

APRIL 1997

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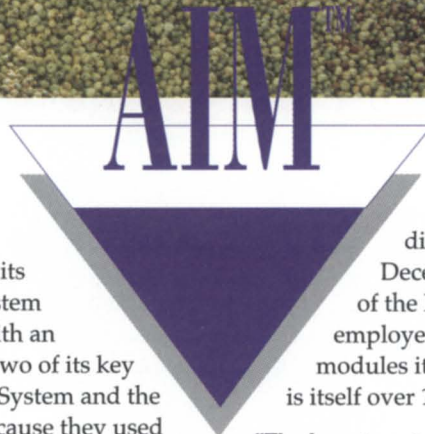
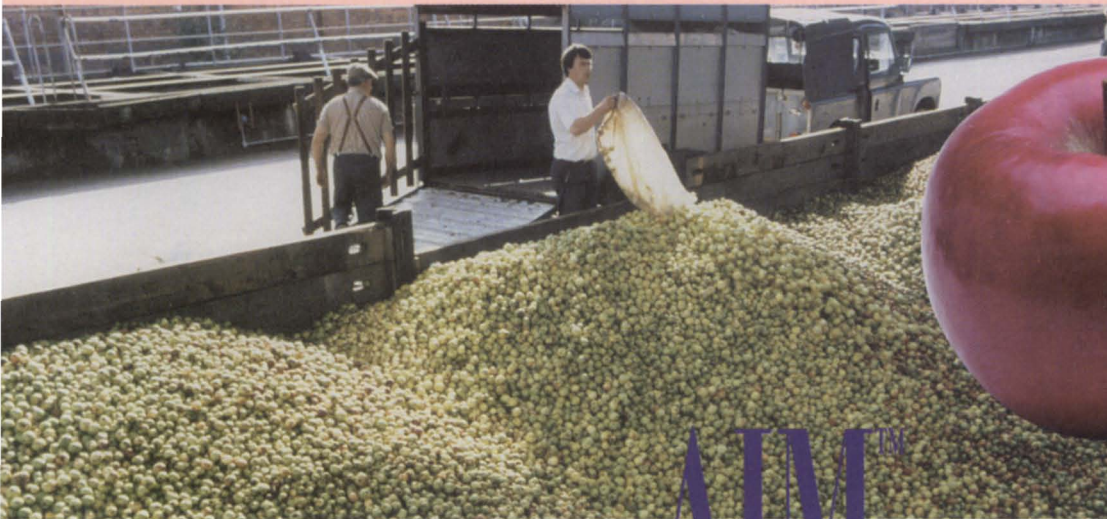
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THE OFFICIAL PUBLICATION OF NADGUG, THE INDEPENDENT DATA GENERAL USERS GROUP

“A simple, straightforward and cost-effective MV migration solution.”

Jim Underhill, IT Operational Services Manager, Bulmers



Bulmers, the largest cider company in the world, had invested \$16 million in replacing its proprietary Data General MV40-based IT system and INFOS database management system with an Open Systems DG AViiON and Oracle. But two of its key COBOL applications, the Fruit Procurement System and the Profit Share System, remained on the MV because they used many INFOS specific functions that were difficult to redevelop.

AIM - Automated INFOS Migration - the fast track to Open Systems
To resolve the situation Bulmers selected Transoft's AIM product set and migration consultancy.

Jim Underhill, IT Operational Services Manager at Bulmers explained "By using Transoft's specialist MV migration software we were able to cleanly and easily migrate the remaining INFOS files to U/FOS, Transoft's Open Systems version of INFOS. We were also able to easily convert the application code from AOS/VS COBOL to UNIX-based Micro Focus COBOL."

The first application to be migrated was the 30 module Fruit Procurement System for the manufacture of Bulmers' core product - cider. This system issues the necessary purchase orders and schedules the fruit deliveries - critical functions when there are over 60,000 tonnes of fruit to be delivered by

different suppliers between September and December. This was followed by the migration of the Profit Share System which maintains the employee share register. With around 40 program modules it holds records which go back 25 years and is itself over 15 years old.

"The investment will pay for itself in twelve months"

Jim is delighted, "AIM looks set to reduce hardware maintenance costs by nearly \$40,000 per year and has led to significant improvements in key administrative functions... as a result, the investment will pay for itself within a year."

A reliable migration partner

Jim Underhill concludes "Transoft is a very responsive company willing to adapt to any customer requirements. They handled both projects extremely well and did much more than I expected of them in terms of implementation and trouble-shooting."

Like to know more?

If you are looking for an experienced and secure partner to help you move from an MV to an Open environment, get in touch with the leaders in MV Migration.

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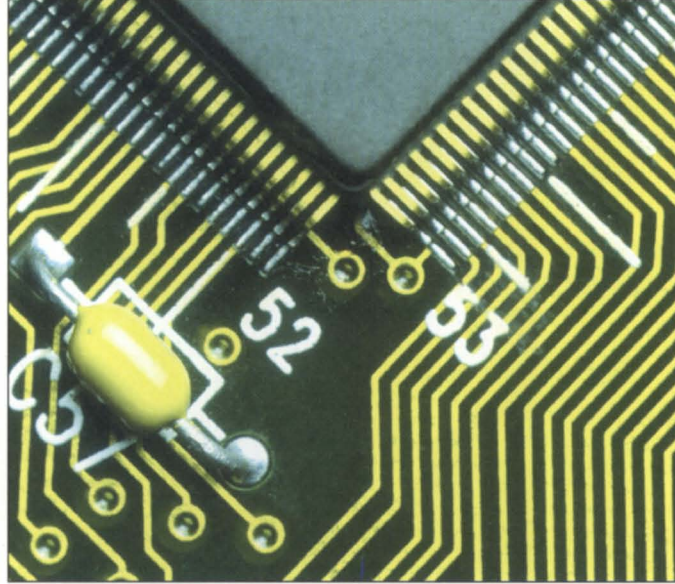
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AV4100 CPU & CPU2
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AV4600 CPU & CPU2
AV4605 CPU#2
7405 LAN
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7406 VAC-16
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AV5220 CPU PCB
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7018 8MB ECC MEM
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Asset Remarketing

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MV9XXX 8MB PCB
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MV20000 IOC'S
MV40000 32MB
MV IEEE-488 PCB
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MV2000 II,160MB,21
MV1400 CPU
MV7800XP CPU
MV7800XP 10MB
MV7800XP 4MB
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MV4/10 4MB ADD
10433 422/232 CONV
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S/140 256 & 512KB
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11312 CABINET
19772 8KVA UPS
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5070 CARTRIDGES
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6299 S/S

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D/462 & D/462+
D/412 & D/412+
D/411 & D/461
D/230 COLOR
D/216 MODEL 2
D/1400i GREEN/AMBER
D/463 CRT
6321 LQ PRINTER
6515 132 COL
PRINTRONIX P300
GENICOM 3180
7402 8 PORT CLUSTER
BOX
4596 LB615 PRINTER

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Cover art by Daniel Rodriguez

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HOTTEST STORAGE PRODUCTS HOTTEST STORAGE PRODUCTS HOTTEST STORAGE PRODUCTS HOTTEST STORAGE PRODUCTS HOTTEST STORAGE PRODUCTS

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storage
products
are so**

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If you don't know what you're missing, contact DG Ed Services (1-800-343-8842 #5) to order their 1997 Training Catalog, which lists the incredible number of CBT courses available.

Just a few examples, related to this month's theme of networks: "Mastering the Internet: CBT (Version 3) includes current information about the most popular Internet search tools and how the Web directory sites and Internet search tools work. This interactive course has been used by over 200,000 people and is available on MS-Windows for a single user for \$895. **NADGUG members save \$89.** Or consider the UNIX Network Software: TCP/IP CBT with a single user fee of \$695; **NADGUG members save \$69!** Then, there's the new course: Introduction to Windows NT Networking CBT, single station price of \$299, **NADGUG members save \$29.** The listings are legion.

Since belonging to NADGUG is only \$85 (individual) or \$110 (international) per year it will be easy to pay for a membership with training savings alone. To take advantage of these and other NADGUG discounts, you must take advantage of NADGUG membership. **Call 1-800-253-3902 TODAY!**

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Ask NADGUG: Y2K and MVs

Coming next month will be an answer to the ASK NADGUG question of the month: Are MVs Y2K compliant? This question has been bouncing around the Internet among various DG community gurus and the "definitive" answer will be shared with DGFocus readers. To make sure you get the answers you need to this question, make sure you'll receive DGFocus. Δ

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Data General's Forecast Strong

Data General continued its turnaround with a sixth consecutive quarter of increased profitability as it reported a net income of \$10.4 million for its first quarter of fiscal 1997, which ended December 28, 1996. The news culminated a year in which overall profits grew to \$28.1 million on a total revenue of \$1.3 billion and product revenue rose by 22 percent. It also marked the sixth quarter in a row in which Data General reported higher product revenues than the comparable period of the year before. Moreover, each successive quarter saw increases in profitability. President and Chief Executive Officer Ronald L. Skates said, "The first quarter results, particularly the continuing growth of our product revenues, are another solid affirmation of our strategic direction.

"Data General is again a growing company. The success of our Aviion server and Clariion storage product lines has allowed us to become a significant player in two fast growing markets," said Skates. Indeed, the company's recent growth has been fueled mainly by these two product lines, which account for 90 percent of Data General's current product revenue.

According to the company, revenues for the Aviion server line were 15 percent higher than last year's first quarter with its newer Intel based systems representing more than 50 percent of total Aviion revenues for the first time. The Windows NT market is growing at about 50 percent each year and Data General is ranked among the top two vendors of large NT servers by industry consulting group International Data Corporation.

Clariion products grossed more than \$100 million

in revenues for the first time this past quarter as well. Clariion continues to be the storage systems leader in providing high availability and data integrity to virtually any open systems platform.

