

Afrihost

EXECUTIVE SUMMARY

Challenge

Rebuild the IP storage network to support rapid growth, improve performance, and increase server virtualization density while minimizing the need for manual intervention

Solution

- Brocade VDX switches for iSCSI storage, disaster recovery, data replication, and future growth
- Brocade VCS Fabric technology
- Brocade Network Advisor

Results

- Scaled to handle thousands of VMs running 24 hours a day with average throughputs of 50,000 IOPS
- Achieved high resiliency and the ability to perform upgrades without service interruption
- Simplified the network to minimize management and manual intervention

Building a Carrier-Class IP Storage Network

Founded by three friends, Afrihost launched its broadband services in Johannesburg, South Africa, in 2000. Fueled by its ability to deliver affordable bandwidth and a commitment to superior customer service, Afrihost added ADSL broadband Internet connections, domain services, and more, winning MyBroadband's ISP of the Year award in 2011, 2012, 2013, and 2014. Afrihost now offers cloud solutions and hosted environments as both shared and dedicated services.

In 2013, Afrihost's hosting environment began growing exponentially. In just a few months, the data centers grew by hundreds of Virtual Machines (VMs). The company attracts up to 100 new customers per week and is seeing storage demand increase at a rate of 20 to 40 terabytes (TB) per month. High demand has resulted in massive storage and compute power growth. With this rapid growth in capacity and performance requirements, a traditional storage network could not keep pace.

"Our model is to offer our clients the best value and not lock them in to long-term contracts," says Brendan Armstrong, Chief Technology Officer at Afrihost. "If we don't provide our clients with a superior valued service, they can leave us. That means we have to get it right. Whether deploying storage, replicating data, or doing backups, our storage network has to handle whatever we throw at it."

Rebuilding the Foundation

Afrihost had originally deployed an iSCSI IP storage network attached to its VMware environment, using a single-blade chassis with internal 10 Gbps switches. Although this configuration was economical, there was no way to scale cost-effectively. Rapidly increasing demand strained the connection, and applications were beginning to suffer performance degradation.

The environment also lacked resiliency, which was now imperative. Without storage network redundancy, Afrihost could suffer outages, which places the

company's commitment to customers at risk. A new storage network had to provide full redundancy and a high level of resiliency.

At the same time, Afrihost wanted a network architecture that was simple in design and would be easy to maintain. Its iSCSI network now spans three data centers, and with a lean IT team, complexity is not an option. To help it identify the best iSCSI storage network solution, Afrihost trusted Data Sciences Corporation, a provider of next-generation data center solutions and expertise. Data Sciences constantly investigates new

technologies to help its clients become efficient, agile, and adaptable to dynamic market forces.

"Afrihost came to Data Sciences to help find the best infrastructure for its hosting business," says Gerard Almon, Managing Director and Chief Executive Officer for Data Sciences. "If we couldn't provide them with a reliable, scalable network to support their environment, it would be our own reputation on the line."

After assessing the Afrihost environment and evaluating solution alternatives, Data Sciences recommended a Brocade® IP storage network based on Brocade VDX® switches with Brocade VCS® Fabric technology.

Built for IP Storage, Optimized for Virtualization

"Brocade understands storage," says Almon. "So it made sense to go with the vendor who deeply understands customers' data center storage network environments. We based our recommendation on Brocade VDX switches."

Brocade VDX switches are Ethernet fabric Top-of-Rack (ToR) switches that support the high demands placed on data centers and provide the advanced features that they require. Together with Brocade VCS Fabric technology, these switches simplify network design and operations for more efficiency, scalability, and resiliency.

Brocade VDX switches also scale simply, with built-in intelligence and reliability. Layer 2 multipathing enables full fabric utilization and intelligent traffic switching for optimizing iSCSI performance. A distributed control plane delivers high reliability and fast re-convergence. Switches can be deployed in a "plug-and-play" manner to build and scale the iSCSI storage fabric as needed.

Brocade VDX switches also deliver industry-leading 24-megabyte (MB) deep buffers per switch, which enable Afrihost to easily handle traffic increases by allowing traffic to be distributed across the ports. In addition, these switches are optimized for virtualization with a variety of features that support VM mobility and eliminate the need to manually configure port profiles. Brocade VCS Fabric technology improves iSCSI network utilization, maximizes application availability, increases scalability, and dramatically simplifies the iSCSI storage network architecture.

"We now have a single meshed, collapsed Ethernet fabric between all of the VMware servers and storage," says Almon. We added links between the Brocade switches for redundancy and enhanced performance."

