

Galaxy Delivers Centralized Management, Lets State of Delaware "Fix Problems Before the User Even Knows It"

QUICK FACTS

Industry/Solution:

- State Government

Platform/File System:

- Microsoft Windows 2000

Applications:

- Microsoft Exchange

Challenge:

- The need to make a smooth transition from their previous network operating system environment, Banyan VINES, to the Windows 2000 environment. Now each agency is an OU (Organizational Unit) within the Windows 2000 environment. As they made the transition, the OIS staff wanted to come up with a centralized storage management approach that would provide fast restores, flexibility, scalability, compatibility with multiple operating systems, and high reliability.

Solution:

- CommVault Galaxy Backup & Recovery

Benefits:

- Centralized management
- Reliable, fast file restoration
- Ability to restore single email messages
- Compatibility with multiple operating systems
- Scalability

Customer Profile

The State of Delaware's Office of Information Services (OIS) provides support to all state agencies, from the state police, to the governor's office, courts, and Department of Motor Vehicles. "The whole shebang," says Telecommunications Consultant Douglas Lilly. OIS is currently in the process of reorganizing into the Department of Technology and Information (DTI); that transition will be final on June 30, 2003.

Each Delaware state agency has its own IT facilities, but OIS provides Wide Area Network (WAN) facilities and core networking technology. There are two core IT sites, the main center in the state capital of Dover, and the second core site in the Biggs Facility outside Wilmington. In addition, there are literally hundreds of smaller satellite sites. The mission of OIS is to "Enable excellence in Delaware state government by providing leadership in the selection, development, and deployment of information technology resources throughout the state of Delaware." In all, there are about 20,000 state workers, including about 200 in OIS. Most OIS employees are located at the data center in Dover, with a small number assigned to departments in other sites.

Data Management Challenge

Until recently, the State of Delaware used Banyan VINES as its network operating system (NOS). By 2000, however, they needed to make a change; Banyan was going out of business, and VINES would no longer be supported. Microsoft Windows 2000 was chosen as the new NOS. The challenge OIS faced was the need to make a smooth transition from VINES to the Windows 2000 environment. When they looked at backup solutions to support the Windows 2000 environment, OIS wanted a system that would provide centralized management, fast restorations in case a file or a database was lost or corrupted, scalability, flexibility, and, most of all, a reliable solution they knew they could depend on.

"The users on our system include the governor, judges, and legislators," explains Lilly. "Some of the information we are protecting is confidential. We need systems we can trust completely. Our users are public servants, and email is one of the ways they do their job. Availability of email is critical. They rely on it for communications. With a big complex system like our state-wide network, you know you're going to have problems. It's not a question of 'if', it's a question of 'when'. With CommVault, when there's a problem, or a critical email is lost, I know I can bring it back to life. If there's a crisis situation, a hurricane alert, for example, and the governor declares an emergency, she needs to disseminate that to the whole state organization, and one way she does that is email. Availability of email becomes huge in those situations, the ability to get to the entire state, get hold of people in a hurry, and to know for sure that the message got there. Our job is to make sure that the email system is as solid as it can possibly be, and Galaxy helps us do that."

The Galaxy Solution

In the past, each state agency had its own Banyan VINES servers. Now each agency is an OU (Organizational Unit) within the Windows 2000 environment. OIS sits at the top of the hierarchy and creates the OUs and delegates authority to use the network to the agencies. Each agency runs its own applications. For example, the Department of Motor Vehicles has its digital driver's license application, which it runs on its own servers. OIS has the job of providing the networking infrastructure, the highways, that the clients - the departments and agencies - use. More specifically, OIS supports the Microsoft Exchange email system and the Windows 2000 Active Directory, which provides Network Authentication services.

The Delaware State IT system is a hub and spoke setup, with the two core sites as hubs, and a Wide Area Network (WAN) connecting to department systems, each of

which is tied to the WAN, and typically has its own Local Area Network (LAN). At each of the core sites, there is an IBM S390 mainframe with Juniper switches. There is also a disaster recovery site at the Philadelphia Megacenter facility of SunGard Recovery Services. The departments all have their own systems, with a wide variety of operating system environments, including UNIX, Solaris, AIX, Windows 2000, Windows NT4, and Linux.

Within the OIS structure, CommVault Galaxy software provides data protection for core functionality, including MS Exchange, Windows 2000 Active Directory, as well as OIS file and print servers. OIS supports what is called in Microsoft terminology a single forest, a single domain architecture in a Windows 2000 environment, as well as Microsoft Exchange messaging services. The primary data storage facilities are EMC Symmetrix storage systems, which provide storage for the Windows 2000 and Exchange 2000 facilities. The EMC systems are at four sites, distributed around the state geographically. This geographical distribution spreads bandwidth requirements. Spreading them around also provides site tolerance: if one site or a whole area of the state gets knocked out (for example, by a hurricane hitting Delaware Bay) having the facilities distributed means it is more likely that the system can stay up and running in a disaster situation.