Both the Aviion and Clariion product families were strengthened during the quarter as the company made a number of significant product announcements. Included were the industry's first Windows NT clustering product that comes pre-assembled in a single rack-mounted system; three Aviion departmental servers based on Intel's powerful 200MHz Pentium Pro processor; and the Clariion Series 3000, a high performance disk array for enterprise-wide computing environments. The Series 3000 offers an upgrade path to the company's fibre channel technology based Clariion systems that will be introduced later this year.

Data General's increase has piqued the interest of the industry and Wall Street. *Computerworld* recently featured an article on the company's good results and Wall Street has responded by upgrading its forecasts for Data General stock.

For the future, Skates says, "We have increased our investment in research and development to insure that we maintain our position as a technology leader by developing new server and storage products, as well as products for the Internet. With our Aviion server and Clariion storage lines, we have two solid and growing businesses. Plus, we have additional opportunities in two emerging technologies—Intel based NUMA for large-scale commercial computing and Thiin Line appliances for the Internet. As a result, Data General is very well positioned for solid revenue growth and continued profitability." Δ

**"Data General is
ranked among the
top two vendors of
large NT servers"**

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DATA MANAGEMENT THAT WORKS.

Data General Imaging Products Now Support Microsoft Windows NT

Data General now offers its award-winning, UNIX-based AV Image line of imaging products on the Microsoft Windows NT operating system.

"There is a tremendous demand for products based on NT in the market. By delivering our imaging products on NT, we are not only responding to this demand but also demonstrating our commitment to offering cross-platform functionality for our portfolio of document management, imaging and cold solutions," said Bill Zastrow, vice president, Imaging Business Unit. Zastrow added, "Whether a customer has chosen our imaging product on NT or UNIX or a mix of the two, the operations will be completely transparent for the user, regardless of the platform.

"The AV Image family has seen a 50% growth rate in the market every year over the past three years. With the introduction of the NT product, we fully expect that growth rate to accelerate even more," said Zastrow.

In addition, the company introduced ObServer, a scalable, distributed-object, application server that handles multiple data types across the enterprise. The company also announced a new version of its AV Image software as well as enhancements to its AV cold and Express-Track products.

ObServer

ObServer is the universal integrated server component for all of Data General's client server imaging solutions which include AV Image, AV cold and Staffware Workflow. It provides object-independence, high-volume, high-performance processing and enterprise-level scalability across multiple servers.

"ObServer makes enterprise document management practical for businesses," added Zastrow. "It is the answer for companies who need the ability to manage all of their files in a variety of different formats across the enterprise. This provides the capability to manage all object types (i.e., text graphics, video, sound, etc.) and scales to meet the needs of a growing organization."

AV Image

The latest version of Data General's award-winning

imaging software, AV Image 2.5, features Spanish, French, German and Dutch versions, concurrent and site licensing options as well as AV Image Technology Toolkit (ITT) and Document Technology Toolkit (DTT). AV Image 2.5 supports Informix, Sybase and Oracle databases on both NT and UNIX, as well as Microsoft SQL Server on NT.

Express-Track

Express-Track is an efficient and cost-effective approach to document capture. It is specifically designed for high volume batch input of documents or forms and separates the scanning and indexing process for production imaging environments. It can scan batches of pages at the full rated speed of the scanner and also supports OCR and barcode recognition. Express-Track 2.5 features new automatic database detection, enhanced batch definition, power indexing and multiple-database form selection.

AV cold

AV cold 2.0 (computer output to laser disk) is Data General's Windows-based, SQL client/server solution for high-volume online information storage and retrieval. Online storage offers clear advantages over microfilm, microfiche and paper. AV cold 2.0 offers a new event scheduler, enhanced document and functional security, IBM AFP support, column indexing

and graphical report annotation. AV cold 2.0 supports Oracle and Sybase databases on both NT and UNIX, as well as Microsoft SQL Server on NT. AV Image and Express-Track are now fully integrated with AV cold. ObServer allows access to both imaging and cold documents from a single database and a unified document manager.

Pricing and Availability

All products are available for immediate shipment. List prices will start at \$995 per user for AV Image and AV cold, \$3,995-\$9,995 for ObServer, depending on number of users, and \$2,995 for Express-Track. For additional information, customers can dial 1-800-DATA-GEN. Δ

"ObServer makes
enterprise document
management practical
for businesses"

Aviion Servers to Support Oracle7 Workgroup Server 7.3

Oracle7 Workgroup Server 7.3 is now available on the Data General Intel based family of Aviion servers. Data General will resell, install, service and support the Oracle product.

Workgroup 7.3 is available to Data General Aviion customers who are using its DG/UX UNIX implementation, SCO UnixWare System or Microsoft Windows NT operation systems.

Combined, these technologies provide the most dynamic workgroup environment available, allowing customers to build business critical applications, ensure efficient and reliable data access and easily manage corporate and Web-enabled data.

"Our strong relationship with Oracle allows us to deliver more value to our customers to keep their businesses progressive and competitive," said Sue Sweeney, vice president, strategic al-

liances. "Oracle7 Workgroup Server 7.3 brings to the Aviion platform new ease of use and distributed capabilities crucial to the workgroup space at a compelling price. And should the necessity arise, our users of departmental solutions will be able to take advantage of the scalability of Oracle and Aviion offerings and migrate to enterprise-oriented configurations because our software and hardware solutions develop and mature with their businesses."

"Data General's high availability Aviion servers provide an excellent platform for the Oracle7 Workgroup Server 7.3," said Dr. Thomas Hidebrand, vice president, Intel/MIPS products division, Oracle. "Oracle and Data General development teams work closely to provide optimized, integrated technology solutions to our customers."

Oracle7 Workgroup Server 7.3 delivers a new level of distributed workgroup computing to users. Distributed queries and updates allow data sharing across multiple servers, and transparent two-phase commit ensures data consistency.

This new version of Oracle Workgroup Server ships with an empowered version of Oracle Enterprise Manager that integrates a web based management interface to perform critical management tasks quickly and easily. In addition, an intelligent agent integrated in every Oracle7 Workgroup Server 7.3 database efficiently executes administrator defined hobs and events sent by the Oracle Enterprise Manager console.

Oracle7 Workgroup Server 7.3 is \$295.00 per concurrent device with a minimum of five concurrent devices per CPU. △



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CYBERSHIELD

Solution Secures DG's Place in Internet Commerce

by Geri Farman, DGFocus

In an interview with DGFocus, Eric Hemmendinger, DG's Product Manager for Secure Internet, explains why the Cybershield solution is uniquely positioned to help companies move into secure electronic commerce.

DGFocus: Cybershield is DG's Secure Internet solution for "bulletproof" security. What are the Internet security issues that have created a market for this product?

Eric Hemmendinger, Product Manager for Secure Internet: We've found surveys that talk about where threats come from. Everyone's conscious of those that come from outside the organization—the hacker. There are products, some very good firewalls, that deal with some of that threat. But, there are also other types of threats organizations face.

The biggest threats—about 85%—come from inside. Some of them come from employees who do things accidentally. Some come from administrators who are just doing something incorrectly. Some are deliberate. Another threat is from viruses. The last threat is a category called unknown: we know there's a security breach, but we don't know exactly how it originates.

You want a security solution that is going to deal with all of those threats—not just the ones from outside. Threats from outside are generally going to be dealt with by a firewall. Threats from inside are going to be dealt with by making sure people can get only the information they need and do only those things they actually need to do. Part of it is authentication. Part of it is to make sure that an administrator, if he happens to have a fat finger, is not able to blow away 350 files. So, you segregate administration privileges. You handle viruses by implementing virus detection capability. Resolving that unknown threat comes by auditing. Once you find out



what it is, it turns out to be in one of those other categories.

DGFocus: How do system managers address these issues?

Hemmendinger: You have different system managers in most organizations that handle various aspects of this.

Until Cybershield, there hasn't been one product that addresses it all. Cybershield offers, in conjunction with the ability to deal with all of your security issues, a level of assurance according to the US government that is unparalleled.

DGFocus: What makes the level of assurance provided by Cybershield "unparalleled?"

Hemmendinger: The type of capability that Cybershield provides requires a very special type of operating system underneath it that meets the B2 standard. Thus far, no one other than DG has been willing to make the investment to

get there. That in itself is pretty significant, and here's why: To get a C2 evaluation completed for an operating system requires a certain amount of work with the US government. Most general purpose commercial operating systems either meet the C2 standard, or, with a little bit of extra work, offer a C2 variant. So all the major system vendors have that. A couple of vendors have decided to meet the B level standard, namely Hewlett Packard and Data General. When you go to the B level standard, what you're talking about is a much stronger security paradigm that offers multi-level security and much stronger authentication.

In layman's terms, multi-level security means the ability to say you've got certain levels of information you can make available to a wide audience and then other varying levels of information which will have narrower constituencies. In the government sector that's defined generally as: public, classified, secret, top secret, "eyes only," and "touch this and you're dead." In the commercial sector we can look at it as: public, customer, partner, private, departmental, and executive level. Those are all equivalents to multi-level security. Strong authentication basically refers to the concept that before you grant a user access, you want to make sure that user is really who they say they are. All operating systems have the capability to do some level of authentication, but how strong a level is where

WHAT THEY'RE SAYING ABOUT CYBERSHIELD

Data General's Cybershield—Security Solutions for the Net

Aberdeen Group, Inc.

December 1996

<http://www.aberdeen.com>

they tend to separate.

One thing you want to make sure of, if you're doing authentication, is that the database that handles all the passwords is something people can't get at. Well, a B level system has stronger protections around that than a commercial system does. Now, when you look at all these, where you split the difference between a B1 level and a B2 level is basically that a B1 level system is a commercial system that has been hardened. A B2 level system is not something where you take a commercial operating system and you bolt on something. You have to design it from the ground up to meet the B2 standard, and that's why even HP, that has a B1 level system, has not bothered to go after the B2 level evaluation.

DGFocus: So, you're the only one with this level of security?

Hemmendinger: We're the only one who has made the effort with the US government to get into B2 level evaluation. B2 evaluation is about a four year process. You spend about three years working with the government on what is called an informal evaluation. What they're doing is going over all your design documentation to make sure that things are really designed correctly. They're going over all your source code. So, they don't just examine your final version and subject it to some tests. They do design review.

