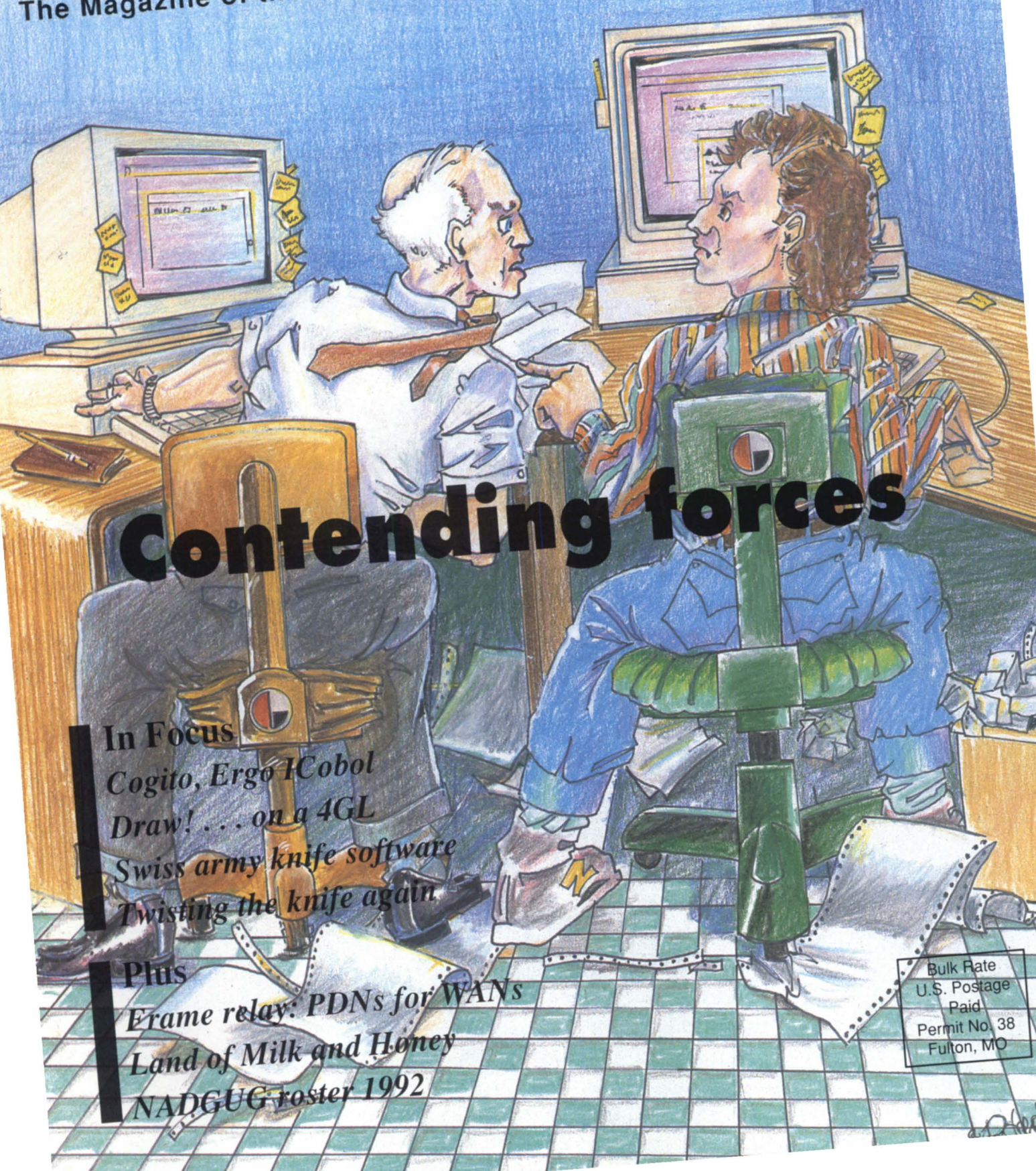


August 1992

FOCUS

The Magazine of the North American Data General Users Group



Contending forces

In Focus

Cogito, Ergo ICobol

Draw! . . . on a 4GL

Swiss army knife software

Twisting the knife again

Plus

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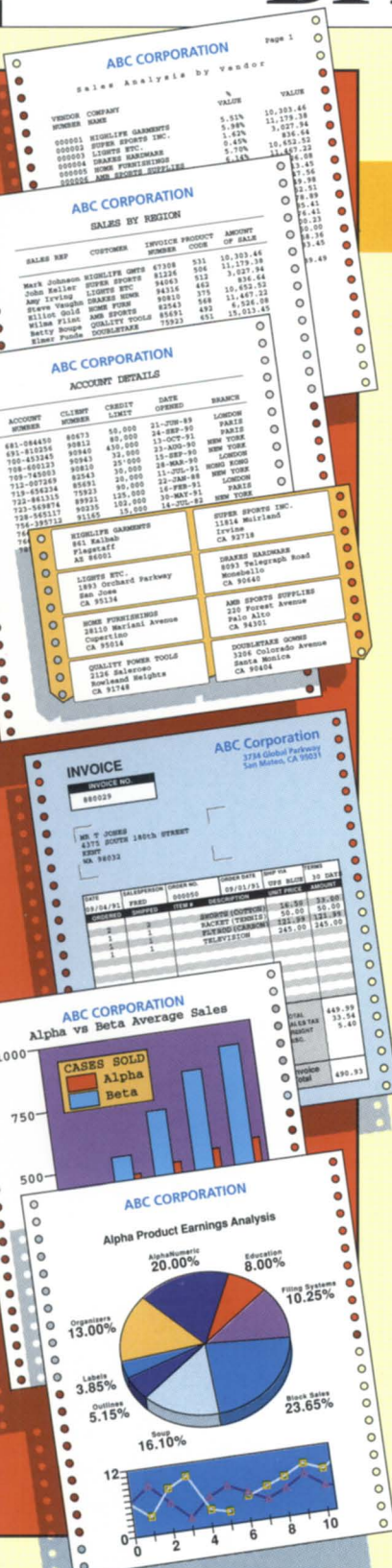
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The challenges we face

by Frank Perry
Immediate Past President

Hello from the Northeast. I'm writing this as summer officially starts, but we have been enjoying pleasant weather for some time now.

I had the opportunity back in April to attend the Business Symposium that Data General hosted at the Harvard Law School. Because of the scheduling of this column, this is my first chance to tell you about it.

Data General offered its customers a unique opportunity for growth and personal enrichment with a quartet of high-powered presenters who provided a thought-provoking look at the next couple of decades as we round the corner into the 21st century.

It used to be that my big concern about the new century was how to handle dates, particularly since I was in the drivers license business: date-of-birth and expiration are key fields. Today I am more concerned with the United States' role as a nation, particularly as it relates to our ability to compete in an increasingly global society.

Many of you work for multinational companies, and you may have foreseen this. But I found it fascinating. I was trained as an engineer and migrated into data processing. The fields of philosophy, political science, and economics never held much interest for me. My idea of B-O-R-I-N-G was any type of philosophical dissertation.

But the Business Symposium changed that. John Naisbitt piqued my curiosity when he opened the presentation with projections of what the world will be like. Stan Davis and Lester Thurow followed with excellent analyses of the challenges we face. Of particular interest to me was a diminishing role for the United States in the world's economy.

The need for improving our educational system caught my attention, and the figures quoted have stayed in my mind. Everyone seemed to agree that our best and brightest are right up there with the world's best. But after the top

10 percent, we are slipping rapidly. Competing in the global economy will depend on our ability to use technology effectively. And that is where we are slipping. The remaining 90 percent of our students—particularly the lowest 50 percent—do not rank competitively on a global basis.

We must look to our educational system. We need a new philosophy of education. We can no longer tolerate a system of minimums. Of more than 15,000 independent school districts in the United States, not one requires a school year longer than the 180-day year mandated by most states.

You can tell that the Symposium did reach its goal with me. I am now dutifully wading through Lester Thurow's book, *Head to Head: The Coming Economic Battles Among Europe, Japan, and America*, and planning to start John Naisbitt's *Megatrends 2000* next.

Tom West rounded out this outstanding program with a discussion of how organizations can use technology to achieve and hold an advantage.

Blended in with the Symposium was a series of product announcements: the MV/60000, the MV/35000, and the new HADA disk drives for the MV. Joel Schwartz summarized the new MV products and recent software changes (38 in the last year). It brought me back to the complaints I've heard over the past few years—"The MV is dying . . . it's being abandoned . . ." As you have seen from published excerpts of Joel's speech (July 1992 *Focus*, page 30), the MV is a living, dynamic product.

Changing the topic, the NADGUG Membership Survey is out. Please respond, as this is our major vehicle for telling Data General our problems and concerns. Data General's formal response should be available at Conference 92 in Kansas City. See you there! Δ

Frank Perry may be reached at 2074 Flat River Rd., Coventry, RI 02816; phone 401/397-3533.

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CONFERENCE REPORT

OASIS in Georgia

by Linda Klatt
Special to Focus

The spring OASIS workshop, held May 3-4 in Norcross, Georgia, attracted attendees from a variety of companies: Beneficial Data Processing Corporation (Peapack, NJ), Centel Corporation (Chicago, IL), Time Insurance Company (Milwaukee, WI), Westinghouse Communities, Inc. (Coral Springs, FL), Winnebago County Courthouse (Oshkosh, WI), New York Power Authority (Lycoming, NY), Regional Water Authority (New Haven, CT), USDA Forest Service (Atlanta, GA), and Data General Corporation (Westboro, MA).

Maureen Lutz, CEO development manager for DG in Westboro, conducted a presentation focusing on CEO 3.30. She started with revision release dates on the following products:

- PC CEOwrite 3.10 (mid-June)
- VS CEOwrite 4.11 (July)
- CEO 3.31 (no due date yet)
- Present 4.51 (late summer)
- Trendview 4.12 (no due date yet)

Lutz explained CEO 3.30 enhanced features, some of which are included here:

- Levels of access on private drawers, and up to 36 sharers
- Warning when deleting a shared drawer
- CEO entry passwords
- Screen lock
- Automatic exit from CEO for idle users

- Up to 60 sharers of a restricted resource.

Other enhancements include view-only remote resource; CSA migration utility; optional day-and-date calendar display; in-box handling; restricted access to public cabinet; profile-able response to lock document on workstation export; and additional fields for survey management.

Lutz also spoke about CEO Connection/PC regarding the following enhancements:

- 1992 release (exact date to be announced)
- Combined asynchronous/LAN product
- Updated user interface
- Menu tailorability
- TCP/IP support
- Internationalization
- File transfer
- Terminal emulation.

Lutz mentioned that beta sites will be needed in the near future for this product. The marketing department is also working on a pilot program to give the buyer the right to use this software for "x" number of users under one CEO Connection package. They are also working toward upgrading to possible color/compression features to work with today's more sophisticated PCs.

