

Q2 2005

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STORAGE CONNECTION

Inside Storage:

Novell File System Factory

End User Storage Management Made Easy

Also inside:

Viruses, Spam and Spyware
It Pays to Fight Back

Marketing Portlock
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Sharing an OES Linux Location

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RAID Levels Supported	0, 1, 0 + 1, 3, 5, 30, 50	0, 1, 0 + 1, 3, 5, 30, 50	0, 1, 0 + 1, 3, 5
Drive Types	Ultra ATA	Ultra ATA	Ultra ATA
LUNs Supported	15	8	4
Hot Swap Drives	Yes	Yes	Yes
Hot Swap Fans	Yes	Yes	No
Hot Swap Power Supplies	Yes	Yes	No
Rack Size (Rack Units)	3U	3U	1U

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STORAGE CONNECTION

Q2 2005

On the Cover: Our 24X7 Storage Management World

Western Europe's largest cities and towns put on a spectacular light show from space at sunset as the night shift goes to work in millions of network environments across the continent.

Cover photo courtesy of NASA.

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FROM THE TOP

By John J. Hanley, President and CEO

Viruses, Spam and Spyware: It Pays to Fight Back

Is your email inbox jammed with junk email bearing suspicious attachments or offers of products from perfect strangers and companies you've never heard of? Are 50-100 of these intrusive and often dangerous messages a day too many? How about 200 or more an hour? When you've had enough, you'll get mad enough to do something about your spam problem. After all, you are on the frontline in a virtual war against email spam, viruses, trojans and spyware.

Spam is simply unsolicited or undesired email. (At least the definition of spam is simple.) Viruses are generally software applications designed to exploit flaws in the computer's operating system or applications. Trojans are similar to viruses, but take the danger to a whole new level by capturing and broadcasting your personal information or allowing a remote person to take control of your machine. Spyware is software that can track your Internet usage, embed a keystroke logger, and slow your computer to a crawl.

Are you losing or winning your personal spam war? Larger companies have the latest software and trained personnel to deal with spam and email-borne threats to their electronic information. But millions of smaller businesses and end users are on their own when it comes to protecting their computers, using email, and browsing the Internet.

Get Your Shields Up

You may never totally stop spam, but you can reduce it and minimize risks to your computer and personal information. A little caution and common sense goes a long way in winning this battle. First, resist the temptation to open suspicious messages or view attachments. Everyone who uses email receives spam, often with suspicious attachments or links to pornography or "phishing" sites that closely resemble legitimate financial sites. If you don't know the sender of a suspicious message, do not open the message or click the attachment. Be safe and just delete them or go a step further and set up a keyword rule based on the content and they will be deleted automatically.

Taking action to reduce the flow of spam and viruses might seem like a waste of time. But doing nothing to reduce spam besides deleting it is an even bigger waste. All those minutes spent deleting spam email each day add up to hours and even days. That's valuable time lost when you could be doing real work.

End users are akin to soldiers on the front lines when it comes to fighting back against an ever increasing deluge of viruses, spam and spyware threats. Nothing beats educated and aware email users for reducing the overall risks to your network from email-borne viruses, trojans, spam and spyware.

Assess Your Unique Situation

What kind of Internet connection do you use? Is it always on? You need a firewall and an antivirus solution at minimum. What kind of desktop computer do you use? If you use an Apple or Linux operating system, you will still get spam, but your computer will generally be safe from the Microsoft-specific viruses and trojans these unwanted messages often contain. If you are using Windows, there's a lot you can (and really should) do to protect yourself.

There are proven techniques, tools and tips you can use to reduce spam, block viruses, and fend off spyware exploits. As you'll discover from a quick search of the Web, there are lots of supposed anti-spam experts, but only a few must-have software applications. Here's a brief list:

Antivirus Solution: Use an anti-virus solution from Symantec, McAfee, or other leading antivirus software vendor. Keep the virus definitions up to date!

Spyware Solution: Download and use a Spyware solution from Webroot or other leading spyware detection/removal vendor.

Use a firewall: Set up a properly configured firewall before connecting any computer to the Internet. An unprotected computer can be compromised within minutes of being connected to the Internet. If you have a broadband connection and don't have a firewall, your computer is exposed to potential hackers around the clock. To evaluate and choose the firewall best for you, do a Google search for firewall comparisons. Many firewall vendors, such as ZoneAlarm, offer free versions.

Continued on Page 3

Email Filtering and Address Cloaking Techniques

1. Filter your email. Set up message rules to automatically delete email containing specific keywords, such as Viagra, V1agra, 1 BANK, 1BANK, Ref!nance, ref1nance, etc. It takes time to build effective keyword rules, but it's one of the easiest and most productive steps you can take to reduce the volume of spam you receive. Watch out for rules that cause "false positives" or deleted messages that are actually legitimate emails.

2. Use multiple email addresses for different purposes. This helps you to identify different sources and senders, and lets you filter more effectively. For instance, you may have one address for personal use only by friends, family or colleagues that is never used to request information or to subscribe to newsletters, discussion lists, etc. Another might be used just for sales inquiries or orders, or for making online purchases. Additional addresses are available through your ISP, web host or through email providers like Yahoo! Mail and GMail.

3. Subscribe to services that provide disposable addresses. Create a unique address for each email newsletter or forum you subscribe to. Then, when an email address begins getting spam, 'throw it away' and start using another address. One company that offers free, disposable email accounts is Sneakemail. Visit: <http://www.sneakemail.com>.

4. Subscribe to a spam prevention service. Check with your Internet service provider for availability. These services range from good to downright awful, and from free to fee-based. Again, be alert for "false positives" that are actually legitimate emails.

5. Remove or alter email addresses on your website. If you list your email address, you can expect spam. Address-harvesting robots will spider your site and extract them. Remove them where possible and use web-based forms instead. Another tactic is to change the @ symbol to [AT] in order to foil electronic address harvesting. This will require anyone who sends email using the link to change the bracketed AT to the @ symbol, but it will stop address-harvesting "bots" in their tracks.