DGFocus: Is there any danger that the B2 evaluators could breach the security system?

Hemmendinger: Having access to source code may tell someone how we built it, but it won't tell someone how to get in. Part of what they're looking for is to make sure there isn't an easy way to get in.

The folks who are really paranoid about security will tell you that the only way to have a secure server is to dig a

The reason Cybershield makes sense for IS executives is that it eliminates the integration headaches and delayed project schedules that are inherent with components-based point solutions. And, because Cybershield can actually segregate unlike classes of users and applications from unauthorized enterprise networks, applications and data, it provides the security services needed to confidently and cost-effectively deploy safe Intranet and electronic trading operations.

Without the integrated solutions that DG delivers with its Cybershield family, IS executives are forced to rely on a mixture of non-integrated and untested components. And, without Cybershield's ability to safely segregate customers, partners, suppliers and employees, IS decision makers would be forced to spend more IS budget monies on acquiring, managing and integrating many separate network firewalls and authentication's servers—with less confidence that vital information was adequately protected.

But, what makes DG's Cybershield solutions most compelling for decision makers is the ability to simply reuse existing applications. Using Cybershield, smart IS executives can reuse existing applications and data, and safely deploy new web-enabled applications using Java or ActiveX clients wherever appropriate. △

**“Cybershield offers, in conjunction with the
ability to deal with all of your security issues,
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20 foot deep hole in the ground, line it with 8 feet of concrete and 2 feet of steel, put the server in there, turn it on, cover it up, and not tell anyone where you put it and don't let anybody touch it—and even then they're not sure. What it comes down to is level of paranoia.

DGFocus: When did you start this process and what prompted you to invest in this unique capability?

Hemmendinger: About four years ago a company called BDM International won a contract with the National Security Agency to deliver a solution: an Internet server system that the NSA

can make available on the Internet and use internally for their own use as well as externally. They decided to do this because they felt there were some very specific requirements the system, both from a hardware and software perspective, had to be able to meet: the B2 level of trust as defined by the government's "Orange Book." BDM would serve as the integrator for a hardware and software solution for B2 security that would all be on one machine. BDM talked to two system vendors about developing something that would be able to meet this. One of the two was a firewall vendor and the other was Data General.

DGFocus: Why did they choose DG?

Hemmendinger: DG was the only vendor that had the ability to build the system and was willing to make the investment. This gave BDM the platform to build on. The government specifically said they weren't interested in buying a firewall. They wanted something that would handle multiple functions for them and a firewall was not sufficient.

DGFocus: When and why did you decide to move into the commercial market with this product?

Hemmendinger: Ten to twelve months ago it became clear that this kind of capability would have a very wide appeal in the commercial sector. What it would mean is that you would have something for use in an Internet scenario, whether on the Internet or in an internal network, that would offer a much higher level of security and protection than any other system today. You have some obvious appeal when you think about web servers that get hacked. You have much more appeal when you start to talk about application environments that people want to run in an Internet context inside an organization. When you begin to talk about electronic commerce, people's eyes open. They realize they have to have really tight security. We looked at it and realized this is an opportunity for DG in the commercial segment.

DGFocus: Was BDM wanting to move into the commercial marketplace, too?

Hemmendinger: Yes, absolutely. BDM is very strong in the government sector, but the way this technology would be used in the government sector is entirely different than the way it would be used in the commercial sector. They felt that given the fact that the technology has been developed, what we're really talking about is how we package it. If we package it right for the commercial sector we could probably sell 10-50 times in the commercial sector what we could ever hope to sell in the government sector.

DGFocus: How did you build this B2 level of security?

Hemmendinger: When we built our B2 security option, we did not build a separate operating system. We rebuilt DG/UX from the ground up—we re-architected it. When a customer installs the B2 security option, they're generating a different kernel structure and a different set of capabilities in the operating system, but it's the same set of source code. What that means is that when we put out a new release of our operating system we also make the new version available as the B2 security option. That's very different from what other system vendors do with their C2 or B level operating systems. Most of them have a tendency to put a C2 variant out there and not update it. So, while vendor X may say they offer a C2 level version, it might be four releases back.

DGFocus: Who owns the name, Cybershield?

Hemmendinger: The name is owned by BDM, but we thought it was a pretty good name, so we decided that there's no reason to be selling the same thing under a different name. We'll confuse a lot of people if we do that and we won't accomplish very much as a result.

DGFocus: How are you selling it?

Hemmendinger: Based on our experience with B2 operating systems and Cybershield, one of the things that has become clear is that we are the experts in Internet security. We can offer you something in that area nobody else can. Cybershield is an example of what we can do. What it means is that we can go to a customer, look at what they're trying to accomplish, tell them what it is they need from a security solution and platform perspective, and then do it for them.

The reason this appeals to customers is that when they start looking at security, they very quickly get caught up in the fact that there are firewalls, encryption, certification, digital signatures, routers. . . There are all of these things

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and they realize that, "I can't find anybody who delivers all this as one package, who can integrate it for me." They can find plenty of people who will sell individual pieces, but then they still have to hire someone to build it for them or they have to do it themselves. We have the ability to do it all.

DGFocus: So, again, you're a solutions provider.

Hemmendinger: Right. What we've done is to build ourselves a platform on the high end called Cybershield that allows us not only to do secure web servers, but secure application servers. It gives you a platform you can use, for example, for electronic commerce. And that has made a world of difference for people. Now you're not sitting there trying to figure out "how do I build a solution?" You're sitting there saying "I've got a solution, how do I go to market? How do I

"The really paranoid will tell you the only way to have a secure server is to dig a 20 foot deep hole in the ground, line it with 8 feet of concrete and 2 feet of steel and put the server in there"

start to do commerce?"

DGFocus: How does Cybershield help companies address the security issues of electronic commerce?

Hemmendinger: When you talk about electronic commerce there are two ways to look at people doing this. The first is the idea of a consumer sitting down at the PC and buying something over the Internet—with their credit card. The question people were wondering about is whether it is safe

to plug in a credit card number and know that it is going out over the Internet. It turns out that if you're a consumer, you probably don't need to worry all that much about what happens while it is going out over the Internet. The people who build web browsers have done a reasonably good job at protecting against that. You probably have more risk of having your credit card number absconded with at a restaurant than you do on the Internet.

The guy who's got to worry in electronic commerce is the guy who's on the other end of that pipe, because the merchant who receives your credit card number is responsible for protecting it. The risk is that someone's going to break into the merchant's machine and steal the information. That's big liability. But, if you're a Fortune 500 company, that's probably not where you're seeing the biggest impact—near term. Where they're seeing the impact is in

DATA GENERAL MOVES NETWARD

Jonathan Eunice
Illuminata, Inc.
www.illuminat.com

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Broadening the appeal of net technologies requires solutions that "just work." This is the goal of several products recently announced by Data General and BDM International.

The package turns an off-the-shelf Aviiion server into a unified bastion gateway. One system works as a firewall, provides secured services (such as Web and FTP access), and (with optional products for client authentication and link encryption), creates a secure virtual private Intranet atop the unsecure public infrastructure. While bastion hosts are not new, we know of no other product that integrates such a high level of security into an "under one roof" Intranet gateway. Fortress-like protection is the attraction of B-level network

servers. B-level servers promise that even if a hacker does manage to break through a network service, they will not thereby gain any meaningful privileges, and therefore can cause little harm. While it is often supposed that "stronger locks are better locks," B-level features are less important than its "defensive driving" approach. Mandatory, policy-based access controls make protected resources the default, not happenstance. DG/UX extends the basic B2 strategy by employing capabilities, segmenting resources into various "containment areas," and basing access policies on where the access comes from.

BDM's CYBERSHIELD software takes the next step, providing the daemons, scripts, and configuration

files that customize DG/UX and B2SO for network server protection. While pre-configuration appeals most broadly, those even more paranoid than usual will find comfort in the "assurance" process.

Many times in this decade Data General has out-developed larger, richer competitors. Commercialized Unix, RAID storage, SMP and nuSMP servers, high-availability clusters, and B2 security are the best examples. We have no doubt the company can stage a repeat performance for Intranets. But excellent product is only one success factor, and often not even the most important one. . . Regardless of product capability, DG must promote its solution well in a crowded, noisy marketplace. Δ

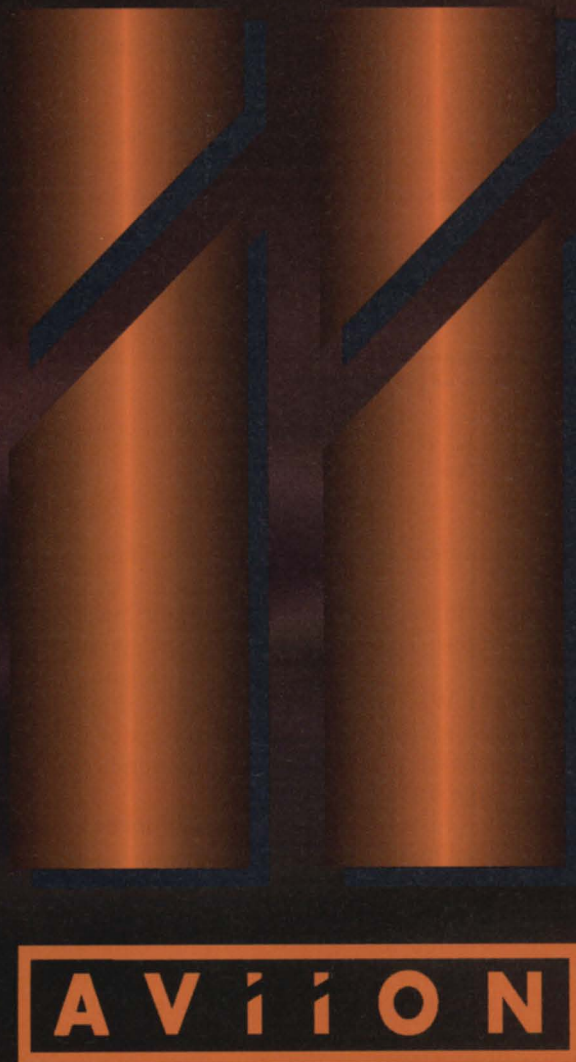


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business to business commerce: dealing with partners or customers who are businesses.

