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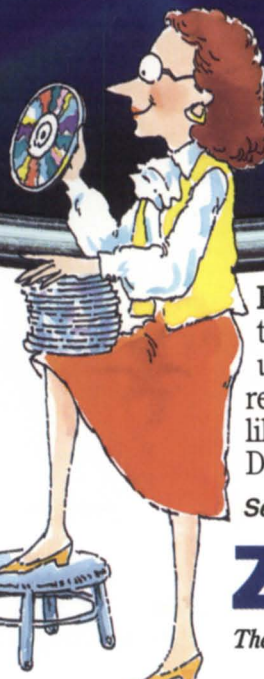
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Rich Lowney President
Computer Management Dynamics, Inc
Location: New Hampshire, USA
Vertical: College administration
Product: COMMAND
UBB platforms: 386 UNIX, DG AViON, HP 9000, IBM RS/6000, NCR Tower

"Starting with TAC's version I have been working with BBASIC since 1975, so I appreciate what Transoft has accomplished. UBB is elegant and simple to use..."

"Because of UBB we have been able to sell our software on HP and NCR, as well as DG, and become an Industry Remarketer for the new IBM RS/6000..."

"We went into a customer on a Friday night, ported everything from their MV to a Hewlett Packard system under UBB and it was fully operational on the Monday morning. That's how painless it was..."

"If you look at the maintenance on an MV15000 you can go in and upgrade the site to a RISC box and cost justify the upgrade on maintenance savings alone – so there is no out of pocket..."

"Transoft's support is very responsive, very quick and very effective..."

"We have already started to sell the UDM concept and when we have this gateway to relational databases we will basically lock out our competition..."

"Transoft has earned our respect."

U/SQL product has also given the BBASIC user RDBMS style SQL reporting on ISAM files.

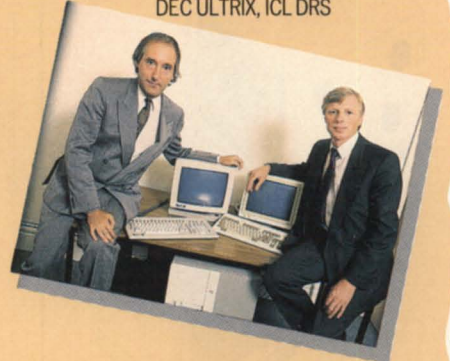
But today there is often the need in specific situations to go further, to actually generate or interface to popular relational databases such as Oracle and Ingres. The problem is how to do so without incurring enormous re-writing costs and how to minimise the processing overhead of such databases.

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Pennine Computer Services Ltd
Location: Cheshire, England
Vertical: Retail/EPOS
Product: PRISM II
UBB platforms: 386 UNIX, DG AViON
DEC ULTRIX, ICL DRS



Simon Tite, Systems Manager, (left) and Duncan Arthurs, Chairman, with one of their in-house UBB UNIX machines – a DG AViON 5010.

Duncan Arthurs, Chairman:

"Many of our prospects have a preference for a particular manufacturer. UBB's portability has enabled us to bid for more business and make significant additional sales..."

"Financially, it's made a huge difference."

Simon Tite, Systems Manager:

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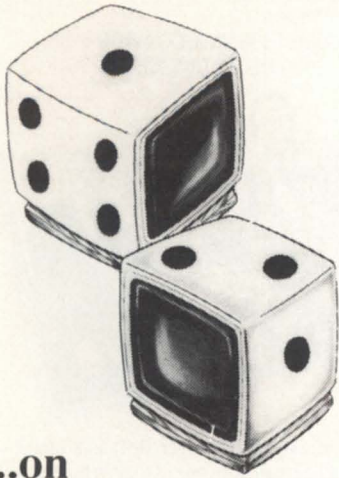
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PUBLISHER'S NOTE by Greg Farman



Distribution channels addressed

NADGUG poll uncovers users' concerns about DG's survivability

Five years ago, in his keynote address to the NADGUG annual meeting in Boston, DG President Edson de Castro said that by the year 2000 there would be only a handful of "full-service" computer manufacturers. He also said that he expected Data General would be one of them.

That's the problem with making predictions: there will always be some wise-guy to quote them back to you. Incidentally, I won't be making any predictions in this article.

De Castro's speech came to mind when Nick Ponds, the editor of *Eclipse*, the magazine of the Data General Users Group (United Kingdom), suggested that I write a piece about Data General's distribution efforts. That is, does the company have the distribution channels and name recognition to compete successfully in a

computer market defined and dominated by high-volume, low-margin products?

As the deadline for the article approached (and then passed), I began to wonder if I should address another issue first. There seems to be a bigger question lurking behind the distribution problem—a question that a lot of people have been asking lately: Will DG survive? And assuming it does, what will it look like?

It has been hard for me to face the question of DG's survival objectively. I've been so deeply involved as a user of DG systems for so long that it's difficult to consider the possibility that there could be a world without Data General. Yet more and more users are having to come to grips with this possibility.

The reality of such worries surfaced in the annual "concerns" survey sponsored by NADGUG. Each year, NADGUG mails a questionnaire to members asking them to identify the biggest problems they face as users of DG equipment. This year, for the first time, a sizeable number of the responses came back with observations like this: "There is a perception that DG's market share is dropping, losing out to DEC, IBM, and microcomputers in general. I fear DG may be out of business in 5 to 10 years and I'll be stuck with a proprietary system but no support!"

Clearly, DG's string of financial losses has reached a critical length. I can remem-

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InfoWorld, August 1989

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Circle 50 on reader service card.

ber only a handful of people in the early eighties (most of them former DG employees) predicting the company's imminent demise. Today, the volume of doubt has become a major concern for DG's management.

To its credit, DG management saw the losses coming, and made prompt, radical changes in product strategy and corporate organization. In general, customers and the financial community agreed that the changes were prudent and healthy. Today we can see the results of those decisions: a well-received set of Unix products, continuing development of the proprietary MV and AOS/VS line, and a new range of communications products.

But did the changes come soon enough? With each additional quarterly loss the doubt has grown. At this point, only good financial results could make the gloom dissipate, and confidence slowly return.

An odd corollary to all of this is that as the gloom grew, users began to entertain one another by comparing lists of reasons why the company will never return to good health—which brings me back to the original question: the distribution problem.

It's easy to look at DG's history of the past decade and pick out points where distribution broke down. The ill-fated Enterprise was the wrong system at the wrong time, but it *might* have done better if there were more VARs selling it. The Desktop Generation was supposed to capture a five percent share of the burgeoning microcomputer market; instead, it sold well to existing DG customers, but was virtually unknown elsewhere. The DG/One was the right product at the right time, but DG wasn't able to solve the screen problem or line up retail distribution before competitors with more savvy flooded the market. More recently, DG reorganized to market volume products such as terminals and printers more competitively; there was even talk of trying to compete head-to-head with the market leaders.

If you believe that DG can't succeed unless they solve the distribution problem, then all this makes a pretty bleak picture. But does DG's success really require them to compete against the likes of Apple or Toshiba or NEC? Maybe not. There *is* a distribution problem to be solved, but perhaps not the one everybody assumes.

If DG were to succeed as a full-service

computer manufacturer, as Edson de Castro once envisaged, retail distribution and mass advertising would be absolute requirements. But the company's new strategy says something quite different, and poses a very different—and perhaps more manageable—distribution problem.

The company's new strategy calls for it to be a full-service supplier *only to its traditional customers*, that is, to larger businesses and value-added resellers. If these customers prefer, DG will be happy to provide PCs and printers with the Data General nameplate, but this doesn't require a retail network or mass market advertising. Even for the Aviion, which is targeted for the mass Unix market, DG can sidestep the issue of retail distribution because of its decision to bring it to market through VARs.

In other words, I believe that DG's distribution problem isn't so much retailing as it is attracting and keeping VARs. If I'm right, the company's prospects for success will be measured by its competitive standing with respect to the things that matter most to VARs: price/performance, VAR discounts, contract administration, and cordial working relationships with DG sales and support staff.

It just so happens that I have the June, 1990 issue of *VARBusiness* in front of me as I write this. A few excerpts from their "Hardware Report Card:"

"Data General Corp.'s expansion of its Aviion family with entry level and midrange products and high-end workstations and servers helps keep the manufacturer one of the top three companies [in profit margins and price/performance ratio].

"Data General comes out the winner in the [support] category thanks to its CustomNet program, which provides customers with various network support services . . ."

"Data General moves up nine places to the number one spot [for technical support] because of its improved ability to accurately and thoroughly respond to its VAR's questions."

"Data General gets VAR's thumbs up for the commitment it has demonstrated by introducing new service programs and the job it's done correcting many of the program's problems."

As I said earlier, I'm not making any predictions. But I do hope to be a DG user for a long time to come. △

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DG talent pool

Catch them before they swim away

All DG users should be aware that DG is going through some reorganizing and downsizing. As part of this, there are many talented people with many years of DG experience now available. As users of DG equipment and software, it has come to my attention that we may be able to work together to our mutual benefit.

Drake Beam Morin Inc. has been hired by DG to assist us in finding new careers and employment and will be your interface to this highly talented pool of ex-DG employees. We have support engineers, managers, trainers/instructors, systems analysts, and various other professional experts in DG hardware and software. I, for one, would like to work at a company that uses CEO. At the center, I am able to get my daily fix of CEO, but I also

realize that I may have to go through CEO withdrawal. A scary thought!

I am providing you with a talent pool that you may contact via fax or call directly. We do have people willing to relocate. I have worked with *Focus* over the years and I know DG users read this magazine every month, and I hope that you will contact us if you have a need for people with this kind of experience. I would also like to thank *Focus* for this opportunity to talk to all of you about us and our future employment. Thanks and good luck.

Jack Reardon,
Q.A. Specialist

(For more information, call Bill Van Anglen, job development, at 508/478-4016; or fax a message to 508/473-1826. Please provide a job description, location, company name and address, and contact name and requirements.) Δ

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Changing of the guard

NADGUG 90 offers forum for special interest groups

Since publishing the 1990 NADGUG roster, several changes in officers/contacts have occurred, primarily due to annual elections at local meetings. Our bi-annual publication of the roster is still three months away, so please **note the following changes** on your old roster. NADGUG expresses a sincere appreciation to our outgoing officers for a job well done, and congratulates our new officers!

- At the conclusion of its seventh annual training conference in early May, the **Law Enforcement Data General Users Group** (LEDGUG) welcomed **Captain Norm Forshee** of the Indian River County Sheriff's Office as the new LEDGUG president. You may reach Captain Forshee at 4055 41st Avenue, Vero Beach, Florida 32960; 407/569-6700.

- The **Metropolitan New York Data General Users Group** welcomed **Gary Gittleston** of the Bobst Group, Inc. as its new RIG president. Contact Gary at 146 Harrison Avenue, Roseland, New Jersey 07068; 201/226-8000.

- The Washington, D.C. & Maryland, or, **Potomac Users of Data General Equipment** (PUDGE) selected **Jess Brown** of Techno-Dynamics as its new "chief." Reach Jess at 3719 Irongate Lane, Bowie (pronounced boo-wee), Maryland 20715; 301/390-6331.

- **Frank Perry, NADGUG Vice President**, can now be reached at 2074 Flat River Rd., Coventry, Rhode Island 02816; 401/397-3533.

- **Dennis Doyle, NADGUG Recording Secretary**, also has a new address. Send all correspondence to 8355 SW Sexton Mt. Court, Beaverton, Oregon 97005. Dennis may be contacted at 503/641-8772.

- The accurate company title and address for **Steve Tyler** of **Northern California Frequent Users of Data General Equipment** (No Cal FUDGE) is Airco Coating Technology, P.O. Box 4105, Concord, California 94524.

- In **Holland**, the new RIG contact is **Mrs. C deVries**, with Data General Nederland BV, Postbus 23080, 1100 DN Amsterdam, Holland.

- The **New South Wales Data General Users Group** (NSW DG Users Group) replaced the New South Wales CEO Users Group (NSW CEO Users Group). Restructuring was essential to serve a broader spectrum of the DG community. Currently there are two regional DG Users Groups for Australia—the Victorian DG Users Group and the NSW DG Users Group. Each have been active for a year and a half. The two groups plan to combine resources for the production of newsletters and handbooks on a national scale, and to promote the formation of users in other states of Australia. For additional information on either of these groups, please contact **Nick Southcombe** at The Hoyts Corporation, GPO Box 110, Sydney, NSW, 2001, phone 02/261-7777, or

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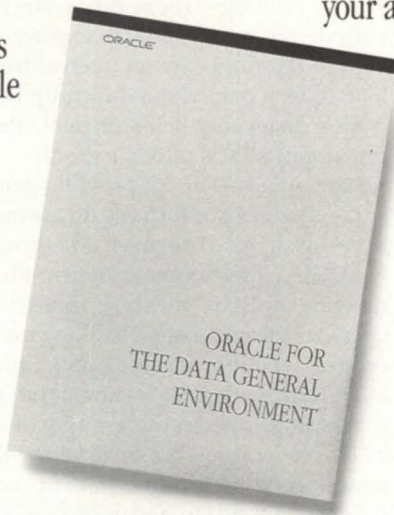
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	San Francisco	Sep 13/gi Oct 18/c
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NH	Bedford	Oct 4/f
NJ	Cherry Hill	Sep 11/cg
	Iselin	Sep 9/f Sep 26/cg
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	Rochester	Sep 11/f Oct 25/pg
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	Dallas	Sep 11/gi Sep 12/f
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		Sep 18/f Oct 23/f Oct 25/g
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David Hancock of Mini Computer Systems, 411 Hawthorn Road, South Caulfield, VIC, 3162, phone 03/528-2711.



Preparations are under way for meetings of the **AOS & AOS/VS Special Interest Group** and the **Office Automation Special Interest Subcommittee (OASIS)** to be held during the NADGUG confer-

ence in Seattle. Topics to be presented by the AOS & AOS/VS SIG at NADGUG 90 include operating system performance issues, digital tape backups, maintenance, 32 bit CLI, office automation, electronic spreadsheets, and emulator packages.

The OASIS workshop will feature representatives from the DG customer support center in Atlanta, and issues such as CEO and Wordperfect conversions, office automation "add ons," and a deliberation

Start up services offered by NADGUG

NADGUG and the RIG/SIG committee view local area groups and special interest groups as major strengths to the foundation of NADGUG. As individual groups continue to develop and flourish, the national group grows stronger. Your NADGUG board and RIG/SIG committee remain committed to this growth by continuing to offer the following start-up services.

- \$200 funding—These funds are to help defray initial start-up expenses. Half of the funds are an interest-free loan to be repaid when the group becomes financially self-sufficient, the remaining \$100 is purely a grant.
- Start-up kit—This kit provides general guidelines for forming an assembly—such as information about NADGUG, development steps, a first meeting outline, meeting topics, a speakers bureau listing, banking procedures, a petition for recognition, and a care package that details, among other things, how to keep your group active.
- Focus coverage—Focus magazine will announce your group's start-up activities in Round Up, and upon request will provide additional copies to interest groups for distribution at initial meetings. Also, Round Up, published

monthly, will announce upcoming meetings and recap past meeting events.

- Mailing labels/lists—You will receive your preference of mailing labels or a roster listing of other NADGUG members in relevant geographic regions or with similar special interests.
- Roster listing—Your group will be listed in the RIG/SIG roster, published and distributed every six months.

Data General also has a vested interest in supporting NADGUG interest groups, since these groups are comprised of DG customers. DG sales offices and marketing/development groups may provide their own support to RIGs and SIGs including:

- Authorization of an individual or individuals to be responsible for working with the customer in developing the group.
- Help with initial mailings. Sending meeting announcements or membership promotions to customer lists.
- Assistance in setting up meeting locations and speaker programs.
- Budget provisions to assist in financing the above three items.

If you have any questions about start-up services, or if you are interested in beginning a new RIG or SIG, give me a call. I'll help you get started.

△

on what's available in PCs. Registration for both workshops is scheduled for Monday, October 22, beginning at 8 a.m. Workshops commence at 9 a.m.

For additional information on the AOS & AOS/VS meeting, contact **Edward E. Lindberg** of the **Western New England College** at 413/782-1246, and for details of the Office Automation gathering, contact **Denise Sikorski** of the **Chicago Board of Trade** at 312/347-5141.



Several other SIGs are scheduled to meet at **NADGUG 90**. On Tuesday, October 23, **PERFSIG**, and the **Educational, Infos II, MRC**, and **Oracle for Data General** SIGs will meet. On Wednesday, October 24, the **AOS/VS, Federal, BBasic, ICobol, CQCS, SIG/UX**, and **Lions Gate** groups will convene.

The annual luncheon for RIG/SIG leaders is scheduled for Tuesday, October 23 from noon to 1:30 p.m.



On August 6, the **Central New York Data General Users Group** (CNYDGUG), with the assistance of the DG branch office in Albany, held an outstanding seminar in Saratoga Springs. Group President **Bob Albanese** stated "our group is fortunate to have such an actively involved DG office . . . the meeting's success was assured due to their participation."

Dave Congdon, general sales manager of DG's Albany office, and **Steve Baxter**, Data General vice president of Marketing, participated in an "on stage" upgrade of an MV/4000 to an MV/9500, followed by a formal presentation of DG solutions to interoperability and networking. The theme of the meeting was interoperability, and a variety of vendors displayed their solutions.

DG donated a fully configured DG /One Model 2T laptop to the group for a raffle, and new member **Robert Grey** won the prize. Moreover, DG sponsored a "Day at the Races" with grand stand seats at the Saratoga Race Track, and a post-race cocktail reception. **Joyce Coe** of the New York Power Authority in Oswego, New York won the drawing for a free \$400 conference registration, which was provided by NADGUG. (All recognized interest groups are qualified for one free

conference registration.)

For additional information on CNYDGUG's activities, call **Bob Albanese** of **Parsons Child & Family Center** at 518 /426-2600.



The **Potomac Users of Data General Equipment** (PUDGE) held its July meeting at the Data General offices in McLean, Virginia. **Jim Siegman**, of the **Infos SIG**, addressed several key Infos issues such as selecting parameters when creating Infos files, and utilizing Infos options such as space management, and record or key compression. PUDGE meetings are held on the second Wednesday of odd-numbered months. For additional information on this meeting, or on PUDGE, please contact **Jess Brown** of **Techno-Dynamics, Inc.** at 301/390-6331.



The **Los Angeles End Users of Data General Equipment** (LA EDGE) will hold its next meeting at the Brookside Country Club in Pasadena on Tuesday, October 2, at 7 p.m. The theme for the meeting is "User Night." Users will have an opportunity to display how they utilize DG systems at their business offices. **Honda Motors of America** is among the users scheduled to make a presentation.

"Data General Night" will be the theme of the November 6 meeting, and for its December 4 meeting, "Casino L'Edge" is back by popular demand. This tradition began at last year's LA EDGE Christmas party—a fun-filled evening of games, food, and laughter, with all proceeds going to local charities. No membership is required, and everyone is encouraged to bring their spouses, friends, and anyone else wanting to have some fun.

For additional information on these meetings, contact **Mark Speer** of **Zero Halliburton** at 818/897-7777, or **Marida Slobko** of **Information Resources** at 818 /351-0481. Δ

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

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Losses reported

by Robin Perry
Focus staff

Increased sales of the Aviion line of computers were not enough to overcome industry wide competitive pricing and sluggish market demand for proprietary systems, as Data General reported a net loss of \$21.4 million for its third quarter ending June 30, 1990. For the first three quarters of 1990, Data General reported a net loss of \$50.5 million, or \$1.69 per share.

Revenues for the third quarter were \$302.4 million, compared with revenues of \$306.1 million for the third quarter of last year. Operating loss for the quarter was \$18.7 million, compared to an operating loss of \$28.7 million for the third quarter of 1989.

While Data General would not release specific figures for Aviion vs. MV sales, Corporate Spokesperson Jim Dunlap said that "AV sales have grown each quarter. In the second quarter, the Aviion represented a meaningful part of product revenues. That increased in the third quarter, and it is continuing to grow each quarter at a significant rate." Dunlap predicts total Aviion revenue of "well over \$100 million" in FY 1990.

