

DXi-Series & vmPRO

Remote Site VMs Get Better DR Protection, Faster File Restores with Dedupe-enabled Replication

At first, Canadian mining company Agnico Eagle gave up on using replication to protect the virtual machines (VMs) at its remote operating sites. However, that changed when it discovered new deduplication technology and innovative software for backing up and restoring VMs.

The job of protecting satellite offices takes on a whole new level of complexity when they sit above the Arctic Circle or perch on the edge of the Canadian Shield. That's the challenge that faced the IT team at Agnico Eagle mining company as it looked for the best way to implement corporate-level data protection for some of the most remote sites on the globe.

"When we set up mining operations, we usually have small teams on-site, and it's rare to have a dedicated IT person," explains Daryl Land, Agnico Eagle's Manager of Network Services. "But the data that's stored there—exploration results and operations records—is incredibly important, so protecting it and making it easy to restore is critical."

VIRTUALIZATION MAKES PROTECTION MORE COMPLEX

Agnico Eagle was an early adopter of VMware, and its local offices are 95% virtualized—an architecture that streamlines server management but creates problems for backup and restore. The company's legacy backup software and tape libraries made copies of the data, but disaster recovery (DR) protection required substantial manual intervention—someone had to move tapes from the primary site to a second location, and for much of the data, a copy also needed to be retained in the company's off-site tape storage center. This meant that recovering files was slow and cumbersome.

"When files needed to be restored, it was a real pain," says Land. "Someone had to locate the right tape, load it and pull the data back, sometimes requiring a recreation of the VM before we could get to any data. If the tape was local, the delay was an hour or two. If it was off-site, it could take several days. That's a big hit to productivity both because of the delays and the time it took away from other activities."

REMOTE REPLICATION IS THE ANSWER — THE QUESTION IS HOW

Agnico Eagle recognized that it would be better to replicate critical local office data to a second location, and the company explored that option in the mid-2000s.

"The only available option was extremely costly and only able to be used for the ERP system which had a very large investment already, and fortunately very high bandwidth and low latency connection," explains Land.

"Back then, we gave up on expanding it to other sites and critical services," he continues. "We have pretty low bandwidth to those sites—1 to 2MB/sec with as much as 600ms latency—and there was no way that any of the replication solutions would have worked without spending a huge amount of money."

More recently, as the company grew from two active mine sites in 2007 to the nine that are operating today, it began to search for global replication solutions again. This time there was a new technology to look at—data deduplication.

DEDUPLICATION PROVIDES AN ANSWER

"Data deduplication appliances promoted replicating between sites, which sounded great to us if it worked," says Land. "In theory, deduplication would reduce the amount of data that we had to move and let us deal with backup data instead of active files. The question that we had was whether the reduction would be effective enough to let us move the backups over our existing networks."

For Agnico Eagle, the keys to solving the multisite protection problem were effective dedupe rates, robust replication functionality, and the ability to control how much bandwidth the replication process used.



AGNICO EAGLE

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Daryl Land
Manager of Network Services

SOLUTION OVERVIEW

- Quantum DXi4000 and DXi6700 Series deduplication appliances
- Quantum vmPRO™ Software for protecting virtual servers

KEY BENEFITS

- Automated replication provides daily DR protection for remote sites while reducing administrative overhead
- Data deduplication reduces data to be transmitted by up to 270 to 1, saving on archival disk space and allowing existing WANs to successfully replicate backup data
- vmPRO native format backup allows virtual servers to be quickly restored, reducing file recovery time from days to minutes
- By using existing infrastructure for enhanced protection, provides higher levels of data integrity—without increasing costs
- Easy recovery of VMs provides a low-cost method for moving VMs to a corporate data center, eliminating the need for outside consulting services

CASE STUDY

"Our networks weren't just handling backup data — we had to keep other operations going, too—so we needed to be able to throttle the replication and control when that happened," adds Land. "That was a major problem for almost all of the vendors we talked to. However, when we looked at Quantum's DXi appliances, they listed all those features and claimed very effective dedupe, so we put them to the test using a long-time neutral integrator partner, IT Weapons."