Mike Fowler, office systems manager for DG in Westboro, spoke on networking and LANs, pointing out several current market trends:

Continued on page 39

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Language Shoot-out

Editor's note: In the August 1988 issue of *Focus*, contributing editors Brian Johnson and George Henne engaged in a lively dispute over Basic. BJ called himself an "equal opportunity Basic despiser," and proceeded to outline a number of points supporting his contention that, "I can't find any redeeming virtue in the language or in its various mutations that makes up for the bad programming habits it encourages."

George countered by defending Basic on the merits of the BBasic dialect. "Business Basic has only a passing resemblance to the original language," he argued, adding also that BBasic "gets the job done. It's constantly being upgraded."



And in the spirit of sophisticated debate, George also referred to BJ as "you ignorant scooter trash."

So it went . . .

Well, now it's exactly four years later, and quite a lot has changed in the computer industry and in programming languages. Or has anything really changed at all? The language debate certainly continues.

So this time we bring back BJ and George Henne to argue some more (but not necessarily with each other), but also jumping into the August 1992 Language Shootout are regular columnists Tim (ICobol) Boyer and Kim (4GL) Medlin. Δ

Cogito, Ergo ICobol

SYNOPSIS

For business programming and to make the best use of system resources—to write efficient code if your code is going to have to execute a zillion times in its life cycle—Cobol is the only choice.

by Tim Boyer
Special to Focus

On *Byte* magazine's bulletin board, writer Jerry Pournelle hosts a number of different forums. One of these is dedicated solely to arguments concerning different computer languages—which one is better, faster, stronger, etc. It's titled the "Religious Wars" forum.



I agree with the sentiment, even though I'm not evangelical about ICobol. Fanatical, maybe, but evangelical, no. There is no single computer language that suits every need.

However, mine editor called and asked for a column on computer languages. As an example, he sent me copies of the George Henne/BJ fusillades of a few years back. There was no need to do that—I remember the exchange well. And I was *not* the person who put those two booths across from each other at the next annual conference.

I agreed, not because I think that Cobol happens to be a better language

for business applications than most—even though I do—but because of the increasing amount of grief that I get for having the temerity to program in Cobol. The other day, while on the DASH/CSC bulletin board asking an ICobol question, I got a response from an unnamed source asking us to "stop talking about Cobol, and instead discuss a real programming language, like C." Since I am now an officer of NADGUG, I find that I must keep a tight rein on my mouth (fingers?). So I didn't reply something like, "Listen, you little snot, as DG's bestselling language, ICobol is probably paying a goodly percentage of your salary, regardless of what you're writing in. If C lasts a few decades, if it's become the most popular programming language in the world for 30 years—*then* come back on the board and drop a few smarmy remarks about my livelihood. Until then, go overwrite some memory locations and crash a few systems."

This is my chance.

Basically, I'm writing code in a very boring language. Boring, boring, boring. Here's how you can tell. Go to a computer convention and strike up a conversation with a group of people. Developer A is writing a new screen-saver using object-oriented tools. Developer B is writing a protected-mode memory manager for a major game producer. Then they ask what you do, and you tell them that you write application programs in Cobol.

And they all drift away from you to find someone else to talk to. Even when you yell, "Wait! I also do a whole bunch of program maintenance, too!"

The truth is, there's not much excitement in the Cobol world anymore. All we can do nowadays is pump out massive quantities of business code using the most widespread, portable programming language ever invented. Oh sure,

every decade or so you'll see a new article in *Computerworld* about how we're all going to go away Real Soon Now, to be replaced by hordes of accountants writing their own programs in a structured query language, or a 4GL, or whatever the fad of the day happens to be. Right. I've got my retirement all mapped out, it doesn't start until the year 2018, and I have no intentions of learning another programming language.

About 10 years ago, I went to apply at Youngstown State University. I was finally going to bite the bullet and go for that four-year degree in computer science. The professor I talked to took a look at my associate degree curriculum and wrinkled his nose. Four quarters of Cobol? Two of Assembler? Didn't they teach any real programming languages? Like what, I asked.

PL/I, or RPG II. He actually said those two with a straight face. I decided to go for the business degree instead. I wonder what he's doing for a living now?

Silly question. He's probably still teaching—except now it's Ada and Modula 2.

Let me clue in you managers out there on why some programmers like C. You take any decent Cobol program, written by someone who isn't malicious, give the source to any decent Cobol programmer, and give him a couple of hours to come back and tell you what the program does.

No problem.

Now, do the same with any moderate-size C program.

What this implies is that if a program can be understood by someone other than the author, it can be maintained by someone other than the author. Programmers don't like that concept very much. Managers, on the other hand, like

that concept a lot.

So if you're looking for a Cobol compiler, let's take this one step further. Standard languages are supposed to be portable, right? That is, any ANSI Cobol program should run on any ANSI compiler on any machine, without changing a thing, right? And Siskel and Ebert are really best of friends, right?

The truth is, very few programs in

any language can be moved from one machine to another, recompiled without any changes, and run. With ICobol, you don't even need to recompile, let alone make any changes. Data General has versions that will run under MS-DOS or Unix. Wild Hare's versions will run on anything from the AS/400 to the VAX. Hardware companies don't like that concept very much. Users, on the other

hand, like that concept a lot. Back in the bad old days when DG was having some problems, this portability was the only reason that we stayed with them. "Look," I told my bosses, "if worst comes to worst, we move the code to another platform and run without a hitch. In the meantime, we're getting the most for our dollar with DG." Data General turned itself around, and I'm still on a DG machine, largely because there was no urgent need to find another company.

So what about 4GLs? Well, I feel about them much the same way BJ feels about Basic, and for many of the same reasons. 4GLs are the Artificial Intelligence of the business programming world. Lots of hype, lots of promise, very little product. The problem is, I think, that the 4GL people start becoming a little too evangelical and throw around numbers that I just don't believe: 20 times the productivity, 50 times the productivity. I've seen it written that a simple file update program that takes 80 hours to write in a 3GL can be done in an hour on a 4GL. Folks, if it took me 80 hours to write a file update program, I wouldn't be writing this column.

I have the same problem with 4GL programming languages that I have with X-Windows. In both cases, the approach seems to be, "iron is cheap, we have way too much hardware for the job at hand, so let's squander some resources."

That works if and only if your company will keep upgrading to a newer and faster machine as you add users. If instead, like many of us, you're stuck with an MV8 for the duration, you're going to find your applications getting slower, and slower, and slower . . .

Granted, a 4GL can make it easier to write and maintain certain programs. But at what expense? I once looked at one where the file I/O was a factor of 10 slower than ICobol. So with this particular language, you may gain an order of magnitude or two while writing the program. The only associated penalty is that your users lose an order of magnitude on file I/O each and every time they run the program. Some savings.

And once again, you run into the compatibility problem. What happens when you want to move to a machine

If you're talking workstations

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that doesn't support your particular 4GL? On the other hand, try buying a computer that you can't run Cobol on.

Ah, but think of the savings in personnel that you can achieve. When you have a 4GL, your users can write their own query programs, thus freeing up expensive data processing resources for more complex problems. Or so the story goes.

That's also the way it was supposed to happen with spreadsheets, remember? And PC data bases. They were so friendly, so easy to use, that the users would become the programmers. Well, we now have PCs everywhere, and this is the way it really is at Denman—and I can't imagine we're that different from other companies. Mister Macro in Sales is writing macros that even I can't understand, so he's on his own. He's the guy who has the 486 at home, and actually reads the manuals. One foreman can't remember how to turn the machine on two days running, so he doesn't touch it. Those two users are truly no additional work for DP.

The remaining two dozen people have learned just enough to add a column of numbers, after which they call Data Processing for help with their particular spreadsheet, and to write a macro to print this file, and so on. When they do manage to add a column, they insert a row on the bottom and forget to change the formula, so they never come up with the same result twice. Somehow, this always turns out to be a computer problem.

I suspect it would be the same situation with a 4GL.

Once again, don't get me wrong—there is a use for every language. C is what you write systems software in nowadays, though as an old reactionary I still prefer Pascal and Assembler. 4GLs are fantastic for doing ad hoc reports and data base queries. But for business programming, to make the best use of

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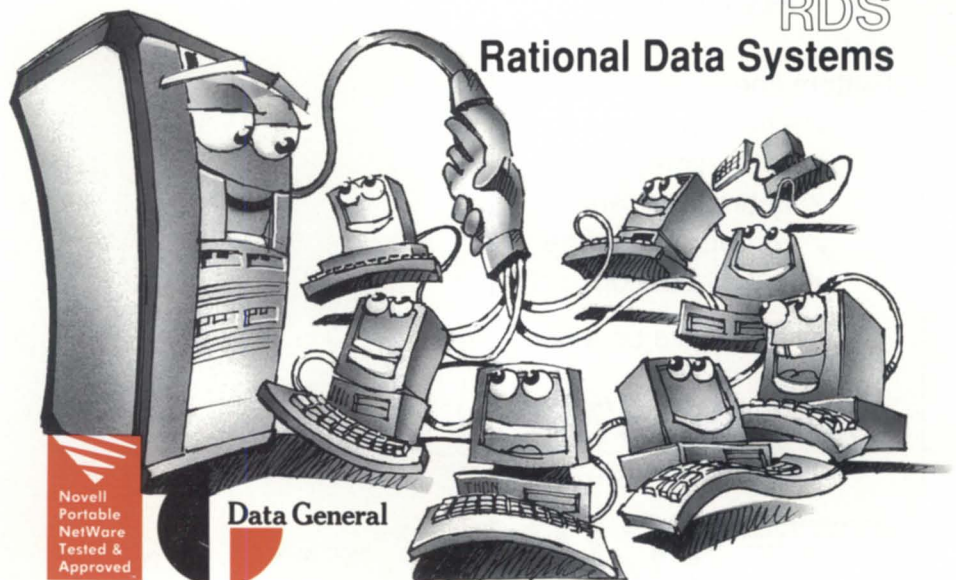
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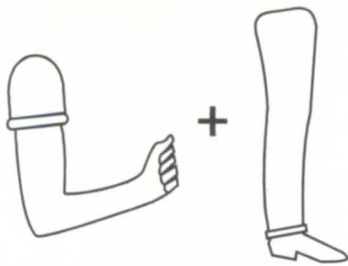
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FOCUS ON: LANGUAGE SHOOTOUT

DRAW! . . . on a 4GL

by Kim Medlin
Special to Focus

Technology marches on

While working for Data General's Systems Integration Services for the last 12 years, I've witnessed truly amazing advances in computer technology. The power found in large and expensive 1980 minicomputers can now be purchased inexpensively at your local computer store. And the pace of advancement is increasing. The last few years have produced incredible innovations in price and performance.