The company is hoping to boost MV revenues with the announcement of new products like the MV/5500 DC, MV/9500, and its latest release, the MV/3500 DC (see page 61), and expansion of its aggressively priced IBM-compatible Dasher personal computers.

Data General President and CEO Ron Skates pointed out that cost reduction programs reduced third quarter operating expenses by almost \$14 million. Yet DG announced the impending layoff of an additional 2,000-2,500 employees, and customers are cautioned against having a quarter-by-quarter mentality regarding DG's profitability. "While we remain cautious with respect to the near-term, we are optimistic that demand will improve during subsequent quarters," Skates said.

△

Data General Corporation Condensed Consolidated Statements of Operations

(in millions except per share amounts)

	Quarter ended		Nine months ended	
	June 30, 1990	June 24, 1989	June 30, 1990	June 24, 1989
Revenues:				
Product	\$196.0	\$198.4	\$587.9	\$627.3
Service	106.4	107.7	320.0	330.0
Total revenues	302.4	306.1	907.9	957.3
Costs and expenses:				
Cost of product revenues	103.2	101.1	295.8	313.7
Cost of service revenues	65.8	68.0	199.6	202.1
Research and development	41.7	45.1	123.6	127.7
Selling, general, and administrative	110.4	120.6	333.3	358.9
Total costs and expenses	321.1	334.8	952.3	1,002.4
Loss from operations	(18.7)	(28.7)	(44.4)	(45.1)
Gain on sale of facilities	-	6.3	-	14.9
Interest income	1.1	2.0	5.3	6.9
Interest expense	2.6	2.1	7.7	8.5
Loss before income taxes	(20.2)	(22.5)	(46.8)	(31.8)
Income tax provision	1.2	.6	3.7	3.9
Net loss	\$(21.4)	\$(23.1)	\$(50.5)	\$(35.7)
Net loss per share	\$(.71)	\$(.79)	\$(1.69)	\$(1.22)
Weighted average shares outstanding	30.2	29.1	29.9	29.2

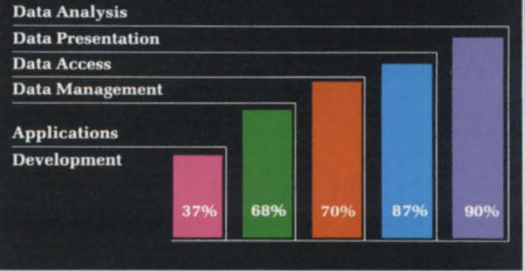
Data General Corporation Condensed Consolidated Balance Sheets

(in millions)

	June 30, 1990	Sept. 30, 1990
Assets:		
Current assets:		
Cash and temporary cash investments	\$92.9	\$128.9
Receivables, net	277.6	316.9
Inventories	203.5	209.0
Other current assets	65.4	55.2
Total current assets	639.4	710.0
Notes receivable-related parties	13.3	13.9
Property, plant, and equipment, net	274.2	291.7
Other assets	35.1	24.6
Total assets	962.0	1,040.2
Liabilities and stockholder's equity:		
Current liabilities:		
Notes payable	60.7	67.1
Accounts payable	89.6	93.6
Other current liabilities	264.7	281.8
Total current liabilities	415.0	442.5
Long-term debt	58.2	70.8
Deferred service revenues	2.0	4.8
Stockholder's equity:		
Preferred stock (none issued)		
Common stock & additional paid-in capital	374.9	361.0
Notes receivable—related parties	(1.4)	(2.1)
Retained earnings	97.4	147.9
Cumulative translation adjustment	15.9	15.3
Total stockholder's equity	486.8	522.1
	962.0	1,040.2

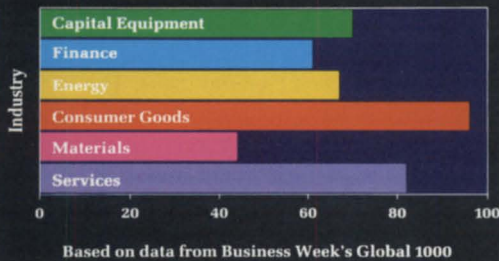
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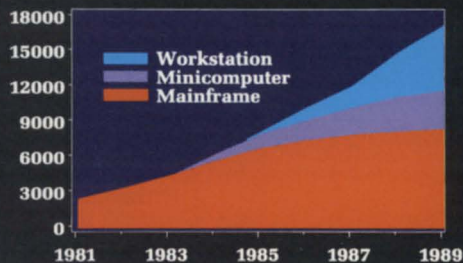
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Haunted memories and unnatural disasters

by Robin Perry
Focus staff

Good evening. For your Halloween reading pleasure, *Focus* has gathered five chilling tales from the weird world of Data General users. The facts in these stories are true. The names and places have not been changed. The tales were gathered from selected DG users, who were asked to relay their favorite horror stories involving DG equipment. Most of the incidents described below can be blamed on outside sources, but have no fear, this is not another essay on disaster recovery. We looked for circumstances that went beyond the realm of normal expectations. These incidents are better described as "unnatural" disasters. So, without further delay, here are the best (worst) stories. Happy Halloween.

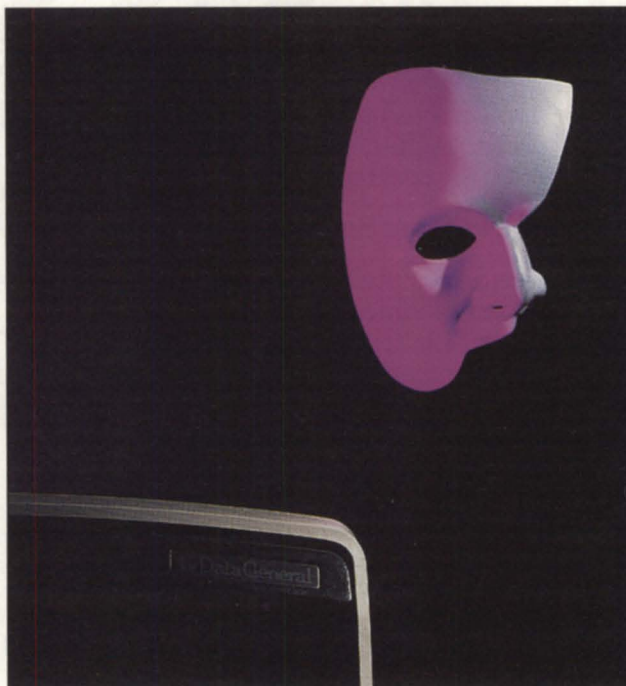
Wrecked at sea

"It was about 10 years ago. I was an FE then, working out of a quaint little office in Halifax, Nova Scotia. Our demo system was the classic configuration consisting of a Nova 3, 6030 floppy drive, and a 6045 10 MB Phoenix disk. As usual, whenever a computer show would swing into the region, the system would be packed up and shipped to the site for the duration of the show. It was a show in St. John's, Newfoundland that led to the system's demise.

"All went well the week of the show, and afterwards, with everything secured for shipping back to Halifax, we faithfully departed. Since the route back required a boat ride to the mainland, I expected to see the system in about a week. Two weeks later, the manager of the moving company's local office called and said the system had finally arrived. I told him to deliver it right away, but he said I had better come over first. I got the same gut-wrenching feeling that you get when you take your car in for repairs, and tell them to call if it's bad news, and they call.

"When I arrived at the warehouse, the first thing the manager handed me was the front console of the Nova 3. I thought that was bad... until I saw the rest of the system. It was a total disaster. I don't think you could create that much damage if you tried to do it on purpose. The mangled wreck was delivered that afternoon. After assessing the damage, the system stood as follows:

- 6030 floppy: apparently unscathed except for a bent front panel;



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

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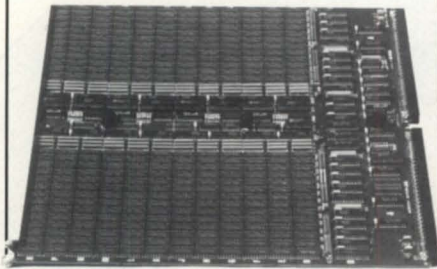
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The Nova 3 arrived with no panels, console resting on top, and the floppy drive holding it up.

- Nova 3: console ripped off, completely off rails and resting on the floppy drive, chassis twisted, all boards sprung;
- 6045 disk: jammed in the bottom of the bay by the steel fourplex receptacle it crushed as it fell. Vertical steel cabinet rails had a portion ripped out where the mounting brackets were bolted;
- Cabinet: vertical rails bent, in addition to the damage to the disk.

"Trying to free the disk was an exercise in futility. It was wedged in solidly. We used a car scissor jack to free it from the bottom. The next day, after a full day of hammering and straightening, I dared to configure a minimum system with the floppy drive and power up the Nova 3. It ran for 30 seconds and then died. It took working on virtually everything, including the backplane, before it would keep running."

—Kim Myers
Acting Project Manager,
System Software
Public Works Dept.
Canada

Even the system manager got humble

"My system manager made a typo in a backup macro and files were not backed up for six months because the operator never saw the error message during the long logging of files from dump/v. We found out the day the data module got fried. I came into work and there were three people in my office trying to figure

out how to break the news to me. I lost the sources for about 200 programs."

—Stan Gula,
President
US&T

Memorable releases we'd rather forget

"We've been on AOS and its successors since its first release and two memorable releases will never be forgotten. Sorry, don't have the release numbers, but one failed to create a SWAP file when it booted. The other—this could have been a Fortran release—but the codes for Read and Write were reversed, which made for an interesting time before that error was found!"

—Thomas Carey
Systems Analyst
National Weather Service

Note: Carey said things have improved greatly since those early AOS releases.

Conversion nightmare—wake me when it's over

"Many of the companies that migrated to IBM are now in conversion woes. For shops that use custom-written software, the cost is extremely high. Here is what happened to one of our clients with a large number of custom-written programs.

"Each program had to be modified, transferred, and compiled on the IBM. Changes to the programs included a different file definition, line length restricted to 72 characters, change quotation (") to ticl ('), etc.

"We wrote a program that made most of the physical changes, but the conceptual changes had to be done by hand. Each program that prints a listing had to be changed to skip to top of page before the first page, instead of the second page. This is necessary because Data General's close file print routine automatically skips to top of page to prevent the next user from writing on your report. IBM's does not. It leaves the page positioned where the previous program left it. I keep asking myself, which makes better sense?

"Don't forget the screen programs. IBM does not recognize the screen section in Cobol. Each screen program had to be rewritten from scratch.

"Finally, the CLI to JCL conversion. The biggest problem they found was the differences in sort programs. The IBM sort cannot match Data General's sort for record messaging. We had to write many

programs to replace what a common utility can do on the MV.

"Would you believe they are on schedule for their conversion? I'll tell you another one. If you haven't already tried it, don't. Hopefully, now that Data General is taking dramatic steps toward profitability, you won't have to."

—Steve Handlos

President

Datasafe/Productivity Systems Development Corp.

Crippling crashes, and other unnerving experiences

"When DG users subscribe to a hot site service, they usually think of natural disasters as the reason for having an alternate processing facility. For a large credit union in the Pacific northwest, untimely system crashes ultimately led them to declare an emergency and move all DG-based processing to Data Assurance Company's hot site in Denver.

"The credit union began experiencing intermittent protection faults on its MV /15000 after installing the system back in 1989. Each time, DG field engineers were able to get the machine back up by replacing something—CPU boards, memory boards, back planes, and/or disk controllers (eventually costing DG approximately \$50,000). These episodes continued until mid February 1990, when the machine would stay up for no more than two hours, which constituted a true crisis.

"Management decided to move all processing to DAC, which gave field engineers and the local power company time to study the situation. Back up tapes were sent to the hot site, while modems and multiplexors were sent to the credit union. The system was restored in Denver, and credit union devices put back on-line to batch ATM transactions. All terminals, printers, audio response calls—which were forwarded to 800 numbers—and all CPU-to-CPU transmissions ran through the hot site.

"Using a power monitor on the credit union system, the engineers identified power surges and under-voltage hits, which were deteriorating the boards in the machine. Excessive voltage between neutral to ground, due to improper grounding in the conduit, was the culprit.

"The credit union had the power grounded to a water pipe, installed power distribution and surge protection equip-

ment, and replaced more boards on the MV/15000. The system was allowed to burn in before live processing was returned to the credit union, after 17 days at the hot site. The credit union estimates it spent \$25,000 before the problem was found and resolved."

—Mark Taylor

Vice President Sales

Data Assurance Company

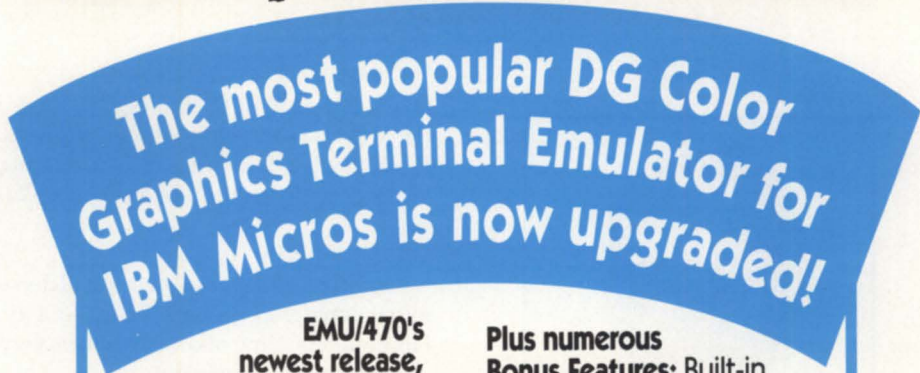
Epilogue

We hope you enjoyed these tales of shipped wrecks, wreaked havoc, and reckless backups.

Maybe you're haunted by your own memories of a nightmare involving DG equipment. Maybe your story is better, or maybe it's worse.

Maybe, next year we'll write about *your* story. Δ

Industry standards raised!



EMU/470's newest release, Version 3.0, provides significant capabilities and enhancements, to include: Complete emulation for all DG terminals; support for all graphic adaptors, including compressed mode to 135 columns on VGA, EGA, MCGA, CGA, and Hercules cards; both text and binary file transfers plus XMODEM and Kermit protocols.

Plus numerous Bonus Features: Built-in System Diagnostics; Command Language and Script Files; Foreign Keyboards and Character Support including Code Page 850; Graphics on IBM Proprinters and HP Laserjets; 70+ Macro Keys, Auto Dial & Logoff; Unlimited Configuration Files; and complete Mouse Compatibility.

EMU/470™

Rhintek offers a comprehensive line of products spanning the entire Dasher Terminal Line, priced from \$95 to \$249. We offer volume discounts and unlimited free tech support.

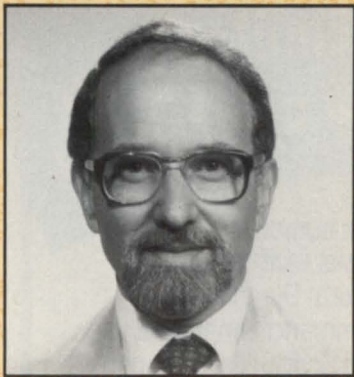


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A vision of the future— clearly connected



Norman Weizer

by Lori Rhea DiSorbo
Focus staff

At this year's NADGUG conference, attendees will have an opportunity to witness a vision of the future. NADGUG has invited Norman Weizer, senior consultant for Arthur D. Little, Inc., to share his predictions of computing in the nineties.

Weizer's specialty is technology forecasting. At the NADGUG conference in October, he will look at integrated enterprises of the 90s, Weizer said in a telephone interview. Weizer will reveal the path to his forecast of cheaper, better, faster computing systems. He cautions, though, that changing technology is an evolutionary process, not revolutionary. People are not going to throw away their current applications and computers.

Weizer claims that there are seven "critical new technology areas" crucial to the developments of the nineties. "The other [technologies] will come along by themselves, but if people really want to

take advantage of technology, these are the areas they should focus on," he says. Find out what these areas are by attending Weizer's keynote address on October 23.

On connectivity

As part of his agenda, Weizer will delve into the conference theme of connectivity. His understanding of connectivity is very precise. "What connectivity means to me, is that in a company, any user can easily get to any computing resource, or to any information they are allowed to get to—without learning how to navigate the network, without learning about protocols The system must become smart enough to enable the user to access people, information, and resources in a usable form."

As for when we will arrive at this new technology, Weizer states, "I have no doubt that we're going to get there. The hardware is here, the software is two or three years away. It's going to depend on the success of companies like Data General."

On Data General

"Data General is following a very intelligent strategy," Weizer says, "the same strategy that the good minicomputer companies are following—two tracks. One [track] is Aviiion systems or Unix—meeting the needs of users who want an open environment. At the same time, they must meet their proprietary customers' needs. They will try to keep both operating environments at the same level."

On open systems

"The market is going to get tougher for all vendors over the next five years, especially in the open systems area," Weizer

says. "You won't have software lock-in anymore. People can move. It will be challenging for DG to differentiate themselves from the rest of the pack producing for the same market—the same software, services, and integration services. DG is going to have to work very hard in the R&D area to keep up to, and hopefully ahead of the rest of the pack."

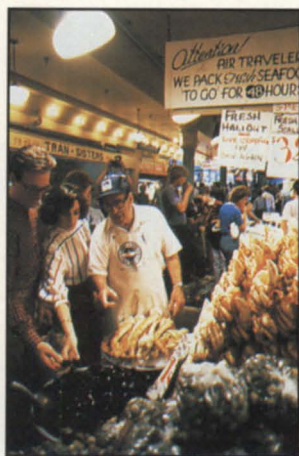
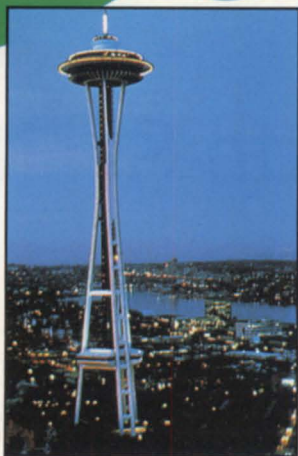
On uninterested users

Weizer emphasizes the importance of connecting to "uninterested users." "[Uninterested users] are busy doing their jobs, and computer technology is merely a tool. If the tool helps them, they're going to use it, if not, they're going to go back to pencil and paper, or whatever they use. We have to give them the right tools," he said.

"Think about using the voice telephone. All we want is to punch 13 digits and talk to someone. We're not interested in the technology, we're not interested in the switching routes, we're not interested in the protocols. If we had to route each call, know exactly where in the network the person we were calling was (other than their area code), we'd never use the phone. But yet, when we look at current computer communication systems, that's exactly what we expect users to do. They must know the host, the routing, etc. The system must take care of this information. We know how to do it, it's just [a matter of] developing the software and the standards to make it happen."

If you are interested in discovering more about technology in the nineties, join Norman Weizer, Tuesday, October 23, from 9-10:30 a.m. at the Washington State Convention and Trade Center. Δ

Seattle



NADGUG 90 — Connecting for the future

October 22-25

Seattle Sheraton and Convention Center

Just what you've been looking for!

Join us in Seattle for the 17th annual conference of the North American Data General Users Group (NADGUG). Learn how "connecting for the future" can help you make the most of your computing dollar in the next decade. Attend roundtables and seminars that will expand your knowledge of Data General systems. On our exhibit floor, discover first-hand the solutions that you've been looking for.

Superconference!

Yes, that's right. Data General and NADGUG join forces to bring you three Data General conferences running concurrently—United for the Nineties. While users enjoy NADGUG 90, Data General will host the annual kick-off of its U.S. Sales and Systems Division **AND** Source 90, the annual meeting of Data General resellers.

Opportunity like no other!

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To register, call 1-800/877-4787.
(512/345-5316 outside U.S.)