6. Use Other Email Software: Move from Microsoft Outlook or Outlook Express to the Mozilla Thunderbird email client. Even though it's open source software and free, Thunderbird provides some of the industry's most effective software available for detecting and processing junk mail, with built-in tools to analyze your e-mail and identify those likely to be junk. And yes, it will even import your Outlook address book and bookmarks. Visit <http://www.mozilla.org> for more information.

PORTLOCK™ Storage Connection

Q2 2005

Published Quarterly

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Storage Management Headaches? Novell File System Factory to the Rescue!

This article by noted Novell eDirectory solution developer David Condrey, the creator of Novell File System Factory, illustrates how important storage management has become in all areas of networking, including end-user home directory provisioning and deprovisioning.

As a network administrator or someone that manages network admins, you probably have experienced the difficulty of creating, managing, moving and cleaning up user and group storage. A user transfers to a different location or department, changes their name or leaves the organization. Maybe at the last minute, an urgent request comes in for creating shared storage for a project. In addition, the storage requirements for user home directories and group storage keep growing. You need some way to better manage storage and get things under control.

These storage-management challenges are not new to administrators. The real-world costs associated with the day-to-day tasks involved in storage management are both real and considerable. Administrators still have to manually move, rename and clean up users' home directories. For moves and renames, you have to ensure that the rights are set correctly and update the home directory attribute. The demands for group storage are the same. And what about cleanup or management of the data after the owner is gone or the project is completed? You are cleaning up storage appropriately, right? Stop laughing!

If you can manage applications and desktops based on identities and policies stored in eDirectory, why can't you manage storage in the same way?

Driving Storage Management Based on Identity

If you've asked that last question, what you really want is to provision, access, manage, move and clean up storage based on identity. And you want all this to be automatically governed by policies. The Novell Identity-Driven Computing initiative that was launched in September at Novell BrainShare in Barcelona, along with Identity-Driven Storage Management (IDSM), solves that problem.

IDSM ties storage to identity in the Directory itself so that storage is automatically provisioned, managed and cleaned up based on the user. This means automatically resolving issues of both personal and group storage for collaboration at any level. It keeps data with the user as they move around in the organization and controls storage quotas based on users' roles, or identities, within the organization.

IDSM in a Box

Novell File System Factory is the industry's only IDSM solution today. With File System Factory, you manage the complete lifecycle of a user's storage based on the person's identity and role in the organization. File System Factory is an event-driven file system management solution for eDirectory and NetWare and is available today. Deliverables are in the wings for OES Linux and Linux-based storage governed by eDirectory as well as Windows-based storage governed by Active Directory.

Ultimately, File System Factory creates, manages and deletes disk storage based on events in the Directory. It is designed to provide these services for users' home directories (personal storage) as well as shared disk space (group storage). In fact, File System Factory adds a HomeDirectory attribute to the group object so now workgroups can have home directories.

File System Factory helps you get your storage-management polices off the bulletin board or out of the SOP binder on the bookshelf and add them as objects in eDirectory where they can make a difference by being actually applied and adhered to. Policy definitions allow separate management methods to be used for storage for users and groups in the same part of the tree. A single policy can be assigned to multiple objects in the tree for unified management. A policy can be assigned to a container, a group or directly to an individual user object. Standard inheritance determines which policy, if any, is applied for a given object. Actually, if you know how to manage your applications using ZENworks policies, you already know a lot about how to manage your storage with File System Factory policies.

Continued on Page 5

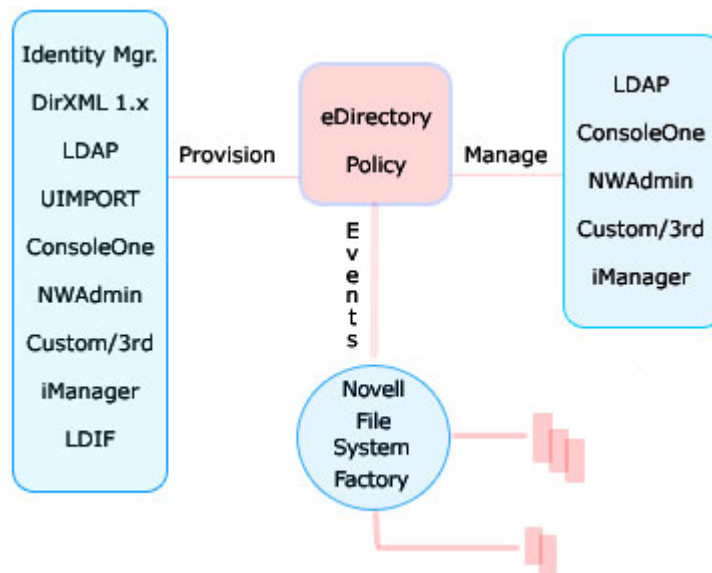


Figure 1.

Figure 1 shows event flow and policy application. When an event occurs in the tree, the event-monitoring component of File System Factory immediately intercepts the event. Because File System Factory contains a Global Event Subsystem, you can run multiple instances of the event monitor simultaneously on multiple servers in the same replica ring without any concern for replica location collisions and duplicate event processing.

The intercepted Directory events are sent to a server running the File System Factory action engine component. If the engine determines that a policy has been associated, either directly or indirectly, with the object being created, modified, moved or deleted, the engine then applies the policy. Policies contain provisions for having File System Factory not only create and load-balance the file systems, but also apply quotas, set trustee assignments, and copy a given template directory containing files and subdirectories with trustees. You can manage directory cleanup so that file system deletions occur immediately after object deletion or be deferred for a specified amount of time.

You can apply templates to users and/or groups. File System Factory can copy in a specified template directory from anywhere on the network for each user or group home directory created. You can also copy files and directories as well as trustee assignments and attributes. You can also use the copy subsystem to automatically move storage around on the network. When you move a user in the tree, File System Factory can automatically move the user's storage to another location on the network, just based on the move event. Administrators can also use File System Factory to migrate many users to another location, possibly a Cluster Services implementation or a SAN.

The engine has an internal transactional state machine architecture which allows the engine to resolve transient waits inherent to eDirectory synchronization as well as unexpected outages. The state machine architecture also allows 100 percent recovery from any failure involving network communications, a target server or a server running a component of File System Factory.

