

January 1993

FOCUS

The Magazine of the North American Data General Users Group



In Focus

Users, privileges, and permissions
Quick fixes

Plus

WASHing machines
Onward with ICobol 2
Monster machines
Archiving without palpitations
BBASIC news

Bulk Rate
U.S. Postage
Paid
Permit No. 38
Fulton, MO

VISUAL CYBERQUERY. THE BEST REPORT WRITER BY ANY CRITERIA.

Visual Cyberquery (VCQ), The New Report Writer From Cyberscience, Is Indisputably The Best. Here's Why.

CYBERSCIENCE Corporation, developers of CQCS, the preferred 4GL for DG, announces a revolutionary new concept in report writers. Visual Cyberquery (VCQ) is not one but a family of reporting software products designed to allow any user to create and share query applications and data using an interface appropriate to their needs and experience.

1 POWERFUL FUNCTIONALITY FOR ALL YOUR USERS.

New and infrequent users start with VCQ Level I. It's menu-driven interface is easy to use and provides instantaneous help all the way. Using VCQ as an intelligent text editor, its report specification language offers increasing power and functionality from Level I, through Level II (Intermediate), to Level III (Advanced) so that experienced users can create the most sophisticated reports. Uniquely, VCQ caters to the entire user spectrum with just one product to license, learn and support.

2 DESIGN REPORTS IN A FRACTION OF THE TIME.

You can create reports up to 100 times faster using VCQ rather than COBOL.

3 OUTSTANDING RUN TIME PERFORMANCE.

VCQ can process thousands of database records per second. A report that takes 5 minutes to run in VCQ may take an hour or more to run with other products.

4 IT'S PART OF CQCS, THE LEADING 4GL.

Using the comprehensive application development environment provided by CQCS, end-users and MIS professionals can work together to create even the most sophisticated applications 10 to 40 times faster than using 3GLs such as COBOL.

5 DATABASE AND ENVIRONMENT INDEPENDENT.

CQCS is the *only* 4GL that provides simultaneous support for all of DG's most popular databases, including INFOS, ICOBOL, BBASIC and DG/SQL. Naturally, support for DEC's Rdb and RMS, Informix, ORACLE and many more strategic databases is also available. VCQ is 100% compatible across Data General AOS/VS and AViiON, DEC VAX/VMS, strategic UNIX platforms, MS DOS, and PC networks. You can retrofit quickly and easily to existing applications or combine relational and non-relational data in the same reports.

6 IT'S THE ONLY REPORT WRITER YOU'LL EVER NEED, NOW OR IN THE FUTURE.

No other product *protects* your investment AND *maximizes* your return on investment like VCQ. It extends the life of your computer systems, making it the best investment you've made since the day you bought your computer.

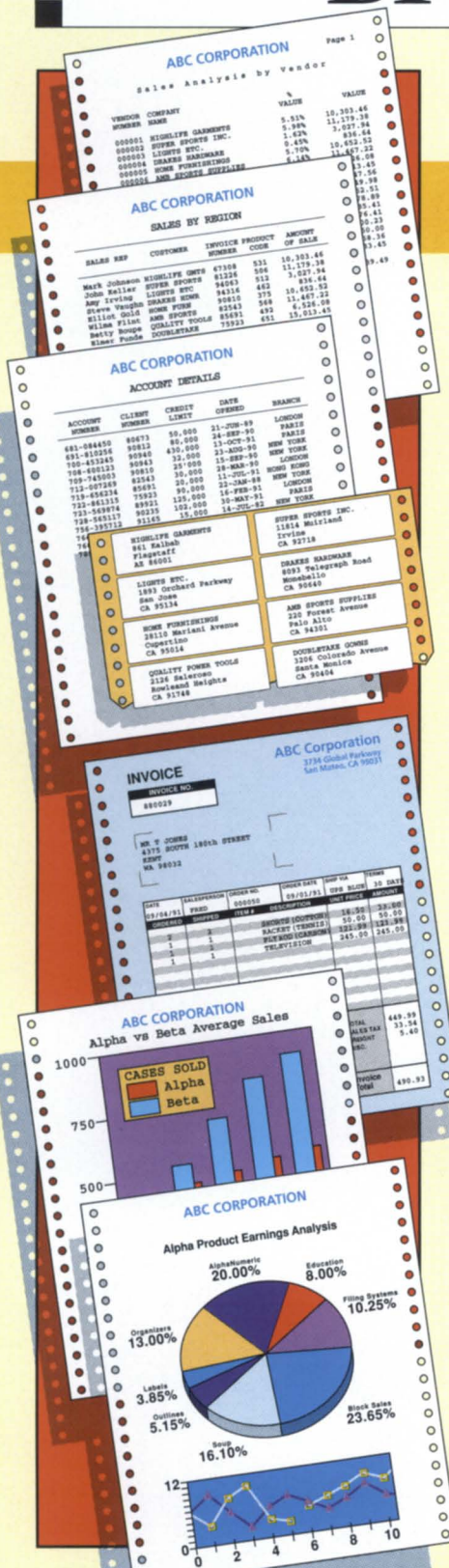
**WANT TO SEE THE BEST?
CALL US!**

1-800-451-1544

Cyberscience

C O R P O R A T I O N

Productivity with Performance



FOCUS

The Magazine of the North American Data General Users Group

PRESIDENT'S PAGE

Changing times
by Jan Grossman

2

SYSTEM MANAGER'S LOG

WASHIng machines
BJ explains some inside history of the celebrated WASHI chip, and offers a solution to one performance quirk
by Brian Johnson

10

SCREEN TEST

Onward with ICobol 2
These are exciting times if you're using ICobol. NADGUG 92's ICobol roundtable produced a wealth of information about ICobol 2, the new product from the recent ICobol/ICHOST agreement
by Tim Boyer

16

UNIX NOTEBOOK

Monster machines
There may be many potential Data General customers out there who could make great use of Aviiion file servers for doing enterprise-wide information and document management, if the proper software were available
by David Novy

20



FOCUS ON: AOS/VS-TO-UNIX

Users, privileges, and permissions

In the switch from AOS/VS to Unix, system managers must get familiar with differences and terminology. The author takes a look at the mechanisms used by DG/UX to restrict access to files, devices, and other resources
by Brad Clements

4

Quick fixes

Have you used reorg lately? Does the idea of setting up a modem give you chills? Don't sweat it out alone! For those who are learning to use DG/UX ICobol, someone's who's been through the experience (and survived) shares his solutions to problems you may encounter
by Ephraim Nussbaum

8

ARCHIVING

Archiving without palpitations
Data security and delaying the need for more disk space are among the many benefits to consider when choosing an archiving system
by Gordon Campbell

24

BBASIC NEWS

Transferred support
What will it mean for Data General to turn over future BBASIC development to an outside company?
by George Henne

28

CSC FORUM

DASH items
Notices and queries posted on the Direct Access to Support Help bulletin board

32

PRODUCTS AND SERVICES

The latest products for Data General systems

34

ON-LINE HELP

Who to call for information about NADGUG and Focus

38

IN GENERAL

News briefs from the Data General community

40

Cover illustration by Ann Soto

FOCUS, the Magazine of the North American Data General Users Group (ISSN 0883-8194) is the official publication of the North American Data General Users Group (NADGUG) in cooperation with Turnkey Publishing.

Editorial and business offices are at P.O. Box 200549, Austin, TX 78720, phone 512/335-2286. NADGUG headquarters are located at NADGUG, c/o Danieli & O'Keefe Associates, Inc., Chiswick Park, 490 Boston Post Rd., Sudbury, MA 01776, phone 508/443-3330.

FOCUS, the Magazine of the North American Data General Users Group is distributed to members of the North American Data General Users Group. Membership fees are \$60 per person. A one-year (12 issues) subscription to FOCUS, the Magazine of the North American Data General Users Group, costs \$48. For memberships and subscriptions outside the U.S., add \$50 to defray the cost of mailing.

The cost of single copies is \$4. Requests to replace missing issues free of charge are honored only up to six months after date of issue. Send request to FOCUS, the Magazine of the North American Data General Users Group, c/o Turnkey Publishing.

NADGUG is an independent association of computer users; it is not affiliated with

Data General Corporation, nor does it represent the policies or opinions of Data General Corporation. The views expressed herein are the opinions of the authors, and do not necessarily represent the policies or opinions of NADGUG or of Turnkey Publishing, Inc.

Advertisements in FOCUS, the Magazine of the North American Data General Users Group do not constitute an endorsement of the advertised products by NADGUG or Turnkey Publishing, Inc.

Copyright © 1993 by the North American Data General Users Group. All rights reserved. Reproduction or transmission of contents in whole or in part is prohibited without written permission of the Publisher. The Publisher assumes no responsibility for the care and return of unsolicited materials. Return postage must accompany all material if it is to be returned. In no event shall receipt of unsolicited material subject this magazine to any claim for holding fees or similar charges. Volume 9, Issue 1.

NORTH AMERICAN
DATA GENERAL
USERS GROUP



Jan Grossman

Changing times

Bob Dylan wrote many years ago, "The times they are a changin'," and that particular song still fits today as witnessed by the many companies switching from proprietary systems to open systems. And if companies have not made those changes, they are certainly considering the change for the future.

It's a bit like the political campaign slogan, "The people demand a change."

Never has it been so important to our profession to keep up with changes in technology, and never has it been more important to network with your peers in NADGUG.

NADGUG is changing, too. At the Kansas City NADGUG 92 conference last October, much discussion centered around the regional interest groups (RIGs), their programs, their member interests, and in some cases their possible demise. The role or demand for regional interest groups is changing and/or decreasing. The role of special interest groups (SIGs) is growing and signifying the change in the needs of the membership—the technical needs. NADGUG officers and committee chairs are now rethinking NADGUG's role.

What do *you* think it should be? The role of international groups is changing. The idea of a single united group is heard and discussed throughout the world. This may be a possibility in the future. Remember, we are fast becoming a global society in business, competition, and technology.

NADGUG is taking steps to address the changing needs of its members and changes in technology through its membership benefits, conference programs, and *Focus* articles. In addition, NADGUG officers meet with Data General executives to discuss future technology directions so we can better prepare our program offerings and workshops.

We want to hear from you. What are your needs? How can we help? We are intent on building the strengths of NADGUG and its members. NADGUG members provide a wealth of knowledge, with many experienced members in MV systems and the Aviiion/Unix world, along with networking systems and PCs. Perhaps we can put you in touch with a member who has experienced those changes already or steer you toward someone within Data General who can help. Use the NADGUG Rational Data Systems bulletin boards and Data General's Direct Access to Support Help (DASH).

This year, Data General will be celebrating 25 years of business. The company has proven that it's here to stay. DG's people continue to develop exciting systems and products to address technology requirements of the future. They are dealing with change every day.

This year we are also celebrating 20 years of NADGUG's partnership with Data General. In the months to come you will be hearing about those NADGUG pioneers who had worked so hard to advance the user group. Some of the early pioneers are no longer Data General users; they have experienced changes, too.

And because the times are a changin', NADGUG members as never before are today's pioneers for tomorrow's technology users. What an exciting time!



Happy Holidays!

As I write this message it is still November, so we have not had the traditional Thanksgiving feasts, holiday sweets, or Christmas festivities, parties, and gifts, but I have the Holiday Spirit, and I wish you all Happy Holidays from the NADGUG officers, committee chairs, and staff. △

FOCUS

The Magazine of the North American Data General Users Group

NADGUG LEADERSHIP

President

Jan Grossman

Vice President/ Conference Committee

Tim Boyer

Treasurer

Steve Pounds

Audit Committee

Calvin Durden

Membership Committee

Chris Thorpe, Frank Perry

Planning Committee

Dennis Doyle

Publications Committee

Maggie Morris

RIG/SIG Committee

Al Devitt

By-Laws Committee

Brad Friedlander

FOCUS MAGAZINE

Publisher

Greg Farman, Ph.D.

Editor

Doug Johnson

Contributing Editors

Tim Boyer, Brian Johnson, Doug Kaye, Kim Medlin, David Novy

Contributors

Gordon Campbell, Brad Clements, Jan Grossman, George Henne, Ephraim Nussbaum

Advertising Manager

Greg Farman, Ph.D.

Art Direction & Layout

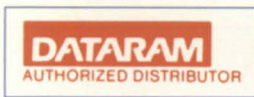
Ann Soto
Casey Hunter

Office Manager

Pam Sicking

Administrative Assistant

Tammy Agnew

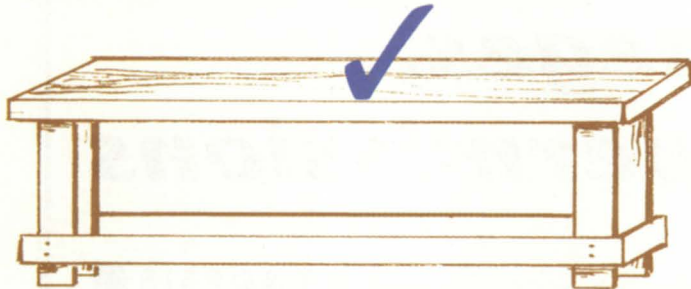


Computer
Engineering
International

2231 Star Court
P.O. Box 81755
Rochester, MI 48308
MI Phone: 313-853-0770
FAX: 313-853-0775

SCIP

THE BENCHMARK FOR D.G. HARDWARE



- BUY
- SELL
- TRADE
- LEASE
- DEPOT REPAIR

CALL FOR A FREE PRICE CATALOG

800-462-CEII

PRINTERS

4364 600LPM Band Printer S/S.....	\$1,500
4440 Genicom 600LPM Matrix Printer	2,500
4596 600 LPM Quietized (LB615).....	3,500
B-600 600 LPM Serial Band Printer	2,395
4327 300 LPM Band Printer S/S.....	700
M-200 340 CPS Serial Printer.....	750
6215 Draft Quality Serial Printer	450/595
6474 12 PPM Laser Printer w/Dual Feeder	1,475
4557 8 PPM Text Laser.....	550
6194 180 CPS Serial Printer w/keybrd.....	295
6321 40 CPS Letter Quality Printer	225
LX455 600LPM Matrix (New).....	3,700

CPUs

MV/20000 Mod 1	\$10,900
MV/15000 Mod 20.....	8,500
MV/15000 Mod 8	3,995
MV/10000 w/8MB.....	750
MV/9500 w/8MB	18,500
MV/9300 Upgrade.....	Call
MV/7800XP w/4MB.....	2,950
MV/7800 w/4MB.....	1,150
S280 w/2MB, BMC	995
S/140 w/512KB, Floating Pt.Unit	1,495
S/140 w/512KB, 16 slot.....	550
Nova 4/X w/256KB, 16 slot.....	595

CRTs

D217, D413, D463 (New).....	Call
6501 D412 w/KB	\$325
6500 D216 w/KB	245
6566 D216+ w/KB	295
6308 D470 Color w/KB	450
6394 D461 w/KB	350
6393 D411 w/KB	225
6392 D215 w/KB	175
6391 D214 w/KB	165
6167 D460 w/KB	175
6166 D410 w/KB	155
6169 D211 w/KB.....	145

MEMORY

80108 MV/9500-9600 32MB Memory.....	\$11,500
80107 MV/9500-9600 8MB Memory.....	2,500
8990-E MV/15000-MV/20000 32MB Memory.....	5,950
8990-D MV/15000-MV/20000 16MB Memory.....	1,995
8990-C MV/15000-MV/20000 8MB Memory.....	750
8939 MV/7800XP 4MB Memory	650
8901 MV/7800 4MB Memory	400
8765/8708 MV/4, 6, 8, 10 2MB Memory.....	75
8754 S/140 512KB Memory.....	195
8387 Nova 4 256KB Memory	175
8923-A Desktop 20 1MB Memory.....	495
AViiON/MV Compatible Memory	SAVE

COMM. GEAR

4370-A IAC2-16 w/TCB-16.....	400
4460 Network Bus Adapter w/Box.....	\$500
4623 IAC-24 w/TCB.....	3,750
4532-A Ethernet LAN Controller.....	1,795
4586 ITC-128	4,600
4010-A Interlan Ethernet Controller.....	750
4370 IAC-16 w/TCB-16	575
4463-ZT USAM-4 for Desktop.....	70
4369-A IAC2-8 w/TCB-8.....	350
4340 AMI-8	50
VDA/VDC for AViiON.....	Call
4380 ISC-2	250

DISKS

6236 354MB Disk A/O.....	\$400
005-17820 HDA for 354MB Disk.....	300
6239 592MB Disk S/S.....	1,900
6685 1.0GB SCSI Disk A/O.....	3,750
6554 662MB SCSI Disk A/O.....	1,995
6491 322MB SCSI Disk A/O.....	995
6161 147MB Disk S/S.....	475
6160 73MB Disk S/S.....	225
6336 71MB Disk/Desktop.....	495
6581-A 500MB RAMS Disk A/O,	4,000
6621 1.2GB RAMS Disk A/O	9,500
6237 1.062 GB Disk S/S	1,195

MV/DC

MV/2000 w/4MB, CTD, LAC-12.....	\$895
MV/1400 w/4MB, CTD, 160MB	1,795
MV/2500 w/8MB, 130MB CTD, 322MB Disk	SAVE
005-30768 MV/2000 Enhanced CPU w/4MB	995
6363 160MB Disk.....	795
6329 120MB Disk.....	525
6341 1600 BPI Tape Drive	1,395
6309 737KB Floppy	150
6351 24MB Cartridge Tape	295
4562 LAN Controller.....	400
4627 LAC-32	2,995
4560 LAC-12	275

TAPES

92185 CDC 6250 BPI Tape w/BMX-2	\$995
6590 2GB Cart. Tape w/CSS Chassis	7,250
6299 1600/6250 BPI Tape S/S	1,500
6300 1600/6250 BPI Tape S/S.....	1,500
6125 1600 BPI Streaming Tape S/S.....	195
6123 1600 BPI Streaming Tape/Desktop	495
6026 800/1600 BPI Tape S/S	395
6270-B 15MB Cart. Tape/Desktop	225
6602 150MB QIC Tape in PHU	1900
005-21691 Tape Controller for 6299/6300.....	300
005-8584 Tape Controller for 6026.....	95
BMX-2 Zetaco Tape Controller	575

UPGRADES/PARTS

005-12388 S/140 F.P.U.....	\$1,195
005-15633 S/140 ERCC/BMC.....	1,000
8991 MV/15000-MV/20000 F.P.U.	725
8819 MV/10000 IOC-2	300
8997 MV/15000-MV/20000 Expansion Chassis	1,500
8992 MV/15000-MV/20000 Bus Repeater.....	1,500
8772 S/280 BMC (w/ trade in).....	475
8883 MV/7800 Chassis, 16 Slot.....	895
8395 Nova 4 Chassis, 16 Slot	425
MV/15000 Chassis	2,495
8745 MV Style BBU.....	795
AViiON Processor Boards - Various	Call

Circle 8 on reader service card.