Busy traveler's guide to Seattle

Seattle-King County Convention and Visitors Bureau



Seattle . . . a dramatic mixture of urban sophistication and natural beauty

by Lori Rhea DiSorbo
Focus staff

Prepare for the beautiful port city of Seattle. Nestled on the coast, yet protected by surrounding mountains, Seattle has developed into a favorite of many shareware and software enterprises. Microsoft, Aldus, and Egghead Discount Software are among the companies headquartered here. However, the largest single employer in the Seattle area is a Data General installation—Boeing, manufacturer of jet planes.

Planning for Seattle is not very difficult—The Emerald City has a mild climate all year round. The Olympic Mountains protect the Puget Sound from heavy rainfall and high winds from the west, and the Cascade Mountains in the east

shield the area from winter cold. October brings cool, comfortable weather with an average temperature of 47 degrees, ranging up to 60 degrees. Light rain and even a trace of snow are possibilities, so be sure to pack a jacket or coat.

Data General conference-goers are scheduled to stay at either the Seattle Sheraton Hotel, the Seattle Sheraton Towers, the Seattle Hilton, or the Seattle Holiday Inn Crowne Plaza. All of these facilities offer some type of business services such as facsimile or computer

hookup. Be sure to choose the accommodations that suit your needs.

Does your hotel fax?

The Seattle Sheraton Hotel and Towers (floors 31-34 of the Sheraton Hotel) is next to the Washington Convention Center, three blocks from downtown Seattle. With a modem built into the phone system, all Sheraton guest rooms are capable of computer hookup. A business center on the second floor offers fax, typing, wordprocessing, secretarial, telex, notary, photocopying, federal express, and mailing services. RJ-11 jacks are also accessible, and you can rent an IBM-compatible PC and printer with Wordperfect and Lotus 1-2-3 for \$20 an hour. Fax service is available 24 hours and is checked every hour for incoming faxes.

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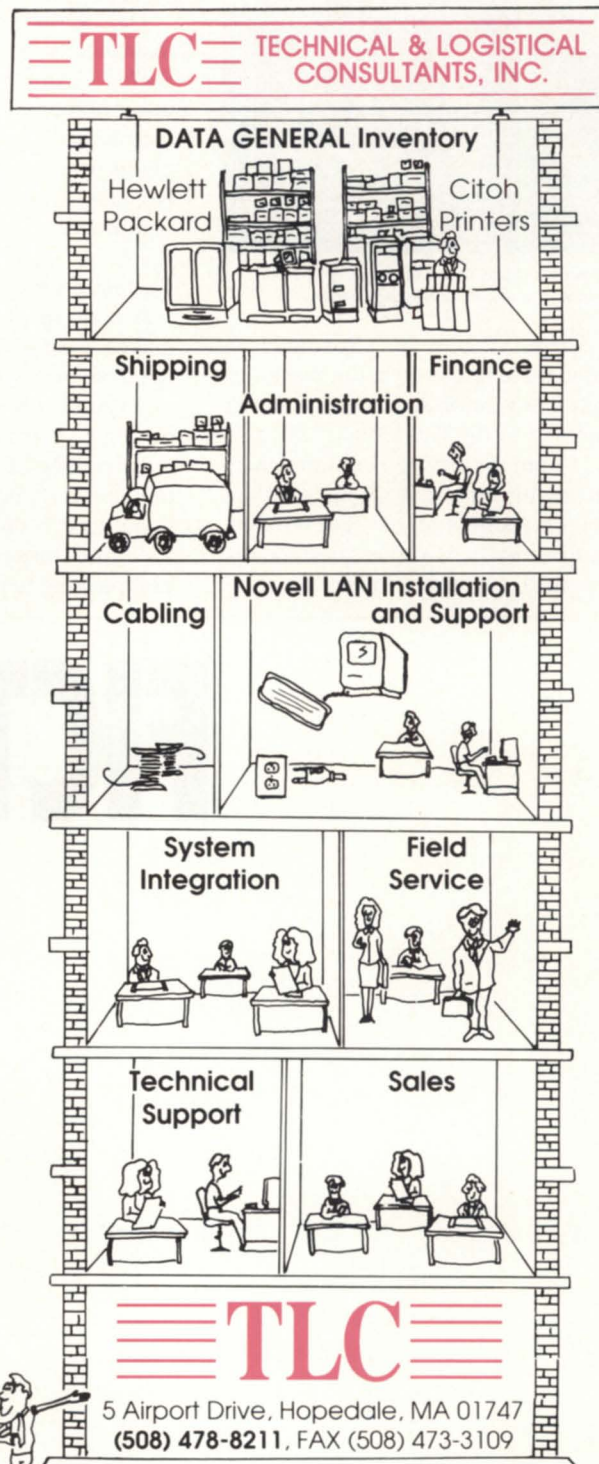
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- Repairs
- System Tuning
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We are committed to our customers. We're proud they consider us technically the best in the marketplace.

Price - only one part of the equation for a successful purchase of a computer, call TLC for the total solution at 508-478-8211 or FAX 1-508-473-3109.

See us at NADGUG Booth #213

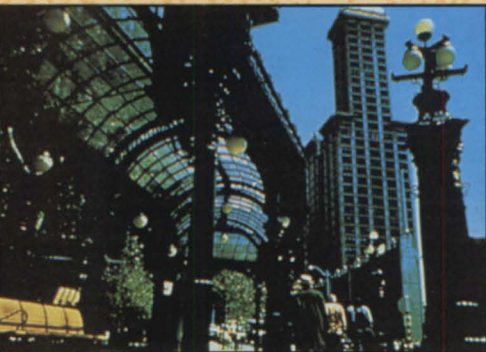


Quality + Support + Price = TLC

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Seattle-King County Convention and Visitors Bureau



Pioneer Square offers scores of shops, ethnic restaurants, and art and antique galleries.

The Seattle Holiday Inn Crowne Plaza is located three blocks from the Washington State Convention and Trade Center in downtown Seattle. This Holiday Inn also offers 24-hour fax service, complimentary photocopying, typing, RJ-11 jacks in all of the banquet rooms and some guest rooms (and can be installed in other guest rooms, if necessary), assistance in renting com-

puter equipment, easels, chalkboards, greaseboards, and other meeting equipment, and an in-house photo and sound company that handles requests for equipment such as overhead projectors, and tape recorders.

The Seattle Hilton is only two blocks from the Convention Center in downtown Seattle. Faxing is available 24 hours, computer hookups are accessible in banquet rooms, mailing, federal express, and some photocopying services exist, and the Hilton will assist guests in renting computer equipment.

Recreation for everyone

A wide range of recreational facilities makes it easy for visitors to participate. Even business travelers with limited time can spend a few hours skiing, golfing, running, or fishing. Every kind of craft from canoes to fully crewed yachts are rentable at marinas and boat houses. National forests offer hundreds of miles of trails ideal for easy day hikes or overnight backpacking (equipment rentable at sev-

eral stores). Four downhill ski areas located less than an hour's drive east of Seattle are open daily except Monday, some lit for night skiing. All have equipment rentals and dining facilities. Several shops around the city rent bicycles. Two bicycle paths provide miles of level, traffic-free cycling. Joggers can take advantage of Seattle's waterfront, and a three-mile trail around Green Lake.

See the sites

Some of the more well-known Seattle attractions include Seattle Center, the Space Needle, Pike Place Market, the Waterfront, Ballard Locks, and Chateau Ste. Michelle Winery. NADGUG has coordinated tours for conference goers and their families, so be sure to check your registration kit. To give you a taste of what these spots have to offer, below is a summary of attractions.

Seattle Center: seventy-four acres of arts, entertainment, recreation, shopping, dining, and educational and cultural adventures for all ages. Seattle Center hosts the

FICTION

Data General's PC Family

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James Beer



The landmark Space Needle provides an outstanding view of Seattle and the Puget Sound.

Space Needle, one of Seattle's most popular landmarks, Pacific Science Center, Fun Forest Amusement Park, Seattle Children's Museum, and the historic Seattle Center Monorail.

Pike Place Market: a seven-acre National Historic District home to over 250 permanent businesses, including farmers, artists, and craftspeople, and 500 permanent residents. Founded in 1907 as a farmer's market, it has undergone extensive renovation in the past 15 years, and Market business has since doubled.

Waterfront and Ballard Locks: The Waterfront is perfect for shopping, eating, and other adventures. Pier 70 houses shops and restaurants, Waterfront Park offers a public fishing pier, fish and chip bars, and import houses, and Ye Olde Curiosity Shop at Pier 54 contains curiosities including two mummies. The Ballard Locks serve as a watery elevator to lift vessels from the saltwater of Puget Sound to freshwater levels, and vice-versa. The site of a lock full of vessels being raised or lowered from 6 to 26 feet (depending on the tide) is

said to be mesmerizing. The fishing ladder, locks, and grounds (including the Carl English Gardens) are open to the public.

Chateau Ste. Michelle Winery: located 15 miles northeast of Seattle. The French-styled facility is ideal for a lazy afternoon or picnic. Free guided cellar tours, complimentary tasting, and information on the internationally acclaimed wines of Chateau Ste. Michelle are provided here.

Just do it

Seattle is brimming with things to see and do, whether you have a lot or a little time on your hands. Before retiring directly to your room in-between and after conference activities, sample the variety of attractions The Emerald City has to offer. Δ

For information about registration for the 1990 NADGUG conference, October 22-25, please call 1-800/877-3763 or 512/345-5316 (outside the U.S.)

VS. FACT



Call 1-800-DATAGEN to discover the truth about Data General's PC Family.

The fact is, Data General's full line of high-quality PCs comes with features and options you won't find with your typical clone manufacturer: Like standard "on-site select 1-year warranty"; PC leasing programs; and intensive VAR support. All at lower prices than mail order.

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NADGUG Conference 90— Preliminary Agenda

All functions will be held at the Washington State Convention Center unless otherwise indicated. Sessions



are targeted toward **E** End-User, **T** Technical, **M** Management, and **U** Unix audiences. See the symbol for sessions relating to the NADGUG Conference theme "Connecting for the Future."

Conference 89 photos by Joyce LeBlanc

SUNDAY-October 21

9:00 a.m.-5:00 p.m.

NADGUG Executive Board Meeting (Sheraton) open to Officers, Standing Committee, and RIG/SIG Chairpersons

MONDAY-October 22

8:00 a.m.-8:00 p.m.

Conference Registration Desk open

8:00 a.m.-9:00 a.m.

Educational Services Seminar Registration; Office Automation Workshop Registration; AOS/VS Workshop Registration

9:00 a.m.-11:45 a.m.

Educational Services Morning Seminars; Office Automation Workshop-Part I; AOS/VS Workshop-Part I

11:45 a.m.-12:45 p.m.

Lunch Break

12:45 p.m.-3:30 p.m.

Educational Services Afternoon Seminars

12:45 p.m.-5:00 p.m.

Office Automation Workshop-Part II; AOS/VS Workshop-Part II

3:30 p.m.-6:30 p.m.

Exhibits open

6:30 p.m.-8:30 p.m.

Welcome Reception in Exhibit Hall

Go from rough to ready in minutes.

Special Wage Increase Report
As of 8/14/88
Department Number 10

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

EMPLOYEE NAME	S	JOB TITLE	HIRE DATE	CURRENT HOURLY RATE	NEW HOURLY RATE
Tommie Allison	M			\$ 5.80	\$ 6.09
Elizabeth Hillis	F	SECRETARY	4/19/81	\$ 7.25	\$ 7.61
Nicole...	F		1/14/82	\$ 6.30	\$ 6.62
...	F	CLERK II	9/24/83	\$ 6.30	\$ 6.30
...	F	RECEPTIONIST	05/17/78	\$ 6.00	\$ 6.00
...	F	MANAGER	12/2/84	\$12.50	\$13.75

DEPT. TOTALS	
Hourly Rate	Annual Salary
\$ 84.60	\$ 175,968
\$ 89.75	\$ 186,680
Average Salary	
Number of Employees 13	

Now Available For AOS/VS

Handwritten notes on notepad:
 Dept. 400 FOR ALL DEPTS
 Managers get 10% SPECIAL WAGE INCREASE REPORT
 others get 5% - 8/14/88
 EMPLOYEE SEX JOB TITLE DATE HIRED RAI
 1) FOLKMAN F SA ? \$4
 2) WRON, E F M \$3.60
 3) NICK RODRIGUES M SP \$10.50
 4) ALLISON M P \$10.50
 5) VALES F S \$10.50
 Increase by the number of employees
 TOTAL OF OLD & NEW
 TOTAL SALARY + ANNUAL SALARY
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IQ—Not just 'another report writer'

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IQ's *point and click* interface is truly intuitive—permitting end users to create queries and complex reports without any knowledge of the underlying databases. And **technical managers and developers** can create production reports in a fraction of the time normally required. It all adds up to more time for development work and instant gratification for end users!

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See us at NADGUG BOOTH #216

TUESDAY-October 23

7:00 a.m.-6:00 p.m.

Speaker Prep Room

7:30 a.m.-8:30 a.m.

Speaker/Host Briefing
(for Tuesday presenters
only)

8:00 a.m.-6:00 p.m.

Registration Desk

7:45 a.m.-3:00 p.m.

Guest Hospitality Room
(Sheraton)

9:00 a.m.-10:30 a.m.

Special General Session
•Keynote Address
•Data General Keynote
Address

10:30 a.m.-11:00 a.m.

**Complimentary Coffee
Break in Meeting Room
Foyer**

11:00 a.m.-Noon

E *Wordperfect Presents 5.0*

T *Detecting and Recovering
from Computer Virus
Attacks*

T *Practical 4th GL Implemen-
tation*

M *Protecting Your Computer:
PCS Can Help*

U *DG/UX Streams*

Noon-6:30 p.m.

Exhibits & Cafe open

Noon-1:30 p.m.

**Lunch Break
RIG/SIG Luncheon**

1:30 p.m.-2:30 p.m.

*EDI and the 1990s:
The Era of the Quick
and the Dead*

The MV Family's Forever

T *Sorting Things Out—
Techniques to Optimize
Applications*

M *Planning for Future Growth*

*Security Extensions to the
Network File System*

2:30 p.m.-2:45 p.m.

Short Break

2:45 p.m.-3:45 p.m.

E *Solutions Through Systems
Integration*

T *Optimizing Infos Files for
Improved Performance*

T *Future Directions in CASE
Technology*

M *Strategic Planning*

U *ICobol Under Unix—
Leapfrogging into the Future*

3:45 p.m.-4:30 p.m.

**Complimentary Coffee
Break in Exhibit Hall**

4:30 p.m.-5:30 p.m.

E *A CEO Smorgasbord of
Optional Products*

Two-part session:
 *•Beginner's Guide to System
Performance*
*•AOS/VS II Terminal
Connectivity: Now You
Can Get There From Here*

T *Writing Portable Ingres
Applications*

*Fax Options Under Data
General Computers*

U *Porting DG/UX*

SPECIAL INTEREST GROUP MEETINGS

5:30 p.m.-6:00 p.m.

Educational;
Office Automation

5:30 p.m.-6:30 p.m.

Infos II;
PERFSIG

6:00 p.m.-6:30 p.m.

MRC;
Oracle

WEDNESDAY-October 24

7:00 a.m.-6:00 p.m.

Speaker Prep Room

7:30 a.m.-8:30 a.m.

Speaker/Host Briefing
(for Wednesday presenters
only)



8:00 a.m.-6:00 p.m.

Registration Desk

8:00 a.m.-3:00 p.m.

Guest Hospitality Room
(Sheraton)

9:00 a.m.-1:00 p.m.

Exhibits & Cafe open

9:00 a.m.-10:00 a.m.

Wide Area Networking for the 90s

AOS/VS II & Unix Interoperability—A Technical Perspective

Data General's Distributed Applications Architecture Strategy

Eclipse and Aviiion Interoperability

Practical Issues in Building Graphical User Interfaces for OSF/Motif

10:00 a.m.-10:30 a.m.

Complimentary Coffee Break in Exhibit Hall

10:00 a.m.-11:30 a.m.

New Pathways: Creative Applications of Computer Conferencing and Groupware Solutions in U.S. Industry

Connecting for the Future—A Panel Discussion

Optimizing Techniques for High Level Languages

Tomorrow is Here

Disk Mirroring in DG/UX

11:30 a.m.-1:00 p.m.

Lunch Break

1:00 p.m.-2:30 p.m.

Exhibits Closed (Reopen at 2:30 p.m.)

1:00 p.m.-2:30 p.m.

Special General Session
•NADGUG Annual Business Meeting
•Executive Discussions

2:30 p.m.-6:00 p.m.

Exhibits Reopen

2:30 p.m.-3:30 p.m.

Complimentary Coffee Break in Exhibit Hall

3:30 p.m.-4:30 p.m.

Bar Coding

Recent Developments in AOS/VS II Architecture

Distributed Processes—Managing an Information Center

User Documentation

NetWare for AOS/VS and DG/UX

SPECIAL INTEREST GROUP MEETINGS

4:30 p.m.-5:00 p.m.

AOS/VS;
Federal;
BBasic;
ICobol

4:30 p.m.-5:30 p.m.

CQCS

5:00 p.m.-5:30 p.m.

SIG/UX;
Lions Gate

7:15 p.m.

Cocktail Reception & Banquet (Sheraton)

THURSDAY - October 25

7:00 a.m.-Noon

Speaker Prep Room

7:30 a.m.-8:30 a.m.

Speaker/Host Briefing
(For Thursday presenters only)

8:00 a.m.-3:00 p.m.

Registration Desk

8:00 a.m.-3:00 p.m.

Guest Hospitality Room
(Sheraton)

9:00 a.m.-1:30 p.m.

Exhibits & Cafe open

9:00 a.m.-10:00 a.m.

Remote Computing with Data General Systems

Knowledge Bases and Data Bases: A Convergence of Technologies—A Divergence of Interests

Managing Your Programming Staff



The B52 is an aircraft well used to superlatives. Massively powerful, its versatility and adaptability have extended the B52's lifespan in an age when technology has outpaced most other weapons systems and has left them outdated almost as soon as they enter service.

Designed in the 1940's the B52's role in the inventory of the USAF has been projected to the end of the of the century-few aircraft will have proved so long lived.

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Powerful - Versatile - Adaptable

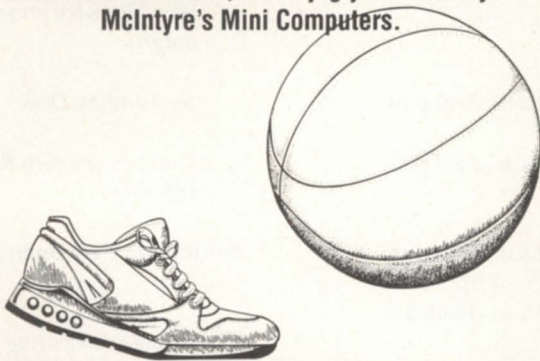
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FOCUS ON: NADGUG 90

Practical Issues of WAN-LAN Networking

Parallelism in the DG/UX File System Design

10:00 a.m.-10:30 a.m.

Complimentary Coffee Break in Exhibit Hall

10:30 a.m.-11:30 a.m.



Integrated Imaging on MV Family Systems

Communications in Heterogeneous Networks

Trends in Data Base Technology

Connecting Macintoshes to Data General Systems

Aviion and MV Family Systems as Application Platforms: A Technologist's View

11:30 a.m.-1:30 p.m.

Closing Ceremonies of Exhibit Area, Prize Drawings & Pizza Party

1:30 p.m.-3:00 p.m.

Office Automation Roundtable

Networking from AOS/VS to the World

ICobol in the 1990s

Two-part session:

Disaster Recovery in the 90s

Cost-Effective Contingency Planning

Ginxu—Generally It's Not Exactly Unix or Yet Another Silly Acronym

3:00 p.m.-3:15 p.m.

Short Break

3:15 p.m.-4:00 p.m.

ICobol Roundtable

3:15 p.m.-5:00 p.m.