As a matter of fact, recent advances in computer performance renders moot many of Brian Johnson's and George Henne's arguments from their language debate in the August 1988 issue of *Focus*. BJ's gripes then were basically:

- The structure of Basic is crude and cryptic
- There is inherent inefficiency in Basic.

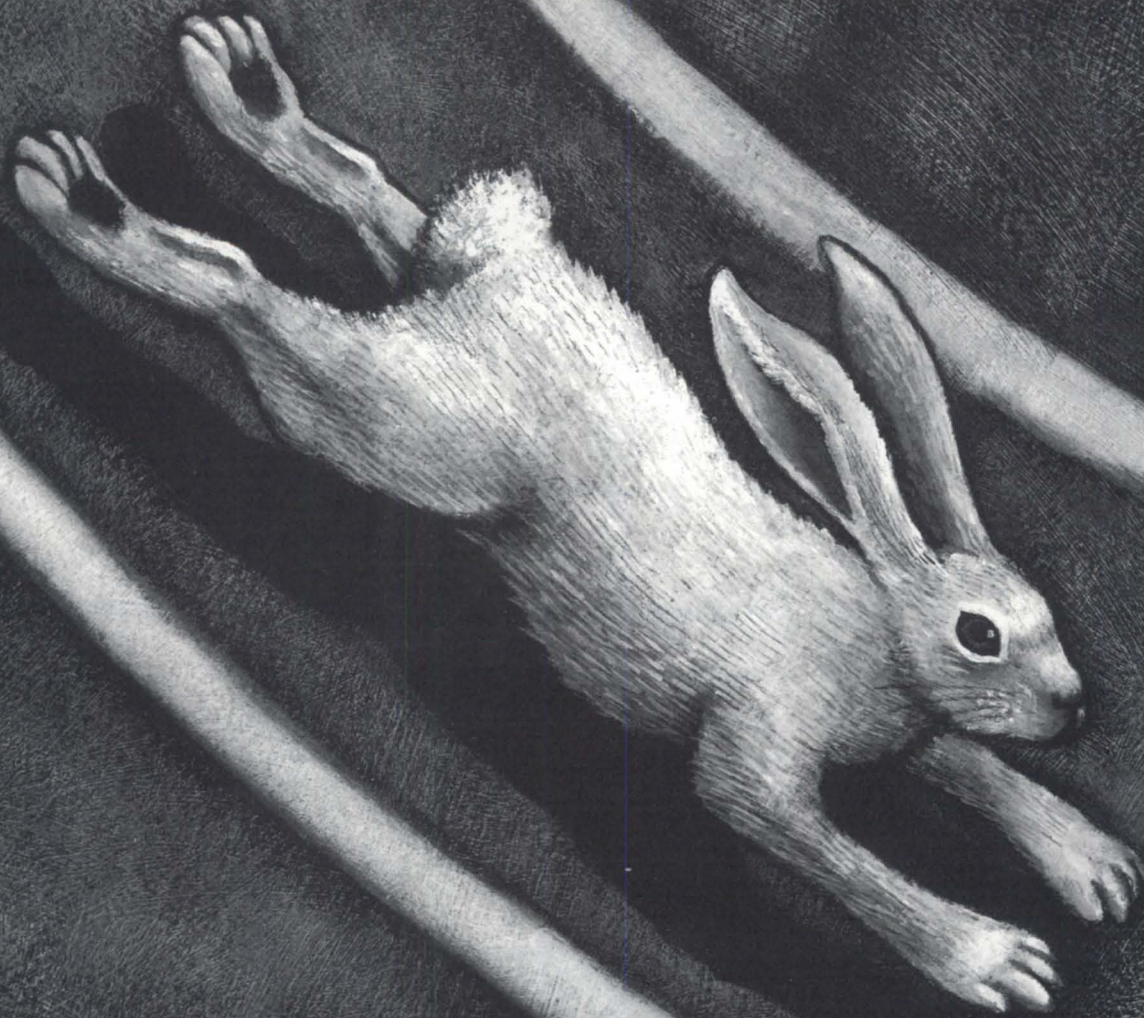
And Henne responded thusly:

- Many copies of BBasic have been sold
- BBasic has many language extensions, qualifying it as a production-quality and robust 3GL.

Well, in my experience, healthy product sales don't necessarily correspond with a good product. Some bestselling products from a company known by its three-letter acronym were definitely "K-9" products. And many of the newer

SYNOPSIS

The beauty of a 4GL is that the programmer can concentrate on the application's functional objectives, not on the technical details of its implementation. 4GLs enable software developers to produce application software on an order of magnitude faster than with a 3GL.



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and faster computers cancel concerns about language inefficiencies. I believe that the best 3GL can't hold a candle to a good 4GL when it comes to deploying real-world commercial applications. (We're close to fightin' words now.)

Techno-purists get left behind

Some people are so technically aware of each tree that they don't realize they are hopelessly lost in the forest. In other words, they love their realm of expertise and don't look around.

Two fundamental trends have been taking place since the computer industry began. Neither trend is new to you, but their tandem effect is striking. First, computer hardware continuously becomes cheaper and faster. Secondly, people (i.e., programmers) become more expensive.

The evolution of these trends is apparent if you look back at several points in computer history. In 1970, because computer hardware was so expensive, slow, and limited, program-

Figure 1: Sales opportunity maintenance

```

Action Edit Block Field Record Query Help
Sales Opportunity Maintenance
Account: GM General Motors
Address: 123 Automotive Avenue Phone: 215 555-9273
City/State/Zip: Detroit, MI 32953 Fax: 215 555-4234
Comments: A major client. Extend all courtesies.

Individual Sales Opportunities

Expected Last
Close Date Status Win % Contact Account Executive Branch Manager
01/01/1993 Proposal outsta 95.0 05/18/1992 Coffey, M. Doyle, J.
The McGregor deal. Very sensitive.

07/30/1994 Prospect 40.0 04/20/1992 Haddock, W. Doyle, J.
This comment field is 256 bytes long. It can fully viewed with a function key.

Count: *0 (Replace)
    
```

mers spent a great deal of time making programs small and efficient. By 1980, faster and cheaper hardware allowed programmers to spend more time concentrating on application functionality rather than code optimization. Isn't

application functionality what really matters? Isn't meeting business objectives what the commercial computer industry is all about?

Yes, it is. And so these trends are good. Faster and cheaper computers

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mean programmers can spend more time solving business problems and less time solving computer problems.

The fourth generation

And where do we stand in 1992? Recent improvements in computer processing speeds have lifted programming to a new level. That level is called the fourth generation of programming languages (examples of commercially marketed 4GLs are Oracle, Ingres, and Progress).

What is the difference between 3GLs and 4GLs? The answer is simple. With a 3GL (such as Cobol, Basic, or C), a programmer must state in a procedural manner exactly *how* the program should complete its objective. In stark contrast, a 4GL programmer states *what* the program should accomplish. The underlying logic of the language determines how to actually do it.

This is the beauty of a 4GL. The programmer can now concentrate on the functional objectives of the application, not on the technical details of its implementation. 4GLs enable software developers to produce application software on an order of magnitude faster than with a 3GL.

Application performance

4GLs unquestionably represent more processing overhead than do 3GLs. But remember, computers are much faster than they used to be. They can perform more work for lower cost than ever before. Therefore, 4GLs are consistent with the trends of hardware price and performance. Here at Systems Integration Services, we've deployed hundreds of application functions using 4GLs. The vast majority of these functions have been installed on new and fast hardware, like Data General's Aviiion computers. The hardware is so good that, unlike the 1980s, nowadays we rarely need to tune an application, even when using a 4GL as the development language. I even have 4GL applications running on PCs with no performance problems. (Oh yeah? Yeah!)

Acid Test I—application development

Like I said, application development with a 4GL is an order of magnitude faster than with a 3GL. That's a pretty bold statement coming from someone


who never in a million years will be a salesperson. Since this article is part of a "shootout" series, I guess I'll just have to prove that my statement is accurate.

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to write and unit test the individual program. A typical such program would be robust and would include logic for:

- Field validation and editing
- Forward and backward scrolling of sales opportunity records
- Pick lists (e.g., Account code, Opportunity status, Account Executive, etc.).

Using this model, I produced the same functionality with Oracle. How long did it take to write this function using a 4GL? A mere 43 minutes . . . how's that for an order of magnitude?

Acid Test II—application maintenance

Studies show that the majority of the cost of an application is actually incurred during the maintenance phase. Since it's difficult to simulate the maintenance effort of an application, I'll tell you a true story about maintenance with a 4GL. After one of our 4GL applications was installed, we performed an initial walk-through with the client. As expected, the client made numerous suggestions about application enhancements and modifications. The list consisted of a couple of pages of handwritten notes. All the requested changes were fully implemented within a few hours. In contrast, had this been a 3GL application, it would have taken approximately a day just to estimate the effort required to implement the changes.

Often, the current "best" choice for application development is a 4GL. A 4GL allows application development to be completed in a fraction of the time required with 3GLs, thus providing for rapid application development (RAD). Maintenance of completed applications is much faster and easier. And with current hardware, performance need not be an issue any longer. The evidence for using 4GLs is compelling. So go ahead, make my day! DRAW! . . . on the 4GL of your choice. Δ

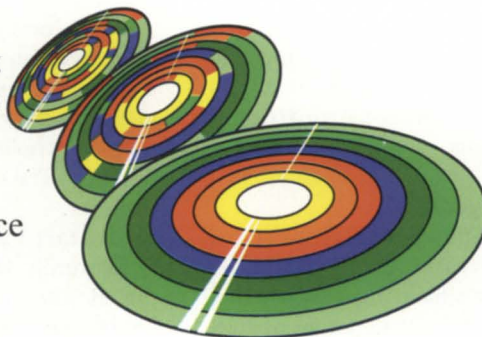
Kim Medlin is a senior consultant with Data General's Solution Services group in Atlanta, Georgia. Solutions Services specializes in custom software design, development, implementation, and consulting. Medlin's address is 3617 Parkway Lane, Norcross, GA 30092. He may be reached at 404/448-6072, extension 2007.

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The Swiss army knife of software development

SYNOPSIS

There isn't any one language that does all things well. But Business Basic comes about as close as you can get.

by George Henne
Special to Focus

This job of defending Basic seems to be a career for me. I'm tempted simply to point out that Basic is still an important development language after all these years in spite of all the other solutions that have come and gone, and leave it at that.

But then I read Kim Medlin's article (see page 12) extolling the virtues of 4GLs and felt moved to pick up the old word processor again. Once again, I see a religion masquerading as a solution. I can't stand by silently.

But first, let me say that my position has changed in the past three years. There have been a lot of new developments in the computer field: it's been changing faster in the last few years than ever. I've been involved with fourth generation languages (4GLs), relational data bases, object-oriented programming, GUI programming and Hypertext on RISC machines, PCs, and Macintoshes, as well as traditional AOS/VS systems.

