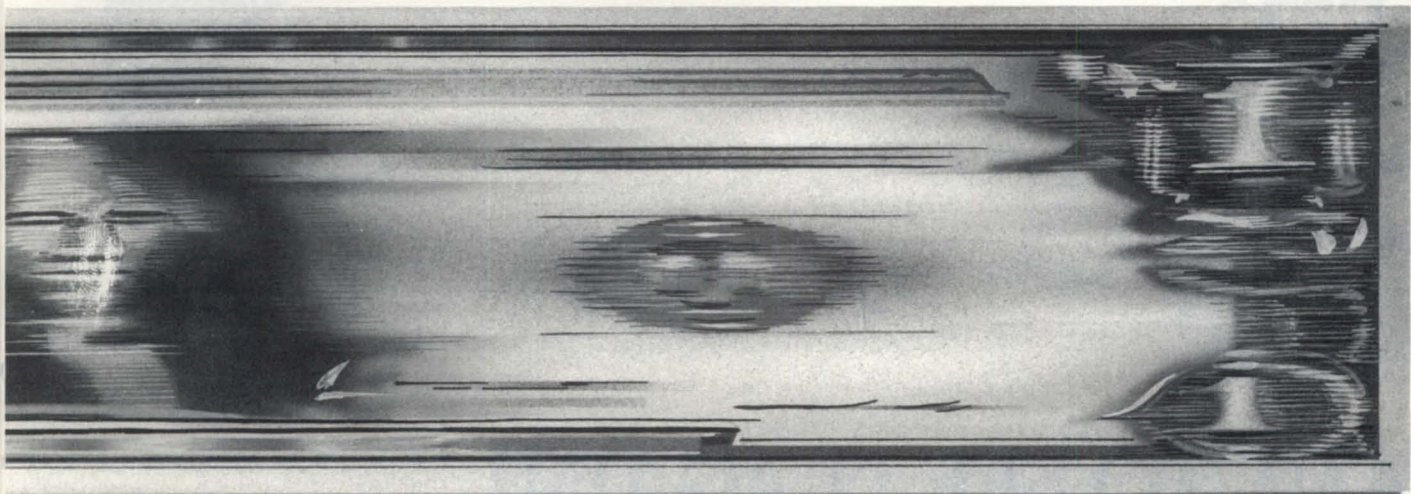
DG: Over the past year, we have implemented solutions-oriented training programs for our sales force. Currently, approximately 80 percent of the sales force is focused on vertical market segments. There are two major solutions training programs, major industry and coopera-

tive marketing, in addition to the basic sales training in which the sales force participates.

In the major industry program, Data General has targeted seven industries—manufacturing, banking, brokerage, distribution, healthcare, government, and legal. Dedicated sales reps in these industries have a national market orientation and are part of a peer group that meets annually for solutions training which is coordinated by Data General's industry marketing group. In addition, Data General's marketing education organization provides courses throughout the year to develop the sales rep's market knowledge and industry awareness. They receive insight into market trends and directions from consultants in their specific industry as well as solutions training by Data General VARs and ISVs.

VARs that are part of Data General's cooperative marketing program conduct two- to three-day solutions training for sales reps who focus on developing that vertical solution in their respective terri-

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sourcebook lists software products from independent software vendors supporting Motorola's popular 88000 RISC family. It describes both application software and development tools software.

The second catalog, the Solutions Directory, is being published by Data General and will be available by October 1. This catalog will contain information on Data General VAR and ISV solutions. Both catalogs are available through TIPS.

NADGUG: What is the status of the upgrade policy for AOS/VS to AOS/VS II?

DG: There are two ways in which you can upgrade from AOS/VS to AOS/VS II.

One way is to replace the software only. If your current system is running AOS/VS and you want the functionality of AOS/VS II that is not available in AOS/VS, you can upgrade to AOS/VS II at a 70 percent discount.

Second, if you replace your existing

AOS/VS system with a new system, you can license AOS/VS II as the operating system. MV systems (except the Eclipse MV/40000 and Eclipse MV/40000 HA) are packaged with your choice of operating system at no extra charge.

The MV/40000 and MV/40000 HA systems are not bundled with an operating system; it must be licensed separately. Customers replacing an existing system

with an MV/40000 or MV/40000 HA will receive full credit for their current operating system when purchasing the new operating system.

NADGUG: What is Data General's policy concerning software license transfers?

DG: Licenses acquired for MV systems are designated for use on a specific CPU. Customers can change the CPU designation by notifying Data General. If the license fee for the replacement CPU is higher than the fee on the original CPU, the customer must pay the difference.

Data General software licenses are acquired only from Data General or an authorized Data General VAR. If a customer purchases a system from another supplier, they must license the operating system and other software directly from Data General. If the customer is replacing an existing properly licensed system, the customer has the right to transfer those licenses to the new CPU with notice to

(continued on page 54)



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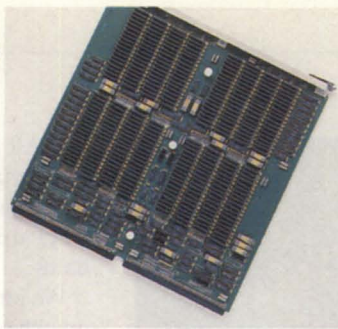
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Memory Boards for MV/15000, MV/20000 Computers

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Dataram Corp. Phone 1-800-822-0071 (NJ 609-799-0071).

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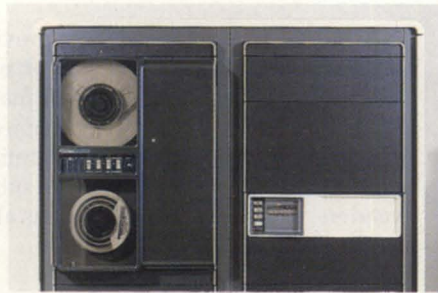
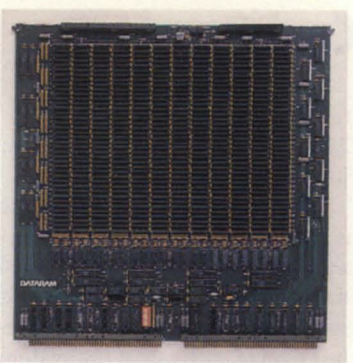


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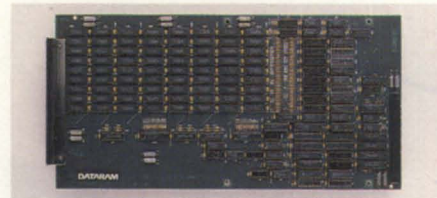
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Main Memory Upgrade for MV/4000 and MV/10000

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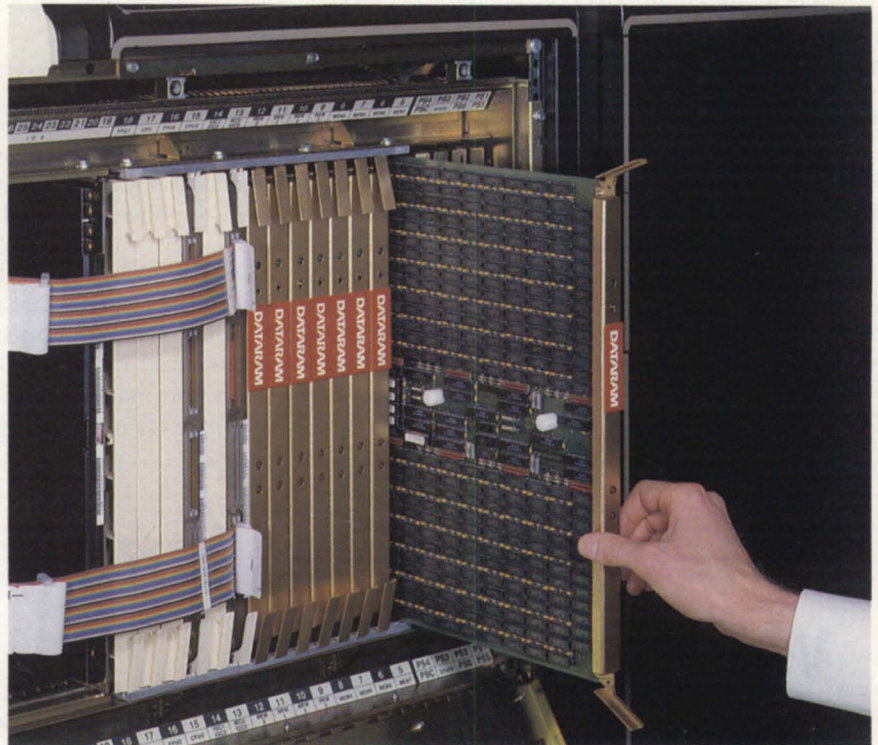
High-reliability 1Mb DRAM technology on 4MB and 8MB boards brings low-cost boost to processor performance. Dataram DR-1420 memories plug directly into all three processors, do not affect DG service arrangements. **Dataram Corp. Phone 1-800-822-0071 (NJ 609-799-0071).**

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Up to 16MB Extra Main Memory for MV/2500 Series

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NADGUG '89 revisited

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General sessions

1. **Keynote Address**—Patricia Seybold, President and CEO, The Office Computing Group

Technical sessions

- 3. **Generic Peripheral Cache Systems**—Clyde Sparks/Delphi Data
- 4. **Industry-Standard Benchmark for an Industry-Standard World: Comparing Performance of Unix Systems**—Tom Morgan/Data General
- 5. **A Survey of File and Document Compression Utilities of AOS and AOS/VS**—Brian Johnson/B.J., Inc.
- 6. **3-Dimension Performance Solutions**—Allen Hopper/Data General
- 7. **Porting to DG/UX**—Donna Boyce/Data General
- 8. **X.25 and Data General**—Robert Machlin/AMNET, Inc.
- 9. **Writing Portable C Code**—Diane Olson
- 10. **Implementing X.400 in Multi-Organizational Net-**

- works**—Miles Morimoto /Telenet
- 11. **CLI32**—Douglas Bilton /Data General
- 12. **Systems Analysis Prerequisites for CASE**—Michael Grottola/Vantage Software
- 13. **DG/UX Rev 4 Performance Monitoring and Tuning**—Walter Fraser/Data General
- 14. **Comparative Network Performance X.25 vs OSI vs TCP/IP**—Scott Hinckley/Data General
- 15. **Operational Database in the Centralized Forecast System**—John Huddleston/USDA Soil Conservation Service
- 16. **CEO Light, A Technical Comparison with CEO**—Casey Sayre/Data General
- 17. **Text Searches under AOS/VS**—Tom Bishop/Concept Automation
- 18. **Mini-to-Mini Transfer Using the SOFTRAN Protocol**—Thomas Doyle/Fremont Water Conservation District
- 19. **Programming with the CEO Toolkit**—Russell Corder /Concept Automation
- 20. **X Windows and Graphics on the 88000**—Durward Rogers/Data General
- 21. **Using the MRC under AOS/VS**—Philip Schwartz and Mark Wilding/Data General
- 22. **Troubleshooting and Monitoring Extended Heterogeneous Local Area Networks: An OIS-Based Strategy**—Gerard Puoplo and Geoffrey Mamlet/Data General
- 23. **Relational Directions for Data General**—John Farnsworth/Data General

- 24. **Solving Applications Performance Problems—Four Steps in Tuning an Applications System**—Andy Wilkes /Data General
- 25. **ICobol 1.50: An Ambitious Step Forward**—Gerry Manning /Gerry Manning Associates
- 27. **Bridging AOS/VS and DG/UX**—Thomas McMillan and Ivan Liss/Radford University, and Lawrence Laramay/Data General
- 28. **ICobol: Increased Markets and Profitability**—Bruce Ray and Linda Vendryes/Wild Hare

Management sessions

- 29. **Developing an Access Security System for AOS/VS Installation**—Peter Walsall/Data-Lynx
- 30. **DG/INGRESS Phase II**—Kathleen Springer/Data General
- 31. **System Administration in a Diskless Environment**—Stephen Stukenborg/Data General
- 32. **Worms, Viruses, and Time Bombs: Coping with Current Trends in Computer Hacking**—Tom Gutnick/Data General
- 33. **Disaster in the Nineties**—Stewart Peretz and Joe Cannata
- 34. **Software Development Contracts: Cutting up the Copyright Pie**—John Land /Spensley, Horn, Jubas, and Lubitz
- 35. **Case Study: Two Years of Performance Monitoring/Usage Forecasting**—Kenneth Ramme/Rochester Gas Electric
- 36. **Software Measurement and Evaluation**—David

- Kephart/Illinois State University
- 37. **Data General's High Availability Strategy**—John Morrell/Data General
- 38. **If Artificial Intelligence is the Answer, What is the Question?**—Yehudah Freundlich /Data General
- 39. **What's New in PC Integration**—Douglas Kaye and Peter Wiggins/Rational Data Systems

End user sessions

- 41. **Unleash the Power of the Workstation**—Chris Zannetos /Data General
- 42. **Desktop Publishing on the PC and MV**—Guy Pribyl and Tracy Power/Wordperfect
- 43. **Training Using In-House Staff**—Carl Switzer and Gail Crawford/Northern Illinois University
- 44. **IBM SNA Communications on DG/UX**—Bruce Stovall/Data General
- 46. **Data base Publishing**—Soto Flouris/Intercon Associates
- 48. **Advanced User Interface and Office Systems**—Bruce Evans/Data General
- 49. **Using Wordperfect with CEO**—Guy Pribyl and Tracy Powell/Wordperfect
- 50. **A SAS Based Information Subsystem**—Richard Soj
- 51. **Hypermedia: A Revolution in Document Organization, Access and Viewing**—Jerry Goguen/Data General
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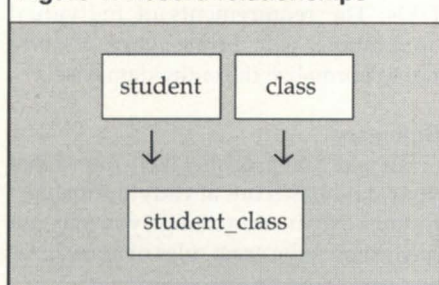
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and the customer has been notified of the price of the part. Further assume that after the order was placed, but before the order was closed out, the price of the part changed. In this case, we would have no

Figure 1: Record relationships



idea of the actual price charged because it wasn't stored in the line-item record. Because of the historical significance of this information, it is allowable and desirable to store the "redundant" price information in the line-item record.

Fourth normal form

Fourth normal form deals with many-to-many data relationships. The best way to explain this concept is with an example.

The example I'll use is the classic "school registration" data base. In this data base there are student and class records. Every student in the school has an associated student record. Every class offered by the school has a class record. There is a many-to-many relationship between these two record types in that every class has many students and every student takes many classes.

I've seen some bizarre methods of handling this type of relationship, especially with hierarchical file management systems. Like most data relationships, the many-to-many relationship is easier to implement with a true DBMS.

The correct solution to the problem involves the use of a "link" record. That is, a separate record that provides a relationship between the student and class records. The link record in this example might be called the student/class record. It contains information unique to every student/class combination.

Brief descriptions of the school registration records appear below.

```

student
student_number (key)
student_name
  
```

```

... other student info ...
  
```

```

class
class_number (key)
class_name
... other class info ...
  
```

```

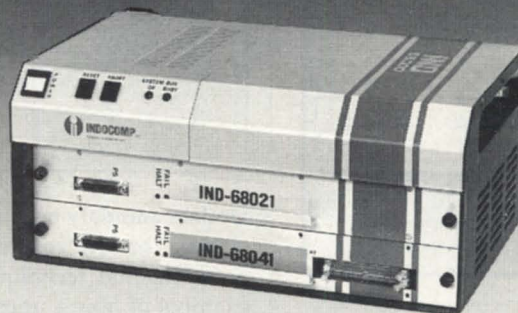
student_class
student_number (key)
class_number (key)
  
```

```

grade_earned
last_class_date
... other student/class info ...
  
```

The Bachman diagram (Figure 1) of these record relationships is very simple. The arrows indicate one-to-many relationships. The two one-to-many relationships in combination provide a many-to-many relationship between the student and class

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AOS /VSII

Why not?

by Tom Gutnick
Special to Focus

SYNOPSIS

The author puts the AOS/VS or AOS/VS II question in a new perspective, and outlines the design goals of AOS/VS II.

I look forward to reading "System Manager's Log" in *Focus* magazine every month. Brian Johnson's columns are always interesting and often, thought-provoking. However, there are times when I wonder whether BJ's view of the typical DG installation is the same as mine, and his column in the October issue cries out for comment. Under the heading "At What Cost?" BJ raises some questions about the overhead involved in some aspects of the AOS/VS II new file system.