Clusters Provide Redundancy

The MS Exchange system is supported by ten Microsoft clusters. Each Active/Active cluster has two nodes, and supports 2,000 users per cluster. "The clusters give us redundancy and failover capability," says Lilly. Each node supports eight MS Exchange user databases, or 16 for each cluster. With 2,000 users per cluster, there are 125 users per database, and each is allocated 100 megabytes of storage. So each database has 12.5 gigabytes. "The benefit of clustering," says Lilly, "is that if a database gets corrupted, only 125 users are affected. Also, it means we have lots of small databases instead of one huge database. If we had 20,000 users at 100 megabytes per user, the database would be 2 terabytes, which would be slow to back up and recover."

Active Directory Backed Up by Galaxy

The state's Active Directory is being backed up by Galaxy, including system states and system metadata. This is the data the state uses to authorize access to all state information resources so it is critical to have it available. The ability of Galaxy to restore Active Directory attributes is very valuable. "For example," says Lilly, "your identity in the Active Directory doesn't just include your user name, it also includes your email address and telephone and fax numbers, etc. All that information is critical to people, so it's important that, when Galaxy restores everything, it all comes back!"

Galaxy is the "Safety Net"

"Galaxy provides the safety net for our Active Directory and Exchange organization," says Lilly. "Active Directory and Exchange are essentially databases, so it is virtually inevitable that hardware or software problems could impact our ability to serve the public and provide critical services to the entire state. If users can't log in, their jobs are more difficult. Since email has become the most visible and most used application that the state currently has, it's nice to know that, when the storms come, we will be ready for them, with the help of Galaxy. In an emergency, the advantage that email has over voice is the ability to disseminate information to multiple parties, or even the entire state, with one click of the mouse. Phone chains or auto dialers don't have that capability. Galaxy helps us make sure we can do that."

Pilot Study Leads to Galaxy Selection

As they made the transition from the VINES network operating system to Windows, the IT staff wanted to come up with a centralized storage management approach. "As we moved from VINES to Windows 2000, and added MS Exchange messaging, we felt that Delaware is such a small state, it made sense to manage all the messaging from just one central site. For example, as agencies create users, we email-enable them," explains Lilly.

The move to Galaxy was the result of a pilot study. "We did a pilot study about two years ago," recalls Lilly, "and we started using Galaxy about a year and a half ago. We went with Galaxy for two reasons. First, when we started looking at backup, Galaxy had the easiest restores, by far. With Galaxy you can restore a single instant message. You can restore an entire database if you want to, but you can also restore a single message. That saves a lot of time and trouble and steps."

"Second, Galaxy gives us centralized management of all four Exchange sites. Through one GUI, we can control all our libraries. Each of the four Exchange sites has an ADIC Scalar 1000 library with six LTO tape drives and 468 tapes with a capacity of 100 GB each. That adds up to a total of 46.8 terabytes. Galaxy lets us control it all centrally. The only other possibility was VERITAS NetBackup. But it didn't offer as much functionality as Galaxy, didn't have the centralized management capability, and was twice as expensive!"

The IT team first looked at Galaxy on the recommendation of InfoSystems, Inc., of Wilmington. "We tested Galaxy and NetBackup," says Lilly. "We have a parallel pilot domain set up that we use for testing new software. The CommVault people came in and installed Galaxy, and VERITAS came in and installed NetBackup. We saw the Galaxy centralized management run successfully, and we were able to prove the validity of CommVault's claims of what Galaxy could do. Galaxy's centralized management is the umbrella capability that gives me the ability to schedule all my jobs, the ability to look at all my libraries. That's where Galaxy is a step above. The single message instant restore is also something VERITAS does not offer. VERITAS can't touch that capability."

"The actual installation of Galaxy was gravy," says Lilly. "Since we had piloted, we'd already gone through any bumps in the road, so the installation was pretty much flawless. If we have problems or questions, CommVault service has been very responsive, quick responding. They use Web technology to get into the system and look around. And they come down here if need be. One time we had a hardware problem with one of the ADIC libraries. The ADIC and CommVault people came here together and worked out the problem with no finger pointing - a one-shot fix, one-stop shopping."

"Galaxy Has Been a Life-Saver"

"Galaxy has been a life-saver," says Lilly. "People have lost email that was important, and we've had database corruption. We have been able to fix the problems using Galaxy and make it transparent to the users. Our goal is to fix problems before the user even knows it! We have a lot of faith in Galaxy, based on its performance. Based on our experience with Galaxy, we feel that we can back up and overcome any problem. You get a level of comfort with a product. Galaxy hasn't let us down. With a Galaxy, we feel we can deal with any future problems."

Future Plans for Galaxy

Lilly anticipates that Galaxy will widen its role in the state IT structure, because it provides flexibility and scalability. "Galaxy is not limited to Windows," he notes. "It can move into other environments."

Their faith in Galaxy means that the OIS team feels comfortable recommending Galaxy to their "customers" throughout state government. "As each agency does its own thing, we give them our recommendations. The way Galaxy is designed, it's easy to add other operating systems on it. When they ask, we say 'Galaxy can do that!' For example, we work with Delaware Health & Social Services (DHSS). They have their own IT staff and facilities. We could recommend to them that they go to Galaxy for data protection, and they are now running Galaxy."

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