Are 4GLs any good?

I've developed some respect for 4GLs, but only as another tool. Articles such as Medlin's have misled too many managers about the true nature of software projects, and resulted in many expensive mistakes.

At the very beginning of the confusion over 4GLs is the lack of a workable definition. I believe industry pundit James Martin once defined them as a language that allows development 10 times as fast as 3GLs, that could be learned by its intended users in a cou-

ple of days. That's a reasonable definition. Unfortunately, it could include Basic as well. Medlin's simple example program that would take 37.5 programming hours in VS Cobol would be about a four-hour job in Business Basic. That doesn't make BBasic a 4GL.

Another point of confusion is mixing up data bases with 4GLs. Oracle, Ingres, and Progress are all data bases with 4GL interfaces. One of the most common development languages for Oracle developers is PL/I—hardly a 4GL. There is nothing to stop Business Basic from using those same data bases, other than the fact that few are willing to pay the price in performance and software licenses. So what then is a 4GL?

A 4GL is just another development tool that works well when applied to the proper problem.

4GLs look great in demos. In one hour, you can create an input screen and a complete variety of reports. Too many users conclude on the basis of the demo that the whole system will develop just as easily. The evidence is strongly to the contrary.

I'll start by using Medlin's "Sales Opportunity Maintenance" as an example. He can do it in 43 minutes because he defined a problem that fit neatly into the capabilities of his 4GL. It's a straightforward file maintenance program. But suppose it had been a little more real-world? Suppose some features were required by the user that aren't available in his 4GL?

For example, how about an option to display all the letters sent by Wordperfect to the prospect? How about show-

ing prospects with less than 40 percent in reverse video? What if the program should have the same look and feel as the existing Accounts Payable programs? What then?

In a 3GL, easy: just program it. In the 4GL, if the feature isn't there, you're either stuck or you have to go through unbelievably time-consuming and inefficient contortions to achieve your objective.

Hammers and nails

When all you've got is a hammer, everything looks like a nail. 4GLs are a big hammer, and being used too often to provide compromised solutions to users' needs. Since they can't always do what's needed, users get only what can be done easily. This might look great on the development budget, but are the users being well served?

Also, the 10-to-1 productivity improvements are highly overrated. It turns out that in a development cycle, only a small portion is actual coding. Many more days are taken up in analysis, design, testing, implementation, documentation, and training. 4GLs can help somewhat on these, but the advantage is no longer 10 to 1.

The 10-to-1 ratio works only when the programs required fall naturally to the 4GL's strengths. When things get hairy, 4GLs can actually slow things down as designs have to be reworked to suit the restrictions. Overall from my experience, using a 4GL on a typical project may result in only a 10-percent elapsed time savings compared to doing the project in Business Basic.

I've worked with companies that did total rewrites of major systems in 4GLs.

The projects came in way over budget, perhaps because they were oversold in the first place. More telling is the nagging feeling many developers have that the rewrite seemed to take a lot more time to finish than the original 3GL version.

Another vital issue that 4GLs ignore is that there is a tremendous base of existing software. It's assumed too often that your new 4GL system will run standalone without having to share its information with existing applications, and that users will be happy to learn its new interface in addition to whatever it is they use now.

That's not the real world. Medlin's Sales Opportunity Maintenance will work fine unless it needs to use the Account Master from the existing Cobol Accounts Receivable system. Most 4GLs demand that they "own" the data base: if they are going to use an Account Master, a separate one will be needed. Imagine the fun of maintaining two Account Master files with no software that can update them both simultaneously!

To simply say, "Then we'll rewrite the Accounts Receivable system in our 4GL," is no solution.

Medlin's example seems to use a Lotus-style menu bar across the top. This is fine in itself, but I bet the rest of your software doesn't work that way. What if your operators like having each input field numbered and want to go specifically to a numbered field instead of *tabbing* through all the fields? Why should the new program force the users to learn a new standard?

Before I sound like I'm completely down on 4GLs, let me say that I use them every day. I also use Business Basic every day. I don't consider this contradictory, but rather complementary. I consider BBasic an essential development tool for most systems.

When it became clear to me that 4GLs could save significant development time on certain projects, I looked to find one that could work with the same environment and file systems as the existing applications I work with. I use Cyberquery: it's data base independent and can work directly with the Business Basic files. Transoft is also developing tools for Business Basic users. Some of the same products will also work with

ICobol files: it's worth shopping around for the one that fits your needs.

I haven't written a report program in Business Basic for a year. Simple maintenance programs are done in the 4GL, but complex input programs and most updates are best done in BBasic. I never have to compromise the user's needs: I use the tool that is most likely to do the job right for the user.

The menu programs (in BBasic) can call applications in both BBasic and the 4GL: it's transparent to the user which their application is written in, as it should be.

What's BBasic good for?

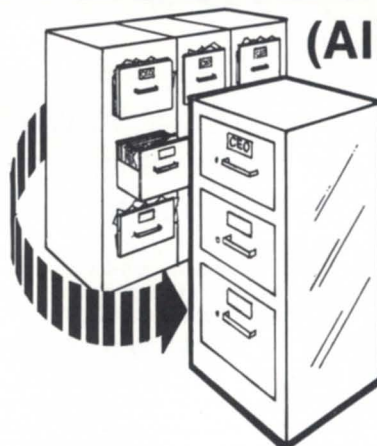
With all the changes in computers these days, will Business Basic still have a role to play? Or will it continue to

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exist just because of its installed base?

A by-product of the trend to open systems is that it's far more possible to buy application software, rather than develop everything in-house. It's not unusual for a system to make use of software from half a dozen different companies on the same machine.

Configurations are also becoming more varied. Terminals are being

replaced by PCs or intelligent workstations. Once again, where systems used to do all the processing on a single CPU, it's not unusual for a company to integrate Unix, DOS, and perhaps a proprietary operating system.

There is little standardization between all these different software packages and platforms. The work of system developers is often to develop interfaces

between the components of the system. The trouble is, the components themselves offer few tools to help. Shell scripts are difficult to program in, and full of inconsistencies. They also lack basic features often required to build interfaces.

Business Basic really comes in handy for this kind of work. It runs on all the common platforms in an identical manner, so code written for an interface is usually transportable. File handling is powerful: Transoft's UBB can not only handle flat files and Business Basic files, but some common data bases as well. String handling and data manipulation features are far more powerful than any shell scripting language. Its interactive development makes it a fast tool for system hacking.

On many occasions, I've even used BBasic to set up lists of shell commands to be executed on the fly. BBasic can create a specific set of shell commands as a file based on the required circumstances, then execute it.

BBasic is also a good tool for all those communication problems that need to be dealt with, such as oddball modems, printers, or other devices.

Conclusions

It all comes down to using the right tool for the right job. There isn't any *one* language that does all things well. Fourth generation languages do a few things well, but to pretend they are the only development tool you'll need is folly.

4GLs are effective only if used for the types of problems they are good for, and implemented in a manner complementary to your existing software. I think they'll have a permanent role to play in software development. But don't believe everything the false prophets boast.

Business Basic? It will continue to be around, as probably the most effective all-purpose programming language. It's the Swiss army knife of software development. △

George Henne is president of The Eastwood Group, who specialize in converting AOS/VS users to Unix. You may reach him at 77 Hill Cres, Toronto, Canada M1M 1J3; 416/264-2899 phone or -2885 fax.

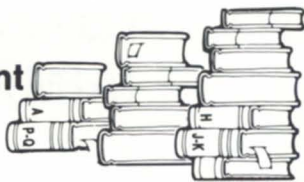
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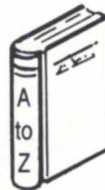
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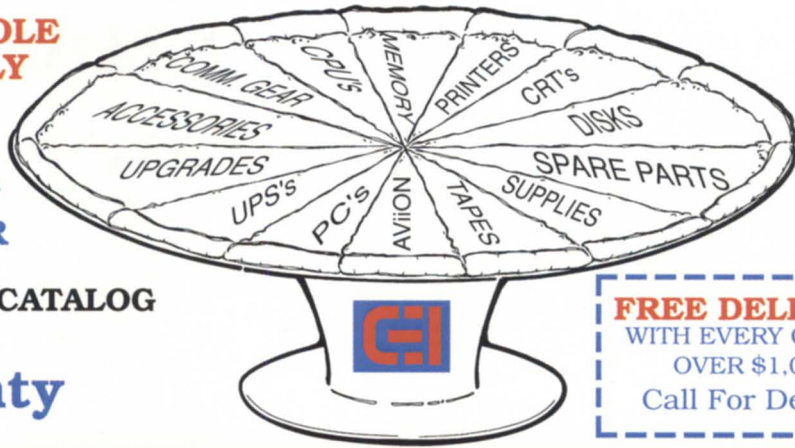
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Twisting the knife one more time

SYNOPSIS

What language you use depends on what you need to do. Sometimes the best vehicle is a CLI macro, and sometimes it's a 4GL. What's clear is that these days you have to be multilingual.

:BANG_BANG

It took quite a bit of encouragement from the folks at *Focus* to get me fired up for this. After all, flogging a dead horse ain't that much fun, and trying to convince a die-hard Basic aficionado of the error of his ways is like arguing with a UFO believer.

For those of you who don't hoard *Focus* back-issues, and so I can enjoy twisting the knife one more time, let me rehash my personal feelings about Basic in all of its various incarnations.

Basic was invented back in the Dark Ages (the Sixties) as a short-term hack by a couple of barely computer-literate professors (chemistry, I think) at Dartmouth in order to make it easier for their computer-illiterate students to analyze data from their lab experiments. It was immediately seized on by the unwashed masses as the language of choice based on its short learning curve and the limited IQ required to use it.

Basic, as originally designed and, to a lesser extent, as currently extended by one and all, fosters bad programming practices by discouraging readable and well-documented source code. My personal feeling is that using Basic to teach introductory computer programming to neophytes should be treated as a felony and carry a sentence of death by slow torture.

Basic's adherents extol the virtues of being able to code and debug interactively without lengthy recompiles or relinks. I claim that programming using the technique of repeated tinkering simply results in spaghetti code.

One thing that really gets me nuts is OEMs who choose to code in Basic to minimize *their* development costs at the expense of *your* runtime costs. Basic fans counter this by arguing that hardware is now cheap and fast. Okay, I guess that means that it's okay to squander resources on sleazy software rather than use the extra oomph to increase functionality or support additional users. Sorry guys, I don't buy it.

Last time around, George Henne argued that newer versions of Basic had addressed most of the problems associated with the earlier versions. Recently I was reading a review of *Visual Basic For Windows* just for laughs, and I was surprised to find that the old problem of not being able to find undeclared arrays because they are automatically allocated is still present. Oops, I forgot—that's a feature. God forbid we should waste precious development time declaring variables before using them (same criticism applies to Fortran).