I feel that it's important to look at these questions from the proper perspective. The AOS/VS (old) file system was actually introduced with AOS (the 16-bit stuff) Rev. 3.00—10 years ago! At that time, the largest Eclipse was an M/600; although it could support up to 2 MB of memory, 512 KB was more typical. And AOS ran on everything down to an S/200 with 128 KB of memory. (My DG/One laptop is faster and has more memory than some of those old systems!) And we had the constraint of 16-bit addressing. The design considerations for AOS were to minimize CPU activity, and especially to minimize memory usage at all costs—costs that included considerable disk I/O activity. One of the consequences of the old file system was that, in the case of occurrences such as power failures, the file system could be left in an inconsistent state, necessitating the running of FIXUP;

often, FIXUP would have no recourse but to truncate or even delete files or directories. At the time, this reflected the state of the art, and was perfectly acceptable in most minicomputer environments. (Contrast the situation with RDOS and the problems resulting from having nothing equivalent to FIXUP.)

Before discussing the design goals of AOS/VS II, let's consider how hardware has changed in the past decade. The low-end MV/1000, which is small enough to sit on the corner of a desktop, is faster than most of the old 16-bit machines; an MV/40000-HA is pushing into mainframe territory. Even an MV/1000 starts with 4 MB of real memory; the MV/40000-HA goes up to 256 MB. (As an interesting contrast, I keep hearing complaints from friends about their single-user workstations—Macintosh and IBM PS/2: they find their 4-6 MB configurations to be inadequate for getting their work done!) At the same time, we're still measuring disk drive service times in the tens of milliseconds.

In recent years, it became obvious that DG systems needed to look beyond a minicomputer "mindset." Thus, AOS/VS II introduced a new file system, for a number of reasons, including the very important need to provide higher reliability and availability. An important goal was to make the file system "fail-safe." Other design goals included compatibility with AOS/VS and the minimizing of disk accesses. Although we were expecting overall performance to be roughly comparable, we knew that it would depend on the specific mix of user activity. Trying to save a few bytes of memory or a few machine cycles were not design goals. (It's a familiar analogy, but it's worth repeating: when you put a higher-horsepower engine into a car, some of that extra power gets used just to move the extra weight incurred by the larger engine—but it's not really wasted power because you still come out ahead.)

In fact, the performance impact of AOS/VS II depends on how much file-system activity is going on. Benchmarks run at Data General have shown that certain activities (such as dumping the contents of :UTIL to tape) are significantly faster under AOS/VS II. However, longer code paths in the file system code do mean that a "typical" system will see perhaps a

Minis VS. micros

SYNOPSIS

The battle between PCs and minicomputers seems to have softened. The truce indicates that PCs have come out on top, but perhaps not for long.

The Great Debate

In this two-part article, I'll be taking a look at the continuing battle between minicomputers and PCs. Excuse me, instead of *battle*, let's call it a *relationship*, for more and more users are finding that PCs and minis can work well together. Clearly, however, one typically thinks of a particular hardware or software platform on which to base any application system, and most people tend to think of either minis or micros, not both.

So which is better?

A marvelous Czech cinematography professor many years ago used to harangue his students, "Dooglas, I cannot give to you za recipe for the szoup!" and how right he was. Likewise, if you're hoping this column will answer the question, "Which is better, minicomputers or

PCs?" you will be disappointed, and if you cling to a prejudice, one way or another, you will severely limit your ability to use each technology to its best advantage.

As both technologies evolved over the past seven years since the first deliveries of IBM's original personal computer, we have witnessed the shifting of applications from minicomputers to PCs, then back again to the mini as a departmental processor. The current wave seems to be favoring the PC once again, but don't write the minicomputer's epitaph just yet.

1990s: Market consolidation

As we enter the 1990s, many of the mini makers are in trouble. For two decades their profits have been buoyed by high hardware margins, but until recently they ignored microcomputers and acted as though their only competitors were the other mini makers.

Many of the minicomputer vendors have tried to enter the smaller system marketplace by going after the high-end workstation business. Their failure was due to a lack of corporate commitment to non-proprietary systems. After years of developing hardware and operating systems that were intentionally distinct from those of their competitors, they found it difficult to design and build systems whose only differences are speed, price, and reliability. It takes a major change in corporate culture, and minicomputer manufacturers are just too big to make this transition easily.

Their experiences in this generic marketplace shook the foundations of the miniworld, for while the mini makers were experimenting in the workstation market, they could see this new territory being invaded by the PC makers.

During the late 1980s, the increased volume in the workstation market caused an even more significant change in the software business: the shift towards ge-



Apple's Macintosh has allowed Motorola to penetrate the much larger office system marketplace.

While minicomputer sales have remained flat during the past three or four years, workstation sales have soared. The volume has caused dramatic improvements in the price/performance ratio of these systems.

Downsizing

The overwhelming difference in price performance has spawned yet another catchy phrase: *downsizing*. (No, we didn't make up this one.) Businesses large and small are discovering that they can replace minis and even mainframes with PCs and LANs.

Make no mistake about it, downsizing is a major commitment, for it involves ultimately re-coding applications for a LAN environment. Even taking that into consideration, many customers are already embarked upon this path. (More about this important subject in months to come.)

Specialization

Before we leave the subjects of chipwars and dollars per MIPS, perhaps we should consider exactly how a \$7,500 microcomputer server can be so much faster than a \$75,000 minicomputer. The reason is specialization of the software. Minicomputer operating systems such as AOS/VS or Unix are general-purpose, interactive, timesharing systems. They assume that multiple applications, some of which may be "hostile," are all competing for the computer's resources. In addition, these systems must manage terminals, peripherals, and even large batch jobs.

A network operating system such as Netware, on the other hand, has but a single purpose: to move data between its disk drives and its client workstations as fast as possible. It must also deal with security and support other devices such

as printers, but because the CPU in the server does not need to interact directly with users, the network operating system can be designed as a real-time system. Those familiar with Data General's older RDOS operating system, which offered more raw horsepower than AOS/VS on comparable hardware, can understand this difference. Again, it is the volume of (or the demand for) networks

that has tipped the economic scales to allow the development of such specialized high-performance products.

So much for the difference between the mini and the micro. Next month, we'll take a look at the fourth generation of PC integration: the homogeneous environment, in which we can design systems that take advantage of both architectures. △



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Doug Kaye is the chairman of Rational Data Systems. He can be reached at 1050 Northgate Drive, San Rafael, California, 94903, 415/499-3354. This article is excerpted from the "1989 Rational Data Systems Report on PC Integration." For a free copy, contact RDS at 150 South Los Robles Ave., Pasadena, CA 91101; 818/568-9991. Copyright 1989, Rational Data Systems.



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leased Borrowware, an AOS/VS-compatible software package, that serves as a loan management and document production system. Combining data base management of client files with laser print quality production of all bank-specific closing documents, Borrowware's structure mirrors the activities of the closing procedure from the receipt of a lender's file to closing and post-closing functions. The product is also offered with Wordperfect.

Bac-Tech Systems, Inc., 270 Lafayette St., New York, NY 10012; 212/334-8288. Δ

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Dressy software

New York—A new version of MV/SAM is available for apparel manufacturers running AOS/VS. The package addresses the concept of "Quick Response" technology and encompasses various aspects of the apparel industry, including piece goods purchasing, production planning and control, sales orders, marketing and merchandise distribution, sales and order analysis, and accounting functions. The system can also electronically transmit purchase orders from major retail stores and integrate with newly developed POS modules.

Bac-Tech Systems, Inc., 270 Lafayette St., New York, NY 10012; 212/334-8288. Δ

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Oracle releases additional products for AOS/VS

Belmont, CA—Oracle Corporation has announced three new products for systems based on DG's AOS/VS: a relational data base management system (RDBMS) Version 6.0, with a transaction processing option, SQL*Net TCP/IP, and Oracle Financials software, designed for centralized and decentralized accounting departments of varying sizes.

The latest version of Oracle's RDBMS is a portable high performance data base for users of Eclipse MVs that allows for

continuous operation while handling on-line transaction processing applications. SQL*Net TCP/IP allows distributed data base operations across Data General MVs and any other system that is connected via TCP/IP, including Vax, IBM, and Unix-based systems. Remote users can also run data base applications in a client/server architecture, putting an application on a PC, Macintosh, or other work-

station, and the Oracle RDBMS on the DG MV system. This new networking capability is an addition to SQL*Net, TCP/IP's previous support of the Xodiac protocol, and asynchronous communications on the Data General platform.

Oracle Corp., 20 Davis Drive, Belmont, CA 94002; 415/598-8000. Δ

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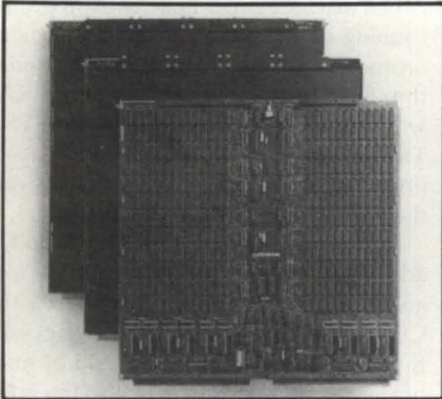
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Memory boards extend MV/4000 life



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Princeton, NJ—Dataram's new DR-4000U memory expansion kit allows owners of MV/4000s to expand their computers' maximum memory capacity up to 16 MB.

The kit includes an improved Data General NCU and NCU board, combined with either 8 MB, 12 MB, or 16 MB of Dataram memory. Prior to the development of this product, users of MV/4000s were limited to a maximum of 8 MB of memory.

According to Dataram, the memory boards were developed at the request of users who were satisfied with the reliability of their MV/4000s, but wanted capacity to expand their systems and add new software applications.

An 8 MB expansion kit costs \$12,500; a 12 MB kit is \$15,000; and a 16 MB kit is \$17,000.

Dataram Corporation, P.O. Box 7528, Princeton, NJ 08543-7528; 609/799-0071. Δ

Grass for the Aviion

Atlanta, GA—Technology & Services Group, Inc., has revealed plans to port, enhance, and distribute a proprietary version of Grass, a line mapping and data imaging software solution originally developed by the U.S. Army Corps of Engineers. Grass is designed to meet the needs of users of Geographic Information Systems (GIS).

The first of the new Grass products will be DG/Grass for the Aviion workstation. Technology & Services Group, Inc., a DG value-added reseller, has developed this version to take advantage of Motorola 88000-based workstations. Prices are \$1,500 for commercial customers and \$900 for government clients. Turnkey systems bundled with a 16 MIPS Aviion workstation are priced from \$18,250. An MS-DOS version is under development.

The Technology & Services Group, Inc., 3649 Cherbourg Rd., Suite 400, Marietta, GA 30062; 404/578-0531. Δ

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NADGUG: Some documentation is out-of-date/inaccurate. There is an excessive cost for additional documentation.

DG: We have over 1700 titles in print, and each manual receives at least two separate technical reviews. Every attempt is made to ensure accuracy, but at times, some errors do occur. We ask that you help by sending us the Comment Forms when you discover an error. Your input will help us correct mistakes.

Documentation prices are consistent with others in the industry. When you consider the substantial overhead expenses to produce the documentation (i.e., writing and developing the material, production, etc.) the prices actually do not cover the costs.

NADGUG: More end-user manuals should be written in "PC-style" for ease of use.

DG: Traditionally, Data General customers have been pretty knowledgeable and sophisticated. "PC-style" documentation usually aims at a lower level of knowledge and expertise. We target our readers in terms of required training, required experience, and tasks. Instead of organizing a manual the way the product is internally organized, we organize it according to the way a reader will use the book

and the product to accomplish tasks. We adjust the writing style to fit the reader, product, and tasks, and we provide a thorough index.

We ask that you send Comment Forms with your suggestions. Your feedback is important in helping us plan future projects.

NADGUG: We suggest that DG announce

new manuals and new revisions of manuals.

DG: This is an excellent suggestion. We will begin publishing this information in *Data General News and Review*, a monthly newsletter distributed to all Data General customers. We are also looking into the possibility of including this information in OIS. △

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- :PERFSIG
(performance and capacity planning)
- SIG/UX (Unix)
- SMBASIC

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

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

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A Programmer Calls His Dog.

Thanks for seeing us
at NADGUG 1989
conference

WITH COBOL

```
IDENTIFICATION DIVISION.  
PROGRAM-ID. CALLDOG.  
ENVIRONMENT DIVISION.  
SELECT ANIMALS  
    ORGANIZATION IS INDEXED  
    ACCESS IS DYNAMIC  
    KEY IS ANIMAL-TYPE  
    ASSIGN TO BEASTS.  
DATA DIVISION.  
FD ANIMALS  
    RECORD CONTAINS 16  
    CHARACTERS  
    DATA RECORD IS ANIMAL-REC.  
01 ANIMAL-REC.  
    03 ANIMAL-TYPE PIC X(8).  
    03 ANIMAL-NAME PIC X(8).  
PROCEDURE DIVISION  
START.  
    OPEN INPUT ANIMALS.  
    MOVE 'DOG' TO ANIMAL-TYPE.  
    READ ANIMALS INVALID KEY  
    DISPLAY 'BAD ANIMAL'  
    LINE 10 POS 1.  
CALL-SPOT.  
    DISPLAY 'HERE' LINE 10 POS 1.  
    DISPLAY ANIMAL-NAME HIGH  
    LINE 10 POS 16.  
    CLOSE ANIMALS.  
STOP RUN.
```

WITH SYSTEM Z

Here, Spot.

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ZBASE includes a database manager with relational functions and a data dictionary that interacts with the compiler. The need for file or data definitions in the program is totally eliminated. A powerful editor is built into the Z compiler so that errors are identified and explained as you create them.

ZIP, a utility of System Z, allows you to develop queries, menus and reports with no programming knowledge. However, for the more experienced user, the source code generated by ZIP can be enhanced or modified for more complex applications.

Eliminate Machine Dependence

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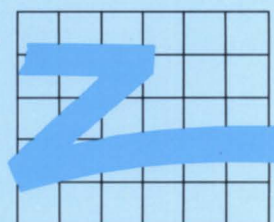
System Z cuts development time by 90% without paying the price of slower response times and greater memory and disk requirements. Incredible as it seems, Z programs actually run **faster** than those developed with BASIC or COBOL and require only a fraction of the resources that third generation languages need.

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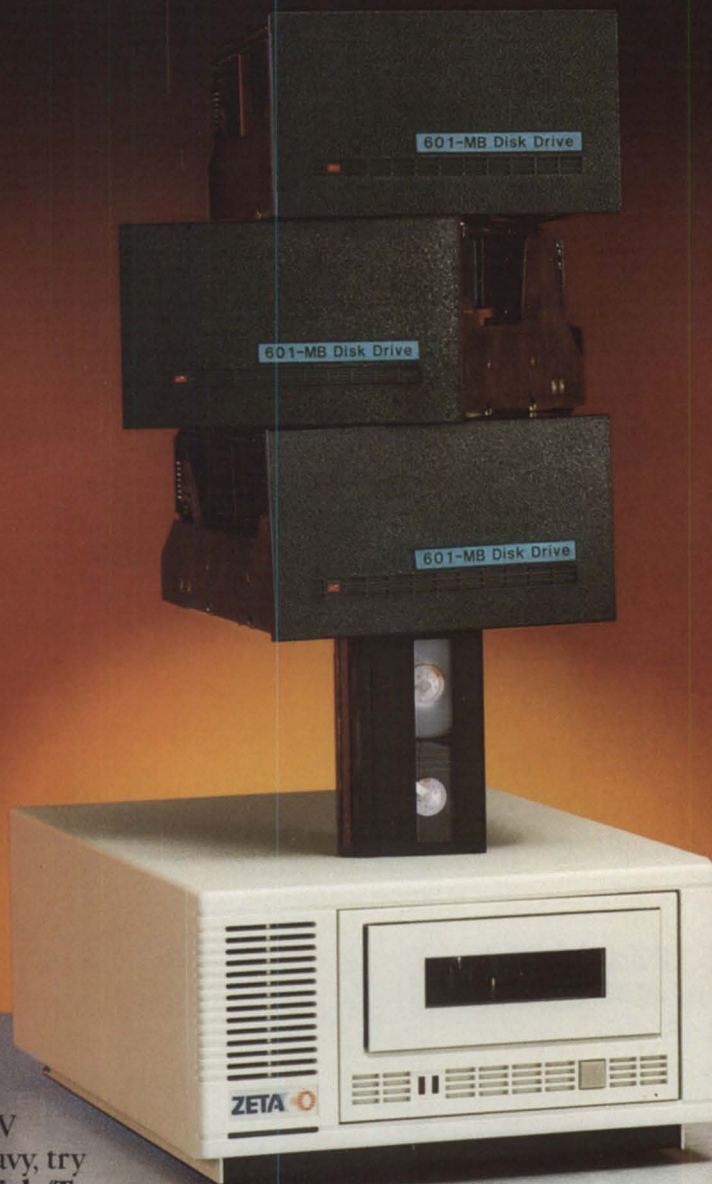
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California Office: 714/582-1026,
U.K. Office: (44) 442-891-500.

*In lab tests on an MV/7800, SKM tape sustained streaming performance at 246 KB/sec data transfer rate, backing up a 100-MB sequential file from SKM high-performance disks in just 7.5 minutes.

