

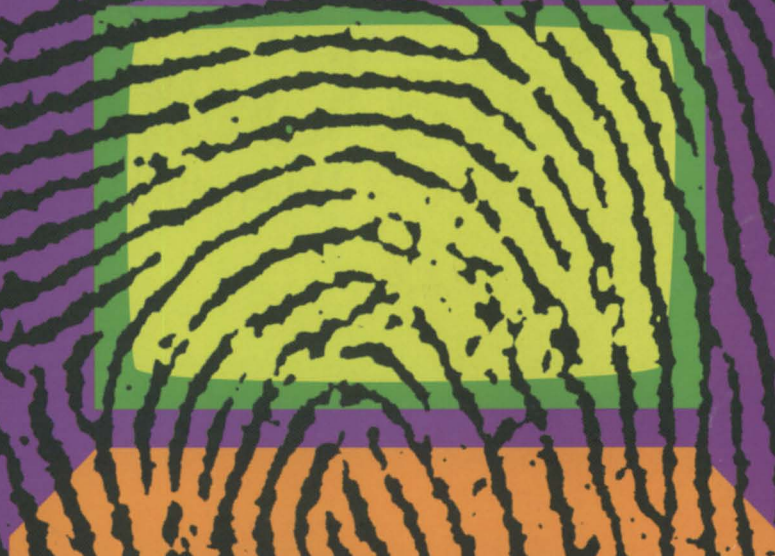
June 1993

FOCUS

The Magazine of the North American Data General Users Group

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In Focus

Evolution of the system manager
Adventures in PC Land

Plus

:WFMOVE continued
Modular programming: A case study
NADGUG news

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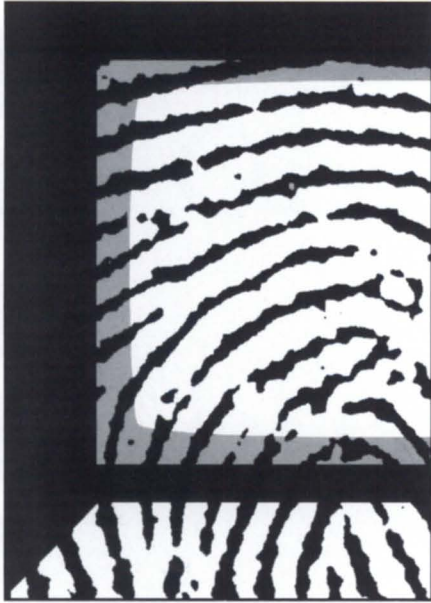
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The Magazine of the North American Data General Users Group



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Dennis Doyle

Black ink again!

We are almost at the end of the NADGUG fiscal year, and the financials will be done in black ink again!

Many thanks to all of our members; to Data General Corporation; to our association management firm, Danieli & O'Keefe Associates; to the staff at *Focus*, to the annual conference organizers, and to the many companies that support their employees who are active within our vital group. The continued understanding of the importance of an active user community by the business world is the key to our growth.

The purchasers of Data General products have a golden opportunity through the user group to greatly influence the evolution of those products. We continue to solicit, advise, and work with the various development teams that are shaping future releases of existing and new products.

With the new financial year looming (it begins July 1, 1993), our budget process is close to being done. At the spring board meeting held April 17 in Atlanta, the board of governors reviewed and modified proposed budgets for membership and corporate activity. The NADGUG 93 conference numbers are still being crunched, and will be ready soon for folding into our overall budget document.

The fourth component of NADGUG's budget is our monthly magazine, *Focus*, which will continue to run at a break-even, pay-for-itself basis. The 1993-94 budget will have taken final form in late May.

Other spring meeting highlights

Discussions were held on how to increase the participation opportunities for members on the board of governors. Watch for future articles in *Focus* that will detail the specifics. The board of directors will be bringing bylaw changes to our membership that will implement these new directions.

Special Interest Group (SIG) affiliations will be added to the membership form, reflecting their growing importance for both NADGUG and DG. The SIGs are continuing to help shape product development through the ongoing STR (software trouble report) rating project.

My congratulations to both the UK and Australian user groups for hosting successful conferences in March this year. I was able to get away for my second UK meeting and found it once again to be a productive one. As a keynote speaker, DG's CEO, Ron Skates, spoke to the direction of DG in the world marketplace. He strongly restated the continuing development effort in the MV area, as well as the terrific sales growth in the Avion line.

The nonbusiness highlight of the UK sessions (as promised, no names, Hugh) was an unusual fund-raising effort for an orphanage in Romania, which one of the officers of the user group undertook. In exchange for pledges of pounds and dollars, it was agreed that he would wear his kilt to the conference's formal dinner. DG also committed to double the amount collected, which pushed the one-day total collected into four figures.

Congratulations to Thomas Bounds on becoming NADGUG's recording secretary. He is taking the place of Bart Bates, who had to resign for business reasons. You can reach Thomas at McCarty Farms in Magee, Mississippi.

I look forward to seeing you all in Atlanta this October! △

Dennis Doyle is NADGUG Past President.

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Sweating the details

SYNOPSIS

NADGUG's board of governors consists of a dedicated core group of professionals who are willing to put the time and energy into making the user group successful.

by Doug Johnson
Focus staff

Judge: I hereby sentence you to sit through ... A BOARD MEETING!

Defendant: Noooooooooooo! Please, not that!

That's a bit on the melodramatic side, but sitting through a board meeting—*any* board meeting—can at times be very like watching the grass grow. Even the participants themselves would agree that lengthy sessions spent discussing budgets and membership and bylaws and schedules and strategies represents *not* the most exciting way to spend an otherwise sunny spring Saturday. But *somebody* has to sweat the details. In the North American Data General Users Group that task falls to the Board of Governors. About six months ahead of the annual fall conference they meet in the host city to inspect the convention facilities and hash out the particulars that, if they do

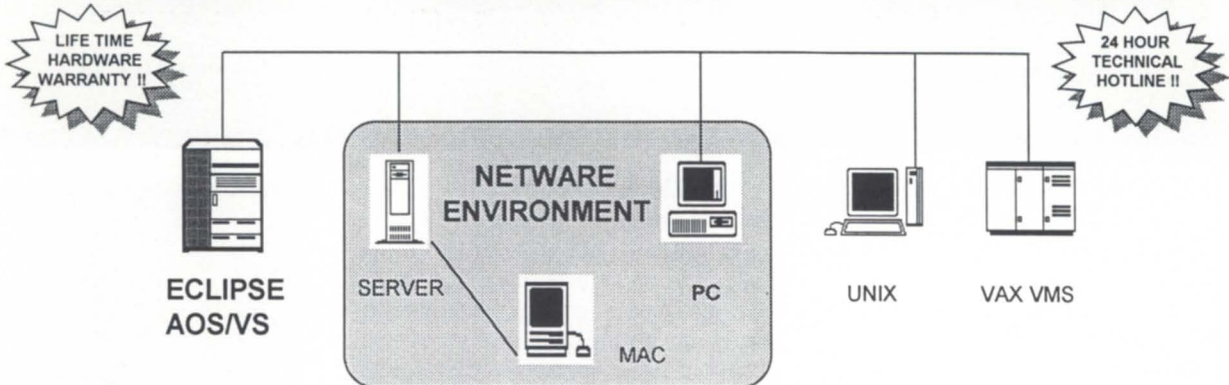
their job well, will be mostly invisible to you the conference-goers.

For this year's Board of Governors gathering in Atlanta the weekend of April 17 last, the players could be found arranged around a set of conference tables deep in the bowels of the downtown Hyatt. It was a long meeting, no doubt about it, and this Saturday general session was in addition to the many individual committee meetings held Friday night, and also in addition to the Friday-afternoon tour of the Data General Customer Support Center in Norcross.

What makes them do it? Why do they invest the effort?

