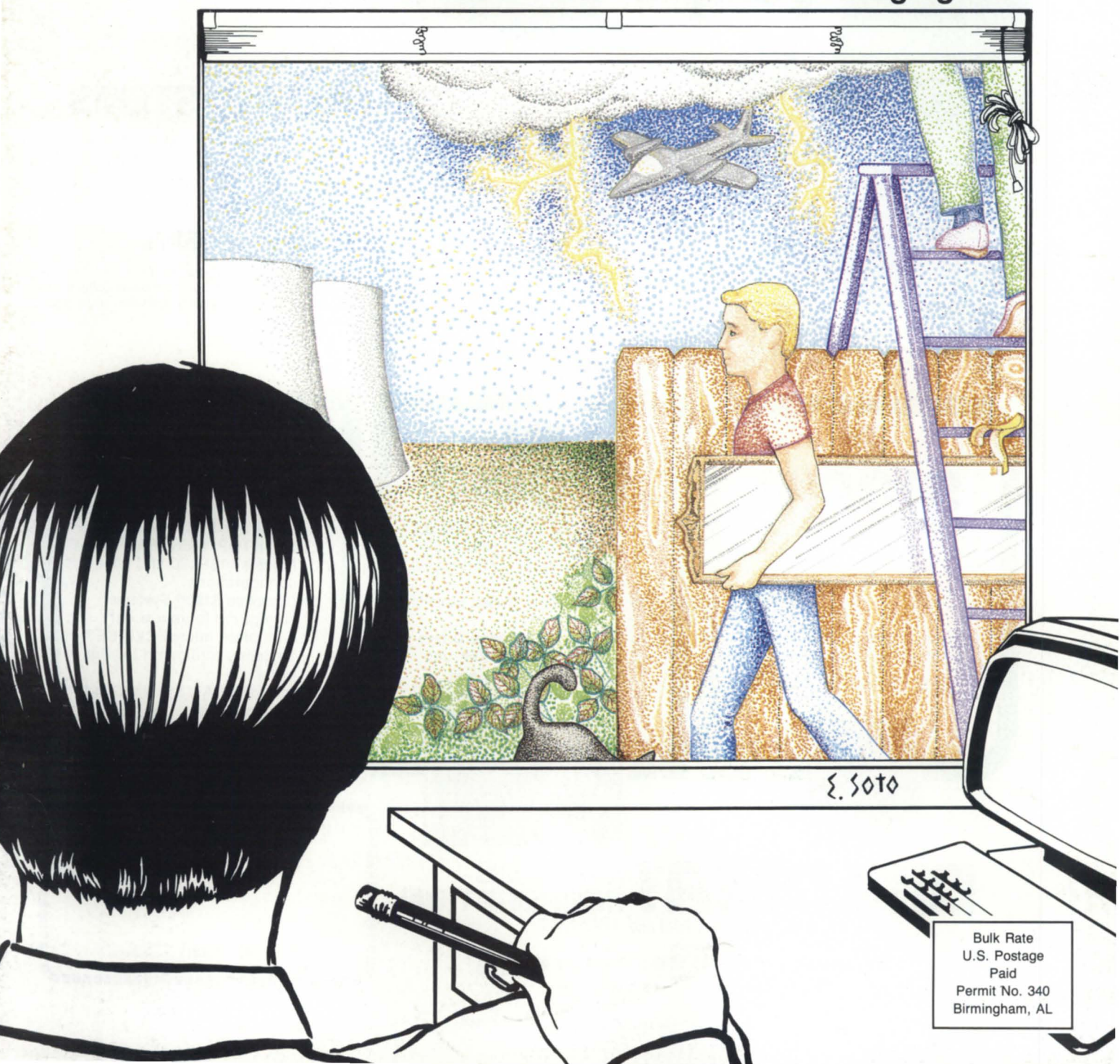
FOCUS

The Magazine of the **North American Data General Users Group**

May 1986

The Insurance Dilemma: Managing Risk



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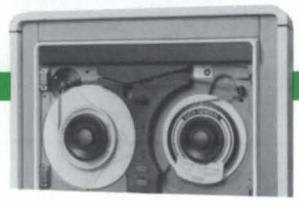

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SOCIETY OF NATIONAL ASSOCIATION PUBLICATIONS

From the insurance industry's perspective, the world is a risky place, and getting riskier due to today's environment of ubiquitous and increasingly expensive litigation. See page 10. Cover illustration by E. Soto.

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Mayday! Mayday!

An unusually mild winter has joined with the irises outside my front door to make it seem nearly like summer. The violet and yellow blossoms make it easy to imagine it is really May, although magazine deadlines mean this note has to be written more than a month earlier. So my thoughts are still stuck in March. I'm thinking of St. Patrick's Day, Easter, and April Fools', when it should be Mother's Day, Memorial Day, and of course, May Day.

Christmas would be more like it, though. I felt that way two weeks ago when our long-awaited DG/30 was delivered. Like a kid, I plunged into a frenzy of box-ripping and paper-tossing. When the styrofoam popcorn settled, there it was: a real computer system—as opposed to the cute little orchard orphans we have used up till now.

Surprise of surprises, everything checked out perfectly, and the software came up on the first try. That was the easy part. Now comes the retraining of staff members who are comfortable with the foibles of the old way of doing things. There's no overt foot dragging, but neither is there anyone who shares my enthusiasm for updating all of our procedures and moving them to the new system.

This is my first real encounter with a problem Charlene Kirian refers to regularly in her columns on office automation. Most *Focus* readers have probably forgotten the resistance they felt when they first encountered a computer—or maybe they never felt it. But most of the people who are being swept along with the next wave of computer integration still feel that way: vaguely threatened by something they don't understand, and somewhat hostile to the changes computers are forcing on their comfortable routines.

It would be easy to dismiss these concerns as the unfounded anxieties of "naive end users." But just watch what happens the first time an anxious user loses hours of work because he or she forgot to follow some poorly explained procedure. All that free-floating anxiety suddenly finds an anchor, and the task of training becomes much, much harder.

As the use of computers becomes more widespread, there are more and more users who don't really understand how the machine works—and for the most part don't really *need* to understand. They occupy a middle ground in the technology; their work requires them to become experts in manipulating a tool that someone else maintains. Think of them as drivers of Indy cars. They don't need to care about the internals of the internal combustion engine; they just want it to run dependably—and fast.

We are seeing more and more of these applications experts in NADGUG, and they make a welcome addition to the group. As Rene Dominguez notes in the interview on page 32, OASIS, the Office Automation Special Interest Subcommittee, is NADGUG's second largest special interest group—and the fastest growing.

End users have a lot to gain as members of NADGUG. By talking with their peers, they learn more about the products they use, and by talking with more technically oriented colleagues, they learn how to coax more functionality and performance from the machines that support them.

Don't overlook the fact that the reverse is also true: NADGUG has a lot to gain from the influx of end users. Their perspective and their concern with training new users will make all of us more aware of the need to keep our systems as "friendly" as possible. It's more than a buzzword—friendliness is a matter of survival in a fiercely competitive market.

Although my new word processor came with a huge spelling dictionary, I turned to the friendly 15-pounder on my desk to check the spelling of May Day, the holiday that was celebrated in times past with a May queen and dancing around a Maypole. The next entry helps make my point. It was just a friendly bit of serendipity, but it seemed somehow appropriate for NADGUG that Mayday, the international distress signal, comes from the French *m'aidez*—"help me." Δ

—G.F.

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This is no way to run swift word processing.

Though CEO software for Data General systems includes word processing among its many capabilities, the clumsy structure and huge memory requirements make its use a burden on your entire system. It will slow you down in the word processing race.

It would be one thing if there were no alternative. But WordPerfect's fleet-footed 4.05 version is reason enough to give CEO the boot.

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WordPerfect adds a dash of simplicity.

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WordPerfect sprints to the finish.

If the switch from CEO gives you cold feet, keep in mind that it is actually less expensive to purchase WordPerfect for your Data General system than to upgrade your hardware for more memory, which is what you'll eventually need with CEO. And through CEO Connection, your current CEO files can be changed over to WordPerfect files.

In other words, you have nothing to lose. Except a lot of heavy baggage that'll slow you down in the word processing race. For more information see your dealer. Or call or write:

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LETTERS

Looking for books

Dear Readers,

We are a small state college that has recently purchased an MV/10000. We are in need of a text to teach DG assembly language. Does anyone know of a good book? Please reply to Madeline Baugher, Southwestern Oklahoma State University, Computer Science Dept., Weatherford, OK 73096.

M.L. Baugher
Southwestern Oklahoma State University
Weatherford, OK

Utilization for chargebacks

In the last year we have grown dramatically in the on-line environment. With this growth we find that most of our chargeback tools are dwindling. Items such as report distribution, number of copies, data entry strokes, and batch runtimes are no longer valid tools for percentage breakdown at budget preparation time.

After working with the normal "daily log" reports, available as standard on Data General, we find that the information provided will not give us the statistics we need to charge out by department. The "Pages Printed Dump" report is probably most useful but isn't summarized. Individual CON # reporting, and the ability to group by CON #, would provide more meaningful statistics for budgetary purposes.

The alternatives at this point are to assign someone to develop more meaningful reports from SYSLOG or to look to NADGUG to see if someone who has had similar problems has already developed user accounting utilities they would be willing to share.

Glen D. Simmons, Manager
National MIS Operations
RCA/Ariola International
Indianapolis, IN

More date oddities

In the February 1986 issue's Prism column, George Henne, author of the column BBASIC Business, is quoted as saying that the year 2000 will *not* be a leap year. I believe this to be an erroneous statement. A leap year is any year evenly divisible by four, except for century years. A century year is a leap year only if it is evenly divisible by 400. Therefore, the years 1700, 1800, and 1900 were *not* leap years. However, the year 2000 will be a leap year.

I found these facts several years ago in the preface pages to my "Success" desk calendar. The article described the various problems with the original Julian calendar. The century leap year corrections were introduced by Pope Gregory, and the Gregorian calendar became the standard.

Incidentally, S. A. Levitz Retail Systems is a DG VAR producing inventory and accounting systems for "big ticket" retailers. Our users have no need to worry about problems when the year 2000 comes. Dates are stored as integers corresponding to the number of days passed since December 31, 1972. Our date range is therefore January 1, 1973 through September 17, 2062. Date handling routines are built-in functions of our systems.

Thanks for letting me speak out.

David M. Featherstone, CDP
Sr. Systems Analyst
S. A. Levitz Retail Systems
San Diego, CA

Editor's Note: Featherstone is correct: the year 2000 is indeed a leap year. However, it would be erroneous to blame Henne for the erroneous statement in the February issue. His only fault was in thinking the editor could absorb the nuances of the Gregorian calendar in one pass. The editor, in turn, would like to lay the blame on that other Gregory—the Pope whose calendar got us in this mess!

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LETTERS

Dr. Pepper award disputed

I think Jim Siegman's can of Dr. Pepper was awarded prematurely to Mark Ward (March *Focus*, page 6). We cracked this one in less than 30 seconds (not counting the time to key in the macro). The "hack" to do this is to issue a ^C^A (control-c control-a) during the PROC, before the PROMPT BYE is executed.

Mark Ward's solution, admittedly, is very good for users who don't know how the macro works. It takes pretty good timing to break in, even when you know what the macro does. If you don't know the macro, you might never get in.

Some experience shows that it becomes progressively more difficult to "Beat the Clock" with a ^C^A on faster systems. We did this on an unloaded MV/4000. I've found in the past that on an MV/10000, it could be done reliably only when the system was heavily loaded. Mr. Ward's Manhattan Beach system is an MV/10000 system with lots of speedup options. Perhaps this explains why it works for him. I would appreciate further feedback on this matter.

Mark E. Langner, Sr. Systems Engineer
Data General Corporation
Indianapolis, IN

Thanks

We want to thank *Focus* and Jeanne Sangster for the February article on the Black Hawk County Criminal Justice Information System.

All of the participating law enforcement agencies, the Black Hawk County Sheriff's Department, the Cedar Falls Police Department, the Evansdale Police Department, and the Waterloo Police Department, have been intricately involved in the design and implementation of this unique computer system.

We're excited about the future of computerization in law enforcement and proud to be a part of that future.

Nancy Smith, Administrative Coordinator
Black Hawk County CJIS
Waterloo, IA

Security issue journeys to Europe

After reading many of the *Focus* articles dealing with security, I am still surpised that no one has found a really secure mechanism to avoid a [!READ] allowing a user to do something other than answer a question. Therefore, I tend to disagree with Tom Gutnick, and hope to win Jim Siegman's can of Dr. Pepper.

I think this is finally a crashproof solution to the [!READ] in system security dealing with macros.

The purpose of the two macros is to prevent a CLI expert from entering the CLI or executing any CLI macro available during a [!READ] included in a macro. Let's write the first macro, "ASK.CLI," as follows:

```
PROC/1=I/2=I/STRING/BLOCK/IOC/L=@
 NULL,:CLI.PR, $ASK,%-%
```

and the second one, "$ASK.CLI," as follows:

```
PROMPT/1=ABORT/2=ABORT, BYE
BYE/1=ABORT/2=ABORT/L=@NULL,
 [!READ],%-%,]
```

Now let's run an example in the macro "EXAMPLE.CLI" and try to break it:

```
PROMPT,BYE;STRING/K
ASK,Enter,Your,Name:
WRITE, [!STRING]
[!NEQ,([!STRING]),( )];EXAMPLE;[!END]
```

The string will contain the answer to the requested [!READ] or an ABORT message. If during the execution of the pseudomacro [!READ], the user types ";X CLI" or ";MACRONAME" or tries to do a ^C^A ^C^B sequence, this will not be executed because this command or macro would just be a comment after an executing BYE. The answer of the [!READ] is returned in the STRING of the current environment where ASK has been used because we use the /string option on the PROC command that returns the BYE comment of the terminating process to the father's string.

If you ever need any other help with CLI, don't hesitate.

Ray Lagard
Senior System Engineer
Data General Brussels
Brussels, Belgium

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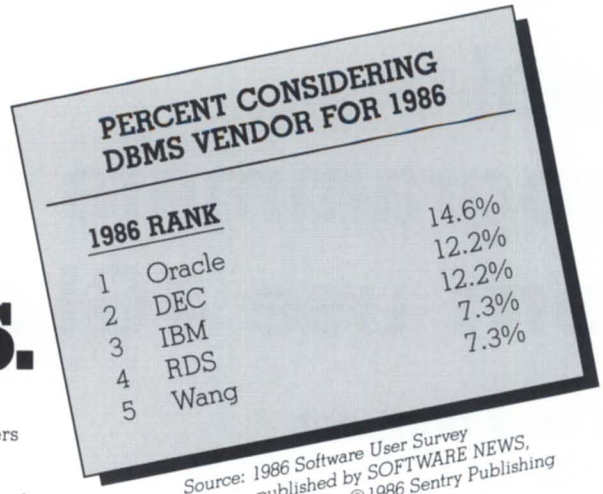

Source: 1986 Software User Survey published by SOFTWARE NEWS, Copyright ©1986 Sentry Publishing

Oracle Corporation ranks as the number one DBMS vendor for minicomputers, according to the 1986 *Software User Survey.* A lot of DG users won't be surprised. In 1979, Oracle introduced the very first *relational* DBMS and the first implementation of SQL.

Today, ORACLE is still the number one ECLIPSE MV-series DBMS. Number one in performance. Number one in 4GL and DSS tools. Number one under both AOS/VS and DG/UX.

ORACLE is also the only DBMS that runs identically on mainframes and micros, as well as minis. ORACLE has thousands of installations on IBM mainframes, DEC, DG, HP and most other vendors' minis and micros, including the IBM PC. The three fundamental reasons why Oracle has become the number one DBMS solution: Compatibility, Portability and Connectability.

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		Aug 7, 28
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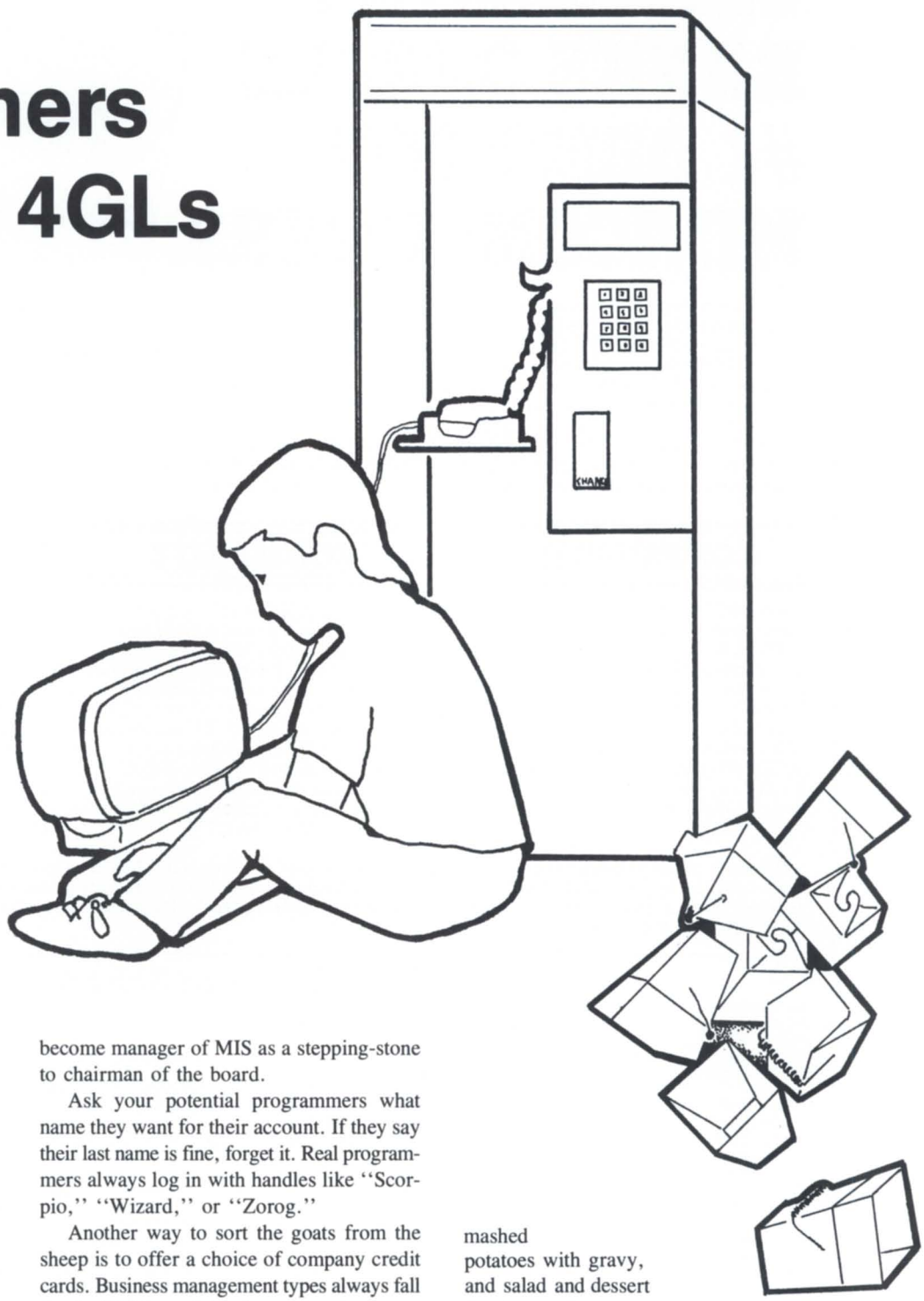
Real programmers don't use 4GLs

and they don't eat quiche either!