ZETA 

The Network Storage Company

Dave Lyons was named vice president and general manager of International Sales and Service for Data General. **Primus Berger** took over Lyons' former post of vice president and general manager of European Operations. Berger is the former division vice president of the General European Area.

Data General's presence in the health care industry got a booster shot in the form of two agreements with sellers of medical-practice related software.

Dose Systems, Inc., has agreed to sell its hospital pharmacy automation system bundled with MV and Aviion Unix platforms. The Dose product is based on **Oracle's** data base management system.

Medical Data Processing, Inc., will offer MDpl medical practice software on DG equipment. MDpl is designed to manage the data requirements of outpatient-based medical practices. It is immediately available on MV machines and will be available on Aviion systems in the fourth quarter.

Data General is the third-largest provider of hardware for hospital information services, behind **IBM** and **DEC**.

Telekurs (North America) Inc., a global supplier of financial information, acquired Standard & Poor's Trading Systems and purchased \$1.5 million worth of additional Data General systems to upgrade and expand its ticker plant in Stamford, Connecticut. The upgrade included two MV/40000 HA superminicomputers.

The **Object Management Group**, an international consortium seeking industry-wide adoption of a common standard for object-oriented environments, has announced that **Chris Stone** will be its first

president. Stone is the former group manager of strategic products for Data General. He served as the executive director of OMG while he was with DG and was a founding member of the OMG. In an interview with *Focus* magazine, (August 1989), Stone was quoted as saying "I don't plan on wearing both hats forever."

Humana Hospitals, the second largest hospital chain in the United States, has awarded a three-year contract to **Grumman Systems Support Corp.** to service its DG equipment and associated hardware.

All **NADGUG Conference '89** attendees were given a list of third-party software products available for the Aviion family of computers. No less than 41 vendors have agreed to provide software for the RISC-based systems, with applications running the gamut from relational data bases and language development tools, to office automation and accounting packages.

Warm weather retreat. The **AOS/VS Special Interest Group** is sponsoring a

workshop for AOS/VS system managers and users January 11-12, 1990, in Miami Beach, Florida. Arrangements are being made by **Computer Training Associates, Inc.**, and **Wilcox World Travel and Tours, Inc.** Cost is \$250. For more information, call 1-800/438-5828 or 1-800/452-2803 (in North Carolina).

It's nothing if not *eunIQUE*. It, of course, is Data General's new advertising campaign seen in the *Wall Street Journal* and other publications aimed at executives and business leaders. **Steven Baxter**, DG's vice president of marketing, predicts the campaign will result in "no more than 10 lawsuits."

Dataram Corporation has opened new sales offices in Detroit, Dallas, New York, Los Angeles, and Washington, DC. The company now has 11 offices providing sales and support of memory systems for Data General and other computers.

Following on the heels of the resignation of its President and Chief Operating Officer **Tom Csathy, Cognos, Inc.**, announced a pre-tax loss \$6.2 million for

the second quarter of 1989, compared to a pre-tax profit of \$2.4 million for the same period of the previous year. Company officials attribute the loss to non-recurring restructuring charges and the reversal of a \$3.3 million recovery of taxes recorded in the first quarter. Revenues for the first six months of the year were \$49.9 million, compared to \$46.7 for the first six months of 1988. **Cognos' new President and Chief Executive Officer Michael Potter** predicts a return to profitability for the company, based on its traditionally strong sales of 4GL products, and new offerings based on Unix and CASE technologies. Δ



THERE'S GOLD IN THEM VAR HILLS

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ON-LINE HELP *Who to call for answers about NADGUG and FOCUS*

NADGUG's electronic bulletin boards
 (300 or 1200 baud modem)
 Rational Data Systems415/499-7628
 OIS (to get an OIS ID and password, contact a DG field engineering telemarketing representative)800/325-3065
 In Massachusetts800/952-4300
 In Canada416/823-7830
NADGUG membership, address changes
 Jennifer Foye800/877-4787
 (Outside the U.S.)512/345-5316

Information on RIGs or SIGs
 Cathlene Gentry800/877-4787
 (Outside the U.S.)512/345-5316
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 (please send product announcement to the address listed below)512/345-5316
Information about advertising in FOCUS
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OSI protocols. This standard has not emerged as most analysts had expected by this time. Other implementations, specifically Novell and, to a lesser degree, IBM's Token Ring have emerged as de facto industry standards. In recognition of this, Data General has embarked on a strategy known as OpenLAN. This strategy will allow DG servers (both MV family and Aviion) to connect to PCs at-

tached to these popular LANs. We have entered into a relationship with Novell this past year. The results of this relationship will be the availability of product solutions in 1990.

On the price side, we have consistently sought to achieve competitiveness on overall cost per seat for a given value. This past year, we brought to market a new Ethernet PC LAN card with a sig-

nificantly lower price than the previous product (\$495 vs. \$725). We also introduced, in March, a competitively priced MV/PCI server configuration for support of up to 16 PCs.

NADGUG: Customers suggest providing communication capabilities in ICobol across all platforms (i.e., would like to have e-mail facility within ICobol). We would like ICobol to run on Unix.

DG: With respect to communication between machines, (i.e., an ICobol program running on one machine accessing data on another machine), this would be done through a Remote Agent similar to MRA which is currently available on AOS/VS. This is not currently available for ICobol under MS-DOS, but is a high priority on the list of future enhancements.

Regarding e-mail, there are no plans to add this facility to ICobol; however, we are looking at integrating ICobol with CEO on AOS/VS. If this were to happen, then the CEO mail facility would be one of the features included in the integration. This is a medium priority on the list of future enhancements.

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As providers of complimentary fax service with their Rush product, the Concept Automation team stayed busy throughout the conference. Above, Sue Miller and Tom Bishop man the printer.

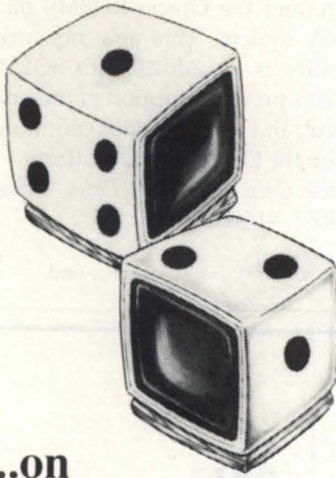
Estimated availability of ICobol running under Unix is early 1990. It will be available for both the Aviion and Dasher 386/ix platforms. It will be compatible with AOS/VS ICobol 1.5x and MS-DOS ICobol 1.5x. There will be no need to re-compile nor convert programs/data because it will have identical file formats for both executable code and data files.

Documentation

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PRODUCTS AND SERVICES

AMDS announces Unix-based medical practice software

Westboro—Advanced Practice Manager software is now available to run on Data General's Dasher/386 Unix platform of workstations, and will be offered on the Avion line in early 1990.

Advanced Practice Manager, developed and offered by Advanced Medical Data Systems of Kansas City, Missouri, is medical practice software for administration, patient accounting, and growth management. One of its distinctive features is that users can submit insurance claims electronically, decreasing both payment cycles and paperwork. The software also has three operator levels to accommodate the needs of users with varying degrees of computer experience.

Data General, 3400 Computer Dr., Westboro, MA 01580; 508/898-4283. Advanced Medical Data Systems, 3826 N.E. Antioch, Suite 5, Kansas City, MO 64117; 816/454-8941. Δ

Circle 78 on reader service card.

Have a Blast with your PC

New Orleans—Communications Research Group announced the availability of PC Blast II version 9.0.1, providing Data General D-461 terminal emulation. Like DG Blast II, MacBlast II, and Xenix Blast II, the latest PC edition offers standard file transfer, terminal emulation, and file management features for connections to other computers, without requiring extra boards or other additional hardware.

PC Blast II offers adaptive data compression, terminal emulation, and keyboard remapping for DG D-200/410/411/461, DEC VT/100/220, Ampex D-80, IBM 3101, and other computers, PC-style sliding bar menus, script language, automated dialing and logon, and identical menus and interface for DG, Xenix, Unix, PC, Macintosh, and Vax. Prices range from \$195/copy for Macs; corporate licenses and private network licenses start

at \$10,000.

Communications Research Group, 5615 Corporate Blvd., Baton Rouge, LA 70808; 504/923-0888 or 800-24-BLAST. Δ

Circle 74 on reader service card.

DG terminal emulation available for OS/2

Southampton, NY—Flying Point Software has released @Con/OS2, a DG terminal emulator for OS/2 written to be compatible with OS/2's Presentation Manager environment. The first such product available for OS/2 users, @Con/OS2 combines aspects of its DOS counterpart (@Con/PC), such as a 120-command macro language, a macro "learn" mode, and multiple file-transfer protocols, with OS/2's ability to run one or more communications sessions simultaneously with other applications.

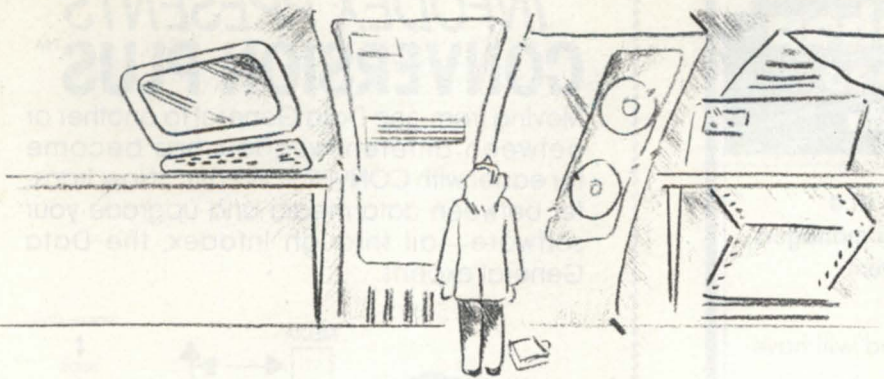
In addition to emulation of Data General D-210 and D-411 terminals, @Con/OS2 offers file transfers using Flying Point's proprietary protocol ConX, which allows users to select multiple files for transfer using wildcard characters. @Con/OS2 retails for \$195, with ConX for DG MV machines provided free with purchase.

Flying Point Software, 33 Flying Point Rd., Southampton, NY 11968; 516/283-4994. Δ

Circle 80 on reader service card.

Zetaco releases 'screaming' new disk/tape subsystems

Eden Prairie, MN—The promotion reads this way: "They're fast! They're hot! Together they scream!" Zetaco is talking about SKM Subsystems, its new disk/tape combinations. The disks have an average seek time of 10.7 milliseconds, and a data transfer rate of 4.75 MB per second; the tapes are eight millimeter helical scan with 2 GB cartridges. According to the company, the subsystem sup-



Do you need help to get the best performance out of your DG system?

Do you wonder who to turn to for advice about DG? Do you feel alone? Unattached?

If you answered yes,

the *North American Data General Users Group* (NADGUG) is your answer. NADGUG is a network of active DG users who can connect you with a regional interest group (RIG) or special interest group (SIG).

RIGs and SIGs bring people together to share ideas on how to solve problems. RIGs enable users to meet their peers close to home. SIGs are focused on a specific interest, such as Unix, CEO, AOS, AOS/VOS, etc.



Join a RIG or SIG today

Take advantage of all that the RIG/SIG program can offer! The roster of RIGs and SIGs is printed in this month's issue. If you don't find a RIG in your area or a SIG to meet your needs, contact the RIG/SIG Coordinator, Cathlene Gentry, 1-800-USR-GRUP (outside the U.S. 512/345-5316), or the RIG/SIG Committee Chairperson, Charlene Kirian, 704/251-9551 for assistance.

Circle 42 on reader service card.

Hypermedia hangs ten on DG's wave

New Orleans—Call them surfboards for the new wave. Data General has introduced new electronic document products—Intellibook Author and Intellibook Reader—for its latest software offering, CEO Object Office. Along with these, DG announced a PC-compatible CD-ROM drive in which users of Intellibook Author can store 600 MB of memory. The on-line hypermedia system is the first of a family of DG applications for CEO Object Office.

The Intellibook products access and manage large amounts of information, and reduce the costs and delays associated with traditional methods of documentation. The Intellibook Author software electronically indexes large document data bases of text and graphics, and creates links between references to a topic selected by the user. With these products a user can navigate through a web of information, concentrating only on what is relevant and of interest. Intellibook Reader, designed for end users who need to read large documents without making changes in them, displays and retrieves information in a what-you-see-is-what-you-get (WYSIWYG) format.

The availability of both Author and Reader products is the result of a marketing and development agreement between Data General and Owl International, Inc., which specializes in hypertext information technology. The software operates on DG's Dasher/286 and 386 personal computers using MS-DOS (version 3.3 and above), and Microsoft Windows (version 2.1 and above).

Intellibook Author and Reader also run on other 80286 and 80386 processors that support the minimum MS-DOS and Microsoft Windows requirements. In addition, both can operate in a PC LAN environment using DG's PC*I communications platform.

Data General, 3400 Computer Dr., Westborough, MA 01580; 508/898-4083. Δ

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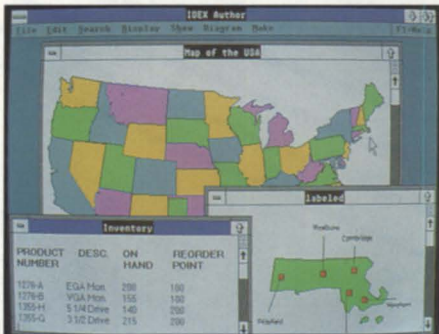
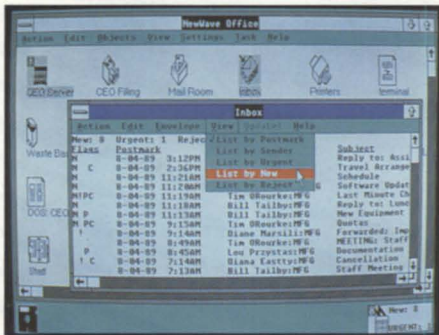
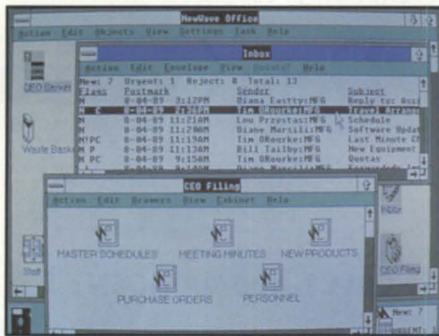
Borrowware for lenders

New York—Bac-Tech Systems has re-

CEO Object Office launches new wave



New software applications illustrate the New Wave look of Data General's common user environment.



Top photo: Electronic mail and filing capabilities are included in CEO Object Office. Middle photo: The CEO Object Office "Inbox" provides the PC user access to CEO or MS-DOS-based files in worldwide CEO and other electronic mail networks. Bottom photo: New Intellibook software that runs with CEO Object Office enables a PC user to electronically index text and graphics, and create links between selected topics (See details in article on page 76).

New Orleans—It's not just a concept anymore. Data General's announcement of its CEO Object Office software, a user-centered, object-oriented office automation system, signals the arrival of the much heralded "new wave" of technology that should eventually allow users to mix and match independently developed applications across a variety of operating systems.

The new software is the first DG implementation of a common user environment based on Microsoft Windows and Hewlett-Packard's New Wave. Designed for the client/server model of computing, CEO Object Office interconnects PC workstations with DG Eclipse MV family servers over token ring, ethernet, and StarLAN local area networks. CEO Object Office utilizes one icon-driven screen, and integrates popular MS-DOS applications with basic CEO office automation functions such as electronic mail, filing, and communication capabilities.

The CEO Object Office system consists of a CEO server, a local area network based on DG's PC*I communications platform, and PC workstations. The software can run on IBM-compatible 80386 or 80286 PCs that have at least 3 MB of LIM 4.0 memory, a 20 MB hard disk, an EGA or VGA graphics adapter and display, a LAN card and a mouse (which should be DG, Logitech, or Microsoft-compatible); the server, however, must be a DG Eclipse MV family computer running under AOS/VS and Xodiac Transport Services (XTS). CEO Object Office will also be available on Novell's Portable Netware transport software, though the actual date of this release is still undetermined.

In other new wave news, similar developments in Data General's Avion line of Unix servers are to be anticipated in "the near future." According to DG announcements made at NADGUG's conference '89, the "look and feel" of CEO Object Office will soon be available on Avion systems, supporting Open Software Foundation's OSF/Motif and other text-oriented interfaces.

Data General, 3400 Computer Dr., Westboro, MA 01580; 508/898-4083. Δ

Circle 75 on reader service card.

A complete listing of the NADGUG software library

Big Brother • Automatic log-off program written in Fortran 77. Donated by the U.S. Forest Service. 181 blocks.

B.J.'s BBS contributions • This addition to the library consists of 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. 5,749 blocks.

Black Jack • Kim Medlin of Data General presented this at the Las Vegas conference. 15,079 blocks.

CRREDIT • This is the old RDOS screen editor ported over to VS. 51 blocks.

