SILICON STORAGE APPLIANCE BRINGS LOWER OPERATING COSTS, INCREASED PRODUCTIVITY TO BROADCASTERS

APPLICATION STORY
Star TV, Hong Kong

Executive Summary

Business Challenge:
Star TV needed a tape-less news system that would satisfy the highest levels of Quality of Service (QoS), ensuring around-the-clock news delivery with increased efficiency and lower operating costs.

Solution:
One Silicon Storage Appliance as the storage networking backbone to accelerate program acquisition, production and live broadcasting, speeding time-to-air for Star TV.

Benefits:
The Silicon Storage Appliance was chosen for the core of the storage network based on its unbeatable application acceleration, scalability, and application and data availability and delivering the lowest Total Cost of Ownership over the competition.

Using the Silicon Storage Appliance as the intelligent, centralized backbone of the production environment allowed the combination of editing of news clips and video clips into one procedure, reducing costs and increasing productivity.

The Silicon Storage Appliance brought concurrent access to consolidated content with the application acceleration required for real-time digital broadcasting. Furthermore, the Silicon Storage Appliance provided the required 50Mbit/second streamrate throughout the non-linear editing network of 28 Fibre Channel clients and 58 Ethernet clients.

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Digital Broadcasting: A Paradigm Shift
Digital television is a relatively new technology for transmitting and receiving broadcast television signals. It delivers better pictures and sound, uses the broadcast spectrum more efficiently, and adds versatility to the range of applications.

This new transmission technology invites a broad reassessment of established programming practices, competitive strategies, and regulatory requirements. Digital television also represents a new technological infrastructure for broadcast television, and thus a new economic and speed-to-air competitive paradigm, particularly for networks focused on the delivery of news and other time-sensitive content.

Today the digital production and broadcasting aspect of news is handled most efficiently in non-linear suites. The exchange and sharing of content within these environments is a key requisite. Therefore, it is essential that news production/post production is based on server and storage infrastructures using open solutions/standard interfaces to ensure interoperability and stability.

24-Hour News Delivery
As Hong Kong's leading around-the-clock news information channel, Rupert Murdoch's Star TV Hong Kong is one of the world's first on-air, large-scale broadcasting networks to transition to a tape-less, real-time news system, using DataDirect Networks' Silicon Storage Appliance technology as the storage networking backbone to accelerate all the programs' acquisition, production, and live broadcasting, speeding time-to-air.

Star TV's digital production and broadcast network is one of the new breed of real-time facilities, integrating news receiving systems, satellite signal auto capturing/recording systems, local news acquisition systems, news program post-production systems, news script systems and news studio systems in one interlinked environment.

Dayang, China's premier provider of tape-less news production systems structured around the Silicon Storage Appliance, determined that DataDirect's appliance was the product of choice for Star TV.

Dayang's news production system focuses on each step of news production, applying new efficient, rigorous controls to the production and broadcast of news. Dayang ensures the production of news to be accurate, efficient and consistent, while modernizing news production. A unique feature of the Dayang news production system is that it allows the combination of editing of news clips and video clips into one procedure. Other vendors focus on clips edit manuscript system, a more costly and time consuming process.

Tape-Based Broadcasting
Prior to integration of Dayang's news production system, Star TV's news system was based on analog, tape-based technologies, where concurrent access to data was non-existent. As news items were received, the processes required to ready the content for on-air distribution were carried out in a linear fashion, leaving the overall efficiencies of the process lacking.

Recognizing the advantages of digital technologies, Star TV turned to Dayang for engineering and implementation of a digital news system, one that would satisfy the highest levels of Quality of Service (QoS) to ensure 24x7x365 uptime so that the news could be distributed around-the-clock without a hitch.

Investigation of many first generation SAN implementations did not satisfy Dayang's QoS needs, performance and reliability. To provide the required high-quality resolution, each workstation within the news system required 50Mbit/second streamrate in MPEG2 or MJPEG format, as well as concurrent access to the news content. The ability to support several workgroups with simultaneous access to all content in real-time was paramount.

First generation Storage Area Networks can impose many limitations and restrictions to users trying to move data. One option to solve this limitation in first generation SANs is to create multiple SANs and overlay a software layer to transfer data from SAN to SAN. This method is costly, doesn't scale and is difficult to manage. The second option in first generation SANs is to stripe the news content across several RAID controllers. This, however, introduces latencies and contention within the architecture that didn't fulfill Dayang's QoS requirements, and this, like the first option, was difficult to scale, configure and manage.