Operating Systems Roundtable

Δ

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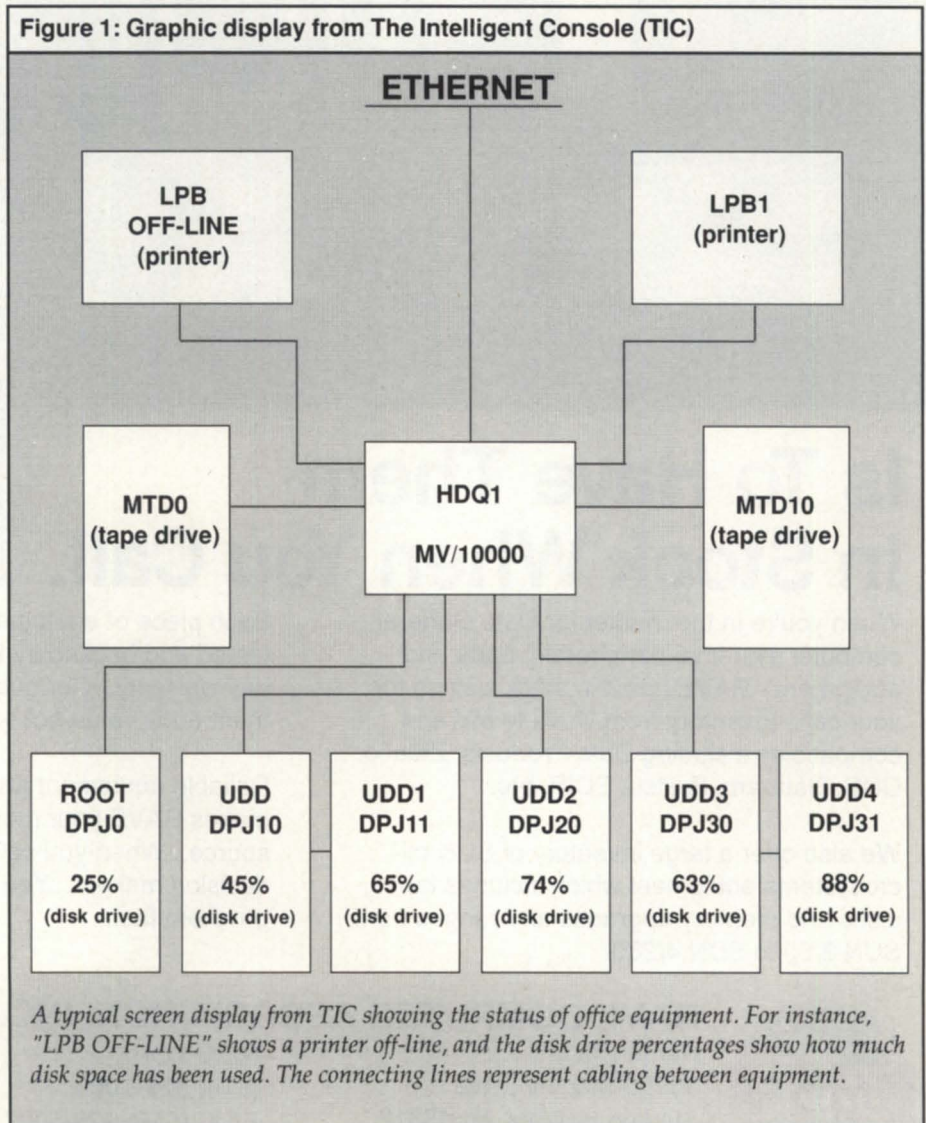
Computer installations have an insidious way of growing. Wasn't it only a few years ago that you had a couple of Zebra drives, a tape drive, and a 16-bit Eclipse processor? Now you have multiple high-end MV systems, 10 GB of disk, a tape

library that fills a room, plus a thousand or so tapes stored off-site.

In spite of the new hardware, little has changed in the way we operate our systems (where minicomputers are concerned). Automated operations appears to be one of the most neglected areas of day-to-day business. Until now, there has not been much incentive to convince us

SYNOPSIS

If your employees are still babysitting printers and tape mounts, then you are wasting valuable resources. Evaluate how your DG environment is managed—delegating the chore of error tracking to a product like The Intelligent Console could make your system more efficient.



to change the way we operate our DG environments.

With the proper tools, an operator's job should only involve printer attendance and spinning tapes or inserting 8mm cartridges. The "proper tools" are what prompted this article.

We recently acquired a product from Votek Systems Ltd., TIC (The Intelligent Console), which gives us the tools to achieve automated operations and more flexibility than is available from AOS/VS and CLI by themselves.

TIC is a 286 PC-based product that allows you to automate the expertise of your system manager into a system that both monitors and controls the master consoles of your systems. Votek coined the term "enterprise automation" to describe this integrated monitoring and control of a computer's resources, electronic systems, and business operations (by other computers).

The system ties into the cable going to the master console as a Y connection—in our case, MV/10s and MV/20s with TP-2 terminals as master consoles. Installation was simple, plus Votek provides on-site training, assistance in initial setup, and telephone support.

What it does

TIC monitors every message that is sent to the TP-2s. It filters out the useless messages (plenty from EXEC), and passes on for processing the important ones. The messages can be dated, timed, displayed, reformatted for clarity and operator acknowledgement, logged to a file that can be uploaded to the DG, tallied to keep count of events by device, or replied to, if necessary. A graphical display package is included. If so desired, verbal notification of messages can be sent via telephone or speaker.

Any combination of the above can be selected. This allows for things like soft error tracking on disks and tapes to help determine equipment reliability, automatic dismounting of tapes when requested, voice notification of tape mounts, hard errors, etc.

Right about now, you are probably saying, "What is this really going to do for me? Dismounting tapes, counting errors, and displaying pretty pictures isn't the kind of thing that will save me money." Well, that's just the tip of the iceberg. Let me use a few examples to

show you what TIC does for us.

TIC in action

It's the end of the month, and print queues are backed up with reports, invoices, and financial statements. The operators that handle the printers are furiously decollating and bursting their hearts out. Users are waiting at the door for the reports they normally run off ev-

ery day, but being month-end, service won't return to normal for a few days. You come to the obvious conclusion that you need a faster printer, since you cannot keep up with the load.

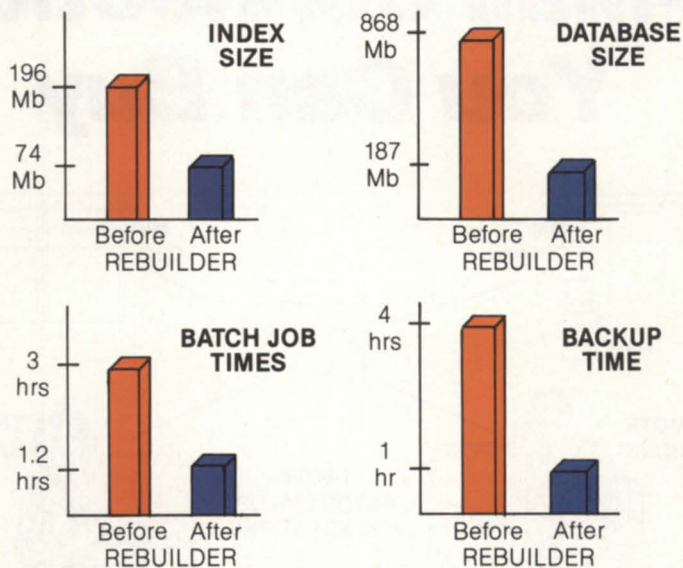
So, you replace that old B300 or B600 with a 1200 line-per-minute printer, and the reports are flying through. But, when month-end rolls around, the backlog is still there. What could be wrong? You just

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spent big bucks on a fast printer and you have solved absolutely nothing. How are you going to explain this one to the boss?

You decide to check things out in the computer room. There it is, your new printer, sitting there, doing absolutely nothing. Of course, it is out of paper, or the ribbon ripped in half. You ask the operator nearest you to get it going again and head back to your office. A short

time later you take another peek inside. Idle again, and for how long? At that point it hits you . . . it was not a faster printer you needed. All you really needed was to get continuous use out of the one you had. After all, a 600 LPM printer prints as fast as a 1200 LPM printer—if they are both off-line.

Here is another situation. Things are running fine, users are happy, all appears

well. Suddenly, the phone rings, it is a user whose batch job is stuck behind another job that has been running for over an hour. What gives?

You check to see what is running and find a job that you are not familiar with. After all, the system that submitted it was only installed a month ago. You check for sons. It doesn't have any. You do a run-time on the process . . . wow, it's been executing for an hour and 45 minutes but has less than a minute of CPU-time used. You bring up monitor and it is not taking anything and there is plenty of idle time. Something is not right here.

After another five minutes of digging you have it—it has been waiting for a tape all this time. Never even thought to check for mount requests. After all, you don't get that many, and those you do, you usually get a call from the user to let you know.

How about the time that some of your production jobs were pushed right to deadline? Tonight is the last night to get them through and your night operator stays late to make sure they start on time. Fifteen minutes after the last operator leaves, the job runs out of space. Of course, it is the biggest and last run before the deadline, and the users threw everything in but the kitchen sink. Or, instead of running out of space, the system has a fatal error, or Infos takes a dive. Murphy must have a law in here somewhere. Probably goes something like: *When faced with a deadline, the person staying late to keep an eye on the system will always leave 10 minutes before things go wrong.*

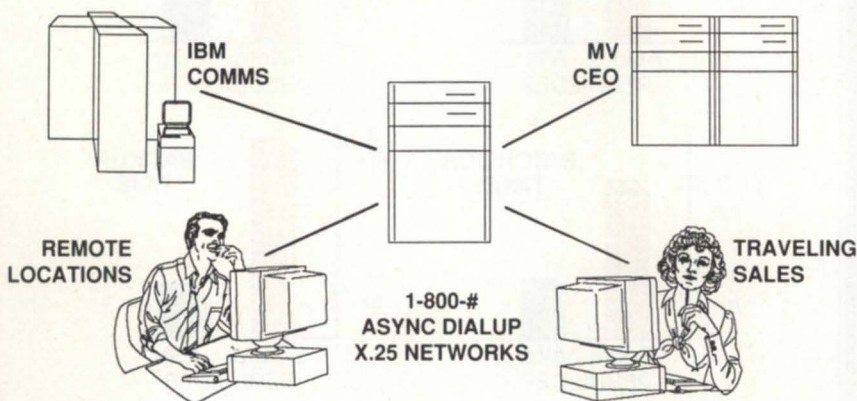
Increased productivity

By having the system keep an eye on things 24 hours a day, babysitting duty is no longer required. People hired to spend most of their time checking printers every five minutes, even if there is nothing to print, or those watching for tape mounts or monitoring critical jobs, can be given more meaningful duties and be developed as more valuable employees.

In our case, we use TIC to monitor the printers to see if they go off-line, and notify the operators immediately. A creative little macro does this for us, since 7.65 takes about 10 minutes to report an idle printer and doesn't tell you when it is back online. Disk space is checked regularly and graphically updated in a bar chart and the system manager is phoned

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if it reaches 95 percent. Hard errors, soft errors, and other events are reported and counted. Modem disconnect errors on consoles are detected and corrected automatically. Fatal errors are reported and the systems are told to complete ESD, reboot, run fixup, and bring up the systems.

No operator intervention is required. It is also quite easy to generate your own activity based upon user-generated messages (SEND 2 . . .), or time-driven messages (you run a job everyday at 7 a.m. to adjust the batch streams, etc, Monday-Friday except holidays). Dismount requests are responded to as well, thus ensuring that the next request comes up right away.

We have also developed a user interface to allow users with nothing more than bare-bones privileges, to have TIC run specific commands or macros at pid 2. For example, if an SQL development team working on the weekend runs out of space, then SQL hangs. Without any operators, the developers may as well go home. With the user interface, users can cycle the server themselves and keep working.

TIC has an option that lets you dial in to the system on a touch-tone phone to find out what messages are pending, and to acknowledge messages using the telephone keypad. If messages are not ac-

knowledged, an escalation feature goes in effect.

As you can probably now see, the possibilities are virtually limitless. We hope to soon tie into the fire alarm panel and A/C units with a custom-built interface. This will tell us if there is an A/C failure in the middle of the night and allow us to get someone on-site before the temperature gets too high. Virtually any ASCII

async RS-232 device can be connected, from UPS ports to control panels. On the DG side, we are implementing automated disk reorganizing for improved performance, and have begun testing unsupervised backups using 2 GB cartridges. A TIC system has been installed in each of our seven data center across Canada to allow standardization of systems management. Δ

Vendor information

Votek Systems Limited
2 East Beaver Creek Rd.
Toronto, Ontario
Canada L4B 2N3
416/889-7977
Attn: Paul Belzycki
Vice President

Cost of The Intelligent Console varies, depending upon the configuration. A general price range is \$70,000 to \$100,000.

Kim E. Myers is the acting project manager of system software for Public Works Canada. He has 12 years experience with Data General equipment.

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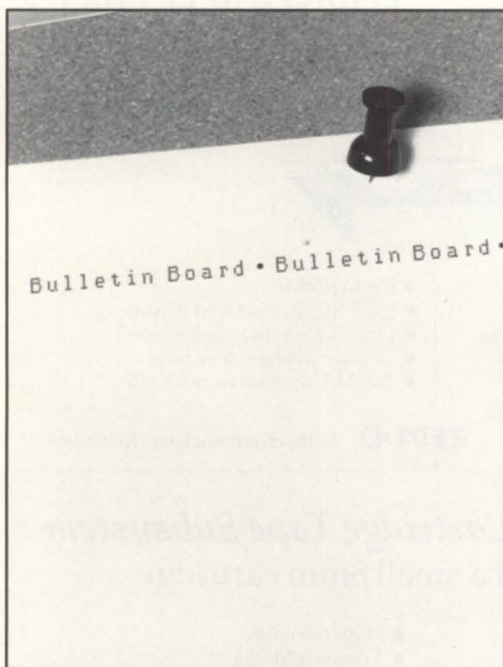
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Bits and bytes from the bulletin board



ian]. It's expensive, but it's great. You have to apply some patches to AGENT though, because it uses some calls that need special handling . . . It uses Infos, and is pretty fast.

From: Jim Sullivan

TMS is OK. DG supports it on a limited basis. So far, it's been like pulling teeth to get revved up to 7.65. It also supports an old version of DUMP_II. DUMP 3 and DDUMP are not in its vocabulary. We have been using it for about two years because of the lack of other products.

Give me a BREAK

From: Rick Marnell

Does anyone know how to send a BREAK over a modem to a remote AOS[/VS] system? How is it done for AOS, and how for AOS/VS? Is BREAK actually a character, or a hardware signal like a voltage fluctuation?

From: Walter Mosscrop

Rick, you didn't mention if you wanted to send the BREAK from a communications program (like Blast), or directly from your program. For the former, most programs have a pre-defined key sequence to send a BREAK. For the latter, you need to code a ?CLRDRV system call with the ?CDSBRK option set. This is available under AOS /VS. I don't know about AOS.

Also, I have noticed (at least with AOS/VS 7.60) that once you start sending a BREAK signal via an IAC-8 or IAC-16, it continuously sends the BREAK until you send another character. Finally, a BREAK is not a character per se, but it holds the transmit line in a constant state (I can't remember if it's

held high or low). Hope this helps!

From: Kevin Danzig

In a few revs (AOS/VS 7.65 is one, I believe), the ?CDSBRK has been known to cause either panics on the IAC or the whole system, so be careful! Also, to do it from CLI, there is a command called CLEARDEVICE/SBREAK. It is available only from PID 2, unless you apply a patch.

From: Rick Marnell

Thanks for the info. You've answered all of my questions but one—how does AOS[/VS] cause the transmit line on the remote system to be held high (or low) when you issue a ?CLRDRV call? What I want to do is be able to BREAK out of binary mode when running a program on a remote system (DG) through a local communications program. I believe ?CLRDRV clears the local port, not the remote one.

From: Walter Mosscrop

First, you want to hold the remote RECEIVE line low, so that the remote system recognizes an incoming BREAK. The incoming BREAK will (normally) clear binary mode. By sending a BREAK from the local system, through the modems, and into the remote system, you will be able to accomplish this. Also, BREAK is a continuous space (low) signal. Hope this clears up the confusion. One last thing, ?CLRDRV with the "send BREAK" option forces the transmission of a BREAK signal. I think that what you're thinking of is the "receive on" option, which does make the local system think that it received a CTRL-Q character.

Multiple files—a primer

From: Richard Timmons

Help! I am a recent college grad, and my first real assignment is working as a

AOS/VS tape archive/librarian

From: Mark Weber

I am looking for a tape archive /librarian utility that runs under AOS /VS. Does anybody know of one? Any leads would be appreciated.

From: Wally Beddoe

There is a division within DG called SPSPD. They market a product called Tape Management System. This would be the closest thing to what you are looking for. Ask your sales rep to contact SPSPD for details.

From: John Meyer

TMS [is a good tape archive/librar-

programmer and customer support person for an MV/15000 DG computer. The first task was pulling multiple preformatted reports off of the main computer (IBM) as one long list of reports to be received. This has been tackled and is OK.

Reports are placed in a directory and then sent to tape such as COPY /L = COPY.ERR/1 = WARN/2 = :WARN/ODEN=6250 OMTRSIZE=3960 & :UDD:[!USER]:FICHE1:DFFICHE [LIST], with LIST being a list of reports to put to tape. How can I modify this to get an end-of-file marker at the end of each report on tape? I admit I am really new to both programming and the DG way of doing things. I need some help, please! These tapes are used to make ASCII microfiche. I also need to know how to do the same thing, but to make EBCDIC tapes. Any suggestions or referrals?

From: Dell Setzer

To put files into individual tape files, each with its own EOF tape mark, copy the files to (for instance) @MTC0:0, @MTC0:1, @MTC0:2, etc., where "@MTC0" is the name of the tape drive, and the ":0", ":1", etc. is the number of the file on the tape.

From: Terry Hubbard

Rich, it appears from your sample command that you are copying to labeled tape. There are switches available to the MOUNT and DUMP command to dump in IBM format but not in the copy command. You may have to convert the file from ASCII to EBCDIC prior to copying. As far as the EOF markers, they are written by AOS /VS when the tape file is closed.

From: Doug Rady

You can use the AOS/VS SORT /MERGE utilities to do the EBCDIC conversion. It will even write to the tape. You might also try something like this: copy_to_tape [list_of_files], where copy_to_tape is a .CLI macro and list_of_files is a file with the names of the files you want put on the tape . . . copy_to_tape.CLI might look like this:

```
[!equal,%0/!%]
```

```
Comment: first time through so we init
var0,0
```

```
%0%/! %1-%
[!else]
copy/omtrsize=3600 @MTC:[!var0] %1%
var0 [!uadd,[!var0],1]
%0%/! %2-%
[!end]
```

Add whatever switches you need to the COPY command. Change the tape drive designator to whatever you're using. It

has been a while since I've used SORT/MERGE, so I don't remember the command and script formats.

I suggest getting the DG manual "Using the CLI (AOS/VS and AOS/VS II)," DG part number 093-000646. Call DG Educational Services at 1-800/876-3434 for info. This manual is a must for those new to DG who will be using the CLI.

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VSII 2.00—first impressions

From: John O'Keefe

I just installed VSII 2.00 on an MV/40000. After numerous attempts to bring EXEC up, I finally reloaded EXEC, XLPT, and QCMP from the 1.20 backup. That works fine, except you will need to rebuild your queues. 2.00 EXEC kept giving me a "file does not exist" message. DG-Help kept telling me I

must have a bad copy of EXEC . . . Anyway, if you really need it for TCP/IP II (as I did), it runs fine with the old EXEC. TCP/IP is nice and quick; full screen support is great. VT100 support seems to work OK over Telnet.

From: Thomas Carey

Did you remember to run QCMP (2.00 version) before bringing up EXEC?

That requirement is stated in the 2.00 Release Notes since it renames the two :queue files :QUEUE_<ENTRIES DESCRIPTORS TO BE "JOBS" AND "QUEUES." That could be the source of your "file does not exist" error. Our EXEC came up fine, but the XBAT cooperative for EXEC generated a lot of problems. ATL support downloaded a beta version of the next update of EXEC, XBAT, XMNT, and XNET. XBAT now works with no problems, but XNET didn't work right. Other than that it was a *clean* installation.