Users, privileges, and permissions

SYNOPSIS

In the switch from AOS/V5 to UNIX, system managers must get familiar with differences and terminology. The author takes a look at the mechanisms used by DG/UX to restrict access to files, devices, and other resources.

by Brad Clements
Special to Focus

Each user on a Unix system is assigned a user ID number (UID) in addition to a login name. Whenever the system records user-related information such as the owner of a file, it records the UID instead of the username. This takes less space and allows access checking to be performed using fast numerical comparisons instead of slower string comparisons. The login names are really just a convenience for the humans who run the machine. They can appear in the output of or be used as input for some utilities and commands, but unlike AOS/V5 usernames, they are never used internally by the operating system.

Unix also allows you to define user groups. Like users, user groups have both a name and a numerical ID number called the group ID (GID). You can define any number of user groups, and each group can include any number of users. A user can be a member of more than one group, but one of those groups is designated as his primary group.

The file */etc/passwd* lists all the users on the system. Each line of this file contains information for one user including the login name, encrypted password, user ID, group ID, full name, and startup program. This file is maintained as a plain, ASCII text file so you can read it with the *cat* or *more* commands.

It is possible to create more than one entry in the */etc/passwd* file with the same UID. You usually want to avoid this because it can lead to a lot of confusion, but it is sometimes quite useful. Two users with the same UID will have identical access to files and other system resources since all access checking is done via the UID rather than the login name. Anywhere the username is extracted from the UID, such as in file listings or process listings, you will only see the name of the first entry in */etc/passwd* with a matching UID.

Each process on a Unix system has a real and an effective user ID. The real user ID of a login process is set to the user ID of the user logging in, and child processes inherit the real user ID from the login process. The real user ID can be changed with the *setuid()* system call; this can only be done by a process with a real user ID of 0.

The effective user ID of a process normally matches the real user ID. It can be changed with the *setuid()* system call. It can also be changed by running a program that has a special bit set in its permission word. This is discussed in more detail later in this article.

Each process also has a real and effective group ID. These are handled similarly to the real and effective user IDs.

Privileges

The simple entries in the */etc/passwd* file contain much less information than the UPD files used to define a user under AOS/VS. In particular, there is no information corresponding to the AOS/VS superuser, superprocess, and system manager privileges. This is because these privileges cannot be granted to normal users under DG/UX. The only users that can perform actions like terminating an unrelated process, changing the permissions on a file owned by someone else, or setting the system clock are those with a UID of 0. And any process with a UID of 0 has all of these privileges; you can't segregate them the way you can under AOS/VS. This is one cause of security problems in Unix. It is an issue that Unix International has promised to address in future versions of the operating system.

In Unix terminology, any user with a UID of 0 is called "root" or "the superuser"; the privileges themselves are usually referred to as "root privileges". As mentioned above, there may be several login names with this UID, but they are all considered the same user by the operating system, hence the term "the superuser" rather than "a superuser".

Most of the other privileges that can be granted to or denied individual users under AOS/VS are granted to all users under DG/UX. Examples of these other privileges are the abilities to use network resources, to log in from remote machines, and to use the operating system's IPC facilities.

File permissions

AOS/VS provides a flexible and easy-to-use method for restricting access to files, devices, and other resources on the system. You just list which users can access the files and

what types of access they should have. Usernames can include wild cards, and the access types can be any combination of owner, write, append, read, and execute. These lists of users and access modes are called access control lists (ACLs). There is no limit to the number of users included in a particular ACL, but the overall length of the ACL data is limited to 255 characters.

The Unix file access control method is easier to work with from a programmer's point of view, but it is much less flexible than the ACL mechanism. Instead of being able to create an arbitrary list of users that have access to a file, you can only specify access at three levels. And there are only three types of access: read, write, and execute. The permissions are stored as a 9-element bit map with one for each type of access at each access level.

The first level of access is for the owner of the file. The file owner is initially set to the effective UID of the process that creates the file, but it can be changed to any other UID using the *chown* utility or the *chown()* system call. The second level of access is for the file's group. This is initially set to the effective GID of the process, but it too can be changed. The group level of file access applies to all members of the group except for the file owner. The third level of access is called "other" and applies to all users besides the owner and the members of the file's group.

The 9 basic file permission bits are usually expressed in the form of a 3-digit octal number where the first digit refers to the owner access, the second bit is the group access, and the third bit represents the "other" access. The values for each digit are any combination of 4 for read access, 2 for write access, and 1 for execute access. For example, the permission value 751 would indicate that the owner had read, write, and execute access, the group had read and execute access, and others had execute access only.

One implication of this file access mechanism is that, unlike AOS/VS, a file always has exactly one owner. This owner is the only one besides the superuser who can change the file's permissions.

The most bothersome aspect of



More Splash For Less Cash

Whether you're buying a new system or improving performance of an existing one, consider our memory value.

You probably bought Data General because you got more processing power for your dollar. Well, **SCIP** memory will complement your choice by providing you even more splash for less cash.

We design and manufacture a full line of memory for DG systems.

MV3200, 3500, 3600
MV5500 & MV5600
MV7800XP
MV9300, 9500, 9600
MV15000, MV18000
MV20000 mod 1 & 2
AViiON Servers and Workstations

Bottom line . . .

- ✓ a fraction of the cost
- ✓ 100% compatible
- ✓ lifetime warranty
- ✓ accepted by DG service
- ✓ trial evaluation

. . . so give us or your dealer a call for value . . .

(310) 282-8700

FAX (310)839-4464

SCIP

441 S. Beverly Dr. #2
Beverly Hills, CA 90212

Circle 34 on reader service card.

AViON™

UPGRADES DONE RIGHT

HDSI specializes in disk and peripheral upgrades for Aviiion systems.

Expertise in both the UNIX and MAGIC world

Very competitive pricing

Call for a quote before you buy

Hanson is still your best source for used D.G. equipment

12 years of experience

Full technical support

Competitive pricing

90 day warranty

**If you need to
Buy - Sell - Trade
CALL TODAY**

Hanson Data Systems, Inc.
734 Forest Street
Marlboro, MA 01752
508-481-3901
800-879-4374
FAX 508-460-0593

TRADE MARK OF DATA GENERAL CORPORATION

Circle 23 on reader service card.

FOCUS ON: AOS/VIS-TO-UNIX

Unix file permissions is that they don't allow you to specify an arbitrary list of users that can access a file. To give a particular set of users access to a file, you must create a user group that includes that set of users. If you have assigned that group to several files and you need to allow access by one more user to just one of the files, you have to create another group to accomplish this. Even on a system with a fairly small number of users, the number of groups needed to precisely control access could easily become unmanageable. For this reason many system managers give up and create only a few broad groups. This can lead to security problems because access is not specified precisely enough, and some people end up with access to things they shouldn't have access to.

The most bothersome aspect of Unix file permissions is that they don't allow you to specify an arbitrary list of users that can access a file

In addition to the primary nine access bits described above, there are a couple of other access bits in the permissions word that affect file access. One is called the *setuid* bit. If this bit is set on a program file, then the effective UID of a process that runs that program becomes the UID of the file owner. The other special bit, the *setgid* bit, works similarly but alters the effective GID of the process rather than the UID.

The *setuid* bit is a useful way to allow users to perform actions normally reserved to the superuser without turning them loose with root's password. For example, consider the */etc/passwd* file. This file's owner is UID 0, and its permissions are set to deny write access to the group and others. If the other users could write to the file, then they could change their UIDs to 0 and gain full access to the system.

But users occasionally have to be able to write to this file so they can change their passwords. This is accom-

plished by having a system utility called *passwd* that is owned by the superuser and has the *setuid* bit set. When a user runs this program to change his password, his process temporarily gets an effective UID of 0 so it can write the new password (in encrypted form) to the */etc/passwd* file.

Umask

Under AOS/VIS, each process carries a default ACL, which is assigned to any new files created by that process, unless another ACL is explicitly specified at the time of file creation. In contrast, Unix processes carry a *umask*, which is a set of permissions not to grant to files created by the process.

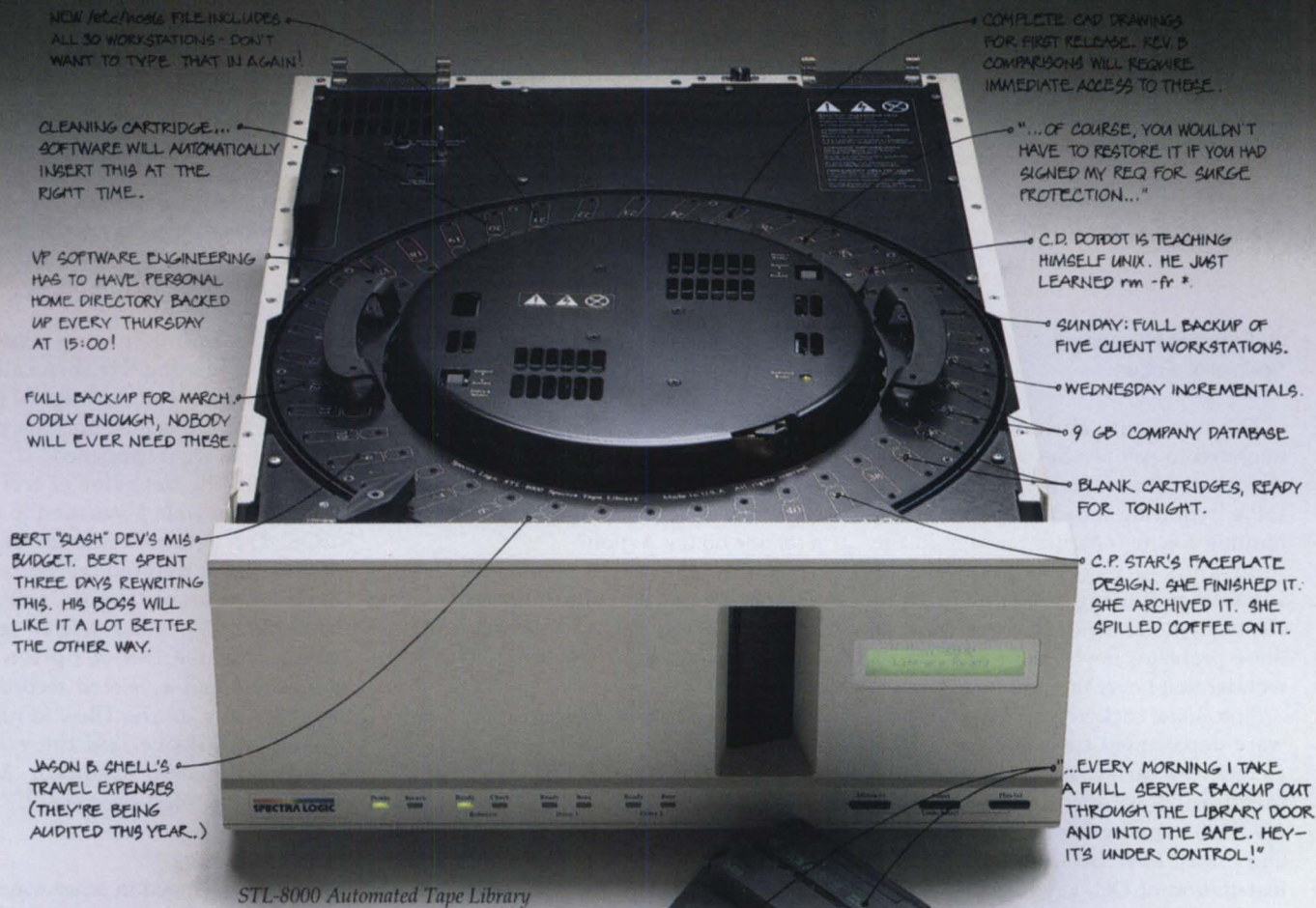
For example, suppose you had set your *umask* to 022, which indicates write access for group and others. Next, suppose you ran a program that created a file and specified the permissions 664, which corresponds to read/write access for owner and group, and read access for others. The *umask* permissions would be logically (not numerically) subtracted from the permissions specified for the new file, and the resulting permissions that would actually get assigned to the file would be 644, which would allow read/write access to the owner but just read access to the group and others.

The *umask()* system call is used to set a process' *umask*. In practice, this is rarely done by application programs. Instead, the *umask* is set explicitly by a *umask* command in each user's *.login* script, and is inherited by child processes of the login process. Δ

Editor's note: *Designs on DG/UX* is a practical guide to porting software from AOS/VIS to Unix and provides guidance in all stages of the project, including planning the port and selecting programming tools. It can be ordered directly from Brad Clements, phone 801/226-6000, fax 801/224-0920, or by Compuserve mail at 71510,3566.

Brad Clements is director of technology with Soft Solutions Technology Corporation. He can be reached at 625 South State Street, Parkview Plaza, Orem, UT 84058; 801/226-6000.

Complete Automated Backup.



STL-8000 Automated Tape Library

Lucky for you, Spectra TABS knows where your file is — and will retrieve it from its random access tape library.

THE SOLUTION

Spectra TABS comprises Spectra Logic's STL-8000 Automated Tape Library hardware, bundled with its Alexandria Backup and Archive Librarian software.



Alexandria Backup and Archive Librarian

Together, the library and librarian provide complete automation of network backup, archival storage, media management and data control.

With Spectra Logic's Total Archive and Backup Solution, Spectra TABS, anyone on the network (with the appropriate privileges) can search a database by user, group, path or filename and restore a file — just point and click.

THE SOFTWARE

Spectra Logic's Alexandria Backup and Archive Librarian is one of the first UNIX backup and archive software packages designed specifically for use in a library environment.

More than a "backup" package, Alexandria manages media and data over heterogeneous networks, tracking files and media elements in the library or in off-line storage.

Alexandria's power is easily accessed through an intuitive X-11 GUI window environment or directly from the shell.

THE HARDWARE

Spectra Logic's STL-8000 Automated Tape Library provides random access to 200 Gigabytes of uncompressed data on forty 8mm cartridges. Centralize your data in a 7" height, rack-mount or desktop enclosure.

Alexandria also supports Exabyte's 10i and 120CHS tape libraries, optical libraries from Hewlett-Packard and the Spectra Logic STL-6000: a 20 cartridge, 100 GB, 8mm tape library.

A WINNING TEAM

Spectra Logic and Eagle Software have both been providing system solutions for more than a decade. Call Eagle at (800) 477-5432 for the complete story on these exciting new products.



EAGLE Software, Inc.
123 Indiana Ave/PO Box 16
Salina, KS 67402-0016
Phone (913) 823-7257
Fax (913) 823-6185
Toll Free: (800) 477-5432

AViiON

AOS/VS[II]

RS/6000

SunSPARC

SGI

SCO

SEQUENT

HP9000

Quick fixes

SYNOPSIS

Have you used *reorg* lately? Does the idea of setting up a modem give you chills? Don't sweat it out alone! For those who are learning to use DG/UX ICobol, someone who's been through the experience (and survived) shares his solutions to problems you may encounter.

by Ephraim Nussbaum
Special to Focus

The two years since my company migrated to Aviiions have been quite an education. Problems were difficult to solve, requiring lots of trial and error, hunting for the obscure passage in the thousands of pages of manuals, or sometimes finding someone at Data General who knew the answer. Most of these problems now seem trivial, and I wonder that I ever thought them hard.

First, some background. I am the software department for a company with an office on each coast. We have nearly identical DP setups in each office: an AV 5200 running ICobol applications. Ours must have been the first serious installation of DG/UX ICobol. I know that because when we first got it, ICobol still had some major bugs, which had somehow slipped through beta testing. Nobody could have operated a real business system with them.

We use *uucp* to transfer files and inter-office messages. As of this writing, we are still on DG/UX 4.32, but I will probably install 5.4.1 within a few days. Some of the information in this article therefore may be different as of 5.4.1. Our previous machine was an S/280 running RDOS, so it was a real change. I knew nothing about Unix, and nearly nothing about modems or communications.

How to talk directly to your modem

Problem: For a "communicaphobic" (that's me, though slightly recovered), getting a modem set up and working can be one big headache. One thing you may have to do is enter parameters to the modem's non-volatile memory. Of course, you can disconnect the modem, temporarily attach it to a PC or terminal, enter your parameters, and bring it

back to the Aviiion. If you need to experiment with different combinations of settings, doing it this way can guarantee your one big headache becoming one big migraine. So, the question becomes: How do you enter the settings to your modem while it is connected to a *tty* line on the Aviiion?

Solution: Use the *cu* command. You first need to set up a direct line in your */etc/uucp/Devices* file. Add the following line to the file:

```
Direct tty04,M - 9600 direct
```

Replace the 9600 with the speed your modem likes. Replace *tty04* with the line number of the modem. You can now configure your modem with the command:

```
cu -l $ttynn$ 
```

where *nn* or *nnn* is the line number of the modem.

Now *cu* will pass anything you type to the modem line, and pass anything from the modem back to you. If, for example, you have a Hayes-compatible modem, try entering the AT command. The modem responds: OK. Now enter the commands to configure the modem. You could even place a call, though ordinarily, if you wanted to call, you would have started *cu* differently.

Enter whatever commands to the modem you like. When you are done, you exit the *cu* command by entering a Newline followed by the two-character sequence, period tilde ("~").

The disappearing *isam* record

Problem: As part of a monthly procedure, I send an *isam* file from our New York office to California. The manager there downloads the file, and then uses *reorg* to merge a file of his into it. One

month, he found that an expected record was missing. He then called in by modem to look at the original file on the New York machine and the record was there. So what happened?

