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Galaxy Backup is Reliable Insurance for University and Affiliated Research Institute

QUICK FACTS

Industry/Solution:
- Education, Research

Platform/File System:
- Microsoft Windows 2000, 2003
- Microsoft Active Directory

Applications:
- Microsoft Exchange
- Oracle
- SQL

Partner Hardware:
- 150 Dell PowerEdge servers
- 6 EMC storage Area Networks (SANs)
- ADIC LTO3 tape library, Dell StorEdge LTO2 tape library

Challenges:
- Need for reliable, centralized backup
- Need to backup two separate and different environments

Solution:
- CommVault Galaxy Backup & Recovery
- AUX Copy

Benefits:
- Automated, centralized backup minimizes management time required
- Informative reports enable efficient use of resources, prevent over buying media
- Increased utilization of tape media, with no partially filled tapes
- Reliable backups and restores

Customer Profile

Named after John Marshall, the former Chief Justice of the United States, Marshall Academy was founded in 1837. Today, Marshall University's campus in Huntington, West Virginia, is home to 14,000 students, including 4,000 graduate and medical students, and over 700 faculty members. Affiliated with the university and located on the Marshall campus, the Rahall Appalachian Transportation Institute (RTI) is an independent research institute whose focus is enhancing the economy of rural Appalachia through the development of transportation systems and strategies.

Data Management Environment

Marshall University's IT organization plays an important role, making sure that computing services are up and running and that student, faculty, and staff data is safe and available. The University Computing Services department has a staff of 40, and the university data center hosts 150 Dell servers and supports five other smaller data center locations. Ninety percent of the servers run Microsoft Windows, and about ten percent run Linux. Information storage infrastructure includes six EMC storage area networks (SANs) with a total storage capacity of 25 terabytes (TB).

RTI maintains a separate computing environment from the university's, with different operating systems and different processes and needs. The university has a Service Level Agreement (SLA) with RTI to manage the institute's hardware and network, and to provide administration and data protection services, including storage backup, archiving, and recovery services. Explains Jon Cutler, Director, Systems Administration and Security, University Computing Services, "The RTI team told us, 'We are GIS gurus, and we are building a GIS SAN with several terabytes of data. But we are not IT guys. You have the data center and the people. We depend on you to house our equipment and help us select the right systems.'"

CommVault Galaxy is one of the key data protection tools at Marshall. There are two Galaxy licenses at Marshall, one for the university, and one for RTI. Galaxy backs up about 12TB of data on the Marshall systems, and another 12TB on the RTI systems. Backups are done to two tape libraries, an ADIC LTO3 library for the university and a Dell LTO2 library for RTI.

Choosing CommVault

CommVault Galaxy was installed at Marshall in 2004. "We were seeing growing pains with backup, and we needed to move up," explains Cutler. "We had purchased our previous Veritas Backup Exec software in a special package that came with the library and the agents all together. It was a good deal, but it did not come with full support and upgrade protection. As we grew and added Linux, Backup Exec did not yet have Linux support. We needed to move to a true enterprise-level backup system that could support a much larger and more diverse storage environment."

Cutler and his team evaluated a number of backup products. "We work closely with Dell," he explains, "and Dell suggested that we consider CommVault. Dell showed us a matrix of strengths for different products. The matrix showed that CommVault was strong in Windows support and Microsoft Exchange email backup, and also supports Linux. Dell also gave us a number of references from Dell customers in higher education who use CommVault."

At the same time the university was evaluating backup software, RTI was installing their initial Dell hardware. Because of budget and project scheduling issues, RTI needed to decide on a backup solution immediately, and they chose CommVault Galaxy Backup and Recovery. Because University Computing Services had to manage both, with a limited number of people, it made sense for the university to buy Galaxy too. However, before

making their final decision, the university team continued doing their due diligence and checking the Dell reference accounts, all of whom gave them positive feedback. They also met with a Gartner analyst, who went through the selection analysis with them. "In the end," says Cutler, "we came to the conclusion that CommVault is used by large accounts and is highly rated." (Gartner MarketScope has given CommVault a "Strong Positive" rating for enterprise backup and recovery.) "We felt comfortable with our choice after that meeting. We worked with CommVault to define our needs in terms of number of agents, training, and support, CommVault gave us a good offer, and we took it."

Training and Installation: Getting Two for the Price of One

Like many educational institutions, Marshall needs to stretch funds. Marshall has used to their advantage the fact that they have two independent Galaxy systems. When RTI purchased their Galaxy licenses, they bought installation services. However, the university was ready to install its CommVault system before RTI's hardware was on-line. Explains Cutler, "We used RTI's installation services to get the university system installed first, with CommVault's help, and then we installed the RTI system on our own. The university system was much more complex, so after that, RTI was easy."

Similarly, the university's Galaxy system came with three seats of training. "We were able to include training for the RTI administrator under the university training costs," says Cutler, "so we got the most out of limited resources. The training was very effective. We sent one person for training before the first installation, so we were ready to start using it as soon as it was up and running."