From: John O'Keefe

Yes, [running QCMP] is the first thing DG-HELP asked me about too. I still don't know what it was. I had a local SE (who was in Westboro for training at the time) tell me that other SEs were telling him of problems with QPRINTing also. I think I'll wait for 2.01+.

From: Wally Beddoe

A note of interest. This week, I was attempting to bring up our MV/20000 (AOS/VS II rev 2.00) and EXEC kept saying "filename already exists." There was absolutely no obvious reason why it was doing so. After trying every option under the sun just short of reloading VS, we initialized all our disks and that did it. EXEC came up with no problems. Figure that one out.

From: Thomas Carey

We're still running into problems. One mid-shift EXEC bombed seven times, dumped, and asked users to log off. I ran BRAN against those ?MDM files. They seemed to be crashing on a ?WRB request. I have a suspicion that it is expecting an extended packet in all cases of using the ?EXEC call, even though our own use of the packet wouldn't normally require that. We also got "Device previously allocated" from the new XNET cooperative, and lastly, we strangely get an "out of memory" message from PID2 during system boot!

△

Do you have an answer, comment, or question? Call the NADGUG/RDS electronic bulletin board, available to all NADGUG members. The phone number is 415/499-7628. There are no fees for use other than the telephone charges.

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Education

*University of Maryland, Ph.D., Physics, June 1990

*United States Naval Academy M.S., Chemistry, May 1985

*Brigham Young University, Electrical Engineering, M.S., 1981

Experience

*Hydrospace Challenger G

Director of Submarine Attack
Responsible for the implementation for sonar, fire control systems, pertaining to contracts awarded to 2500 employees.

Manager, Engineering Support (I)
contractor efforts with Naval Sea Systems Command for future submarine development. Manages a staff of 800 engineers.

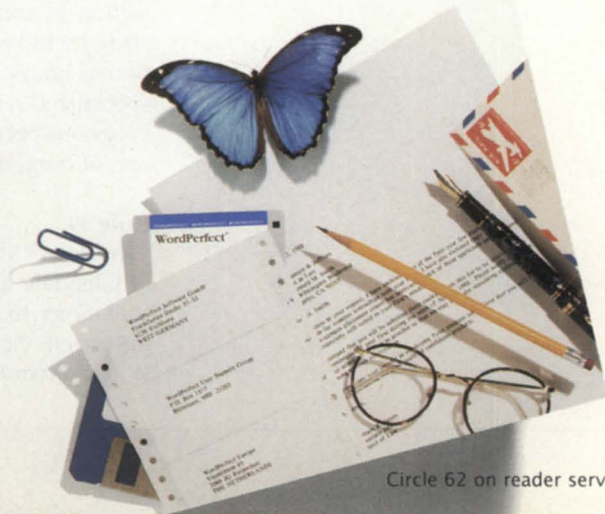
*United States Navy 1965-1980

Pentagon, Director Naval Submarine Engineering
Assigned to direct the engineering development of submarines. Provided engineering direction codes of Naval Sea Systems Command. Lobby for fund appropriation for future submarine development. Contracts for construction of submarines and submarine combat systems.

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Victims fight back

by Lori Rhea DiSorbo
Focus staff

SYNOPSIS

Grassroots movements call for strengthening the rights of crime victims. A DG-based victim notification program in Arizona serves as a model for other government agencies.

Innocent before proven guilty . . . The Miranda Warning . . . Just the facts, ma'am.

The rights of criminals have long been championed in our society. Recently, public sympathies have moved toward protecting the rights of the persons harmed by criminals.

"In the past four years, crime victims' rights and issues have been brought to center stage in Arizona," says Natacha Wagner, executive director of the Crime Victim Foundation in Scottsdale, Arizona. "Victims' rights are generating a lot of citizen participation. There is more of an outcry against defendants getting off. It's the whole public mood and public perception—Parents of Murdered Children, Mothers Against Drunk Driving—almost every victim advocacy group" is speaking out, she says.

Protection, counseling, and notification are areas where the people of Arizona and other states are demanding greater rights for victims. In 1987, a state Crime Victim Compensation program was enacted in Arizona. Recently, over 200,000 signatures were gathered in Arizona during a petition drive for a Victims' Bill of Rights.

When lawmakers mandate greater protection of crime victims, state agencies struggle to keep up with the multiplication of hours and paperwork. Without a specialized system, these well intentioned programs become bogged down in a morass of bureaucratic red tape.

Rule 39

Arizona's Maricopa County and the City of Glendale are two of the first DG installations to begin developing a computerized victim notification program. With software developed in-house and

coded by an independent contractor, these two government offices are working together to streamline their victim notification processes and be of more service to the public.

Victim notification is the process of informing (usually by letter) victims of crimes ranging from felonies to misdemeanors of all court events involving the defendant. Accountable government offices must keep track of everything from arraignments, pretrial conferences, change of plea hearings—and if the defendant is convicted, the ruling, sentencing, probation revocation hearings, and jail release dates. The amount of information given to the victim varies depending on the state.

The potential for volumes of word-processing and record-keeping is evident, especially in heavily populated areas. Moreover, the urgency of notifying victims of certain information, particularly involving violent crimes, makes it crucial that the task is accomplished swiftly.

"The victim witness notification division of Maricopa County has been around since 1978, notifying victims of selective events. Last summer, our Supreme Court promulgated Rule 39, requiring the prosecutor's office to provide crime victims with notification of *all* court events involving the defendant. This ruling expanded the number of notifications per victim from 3 to as many as 15," says Carol McFadden, victim witness division chief of Maricopa County.

With 50 percent of the population of Arizona residing in Maricopa County, officials process approximately 15,000 felonies and 20,000 misdemeanors a year. The county needed an alternative to its simple filing system to facilitate Rule 39, so this summer development began on a new program based on the county's existing Data General hardware.

Working together

To get the ball rolling, Maricopa decided to include one of its jurisdictions, the City of Glendale, in the project. Glendale also uses Data General equipment, and when Rule 39 was implemented, Glendale be-

gan its research. Bob Beeks, Maricopa County attorney, end-user support, says, "both the City of Glendale and Maricopa County have the same general needs when it comes to notifying victims of crime. We have *more* need than Glendale, but Glendale has the money up front. They can afford to begin the project, to get the application developed in Oracle."

Steve Jones, director of information systems for the City of Glendale worked with Maricopa to design a program suitable to both of their needs. Jones explains that, "Since we are much smaller than Maricopa County, the number of felonies and misdemeanors we have is significantly less. Our requirements are not quite as stringent, so it made sense to work with Maricopa County . . . and design the program to their specifications."

The two agencies arranged for International Data Systems (IDS) to code the application. The program will run on DG/UX and be marketed by IDS to other government agencies after being fine-tuned for Maricopa and Glendale.

Shared data base

The City of Glendale's MV/20000 will store the victim notification data base which users will interface with a 386 PC. "The software in Oracle can interface with Wordperfect to write all of the letters," Jones said. Any authorized user in Glendale who has a terminal or a PC will be able to access the victim notification information. Likewise, the victim notification department will have access to the data bases of other public safety departments. Information related to a particular crime will only need to be entered once.

Jones continues, "We are able to actually extract [by computer] all of the victim witness information from police reports. In the past, this had to be done by hand. We will no longer have to enter anything into the system other than dates, and types of letters."

In Maricopa County, the public safety and victim notification departments have not achieved this level of communication. "Unfortunately," says McFadden, "our two computer systems don't talk to each other. As far as police reports being communicated right to the victim notification department, that's something we're hoping will be developed within the next six months to a year."

To accommodate increasing user de-

mand, Beeks optimistically relates, "We are in the process of purchasing a new DG Aviiion [series 4000], and using this equipment with up to 16 users. This Aviiion box will eventually evolve into a countywide network system with other Aviiion and MV systems. Anybody that has authorization will be able to access the victim information: lawyers, support staff, etc., throughout the county attorney's office."

If all goes according to plan, Glendale officials should be turning their system over to end users approximately two weeks after the time we interviewed them in mid-August. Maricopa County hopes to have its program up and running no later than the end of October. Both are anxious to relieve the burden of work that has been mounting since Arizona passed Rule 39. Δ

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BILLING.LOG	532000	Crunched	94%	36087	31-May-89	11:41 p	3E91
EMPLOYMENT.AGR aka EMPLOYME_00	5793	Crunched	45%	3221	15-Jan-89	3:55 p	1D1C
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Managing for creativity

SYNOPSIS

Data processing professionals are often called upon to be creative and innovative. Here are some tips for cultivating creativity in your office.

by Steve Handlos
Special to Focus

and

Liz Straus
Special to Focus

While waiting to meet a friend in Virginia, I found a news magazine and began reading an article about the way 3M manages its new products team. There was a story about an employee who was developing new products in the abrasive product line. One of his early developments was, of all things, shaving sandpaper . . . sandpaper that would remove a man's beard.

Obviously, the product concept was a big mistake, and you would think that the employee wouldn't last long on a new products team. Actually, the exact opposite occurred. Not long afterwards, that same employee invented an abrasive that quickly

became widely used in the auto industry. In fact, it was one of 3M's first big products, and was a major influence in 3M's early success.

There is a valuable lesson in this story for data processing professionals. In our field, we are constantly being asked to be creative, to design something similar, but yet unlike anything we've done before. Almost every project we undertake requires some creativity.

To establish a greater level of creativity in your organization there are several steps you should take.

.....
Recognize your customer's needs

Necessity is the mother of invention. Although you want to be creative, you will quickly recognize that you don't want to create something that is of no value to your employer or client.

Your customers are the people who benefit from your work, so you should monitor their needs by listening to their requests on a regular basis. You should understand their problems, concerns, hopes, and goals. Translate these elements into a set of needs that can be addressed and resolved by one or more projects that require creativity.

As you develop the project for review and approval, be sure to use the appropriate graphics and language. You will want to avoid technical language if the customers are business executives.

Verify your understanding of the customers' needs by obtaining their approval to proceed. You will reach this approval

when you can demonstrate that the benefits they receive will be greater than the cost to achieve these benefits.

Plan each project to ensure success

One of our problems as data processing professionals is our eagerness to make a significant contribution to the organization. This desire is only natural. We recognize more than anyone the potential of the computer. That's why discipline is important in avoiding unnecessary mistakes. You must plan the project thoroughly before making your commitment to time, effort, and cost. You must not commit to doing more than you can accomplish in any given time period.

A performance that is consistently on time and under budget will put you in a better position to be creative. Meeting your commitments regularly builds credibility for your group, and develops a relationship of trust in the organization. Until you

establish this track record and develop this trust, management will be reluctant to accept your recommendations for creative improvement through the use of the computer.

Delegate tasks skillfully

Utilize the talents you have in your organization by deploying them to the tasks they are best suited to handle. It is just as important to understand your employees as it is to understand your customers. By listening to your employees carefully, you can determine where their interests lie and what motivates them to achieve results.

A story comes to mind about a man named Mel. He was a good programmer, but he had a particularly strong interest in personal computers. His superior recognized this interest, and put him in charge of helping others in the organization solve their computing problems by using pack-

aged software on personal computers. He introduced spreadsheets, word processing, etc. This organization now has more than 200 workstations in place, and many of them are ported into their MV/20000.

Mel was successful in establishing this level of productivity because he responded to the users' needs. He helped them overcome their initial problems, trained them when necessary, and was always available to troubleshoot problems.

Mel's efforts were significant because he helped a lot more people than the department could have helped by implementing the same type of software on the MV. His approach makes this organization a good prospect for the "next wave of data processing."

Encourage results, never punish

Since you will need to depend on the creative talents of others to achieve significant long-term goals, you must treat them in a way that encourages them to take creative risks. In their attempts to solve new problems, they will propose ideas that only offer a partial solution. Solving problems with creativity is a trial and error process. They will hypothesize, test, and adjust based on what they learn. Then they will repeat this process until the problem is solved.

For your employees, creativity involves personal risk. If they are not right the first time, and they usually aren't, they face the punishment, criticism, or ridicule of "making a mistake." When they are criticized or ridiculed, they will stop taking creative risks. They will play it safe and let you take all the creative risks.

To encourage employees to take creative risk and to try new solutions, you must overlook mistakes, and find the positive gain made in each effort to affect a complete solution. Add those positive gains together, and continue to build upon them until you arrive at the desired result. Then praise your employees to keep them creative.

Steve Handlos is the president of Productivity Systems Development Corp. and Data Safe Corp. He may be reached at P.O. Box 1931, Summerville, SC 29484-1931; Liz Straus is president of Stewart & Associates, Inc., P.O. Box 11944, Columbia, SC 29211; 803/771-4636.

Successful management requires multiple skills

To succeed as a manager, you must be able to recognize the needs of your users (customers) and how to motivate your employees to achieve creative results. Mel's manager saw the need for personal computers and packaged software, he saw Mel's ability to meet those needs, and he encouraged Mel to be creative.

To be successful you must be able to fulfill the needs of your users, and you must help your employees achieve their own success if they are to assist you in this task. You must recognize that these skills must be acquired through training and experience. If you have not already started, decide now to take the positive steps you must take to achieve success in the world of data processing. △

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MODEM OPUS

SYNOPSIS

Configuring AX modems requires knowledge of dial-in options, Flow Control, and compression. Now that this three-part tutorial on modem setup is complete, you can test the baud rate of your own modem.

:MODEMS:CONTINUED

This is the third and final episode of my Modem Opus. I'm getting tired of talking about modems, and you probably are getting tired of reading about them. Well, let's both struggle through this, and then we can all go back to learning to love Unix.

:REVIEW

Let's summarize what we've learned so far:

Fact A: There are three basic ways that two modems can talk to each other:

- Dumb: no error correction, no buffering, Serial Port speed always adjusts to Modem Port speed.
- Smart: error correction, minimal buffering (a few characters), Serial Port speed always adjusts to Modem Port speed. Flow control is required to avoid data loss when throughput drops as a result of retransmissions to correct errors caused by line noise.
- Intelligent: error correction, possibly compression, extensive buffering (hundreds of characters or more), Serial Port speed can be fixed at a rate independent of the Modem Port speed. Flow control is available to cover buffer overflow conditions caused both by the Serial vs. Modem Port speed mismatch, and by retransmissions to correct errors.

Fact B: Any modem connected to AOS [/VS [III]] cannot be allowed to react to XON/XOFF characters received from the CPU due to the DG cursor addressing crock.

Fact C: Hardware flow control cannot be used on connections to most DG muxes (e.g., IACs) unless the modem complies with the DG restriction that CTS only change states during the character stop bit time. This is a severe restriction that few modems support. Last month's Micom modem didn't support this, but this month's Microcom modems do.

Fact D: Hardware flow control cannot be used at the calling end because there's no way for terminal/PC emulator users to

drop CTS to pause the display in lieu of using the ^S/^Q keys.

Fact E: Buffered modems at the terminal/PC emulator end must recognize and react to XON/XOFF from the terminal because a) humans use ^S/^Q to suspend/resume displaying received data, and b) DG terminals emit ^S/^Q to control flow. In both cases, flow has to cease very quickly. The delays due to buffering of data from the system to the terminal by both modems can easily exceed 10 seconds, with the result that the part of the display you wanted to stop at has long since scrolled off the screen, or the terminal buffer has overrun and you have little squiggly things all over your screen.

Fact F: Unbuffered modems at either end can safely be configured transparently (no software flow control) because the turnaround time for ^S keystrokes is no worse than a few characters, except during retries due to (hopefully) infrequent line noise errors.

Fact G: Binary file transfer protocols such as X/Y modem require a transparent connection in the direction of the transfer. This means that transfers from AOS[/VS [III]] to a PC terminal emulator are no problem (a pleasant side effect of Fact B), but transfers toward AOS[/VS [III]] conflict with Fact E. Several solutions are available, but they all involve turning off flow control in the sending modem for the duration of the transfer. This can be done either by momentarily escaping to the modem's Command Mode (+++), or by calling back in after reconfiguring the modem to either disable flow control, or to put it into Normal Mode (\N0) for the duration of the transfer.

Fact H: File transfer protocols like Blast and Kermit that convert flow control characters in the transmitted data to innocuous character pairs both have abysmal throughput at speeds above 2400 baud. Blast's and Super Kermit's throughput problems are due to the tendency of their much heralded "sliding window" scheme to swamp the limited

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SYSTEM MANAGER'S LOG

PMGR buffers at high baud rates. Standard Kermit's throughput problems are due to its short packet size and intrinsically half-duplex protocol scheme. Both Blast and Super Kermit have parameters that can be set to narrow the window to one packet in order to minimize overruns, but that just converts them to half duplex schemes with the same miserable throughput as Standard Kermit. In the race for last place, Blast comes out slightly ahead of Kermit due to its ability to compress across packet boundaries, but that's little consolation if you're forced to stay at 2400 baud or lower to avoid overruns.

:MICROCOM:AX

This month we're going to configure a pair of AX2400c and AX9624c modems to be used as dial-in modems on AOS/VS, and then configure an identical pair to use to dial into the first pair from terminals or PC-based terminal emulators.

The table of commands for these modems was included in Part I (Aug '90 *Focus*). Now would be a good time to dredge that up so you can follow along.

:DIAL_IN

The first order of business is to set the switches. Unlike the Micom modem I configured last month, the AX modems read the switch settings before applying the previously programmed values stored in non-volatile memory. This means that we can set the switches to the factory default settings for AT modem use:

```
1
1234567890
Front: UUUUUUUUUU
Rear:  UUUUUUUUUU
```

The next order of business is to configure the modems to meet the minimum requirements imposed by AOS[/VS [III]] for /MODem ports: DTR control of the line, DSR and CD normal, CTS on.

&Dn controls DTR. n=1 causes the modem to enter Command State when DTR drops, but not hang up the phone, so we can't use it. n=2 causes the modem to hang up and enter Command State, so we can use it. n=3 is the same as n=2, but the modem also resets itself (equivalent to an ATZ command). One of our goals is to have the modem return to a known state at the end of each call, so &D3 sounds like the way to go.

&Cn and \Dn work together to control how CD, DSR, and CTS behave. The possibilities are:

&C	\D	Description
0	x	CD on
1	0	CD follows carrier, DSR and CTS on
1	1	CD follows carrier, DSR follows off hook, CTS on
1	2	CD, DSR, and CTS follow carrier
1	3	CD follows carrier, DSR follows answer tone, CTS on
2	x	CD always on, except momentarily off at disconnect

&C0, &C2, and &C1\D0 cannot be used; they conflict with the minimum requirements for /MODuse. The remaining three combinations all work, but I prefer &C1\D3 simply because it reflects the most common meaning of DSR in the original EIA spec.

The final step is to instruct the modem to answer the phone when DTR is on, and which ring to answer it on; S0=1 will cause an answer on the first ring.

OK, the modem will now interact properly with AOS[/VS [III]] ports that have /MODset. On to the flavor of the connection

:DIAL_IN:FLOW_CONTROL

\Qn controls Serial Port flow control. n=0 disables flow control, and cannot be used without sacrificing the capability of doing compression and/or using a fixed Serial Port speed. n=1 sets bidirectional XON/XOFF flow control, but the DG cursor addressing crock precludes its use. n=2 enables unidirectional hardware flow control (generate, but don't react to), which works just fine because a) the AX series modems adhere to DG's CTS timing requirement, and b) PMGR does not support hardware input flow control on IACs, even if you turn on /HIFC. n=3 enables bidirectional hardware flow control and works fine. n=4 enables unidirectional XON/XOFF flow control (generate, but don't react to) and works fine except for disallowing X/Ymodem transfers from AOS [/VS [III]] toward the caller.

Our possible choices are n=2, 3, or 4. Hardware flow control, uni- or bidirectional, is obviously preferable to unidi-

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rectional XON/XOFF flow control because it makes the modem transparent in both directions. We'll pick bidirectional hardware flow control (n=3) just to cover the case of connections to those muxes that do support /HIFC. On those that don't, it won't hurt.

:DIAL_IN:MODES

\Nn controls the Operating Mode (see Part I for a complete description of Operating Modes). The possibilities are Normal (0), Direct (1), Reliable (2), and Auto-reliable (3). We want to support all callers, regardless of race, creed, color, sexual orientation, or modem type, so we'll use Auto-reliable.