Solution: The behavior of *reorg* has changed from what I was used to under RDOS. The default behavior of *reorg* was to skip deleted records. My DG/UX version of *reorg* (I don't know about AOS/V5) copies deleted records unless you use the *-d* option. The merged file had a deleted record with the same key as the file I sent. The deleted record overlaid the existing record and made it disappear. Moral: When merging files, use *reorg -d*.

More about *reorg*

Reorg has changed in other ways over the years, and lost a few tricks. When using the recover function, you were able to specify a sequential file as output. This is no longer true; you can only recover to an *isam* file. You could also use a global switch (Unix people read: command-line option) to not skip deleted records. Since there is no such thing as a deleted record in a sequential file, when recovering to a sequential file, you effectively undeleted every deleted record. You could then *reorg* back to an *isam* file. This was a very handy trick to recover from a programmer or user error. At present, there is no way to find deleted records unless you know their exact keys. It would be nice if they would give us back a switch to copy an *isam* file to a sequential, without skipping deleted records.

How to bypass the LP system and talk directly to a printer

Problem: You're just learning Unix, and you decide to experiment with the *cat* command and redirection. You enter, "*cat foo >/dev/ttynn*", expect-

ing to see *foo* print on the printer that you have on that line. Instead, the printer gives a few spasmodic jerks and prints some garbage. Why? You find out that Unix always defaults to 300 baud on asynch lines. The printer is set up for 9600. "Use the *lp* system," you are told. "That's what it's for." Great. But inconvenient. There could be many times when you want to send data directly to a printer, either from the shell or from an ICobol program. Can you?

Solution: I don't know whether to laugh or cry over this one. The problem is so absurd and the answer is so absurd! It's not DG's fault, though. It's standard phew-nix. Hail to open systems, where nobody can fix an ancient inanity, because they would then be nonstandard. It took me several months to come up with this silly shell script:

```
#####
# catdev cat to device.
#####
stty 9600 tabs opost onlcr -onlret \
  clocal ixon ffo cr0 nl0 0<&1
cat
#####
```

Now to send data directly to an asynch line, I just use *catdev* as the end of a pipe (e.g., *cat foo | catdev >dev/ttynn*). From an ICobol program assign the printer to *|>catdev >/dev/ttynn*. Make sure the device isn't in use by the *lp* system. You can change the *stty* modes to suit.

The 9600 is hard coded, because all my *tty* lines are 9600. If you have various baud rates, use a variable, i.e., "stty baud \$1" and use the command:

```
cat foo | catdev baudrate >/dev/ttynn
```

Of late, DG has been suggesting to work around this problem by starting a sleeping background process to hold the line open at a given rate.

How to fit a long Unix pipe into a short ICobol field

Problem: Say you have a printer whose system name is PRT4. To print to it from an ICobol program, you're sup-

posed to assign your printer to "*|> lp -dPRT4 -s 2>/dev/null*". Yes, but you have programs that ask you to input the printer name, and the field isn't large enough. You either don't want to modify the source, or don't have it. What do you do?

Solution: This one is easy enough. I probably wouldn't have included it except it gives me an opportunity to sound off on something.

One way to do it is to create an environment variable:

```
PRT4="|> lp -dPRT4 -s 2>/dev/null "
```

When you run the program, assign the printer to \$PRT4, which is only five characters. When *icx* recognizes an environment variable in a filename, it substitutes its value, regardless of length.

More on environment variables as filenames

When *icx* sees a dollar sign at the beginning of an external filename, it checks to see if the first word of the field is an environmental variable. If it finds such a variable, it substitutes its value, and truncates the rest of the field. Why did they do this? It would be so much more powerful if it didn't truncate.

Maybe they had a programming difficulty. If so, I wish they would find a way around it. It would also be good if it would recognize any word in the field as a variable, not just the first (e.g., ASSIGN TO PRINTER "*|> prog \$VAR \$PRAM*"). I won't ask for it to recognize dollar signs in the middle of a word (e.g., "FILE\$NAME"), because of possible compatibility problems.

I don't know how much time DG (and Envyr) are willing to expend on DG/UX specific enhancements, but I suspect there would be a lot more DG/UX ICobol users if ICobol were given some more oomph in general, and if its interaction with Unix were beefed up. Δ

Ephraim Nussbaum is Systems Manager with Nature's Plus, a division of Natural Organics, Inc. He may be reached at 10 Daniel Street, Farmingdale, NY 11735.

FOUNTAIN OF YOUTH FOR SOFTWARE



It's simple, Screen Demon will rejuvenate the appearance and performance of virtually any software now running on your AOS/VS system. No programming required!

To find out how, call:

Threshold, Inc.

118 N. Ross Street
Auburn, AL 36830

(205) 821-0075

Fax (205) 821-0122

Circle 40 on reader service card.



ParkPlace International

250 PARK PLACE
CHAGRIN FALLS, OHIO 44022

DATA GENERAL
COMPUTER
HARDWARE
SPECIALISTS

**The Place to Buy, Sell,
Lease Pre-owned and New
Data General Micro-
computers, Minicomputers,
and Peripherals**

(216) 247-2650
FAX (216) 247-2604

Circle 30 on reader service card.



Brian Johnson

WASHIng machines

SYNOPSIS

BJ explains some inside history of the celebrated WASHI chip and offers a solution to one performance quirk.

I've put off writing about the performance quirks of WASHI-based MVs ever since the first WASHI-based MV was announced, but the time has now arrived.

For those of you who don't know exactly what's the big deal about the WASHI chip, a little explanation is in order. As it happens, WASHI is the Japanese word for "Eagle" (Nippon DG was involved in the design), and Eagle was one of the original internal DG code names for the first MV processor design ("Elusive Bird" was another). The WASHI chip is a complete implementation of the MV instruction set, and forms the basis for a wide range of recent MV processors, from the smallest MVs all the way up to the recently announced MV/35000. That's quite a feat considering that the MV is an MBCISC machine (Mind-Bogglingly Complex Instruction Set Computer).

Way back when the WASHI chip set was being designed, to DG's credit, they sampled the opinions of quite a few people both inside and outside the company about the relative speed of integer versus floating point instructions in the WASHI chip set. I was one of the outsiders. Because of the relationship between speed and real estate (faster means more space on the silicon), a tradeoff had to be made between integer and floating point instruction speeds. I voted in favor of integer speed, as apparently did most of the other people who were asked.

The logic is pretty simple. What does a typical MV running AOS/VS spend a large amount of its time executing? Unless your application involves running a model of the upper atmospheric of the North Pacific Ocean or computing pi to a million digits, chances are that you spend the bulk of your time executing the integer instructions. This is especially true when you consider that the entire operating system contains only a handful of floating point instructions. And if your system is like

Figure 1. :SYSMGR Benchmark Results

	INT	CIS
Non-WASHI:	—	—
MV/4000 w/FPP	1.00	1.00
MV/15-8	1.42	1.74
MV/8000II	1.78	1.89
MV/15-10	2.47	2.00
MV/10 w/FPP	3.28	5.53
MV/20	3.56	2.24
MV/20 w/FPP	3.56	6.95
MV/15-20	3.78	2.34
MV/40000	9.96	14.44
WASHI-based:		
MV/5500	3.59	1.25
MV/9300	3.71	1.44
MV/30000	4.02	1.82
MV/9500	4.73	1.87
MV/35000	5.43	2.48
MV/9600	6.32	2.45

most, it spends considerable time executing system code. And anyway, number-crunching freaks are more likely to be plying their trade on cheap, fast workstations than MVs these days.

Unfortunately, there's a third class of instructions on MVs that traditionally have been handled by the floating point logic, even though they technically aren't floating point, and they weren't included in the designer survey. This third class is the commercial instruction set (CIS). CIS encompasses floating point, unpacked decimal (ASCII), packed decimal (Binary Coded Decimal or BCD), and twos-complement binary arithmetic and conversions. Historically, the CIS instructions have been associated with the floating point instruction set in terms of hardware design because floating point is a subset, albeit a significant one, of CIS.

Several MVs have Floating Point Processor (FPP) boards available as an option, and this has led to some confusion. A question I'm asked a lot is, "How is floating point handled when there's no FPP board?" Simple, the instruction set is implemented in microcode, just like the integer instructions (although they're clearly a lot more difficult to implement). It requires lots more space in the microstore, and runs much slower than the integer instructions due to its complexity. If an FPP board is installed later, a different version of microcode is required. The FPP version of the microcode knows to simply engage the FPP board when a floating point instruction is encountered, rather than perform the instruction in microcode. The performance gain is considerable.

So, even before the first WASHI chip was sliced from the first wafer, we knew the floating point instruction set was going to be slower relative to the speed of the integer instruction set than was the case on earlier MVs implemented using more traditional designs, with or without the optional FPP boards.

Early results from the :SYSMGR Benchmark Suite bore this out. The :SYSMGR Benchmark Suite reports speeds relative to an MV/4000 with an optional FPP board (because that's what we have here at :SYSMGR). Figure 1 contains some results for integer and floating point speeds for both tradition-


al and WASHI-based MVs. The floating point test in the Benchmark Suite is actually modeled on the code generated by the Cobol compiler for a MOVE instruction, so the results are a bit pessimistic if your actual application is a Fortran-style number cruncher. Be that as it may, note the relatively poor performance of the WASHI floating point tests compared to the integer tests.

So, how bad is this news? Well, not very. Remember, most commercial applications spend only a relatively small fraction of their time executing floating point or commercial instructions. Let me give you an example. A client of ours who uses MV/4000s and is a heavy Cobol user asked us what the effect of adding an FPP board would be on the speed of his applications.

D470C
D462
D411
W460
VT320
VT100
VT52

PC
AT
PS/2
COMPATIBLES
MDA
CGA
EGA
MCGA
VGA
XGA
SVGA

TEXT
BINARY
XMODEM
YMODEM
KERMIT
DOS
OS/2
WINDOWS
DESQVIEW



Check it out! Rhintek's emulation capabilities will meet your needs.

*VT Emulation for DEC, UNIX and AViiON

***PC/TCP KERNEL INTERFACE**

***SCROLL BACK BUFFER**

***D462 EMULATION**

Network Support

150+ Macro Keys

Compressed Mode

Built-In Diagnostics

Command Language

Script Files

International Keyboards

Code Pages 850, 437

File Transfers

Complete Printer Support

Graphics on IBM Proprinters and HP LaserJets

Auto Dial, Logon & Logoff

Unlimited Configuration Files

Mouse Compatibility

Very, Very fast!

*New for Version 4.0


Version 4.0

EMU/470

DG Color Graphics Terminal Emulation for IBM Micros

Then grab a copy of Rhintek's EMU/470, V4.0.

Rhintek offers products spanning the entire Dasher Terminal Line, priced from \$95 to \$249. We offer volume discounts and unlimited free technical support. Call us and we'll FAX the Facts! Your complete satisfaction is always guaranteed.



Rhintek, Inc.

Computer Engineering

P.O. Box 220 Columbia, Maryland 21045
VISA and MC Accepted (410) 730-2575

INT14
NETBIOS
NACS
NASI
BAPI
PC/TCP
TCP/IP
NOVELL

Circle 32 on reader service card.

According to the published specs, the FPP speeds up CIS operations by a factor of two. I advised him to expect only about a 5 percent increase in speed. He actually got 4 percent. The reason for the disparity is that unless a Cobol program spends the bulk of its time doing MOVEs that involve differing data types, the CIS (and therefore the FPP) is not involved.

Then something funny happened. We started to get reports from users of the early WASHI-based systems that some of their Cobol batch jobs were running two or three times slower than expected. I didn't pay much attention until a user showed up who had upgraded (?) from an MV/10000 SX to an MV/9500. He should have seen a slight improvement in Cobol batch job times, even tak-

ing the slower floating point performance into account. Instead, some jobs were taking twice as long.

A bunch of investigation, including an analysis of the benchmark code by some WASHI gurus at DG, turned up the following bizarre explanation. It seems that late in the design, after the survey, somebody noticed they were running out of space on the chip for the microcode needed to implement some of the more complex commercial instructions. The solution they decided on was to select a couple of instructions they thought were infrequently used, and instead of implementing them in precious microcode, they would go "off-chip" into a reserved page of main memory where a set of subroutines had been conveniently loaded, and execute the instructions there. Well, sports fans, the problem with this implementation is that main memory, and the relatively slow instructions you are constrained to executing there, is one whole helluva lot slower than a microcode implementation. About a hundred times, in fact. A little test program I wrote showed instruction times of around a millisecond versus about 10 microseconds for a non-WASHI system.

So what's the problem? These guys were smart enough to pick instructions to execute off-chip that were rarely used, right? Gee, I wish. They picked WLDIX and WSTIX instructions. Too bad they didn't take a little stroll down the hall and ask around about how often the WLDIX and WSTIX instructions are used. Had they inquired at Cobol HQ, they would have found out that the instructions they picked are the very ones frequently used by the Cobol compiler to do MOVEs between differing data types. Mega-Oops.

One thing about silicon—it's real expensive to change once the design has been set, so there's no chance of fixing the problem at the hardware level. How about a software solution? Well, maybe. The Cobol group made a few changes to the compiler and libraries to avoid using the slow instructions whenever possible, and that helped a lot. I'm not exactly sure about the compiler revision, but I think most of the changes were incorporated by 3.30. However, even in the most current rev, 3.71, there are still a few WLDIX/WSTIX instruc-



The secret for success in managing a data processing facility is finding and using the best System Software.

DataLynx is your source for system security and management tools from around the world.

GUARDIAN - The de-facto worldwide standard in AOS/VS profile and access security software.

ProGUARD - Protect the application environment by controlling how and when programs can be run.

SCREEN DEMON - From Threshold - Pop-up menus, utilities and I/O optimization for AOS/VS.

THE_ULTIMATE - From Le Software Man INFOS maintenance, management and inquiry tool.

THE UNIX GUARDIAN - User account, login and system access protection for open systems.

UMTB - From SYSINFO - A simple yet powerful system management tool for UNIX and AOS/VS.

DataLynx 6659 Convoy Ct. - San Diego, CA 92111
(619) 560-8112 - FAX (619) 560-8114

Circle 16 on reader service card.

tions. Any other possible solutions? A few.

One solution would be to speed up the WASHI chip and, in fact, this has already been done. The early WASHI-based machines ran at a relatively slow clock speed compared to what the chip was originally designed to be capable of. As improved manufacturing techniques increased the yield of chips that could operate at higher clock speeds, DG announced follow-on models (e.g., the MV/9600 is the faster clock speed version of the MV/9500). This helps a bit, but the disadvantage of executing WLDIX and WSTIX off-chip is still formidable.

A second solution would be to identify those places in the program where operations are causing WLDIX and WSTIX instructions to be generated, and change the source code in such a way as to avoid them. Not easy, since it means changing the shape of the data items involved, and that's not always possible. In addition, there are still a couple of library routines that have WLDIX and WSTIX instructions hard-coded into them. The library routine called to implement the Cobol syntax "IF item IS NUMERIC . . ." is a case in point.

A third solution is to identify cases where the WLDIX and WSTIX instructions are generated unnecessarily, in spite of the best efforts of the Cobol compiler group, and can be replaced by WLDI and WSTI instructions that are similar, but executed on-chip. The only way to do this is with a program that reads the Cobol application .PR file looking for WLDIX and WSTIX instructions, including those in the Cobol library routines, and determines if they can be safely changed. It wasn't easy but I wrote just such a program, and in several cases it has improved the performance of a couple of batch programs by factors of two to four, especially programs compiled with early revs of the Cobol compiler. In other cases, the improvement has been only slight. It appears there's no way to predict the amount of improvement in advance, except in cases where the program is clearly running much more slowly than expected.

So far, I've only written the program for Cobol .PR files, but in theory it

should also be possible to write a version for PL/I .PR files. As far as other languages are concerned, most don't seem to use the WLDIX and WSTIX instructions. For example, a check of the ICobol and B32 .PR files turned up zero occurrences.

So, if you have a Cobol program that runs much slower on your WASHI-based MV than you expected it to—

especially if it was compiled with an early rev of the COBOL compiler—then give me a call and we'll arrange a test to see if my utility program has some promise for your application.

For those interested in obtaining the full set of results from the :SYSMGR Benchmark Suite, you'll need to submit results for your own system by downloading a copy of the Benchmark Suite

FROM THE COMPANY THAT WROTE THE BOOK ON MANUFACTURING SOFTWARE

The JAI Software Library™

Designed by manufacturing people and written in manufacturing words—the JAI Software Library is in a class by itself.

Built on a modular basis, the Library allows you to mix and match as you choose to get a fully integrated system that's just right for you. And for people who want to customize, there's plenty of room for that too.

You can expect immediate results like improved customer delivery, lower investment, greater visibility of operations, and improved financial controls. All conveniently provided by a company with over 18 years of hands-on experience.

To learn more about our vast selection of Library programs, give us a call today.

JAI: Our Experience Speaks Volumes



JACOBSEN & ASSOCIATES, INC.

10229 Lower Azusa Road, Temple City, California 91780
(818) 575-7504 • (818) 283-5347 • FAX (818) 575-7550

Circle 25 on reader service card.

OF ALL THE ASSOCIATIONS
YOU HAVE BEEN INVITED TO JOIN,
THIS WILL BE
THE MOST REWARDING.

*The benefits are remarkable.
And right now we're looking for a few new members.*

Benefits of a NADGUG membership include:

FOCUS Magazine

The Annual NADGUG
Conference and Exposition

The Bulletin Board

The Software Library

The RFE (Request
for Enhancement) Process

Regional and Special
Interest Groups

**NORTH AMERICAN
DATA GENERAL**
USERS GROUP

Join the Group. Call 1-800-253-3902, and ask
for more information about NADGUG membership.

from the :SYSMGR BBS. As soon as we receive your results, we'll mail you a copy of the complete set of the results obtained so far for all systems.

:CACHES:DISK_DATA

A few months back I said that the DG documentation for the optional AOS/VS II Data Cache (DC) advised that the break-even point occurred at about 30 percent overall cache efficiency. That brought a fast phone call from the person at DG who was most responsible for analyzing the effectiveness of the DC option. He requested a correction and faxed me the section of the DG Performance Monitor (MONITOR) manual, which covers the DC option, plus some of his unpublished notes on DC performance.

The section of the MONITOR manual that he sent me was from change file 093-364-02 and advises a break-even cache efficiency of 20 percent for cache entry sizes of 32 or fewer blocks.