The Brocade network now carries all production VMware iSCSI traffic, backup traffic, and data replication traffic between production and disaster recovery storage

platforms. The network easily handles thousands of VMs running 24 hours a day with average throughputs of 50,000 IOPS.

High Resiliency Builds Trusted Services

Prior to the new Brocade network, Afrihost had briefly considered adding multiple dedicated switches in each data center location. But with the fully meshed network, the Afrihost team has experienced much higher reliability and gained confidence in Brocade switches and tools.

"We have performed software and hardware upgrades on our Brocade network during business hours with no service interruption," says Armstrong. "This is something we couldn't do with traditional network equipment."

An iSCSI storage network is also a good choice for disaster recovery. With a stable switching platform in its three data centers, Data Sciences has begun

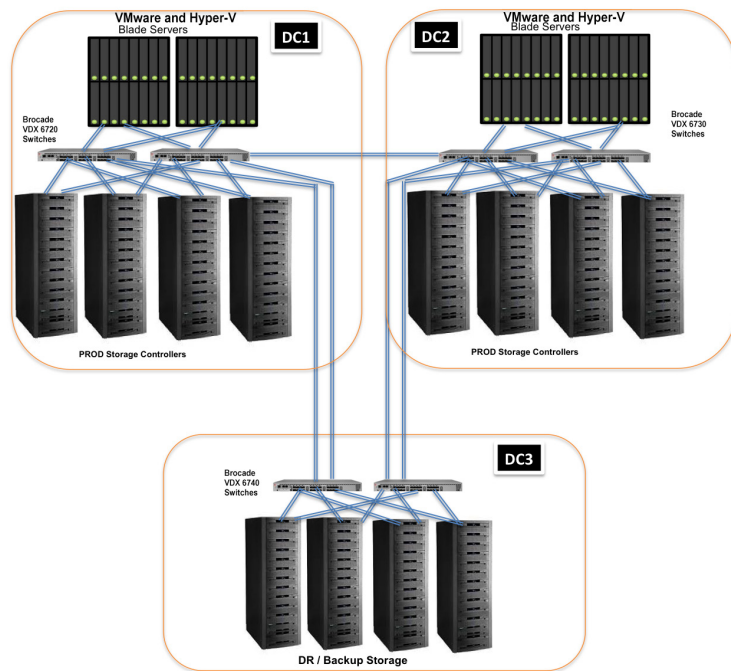


Figure 1: New iSCSI storage network connected by Brocade VDX switches and Brocade VCS Fabric technology.

optimizing Afrihost's backup and disaster recovery processes that use the Brocade network in order to ensure greater business continuity.

Simplified Architecture for Easy Manageability

The Data Sciences team manages Afrihost's Brocade infrastructure and relies on Brocade Network Advisor in conjunction with Brocade VCS Fabric technology to simplify management.

Brocade Network Advisor makes it easy to monitor storage network health and performance indicators with out-of-the-box, customizable dashboards and deep drill-down capabilities. The team can go into a single location and see all switches across the fabric, as well as quickly visualize and share views in a Web browser.

They can also automatically create a fabric or just add links as needed without having to add more equipment and complexity. With Brocade VDX switches for the iSCSI network, Data Sciences can create a fully functional, lossless iSCSI storage fabric with no manual configuration.

Scalability Delivers Superior Customer Value

Scaling out network topology and scaling up bandwidth across switches is now easy for Afrihost. Embedded Layer 2 management intelligence automatically re-converges the network after adding new switches, eliminating the need for manual intervention. As Afrihost's rapid growth continues, Brocade VDX switch scalability will enable its storage network to easily keep pace with compute and storage demands.

"We work with Brocade because we know it works," says Almon. "Afrihost gains the simplicity of a flat network while supporting high levels of growth. And we can simply add switches into the fabric when needed. It's exciting to see a solution that works so well."

Next Steps

Eventually Afrihost hopes to merge its physical and virtual networks into a single, flat storage network topology with 100 Gbps connectivity. So far, Data Sciences has tested VM mobility between data centers using the Automatic Migration of Port Profiles (AMPP) feature on Brocade VDX switches. With the Brocade AMPP feature, VM networking policies follow the VM within the VCS fabric. As a VM migrates, the destination port learns of the MAC address move and automatically activates the port profile configuration.

"This is just another great feature of the Brocade switches and will be critical as we move forward," says Almon. "But even now, Afrihost has a storage foundation that can see it through whatever might come next."

For more information, visit www.brocade.com.

WHY BROCADE

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— Brendan Armstrong, Chief Technology Officer, Afrihost

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