When dumb modems call, the AX modems revert to Normal Mode if Serial Port Baud Adjust is off (\J0), or Direct Mode if Serial Port Baud Adjust is on. As you'll see shortly, we're going to turn off Serial Port Baud Adjust, so dumb callers will be using Normal Mode connections.

:DIAL_IN:COMPRESSION

The reason we spent big bucks on these modems was because of their ability to present an apparent line speed of up to 19,200 baud through the use of adaptive data compression, so clearly we want to enable it. As luck would have it, it's enabled by default (%C1) during Reliable Mode. However, in order for compression to be effective, the serial port must be able to accept/supply data at speeds exceeding the Modem Port speed. If the Serial Port speed matches the Modem Port speed (2,400 baud max for the AX2400c and 9,600 baud max for the AX9624) then compression will accomplish nothing.

In order to take advantage of compression, we must set the Serial Port speed to a rate above the maximum Modem Port speed. This means disabling Serial Port Baud Adjust (\J0) and setting the IAC port to the highest speed the modem supports; 9,600 baud for the AX2400c and 19,200 baud for the AX9624c.

:DIAL_IN:FINE_TUNING

At this point, we've got a working situation. What follows is a minor adjustment to enhance the operation.

One of the annoying aspects of buffer modems is the delay between the time you key in an interrupt sequence and the time when the effect appears on your screen. A typical case is the use of ^C^A to

halt the output from a CLI TYPE command. It can take 10 seconds or more to happen. The AX series modems allow using the Break sequence to signal the modems to flush their buffers according to the setting of the \Kn option. There are quite a few combinations depending on the current Mode, so I'll just cut to the chase; AT\K1. This causes the sending modem to clear both of its buffers and

send the Break sequence immediately. If the modem receives a Break sequence, it clears both of its buffers and sends the Break sequence to the Serial Port immediately.

To use this feature, just enter the ^C^A as you normally would, but then press CMDBreak to cause the remote modem to flush its send buffer. Your screen will see the reaction almost instantaneously.

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:DIAL_IN:SUMMARY

The day that you cable up the modem you'll need to do this:

Set the switches to the factory defaults shown previously. Either by using the master console, or by turning System Manager privilege on, set the port baud rate to the maximum supported by the modem (9,600 for the AX2400c, 19,200 for

the AX9624c):

```
) CHARACTERISTICS/DEFAULT/BAUD=max &  
&) speed @CONn
```

Program the modem using CONSTR (available on our BBS):

```
) CONSTR @CONx 4 AT&F&W(15)  
) CONSTR @CONx 4
```

```
ATS0=1&D3&C1\D3\J0\K1\N3\Q3&W(15)
```

Note that you won't see an OK response from this last command string; don't worry about it.

Finally, you'll need to modify your system UP macro to include this:

```
CHARACTERISTICS/DEFAULT/BAUD=max &  
&) speed/MOD/HIFC @CONn  
CONTROL @EXEC ENABLE @CONn
```

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That's it, we're done. All the options that I haven't mentioned are either superfluous, or their factory default value is just peachy. Note that this especially includes the confusing Modem Port flow control options, \G0 and \X0. These options only apply to Normal Mode connections, and then only if the calling modem is using mismatched Serial and Modem Port speeds. This is a highly unlikely scenario since any calling modem that supports mismatched speeds is probably going to support Reliable Mode connections.

:DIAL_OUT:TERMINAL:SETUP

As with the dial-in setup, we'll just set the switches to the factory default settings shown previously.

Terminals have little use for modem control signals, and DG terminals have the annoying habit of not wanting to stay on-line unless CD and DSR are on all the time, so we'll just force the modem signals to be on all the time with &D0&C0\D0. As it happens, those are the factory default settings.

The rest of the settings generally match those for the dial-in case, with two exceptions: bidirectional XON/XOFF flow control (\Q1) instead of hardware flow control, and fancy result codes (\V1). After connecting your terminal to the modem, set up the terminal for the maximum baud rate that the modem supports (9,600 for the AX2400c, 19,200 for the AX9624c) and program the modem like this:

```
AT&F&W<CR>  
OK  
AT\J0\K1\N3\Q1\V1&W<CR>  
OK
```

Finally, you can also program the modem with the dial strings for the 10 systems you call most often. Consult the manual for details on that feature.

Ok, let's test this mess. I've arranged a

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test account that runs a program called BAUD_CHECK that you can use to test your rig. The phone numbers are 415/398-1086 for the AX9624c and 415/956-6932 for the AX2400c. The username is BAUD_CHECK and the password is BAUD_CHECK. The program asks you to hit New Line to start sending you the test file, and then another New Line when you see the last line displayed. From this, it computes and reports the effective baud rate for the modem's serial port and the end-to-end effective baud rate.

:DIAL_OUT:EMULATORS

As I mentioned last month, the modem signal configuration for PC-based terminal emulator packages is a function of which package you're using. I primarily use a package called Pereline, and occasionally/reloctantly use Blast. The setups for both are a little too large to include here, so I've put the following on the :SYSMGR BBS:

- Screen dumps of the Pereline 2.4k setup screens.
- A screen dump of a typical Blast .SU file.
- Copies of AX2400C.SCR and AX9624C.SCR; two modem scripts which can be added to Blast's MODEMS.SCR file to support the AX series modems, and instructions on how to re-index MODEMS.SCR once they've been added.

If you need to get the AX series modems working with some other terminal emulator, just call me with the number of a no-limit Purchase Order and I'll endeavor to relieve you of whatever cash your company has. And if you have a scheme of your own, feel free to upload the details to the :SYSMGR BBS, or just mail them to me.

△

BJ is the president of B.J. Inc., a San Francisco based consultancy specializing in system auditing, system management, and performance analysis. :SYSMGR is a division of B.J. Inc. BJ can be reached at 109 Minna St., Suite 215, San Francisco, CA 94105, 415/550-1444 (voice) or 415/550-1072 (fax). The :SYSMGR bulletin board number is 415/391-6531 (300/1200/2400 with optional MNP class 4. C H A R / 6 0 5 X / C H A R L E N = 8 / P A R I T Y = N O N E / A U T O B A U D) or 415/550-1454 (voice).

1. **WHY** should I consider SCREEN DEMON for my AOS/VS application?

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3. **WHAT** if I only have the program files (i.e., no source code or object files) for my application?

Most existing 32-bit program files can be 'possessed' by SCREEN DEMON. These programs include system utilities (such as SED, CLI32, and SMI) and other software such as CEO Light.

4. **WHEN** may I see this new version of SCREEN DEMON?

During the 1990 NADGUG Convention in Seattle.

5. **WHERE** may I see this new version of SCREEN DEMON?

At Booth #417 in the NADGUG '90 Exhibit Hall.

6. **WHO** do I call to get the answers to the rest of my questions?

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Open door policy

by G. Bruce MacDonald
Special to Focus

SYNOPSIS

DG adds to its list of devices covered under the Compatible Products Program.

In today's environment of mixed-vendor solutions, users are no longer inclined to rely on one vendor for every component of their system. More likely than not, connected to one vendor's CPU is another vendor's drive, another's printer, and yet another vendor's controller. Problems can arise when it's time to make a service call.

Data General's solution to the "who-to-call" dilemma is the Compatible Products Program. The program is designed to provide repair and maintenance for non-Data General peripherals and computer equipment, thus allowing contract customers with mixed-vendor peripherals connected to their Data General CPU to receive full service for their complete system.

More than 300 products from about 30 different vendors are supported under the Compatible Products Program. This includes modems, drives, displays, printers, and controllers from Control Data, Dataproducts, Datasouth, Epson, Fujitsu, Genicom, Hewlett-Packard, IBM, Okidata, Texas Instruments, and Zetaco.

No more finger-pointing

Norm Hodge, manager of Data General Field Service Marketing, says the two major benefits of the Compatible Products Program for Data General customers are the ability to make one call for service, and the elimination of "finger-pointing" between service providers.

Products covered under the Compatible Products Program can be added to

the standard Data General On-Call Service contract. When service is required, the customer calls Data General's toll-free service line (1-800/DG-HELPS), which connects the customer with the DG Customer Support Center (CSC) in Norcross, Georgia. Hardware experts at the CSC work to solve the problem remotely, or, when necessary, dispatch a trained field engineer to the site.

Decision to service

The decision to include non-Data General equipment as standard under service contracts was not a hasty move. According to Hodge, "While we have not been the only vendor to recognize the need for this type of service, we did not jump in blindly, saying we can do it all right away, only to retrench our position down the road."

Thus, he explains, only products that have full Product Support Plans, meeting the same requirements as Data General-manufactured equipment, fall under the

The two major benefits of the Compatible Products Program for Data General customers are the ability to make one call for service, and the elimination of "finger-pointing" between service providers

Compatible Products Program.

Ken Gale, manager of the Peripheral Technical Product Management group, is responsible for putting those Product Support Plans in place.

"When the division sees that a certain peripheral should fall under the program, we make an extensive examination of the product—from a technical perspective and from a service-life perspective," he says.

The process includes an examination of methods of assembly and disassembly, an evaluation of available diagnostics, a

study of product reliability, and identification of a qualified source for spares.

"We also look at our field force, to ensure it has the skills to fix the particular product," Gale says, "and if it needs more instruction, we put in place the training to provide those skills."

It is rare, he says, that a product will present a completely foreign technology to the field service force. Most needs can be covered through computer-based training courses in field engineers' branch offices. Gale adds, "As we develop courses for our standard Data General products, we are including training for those products within the Compatible Products Program that are based on the same technology platform."

Once training, maintenance procedures, and stocking plans are in place, the product becomes a standard offering for Data General service. This process has limited the number of products that fall under the program's terms in its early stages.

Hodge adds, however, that while some customers may find that a certain product isn't on "the list" today, it may likely be there tomorrow. "We have more than 100 additional products that are now being studied, (more) waiting in the queue, and we generally provide the group with anywhere from a half-dozen to a dozen new products to examine each week."

In addition to responding to customers' requests, the technical groups are identifying products that are likely to be in high use within Data General systems in coming years.

"As Data General gets into more open environments, and our customers begin installing our new 88K-based equipment, we want to be ready with support for the whole system," says Hodge. "We're working to identify those peripherals before hand so we can deliver turnkey service."

The goal, according to Hodge, is to provide service for any customer's Data General-based solution. "If the product is not on the list, we'll work to put it there, and, as always, we will respond to customers who need special support. We aren't going to shut the door. We want to be a full-service vendor for all of our customers." △

G. Bruce MacDonald is a freelance writer living in Richardson, Texas.



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Windows on the workstation

SYNOPSIS

The scoop on Microsoft Windows 3.0, or, see what \$10 million can buy.

This column is usually full of "PC integration" stuff—about connecting PCs to your minicomputer. I try to stay away from PC-only issues on the theory that you can learn a lot more about them by reading *PC Week* or *PC Magazine*. But if the phone calls I receive from readers are any indication, many of you don't have time to keep up with both the mini and micro worlds.

So, this month we'll digress into the world of PC gossip and take a look at two subjects that seem to come up more often than others: Microsoft Windows 3.0 and "How to choose a PC".

Yes, we do windows

After a whole bunch of false starts, Microsoft has finally bought its way into the world of Graphical User Interfaces, or GUIs (pronounced "gooeys"). With a marketing budget of \$10 million just to get through the day of the product announcement, Windows 3.0 is a serious contender. Gone are Windows 2, Windows/286, and Windows/386. There is only Windows 3.0.

The earlier products never made it. They never took advantage of the 80286 and 80386 chip architectures. Earlier versions were also clumsy and slow. Not just for users, mind you, but program execution was a mess and very few programs could operate in the Windows environment.

While Windows 3.0 does utilize the features of the 80286, it's still a dog on anything except a '386. As soon as I got my first copy, I installed it on my Dasher/286 at home. It's good enough for playing the solitaire game that comes with Windows, but that's about it. In fact, the Dasher/286 BIOS and Windows 3.0 don't get along very well at all—the keyboard doesn't work.

With an 80386, Windows 3.0 really comes alive. Microsoft has done some real

slick stuff using the 80386's ability to virtualize memory addresses. Even programs that are not written to be "Windows aware" run nicely with this combination.

Realities of the marketplace

Techies still won't be impressed. With an 80386 CPU, 4 MB of memory, and Windows 3.0, a PC becomes almost as easy to use as the 512K Macintosh I bought seven years ago. And it still takes more than a page of C to write a program that simply displays "Hello World" on the screen. (Is this progress?)

From the businessperson's perspective, however, Windows 3.0 is a winner. Until recently, very few important applications ran under Windows. Now, everyone is porting their applications to Windows 3.0. Isn't it amazing what \$10 million can do?

As perhaps the most telling example, Wordperfect announced that it is placing more emphasis on the Windows 3.0 version of its word processor and less on the OS/2 version. Prior to the announcement of Windows 3.0, the reverse was true.

While Windows 3.0 is still just some fancy code glued onto the side of MS-DOS, OS/2 is a "real" operating system. But that doesn't matter in the real world. The momentum for Windows 3.0 is overwhelming, and the importance of OS/2 has probably been pushed back to 1995.

To '386, or not to '386

Windows 3.0 was just the catalyst, and after years of always having the slowest desktop in the company, I finally snuck out and bought myself a "real" computer—a 33 MHz 80386 with lots of cache, a big disk, and oodles of memory. My excuse, of course, is that I'm just using it "temporarily" and that it will soon become the basis for our new file server. Sure.

The 33 MHz cost about \$500 more than the same configuration with a 25 MHz

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CPU. Was it worth the difference? Probably not. After all, most of what I do on the PC uses the disk or the network, so I probably would have been better off spending that \$500 on an even faster disk drive instead.

So, what about the 80286s? You can get a full AT clone for under \$1,000 complete with disk and monitor. What I wouldn't do, however, is buy an AT as a user's

workstation. "But it's just for word processing," I used to say. "Wordperfect runs just fine on an AT." While that may be true today, the world is just about to change with the advent of Windows 3.0.

The minimum system I'd buy today for any human (interactive) user is a 386SX-based workstation. The 80286 is great for those unattended devices such as an MHS mail server or FAX gateway—applications

that never make use of memory above 640K. You can now put together a fully configured 386SX system for under \$2,000, making it a good value for virtually any user, no matter what their position within your organization.

Now the question becomes whether to move up to a "real" '386. This is a tough one. I like to split users into two groups. "Power users" include programmers or those using desktop publishing or graphics software. "Utility users" would typically run word processing, e-mail, etc.

For power, a 25 MHz 80386 with 4 MB RAM is the best deal, but for those who are not zipping back and forth from one application to another all day long, a 20 MHz 386SX with 2 MB will handle the job. As far as disk space goes, the smaller systems usually ship with 40 MB drives, while 80 or 85 MB are the best bet for the larger configurations. If you have a network file server, however, go with the smaller disks—you'll keep most of your volatile files on the server where they can be more conveniently and reliably backed up.

By the way, the 16 and 20 MHz 80386s are pretty much dead. It's either a 20 MHz 386SX, or the 25 MHz 80386.

What about the 80486? It's still so terribly expensive, I'd stay away from it unless you absolutely need that last bit of horsepower. Even on a file server, the incremental cost is rarely justifiable.

80x86?

Does this mean the 8088 and 8086 are finally dead? Well, they probably ought to be, but I've gotta tell you, I still love my little Toshiba T1000. It weighs six pounds, fits inside my briefcase (along with everything else), and still costs under \$1,000 including modem. It has no hard disk, but does have an expansion memory RAM-disk that allows me to run Wordperfect 5.0 at a reasonable speed. An 80286 portable is closer to the \$2,000 mark, so there's still a niche for this little guy.

I knew it—no matter what happens, I still have the slowest computer in the company <grin>. Δ

Doug Kaye is President of Rational Data Systems, Inc. and can be reached at 1050 Northgate Drive, San Rafael, CA 94903; 415/499-3354. Copyright © 1990 Rational Data Systems, Inc.

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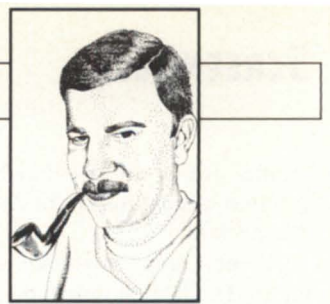
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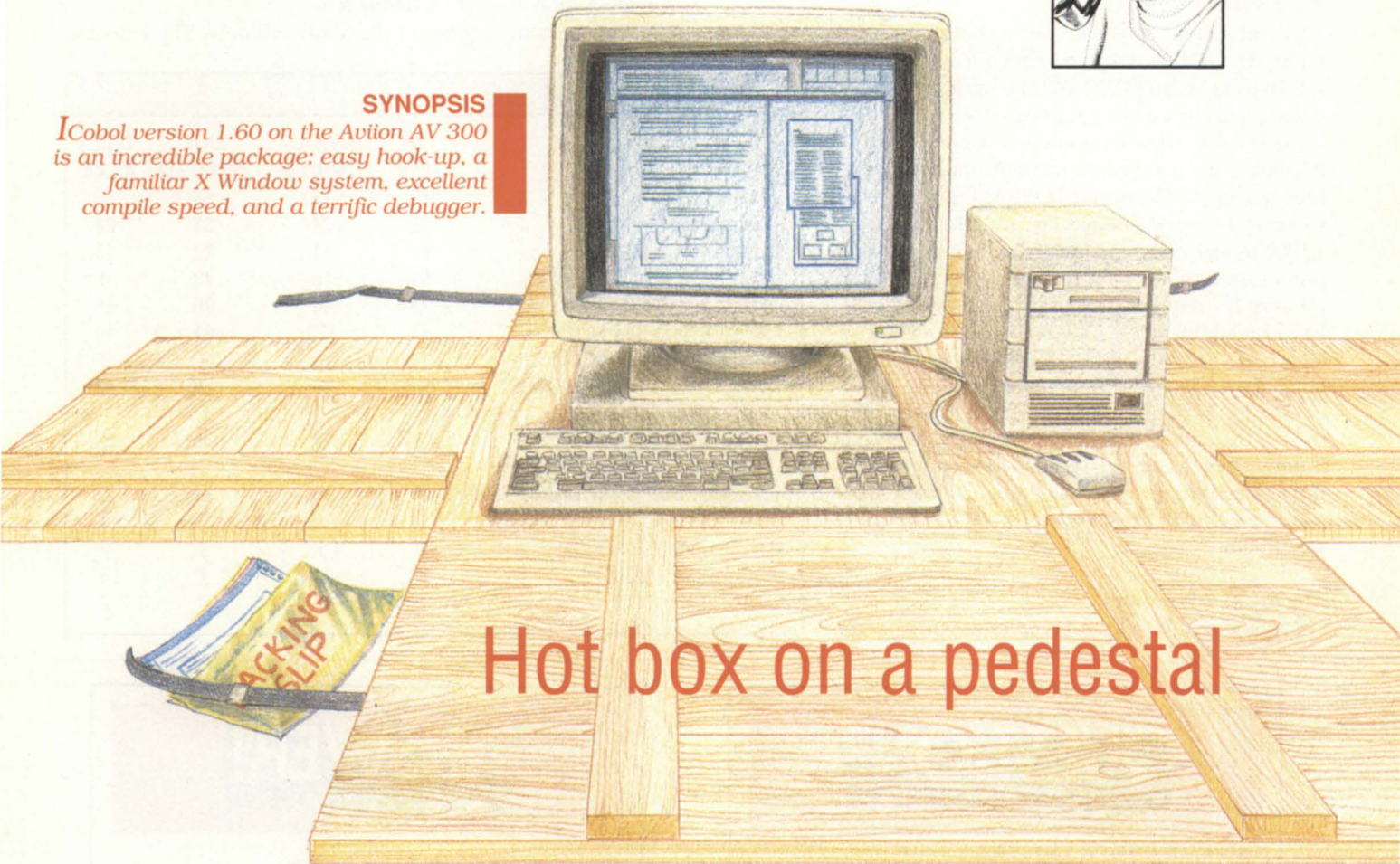
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SYNOPSIS

ICobol version 1.60 on the Aviion AV 300 is an incredible package: easy hook-up, a familiar X Window system, excellent compile speed, and a terrific debugger.