Novell File System Factory: Making a Difference Today

Often, a technology puts so many requirements on the customer's network that it becomes infeasible as an immediate solution. By design, File System Factory makes the network administrator's life easier today, no matter what they have or how they do things. You don't have to install Novell Identity Manager to implement File System Factory, but the two function very well together. They work well in concert to effectively make any existing driver deal with storage without modification. Since File System Factory is event- and policy-based, you can create, modify, rename, move or delete objects in any way you wish, today and tomorrow.

David Condrey is CEO of Condrey Consulting Corporation. CCC is a software engineering company located in Greenville, South Carolina. Mr. Condrey has developed enterprise-class, directory-based applications for over a decade.

For more information, visit www.condreyconsulting.com.

Communicating between Novell Open Enterprise Server Linux and Windows 2003 Server using SMB

Sharing an OES Linux Location

Samba provides file services to SMB/CIFS clients in Novell Open Enterprise Server (OES) Linux. When configured correctly, Samba can be used to map a drive for use within a Windows workgroup.

Sharing a drive using OES Linux includes the following steps:

1. Open YaST in the Novell Menu Button.
2. Select Network Services and then scroll down to select Samba Server.
3. In the Shares tab, select the Add button.
4. In the text boxes give a Share Name, Description and browse for the path of the location of the drive or folder to share.
5. Select OK if the details are correct and verify the location has been added to the text box in the shares tab.

The next step is to find the location on a Windows system. If an entire drive was shared, the most straightforward way to locate and add the drive to a Windows directory is to map it:

1. Select the Start button located at the far left of the taskbar.
2. Right click on the My Computer icon located on the left side of the Start Menu.
3. Select Map a Network Drive. Set a drive letter in the drop down box and then browse for the drive location on the network. The drive should be located within the workgroup assigned to the SMB client located on the OES Linux server.

4. Select Finished if the details are correct and then verify the drive has been mapped to the directory by double clicking the My Computer icon. The drive should be shown in the Network Drives section.

If a folder was shared it can also be mapped as a Network Drive, but only the drive (which holds the file folder) will be seen in network drives. Another way to show the shared folder is to add a network place:

1. Select My Network Places either on the desktop or in the Start menu.
2. Select Network Settings and in the left menu field, select My Network Places.
3. In the Network Tasks menu (on left side of the window) select Add A Network Place. When prompted by a wizard, select Next, then Choose another network location. Select the browse button and then the network location of the folder or file to share.

Sharing a Windows Location

To map a location to OES Linux from a Windows Workgroup computer:

1. Select the Novell Menu Button and select System, File Manager, and finally File Manager Super User Mode. Open the Location menu at the top and select Open Location.
2. Select Browse and select the Network side menu tab. Browse on the network for the folder or drive to map. Drag the folder or drive to the OES desktop and when prompted with a menu, select Link Here.

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For more detailed technical information about this procedure, including screenshots, visit the Portlock web site and click the Documents link.

Questions or issues with using this Portlock product? Portlock's preferred method of providing technical support is via email, which can be sent to support@portlock.com. In addition, Portlock Technical Support monitors posts to our news server, located at <news://support-forums.portlocksoftware.com>.

Before contacting Portlock Support:

1. Make sure you are using the latest version. Check the download page for the latest versions.
2. Create a logfile reproducing your problem. Add the command line option "-logfile=filename".
3. Compile a list of storage devices, device drivers, OS version and Service Packs.

Please note: Technical support is available only in English.

What's next? Portlock's all-new web site. Backed by all-new Portlock products.

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Which LAN Card Is Your System Using?

Problem: In this situation, the target systems have two LAN (N100) interfaces that are enabled by default. When the user boots off the Linux Boot CD, everything seems like the LAN interfaces load correctly. For example, under the Manage TCP/IP menu, user only sees eth0. How does a user know what installed network card is eth0? How does a user force eth(x) to be loaded on a particular installed network card?

Solution: The system assigns eth(x) values during the boot sequence based on the order the NIC cards are detected. The Portlock Linux Boot CD can't determine which NIC card is eth0 and it will not allow the user to load eth(x) onto a specific card. It will assign IP addresses to eth0 and eth1, etc., via DHCP or manual entry.

The normal process for booting is that eth0 is assigned to a built-in NIC. Secondary cards are assigned in the order that the BIOS detects them. By default, all ethernet cards are detected and assigned an ethernet address if they are active using DHCP as the address source. If not, they must be manually assigned.

To discover which adapter is being recognized by Portlock Storage Manager, perform the following procedure:

1. Login into Linux;
2. Run `dmesg | less`;
3. See if your Lan adapter was recognized;
4. If so, run `lsmod` to see if it loaded;
5. If so, run `ifconfig eth0 up`;
6. If error, run `ifconfig eth1`;
7. If okay, then eth1 is your adapter;
8. Run `ifconfig eth1 inet vv.vv.vv.vv netmask xx.xx.xx.xx`;
9. Run `route add default gw yy.yy.yy.yy`;
- 9a. See addenda below
10. Ping your gateway;
11. If okay, run `portlock` to return to it;
12. Select Configure Tcp/IP;
13. Change EID to eth1;
14. Change ip address to vv.vv.vv.vv;
15. Change netmask to xx.xx.xx.xx;
16. Change gateway to yy.yy.yy.yy;
- 16a. See addenda below.
17. Save your configuration, and escape back to the main screen;
18. Select run. Everything should work to allow you to restore over a TCP/IP link, Web server or FTP server.

Addenda: “`ethtool -s eth(n) autoneg on duplex full speed 1000`; where n=0,1,2,3 autoneg = on or off, duplex = full or half, speed = 10, 100, 1000”

This process was suggested by Roy Lopez, Technical Client Advisor, Blackbird Group. Thanks, Roy!

If you have a method for getting even more value out of a Portlock product, write down the steps you've taken and send it to support@portlock.com. If your submission passes our tests in the Portlock lab, we'll include it in a future edition of Portlock Storage Connection and send you a Portlock baseball hat to say thanks!

PORTLOCK PRODUCT NEWS

Portlock announces support for Novell Open Enterprise Server

BUTTE, MONTANA - March 21, 2005 - Portlock[tm] today announced the latest release of Portlock Storage Manager supporting Novell Open Enterprise Server, SUSE LINUX Enterprise Server and Novell NetWare. Portlock Storage Manager 4.0 enables rapid image and restore, volume and partition management, server-to-server migration and disaster recovery for both Linux and NetWare.