Adapted by Mike Marotta
Special to Focus



Computers attract all types of people today. Easily 90 percent of those enrolled in computer science or data processing don't belong there. They've enrolled in computer classes because they want to get a job and computing seems like a growth industry.

This makes it difficult for project managers and other employers. How can you know whether that friendly smile and freshly polished pair of shoes is a real programmer or someone who sat through enough classes to be given a piece of paper?

Fortunately, there are some clues as to who makes a good programmer. It is important to keep in mind that as our culture changes, the visible attributes of a good programmer also change. When I got started in programming, real programmers wrote in assembler and ate Szechuan food. Today there are new standards.

First of all, real programmers don't work for money. This has two effects. You hire them at either the high or low end of the pay scale.

At the high end you'll find the type whose self-confidence was honed when, as teenagers, they built synthesizers or wrote Apple programs to simulate the space shuttle. They ask for top dollar and settle for nothing less. They know what they're worth and they know they'll spend many long hours on a project to see it through.

On the other hand, some real programmers are so oblivious to the physical world that $14,000 a year sounds like good pay.

Anyone who haggles over salary is a business management major who wants to become manager of MIS as a stepping-stone to chairman of the board.

Ask your potential programmers what name they want for their account. If they say their last name is fine, forget it. Real programmers always log in with handles like "Scorpio," "Wizard," or "Zorog."

Another way to sort the goats from the sheep is to offer a choice of company credit cards. Business management types always fall for the VISA card. Real programmers want an MCI card so they can cut the cost of hacking at home.

Real programmers know where to buy junk food at all hours. Bear in mind that some real programmers are health food freaks. Ask discreet questions about diet. Anyone who thinks a balanced meal consists of roast beef, mashed potatoes with gravy, and salad and dessert is *not* a real programmer.

Five years ago, Pascal was a weenie language and BASIC was for kids. Today, this is not necessarily true. While you should always hire someone who likes assembler because it's powerful, don't rule out candidates who use Pascal and BASIC as well. Also, be on the lookout for those who prefer

Some real programmers are so oblivious to the physical world that $14,000 a year sounds like good pay

LISP, C, FORTH, or APL. As in the past, however, you can always scratch anyone who thinks highly of COBOL or RPG. Never hire anyone who likes fourth generation languages.

Another trap you can set is to tell the potential new-hire that your company is planning to install some interactive role-playing games. The real programmer will opt for Adventure; business managers on their way to the top like Hamurabi.

Real programmers play video games. Fake programmers don't. This is a hard-and-fast rule. The best programmers you can hire will be hot stuff at Defender and Marble Madness.

Always ask candidates what working hours they prefer. Anyone who specifies daylight hours hasn't written more than 30 lines of code at one time. Real programmers still work around the clock. If a new-hire asks for a 9-to-5 shift, verify that they mean 9 pm to 5 am.

Discussing politics with a potential programmer is a delicate situation, but can usually be handled over lunch. Start the conversation by making a bland, favorable remark about a leading (and well-liked) state or local government official. The candidate who makes a vaguely favorable remark matching yours is a manipulative politician. Real programmers are either libertarians or communists.

When you get back to the office, show the prospective programmer the working areas. Offer a choice. In one cubicle put an IBM PC with a hard drive, a couple of floppies, and a printer. In the other put a TRS-80 Model 1 attached by a tangle of wires to 50 percent of the guts of an Apple, a Wang eight-inch floppy drive, a 30-year-old IBM full-line printer, and an A-J acoustic coupler modem. The real programmer will sit down in the second cubicle and ask for a cup of coffee.

Likewise, a real programmer will never own an IBM PC.

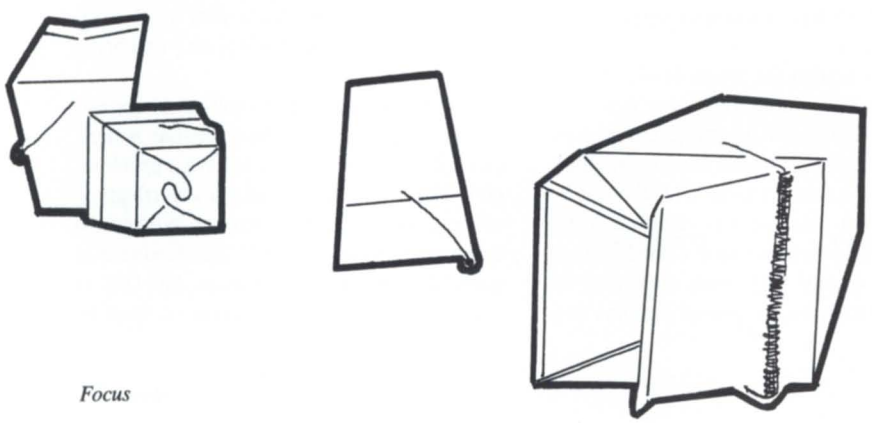
Generally, real programmers never finish college, although some do achieve this feat. Overall, the real programmer has taken only two classes in programming and learned the rest at home on a personal computer.

When hiring a programmer for a scientific or engineering project, it can be very hard to differentiate between the science nerd and the computer nerd, but there are some touchstones.

A real programmer will always choose to reinvent the wheel. Given a choice between developing an algorithm for solving the N-Body problem or producing a graphic output for a satellite in orbit around the earth, a real programmer will always choose the latter. Ask your candidate to discuss the physical chemistry of cellular respiration. Then ask about the Romulan cloaking device. A real programmer knows far more about the latter than the former.

There is one absolutely fail-safe way to test programmer authenticity. As you leave the candidate at the door, mention that your firm has an old Nova for sale. A real programmer will want to see the machine immediately. Watch out for anyone who asks for its market value. Δ

Mike Marotta adapted this newest incarnation of "Real Programmers Don't Use Pascal" from Datamation's July '83 Readers Forum by Ed Post of Wilsonville, Oregon. He is a system analyst for Michigan State University's bookstore/center for international programs.



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Risky business

What DG computers can (and can't) do about America's insurance dilemma

by Jeanne Sangster
Focus Staff

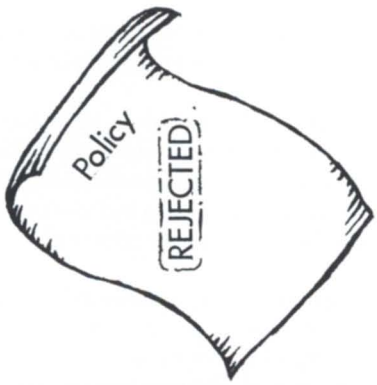
"Sorry, America, Your Insurance Has Been Canceled" was the cover of *Time* magazine, March 24, 1986. We've been hearing about the problems in liability insurance for years, but the cost of this crisis is now really hitting home, and affecting more than just the liability segment of the insurance industry. Out of the companies *Focus* contacted for this month's special on computers in insurance, one-third are either out of business or no longer in the insurance industry. One software company is doing well in a completely unrelated vertical market—hardware and software for floorcovering industry management —not glamorous . . . not risky, either.

Another aspect of the crisis in the insurance industry is evident in attitudes about Social Security. A Yankelovich, Skelly, & White survey showed 73 percent of "young professionals" aged 25 to 39 have "little or no confidence" in the Social Security system; 40 percent believe they are likely not to receive anything from it.

Well, what part do computers play in this drama? My conclusion, based on research and conversations with numerous people in the field, is that computers didn't create the problem we're currently facing, and they shouldn't be counted on to solve it. The liability dilemma, according to *Time,* boils down to a matter of statistical logic and insurer psychology. Computers might be used to calculate the former, but they're no help with the latter. They also can't cure Americans' "sue-craziness," a phenomenon watched with a mixture of disgust and wonder by the rest of the world.

A success story amidst failure

With so many companies going under, there are a few notable exceptions. I interviewed Tom Butters, director of communications for one such company, Pallm, Inc. of



Indianapolis. The last couple of years have been the best in the company's 15-year history.

Pallm's principals didn't set out to be in the insurance field. They came out of the data processing industry and had no knowledge of insurance, but 15 years ago looked around and said, "Who does it appear is really going to need progressive thinking about data processing? Who's paper-intensive?" At this time, the insurance industry had taken off its first big bite of automation but hadn't gone very far with it, so the principals decided to get involved in some insurance projects.

Their product is titled Pallm-Vector, an integrated on-line office management system for insurance home office administration. They made two decisions at the beginning that now turn out to have been right on the money. It's taken a decade and a half to see it, but those two decisions have paid off. The first was to write the software in COBOL. Fifteen years ago, that was a big step. The second was to unite all systems with a modular architecture.

Pallm's clients range from big companies like Prudential to smaller ones with 10 million dollars in written business annually. Pallm also provides a service bureau for companies that don't have enough money for their own mainframe.

Butters describes the dramatic changes in the industry—a couple of years ago one couldn't get the larger insurance companies to pay attention to packaged vendors because the only way to do business with them was in-house. That thinking has reversed itself because these companies took a hard look at how much money they were investing in updates and rewrites of internal systems and "collectively fainted." According to Pallm, one of Pallm's users had invested 150 million dollars over 10 years, including 30 to 40 updates of their system. An equivalent Pallm system wouldn't cost them that much in a century.

Butters addressed the increasing difficulty of small companies to obtain insurance: "It is a fact of life—the source of that fact is still somewhat ambiguous." According to Butters, Ralph Nader and others accuse the insurance industry of having created a false issue, but the fact of the matter is that the casualty companies beat themselves into a corner a few years back with price wars. They've become debilitated over the last few years. A lot of companies are simply not out there that were a few years ago. Others, such as Pallm, are emerging stronger.

Trouble in paradise

The insurance industry has been hurt because of a phenomenon known as the "California Blight," says Butters, which in simplest terms means "I'm hurt. Someone's going to pay." One effect of our court system has been astronomical increases in amounts being granted insured parties—money for the most part taken out of insurance companies' pockets, which were previously thought to be infinitely deep.

The California Blight came out of a practice in the Golden State called "joint and several liability." According to *Time*'s insurance issue, this type of liability "allows a plaintiff to sue everyone who might share in the responsibility for an accident, and if any one of the defendants is found to be partially at fault, that defendant may be forced to pay the entire judgment." Also, in California there's virtually no time limit on when a person can sue for liability. Someone could wake up one morning five years after a cab accident and say, "I've got whiplash" and bring suit.

Butters believes the factor most reponsible for the problems is the "peculiar American notion that any time you have a problem, go to litigation over it. And if it's worth going to litigation over, then somebody's got to make some money on it." The Japanese in particular find this very curious. The U.S. is the only country where this type of thinking

Computers didn't create the problem we're currently facing, and they shouldn't be counted on to solve it

is common. According to Butters, Lloyd's of London (the largest foreign reinsurer that indemnifies American casualty companies against extraordinary loss) is "scared to death of what's going on. They think we're nuts, that our juries are nuts, that our court system's crazy."

Ronald L. Martin is vice president and data processing manager for a division of Riepe, Buchanan & Piper, an insurance/accounting firm in Iowa City, Iowa. He cites three factors in the difficulty small businesses are having in getting insurance: losses in certain facets of the insurance industry (these losses, combined with a lack of reserves, have resulted in the death of many companies), interest income, and the economy.

Except for micros, Martin's division uses only DG equipment (an MV/4000 and MV/10000). His clients are companies that set up benefits packages for employers. The 4000 is being used for internal company business, including project management. Everything that's operational is on the 10. The two MVs (plus a C330 used before the upgrade to the 4000) have been "very reliable—99 percent uptime."

Has the computer changed things?

Martin comments on the comprehensiveness of the computer's effect on the insurance world: "It's impacted the industry in all facets—accounting, rate calculations—I'm not sure what the insurance industry would have done without it!" The computer has meant a real reduction in administrative services—this is clear to see when one realizes that 80 percent of most invoices is repeated from the previous month, for example. The computer does a better job of producing invoices and statements and is an invaluable tool in making premium calculations, performing claims processing functions, and keeping track of accumulations and year-to-date information.

Martin reports only one problem with his company's use of computers—insuring backups, especially in disaster situations.

Where does he see his segment of the insurance industry (third party administration) going in the next 10 years? Martin predicts it will become "a much more service-oriented industry, providing insurance company services more locally." This is an ironic twist—whereas the common idea or fear concerning computers is the *collection* of vast amounts of data into huge data banks (the Big Brother theme, where this mass of information is used for harmful purposes), computerization of the insurance industry is producing the opposite—*decentralization* of information to the local level.

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Computerization of the insurance industry is producing the decentralization of information to the local level

According to Martin, "The insurance industry has become so large that one can no longer keep all the information necessary on one large data base or computer. *Everything* is decentralized. As things decentralize to the regional level and as data collection at that level fills up the computer system, it will need to be broken down again. The amount of information necessary is really snowballing the computer right now. Five years ago you were probably keeping half as much data on the computer as you are now, and that amount is likely to double again."

Martin feels positively about his company's future: three to five years from now the company will probably be in the market for an MV/20000. Within a year and a half he expects some of their clients will have their own remote terminals to be able to provide themselves with services in the claims payment or administration areas.

Worlco Data Systems also has high hopes for the future, but only because they got *out* of the insurance field. James M. McMonagle is vice president and chief financial officer for Worlco, in King of Prussia, Pennsylvania. The company burned down in a large fire in January, 1984. In March of 1985, having suffered reversals in the marketplace because of the fire, they felt that in order to ensure the profitability and survival of the company they needed to get out of the insurance field. Their shelves still contain DG software and they have installations, but "it's very difficult to sell DG systems to the insurance marketplace, especially when you've just had an enormous fire." Two months after their decision to shut down the insurance development group, the company returned to profitability, and they have stayed profitable since.

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Canada's not-so-clean bill of health

Although the most claim-happy, the United States isn't the only country with insurance-related problems. Gordon R. Galer is assistant administrator for the Regional Medical Association of Hamilton (RMA) in Ontario, Canada. His firm processes some 35,000 claims per month using a single computer system, a C350, and plans to upgrade within the next 24 months.

I remember being envious when my father (a Canadian resident) told me of his "50-cent surgery." That amount wouldn't buy an aspirin in a U.S. hospital, and he didn't even have to bury himself under the reams of paper involved in filing insurance claims as I have. However, Galer helped me realize socialized medicine isn't as simple as it seems. In Ontario, the doctors are responsible for billing the government for all services rendered. Every claim has to be coded by procedure/treatment, and there are thousands of codes. Each time a doctor sees a patient, he or she makes out a claim, which RMA stores on magnetic tape and sends to OHIP, the Ontario Health Insurance Plan. OHIP then pays RMA, and throws out claims that lack certain information. RMA is responsible for incorporating any changes in the insurance plan/procedures into their software, and incurring the cost of those changes.

Canada is experiencing legal hassles as well. An insurance procedure currently causing huge court battles in Ontario is labelled "opting out." By opting out, a doctor can choose to bill patients directly rather than billing the government, and charge higher fees. The government is trying to pass a bill that will outlaw this practice completely, and doctors view the attempt as an affront. It's all "political and financial football," Galer says.

Back in the land that invented football, *Time* magazine states that no matter who you ask, the insurance crisis has been brought on by greed. Whose greed? "Insurers and some of their customers blame aggressive lawyers, inventive judges, and softhearted juries for twisting legal concepts of negligence into novel shapes to justify excessive damage awards to people who claim personal injury." Although wise computer use may help companies to cut costs in an attempt to adjust to the new climate, ultimately the solution isn't up to our computers. Δ

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Intelligent defaulting

The power of the fourth generation

by Dave Edmunds
Special to Focus

Perhaps the most important difference between the third and fourth generations of software technology is what happens when the software isn't explicitly told what to do. Fourth generation languages (4GLs) can make default decisions in the absence of explicit instructions from the programmer. A good 4GL takes the additional step to intelligent defaulting: it can follow implicit instructions as well as explicit ones.

A 4GL can make intelligent default decisions because it has a built-in knowledge base of information about the data processing world in general, and the programmer's system in particular. Its ability to refer to the knowledge base means it doesn't require as much explicit information from the programmer.

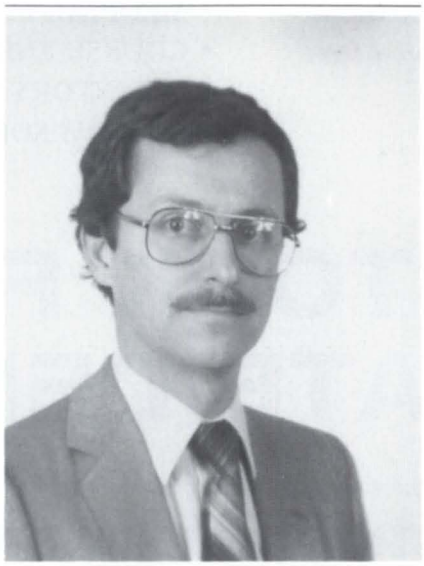
The knowledge base of a 4GL works at many levels. At the highest level, it contains information about computer applications in general. This information is in the form of a model (or series of models) that represents the general form of what a computer program should be and how it should be organized. Each 4GL has its own unique model—you could think of it as the central philosophy of the language. It cannot be changed by the programmer.

At the next level, the knowledge base contains information about the operating environment of the program—the computer operating system, the data base system, and so on. By having this information available but isolated from the user's program, the 4GL can automatically deal with any peculiarities of the operating environment without requiring changes to the user's program. A program written in a 4GL can be moved to an entirely different computer with no changes, and it will still work properly.

At the lowest level, the knowledge base contains information about the user's specific application. This level contains information such as application security, default locking strategy, and organization of the files and elements that make up the data base. This level of the knowledge base is under complete control of the programmer (or the data base administrator), and is generally in the form of a data dictionary. It can contain as much or as little information as the user wants.

In general, any information that is static (unchanging) for the application should be stored in the knowledge base. It is important to note that the information in the data dictionary can be added to, modified, or deleted at any time. This means the dictionary is able to evolve and change to reflect the current needs of the user's application.

When a programmer writes a program using a 4GL, the language interprets the programmer's instructions according to the language's internal model of what a program should be (the highest level of the knowledge base). Default decisions are made according to what fits the model, and according to the operating environment of the program (the second level). Finally, the program is augmented with information from the user's data dictionary (the third level). Minimal specifications from the programmer thus result in a very complex and consistent final program—complete with application security, data base locking, and data integrity—all generated automatically.



