

**“We have contractors now who are here to help. When they’re gone, we lose a lot of experience in regards to our particular deployment. With DirectoryAnalyzer, we have an extra set of eyes watching our infrastructure.”**

*-- Doug Lilly, Telecommunications Technologist, State of Delaware*

For the array of agencies under the umbrella of the State of Delaware, Active Directory represents a major departure.

For years, the Department of Natural Resources, Health and Social Services, the State Police and the Department of Transportation, just to name a few, operated under a computing paradigm that enabled each agency to manage its own NT4 and Banyan VINES environments. With the introduction of Windows 2000, the state adopted a hub and spoke model that consolidates the statewide network and its management under one centralized operating system with Active Directory at its core.

In doing so, the newly formed Delaware Department of Technology and Information assumed the burden of reliability and performance, security and overall management for the state’s entire network.

“With only four administrators running a centralized Active Directory and Exchange 2000 deployment, we have a really lean staff,” says Doug Lilly, Telecommunications Technologist. “We needed some help.” They got it in the form of three Active Directory availability and performance solutions from NetPro.

## **Control, Availability, Performance**

The IT team launched into their Windows 2000 migration in October 2000 with a 250-user pilot after six months of planning. They also tested the environment for six months. And when all was said and done, a single domain model featuring Organizational Units (OUs) for each agency, plus 11 clusters with 16 databases and 1,000 users per cluster node, replaced the traditional Banyan Vines operating system and NT4 domain structure. Active Directory was deployed at the heart of the 20,000-user environment to ensure that business-critical applications and services like Exchange, file and print, and authentication and login could all be enabled across the widely distributed environment.

Understanding the criticality of the directory and the need to keep it up and running all the time, the team purchased DirectoryAnalyzer first. NetPro’s industry leading monitoring and alerting solution, DirectoryAnalyzer ensures Active Directory’s reliability and performance by proactively monitoring it 24x7. DirectoryAnalyzer keeps a constant watchful eye on all key infrastructure components, including replication, Active Directory-related DNS, domain controllers, operations masters, etc.

According to Richard Borrelli, a Windows 2000 and Exchange engineering contractor for the state, DirectoryAnalyzer came in handy almost immediately. “In the early phase of deployment, we needed to test site replication,” he says. “Although we had a lot of bandwidth, the requirements for our core sites were significant.” Using DirectoryAnalyzer, the team checked for latency and the efficiency of the topology. What they discovered was no surprise -- issues with replication topology. “Replication is a problem right out of the box,” says Lilly. “We have some hefty boxes, but the

connections needed tweaking. Without DirectoryAnalyzer, we would have had a difficult time identifying and fixing these issues before they escalated."

While specific instances of success certainly rationalize the purchase, it's the simple peace of mind afforded during migration and beyond that Lilly highlights as DirectoryAnalyzer's key value proposition. "Everything about this migration is unique -- we're learning as we go. We have contractors now who are here to help," he says. "When they're gone, we lose a lot of experience in regards to our particular deployment. With DirectoryAnalyzer, we have an extra set of eyes watching our infrastructure."

## Heading Off Trouble

They also have a companion solution that streamlines the process of rooting out trouble -- NetPro's troubleshooting and diagnostic solution, DirectoryTroubleshooter.

The only solution that enables administrators to troubleshoot enterprise-wide directory problems quickly and efficiently from a single client, DirectoryTroubleshooter aggregates a comprehensive set of troubleshooting tests and utilities previously available only through Microsoft command-line utilities. DirectoryTroubleshooter diagnoses directory problems without time-consuming, manual troubleshooting and provides a comprehensive knowledge base and reports for current and historical reference.

The tool has provided great value already. "We can run all the tests we need to run at one time. We can look at the size of DIT files, schedule off-line defragmentation, and see tombstones sitting out there," says Lilly. "It's so much easier than running a terminal session to one server at a time and running manual tests with command-line tools. From DirectoryTroubleshooter's log files, we get all the information we need."

DirectoryTroubleshooter also proved useful in assessing the true architecture of the implementation. "Because this is a three-year project, we are constantly upgrading servers and adding new domain controllers as needed. Sometimes it is hard to tell what is out there. There were old DCs that couldn't be reached because they no longer existed and secondary DNS servers that were gone too," he says. "We had timeout issues, DNS inconsistencies and communication problems. The DirectoryTroubleshooter tests gave us a perspective on what was out there at each agency so we could do what we needed to do to fix the issues. DirectoryTroubleshooter is a one-stop shop for command-line tools."

## Know as You Grow

Staying on top of issues and problems, as well as the growth of the environment as it happens, will be key to the success of this statewide Active Directory deployment. And NetPro's DirectoryInsight will be central to achieving both.

DirectoryInsight enables administrators to effectively plan and manage the deployment, growth, and ongoing maintenance of Active Directory by delivering critical directory change information through a browser-based, graphical interface. By tracking how directory objects populate over time, logging configuration and infrastructure modifications, and delivering real-time and historical reports, DirectoryInsight streamlines the manual migration process and provides valuable insight on Active Directory's infrastructure as it grows.

"We have 1,000 users per Exchange server and we've deployed 11 active/active clusters with a total of 2,000 users per cluster," says Lilly. "DirectoryInsight will help us keep track of the population growth as we migrate and stay on top of changes as they happen."

Automated change tracking assists in the ongoing troubleshooting as well. "Change is often at the root of problems that cascade down the line," says Lilly. "DirectoryInsight will provide a database of changes to refer back to when troubleshooting is necessary. It's comforting to know that if we have a major problem, we have the tools we need to fix the problems fast."

In the end, that's what it's all about -- ensuring the control, availability and performance of Active Directory with a limited staff for an array of distributed agencies with high expectations. Windows 2000 and Active Directory definitely represent a departure, but it's a calculated one. And with a trio of tools to help, it's going to be a great trip.

## State of Delaware at a Glance . . .

### Customer:

Delaware Department of Technology and Information  
Headquartered in Dover, Delaware  
IT Department managing Active Directory & Exchange for multiple state agencies.

### # of Users:

20,000

### NetPro Products Deployed:

DirectoryAnalyzer, DirectoryTroubleshooter,  
DirectoryInsight

### Benefits Achieved through Solutions:

- Streamlined management to enable unprecedented infrastructure consolidation
- Cut mean-time-to-repair on directory issues
- Cut costs and improved efficiencies, enabling available headcount to manage AD effectively
- Reduced network downtime
- Spurred network design & performance improvements
- Freed up network resources for other critical tasks