“We are pleased to announce support for Novell Open Enterprise Server,” said John J. Hanley, president and CEO of Portlock. “OES combines Novell’s leading-edge applications and open-source software - and a choice of underlying operating systems - providing an enterprise-grade networking and application services environment. With Portlock Storage Manager, organizations have a market-proven backup, storage management and disaster recovery solution that provides full protection for their systems and valuable business data, including unsurpassed support for imaging, moving, managing and recovering Novell Storage Services (NSS) on both Linux and NetWare.”

“The ability of Portlock Storage Manager to protect Novell Storage Services file systems on the Open Enterprise Server kernels - both NetWare and SUSE LINUX - is a key enabler for Novell customers allowing them to select the best platform for their unique business needs,” said Ed Anderson, vice president of marketing for Novell Platform Services group. “As the default storage and file system for NetWare in Open Enterprise Server, and a file system option on the SUSE LINUX Enterprise 9 kernel, NSS provides the most secure, flexible and easily managed access-control model for large shared file systems. Novell customers benefit from combining Portlock storage management solutions with Novell’s integrated management tools, identity-based services and global support ecosystem to meet their enterprise-class computing needs.”

“When it comes to protecting NetWare and Linux storage and operating systems, Xiotech Magnitude customers have a deep appreciation of the capabilities of Portlock Storage Manager,” said Darin Fast, Xiotech Advanced Customer Engineer. “As organizations expand their data footprints, growing vendor competition is expanding their storage management options. Portlock stands out from the crowd of storage management vendors. Customers can migrate older NetWare servers to Open Enterprise Server and rely on the stability and functionality of Portlock Storage Manager to move filesystems and data seamlessly to new servers running either a NetWare or SUSE LINUX kernel.

www.portlock.com

In addition, our longstanding relationship with Portlock provides the framework for compatibility testing and cooperative product enhancements - giving our mutual customers assurance that Xiotech’s networked storage solutions will be interoperable and supported in their dynamic IT infrastructures.”

“We are proud to represent Portlock products to Novell and Linux customers in Australia and across Asia,” said Peter Mavridis, CEO of S Central, a Novell Platinum Partner and authorized Portlock Reseller. “S Central is a full-service technology integrator with a broad range of enterprise solutions for our customers to choose from. Portlock Storage Manager’s support for Novell Open Enterprise Server provides backup, storage management and disaster recovery across the platforms our customers are deploying today, and those they will deploy tomorrow.”

Pricing and Availability

Portlock Storage Manager 4.0 is priced at \$395 per server and will be available for download and purchase in Q2.

About Portlock

Portlock is a leading provider of storage management, server-to-server migration and disaster recovery software, dedicated to innovation, rapid development, and customer support. Portlock corporate headquarters are located in Butte, Montana, and London, England, with additional offices and 250 resellers worldwide. For more information, visit www.portlock.com.

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Recent Portlock Support Questions

Q When will Portlock Storage Manager offer the ability to move a pool/volume to another disk live while the volume is mounted?

A Good news. We have the ability to move NSS Pools between storage devices running in our labs for NetWare 6.x (we do not plan to support this feature in older NetWare versions). This feature is being extensively tested as is our policy, and is slated for release this year (late summer) as one of a suite of new features for managing and imaging storage while volumes are mounted and active.

Q I have NetWare 6.5 with SP3 and when trying to image an NSS volume to another server or to an image, I get NSS super block error.....error - unsupported nss superbloc version : 3.1 - 43.2

A NetWare 6.5 SP3 is Novell Open Enterprise Server (OES) for NetWare. Download Portlock Storage Manager 3.34 beta, which has support for OES. Please note that this product is still in beta form.

Q Does the Portlock Linux Boot CD do the same thing as the Portlock Storage Manager? What are the differences between these products?

A Portlock Storage Manager provides storage management, disaster recovery, server to server migration, etc. The Portlock Linux Boot CD contains a bootable Linux OS so that users can boot a system that is broken, or a system that does not have an OS installed (for example, server-to-server migration), or when a general purpose bootable media is required. This CD has the Linux version of Portlock Storage Manager built into it so that it can then be executed from the booted system directly via a menu selection.

Q I am unable to expand a NetWare partition, existing or new. I received a purple pop-up when hitting F10. Message said STUB NewCylEnd CurCylEnd after which the partition size remains the same. NetWare 6.5 SP1 with TFS.

A We have reproduced this problem in our lab and it is being fixed in Portlock Storage Manager 4.0 which is due to be released in Q2/2005. If you are trying to resize NSS Pools, use the Pool Resize command instead.

Q Using Portlock Scorpion, can I copy data from a NetWare TFS system to a new NSS volume? Does Scorpion keep the file rights during the copy and subsequent volume rename? Are long file names preserved with Scorpion and Portlock Storage Manager?

A Yes, Scorpion copies / converts Traditional to NSS in both directions. Scorpion keeps the file rights during the copy and subsequent volume rename, and long file names are preserved.

Visit our Web site and click the news server link to read lots more Q&A or post your questions.



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MARKETING PORTLOCK

By Les Giamona, Director of Sales and Marketing

Mac Attack

It's hard to believe that the first quarter of 2005 has come and gone and April is nearly over. The first quarter was full of many exciting opportunities and challenges as the company continues to grow. One of the most exciting activities of the first quarter was our participation at the Macworld show in San Francisco, California. Apple has found good success in the music market with the release of the inexpensive iPod Shuffle to complement their already successful iPod and iPod mini products. Apple also introduced the Mac Mini computer which is very sleek, powerful and inexpensive and should compete against Intel-based PC vendors such as Dell quite well.



Les Giamona, Sales and Marketing Director, John Hanley, President and CEO, and Al Ciallella, Software Development Manager at Macworld 2005

I have attended and been involved with many trade shows over the course of my 20 plus years in the sales and marketing field, but I have to say this was the most energetic, positive, well organized show I have ever seen, from the layout of the booths to the ease of getting a cup of coffee. There were 32,000 attendees and a large number seemed very interested in our existing products and future offerings.