Because of the intelligent default decisions the 4GL makes on the programmer's behalf, the programs are generally smaller, less complex (externally), and more flexible than programs written in traditional 3GLs. The result is greater programmer productivity and improved consistency between programs of the same application.

There are many theories and predictions about artificial intelligence and fifth generation programming languages. An important difference between fourth generation and fifth generation technology will be the philosophy used for making default decisions.

A 4GL bases its default decisions on its internal model of computer programs, and on information about the application that the user supplies through the data dictionary. The model never changes, and the additional information must be explicit.

Fifth generation software, on the other hand, will learn from what the programmer has done in the past, and will adjust its own basic model to match the programmer's particular view of programming. The important thing is that fifth generation software will "learn" implicitly from past experience, rather than having to be told explicitly through the data dictionary.

One of the subtle factors that influences programmers' attitudes towards a 4GL is the language's model of the "perfect" program. The closer the model matches the way a particular programmer thinks, the more that programmer will like that particular language, and the more powerful the language will be for that programmer. If a fifth generation language is able to learn from the programmer and adjust its model to match the programmer's style, it will become a programming tool tuned to the user. The more the programmer uses the language, the more power the programmer will get out of it.

"Intelligent defaulting" is one of the most important areas in the evolution of programming languages. It is what makes fourth generation technology so much more powerful than the third generation, and it is leading the way towards the fifth generation and artificial intelligence. Δ

Dave Edmunds is a senior member of the research division of Cognos Corporation, where he has been working in the area of fourth generation software technology since 1978. He can be reached for questions or comments at 2 Corporate Place I-95, Peabody, MA 01960; 617/720-1503.

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Mail BBag

Readers talk back

by George Henne / Contributing Editor

It's time once again to empty out the mailbag. I've been getting an increasing amount of response to these columns—which I take as a strong indication that *Focus* has a vital and growing readership. I'm not only surprised at the amount of the feedback I get; I'm also impressed by the amount of knowledge the average *Focus* reader has about his or her system.

I'm always a bit taken aback when I write a column that inspires a response from someone at Data General. I was especially surprised recently when I received a letter from the developers of AOS/DVS (also known as the Distributed Environment VIrtual Operating System—"DEVIOS"). The writer said my observation that AOS/DVS was going to be stuck permanently with this unflattering nickname was nothing new within DG. They had called it Devious all along. The letter appears to be legitimate—it had a Westboro postmark and mail stop number. Whose mail stop it is I haven't found out yet.

Another issue raised a few columns back has resurfaced. In January I described DG's plans to change RDOS Business BASIC so it would use the RDOS mux drivers instead of its own. This would mean less duplicate code for DG to support, and would allow Business BASIC to more easily take advantage of new devices as they come out. A potential drawback is that the secondary interrupt key would not be supported as it is now. DG invited those who think they might have problems with this to contact them.

The replies from readers on this point were quite interesting. One user, in particular, was concerned because he has interfaced his S/280 with an AT&T Enhanced 911 system. Emergency calls that come in on the 911 system automatically fill out portions of the input screen with information such as the telephone number of the caller. The AT&T unit sends messages that are terminated by a variety of characters. For purposes of speed, the user does not want to check the output character-by-character. Instead, he uses all the unpend and interrupt keys. Data General is currently working with the customer to come up with a solution.

This user might be facing a real problem. The difficulties many other users face won't be as bad, since the secondary interrupt can still be used as long as CTRL-C is entered first. However, if you think you might run into problems with this, Data General is still very much interested in talking with you. I can help you if you want to get in touch with them.

Incidentally, I mentioned in November that the largest terminal count I had seen on an RDOS BBASIC system was at the site of one of our customers—they were running 27 CRTs, two serial printers, a time clock, and two system printers on an S/280. That customer has since upgraded to an MV/10000, so we have a new champ. It's none other than the aforementioned user with the interface to the 911 system; he has 26 on-line users (plus printers and the AT&T units). He writes, "Seldom does the S/280 even flinch. It is a very fast machine, and that, coupled with revision 8.00 of Business BASIC, makes it a showpiece."

But how does our client who converted to the MV/10000 from the S/280 feel? He says the speed is unbelievable: he says it's barely possible to tell any difference in response time from 1 terminal to 25 going full blast!

How hard does BBASIC work an MV class CPU? There are so many variables it's tough to give a quick answer. We had the opportunity recently to run the Data General performance monitor on one of our systems. The results were interesting.

We ran it on an MV/4000 with 17 very heavy users. The system has 2 MB of memory, and a 354 MB disk. Response time on the system is excellent, but our local DG office wanted to know how the resources were being used before recommending our software to a client of theirs.

It wasn't much of a surprise that the memory was fully used. Of course, the monitor used a significant amount of memory (equivalent to several BBASIC jobs), but the user load was such that more memory could speed up the system. What was a surprise was the amount of CPU time being consumed: the CPU was only about 50 percent utilized—and a third of that was by the operating system! The disk was also loafing—when a request was made of it, it was already busy just 17 percent of the time. Up to 40 percent is usually considered acceptable.

If you are concerned about the performance of your MV system, you might consider running the performance monitor on it. I don't think everyone should rush out and buy the monitor, though. In the end, all it can tell you is to get more memory, buy another disk drive, or get a bigger CPU. However, Data General system engineers have been known to put the monitor on users' systems for just a few minutes to show them how it works. That might be all you need.

There's been a change of leadership at Data General for Business BASIC marketing. Russell Harms, who met many BBASIC users at the 1985 NADGUG Conference, has left Data General. His replacement is Paul Norman. You can reach him at Data General in Westboro.

I was happy to receive a newsletter from the NADGUG Business BASIC Special Interest Group this month. The BBASIC SIG has been rather quiet for a while, because the president has been quite busy with his fulltime job. He is looking for volunteers to help or replace him. If you would like to help out, or just become a member, you can contact the BBASIC SIG as follows: BB SIG, c/o Mark Strickland, Evans Paints, Inc., P.O. Box 4096, Roanoke, VA 24015. Dues are only $10 per year, so you really have no excuse not to join.

I'm told DG now has rev 4.20 of AOS/VS Business BASIC in beta test. It's not radically different—more of a refinement revision, with fixes for some of the outstanding STRs. Two of the new changes are support for big PIDs: since the MV/20000 theoretically supports up to 1008 terminals, the field size for PID number must be expanded, and the .VL file structure will be changed to allow larger files. A field which was formerly only 2 bytes in the header will be expanded.

A recent call from a user dealt with the problem of backups, or lack of them. I'm always amazed when I get calls like this. The customer had been running his new MV system for several months, and had been careful to back up his application files on a regular basis. The DG field engineer came in to look at a problem, and when he left, the disk would no longer boot. It had to be cold-started, and all the information reloaded.

What good was a complete backup of the application files when the programs, macros, operating system gen, and all the utilities were not backed up? Sure, they could be recreated. But this was going to take a couple of weeks, and the system would be down until this work was complete. There didn't seem to be any shortcuts.

The user was genuinely sorry he hadn't done that backup. I doubt very much he will ever forget one again. But why is it that it always seems to take a disaster before people realize how important routine backups are? In this case, the stuff most likely wasn't backed up because the system has a 354 MB drive and a streamer tape. If you have ever used this combination, you know that backup is a lengthy and somewhat unreliable process. To do a complete backup probably seemed to be more trouble than it was worth—at the time.

Take a minute to think about what would happen if your disk drive were completely wiped out. How long would it take before you were up and running again? If you have to do anything more than just copy simple backup tapes (or disks), I suggest you do a complete backup *today*. (P.S. If you're the manager, and the operators are responsible for doing the backup, don't just assume they're doing it. I've seen many sites where the operators have figured out they can get another hour of work in if they skip the backup. Especially at month end!)

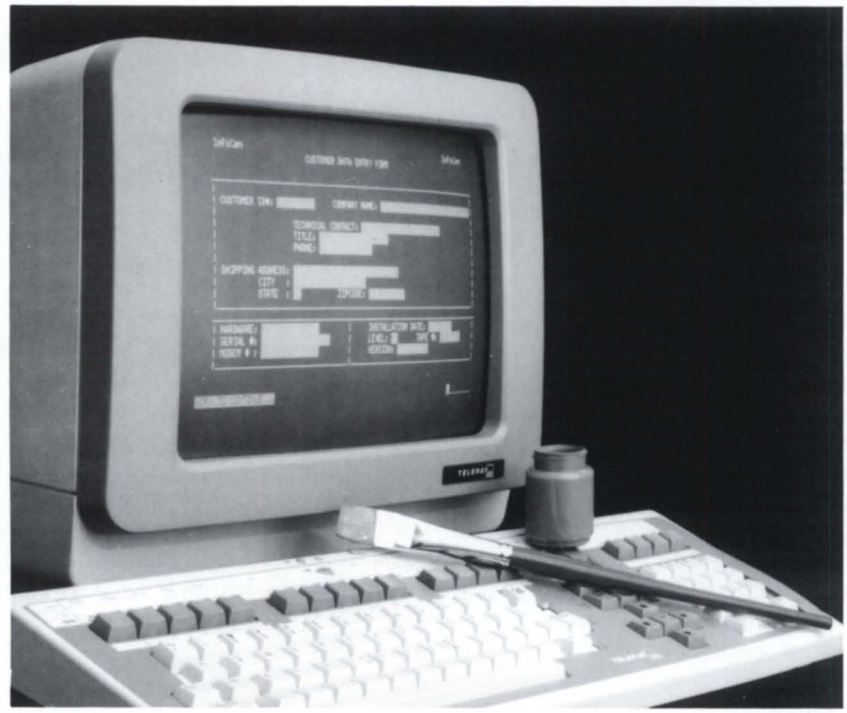
Finally, a few more words on a subject that has brought me more response than anything else. Having a steady supply of power is vital to MV class machines. In my opinion, the battery backup solutions DG provides are too expensive and not effective enough. In last December's issue (page 32), I told about some of the success we have had using third party Uninterruptable Power Supplies (UPS).

The power problem will become more acute with the MV/2000 DC, because Data General doesn't offer any battery backup for it. This appears to be a glaring deficiency—but then the competition doesn't include battery backup either, and they need it just as badly.

Data General hasn't recommended any alternative solutions yet. My column elicited a lot of response from users who recognize the problem and are looking for good, cost-effective solutions. (This concerns everybody, not just Business BASIC users).

If you have tried a particular combination of UPS and Data General and had some success (or no success!), why not share it with other *Focus* readers? Send me your story and I'll write up the results in a future column.Δ

As vice president of MICOM Computer Systems, George Henne has worked with many Business BASIC users during the past 7 years. Send questions or comments to him at 575 Madison Avenue, Suite 1006, New York, NY 10022; 416/445-4823.



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So who needs Fortran? Part 2

by Tim Boyer
Contributing Editor

Last month, I started to show you how to write scientific routines in ICOBOL. My reason for getting involved with such a strange enterprise was that our lab needed multi-terminal calculations that could hook into existing ISAM files. In last month's column I covered the sine, cosine and tangent functions, and finished up with the arcsine routine, which really needs a square root routine to work well. So dig out your old copy (you *do* keep this magazine, don't you?) and we'll get started. For those of you who don't have last month's issue—maybe it's time you joined NADGUG!

The square root routine is familiar to anyone who took an algebra course in the Bad Ol' Days—before calculators. You took the number that you wanted to find the square root of, approximated the root, and divided the approximation into the original number. Then you took the average of the result and your approximation, made that average your new approximation, and repeated until your teacher told you that you were close enough.

Sounds complicated, but in COBOL the longest process is finding the approximation, like so:

```
MOVE .001 TO APPROX.
IF ORIGINAL-NUMBER > .001 MOVE .1
 TO APPROX,
ELSE IF ORIGINAL-NUMBER > .1 MOVE
 1 TO APPROX,
ELSE IF ORIGINAL-NUMBER > 100 MOVE
 10 TO APPROX,
ELSE IF ORIGINAL-NUMBER > 10000
 MOVE 100 TO APPROX,
ELSE IF ORIGINAL-NUMBER > 1000000
 MOVE 1000 TO APPROX,
ELSE IF ORIGINAL-NUMBER > 100000000
 MOVE 10000 TO APPROX,
ELSE IF ORIGINAL-NUMBER> 10000000000
 MOVE 100000 TO APPROX.
```

Now it's only a matter of how many times you want to repeat the divide/average/divide routine. I've found that 10 repetitions are more than adequate, as you can see in table 1. This small number of repetitions also makes the routine fast enough to be useful.

```
DIVIDE ORIGINAL-NUMBER BY APPROX
PERFORM COMPUTE-SQUARE-ROOT 10
 TIMES.
GO TO COMPUTE-THE-ROOT-EXIT.
COMPUTE-SQUARE-ROOT.
DIVIDE ORIGINAL-NUMBER BY SQUARE-
 ROOT-OF-NUMBER
   GIVING APPROX ROUNDED.
COMPUTE SQUARE-ROOT-OF-NUMBER
 ROUNDED =
   (SQUARE-ROOT-OF-NUMBER +
    APPROX) / 2.
```

Table 1: Square root results

Number	Calculator	Computer
.00001	0.003163	0.003163
.01	0.100000	0.100000
2	1.414214	1.414214
10	3.162278	3.162278
9999999	3162.2775	3162.2775

With a little experimenting, the number of iterations could probably be cut down without much loss in accuracy—as you can see, my results on the computer are identical with those from my calculator. I'm playing it safe, though, and not worrying much about speed—after all, running this routine 1,000 times only takes 1 minute!

Now, how does this help with the arcsine? Well you change your code in the arcsine routine I gave you last month to look like this:

```
IF SINE-OF-ANGLE > .5
COMPUTE ORIGINAL-NUMBER ROUNDED
  = 1 - (SINE-OF-ANGLE ** 2),
PERFORM COMPUTE-SQUARE-ROOT,
MOVE SQUARE-ROOT-OF-NUMBER TO
 SINE-OF-ANGLE,
PERFORM COMPUTE-ARCSINE,
COMPUTE ARCSINE-OF-ANGLE
 ROUNDED = 1.570795,
ELSE PERFORM COMPUTE-ARCSINE.
```

Those of you who want a mathematical justification for what I'm doing can look it up in a trigonometry textbook. This modification gives us two-decimal-point accuracy over the entire range, which should be more than sufficient—unless you're running navigation programs in ICOBOL.

Now comes the trickiest functions of all—the logarithim and antilogarithm. If you've stayed with me so far, stick around—these may be a little complicated, but they are the most useful routines yet.

The formula for the logarithm is:

```
2 ((x-1/x+1) + 1/3(x-1/x+1)**3 +
 1/5(x-1/x+1)**5)
```

which really isn't as bad as it looks. The COBOL code is as simple as our previous functions:

```
COMPUTE LOGARITHM-OF-NUMBER
 ROUNDED =
(ORIGINAL-NUMBER - 1) / (ORIGINAL-
 NUMBER + 1).
COMPUTE LOGARITHM-OF-NUMBER
 ROUNDED =
LOGARITHM-OF-NUMBER +
LOGARITHM-OF-NUMBER ** 3) / 3) +
LOGARITHM-OF-NUMBER ** 5) / 5) +
LOGARITHM-OF-NUMBER ** 7) / 7) +
LOGARITHM-OF-NUMBER ** 9) / 9) +
LOGARITHM-OF-NUMBER ** 11) / 11) +
LOGARITHM-OF-NUMBER ** 13) / 13) +
LOGARITHM-OF-NUMBER ** 15) / 15) +
LOGARITHM-OF-NUMBER ** 17) / 17) +
LOGARITHM-OF-NUMBER ** 19) / 19) +
LOGARITHM-OF-NUMBER ** 21) / 21).
MULTIPLY 2 BY LOGARITHM-OF-
 NUMBER ROUNDED.
```

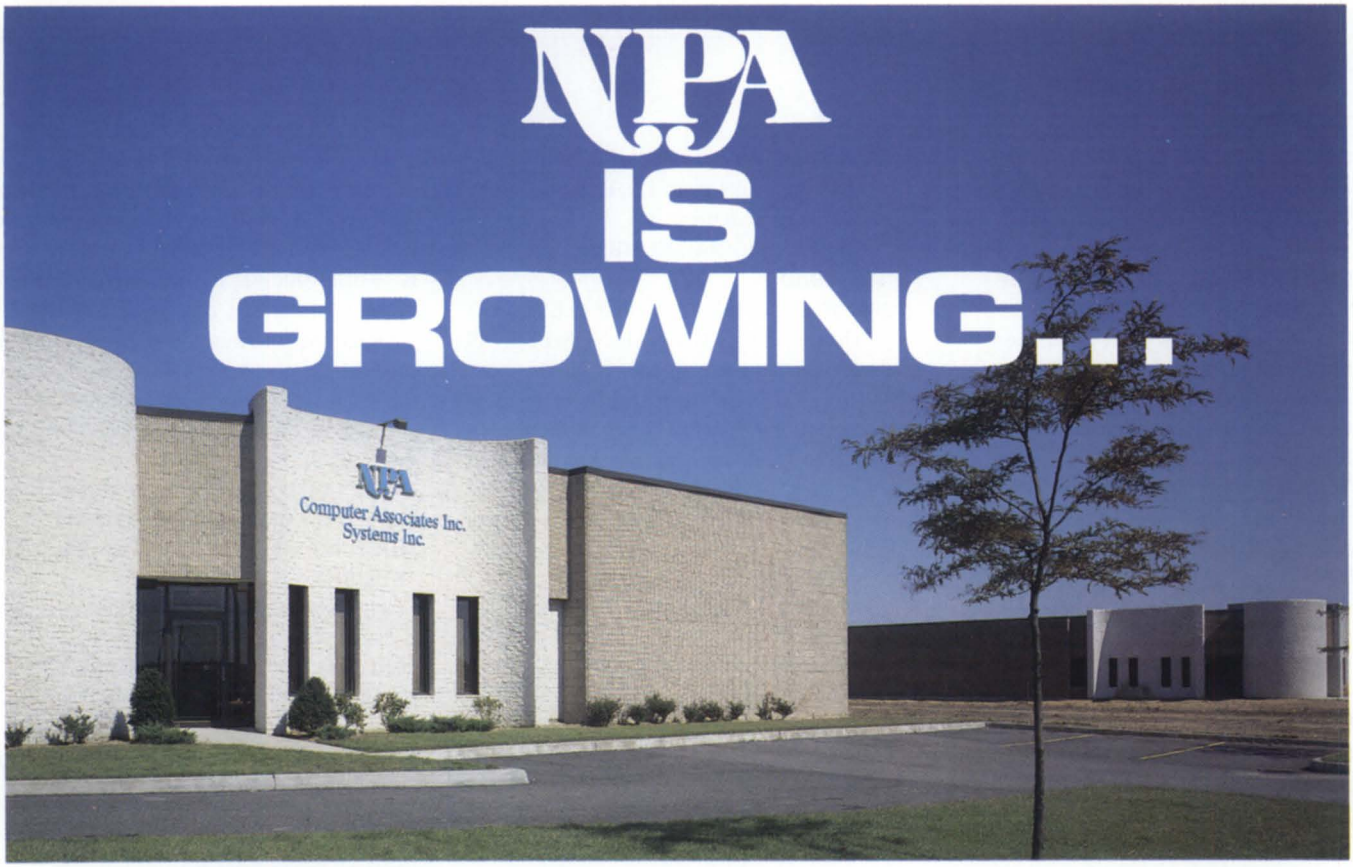
In this case, the formula is simple enough—it's the setting-up exercises that are a pain. This algorithm works very well with numbers between 0.1 and 1.0. The next step is to get your input number into that range.