In every organization there are people who end up running things. Power-hungry totalitarians aside, in most cases they're the dedicated types who realize that some tasks aren't necessarily fun, but they must be done if the organization is to succeed. Some of these people are sticklers for parliamentary procedure, and you need them to

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keep meetings focused on doing things properly. Others possess a knack for financial analysis and budget design. Still others show talent for planning and strategic vision. Some are more technical in experience; others are more managerial. Look around this year's meeting table and consider the variety of regions and professions represented. Just a list of home states for this group would include:

Minnesota—President Jan Grossman, Publications Chair Maggie Morris, and SIG/UX rep David Novy; **Ohio**—Vice President Tim Boyer; **Massachusetts**—By-Laws Chair Brad Friedlander, SIG Vice Chair Ed Lindberg, and where membership services company Danieli & O'Keefe Associates is located; **Mississippi**—Recording Secretary Thomas Bounds; **Rhode Island**—Membership Chair Frank Perry; **Texas**—PERFSIG rep Ron Branom, and also where *Focus* is published; **Alabama**—Audit Chair Calvin Durden; **Illinois**—RIG Vice Chair Chuck Goes; **Nebraska**—



(From left) Brad Friedlander, Thomas Bounds, Steve Pounds, Tim Boyer, Jan Grossman

RIG/SIG Chair Al Devitt; **North Carolina**—Treasurer Steve Pounds; **Wisconsin**—OASIS rep Linda Klatt; and I probably left somebody out. Sorry.

Point is, there isn't a specific kind of person NADGUG needs on its board of governors. NADGUG need *all* kinds.

You read all the time about rapid, cutthroat change in the computer industry. It's happened at Data General in the form of recent downsizings and reconfigurations. In 1992, upward-climbing Aviiion sales overtook MV sales for the first time. Data General's

customer base is evolving, and the same holds true for NADGUG, its membership, and for *Focus*.

At the risk of sounding melodramatic again, perhaps more now than at any other time in its history NADGUG needs input and participation from members. *Who are the Data General users, and what do they want from a user group?* is a good question to ask, but answering it involves lots of work. That will be NADGUG's task as it observes its 20th anniversary this year and heads into the future. △



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News and notes from the greater DG community

News Briefs

► Some familiar faces to the Data General user community are behind the new company, **Monarch Software, Inc.**, that opened offices in Raleigh, North Carolina.

Monarch President **Tom Duell** is the founder and immediate past president of **Eagle Software, Inc.** Mr. Duell has more than 18 years of experience in the industry, with a broad knowledge of the MV line. **Bill Cole**, vice president of development, has more than 15 years with Data General and extensive knowledge of INFOS II and CEO. **Mary Nell Duell** is vice president of marketing, coming to Monarch with several years of experience in the marketing and sales of utility software products for the Data General marketplace.

Appropriately, Monarch, Inc. will specialize in providing application migration solutions for Eclipse MV users moving to Unix-based Aviiion systems. Its line of software products will focus on office automation and application migration for INFOS-based applications.

► Data General will continue its strategic relationship with **Next Computer, Inc.**, despite Next's decision to cease making workstations that could network with Aviiion servers. DG is working with Next to make Nextstep for Intel processors available on DG's Dasher II 486 personal computers. Nextstep for Intel processors is an object-oriented client/server application development tool.

► Sources at Data General confirm that the company is planning to launch a new division to design and install networks of PCs and other computers. The size and scope of this division have not been announced.

In General is compiled by Robin Perry. If you have an item for In General, please send it to Robin, c/o Focus magazine, P.O. Box 200549, Austin, TX 78720; 512/335-2286; Fax: 512/335-3083.

ADGUG hosts first conference

by Alan Frazer
ADGUG President

Monday 22 March 1993—The Novotel Hotel at Darling Harbour saw a large number of Data General users gather for the first Australian Data General Users Group Conference.

Exhibitors, speakers, and attendees began arriving in Sydney on Sunday morning to erect stands, prepare demonstrations, practice presentations, or generally get in the mood for the conference.

Obviously one of those early arrivers was the (in)famous Brian Johnson, or "BJ" as most people know him from :SYSMGR in San Francisco. Others included Yves Amaizo from SYSINFO in France, along with others from New Zealand, New Guinea, and most states within Australia.

On the day after, Alan Frazer, President of the Users Group, gave the opening address. Mr. Frazer introduced Steve Baxter, vice president of Asia Pacific Data General Corporation, as the keynote speaker. Mr. Baxter's presentation included a demonstration of the new Clariion disk arrays.

Other presenters included:

Brian Johnson, on system performance; Sue Ascott (DG) on "Office System Directions"; David Hunt (Wordperfect Corporation) on "The Future of Wordperfect and DG"; Phil Young (DG) on "Capacity Planning for VS and Unix"; Colin Kempter (DG) on "Open Systems—Users Interviewed"; Shane Hancock (Orbital Engine Company in WA) on interoperability between MVs, AVs, HPs, and PCs, as well as other appropriate topics, finishing off with a panel session with senior DG executives.

In the adjacent conference rooms, Data General and third-party hardware and software suppliers manned their exhibit stands, showing the latest offerings in printers, disks, tapes,



memory, automatic fax sending utilities, performance enhancement products, and fourth-generation languages (4GLs). Exhibitors included Data General (of course), Exabyte Solutions, ADB Computer Systems, Eagle Software, Frazer & Associates, Field Engineering Services, Cyberscience, and more.

The exhibit area was open from 10 a.m. to 7:30 p.m., at which time the day's proceedings concluded with a cocktail party on the banquet terrace overlooking Sydney Harbour.

In conjunction with ADB Computer Systems, the Australian DG Users Group arranged an AOS/VS performance seminar with Brian Johnson for the following three days. Those attendees from around Australia, New Zealand, and Papua New Guinea found the course to be most beneficial, with BJ discussing particular site problems with each attendee.

In all, the week was a tremendous success, and I urge you to stay tuned for information regarding the next conference, which certainly will prove to be bigger and better than our first.

Should you require further information regarding the Australian Data General Users Group and how it can help you, please contact your local DG office or Alan Frazer on (02) 799-9322. Δ

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The evolution of the system manager

SYNOPSIS

Constant change, both in technology and in the needs of users, now demand a new level of flexibility from system managers.

by R. King Ables
Special to Focus

In the days of mainframe computers the system management problem was fairly well defined. Most sites had one, or possibly a few, large mainframe computers. All hardware resided in one central location, probably a large computer room. The computing environment was shared among all users. Everyone submitted jobs to or logged in on the same machine. When system managers (usually the operations staff with help from field engineers from the vendor company) upgraded or installed new hardware or software on the mainframe computer, all users reaped the benefits of the new functionality.

These computing environments were self-contained in that rarely were there network connections allowing data into the environment. Most new data that came into the environment did so via tapes or cards from other sites. Often data came on printed paper and were transcribed by keypunch operators onto cards that could be read by the computer.

The users in these sorts of computing environments were usually technical people. A member of the programming staff would write local applications and produce reports of needed data for other nontechnical people in the organization. These people depended on programmers to provide them with the information they needed from the computer. It was a "magic" that most people felt unworthy of performing for themselves. The programming staff was really the user community, supported by the operations staff who took care of the equipment and kept it running properly.

No longer in one place

Fast-forward to the present. Now it's the age of distributed computing. Sites don't own just one computer, they own dozens, hundreds, or even thousands. From laptops to PCs, to desktop workstations, all the way up to minicomputers (and yes, still a mainframe or two) in the computer room.

No longer are all the computers in one place. Instead, they may be spread all over a building or all over the country. Anywhere a component of the organization exists, a computer of some kind probably sits on a desk. Smaller computers are the ones that are easiest to move around. In many cases, the power sitting on a desk or



in your lap may outperform what used to take up half of the computer room. Computing power can go wherever it's needed, and users may customize environments to allow them to be most productive.

In order for this distribution still to make up a coherent whole, most of these computers are networked together. Networking capabilities have exploded, beginning with simple data transfer over already existing telephone lines and leading up to multiple-gigabyte data transfers over digital satellite links to the other side of the world. Today it is rare for a site *not* to be connected to some kind of network, either full-time or at least for on-demand data transfers. Often a site will have multiple connections to networks. A recent space shuttle mission was even able to receive electronic mail.

In the few cases where printed matter is the only source, optical scanners have replaced keypunch operators. Scanners are more accurate and can

process several orders of magnitude more data than a human is capable of transcribing. The amount of data accessible by the user of a modern computer is many hundreds of times what it was just a few short years ago.