I tried to locate the 30 percent number I remembered seeing, but I couldn't find it. As near as I can remember, I thought I remembered seeing it in the pre-release version of the DC documentation that was handed out at a NADGUG session lo those many years ago when the DC option was first announced (AOS/VS II rev 1.20). Unfortunately, I apparently didn't save a copy.

So until better data are available, I guess we should just go with DG's published break-even percentage of 20 percent.

:HNY

Yep, that stands for Happy New Year. Δ

Copyright © 1993 B.J. Inc. All rights reserved. BJ is 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 Service number is 415/391-6531 (300/1200/2400 with optional MNP class 5; 605X, 8/N/1) or 415/550-1454 (voice).

DG/LIBRARY™

The Most Comprehensive Text Retrieval System for CEO.

The ideal application for insurance companies, law firms, healthcare facilities, banks or any CEO site that needs to retrieve information from their filing system.

DG/LIBRARY features CEO-type screens that enable users to quickly and easily search for words, strings, phrases, and non-textual fields such as author, subject and Date of Creation.

- Complete CEO integration makes DG/LIBRARY easy to use and learn.
- All documents matching the search criteria are displayed as if they were part of one, special CEO "folder".
- Documents can be edited, viewed, mailed and printed directly from within DG/LIBRARY.
- Automatically recognizes new and modified documents in the filing system.
- Perform simple to complex boolean searches.

As *THE* Official Distributor of DG/LIBRARY, Data Bank Associates offers the lowest prices and best support.

Call, Write or FAX for Pricing Information.



Data Bank Associates, Inc.

20010 Century Blvd., Suite 104
Germantown, Maryland 20874
Telephone (301) 540-5562
or FAX (301) 540-8105



CEO is a registered trademark of Data General Corp. DG/LIBRARY is a trademark of Data General Corp.

Circle 11 on reader service card.

SYSGEN DATA Ltd. MARKETING

Data General COMPUTERS & PERIPHERALS WORLDWIDE

MV 15000 MOD 10, CPU Complete	\$4,550	6299 S/S	\$1,500
MV 15000 MOD 10, CPU Board	2,000	6300 S/S	1,500
MV 15000 MID Board	1,000	LAC 12	300
MV 2000 4MB, Flpy	1,300	DG 70MB Drive (2000 Format)	400
MV 20000 Model 2 Upgrade	5,500	DG 160 MB Disk	850
MV 20000 Loaded	CALL	4596 & 4597 In Stock Mint	from 2,000
MV 15000/20000 Floating Point	1,250	Genicom 3320/3318 Printers	250
6239 S/S 592MB	1,400	DG 322 MB Disk	850
DG Shadow 500 MB Disk Drives	2,500	32 MB Memory (MV 20000 Style)	8,500
MV 2500, 322 MB Drive, Floppy	2,950	16MB Memory (MV 15000 style)	1,300
CSS w/3x 322 MB Disk, Tape S/S	CALL	6236 S/S.....650 D210	100
16 MB memory MV 15000 Style	450	D460.....150 D410	135
LAN BOARD (15000 Style)	2,850	D411.....175 D211	135
LAN BOARD (2000 Style)	450	D214.....135 D215	150
MV 4 & 10 Memory 2MB	200	D216 New.....365 D412	325
STARLAN	1,500	D462+.....400 D463	425
IAC 16 (RS 232) w/TCB 16	600	DG Desktop 10, 20, 30	CALL
IAC 16 (RS 422)	375	Dataram 16MB (MV 15000)	650
IAC 8-2	250	Call For Unlisted Equipment	

SYSGEN SPECIAL	DG6321 Printer	\$125	MV 20000 MOD II Board	\$5,500
	DG 500MB Shadow	2,500	Motorola Delta 8000	CALL



SCIP

BUY • SELL • TRADE • LEASE

**PRICING SUBJECT TO CHANGE WITHOUT NOTICE
ALL EQUIPMENT SOLD IS WARRANTED FOR 30 DAYS**

Authorized
WordPerfect
Motorola VAR

12 ELKLAND ROAD, MELVILLE, NY 11747 (516)491-1100 fax: (516)491-1559

Circle 37 on reader service card.



Tim Boyer

Onward with ICobol 2

SYNOPSIS

These are exciting times if you're using ICobol. NADGUG 92's ICobol roundtable produced a wealth of information about ICobol 2, the new product from the recent ICobol/ICHOST agreement.

For the first time in years I made it back from a NADGUG conference without a cold, flu, or other major ailment. Somehow, it's much more pleasant to attend sessions when you can breathe.

I always look forward to the ICobol roundtable and SIG meeting. This past October in Kansas City we saw an especially large turnout due to the recently announced ICobol/ICHOST agreement. Roundtable panelists were Ralph Jordan and Ed Egan from Egan Systems; Rick Strom, ICobol marketing product manager; and Betty Balch, in charge of languages and third-party products at Data General's Research Triangle Park facility.

ICobol 2, the new product, will be released contractually by July 1993. The same revision will appear on all platforms simultaneously. All platforms will share the same switch structure. The code will be ANSI '85 intermediate

compliant.

The product will support ICHOST's Program Library, allowing you to merge multiple programs' object code into a single library file, loaded at runtime. Although this is very important under Unix—it greatly reduces the number of handles required—those trying to find an acceptable hash frame size for a directory with 2,000 entries under AOS/VS will appreciate it, too. Not only will it save search and loading time, but programs put into the library are compressed. They'll take up less disk space.

There will also be a new revision of Minisam. Rev 7 will allow up to 16 alternate keys and allow you to forbid duplicate alternates. Here's something the ICobol community has been requesting for a couple of decades. Better still, this version of Minisam will read all versions of the file structures with no conversion necessary. Your 1.40 and 1.50 files can coexist peacefully with the new file structure.

Planned enhancements will start to bring the language into the 21st century. All utilities will now take templates, so a command like ICVERIFY +.CO will work. ICobol 2.0 will include hot key support, windowing, and networking—with itself as a minimum, and across operating systems when possible. Some steps are also being taken to improve performance.

Under MS-DOS there will finally be a full ICobol development environment available, with the compiler and debugger working on all processors, 8088 and up. You'll be able to have up to 129 (!) MS-DOS users, depending on your hardware.

Figure 1: Segmented key structure

```

SELECT INVOICE-FILE
  ASSIGN DISK, "INVOICE_FILE"
  RECORD KEY IS INVOICE-KEY
  ALTERNATE KEY IS INVOICE-CUSTOMER-NUMBER, INVOICE-DATE
  ALTERNATE KEY IS INVOICE-ITEM-NUMBER, INVOICE-DATE.
FDINVOICE-FILE.
  01 INVOICE-RECORD.
    03 INVOICE-KEY.
      05 INVOICE-NUMBER          PIC 9(6).
      05 INVOICE-DATE.
        07 INVOICE-YEAR          PIC 9(2).
        07 INVOICE-MONTH        PIC 9(2).
        07 INVOICE-DAY          PIC 9(2).
    03 INVOICE-CUSTOMER-NUMBER  PIC X(6).
    03 INVOICE-ITEM-NUMBER      PIC X(12).
  
```

An old friend will be back. The Printer Access Scheduling System (PASS, has been resurrected. (RDOS lives!) This will be nice for VS users, and especially useful on Unix systems.

But what would ICobol be without its much-vaunted compatibility? All versions of ICobol, from ICOS 4.4 to ICobol 1.70, will run unmodified. All file systems are supported. ICHOST's MAKECX utility, which combines and optimizes the .PD and .DD file into a single .CX file, will run on all your existing programs.

Finally, all your utility *functions* will be supported. Interfaces will be standardized. Some names may be changed, but you'll have compatibility macros supplied for AOS/VS and Unix.

Whew. That was the first 15 minutes of the roundtable, and my pencil was smoking by the time Ralph Jordan got through talking. Betty Balch and Rick Strom then spoke about Data General's end of the deal. DG will continue to support its existing ICobol products.

DG's people are working with Egan, and will have technical staff on site.

One of their main concerns and responsibilities is ensuring upward compatibility on all new products. A major selling point for me back in the ICOS days is that software I wrote on that CS-40 under DOS could be moved to one of those M600 machines under AOS without changing a line of code. It's still a big selling point (but I believe DG has come out with some new processors since then), and Data General wants to make sure it stays that way. RTP is holding regular meetings with Egan to review design specs and implementation, to manage the beta testing, and do its own extensive testing prior to release. It's readily apparent that this was a well-thought-out process, rather than just dumping the code on Egan's doorstep.

Until the changeover, RTP is working hard to reduce the number of open STRs so that the code going to Egan will be as clean as possible. The current STR

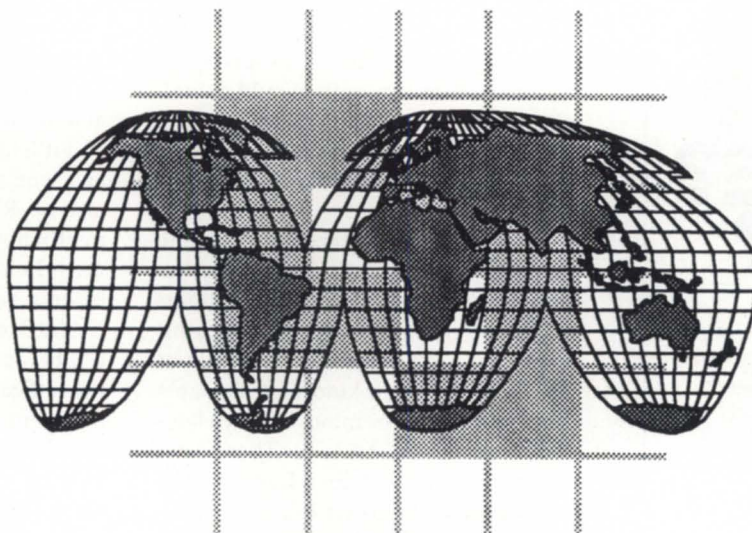
count is under a dozen.

The floor was thrown open for questions, and one of the first was, naturally—how much? Rick Strom said that if you bought Egan's ICHOST for DOS from DG now, there would be a free upgrade to ICobol 2 when it came out, because there is no current DG compiler on DOS. He declined to be pinned down on an exact price for other platforms and situations, but said DG wanted to make the upgrade as painless and inexpensive as possible. AOS/VS pricing will be CPU-based, and Unix and MS-DOS user-based.

And yes, there will be a dongle—a hardware protection device. In most cases, this is an unobtrusive, painless method of software protection, and I much prefer it to schemes that give you files that can't be moved or dumped. I say most cases only because my PC is starting to look T-shaped with this dongle tail coming out of it. Maybe someone needs to invent the 90-degree dongle. Then I can wrap the suckers in a

Clafin & Clayton, Inc.

- AOS/VS to Unix Integration
- AOS/VS to NetWare Integration
- NFS & TCP Networking Software
- Ethernet Networking Hardware
- High Performance, Low Cost



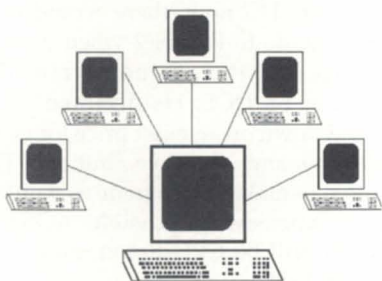
- File Sharing
- Remote Login
- Command Execution
- Electronic Mail
- Printing
- Backup
- AOS/VS I & II
- RDOS, AOS
- MV, NOVA, ECLIPSE, DESKTOP

Industry Standard Networking Solutions

203 Southwest Cutoff, Northboro, MA 01532 Telephone 508-393-7979 FAX 508-393-8788

Circle 5 on reader service card.

Turn on Eight terminals with just one!



With MultiView Windows and just one console line you can have the equivalent of eight terminals.

DEMO ONLY \$49



**DIGITAL
DYNAMICS INC.**

3055 Plymouth Road, Ann Arbor, MI 48105
(313) 995-2400 FAX (313) 995-3232

Circle 19 on reader service card.

WHO? WHAT? WHEN? WHERE? WHY?

:PERFMGR can help you find the answers to these and other questions about your configuration.

Includes a logging facility with report generator, real-time monitoring screen, file and directory structure analysis utilities and a tutorial on AOS/VS and AOS/VS II system performance analysis.

Any questions?

AOS/VS :PERFMGR	\$750
AOS/VS II :PERFMGR	\$750
10-DAY TRIAL COPY	FREE!

A Division of B.J. Inc.

:SYSMGR

Software for System Managers
109 Minna St., Suite 215, San Francisco, CA 94105
(415) 550-1454 FAX (415) 550-1072

Circle 38 on reader service card.

spiral around my CPU . . . but I digress.

At that point in the meeting I took the podium to discuss the RFE process and to pass along some requests. Those who have paid attention know that the ICobol SIG is now responsible for determining the priorities of all the ICobol requests for enhancement. I brought up some of the new requests, and they were discussed among the attendees. Here are just a few you'll be seeing in the next revision or so.

More runtime units

Currently, there can be one main program and 15 subprograms open at one time. This limit will go to 32. Some people have requested more—one even asking for a top limit of 255. God help you if you use 255 active called programs. However, as Randy Berndt wrote, this should be the choice of the programmer. If we need the resource, and are willing to pay the price, let us.

Normally, I'd protest on behalf of those of us who weren't willing to pay the price—this memory must be pre-allocated. But Ralph Jordan suggested a section in the ICobol 2 configuration file that will let the user specify the maximum number of run units to make available. Now *that* makes sense. In RDOS, you made the choice between number of users, size of programs, number of open files, and so on. This would be similar. Those of us specifying four maximum run units would actually save memory. This will make more run units nearly painless—but there will always be a performance/memory price to pay.

Here's a case where I need some user group input. Are 32 run units enough? Are they too many, considering that there's some performance hit involved? Are 64 enough? How about 128? Give me some kind of reasonable number, keeping in mind Robert Heinlein's motto: TANSTAAFL—There Ain't No Such Thing As A Free Lunch. If the group decides to go with 255, *everyone* will pay *some* kind of performance penalty.

.VM files in memory

It was pointed out that a CALL to a subprogram that just reads a record now causes a read of the .VM file, a read of the file, and a write of the .VM

file—way too much overhead. This made sense in the RDOS days, but memory is just a bit cheaper now. A switch will be added to the runtime unit that says, "I've got enough memory—let's do this *all* in memory, rather than writing to disk." Likewise the linkage section, and anything else that could be swapped to disk.

Variable-length ISAM files

These will be real variable-length files, and will be out in ICobol 2.1.

Segmented keys

If you have two alternate keys in the invoice file and you'd like them sorted by date when you access them, the date must be specified three times. This isn't an ICobol mistake—it's ANSI standard. With a segmented key, you could have a structure like that shown in Figure 1. A READ NEXT of any of the keys would bring up the records in date order.

The advantage is obvious. It's rather like Infos without the overhead. The price to be paid is that the total number of keys—alternates plus segments—can't exceed 16. That is, if you have eight alternate keys, and one of the keys has six parts to it and one has two, you're at the max. I think this is sufficient.

A change in utilities

Wait, don't panic. You'll still be able to do everything you used to do, and it'll be easier than ever before. You just won't type the same names. Let's face it—REORG is a nice program that performs many functions, most of them in a mediocre fashion. It's trying to be a report writer, file converter, ISAM fixer, and, until recently, a tape utility, and it succeeds well at none of them. Egan wants to put out a series of different programs that perform the same functions. In the process Egan will try to improve them and make them a bit more automated.

Let's take a typical corrupt file. You get an access error, so you run an ICVERIFY on it. Whoops—header's corrupt. Run ANALYZE so you know where the keys are. Delete the .NX, rename the .XD something else, do a REORG/D—careful, you specify those alternates right or the whole thing will

blow up on you!—get a file. Run ICVERIFY on it to be sure, delete whatever you renamed the .XD to, and you're ready to go.

Simple, right? If this was as good as Peter Norton came up with, he'd be selling clones down at the local K-Mart. There's no reason we should have to put up with this. Certainly, the assumption is made that we're a little more sophisticated and knowledgeable than your average PC user. So why not a utility that does all this, with prompts along the way?

"File XXX has an invalid header. Would you like me to save a backup copy (Y/N)? Would you like me to attempt to repair this file (Y/N)?" That's what Egan is working toward, a repair utility that repairs files, and a convert utility that converts files. And ones with, we hope, a little more sophistication—REORG was great in the 1970s, under RDOS.

I've about run out of room telling you what's going to be done, and I

haven't had a chance to tell what's *not* going to be done. Egan and Data General will make an effort to include the enhancements desired by the user group that are technically feasible and financially reasonable. What you probably won't get in ICobol in the future are enhancements that benefit a single operating system.

One of the requests was to allow assignment of element sizes on nonindexed files. If, for instance, you knew you were going to create a humongous print file, you could specify a large element size and save some time.

Number one, it's just as easy to do a CALL "CLI" USING and put CREA/ELEM=xxx filename. Number two, of what possible use would this be to someone running Unix or MS-DOS? So this is one enhancement that almost certainly won't appear. On the other hand, the enhancements scheduled above will benefit every operating system.

These are exciting times if you're

using ICobol. Submit your requests for enhancements. They'll get to the ICobol SIG, be ranked, and passed on to Egan and DG, and be acted on. Continue reading this magazine; we'll keep you up to date on changes, and we'll print the responses to some of the RFEs we're getting.

And above all, attend the annual conferences. If you're looking for answers from the ICobol developers, wondering what your peers are doing with the language, or are interested in getting one of your favorite enhancements adopted, this is the place to get things done. I'll see you in Atlanta. Δ

Tim Boyer is EDP Manager at Denman Tire Corporation. He may be reached at 400 Diehl South Road, Leavittsburg, OH 44430; phone 216/898-2711, fax 216/898-5256, or on the NADGUG bulletin board at 415/924-3652, or on the CSC bulletin board at 800/DASH-CSC.