In order for the conversion routine to work, it needs a number greater than 1. If the original number is zero or negative, you can't find its logarithm anyway, so put a sentence at the beginning of this routine that states "IF ORIGINAL-NUMBER < = ZERO THEN GOTO THIS-ROUTINE-EXIT". If the number is fractional, I use the following code:

```
IF ORIGINAL-NUMBER < 1
MOVE "Y" TO DECIMAL-FLAG,
COMPUTE ORIGINAL-NUMBER
 ROUNDED=
   1 / ORIGINAL-NUMBER.
```

This gives me an ORIGINAL-NUMBER greater than one, and the DECIMAL-FLAG simply keeps track of whether or not I've inverted the number.

Now for the fun part. My WORKING-STORAGE for this routine looks like this:



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```
77 ORIGINAL-NUMBER    PIC 9(12)V9(6).
77 LOGARITHM-OF-NUMBER    PIC
 S9(6)V9(12).
77 TALLY    PIC 9(2).
77 DECIMAL-FLAG    PIC X(1) VALUE
 "N".
01 CHECK-DECIMALS    PIC Z(12).9(6).
01 REDEFINE-CHECK-DECIMALS RE-
 DEFINES CHECK-DECIMALS.
   03 DECIMAL-CHECK OCCURS 19
 TIMES PIC X(1).
```

To find out how large this number is, I do the following:

```
MOVE ORIGINAL-NUMBER TO CHECK-
 DECIMALS.
PERFORM DUMMY-PARAGRAPH VARY-
 ING TALLY FROM 1 BY 1
   UNTIL DECIMAL-CHECK(TALLY) NOT
    = SPACES.
COMPUTE TALLY = 12 - TALLY.
```

Because I am redefining a zero-suppress field as alphanumeric, the data in DECIMAL-CHECK will be blank until a number comes up. If the number is 9,876,543,210, then the field will be blank through the first two places. TALLY will have a value of 2, and when I subtract this value from 12, TALLY will be 10. My next statement is

```
COMPUTE ORIGINAL-NUMBER
 ROUNDED =
ORIGINAL-NUMBER / (10 ** TALLY).
```

The resulting ORIGINAL-NUMBER will always be between .1 and 1, in this case 0.987 . . . . Now we're ready to put this number through our first formula. After that's done, the result must be brought back into scale, since we divided the original number by 10 ** TALLY. Since you multiply logarithms by addition, and exponentiate by multiplication, this code becomes

```
COMPUTE LOGARITHM-OF-NUMBER
 ROUNDED =
LOGARITHM-OF-NUMBER + (TALLY *
 2.3025851).
```

(since 2.3025851 is the natural log of 10). Then, to correct if your original number was a fraction,

```
IF DECIMAL-FLAG = "Y"
MULTIPLY -1 BY LOGARITHM-OF-
 NUMBER.
```

I know this is beginning to look like a page out of *Scientific American*, but the coding really isn't that difficult—you can ignore the rationale behind it if you want. And the effort is worthwhile—I have mortgage tables, present value, etc., running in ICOBOL!

Keep these routines in copy files and the procedure becomes easy. For instance, to find the value of $100 compounded monthly at 12 percent for 66 months, the code looks like this:

```
MOVE 1.01 TO ORIGINAL-NUMBER.
PERFORM COMPUTE-LOGARITHM.
MULTIPLY 66 BY LOGARITHM-OF-
 NUMBER
   GIVING ORIGINAL-NUMBER
    ROUNDED.
PERFORM FIND-ANTILOGARITHM.
MULTIPLY 100 BY ANTILOGARITHM-OF-
 NUMBER.
```

Despite all the playing around with numbers we've been doing, the results are very accurate (see table 2)

Table 2: Logarithm Results

Number	Calculator	Computer
.001	-6.907755	-6.907755
.5	-0.693147	-0.693147
1.01	0.009950	0.009950
10	2.302585	2.302585
50	3.912023	3.912009

Mercifully, the antilogarithm routine is much easier. The routine works best for values between .1 and 1, so we still have to do some manipulation, but the range of possible inputs is much smaller (the antilog of 30 is about ten trillion!), so we can use an IF statement.

```
IF ORIGINAL-NUMBER < -10 MOVE
 -100 TO DIVIDE-FACTOR
ELSE IF ORIGINAL-NUMBER < 0 MOVE
 -10 TO DIVIDE-FACTOR
ELSE IF ORIGINAL-NUMBER < 10 MOVE
 10 TO DIVIDE-FACTOR
ELSE MOVE 100 TO DIVIDE-FACTOR.
COMPUTE ANTILOG-OF-NUMBER
 ROUNDED =
   ORIGINAL-NUMBER / DIVIDE-
    FACTOR.
COMPUTE ANTILOG-OF-NUMBER
 ROUNDED =
   ANTILOG-OF-NUMBER +
```

(continued on page 41)

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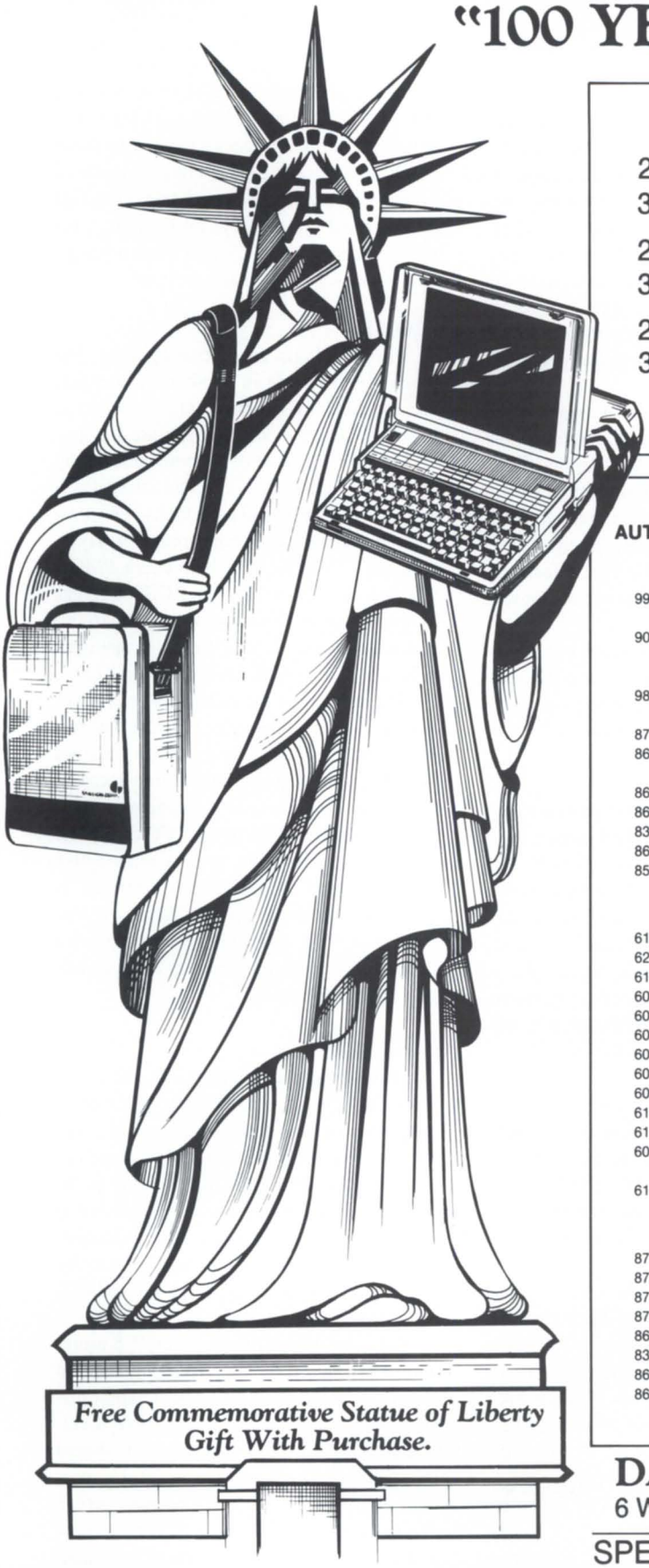

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First things first

More information about a favorite subject—priorities

by Brian Johnson
Contributing Editor

:PRIORITIES_II

A few months back, I wrote a column on one of my favorite subjects: process priorities. It drew quite a few comments. This month I'm going to clear up a few foggy areas in the previous column and add some new information.

:RECAP

In the previous column, I recommended that the average AOS{/VS} system would benefit from having all processes run at the same priority, specifically SWAPPABLE 2. This scheme takes advantage of the heuristic scheduling algorithm in AOS{/VS} that monitors process behavior and assigns it a subpriority from 1 to 6 based on its past behavior.

The recommendation still stands.

The easiest way to implement this scheme is to use PREDITOR to set everybody's priority to 2, and make the following changes to your UP macro: add a PRIORITY 2 2 command at the top, add a CONTROL @EXEC PRIORITY/PREEMPT @dev 128 for each spooled device, and add a CONTROL @EXEC PRIORITY (1,2,3,4) 3 to lower the priority of the batch streams.

:EXCEPTIONS

Like any general recommendation, this one has exceptions. They fall into two categories: Can't Help and Can't Hurt.

Processes that require a resident process type (like PMGR, GSMGR, SLDCU, and SLISC) fall into the Can't Help category and should be left alone.

Processes like XLPT, which consume tiny amounts of CPU and memory, and that behave badly if they don't get it (frequent pauses on fast printers), fall into the Can't Hurt category and should get a higher priority.

Processes that do not have humans at tubes directly involved with their execution, like batch streams, should get a lower priority. This saves AOS{/VS} the time and effort of determining that their behavior is noninteractive (which can take a few seconds) and cranking their subpriority down to 6.

:MEA_CULPA

In the previous column I recommended lowering the priority of resident AOS/VS Can't Help processes to Group 2; specifically 258. Several users reported problems when they tried to do this. Unfortunately, lowering a resident (or preemptible) process' priority to Group 2 does not cause it to get scheduled heuristically. Instead, AOS/VS unconditionally schedules the process as if it were noninteractive (TSE=6 for you internals junkies).

I checked out the systems of several of the people who reported problems and found that the resident 258 process was getting CPU-starved because the remaining processes at swappable 2 were all more interactive (TSE < 6 for you freaks) and were consuming close to 100 percent of the CPU. That effectively shut out the resident 258 process, causing problems.

As a result, I hereby rescind my advice about changing Can't Help processes to Group 2 priorities on AOS/VS: consider them to be Can't Hurt and leave them alone.

:ABERRANT

Over the past few years I've run into a common problem on AOS{/VS} which I call Aberrant Process Behavior. See if this scenario rings a bell: response time is fine until a user runs a particular program, usually a piece of homegrown software or a third party package, and usually a program that is noninteractive (like a report, or a spreadsheet during recompute). While the program is running, response time goes in the toilet for all interactive users.

You run PED and check for swapping: there isn't any. You run DISCO and check the disks: they're not overly busy. A pass through HISTO and HISTOREPORT shows 0 percent idle CPU, a not-unexpected result considering that a noninteractive process is running.

So what's wrong? In theory, the AOS{/VS} scheduler should detect that this particular program is noninteractive and lower its priority accordingly, clearing the way for the truly interactive processes. A final check using PED to display the subpriorities (/TSE for AOS/VS and ?PSEX for AOS) shows that the aberrant process has a subpriority of 1, 2, or 3, indicating that AOS{/VS} considers it to be relatively interactive.

Aside: dedicated systems consisting entirely of aberrant processes work just fine. It's only when aberrant processes try to co-exist with normal processes that the problem surfaces. Several big OEMs have discovered to their dismay that their packages work fine on dedicated systems, but raise havoc when trying to co-exist with CEO or other nonaberrant packages on the same system.

:CAUSES

Two problems are occurring here: the process is behaving in an aberrant manner, and the AOS{/VS} scheduling algorithm is unable to detect it and compensate for it.

The primary cause of aberrant behavior by processes is a high rate of fast turnaround system calls and/or logical page faults. The most common causes are high rates of IPCs, ?SIGNL, ?WTSIG, low byte count PMGR I/O, and ?SPAGE I/O (which AOS/VS counts as page faults). Heavily overlayed 16 bit processes are especially prone to aberrant behavior due to high rates of ?RCALLs.

The inability of the AOS{/VS} scheduler to detect aberrant behavior is a result of two problems: the time slice algorithm does not take the speed of the processor into account, and the amount charged for systems calls is fixed, regardless of the actual CPU time used.

The net effect is that noninteractive processes tend to get mischaracterized as interactive on the faster processors. It also means that CPU usage charged to the process is much lower than actual usage, especially on slower processors.

:SOLUTIONS

At this point AOS readers can quit early. Your only choice is to change the problem program so it does fewer system calls. Try cutting down the system call rate as much as possible. Use the LOGCALLS utility package to analyze your system calls, then try to eliminate as many as possible using techniques like better buffering. Your local SE may be able to help you analyze the LOGCALL results and suggest changes.

The same advice goes for AOS/VS users, with the addition of the standard advice on making sure working set sizes are appropriate (a topic too complex to be covered here). In addition, 16 bit problem programs should be recompiled and relinked as 32 bit programs as soon as possible. Of course, you can also just wait for AOS/VS rev 7. Let me know how it turns out; I have no plans to run it until

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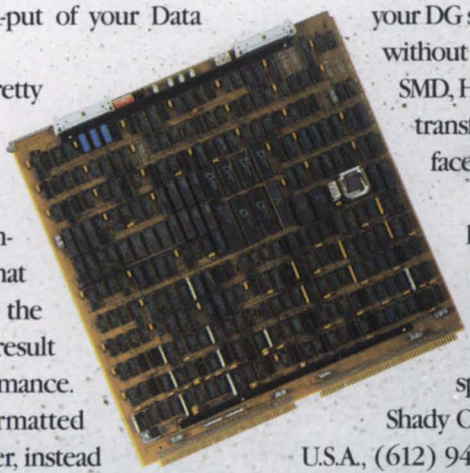

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Circle 48 on reader service card

the rest of you have checked it out for at least a year.

:CURRENT_FAD

Lots of users I've talked to lately have been receiving advice to change all their users' profiles to 4. As the story goes, the advisors claim that the aberrant process problem can be solved by changing all users to a Group 1 priority, which effectively disables the heuristic scheduling algorithm. The result is pure time-slice scheduling, ensuring that no process will be excluded from getting CPU occasionally, regardless of its behavior.

Being risk-averse, some of them have called and asked my opinion of the advice. Here it is: try it. If it works, leave it that way. If it doesn't, go back to my scheme.

Chances are that it won't work. I've tried it on a number of systems recently and discovered that it only works when two things are true: the user count is low (less than 20) and there are no more than one or two batch processes active. If either of these conditions is not true, then response time rapidly goes in the toilet.

Try this experiment: make a program which just sits in a loop. PROC up four or five copies at a nonheuristic priority (511 has the least chance of getting your lungs ripped out by other users). Now change the priority of your CLI to 511 and hit the NEW LINE key repeatedly to test your response time. It will stink.

:NET:NET

Heuristic scheduling with all on-line users and their global servers at priority 2 in Group 2 is still the best way to go. Nonheuristic scheduling may be a solution for aberrant processes interfering with on-line users, but it works only on small, mostly interactive systems. The real solution is to fix your aberrant processes—even in light of impending changes in AOS/VS rev 7. After all, excessive systems calls are a poor practice on any system.

:OLD_BUSINESS

In my :FECKLESS column a few months ago, I questioned if anyone in their right mind would use a negative XBIAS to favor long jobs over short jobs.

Almost immediately I got a call from David Cochran at DG's RTP facility. He told me how they have two printers, one fast and one slow, fed by a single queue. They use a negative bias on the fast printer to make long printouts more likely to go to it instead of the slow printer.

Sounds good, right? The only problem is that if both printers are idle when a job is queued, then each printer has an equal chance of getting the job (the system alternates between printers to balance wear and tear). The negative XBIAS only helps if both printers are busy most of the time.

I'd still rather have negative biases available to control job sequencing on devices with positive biases. The real solution is for the AOS{/VS} group to address the subject of "grouped" queue requests. Δ

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Circle 11 on reader service card

Getting your share

Lots of questions—and a few answers—about shared consoles

by Tim Maness
Contributing Editor

This column isn't what I had planned. Because my MV/2000 didn't come in, I couldn't write about it. I've been interested in shared consoles, and have spent some time investigating how they work, so that's what you get instead. I don't know a whole lot more now than when I started, but here are some of the questions I had, and some of the answers I found. I've also included the questions I haven't answered yet—consider them an excercise for the reader. (In case you don't have the time or inclination to play with this, I may have to return to the subject next month unless my MV/2000 gets here pretty soon!)

What is a shared console?

A shared console is one that is owned by more than one active process. A process wanting to share a console must be subordinate to the process that is the original owner of the console.

Why use shared consoles?

CEO is an example of an application that utilizes this concept. This is how it lets you receive priority message while you are working inside the word processor (I think). Windowing in general is another application, because it requires more than one process to have separate areas of the screen. After next week (I'm going to L.A. for DG's 2-day seminar), I'll know more about the support that windowing has in rev 7 of AOS/VS, but I suspect windows will not be independently scrolled by the peripheral manager. If not, they will rely heavily on the terminal hardware—so those of us with less sophisticated terminals (e.g., D210s) may not be able to use the windowing capability.

I started investigating the shared console concept because I had yet another application in mind. I have an idea for a system where it would be nice to have two separate processes writing information to the screen. If it can't be at the same time, I'd at least like to do it without losing the environment of one activity when switching to the next, and without the overhead of doing my own context management.

How does a console get to be shared?

There is an undocumented switch on the CLI CHARACTERISTIC command called SHR. It is used to turn on the SHARED characteristic for a console. This sets bit ?SHCO (bit 0 in word 5) in the peripheral device characteristics. To do this inside a program, use the ?GECHR system call to get the device characteristic words. Set bit 0 of word 5 and use ?SECHR to tell the system about the change.

What about interrupts?

If you use control sequences (^C^x), they all go to the interruptable owner. This is the process that initially set the shared bit. There is a system call, ?CISND, that can be used by the interruptable owner to pass these control sequences to the other owners, if desired.

Where is this documented?

I found one paragraph in the AOS/VS rev 5.0 internals manual. It appears to have been written under pressure by someone who didn't want to write it, and who probably didn't reread it after it was written. It's on page 8-71 under Miscellaneous.

How do shared consoles work?

Here's a very simple example. The code for the program TESTSCIO is:

```
C GET OUR PROCESS ID NUMBER
    IAC0 = 0
    IAC1 = -1
    IAC2 = 0
    IPNAME = 116K
    ICC = ISYS (IPNAME,IAC0,IAC1,IAC2)
    IPID = IAC1
C WRITE TO THE SCREEN A FEW TIMES
    DO 10 I = 1,200
    WRITE (*,*) ''Pid '',IPID,'' shared
     console test''
10 CONTINUE
END
```

After the program is compiled and linked, turn on the shared console characteristic bit for the console you're using like this:

```
) CHAR/SHR
```

and start a few copies of the program running:

```
) PROC/DEF/IOC=@CONSOLE (TESTSCIO
 TESTSCIO TESTSCIO)
```

Notice the process command doesn't block our CLI. Thus it is possible to issue other commands while TESTSCIO is running—but not very rewarding, since the screen is filled up with TESTSCIO's output. The screen will contain the ''shared console test'' lines for three different PID numbers. Once all three processes start, the lines of output should alternate consistently between the three PIDs. Skeptics can try the command above without first doing CHAR/SHR to see that it does make a difference.

OK, but how does it work if the processes need input?

Try the following trivial program (TESTRSCIO):

```
C GET OUR PROCESS ID NUMBER
    IAC0 = 0
    IAC1 = -1
    IAC2 = 0
    IPNAME = 116K
    ICC = ISYS (IPNAME,IAC0,IAC1,IAC2)
    IPID = IAC1
C PROMPT THE USER FOR A NUMBER
    DO 10 I = 1,200
    WRITE (*,*) ''Pid '', IPID,'' enter
    a number? ''
    READ (*,*) number
    IF (NUMBER .EQ. -1) GOTO 11
    WRITE (*,*) ''Pid '', IPID,''
    read a '',number
10 CONTINUE
11 CONTINUE
END
```

TESTRSCIO can be started the same way TESTSCIO was. As you enter responses, notice how the PMGR handles the read requests—on a first come, first served basis. Because CLI is not blocked by the PROC commands used to start the test program, it's the first process trying to ?READ from @CONSOLE, so all the characters you type until the newline character will end up going to it. The characters before the second newline will go to the first of our TESTRSCIO processes, etc.

What is happening when requests are issued?

For each console, the PMGR has a Peripheral Information Block (PIB). If the

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console is shared, a chain containing an entry for each shared owner is associated with the PIB. When a request is received for the PIB, and the requestor is not the interruptable owner, the PMGR scans the chain to see if the request is from a shared owner. If so, the request is honored, otherwise a DEVICE ALREADY IN USE, or similar error is returned. The queued requests are then processed in order.

The unanswered questions?

It should be obvious from observing the results of our two test programs that unless the processes sharing a console are using some protocol to coordinate their interaction with the terminal, things can get very confused very quickly.

One possible way to achieve this is to have a controlling process (probably the one that sets the shared characteristic bit in the first place) coordinate the activity of the other processes. For example, this process (process A) could display an initial menu of options to the user. The user selects an option that causes process A to ?PROC process B, which would then have control of the screen. Process A then waits for a ?IREC for process B's termination, or for notification from process B that the user has requested some other service. Process B would then wait for notification from process A that it has control again, redisplay the screen, and proceed as though no interruption occurred.

However, this technique is far from ideal. It would be nice if multiple processes could each be assigned a window on the screen, and be able to run without requiring a user-written controlling process to keep things straight. The PMGR could remember for each process what area of the screen it was using. Where multiple processes are requesting input, it could move the cursor to the appropriate window and direct the typed characters to the right process.

Next time?

I'll report on anything interesting from the DG AOS/VS rev 7 seminar. And with any luck our MV/2000 will arrive any day. Δ

Tim Maness is president of DMS Systems, Inc., a software development firm specializing in data base management. He can be reached at 740 East 3900 South, Salt Lake City, UT 84107; 801/268-6671.

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Top form

by Jim Siegman
Contributing Editor

Forms control through CLI macros

Several times recently I've talked with users whose printers wouldn't operate properly under control of XLPT. The printers' owners were astonished to find that the forms control used by XLPT wasn't part of the printers. I gave quick fix-'em-ups to each owner, but didn't figure out until recently how they could get the benefit of forms control via XLPT while using their specific hardware.

There are basically two ways to accomplish this, depending on your printer. For

Figure 1 — Files needed for sample configuration in article

Directory	Filename	Contents/Comments
:util:forms	X	created with FCU.PR
"	Y	" " "
"	Z	" " "
"	SETUP.NDGUG	" " "
:macros:printers	CON6	The literal "NDGUG&" and a <NEWLINE>
"	X	The literal "42&" and a <NEWLINE>
"	Y	" " " " "
"	Z	" " "66&" " "
"	NDGUG.42.FCS	ASCII Characters <ESC>, L, P, 4, and 2
"	NDGUG.66.FCS	ASCII Characters <ESC>, L, P, 6, and 6

Figure 2—CLI macro command file

```
COMM CHECK.PRINTER.CLI
COMM Returns either ''NG'' or ''OK'' in !STRING and leaves you
 ''pushed.''
PUSH ; PROMPT POP
COMM     Check existence and validity of arguments.
STRING NG
[!EQUAL,%2%,]
   WRITE * ERROR * ARGUMENT 2 MUST BE FORMS NAME *
[!ELSE]
[!EQUAL,%1%,]
   WRITE * ERROR * ARGUMENT 1 MUST BE PRINTER PORT # *
[!ELSE]
[!EQUAL,[!FILE :MACROS:PRINTERS:CON%1%],]
   WRITE * ERROR * PRINTER %1% NOT DEFINED AS PRINTER *
[!ELSE]
[!EQUAL,[!FILE :UTIL:FORMS:%2%],]
   WRITE * ERROR * FORMS NOT FOUND *
[!ELSE]
[!EQUAL,[!FILE :UTIL:FORMS:SETUP.[:MACROS:PRINTERS
 :CON%1%]],]
   WRITE * ERROR * SETUP NOT DEFINED FOR THAT PRINTER *
[!ELSE]
[!EQUAL,[!FILE:MACROS:PRINTERS:[:MACROS:PRINTERS:CON
 %1%].[:MACROS:PRINTERS:%2%].FCS],]
   WRITE * ERROR * NO PARAMETER FILE FOR THAT PRINTER
    AND FORMS *
[!ELSE]
COMM All validity checks passed.
[!EQUAL,[!FILE :UTIL:CURRENT.CON%1%],]
   WRITE/L=:UTIL:CURRENT.CON%1% -NONE-
[!END]
STRING/K
STRING [:UTIL:CURRENT.CON%1%]
[!NEQUAL,[!STRING],%2%]
   CONTROL @EXEC PAUSE @CON%1%
   PAUSE 2
   CONTROL @EXEC (HEADERS TRAILERS) @CON%1% 0
   CONTROL @EXEC FORMS @CON%1% SETUP.[:MACROS
    :PRINTERS:CON%1%]
   QPRINT/QPR=1/FORMS=SETUP.[:MACROS:PRINTERS
    :CON%1%] :MACROS:PRINTERS:[:MACROS:PRINTERS
    :CON%1%].[:MACROS:PRINTERS:%2%].FCS
   CONTROL @EXEC CONT @CON%1%
   PAUSE 2
   DELETE :UTIL:CURRENT.CON%1%
   WRITE/L=:UTIL:CURRENT.CON%1% %2%
   CONTROL @EXEC PAUSE @CON%1%
   CONTROL @EXEC FORMS @CON%1% %2%
   PAUSE 4
   COMM [!Read Load forms in printer and hit NEWLINE to
    continue. . . .]
   CONTROL @EXEC CONT @CON%1%
   PAUSE 3
[!END]
STRING OK

[!END];[!END];[!END]
[!END];[!END];[!END]
```

How you create a VFU definition depends on how complex the control sequence, which will determine the utility you must use

printers that don't support any forms length or forms control protocol, you'd use techniques described here (with two minor modifications I'll mention later). For printers that support forms control protocol, you also need information on downloading (or programming) your printer from the computer, because it's no fun to have to punch buttons on the printer with every forms change.

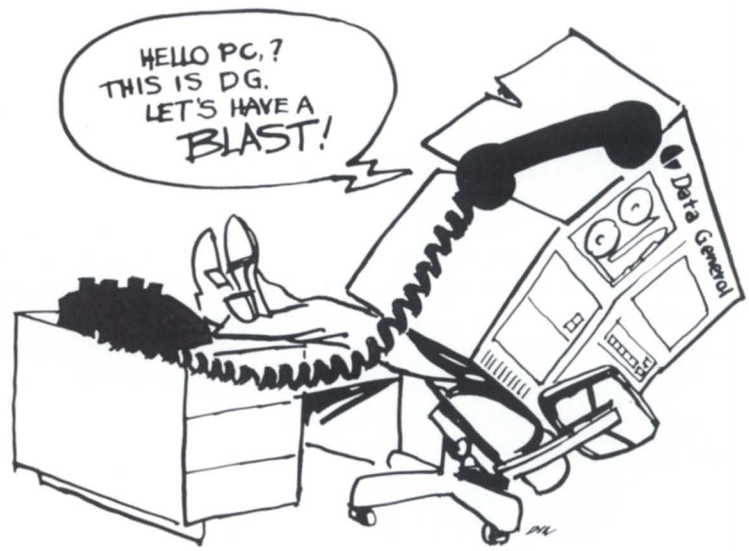
We recently had a printer with this problem on a user site. We used a series of macros to download vertical forms unit (VFU) commands to the printer. The macros were quite adequate but didn't accommodate multiple printers on a system, nor did they allow the flexibility of switching ports in times of need. This column will give you a scheme that's an expansion of those macros—a technique that will allow you to download VFU files *before* your reports.

I'm going to have to assume you have the following experience with AOS/VS and its utilities: A working knowledge of the CLI "Q" commands (QPRINT, QCANCEL etc.), the applicable EXEC commands (START, STOP, FORMS, etc.), and the FCU utility. In addition, I'm assuming you have a :MACROS directory and enough knowledge of the CLI to know whether the VFU files you need for your printer can be created with SED or whether you must use FED or SPEED. If you need help with the last part, write me and I'll try to assist you. Make sure to include a copy of your printer's programming notes.

Let's summarize the goals of this technique:

- We want to allow multiple, different, non-DG compatible and/or DG compatible VFU protocol printers.
- We want to retain port flexibility.
- We want to be able to use the standard DG utilities and commands to exercise forms control over the printer(s).
- We'd like to able to restrict certain printer/forms combinations, for example, not allowing paychecks on all printers.
- We want only one macro or set of macros to handle all printers (for simplicity).

Although I wanted to keep the commands as simple as possible, it's not beyond the bounds of user friendliness to require the printers to be numbered (or named), and for forms of different sizes to be assigned a number. Forms of similar size may share arbitrary numbers unless prohibited by security. For simplicity's sake, I'll use the console number of the printer as the assigned number. I don't think that this places an undue training burden on operators, and it will simplify the technique more than some other arbitrary



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If you have a printer that doesn't support any type of VFU forms definition, you can still control the forms length fairly easily

scheme. Each printer model must also have a name. I'll assume I have a non-DG Unit G model printer, NDGUG for short.

The first thing I need to create is a set of cross-reference files to label the appropriate console port with the model of printer attached to it. Let's build a short macro named DEFINE.PRINTER.CLI that contains:

```
PUSH; PROMPT POP
dir :MACROS:PRINTERS
DEL/2=IGNORE CON%1%
CREATE/I CON%1%
POP
```

To define my NDGUG printer on port 6, I would enter the following at the CLI:

```
) DEFINE.PRINTER 6
   (call macro with IAC port number)
))NDGUG&
   (Important: NO SPACE AND APPENDED "&")
)))
   (single parenthesis after the double parentheses prompt to end CREATE/I)
```

Since I intend to use it as part of a file name later, it is very important that the printer name consist of valid AOS/VS file name characters.

I'll use a similar method to define a cross-reference from the forms numbers (or names) and the VFU definition files (which I'll discuss later). The site I worked with had two VFU definition files—one for 66 lines per page, one for 42 lines per page. Since we had no reason to prohibit certain forms from certain printers, only two forms files were needed because all forms of a given size could share the same VFU definition file.

It also allowed the macros to determine if the forms change dictated a forms definition change. If not, there was no need to download the same VFU file to the printer. The contents of the VFU cross-reference file would be simply the VFU definition file number followed by an ampersand. We used the lines per page for our file numbers. Thus, if forms A, B, and C were 42 lines per page, there would be three files created in the :MACROS:PRINTERS directory, each containing "42&". The macro to create this file would contain:

```
PUSH; PROMPT POP
DIR :MACROS:PRINTERS
DEL/2=IGNORE %1%.FCS
CREATE/I %1%.FCS
POP
```

Now comes the tricky part, tricky because it's hardware dependent. We must create a VFU definition for each printer model/forms number combination. How you create this depends on how complex the control sequence, which will determine the utility you must use.

I'll assume my NDGUG printer needs an ASCII "ESC", followed by the letters "LP" and the two ASCII digits for the lines per page. The file name in :MACROS:PRINTERS would be NDGUG.42.FCS for a NDGUG printer defining forms number 42. I could create this file by entering the CLI command "COPY :MACROS:PRINTERS:NDGUG.42.FCS@INPUT" and then hitting the keys <ESC>, L, P, 4, 2, and ^D. This will create a 5-byte file that contains an ASCII <ESC> and "LP42" but doesn't contain <NEWLINE> or other characters.

In order to be able to use standard DG utilities and commands we'll create the files in the :UTIL:FORMS directory necessary to support the different types of forms using the DG utility FCU. We'll also create dummy forms files for each model of printer. For our imaginary printer we'll call the file SETUP.NDGUG.

Let's summarize the files we've discussed. Figure 1 shows a list of files needed to support our NDGUG printer with three forms—X, Y, and Z. Forms X and Y are 42 lines per page; form Z is 66 lines per page.

(continued on page 42)

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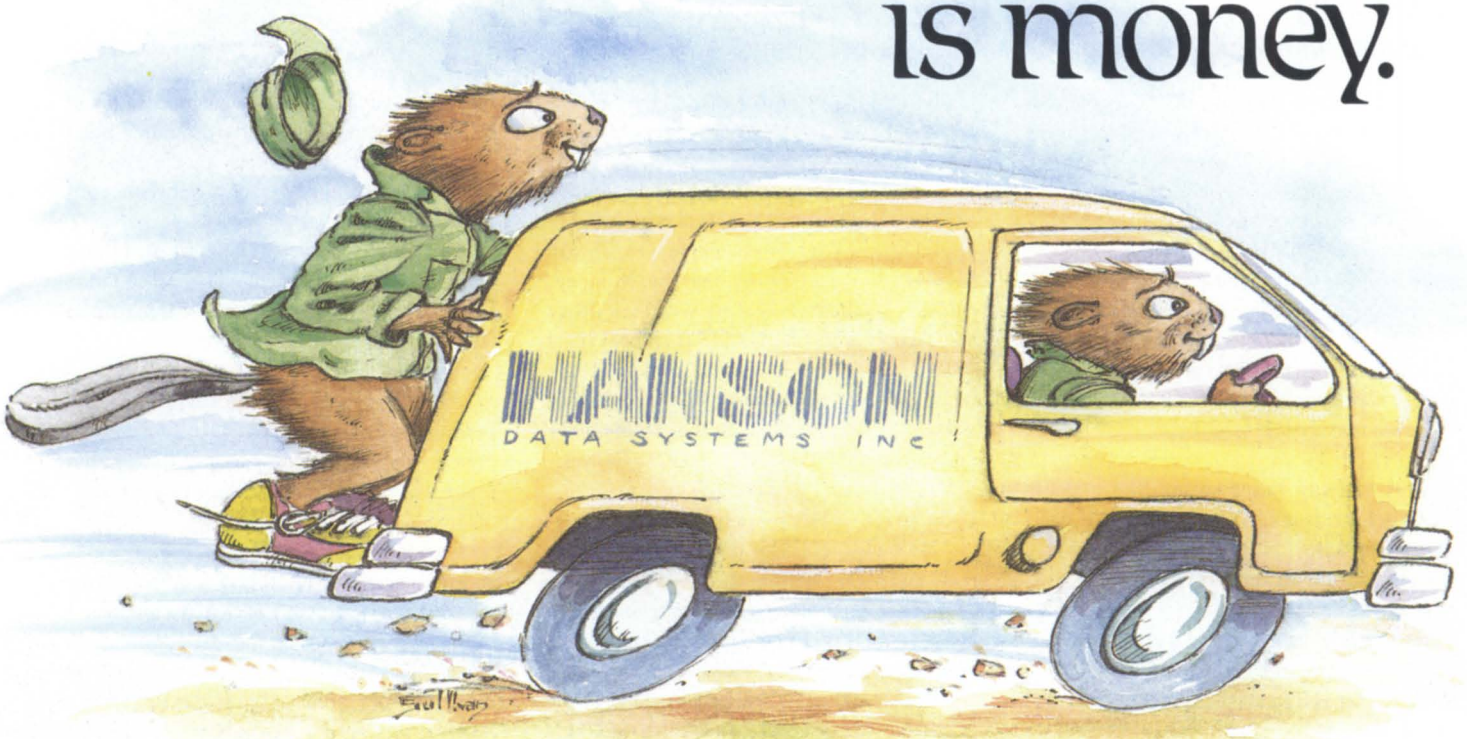

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Mid-course reflections

NADGUG's president discusses recent developments, Conference 86, and this spring's board meeting

Interview with Rene Dominguez, NADGUG president

The Executive Board of the North American Data General Users Group held its spring meeting at the end of February in Orlando, Florida. In addition to conducting the usual NADGUG business, the board got a preview of Conference 86, which will be held at the same location next August.

The spring meeting marked the halfway point in the presidency of Rene Dominguez. In this interview, Rene talks about recent developments for NADGUG, and reviews the results of the spring meeting.

The halfway point seems like a good time to take stock. Where does the user group stand now with respect to the goals you set when you took office?

Some of the goals we had were to provide a spur for increasing the membership, to increase the Regional and Special Interest Group activity, to increase NADGUG's participation with DG, and to get *Focus* on its feet.

In terms of NADGUG membership, we're starting to see a *real* upward trend, thanks to the cleanup of the membership data base our NADGUG staff has been doing. We're also seeing the effects of some of the promotional activities of Data General, the RIGs and SIGs, and *Focus*. The really great attendance at Conference 85 was also a factor. We're hoping that those continuing activities will combine with a banner Conference 86 to produce significant membership increases in the year ahead.

I'm very encouraged with our RIG and SIG activity. We've seen a couple of the inactive groups drop off, but at the same time, there's been a significant increase in the level of activity of those that remain. Part of that is spurred by the local Data General branch offices, and part by the users themselves. There's a notable membership gain in the SIGs—especially the OASIS *(Office Automation)* SIG. Charlene Kirian and her staff have really put OASIS on the map. They're now the second largest SIG in the NADGUG organization.

The SIG activities planned for the conference this year look like they will be at a higher level than last year. For example, OASIS will be giving a one-day seminar on Monday, August 11 to help users work with their office automation products. OASIS is sponsoring a similar seminar this spring, which means they're active year 'round. Add to that all of the regular conference activities by the other SIGS, including AOS{VS}, IRDOS, COMMSIG, and others.

In terms of DG participation, we're getting a lot of support for membership promotion, and we're getting the usual high level of support for conference planning and ongoing coordination. I'm a little disappointed that we still don't have a full-time user group coordinator, though. We've been working to try to get that position staffed with the right person to make an impact from DG's standpoint as well as ours. I'm favorably impressed with the level of system support we're getting—we have our own dedicated resource for NADGUG and the staff—but I'm a little less encouraged with our ability to participate in hardware/software development issues. Personally, I would like to see more user group involvement in surveys and questionnaires. Hopefully through *Focus* we will see more of that over the next few months.

We haven't had our meeting between NADGUG officers and the Data General vice presidents yet. It looks like that will be scheduled for late spring. We typically see more DG activity after that meeting, so I expect there will be more progress before the conference.

The last goal I want to talk about is *Focus*. It's now an outstanding publication. Greg Farman and his staff at Turnkey Publishing have turned it into a useful, helpful, informative, and attractive magazine that helps NADGUG accomplish its goals. Its support of the RIGs and SIGs has been good, and will be getting better. It's really providing what I'd call a "miniconference" that's going on monthly to bridge the gap between conferences.

Overall, I feel pretty encouraged. I don't think the world has caught on fire since I took office, but on the other hand, I do think we're starting to see a lot of progress.

At Conference 85, the theme of your banquet speech was "NADGUG—Ready to Soar." If you were going to give that speech again today, how would you change it?

I wouldn't change it much. I think we're still in that posture of preparing ourselves for growth, involvement, and participation. I might say "preparing to soar" instead of "ready to soar."

I think our preparation is evident in our beefing up of the administrative side of NADGUG operations with the use of purchased software to support the activities of our members and to support conference planning. *Focus* is providing the coverage we needed, and our membership system is about to be implemented. We're also getting ready to hold a summer meeting of the Executive Committee and the NADGUG staff to review the administrative activities that support the user group.

All in all, I'd say we weren't quite ready to soar, but that we've done a lot to get ready.

You said you feel basically encouraged by the status of the RIGs and SIGs. I'd like to follow up on that with questions about the needs and problems faced by the RIGs and SIGs, and what NADGUG is doing to promote RIG/SIG participation.

They face several problems. Administration of membership is a serious dilemma for many of the groups, both in terms of getting

(continued on page 40)

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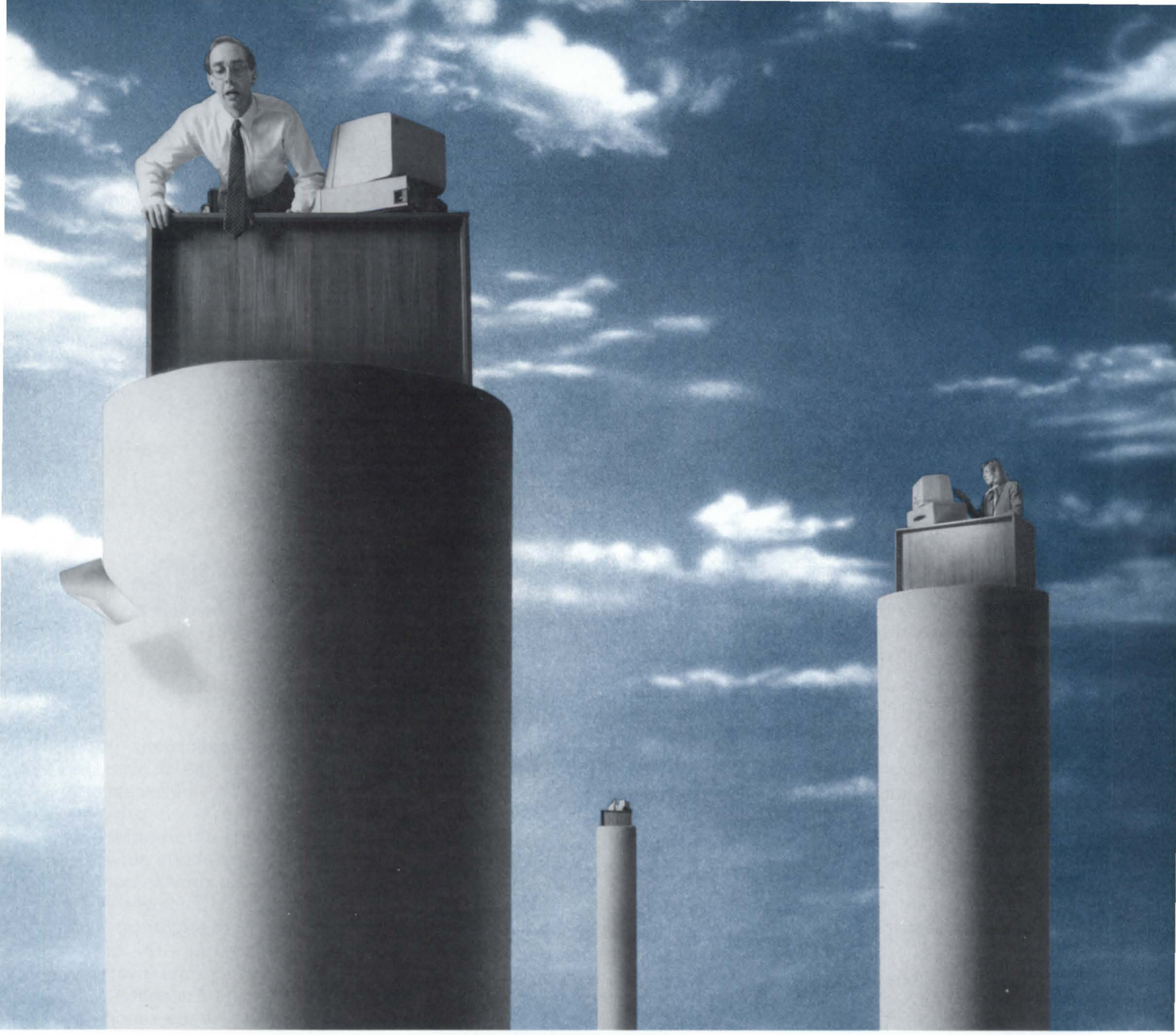

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Conference 86 preview

Preliminary schedule and registration information

Conference 86 is shaping up with what is probably the widest variety of activities ever. Conference offerings cover six major areas of user interest: software development, system management, engineering and CAD/CAM, manufacturing and process control, office automation, and roundtables. There will be a number of offerings in each of these major tracks, as well as a variety of other activities. More details on specific activities will appear in the June issue of *Focus*.

As explained below, early registration for the conference is especially important this year. Not only will it help the staff to plan more effectively, but it will also save you money. Registration materials will be mailed in late May to all current NADGUG members, and to those nonmembers who have expressed interest in attending the Conference.

Preliminary Schedule

Sunday, August 10

- Executive Board Meeting—open to NADGUG officers and RIG/SIG chairpeople; 9:00 to 5:00.

Monday, August 11

- Special Educational Services Seminars—advance registration and separate fees required; morning and afternoon sessions.
- Special all-day CEO workshop sponsored by OASIS office automation SIG; 9:00 to 5:00. Advance registration and separate fee required.
- Special orientation on Conference 86 and NADGUG for new members and first-time attendees; 5:30 to 6:30.
- Welcome Reception; 6:30.

Tuesday, August 12

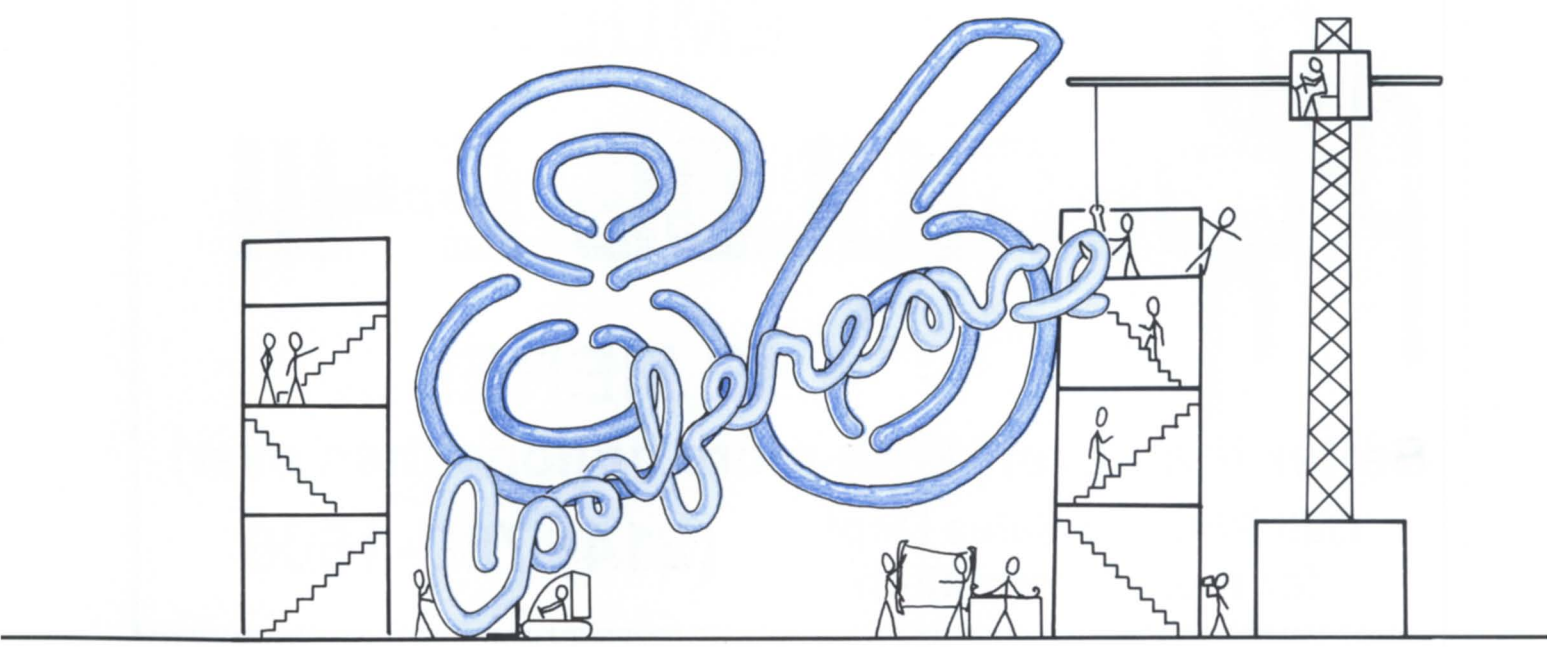
- Exhibit area open; 8:00 to 5:00.
- Conference sessions; 9:00 to 3:00.
- Time allotted for SIG, RIG, or other special meetings—contact NADGUG staff to schedule sessions; 3:00 to 5:30.

Wednesday, August 13

- Exhibit area open; 8:00 to 5:00.
- Annual Business Meeting and Special Address by Data General; 9:00 am.
- Conference sessions; 11:30 to 5:00.
- Reception and Banquet; 6:30.

Thursday, August 14

- Exhibit area open; 8:00 to 1:00.
- Conference sessions; 9:00 to Noon.



Special Ed Services Seminars

Data General's Educational Services division is offering special seminars on Monday. These seminars require separate advance registration and separate fees. Seminar offerings and fees will be listed in the Registration Packet and in the June issue of *Focus*.

Guest Program; Orlando Attractions

Because many attendees wish to bring guests or families, the staff has made special arrangements to help make the most of the many attractions in the Orlando area. There will be a guest hospitality suite each day, where information will be available on formal and self-guided tours. In addition to Disneyworld and Epcot Center, local attractions include Sea World, Circus World, Cypress Gardens, Wet & Wild, the Kennedy Space Center, and more.

Attendees wishing to extend their stays can take advantage of special hotel rates for the weekends both before and after the Conference. The staff has also shortened the formal conference hours on Tuesday to allow attendees time to sightsee with their families if they wish.

There will also be special arrangements for a children's social program, including a special chaperoned "carnival banquet" on Wednesday evening, so parents can attend the NADGUG banquet.

Details and costs of the guest program activities will be listed in the June issue of *Focus* and in the registration packet.

Fees

Conference fees have gone up only slightly—the first increase in 2 years. Fees are:

Member, full conference	$300
Member, 1 day	150
Nonmember*	add 50
Late (after 7/25) or on-site	add 75

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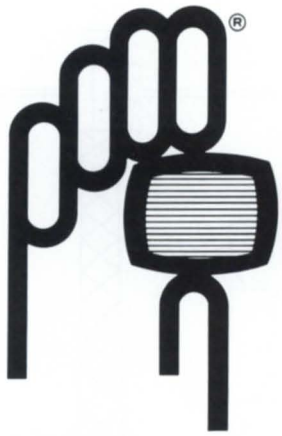

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*** Executive officers or RIG/SIG chairs attending Sunday's Board meeting.*

It Pays to Register Early!

Attendees who have registered by the July 25 deadline will also be eligible to participate in drawings for special prizes at the annual business meeting on Wednesday morning. Two Data General/One portable computers will be among the prizes. Those who do not register by the July 25 deadline will miss this opportunity, and will also incur the $75 late registration fee.

New Member/Attendee Orientation

There will be a special informal orientation for new members and first-time attendees on Monday, August 11 from 5:30 to 6:30, prior to the official welcome reception. Stop by and meet the officers and Westboro support staff, who will be available to answer questions and help get you on the right track.

SIG/Organizational Meetings

If your SIG would like to hold a meeting during the Conference—or if you would like to organize a new SIG—please call Debra Bedrosian at 617/870-7721, or at 617/366-8911, ext. 4721. The staff will try to make time slots and rooms available, and will post notices in *Focus* and in all conference materials.

Exhibit Area

The exhibit area promises to be even better than last year's. Companies that have not already applied should get their applications in as soon as possible (call the staff at 617/870-7721, or at 617/366-8911, ext. 4721). Rates for exhibit space are:
Exhibitor—each 10 by 10 foot area ..$500
Booth personnel,
social functions only 150
Booth personnel,
no sessions or functions .....no charge
Literature display only 100
Exhibitors are assigned space on a first-come, first-served basis. The staff will do their best to try to accommodate everyone, but space is limited.

Air Travel Discounts

Take advantage of special discounts offered by Eastern Airlines—and save up to 50 percent on regular coach fares, without the usual minimum stay requirements. To get special fares, call the Data General Corporate Travel Office, and identify yourself as a NADGUG Conference 86 attendee. Call toll-free within the U.S. (except in Massachusetts): 800/343-1284. Outside the U.S., or within Massachusetts, call 617/366-8911, ext. 232-1000.

The preferred method of payment is by major credit card. If necessary, checks will be accepted, but tickets will not be mailed until the check is received.