Okay, George, just climb into the ambulance while I keep Kim Medlin honest.

4GLs

The latest version of the Quest For Free Lunch is the Wonderful World Of 4GLs. If you believe the worst of the 4GL salespeople, these things will allow you to replace your entire staff of professional programmers with homeless people, train them using a one-hour-long video cassette, and have them turning out gorgeous applications by nightfall. The cost? Well, 4GLs *do* require a teensy weensy little bit more hardware than 3GLs . . .

Let me tell you a little true story, modified only slightly to protect the Stupid. Once upon a time there was this company with a VP of Bureaucracy who wouldn't know a computer if it fell on him. One day he was playing golf with his buddy, a VP from another firm. His buddy bragged about how his firm was switching to a new portable 4GL that was all the rage and made developing new applications a snap (or so he had been assured it would be as soon as the conversion was complete). He chided his friend for still using "antiquated technology." When the VP got back to the office, he called in the MIS director and demanded to know how soon they were going to be able to take advantage of the wondrous benefits of this new technology. The MIS director pointed out that 4GLs were indeed nice, but even their vendors warned that hardware upgrades would be required in order to run the same number of users as a 3GL. The VP said, "No problem. Do the conversion and then we'll upgrade the hardware, I promise." The MIS director shelled out big bucks for a license for a 4GL, and told his staff to start converting their 3.141592654 zillion lines of Cobol to the 4GL.

Many moons later the conversion was complete. They fired up the new software and the MV groaned under the load, paging and swapping its brains out with the CPU idle meter pegged at zero. The MIS director scuttled off to the VP's office with the necessary requisitions in hand to upgrade the hardware and was told, "Sorry, but there's a bit of a budget crunch on this quarter, and anyway I didn't realize that sooooo much hardware would be needed. Come back next quarter. And, by the way, how soon can I expect to see that one-year backlog of new application

requests go to zero?"

To make a long story short, the company eventually upgraded all of its MV/10s to MV/20s. A year later it added a few additional MVs. A year after that it upgraded them to MV/20 IIs. A year later it upgraded the most overloaded systems to MV/40 Is. A year later it was MV/40 IIs. And all the while, hordes of snazzy new applications continued to be added as fast as they could be coded up, with little regard to whether or not they made any sense or had a significant impact on the bread-and-butter applications (you know, mundane stuff like A/R and A/P).

It's now seven years later and the company has spent more than \$30 million on additional hardware, software license upgrade fees, and consulting fees. And system performance still stinks. The programming department is still fully staffed. In fact, it has doubled in size. But was it all a net winner? Don't know. The customer never figured that out, probably because they'd rather not know the answer.

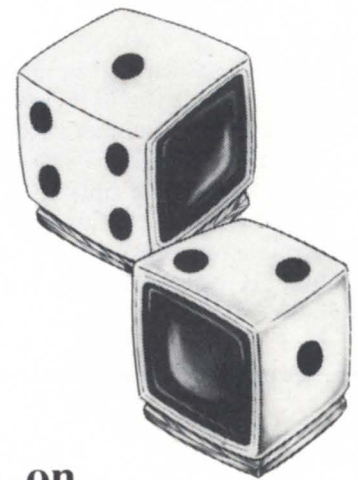
I recently figured out that over the last five years, nearly a third of my consulting revenues come from providing a shoulder to cry on for sites that have upgraded to 4GLs.

The moral: opting for a 4GL is a two-pronged decision, and you mustn't neglect the second prong (requisite hardware), or you will get pronged.

A more subtle problem with 4GLs is that invariably they initially appear on a specific platform and are optimized to perform well in that environment. Within a heartbeat, vendors embark on an effort to make their 4GLs run under a variety of operating systems, and that's when trouble sets in. In order to achieve portability, they have to forsake any system-specific optimizations and code for the lowest common denominator system. That means that as time goes on performance gets worse, even if you don't add additional load.

The final criticism I have of 4GLs is the lack of industry standards. Selecting a particular 4GL effectively hitches your star to the company that provides it. And these days, even billion-dollar companies have been known to go down the tubes.

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:BJINC:C

Back when I participated in the first language shootout, I was in the process of switching most of my in-house stuff from Ratfor (a Fortran dialect) to C. This seems like a good time to bring you up to date on how things went since a couple of you took the time to write and accuse me of being a pro-peller-head.

Now before you Cobol and 4GL fans get crazy about my choice of C, consider the following: 90 percent of the code I write is for high-performance system utility software that involves fancy string handling and heavy system call use. Invariably, these kinds of utilities also involve dynamic allocation of large complicated data structures (and therefore pointer variables), so Cobol and

4GLs are out on that score alone. Of course, I could just code cosmically huge static arrays and end up with largely sparse 16 MB .PR files like those that the CEO group and the LOAD_II/DUMP_II guys are fond of producing, but I know better.

I originally chose Ratfor back in 1980 based on its portability, simplicity, and features (e.g., block structure). The decision to switch to C was made using the same criteria. Had PL/I been as universally available on other systems as C, I probably would have chosen PL/I instead, because there are still quite a few annoying aspects to C, not the least of which is the refusal of the standards committee to nail down exactly how big *char*, *short*, and *long* are (I have no quibble with *int* being sizeless).

That doesn't mean that I don't use other languages. I use Assembly quite often for small simple utilities, and DG Cobol (compiled for long-term, (ICobol for throwaways) for applications requiring indexed files and/or field-oriented screen I/O with field input type checking. If there were such a thing as a standard 4GL so that I wouldn't have to worry about the vendor going belly up, then I'd probably use it, but there ain't. I'm also fluent in most other languages, but I rarely need to use them anymore, especially now that I've switched to C—C really is to system programmers what screwdrivers are to handymen.

After choosing to switch to C (DG's C, specifically), I also decided to attempt to standardize on ANSI C as much as practical. It took almost a year to develop a set of pure ANSI .H files and write the missing ANSI C library routines for DG C, but I eventually did it, and in retrospect it was well worth the trouble. On many occasions I've developed a program on the MV, uploaded the source to a PC, and it compiled and ran on the first try. That's pretty impressive.

While I'm at it, let me put in a plug for DG's C compiler and the MV development environment. The compiler has been wonderful, and the subscript checking and traceback options make debugging a breeze. But the real winner has been the MV's memory architecture. It virtually (pun intended) eliminates the classic "stray pointer" problem at runtime by trapping the process

Attention NADGUUG Members

Notice of NADGUG Executive Board Nominations

The following is the report of the Nominating Committee for the October 1992 meeting.

Those recommended for election at the 1992 Annual Meeting of the North American Data General Users Group are as follows:

Officers

Vice President: Tim Boyer
EDP Manager
Denman Tire Corporation
Warren, Ohio

Secretary: Bart Bates
Senior Analyst
Gibson Petroleum
Calgary, Alberta Canada

Nominating Committee:
Jan Grossman
Vice President

General Business Meeting Announcement and Proxy

The next General Business Meeting of the North American Data General Users group will be held in conjunction with the NADGUG annual conference in Kansas City, October 14, 1992 at 8:45 am. All members in good standing are eligible to vote on items brought before the meeting, which will include the election of the above officers.

In accordance with NADGUG's By-laws, any member in good standing may, by written proxy, authorize any other member to vote in their behalf. If you do not plan to attend, the Executive Board urges you to exercise your right to vote by filling out and returning the proxy information below. To be eligible, return the coupon no later than October 2, 1992 to: Recording Secretary, 400 Diehl South Rd., Leavittsburg, OH 44430.

Select only one of the following proxy options:

I authorize _____, a member in good standing, to vote in my behalf at the NADGUG General Business Meeting.

-or-

I authorize the NADGUG Recording Secretary to exercise my vote in accordance with the instructions of the Board of Directors.

-or-

I authorize the NADGUG Recording Secretary to record my votes as follows:

1. Election to office of Vice President

Tim Boyer

2. Election to office of Secretary

Bart Bates

Signature _____ Company _____

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and generating a traceback whenever you inadvertently fill a pointer with junk and then try to use it. Every time I read an ad in a PC magazine for add-on products that purport to do the same thing for C under MS-DOS, I chuckle.

:OOPS

What a perfect acronym.

This wouldn't be complete without a few words about the latest rage: Object Oriented Programming Systems.

I'm gonna go out on a limb here and make a prediction. Like APL, Simula, Modula, and other also-rans, OOPS is doomed to become a niche concept used mostly by propeller heads. I'm always leery of anything that involves lots of jargon (e.g., "Method") and that makes wild claims, and OOPS is filled with both.

Take reusable objects, for example. This is nothing more than another instance (hey, OOPS, more jargon!) of the Quest For The Holy Grail: a standard library of functions to do all the hard stuff so that we can write massive software systems as little tiny programs that are simply a list of function calls.

If it truly is possible to create a comprehensive standard library of anything, then please explain to me how it is that the number of individual payroll programs on this planet exceeds the number of employees who get paychecks. After all, payroll is essentially a simple formula involving hours worked, pay rate, and a couple of deductions. What could be easier?

I rest my case.

:SUMMARY

What language you use depends on what you need to do. Sometimes the

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best vehicle is a CLI macro, and sometimes it's a 4GL. What's clear is that these days you have to be multilingual, and if I had to narrow down the list, then for me it would be Assembler, C, Cobol, and an unspecified 4GL.

The only situation I can think of where Basic might be appropriate would be when I show up to claim my guaranteed reservation in Hell, Satan

will undoubtedly assign me to maintain his Basic programs for eternity.

:OLD_BUSINESS

I'm sorry that I started the minihistory of DG last month and dangled a few carrots at the end; I forgot that the Language Shootout was scheduled for this month. Blame it on the Basic creeps. I'll try to get back to it next month. Δ



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Doug Kaye

Frame relay: PDNs for WANs

SYNOPSIS

Part 2 of a two-part series—Frame relay is a major step forward over X.25 packet switched networks for wide area networks of LANs. It may well be your best bet if your WAN has multiple nodes and a complex topology.

Last month, we began this column by comparing leased lines and X.25 packet switched networks for use in wide area networking. We learned that the benefits of X.25's sliding window optimization are usually lost when bridging (local area networks) LANs in remote locations, and that the performance of PDNs (public data networks) is actually worse than when using lower-speed leased lines.

To solve this problem, the public data network vendors have come up with a new data link routing methodology that allows them to compete for price/performance against basic leased line services.

Enter frame relay

The public network vendors' solution is *frame relay*. Its goal is to reduce the store-and-forward delay at each packet switch. You'll recall that this delay comes in part from the need for the switch to receive each frame in its entirety, evaluate the checksum or CRC for correctness, then forward the frame on its way. To minimize these store-and-forward delays in the switch, frame relay performs a remarkably simple optimization.