**YOU NEED DATA GENERAL EQUIPMENT.
YOU NEED IT NOW. YOU NEED IT PRICED RIGHT.
AND IT HAS TO MEET YOUR SPECIFICATIONS.**

CPU's

MV 20000 Mod 1 & 2	CALL
MV 15000 Mod 20	\$9,900
MV 10000	\$1,900
MV 7800 XP w/4 MB	\$3,500
MV 7800 w/4 MB	\$2,900
MV 4000	\$900
MV 2500	\$7,900
MV 2000	\$2,900
S280	\$1,500
S/140	\$1,200
Nova 4X	\$1,200

Desktop Systems
& Peripherals

DISK & TAPE

MV 2000 Disks and Tapes	CALL
6239 592MB S/S	\$2,500
6236 354MB S/S	\$800
6161 147MB S/S	\$1,000
6299 6250 BPI Tape	\$3,500
6125 Tape S/S	\$595
6026 Tape S/S	\$895

MEMORY

MV 9600 32MB	\$7,900
MV15 & MV20 32MB	\$5,900
MV15 & MV20 16MB	\$3,500

MV15 & MV20 8MB	\$1,500
MV4 & MV10 8MB	\$1,100
MV4 & MV10 4MB	\$800
MV4 & MV10 2MB	\$400
Memory For All Other DG Processors IN STOCK	

CRT's & PRINTERS

BP1500 Printer	\$8,900
4374 Printer	\$5,000
B1000 Printer	\$3,900
B600 Printer	\$1,800
B300 Printer	\$1,450
D461 CRT	\$475
D460 CRT	\$325
D411 CRT	\$395
D410 CRT	\$275
D462 CRT	CALL
D216 CRT	CALL

COMMUNICATIONS

IAC/16	\$750
IAC/8	\$350
ATI/16	\$400
AMI/8	\$200
LAN Controller	\$3,000
LAC-12	\$900

LARGE SELECTION OF EARLY-MODEL EQUIPMENT

"THE SOLUTION"



Phone: (612) 227-5683
FAX: (612) 223-5524
622 Rossmor Building
500 N. Robert Street
St. Paul, MN 55101

Circle 36 on reader service card.

W E L C O M E T O

NADGUG

(To belong, you have to join.)

If you're a Data General
user, we invite you to join a
rather exclusive group.

You'll like the benefits,

as well as the members.

**NORTH AMERICAN
DATA GENERAL
USERS GROUP**

Join the Group. Call 1-800-253-3902, and ask
for more information about NADGUG membership.



David Novy

Monster machines

SYNOPSIS

There may be many potential Data General customers out there who could make great use of Aviion file servers for doing enterprise-wide information and document management, if the proper software were available.

The 1992 NADGUG conference from which I returned recently confirmed Data General's claim to being the industry leader in Unix file server technology. But what's unfortunate is that it appears DG now has Unix file servers that far outstrip the needs of the company's present customer base.

If Data General wants to continue expanding, it needs to modify its present customer base. One of the best ways to do that might be to develop products and services that meet the information control needs of *Fortune 500* companies. I will explain.

When I looked at the name badges of people I saw at NADGUG 92, I noticed few attendees from large companies. If representatives from such companies were present, they generally were not part of their companies' information handling function.

Most of the attendees represented hospitals, law firms, insurance companies, small companies, U.S. government agencies, and medium-sized cities. These people are very loyal to Data General, and DG has been very responsive to their needs.

However, few of these companies or agencies will ever need machines the size of an 8-way Aviion, let alone the monster machines that DG plans to bring to market in the next year. Monster machines need monster information loads in order to justify their existence. There are few DG customers today that can generate such information streams.

On the other hand, I also recently

attended a Sherpa users' group meeting. Sherpa is currently the market leader for commercial software for configuration management and document handling. The customer base represented at this meeting was quite different from that of a NADGUG conference. Attending were representatives from General Motors, Schlumberger, McDonnell Douglas, Hughes Aircraft, Rockwell International, Micropolis, Sikorsky Aircraft, Pitney Bowes, Intel, Jet Propulsion Laboratory, and Westinghouse, to name a few.

These large companies are on the verge of spending billions of dollars to install computer systems for controlling documents within their companies. These people are spending big money for the following reasons: to comply with ISO 9001 specifications; to comply with government regulations; to get quality products to market in 50 percent less time; and to remain competitive.

Data General now has machines that can meet the information-handling needs of the huge *Fortune 500* companies. Unfortunately, Data General currently has no document-management software to complement the machines.

Data General is not totally ignoring this market. DG is currently evaluating an image-management software package. I saw the product demonstrated at NADGUG 92, and it looks very powerful. However, there is a big difference between an image-management software package and an *enterprise-wide* document-management package. For some companies, an image-manage-

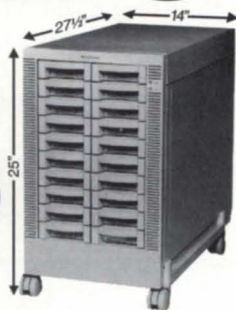
ment software package may be adequate, but most large companies soon learn that image management alone is not enough. These companies need software for native file control of engineering documents, government regulation compliance documents, standards documents, and product information packages, in addition to images.

It appears that Data General's marketing people do not believe that they need a product like Sherpa running on DG equipment. It is somewhat interesting that they should feel this way, if they do, since the marketing departments at Digital, Hewlett-Packard, IBM, and Sun appear interested enough in Sherpa to pay the money required for porting Sherpa to their various platforms. The company I work for believes that information management is important enough to prepare for spending millions of dollars during the next three years installing an enterprise-wide document and information management system.

In conclusion, it appears Data General is on the verge of a revolutionary breakthrough in Unix file server performance. It would be interesting to know what DG plans for prospective customers to process on these powerful machines to justify their purchase. I know I could make great use of Aviions as file servers for doing information and document management on an enterprise-wide basis—if the proper software were available.

I believe there are many other potential customers who could use

Hear ye! Hear ye! 24 billion bytes in 2.7 sq. ft!



**CLARiiON from Data General—the faster, smaller,
UNIX® open storage systems that connect to IBM, SUN, HP, UNISYS and ICL
for a price that's music to your ears!**

Computer companies everywhere have been making a lot of noise lately about UNIX® open storage systems. The problem is that's all they've been making—noise! At Data General, we've gone quietly about our business and have actually created remarkable open storage systems called CLARiiON. And CLARiiON is one call everyone should heed because CLARiiON connects to the UNIX systems-based IBM RS/6000, SUN SPARCserver 600 series, HP 9000-800 series, UNISYS U6000 series and ICL DRS 6000. Its RAID technology vastly increases the storage capacity and high availability of these systems. And CLARiiON does it all for a price that's so low it will fit right in with the rhythm of your budget (as well as under your desk)! So if you want uninterrupted data access, data loss protection, low-cost data redundancy and increased disk performance, all of which you can maintain yourself, think CLARiiON and call 1-800-DATAGEN



them for the same purpose.

Blazing, Streaming, TCP/IP

Congratulations are in order for the DG/UX development team that found a way to modify DG/UX TCP/IP so that it could be STREAMS-based, and yet capable of running at full ethernet speed with minimum system overhead. It must have been a labor of love.

First, there would have been many doubters, because as "everyone knows," STREAMS-based applications are inherently slow.

Second, there must have been many internal doubts along the way because the work was extremely tedious, and because they had to invent hardware and test procedures to achieve experimental resolution fine enough for measuring performance changes. Third, the problem they were trying to solve possessed both a hardware and a software component.

The solution developed by the design team consisted of improved code and a new ethernet controller. The

new controller is the VLCi. When combined with the new DG/UX revision 5.4.2 TCP/IP, it gives the Avion ethernet throughput equal to any other machine on the market, and with the lowest system overhead on the market today, in a manager that is fully Unix STREAMS-compliant. DG/UX revision 5.4.2 is currently shipping, and the VLCi controller is available from your DG sales rep. List price of the VLCi controller is about \$3,000.

For those of you who prefer numbers to mere adjectives like "blazing" when describing system performance increases, system overhead on an AV 5225 and the old VLC ethernet controller went from 58 percent under DG/UX 5.4 to 41 percent under DG/UX 5.4.2. Switching to the VLCi controller further reduced overhead from 41 percent to 19 percent under DG/UX 5.4.2.

Congratulations on a job well done.

Unix workshop

The first NADGUG DG/UX work-

shop was held in conjunction with the NADGUG 92 conference last October in Kansas City. It was attended by more than 30 people. Thank you to all the presenters: Sue Dintelman of DMS Systems; Gary Beck of Zetaco; John Claflin of Claflin & Clayton; and Mike Brazao of Storage Computer, Inc.

The workshop was well received, but some attendees asked that more emphasis be given next time to DG/UX system management fundamentals and "war" stories, in addition to upcoming trends in the Unix marketplace. The requests have been noted. Be assured that the next workshop will offer a more day-to-day operations format. Δ

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

NOW AVAILABLE—**ICHOST MS-DOS NETWORK VERSION**
NO EXTRA CHARGE—CALL FOR DETAILS

ICHOST™

TOTAL ICOBOL SOLUTION

Recognize these names? You should!
They represent the state of the art in computing today.
Combine **ICHOST™** with one of these big names and get the best ICOBOL runtime and development system money can buy!

If you are developing and running ICOBOL applications with anything but **ICHOST™**, or you want to know more about the advantages of running ICOBOL with **ICHOST™** give us a call. Dealer discounts available.

Make **ICHOST™** your total ICOBOL solution

Gerry Manning & Associates
3351 Candelaria Road, Suite E
Albuquerque, NM 87107
Phone: (505) 888-5011
Fax: (505) 883-7708

Our U.K./Europe Distributor:
Broadnet Ltd., Falcon House
North Feltham Trading Estate
Feltham, Middlesex, TW14 0UQ
Phone: 081 893 1515
FAX: 081 893 2183
Contact: Roland Eckert

DGCIBOL Compiler—As Low As \$595.00!
Compile ICOBOL in DOS & UNIX environments
Enhanced error documentation & compile times

Circle 22 on reader service card.

WILD HARE

Has It Now!

ICOBOL Windows and Hot Keys

Wild Hare gives you something to write home about! Like PC-type features for your ICOBOL programs. Wild Hare's *Hare Stylist*™ RAD (Rapid Application Development) tools add object-oriented windows, hot keys and pull-down and pop-up menus technology to your ICOBOL programs. All without any changes to your existing code.

While other companies promise you ICOBOL enhancements in their "next release," Wild Hare has them now!

So why wait? Call Wild Hare today!

John:
Our users want these features now! Please Call Wild Hare ASAP at 303-530-2221!

— Mark

Call
Wild Hare
Today!

(303) 530-2221

Archiving without palpitations

SYNOPSIS

Data security and delaying the need for more disk space are among the many benefits to consider when choosing an archiving system.

by Gordon Campbell
Special to Focus

If you are one of the many Data General sites out there running CEO, you probably get heart palpitations just *thinking* about archiving. After more than three years with 100 users churning out CEOwrite documents on our MV/2000-1, it was time for us to, as they say, pay the piper. We agonized over whether to use the CEO archiver, or to just buy another disk and hold off on archiving for a couple of years.

Enter Ed and Ed—Rosen and Levin—of Data Bank Associates of Germantown, Maryland. Ed Levin had called me to follow up on a visit to their booth at the NADGUG Conference last year. During our conversation, Ed mentioned that the company was working on an archiving product for CEO called "AIM," and would we be interested in it?

The product was the creation of Ed Rosen, who proceeded to tell me they were writing for CEO something to archive CEO documents to the same location on the disk as that of the original documents. The clinch: documents would be compressed, using only about 40 percent of their original disk space.

We were asked to be a beta site, and I replied, "Sign me up."

Judging criteria

When I look at a product, I judge it on three criteria: 1) how well the product does its job; 2) the quality of the user interface in order to make it func-

tion; 3) support from the people who wrote it.

In the case of AIM, I would give numbers 1 and 2 an "A," and number 3 an "A++."

The product can be used in two ways. First, the user can interactively flag documents for archiving, or restore documents immediately on demand. Second, the system manager can perform blanket archives for groups of users based

Figure 1: Archive interface module

Action (Archive/Restore):

Drawer =
Folder =
Document =

Execute (Y/N)?

on how recently documents were last accessed or modified. The date that the document was last accessed or modified are the dates that are tracked by CEO, *not* the VS filing system.

AIM is set up as a public application. Users will find it easiest to access if they set up a command function key. Both functions take only a minute or two to perform, and are well-documented in manuals provided. Another tip: we had our users change their filing surveys to show the "archived" status field, and changed the title of the status field to "C" or "COM" to indicate a compressed file. We thought this a better indication of file status, rather than "archived," which implies it has been stored off the system and isn't readily accessible.

AIM displays a simple, friendly screen (see Figure 1), prompting the user to choose either "Archive" or "Restore" activities. The user chooses drawers, folders, and documents to be processed. Each level has a separate field in which to enter the choice. If unsure of the correct name, the user may call up an index screen like CEO using shift F2. The index also allows selection of multiple drawers or folders or documents. When satisfied with selections, the user presses F1 (execute). If "Restore" is chosen, selected documents are immediately decompressed (restored).

If the "Archive" is selected, then documents will be marked for archiving, and will appear and will be treated as "archived" by CEO. Documents are only flagged to be archived at this point. Actual "archiving" or compression happens when the system manager runs the "AIM_UPDATE" macro. This update macro is usually run overnight in batch mode, or when the system is

Figure 2: AIM survey report

Date:	6-NOV-91				
Time:	1:29				
Age based on Date Last Accessed					
AGE LIMIT (IN WEEKS)	DOCUMENT COUNT	DATA BYTES USED	FILE BYTES USED	ESTIMATED AIM SAVINGS	
More than 0	61,144	444,154,724	534,237,184	378,783,031	
More than 1	58,945	423,062,961	508,782,592	360,710,556	
More than 2	57,801	405,754,429	498,130,944	353,107,247	
More than 3	56,704	399,426,597	487,632,896	345,618,846	
More than 4	56,001	399,426,597	480,206,848	340,407,539	
" "	" "	" "	" "	" "	
" "	" "	" "	" "	" "	
More than 207	8,825	47,454,922	56,078,336	39,469,113	
More than 208+	8,665	46,279,963	54,736,896	38,538,909	

less busy.

The second method, called Automatic Archiving, selects all documents not accessed or modified for a specified number of days. The key to this process begins with a tool called the AIM Survey. The survey gives you the first real information that you need to manage a

CEO environment. It will give you the age of all documents (by CEO date last accessed and date last modified) as an overall set of figures, as well as by individual user.

To start the process, you make a list of users you want included in the reports. You can do this with a supplied

DATA INVESTORS CORPORATION

247 Huyler Street
So. Hackensack, NJ 07606
(201) 343-8875
FAX# (201) 489-5633

COMMUNICATIONS

4623 IAC-24 W/TCB	\$3,700
4370 IAC-16 RS-232 W/TCB-16	350
4368 IAC-8 RS-232 W/TCB-8	250
4370-A IAC-16 RS-422 W/TCB-16	250
4368-A IAC-8 RS-422 W/TCB-8	250
4380 ISC-2	150
4560 LAC-12	450
4561 LSC MV/2000	250
4543-B MCP-1	950
4463ZT USAM-4 DESKTOP	150
4532 ILC W/ACCESSORIES	2,100

SYSTEMS & PROCESSORS

MV/20000 MOD1 8MB	\$9,800
8952 MV/15000 MOD-8 8MB	2,900
MOD-20 CPU BOARD UPGRADE REV.79	3,900
8994 IOC-2/3 MV20000	1,200
MV10000 CPU-O-MEM	900
8888 MV/7800XP 4MB	5,200
MV/7800XP 4MB CPU BOARD	4,800
MV/7800 4MB CPU BOARD	900
91547 MV/2000 4MB 160 DISK TAPE NEW STYLE	2,400
8760 MV/4000 2MB	1,400
8770 S/280 2MB W/BMC	800
8678N S/140 256KB	900
DESKTOP SYSTEMS & PERIPHERALS	CALL
005-15633 S/140 BMC MOD	1,400
Exide 3 K VA UPS	1,800

DISK DRIVES & MAG. TAPE

6239 592MB ARGUS S/S	\$1,700
6236 354MB ARGUS S/S	900
6581 500MB RAMS DISK S/S	4,400
6581-A 500MB RAMS DISK ADD ON	3,600
6461 CSS 130MB TAPE 322 & 234 DISKS	4,200
6161 147MB WINCHESTER S/S	1,100
6122 277MB DISK S/S	900
6554 662MB FOR CSS	2,500
6491 322MB FOR CSS	1,000
6446 234 MB FOR CSS	600
6329 120MB MV/2000	600
6363 160MB MV/2000	850
6100 25MB WINCHESTER W1/28	900
6300/6299 1600/6250 MAG TAPE S/S	2,700
6026 DUAL MAG TAPE S/S BROWN	850
6123 MICRO STREAMER BROWN	400
6270 DESKTOP CARTRIDGE TAPE	450
6125 STREAMER MAG TAPE S/S	400
BMX-3 CONTROLLER	1,100
BMX 2 CONTROLLER	950
005-2169/6299/6300 CONTROLLER	300

MEMORIES

80108 32MB MV/9500/9600	\$9,500
8990-D 16MB MV/20000/15000	1,500
8990-C 8MB MV/20000/15000	600
8939 MV/7800XP 4MB	700
8871 8MB MV/4000/10000	800
8927 4MB MV/2000 NEW STYLE	1,150
8870 4MB MV/4000/10000	450
8765 2MB MV/4000/10000	200
8940 10MB MV/7800XP	2,700
8708 2MB MV/8000	200
8754 512KB S/140	300
8687 256KB S/140	200
8387 256KB NOVA/4	200
8656 256KB ECLIPSE	200
DESKTOP MEMORY	CALL

TERMINALS & PRINTERS

D-216, D-412, D-462, D-470C	Start at \$200
D-214, D-215, D-411, D-461, D-220C	Start at 135
D-210, D-211, D-410, D-460	Start at 100
B1000 PRINTER	2,800
4364 600 LPM BAND S/S	1,600
4327 300 LPM BAND S/S	900
6215 180 CPS PRINTER	500
4433 150 CPS PRINTER	400
4434 160 CPS PRINTER	500
GENICOM MOD #3180	325
6475 12 PPM GRAPHICS LASER	1,400
4374 1200 LPM S/S	1,900

Data Investors is a worldwide specialist in Data General Equipment. We have been for 15 years buying and selling pre-owned Data General Equipment. All equipment is shipped from our own facilities, thoroughly tested and guaranteed eligible for Data General Maintenance.