Hotel Discounts

Although NADGUG has reserved a block of rooms at the Buena Vista Palace Hotel, you must make your own reservations. The rooms and rates described will be offered only on reservations made by July 11. After that date, there is no guarantee of room availability or the special conference rate. You must guarantee your reservation by sending a deposit equal to one night's stay. This deposit can be billed to your credit card.

If you're planning to bring your family and stay extra days, you can take advantage of the Conference discount rates. Rates are good for stays during the period from August 8 through August 16.

The Buena Vista Palace is only 15 minutes from Orlando International Airport, and overlooks the grounds of Walt Disney World Village, Epcot Center, and the Shopping Village. Hotel guests receive discount prices on World Passports for the Magic Kingdom and Epcot Center, and get complimentary transportation to and from the parks. Other area attractions—Sea World, Circus World, Cypress Gardens—are a short drive from the hotel. Rates are: Single/Double/Triple/Quad. Maximum five people per room .....$89/night.
Cots available.....additional 15/night.
Suites (1 or 2 bedrooms) .....265 to 550.

Reservations: Call the hotel directly, or use the card that will be provided in the registration packet to be mailed late in May. Call toll-free in the U.S.: 800/327-2990; in Canada, 800/327-2990; in Florida 800/432-2920. From other locations, call 305/827-2727. Δ

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Don't panic!

Anyone can learn to use CEO's user-defined commands

by Charlene A. Kirian
Contributing Editor

When I got my first training on CEO (Data General's Comprehensive Electronic Office system), the instructor nearly lost me at one point. I can still remember how anxious I felt when she said the next thing we were going to study was user-defined commands. "Not me!" I remember thinking, "I don't know a thing about programming!" Anxiety turned to resistance as the instruction began. At first I didn't understand the concept, and I figured I could live without any of the commands she was telling us about. But somehow, in the middle of the session, a light bulb came on. It became very clear what these little things were for—to save me time and effort.

Now it's my job to train new CEO users. When I see the panic in their eyes at the mention of user-defined commands, I relate that story to ease their minds. I figure if *I* could learn how to define commands, anybody can.

Let's take a look at creating a new command. To access the user commands—no matter where you are within CEO—you just press COMMAND <F2>, then type "USER," and then press <NEWLINE>. This will bring you to the dialogue for creating, deleting, or modifying commands.

The first question asks for the name of the command. You can respond either with a function key or with a string of characters that will serve as a name for the command. Data General lets you have access to as many as 15 user-definable commands through the function keys. To invoke them you just press <CTRL-SHIFT> and the function key.

If you want to set up the command to be invoked with a function key, then type the name of that key (for example, F11) on the blank "command name" line. If you want it to be invoked with a typed command, type a unique series of characters as its name (for example, "main"). Follow the name with a brief definition of what the command will do.

The next prompt will ask where the command starts from—either from the main menu, or from the activity at the time it is invoked. To understand what this actually means, remember that when you start the command from the activity where invoked, it will execute that command from wherever you are currently located, then return you to the same place after the command is executed. This is handy when you're doing tedious functions in the word processor, or when checking mail, which is an interrupt function. Otherwise, if you need to move from one area of CEO to another, no matter where you are at the time, start from the main menu (where you should be on solid ground), then proceed with the keystrokes from that point.

Let's walk through a couple of easy commands. First let's create a command that goes directly to the last document you edited.
Command definition starts from: 2. Main menu

Keystrokes: 2 NEWLINE EXECUTE

When you press the EXECUTE key, this command will take the defaults for the drawer, folder and document. It saves you keystrokes, and gets you quickly to the document you want.

The second example automatically exits CEO from any point:
Command definition starts from: 2. Main menu

Keystrokes: CANCEL/EXIT Y NEWLINE

I have suggested several standard user-definable commands to be placed on function keys at the company where I work. The reason for having a standard set of commands is simple: if you go to another terminal with someone else's template, chances are that they are going to have the same commands you do on those keys. These standard commands are also loaded into managers' accounts when they acquire a new account. *Only* managers have the commands loaded for them. In my opinion, most users will benefit from having to create their own standard commands—they learn what they can do to save themselves time. However, as is usually the case, most managers will not take the time to create their own commands (no offense to the managers who do their own!).

The standard user-defined commands we use are as follows:

F11—Return to main menu
Command definition starts from: 2. Main Menu
Keystrokes: (There are none, because you're already there!)

F12—Edit current document
(Described above)

F13—List all documents
Command definition starts from: 2. Main Menu
Keystrokes: 5 NEWLINE 4 NEWLINE 1 NEWLINE >= NEWLINE ! NEWLINE EXECUTE (This is a search command from the filing menu. The "!" tells the system to start searching for the lowest character in the hierarchy of characters.)

F14—View inbox
Command definition starts from: 1. Activity where invoked
Keystrokes: INTERRUPT 3 NEWLINE 1 NEWLINE NEW NEWLINE
(This command is accessed through the interrupt menu. It reads all "NEW" messages in your inbox.)

F15—Logoff CEO
(Described above)

Listed below are some other handy commands that can be set-up on function keys or defined as commands:

The DELETE MEOLS command will delete the Mandatory End of Line Symbols (MEOLS) that appear after each line of text when a file is imported into a CEO document. This is very useful when you have a large body of text that requires editing with automatic word wrap. You can repeatedly issue the user command until all the MEOLS are deleted. It may be necessary to reposition the cursor up or down one line to restart the command. This command example will delete the MEOLS from five consecutive lines of text. You can alter it to suit your needs.
Command definition starts from: 1. Activity where invoked
Keystrokes: NEWLINE <— DELETE CHARACTER INSERT SPACE NEWLINE NEWLINE <— DELETE CHARACTER INSERT SPACE NEWLINE NEWLINE <— DELETE CHARACTER INSERT SPACE NEWLINE NEWLINE <— DELETE CHARACTER INSERT SPACE NEWLINE
(The <— represents a left arrow cursor key symbol)

Take the time to write down the most common keystroke sequences you use

Did you know you can use command names within commands? For example, if you assign the command to delete five MEOLS to a function key (let's use F2), you can set up another command to delete multiples of five MEOLS:
Command definition starts from: 1. Activity where invoked
Keystrokes: F2 F2 F2 F2 F2

The DELETE AN EXTRA RULER command copies the second ruler onto the first, and then deletes the extra one. It is particularly useful when using the READ function, when a document comes in with a ruler positioned under the default ruler for the document.
Command definition starts from: 1. Activity where invoked
Keystrokes: UPARROW FORMAT RULER COPY 2 NEWLINE NEWLINE DELETE EXECUTE

The DELETE TO END OF SENTENCE command deletes everything beyond the position of the cursor to the end of the current sentence.
Command definition starts from: 1. Activity where invoked
Keystrokes: DELETE GOTO . NEWLINE EXECUTE

The ACCESS USER DIRECTORY command accesses the user directory and includes the FIND command to search for a particular name.
Command definition starts from: 1. Activity where invoked
Keystrokes: INTERRUPT 6 NEWLINE FIND

The UNDERLINE ONE WORD AT A TIME command does just that. Remember, however, that if the word ends with a period, comma, or hyphen, it may need to be modified because of the extra character.
Command definition starts from: 1. Activity where invoked
Keystrokes: TEXT ATTRIBUTE _ WORD FORWARD <— <— TEXT ATTRIBUTE

I hope some of these commands will be useful for your environment. There are many others that could be built to save you time and effort. Take the time to write down the most common keystroke sequences you use, and then create your own commands to automate your work. You'll find it's not as hard as you think. Δ

Charlene A. Kirian is OA training specialist for the Online Computer Library Center, Inc., 6565 Frantz Road, Dublin, OH 43017; 614/764-6435. She serves as president of NADGUG's OASIS Office Automation Special Interest Subcommittee.

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(from page 32)

people together for meetings, and in terms of the actual physical administration: newsletter support, record-keeping, and so on.

We already provide help for RIGs and SIGs with start-up funding, with financial assistance to help their representatives attend NADGUG's board meetings, with a videotape library to help them with their programs, with membership information, and with mailings of press release information about new products.

At the board meeting this spring there was a continuing commitment to support the RIGs and SIGs. We'll be providing additional help, such as free memberships in NADGUG for recognized RIGs and SIGs, billing assistance for RIG/SIG memberships, publication assistance through *Focus*, and trying to get them on the Consultants' Guide distribution list for information about DG products.

How would you answer the same kind of question with respect to participation by individuals in the national organization?

We're working with Data General to encourage more membership, but that program is just getting off the ground. We're not trying to build a large membership just to have a large organization. What we're finding is that as we get more members, we have a better organization, which can provide more support for members.

At the board meeting, various people reported progress in a number of areas—for instance, the NADGUG staff reported on everything from the computer system to planning for Conference 86. Would you single out any activities that are going to have a big effect on users?

There was a lot to report at the board meeting, and it was a very good meeting overall. We had 25 participants representing 13 Regional Interest Groups and 2 Special Interest Groups, as well as Data General's representatives and NADGUG officers. We accomplished nearly everything we set out to do, and also recognized three new RIGs, from Mississippi, Northern California, and MV users in Ohio.

Several of the activities of the NADGUG staff are going to make a difference for users. The primary function of the staff is to coordinate the activities of the RIGs and SIGs, plan the conferences, and administer member records. Our new software will allow the staff to offer more support in areas such as billing for RIGs and SIGs. We are also going to provide a membership roster this year—John Brudz *(NADGUG president, 1984-85)* is working hard to get that taken care of. That will provide more information to get users talking to one another.

A lot of the activity during the year is in preparation for the annual conference. Let's take a look ahead toward August and Conference 86. What's going to be especially good about this year's conference?

The meeting in Orlando is going to be a real educational opportunity for the whole

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family. The classes being offered by DG Educational Services this year look extremely good. The conference sessions also look very strong. The conference activities are full of opportunities for data processing professionals to learn how to better use, manage, and evaluate their systems.

Just as importantly, we will continue to have the support of Data General and other vendors in making their products available for us to see and evaluate. It gives users a one-stop shopping opportunity to see how they can improve the operation of their systems.

Conference attendees and their families will also be able to get a good education from Disney World, Epcot Center, and the Kennedy Space Center. There aren't that many other places you could go to see three major attractions in the United States at one time.

It won't only be educational—it'll also be a lot of fun. We're calling it a shirtsleeve conference, and we're encouraging all DG users to mark their calendars: August 11-14. Δ

(from page 20)