DBCHECK • This program checks the open status of an Infos file and examines the checkpointing status of a file. 230 blocks.

DUMpload • DUMpload is a Macintosh program to dump and load AOS/VS-compatible dumps on a Macintosh. 140 blocks.

ERP • A process-termination program developed by NASA and modified by Manville. In Fortran 77. 338 blocks.

FILEMGR • 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. 459 blocks.

FTNCVT • This is a Fortran 5 to Fortran 77 translator. 287 blocks.

Games • Games is a collection from various places. A new version of Conquest has been added as of April '89. 19,516 blocks.

Glossary • Glossary is a program from John Grant that builds a list of words used in a document and shows where they are used. 416 blocks.

IMSLUTIL • This is a collection of CLI macros, Cobol routines, and assembly routines callable from Cobol. By IMSL of Houston. 6,154 blocks.

JAG_UTIL • JAG_UTIL consists of several programs: Filecount, Userspace, Scan, and Laminate. 1,501 blocks.

Kermit • Kermit is a file-transfer protocol developed at Columbia University. Uses 9,328 blocks.

Logout • Another auto log-out system. 246 blocks.

Look • Look is used to view text files. It allows you to move forward and backward in a file. This program was donated by Data General. 438 blocks.

Macros • This is a collection of macros from various sources. 452 blocks.

MENUDIR • This is an initial user menu that can chain to other applications. It features a password-control system. From the Fed SIG. 492 blocks.

Misc Kerm • An expanded version of AOS Kerm, this now includes other versions of Kermit including DG/One Kermit. 6,298 blocks.

Notify and Prior • Two contributions from Concept Automation. Notify tells you when a process has terminated. Prior lists the priorities of processes. 273 blocks.

QHelp • QHelp is a tree-structured help facility. 2,277 blocks.

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

SKLSCRN • This is the Cobol standard entry screen featured in George Burns' article that appeared in the April 1988 issue of *Focus*. 385 blocks.

Softrans • This is a file-transfer protocol written in Fortran 77. It's used to communicate with proprietary PC communications packages. 496 blocks.

Spell • Can check the spelling of a word or spell-check a document. Submitted by Richard Kouzes. 5,163 blocks.

SWITCHES • This is the GET.SWITCHES routine from John Grant's column in *Focus*. 1,297 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 being distributed as shareware. At the end of 30 days, either remove it from your system or send the author a \$45 fee. 495 blocks.

VT100KER • VT100KER is the VT100 emulator from John Grant. 1,135 blocks.

Xfer • Xfer is a tape-conversion utility. 653 blocks. Δ

New Listings

ACK • ACK is a terminal emulator/file transfer program for both AOS/VS and AOS machines. 432 blocks.

FCOPY2 • Submitted by Jim Siegman, this utility makes two copies of a file at once.

All NADGUG members interested in receiving the NADGUG software collection should send a 1,200-foot tape to:

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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.

People with AOS/VS rev 6 should send a 2,400-foot tape and specifically request DUMP_II instead of the usual compressed version. The de-compression program is rev 7 specific.

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.

quest to transfer a file—but which way? The answer lies in the actual pathnames that we supply in the request packet. One, and only one, of the pathnames must be a fully qualified *local* pathname, and one, and only one, of the pathnames must be a fully qualified *remote* pathname.

Figure 2 shows an example of both local and remote pathnames that are fully qualified. Depending on exactly which one of the two is defined as the source (the other obviously being the destination), will determine whether a game mapfile becomes the text of this month's article, or if this article becomes a very strange map.

Making the request

To actually make the request, the IPC header has to be filled in, similar to the code in Figure 2. This lets AOS/VS know where we want to send the IPC message, and who it is from. It also tells FTA where to send the request packet, how long the packet is, and that this is a Network File Transfer Request (NFTR). Sending the request packet to FTA is done with our old friend,

?ISEND. When FTA has finished or given up, it will send an IPC message back. If the task we are using to send the file is not doing anything special while waiting for the transfer to complete, we can make things simpler by issuing both the ?ISEND and the ?IREC in one ?IS.R call. (?IS.R internally performs the equivalent of a ?ISEND, then waits for a response from the port to which we just sent a message.) Since my task was doing nothing else, I elected to get it all over with in one system call. Easy, isn't it?

Exit, stage left, clumsily

Actually, there is one other small item to cover. FTA has another request packet type that you can make. Should, for whatever reason, the program decide that it doesn't want the file transfer to complete, it may issue another request, (with a slightly different packet) whose request type is NFAB. (I will leave the details of the ABORT request up to you to read in either the parameter files or the manual.) NFAB is used to abort all outstanding transfers from the originator's port. To disconnect from FTU, use the functions shown in Figure 1.

That, that is, is. That, that is not, is not. That is it, is it not? It is.

△

Figure 2: Fully qualified local and remote pathnames

```
:UDD2:MY_USER_NAME:FOCUS:NOVEMBER:ARTICLE.DOC
:NET:OVERTHERE:CSS1:GAMES:EMPIRE2:EMPIRMAP.073
```

Michael Dupras is senior consultant for the Software Products and Services Division of DG Canada. He may be reached at Data General, 1827 Woodward Dr., Ottawa, Ontario, Canada K2C 0P9.

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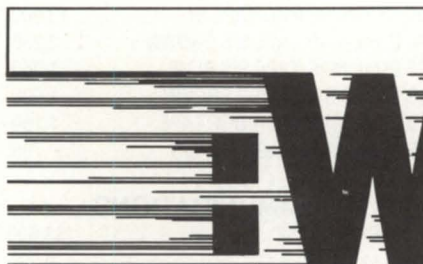
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Getting started

Figure 1 contains a sample of C code that demonstrates what is required to transfer a file across the network. The code listing shows how to connect to FTA (last month's article stated that we had to become a customer of XTS to use the available services). The routine "fta_startup" starts with the name of the IPC file through which FTA will communicate with you. Issuing the ?ILKUP system call on the UFTA\$ file in :PER gives us the global port number through which FTA will talk to others. Using the ?GPORT system call to find the FTA's PID number, our program can connect to FTA with the ?CON system call. If the ?GPORT and ?CON system calls both succeed, then we have properly connected to FTA, and may now start transferring a file.

FTA requests

FTA provides a compact and simple method for letting us transfer files. The method involves building a request packet that contains all of the information that FTA will need to do the job. The request is submitted to FTA by using an IPC. When the transfer (or other significant event, like a failure) is complete, FTA will send a return message with the final status. Obviously, FTA needs to know a few things about the transfer you intend to make.

Let's take it from the top of the packet

No self-respecting request would be complete without a place

to let you know its error code. This is naturally followed by a place to indicate which option flags you choose. The option flags let us say whether we want data compression, recovery, file deletion of either the destination or source files (before or after transfer), replacement or appending mode, superuser, etc. (If these options seem familiar to people who use UFTA.pr, you don't have to wonder too loudly!)

To be able to maintain security across the network, FTA must know who you are disguising yourself as, and it uses the next two entries in the packet as identification. The first contains the length in bytes of a string that consists of the user_name followed by the NULL character, followed by the user's probable password, and terminated with another NULL. The second entry of this pair contains a byte pointer to the username/password string itself. (In my sample, I had the same username/password pair on both computers, so I defaulted both values to -1 to tell FTA to attempt the calling process's username/password pair.)

Four more entries in the request packet are two pairs of byte lengths and pathnames. The first pair specifies the source file, while the second defines the destination pathname. A few reserved entries and an entry to hold the recovery identifier (if requested) round out the rest of the packet.

An interesting thing to note is that we have not seen any definition of the remote host. UFTA users will also note that we haven't seen any STORE or RETRIEVE commands, only a re-



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Communicating with FTA

SYNOPSIS

The author explains how to send a file from one computer to another across DG's Xodiac network.

Network traffic continued

In last month's article, I briefly covered the principles and techniques that let your programs communicate over the network. This time, I would like to transfer a few bytes through these pages to your process, and show how to programmatically send a file from one computer to another across a Data General Xodiac network.

Figure 1: C code

```

/* listing 1 Sample Network File Transfer code */

#include <packets:ipc.h>
#include <sys_calls.h>
#include <cparnet.32.h>

/* declare a few values that we will need */
int FTA_global_port,
    FTA_local_port,
    FTA_pid;

short int my_origin_port_number = 1;

#define RING7 7

int fta_startup( )
{ /* fta connection startup sequence. . . */
    int sys_error;

    /* first, find FTA's global IPC port number */
    FTA_global_port = ilkup_ipc("@UFTAS");

    /* use the port number to obtain the PID */
    sys_error = sys_gport( FTA_global_port, &FTA_pid, &FTA_local_port );
    /* if there is a problem, say so */
    if ( sys_error ) return (sys_error);

    /* now connect to FTA, return the error code, or 0 for success */
    sys_error = sys_con( FTA_pid, 0, 0, &FTA_pid);
    return (sys_error);
}

int fta_shutdown()
{ /* disconnect from FTA's ring 7 */
    return ( sys_drcon( FTA_pid, RING7 ) );
}

int network_file_transfer ( char * source_pathname, char * dest_pathname )
{
    struct nfr_pkt pnfr, * nfr = &pnfr;
    struct p_isr pp_isr, * isr = &pp_isr;
    int sys_error;

    /* set up the request packet */
    nfr->fer = 0; /* error code is returned here */
    nfr->fpt = NFOC; /* we want data compression */
    nfr->ful = -1; /* default the username/password length */
    nfr->fup = -1; /* default the username/password themselves */

    /* define the source and destination name_lengths and pathnames */
    nfr->fsl = strlen(source_pathname) + 1; /* source path length */
    nfr->fsb = source_pathname;
    nfr->fst = 0; /* reserved */
    nfr->fdl = strlen(dest_pathname) + 1;
    nfr->fdb = dest_pathname;
    nfr->fdt = 0; /* reserved */
    nfr->fca = 0; /* reserved */
    nfr->fid = 0; /* recovery id */

    /* set up the IPC header */
    isr->isfl = 0;
    isr->iufl = NFR << 8;
    isr->idph = FTA_global_port;
    isr->idon = my_origin_port_number;
    isr->ilth = NLFTR;
    isr->irsv = 0;
    isr->iptr = nfr;
    isr->irlt = NLFTR;
    isr->irpt = nfr;

    /* ask FTA to do the job, and wait for the answer */
    sys_error = sys_is_r(isr);
    /* return the sys_error or errorcode from FTA */
    sys_error = sys_error ? sys_error : nfr->fer;
    return ( sys_error );
}

```

neric computing. As PCs became more prevalent (where *don't* you see them?), it became more and more practical to develop applications for this ever-growing marketplace. As this potential market for MS-DOS software grew and grew, end users received the benefits in the form of entirely new applications (like desktop publishing), higher quality products (through competition), and lower prices.

At this time there is a major rift between application and environments: there are expensive, proprietary applications that run on expensive, proprietary minicomputers, and there are inexpensive applications that run on virtually any PC.

Gone, too, are the advantages that have set the mini apart until now. Disk storage? Novell's recently announced Net-

ware/386 for PC-based LANs will support up to 32 terabytes of storage. Few people even know how much that is, let alone have a need for it today.

So, as not to be caught with their chips down, the minicomputer manufacturers are rushing out and embracing generic computing full force. At least that's what they say.

Consolidation

Today, in the late 1980s, there are four major classes of computers:

- mainframes
- minicomputers
- high-end workstations
- personal computers

In the next decade there will be only three classes:

- mainframes and clusters
- servers
- workstations

What we now call minicomputers are evolving along two paths: large systems designed to compete with mainframes; and servers, designed to compete with high-end 80486 and 68040 machines.

Both Digital Equipment and Data General have announced configurations of their smaller minis pre-packaged with file server software. (DG's MV/1000 with DG/PC*I and DEC's MicroVax with DecNet-DOS.)

Dollars per MIPS

In the land of personal computers, volume is king, and the marketplace is controlled by two competing semiconductor manufacturers: Intel with its 8086, 80286, 80386, and now 80486 chips, slugging it out with Motorola's 680x0 family. The key word here is volume. It is the high demand for personal computers that keeps the prices down and the performance up. (Can you imagine someone going into the business of making minicomputer clones nowadays?)

For the past five years Intel has had a lock on the low-end PC marketplace (MS-DOS based machines), while Motorola has been the leader in the high-end workstation market with 680x0 Unix-based systems. Now the 80386 and 80486 chips have catapulted Intel into the high-end market, while the long awaited success of

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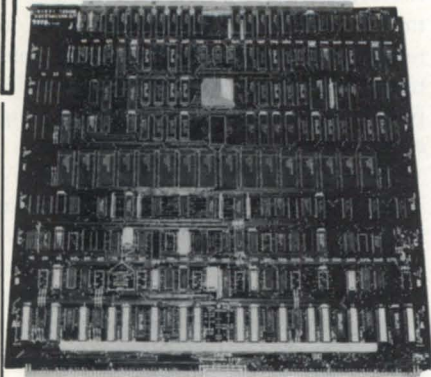
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PERSPECTIVE

5-8 percent increase in CPU utilization under AOS/VS II, but possibly a decrease in overall disk I/O load. (It's important to note that each release of AOS/VS II has shown markedly improved performance over the previous release.) In addition, disk caching in Rev. 1.20 offers the potential for significant reductions in disk I/O load and the CPU processing associated with those I/O requests.

Let's consider some of the differences between the old and new file systems. Creating a file is much more resource-intensive, but after an abnormal system shutdown, we are assured that the file is still there. On the other hand, once a process has opened a file, other processes can open that file with much less overhead; in fact, subsequent opens, which used to require multiple disk accesses under AOS/VS, require no disk accesses under AOS/VS II. In a multi-user environment, this is likely to be a major benefit; directories such as :UTIL, :UDD, and :CEO_FILES get opened constantly as users touch their various files.

Another benefit of the new file system is dynamic bad block remapping. This means that a program doesn't necessarily get blown out of the water and a data base doesn't get corrupted just because we hit a bad spot on the disk while trying to write some data. The ability to remap bad blocks on the fly, coupled with enhanced disk mirroring options, does much to support the AOS/VS II goal of providing high availability. (Other features of AOS/VS II include options for more flexible management of logical disk units, support for communications in the operating system kernel, support for data sharing architecture, support for large memory configurations, support for large disk configurations, and more.)

Certainly, I do not intend to argue with the results of the benchmark described in BJ's column. As noted above, creating a file is more resource-intensive under the new file system. The real question is whether the benchmark is relevant. If your application involves creating and deleting several hundred files every minute, indeed you may not be a good candidate for using AOS/VS II. (For that matter, if you don't care about any of the new features of AOS/VS II, there's no reason to migrate from AOS/VS.) On the other hand, if you run more typical applica-

tions, with occasional file creations and deletions, but with far more multi-user reading and writing of files, the performance impact of AOS/VS II will be much less and may not even be noticeable. In fact, a large number of Data General's own administrative systems are running AOS/VS II, with little or no performance degradation. I suggest that you consult with your DG systems engineer, who can help you plan your migration to AOS/VS II and can help you determine the impact (and benefits) of migrating.

BJ seems to suggest in his article that, since the systems only go down every six months, perhaps we don't really need such a fail-safe file system. I'll certainly agree that, because of the built-in quality, MVs go down only infrequently. Indeed, today the typical MV stays up for weeks or months at a time, and the likeliest cause of a crash is a power failure. By the same token, the typical MV today is in many environments that cannot tolerate major system disruptions, and is running applications that are critical to the business that it supports. For many of these sites, system downtime may result in tens of thousands of dollars of both direct and indirect costs. Fast recovery is important; data integrity and high availability are now vital concerns.

The issue isn't 20 minutes for FIXUP once every six months. For our customers running with several gigabytes of on-line storage, FIXUP is more likely to take several hours—an undesirable cost to pay, even if only every six months. The real issues—which have been raised by many of our customers and which motivated AOS/VS II—are the expectation of maintaining high availability of data, the expectation of the integrity of the file system, the expectation that file system problems will not disrupt the operation, and the expectation that files will survive a system failure, however infrequent. Δ

Tom Gutnick has been working with Data General systems for over a decade. He is currently in the Technical Services Group for Data General's Eastern Operations, where he specializes in AOS/VS issues, especially involving system security and performance. He can be reached at Data General, 7927 Jones Branch Drive, Suite 200, McLean, Virginia 22102; 703/827-9600.

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records.

For instance, if you want to know what classes were taken by a particular student, first find that person's student record. Then access all student_class records associated with that student record. If you need to access the data for corresponding class records, you have the information necessary in the student_class record to obtain the appropriate class record.

To access all students in a particular class, turn the processing around. First read the required class record. Then read all the student_class records associated with it. Then, if necessary, access student records.

contain a greater number of small records than un-normalized data bases. This causes more disk I/Os to be performed and can cause a degradation of performance. This drawback can usually be dealt with by de-normalizing specific sections of the data base that cause the excessive I/Os. The requirements of individual applications will dictate when it's best not to normalize the entire data base.