Today's user community is no longer made up of only technically trained people. (Even my own mother owns a computer!) The modern user community ranges from folks who need only to print a financial report for their meeting, all the way to one of the original designers of the machine who is using it to design the next generation model.

In a large organization there probably still is a "core" area of the computing environment that is maintained by the operations staff and the programming staff. The network itself has become one of the resources of the computing environment. A network outage is at least as significant as computer downtime. If the network isn't working, your computer isn't communicating

with any other computers. The physical computing environment and the user community has spread itself out across the building, or maybe even the world.

Staff evolution

These changes in computing have forced an evolution of the staff supporting the users. Sites where people have tried to maintain the "old" mentality of support have been abandoned by individuals who have found they no longer depend on "the computer center" for all their computing needs. In many cases this has led to disorganized and anarchistic computing environments. In order to provide a coherent and cooperative computing environment, all these changing needs must be addressed with thought given to how they fit into the whole.

The move from centralized computing to distributed computing brings several challenges for system managers. No longer are computer functions shared—now they are *duplicated*. Rather than all

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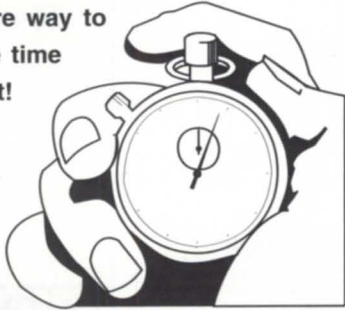
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How to adapt to change

So how does a system manager adapt to all these changes? One of the best ways is to use this tool you provide to everyone else to help you do some of your work, too. *Automate any of the tasks you do on a regular basis.* In a distributed Unix environment, this might be things such as backups (now there are even jukebox tape drives that will load the tape for you!), security monitoring, and resource capacity monitoring. You probably already run commands to check for network outages, full file systems, old or large data files, log files that are getting large, etc. Don't run these by hand. Collect these programs and scripts you run on a regular basis and set them up to run automatically on a regular schedule.

Use your network to allow users to share resources rather than having to duplicate them for everyone. Many users can use a printer attached to the network rather than having to have their own sitting on their desk. Not only does this cut down on the work required to support the printers, it cuts down on the capital expense to buy multiple printers.

Share disk space wherever possible. Everyone doesn't need their own copy of the text-processing system used by everyone in the company. They can access it over the network from a fileserver. In a large environment there are issues concerning how many users can be served by a single machine before service degrades. In these cases it becomes necessary to maintain multiple copies of files on different file servers, and split the users among them. Even so, having several servers is an improvement over having all users store their own copies of a large application on their local disks. Not only that, but installing upgrades to four or five copies of an application is much easier than to hundreds. Δ

users using one machine for its capabilities, individual users have machines on their desks with those capabilities and so do all other users needing that functionality.

The advantage is that users no longer must share or contend for the resource. The disadvantage is that the system manager must maintain multiple instances of the resource. Some resources (such as disk space or printer services) may be shared via the network. This sort of sharing brings the environment back to the feel of the large shared environments without forcing users to share all the resources (such as processing power). But if not managed carefully, this distribution and sharing of resources can become a nightmare of complex interconnection and dependency.

In sharing resources between machines on a network, especially a network that extends outside the local site, an element of risk to the security of

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your data is introduced. If data can come into your site via a network, data can certainly go out on that same network. Some data (such as electronic mail messages) should be able to get out, but what about someone coming in and copying data via the network?

Complicated logistics

The physical boundaries of the support area have complicated the logistics of service for the system manager. Life was fairly simple when all computers needing service were in the computer room. Now a machine needing service may be on another floor, or even in another city. In practice, widely distributed geographic locations will probably maintain their own support staff. Even so, it is not uncommon for the system manager to be quite visible, traveling from one building to another on the campus or corporate site.

With today's high-speed data networks, there is much more software and data available to users. Much more disk

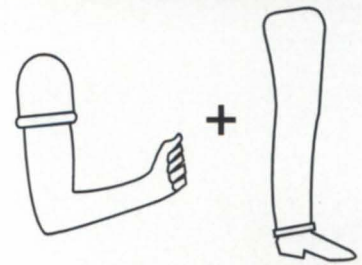
storage is required—even if temporary—to store these data. Rapid advances in disk storage technology have made this possible. A few years ago, a site with a gigabyte of disk space was thought to be "disk rich." Today you often find individual workstations with several gigabytes of disk storage.

The user community has also changed. Not only are people more technical and less afraid of the computer, there are so many more of them! There has been an exponential growth in the user base as people learn they really can do things on a computer and it really doesn't take any mystical powers to be able to use one. But this increase in the user base has scaled the management problems by an equivalent amount.

Security management is a new and important aspect of modern systems management. In the "old days," all the equipment as well as all data were

Continued on page 31

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Adventures in PC Land

SYNOPSIS

Almost anyone can manage a single PC. But managing a PC network is another matter. It requires the kind of manager who's willing to work at the trial-and-error learning process needed to master the fast-changing technology.

by David Novy
Contributing Editor

There's a catchy Country/Western song on the radio in which the singer laments about his truck: If it were a horse, he'd have to shoot it. Well, last week after working with PCs and the new MS-DOS 6.0, I was ready to say that if my PC were a horse, I would have had to shoot it, too.

Why would a Unix system manager be trying to use a PC, let alone trying to load software on it? you might ask. Good question. The answer is that I have been hearing so much about how PCs and Microsoft Windows NT are going to be the dominant operating system of tomorrow, and that I should begin preparing myself for the inevitable and learn about Windows and DOS today. But after struggling with them for a week in a networked environment, I will have no trouble waiting for tomorrow to arrive. Unix should be around for some time to come.

I rarely used a PC until last week (writing this about two months before you read it). My needs were met adequately enough with an Amiga tied to a Unix file server. However, my Amiga did not meet corporate PC guidelines. So in order to support corporate computer uniformity, I put my trusty Amiga on the shelf and acquired a 486-based PC.

Down to business

I wanted to increase the size of my disk drive. I had heard that Stacker, from Stac Electronics, is a very good disk-compression software package that could nearly double my PC disk capacity. Disk-compression software can be a bit tricky, and as a rule I will not use any software that will decrease my disk's reliability. However, several small customers of mine use Stacker, so in order to better support them, I decided that I should learn how to use it.

I went to a PC software store to purchase Stacker and was told that I should wait until Microsoft DOS 6.0 became available. The new MS-DOS revision would contain a disk-compression utility, and as an upgrade it would cost 50 percent less than Stacker. I asked when DOS 6.0 might be available. After some hemming and hawing, I was told it would be *later that evening*.

Now, this was 7:30 p.m. on a Tuesday, so I was bit skeptical about that availability date. But sure enough, at 6 p.m. PST (8 CST) on March 30, DOS 6.0 was officially announced by Microsoft's Bill Gates at a press conference in San Francisco. By chance, I was one of the first people in the entire world to buy a copy of DOS 6.0.

The disk-compression utility for DOS 6.0 is called DoubleSpace. It installed very easily. However, after I

had installed all of the other software on the system, I did something foolish. I did *not* do a system backup, and I began testing untried procedures on my DOS system disk.

Oops!

One of the highly touted utilities in DOS 6.0 is the defragmenter. I ran the DOS 6.0 defragmenter on my compressed disk volume. That was a *big* mistake. I should have used the Double-space defragmenter. After I finished using the DOS 6.0 defragmenter on my Doublespace disk volume, the disk volume disappeared.

There appeared to be nothing I could do to recover the disk. Fortunately, I read in the back of the DOS 6.0 users manual that Microsoft DOS 6.0 users could obtain 90 days of free software support from Microsoft. I tried the toll-free number for more than an hour. It was always busy. I read on another page in the manual that Microsoft also provides software sup-

port at \$20 per call. I was getting desperate by this time, since I was spending all my time trying to recover this disk.

I called the Microsoft help line and gave them my credit card number. Then I began listening to the soothing tones of the Microsoft help line information service. Between music cuts from little-known but enjoyable albums, I learned that 85 people were waiting on the MS-DOS help line and that the average wait was more than 70 minutes, but *my* wait time could be less. I also learned that Microsoft employs more than 1,200 customer-service representatives.