DGFocus: What's the issue with business to business commerce?

Hemmendinger: Well, it turns out that it's a similar issue, but now you're not talking about \$100 to buy five books or \$50 for flowers. Now I'm talking about \$250K worth of widgets that I just bought. Now, I'm not just concerned that the information on the financial transaction is protected. Now I want to make sure that I'm placing the order with who I think I'm placing it with. Or, if I'm the guy who's getting the order, that it's really coming from who I think it's coming

that judgment is that they don't know what kinds of threats they're going to face. It turns out in many cases, after they've found what the risk really is, they get religion.

DGFocus: Could smaller companies afford Cybershield?

Hemmendinger: Well, there's two ways to look at it. One, can they afford not to have it? Two, it's not as expensive as people might think. If you buy a secure solution from HP the prices start at 100K and go up. A Cybershield package from DG starts at about 30K. You still have to buy hardware, so if you throw in 20K in hardware, you're at about 50K. But for that sum, you've got hardware, software, implementa-

DGFocus: Who will be these "commerce service providers?"

Hemmendinger: An AT&T, for example, or Sprint or MCI are going to become commerce service providers. A relatively small company that really doesn't want to handle all the effort associated with managing that system and managing all the transactions, won't need to. They'll do what they do best now and let someone else do the things they're good at.

DGFocus: Is that starting to happen now?

Hemmendinger: We're starting to see that. One of our partners is a company called Open Market and their whole business is secure transactions on the Internet. They do software that handles the back office and front office transactions for electronic commerce. We're putting those products on our platform. A commerce service provider looks at us now and sees a secure foundation to run their products

on. The customer we're going to sell to is not Joe's flower or book shop, it's AT&T, perhaps, or somebody like that, who's going to buy hundreds or thousands of machines to provide services to tens of thousands or hundreds of thousands of clients.

DGFocus: Where does Oracle fit in?

Hemmendinger: Oracle's idea right now is that they've got one of the premier database architectures for high end UNIX commercial grade systems. They want to make sure that everything someone can do today they can do in the context of Internet technology. The products that enable Oracle to do that are available on the DG platform.

DGFocus: What happens to folks who have not chosen DG/UX—who have chosen NT, for example?

Hemmendinger: If you want to do commerce or if you want to do some-

"The merchant who receives your credit card number is responsible for protecting it."

from. I want to make sure that once the order is in the system that it is handled correctly. I can't afford for there to be any mistakes in the way it's handled. What I'm doing is extending my infrastructure to the Internet, and I have to be able to do business just as effectively through the Internet as I can through my existing structure. Until people are confident they can do that, they're afraid to get into it.

DGFocus: What do small organizations do for security?

Hemmendinger: If you're talking about a small outfit that is doing business on the Internet, they do not, in all likelihood, feel the need for and probably can't afford to buy a security installation that is going to cost them more than a couple of thousand dollars. They are probably buying commerce solutions that cost them 2K and they're putting them on an NT server that might cost them 3-4K. That's their solution. The reason they're making

tion services, and support services.

DGFocus: Where do you see things moving in the next few years?

Hemmendinger: We believe the model for Internet electronic commerce, even for business to consumer, is going to change in the next 2 years—drastically. Instead of all of these companies heading up their own commerce sites, what they're going to realize is that for the volume of business they're trying to do they should be focused not on how the transaction gets completed, but on making sure their presence will maximize their business. What they're going to do is outsource their Internet presence by going to someone like a commerce service provider who owns all the equipment, provides all the security around it, handles all of the transactions around it, and charges a very modest fee or percentage of the take. In return, the commerce service provider makes sure you are secure. You just manage the content that's on the server.



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

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What you get: With System Z, as the chart shows, you get the best features of COBOL and other 4GLs and none of the drawbacks.

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- ◆ Data Dictionary driven
- ◆ Leap to Client/Server
- ◆ The Migration Option
- ◆ Cross-platform Deployment

System Z			
COBOL		Typical 4GL	
Cons	Pros	Pros	Cons
<u>New</u> development takes too long	<u>Easy</u> to find programmers	<u>Develop</u> code up to 10 times faster	High investment just to get started
<u>No tools</u> for end users	<u>Performance</u> is good	<u>Less code</u> , less maintenance	<u>Long time</u> before first results
<u>Limited access</u> to new technologies and databases	<u>Preserves</u> investment in current code	<u>Data access</u> with end user tools	<u>Programmers</u> are expensive and hard to find
<u>Maintenance</u> takes too long	<u>Compatible</u> with current data	<u>Operators</u> more productive with good interface	<u>Can't access</u> current data
<u>Hard</u> to add help and selection lists	<u>Flexible</u> enough to code just about anything	<u>Access</u> to RDBMS and client/server	<u>Performance</u> may be unacceptable

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thing that requires that level of security, you're going to say, "I want to buy this—what are my options?" Today they don't really have many, and I don't think that will change in the near term future. What we foresee happening is that a lot of people are going to use NT servers to deploy their web content. But at some point, when they're doing commerce transactions, they're going to want something that offers a much higher level of security. That's where Cybershield comes in.

DGFocus: How will they integrate these products?

Hemmendinger: We would drop in a Cybershield system which handles the commerce transactions for them amidst that NT network and make sure that everything interoperates. We want a prospect to realize that what they're buying is a capability, not an operating system. They're buying a solution they can integrate with other things they've got.

Look at the guy who says I need a web server out there and I'll do it on NT. Great. Do it on NT and make sure you provide the necessary protections around it. Most people are going to find that NT is sufficient for that situation and they're going to decide that a lot of their needs are going to be met by a simple firewall. However, they're also going to decide they don't want to entrust certain applications to that environment—they want more security. For that type of situation we're offering the platform to handle it. It turns out that the same hardware you use for Cybershield you can use for NT because the whole Aviion product line that runs Cybershield is Intel architecture.

DGFocus: So, you're available for everybody?

Hemmendinger: That's right! Data General made a chip selection 3 years

ago that allowed for a tremendous amount of flexibility. I put my Operating System on that chip set and I made sure that I picked the chip set that NT is going to be in lock step with.

DGFocus: What else is on the horizon?

"I have to be able to do business just as effectively through the Internet as I can through my existing structure."

Hemmendinger: I think in the next month or so you're going to see evidence of commerce solutions coming out on the Cybershield platform from DG, and I think you're going to start to see a variety of Internet solutions from DG. You're already seeing the Thinline Business Unit and what's

coming out of that. It would be appropriate to say that DG has a lot to offer in the context of the Internet—with specific focus points.

At the end of March there will be a new release of Cybershield by BDM, and we're going to follow it. This is essentially a series of filters, proxies and hooks into a wide variety of other solutions that run on top of the DG/UX B2 security option. Options like encryption products and identification and authentication products.

DGFocus: How does someone get started with Cybershield?

Hemmendinger: Today they have a couple of choices. If they just know it's Data General they want, they can call 1-800-DATAGEN; or they can look at our web page (www.dg.com) and send us a query from the Cybershield page and say, "I want to know more about Internet security." The queries come to me and a few other people in the Aviion Business Unit. Then, we go talk to them. The key here is that we are the experts in Internet security—and we're willing to put our name behind something as strong as bullet-proof security. Δ



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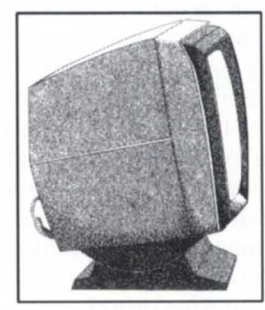
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Diary of a Migration— “Day” 4: Planning the Migration Route

After making the tough choices of systems and hardware, the real work begins.

by Ardavan Tajbakhsh, Special to DGFOCUS

Now that we had selected a NOS and the hardware on which it was to run, it was important to plan the migration route that our clients were to take. In this regard, we wrote an outline for an Enterprise Planning Document for Conversion of the Banyan Network to the NT Server Network Operating System. Points which were considered in this outline are detailed in the chart at the end of this article.

While we planned the migration of our clients using the above outline as a starting point for discussions, we configured the Aviiion 5800 with NT Server. It was important for our Systems Administrators to use the new hardware and NOS and become familiar with both well before any clients were migrated to the new network. It also gave us an opportunity to find any faults or shortcomings with the system, lock down the NT Registry some more for added security, and test out our security model for establishing “groups” and associating such group properties with user accounts. In addition, we began work on the “login script” which was to be executed by each user of the NT domain.

Since we have a great deal of expertise in-house, we had decided from the outset that we would undertake the entire migration on our own. It is up to each individual enterprise to determine whether this type of migration can be carried out by existing personnel or whether expertise from an outside firm is required to facilitate the migration. Often, best results are achieved by making use of an outside consulting firm who are experts in migrations, particularly if your enterprise lacks the knowledge required to manage the entire scope of such a project. Staff from such firms can then work with personnel who are intimate with the profile of the existing network and can either prepare a report making recommendations for the migration, or hand over the project at some suitable milestone.

Another important consideration at this preliminary stage was the training of our “Help Desk” personnel. Not only was this staff to be involved with the process of upgrading existing client workstations, but they were also the first point of contact between our clients and the department. It was important that they be familiar with problems that our clients might encounter, as well as know about any new features or capabilities

that we were introducing.

In addition, an important decision which we made, and one which I would highly recommend in any migration process, was to migrate our own department first in order to iron out any difficulties that we would encounter.

From the server side of things, this afforded us the ability to refine our “client login script” and test our “department model” for robustness and security. This department model consists of guidelines for the configuration of a filesystem for a generic department as well as a standard configuration for default logical disk drive mappings. This configuration standardization was necessary if our department was to provide uniformity of service and access to information. We also developed standards for the domain, server and workstation naming, network printer naming, as well as auditing and accounting policies.