Summary

Some of you probably have found that your data bases are already normalized to some extent, even though you may not have known the exact rules of normaliza-

Figure 2: Employee file

Department Number	Employee Name	Department Assigned	Department Location
1	Sam	Accounting	Atlanta
2	Mary	Programming	Los Angeles
3	Jane	Accounting	Atlanta

Update anomaly example

Now that we've discussed data base normalization techniques, let's take an example of how a normalized data base helps to eliminate update anomalies.

Consider the employee file in Figure 2. Assume that Jane has been transferred to the programming department. Consequently, the value of the "Department Assigned" field in Jane's employee record is changed from "Accounting" to "Programming."

An update anomaly just occurred. Jane's employee record now indicates that she works in the programming department in Atlanta. The problem is that the programming department is located in Los Angeles. The problem occurred because a data field (Department Location) is dependent on another data field in the same record (Department Assigned). This is a violation of 3NF.

The solution could be to move the department location field to another record. It could be moved to a department record that is keyed by the same values that are found in the department assigned field in the employee file.

The down side

As with every technique, a trade-off is involved in data normalization. The primary disadvantage of normalization is the tendency of normalized data bases to

tion. I must emphasize that normalization rules should be used as guidelines only. They are not cast in stone. Your own application circumstances may dictate that you should periodically break the rules of data base normalization.

Data base normalization does succeed in preventing update anomalies and data inconsistencies by eliminating redundancies. There are other advantages as well.

- Normalized data bases are easier to understand.

- The data is arranged in a logical order following accepted structured techniques.

- Fourth generation languages tend to interface more easily with a normalized data base.

- The consistency of data base design afforded by normalization benefits all who must deal with multiple data bases.

The advantages of data normalization outweigh potential disadvantages by a wide margin. Data normalization provides a flexible and standardized platform on which to base your data base design efforts. Δ

Kim L. Medlin heads special projects for the Commercial Software Development Group of Data General's Software Products and Services Division. He can be reached at Data General, 3617 Parkway Ln., Norcross, GA 30092; 404/448-6072 ext. 2007.

this means that every field must be elementary (i.e., no group fields). The idea behind this rule ensures that every field is allowed to be referenced and defined in only one way.

You may feel that you have lost some flexibility because of these rules. I empathize with you. I felt the same way when I first started designing normalized data bases. The rules of 1NF are designed to

make the data base simpler to design, understand, and manage.

Second normal form

Second-NF deals with record keys and their relationship to data fields (assuming there are data fields in the record). A record key may consist of one or more fields. As a general rule, a key should be as short as logically possible. The 2NF

rule states that every individual data field in the record should be dependent on the entire key.

As an example, consider the code used by automobile tire manufacturers to identify different types of tires. A particular code may look something like P205/75R14. Each of the components of this code indicate a particular aspect about the tire (width, height, etc.). Assume there is a record type that is keyed by the tire ID number. In order to follow the 2NF rules, all fields in the record must represent information about the whole tire ID key field. Information pertaining to individual components of the tire ID should be located in other record types.

Third normal form

Third-NF is an extension of 2NF. Third-NF states that no data field in a record may be dependent on another data field in the record.

To explain with an example, consider a purchase order system. Assume you have line-item records associated with each purchase order record. There is a field in the line-item record called part number that identifies the part that is being ordered. Instead of storing the part information (name, description, etc.) in the line-item record, you should store it in the part record. The part record is keyed by the part number.

Second and third normal forms

After examining the examples of 2NF and 3NF, a generalized rule of thumb of data base design becomes apparent: utilize look-up tables. The look-up table technique is second nature to most software developers. The above two examples show the mechanics of look-up table usage.

Acceptable violations

You can legitimately break the rules of 2NF and 3NF when the associated information is historical in nature.

To illustrate, let's consider the purchase order example again. It may be desirable to store certain part information in the line-item record, even though it would cause the storage of redundant data. A prime example would be the price of the part.

Consider the consequences of not storing the price in the line-item record. Assume the order has already been placed

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SYNOPSIS

Normalized data bases are the foundation of software development. Kim Medlin discusses normalization in plain English and attempts to de-mystify the whole procedure.

by Kim L. Medlin
Special to Focus

One of the most important phases of any software development project is data base design. Without a properly designed data base, called a normalized data base, it is difficult for an application to be a success. A normalized data base provides a foundation on which later phases of software development can be built. Whether you're using a hierarchical (Infos or Minisam), network (DG/DBMS), or relational (DG/SQL) data base handler, normalization techniques help ensure a correct data base design.

Almost every data base design textbook contains a chapter on normalization. The discussion usually sounds something like this:

"Whenever there is a multivalued dependency $X \twoheadrightarrow Y$, where Y is not empty or a subset of X , and XY does not include all the attributes of R , then X includes a key for R ."

What language is that? I prefer English, thank you. The intent of this article is to de-mystify data normalization and

discuss the concepts in informal terms. While informal terminology may create some loss of precision, in this case I prefer that over using the academic terminology found in textbooks.

Normalization defined

Data base normalization is intended to prevent update anomalies and data inconsistencies by eliminating redundancies. An update anomaly occurs when a given data base update transaction has unintended effects. Normalization consists of a series of data analysis phases that relate to the various normal forms. There is a first normal form, second normal form, etc. (1NF, 2NF, etc., respectively.)

Generally, it is sufficient to normalize a data base to the third or fourth normal form. I will discuss normalization to the fourth normal form.

First normal form

First-NF consists of several simple rules about record definition. (For your reference, DG/SQL enforces the rules of 1NF; other DG data management systems do not.)

First-NF rules are simple and straightforward. First of all, records are not allowed to be redefined. The reasoning behind this holds that you never really "need" to redefine a record. Because a redefined record is by definition different from the structure it redefines, it is simpler (i.e., better) to create an entirely new record.

The second rule of 1NF states that records may not contain arrays. This implies that every field must have its own unique identifying name that does not depend on any other field. Therefore, no subscripting in records is allowed.

The last rule of 1NF states that every field must be "atomic." In Cobol terms,

(continued from page 51)

Data General and payment of any additional license fees.

The Aviiion software policy is the same as the MV software policy with one exception. DG/UX will not be transferrable from one system to another, however, the customer will have the right to re-license the DG/UX software if the system is later resold. In other words, the license remains with the CPU, not with the original licensee. The new owner of the system is required to register with Data General and will be bound to the original license agreement.

Product Issues

NADGUG: Customers would like to see more value (DG printers are too expensive compared with generic printers), reliability, and a wider variety of printers with the DG trademark (especially laser printers). CEO support is needed for more types of printers, especially lasers.

DG: We will continue our strategy to of-



Users shared concerns with DG personnel at an informal meeting on MV issues.

fer more value and a wider variety of printers by aggressive purchases based on industry standards. In addition, better negotiations with suppliers will result in better pricing.

Printer features applicable to office automation functionality (such as font and paper handling control) are supported in CEO as soon as practical. In addition, we provide interfaces from many of our CEO graphics-based applications as appropri-

ate. All of the advanced capabilities of new printers are not fully supported at FCS in all cases due to "skew" between CEO updates and printer availability dates.

We attempt to remedy such delays as quickly as possible. Printers that do not have "advanced functionality" (such as band printers and some impact devices) are supported as "draft" printers only, both by CEO users and AOS/VS.

NADGUG: Customers suggest providing seamless integration of PCs at reasonable prices (especially electronic mail). PC*I is limited to the DG environment; customers want to see a PC integration product that would integrate with other vendors' equipment as well. Price is also a consideration.

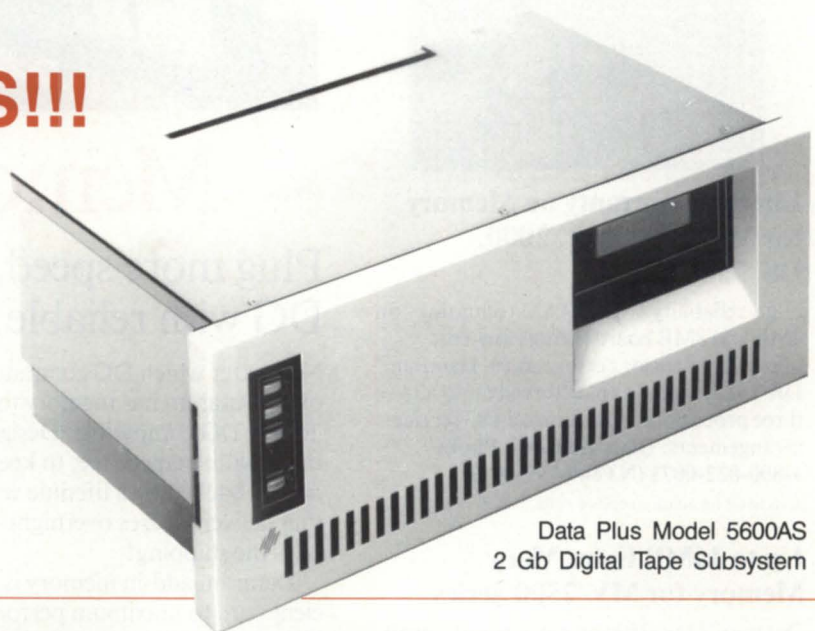
DG: Consistent with our ongoing policy of supporting data communications standards whenever possible, our PCI implementation was based upon the formal

(continued on page 80)

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CONFERENCE '89/KEYNOTES



Patricia Seybold demonstrates two "food editors."

Patricia Seybold on open systems and DG's future:

I'm not pitching this technology, by the way, because Data General or the users group asked me to come. I've been pitching this technology for two years. Data General happens to be the first company to get out and implement it using a combination of both pragmatic and visionary solutions.

The future that I see for DG is still a problematic one. The company has scaled down. It is, I think, making a very rapid and good transition from proprietary applications to standard open systems architectures. I would encourage you as Data General users to get on that bandwagon. The success of the company is going to be based on its ability to get out in front with the kind of Unix and open systems solutions that are recognized by the industry as leaders.

You may be aware of the fact that there's a lot of activity around the notion of cooperative processing in the Unix arena. In real-time applications, Unix groupies are saying "wait a minute, we need to change. Unix doesn't really handle these real-time applications very well, so we need to do that while making it a more cooperative processing operating system." Even OSF (the Open Software Foundation) is now rethinking what the kernel of Unix is, and how to change that in order to accommodate real-time cooperative processing. And when they think about that, one of the models they talk about is Data General's implementation of Unix.

So, from a technical perspective, again in the open systems arena, Data General is definitely a leader. From the workstation price/performance perspective, Data General is a leader. The question is, will customers stick with Data General through the transition and not hold the company back by insisting on proprietary systems? ... I think a lot of the possibilities of Data General rest in your hands. Δ

Tom West on MIPS

Customers today, it seems, are no longer computer-aided; they are computer dependent. . . . They constantly need more computing power to maintain a competitive edge, a demand amplified by the increasing use of touch-and-feel user interfaces, fourth generation languages, and so forth. What this means, I think, is that the need for MIPS keeps growing sort of geometrically, and unfortunately, life keeps going on linearly, but faster. So, we're in a dilemma. But it's a dilemma that rapid advances in technology are resolving.

We hear our customers saying "Give us better computing." In my mind, that translates to better functionality, higher functionality, higher performance, lower cost. And if that's what the world wants,

Data General is ready and pumping to deliver it, because, like I said, that's our business. It's what we're organized to do well. The trick is to put these new technologies into customer-usable form.

It may be relatively straightforward to take a 20 MHz 88K chip, glue it on to a board with some memory, and call it a computer. But using two of them is a significantly more difficult challenge. Putting together four 33 MHz processors in a full-power configuration is a greater challenge, to say nothing of our 500 MIPS quad ECL implementation. The difficulty, we've said, isn't the memory system, bus bandwidth, the I/O channels, and the operating software that controls all of that; it's only an implementation problem, plugging electrons around and shoveling bits and bytes—but it's the thing Data General does best, and does fastest. Δ

ories. Sales reps are also part of a peer group that receives specialized training and meets regularly, with customer participation, to share common problems and experiences.

Software and licensing/pricing policies

NADGUG: Customers want reassurance that AOS/VS I and II are ongoing DG products.

DG: Both AOS/VS and AOS/VS II are and will continue to be supported products. The focus of performance, connectivity, and feature/function enhancements will be on AOS/VS II. Customers who do not need the robust capabilities of AOS/VS II will continue to be strongly supported. There are no current major quality issues with the AOS/VS production set. The number of updates are primarily driven by support of new hardware.

NADGUG: We are concerned about the compatibility of DG/UX and MV/UX

with de facto industry standards.

DG: Data General will continue to rigorously adhere to industry standards (interfaces, Unix, communications) as a fundamental part of its development strategy.

NADGUG: What is the status of RDOS (32 bit) development for larger MVs?



The exhibit hall

DG: Currently, RDOS is supported on the MV/1000 DC through the MV/2500 DC. There are no plans for retrofitting it to *current* higher performance MV family systems.

NADGUG: What is the status of support for CEO 3.xx and CEO 2.xx?

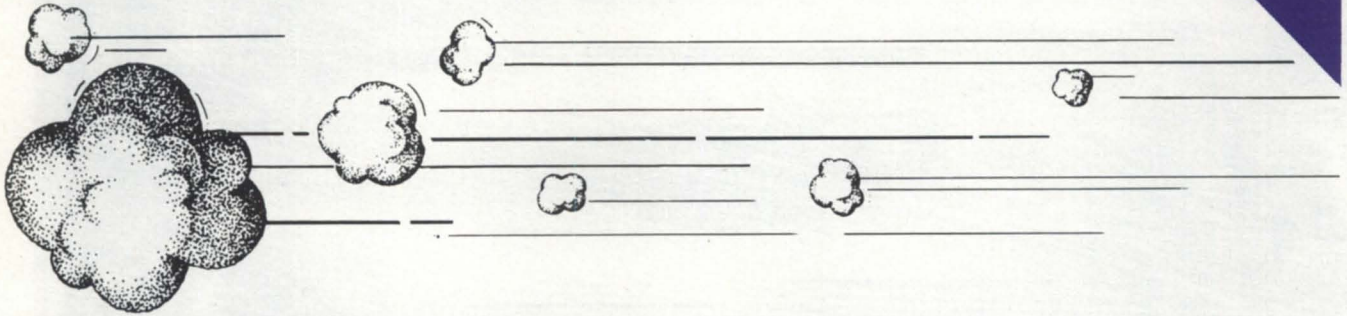
DG: For CEO 3.xx, current release support policies apply. We will continue to identify and fix bugs. There are no major outstanding problems.

For CEO 2.xx, support increased from 180 to 265 days. Customers are encouraged to migrate to 3.xx. Our support is consistent with industry practice.

NADGUG: Customers would like to see a catalog of Data General and third-party applications.

DG: There are two catalogs available. The first is the 88open Software Sourcebook developed by the 88open Consortium, Ltd., and the Software Initiative, Inc. The

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an improved field reporting system that allows us to collect data and report it more quickly and accurately. We track accuracy and had been at an 83 percent accuracy level for years. After installing the new system, our accuracy shot up to 95 percent and we expect that our performance will continue to improve.

In addition to these improvements, customers will see improvements in the actual invoice, beginning with their December invoice. The calculations will be done at model level, rather than contract level. Credits will appear immediately on the invoice following the credit issuance. Summary statements will appear at the beginning of each invoice so customers do not have to wade through every line item to review it. Invoices will be shorter and easier to read.

We will look into your suggestion about monthly billing of SSS charges.

NADGUG: OIS needs improvement in accuracy and completeness of information.



Attendees are reminded of the 1990 conference

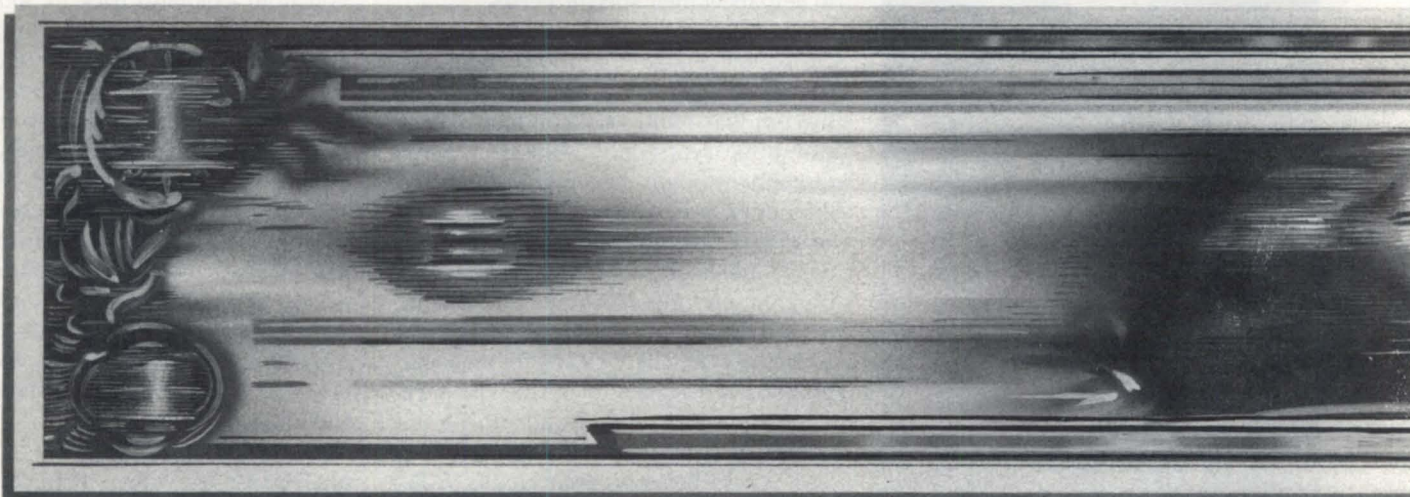
DG: Data General has made a substantial investment in OIS. We are currently evaluating how we can deliver a better product to meet our customers' needs, including investigating delivery through Data General rather than an outside service. We are also taking several steps to im-

prove OIS. One is to make it truly user friendly, so that customers can access information more quickly, rather than wading through menu after menu to get the information they want. Another is to develop one data base and one bulletin board that covers both proprietary and standards-based products. Other improvements include providing better, quicker access to STRs and easier and more efficient means of downloading software fixes. Overall, the effort is to make it a better product. These improvements are expected to be in place by July 1990.