This show was the perfect forum for us to present enhancements of our existing products which eventually will operate on the Apple Mac OS X and Windows platforms. (For those of you that are new to Portlock and our products currently we only support Novell NetWare and Linux operating systems.) We were so impressed with this show that we have already booked our space for 2006.

The only downside of this year's Macworld show? When I tried to attend the keynote speech given by Steve Jobs, President of Apple and was promptly escorted out. There were thousands of people waiting in line to see him speak, some even arriving as early as 5:00 a.m.! Apparently exhibitor badges do not allow access to the keynote speeches, which does not make sense because the vendors pay thousands of dollars to attend these shows and should at least have access to the keynote presentations. Perhaps Apple should think differently about this too.



Portlock's resident guru, John Hanley, checks out his new iPod

After being energized by the Macworld show we then followed up with a mailing campaign introducing our new product, Portlock MaxSys, to our existing customers and to people who could not attend the show. (If you missed seeing the white paper you can access it on the Portlock web site.) The response to our new product offering has been tremendous, but unfortunately development has slipped into the next quarter and when this product is finally released it will be well worth the wait and IT managers will be lining up to get a copy.

Following our mailing campaign about our new product offering we refocused attention on our core product Portlock Storage Manager and announced through a nationwide press release that Portlock Storage Manager 4.0 will be released in the second quarter. The 4.0 release slipped a bit as we had to make modifications to 3.33 and release 3.34 when Novell started shipping Open Enterprise Server (OES). When released 4.0 will satisfy a couple of features that our customers have been asking us to deliver since the product's inception.

Continued on Page 13

Next on the marketing radar was an email survey sent to our current customer base to garner information on what their hot buttons are and what features they would like to see added to our products. This was not a satisfaction survey as I do not feel that those types of surveys add any value to an organization and most experts will agree with me that most customers will not even take the time to reply. The response was excellent to the survey and it did not hurt that we enticed people to respond with the promise of some lucky respondent winning an Apple Mac Mini as the prize.

The lucky winner was Mr. Randall Carpenter of Fairfield Trucking located in Hamburg, Arkansas. Congratulations Randall! Enjoy your new Apple Mac Mini, which by the way we upgraded with a wireless card.



Congratulations to Randall Carpenter, winner of the Apple Mac mini



The Mac Mini was a big hit at Macworld

Now let's turn our attention to the sales side of Portlock. It is hard not to take credit for the sales results we achieved in the first quarter as the company registered record numbers, but ego aside I realize as Apple has done, Portlock caters to a niche market and our products are superior then anything else on the market in helping customers back up or migrate their data. That is not to say that my team did not and does not work very hard, they do and I am very appreciative. An ex-supervisor in a previous work life once told me that a good manager will surround themselves with good people who ultimately make them look good. I have tried to live by that credo ever since and it has served me well.

In summary, from a sales and marketing standpoint, the first quarter of 2005 has been very solid for Portlock and we are projecting great things as we move forward for the rest of the year.

If there was anything approaching being a downside to this quarter, it was our decision not to attend Novell BrainShare this year. Attending two major shows in a single quarter was just not practical for Portlock to accomplish, so we chose Macworld instead of BrainShare this year.

In spite of Portlock not attending BrainShare this year, however, there has been a very positive benefit: It has allowed Portlock developers and staff to focus nearly all time, attention and energy on the development and release of new products and deliver numerous current product enhancements, such as our recently announced support for Novell Open Enterprise Server and both NetWare and SUSE LINUX Enterprise Server kernels. (See the press release announcement on page 9.)

As noted above, Portlock also has some incredible new products in development as well, such as Portlock MaxSys, an all-new family of products which is progressing nicely toward a near-term beta release. If you long for powerful, robust storage management software that gives you "instant" results, including file-level and incremental restores across all your platforms, we think you're going to appreciate Portlock's latest innovations very much!

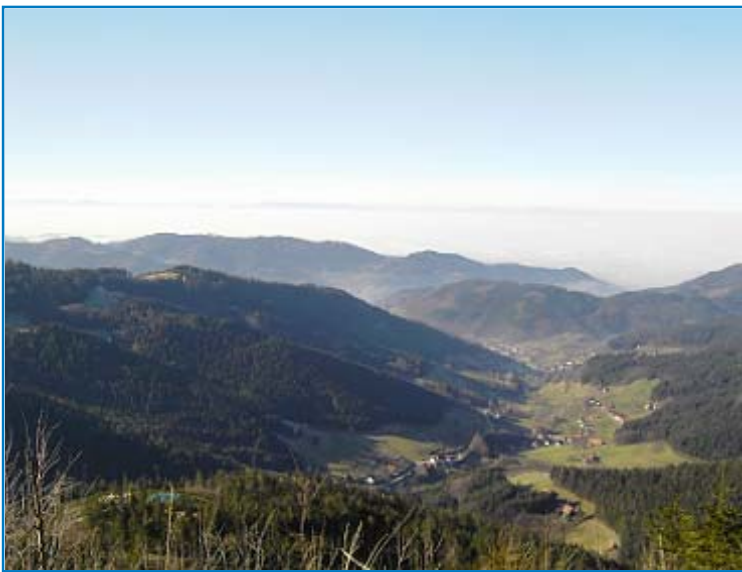
RESELLER SPOTLIGHT

By John Reynolds, Channel Program Manager

Braunstein Netzwerk-Support

Living in Nature and Working in High Tech

Near the beautiful Black Forest in the Rhine valley is Stefan Braunstein's home. In southern Germany, next to Europe's capital, Strasbourg, he works as a Network Consultant and has his own company, Braunstein Netzwerk-Support. Since 1992 Braunstein has been successful as an independent consultant in the NetWare area. In the beginning, he worked for small and medium sized local companies, and now has two employees and supports customers in Germany as well as across Europe.



From his office, Stefan provides support by phone, visits customers on their premises and sells NetWare products through his web shop. "In a competitive market like this it is extremely important to be able to offer professional and extensive support," notes Braunstein, who adds: "This would be impossible without a good team and reliable software."