Two Distinct Environments

Galaxy software backs up two very different environments at Marshall: the university and RTI. While the university has thousands of users, RTI has only about a dozen users. At the university, Galaxy backs up a wide variety

of applications and platforms, including Oracle databases, SQL databases, Exchange servers, Active Directory, Windows servers, and Linux servers. At RTI, a few users are developing large applications having to do with transportation systems, and every RTI developer has large amounts of data — the RTI systems include about 2TB of imaging data. However, both environments are backed up the same way, using CommVault Galaxy for nightly incremental backups and weekly full backups. For each weekly full backup, a Galaxy AUX Copy backup is made and sent off-site.

Restores are a Priority

Backups are useful only if they can be used to restore lost data. If the Marshall IT team needs to do a restore, they go back to the most recent full backup, add the daily incremental backups, and they have every-thing they need for the restore. A Galaxy capability that pleases both IT staff and users is the ability to restore specific ables or records from Oracle and SQL databases without restoring the whole server to a previous point in time. The same is true for the Exchange email server database, where specific email messages can be restored without restoring the whole mailbox or the whole email server database. As a result, IT staff can restore individual messages without taking the whole email system down.

Galaxy Makes Database Migration Safe

Galaxy has also been helpful in migrating data. Explains Cutler, "Last year we upgraded our SAN. One of the consequences of centralized SAN storage is that you need to shut everyone down to upgrade. In a university, just like anyplace else, there is no good time to have everyone shut down. Critical applications like email and course management systems must be available 24x7. We had a short window of only two or three days when the Dell and EMC people were on-site, so we had to figure out how to move the data as fast as possible. At the beginning of the week we used Galaxy to do a full backup and pre-loaded it on the new SAN. Then in

mid-week we kicked everybody off the system for a short time and did an incremental backup. With our previous backup software, we would have had to shut down the system for as long as 24 hours while we made a full backup, verified it, and did the pre-restore to the new SAN. But our total confidence in the Galaxy reporting and scheduling tools let us do one incremental, add it to the last full backup, and do the pre-restore to the new SAN. We only had to shut the system down for less than six hours and we were ready to make the critical changeover."

Savings on Tape Media

CommVault helps Marshall save on media costs by making full use of every tape cartridge. Veritas Backup Exec will assign a backup job for a specific server to a specific tape; when that backup completes, the sys-tem cannot use the tape for the next backup job. As a result, many tapes are partially filled. In contrast, Galaxy keeps backing up to a tape until the tape is full. "LTO tapes cost from $45 to $75 each," says Cutler, "so leaving as much as 90% of a tape empty is costly."

Galaxy's reporting capabilities also help reduce media costs. The Galaxy tape aging forecast report shows how many tapes will be available at any point in the future. If an administrator thinks more tapes are needed, he can first check the Galaxy reports to find out how many scratch tapes are at the off-site. Having the tape aging report prevents overbuying in that situation and delivers hard dollar savings.

Backup is an Insurance Policy

Cutler sees backup as just as important as operating systems or email systems. "Backup is like auto insurance," he says. "You hate to pay that premium every month, but when someone crashes into you, you want to reach into the glove box and find that insurance certificate. Several times with the previous backup software, when we reached into the glove box the backup wasn't there, or it was not good. We have critical information on the systems, like on-line learning programs, and department budget spread sheets, and

individuals' personal data. The consequences of losing that data are costly in terms of money, time and confidence in the IT department."

Future Plans: DataArchiver Will Just Snap into the System

"We first bought CommVault to do backup," says Cutler, "but an important factor in our choice was knowing what's coming next that we might need. The next piece of backup software Marshall plans to add will be for archiving. "Email used to be 'read and delete,'" says Cutler. "Now, people need to keep their email. You need to be able to go back to a year ago and say here is what I counseled this person to do, or what I told this employee. With CommVault DataArchiver we will be able to do that efficiently, and it will let us move more data off expensive disks and on to less costly disks or to tape. And it is transparent to the end user. It is

another piece we can just snap into the system, and we don't need to get something totally new."

At RTI, nearly all their systems operate in a virtualized environment using VMware Virtual Infrastructure Node Enterprise Edition to host a series of Linux and Windows Servers. With a growing number of virtual machines, RTI was concerned that they would need separate agents for each. However, CommVault supports VMware Consolidated Backup, so they need to buy only one Galaxy agent for their VMware proxy server. RTI is testing this capability and plan to put it into production. David Lawson, Manager of Information Technology at RTI, says that, "CommVault data protection tools provide an excellent complement to our virtual server environment and SAN storage solution."

Comfort Zone for Marshall

"In a multi-vendor environment, it is easy to get into a finger-pointing situation," says Cutler, "but CommVault works in a partnership with Dell and our other vendors. We have had no support problems with hardware and libraries. It's a good mix — Dell, ADIC, EMC, and CommVault — and that's a benefit for us. Bottom line is that we are comfortable with the choice of CommVault, comfortable that we made the right decision. CommVault gives us reliable enterprise backup and recovery and is saving us time and money."

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