NADGUG: Customers feel that Data General should be more flexible and unbundle SSS from Support Plus.

DG: This problem was fixed, and effective June 26, we announced the unbundling of SSS. Now customers can sign up for SSS on operating systems without having a Support Plus contract (see pages 4 and 75 of the August issue of *Focus*).

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Inside the New Orleans Convention Center

CONFERENCE '89

News from New Orleans

DG responds to user concerns

(Editor's note: The following information, prepared by Data General, was provided to attendees of the NADGUG Conference '89. We are publishing it here because of its significance to all users of Data General Equipment.)

Results of the 1989 NADGUG Member Survey were compiled by NADGUG staff at *Focus* in Austin. NADGUG officers and the Executive Advisory Council presented a summary of the top issues and concerns to Data General management at their annual meeting in Westboro in August.

This article summarizes the responses to the survey items and other topics addressed at the meeting. We would like to take this opportunity to thank the NADGUG officers and Executive Advisory Council for a very productive meeting, as well as all NADGUG members for taking the time to let us know what your needs are. We encourage you to continue to support NADGUG as your vital link to Data General.

Service and Support

NADGUG: Regarding the responsiveness of service personnel, customers suggest that DG place less emphasis on policies and more on meeting customer needs. On a local basis, some customers feel FEs should be more responsive to their issues and less to doing things by the book.

DG: Data General Field Operations has a specific structure in place to handle issues that are local in nature. If any customer has a problem with a field engineer, it should be taken to the branch manager. In the majority of cases, issues are solved at the branch level. If the BM doesn't provide a satisfactory response, the issue should be addressed to the regional director. If not settled at the branch or regional level, an escalation system kicks in that takes the issue to the senior management. Experience has shown that the system works; we encourage customers to use these avenues of resolution.

Jones, Perry assume NADGUG leadership

NADGUG's new president and vice president, announced at the New Orleans conference, are Lee Jones and Francis J. Perry, who will serve in their respective offices for the 1989-90 term.



Francis (Frank) Perry and Lee Jones

Jones, who succeeds Donald W. Clark as president, worked as NADGUG's vice president through 1988-89, and has had additional experience as conference chairman, a position he held from 1986 to 1988.

As president, Jones says his goals encompass a shift of emphases from administrative concerns, which figured largely in NADGUG's activities last year, to the expansion of membership and membership services. He stresses that work that was done to streamline administrative procedures in fact laid the groundwork for an effective membership drive.

In addition to his work with NADGUG, Jones is the president of Gulf Coast Systems, a Houston consulting firm, and a member of the Houston Unix Users Group, Hounix, Inc. A past president of HADGUG, the Houston Area Data Gen-

eral Users Group, Jones also holds the Certified Data Processor designation from the Institute for Certification of Computer Professionals.

Frank Perry's experience with Data General began at the Rhode Island Department of Transportation (RIDOT), where he has worked for the past 29 years in various capacities. As chief of the department's engineering computer unit, Perry led a study of needs which ultimately resulted in the selection of DG as RIDOT's equipment vendor. "The rest," he says, "is history."

Perry currently heads the department's Data Operations Division, which provides services in computer programming and operations, as well as systems analysis. Δ

Odd Couple

by John Huddleston
Special to Focus

SYNOPSIS

Under MV/UX, AOS/VS is the constraining factor in all Unix system calls. Extra caution must be taken to protect MV/UX files.

MV/UX and AOS/VS may not be the oil and water of operating systems, but some problems do arise when you try to mix them. To start with, remember that MV/UX is different from DG/UX. Under MV/UX, all Unix system calls must be made through the AOS/VS kernel. Therefore, a user's ability to create, modify, or delete files is limited (or expanded) according to the constraints (or power) of AOS/VS and CLI, rather than the UX operating environment.

Two operating system environments

The AOS/VS operating system allows five different permissions (OWARE) on a directory and file structure.

O = Owner
W = Write authority
A = Append authority
R = Read authority
E = Execute authority if a program or CLI macro
E = Access authority if a directory

MV/UX allows three different permissions (WRX) on a directory and file structure.

W = Write authority
R = Read authority
X = Execute authority if a program or shell script
X = Access authority if a directory

Under AOS/VS, the permissions are assigned with the ACL (Access Control List) command, which can designate a multiple combination of "users,permissions." For example, our file system has a file with the following pathname (note that the path delimiter is a colon under AOS/VS)

```
:cfs:programs:wyfor:data:fcst3201
```

The ACL on that file specifies the privileges for anybody who might use the system.

```
WSFS.JM,OWARE WSS.32,WARE WSFS.DK,WARE WSS+,WARE +,RE
```

In addition to the three users (WSFS.JM, WSS.32, and WSFS.DK) having full authority, any other user whose username begins

If you need outstanding
enter one of the fol



cant space savings.

Step 2 determines whether this is AOS /VS II by checking to see if :DJ exists in the root directory. If so, the RIB branching factor is set to 124 (AOS/Vs II) instead of 128 (AOS and AOS/Vs). Those of you who selected something other than the default values for the primary and secondary element sizes when using DJ to set up your AOS/Vs II LDUs are on your own.

Steps 3 and 4 set the element size to the smallest worst case value because there's no existing file information to use. A 4 is used instead of 1 as the minimum worst case value because the file might eventually be used for shared page I/O; we have no way to know at this time.

Step 5 takes advantage of the fact that any file used for shared page I/O will, in all likelihood, have a size that is an exact multiple of a page (2,048 bytes). If so, the current value of DEFELEM is rounded up to the next multiple of 4 (in case you used something weird like /DEFELEM=3). The file might also be sparse,

During the debugging, I found it quite handy to have some WRITE statements sprinkled around for tracing purposes

so the element size is computed for a single index level and the "small" file check is skipped.

If we get to Step 6, then we know that the file is not likely to be involved in shared page I/O, so we can check to see if it's a "small" file. If it is, we set the element size to the file size. Otherwise, we set the element size to the minimum that will result in a single index level.

Step 7 enforces any default element size requirements imposed either by Step 5, or by a user supplied /DEFELEM= switch.

:MACRO_TIME

OK, as a last step before we write the macro, let's assign some variables. We'll use VAR0 as the element size, since that's where the result has to end up anyway. For the default element size, we'll use VAR1. Because we'll need the default element size minus one for rounding computations, we'll assign that to VAR2. Finally, we'll assign the RIB branching factor to VAR3 and the RIB branching factor minus one to VAR4. The default value for the default element size and threshold value for "small" files will be hard-coded into the macro.

Also, during the debugging, I found it quite handy to have some WRITE statements sprinkled around for tracing purposes, so I've left the key ones in and added a /V switch to control whether or not they get executed.

The complete macro listing is shown in Figure 1 (page 36). The .DOC file is left as an exercise, or you can obtain a copy from the :SYSMGR BBS (which includes the entire package, with the optional patch



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caches? Luckily, the answer is that it really doesn't matter. The index blocks from all the open single index level files cause some slight cache dilution, but given that most systems have something in the neighborhood of a few hundred different disk files open at any time, all of the single level cache blocks for the open files can fit comfortably into the cache.

Pro: Limiting index levels causes less CPU to be expended searching the cache and doing disk I/O to handle cache misses. True, but the increase in system CPU consumption between zero and one level indices (where there are few misses) is much less than between one and two or three level indices (where there are significantly more misses). My experiments indicate that the net increase in system CPU consumption from zero to one level is less than 2 percent. In other words, it doesn't appear to matter very much to the system and the cache whether a file is contiguous, or a single index level.

Pro: Limiting index levels reduces disk consumption. Maybe. Although there's

At file sizes beyond 16,384 bytes (32 blocks) the savings due to eliminating the index block start at 3 percent and go down rapidly as file size increases

no need to allocate any blocks for index structure, sparse files may actually increase their disk consumption if they are made contiguous. Luckily for us, these two effects work in opposite directions; the smaller the file, the more significant the space savings from not having an index block, and the less significant the danger of un-sparsing the file. An obvious solution is to limit contiguous files to

cases where a) the file is small, and b) the file is less likely to be sparse. At file sizes beyond 16,384 bytes (32 blocks) the savings due to eliminating the index block start at 3 percent and go down rapidly as file size increases.

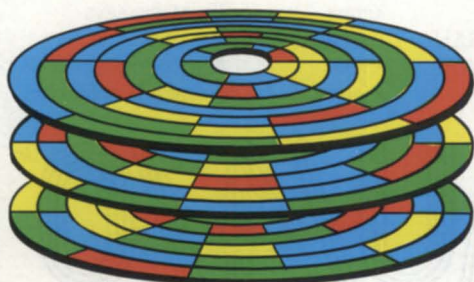
Con: Larger elements are more difficult to find. True, the system will potentially have to search more blocks of bitmap to locate a large element. At disk full percentages above 90 percent, this can be significant unless the drive is read-only (not likely in most cases).

Con: Larger elements cause extra effort to be spent zeroing element residues. True, but this only occurs the first time the element is written, resulting in little consequence for long lifetime files like data bases, but more consequence for short lifetime files like temporary files, and print output files.

Con: Larger elements increase the risk of program aborts. True, but only on very full disks (more than about 90 percent full).

In summary, contiguous files seem to

REORG?



Before reorganization: Directory information, frequent files, and available space are scattered throughout the disk. System performance is poor because of high average seek distance.

With the **DISK.VIEW™** illustration to the right, it's easy to see that the disk and the underlined file have become fragmented. This disk needs the **DISK.PAK™!**

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How big is enough?

SYNOPSIS

Conflicting goals make it difficult to choose the optimal element size. A macro solves the problem.

POSTPONED

I had intended to write a column this month discussing the AOS/V5 II setups for using the new 9600 baud modems that use MNP Class 6 to achieve 19,200 baud over ordinary voice grade lines. Unfortunately, I'm afraid I'm going to have to postpone it for at least a month. The modems are currently working just fine as normal dial-in modems, I just need some extra time to check out the alternate

Figure 1: ELEMENT?.CLI

```
[!EQUAL,%1%,]
TYPE %%\%.DOC
[!ELSE]
VAR1 1
[!INEQUAL,%/D=%,]VAR1 %/D=%[!END]
[!INEQUAL,%/DE=%,]VAR1 %/DE=%[!END]
[!INEQUAL,%/DEF=%,]VAR1 %/DEF=%[!END]
[!INEQUAL,%/DEFA=%,]VAR1 %/DEFA=%[!END]
[!INEQUAL,%/DEFAU=%,]VAR1 %/DEFAU=%[!END]
[!INEQUAL,%/DEFAUL=%,]VAR1 %/DEFAUL=%[!END]
[!INEQUAL,%/DEFAULT=%,]VAR1 %/DEFAULT=%[!END]
VAR2 [!USUB,[!VAR1],1]

VAR3 [!EQUAL,[!PATHNAME :DJ,]128[!ELSE]124[!END]
VAR4 [!USUB,[!VAR3],1]

[!EQUAL,[!PATHNAME %1%,]
[!UEQ,[!SIZE %1%,],[!UMUL,[!UDIV,[!SIZE %1%],2048],2048]]
COMMENT This file is a candidate for shared page I/O: allow
COMMENT a single index level and round the default element
COMMENT size up to the next multiple of 4.
VAR0 [!UDIV,[!UADD,[!VAR0],[!VAR4]],,[!VAR3]]
VAR1 [!UMUL,[!UDIV,[!UADD,[!VAR1],3],4],4]
VAR2 [!USUB,[!VAR1],1] ;
COMMENT Recompute DEFAULT-1
[!INEQUAL,%/V%,]WRITE Potential shared I/O file.[!END]

[!ELSE]
COMMENT Not potentially shareable: check for a "small" file.
[!ULE,[!VAR0],32]
[!INEQUAL,%/V%,]WRITE Small file[!END]
[!ELSE]
COMMENT Not small: allow one index level.
VAR0 [!UDIV,[!UADD,[!VAR0],[!VAR4]],,[!VAR3]]
[!END]

[!END]

COMMENT Make the final element size a multiple of the default element
COMMENT using whatever value the default element eventually became.
VAR0 [!UMUL,[!UDIV,[!UADD,[!VAR0],[!VAR2]],,[!VAR1]],,[!VAR1]]

[!END]

[!END]

[!INEQUAL,%/V%,]
WRITE Recommending an element size of [!VAR0] for %1%
[!END]

[!END]
```

ished? What happens if your business suddenly takes an uncontrolled turn for the worse? One example of this occurred in October 1987. One of our clients, a financial institution, placed an instant moratorium on new projects and re-evaluated all in-progress work when it lost 20 percent of its assets in the stock market crash.

With outside development, you can control your expenses by cutting back when cash gets tight and accelerating projects when you have a bumper crop. Most of our clients have this type of mindset. When business is good, they re-invest their earnings into long-term projects to help their operation. During slow periods, they cut back to maintenance mode, putting new development on hold to prevent an intolerable cash flow situation.

All this is good news for the VAR. As more companies reduce in-house development staff to maintenance levels, VARs will take on a new role as the dominant force in software development. Those

with the best packages will thrive. Those who respond to their clients' desires will thrive. Those who specialize in one industry may be highly profitable, but will have to respond even more quickly to industry trends than their clients. They may have to become trend-setters themselves.

The question of Unix

What of Unix? I have ignored it until now, simply because I do not think it deserves attention as a commercial system at this time. Every feature that Unix boasts, AOS/VS has. So does VMS. So does nearly every other major minicomputer operating system. Most of them are far superior to Unix. So why all the hype?

Unix is still the only widely used multi-user system running on small systems. I'll go out on a limb and say it will continue to grow, but will not replace the more advanced and feature-packed systems for many years. DG has one of the few solid Unix systems on the market, and yet even DG points out that if you

want a truly powerful system, you should stick with AOS/VS.

Unix does have its place. For scientific and engineering applications that consume great amounts of CPU, it is most efficient to use small systems networked together. Unix is not the only solution here, but it is a good one since it tends to be hosted on high-speed microcomputers. VARs in this market should do quite well, if their software is up to it.

One thing is for certain, computer vendors will rely on their VARs even more in the future. Vendors must actively seek and nurture VARs to develop software for their line of products. Δ

Jim Siegman is a contributing editor to Focus, chair of the NADGUG Audit Committee, and treasurer of the Chicago Area Data General Users Group. Send comments or questions to him c/o Datamark Corp., 3700 W. Devon, Suite E, Lincolnwood, IL 60659; 312/673-1700.

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The rise of the VAR

SYNOPSIS

The software revolution has made VARs indispensable to both the hardware vendors and their clients. Present trends indicate continued good fortune for value added resellers who deal in "total solutions."

by Jim Siegman
Contributing editor



(technical expertise) or experience (practical expertise). For the purpose of this discussion, let's assume that the primary added component is a proprietary application software.

In order to understand today's VARs, let us examine how they developed in the first place. Back in the fifties and sixties, when commercial computing was becoming more widespread and less of a novelty, programmers and system experts were in short supply. The field was new and advanced operating systems were still rare. Most companies took receptive employees and taught them to program. This meant learning machine code and, later, Autocoder. Soon, a few simple languages such as Fortran, Basic, and Assembler became widely accepted.

In the world of computers there are VARs (value-added resellers), ISVs (independent software vendors), IRs (independent resellers), OEMs (original equipment manufacturers), and a number of other acronyms that attempt to define the relationship a company has with a computer manufacturer. What distinguishes a VAR from the others is that a VAR purchases a hardware system from a vendor, then adds something extra. This added value can be hardware, software, or information in the form of knowledge

Obviously, it didn't take long for experts to emerge and become consultants, selling their expertise to any and all. Few of them actually owned one of these expensive machines. During the seventies, however, the emergence of minicomputers made it possible for more of these experts to acquire systems and begin working on their pet projects. Operating systems were proprietary, so a given software package normally was only available on one vendor's machine. Thus, to serve their clients, these software developers began to sell "total" solutions.