Circle 15 on reader service card.

We Have The Ability



- * Compatibility
- * Dependability
- * Affordability

286-16MHz Systems	\$ 884
386SX-16MHz Systems	\$ 913
386SX-25MHz Systems	\$ 937
386DX-25MHz Systems	\$ 992
386DX-33MHz Systems	\$1033
486DX-33MHz Systems	\$1441
486DX-50MHz Systems	\$1741
386SX-20 Notebooks	\$1318

Sabra Systems, Inc.
1-800-722-7201

Circle 33 on reader service card.

FREE SOFTWARE

for a fortunate few.

NADGUG members can access dozens of programs, utilities and macros. Interested?

Join the Group.
Call 1-800-253-3902,
and ask for more information about NADGUG membership.

**NORTH AMERICAN
DATA GENERAL
USERS GROUP**

ENJOY

the benefits of belonging.

As a NADGUG member, an entire world of benefits becomes available to you.

Join the Group.
Call 1-800-253-3902,
and ask for more information about NADGUG membership.

**NORTH AMERICAN
DATA GENERAL
USERS GROUP**

Circle 28 on reader service card.

macro, and then modify it with any text editor in order to remove users you want exempted. But you may want to include everyone initially in order to obtain information on the overall status of the CEO system. This list becomes the input to the AIM Survey Program, which is run to create a statistical data base of users, documents, and access dates. Once the data base is created, several reports can be produced based on date last accessed or date last modified, over a selected number of weeks (1 to 208). These reports give you an accurate estimate of space the documents are currently using, and how much space would be saved if they were archived under AIM.

Two types of reports can be produced. The first gives a historical summary report (Figure 2, page 29). This aging report shows totals, by the number of weeks old, for the entire system based on date last accessed, and date last modified. It also shows the total number of bytes used, the number of file bytes (includes remaining overhead from the file element size), and anticipated space savings if the files were placed into an AIM Archive Library.

The second report is the same as the first, but on individual users. This report is run for a specific aging period—for example, all documents not accessed in 52 weeks or more. This report can be run many times in order to see the savings if the AIM automatic archiving was used with different criteria.

Automatic archiving

Armed with this information you can run the automatic archiver, supplying it with the desired age data. This process marks the documents in the CEO data base for AIM archiving, and as well creating an AIM data base entry. Documents are compressed during the next run of the AIM update procedure.

We have seen that all programs work very well and are easy to use. Any problems we have encountered have been nondestructive, and were resolved on a timely basis. From a user's perspective, it's terrific not having to request an operator to load a tape for restoring a document. Now the user can restore a document, immediately, whenever needed. System managers

Do you have any idea how fast you're going?

- | | |
|---------------------------------------|--|
| <input type="checkbox"/> System Calls | <input type="checkbox"/> Character I/O |
| <input type="checkbox"/> Networking | <input type="checkbox"/> Scheduling |
| <input type="checkbox"/> Processes | <input type="checkbox"/> CPU Usage |
| <input type="checkbox"/> Memory | <input type="checkbox"/> Overview |
| <input type="checkbox"/> History | <input type="checkbox"/> Disk I/O |



DG/UX Real-time Performance Monitor

- Highlights key performance statistics on a single DG/UX system
 - Helps to quickly identify performance bottlenecks
 - Displays data over short or long periods of time
- Shows maximum and minimum values with the times they occurred
- Displays process information - sorted by CPU, Memory, Priority...
 - Saves screen images to disk for later evaluation

And many more features!

This is the DG/UX performance tool you've waited for!

Data General Systems Evaluation and Performance Analysis Center (SEPAC)

3617 Parkway Lane
Norcross, GA 30092
(404) 448-6072, ext. 2136
FAX (404) 446-5635



Circle 1 on reader service card.

will find the product easy to use, with all macro procedures supplied for each function and ready to go.

All of the programs seem quite robust, and yet not system intensive. We have run all the processes described during working hours, and they have not heavily affected system response times. Having said this, I would still recommend the AIM update macro be run at night in batch mode, to enable logging of output to a list file or printer.

For system managers handy with the Infos "INQUIRE" utility, the AIM archive and restore details are kept in an Infos data base. This allows you to access the user, drawer, folder, document, pathname, date, and time details for all entries. Use the information to produce your own daily or weekly reports. For those who shudder at the thought of using INQUIRE, most of the information is also written to a text trail file. System backups will not need alterations in order to back up new compressed files, as they reside in a file

under the same directory as the original documents.

Another great feature of AIM is that it is available in French and Hebrew as well as English (with appropriate PROM chip), and soon to follow in Swedish, Spanish, Italian, and German.

**From a user's perspective,
it's terrific not having
to request an operator
to load a tape for
restoring a document.**

Another switch that can be used on execution is "/W", enabling the "+" wildcard option used for selecting at the drawer and folder levels when archiving or restoring. I strongly recommend *not* using this switch because of the danger of typing ahead, resulting in all drawers or folders being archived or restored by accident.

The default for the product is no wildcards allowed on drawers and folders, as DBA felt it otherwise too dangerous—I agree! But you can still use the wildcard to select all documents in a folder, or use the index to select or mark all folders or drawers.

We tested AIM software in November 1991, and purchased the product in the following month. The cost of the product is based on CPU size and multiple site licenses are available.

Support from the DBA people has been exceptional. They are always willing to discuss how the product works and how it interacts with other related products you may be using. AIM has allowed us not only to have a superb archiving system, but also to put off indefinitely the purchase of more disk storage. Δ

Gordon Campbell is MIS manager for the Canadian Banker's Association in Toronto, Ontario. He can be reached at 416/362-6092.

DATA GENERAL HARDWARE

IF IT'S IN STOCK, WE WON'T BE UNDERSOLD . . . GIVE US A TRY

MV20000—I 0 MEM.....	\$4,000	6239—A 592MB.....	\$1,600
MV20000—II 0 MEM.....	6,000	6239 S/S 592MB.....	1,700
DG 32 MB MEMORY MV15/20.....	4,500	USED 332MB SCSI DISK.....	800
DG 16MB MEMORY MV15/20.....	1,500	6236—A 354MB.....	250
DG 8MB MEMORY MV15/20.....	800	6236 S/S 354MB.....	350
FLOATING POINT MV15/20.....	1,000	4373 1200 LPM PTR.....	900
MV15/20 MID REV 63.....	2,000	6475 LASER NEW 220V.....	1,200
MV20000 CPU REV 82.....	3,000	6491—A 322 DISK.....	800
MV2500, 8MB, 322MB, 130MB.....	3,000	330MB EDSI DISK.....	1,200
MV2000—II, 4MB, 21MB.....	1,000	71MB DISK—DESKTOP.....	350
MV2000—I, 2MB, 21MB.....	600	160MB DISK MV2000.....	755
D/461 W/KYBD USED ....295		38MB DISK—DESKTOP.....	200
DESKTOP 20 W/512KB.....	350	73MB WINCHESTER.....	300
D/216+ W/BARCODE OPT NEW.....	375	ZETACO 295C CTRL.....	600
D/412+ W/BARCODE OPT NEW.....	450	MICROPOLIS 1578 380MB.....	900
D/215 W/BARCODE OPTION.....	350	6300 16/6250 BPI TAPE.....	1,000
D/220 COLOR USED.....	600	SPECTRA, 17/27 CTRL	
D/216+ E AMBER.....	250	DISK & TAPE.....	250
D/460 USED W/KYBD.....	150	EXABYTE 8200 2GB TAPE.....	1,300
D/410 USED W/KYBD.....	100	IN RACK CHASSIS W/PS(PERTEC)	
D/211 USED W/KYBD.....	125	6341 SCSI TAPE—MV2.....	1,200
D/214 USED W/KYBD.....	125	4327—A 300 LPM BAND.....	550
D/216+/412+/462+ PHROM NEW.....	75	130MB TAPE—MV25.....	1,200
D/216/412/462 PHROM NEW.....	75	6594 PRINTER UNUSED.....	1,925
		4518 OR 6321 PTR LQ.....	200

ASSET REMARKETING CORPORATION

1103 S. Cedar Ridge Drive
Duncanville, Texas 75137

(214) 296-9898

(800) ARC-9993

FAX (214) 296-9651

BUY

SELL

LEASE

TRADE

Circle 3 on reader service card.

EZ/Mail™

OFFICE AUTOMATION SOFTWARE

- Superlative E-MAIL with document exchange
- Powerful document filing—runs any WP or Spreadsheet
- Excellent productivity tools
- Simple, intuitive interface
- Unique user-profiling — improves site security
- Runs any program from Main Menu, tailor per user
- Supports your database & application environment
- Improves user productivity
- Low cost of ownership
- Free evaluation packages available

EZ/Mail uses CQCS, the leading 4GL from Cyberscience Corporation. EZ/Mail runs on all DG Systems, DOS, and most Unix-based machines. Try EZ/Mail today and introduce new productivity to your organization!



PO BOX 5826
Pittsburgh, PA 15209
For information, call:
412/364-9909
Voice / Fax

Value-Added ReSeller

Circle 41 on reader service card.

Transferred support

SYNOPSIS

What will it mean for Data General to turn over future BBASIC development to an outside company?

by George Henne
Special to Focus

I just returned from the NADGUG Conference in Kansas City, where a meeting of the Business BASIC Special Interest Group (BBSIG) was held. It was a good meeting, with a bombshell from Data General tossed in.

The big news is that Data General has transferred support for Business BASIC to Patni Computer Systems of Bombay, India. A number of other Data General products were transferred there early in 1992; Business BASIC was quietly added to the list around May.

The attraction to Data General is clear: DG wants to focus on being a hardware company, so it makes sense to contract out the work to a competent, low-cost development shop. Patni has been the Data General distributor in India for many years, and has a long and good relationship.

Patni's people have already spent time in Research Triangle Park, getting all the technical details, and have already started handling bug fixes. First-line support is still handled out of Atlanta. Users should notice little difference in how STRs are addressed. By the way, Data General has reached an impressive milestone on BBASIC STRs:

as of the date of the NADGUG 92 conference last October, there was only one Business BASIC problem outstanding.

What will the move mean for future development of BBASIC by Data General? Patni works under contract to Data General, and will implement changes as directed by DG. Two changes are planned for the coming year: Release 5.30 will contain a STEP statement for debugging (allowing line-by-line execution) and a modification to the ENTER statement to trap bad files.

By any standard, this is an unimpressive list. The work that Data General has done in the past two years to improve Business BASIC, especially under Unix, was extremely encouraging. New features were added and performance dramatically increased. The team that did the work has been disbanded and dispersed, mostly within DG. The new people at Patni, talented as they may be, will need time to reach a similar level of competence.

Perhaps, once Patni is fully up to speed on Business BASIC, Data General will fund new development to add some of the features already in Transoft's UBB. It would be a shame for the whole Business BASIC community if Data General's product fell irretrievably behind Transoft's product.

In the discussions about the activities of the BBSIG for the coming year, a number of ideas were discussed. There was strong support for ways to improve communication between members of the group and a couple of proposals were made.

First, Calvin Durden will be print-

SHARE IN THE WEALTH.

*Thousands of NADGUG members will share
their experiences with you.*

*It's a rich resource
available to members only.*

Benefits of a NADGUG membership include:

FOCUS Magazine

The Annual NADGUG
Conference and Exposition

The Bulletin Board

The Software Library

The Member Directory

The RFE (Request
for Enhancement) Process

Regional and Special
Interest Groups

**NORTH AMERICAN
DATA GENERAL**

USERS GROUP

Join the Group. Call 1-800-253-3902, and ask
for more information about NADGUG membership.



Peach of a Deal Worldwide — Everyday on Data General Hardware

“DO ONE THING WELL”

For over 16 years we have specialized in Data General hardware and only Data General hardware. Over 10,000 domestic and International repeat customers can't be wrong.

! THIS MONTH'S SPECIALS !

MV40000 Job Processor.....\$69,000	Aviion & MV 1.0GB Disk.....\$2,700
MV15000 Mod 20 complete.....\$4,900	CSS-II, Host Adaptor, 1.0GB Disk.....\$7,500
MV5500 complete & certified.....\$12,900	80108 MV95/9600 32MB Memory.....\$8,900
MV15000 Mod 8 complete.....\$1,490	6394 D461 CRT with Keyboard.....\$295

Call Today!
1-800-229-2897

Ask for our free product guide.



COMPUTER WHOLESALERS INC.

3246 Marjan Drive
Doraville, Georgia 30340

404-455-4542
FAX 404-457-5841

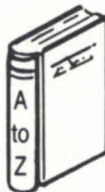
Circle 8 on reader service card.

ARC[®] version 2 with ARctape

Take
the Disk
Equivalent
of . . .



And
Reduce it
to this.



ARC version 2 can now process an **unlimited** number of input files.

The New ARctape is up to 6 TIMES as fast!

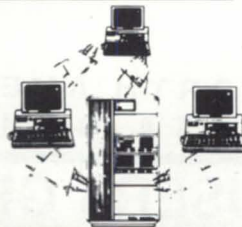
- Proven, reliable compression, up to 90%+
- With ARctape, unattended backups to a single tape
- ARC is officially approved by the creators of ARC on the PC

TurboTran[™] Xmodem/Ymodem Protocol

provides **ERROR-FREE** file transfer to and from **ANY** PC, using almost any emulator, at speeds up to 38,000 baud.

The Smart Connection[™]

Complete PC integration with SmarTerm[™] products and perfect integration with CEO.



CORPORATE LICENSES AVAILABLE



Data Bank Associates, Inc.

20010 Century Blvd., Suite 104
Germantown, Maryland 20874
Telephone (301) 540-5562
or FAX (301) 540-8105



ARC is a registered trademark of System Enhancement Associates. SmarTerm is a registered trademark of Persoft Corp. CEO is a registered trademark of Data General Corp.

Circle 10 on reader service card.

ing up and distributing a membership directory. This will be sent, free of charge, to all registered members of the BBSIG. If you haven't joined yet, now would be a great time to mail your \$10 (U.S.) to:

Calvin Durden
Tractor & Equipment Co., Inc.
5336 Airport Highway
Birmingham, AL 35212

Enclose some details of your installation, and Calvin promises you'll get a copy of the directory "real soon now."

Second, we want to get a bulletin board into active operation. It seems, from our discussion, that there are already a couple of informal boards in operation around the country. We'll be looking at the participation in those, pick a good one, and encourage everyone to call in on it. It'll be great to have a forum for the exchange of ideas on Business BASIC.

I'll give the number and sign-on information in an upcoming *Focus* issue. In the meantime, if you'd like to provide some input into the process, please give me a call.

Membership in the BBSIG is open to all users of Data General Business BASIC and the variations thereof: B32, Bluebird, UBB, TAC, and MarcAlan. All operating systems are included: RDOS, AOS, AOS/VS, DOS, Super DOS, Unix, Xenix, AIX, DG/UX, HP/UX, etc. Finally, there is no requirement that you actually use Data General hardware, just that you use a language based on DG Business BASIC.

I'd like to get this column back to its technical roots. If you've got an interesting technique or problem in Business BASIC, give me a call and I'll write it up for you. I promise you full credit or complete anonymity, whichever you request. Δ

George Henne is the President (once again) of the BBSIG. You may reach him at The Eastwood Group, 77 Hill Cr., Toronto, Ontario, Canada M1M 1J3. Tel 416/264-5777, fax 416/264-5888. The Eastwood Group specializes in assisting Data General users in conversions to Unix.



SCOTT McINTYRE & ASSOCIATES, INC.
 "YOUR GLOBAL SOLUTION FOR D.G. & MOTOROLA"

"PRICE!"

"Your prices, the equipment and delivery time have always been as you promised, excellent!"

Amr Allouba
 Managing Director
 TEA Computers, S.A.
 Cairo, Egypt

"PERFORMANCE!"

"Scott McIntyre & Assoc., Inc. has earned the respect of all the executives at our company for their honesty and diligence. They have always been flexible and accommodating."

Andy Michael
 Sales Director
 Quiss Tech., PLC
 London, England

6613T-A
 12" WORM
 OPTICAL DISK
 ADD-ON
 "STOCK!"

6631-A
 600MB
 ADD-ON
 DISK
 "STOCK!"

4370
 IAC-16
 RS232
 W/TCB
 ONLY
 \$439

D215
 CRT & KB
 ONLY
 \$155

"QUALITY!"

"Many other resellers in the U.S.A. would like to deal with us in Australia, and on some occasions we have bought and sold equipment to them. However, the quality of the goods and service has never matched what we receive from your company."

Alan Frazer
 Manager, D.G. Div.
 Sukkar Business Systems
 Sydney, Australia

"DELIVERY!"

"I would like to take this opportunity to thank you for helping our company to upgrade our existing Data General computer system. We now have the capabilities to expand our system, which will certainly help our business run smoothly and efficiently."

Mark W. Patton
 Ass't. Gen. Mgr.
 Branch-Patton Superstores
 Nacogdoches, Texas

SCOTT MCINTYRE & ASSOCIATES
 DRAWING WORLDWIDE ACCLAIM!

*** BUY * SELL * TRADE ***
DATA GENERAL & MOTOROLA

WORLDWIDE REFERENCES AVAILABLE UPON REQUEST!

SCOTT McINTYRE & ASSOCIATES, INC.

P.O. BOX 82115 • 2291 STAR COURT ROCHESTER, MI 48308-2115
 PHONE: 313-299-0040 FAX: 313-299-0041

DASH items

SYNOPSIS

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

Category: DG/UX

Author: Michael Greer

Subject: *vi* tmp files

I have occasion to use *vi* to edit files that are 2 MB in size. Since *vi* puts its tmp files in /tmp, which on my system is part of the root file system, I run out of space. This was easy for me to work around, but upon investigation I discovered that the tmp file *vi* was trying to create was more than 5.5 MB when I was editing a 2 MB file. Can someone tell me why *vi* would create such a huge tmp file, or is this a bug?

Reply by: William Krog

vi always creates a work file larger than the regular text file being edited, since it stores a great deal more information in the work file than just the text characters. This is built into the *vi* code, so it's not a bug. I don't know if there is a work-around. You can, however, tell *vi* to use a different directory for its temporary files, using the `:set` command. Syntax would be `":set directory=/whatever"`. That would at least enable you to control where *vi* generates these files.