A new storage networking appliance technology was available that overcame many limitations of first generation SANs, and Dayang called DataDirect Networks. DataDirect Networks Silicon Storage Appliance technology is the only product that met Dayang and Star TV's high-bandwidth, concurrent access specifications.

DataDirect's Silicon Storage Appliance Exceeds Customers Expectations

To be able to offer a robust and scalable non-linear editing network solution for TV stations that was capable of scaling beyond ten workstations, with all workstations simultaneously accessing the same content, Dayang turned to DataDirect Networks' Silicon Storage Appliance technology to escape the limitations of first generation storage networking architectures.

"In video production, where data transactions require hundreds of megabytes per second, the Silicon Storage Appliance is the first storage networking device to provide the scalability, centralized management and enhanced reliability that TV stations need", said Johnson Chen, vice president of marketing, Dayang Technology Development.

The Silicon Storage Appliance was chosen for the core of the storage network based on its unbeatable performance, scalability, fault-tolerance, high availability and for providing the lowest Total Cost of Ownership over the competitors. The competition could not meet the bandwidth requirements with a single device. In order to meet the bandwidth requirements, the overall architecture of the competing solutions became complex, driving the costs to unacceptable levels, and with the added complexity, multiple points of failure were introduced, and contention and latencies increased. Competing solutions delivered less performance and reliability while the Silicon Storage Appliance provided delivery of guaranteed bandwidth to the production environment. Editing is now carried out directly on the shared storage; there are no file transfers which helps to ensure maximum accuracy, efficiency and consistency.

"DataDirect's Silicon Storage Appliance is perfect for broadcast environments, providing plug and play installation, incredible performance and the most impressive scalability we've ever seen," Bill Jennings, systems design engineer, Star TV, said. "With the Silicon Storage Appliance at the heart of our facility, we are finally able to connect all facets of our production process centralizing management and providing us with increased productivity, reduced storage and operating costs."

The Silicon Storage Appliance exceeded both Star TV and Dayang's expectations, making it possible for them to implement a high-performance broadcasting network that is capable of scaling to 80-100 workstations sharing real-time access to content.

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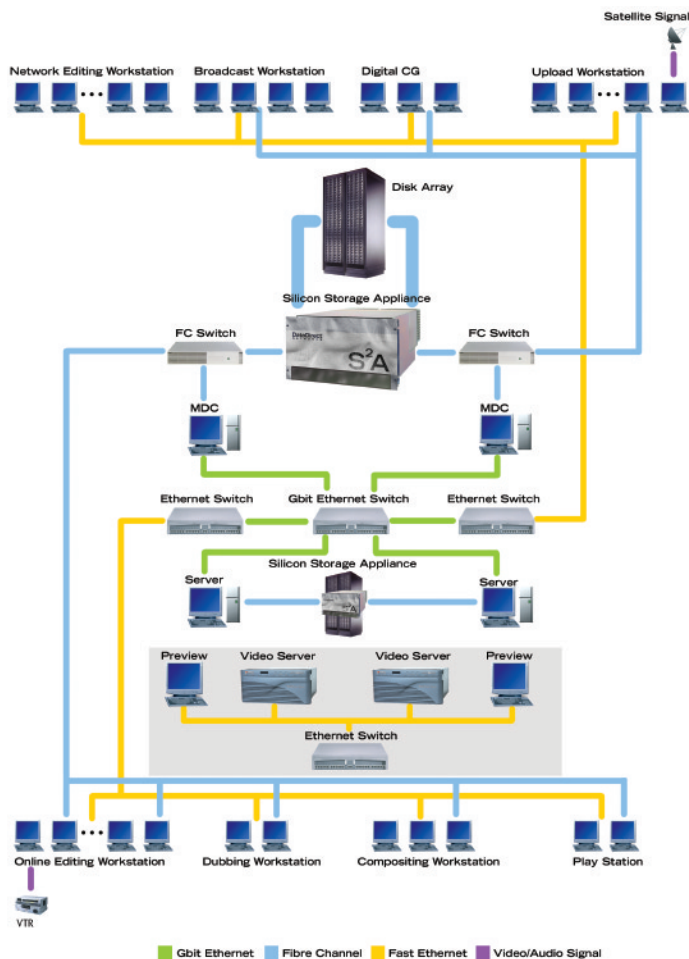
FIGURE 1 — Star TV, Hong Kong — The network is comprised of 28 Fibre Channel clients and 58 Ethernet clients, all concurrently accessing 4.6TB of centralized storage via the Silicon Storage Appliance. Among the clients are six newswire receiving systems, six satellite signal acquisition systems, nine news editing systems, 20 network editing and newsroom systems, two news dub systems, five program post production systems, three broadcast control systems, two news program format convert systems, three CG systems, three network management servers and two news script database servers.