Stefan's core competencies are clearly in the NetWare area. He distributes the German NetWare FAQ, writes in Newsgroups and for magazines. His experience ranges from single NetWare 3.12 servers up to complex WAN networks with 30 servers. This is where Portlock products are excellently suitable.

"In my many years of experience as an independent consultant, Portlock Storage Manager was the first and only product that convinced me. Thanks to this product I have been able to provide a simple but powerful storage management solution to many

customers – and in many cases involving NetWare it was the only viable solution. In addition, for small companies like my own it is next to impossible to use 5 different products for one task – another plus for Portlock because Portlock Storage Manager also supports other platforms."

Together with his wife Beatrice and his technician, Manuel Wurth, Stefan Braunstein has established a small but competitive company – in part thanks to his partners – which plays a leading role in selling and supporting NetWare tools, including Portlock Storage Manager, throughout Germany and Europe.

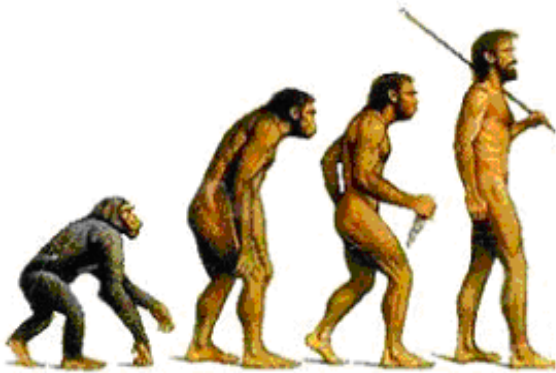
For more information about Braunstein Netzwerk-Support, visit: <http://www.braunstein.de>.



RENEWING PORTLOCK

By Carrie Rupert, Contract Renewal Manager

Evolution of a License Renewal Program



Just like our software, the Portlock Renewal program continues to evolve.

Since the beginning of Portlock time, our goal has been to offer powerful storage management solutions and expert technical support that any network customer can afford. With Novell's constant changing of internal data structure and Portlock's Storage Manager 4.0 on the horizon, it has become apparent that as our products evolve, so must our renewal pricing.

Effective April 1, 2005, Portlock now offers two License Renewal discount levels:

Level 1 pricing applies to any Portlock license renewal ordered within 90 days of the support and upgrade expiration date. For example, a single server license renewal of Portlock Storage Manager purchased within the 90-day window is \$135.00.

Level 2 applies to any product renewal which is ordered after 90 days of the expiration date, but has not exceeded 12 months beyond the expiration. Pricing for the same license renewal ordered after 90 days of the support and upgrade expiration would be \$270.00.

We believe strongly in the ongoing development of our products and the value they provide, and rewarding our most proactive customers and resellers for their continued support just makes sense. In short, renewing your licenses at Level 1 is designed to keep your Portlock software maintenance costs down to the absolute minimum. Please note that if a full year has passed since the support and upgrade expiration date, you must pay the entire current price of the product.

Also, don't delay so long that your license becomes extinct. Of course if for any reason you choose not to renew a license, your Portlock software won't stop working. However you will no longer be able to upgrade to the latest version of the product or take advantage of Portlock's technical support.

We recommend using the latest version of Portlock software, as we test continuously against the latest operating system releases and Service Packs and release frequent product updates.

Although Portlock no longer offers volume discounts on renewals, we will continue to extend educational discounts and our Portlock resellers will continue to receive their current discount levels on customer license renewals.

The Portlock Sales team will continue to be proactive in alerting you to your upcoming renewals. And we will continue to keep you up to date and fully supported by Portlock.

Not sure of your Portlock product's license renewal status? Contact sales@portlock.com or call me directly at (406) 723-5200 and I'll get the information you need to ensure that your product is running at its highest capacity.

Until next time, thank you for your continued support of our products.

S STORAGE MOVERS

By Ben Park, Director of Customer Support and Operations, Infrant Technologies

Infrant: Providing Breakthrough NAS Solution



Infrant Technologies is a Fremont, California-based provider of innovative network storage solutions. The company was founded over 3 years ago by Paul Tien, who was successful in two other ASIC (Application-Specific Integrated Circuit) based startups in the past. The idea was to come up with a new concept for network storage.

Typically, a NAS system comes in two flavors. Either it's a proprietary hardware and software combination designed to provide very high end features or it's an off-the-shelf, PC-based processor/motherboard and Windows OS running on top, providing the file server function. The unique, outside-the-box thinking by Infrant produced the world's first Network Storage Processor (NSP).

Infrant's NSP is a System on Chip (SoC) developed from the ground up to replace a motherboard with just one chip. Almost the entire function of a NAS, including SATA controller, Gigabit Ethernet and RAID engine, is built into the chip. A Linux-based Operating System controls the chip and other functions on the system. The SoC took over 2 years to design. From this SoC, the entire storage solution was created, resulting in ReadyNAS 600 and ReadyNAS 1000 family of products.

Having an entire system in silicon gives the ReadyNAS family of products several advantages. First, you save a lot of real estate on the motherboard. The board can be as small as 1/5 the size of a typical PC-based motherboard and still maintain full functionality. Secondly, the system draws much less power. Our system with 4 disk drives typically draws about 85 watts.

That is equivalent to a single Pentium 4 processor alone. That also means the system runs cooler and quieter since less fan is needed to keep it cool.

The Operating System, called RAIDiator, comes with many of the advanced features previously available only in enterprise-level systems, such as Journaling, Snap Shot, Self-healing and hot spare. Typically a system that offers these kind of features cost \$5,000 or more. The NAS is accessible by any system using Windows, Mac OS, UNIX or Linux. You can even access it via FTP or HTTP protocols.

Due to this high integration, Infrant is able to provide a highly reliable system for a lot less than what is offered in the market today. A 1 TB system, with four 250 GB drives installed retails at \$1,595. This type of product is perfect for the Small/Medium Business (SMB) market or the Home/Home Office Small Office (SOHO) market. However, some of our customers are using this in enterprise settings.

One of the areas where it's being used that surprised us is in the Digital Video Surveillance market. Due to increased storage requirements in that market, customers are looking for an affordable solution to store video data captured from surveillance systems. This may be due to several factors, including new government requirements for corporate governance and heightened security requirements due to September 11.