Author: Wendell Dingus

Subject: 5.4.2

I skimmed through the software release notice but admittedly didn't look very close. Therefore, I thought I'd ask this question here and maybe get a quick and easy answer. Here it is: I just got in the 5.4.2 upgrade, which will be for our in-house development system and some of our customers. The tape does not say if it comes with X-Windows on it, so what I'd like to know is, does it? Our development system (AV 300 with 19-inch monitor) has been giving me a few problems lately, and I wanted to back up all the user files and totally reinstall. I would prefer to know if X is not on the tape beforehand,

though, to avoid having to get it back via some difficult method.

Also, one other quickie: Can 5.4.2 be installed on a fresh system by itself, or does 5.4.0 have to be installed first, and the 5.4.2 tape be used to "upgrade"? That's what I was told had to be done with 5.4.1, but it looked like the 5.4.1 install script just redid the same things the 5.4.0 script had done, only using newer versions.

Reply by: Wiley N. Johnson

5.4.2 is a complete system tape. It is *not* required or allowed. If the model number of your distribution tape is Q001, then X is not included (that is the server tape). If the tape model number is P001, then that is the workstation tape, and *does* include X. X from 5.4.0 should not be used with 5.4.2, I don't believe. I think a new release of X11 is included with 5.4.2.

Author: Rodney Wright

Subject: DG/UX 5.4.2

We have two OS release tapes. One is labeled "Q001APY1CA", and the other is labeled "Q001ASY61A". We wonder what the differences are between these two tapes. Can anyone give us a clue?

Reply by: Wiley N. Johnson

Q001 - DG/UX server package
A - version
P - user count - P=1-16,
S=Unlimited
Y - CPU class; all 5000, 6000,
7000, 8000 servers
1C - License and service offering;
license, media, and doc
61 - License and service offering;
Support Plus
A - media type; QIC cartridge

They should be the same.

Author: Bernie Gaider

Subject: Raw partitions

On our DG Aviiion 4600 with rev

5.4.1 of the OS, we have multiple raw hard disk partitions. Is there any way you can back these up to just one tape, either through using *dd* or some other backup program? I suspect *dd* may be able to do it, but due to a lack of documentation, I have been unsuccessful in making it work.

Reply by: John Ross

You should be able to use *dd* by using the *norewind* device, ex:

```
dd if=/dev/rdisk/XX of=/dev/rmt/On
```

Do this for every raw disk partition you wish to back up, and that your tape has room for, but make sure you keep track of which tape file has which raw disk partition. If you need to restore one, you'll need to know which tape file it is. You can use the *mt* command to manipulate the tape.

Author: David Lawver

Subject: Setting time in DG/UX while multiuser

We have a bunch of Aviiion 4xxx's running 4.3 or 5.4 DG/UX. The man page for *date* states:

"Should you need to change the date while the system is running multiuser, use the *date-time* command of *sysadm* (1M)."

Does anyone know why? What we want to do is use some of the scripts we have seen around for synching all the machines with NIST time, but they all involve changing time while multiuser.

Reply by: DASH Development

I strongly suspect it's to forestall unexpected (and probably undesired) side-effects of discontinuities in the clock. Time-share accounting springs to mind. As do *make* and *cron*. This is also the probable cause for the "adjust the clock slowly" feature of the *date* command.

Reply by: David Lawver

So, if we use the "adjust the clock slowly" feature, would it be safe to adjust time with date command while multiuser?

Reply by: DASH Development

The "Managing the DG/UX System" manual (pg. 4-26) says that you should not set the clock back unless you are in single-user mode, to prevent system daemons and clock clients from operating erratically. It also states that you can set the clock forward at any run level "without disrupting" things. So, I'd suggest going to single-user mode to set the clock back, and using the -a option on the date command to set the clock forward.

Category: Utilities

Author: Home Beneficial
Subject: **Librarian**

Our company is interested in some type of source code librarian-type prod-

uct. We need something that will allow many users to look at or copy programs, but only one person to update them. We also need some type of archiving feature to recover prior versions of a program. We would like something similar to the product we have on our mainframe, CA-Librarian. We would appreciate any information you could give us.

Category: AOS/VS

Author: Mark Sims
Subject: **AOS/VS II rev 2.10 DDUMP & DUMP_II**

A user on an MV/40000 HA Mod 2, under AOS/VS II, rev. 2.10, patch level 100, experiences a problem using an 8 mm tape drive with DDUMP & DUMP_II. If the switch /SEQUENTIAL is used, the system immediately gets a hard error from the tape drive. Has this problem been reported, or is there a patch that is available?

Reply by: DG Customer Support

The /SEQ switch is used only with labeled tapes. The 8 mm drive does not support labeled tapes, so you should not be using the /SEQ switch. Several other problems with the 8 mm drive and DLOAD are corrected with an optional patch:

2.10_AGENT.PR_GIGATAPE_OPAT.

This patch comes on the 2.10 tape. The usual symptoms seen before installing this patch are device timeouts when attempting to DLOAD a large data base from the 8 mm tape. Δ

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

The North American Data General Users Group is an incredible resource when you need answers.

*So, don't go it alone - join **NADGUG** today!*

Circle 17 on reader service card.



:WFFCA
World's Fastest File Compressor & Archiver.

:WFFCA compresses files and archives them faster and with less impact on other users than any other similar utility available on DG systems. Dramatically reduce disk storage used by infrequently accessed files maintained for historical purposes. A typical SYSLOG file compresses better than 7 to 1.

:WFFCA has the ability to handle archives in the popular PC ARC™ format significantly reducing file transfer time.

Initial AOS/VS and AOS/VS II License: \$499
10 Day Trial Copy: **FREE!**

ARC™ is a registered trademark of Systems Enhancement Associates
A Division of B.J. Inc.

:SYSMGR
Software for System Managers

109 Minna St., Suite 215
San Francisco, CA 94105
(415) 550-1454 FAX (415) 550-1072

Circle 39 on reader service card.

DG TERMINAL SWAPOUT/REPAIR

SERVICING ALL DATA GENERAL TERMINALS

From **\$59**

LESS TURNAROUND TIME...WE'LL SHIP YOUR ADVANCE TERMINAL TODAY!

Call for all of your self-maintenance requirements.



DIGITAL COMPUTER CONSULTING, INC.

Boston
Tel: (617) 837-7255
Fax: (617) 837-9641

Baltimore
Tel: (410) 750-7200
Fax: (410) 750-7202

Circle 18 on reader service card.

The latest products for DG systems

Unix backup, archiving, and library management



Boulder, CO—Spectra Logic, a division of Western Automation, released a comprehensive Unix software package designed to manage data on automated media changers. The product is being distributed exclusively to Data General Aviiion users by Eagle Software, Inc.

The Alexandria Backup and Archive Librarian supports workstations and servers, either stand-alone or on heterogeneous networks. It super-

vises every facet of backup and archival storage, from automatically starting scheduled store operations to managing data, media, storage devices, and even device maintenance across an entire network. Alexandria's scheduler can supervise an unlimited number of full backups, incremental backups, and restores. Files can be included or excluded by pattern, user, group, or date; repeats can be specified by hour, day, date, day of week, month, or year.

The package manages media in libraries as well as media stored in a vault, or off-site. Users can specify the

duration of both library storage and vault storage, after which time the media can be reused by Alexandria. The system tracks media usage and requests replacement when the media's user-defined life is reached. Alexandria can also automatically insert a cleaning cartridge in systems using either 4 mm DAT or 8 mm tapes.

Alexandria includes two user interfaces. The X-11/Motif interface provides pull-down menus and graphical access to all users. The command-line interface provides scripting capabilities as well as access from text-only termi-

Data General • Buy • Sell • Trade

Processors:

MV40000 32MB	.....	SAVE \$
MV30000 Model 1	.....	Call
MV30000 Models 2,3,4 CPU upgrade	.....	Call
MV20000 Model 1 16MB	.....	SAVE \$
MV20000 Model 2 16MB	.....	SAVE \$
MV20000 Model 1 to Model 2 upgrade	.....	SAVE \$
MV15000 Model 20 8MB	.....	SAVE \$
MV15000 Model 8 to Model 20 upgrade	.....	SAVE \$
MV15000 Model 10 to Model 20 upgrade	.....	SAVE \$
MV10000 4MB Meter high cabinet	.....	\$2,000
MV8000-II 8MB Meter high cabinet	.....	900
MV9500 CPU w/32MB	.....	25,000
MV9600 CPU w/32MB	.....	36,000
AViiON All Models	.....	SAVE \$
MV8000 Model 9300	.....	800
MV7800 4MB 16 slot chassis	.....	1,900
MV7800XP 4MB	.....	2,900
MV4000 2MB	.....	700
MV4000DC 2MB, 120MB, floppy	.....	1,200
MV2000 Enhanced 4MB 160 MB disk	.....	3,200

4463-ZT USAM-4	.....	\$275
4380 ISC-2 (Synch)	.....	300
4370 IAC-16 RS232, 20MA, W TCB	.....	600
4623 IAC-24 w/TCB-24	.....	3,300
4367 IAC-8 RS232, 20MA Modem Cnt	.....	400
4532-A ILC	.....	2,350
4560 LAC-12	.....	450
4608 10 Port term. serv	.....	2,800

Disk Storage Units:

6161 147MB Disk subsystem	.....	\$400
6236 354MB Disk subsystem	.....	600
6239 592MB Disk subsystem	.....	1,950
6329 120MB MV2000/MV1400	.....	600
6363 160MB MV2000/MV1400	.....	900
6491 322MB for MV2500 or CSS	.....	1,300
6554 662MB for MV2500 or CSS	.....	1,700
6581 500MB R.A.M.S. Disk	.....	Call
6720 CSS2 1.0GB Disk subsystem	.....	7,000
6685 1.0GB Disk Drive A/O	.....	2,700
2351 Fujitsu w/BMX3	.....	2,500
6061/6122 Zebra Disks or Parts	.....	Offer
Zetaco ARZ and SKS subsystems	.....	Call
Zetaco Laser Disk subsystem	.....	Call

Terminals:

6165 D460 Monitor with keyboard	.....	\$150
6166-X D410 Monitor with keyboard	.....	120
6169-X D211 Monitor with keyboard	.....	125
6391-X D214 Monitor with keyboard	.....	140
6392-X D216 Monitor with keyboard	.....	150
6393-X D411 Monitor with keyboard	.....	160
6394-X D461 Monitor with keyboard	.....	195
6500 D216 Monitor with keyboard	.....	210
6682 D217 Monitor with keyboard	.....	275
6567 D412 + Monitor with keyboard	.....	275
6568 D462 + Monitor with keyboard	.....	500

Tapes:

6021 800 BPI new style	.....	\$300
6026 800/1600 BPI Brown, FCC compliant	.....	550
6125 1600 BPI Tape	.....	450
6341-A 1600 BPI Streaming Tape	.....	1,100
6299/6300 1600/6250 BPI	.....	950
6586-A Galaxy Tape	.....	5,200
6587-A 1600 BPI Tabletop	.....	3,900
6590M 2GB Subsystem	.....	2,500
Megatape 2GB Subsystem	.....	Call
6588 6250 BPI Tape	.....	8,500
6589 6250 BPI Tape	.....	8,700

Memories:

MV40000, All sizes	.....
MV20000, All sizes	.....
MV15000, All sizes	.....
MV10000, All sizes	.....
MV9500, All sizes	.....
MV8000, All sizes	.....
MV7800XP, All sizes	.....
MV7800, All sizes	.....
MV4000, All sizes	.....
MV2000, All sizes	.....

Specials

D 410 Terminal	.....	\$120
CSS (SCSI) Disk & Tape Subsystems	.....	Call

THOUSANDS of Parts For DG Machines

Processor Options:

8997 Expansion chassis MV15, 20	.....	\$2,500
8819 Second IOC for MV10000	.....	1,000
8762 Expansion chassis	.....	1,900
4543-B MCP1 8 Async 2 Sync DCH Ptr	.....	1,050

International Computing Systems

P.O. Box 343 • Hopkins, MN 55343

1-800-522-ICSC (4272)

(612) 935-8112

FAX 612/935-2580



Circle 24 on reader service card.

nals, allowing the experienced Unix user to access system-level commands. Prices for server versions of Alexandria range from \$1,550 to \$12,000 depending on type of system and functionality; client versions range from \$200 to \$750 for workstations depending on quantity purchased.

Spectra Logic, 1700 North 55th Street, Boulder, CO 80301; 303/449-7759. Eagle Software, Inc., 123 Indiana Avenue, P.O. Box 16, Salina, KS 67402-0016; 913/823-7257.

Circle 54 on reader service card.

Conversion services



Toronto, Canada—Users of Wordperfect's Mathplan and Planperfect for Data General can now take advantage of conversion services offered by the Eastwood Group, which specializes in assisting Data General users in converting to Unix systems.

Planperfect on Data General has no spreadsheet export facilities, making it impossible to import Planperfect spreadsheets into any other spreadsheet program.

The Eastwood Group's conversion service allows batches of spreadsheets to be moved from Planperfect and used by other spreadsheet programs, such as Lotus 1-2-3 and Computer Associates 20/20. All data and nearly all functions and formatting are preserved.

Users benefit from greatly improved performance, more features, a more standard user interface, and much larger allowable spreadsheet size. Conversions can be done for spreadsheets running on RDOS, AOS, and AOS/VS systems. Costs depend on the number of spreadsheets to be converted. In most cases, conversions can be done from even the earliest releases of Mathplan, when Wordperfect was still named Satellite Software International.

The Eastwood Group, 77 Hill Cr, Toronto, ON, Canada M1M 1J3; 416/264-5888.

Circle 57 on reader service card.

Extending disk life



North Springfield, VT—To extend the life of 14-, 10-, and 8-inch SMD and SMDE-type disk drives used and sold on virtually every computer system manufactured between 1966 and 1986, Vermont Research Corporation (VRC) announced The Answer, a series of plug-and-play disk drive replacements.

VRC's The Answer replaces drives used on a wide variety of computer systems, including Data General (Kismet 6214 and Vulcan 6122). Typically these drives supported 80 MB, 160 MB, 315 MB, 320 MB, 330 MB, and 680 MB in a dual-ported or daisy-chained configuration. The Answer is rated in excess of 150,000 hours MTBF, is guaranteed for five years of continuous operation, and offers capacities ranging from 80 MB to 740 MB.

Prices range from \$7,280 to \$13,340 depending on the size and quantity of disks replaced.

Vermont Research Corporation, Precision Park, North Springfield, VT 05150-0027; 802/885-2256.

Circle 58 on reader service card.

BUSINESS BASIC UNDER MS-DOS!

With

MOUSE SUPPORT...

Pop-Up WINDOWS...

KPREV Index Support...

(and of course)

**a ROYALTY-FREE RIGHT
to reproduce and distribute
executable files!**

PCBB is an easy to use product which allows you to convert your existing double and triple precision D.G. Business BASIC applications and data over into a single or multi-user MS-DOS environment. Binary compatibility allows data and index files to be moved and utilized without modification.

PCBB features include on-line help, debugger, an editor which offers the look and feel of an interpretive environment and Compiler Driver which expedites the process of compiling source code without the creation of batch files. Special features such as support for extended or expanded memory, 128 user channels, pop-up window support, KPREV index support, an allowance for labels to be utilized instead of line numbers, and a Block Common area that can range in size from 512 bytes to 10K in size are standard. Utilities to maintain Data General compatible screen files, param, logical database and index file structures are also included.

Purchase of **PCBB** includes a royalty-free right to reproduce and distribute executable files.

Write, call or fax now for more information

MarcAlan Software, Inc.

22096 North Pet Lane

Lincolnshire, Illinois 60069-4113

Voice: 1-800-728-7387

Fax: 1-708-634-9460

PCBB is a registered trademark of MarcAlan Software, Inc. All other product names and logos are trademarks or registered trademarks of their respective owners.
© MarcAlan Software, Inc. 1990

Circle 27 on reader service card.

RAID 7



Nashua, NH—At Technetron '92 in Boston, Storage Computer Corp. (Storcomp) announced its new RAID (redundant arrays of inexpensive disks) storage system, the Storcomp RAID 7.

Available in desktop, integrated rackmount, and modular (console) configurations, Storcomp RAID 7 platforms are designed to provide 1 to 141 GB of protected storage capacity on network file servers, including Data General's MV family and the Aviion 6225. RAID 7 breaks host I/O barriers that previously have kept a large percentage of host MIPS (million instructions per second) from being utilized. It provides virtual solid-state disk performance with data fault tolerance at commodity disk prices.

Storcomp's RAID 7 platforms feature a patented asynchronous hardware design with a real-time embedded operating system to control access to the

disk drives and data flow to the host.

Pricing for the Storcomp RAID 7 platforms vary according to packaging and configuration. Desktop units start at \$15,900, and can be expanded to support 12 disks and 2 host interfaces. Integrated rackmounted units start at \$19,500, and are upgradable to as many as 18 drives and 4 host interfaces. Console systems are separate modular rackmountable units that can be stacked to support 48 drives and up to 12 host interfaces.

Storage Computer Corp., 11 Riverside Street, Nashua, NH 03062; 603/889-7232.

Circle 55 on reader service card.

DBR for open systems



Salt Lake City, UT—DMS Systems, Inc., announced that its Disk Backup & Recovery System (DBR) utility for AOS/VS has been extended into the open systems market for AOS/VS-to-

Unix migration.

DBR solves the migration problem by allowing tapes created on AOS/VS to be read on Unix, and Unix tapes to be read on MVs. DBR on the Unix side will automatically sense that a tape was created using a VS dump utility and load the data in the Unix file system. On the Unix side, DBR loads tapes made with the AOS/VS II, AOS/VS, AOS, or RDOS operating systems. In addition, DBR for Unix will dump data to a tape in a format that standard AOS/VS utilities can load. DBR options also allow for system differences such as Unix hard links.

Hardware resources can be shared by Unix and AOS/VS II machines on a TCP/IP network. Using special software on the AOS/VS II system (the DBR MV server), DBR can dump directly from a Unix file system to a tape drive that is on the VS II system.

The tape can be created using the standard VS format, *tar*, *cpio*, or Unix DBR format.