I waited more than 70 minutes and was finally connected to a support rep who was able to help me fix my problem. What I had to do was to get an uncompressed version of the Double-space executable file on the compressed disk, and perform some other gyrations.

Recovering from the Doublespace

disaster required almost two days. Further adventures lay ahead:

- I learned about the high memory area, and that if you don't use it properly MS Windows will not function. The problem was that if the wrong files were loaded to high memory, the system would lock up. I spent several hours learning what files needed to be loaded into high memory.

- I learned about the Norton Desktop Utilities for Windows Version 2.2. This desktop utility is *supposed* to be superior to the desktop utility supplied with DOS 6.0 (Program Manager). Unfortunately, I could not get my system to function with the Norton Desktop. I could put enough programs into high memory. I worked for hours on this problem. I learned that I could use the utilities in conjunction with the DOS program manager, but I could not get the Norton Desktop to work. (At least I had a work-around) I called the Norton

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Utilities help line. The music wasn't as soothing, but the wait was only about 15 minutes. I learned from customer support that the software was shipped with a corrupt file. I'd never had a chance.

- Norton Utilities contains a very good backup utility, which I thought I might be able to use. Unfortunately, the only tapes it supports are 40 MB and 60 MB 1/4-inch cartridge tapes. At \$15 per cartridge, backing up 600 MB of compressed disk data can become a bit expensive. Support for high-capacity SCSI cartridge tapes will be supplied in a future release. I later learned that an excellent backup utility for SCSI tape drives on DOS is Sytos Plus from Sytron (508/898-0100). I tested it with an Adaptec SCSI host adapter and an Archive 2150 QIC tape (1.35 GB). It worked quite well.

- I installed Sun Microsystem's PC/NFS Version 5.0 on my machine.

PC/NFS Version 5.0 is an excellent release. It appears that Sun is serious about making PC/NFS the standard for supporting virtual disks in the PC environment. It runs multiple telnet sessions and it offers an excellent VT220 emulator.

No match for Unix

After a week of late nights and a great deal of frustration, I am learning to become a system manager for networked PCs. A colleague of mine who is excellent at managing such an environment told me that almost anyone can manage a single PC. However, managing a PC network is very difficult and complex, and there are few people willing to take the time required for the trial-and-error learning process needed to master the technology. After my adventures in PC Land, I have to agree with him.

I also believe that, at this time, a network of PCs is no match for a well-run Unix environment consisting of

Unix workstations, file servers, and X-terminals. But PCs are here to stay because of their low cost of entry, the huge amount of software that's available, and the upcoming release of Windows NT. The 486-based PCs are very powerful by themselves, and combined with Unix file servers they can give users capabilities that were undreamed of less than five years ago. However, in order to manage a PC network effectively you need to standardize on a limited number of hardware and software configurations. *Be sure to test all new software before it is deployed.* To deploy software before it is thoroughly tested is an open invitation for disaster.

△

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

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Brian Johnson

:WFMOVE continued

SYNOPSIS

WFMOVE, the "World's Fastest MOVE," continues taking shape in part 3 of BJ's ongoing informational series. Read on, and be amazed.

Let's see, where was I?

Oh yeah, two months ago I started building an alternative to CLI's MOVE command just to demonstrate how files can be moved around more efficiently without resorting to cumbersome methods like DUMPing to and LOADING from pipe files. Modestly, I called it WFMOVE for World's Fastest MOVE.

The only things left at this point are the last two major functions, and then we'll be in a position to take this thing for a test spin. Some of you have probably cheated by now and dialed into the :SYSMGR BBS to pick the full set of sources and a working copy of the .PR files. For the rest of you, now is the time.

But before I resume, I need to cover one small point. Several people have asked if WFMOVE will speed up file transfers across a Xodiac network. It might, but as it's currently designed WFMOVE won't work across a network because Xodiac limits the number of

blocks transferred at a time to 16, and WFMOVE currently uses 64. As you'll see shortly, you can easily change the MAXBLKS parameter in the "copy_data" function and make a version called WFMOVEX.

That should work, but I haven't tried it. A better solution might be to add a "/BLOCKSIZE=blocks" switch option and default the value to 64, but allow networkers to specify "/BLOCKSIZE=16" if the destination directory is across the network. If I get a chance I'll bum in the code to add the switch, give it a whack, and let ya know the outcome.

Okay, back to work.

:MOVE_FILE.C

Well, I'm getting closer to the heart of this thing. The source code for the "move_file" function is shown in Figure 6 (I'm continuing the figure numbers from last month).

If "/DELETE" or "/RECENT", then I need to determine whether the destination file exists. The easiest way to do this is to try to get its file status. That way I can also check to make sure that I don't delete something that I shouldn't. For example, what if I was moving a text file called "FOO.TXT", and a FOO.TXT already existed at the destination, but it was a directory? I probably don't want to delete it (and its contents) and replace it with a text file, so I'd better check first to make sure the destination is not a directory file type. I could just check for a directory file type because the check for a "move'able" file type was already made before "move_file" was called, but in the spirit

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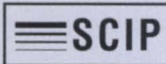
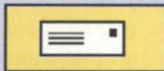
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SYSTEM MANAGER'S LOG

of aggressive programming I check that the file type is a "move'able" file type, and not a directory file type.

Now that I know whether the destination exists, I can check for "/RECENT" and whether or not the file is actually more recent. My "ismr" function checks the date/time created. If the date/time created is the same for both files it checks the lengths and declares the source file to be more recent, if it's longer than the destination file. This takes care of log and transaction files that are appended to.

It also matches the behavior of CLI16 and CLI32, but not "LOAD_II" (yes, I've STR'ed it). If the source is not more recent, then I'm done.

If /DELETE or /RECENT and the destination exists, then the destination file is deleted using the "expunge_file" function that removes the permanence attribute, if necessary, before deleting the file. Any problem deleting the file is reported, and the source file is not moved.

The coast is now clear to clone the source file to produce the destination pathname. The clone function was described last month (see "World's Fastest MOVE, Part II," May 1993 Focus, pg. 14).

Any failure is reported and the file is skipped, although the destination file is already gone if we were deleting it via /DELETE or /RECENT. Not nice, but MOVE, DUMP, and DUMP_II behave the same way, so we're in good company.

If the file is a LNK, then there's no data to move and no ACL to set, so I report the move using "verify_move" and exit gracefully. Otherwise, it's time to copy the data using the "copy_data" function.

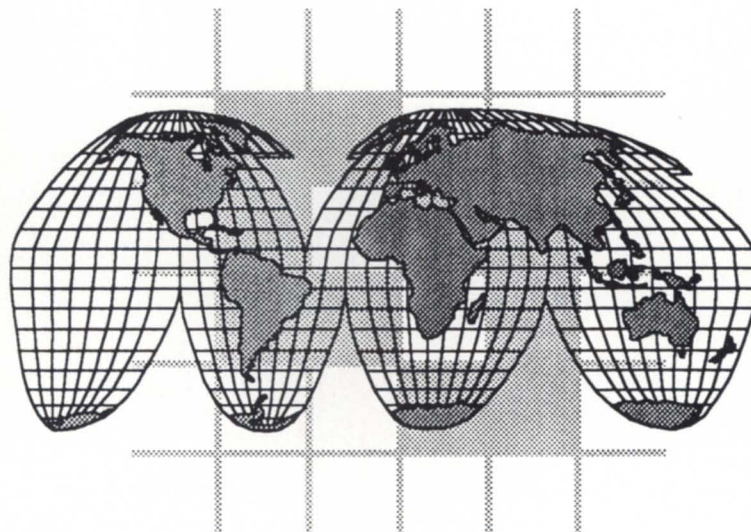
Finally, if "/EARLY" wasn't used I can apply the ACL obtained earlier from the call to clone, just like I did in "move_dir" last month. And now that the file has been successfully MOVED I can report that fact using "verify_move".