At this time we also started to make use of DHCP, which is something we had not done before, and worked out initial kinks with its usage. We also developed and refined a set of tools which we could use to facilitate migration to the new NOS from our existing network.

On the client side of things, we configured our staff’s computers to have multiple boot capability using a) WFW 3.11 boot to Banyan VINES or WFW 3.11 boot to NT Server; b) WFW 3.11 boot to NT Server or NT 4.0 Workstation boot to NT Server; c) WFW 3.11 boot to NT Server or NT 3.51 Workstation boot to NT Server.

This was necessary because of our staff’s support requirements for clients which would exist, for a time, across both networks. It was also important for our Data Processing staff to make very immediate use of NT Workstation (both 3.51 and 4.0) because of the applications which they are developing for our clients.

A two-phase process

Because the migration process is a complex one, we had decided to break it up into two major parts or phases.

The first part would involve conversion of the “back end” of the network, that is to say conversion of our client stations to use the new Data General server running NT Server, rather than the older hardware running Banyan VINES (on top of SCO Unix). In brief, this meant that we would migrate a department at a time and move their files from the old servers to the new one. Incidentally, during this process we made sure

that departments went through a "clean up" phase of their files and directories and reorganized their department file system to conform to the model that we had fashioned for the new network. The client GUI would stay virtually the same as it did, with the exception of a new logon screen. Except for upgrading the hardware where necessary or desirable, and providing a new protocol stack to use the new network, we did not wish to make major changes to the client workstations during this phase of the migration in terms of providing a different client GUI. This meant that time consuming staff re-training could be deferred until the next phase. We are currently engaged with the first part of the migration effort.

The second part of this migration process will involve conversion of the "front end" of the network, or major changes to the client GUI.

The majority of our clients on the Administration Network are using Windows for Workgroups 3.11. Had we had a variety of client platforms, we would have taken measures to ensure that clients were moved to something like Windows for Workgroups to provide us with a unified client platform in order to facilitate the migration. It is expected that when the back end conversion is complete we will upgrade the front end, or the client stations, to use the latest stable version of NT Workstation.

Our department is currently on track with our migration effort. On the Banyan VINES network we had a total of approximately 400 accounts and at any time of the day 200 people would be logged in and doing work. We also had approximately 30 "groups" or distinct departments making use of the network when the migration effort began in June of 1996. By December we had approximately 525 accounts on the new Administration Network and at any time of the day about 275 users were logged on and doing work (with peaks to 295 users). We also had 42 "groups" that were making use of the network. Some of these were depart-

ments which were migrated off the old network, while others were departments which had not been using network computer facilities in the past.

At the start of the migration we had two Tricord model 40 computers and four PC-based servers which maintained services for the Banyan VINES network and supported our Administration Network. By the middle of January 1997 we will be down to one Tricord model 40 running VINES and supporting 8-10 departments which will still have to be migrated to the new network. We are also continually bringing online new departments which did not make use of network computing in the past.

By the first quarter of this year our first phase, the back end conversion of the network, will be complete and we will start with the front end conversion process. During this phase we expect to convert client stations one department at a time. The general

plan is that staff will attend a teaching session run by our department which will introduce the new GUI and its use. While they are at the teaching session their workstations will be modified to boot up under NT Workstation rather than Windows for Workgroups. Once they return back to their desks they can start using the new GUI.

We will continue to experience a great deal of growth with the use of this new Administration Network. There are also plans to add new features and capabilities to this network as time permits, or when specific requirements need to be met. The migration process has proceeded as well as it has not only because of the care we took in selecting an appropriate NOS and hardware to support the network, but also because of the knowledgeable people on our staff who have made this transition proceed as smoothly as it has.

There are a lot of unknowns when you make a decision to migrate to more open systems. A well thought out migration strategy, and knowledgeable staff to carry out the migration, will get you to

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with the development of general purpose as well as specific software, systems and software analysis, systems support, and consultation as well as management of a variety of diverse computer systems.

NETWORK PLANNING POINTS

Services

File & Print
File Sharing (within the same department, between departments)
Applications (network versus local)
Common Data
User Data
Private (personal) Data

Printer sharing (network printers)
Printer configuration and administration
Cross platform printing

Database
Shared files
Client/Server
Performance
Scalability

Communications
Email
Fax
Dial-up (RAS) from off-campus
Firewall (necessity of)
To Mainframe (housing legacy databases)

Workstations (Client)
Applications
O/S (and Client GUI)
Client software
Local security
Network security

Network Management

Approach:
User accounts
Quantity
Centralized management (Single Domain Model)
Resources
Centralized and/or Distributed
Security
Physical

Server console
Network login
Access to resources
Availability of resources
Auditing (success + failure)
Groups ("Security Keys")
Registry
User Access
Local resources
Centralized resources
All resources
User administration
Groups, Rights
Resource Administration
File and Print Permissions

Network Infrastructure

Campus falls somewhere between LAN and WAN
Geography
Arrangement and type of links
Speed (FDDI, 100BaseT to servers)
Locations of users
Location of servers
Location of resources
Location of administrators (including administrators of local resources)

Size
Number of users
Number and types of resources
Access and usage patterns (Peak periods, Night/weekend department usage)

Backbone
Interconnection (routers, switches, bridges)
Topology (distributed, collapsed)

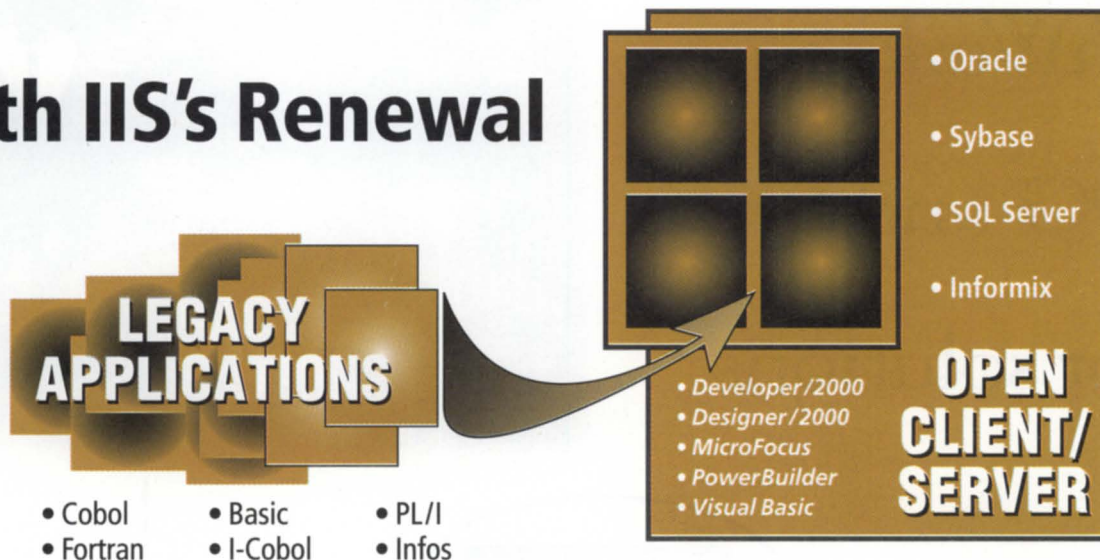
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User authentication (login scripts, workstation management)
File and Print Services
Communications Services
Database Services

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- What costs/risks are associated with maintaining your existing legacy environment?
- Can you commence strategic business initiatives including Data Warehousing, Internet/Intranet?
- Can your current database serve as an *engine* in support of modern application packages?
- Do you have open query and report capabilities with your current database?
- What hiring and training issues do you face with continued legacy system support?
- How will your legacy system handle Year 2000 issues?

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TechWorks turns to *DG* and *Symix* for solutions



How TechWorks chose Data General

by Doug Shehan,
Special to **DGFocus**

TechWorks, based in Austin, Texas, manufactures computer memory for both Macintosh and PC computers. Founded in 1986, the company is one of only three facilities in the world manufacturing dynamic memory modules for Motorola. TechWorks also serves Apple, Texas Instruments and other hardware manufacturers. To compete more effectively, TechWorks manufactures memory products in smaller runs, which allows the company to control inventory and be ready to introduce new products quickly.

TechWorks' computer system was originally running on home-grown 4D databases on Macintosh computers. Many processes were still being done manually. As the company faced explosive growth (50 to 75 percent per year) in the early 1990s, TechWorks needed a better solution to help improve its work flow processes. It started searching for its solution on the software side of the computer equation and decided to purchase Symix in January 1993. The system went live a month later in February on a Sun 4/280 supporting 65 sessions of Symix.

Initially, TechWorks had two major challenges. First, the company needed to make sure that all functions that could be done in Symix were done in Symix. And second, TechWorks needed to ensure that as the user community

moved up the "knee" of the learning curve, the company had the systems in place to support it. This all needed to be accomplished with a limited Information Systems budget and staff as well as an inexperienced user community that was already stretched to the limit.

Management knew that the order fulfillment process was the core process that would ensure the success of the company from a process standpoint and that it had to be done entirely in Symix. Symix helps TechWorks trace the entire fulfillment process, from the customer order to a FedEx shipping label. By using a proprietary real-time bar-coding module, TechWorks further controls distribution by ensuring that a shipping label is not generated until the correct parts and quantities are in each box.

Once the core order fulfillment process was set, TechWorks began to focus on the Manufacturing and Inventory control processes. Symix allows TechWorks to track the movement of parts to and from the floor as well as the jobs currently open. Symix was implemented and utilized to such a point that the company is currently managing every sku at a stock location level. With this attention to detail and regular cycle counting, the need for an annual physical inventory has been eliminated.

Although Symix was capable of providing many of the functions TechWorks needed to take advantage of its rapid growth, it quickly became apparent that TechWorks' Sun system was simply overwhelmed by the company's daily

and monthly processing requirements. As a result, TechWorks started to evaluate hardware solutions that would provide the current processing power required as well as accommodate a scaleable growth path to handle future business needs.