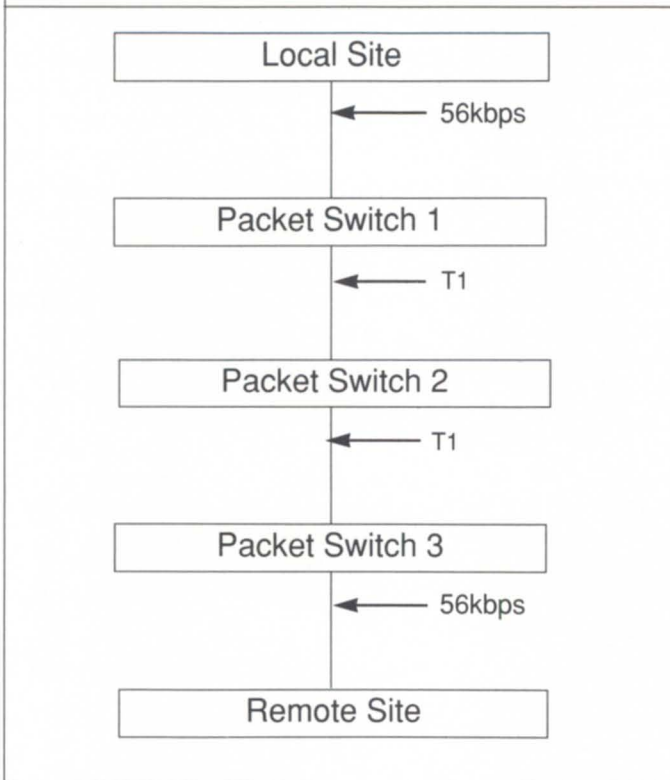
In a frame relay switch, incoming packets are examined byte-by-byte as they arrive. The routing information is contained in the first few bytes of the frame, and as soon as the switch can determine the frame's destination, it starts sending it.

That means the node is already sending the beginning of the frame before the end of the frame is received. This eliminates most of the store-and-forward delay.

Figure 27 is the network we used to measure the performance of leased lines and PDNs last month. Let's use the same network and take a look at the timings for a WAN based upon frame relay, and assuming a 56 kbps access line to the vendor's first node.

- Data packet transmission time (1 x 75 msec @ 56 kb) = 75 msec
- Ack packet transmission time (1 x 15 msec @ 56 kb) = 15 msec

Figure 1: Packet switched network



- Link delays (8 x 10 msec @ 56 kbps and T1) = 80 msec
- Total time = 170 msec.

In this case, it has taken 170 milliseconds of elapsed time to move the data, which could theoretically be moved in 75 milliseconds. Figure 2 compares the performance and efficiency of the different links.

Figure 2: Link performance and efficiency

Link	Time	Efficiency
Leased 56 kbps	140 msec	55%
Frame Relay, 56 kbps CIR	170 msec	44%
X.25 PDN 256 kbps Access	272 msec	27%

As we shift to higher access speeds, such as 128 kbps or 512 kbps, frame relay looks better and better as compared to X.25 PDNs. Frame relay vendors are claiming improvements as much as a full order of magnitude.

The details

Before rushing out to your local public frame relay vendor, it's worth taking a few minutes to understand how to purchase public frame relay services, and how to know what you're buying.

As with an X.25 WAN, you must lease a connection from your site to the vendor's node, called a *point of presence*, or POP in frame relay parlance. The speed of this line is one of the variables you will be asked to select.

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The most important (and most misunderstood) parameter of frame relay service is the *committed information rate*, or CIR, which specifies the maximum average data rate of each per-

Before rushing out to your local public frame relay vendor, it's worth taking a few minutes to understand how to purchase public frame relay services, and how to know what you're buying

manent virtual circuit (PVC). The CIR is the rate at which the vendor guarantees to accept your data.

However, frame relay PVCs offer a *burst* capability that allows them to occasionally accept data at rates greater than the CIR. For this reason, the CIR is usually lower than the access rate.

Much of the traffic originating from a LAN workstation is bursty in nature, and it is very tempting to save a few dollars

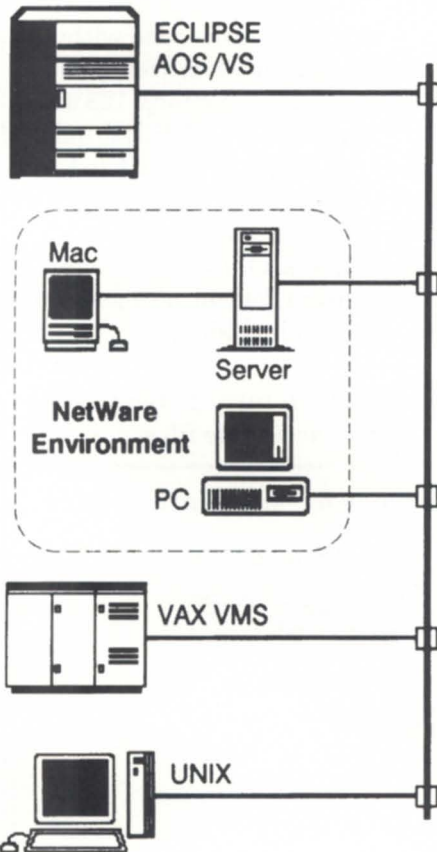
by signing up for a slightly lower access speed. But the biggest mistake you can make in purchasing a public frame relay service is to count on a bandwidth greater than the CIR. There are two reasons for this.

First of all, frame relay is not a guaranteed delivery service. This actually works well with LAN protocols, which assume that the data link layer is likewise unreliable, but recovery from a lost packet in the WAN environment is much more time-consuming than strictly within a LAN. Second, consider what the frame relay switch does when its network becomes congested.

As soon as frames begin to arrive faster than they can be forwarded, they are buffered. (This actually occurs well before frames are discarded.) And what happens to WAN performance when the frame relay switch starts to buffer? That's

Figure 3: Frame relay vendors

Vendor	Access Rate	CIR
AT&T	56 kbps..T1	32 kbps..768 kbps
BT North America	56 kbps..T1	56 kbps
Compuserve	56 kbps..1mbps	4 kbps..512 kbps
Graphnet	9.6 kbps..256 kbps	9.6 kbps..64 kbps
MCI	56 kbps..T1	64 kbps..512 kbps
US Sprint	56 kbps..T1	19.2 kbps..1mbps
Wiltel	56 kbps..1mbps	56 kbps..512 kbps

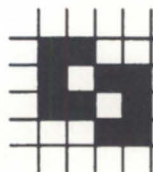


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right—it starts to operate and perform just like an X.25 store-and-forward switch.

For these reasons, it is important to choose an access rate and CIR that realistically match your traffic loads.

Selecting a vendor

In early 1992, there were seven suppliers who offered or planned to offer public frame relay services in the United

Summary

Whether or not it meets vendor claims of a 10x improvement, frame relay is a major step forward over X.25 packet switched networks for wide area networks of LANs. The real competition here is between leased lines and frame relay. If your WAN has multiple nodes and a complex topology, frame relay may well be your best bet.

If your needs are strictly point-to-point, the benefits of frame relay may be less obvious. You'll have to weigh the benefits and costs more carefully.

Most important, make sure you engage the services of an independent consultant to analyze your data transmission requirements and to make appropriate recommendations. This is a rapidly changing environment. For example, the day this article was submitted for publication, the seven regional Bell operating companies announced new public frame relay offerings that will include 46 cities by 1993. This is neither the time nor the place to learn by doing—get help! Δ

Copyright © 1992 Rational Data Systems, Inc. Doug Kaye is president of Rational Data Systems, Inc., 1050 Northgate Drive, San Rafael, CA 94903; 800/743-3054 or 415/499-3354. This month's column has been excerpted from the 1992 Report on PC Integration, available from RDS for \$24.95 plus shipping and handling.

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States. Figure 3 (page 28) shows a breakdown of their CIRs and access rates

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David Novy

The Land of Milk and Honey

SYNOPSIS

DG/UX 5.4.1 is one of the best versions of Unix on the market today, but do be sure to read the installation notes carefully.

I installed DG/UX 5.4.1 over the weekend. As far as I am concerned, this release marks the point at which DG/UX has equalled AOS/V5 II in file system strength and crash recovery capability.

DG/UX 5.4.1 contains the fast recovery file system. By means of this file system, drives that previously took several minutes to resynchronize after a system panic, can now recover in less than 10 seconds. If you have a system with several disk drives, the difference in disk recovery time for a single disk can be dramatic. In addition, DG/UX 5.4.1 allows several drives on a disk controller to be resynchronized at the same time, compared to one drive per controller at a time with previous versions of DG/UX. This further reduces the time to recover from a system panic. Using DG/UX 4.2, it took about 15 minutes for my Aviiion 6200 to recover from a system panic, compared to 3 minutes with DG/UX 5.4.1.

One word of caution using the fast recovery file system: because it uses disk caching, it takes longer to flush its disk buffers than previous DG/UX releases. Previously, when we were in a hurry and feeling lucky, we would take down a system by issuing the following command sequence:

```
sync;sync;sync;halt -q
```

Because of the robustness of DG/UX, this violent method of taking a system was very fast and effective. (Please, do not try this stunt with non-DG versions of Unix.) However, this method of system reboot on a DG/UX 5.4.1 system with the fast file system enabled is extremely dangerous and foolhardy. The disk cache buffers need more time to be flushed than the `sync;sync;sync;halt -q` command sequence allows. The results can be quite catastrophic. So

when using DG/UX 5.4.1 with the fast recovery file system enabled, always take down a system properly.

DG/UX 5.4.1 has auto-reboot capability and automatic memory dump capability. These new features allow system managers to let the system try to recover by itself from a system panic, instead of the method used by previous DG/UX releases, which forced the system manager to start the process manually.

DG/UX 5.4.1 offers several other features that help system manager productivity. One of these is support of the Korn shell. After you use the Korn shell, you will wonder how you ever managed without it. It combines the best features of the Bourne and C shells.

The Valley of the Shadow

Using DG/UX 5.4.1 is a joy, but installing it was *not* easy. I will explain. I have an Aviiion 6200 with two LAN controllers and two SCSI controllers. I was previously running DG/UX 4.2 and decided to install DG/UX 5.4.1 without using the intermediate DG/UX 4.3 or 5.4 releases.

The first problem I encountered was that I could not boot the memory resident DG/UX starter system. I learned that I could not boot because I did not have a properly wired console cable for DG/UX 5.4.1. My local systems engineer was able to give me the correct configuration.