Data General keeps moving ahead

by Elaine Kingoff

(Editor's note: Data General was the highlighted vendor in a recent Hardware Report Card, a regular feature of VARBusiness magazine. The scores were obtained from a random sampling of 150 Data General VARs who were asked to rate DG in 18 categories on a scale from 1 to 10 (with 1 being the lowest score, 5 average, and 10 best). Focus has obtained permission to print the results here.)

Data General Corp. continues to make strides in its reseller program, as results of its fifth Report Card show. Scores improved in 13 out of 18 categories, including marketing support services and price/performance satisfaction. But Data General's chronic corporate image problems, which have tempered VARs' enthusiasm each year since company's third Report Card, have not yet been resolved.

VARs are impressed with the attention Data General has been paying them. "They've turned the program around 360 degrees," says one satisfied VAR, commending the new resources Data General has given its resellers this past year, such as an expanded product line and support services. VARs say these demonstrate the company's commitment to the channel and its desire to work with them as partners.

Last year, VARs' confidence in Data General was buttressed when Ward MacKenzie became head of the Value-Added Reseller Marketing and Development Group, because of the VAR programs he planned to enact. It may be too soon to tell (the fieldwork for this survey was done in April), but MacKenzie's departure this past spring and the subsequent appointment of Stephen Baxter, formerly of Unisys Corp., as corporate vice president of marketing, seem not to have affected VARs. Data General's 7.13 in commitment this year, improved from last year's 6.94, is its best score in the category yet. "Their VAR attitude is back," says one enthusiastic reseller.

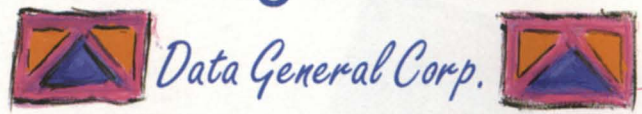
Improved scores in willingness (6.65 from 6.39) and ability (5.92 from 5.76) to address VAR problems further demonstrate VARs' satisfaction with Data General's attentiveness to their concerns.

VARs' confidence in Data General's commitment to them, coupled with joint marketing/sales efforts such as the Cooperative Marketing VAR, convinces them of the vendor's interest in avoiding cross-channel conflict; its score rose to 6.64 from 6.53.

VARs continue to reward Data General for several marketing support programs it introduced last year, including new product evaluation and VAR leasing. Marketing support services (6.20 from 5.77) and charges (6.22 from 5.83) are among Data General's most improved categories in this survey.

Resellers also appreciate the way Data General keeps them up to date on product announcements. A gain of more than half a point in quality of information, to 7.34 from 6.83, attests to this.

VARs' satisfaction with the technical support services improved moderately, to 6.08 from 5.91. Data General's performance may be hindered by the difficulties VARs claim they encounter in receiving accurate and timely assistance, a problem they've brought to Data General's attention in previous surveys



	GRADE
1. Breadth of product line	7.96
2. Quality of products	8.43
3. Availability of products	7.52
4. Price/performance satisfaction	7.55
5. Satisfaction with profit margins	6.45
6. Processes orders promptly	6.73
7. Meets delivery schedules	7.16
8. VAR technical support services	6.08
9. Satisfaction with technical support charges	5.26
10. VAR marketing support services	6.20
11. Satisfaction with marketing support charges	6.22
12. Provision for hardware maintenance	7.75
13. Quality of information provided	7.34
14. Willingness to address VAR problems	6.65
15. Ability to address VAR problems	5.92
16. Commitment to VAR program	7.13
17. Interest in avoiding cross-channel conflict	6.64
18. Overall Impression of vendor	7.29

OVERALL AVERAGE 6.90



COMMENTS

VARs reward DG's increased attentiveness with high marks in marketing support, addressing problems and commitment. But it needs to convince them of its competitive edge in the Unix market.

and which the company seems not to have addressed yet.

Despite Data General's accomplishments, VARs still have misgivings. "We're concerned about its long-term life and viability, one VAR explains, John Dunkle, vice president of WorkGroup Technologies, a market research firm in Hampton, N.H., attributes VARs' uncertainties to their concern with the company's low market profile. "[VARs] are asking themselves, 'Do I want to commit to Data General's platform, even though it is technically superior, if the company doesn't have the reputation?'"

VARs admit technology is not the issue. They give Data General its best scores yet in breadth (7.96 from 7.35) and quality (8.43 from 8.17) of product line.

Resellers also praise the price/performance of Data General's systems (7.55 from 7.22), especially its new RISC-based Aviiion systems.

However, resellers are not as pleased with profit margins (6.45 from 6.55), despite the elimination of the billback program and a restructured discount program. VARs say the discount levels are still low and the policies are confusing.

They're also less satisfied with their ability to buy the systems. Scores in all three distribution related categories fell in this survey: prompt order processing, 6.73 from 6.84; meets delivery

with—the field service contract, the software support stuff—they let the VAR make money in different avenues where they've never made money before. In that area, Data General is very innovative.

Focus: *What are some of those areas?*

McIntosh: For example, my margins per month off software support, Data

General's product, are almost equal to what I make off hardware. We now make money for signing users up on field service. And that's very positive for us and for our users, because we have to learn more about DG's programs. That would be one reason I think VARs will stay very attached to Data General, and the other is price/performance. Data General has always been known to produce hot boxes

for good prices.

Focus: *Known among the computer community, that is.*

McIntosh: That's right. And what Angelo's saying is that we're going to do an advertising campaign that will make us well known to the users. Δ

A marriage made in Westboro

by Robin Perry
Focus staff

In marital terms, you could say that they've survived the seven-year itch.

Neil Schneider, vice president of sales for Information Access, Inc., describes his company's relationship with Data General as a good marriage, but "one that's not rose-colored. Occasionally we do have fights, but it's to make the other person better. It's really part of a good, strong relationship."

A Data General VAR since 1978, IAI has been witness to Data General's up and down relationship with its VARs. And like a good spouse, he doesn't place all the blame on one side. "They (DG) stepped on a lot of toes, but vice versa too. There were a lot of VARs—not us in particular—who offended DG. They had DG do a lot for them and then they went to other platforms. So there was some antagonism with all VARs and DG throughout the course of the eighties. But today I think that DG realizes that over half of their business comes from the VAR environment, and they intend to take care of that."

As a result, the two companies share the responsibility of prospecting for customers, even to the point where IAI and DG salespeople will make sales calls together, presenting themselves as a "seamless team."

Not surprisingly, other vendors have courted IAI, its line of data communications and business applications, and its sales of approximately \$8 million a year. "The reason that we turned them down was that we felt that DG had basically lived up to their promises with us. Certainly nobody else could offer us something so dramatically different that it would make sense for us to convert," Schneider said. Δ

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have a feeling that he really understands what you're saying and that he's going to do something about it.

It's very apparent that Data General didn't hire Angelo to leave things the way they are. And it's very apparent that Angelo believes the salesmen have to get out and bring in new business. A lot of the dilemma of Data General is that they do an extremely good job of maintaining

their base—and I think VARS do too—but it's that new business that Data General in the past has not brought in.

Focus: *Have you seen Data General's new advertisements in the Wall Street Journal and other publications? What do you think about them?*

McIntosh: They seem to be very crea-

tive. I think the best reaction that we've had is that it's the first time we've seen DG really advertise.

Focus: *It's been said that the nineties are going to be the "Age of the VAR." Do you agree or disagree with that statement?*

McIntosh: In a way I agree and in a way I disagree. I think that the good VARS—the VARS that are very business-oriented—are going to benefit in the nineties. The VARS who are weaker—the ones who are relying heavily on profit margins in hardware, versus the VARS whose margins are in their software and services—are going to really struggle. I think the VARS who have a lot of services and who have a lot of other avenues for revenue are going to benefit.

The bottom line is that the hardware is coming down and down in price, to the point that most VARS' margins are going to be extremely affected over the next few years.

Focus: *Are other vendors actively courting DG VARS?*

McIntosh: Yes. It's very active right now because of the Unix push. I think vendors as a whole realize that once the VAR gets to Unix, it's easier to get him on their platform, because he's no longer tied to a proprietary operating system.

Focus: *Are the VARS staying with DG? Why?*

McIntosh: I think they'll stay. I think you're going to see more and more VARS carrying multiple hardware platforms. The VARS will say, "My software runs on several different boxes, so I'll make it available on several different boxes." I don't think it's going to be a case where they say, "I'm no longer going to sell DG. I'm going to sell IBM."

Focus: *What does DG have to do to stand out from the group?*

McIntosh: They have to continue their additional programs. One common question asked by the VARS was "With our hardware margins eroding, what is Data General going to do to help us make money in different areas?" If you look at all the programs they're coming out

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Leaps and bounds

SYNOPSIS

Aviion Unix products and a new attitude have helped DG make great strides in its VAR relationships. Yet some questions remain concerning other elements of Data General's corporate strategy.

Roughly half of Data General's income derives from its value-added reseller program. This forces the company to perform a complicated balancing act between resellers and end-users. At times, it seems that no matter what Data General does, at least half of its customers aren't going to like it.

From the perspective of the value-added reseller, Data General has been doing a better job in the past few years of maintaining its balance. There are many indications that VARs are pleased with Data General's performance. According to Tyce McIntosh, president of Data General's VAR Council and president of Compusystems, Inc., the two areas that caused particular excitement at the September meeting of the VAR council were Aviion Unix products and new management directions at Data General.

According to McIntosh, the VAR council meets with Data General management two times a year to follow up on problems addressed at previous meetings, and to "shoot holes in" Data General's new programs. In the following interview, McIntosh gives highlights from the meeting, and shares his thoughts on the future of Data General and its VAR program.

Focus: *What were some of the issues that*

were discussed at the VAR council meeting?

McIntosh: The main focus of the meeting was the migration in Aviion—the Unix push. If you look at the agenda as a whole, the primary emphasis was "What is Data General's direction related to Unix and Aviion, and what tools are going to be available to the VARs to migrate to it?"

Focus: *What was the general reaction from the VARs?*

McIntosh: Very, very pleased. The bottom line is, with very few exceptions, most of the migration tools for Business Basic and ICobol are being provided by Data General to its VARs to make that migration very easy.

Focus: *Are you satisfied with the amount of software available on the Aviion system?*

McIntosh: Yes. As a matter of fact, I was surprised by the number of third-party software firms that are . . . guaranteeing that their software will be available.

Focus: *What kinds of questions do VAR customers have about Unix?*

McIntosh: It varies depending on the VAR, because you really have two types of end-users. You have technical end-users, who really know Unix, and are wanting the details. And then you have the non-technical end-user saying "What's Unix?" and "What does it mean to me?"

Focus: *Are VARs actively pushing Unix for all end-users?*

McIntosh: Not at this point. Very few are, because really the product as a whole is not available to the VARs because we're waiting for the conversion tools. Right now you can get Unix and you can get Aviion products, but most of the VARs

are in either Business Basic or ICobol, and until they get their applications, what are they going to offer?

Focus: *What were some of the other issues that you discussed?*

McIntosh: We had some major issues related to the software services side of Data General.

Focus: *Were you able to talk directly to Data General executives and were you satisfied with the answers you received?*

McIntosh: Very much so. The major areas we discussed were software services, field services (hardware), and custom administration. Most of them were action items that had been brought up from previous meetings.

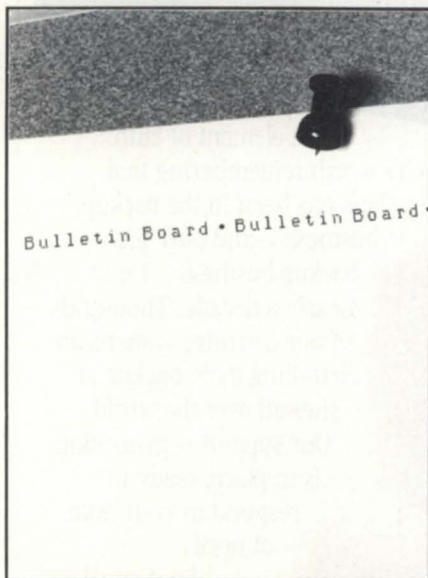
Focus: *Do you feel that this responsiveness is a new attitude for DG?*

McIntosh: Not really. I would say from the VAR council's perspective that for the last year and a half we've had real good response at councils.

There was kind of an undertone to the meeting. We've got a lot of top new management in Data General and there was a little bit of "Now you've been in place for a while, tell us what you're going to do. Let's get to know who these new top management people are."

One thing I'd add to that is, if you look at Data General as a whole over the past few years, most VARs will tell you that from a VAR program point of view, DG has made leaps and bounds. But then on the other side you ask, "What else has happened? Has Data General gotten to be that much of a better company?" And I think one thing that the VARs are excited about right now is [the attitude of] Angelo Guadagno (vice president of sales, North America). He is saying 1) Data General's visibility will increase, and 2) the sales organization will get back to selling. When you leave the meetings you

Bits and bytes from the bulletin board



Fickle compilers

From: Doug Rady

Okay, I give up. Does anyone know what changed in the PL/I compiler 2.5<0,1> generated code and/or runtimes? I've got a ring 5 library that works fine with PL/I 2.41, but when I recompile and link with PL/I 2.5<0,1>, weird stuff happens. For starters, I can't get PL/I to use the searchlist to open files. Secondly, when given an explicit pathname, it thinks it opened the file until I try to read . . . thence it pukes, claiming the file is not opened. My management won't buy support, and RTP won't touch it without support. Neither does RTP say anything about changes in the compiler /runtimes that might have started this. Anyone out there in the land of "A Generation Ahead" have any ideas?

From: Michael Meissner

The main change to 2.50 of PL/I was that the optimizer was completely rewrit-

ten, as was the codegen to a lesser degree.

Getting the fax straight

From: Andries Holtzhausen

About a year ago, a salesman told me that DG is working on a subsystem which would take CEO documents, convert them and allow one, with the help of a modem, to send these to another guy's fax line. Since then, the salesman has left and his successor pleads total innocence and complete ignorance. Since technologically your country is well ahead of ours, has such a system been mentioned out there yet? I am not sure whether this was going to be something new, or just another version of Document Exchange.

From: Michael Travis

We send faxes from CEO, but it's done indirectly, like so: CEO → X.400 → Telemail → fax. Works fine for short messages, VS text files, or CEO documents. No graphics yet, though, and it's one way.

From: Kevin Danzig

I just read about what you are talking about. Concept Automation markets it.

Trouble with emacs

From: Brian Dore'

We just hooked up four developers on PCs to our MV using a RS-422 com board. We are using several terminal emulators (Popterm/Pereline) and have trouble when using emacs. (CTRL-S suspends output until a CTRL-Q is entered). This is a nuisance for saving. Does anyone have a way to get around this?

From: Kevin Danzig

You should reset characteristics to turn off flow control (OFF/IFC/OFC).

If you have nothing else to do

From: Margrit Eade

First a disclaimer: this topic is only of academic interest to me, since we are not

suffering from disk performance problems, and I do not consider disk fragmentation a serious problem. However, trying to determine whether it *could* be a problem has led me into a twisty maze of little passages, all alike.

A rebuilt disk can refragment, and the performance benefits are quickly lost. This made me wonder, how quickly does the performance gain go away? I selected several disks (DG DPJ-type) that were from 50 percent to 75 percent full and that contained exclusively CEO files. After a DUMP/WIPE/RELOAD, the AVG SEEK (as shown by Disco) improved dramatically when taken after a full backup, and *not at all* during the regular online day. (Avg Service Time improved slightly during full backup, and not at all during the user's online time). So, I was not able to show *any* performance improvement during the online day.

Does this mean that the disks were not at all fragmented, or is Avg Seek not worth looking at? I would welcome comments on the statement "DUMP/WIPE/RELOAD your disk and you will see an improvement in performance." How do you measure that performance—with Disco, or with some other method that applies to the regular online hours? (I do not care about improved performance during backups.)

From: Mark Weber

Margrit, the opinions on this are as diverse as the DG environments of the opinionated, and that is my point. The fragmentation may or may not be a problem, may or may not noticeably improve performance, depending on the environment.