```
((ANTILOG-OF-NUMBER ** 2) / 2) +
((ANTILOG-OF-NUMBER ** 3) / 6) +
((ANTILOG-OF-NUMBER ** 4) / 24) +
((ANTILOG-OF-NUMBER ** 5) / 120) +
((ANTILOG-OF-NUMBER ** 6) / 720) +
((ANTILOG-OF-NUMBER ** 7) / 5040) +
((ANTILOG-OF-NUMBER ** 8) / 40320) +
((ANTILOG-OF-NUMBER ** 9) / 362880)
+ 1.
```

Then, to get the answer back to our original range,

```
COMPUTE ANTILOG-OF-NUMBER
ROUNDED =
    ANTILOG-OF-NUMBER ** DIVIDE-
     FACTOR.
```

The results are shown in table 3.

Table 3: Antilog Results

Number	Calculator	Computer
-10	0.000045	0.000045
-5	0.006737	0.006738
1	2.781281	2.781282
1.5	4.481688	4.481689
5	148.4131	148.4132
10	22026.43	22026.46

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Next month, something easier to read (and write)—and I promise, no math! Δ

Tim Boyer is EDP manager at Denman Rubber Mfg. Co. and president of the Northern Ohio Data General User's Association. He may be reached at P.O. Box 951, Warren, OH 44482, 216/898-2711, or on the NADGUG bulletin board at 415/924-3652.

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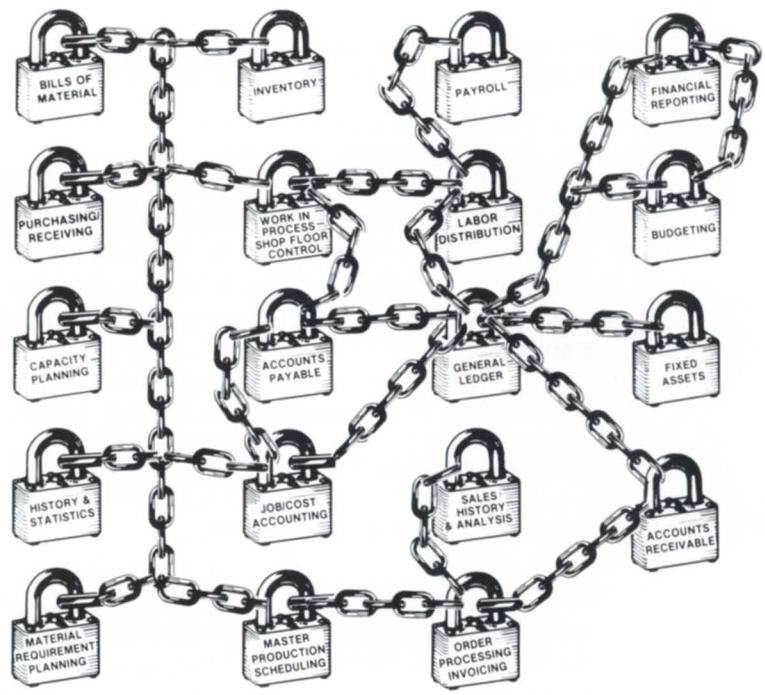

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(from page 30)

At last we're ready for the macro command (see Figure 2), which will change the printer forms and download a new VFU definition if needed. This macro looks for two arguments. The first is the printer number (i.e., console port) for the printer on which you're loading the forms. The second argument is the name of the forms. The macro will check for the presence of both arguments. It then checks for the two cross-reference files in the :MACROS:PRINTERS directory and the forms in the :UTIL:FORMS directory. It checks :MACROS:PRINTERS again to see if there is a VFU definition file for that printer and those forms.

If everything is acceptable, it checks to see if the current set of that printer matches the desired setup. If not, it will QPRINT the VFU definition with the SETUP.XXXX forms for that printer (SETUP.NGDGUG in our example), thus setting up the printer with the new forms definition. Then it changes the forms on that printer to those named in argument 2. Notice that this macro assumes the report has already been sent to the print queue by the user. The normal user would be the system operator. After entering QDISPLAY/V to find out which forms are needed, he or she would then enter CHECK.PRINTER NN FFFF (NN=printer number, FFFF=forms name), and load the forms.

If you have a printer that doesn't support any type of VFU forms definition, you can still control the forms length fairly easily, which most of the time is all you're really interested in anyway. In this case, you wouldn't need the SETUP.NDGUG in :UTIL:FORMS or any macro section that QPRINTs the setup file and changes to those forms using CONTROL @EXEC commands. You'd need to make sure the characteristics on that communications port included the /SFF (simulate form feed) bit. This can be set either during VSGEN, or in the UP macro with CHAR/DEF.

If the 2 KB of disk space required for each of the parameter files on a system with a default element size of four is going to be an issue at your site, change it by using path names and links. Δ

Jim Siegman is chairman of the NADGUG publications committee, and treasurer of the Chicago Area Data General Users Group. Send comments or questions to him at 548 Walnut, Elmhurst, IL 60126-1848.

Special hardware speeds throughput, improves performance

Westboro, MA—Special hardware from DG may offer a way to improve system performance by increasing I/O throughput and system execution. A number of these peripheral storage, communication, and processor products are available from DG's special systems group, which provides special-purpose computer equipment to enhance standard DG hardware.

One example is the Model 5916 Intelligent Asynchronous Multiplexor, which combines two intelligent eight-line asynchronous communications systems on one board. The product uses two micro Eclipse processors (each with 64 KB RAM) to perform the front-end I/O processing of asynchronous data. The hardware can support up to 16 lines at 19.2 KB per line. It is designed for large display count applications.

Other hardware products include:

- the Eclipse MV/4000 I/O Controller, which offloads the CPU by channeling data transfers directly to main memory
- the General-Purpose BMC Interface, which allows high-speed data transfer between Eclipse and Eclipse MV/ family computer systems and external devices
- high-speed communications controllers to drive synchronous or asynchronous devices at data rates up to 1 megabaud
- solid-state disks for high-speed, fast access storage
- other products that can increase both I/O throughput and system execution, such as the ArrayPlus 2000, an intelligent coprocessing system that provides a capability of more than 10 MIPS. Δ

For further information on special systems' hardware products, contact the special systems group at 617/480-7150.

DG offers consulting services

Westboro, MA—Data General's systems engineering consulting services now include an off-site performance analysis service, two levels of on-site performance analysis service, and a stats only system audit that provides performance statistics and graphs without analysis.

Both the on- and off-site analyses include recommendations on how to fine-tune systems to improve their performance, as well as suggestions to assist with capacity planning.

Performance monitoring software is used to gather the basic performance statistics for all audit and analysis services. A tape is sent to the customer's site by DG's systems engineering performance analysis center (SEPAC) in Atlanta. The user loads the tape at a convenient time, runs it for 8 hours, and returns it to SEPAC for processing by a performance consultant.

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Stats only

The monitoring software provides an unbiased look at the customer's system by measuring its resource utilization during the test period. The software produces statistics and graphs on system idle time, CPU cycles by user and program, and other factors. Customers can get these raw statistics without interpretation by ordering SEPAC's "stats only" package. Alternatively, they can have the data analyzed by one of DG's performance consultants. Since it requires a high level of systems and internals knowledge to analyze this information and develop recommendations for improving performance, DG suggests that users order a full analysis unless they have staff with the necessary expertise.

Off-site performance analysis

For a comprehensive analysis of their systems and step-by-step recommendations for improving performance, customers can request an off-site performance analysis. This service is provided by a performance consultant at SEPAC who runs a set of diagnostic and analysis tools against the logs and statistics gathered by the monitoring software during the audit phase.

The consultant then analyzes the whole computer system by following a detailed checklist that the consulting group has derived from dozens of of similar analyses. Each statistical report, whether on disk file sizes or I/O usage, is reviewed individually and analyzed with other data to find specific areas of performance degradation.

For example, the CPU plot might show that at one point during the day, CPU idle time remained at "0" for an extended period of time. This would indicate that the CPU was continuously busy during that time. When that happens, the consultant would perform additional on-line analysis to isolate the problem, pinpointing who and what made the system so busy.

Once the analysis is complete, the consultant prepares an executive summary and a detailed report that includes tips and techniques for eliminating bottlenecks and improving performance.

On-site performance analysis service

Customers can also choose a performance analysis that includes an on-site visit by a DG performance consultant. This service provides a more in-depth analysis, because the consultant interviews users and systems managers to gather information on procedures that wouldn't be covered in an off-site audit. For example, the customer's back-up procedures or file management techniques might be affecting system performance.

The on-site consultant can provide immediate advice on improving performance and may help eliminate severe performance bottlenecks on the spot.

Two levels of on-site performance analysis services are available. The first offers up to 2 days of on-site consulting plus a com-

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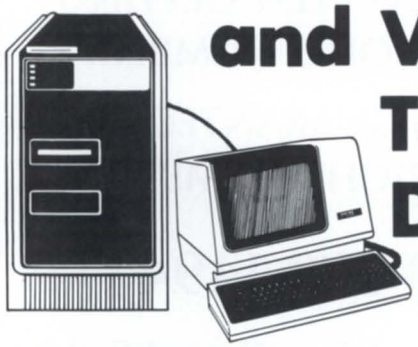

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Both on-site services start with an off-site audit by SEPAC. Once the audit is complete, a consultant arrives at the customer's site armed with the audit results. Δ

To order DG's performance services, contact a local sales representative, systems engineering manager, or SEPAC directly at 404/448-6072, ext. 2172.

Graphics arts quality output for CEO

Rochester, NY—Intercon Associates, Inc. has developed a product called Office/Publisher that can be integrated with CEO on all DG MV/ systems. According to Intercon, Office/Publisher brings the quality level of laser printer and typeset output to the office environment without sacrificing the ease and flexibility of CEO word processing.

The product accepts formatted CEO documents, then reformats, composes, paginates, and produces graphic arts quality output automatically to a laser printer or phototypesetter. According to Intercon, it maintains 100 percent document integrity with CEO documents. CEO users can continue to access and use all CEO functions (including mail, calendar, etc.) while using Office/Publisher.

Specific capabilities include:

- proportional spacing—available for any proportional font supported by the output device;
- typography—including font, typeface, and point-size control of an unlimited number of faces and sizes, except as limited by the output device;
- justification—of pages, columns, and tables, both horizontally and vertically;
- hyphenation—based on a 182,000-word hyphenation dictionary that can be updated by the user, and including logic hyphenation according to a predefined and programmable set of rules;
- multiple columns—single- and two-column documents with margins defined by the user, plus multicolumn tables;
- headers and footers—three levels, with user-controlled positioning on the page;
- ruling—horizontal and vertical;
- logical page control—logical pages can be defined regardless of physical page size, allowing various sizes of documents;
- auto page layout—camera-ready output of fully made up pages.

The product requires no additional computer hardware. Installation on a DG Eclipse MV takes less than 1 hour; training for a CEO user is said to require less than 4 hours. Cost starts at $5,000, depending on CPU size. Δ

Intercon Associates, Inc., 1580 Emerson St., Rochester, NY 14606; 716/458-0860.

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Seamless file transfer provides micro-to mainframe link

Colorado Springs, CO—Softronics has announced the latest version of Softerm PC, which provides one-step data transfer between computer systems in one step, including DG systems. According to Softronics, the new seamless file transfer feature is the first implementation of "seamless integration" technology in a PC-oriented data communications product. The new release also removes the copy protection from Softerm PC.

Softronics cites these advantages of seamless file transfer over current file transfer methods: applications programs are not interrupted and detailed knowledge of communications protocols and procedures is not required.

The file transfer process is transparent to applications programs because all PC-DOS file I/O calls are intercepted and examined by the RAM-resident Softerm PC file agent. When a remote device is specified, the agent executes a user-defined "script" of how the remote system is accessed and how files are uploaded and downloaded, including file transfer protocols.

Similar to the virtual disk concept, seamless file transfer can communicate with almost any host computer using a variety of protocols. It can be used from any application program, and provides an open architecture approach through the use of user-defined script files.

The file agent is provided on the utilities diskette included in the Softerm PC package. Bundled with the utilities diskette is Oneshot, a program that provides format conversion from ASCII text files to seven different PC formats including .WKS (Lotus 1-2-3), .WRK (Symphony), DIF (VisiCalc and others), SYLK (Multiplan), comma-dilimited (dBase II and III), space-dilimited, and tab-spaced (WordStar and others). The utilities diskette is available to existing Softerm PC users for $25.

Softerm PC, including Oneshot, is available for $195 from local computer stores or directly from the company. Δ

Softronics, Inc., 7899 Lexington Dr., Suite 210, Colorado Springs, CO 80918; 303/593-9540.

Attorneys' real estate program

South Norwalk, CT—RealData, Inc. has announced the publication of RESPA (Real Estate Settlement Program for Attorneys) for use on the IBM PC and compatible systems. RESPA is designed to assist attorneys in completing the disclosure form known as "HUD-1." This form is required under the Real Estate Settlement Procedures Act, and is a necessary part of the majority of real estate closings.

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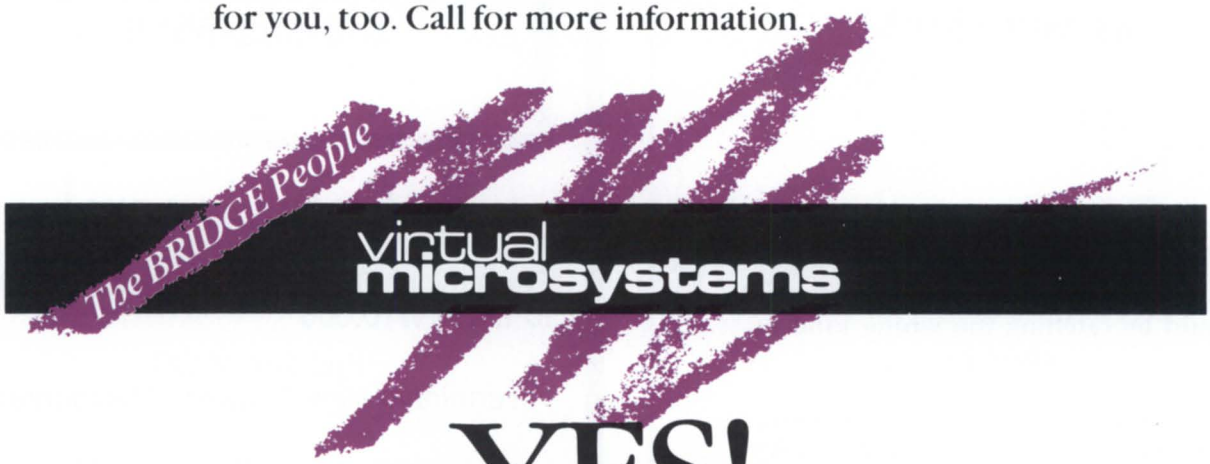

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Trademarks: The BRIDGE—Virtual Microsystems; Lotus—Lotus Development Corporation; VAX, PRO—Digital Equipment Corporation; dBASE II—Ashton-Tate; PL/M—Intel Corporation; MV/10000—Data General. Registered Trademarks: CP/M—Digital Research, Inc.; MS-DOS—Microsoft Corporation; WordStar—MicroPro.

The program combines the word processing and computational powers of the personal computer with the printing capabilities of the average office copier. The package includes a clear plastic sheet imprinted with the HUD-1 form's standard headings and format. The user prints all data onto plain white paper, aligns the printout behind the plastic overlay, and uses a copy machine to produce the finished form.

The software portion displays the form section by section. Users can page their way through the form using special function keys, filling in blanks at will. RESPA performs almost all of the on-form calculations automatically. Changes and error corrections can be made using word processing.

RESPA, priced at $395, is available with a 30-day guarantee. A demonstration package, including the entire program except the printing function, costs $50; this amount may be credited toward purchase. Δ

RealData, 78 N. Main St., South Norwalk, CT 06854; 203/255-2732.

Switching system for data/voice networks

Washington, D.C.—Gandalf Data Inc. has introduced a data-over-voice switching system that provides data networking in existing Centrex or PBX telephone systems. Called Dovtrex, the system combines data switching and data-over-voice multiplexing technology to support data networking up to 64 Kbps over an existing two-wire telephone system without affecting voice network operations.

The new Dovtrex system consists of Dovtrex, a data switching network with integral data-over-voice line multiplexing equipment, and Line Miser DOV 640 units, which connect individual telephone sets and synchronous or asynchronous terminal equipment.

Dovtrex puts digital networking power at speeds up to 64 Kbps on every desktop through the same twisted-pair wiring already in place in voice-only telephone systems. At 64 Kbps, the product makes these networks ISDN-compatible; when the Integrated Services Digital Network (ISDN) becomes available, Dovtrex users will be ready to take advantage of its offerings.

Dovtrex allows PBX and Centrex users to build or expand data networks without modems, and allows data services to be provided in applications where cabling ducts may be already filled to capacity.

The Dovtrex switch is a distributed, software-based data PBX with as many integral eight-channel data-over-voice multiplexors as necessary. Each switching node can support from 8 to 740 users and attached devices. These nodes can be networked together to serve the networking needs of as many as 23,500 users and attached devices.

According to Gandalf, the system provides comprehensive system security, complete network/system management, redundancy of critical components when required, flexible interfacing options, and extensive diagnostic and maintenance capabilities.

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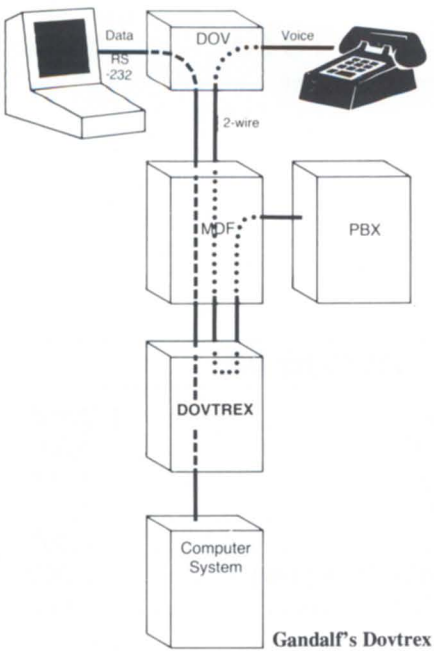

Gandalf's Dovtrex

Delivery is scheduled for March 1986. Typical Dovtrex system pricing, including full redundancy, ranges from less than $450 per attached device for a fully loaded system serving 740 devices, to $550 per attached device in a system serving 128 devices. Δ

Gandalf Data Inc., 1020 S. Noel, Wheeling, IL 60090; 312/541-6060.

Upgrade for point-of-sale system

Maitland, FL—Armor Systems, Inc., has upgraded its Excalibur Plus point-of-sale software to include multilevel invoicing. The software will run on a Data General Desktop Generation Model 10 with the MS-DOS operating system.

With the multilevel capability, a cashier can switch quickly between two types of invoicing. "Quick invoicing" is used when speed is important in a retail situation. Data entry and processing are completed much faster than with "full invoicing," which is used when the retailer requires extensive tracking.

A built-in training mode can be engaged for either level of invoicing, with help screens to spell out exactly what the cashier should do next.

All Excalibur Plus business applications retail at $695 per module, except Customer Information/Data Base Management, which costs $395. System requirements are a 10 to 20 MB hard disk and 128 KB of memory for program space. Δ

Armor Systems, Inc., 324 North Orlando Ave., Maitland, FL 32751; 305/629-0753.

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What price security? Well, certainly not poisoning the air! DG's Kevin Mallon wrote to warn users they might do just that if they followed all of Lawrence Feidelman's advice (see "Data Security and Magnetic Tape," January *Focus*). Mallon warned users not to dispose of tapes by burning, because some tapes contain chromium oxide and cobalt dope gammaferricoxide, which can produce "extremely toxic and dangerous fumes . . . unless disposed of according to EPA guidelines." Mallon says the federal government uses thermal or chemical meltdown of sensitive tapes, but he adds, "Most tapes used and supplied by Data General contain [a variety of] gammaferricoxide" that doesn't produce toxic fumes.

■

At last count there were more than 50 registrants for the CEO workshop being scheduled for Indianapolis in April. Users were planning to come from as far away as Florida. Sorry if you missed this one, but OASIS chairwoman Charlene Kirian says another CEO workshop is planned to coincide with the NADGUG annual conference in Orlando, August 11-14.

■

Getting on the GSA's published price schedule is the next best thing to making it into *Who's Who*, because it clears the way for U.S. government agencies to purchase a product without competitive bids. Cognos Corporation recently had four of its products placed on the list. The company also announced a faster version of its Powerhouse 4GL for DG machines—5 to 20 times faster than COBOL, according to the announcement.

■

The new regional interest group in Kansas City got off to a good start with its February meeting. About 60 users representing 25 organizations—some of them based hundreds of miles away—came to discuss products and services with DG staffers from the Kansas City office.

■

Lee Jones was a bit preoccupied at the NADGUG spring Executive Board meeting. He came to represent HADGUG, the Houston Area Data General Users Group, leaving his wife Wanda at home getting ready to have a baby. Lee made it back in time, though. The baby is a girl—Jessica, their fourth. Mother and daughter are doing fine.

Lee's company, Gulf Coast Systems, is also sponsoring a DG upload/download area on the HADGUG bulletin board. There aren't many files on the system yet, but if more users contribute programs, there will be more for everybody to download. Called "DG-Haus," the HADGUG bulletin board is available after business hours and on weekends. Dial 713/681-9629.

■

If you need to transfer binary data over QTY lines, this may be the answer—and it's free! Freddy Fingal liked Smarterm, the DG terminal emulation software he was using on his IBM PC, but since it couldn't handle binary data transfers under RDOS, he wrote a Fortran 5 utility that can use either 7 or 8 bits. You can get a copy by contacting him at Digital Computer Services N.V., Tanki Leendert 275, Aruba; phone 1-297-8-24635.

■

There's lots of information in this issue about Conference 86, to be held in Orlando August 11-14. One piece of information is worth repeating here: register early—it will save you money. The penalty for late registration (after July 25) is $75. In case you're one of those people who don't respond to aversive stimuli, there's also a reward for early registration. The NADGUG staff has arranged for a drawing to be held from the names of those who registered by the deadline. Prizes will be DG/One portable computers.

■

Axonix, a Salt Lake City company, is offering an electroluminescent screen as an upgrade for the DG/One. According to Ken Slauson, you send them your DG/One and $350, and they will install the screen upgrade for you. The unit includes a high/low/off switch; it draws enough current to cut the operating time on battery power by about half. For Slauson, who lives in Alaska, there's an added benefit: the electroluminescent screen raises the screen temperature by about 10 degrees—perhaps enough to keep it working outside during the winter.

■

The NADGUG staff and Planning Committee will be mailing new member profile forms to all NADGUG members this month. The information gathered with the form will be used to publish the first annual NADGUG membership roster, and will be entered into the new membership data base. Planning Committee Chairman John Brudz asks that you return the completed forms by the end of May.

■

Some users have complained of poor performance on CEO rev 2.12 with Decision Base. Stan Gula thinks it may be due to users who try to use the full 1000 by 10000 cell spreadsheet of Decision Base, rather than breaking their work into smaller pieces. Since the default is to recalculate the spreadsheet each time a value is entered in a cell, users should learn to set manual recalculation—otherwise they could be making the computer recalculate a million formulas every time they enter a value.

Gula adds that he expects Access Technology to integrate their 20/20 spreadsheet under CEO, now that CEO Toolkit is available.

■

IPI, the developer of BLIS/COBOL, has a new corporate headquarters and data processing center at 401 Whooping Loop, Altamonte Springs, FL 32701; 305/331-5200.

■

At least two users are looking for chargeback systems to help them allocate expenses for the computer resources used by different projects. Glenn Simmons wrote a letter to the editor this month asking for help locating such a package, and Randy Berndt posted a similar message on the NADGUG bulletin board. Surely there's somebody out there with an answer. If you can help, please contact Glenn (RCA Records, 6550 East 30 Street, Indianapolis, IN 46219), or Randy (American Urological Association, Office of Education, 6900 Fannin, Suite 546, Houston, TX 77030; 713/791-1470).

■

You can now send letters and member ads to *Focus* on the NADGUG bulletin board. If you didn't know that NADGUG has a bulletin board system, find the November 1985 issue of *Focus* and read "Welcome Aboard," page 11. Or just connect up your modem, dial 415/924-3652, and see what happens.

Did you know about member ads? They're short (less than 50 words) noncommercial messages to other users, usually asking for advice on a problem, or help locating a product. They are free to NADGUG members on a space-available basis.

If you don't have a modem, we still accept letters and member ads in our mailbox: 5332 Thunder Creek, Suite 105, Austin, TX 78759.

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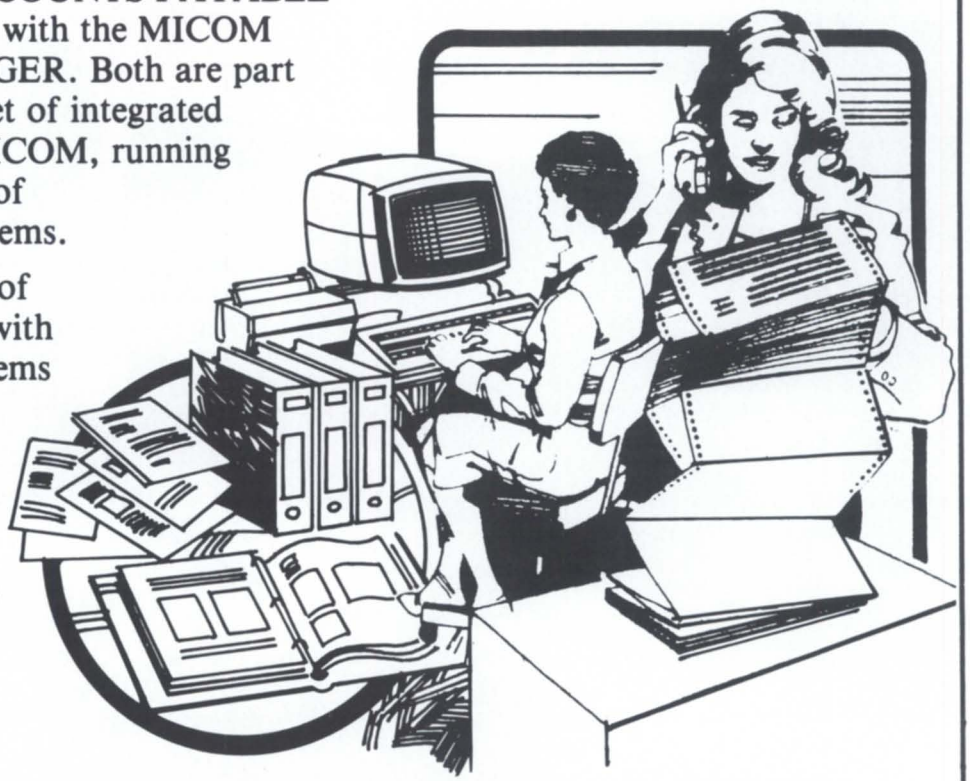

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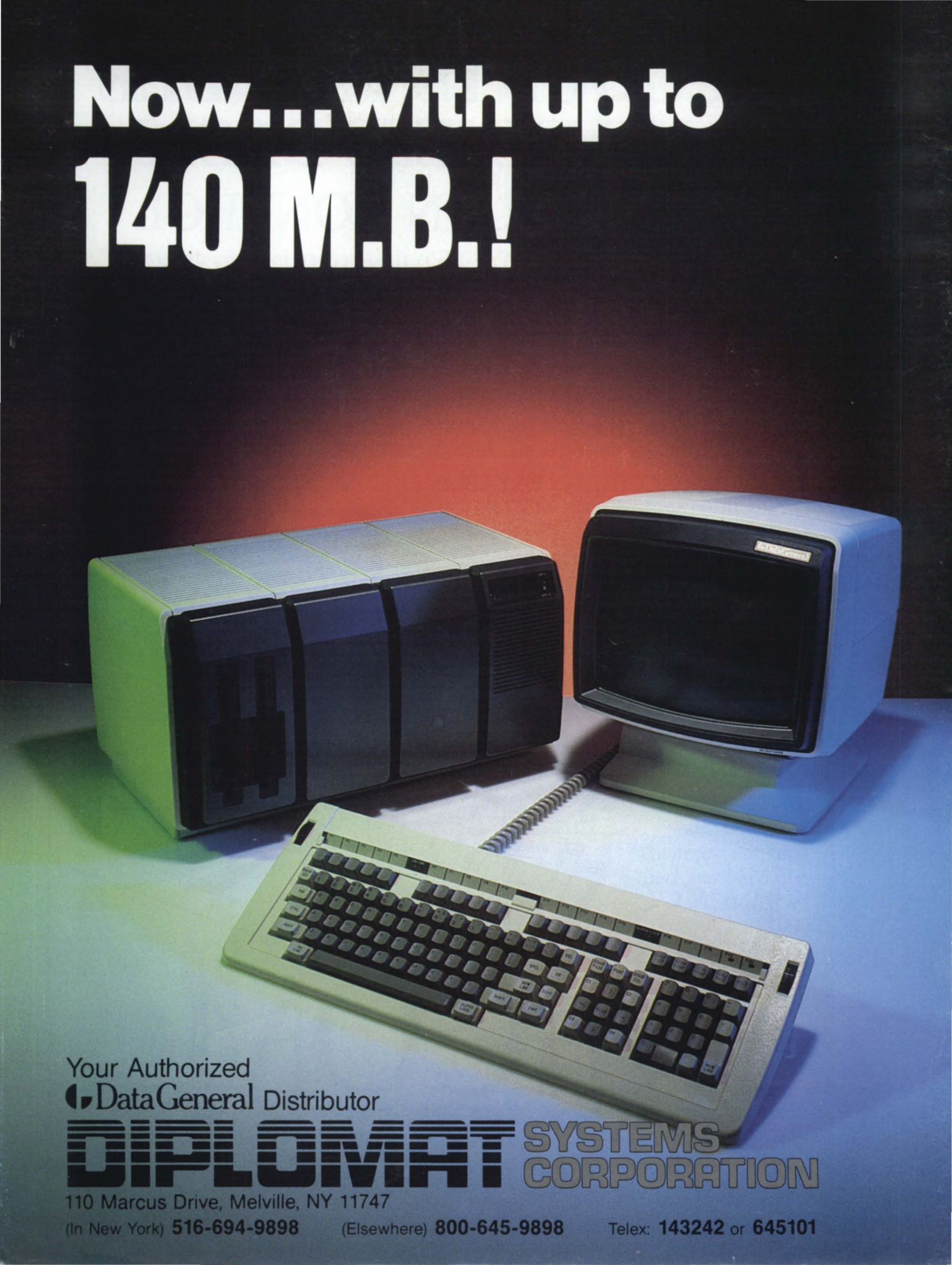

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