REPLICATION — AND NEW VM BACKUP SOFTWARE

The tests also evaluated Quantum's vmPRO software for protecting VMware virtual servers.

"We planned to use the DXi appliances with our existing backup software, but Quantum has software for protecting VMs, so we added that to the test at the same time," explains Land.

This solution solved the problems immediately. Backups were sent to the local DXi by vmPRO, and replica copies were sent to another DXi appliance at the primary data center, and then to Northern Quebec.

Agnico Eagle implemented the new system, and today it is protecting four of the active mine sites with more on the horizon. Critical backup data is written first to a local DXi appliance and then replicated automatically every day to a central DXi in the corporate data center without any manual intervention—reducing administrative overhead and providing more frequent DR protection.

Similar replication solutions are in the plans between regional sites, where many smaller sites can also replicate to a central regional site and then from that central regional site to the corporate data center.

"The DXi/vmPRO combination has been phenomenally effective—our dedupe rates are as high as 270 to 1, and the bandwidth throttling and scheduling works

great, so everything else works the way it needs to," says Land. "DXi is even tolerant enough of latency that we plan to use it for one site that only has a satellite link."

FILE RECOVERY REDUCED FROM DAYS TO MINUTES

File recovery times have been dramatically reduced because of the way that vmPRO stores VM copies.

"Since vmPRO stores the VM copy in native VMware format, we never have to run them through the backup app to recover them," reports Land. "If needed, we can just drag and drop the VMDK file and spin it up. We can even run VMs from the DXi in a pinch. It's incredibly fast—recovery literally takes a few minutes instead of days. It has made a huge difference in productivity.

"We even used the DXi/vmPRO copies to relocate servers when we moved our data center from Northern Quebec to Toronto. We were talking to consultants about what it would take for the move, when we had a great idea. We used the DXi to replicate the virtual servers to the new location, and we spun the servers up there. It worked perfectly and we didn't need any outside resources at all."

The DXi/vmPRO project was Agnico Eagle's first experience with Quantum, and the team is enthusiastic about Quantum's high level of support.

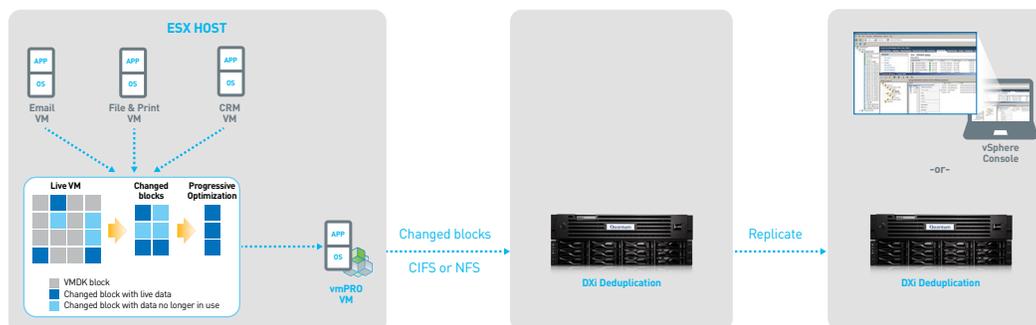
"Quantum provided lots of help in planning," says Land. Their proactive monitoring and alerting functions are first rate—just as good as HP provides for our primary storage—and the on-site service is very effective. They also listen to us—very unusual among major vendors in my experience. They solicited our input, and we've already seen several of the features that we asked for make it into the vmPRO product. We couldn't be happier."

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ABOUT AGNICO EAGLE

Agnico Eagle is a senior Canadian gold mining company that has produced precious metals since 1957. Its nine mines are located in Canada, Finland, and Mexico, with exploration and development activities in each of these regions, as well as in the United States. Agnico Eagle is committed to creating economic value by operating in a safe, socially and environmentally responsible manner while contributing to the prosperity of its employees and the communities in which the company operates.



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