DG & MOTOROLA BUY • SELL • LEASE

CPU

MOT 8220, 8420, 8620
MOT 8440, 8640, 8840
MV/15000, 20000
MV/10000, 18000
MV/8000
MV/7800
MV/4000, 4000DC
MV/2000, 2500
NOVA 4-C, S/20
S/140, S/280, C350

MEMORY

MV & ECLIPSE
NOVA & MICRO NOVA

PRINTERS

4320 55CPS LQ
GENICOM 3318
Data Prod B300, B600
Printronic P-300
HP LASER JET I, II

DESKTOP

DG/10, 20, 30 PKG
DISK UPGRADES
USAM-4, USAM -1
CARTRIDGE TAPE
MEMORY

COMMUNICATIONS

IAC-8, 16, 24
TCBs
COM BASIC I/O
ATI-16, AMI-8
ALM-8, ALM-16
LAC-12, 16, 32

DISK / TAPE

322, 332, 662MB
500MB, 1.2GB
354, 592 MB
96, 192 MB
10, 12.5, 20, 25 MB
6231 CART N/E
6026, 6123, 6125
6299, 6300, 6021

CRT'S

6053, D-100, D-200
D-210, 211, 410, 460
D-214, 215, 411, 461
D-216, 412, 462, 470
D-217, 413, 463

COMPATIBLES

ZETACO CDC
FUJITSU SCIP
DATARAM STC

WANTED
★ ★ ★ ★

**MOTOROLA
VARS**

AMES SCIENCES, INC.

1787 Chancellor Point Rd., Trappe, MD 21673

(410) 476-3200 • Fax 410-476-3396

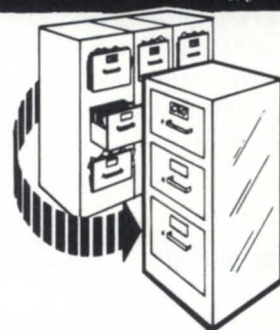
Circle 2 on reader service card.

The product CEO system managers and users have been waiting for.

Now With
Automatic
ARCHiving

ARChive Interface Module (AIM)™

Compress CEO Documents With
Immediate, On-Line Restoration



As a CEO public application:

- Relieves the system manager of the responsibility to restore user's documents.
- Saves disk space by compressing the files into an ARC® library.
- Keeps CEO users happy by allowing them to restore their own documents.
- Works either with, or independently of the CEO archiver, and will restore documents previously archived to tape.

Call, Write or FAX for AIM on a 30 Day Approval!

CORPORATE LICENSES AVAILABLE *



Data Bank Associates, Inc.

20010 Century Blvd., Suite 104
Germantown, Maryland 20874
Telephone (301) 540-5562
or FAX (301) 540-8105



ARC is a registered trademark of System Enhancement Associates, CEO is a registered trademark of Data General Corp.

*Must also purchase a license for ARC.

Circle 10 on reader service card.

DMS Systems, Inc., 1111 Brickyard Road, Salt Lake City, UT 84106; 801/484-3333.

Circle 50 on reader service card.

Automated shutdown



Birmingham, England—IDC Systems Limited introduced EMAS 1288, which ensures an automated shutdown of your Data General operating system in the event of an environmental fault detected within the computer room. An automatic shutdown will also occur when there is a prolonged power failure greater than the battery support time of an attached uninterruptible power supply (UPS).

Available for both AOS/VS and DG/UX, the software package allows the user flexible control when problem conditions exist. Typical examples include message broadcasting, applica-

tion and batch queue control, operation of remote audible and visual alarms, and overall system environment monitoring.

EMAS 1288 also offers an optional Telephone Alert Unit, allowing remote paging via a telephone line when a fault condition exists. AOS/VS users of the product who subsequently migrate to DG/UX are offered a software upgrade at a nominal cost.

IDC Systems Limited, 11 Rovex Business Park, Hay Hall Road, Tyseley, Birmingham B11 2AF, England.

Circle 52 on reader service card.

Optical data storage



Kansas City, MO—During NADGUG 92 International Software Systems, Inc., announced Fiche Net, an optical data storage and retrieval system for businesses seeking to replace microfiche,

tape, or paper storage. Print files are compressed and indexed, then archived on optical disks for viewing, searching, and printing.

Fiche Net utilizes WORM (write once read many) technology for permanent document storage. If permanent storage is not necessary, documents can be stored on rewriteable optical media.

Fiche Net can be integrated to a mainframe, Unix-based system, or a PC LAN, although a LAN is not necessary. The newest release of Fiche Net runs in the MS-DOS environment.

The system offers up to 10 indexes, user-defined parameters, up to 99 security levels, speedy retrieval time, and adaptability a variety of industry applications.

International Software Systems, Inc., 8101 College Blvd., Suite 290, Overland Park, KS 66210-1844; 800/235-1285.

Circle 53 on reader service card.

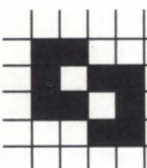
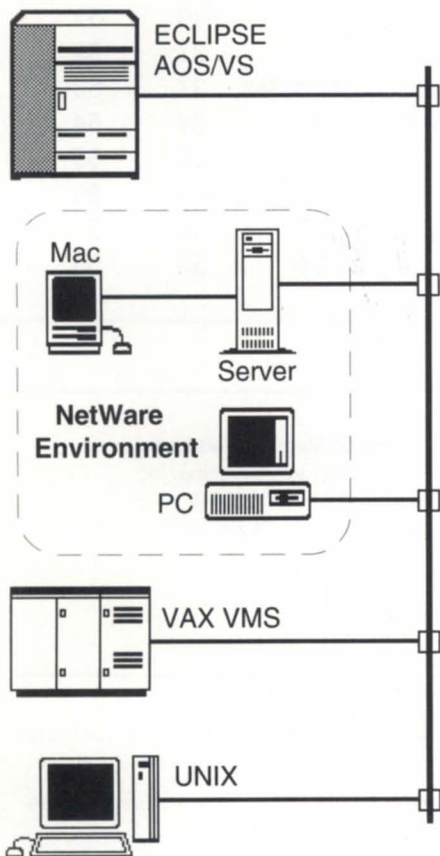
Continued on page 39

AOS/VS to NetWare INTEGRATION

Novell brings NetWare into Open Systems networking with support for industry standard NFS (Network File System) and TCP/IP networking protocols. Your NetWare servers already have the foundation for an enterprise-wide Open Systems integration strategy.

C&C brings AOS/VS into Open Systems networking by providing NFS and TCP/IP networking solutions for AOS/VS systems. You get network terminal access, file transfer and sharing, backup, printing, electronic mail, and much more, at high performance, low cost, and using only industry standard protocols.

This Open Systems networking architecture also provides integration from AOS/VS to other systems such as DEC, UNIX, HP, IBM, and many others.



Clafin & Clayton, Inc.

203 Southwest Cutoff
Telephone (508) 393-7979

Northboro, MA 01532
FAX (508) 393-8788

Circle 4 on reader service card.

Ad INDEX

Company	PG#	RS#	Company	PG#	RS#
Ames Sciences, Inc.	36	2	NADGUG	14	29
Applied Computer Solutions	39	-	Park Place International	9	30
Asset Remarketing Corp.	27	3	PereLine Data Systems	39	-
Clafin & Clayton, Inc.	37	4	RAVE Computer Association, Inc.	C3	31
Clafin & Clayton, Inc.	17	5	Rhintek, Inc.	11	32
Compulan International	39	6	Sabra Systems, Inc.	26	33
Computer Engineering International	3	7	SCIP	5	34
Computer Wholesalers, Inc.	30	8	Scott McIntyre & Associates	31	35
Cyberscience Corp.	C2	9	Security Computer Sales, Inc.	19	36
Data Bank Associates, Inc.	30	10	Sysgen Data	15	37
Data Bank Associates, Inc.	15	11	:SYSMGR, a division of B.J. Inc.	18	38
Data Bank Associates, Inc.	36	12	:SYSMGR, a division of B.J. Inc.	33	39
Data General Corporation	21	13	:SYSMGR, a division of B.J. Inc.	39	-
Data General Corporation	C4	14	Threshold, Inc.	9	40
Data General Professional Services	26	1	Universal Data Corporation	27	41
Data Investors Corporation	25	15	Wild Hare Computer Systems, Inc.	23	42
DataLynx	12	16			
Digital Computer Consulting	33	18			
Digital Dynamics, Inc.	18	19			
Eagle Software, Inc.	7	21			
Flying Point Sales	39	-			
Gerry Manning & Associates	22	22			
Hanson Data Systems, Inc.	6	23			
International Computing Systems	34	24			
Jacobsen & Associates, Inc.	13	25			
MarcAlan Software, Inc.	35	27			
Minitab, Inc.	39	-			
NADGUG	33	17			
NADGUG	29	26			
NADGUG	26	28			
NADGUG	39	-			

PRODUCTS AND SERVICES

Company	PG#	RS#
DMS Systems, Inc.	37	50
Eagle Software, Inc.	39	51
IDC Systems Limited	37	52
International Software Systems, Inc.	37	53
Spectra Logic/Eagle Software	34	54
Storage Computer Corp.	36	55
Sybase, Inc.	39	56
The Eastwood Group	35	57
Vermont Research Corporation	35	58

ON-LINE HELP

Who to call for answers about NADGUG and FOCUS

NADGUG address:
c/o Danieli & O'Keefe Associates, Inc.
Chiswick Park, 490 Boston Post Rd.
Sudbury, MA 01776
FAX: 508/443-4715

FOCUS Magazine address:
c/o Turnkey Publishing, Inc.
P.O. Box 200549
Austin, TX 78720
FAX: 512/335-3083

NADGUG

Membership, RIGs, SIGs

NADGUG staff **800/253-3902**
(Outside the U.S.) **508/443-3330**

Electronic bulletin boards

(300, 1200, 2400, or 9600 baud modem)
Rational Data Systems **415/499-7628**
DASH bulletin board (2400 bps modem) **800/DASH-CSC**
Data General Customer Support Center **800/344-3577**

FOCUS Magazine

512/335-2286

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

Information about advertising Greg Farman

FOCUS back issues Turnkey Publishing staff

Data Specific

DMS and Transoft

DMS Systems, Inc., of Salt Lake City, Utah, announced that **Transoft Ltd.** of Slough, England, has joined its family of distributors of the Disk Backup & Recovery System (DBR) for Unix machines.

"There is considerable synergy between DMS and Transoft, and we are delighted to incorporate DBR into our product line," says Transoft Chairman **Mike Edwards**. DBR features media error handling, speed improvements over built-in Unix utilities, multi-volume backups, and multiple backups per volume. Transoft will have non-exclusive rights to market DBR worldwide, as well as exclusive rights to sell DBR to its installed customer base.

DG and Persoft

Data General Corporation has selected **Persoft, Inc.**, of Madison, Wisconsin, to develop high-end terminal emulation for integration into its CEO Connection/PC software. Under the terms of the agreement, Persoft will provide DG with customized Smarterm 470 and Smarterm 320 terminal emulation software, enabling CEO Connection/PC users to access both Eclipse MV and Avion servers.

"This agreement culminates a 10-year relationship between DG and Persoft," said **Susan Hughes**, Persoft executive vice president of sales and marketing. "DG is drawing on Persoft's expertise and experience in terminal emulation to develop an improved, more flexible product that meets the evolving needs of its users."

In a related agreement, Persoft has granted Data General priority reseller rights to its Smarterm line of terminal

emulation software. In the future, this agreement will enable DG to sell these programs directly to its customers.

"Data General is pleased to formalize its relationship with Persoft," said **Bruce Evans**, DG senior product manager of the Eclipse Business Unit. "Our users will benefit greatly from Persoft's experience in providing high-end connectivity solutions."

Persoft develops and publishes products that provide microcomputer users access to information and applications on local or remote systems. Other Persoft products include Intersect local and remote bridges for connecting ethernet or remote token ring LANs, the Intersect Concentrator for wireless-to-wired LAN connections, and Passage token ring-to-ethernet connectivity software. The company's European headquarters is located at the World Trade Center in Rotterdam, The Netherlands. Sales and marketing offices are also located in the United Kingdom and Germany.

Fault-tolerant disks

Soft Switch, Inc., of Wayne, Pennsylvania, announced that mid-range and large models of EMX, the company's Enterprise Mail Exchange, will be equipped with high-availability disk array (HADA) systems as standard equipment, and with no increase in end user list price.

Soft Switch's EMX product, first announced in June 1992, is an electronic mail multi-protocol backbone switch based on the 1988 CCITT X.400 standard, which also provides for interoperability with existing electronic mail networks via access units for SMTP, SNADS, MHS, and numerous LAN e-mail protocols. It is a fully integrated hardware/software solution that incorporates a complete directory system based on an Oracle RDBMS and the SQL standard, and a graphical management system based on the X-Windows standard.

"We have completed a very successful six-month beta test program of EMS, which began in April," said

Michael D. Zisman, Soft Switch president. "This test period has allowed us to significantly increase the reliability of our software. At the same time, there have been advances in RAID disk technology and pricing, culminating in Data General's announcement of the Clariion disk systems."

The EMX models 4000 and 6000 were originally announced with two CPUs and two 525 MB disk drives. These models will now be equipped with two CPUs and one 2.5 GB HADA disk subsystem. The model 8000, originally announced with four CPUs and 2 GB of standard disk, will now have four CPUs and one 4 GB HADA disk subsystem.

"We're delighted that our leadership position in RAID technology has allowed Soft Switch to dramatically increase the reliability of its Data General Avion-based EMX switches," said **Ronald L. Skates**, Data General president and CEO.

EMX switches range in price from \$30,000 to \$300,000 depending on configuration.

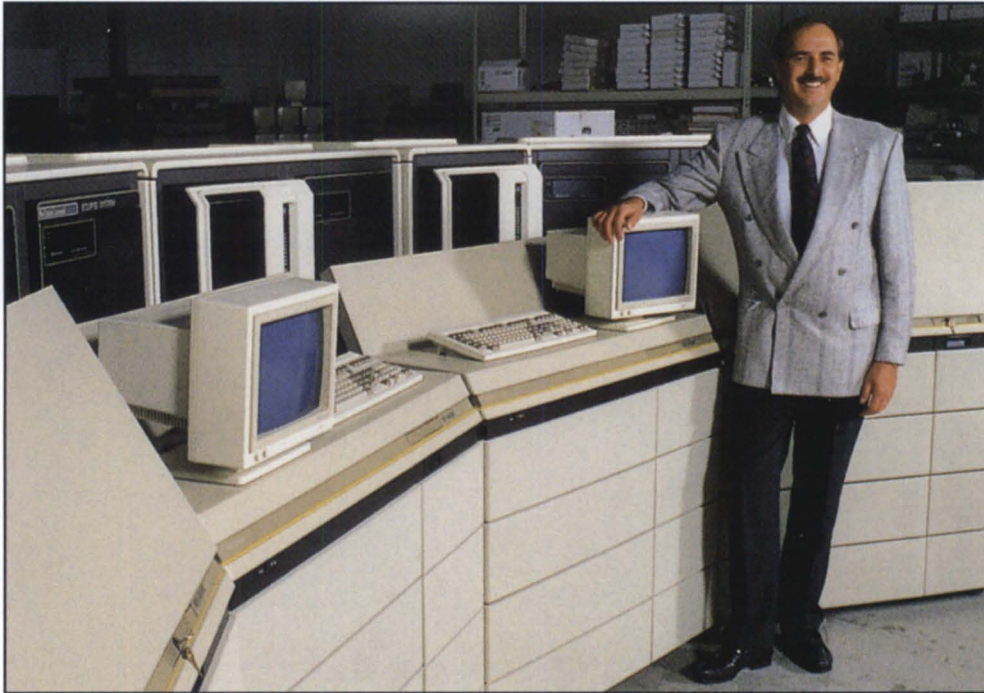
Brasseal joins NPA West

NPA West of Fairfield, California, has named **Jamie Brasseal** regional director of sales and service for the Southwest region. Brasseal will be responsible for sales, operations, and service for Southern California and Arizona, and will report to both **Alan Rees**, president, and **Jose Rivera**, executive vice president.

Brasseal joins NPA West from Data General Corporation, where he worked for 12 years in various capacities including field engineer, regional operations specialist, branch manager, and sales representative for the Los Angeles district.

NPA West, formerly NPA Systems of California, Inc., was founded in 1985 and provides disaster recovery services, third-party maintenance, and sales of new and previously owned equipment. Δ

From MV40000's to Laptops, RAVE Has It All.



"At RAVE, we supply a winning combination of Data General products and business solutions." - RICK DARTER

**BUY, SELL, LEASE
or TRADE**



Sun Microsystems
also Available



Announcing -

RAVE FINANCIAL SERVICES, INC.

- Complete In-House Financing
- Custom Leasing Packages
- Long or Short Term Programs
- Rentals Available



RAVE Computer Association, Inc.

36960 Metro Court

Sterling Heights, MI 48312

(313) 939-8230 / Fax: 939-7431

1-800-966-7283

Presenting the
ECLIPSE MV/60000 HA™



It's the dawn of a new age of corporate computing!

Welcome to the 6th generation of ECLIPSE®—the generation that reaches new heights

in corporate computing while protecting your software investments. The MV/60000 HA gives you:

MORE POWER—100 real MV MIPS supporting over 1000 CEO® or database users with up to 4 CPUs and 1 GB of memory.

GREATER SYSTEM AVAILABILITY—including integrated diagnostics, N+1 power and cooling, AOS/VS II, MRC, and the NEW H.A.D.A./MV disk array.

BREAKTHROUGH TECHNOLOGY—single board 27 MIP CPU, latest Motorola gate arrays, 600 MB/sec asynchronous bus, mid-plane design.

ALL LEADING INDUSTRY STANDARDS—supports SCSI II, TCP/IP, NetBEUI, AppleTalk®, Novell®, OSI, SNA, X.25, and more!

MEETING YOUR NEEDS NOW—whether you require increased processing power, system consolidation, or mission critical confidence, the MV/60000 HA will take you into a new age of corporate computing.

Call **1-800-DATA GEN**

ECLIPSE MV/60000 HA is a trademark of Data General Corporation.
ECLIPSE and CEO are registered trademarks of Data General Corporation.
AppleTalk is a registered trademark of Apple Computer.
Novell is a registered trademark of Novell, Inc.
© 1992 Data General Corporation



Circle 14 on reader service card.