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:COPY_DATA.C

This function takes the destination pathname, source filename, and "?FSTAT" packet as arguments, and copies the data from the source file to the destination file. Sounds simple, eh? The first time around I'm going to take a very conservative approach. Remember, I'm interested in simply achieving functionality at this point. The source code is in Figure 7.

I don't really need the ?FSTAT packet argument at this point, but I'll need it when I add the logic to do a better job of detecting new sparseness. So I've included it prematurely in anticipation of that enhancement.

Clearly, I need to preserve any existing sparseness while copying the data elements. It would also be nice to create new sparseness (elements that are allocated, but contain all zeros), but it's relatively tricky to do it in a way that is both simple and efficient. So I'll put it on WFMOVE's RFE list and just do a quick and dirty check for new sparseness this time around.

The easiest and most efficient way to detect existing sparseness is to use the relatively new "?BLKIO" system call, instead of the old "?RDB" call. It has an option to read the next allocated block by automatically skipping over unallocated file data elements.

I like easy, so I'll use ?BLKIO and turn on the option. For those of you on revs of AOS/VS prior to 6.00 it's tough luck.

To detect new sparseness I just check the entire buffer for all zeros, even though this means I might miss a potentially sparse element if it's in the buffer with a non-sparse element before or after. It turns out that this check costs very little in the case of non-sparse blocks. It's done by checking the first buffer byte for zero.

If it's not zero, then the buffer is clearly not sparse. If it is zero, I then compare buffer elements "0...Bytes-1" to buffer elements "1...Bytes" using the "memcmp" library function. DG C generates in-line code to do this compare using the very efficient WCMP instruction. And since the test involves running through the buffer comparing sequential bytes with each other, the hardware memory cache is quite effective. If the buffer isn't sparse, WCMP

will fail quickly and with very little cost.

If it succeeds, it'll take quite a while, but not nearly as long as unnecessarily writing a buffer full of zeros. As much as I hate the cliché, it's a "win-win" situation.

The code is relatively straightforward. After opening both files I ask to read up to 64 blocks each time (the equivalent to /BUFFERSIZE =32768) starting with the next allocated block.

?BLKIO returns the actual first allocated block number that it read, and the number of blocks it was able to read before encountering our 64-block limit, or an unallocated element following an allocated one.

The logic regarding whether or not to write the blocks I read has one interesting twist to it. If the last block in the file is sparse, you must still write it even if it's sparse. If you don't, then the resulting file will have the wrong length because it's the last block number written, and the number of bytes in the last block that determine the file length when the file is closed.

That's why I used the file size returned when I ?GOPENed the source file to compute the number of blocks in the file. It's so I can detect when I'm writing the last block. I could also have used the file length in the ?FSTAT block, but if the file is growing while I'm copying it, I'd like to get the most current length.

Someday I should probably add a piece of logic to issue a warning when I detect that I'm moving a file that somebody else has open, but I'll leave that for some future revision. Opening files exclusively is also a possibility, but that would make it difficult to move .PR files that are being executed, even though there's no good reason why they couldn't be moved. After all, executing a .PR file opens it in read-only mode, anyway. Well, I'll put it on the WFMOVE RFE list and come back to it later.

After encountering and writing the last element, I exit the copy loop, close both files, and return to the "copy_file" function. If I exited the copy loop abnormally I report it, but I still make sure to close the files before returning to the caller.

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Figure 6 - MOVE_FILE.C

```

/* Move a file. */

/* These really improve readability. */
#define Styp  fstat_pkt->styp_type
#define Dtyp  fstat_pkt->styp_type

void move_file(char *fnp, P_FSTAT *fstat_pkt) {
    int ier, jer;
    Boolean dest_exists;
    char acl[$MXACL], *aclp; /* ACL and ACL ptr */
    P_FSTAT fstat_pkt; /* Dest status if /RECENT */

    /* If /DELETE or /RECENT check for a dest file. */
    if (delete || recent) {
        /* Attempt to get the filestatus of the dest */
        /* file. If any error other than "file does */
        /* not exist" then issue a warning and skip */
        /* the file. */
        if (ier = sys_fstat(dpn, BIT1, &fstat_pkt)) {
            if (ier != ERFDE) {
                warn(dpn, ier);
                return;
            }
            dest_exists = NO;
        }
        else {
            /* If the dest file is not a delete'able */
            /* file type then report it and skip it. */
            if (!ismft(Dtyp) || isdir(Dtyp)) {
                warn(dpn, ERIPT);
                return;
            }
            dest_exists = YES;
        }
    }

    /* Skip the file if dest exists, but */
    /* the source file is less recent. */
    if (recent && dest_exists &&
        !ismr(&fstat_pkt, fstat_pkt)) return;

    /* Maybe get the start time. */
    if (times) start_secs = hack();

    /* Need to delete an existing destination file? */
    if ((delete || recent) && dest_exists) {
        if (ier = expunge_file(dpn, &fstat_pkt)) {
            /* Report a delete failure only if error */
            /* is other than "file does not exist". */
            if (ier != ERFDE) {
                warn(dpn, ier);
                return;
            }
        }
        else {
            /* Report the deletion. */
            printf("Deleted %s\n", dpn);
        }
    }

    /* Create a replica of the source file at the */
    /* destination. Set ACL during create if /EARLY. */
    aclp = (early) ? (NULL) : (acl);
    if (ier = clone(dpn, fnp, fstat_pkt, aclp)) {
        /* Unable to create the file. */
        warn(dpn, ier);
        return;
    }

    /* If it's a link then there's no data or ACL. */
    if (Styp == $FLNK) {
        verify_move(fnp);
        return;
    }

    /* Copy the data. */
    if (ier = copy_data(dpn, fnp, fstat_pkt)) {
        /* Delete the incomplete file. */
        jer = expunge_file(dpn, fstat_pkt);
        if (jer) error(dpn, jer);
        return;
    }

    /* If the ACL wasn't set earlier then do it now. */
    if (!early && (ier = sys_sacl(dpn, acl))) {
        warn(dpn, ier);
        return;
    }

    /* Announce that it's been successfully moved. */
    verify_move(fnp);
}

```

Figure 7 - COPY_DATA.C

```

/* Copy the data from one file to another. */

#define MAXBLKS 64

/* These really improve readability. */
#define Dchan  dgopen_pkt.opch
#define Ochan  ogopen_pkt.opch
#define Elemsz fstat_pkt->sdeh
#define Bytes  blkio_pkt.btbc

int copy_data(char *dnpn, char *ofnp,
              P_FSTAT *fstat_pkt) {
    int bitbin, blocks, blocksize, ier, jer, next_blkno;
    char buf[MAXBLKS*512];
    Boolean write;
    P_BLKIO blkio_pkt;
    P_GOPEN dgopen_pkt, ogopen_pkt;

    /* Don't bother if the file is zero length. */
    if (fstat_pkt->sefm == 0) return 0;

    /* Open the source file. */
    memset((void*)&ogopen_pkt, 0, sizeof(P_GOPEN));
    if (ier = sys_gopen(ofnp, -1, &ogopen_pkt, &bitbin)) {
        warn(opn, ier);
        return ier;
    }
    blocks = (ogopen_pkt.opch + 511) / 512;

    /* Open the destination file. */
    memset((void*)&dgopen_pkt, 0, sizeof(P_GOPEN));
    if (jer = sys_gopen(dnpn, -1, &dgopen_pkt, &bitbin)) {
        warn(dnpn, jer);
        return jer;
    }

    /* Initialize the ?BLKIO packet. */
    memset((void*)&blkio_pkt, 0, sizeof(P_BLKIO));

    /* Scan the file looking for allocated elements. */
    blocksize = MAXBLKS;
    blkio_pkt.badr = (short *) buf;
    for (;;) {
        blkio_pkt.bchn = Ochan;
        blkio_pkt.bsts = $BMNAB;
        blkio_pkt.bbhc = blocksize;
        blkio_pkt.blbb = 0;
        if (ier = sys_blkio(&blkio_pkt)) {
            if (ier != EREOF) break;
            ier = 0;
            if (Bytes == 0) break;
        }

        /* Update the packet based on which element */
        /* and the number of blocks we actually ended */
        /* up reading. */
        if (trace) printf("read %d %d %d %d\n",
            blkio_pkt.bbhc, blkio_pkt.bbhc, Bytes,
            blkio_pkt.bbhc, blkio_pkt.bbhc);
        blkio_pkt.bbhc = blkio_pkt.bbhc;
        blkio_pkt.bbhc = blkio_pkt.bbhc;

        /* We have to write the element iff a) it's */
        /* the last element, or a) it's not sparse. */
        next_blkno = blkio_pkt.bbhc + blkio_pkt.bbhc;
        write = (next_blkno >= blocks);
        write = write || buf[0];
        write = write || memcmp(buf, buf+1, Bytes-1);

        /* Write it? */
        if (write) {
            blkio_pkt.bchn = Dchan;
            blkio_pkt.bsts = $BMIO;
            blkio_pkt.bbhc = (blkio_pkt.btbc+511) / 512;
            blkio_pkt.blbb = blkio_pkt.btbc % 512;
            blkio_pkt.bbhc, blkio_pkt.bbhc,
            blkio_pkt.blbb);
            if (jer = sys_blkio(&blkio_pkt)) break;
        }

        /* Update the starting block no. */
        blkio_pkt.bbhc += (blkio_pkt.btbc + 511) / 512;

        /* Are we done? */
        if (blkio_pkt.bbhc >= blocks) break;
    }

    /* Abnormal finish? */
    if (ier) {
        warn(opn, ier);
    }
    else if (jer) {
        warn(dpn, jer);
        ier = jer;
    }

    /* Close both files. */
    if (jer = sys_gclose(Ochan, &bitbin)) error(opn, jer);
    if (jer = sys_gclose(Dchan, &bitbin)) error(dpn, jer);

    /* Easy, eh? */
    return ier;
}