Another area is in the consumer market, where HDTV recording has been taken over by PC-type devices. These Media PCs have become the ultimate place to store home-based media data. Unfortunately, this data is nothing like in the past; the files are huge. So, an affordable storage device like ReadyNAS is being embraced by home network users to share and enjoy music, video and pictures.

However, the primary use of ReadyNAS is to back up another system since it offers RAID 5 protection and other features to ensure that the data will be safe. Using data management software such as Portlock Storage Manager, you can secure data from all the networked computing devices automatically, saving hours of hassle when a system goes down. This definitely is the strength of the Infrant's ReadyNAS family of products.

More information about Infrant products is available at www.infrant.com.



Reliable Network Storage

One Simple Device

SMB



ReadyNAS 600

With 4 SATA disks, Gigabit Ethernet, RAID 0/1/5, snapshot, setup wizard and management software you instantly share over a terabyte of data among Windows®, Mac, Linux, Unix, Web, and FTP clients. ReadyNAS 600 is an easy, capable and affordable network storage solution in the office or at home.



HOME



Benefits of ReadyNAS 600 Network Storage

- ✓ Easy-to-use
- ✓ Highly reliable
- ✓ Terabyte capacity
- ✓ Small form factor
- ✓ Low power consumption
- ✓ Quiet operation

HARDWARE

- ✓ Network Storage Processor (NSP)
- ✓ Hardware RAID 0/1/5
- ✓ Gigabit Ethernet
- ✓ 128MB DDR RAM
- ✓ 4 SATA Hard Disk Drive
- ✓ 2 USB 2.0 port
- ✓ Compact desktop design

SOFTWARE

- ✓ RAIDiator embedded OS
- ✓ RAIDar discovery utility
- ✓ FrontView Client
- ✓ Support Windows, Mac, Linux, Web, FTP
- ✓ Printer server and DHCP server
- ✓ Snapshot and hot spare
- ✓ Multi-language support



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FILE SYSTEMS

By Jay Toups, Marketing Manager

A File System is a File System, Right?

Where can you find a sophisticated, massively scalable, easy-to-manage file system for Linux? Look no further than Novell Storage Services (NSS), first introduced in 1998 with NetWare 5. With Novell Open Enterprise Server, Novell has recently delivered NSS for Linux, adding a proven, high-performance file system to the many file system choices now available to Linux users.

The fundamental benefit of the 64-bit Novell Storage Services is that it enables large organizations to amass and manage lots of data while still enjoying speedy response times. NSS recognizes and stores files and volumes as large as 8 TB each and can support as many as 8 trillion files per server—1 million of which can be concurrently open.

Novell Storage Services requires only 1 MB RAM to mount a volume, independent of the number of files the volume holds. Furthermore, you can activate an unlimited number of NSS volumes concurrently per server, up to the available server memory. In other words, if you have 512 MB RAM, you can activate 512 NSS volumes. If each of these volumes stores the maximum 8 TB, then on a single server, you can store 4 petabytes (PB) of data. (A petabyte is 1,000,000,000,000,000 bytes, or 1,024 TB.)

At least four other Linux file systems, Ext3, ReiserFS, XFS and JFS, have similar capabilities. Yet, NSS offers additional capabilities that the other file systems simply do not have. For example, NSS offers many more features than are available in other Linux file systems that comply with the Portal Operating System Interface (POSIX) standard, a set of operating system interfaces, including application program, shell, utility and thread management interfaces.) NSS moves beyond some of the standard's limitations, most notably in the area of access control—with features unmatched by any other file system, including:

- Back links in files and subdirectories to parent directories
- A trustee model that ensures control over who has access to what
- An extensive list of file attributes that offers greater control over the treatment and purpose of each file
- A Salvage feature that enables users to restore files that viruses or applications delete

In all file systems, parent directories contain links to the files and subdirectories they hold. NSS adds a unique, valuable feature: in NSS (as in the traditional Novell file system), file and subdirectory children contain links to their parent directories. This is not true of any other file system.

In other Linux file systems, for example, the inode files for directories contain inode numbers for every file and subdirectory they hold. (Inode files are computer-stored files that contain information about a file. Each inode has a unique number.) The inode files for files and subdirectories, in contrast, do not include inode numbers for the directories that hold them. Because its file system children know their parents, NSS offers features that simplify and, in most cases, accelerate the management of file system access rights.

If you are managing a large network environment where hundreds of users share millions of files on a large file system, a few extra rights for a little extra control can come in handy. NSS doubles the number of rights available in Linux systems, with eight access rights you can assign trustees:

NSS enables users to share files within a directory to which they have the appropriate rights without making visible all of the other files in this directory.

- Supervisor
- Create
- Erase
- File Scan
- Modify
- Read
- Write
- Access Control

As you may notice, Execute is not included in this list. In NSS, Execute is a file attribute, not a right. With eight different rights to choose from (and Execute as a file attribute), you have a high degree of control over the level of access trustees have to NSS directories and files.

Another advantage of using NSS? Portlock Storage Manager provides complete backup and restore support for NSS file systems running on either NetWare or Linux, providing the highest degree of recoverability insurance in the event of a disaster or failure.

For more information about Novell Storage Services, visit www.novell.com.

Viabile Solutions, Inc.



Our Name Says It All!



<http://www.viable-solutions.com>

I NTERN'S CORNER

By Heather Barry, Ray Hibnes, Kaly Keller, and Matt Thompson

Portlock Interns: Getting Down to R&D

Over the last six months, we four Portlock interns have made big steps toward advancing our nascent professional careers. From our respective courses of undergraduate study at Montana Tech in Butte, Montana, to the real world of designing, developing, selling and supporting storage management software, we've all learned things that cannot be taught in school. For example, we've learned that the customer really does come first.

We've also learned that working for a major software vendor is highly detailed, intense, challenging work. We've learned about software business imperatives, such as the requirement for quality assurance through rigorous Portlock product testing on the latest computer hardware. We've learned how to write documentation. We've learned to create web pages, plumb databases and build software components. We've learned how to set up and configure all types of operating systems. We've learned that we may not know everything after all we've been taught in school, but we've learned where to find the answers. And what we've learned and continue to learn as Portlock interns makes us wiser and hopefully smarter with each day!