Originally, TechWorks reviewed Sun, IBM, DEC and HP systems. The company decided that the IBM and DEC solutions were too expensive and that the Sun solution was too new. Although the HP solution looked like the right fit, the company had heard that some Symix customers were achieving outstanding price and performance from a DG Aviion solution.

After a phone call, a short meeting was granted to DG to state its case. (TechWorks wanted to ensure that a great price/performance opportunity was not missed.) The meeting went well and DG was given an opportunity to prove its story live by providing a benchmarking session on the actual hardware that TechWorks would purchase. This was set up within days and the benchmark proceeded.

DG allowed TechWorks to load and test its database and code as well as the Symix system on the actual hardware the company planned to purchase. The two day benchmarking exercise included the loading of TechWorks' entire database and Symix system (300 MB then and 1.5GB currently) on a DG Aviion 8500 with a Clariion Raid Array.

The benchmark was set up to include trials of combinations of four basic elements:

- 2 and 4 processor configuration
- 6.3 Progress database un-tuned and tuned for multiprocessing. (Tuned, in this case, is defined as "setting the parameters according to a DG document that 'recommended'

certain settings for a Progress 6.3 database running on a multiprocessor Aviion.")

- The reports were run individually and together.
- Complete Raid system and a drive removed during processing.

Using the old Sun system, it took roughly five hours to complete all the old reports without any user load. The same suite was now running all of the reports in almost the same amount of time it took for the longest individual report to run on the Sun. The following chart shows some of the results of the 2 processor trials (in minutes):

Processor Trial Results (in minutes)			
	Sun 4/280s Individual reports	DG Individual reports	DG running all 5 reports
Gross Sales Report	14	6	17
A/R Aging	59	24	69



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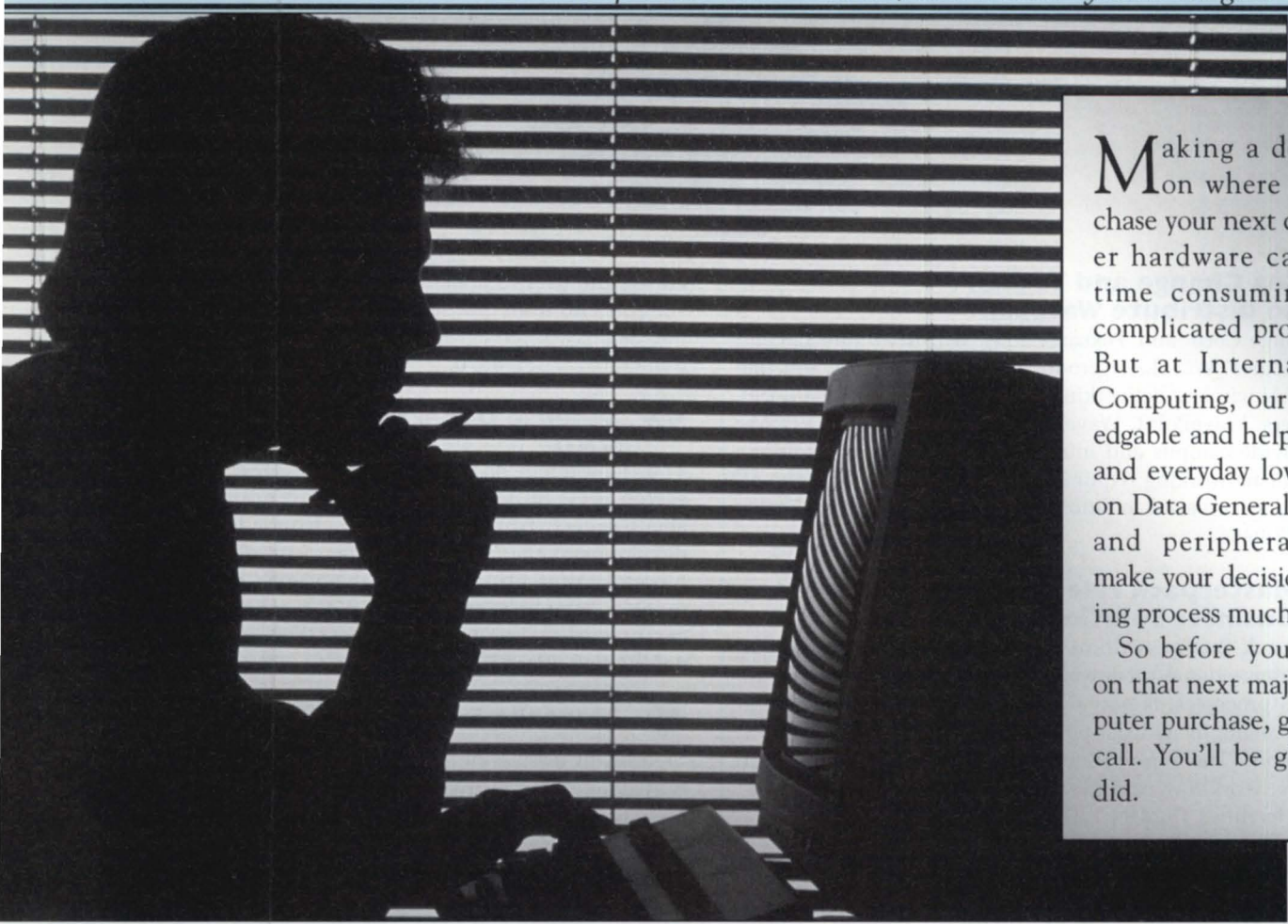
As you can probably guess by the results, TechWorks purchased an 8500. It was populated with two processors, 192 MB Ram, and a Clariion System with 9GB of disk and one Storage Processor. The company has since added a processor upgrade from two to four processors, 64 MB of memory, and 5 GB of disk space. The company also chose to purchase DG's RPM product. This is a real time performance monitor that has allowed the company to monitor the system usage and to evaluate when it was time to upgrade its equipment. The product has provided the information necessary for the company to be able to scale the equipment up in simple and cost effective steps during the three years TechWorks has had the DG and Symix solutions. By doing so, TechWorks has been able to focus its capital and people resources on the business issues that are associated with the industry's and company's growth.

TechWorks likes to say that it reinvents itself every 12 months, and 1997 looks like it will be no different. The company is currently implementing Symix in its UK office, looking at how it will integrate its new manufacturing facility located in Ireland, and aggressively moving into new channels of business with new products. DG and Symix will continue to be an important part of the success of the company as it continues its IT growth in areas such as Symix's SyteLine, On-line Web Transactions via Progress' Webspeed, DG's ASU, and DG's Citrix implementation. Δ

***Doug Shehan** is the director of MIS at TechWorks and can be reached at pooba@techworks.com. Symix Computer Systems, headquartered in Columbus, Ohio, is the leading global provider of open, client/server software solutions for mid-sized manufacturers of discrete, configurable products. It's web page is located at www.symix.com and it's phone number is (614) 523-7000 or 888-RUN-SYMIX.*

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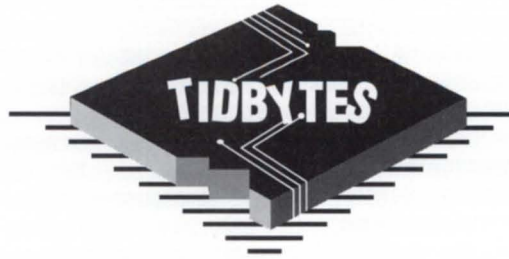
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◆ **Sea Change and Texcan to distribute WaveLAN**

Sea change Corp. and Texcan Cables will distribute Lucent Technologies' WaveLAN products. Sea Change will sell the WaveLAN wireless networking products to corporate and ISP customers. WavePoint, WaveLAN/ISA and WaveLAN/PCM-CIA provide campus and intra-building solutions to companies with networking requirements that preclude the use of standard wire-based technologies. Contact: Richard Earle, (905) 542-9484.

◆ **Masterpack releases Business Solutions 6.0**

Masterpack Business Solutions 6.0, a suite of integrated online transactional processing applications that supports all business processes, is now available and features significant enhancements to its existing modules as well as three new applications. The new enhancements include a graphical user interface, workflow control, a telemarketing system and inventory facilities. Contact: Elissa McCrary, (770) 392-8611.

◆ **New Web-enabled time and expense software from Concepts Dynamic**

Concepts Dynamic has introduced two new Web-enabled time and expense software applications. CDI Remote Time Entry and CDI Remote Expense Entry work with project management products as well as with billing systems and databases to help managers monitor whether projects are running on time and on budget. The software, which works over the Internet, over intranets, or over normal remote communication links, is scaleable up to even the largest employers. Contact: Katherine Botos (847) 397-4400.

◆ **Clariion RAID shines**

The February 17 issue of Computerworld included the results of its RAID storage system survey. Data General and its Clariion RAID were omitted from the final results since the survey found only 10 users who went directly to Data General for RAID. However, given the responses of those 10 users, DG was on its way to winning the survey. It had the highest satisfaction rate in seven of the 11 categories, plus the highest overall satisfaction.

◆ **Beta test version of DataScope ODBC/SQL Query Generator**

Macova DataScope, a fast and powerful database front-end query production tool, is now available in a beta version. It

allows the user to attach databases from multiple database vendors and from multiple computers as well as perform ad hoc database query, graphing and reporting. Contact: Jim De Remer, (617) 272-5670.

◆ **Defense Department to fund hi-tech R&D**

The Department of Defense Small Business Innovation Research program will award over \$510 million this year to small hi-tech firms to conduct cutting-edge research and development that will serve defense needs and have commercial applications. By working with small firms that quickly commercialize their SBIR technologies, the military can procure market-tested products that are reliable, of high quality and affordable. Contact: (703) 205-1596.

◆ **Mentalix launches Pixel!FX 5.1**

Significant feature enhancements in the Pixel!OCR application and compatibility with Linux are among the goodies in Mentalix's new 5.1 version of Pixel!FX. OCR includes several recognition engines, and each specializes in interpreting a particular image quality level or type. Contact: 800-MENTALX.

