CUSTOMER PROFILE
Canadian company A & A Contract Customs Brokers Ltd. (AACB) has come far from its humble 1979 start in a trailer near one of the crossings along the British Columbia, Canada, and United States borders. Today, the import/export trade facilitator boasts nine offices in Canada, two in the United States, and a growing international customer base that relies on A & A for fast customs clearance and freight-forwarding expertise. Knowing when to invest in and upgrade technology to help its customers, AACB became one of the first Web presences in its field. Today, the company continues to push technology to provide custom tools and Web sites offering everything from online estimates of Canada-entry duties and taxes to border-crossing Webcams and wait times.

THE CHALLENGE
Resolve “out-of-disk” growth issues, simplify storage scaling for server virtualization

By the time AACB systems engineer Dan Morris heard about the benefits of using NetApp shared storage, he’d had about all he could take of the growth and management issues surrounding AACB’s current direct-attached storage (DAS) environment. With the need for more storage often meaning the acquisition of more and more servers, AACB’s IT environment had already grown from the company’s early mix of 15 to 20 homegrown “white box” servers to a slate of more powerful HP DL360 and DL380 servers.

As Morris looked ahead to AACB’s short-term application and data growth needs, he began investigating how server virtualization technology could help stem the growing tide of physical servers. Starting first with VMware® followed by Microsoft Virtual Server 2005 on standalone servers, Morris and his team ultimately made the move to Microsoft Hyper-V following its release to production. After experiencing yet more disk capacity issues with virtualization on the standalone servers, however, Morris was sure of one thing: AACB’s Hyper-V implementation would have to offer a better, more scalable server and storage architecture.

“In the past, we spent hours each week or two going around to each server, worrying which server needed more operating hard drives because it was out of disk space,” says Morris. Disk issues also seemed to constrain AACB’s early virtual server environment, which, before Hyper-V, had grown to a dozen virtual machines spanning four or five physical machines. “Originally,” Morris goes on, “we were only getting maybe two or three virtual machines per [physical] server because we didn’t have enough hard drive space for more. Even with the
“With deduplication, NetApp gives us the biggest bang for our buck. Basically, it gives us the most storage at the best value and saves us both time and money. Since we started using deduplication, our ROI has tripled from what we originally expected… I always tell people I see no reason why anyone would buy anything else but NetApp.”

Dan Morris

move to faster DL380s, we had thrown as many drives as we could on them and just couldn’t fit any more.”

Morris was concerned that a potential failure on the standalone server could also bring down multiple virtual machines at once. Moving forward with Hyper-V, he knew AACB needed a more reliable, fault-tolerant server and shared storage environment.

THE SOLUTION

Use NetApp deduplication with Hyper-V to help dramatically reduce storage and server footprints

For its Hyper-V growth needs, AACB ultimately moved to an HP BladeSystem C7000 server. The blade system now hosts a three-node Hyper-V cluster, with 18 guests supported on two nodes and the third node on standby for potential failover. Another handful of Virtual Server 2005 and Hyper-V guests are also in use on standalone HP servers. The total 20+ guests are now backed by a NetApp FAS2050 shared storage system connected via iSCSI to both the blade server and rack mount servers.

Now hosting applications that Morris estimates would otherwise require 30 to 40 physical servers, the Hyper-V/NetApp environment supports virtual machines running everything from a development Microsoft SharePoint® environment, Microsoft Operations Manager, Microsoft Office Communications Manager and Configuration Manager to BlackBerry Enterprise Server, Microsoft Virtual Machine Manager, RSA servers, an antivirus server, and eight of AACB’s proprietary applications.

Home directories and file shares on prior standalone servers have also been consolidated onto NetApp storage and are now available directly from the NetApp system via CIFS protocol. Such easy, direct file-share access and all-in-one flexibility were key reasons Morris and his team selected NetApp over competing solutions from EMC and LeftHand Networks. After seeing a NetApp storage demonstration by local reseller Open Storage Solutions (OSS), Morris recalls that AACB was soon won over to NetApp storage. “We liked the performance and the fact you could use it as a NAS box as well as a SAN box. We also saw features we wanted to use in future, like SnapManager® for Exchange, SnapManager for SharePoint, and SnapMirror®, that we could use down the road to replicate our data to our Toronto office,” he says.