Hot box on a pedestal

A Maverick on my desk, and running revision 1.60 of ICobol. I'm in heaven! The Aviion 300, Data General's base workstation, arrived in two big boxes last week. It sat outside my office for nearly 30 seconds before I threw everything off of my other desk and hooked it up. Interesting note—the large box contained the 20-inch monitor. The small box merely contained a processor with 16 MB memory, a 600 MB disk drive, and a tape backup. If you've never seen an Aviion workstation up close, you've at least seen them in ads. Don't make the mistake that I did—the first time that I saw one, I asked where the heck the processor was. The device that the monitor is sitting on that looks like some kind of pedestal? That's the processor. Amazing.

Anyway, I got it in here and hooked it up. Hookup was simple enough that I didn't have to crack the manual. A keyboard icon on the side shows where to plug the keyboard in. There's a corresponding portrait for the mouse, a printer picture on back, and a clearly marked SCSI port for the disk. I plugged everything in, fired up the machine, and was in business.

Data General was kind enough to load the necessary software for me. So when the "login" prompt appeared, I responded "icuser," and X Windows took over.

I've spent enough time on a Macintosh that the X Window system seemed familiar. It's got the scroll bars at the top, the Mac boxes at each corner, and generally looks like you're working

with a Mac, except easier—the dialogue boxes don't disappear if you let go of the button. This setup popped up one runtime window and two shell windows. I can be editing in one window, compiling in a second, and running the program in a third, all by flicking the mouse back and forth.

Speaking of which—I generally avoid rodents like the plague. If you could see my desk, you'd understand why. There's barely enough room for a telephone, let alone a mouse that tends to roll all over the place. The mouse on the Aviion is of the optical variety, which means that it only takes up about an 8-inch square. Even I can free up that much space. The mouse is strictly necessary only when switching between windows. All other functions can be accomplished with key strokes, although the screen editing features of Xterm make a mouse extremely useful.

Anyway, on to ICobol. As with my review of ICobol under the 386/ix operating system, this one promises to be boring. It works as well as any version of ICobol I've encountered. In fact, the 386 version worked even better than I wrote about—it turns out that the problem with the ANALYZE defaults was that I didn't have my terminal type set correctly. With that rectified, the 386/ix system, as well as the Aviion, performs perfectly. The compiler still has the same errors—portability does have some drawbacks. A mistake in the code on one system is going to appear in all systems. Compile speed was excellent at over 20,000 lines per

minute. All of you developers can stop working on improving compile speed now. We're into the "who cares?" realm once they get this fast.

The next step, of course, was to fire up the benchmarks (see Figure 1). The first thing you notice is that anything will blow away an MV/8000. The second is that the Avion will blow away anything else.

There's one interesting number here. Back in the ICOS days, we used to write routines to access indexed files as sequential, because the ISAM routines were so slow. Using the above benchmarks, reading a 10,000 record ISAM file took over 22 minutes (yes, minutes) on my CS-40. A sequential read took three minutes. So frequently, if I was doing something that would read the whole file—invoice posting, for instance—I'd treat the file as sequential and gain a 700 percent speed increase. I stopped doing that once DG got the ISAM performance to what it is today. You can see that, on the MV/8, there's only a 30 percent difference between indexed and sequential writes. But on the Avion, there's a 300 percent difference—enough to make dusting off those old routines worthwhile.

The joy of X Windows

The joy of X Windows becomes apparent when

you bring up Mxdb. Mxdb, as I explained last month, is DG's debugger for the Unix platform. On the 386, it's a nice debugger. On the Avion, it's a great debugger.

There are four sections of the Mxdb window. The left hand

Figure 1: Benchmarks

	1.50 MV/8	RM85 4.0 25 MHz 386	Unix 25 MHz 386	DG/UX AV 300
Random write (10K)	83	72	190	55
Random Read (10K)	45	24	38	24
Sequential Write (10K)	64	34	22	13
Sequential Read (10K)	51	16	13	8
Random Read/Rewrite (10K)	79	48	70	48
Sequential Read/Rewrite (10K)	71	120	21	14
Open Read Close Loop (100)	19	21	4	3
Div S9(10) COMP by S9(5) COMP giving S9(5) COMP (100K)	218	46	70	43
Mult S9(5) COMP by S9(5) COMP giving S9(10) COMP (100K)	145	28	38	22
Add S9(5) COMP to S9(10) COMP (100K)	95	15	31	23
Move S9(5) to S9(5) COMP (100K)	44	12	10	3
Move X(50) to X(50) (100K)	9	6	4	2
Display at line 24 (500)	13	20	7	6
Null Paragraph (300K)	9	16	4	2

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Number of Shared CPU's	3	Not Available	Not Available	Not Available
Supports ANSI Labeled Tapes	YES	Not Available	Not Available	Not Available
Runs DG DMTRELI	YES	Not Available	Not Available	Not Available
Runs all Revs AOS/VS & VSII	YES	Not Available	Not Available	Not Available

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section has the commonly used commands, and can be easily clicked with the mouse. The top of the window contains your code, which steps along with the execution or can be moved to any portion of the program. The middle contains a command and message history section, which you can also scroll through. The last line is your command line, which, because of the mouse setup, I rarely used. Finally, there's a second window which is your execution window. This shows you what the screen is doing at any time. Of course, with the X Window system, you can have multiple windows up besides these. I had the vi editor sitting in another window while debugging a program.

With this setup, you can do on one terminal what it takes me two tubes and four comm lines to accomplish. I can now debug a program while looking at the code that's executing, watching the execution screen, and editing the original program. Better yet, I can do debugging tasks that simply can't be done on the MV—single line stepping, middle of the paragraph breakpoints, macros, and so on. When can we get this for AOS/VS?

In addition to the Aviiion, I received an extra bonus. Already loaded was revision 1.60 of ICobol, with a bunch of new goodies. ICobol has finally hit the eighties—well, at least 1985. Some of the more useful Cobol '85 features have been added, and I'm sure this is a portent of things to come—like STRING and UNSTRING, maybe?

I know, I'm an ungrateful wretch. The new ENDXXX verbs are going to make life a lot easier and code a lot smaller. I've got

numerous instances of code that look like this:

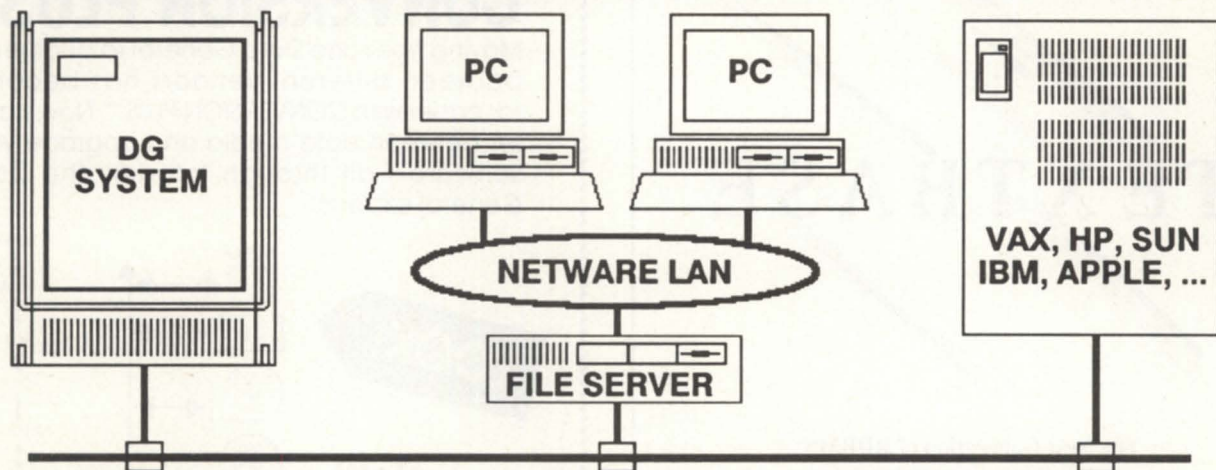
```
IF 1984 ITEM SALES FILE STATUS = I O OK
  IF FIRST TIME FLAG = SPACES
    MOVE "1" TO FIRST TIME FLAG,
    PERFORM PRINT 1984 ITEM SALES ITEMS UNTIL
    1984 ITEM SALES FILE STATUS = AT END OR
    1984 ITEM ITEM NUMBER > ITEM NUMBER OR
    1984 ITEM PRIMARY DATE > ENDING DATE,
  ELSE PERFORM PRINT 1984 ITEM SALES ITEMS UNTIL
  1984 ITEM SALES FILE STATUS = AT END OR
  1984 ITEM ITEM NUMBER > ITEM NUMBER OR
  1984 ITEM PRIMARY DATE > ENDING DATE.
```

By using the END IF, I can reduce it to this:

```
IF 1984 ITEM SALES FILE STATUS = I O OK
  IF FIRST TIME FLAG = SPACES
    MOVE "1" TO FIRST TIME FLAG,
  END IF
  PERFORM PRINT 1984 ITEM SALES ITEMS UNTIL
  1984 ITEM SALES FILE STATUS = AT END OR
  1984 ITEM ITEM NUMBER > ITEM NUMBER OR
  1984 ITEM PRIMARY DATE > ENDING DATE.
```

This not only makes your code smaller, but a lot more readable. The arithmetic expressions have also been greatly enhanced.

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SCREEN TEST

The following two statements are now legal:

```
ADD THE VALUE TO      SUBTOTAL VALUE,
                      TOTAL VALUE,
                      GRAND TOTAL VALUE.
ADD ITEM 1, ITEM 2 GIVING PRINT RESULT,
                      ACCUMULATE RESULT.
```

Of course, this will work with all of the arithmetic functions. Included in rev 1.60 of ICobol is a new code optimizer, Icopt. The optimizer can be automatically invoked with the compiler, or you can run your current programs through it. This means that you can optimize code even if you don't have access to the source.

The optimizer performs four major functions. First, it converts PERFORMs into in-line PERFORMs. An in-line PERFORM is one of the new constructs permitted under 1.60, and would look something like this:

```
PERFORM VARYING TALLY FROM 1 BY 1 UNTIL TALLY > 10
  MOVE DATA ITEM (TALLY) TO NEW ITEM (TALLY)
  DISPLAY TALLY
END PERFORM.
```

By making the PERFORMs in-line, a small amount of time (for the call) and space (for the paragraph name) is saved. Next, the optimizer removes branches to unconditional

branches. If your program transfers control to paragraph A, and paragraph A unconditionally goes to paragraph B, the optimizer will simply send the program directly to B.

The optimizer also does pattern matching. Icopt will search the program for certain instruction sequences and replace them with equivalent, but faster, sequences.

Finally, Icopt will convert your code to code revision 8. This has additional opcodes that may improve performance.

A benchmark probably isn't the best program to test an optimizer on, since the code tends to be a bit artificial. Nevertheless, I tried a DIVIDE statement 100,000 times before and after optimization. It took 51 seconds before and 43 seconds after, or more than an 18 percent improvement—well worth running your programs through.

A desktop machine that's 50 times as fast as my original CS-40. A graphical debugger that's easy to use, and orders of magnitude more powerful than DEBUG. And a version of ICobol with Cobol'85 constructs in it, and an optimizer included.

I wonder how long I can talk them into letting me keep this machine? Δ

Tim Boyer is EDP Manager at Denman Tire Corporation. 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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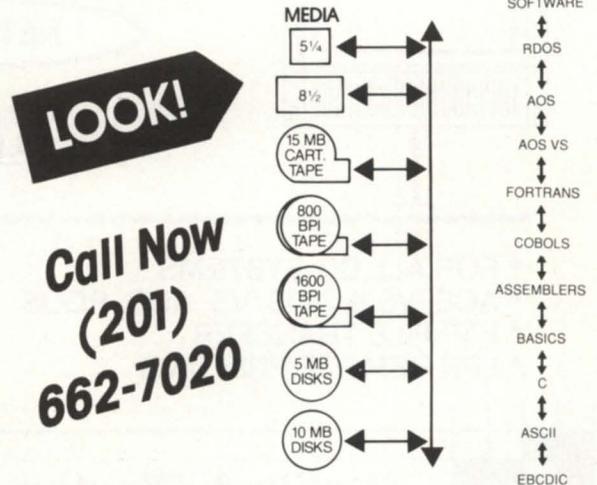


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Designing with Indexcalc

SYNOPSIS

When the time comes to design and create a file, don't forget an old friend—the Indexcalc utility. Simple to use, this powerful Infos modeling tool should be part of all your design and brainstorming sessions.

by Joe Cannata
Special to Focus

The last time you designed an Infos data base, did you forget to use the Indexcalc utility? Then go back three spaces, do not pass Go, do not collect \$200! With Indexcalc, there is no need to play the guessing game when making data base design decisions.

Remember, Indexcalc examines a subindex, not a whole file at once. As a result, if you have a multi-level DBAM data base, you need to run Indexcalc for *each* individual subindex in the structure. Depending on what you are trying to achieve, your results will vary.

Indexcalc and design decisions

How can Indexcalc help in design decisions? Take the notion of key compression. Key compression helps in two ways, saving disk space and potentially reducing I/Os, since the compressed keys will be smaller. The questions to ask are, what is the average byte savings/key, and will it reduce the node levels and save I/O. Run Indexcalc with different key sizes to see if node levels drop and if the maximum still allows for reasonable growth.

What may at first appear to be big savings on paper, may in fact not reduce

I/O at all. Yes, you will still save on disk space. However, an aspect of key compression is that it is set on the whole file, not just a subindex. You would need to run Indexcalc with a predicted reduced key size for each subindex, and look at the bigger picture to see if I/O is significantly reduced across the file.

Another use of Indexcalc is checking to see how large a partial record can get before the number of node levels increases, therefore, costing you additional I/O. This can help in design decisions about using partials and saving the I/O for the record read. Indexcalc can also help with design decisions in solving for entries. Suppose you desire a subindex with no greater than two node levels. Indexcalc can tell you, based on key size, partial and subindexing allowed, how many keys the structure can hold.

Using Indexcalc

To begin using Indexcalc, specify the following variables for the subindex: key length, partial record length (0 if none used), and whether subindexing is allowed (Y or N). These three items determine how much space each key entry will consume. Next, enter two of the following three variables, and solve for the third: page size, number of entries, and number of node levels. Study the following example.

- Key Length = 9
- Partial Record = 5

Figure 1: Indexcalc sample display

```

=====
Solving for number of levels

Key Length =      10      Partial Record Length = 6      Sub-indexes Allowed =      Y
Page Size =      2048      Node Size =      2042      Minimum Initial Node Size =      142
Number of Levels =      3
Desired Entries = 22000
Root Node B.F. =      83      Interim Node B.F. =      84      Maximum Entries =      411348
Level 0 Node B.F. =      59

Level !           Nodes           Pages !           Maximum Nodes           Maximum Pages !
  0 !             373             373 !             6972                    6972 !
  1 !              5              5 !               83                      83 !
  2 !              1              1 !               1                       1 !

-----
Totals !           379             379 !             7056                    7056 !
Bytes !                               776192 !             14450688 !

-----
Root Size (bytes)                               160 !             2032 !
=====
    
```

- Subindexing = Y
- Page Size = 2048
- Number of entries = 22000
- Solve for number of node levels

The above parameters produce the display in Figure 1 (page 59). Note that Indexcalc assumes perfect packing of the keys. Since *perfect* packing is not a real world situation, you may want to build

in a 10 percent plus "fudge factor" to allow for wasted space in each subindex. This wasted space is not recaptured by using space management, a feature of Infos, since that only helps if the whole node is deleted. In the index, space management rarely produces any significant gains—unlike the gains it brings to the data base portion.

Observe that in Figure 1 the key length

shows 10, and the partial record six. This was chosen because keys/partials must end on a word boundary (an even number of bytes). If you choose an odd number, for example, nine instead of ten, thinking you would save a byte, you will still be charged for the space whether you use it or not. Choosing eight instead of ten *would* save space, but reducing the key to nine from ten won't buy you anything.

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Helpful results

The remaining data in the display is very useful. The *minimum initial node size* reflects the smallest size and byte the root node can be. Making root nodes smaller can allow you to position more than one on a page, potentially saving some I/O. On the next line is the number of levels. This number, three in our example, represents the vertical drop in the subindex, or three levels of nodes. In the worst case, it would take three I/Os to traverse the subindex.

Below the levels are the desired and maximum entries, the number of keys you chose, and the maximum number the structure can hold at three levels. On the next line are the various branching factors for the root, intermediate, and level 0 nodes. The branching factor indicates how many keys the node can hold before it must split. The reason that the level 0 or leaf nodes have a smaller capacity, is that the partial record is kept only in the leaf node.

The last piece of information, root size (bytes), denotes the amount of space needed in the root node to hold the 22,000 keys. The minimum in this example is 142, based on Infos rules, but 160 will be the actual size to hold 22,000 keys.

With a little knowledge and experimentation, you can use this simple utility as a modeling tool to find answers for your design questions. Educated guesses and "feels" are nice estimation techniques, but Indexcalc provides you with the actual answers to your design questions, *before* you Icreate or write that first line of code.

Δ

Joe Cannata is a training specialist for Data General Educational Services. He may be reached at Data General Corporation, 7927 Jones Branch Dr., Suite 200, McLean, VA 22102; 703/827-9690.

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Eclipse MV/3500 DC debuts

Westboro—Data General Corporation unveiled the Eclipse MV/3500 DC, a new desktop computer, and the latest member of the fifth-generation Eclipse MV family. The 3-MIPS MV/3500 DC is positioned in the middle of the Eclipse low-end line. As with the MV/5500 DC and MV/9500, the MV/3500 DC is based on a single-chip custom VLSI CMOS microprocessor.

The MV/3500 DC can be expanded to 16 MB of memory in 4 MB increments and can accommodate up to four optional communications boards for flexible system growth. Add-on memory is priced at \$625/MB. The MV/3500 DC can also handle up to 4 GB of auxiliary disk storage. In addition, the MV/3500 DC supports AOS/VS [II], and DG/RDOS.

Designed for office and workgroup environments, the MV/3500 DC is packaged as a quiet desktop system that can be installed and upgraded by the customer. The MV/3500 DC supports up to 40 active users, and plugs into standard electrical outlets. The system chassis is 6 1/4 inches high, 19 1/4 inches wide, 16 1/4 inches deep, and weighs 45 pounds.

This new system functions as an applications or data base server in client/server PC LAN (local area network) environments, or as a standalone compute engine. Prices start at \$25,500 for a base model

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including 4 MB of main memory, and 179 MB of Winchester storage. According to DG, the MV/3500 DC has a 30 percent purchase price advantage over the comparable IBM AS/400-C20 and a 55 percent advantage over the DEC microVAX 3300.

Data General Corporation, 4400 Computer Drive, Westboro, MA 01580; 508/898-4087.

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Compiler and debugger utilities for Aviion

Westboro—Data General Corporation announced the GNU C++ compiler and the GBD debugger for Aviion RISC-based servers and workstations.

GNU C++, based on AT&T's C++2.0, is a high-level programming tool, part of the GNU platform of software provided by the Free Software Foundation. Packaged with the compiler is a GNU debugger (GBD) and AT&T C++ libraries. GBD is a source-level debugger for GNU C and GNU C++ programs. The AT&T libraries offer a complete set of stream and string processing classes and deliver an interface between GNU C++ and DG/UX input/output utilities. GNU C++ also offers a number of extensions to the C++ language.

A software package comprised of GNU C++, GBD, and AT&T 2.0 C++ is currently available for \$1,595. Sources for GNU C++ and GBD are available separately.

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DG/UX 4.30 enhanced

Westboro—Data General Corporation announced significant performance improvements and new kernel and networking enhancements to DG/UX 4.30. DG/UX 4.30 performs up to 370 percent faster than DG/UX 4.20.