◆ **Tape subsystems from Cybernetics**

Cybernetics adds two new tape subsystems to their product line with CY-1200 DDS-3 and CY-9000 1/2. The CY-1200 provides 12 GB capacity and 1.2 MB per second transfer rate, uncompressed, and 24 GB at 2.4 MB per second performance with integral data compression. The CY-9000 has 42 GB capacity and 12 MB per second throughput and is available as a desktop or rack mount unit. Contact: (804) 833-9000.

◆ **Toolset for Lotus Notes**

MasterNotes Gateway is a new toolset that enables integration between Lotus Notes, core back-end business systems and the Internet. It is available from Masterpack International for any uniVerse or Unidata system. Contact: Elissa McCrary, (770)-392-8611.

◆ **32-Port terminal servers for UNIX & Windows NT**

Central Data Corporation has developed two new terminal servers boasting 32 serial ports each: the EL-32 EtherLite Port Server and the ST-1032 scsiTerminal Server. Both products

are available on the UNIX workstation platforms and systems running Windows NT. Contact: Mark Decker, (800) 482-0315.

◆ TakeStock for distribution

The distribution industry now has a Windows-based software program written specifically for it in TakeStock for Software Solutions. TakeStock provides the tools required for asset management, customer service and financial control, in an intuitive, graphical client/server environment. Contact: (800) 232-2999.

◆ Water on the Web

A suite of 51 software packages and related materials, used by the U.S. Geological Survey for hydrologic analysis and modeling, is now available for electronic retrieval through an on-line repository on the World Wide Web at <http://water.usgs.gov/software/>. The software distribution packages have been prepared primarily for the Data General Avion DG/UX platform and for compilation on other UNIX-based computers.

◆ Reading material

Two new books on dealing with the Internet are out from O'Reilly & Associates. The second edition of *DNS and BIND* is a complete guide to the Name Domain software. The new edition includes Windows NT and is a complete update of this Nutshell Handbook. *Mastering Regular Expression* is a new book by Jeffrey Friedl on understanding and using regular expression to achieve mastery over data. Contact: Sara Winge, (707) 829-0515.

◆ Symix expands

Symix recently acquired Canadian-based Visual Applications Software Inc., the maker of FieldPro. Symix develops, markets and supports integrated, high-performance business management software systems for manufacturers. Contact: Mark Wallinger, (614) 523-7243.

◆ New Unix Web server extensions

Ready-to-Run Software has launched Microsoft Front Page Server Extensions for a wide range of Unix Web servers. Organizations now have the option to host Web sites created and managed with Microsoft FrontPage, the web authoring and management tool, on Unix Web servers as well as on

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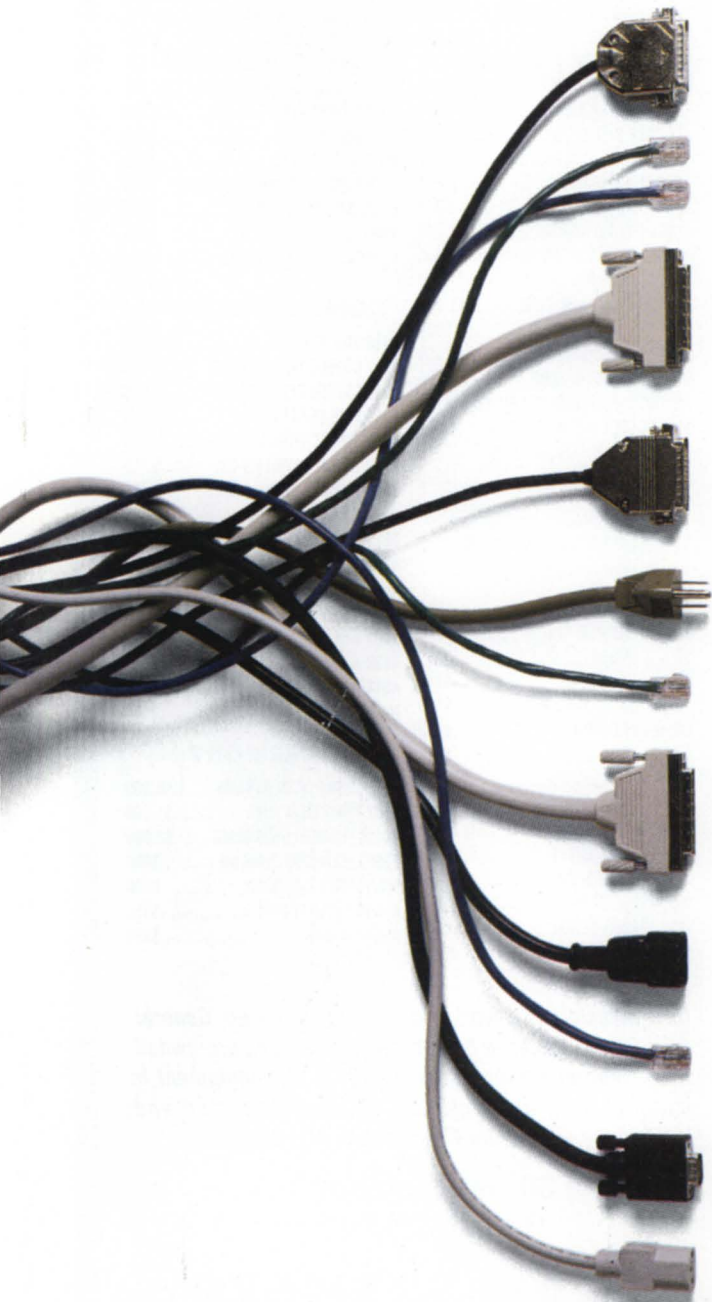
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Microsoft Windows NT servers. FrontPage Unix Server Extensions are available for Sun Solaris, SunOS, Digital Unix, HP/UX, Silicon Graphics IRIX, BSD/OS, and Red Hat Linux. Contact: (508) 692-9990.

◆ Micro Focus to market XDB's Maintain

Desktop legacy application development and maintenance tools vendor Micro Focus has expanded its development and reseller relationship with XDB Systems, a leading vendor of PC-based DB2 tools. Micro Focus will market XDB's Maintain! under the new agreement at its workstation-based DB2 development solution. The integration of Micro Focus COBOL Workbench and XDB Maintain! provides enterprises with a complete solution for developing and maintaining mainframe-targeted DB2 applications in a workstation-LAN environment. Contact: 1-800-872-6265.

◆ Saint Francis Health System Purchases Ulticare

Saint Francis Health System in Tulsa, Oklahoma, just purchased Ulticare, an enterprise-wide patient-care information system from Health Data Sciences Corp. SFHS will install the third-generation Ulticare System, which operates in a standard Windows-based environment and runs on a Unix operating system and Data General Avion servers in a true three-tiered client/server architecture.

◆ Symix launches new Sytes

Symix has recently launched three new products: Syteguide, SyteService, and SyteSelect. Syteguide is a graphical implementation product providing dynamic, custom business process modeling to speed and organize Enterprise Resource Planning software deployment, and ensure continuous business process improvement. SyteService provides a new field service product for managing service business from customer calls to scheduling and dispatch. It is

part of the application package that supports Symix SyteLine. SyteSelect enables midsized manufacturers to move critical sales activities such as order configuration, catalogs, and quoting products from the home office to the customer, reducing order cycle times and strengthening customer relationships. Contact: Mark Wallinger, (614) 523-7243.

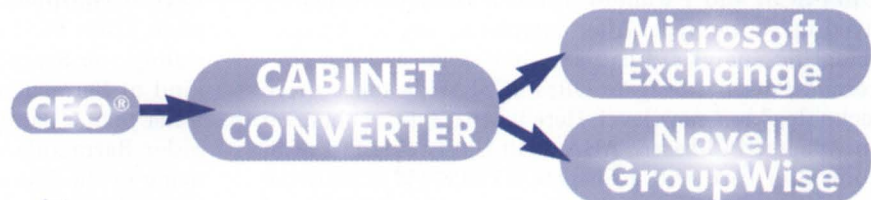
◆ Unidata ships RedBack

Unidata, Inc. is currently shipping Unidata RedBack, a DBMS-independent toolkit for building transactional web applications for the Internet and corporate intranets. RedBack provides easy client-side verification of form data via Java Script and easy server-side integration with UniData and other databases. Contact: 1-800-Unitdata. Δ

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Ultra Wide controller connected to the Barracuda 4LP disk drive, everything ran smoothly.

Heads Up

For all you disk drive techno-junkies for whom Ultra-SCSI is yesterday's news, a new disk protocol is emerging. It is called fiber channel. It is expensive, but it is very fast. It can support up to 100 Megabytes/sec versus 40 MB/sec for Ultra-SCSI. I will write about fiber channel in another article this year.

The Prices Came Tumbling Down

Last year I mentioned in a column that if you wanted to purchase a new laptop computer, you should wait until the first quarter of 1997 to do so. Well the prices of laptops are now beginning to look like the walls of Jericho—they are tumbling down.