Morris was also impressed with NetApp’s fault-tolerant features, like RAID-DP®, which would keep AACB data available in the face of two disk failures, without the need to use as much storage overhead as other RAID solutions. Morris is so confident in RAID-DP that he’s postponed setting up other data protection for his virtual server environment. “We aren’t worried right now. We just rely on the fact that the data’s on NetApp. We could lose two drives and still be okay,” he says.

Outside the virtual environment, data protection for most of AACB’s applications occurs via Microsoft Data Protection Manager, whose server also uses the NetApp system as a target to store a month’s worth of backup data associated with the company’s Exchange Server environment, the company’s Advanced Revelation customs software, Microsoft SharePoint, and other applications like Active Directory.

As the company expanded its use of NetApp storage, however, data growth issues began to reappear. Having filled the original NetApp system to nearly 97% capacity, Morris placed a call to Open Storage Solutions to order another disk tray. When he heard a free license for NetApp deduplication could defer the storage tray purchase and free a lot of data for reuse, he was skeptical.

“When our OSS representative told me about deduplication, I said something like ‘Yeah, right. Like something for free is going to solve all these problems? We’re down to 500MB of free space and you’re going to
The benefits

Deduplication defers storage disk tray purchase for 15 to 24 months

Once Morris tried NetApp deduplication, he soon had it running across most of the NetApp system. The results were impressive. In short order, he was able to reverse the storage capacity crunch, freeing over 25% of the previously used capacity. That amounted to over 1TB out of 4 he could reuse. An openly admitted NetApp deduplication convert, Morris now enjoys seeing how much data he can keep storing with NetApp. “Since starting with NetApp deduplication, it has sort of become an addiction to see how much I can actually fit into the system,” he says. “I am still amazed at how well it actually works and that I have not seen any kind of performance hit.”

Reclaimed nearly 70% disk space allotted to Hyper-V, Microsoft DPM backup data

Morris reports exceptionally large storage savings using deduplication with his virtual server and backup environments—he reclaimed close to 70% of the original disk space consumed. “At last check, we saved over 1TB and now use only 400GB to store all our Hyper-V guests,” he says. AACB’s Microsoft Data Protection Manager backups also show high savings with NetApp deduplication. “For what would usually be 2.5TB of backup data, we now need just 800GB of disk space,” Morris states. Five hundred gigabytes of SQL Server® data from the company’s SpectorSoft monitoring system was also being stored on NetApp. Deduplication even brought that amount down to 300GB.

Tripled disk-based backup retention times

Morris correlates the backup disk space he’s since saved with NetApp deduplication with being able to triple retention times for disk-based backup data. Instead of storing backup data for what would normally be a week, Morris has since been able to bolster his data protection and recovery efforts by retaining the data on disk for up to a month.

Morris is so pleased with his NetApp experience he’s since begun recommending the system to other IT groups exploring server virtualization with Hyper-V. Once he virtualizes his Exchange Server and SharePoint production environment, he plans to move those to NetApp as well. “I always tell people I see no reason why anyone would buy anything else but NetApp,” he says. “With deduplication, NetApp gives us the biggest bang for our buck.”

Figure 1) How A & A Contract Customs Brokers uses NetApp storage.

A & A Contract Customs Brokers uses a NetApp FAS2050 storage system to support data, via iSCSI, that’s associated with roughly 20 Microsoft Hyper-V guests running on a clustered HP BladeSystem server and standalone servers. The company also uses NetApp to store a month’s worth of backup data associated with its Microsoft Data Protection Manager server, data associated with its remaining Microsoft Virtual Server 2005 implementation, and other SQL Server data associated with its SpectorSoft internet/PC monitoring software. Using deduplication on virtually all NetApp volumes, AACB has reclaimed a total of 1TB of disk space and achieved nearly 70% savings in disk capacity needed for its backup and virtual server environments.
NetApp creates innovative storage and data management solutions that accelerate business breakthroughs and deliver outstanding cost efficiency. Discover our passion for helping companies around the world go further, faster at www.netapp.com.