As a result, we've gained the ability to use these skills and growing level of experience to become increasingly valuable members of the Portlock team. Through the leadership and guidance of senior Portlock staff, each intern's strengths have been evaluated and then utilized to advance the company's business effort in a wide range of areas, including: software and hardware development, testing, documentation, website development, finance, technical support, research and customer relations.

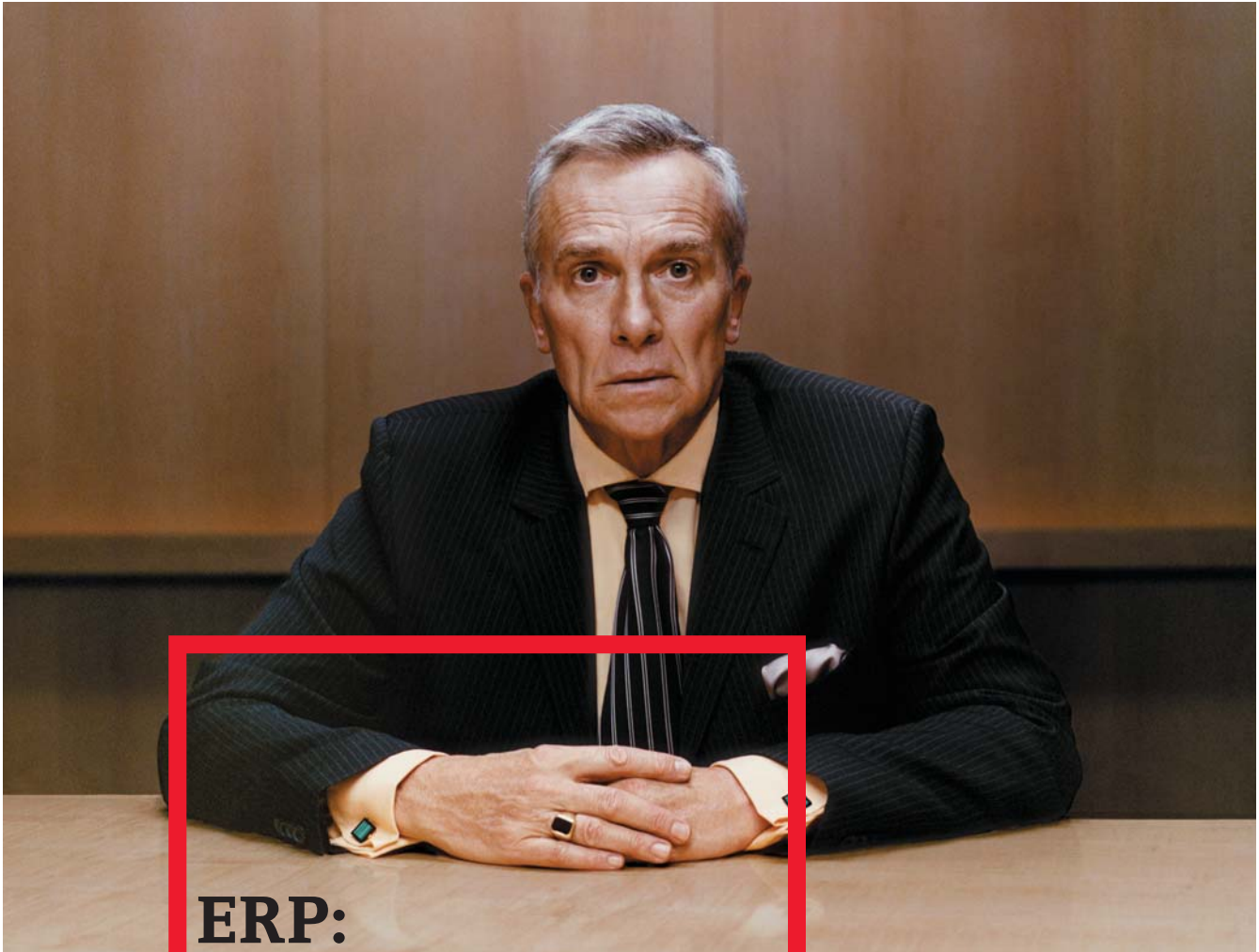
Often, Portlock interns are assigned projects without being provided with a full understanding of how something works, why it works, or the steps that have to be taken to make it work. This is proving mutually advantageous because it presents ample opportunity for Portlock to research different product ideas and different development methods that will greatly enable company productivity in future projects. For interns, the experience gained from achieving seemingly out-of-reach goals with minimal assistance is valuable for anyone looking to enter a field that changes continuously and requires many different skills and abilities from the individual.

One such project includes the development of a common graphical user interface, which is being implemented collaboratively among members of the Portlock development team, including interns, so that it will be portable between Linux and Mac OS X operating systems. The goal of this project is to create the user interface in one environment and port it to the other with little or no changes in the program. A successful conversion will mean eliminating duplicated work from one environment to the other. In addition, a great deal of research is being performed by Portlock interns, for example, on competing vendor products and services, allowing Portlock to remain a step ahead of the competition. Hardware configuration has also been investigated to determine optimal conditions for evaluation and testing of high-performance software such as Portlock Storage Manager.

Portlock interns are also assisting with the development of a brand new Portlock website. The goal of this project is to help Portlock create a stronger and more flexible web presence using the latest development technologies, including open source standards such as PHP and MySQL. The site has proven to be a challenging task, as the learning curve in this area is steep. However, the satisfaction of seeing the new site go live this summer will make the whole process worthwhile.


Constant communication with our managers and co-workers, as well as with customers, has also benefited Portlock interns as we have applied our knowledge and skills with each interaction. These skills will help us bridge the gap between what we've learned in school and what is actually needed to be successful in our careers. With the problem-solving techniques and people skills gained from the experience here at Portlock we are steadily improving our competencies, as well as customer service skills, which will be extremely beneficial throughout our professional careers.

The overall impression we have of working at Portlock is a very positive one. From the ivory tower of academia to the real world of software development, and all right here in Butte. It is a gratifying opportunity to develop real-world technology skills, and to be part of the exciting future of Portlock!



ERP:

Sound made by CIO
when people see data
they shouldn't.

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