```


:END_OF_PASS_I

Okay, I've now got a fully operational, but only moderately optimized, program that beats the pants off CLI's MOVE but still spends the bulk of its time waiting for the disk due to its single-task nature.

I've called Warshawski in Chicago (aka J.C. Whitney) and ordered a fancy multi-tasking turbo unit, and next month I'll install it in the "copy_data" function. Fasten your seat belts.

By the way, it took a lot longer to write about this program than it took to write and debug it. Start-to-finish, the coding and debugging took less than five hours.

I did cheat a tiny bit: "clone.c" and "get_global_switches.c" are minor modifications of two BJ Inc. in-house C library routines. The rest of the code was pretty much written from scratch.

A final note: I made two minor cosmetic changes to the code on April 18th, so if you're one of the people who picked up a copy of "SML9304X" from the BBS prior to that date, you might want to download a fresh copy.

:ATW_IN_27_DAYS

I originally started this multi-column project back in February because I knew I'd be out of the country for most of the month of March. Well, the trip over, I'm 10 pounds heavier, and according to United Airlines I did more than 27,000 air miles in just 27 days. And that doesn't count another thousand miles or so on some of my favorite trains in the U.K., Europe, and Australia.

For Sleaze Tour fans, the U.K. Users Group meeting in Birmingham

was great, but Birmingham leaves a lot to be desired when it comes to commercially produced sleaze.

The Australian Users Group meeting in Sydney was also great, but Sydney has it all over Birmingham when it comes to sleaze. Lots of data were collected and SLEAZE.DB has grown considerably.

Especially due to the records

describing the lunch we had at the Governors Pleasure; I recommend it highly (the food *and* the sleaze). I'd love to publish thanks to the group of guys who took me there and set me up for a "Cleopatra," but I'd rather not be subpoenaed to testify at their divorce hearings.

Oh, I almost forgot. Sorry Aussies, but Vegemite sucks. Δ

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A design case study

SYNOPSIS

Modular programming with relational data base files offers many advantages. If you're not already programming this way, it's worth a look.

by Steve Handlos
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comments heard while selling to assist in the research.

Like everyone else, we had a deadline. This meant that we didn't want to spend too much time planning and programming for maximum efficiency. The system was written for a personal computer, and the compiler we used was *not* state-of-the-art. Its main failing was the inability to handle alternate keys. By the time we decided to purchase an MV/3200, we had had enough of the limitations of the compiler and the design.

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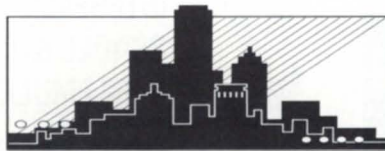
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Original design

Our original system worked fine until the files became large. There was one record for each individual. This record was a fixed size, and contained all the data available for that individual. This led to three problems, and these problems got worse as the files grew larger.

There was a lot of wasted space allocated for fields that applied to some, but not to others. At the same time, we had to limit ourselves to data that were typical across the board (Have you heard the programmer ask the user, "How often does that occur?").

An example of this is *location addresses*. Every organization has a mailing address. A significant number of organizations have a mailing address that is different from the location address. A location address is useful when visiting the organization, or in shipping your product to them. Since this condition occurs frequently, the

**With a
system like
our old one,
the operator
has to be
certain that
every record
needing
changes is
found**

field was in the record, filled with spaces when it didn't apply.

Another example is *telephone numbers*. How often do you need the home telephone number? Since it was not frequently needed, we didn't put it in the record. Whenever we needed the home telephone number, we had to look at a different source.

Accuracy was a problem when file maintenance was performed. Since each record contained all the data for each individual, there was a problem when the organization data changed. These fields (like company name) apply to all individuals in the organization.

With a system like our old one, the operator has to be certain that every record needing changes is found. This manual process is far more time-consuming, and inevitably leads to errors.

The worst problem was *speed* in preparing reports and/or printing labels for mailings. Almost every request was for some identifiable characteristic associated with the organiza-

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tions and/or individuals. Therefore, the time to prepare each report depended primarily on the file size, since the entire file had to be examined before a report could be prepared.

The one advantage of this system was programming speed. It didn't take much time because the design was simple.

The new design

As we prepared for the arrival of our MV/3200, we decided to rewrite on the MV using VS Cobol. The new system uses 11 files to replace the one file used on the personal computer.

The *name* file has the name of each individual in the system.

The *mailing address* file is used to store the mailing address of each organization with at least one individual in the name file.

The *telephone number* file is used to store telephone numbers related to the organization (switchboard number) and the individual. We can store switchboard number, extension, direct number, and/or home number.

For those organizations with a different location address we have the *location address* and the *location city* files. Location city sounds like a mistake, but we have one record in it.

The organization name is the same for all of its locations and employed individuals. We use the *company name* file for this. Now, when the name changes, one change gets them all.

Our experience with the original system convinced us that selections were made from the files based on location of the organization, job codes of individuals, or some other category or classification associated with the company or individual. Therefore, we created the country, state, zip code, job code, and category files.

There are many alternate keys defined in the 11 files, so we can reference an individual or organization in a variety of ways.

This new system eliminates the three problems associates with the original system. Space is not used for fields that have no meaning. Data-entry accuracy is improved because common fields are entered only once. The system is much faster. The time to prepare a report now depends on the size of the

report, not the size of the file.

The programming effort

Creating this new system required programming in a much different way.

The data-entry programs are more complicated because so many more things have to be done when input/output operations take place. Data for each of the related files must

be added, changed, or deleted along with the name or mailing address files. This may seem like an impossible task, but our screen program generator does most of the work. We might not have attempted to program this design without it.

The remainder of the system is constantly being custom-programmed to meet the demands of the users. From a



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programming standpoint, the beauty of the system is its modularity. We can easily expand or contract certain modules without adversely affecting the overall system design. For example, to add a fax telephone number, we simply add another record type to the telephone file and change the specific programs that will need to reference that field. None of the file formats change.


Impact on organization

Initial programming of a system like this is more costly unless you have the appropriate programming tools. The tools must allow the programmer the ability to create complex program structures quickly and accurately. They must allow custom modifications so the program can fit the application, not vice versa.

Maintenance programming is much less time-consuming since the system is modular. Significant changes can be made easily because only isolated parts of the system need changing.



**From a
programming
standpoint,
the beauty of
the system
is its
modularity**



Since more time is spent in maintenance of a system during its life, it's worth trading some time now for a much larger return later.