Recently in the paper, I saw a Comp USA ad for a Canon 490 CDS multimedia laptop. This machine was equipped with a 130 MHz Pentium processor, 16 MB of EDO memory, a 1 GB disk, a sound card with built-in speakers, a 11.3" color STN display, and a 6X CD ROM drive. The price for this machine was \$1399. Now the January 1997 issue of Computer Shopper magazine listed this machine at \$2499, so I figured the \$1399 price was a misprint. It was not. The price was real. It was a manufacturer overstock offer, and there were only ten of them in stock, but it was a sure indication that the \$2000 price point for 133 MHz laptop computers was an historical event. Two days later I visited Comp USA again to see if it was a dream—not. I saw a Toshiba Satellite Pro 435 CDS on sale for \$1999. A 435 CDS contains a 120 MHz Pentium, a 1.26 GB disk drive, 16 MB of memory, a 10X CD ROM, an 11.3" STN display and full-motion MPEG capability with Zoomed Video (ZV) technology. So if you are interested in a new lap top computer and you scan the ads carefully, you can purchase a very powerful machine at a bargain basement price. If I can give you some advice, spend the extra money and purchase a machine with at least a 120 MHz processor, at least 16 MB of memory, at least 800 MB of disk and at least a 4X CD ROM drive. Better still is a 130 MHz processor, 1 GB of disk, and a 6X CD ROM drive. This will give you a machine that readily handles Microsoft Office 97. Don't laugh. Sooner or later you will be running Office 97, probably before the beginning of 1998. Also, having a multimedia laptop machine with a CD ROM drive is a computer junkie's idea of dying and going to heaven. Once you use a multimedia laptop computer with a CD ROM drive, you will never again purchase a laptop computer without one. Δ

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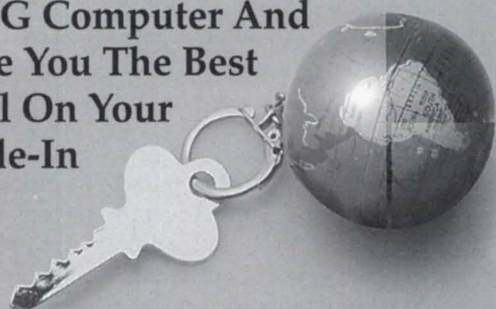
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Shadow Passwords

Q: Does Data General offer the option of shadow passwords in standard DG/UX, or do I have to purchase the trusted DG/UX product?

R: Shadow passwords are supported in MU03 for DG/UX Release 4.11. Refer to section 4.2 of the Maintenance Update Notice for MU03. Documentation is available in the Managing the DG/UX Manual and in the man pages for adm shadow and shadow.

Tracking failed logins

Q: We're running DG/UX 3.10 MU02 on an Aviion 9500, and I'd like to track failed login attempts. DG suggests going to Trusted DG/UX. I don't think that will fly around here. Has anyone been able to accomplish this?

R: Standard DG/UX does not provide functionality to log failed login attempts. Again, the Trusted DG/UX products (B1/C2) do include this feature. One possible customization would be to modify the port services to execute a program to log the login which in turn executes the login program. DG has consultant services available to aid in customizing your system to meet your needs. Contact your sales representative for additional information on the services provided by the DG Consulting professionals.

System userids

Q: Can anybody tell me of any negative ramifications I would encounter by deleting the following

userids: "xdm" and "sysadm?" Looks like the xdm userid is there to allow you to start xdm via telnet if you are not already running it. I can do without this function, but I have not found a use for sysadm. We use root for any system admin functions. Looks like are both set with userid 0 by default, so any holes I can close, the better.

R: I would not recommend removing either the xdm or sysadm user accounts from /etc/passwd. The best solution is to set both accounts' encrypted password to "*". Any user account in the passwd file with an encrypted password of "*" cannot login. For example: ftp:lAccOCyxoavQE:39:39: FTP guest Login:/var/ftp/sbin/sh to ftp:*:39:39: FTP guest Login:/var/ftp/sbin/sh. The modification must be done manually. Use the command "vipw" to edit the /etc/passwd file. The command requires no arguments. It is a special version of vi which enables root to modify the read-only /etc/passwd file. Once you are done making your changes (be sure to make a backup copy first!), then run the command "pwck" which checks the /etc/passwd files for common errors.

R: I make good use of the sysadm login ID by setting it up to use my favorite shell (csh), have all the aliases and environment variables I like, have its PATH variable point at all the directories mounted from machines hither and yon, etc. Then I set up the root login ID to be as minimal as it can be—very simple PATH that includes only locally-mounted file systems, etc. Thus logging in as sysadm gets me everything I like to have in a working environment, and logging in as root will work when nothing else will work (due to other machines

being hung or whatever).

SCSI ID 7 and R4.11/MU03

Q: I have two Aviion 8500's that share some disks on a Clariion array. I have upgraded from R3.10 to R4.11 and added the failover package to the standby/failover machine. I need now to install MU03 but have seen in the documentation that I will crash the primary system if they both use scsi id 7 on the bus. The disk that I have set up for failover is seen on the primary system as sd(ncsc(1,7),0,2) and is seen on the failover system as sd(ncsc(1,7),1,2). My goal here is to upgrade the failover system to MU03 without any downtime of the primary system. In the installation documentation for MU03, one of the options makes it sound like I can just change the ID on the failover machine from 7 to 6 and I will be ok. I called DG about it and they said it was misleading and actually I would have to take down the primary system also and change its ID. I am wondering if anyone else has actually done this or has any more information.

R: First of all, if you've been using these machines with both controllers set to use SCSI ID 7 up till now, they must not share a SCSI bus. Do you have one connected to SPA on the Clariion, and the other to SP B? I'll assume so. If that's the case, you don't really need to change anything right now. But it wouldn't be a bad idea to go ahead and change the SCSI ID on just your backup system so that later you can cross-connect the controllers and SPs, and take advantage of multi-path i/o to get higher availability. If you do change the SCSI ID, you should change it in the

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SCM, so that all firmware and software will see the device as being at ID 6. Then check your kernel build system file to make sure it isn't set to be ID 7 there (really the SCSI ID of the controller shouldn't be specified in the build file; let it use what's set in the SCM), and make sure no other device is using ID 6.

Mosaic for DG/UX 88K

Q: Is a version of Mosaic available for DG/UX on the 88K platform? There is a message in the latest copy of DGFocus that a version is available for the Intel platform. This message states it is on the dg-rtp.dg.com ftp site. However, when I attempt to log on there to look for an 88K version, I am unable to log on anonymously. What username and password should I use to log onto this server?

R: You can find Mosaic on the Release 7 Contrib package at: ftp.avlib.clemson.edu. I just logged on as anonymous. Read the "points of interest" displayed after you login. They will contain the paths of the software for both 88k and x86.

lpsched/lpNet aborts

Q: lpsched and lpNet aborts with the following messages: lpsched ERROR: Failed to create pipe for child process >>(Too many open files) >>

>>lpNet ERROR: class=Fatal, type=Internal, >>trace=(LpExecEvent) Cannot recover.

I am running 3.10 MU03. This occurs when we are doing nightly

batch processing that tries to open/writes 20+ reports directly to the spool directory. Is there a limited number of print files that can be open at once? Is that number adjustable?

R: We had a similar problem a long time ago on an 8500. What we did was add a new parameter called SDESLIM (for Soft DEScriptor LIMit) to our system file in /var/Build and re-built the kernel. Haven't had a problem with the max files since then. We set ours to 1024.

HARDWARE DAT Tape auto eject

Q: I am trying to find a way to auto eject a DAT tape after running a dump2 from the cron. Is there any way to do this? I can do it on the Novell server but I cannot seem to find a way to do it on either my 4625 or my AV3000.

R: Sure. Just use a command like: mt -t /dev/rmt/0 offline. This works with our DAT and 8mm drives just fine. Δ

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I Felt THE THE Need, Need For Speed

Drive a SCSI Wide . . . Vroom vroom

by David Novy, Special to DGFocus

In the past several months, I read several articles regarding a new generation of disk drives based on the Ultra-SCSI interface. The Seagate home page (www.seagate.com) has an informative white paper on Ultra-SCSI and I wanted to see if their performance lived up to the hype. After completing my totally non-scientific analysis, I can say that as far as I am concerned the new Seagate Ultra-SCSI Wide takes drive technology to a new level. Here is what I did. I obtained an Adaptec PCI-based, AHA-2940 Ultra Wide PCI SCSI controller card and a Seagate ST34371W disk drive (more commonly known as the Barracuda 4LP Wide). I installed the card in my Dell Omniplex 590 computer. My Dell previously ran an Adaptec AHA-2940 Fast Wide controller connected to a Seagate ST4100N (Wren 9) disk drive. Now I will be the first to admit that a 5 1/4" 5400 RPM Wren 9 is no performance match for a 3.5" 7200 RPM Barracuda drive, but it isn't a slug either. However, I thought the test results would be closer than they turned out to be. I tested the two drives using the sequential I/O test that is part of the Adaptec EX-SCSI 4.01 SCSIbench32 test. The test results are as follows:

Transfer (kilobytes)	Size Barracuda (MB/Sec)	4LP Wren 9 (MB/Sec)
64	8.6	2.4
32	8.6	1.9
16	8.6	1.7
8	8.5	0.7
4	8.1	0.6

In all tests, the Ultra Wide SCSI Barracuda 4LP outperformed the Wren 9 by at least 3.5 to 1. In the case of

transfer sizes of 8KB or less, the transfer rate difference was greater than 10 to 1.

In the case of a PC on your desktop, this performance difference may not be that important. However, in the case of a file or database server, such a performance difference can make a substantial difference. The bottom line is, if you are buying a new server, you should make every attempt to have it equipped with wide, Ultra SCSI controllers and wide, Ultra SCSI compatible disk drives. If your vendor is selling you Seagate Barracuda drives, you should ask what kind of Barracuda drives. A Barracuda 4LP is about 40% faster than a Barracuda 4, yet it costs about the same as the older Barracuda 4. Unfortunately, there are still a great many of the Barracuda 4 drives still in the channel, especially the OEM channel for RAID vendors. A RAID vendor will want to use up their existing supply of older drives, before they start equipping their RAID boxes with the higher performance drives. In many applications, the performance bottleneck may be in the CPU or memory and disk performance is not critical. But if disk performance is critical to you, you owe it to yourself to obtain the fastest drives you can afford. Ultra SCSI controllers and disk drives have raised disk performance to a new level.

I had a few adventures when I tried to run my computer with both an Adaptec 2940 Wide and an Adaptec 2940 Ultra Wide controller at the same time. The Adaptec documentation claims that there should be no problems with more than one Adaptec controller in a machine. Adaptec must not have spoken to my controllers. They refused to peacefully coexist. My Windows 95 device manager could not deal with them cleanly. It kept telling me to reinstall my device drivers. I installed the latest set of drivers that I downloaded from the Adaptec web site. The problem still remained. With a little help from Adaptec customer support, I was able to get both controllers talking to the point where I could transfer my data from my old Wren 9 to my new Barracuda 4LP. After I removed the Adaptec 2940 Wide and the Wren 9 and ran only on the Adaptec 2940