After wiring the console cable according to DG/UX 5.4.x specifications, I was able to get the DG/UX starter system to boot, and I was able to install DG/UX 5.4. But every time I tried to bring the DG/UX 5.4 system to init level 3, the system would give a 30000032 panic. I installed DG/UX 5.4.1 and the problem still existed. My DG field engineer learned that any system with two LAN controllers running DG/UX 5.4 or above needed to have the LAN controllers at

revision level 7.

After the LAN controllers were upgraded, the 30000032 panic still existed with DG/UX 5.4, but installing DG/UX 5.4.1 eliminated the 30000032 panic. Unfortunately, almost as soon as the 30000032 panic was eliminated, a 20000075 panic began to occur. It was determined that this panic occurred whenever a file system was exported at the directory level. If a file system was exported at the file system level, everything was all right. If a file system was exported at the directory system level, a 20000075 panic would occur within five minutes—guaranteed. We were able to eliminate this panic by rebuilding all the system drives using the DG/UX 5.4.1 diskman *format* command. Rebuilding the disks took quite a bit of time, but it did resolve the 20000075 problem.

Here is a recommendation for anyone faced with the necessity of having to reformat a disk drive. Always make two copies of the data on any drive you plan to format. Not doing so is like trying to perform a high-wire act without a safety net. You will probably be all right, but the price of failure is not worth the risk.

Conclusions

DG/UX 5.4.1 is one of the best versions of Unix on the market today. The fast recovery file system, the Korn shell, performance enhancements compared to previous releases, and its support of the Unix System V Release 4 functionality prove again that DG knows how to give value to those who invest in Unix.

On a new system, DG/UX 5.4.1 is easy and quick to install. If you are upgrading to DG/UX 5.4.1 from a previous release, make sure that all system boards are at the proper revision, read the installation notes carefully, and give yourself the means to back down to a previous DG/UX release in case there are problems. If you take these precautions, your journey through the Valley of The Shadow should be uneventful. Δ

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

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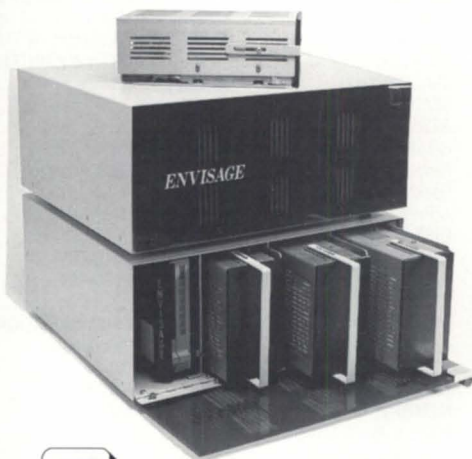
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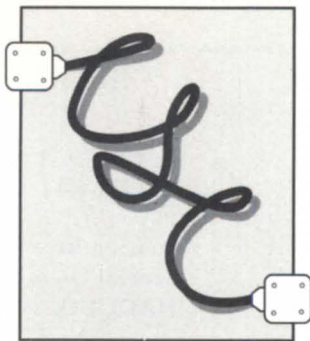
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CSC FORUM

DASH items

SYNOPSIS

Notices and queries posted on the
DASH (Direct Access to Support Help) bulletin board.

Category: DG/UX

From: Chuck Brokschmidt
Subject: **File date/time**

When doing an *ls -l* I have noticed that the files I have created or modified reflect the day/month/time of the modification, but not the year. Is there a configurable parameter someplace that I can set to change this so that the year is displayed? I'm sure this information is stored; it's just not displayed.

Reply by: Ephraim Nussbaum

The *ls* command doesn't show the year unless the file is more than a year old. It then shows the year, but not the time.

You can write your own program in C to show all data if you wish. If you aren't a C programmer, do what I do: copy the program from somewhere. Several Unix and C books have this as a sample program.

From: Michael Keck
Subject: **dt command using -k option**

Could someone please shed some light on the results given when the *df -k* command is issued? The file system in question has a total of 1859195 kilobytes, 708633 kbytes used, 18337 kbytes available, and it is at 97 percent capacity (according to results of *df -k*); the total kbytes and the kbytes used are correct, but the last two numbers are way off.

Reply by: Elliott Lavy

The "available" and "percent used" are for space available to nonsuper-users. The definition of the file system can be modified with *tunefs(1M)* (the *-m*) parameter. See the manual pages

for *df* and *tunefs* for more details.

From: Peter Quirk
Subject: **Printer features**

We are looking for feedback from DG/UX users on the features you would like supported by the *lp* subsystem in high-volume printers such as the 6594 and 6617/6618 printers.

The 6594 offers four emulations—Epson FX, Proprinter, TI855/Qume, and TI880. Which of these is important to you? What kinds of applications do you use with high volume continuous stationery? Do you need *lp* to provide support that the application doesn't provide?

I'll be happy to receive feedback on other printers as well. You can respond to this bulletin board, or if you prefer, mail me at quirk@flotsam.webo.dg.com.

Looking forward to your feedback—
Peter Quirk, Product Manager,
Open Systems Marketing,
Data General Corporation.

Category: Hardware

From: Tanya R. Howard
Subject: **Connecting modem to AV 4000**

Hi, I would like to get any information I can on hooking up a modem to answer on the Aviiion 4000. I have connected it to the second RS232 port (B), (A) being the console. I have gone in and changed the *tty* to show the correct modem. I am trying to dial into the Aviiion from a PC using Procomm, but I can't get the Aviiion to answer. I used to use an Intel 310, and the only thing I had to do was configure the port as a

modem and dial in using a communication software package; the Unix/Xenix box would answer and give me a login prompt. Do I need some kind of software on the Aviion to allow this to happen? Thanks for any help on this.

Reply by: Michael Keck

We played with the (B) ports on Aviions for quite a while and eventually abandoned them because the results were so erratic. If you have any success please let me know.

Reply by: Tom Barron

What kind of modem is it? You do have to set up the modem to auto-answer. One problem we had for a while was that our modem was in verbose mode, and when it sent status messages (e.g., "RING", "CONNECT 2400", etc.), the Aviion responded as if the *modem* were trying to log on. Probably the easiest way to set up the modem is to connect it to your PC running Procomm so you can talk to it easily (i.e., I don't know of a program on the Aviion that will give you easy access to the modem directly). It's a pain to move the modem back and forth until you get the configuration correct, but that's how I did it. If you find an easier way, I'd like to hear about it. Oh, and don't forget to write the configuration to non-volatile RAM in the mem, and set the modem to load its parameters from the non-volatile RAM when it comes up before you unplug it from the PC to move it to the Aviion. Good luck . . .

Category: NADGUG

From: Tim Boyer

Subject: **This bulletin board**

Interesting—this seems to be a mostly Unix board, and RDS a mostly AOS/VS.

Reply by: Glenn Cheatham

DASH runs on an Aviion 5200 server located at the DG Customer Support Center in Norcross, GA. The bulletin board is available 24 hours per day, 7 days per week, free of charge. Call 1-800/DASH-CSC (1-800/327-4272) for the modem rotary.

This was designed as an Aviion service, with AOS/VS as an afterthought, or "Me too!" I'll bet if we spread the word, that will change. It can be particularly useful to those of us with our heads in both worlds.

Reply by: Tim Boyer

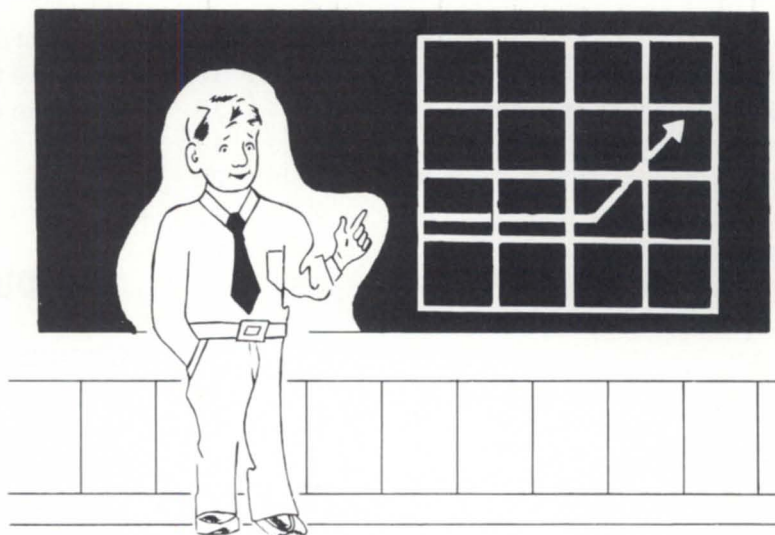
Speaking of which (if your head's in both worlds)—I've just been told

third-hand that the ICobol Minisam server for the Aviion isn't multi-threaded. Shades of RDOS! Can anyone squelch or confirm this particular rumor?

Reply by: DG Customer Support

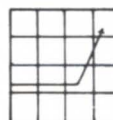
I checked with Development, and the Aviion Minisam server is single-threaded. △

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FAX: 508/443-4715

FOCUS Magazine address:
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512/335-2286

Editorial comments, article suggestions Doug Johnson
(please send product announcements to the address listed above)

Information about advertising Michelle Sentenne

FOCUS back issues Turnkey Publishing staff

Conference report;
continued from page 6

- Rapid growth in LAN segment
- Installed base of PC LANs
- Novell has 60-percent market share today
- Microsoft LAN manager is a contender
- Apple is a significant niche player
- 80 percent Ethernet, 20 percent Token Ring dominates
- Growing demand for multiple protocols.

Fowler also spoke about the various classes of servers. In answering the question, "What is a server?" his response was, "Any system that provides discreet service to a larger community."

Office or business automation is not enough anymore, Fowler commented. Customers want open systems, choices at the desktop, distributed solutions, integrated applications—in short, they want a business information environment versus office information systems. What they really want doesn't exist—yet!

Judy Yordan, MIS support/training manager for Westinghouse Communities of Coral Springs, Florida, led the afternoon discussion on standardization of PCs.

Chris Glover from the USDA Forest Service in Atlanta spoke about how her office utilizes a Help Desk software using a product from Oracle.

Highlighting the first-day activities was a visit to the Data General Customer Support Center for a guided tour and personal meetings with support personnel.

The next OASIS Workshop will be Monday, October 12, in Kansas City, as part of the overall NADGUG 92 Conference. A tentative agenda includes the following topics: a vendor/user Word-perfect panel discussion; CEO family products and their future plans; open systems concepts; and PC issues such as training, comparison hardware, software, and maintenance shopping. Δ

Linda Klatt is the NADGUG representative of the Office Automation Special Interest Subcommittee (OASIS). She may be reached at 414/299-6053.

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NADGUG 92

October 12-16, 1992 Kansas City, Missouri

The latest products for DG systems

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Westboro—Data General Corporation added to its personal computer line the high-end Dasher II-486/33LE. Based on the 33-MHz 80486 microprocessor from Intel, the Dasher II-486/33LE is a high-performance, Extended Industry Standard Architecture (EISA) PC featuring a full-size chassis for maximum configurability.