In my case, for example, it's a case of do or die. I have mostly very large element size, very large Infos files mixed with small CEO files. The Infos files are growing steadily but are not as dynamic as the CEO files. If the disk becomes too

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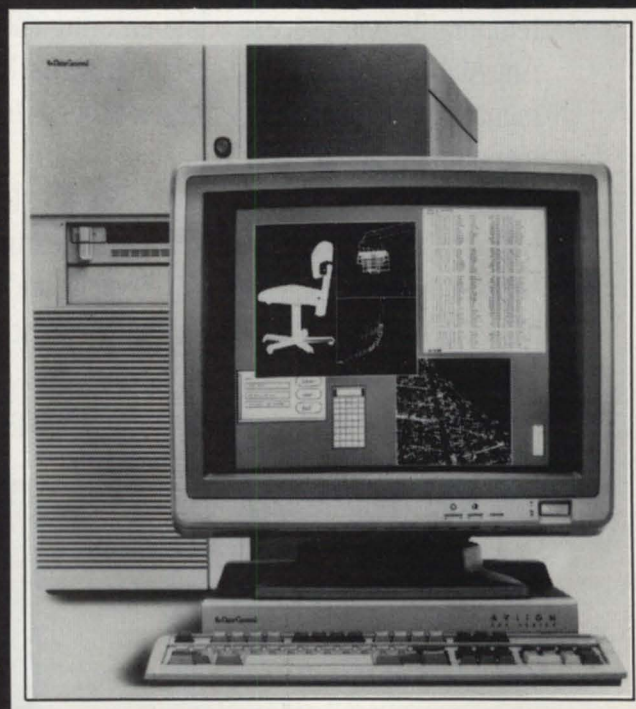
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include postage, copies, preparation, printing, or stuffing. In return, the company would get an acknowledgement or an advertisement in the newsletter.

If your group decides to send only a meeting announcement, it can be as easy as reporting the day, place, and time of the next meeting. You can get more detailed and include a full description of the program or even attach a menu or

map, if appropriate.

Having new faces at meetings should be one of your biggest goals. Once people have expressed interest enough to attend, do your best to get them involved in the group. Try to get them on a committee or to help with a program. Make a special effort to call and invite them to the next meeting. Not only are new members important to the growth and survival of

an organization, but they can provide fresh ideas and different viewpoints. New members join the group and bring with them enthusiasm, different backgrounds, and individual experiences.

Remember to encourage members to bring as many guests as possible and to spread the word about the group and its meetings. Keep in close contact with your DG representative to keep abreast of new installations in the area. Have your group mentioned in *Focus*, where all members of NADGUG will read about it.

Getting any type of organization together and keeping it working requires cooperation. Within regional and special interest groups, there must be cooperation between the organizers/officers, members, NADGUG, and Data General representatives.

Although interest groups are independent and usually self-sufficient, NADGUG is always willing to help with special needs. This help can come through the RIG/SIG coordinator, RIG/SIG Committee, the Executive Committee, the NADGUG staff, and established interest groups.

Data General offices have been instructed to cooperate with RIGs and SIGs. The amount of cooperation may vary from branch to branch. Members usually enjoy having Data General people in attendance. In some cases, this is the only way customers have to get to know their sales representatives. Users also like getting information on new product announcements or any changes directly from Data General, instead of from the gossip mill.

Making members and guests feel welcome and wanted should be a high priority. Friendliness will help people enjoy a meeting and make them want to return another time. To help achieve a friendly atmosphere at meetings, have greeters who hand out name tags and introduce new attendees to the group. Allow plenty of time for mingling. Have time set aside to have members tell about themselves, their installations, and what they hope to gain from the group. Social functions also help to get members acquainted with each other and have fun.

I hope these suggestions give you some ideas on how to keep a group active and useful after the initial start-up phases. If there are any methods that your group has used that have been successful, or you would like to discuss your groups' specific needs, please call me at 1-800/877-4787.



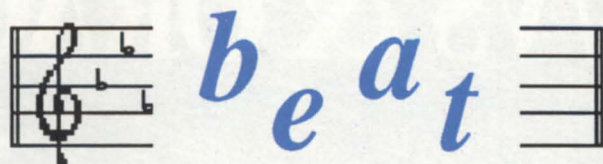
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Staying alive

A survival kit for RIGs and SIGs

Getting a user group started takes hard work, commitment, and desire. Keeping a group active and thriving takes all that, plus imagination and lots of help.

The **RIG/SIG Committee** provides a start-up kit to persons interested in starting a new interest group. You may consider this month's column an "after start-up kit." It contains some hints and suggestions on keeping a group alive and active. It is very important to remember that every group has different needs based on its location, number of members, and whether it was formed around a special interest.

Several organizers can better plan for a group's development than one individual. Our most successful groups have started out with a combination of key users and Data General employees. This mix of users and local Data General personnel seems to be the best formula for keeping a group functioning as a useful entity.

Planning ahead is essential. Mailings and meetings planned far in advance are usually the most successful. It is suggested that the board (officers or committee chairs) meet regularly to prepare and execute meeting plans. The ideal is to plan an entire year in advance, assign committees, and publish a calendar of events.

You will need one person to maintain the group's mailing lists. It is suggested that a group have two mailing lists, one of current members, and one of additional users to contact for promotional/informational purposes.

Finding ways to increase membership can be a brain teaser. The quality of your programs is definitely a factor. Membership contests work for some groups.

Members should always be encouraged to bring guests. Have your Data General representative inform you of new installations in your area, and of names not currently known to the group.

Some groups have found it helpful to charge dues, especially if meetings and mail-outs are not sponsored. Collecting dues can be a hard job. These hints may prove helpful:

- Make memberships renewable at a given time of the year. Prorate dues if a member joins in mid-year.
- Send statements—some companies will pay only if you send a statement.
- Have the treasurer and membership chairperson at the door to take renewals at the first meeting following the renewal date.
- Give a 60- to 90-day leeway, then send a final statement.

Many people like to see tangible rewards for being dues-paying members. Use of membership cards, buttons, and name tags may be helpful. If available, provide each new member with a membership roster.

You will find that you have better overall attendance if members know of meeting dates far in advance. Try to hold meetings consistently, on the same day of the week and the same week of the month, if possible. When making these decisions, keep in mind the unique qualities of your group. Some groups cover large geographic areas and others are very localized. Most groups will be a combination of the two. The distance people have to travel should have an affect on the frequency and location of the meeting. If your group covers a large geographic area,

you may need to have quarterly meetings. You will find that if you commit to specific times (second Monday of each month, for example), you will tend to do a better job of meeting that commitment.

While some groups have an established location for their monthly meetings, others rotate to give members in different areas equal chances to have the meeting close to home. Some suggestions for meeting places are members' work facilities, hotel meeting rooms, restaurants, or any community meeting room.

Meeting times also depend on the size of the group and the ease in which members can travel to the meeting. Dinner meetings work well as do afternoon workshops. Lunch meetings and breakfast meetings are sometimes good for groups whose members are in close proximity to each other, whereas weekend meetings tend to work best for groups that have members spread out geographically.

The actual structure of an interest group is strictly up to the organization and its bylaws. In addition to officers, you will need other members to do designated jobs. Whether these people are vice presidents, chairpersons, or members of a board of directors, you should have as many people as possible assigned to some type of duty.

Try to get new members involved. Some of the duties that may be assigned could be making arrangements for meeting rooms and meals, making name tags, being greeters, publishing a newsletter, handling mailings, and calling to remind members of meeting times. When members have a responsibility to a group, they tend to feel more involved and enjoy the group more.

It is good to structure your officers so



Pyramid power

At my first Executive Board Meeting five years ago, it never occurred to me that I might be writing this column now. In fact, this column was still just in someone's imagination, because *Focus* magazine was just starting up as our user group magazine.

A lot has changed in NADGUG since I attended that first meeting as a representative of the Houston Area Data General Users Group (HADGUG). By any measure, this group of people who make up NADGUG have succeeded in their goal of advancing individual knowledge and use of Data General computers, operating systems, and languages. I used the phrase "by any measure." Let's look at some of those measures.

Because of our continued growth and plans for the future, in 1988 we became the North American Data General Users Group, Inc., a Delaware corporation. This required a revision of the By Laws and Articles of Incorporation. For the first time, we retained legal counsel and accountants to advise the group. These changes were necessary because of the involvement of regional interest groups, special interest groups, and various committees of NADGUG without which we would not have the kind of input and support we need for programs that make a group like ours a vital and continuing benefit for those who participate. New RIGs and SIGs continue to form and participate as our industry and Data

General's products revolutionize our way of working and, in fact, our way of living.

In the past year, NADGUG established its own staff functions (beyond the support provided by Data General) for the purpose of building an administrative and accounting platform from which to expand our offerings and support for members. As members of a growing population of computer users who want and need advanced information and training, we believe that participation in the North American Data General Users Group is the way to ensure our own future and the future of the companies for which we work.

You've heard it said that the future is now. In our industry, sometimes we discover that the future was yesterday. Just to keep up with where the future is, we need to work together (and sometimes have fun together), so that we can broaden our base of support for our future, whatever it holds. As Don Clark said last month, the support we're seeing from Data General at this time is phenomenal. Support (are you tired of that word yet?), however, is not a one way street. In this case, support is a pyramid. It consists of Data General supporting the users, the users supporting each other, and the users supporting Data General. I won't make this any longer. You all know the strength, durability, and longevity of pyramids. Won't you join together with NADGUG to strengthen the pyramid? Δ

EDITOR'S NOTE

Conference '89—it was a very good year

Included in every Conference '89 attendee's registration kit was an ordinary looking pamphlet. Looks can be deceiving.

This remarkable pamphlet prepared by Data General listed the top issues raised by NADGUG members who participated in the annual member survey, and Data General's responses to those issues. It was the latest example of Data General's new openness with users. The contents of the

pamphlet are reproduced in whole, starting on page 46.

That's just the beginning of our conference coverage. Scattered throughout the magazine are photos, excerpts, and product announcements. So if you weren't able to attend, you can still get the benefit of information that was imparted. And if you were in New Orleans the week of September 16, well, you just might see yourself!—R.P. Δ

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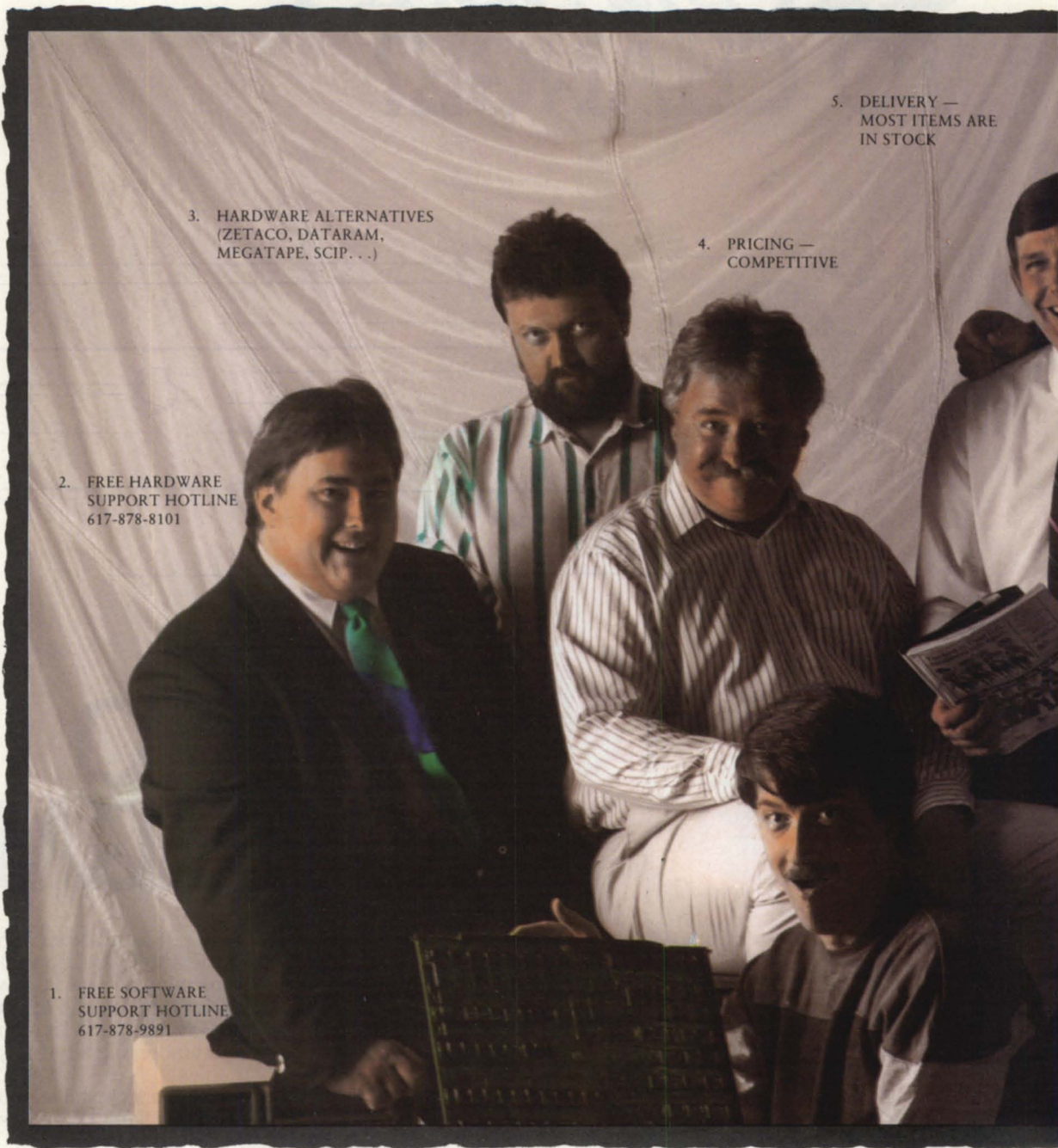
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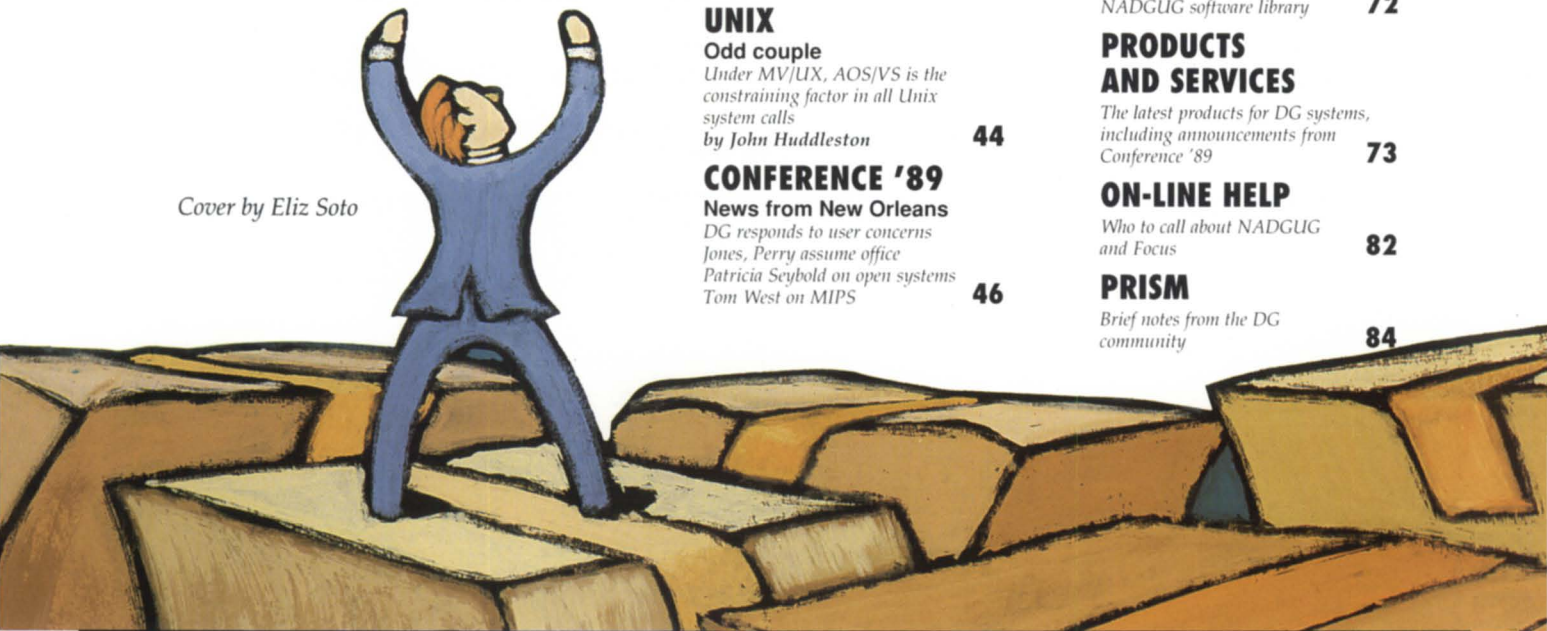
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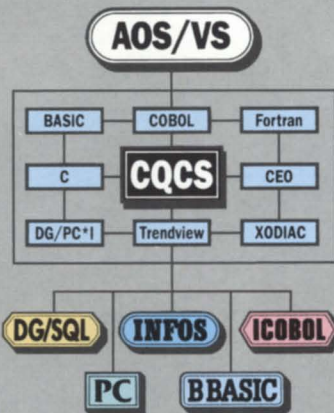
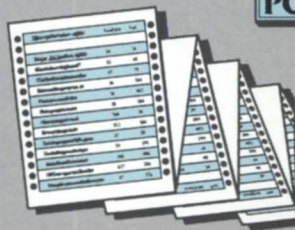
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