Utilizing the Silicon Storage Appliance in the core of their news solution network, Star TV is leading in digital broadcasting technology among its peers with a cutting edge implementation. For Dayang, the Silicon Storage Appliance has allowed them to achieve a sustainable, profitable business model and has made them a leading provider of digital-based news solutions to the broadcasting market in China.

DataDirect Networks' Technology Advantage

DataDirect Networks' technology allows business to accelerate their applications, providing data at least three times faster than existing Storage Area Networking (SAN) and ten times faster than Network Attached Storage (NAS) technology. The acceleration of data to applications and users -- simply and easily -- allows DataDirect Networks customers to consolidate their storage and dramatically lower their Total Cost of Ownership (TCO). The Silicon Storage Appliance technology allows management of up to 100 Terabytes by a single system administrator, reducing TCO by a factor of 10.

What is a Silicon Storage Appliance?

As the recognized leader in storage networking appliance technology, with over 500TB of virtualized storage in use around the world, DataDirect Networks' and their Silicon Storage Appliances make it easy, simple and trouble-free to accelerate and manage applications, dramatically reducing TCO and increasing ROI.

Based on feedback gained from CTOs, CIOs and CEOs, DataDirect Networks created Silicon Storage Appliance technology to accelerate application performance, simplify information management, and to establish an intelligent platform for deploying application-specific storage software.

Technically superior to competitors in the field, Silicon Storage Appliances provide a substantially different and far more advanced approach to data access for data center use than NAS or pre-appliance SAN solutions. Using silicon-based parallelism and intelligence in a much simpler architecture allows DataDirect customers to dramatically increase manageability, performance and reduce I/O bottlenecks that exist in pre-appliance SAN technology.

Silicon Storage Appliances can be installed in a matter of hours, is supported on all major server platforms, and offers far more performance capacity (from hundreds of Gigabytes to 180 usable Terabytes) than first generation SANs with the same footprint.

Customers using DataDirect's Silicon Storage Appliances include Loudeye, Sonic Foundry, National Century Financial Enterprises, British Broadcasting Company (BBC), Lawrence Livermore National Laboratories, NOAA Forecast Systems Lab, Sandia National Laboratories, U.S. Army Research Lab, White Sands Missile Range, National Center for Atmospheric Research, and NASA, among others. DataDirect SAN partnerships include industry leaders Veritas, Seagate, Emulex and QLogic, among others.

Solutions, Planning, Integration and Support

Planning a significant addition to an IT infrastructure is never simple. As different scenarios are generated, questions arise and must be answered. DataDirect Networks' staff of storage networking experts will act as an integral part of this process, helping to determine your system requirements, specifications and architecture. As your trusted partner in designing, deploying and extending your storage networking solution, we'll make sure that your implementation delivers the performance and reliability that you expect, and has the expansion capacity to meet your growing business requirements.

DataDirect's professional services team will provide our clients with system architecture and storage network design. We also will optimize existing storage installations and applications and help our clients migrate from current storage approaches to a future-oriented SAN environment.

Our professional service organization, comprised of headquarters and field-based personnel around the globe is dedicated to delivering and sustaining the highest levels of customer satisfaction in the industry. And should a component ever fail, DataDirect Networks provides worldwide response to diagnose and rectify the situation 24x7x365, to help keep your business operating at its peak.

DataDirect offers a wide variety of support options, including standard and extended warranty, priority cross shipment and a range of on-site maintenance and support services to fit your needs. DataDirect can also supply customized service and support offerings to meet the needs of businesses having unique requirements.

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