The new PC can function as a LAN

server running Netware; as a multiuser system running Unix; as a workstation connected to an Aviiion server; or as a single-user system running complex business applications.

Base configurations include the Intel 33-MHz CPU, 4 MB system memory, and either a 3.5-inch (1.44 MB) or 5.25-inch (1.2 MB) floppy disk drive. A Super VGA card with 1 MB of video

RAM, also included, supports screen resolutions up to 1,024 x 768 in 256 colors.

The Dasher II-486/33LE can be upgraded to a 50-MHz system via a simple board swap. It will also support Intel's 33/66 MHz microprocessor when the chip becomes available later this year. System memory may be expanded to 28 MB by 2, 4, or 8 MB single in-line



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memory modules (SIMMs). Five available 32-bit EISA bus mastering slots allow installation of a variety of controller cards.

The Dasher II-486/33LE is provided with a full complement of standard software, including MS-DOS 5.0, Microsoft Windows 3.1, system diagnostics, anti-virus software, and security utilities.

Prices for the new Dasher start at \$4,095.

Data General Corporation, 3400 Computer Drive, Westboro, MA 01580; 508/898-4288.

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Stay up and running



Westboro—AV/Alert system, a new comprehensive Data General proprietary support system, maximizes Aviion server and workstation availability through automatic problem detection and remote assistance service.

System problems are reported immediately to Data General service personnel through the DG/UX operating system via AV/Alert's built-in error detection and installed diagnostic tools. AV/Alert minimizes disruptions by identifying and isolating potential and existing problems before they lead to extended system downtime.

DG's AV/Alert system consists of five elements:

- Automatic alert to DG: 24 hours a day, seven days a week; direct machine initiated (MI) problem incidents transmitted immediately to designated customer support centers via a customer's on-site dedicated telephone line
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- Automated call handling: DG account engineers can be dispatched with full knowledge of the problem, and with all parts required to complete the "fix loop"
- Superior problem detection: detects serious faults today and provides a growth path for anticipating incipient situations and predictive maintenance checks
- Customer controlled security features: four levels of successive protection pre-

vents unauthorized access to the customer's system in addition to normal DG/UX log-in security.

AV/Alert is provided in the initial warranty period and subsequently as an integrated part of Data General's contract service for all Aviion servers and their connected workstations running the DG/UX 5.4.1 operating system.

Data General Corporation, 3400 Comput-

er Drive, Westboro, MA 01580; 508/898-4056.

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Acu4GL interface



San Diego, CA—Acu4GL, now shipping from Acucobol, Inc., allows software written in Acucobol-85 to interface with

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relational data base management systems without having to add embedded SQL to existing Cobol programs. Acu4GL's first interface is to the Informix-Online and Informix-SE data base engines.

Future developer plans call for interfaces to Ingres, Unify, and Oracle. Contact Acucobol for pricing information.

Acucobol, Inc., 7950 Silverton Avenue,

Suite 201, San Diego, CA 92126; 619/689-7220.

Circle 50 on reader service card.

Customized networking

Hopedale, MA—TLC Systems announced its TLCNet service for build-

ing and running private message-based asynchronous dial-up networks. TLCNet supports interchange among remote PCs, individual PCs, and larger computers and applications.

Based on detached (sometimes called "disconnected") client/server computing, the TLCNet service allows users to develop all types of electronic-mail-enabled applications, including forms management, IBM-mainframe data base query, and data collection. Detached client/server computing provides remote and mobile computer users the advantages of client/server architecture without the telecommunications costs of being on-line in real time.

TLC Systems offers a three-month, 20-person TLCNet pilot-test package for \$9,500, using a shared message-switching hub at TLC Systems' headquarters. A typical three-year contract utilizing a dedicated hub will cost an estimated \$40 per user per month for 50 users, and less than \$20 per user per month for 2,000 or more users.

TLCNet supports communications among Data General CEO and other message services embracing both the Novell Netware MHS and X.400 messaging standards. Connection is via common IBM and industry standard LAN and WAN protocols. TLCNet uses LZ compression/decompression and file-transfer implementation that typically achieves 90 percent modem throughput utilization.

TLC Systems, Inc., 4 Spaceway Lane, Hopedale, MA 01747; 508/478-8211.

Circle 56 on reader service card.

Oracle Version 7

Redwood Shores, CA—Oracle Corporation announced immediate availability and shipment of the Developer's Release for Oracle Version 7 on 88open-certified platforms to third-party developers and customers.

The Oracle Version 7 Developer's Release is a pre-production version of Oracle Version 7, including full code, documentation, and related software development tools. The early release allows data base developers to begin building Version 7 applications and



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migrating existing ones.

Oracle has standardized all ports for systems based on the Motorola 88000 RISC chipset into a single port called Oracle for 88open Systems. The Version 7 Developer's Release is now shipping on Data General's Aviiion family of workstations, as well as other 88open-certified platforms.

Oracle Corporation, 500 Oracle Parkway, Redwood Shores, CA 94065; 415/506-7000.

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Sharing printers



Miami, FL—Equinox Systems, Inc., offers enhancements to its range of Data PBXs to allow printers normally dedicated to a single host, such as a Data General MV, to be shared between several host computers and large numbers of IBM and Apple Macintosh personal computers.

Printer sharing can tie multi-user computers such as Data General and Unix machines, standalone PCs, and even Novell networks to the same printer. The Data PBX provides centralized management and control, with faster diagnosis of problems from the supervisor console.

Two Data PBX models are available: the DS-5, which can accommodate from 24 to 960 lines; and the DS-15, which can handle from 24 to 1,320 lines. Pricing is dependent on application, but as a guide, entry level pricing is \$6,600 for a 24-line DS-5, and a typical 200-line system costs around \$20,000 (\$100 per line).

Equinox Systems, Inc., 14260 S.W. 119 Avenue, Miami, FL 33186; 305/255-3500.

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Backup and recovery



Rockville, MD—Raxco announced BART, the company's backup and recovery software for Unix networks. BART is a high-speed backup technology for heterogeneous networks.

The menu-driven product will back up any disk on any machine on a TCP/IP network, whether the device

location is remote or local. Supporting a full range of media, data formats, and Unix variants, BART includes more than 180 options for exact site customization. In addition, BART offers "speed compression," using any excess CPU capacity to accomplish compression and keeps the tape drive streaming. BART also generates on-disk indexes and supports fast file position-

ing for 8 mm and 4 mm devices.

The product is currently available on a variety of Unix platforms, including DG/UX on Data General Aviiion systems. Licensing fees range from \$399 to \$49,995 depending on configuration.

Raxco, 2440 Research Blvd., Suite 200, Rockville, MD 20850; 301/258-2620. Δ

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Data Specific

Janke joins DG

Peter E. Janke has joined Data General Corporation as vice president of its Federal Division.

Coming to DG with 20 years of experience in marketing high technology system solutions to the federal government, Janke will be responsible for all DG federal marketing and sales programs. He will be based at the company's Federal Division headquarters in McLean, Virginia.

Janke will report to **Angelo Guadagno**, vice president of Americas Sales and Services. Both Guadagno and Janke are 1992 winners of Federal Computer Week's "Federal 100" awards.

Janke worked at **Computer Sciences Corporation** for the past two years as vice president of Department of Defense development. Previously, Janke held executive-level positions during seven years at Unisys Corporation and Sperry. He also held director-level marketing positions at CTEC, Electronic Data Systems, Computer Sciences Corporation, Northrop Services, and INCO. Janke holds degrees from the University of Wisconsin and Georgetown University. He and his wife, Rose, live in Herndon, Virginia.

An Aviion 'Medley'

A strategic agreement between DG and **Uniplex** of Hemel Hempstead, United Kingdom will provide marketing and joint development for the next generation of client/server office automation software, codenamed "Medley."

Under the terms of the contract, DG's Aviion servers will be the first port of Uniplex's Medley in the Americas. Data General will be the first computer vendor with worldwide marketing rights to this new software. Medley for Avi-

ion will support any standards-based PC and Unix workstation clients in Aviion server-based client/server environments.

"Data General's leadership, commitment to open software, and experience in the office automation marketplace make them a clear choice for marketing Medley," said **Patrick Regester**, Uniplex managing director of international operations.

According to **Bill Zastrow**, DG's vice president of office systems, joint development between Uniplex and Data General will extend the capabilities of Medley by adding a range of distributed applications for today's rapidly growing client/server computing infrastructure.

Medley for Aviion will be available in the first half of 1993. Pricing will depend on the number of users supported. Uniplex, a member of the IMI Group of Companies, is the world's leading supplier of office automation software for open systems. The company has offices in the UK, France, Germany, North America, Australia, and Malaysia.

Object manager

OS/Eye*Node, the first integrated network, system, and application management software product designed for use across both TCP/IP and OSI networks, has been announced jointly by Data General and **Digital Analysis Corporation** (DAC) of Reston, Virginia. The product was demonstrated at INTEROP 92 Spring, an exhibition spotlighting multivendor interoperability.

Co-developed by DAC and DG, OS/Eye*Node features distributed application control, instrumentation for SNMP and CMIP proxies, and several key management applications. It was designed to be scalable and extensible for networks and systems with hundreds to thousands of devices.

As part of the DAC/Data General alliance, customization and product tailoring services are being offered including application integration, product porting, MIB integration, proxy creation for non-manageable network entities and applications, and others.

Future revisions likely will parallel DME specifications as related components reach maturity. OS/Eye*Node will be available during the third quarter of 1992. Pricing information is available from both DAC and Data General.

Dashers and Aviions in vocational rehab

A network of nearly 400 Dasher personal computers will help the **State of Wisconsin's** Division of Vocational Rehabilitation in obtaining employment for disabled workers and increase overall operating efficiency.

Vocational rehabilitation counselors in the division's district offices will use the desktop systems connected to Aviion servers in division headquarters and field offices. The Dasher-to-Aviion network will use a file-sharing software called PC-Interface, developed by **Locus Computing Corporation** of Inglewood, California.

Network faxing

Network fax-server hardware and software products from **Gammalink** of Sunnyvale, California, have been chosen for integration into Data General's CEO Object Office system.

DG chose Gammalink's Gammafax CP, a high-volume network fax board; Gammanet fax server software for sending faxes from any CEO, Windows, Newwave, or DOS application; and Gammapage page translation software.

"Our customers wanted a single environment that would provide an easy and powerful method for network fax transmission, and we looked at several different vendors before choosing Gammalink," said **Bruce Evans**, DG product line manager, office systems.

Dr. H.S. Magnuski, Gammalink's founder, president, and CEO, said that CEO Object Office "is an excellent example of a complete network-based office automation application that can fully take advantage of the advanced fax capabilities provided by our products." △

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