

EMC IT

EMC Avamar helps eliminate backup and recovery issues and save over \$1 million annually

Challenge

- 149 remote backup sites, most of which used a variety of older tape and disk-based solutions
- 6,000 backup-related trouble tickets issued annually
- Tape restoration times ranged from hours to several weeks

Solution

- EMC Avamar data deduplication, backup, and recovery solution
- EMC NetWorker backup and recovery software
- EMC Data Protection Advisor management software
- Ionix for IT Operations Intelligence management software
- VMware virtualization solution

Key benefits

- Data backup volumes decreased by an average of 95 percent
- Annual savings of \$1 million
- Backup failures almost completely disappeared
- Restores take only minutes as opposed to hours, days, or no recovery at all
- Eight backup administration FTE (full-time equivalent) positions redirected to other tasks

EMC Corporation is the world's leading developer and provider of information technology and solutions that enable organizations to transform the way they create value from information. It is supported by 40,000 employees in more than 60 countries around the world. In 2008, revenues were \$14.9 billion.

As EMC grew, remote backup operations eventually spread across 149 sites worldwide. These sites used a variety of tape and disk-based solutions—90 percent of which had passed end of service. In addition, 71 percent of remote locations did not have IT personnel onsite. This led to approximately 6,000 backup-related trouble tickets issued annually due to missing tapes, media errors, and timed-out backups. Tapes often were stored offsite and would take days to locate, resulting in restoration times ranging from a couple of hours to several weeks.

To address these challenges, EMC has implemented advanced EMC Avamar® technology supported by EMC Data Protection Advisor, EMC Ionix® for IT Operations Intelligence, and EMC NetWorker® software solutions.

A comprehensive, multi-faceted data protection solution

Today, EMC Avamar provides data deduplication and centralized backup operations for EMC's physical and virtualized server environments.

Data generated by 149 EMC remote sites located in the Americas; Europe, Middle East, and Africa (EMEA); and Asia-Pacific and Japan (API) is now automatically backed up to one of four Avamar storage grids. Two grids are located on each U.S. coast, and one grid each is located in Cork, Ireland, and Bangalore, India. Each grid contains 16 data nodes and can hold more than 24 terabytes of data. Backup data is continuously replicated to the alternate Avamar grid to ensure data recovery in the event a grid is disabled.

EMC Data Protection Advisor software is used to analyze and report on commonality factoring, deduplication ratios, compression results, and other statistics. For further protection, EMC Ionix for IT Operations Intelligence software generates automatic alerts on issues relating to other components of the backup infrastructure, such as servers and network equipment.

In addition, EMC has deployed Avamar in its primary data center, leveraging integration with EMC NetWorker software to provide source-based deduplication and centralized management of its backups. EMC is using Avamar and NetWorker to back up 1,000 servers, with plans to expand to 2,000 servers.

A pilot program involving Avamar backup and deduplication is also underway for employee desktops and laptops. Starting with 250 users, it will be expanded to potentially back up 50,000 users worldwide.

Speed, efficiency, reliability, and savings

Largely due to Avamar's source-level deduplication, the amount of data backed up at the remote sites has been reduced by an average of 80-90 percent. With less data, IT is able to back up over a wide area network stretching thousands of miles without network degradation.

EMC is also only using 40 percent of the storage space previously needed to back up remote sites. For example, at the EMEA sites, less than one percent of data needs to be transferred for incremental backups, which average a short 32 minutes.

The number of backup-related trouble tickets has decreased from over 6,000 annually to nearly zero, and backup failures have almost entirely disappeared. It now takes minutes to restore data that would have previously taken hours or days to restore. The restoration success rate is now 100 percent.

“When restores used to be required, service levels could be anywhere from a couple of hours to weeks,” says John Cunningham, EMC’s principal system administrator and architect.

“With Avamar, a call is placed to the service desk, the ticket is opened, and data is restored immediately because it’s contained right there on the storage grid.”

Avamar also has saved EMC over \$1 million annually by nearly eliminating remote office backup tapes, offsite storage and hardware, and software maintenance costs. In addition, Avamar’s simplified management and trouble-free performance has enabled EMC to redirect eight FTEs formerly focused on backup and recovery to more productive, high-value activities.

“In both our data center and remote sites, we’ve reduced the storage footprint because there is less data to store with data deduplication. As a greener solution, Avamar has helped drive down our energy costs.”

John Cunningham, Principal System Administrator and Architect

Because of the successful remote backup project, EMC installed an Avamar storage node to provide source-level deduplication for file systems, file shares, and application servers in one of its primary data centers. Avamar is integrated with NetWorker backup management software, which enables EMC IT to centrally manage Avamar data deduplication and backup, as well as other disk and tape backup operations in the data center.

“In both our data center and remote sites, we’ve reduced the storage footprint because there is less data to store with data deduplication,” says Cunningham. “As a greener solution, Avamar has helped drive down our energy costs.”

EMC IT also is piloting Avamar to provide backup and data deduplication for the company’s desktops and laptops. Employees are responsible for backing up their own devices, but user-driven backups have not been widely practiced.

“Avamar makes it easy and automatic for employees to execute self-service backups and restores,” explains Cunningham. “Avamar’s data deduplication is also intelligent enough to see the commonality among the objects employees have stored on their computers as well as objects stored across the organization.”

A key enabler for the future

As EMC moves toward virtualizing the majority of its server environment by late 2010 with VMware®, Avamar will be a key enabler in this transition because it supports both physical and virtual server environments. With a centralized backup operation, EMC IT is able to more effectively scale to support business growth and enable standardized backup policies.

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