"Almost immediately after configuring WAN Optimization Manager, data compression quadrupled, which is excellent, and our bandwidth utilization dropped from 100 percent to about 40 percent."

Brian Williams, Senior Manager of Operational Engineering, Content Direct

CSG's Content Direct Speeds Data Replication, Improves Bandwidth Utilization with F5 and Dell

Data protection and disaster recovery were primary concerns for **CSG Systems Content Direct**, which offers a web-based content delivery platform to subscriber clients. When data replication between its primary and secondary data centers began to exceed specified backup windows, Content Direct turned to F5 for help.

By implementing F5® BIG-IP WAN Optimization Manager (BIG-IP WOM) on its existing BIG-IP devices, Content Direct reduced data replication times by as much as 95 percent and cut bandwidth utilization by 60 percent. Moreover, the solution helped Content Direct avoid the added complexity and expense of introducing new hardware devices into the infrastructure.

Business Challenges

CSG Systems Content Direct is a video content platform that helps content providers manage the way they offer, package, price, and deliver video products to their customers. Through this platform, clients can manage every aspect of content delivery, including content management, security and access control, subscriber management, financial billing, advertising, and revenue generation.

Content Direct manages nearly 200 gigabytes of data on behalf of its clients, so data protection is a critical part of the services it provides. "To ensure business continuity for our clients and provide for disaster recovery, we perform site-to-site replication between our production data center near Chicago, Illinois, and our backup data center in Scottsdale, Arizona," says Brian Williams, Senior Manager of Operational Engineering at Content Direct. More than 1,500 miles apart, the two sites are connected by a VPN link, which is subject to typical WAN latency and throughput issues.

"We were trying to replicate changed data every five minutes from the primary to the

Overview

Industry
Media and Content

Challenges
· Improve data protection and disaster recovery capabilities
· Perform efficient site-to-site data replication

Solution
· BIG-IP® WAN Optimization Manager™

Benefits
· Significantly faster data replication
· Zero downtime to deploy
· Easy implementation
· Minimal infrastructure changes

Partner
· Dell

backup data center," says Williams. "The problem was, even for small data sets of about 25 megabytes, jobs weren't able to finish within a five-minute window. In some cases, a single job could take as much as 40 minutes to complete."

And because the initial job had to finish running before the next one could begin, there were often 8 or 10 replication jobs waiting in the queue. In the meantime, additional changed data continued to accumulate for the next replication cycle, which meant the next job would take even more time to complete than the previous one.

Williams says, "We would like to operate as near real time as possible. If a disaster occurred, we wouldn't want to have to tell a client that they just lost the last hour or two of credit card transactions."

Solution

To overcome slow site-to-site data replication, Content Direct turned to two of its established technology vendors: Dell and F5. Since mid-2009, Content Direct has been using Dell EqualLogic 6000X iSCSI SAN storage arrays to store all Content Direct client data.

In addition, it had been using F5 BIG-IP 3600 Application Delivery Controllers to intelligently manage all network traffic to and from the Content Direct systems. The BIG-IP devices were deployed in each data center as redundant pairs in active/ standby mode to ensure fault tolerance. Running F5 BIG-IP® Local Traffic Manager™ (BIG-IP LTM), the F5 devices improved performance, availability, and security for clients accessing Content Direct web-based services.

Recognizing that many customers face data replication challenges similar to Content Direct's, Dell and F5 joined forces to conduct a proof of concept at Dell Labs. The testing results demonstrated that F5 BIG-IP WAN Optimization Manager

> "Most replication jobs finish in less than two minutes, whereas before, they could take more than 40 minutes."

significantly accelerates site-to-site data transfers between Dell EqualLogic iSCSI SAN arrays over wide area networks.

Content Direct installed BIG-IP WOM on its existing BIG-IP devices. "The close collaboration between Dell and F5 played a role in our purchasing decision. It was clear that they had worked extensively together to test this solution," says Williams.

Furthermore, the F5 solution was the only one that didn't require additional hardware. "Footprint was a big concern for us. We didn't want to expand into additional racks, and we didn't want to add yet another vendor to the mix," says Williams.

Benefits

Using BIG-IP WOM, Content Direct significantly reduced data replication cycles, improved bandwidth utilization, and avoided the inevitable complexity and expense of introducing new hardware into the infrastructure.

Dramatically improved replication times

Since implementing BIG-IP WOM, Content Direct's site-to-site data replication times have improved by as much as 95 percent. "Most replication jobs finish in less than two minutes, whereas before, they could take more than 40 minutes," says Williams. That means each replication job is also smaller now, because less data has changed in the five-minute window.

At the same time, Content Direct is far better equipped now to handle live events, which

generate magnitudes more changed data in the same time interval. These replication jobs can now be more than 10 times larger before they start to exceed the five-minute backup window.

BIG-IP WOM uses several techniques to accelerate site-to-site data transfers, among them protocol optimization, traffic prioritization, data deduplication, and adaptive compression. "Almost immediately after configuring BIG-IP WOM, data compression quadrupled, which is excellent, and our bandwidth utilization dropped from 100 percent to about 40 percent," says Williams.

Zero downtime

Many Content Direct clients host live online events and offer streaming content, so downtime was not an option for Content Direct. It needed a solution that it could implement without taking down its production servers.

Because Content Direct had deployed the BIG-IP systems in active/passive redundant pairs, it was able to install BIG-IP WOM on the standby nodes, switch them to become the active nodes, and then complete the BIG-IP WOM installation on the two remaining nodes.

"The fact that we could implement BIG-IP WOM without taking our production systems down was a huge benefit to us," says Williams.

Easy implementation, minimal infrastructure changes

The ability to implement the F5 solution on existing devices and avoid the complexity of adding new hardware was another significant factor in Content Direct's decision. "BIG-IP WOM required no major network overhaul or switch reconfigurations that would have been necessary if we had added new devices to the networking fabric," says Williams.

He recalls that adding BIG-IP WOM to the BIG-IP devices was easy and had no impact on

overall performance. "We like F5 products. We know how to use them. The entire implementation took only a few hours and it didn't require extensive training of our IT staff. It would have been a completely different story with a different vendor."

In addition, BIG-IP WOM is completely transparent to the EqualLogic arrays, so no configuration changes were required to the storage devices.

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