The addition of streams-based TCP/IP under DG/UX 4.30 improves network throughput up to 90 percent over DG/UX 4.20. With BFTP commands for batch file transfers, DG/UX 4.30 allows operation of local and wide-area networks with one set of protocols, and automatic file transfers between systems. A new kernel debugger eases debugging of user-written device drivers, and allows for easy integration of off-the-shelf VME boards into Aviion systems.

DG/UX 4.30 is Binary Compatibility Standard-certified by the 88open organization. Also, FIPS 151-1 POSIX compliance comes with the package, as well as support for Novell Portable Networkware. DG/UX 4.30 is bundled with The Looking Glass Desktop Manager from Visix, and for a limited time, on special Aviion systems, includes the Framemaker 1.3 publishing system.

DG/UX 4.30 is available immediately at \$400 for an AV 200, \$500 for an AV 300

or 400 series, \$625 for the AV 3200 server family, \$1000 for the AV 4000 family, and \$2,500 for one to sixteen users on the AV 5000 or AV 6000 family of servers and multi-user systems.

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

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Pacerlink products link Aviiion to Macintosh

La Jolla, CA—Pacer Software, Inc. announces the availability of its Pacerlink product for Data General's Aviiion computer system.

Pacer supplies Pacerlink terminal emulation and desktop connectivity software that integrates Apple Macintosh personal computers into Unix environments. Pacerlink emulates VT100 or VT220 terminals, making Macintosh command menus and mouse-operated function keys available to Macintosh users who want Unix system access.

Pacerlink offers multiwindow terminal emulation (Telnet), file transfer, print spooling, procedure scripting, and virtual disk capabilities for Macintosh on Aviiion systems. Supported communications media include asynchronous and ethernet, or Apple Localtalk bridged to ethernet.

Pacerlink is available immediately at \$1,200 for five concurrent sessions (logical network connections), \$7,200 for 50 concurrent sessions, or \$15,000 for unlimited access.

Pacer Software, Inc., 7911 Herschel Avenue, Suite 402, La Jolla, CA 92037; 619/454-0565.

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New Genisys release for MVs reads Infos files

Salt Lake City, UT—Rev 1.11 of the Genisys data base management system allows import of Cobol, ICobol, and PL1 file descriptions—reducing the time needed to overdefine existing Infos and

ICobol files to a few minutes.

Now Genisys can read existing Infos or ICobol files, enabling nontechnical users to get the reports they need. Genisys rev 1.11 makes it possible for users to produce ad-hoc reports as they need them, without modifying programs.

Other new features include further enhancements to the Genisys/Infos interface: faster searches, support of packed

decimal fields, support of relative file types, a "Locate" feature that does an approximate search, and the choice of whether to run shared or unshared on each file.

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Top Level Lisp compiler for use on Aviion

Amherst, MA—Top Level, Inc. announced the availability of its Common Lisp compiler (TopCL) for Data General Aviion computers.

Lisp is used to develop advanced knowledge-based and expert systems for applications such as product design, financial analysis, machine vision, robotics, and government applications such as command, control, communication, and intelligence and surveillance/detection.

The Top Level/Aviion combination enables application developers to use systems more effectively because the Aviion is a general-purpose computer that runs Unix-based programs, as well as Lisp. Other high-performance Lisp systems are dedicated to Lisp, and typically do not run other software.

TopCL is priced at \$4,500 for a two-

processor Aviion system and is available immediately.

Top Level, Inc., 100 University Drive, Amherst, MA 01002; 413/549-4455.

Circle 81 on reader service card.

BCT looks through the square window

Cheshire, England—BCT Business Systems Ltd. announces a new windowing tool for use with commercial applications in the Data General Unix environment.

C-thru is designed for commercial software developers who require an up-to-date "look and feel" for their products, without investing in a major recoding effort.

This product integrates with most third generation languages (3GLs) available under Unix, such as C, Cobol, and Unix

shell scripts.

C-thru supports numerous applications produced in different languages and running concurrently. Versions currently available include DG/UX and 386/ix.

BCT Business Systems Ltd., Bridge House, New Road, Lymm, Cheshire, England WA13 9DY; 0925-75-6074.

Circle 71 on reader service card.

Unitrends' CTAR available for AOS/VS

Myrtle Beach, SC—Unitrends Software Corporation announces that the CTAR backup utility is now available for the AOS/VS [II] operating system.

CTAR provides automatic data compression, file structure conversion, and transportability between MV sites and over 20 Unix and DOS platforms via nine-track media.

CTAR compresses files while backing

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up to tape or disk. Average compression ranges from 40-60 percent, and with Infos or Cobol files, up to 85 percent. When used in the master backup mode, CTAR backs up entire file systems including links and empty directories. CTAR can also back up files incrementally.

For unattended backups using multiple volumes and drives, CTAR allows dual-device backups with automatic switching between devices. CTAR will run on Unix V, Unix III, Xenix 2.5 or above, and MS-DOS 2.1 or above.

Unitrends Software Corp., 1601 21st Ave. N., Suite C-303, Myrtle Beach, SC 29577; 803/626-2878.

Circle 82 on reader service card.

Enhancements to Popterm emulator announced

San Rafael, CA—Rational Data Systems (RDS) has announced a major new release of its Popterm terminal emulator for PCs, and special promotional pricing through the end of the year.

Popterm 4.0 is available in versions for normal asynchronous use and for access over a local area network. Normally priced at \$150, the single-user async version is available for \$99 for orders received before the end of 1990. Existing Popterm users who are subscribers to RDS's Software Support Service (SSS) should have already received Popterm 4.0 at no additional cost.

As with all RDS products, the LAN version of Popterm is fully compatible with Novell's Netware and RDS's own PC/VS integration software. All three can share a single PC LAN controller and driver. Popterm emulates a Data General D410 terminal and compliments the EMU/IPX emulator announced jointly last month by RDS and Rhintek, Inc.

Popterm 4.0 can be loaded entirely into "high-memory" above the 640K area used by DOS. This gives Popterm users immediate hot-key access to terminal emulation without tying up valuable PC memory.

Rational Data Systems, 1050 Northgate Drive, San Rafael, CA 94903; 415/499-3354.


Circle 79 on reader service card.

Persoft and DBA interoperate on DG hosts

Madison, WI—Persoft, Inc. announced that it has signed a joint marketing agreement with Data Bank Associates, Inc. (DBA) enabling each company to directly

sell the other's software products. Persoft and DBA software are designed for users accessing Data General host systems, and together provide file transfer integration with DG's CEO package.

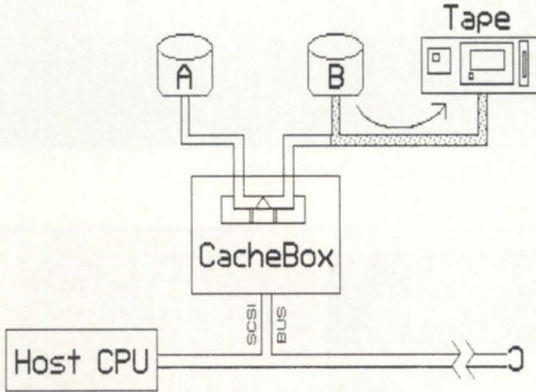
Products included in the agreement are Persoft's Smarterm 470 and Smarterm 400 line of dasher terminal emulation software for IBM PCs and compatibles, and DBA's Turbostran industry standard




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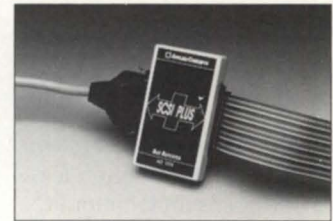
Xmodem/Ymodem protocol file transfer and ARC file compression software for DG minicomputers.

In other Persoft news, a patent has been approved for its text retrieval product IZE. IZE not only retrieves unstructured textual information, but also organizes the information in outline form to help the user find the specific information needed. Software vendors can now incorporate IZE into their applications.

Persoft, Inc., UW Research Park, 465 Science Drive, Madison, Wisconsin 53711; 608/273-6000.

Circle 78 on reader service card.

ACI SCSI Plus extends peripherals



San Diego, CA—Applied Concepts, Inc. introduces the ACI 1074 SCSI Plus Bus Repeater. This SCSI (Small Computer System Interface) bus extender enables users to remotely locate peripherals an additional 6 meters (19 feet).

The SCSI Plus interfaces with standard SCSI adapters, including those in Data General host systems. The Bus Repeater is transparent to the user and supports 5 MB/sec data transfers over six meters. It conforms to ANSI X3.131 specifications with single-ended device termination. Power for the unit is provided by a wall unit power adapter.

The price of the ACI 1074 is \$350, and delivery is stock to 30 days.

Applied Concepts, Inc., 5350-H Eastgate Mall, San Diego, CA 92121; 619/453-0090.

Circle 70 on reader service card.

SAS System version 6 ready for DG users

Cary, NC—SAS Institute Inc. announces

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MV 20000 Model 2 Upgrade	25,000	DG 6590 2GB Tape	8,500
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MV 4000 DG CPU w/4MB	1,750	MV 2000 2MB	1,700
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8299 Tape Drive S/S	8,500	32 MV Memory (MV 20000 Style)	17,000
6231 Tape Drive S/S	500	6236 S/S.....3,500 D210	135
WIOC (MV 10000)	1,500	D460.....260 D410	200
LAN BOARD (15000 Style)	2,750	D411.....300 D211	175
MV 4 & 10 Memory 2MB	450	D214.....150 D215	200
MV 4 & 10 Memory 4MB	1,500	6161 Brown Hardened	1,000
MV 4 & 10 Memory 8MB	3,150	DG MV 1000	Call
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the availability of its SAS System version 6 for Data General MV computers using the AOS/VS operating system.

The new task-oriented, "push-button," menu-driven interface allows users to point-and-click their way through SAS System utilities designed for analysts, executives, clerical, and other users. Other features include a new SAS Display Manager System that makes working on multiple systems easier by supporting window styles that are already familiar to users.

Under AOS/VS, SAS supplies an external file interface to Infos II, and runs as an integrated CEO application. SAS also features dynamic loading under AOS/VS, which reduces per-user memory usage. A transparent interface connecting SAS with the Oracle data base management system is also available.

SAS Institute Inc., SAS Circle, Box 8000, Cary, NC 27512-8000; 919/677-8000.

Circle 80 on reader service card.

New removable disk subsystems

Westboro—Data General announces the model 6670 series of removable disk subsystems. The removable Winchester storage systems are designed for use with Aviiions under DG/UX, and the Eclipse MV family of processors running AOS/VS [III].

All information is stored on removable modules, allowing users to transport and safeguard data. Each subsystem supports one or two storage modules, with each module storing 332 MB or 662 MB of information. Using multiple controllers, a system may be configured to access a maximum of 10,592 MB from the 6670 subsystems.

Features of the 6670 subsystem include multiple command queuing, seek optimization, retry management, dynamic multiple transfer buffer allocation, host memory address translation and mapping, and on-line device formatting. The 6670 can be arranged as a rack-mounted model, or a tabletop configuration for workstation environments.

Data General Corporation, 3400 Computer Drive, Westboro, MA 01580; 508/898-4072. △

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A complete listing of the NADGUG software library

ACK • Updated version 1.70. Terminal emulator/file transfer program for both AOS/VS and AOS machines. 365 blocks.

Big Brother • Automatic log-off program written in Fortran 77. Donated by the U.S. Forest Service. 169 blocks.

B.J.'s BBS contributions • About 20 items, including various programs, documentation, and macros. Some of the more interesting items include the :SYSMGR benchmark suite, a continuous incremental backup, a clean-up file maintenance program, a program to find strings in files, and a type-backward program. 6,761 blocks.

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

DBCHECK • Checks the open status of an

Infos file and examines the checkpointing status of a file. 187 blocks.

DUMpload • A Macintosh program to dump and load AOS/VS-compatible dumps on a Macintosh. 137 blocks.

ERP • A process-termination program developed by NASA and modified by Manville. In Fortran 77. 454 blocks.

FILEMNGR • With this new version, you can move, copy, delete, view, and perform several other options faster. This is distributed as shareware. If you try it and continue to use it, you are requested to pay a registration fee. From Kim Geiger. 654 blocks.

Focus • Focus magazine articles. 1774 blocks.

FTNCVT • A Fortran 5 to Fortran 77 transla-

tor. 232 blocks.

Games • A collection from various places. Enjoy. 19,216 blocks.

IMSLUTIL • A collection of CLI macros, Cobol routines, and assembly routines callable from Cobol. By IMSL of Houston. 4,893 blocks.

JAG_UTIL • JAG_UTIL by John Grant consists of several programs: Filecount, User-space, Scan, Glossary, Laminate, and Qhelp. 4,325 blocks.

Kermit • A file-transfer protocol developed at Columbia University. 9,697 blocks.

Logout • Another auto log-out system. 178 blocks.

Look • Used to view text files, Look allows you to move forward and backward in a

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file. Donated by Data General. 202 blocks.

Macros • A collection of macros from various sources. 441 blocks.

MENUDIR • An initial user menu that can chain to other applications and features a password-control system. From the Fed SIG. 486 blocks.

Misc Kerm • An expanded version of AOS Kerm, this now includes other versions of Kermit including DG/One Kermit. 6,709 blocks.

MS-DOS • A VS program that lets you read and write MS-DOS diskettes on an MV system with a 5.25-inch floppy disk drive. 984 blocks.

Notify and Prior • Two contributions from Concept Automation. Notify tells you when a process has terminated. Prior lists the priorities of processes. 162 blocks.

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

Softrans • A file-transfer protocol written in Fortran 77 used to communicate with proprietary PC communications packages. 462 blocks.

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

Randy Berndt, Building 4, Suite 321, 5300 North Braeswood, Houston, Texas 77096

MV/2000 and MV/1400 users should send one formatted, error-free tape cartridge. Software contributions should be sent to the same address. Be sure to include your membership number. Allow 4-6 weeks for delivery.

Thanks to Brian Johnson and :WFFCA, the library is now able to provide 1200ft. copies to AOS/VS rev 6 users. Thanks to Kevin Danzig for duplicating MV/2000 tapes. To leave a question regarding non-standard library distribution call 713 /988-5342.

Please include a self-addressed envelope with sufficient return postage. In compliance with postal regulations, do not date the postage. Either disable the date printing completely, or set the date to "--" or zeros. Tapes cannot be returned UPS collect.

Spell • Checks the spelling of a word or spell-checks documents. Submitted by Richard Kouzes. 5,108 blocks.

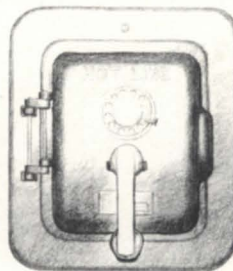
TEX • Version 2.26a is now available. TEX (Terminal Emulator with Xmodem) is a terminal-emulation program written by David Down. He has revised the TEX software to include a command language. TEX is distributed as shareware. At the

end of 30 days, either remove it from your system or send the author a \$45 fee. 463 blocks.

VT100KER • VT100 emulator from John Grant. 1,043 blocks.

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

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ON-LINE HELP

Who to call for answers about NADGUG and FOCUS

NADGUG

Membership, address changes

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

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Greg D. Goss 800/877-4787
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Let the North American Data General Users Group (NADGUG) connect you with other Data General users who have a similar special interest and who want to share information, ideas, problems, and solutions. No matter what the special interest is behind the group — equipment, systems or application software, major language, operating system, industry type — the reason is the same: to work together to exchange ideas on how to get the best performance out of your DG system.

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

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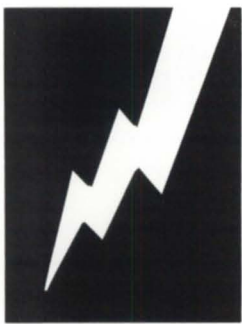
:SYSMGR BBS specializes in file transfer of RDOS and AOS[VS] DUMP files - no messaging facilities. XMODEM, YMODEM, and KERMIT supported. 415/391-6531(one line), 2400 baud (Vadic3447), 8 data bits, 1 start/stop bit or 415/550-1454 (voice). System is MV/4000, terminal mode is CHAR /605X.

Data General announced at the end of August that it will lay off over 2,000 members of its worldwide work force. The largest concentrations of layoffs will take place at DG operations in Massachusetts and Europe, officials said.

As a result of this action, Data General will record a charge of approximately \$70 million against its fourth quarter, which ended September 29.

"We have taken a series of steps since 1988 to improve our product position and better serve customers," said President and CEO **Ron L. Skates**. "We now have the organization in place and the appropriate mixture of employee resources to compete successfully in today's information technology marketplace."

The series of steps included an announcement in October 1989 of a 2,500-person reduction in workforce and the closing or sale of four manufacturing plants. At that time, DG employed 14,200 people. After this additional round of layoffs, Data General will employ between 9,000 and 9,500 workers, or, two-thirds of the workforce it employed just a year ago. DG employment peaked in 1985 with 17,700 workers.



A lightning detection and fire fighting management system implemented by the **Alaska Fire Service** of the **U.S. Bureau of Land Management** (BLM) was a finalist in

Computerworld's Smithsonian Awards Program. The Smithsonian Awards honor those who have accomplished outstanding progress for society through innovative use of information technology.

Sophisticated detectors scattered throughout Alaska detect lightning strikes, and relay the information via microwave, satellite, or leased lines to an MV/8000 in Fairbanks. The MV/8000 maps the strikes

and sends the data to other DG computers in BLM offices. The information is used to determine whether to dispatch fire fighting crews to a certain location, or to let the fire burn.

Two new directors have joined the Data General ranks. They are **Peter Lange**, director of Corporate Communications and **John Masotta**, director of the Software Business Unit.

Lange is responsible for corporate communications, public relations, and advertising programs. He comes to Data General from **Rolm Company**. Previously, he spent 10 years at **IBM**, where he was program manager of corporate communications and advertising programs.

Masotta, formerly of **Wang**, will oversee DG's efforts to recruit and market third-party software solutions for the Aviion platform.

In other DG news, **Ranjit Singh** became division director of the Network Systems Development Division. Singh had been director of Network Services, before a DG reorganization that places increased emphasis on DG's communications hardware and software development and marketing efforts.

NPA West (formerly NPA Systems of California, Inc.) named **Jose R. Rivera** to the office of executive vice president. NPA West provides disaster recovery, third-party maintenance, sales, and service of new and used equipment for the Data General marketplace. NPA West recently relocated its main offices from Berkeley to a 12,000 square foot facility in Fairfield, California. The company's new telephone number is 707/421-1234.

BCT Business Systems Limited, a DG value-added reseller in the U.K., recently closed a deal with **Keyline Builders Merchants Limited** for the sale of a Unix-based computer system valued at over 3

million pounds (\$6 million). The system will include 1,000 VDUs running on a network configuration of controlling Aviion equipment, including 79 Dasher 386 and Aviion machines in Keyline's branch offices. The system will run BCT's PACS price book and accounting software.

Data General computers were displayed at the **Urban & Regional Information Systems (URISA)** trade show held in Alberta, Canada. The show hosted approximately 2,500 geographic information systems (GIS) and automated mapping /facilities management professionals.

Pacer Software, Inc. signed an OEM agreement with Data General. Under the agreement, Data General will sell and support Pacerlink, Pacertalk, Pacershare and Pacerprint, a suite of connectivity products that allow Aviion servers to provide file, print, and terminal services to Macintosh computers. Macintosh users will be able to access Aviion systems directly through an ethernet or Apple Localtalk network. Pacer products also link Macintosh computers to MV host environments.

NADGUG Audit Committee chairman and past president **Calvin Durden** was quoted and photographed for a feature article on shareware in the August issue of *Nation's Business*. Durden, vice president of data processing for Tractor & Equipment Co. of Birmingham, Alabama, and licensee of PC-Write software, said of shareware: "I've found almost everything in shareware that you would find in commercial programs . . . You can pay \$700 for a product and you can pay \$89 for a product, but there's no way to say which is going to do a better job." *Nation's Business* is a publication of the National Chamber of Commerce. Δ

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