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Steve Handlos is the founder and president of Productivity Systems Development Corporation. Products include contract programming, DataGen Cobol screen program generator, and software development training. He can be reached at P.O. Box 1931, Summerville, SC 29484; 803/851-6577.

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The latest products for DG systems

DG plunges into document imaging

Westboro—Data General Corporation announced the AV Image line of document-imaging products to address paper-intensive business and office applications. The AV Image standard package includes the WIN-Track Document Manager and AV Image Viewer. Two options, DB Links and AV Imagizer Toolkit, are also available. AV Image can address a wide variety of customer applications where document archiving and records or forms management is required.

AV Image is based on a SQL client/server architecture and runs on Microsoft Windows PCs, OSF/Motif

workstations, or X-terminals networked to a relational data base on an Aviiion Unix-based server. The system runs over Novell Netware or TCP/IP networks, with support for Sybase, Oracle, Ingres, Informix, or Progress data bases using the DB Link option. For smaller user environments (less than 20), AV Image includes a Paradox PC data base engine with networked multi-user file management on the Aviiion server.

Using a combination of image overview files and CCITT Group 4 tiled compression, the AV Image Viewer can view and zoom thousands of images from multiple documents in rapid succession without image decompression (100 full-screen zoomed images can be viewed in less than 17 seconds). The AV Imagizer Toolkit is a programmer-level

package that includes runtime "C" libraries, dynamic link libraries, and documentation for VARs and system integrators to facilitate the modification and image-enabling of existing business or office applications.

AV Image products will be available worldwide through DG's direct sales force and the company's VAR channel. Pricing is \$695 per client/server user. DB Link for any of the five data bases mentioned above is an additional \$300 per client/server user. User packs for 5, 20, and 100 users are available. The AV Imagizer Toolkit is priced at \$995.

Data General Corporation, 3400 Computer Drive, Westboro, MA 01580; 508/898-4056.

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Continued on page 32

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Continued from page 13

stored in the computer room. As long as you had a good solid lock on your computer room doors, you had little to worry about. Physical security is just the tip of the iceberg today.

Not only are your computers probably connected to a network that extends outside your site (and therefore outside your ability to control its use), but you have computers distributed all over your site. Much of the data critical to your organization's well-being are stored on these distributed computers, not only behind the locked doors of the computer room. You are more vulnerable because you are only as well-protected as all those other computers. Requiring that "sensitive" data *not* be stored on computers outside the protective confines of your building or your computer room may help, but this more often inhibits productivity than it ensures security.

The line between security and user productivity is a very thin one that system managers have been tip-toeing along for years. Being able to strike a good balance here—keeping management happy with the protection afforded the organization while still allowing the users to accomplish their tasks—is an enviable skill. Where that line runs is different in every organization.

The computer is no longer the tool; it has extended itself. The computing environment is now the tool. The local network and all the resources connected to it, as well as the resources it can reach outside the computing environment, have become as much a part of the tool as the computer itself. It has evolved into a large, complex, and highly interconnected electronic community. The members of the community cut across all levels of technical expertise—and naiveté. Managing this new tool and the changes it is sure to undergo in the future requires constant education and evolution of the system manager as well. △

Copyright © 1993, R. King Ables. R. King Ables has been a Unix user since 1980 and has been managing systems and networks and developing systems and network management tools since 1983. He currently does free-lance writing, programming, and system administration consulting in Austin, Texas.

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Products and Services, continued from page 29

Optical platters

Newport News, VA—Contemporary Cybernetics Group (CCG) introduced the CY-2000, a 1 GB multifunctional magneto-optical disk drive that is plug-compatible with most personal computers, workstations, and servers, including Data General.

The double-sided media, called *optical platters*, are erasable, rewritable, and readily available in both plastic and glass. With dimensions and mounting provisions identical to those of standard 5.25-inch Winchester or floppy-disk drives, the CY-2000 fits easily into most systems and provides fast access to large on-line data bases and graphics files. To ensure data integrity, the drive employs both read-after-write checking and automatic ECC.

The CY-2000 subsystem features the drive in a tabletop unit with controller, power supply, cabling, and a full 12-month warranty. Magneto-optical and high-capacity 8 mm helical-scan tape backup can be combined in a single unit, providing the combined benefits of near-line storage and archival storage.

Contemporary Cybernetics Group,
11846 Rock Landing, Newport News, VA
23606; 800/873-9000.

Circle 52 on reader service card.

Drivers, drivers, drivers

Fremont, CA—Cache Computers, manufacturer of PC-compatible system boards and peripheral controllers, announced a number of new drivers for its Model 3490E EISA Ethernet Network Adapter. The new driver set includes support for Windows for Workgroups, Windows NT, Novell Netware Lite, Novell Netware v.400, and Banyan Vines.

Cache Computers, Inc., 46600 Landing Parkway, Fremont, CA 94538;
510/226-9922.

Circle 51 on reader service card.

Asset management

Palo Alto, CA—Apsylog, a European provider of computer asset management software for Microsoft Windows, introduces PC Galaxy into the United States. Version 1.10 is the English-language version of the company's established French product, Parc Manager.

PC Galaxy enables system administrators, MIS managers, accountants, and purchasing agents to organize, update, and monitor information about a company's computer equipment and software. Developed specifically for MS Windows using C++ and Btrieve, the product accommodates multiple users on local area networks (LANs) including Novell Netware, Banyan Vines, Microsoft LAN Manager, and peer-to-peer networks.

*Apsylog, 1900 Embarcadero Road,
Palo Alto, CA 94303; 415/812-7700.*


Circle 50 on reader service card.

8 mm tape drives

Newport News, VA—Two new half-height 8 mm tape drives take their place among the tape backup family offered by Contemporary Cybernetics Group (CCG).

The CY-8205 can store between 2.5 GB and 12.5 GB at speeds of up to 1.3 MB per second. The CY-8505 can store between 5 GB and 25 GB at speeds of up to 2.5 MB per second. High capacity and speed are attained by utilizing the drives' built-in data compression, which can increase capacity by up to five times. Data compression is switch-selectable, so users can read and write tapes without data compression for compatibility with other sites. Tapes written on full-height 8 mm tape drives, the CY-8200 and CY-8500, can be read by the CY-8205 and CY-8505, ensuring data interchange.

The CY-8205 and CY-8505 are plug-compatible with a range of computer systems, including Data General.

*Contemporary Cybernetics Group,
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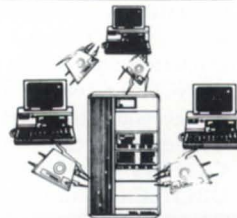
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A complete listing of the NADGUG software library

• compiled by Tim Boyer

ACK • A terminal emulator Xmodem/Ymodem file transfer program from Benchmark Products. Operates under AOS/VS and AOS. This is an updated version (2.03). 510 blocks.

BIGBRO • An auto-logoff program, written in F77. From the USDA Forest Service. 170 blocks.

BJ_BBS • A directory containing programs from Brian Johnson's :SYSMGR BBS. Some are Brian's, and some have been put on the board by others. 6,762 blocks.

CCOMP • A Benchmark Products C compiler. It is *almost* fully functional; several items have been left out of the demo version. None should interfere with testing the compiler. 864 blocks.

CONCEPT • Two submissions from Concept Automation: NOTIFY lets you know when another process terminates; PRIOS lists the priorities of processes. 162 blocks.

CRTEEDIT • The old RDOS editor ported over to VS. 49 blocks.

DBCHECK • Our first submission from Europe. Lee Dickinson of IBIS Information Services, offers a program to check the open status of an Infos file; examines checkpointing status of a file, and if enabled, will force checkpointing. 187 blocks.

DUMpload • A Macintosh program to dump and load AOS/VS-compatible dumps on a Mac. To get this program over to your Mac, you will need a communications program that supports MacBinary Xmodem transfers and BINHEX (a Mac utility that converts Mac files into Xmodem-able files). Use TEX (also on this library)

to send the three files to your Mac. Don't forget to use the *-k* switch on TEX. Then run BINHEX on each of the files. DUMpload is the actual program. 137 blocks.

ERP • Another inactive PID terminator. Developed by NASA and modified by Manville. Written in F77. Kevin Danzig found some bugs and corrected them. See ".READ.ME.LAST". 454 blocks.

FILEMNGR • Allows manipulation of files through a screen-oriented program. Move, copy, delete, view, and several other options. This is a shareware program. If you continue using it, you are requested to pay a registration fee. 656 blocks.

FOCUS • A directory of programs related to articles published in *Focus*. 1,908 blocks.

FTNCVT • A Fortran-5 to Fortran-77 translator. It was apparently included in early F77 releases by DG to smooth the transition from F5. 232 blocks.

GAMES • Accumulated from various places. Most can be accessed from the GAMES.CLI macro. But a couple, like MONOPOLY and CB, use disabled console and are not included in the main macro. Create a link in your macros directory GAMES.CLI that points to :GAMES:GAMES.CLI. Put the GAMES.DMZ file in the root (:), and execute the NADGUG macro there. That will load everything into the directory ".:GAMES". 18,836 blocks.

GUTNICK • Utilities donated by Tom Gutnick of DG. The MIPS_METER and DISKIO_METER require a graphic terminal, and do what their names imply. The SYSLOG_FILTER programs allow choice of which SYSLOG events to record. This feature requires

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AOS/VS 7.69 or later, or AOV/VS II 2.10 or later. 832 blocks.

IMSLUTIL • A collection of CLI macros, Cobol routines, and Assembly routines callable from Cobol. Donated by IMSL, Houston. 4,894 blocks.

JAG_UTIL • MISCUTIL contains several programs. FILE-COUNT lists counts and combined sizes of files, based on various selection criteria. USERSPACE counts the space used by CPDs within "UDD". SCAN searches for strings within multiple files at the same time. LAMINATE allows you to combine two test files in various ways. QHELP generates tree-structured help files (like VMS has). SWITCHES allows you to painlessly add minimally unique switches to any 32-bit compiled program. GLOSSARY builds a file of word usage. 4,325 blocks.

KERMIT • A file-transfer protocol developed at Columbia University. This version was ported by Phil Julian from the Unix C code. Also included is an EMACS editor. There are also several compression programs. KERMIT is public domain. 9,697 blocks.

LOOK • Used to view text files. Move forward and backward in a file. Donated by DG. 203 blocks.

MACROS • Contains miscellaneous submissions: MACBOOK, a macro collection from the Colorado User's Group; VITRO, a macro collection submitted by Ronald Floda of Vitro Services Corporation (Fort Walton Beach, FL); MILWAUKEE, consisting of a GO macro to quickly move to a directory based on only part of the name, and MAIL?, to check Wordperfect Mail (submitted by Dall Noll, Milwaukee County Transit System). 508 blocks.

MENUDIR • From FEDSIG (Federal User's Group), allows you to control (and require) password maintenance by users. 486 blocks.

MISCKERM • My official "KERMIT non-categorized storage facility." If it doesn't have anything to do with Phil Julian's version, but it is related to KERMIT, it goes here. Of special interest is the DG/1 KERMIT (the DG/1 uses different comm chip, and can't use regular IBM PC KERMIT). Sources of most of these versions is nebulous at best, so *caveat emptor*. 6,495 blocks.

MSDOS • A program to read MS-DOS 5.25-inch diskettes on AOS/VS systems. 978 blocks.

SOFTRANS • A file-transfer protocol used by a commercial PC communications package. This F77 version is being distributed with the permission of Softronics, the author (per Mike Bay, 10/13/88). 426 blocks.

SPELL • Checks the spelling of a word; SPELLALL spell-checks a document. Submitted by Richard Kouzes, Princeton University. 5,108 blocks.

TEX • (Terminal Emulator with Xmodem) A terminal emulation program written by David Down. Allows Xmodem and Ymodem transfers with options to simplify transfers between DG MVs and various types of PCs. Now features a command language. Distributed as shareware; use for 30 days, then get rid or your copy or send David Down a registration fee. 463 blocks.

VT100KER • The VT-100 emulator from John Grant, part of a KERMIT implementation that does not have the file-transfer protocols working yet. 1,044 blocks.

XFER • A tape-conversion utility. 607 blocks. △

NADGUG members interested in receiving the software collection should direct requests to: Michelle M. Dube, NADGUG Association Manager, c/o Danieli & O'Keefe Associates, Inc., 490 Boston Post Road, Sudbury, MA 01776.

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DASH Items...



Category: DG/UX

Author: Rodney Wright
Subject: **DG412 termcap entry**

We are having problems with "backspace", "del", and even certain control sequences while using DG412 termcap entry for DG412 and DG412+ terminals. The cursor jumps to the top left of the screen (position 0,0) and hangs there. "stty" will not allow me to override this problem (that would be too easy). I thought I'd check to see if anyone had any suggestions before I hack the DG412 termcap entry and attempt to correct the problem.

Reply by: Tim Kanuka

I think your best bet is to use the D400 terminfo entry. This works accept-

ably well with all D4xx terminals operating in native mode. You have to use the *editread* facility, though.

Reply by: Barry Smith

The D400 or D412-DG *terminfo* entry will allow most well-behaved applications that read and understand the *terminfo* entry, for example *vi*. But low-level programs such as *sysadm*, which blindly issue a standard (i.e., non-DG) backspace Control-h, will cause the cursor on a DG terminal in DG mode to go home and screw up the displays. The standard, or DG, mode on Data General terminals is not supported on DG/UX. If the terminal is a D412+, you may select a special Unix mode by going to the emulation config menu in the terminal setup screen and enabling Unix mode. Either do that or go another route altogether by emulating a VT220. The problem of the cursor going home on a backspace occurs because when the system echoes the backspace, certain programs—for example *sysadm*—

ignore the termcap entries and output a standard ASCII backspace, which is a Control-h. A DG terminal in DG mode processes a backspace by moving the cursor home. For more information, read the manual, *Porting and Developing Applications on the DG/UX System*, in the section, "Recommendations for using DG terminals on the DG/UX system." Δ

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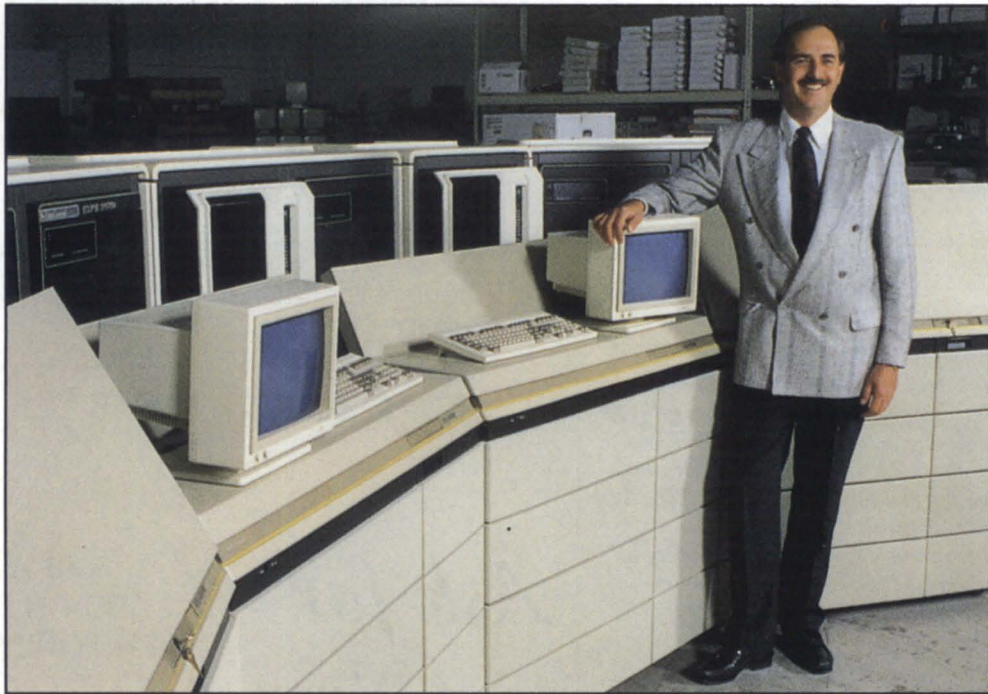
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