Service Provider Offers File-Based Video Playout Service

Technicolor Digital Content Delivery built a network platform that supports service-level agreements for availability.

EXECUTIVE SUMMARY
TECHNICOLOR DIGITAL CONTENT DELIVERY
• Media Services
• United Kingdom
• 1600 employees
CHALLENGE
• Build a state-of-the-art playout facility
• Offer service-level agreements (SLAs) for availability
• Simplify workflow
SOLUTION
• Designed a high-performance network platform using Cisco Catalyst switches with Virtual Switching System (VSS)
RESULTS
• Enables operators to rapidly retrieve any of 100,000 video assets over the network
• Handles 24,000 video events daily for one customer alone
• Exceeds performance expectations

Challenge

As a managed services provider for entertainment companies, Technicolor facilitates the creation, management, and delivery of video content. Media companies like ITV outsource playout services to Technicolor, so that they can focus their resources on developing fresh content. "Our customers are the entertainers, and Technicolor is like the back stage of the theater, helping to facilitate the experience," says Will Berryman, senior vice president and chief operating officer, Technicolor Digital Content Delivery. TDCD is a business unit of Technicolor, which is a division of Thomson.

To support its new managed service for video playout, Technicolor decided to build a state-of-the-art media service center near the firm's headquarters in Chiswick Park, London. Traditionally, playout providers have given most of their attention to applications, building the underlying network almost as an afterthought. "In today's nonlinear environment, we realized that the network must come first, " Berryman says. "It is important to build a strong infrastructure before layering the applications on top."

Technicolor wanted the network in its new facility to support a flexible, file-based workflow. The goal was to capture video once, and then reuse it for different channels and executions. To build a media-optimized IP network, or medianet, Technicolor identified the following requirements:

- **Reliability:** "If something goes wrong with a physical tape, the operator can order another one," says Berryman. "For our operators to accept a file-based workflow, they need confidence that files will arrive on time, which requires a reliable and fast network."

- **Support for service-level agreements (SLAs):** Broadcast playout services cannot tolerate outages of even a few seconds. To attract clients, Technicolor would need to offer SLAs for network availability.

- **High performance and low latency to move and store large files:** High-definition (HD) video is becoming the norm, and transmitting an HD video file typically requires 50 Mbps of bandwidth.

- **Flexibility to accommodate different customers' workflows:** One Technicolor client frequently edits material right up to the time of its broadcast. Another client asks Technicolor to re-edit material for different regions. Technicolor needed the ability to meet these and other client requirements.

- **Ease of use for operators:** "Our most important asset is our media professionals' time," says Berryman. "They make minute-by-minute decisions to build services for the customer, and entertain millions of people at a stroke. We wanted the file-based workflow to make their jobs easier."

Berryman continues, "Half of our job is bringing together the assets to entertain the consumer. The other half is making sure the assets are distributed through the right channel at the right time, with the quality that the audience expects."

Solution

Technicolor selected Cisco Catalyst® switches as the network platform for its new playout facility in Chiswick Park. "We like working with Cisco because of the intellectual talent," Berryman says. "We want smart people to help ensure that the infrastructure can support our workflows and operational processes." Cisco® Catalyst switches also provide the high reliability needed in an environment where content has to arrive at its destination with millisecond accuracy.

The new workflow is entirely digital. Technicolor customers build up a playlist for entertaining the audience. Technicolor converts the content to digital form and then edits the content for the timeslot and region (for example, by adding subtitles and commercials). When customers deliver content on tape, such as commercials, Technicolor takes it in and publishes it into its media management system, where operators can easily retrieve it for reruns.

Technicolor can confidently offer SLAs because of its high network availability, which results from:

- **Cisco's Virtual Switching System (VSS) technology:** VSS interconnects two Cisco Catalyst 6509 Switches, so that a failed switch can failover to the other in less than 200 milliseconds, before broadcast viewers notice the difference.
- **Avoidance of Spanning Tree Protocol:** "VSS also enables us to not use spanning tree, which has caused outages in the past," says Jayesh Patel, broadcast infrastructure specialist, Technicolor.
- **Nondisruptive upgrades:** The Cisco IOS® Software supports in-service software upgrades, enabling Technicolor to upgrade its switches while the production network continues to operate.

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> — **Will Berryman, Senior Vice President and Chief Operating Officer, Technicolor Digital Content Delivery**

"At the outset of this project, our systems integrators predicted that the network would be the most difficult part of the project," says Geoff Steven, technical consultant, Technicolor. "At the end, they said that the network was the easiest part."

Results

In the first six months, Technicolor processed 60,000 video assets for its customers. The company is handling 24,000 scheduled events daily for just one customer, ITV. If a customer schedules any of 100,000 video assets currently stored in Chiswick Park, Technicolor can immediately retrieve it from storage. "It would be practically impossible to accomplish this with a physical tape library," Berryman says.

More Efficient Workflow

With a digital workflow, Technicolor operators can process thousands of hours of material in a week. "The network has exceeded our expectations in terms of moving large files very quickly," Berryman says. The digital workflow also makes it easier and less expensive to localize television shows for different countries. Technicolor no longer has to spend time and money creating and managing multiple physical tapes, one in each language.

High Performance

Traditionally, the network has been the point of congestion, or "bottleneck," in file-based workflows. The reason, according to Patel, is that most networks are designed to control devices, not push large files like HD video. "Our network is no longer the bottleneck because it was designed for HD video," he says. "The bottleneck, if we have one, has shifted to the applications."

Global Playout Model

The file-based workflow has enabled Technicolor to consider global playout. "We can ingest content in the U.K., archive it in a Burbank, California data center with spare capacity, and play it out from London," says Steven.

Flexibility

The medianet platform enables Technicolor to offer additional revenue-generating services, such as web TV, IPTV, and video demand. The company also has the flexibility to work with clients in any global location.

Reduced Costs for Customers

Customers no longer have to pay up to £200 to copy content onto videotapes and transport them to Chiswick Park. "Broadcast companies spend a lot of energy, attention, and money moving physical tapes," says Berryman. "Now they can redirect their resources to putting on a better show for their customers."

Berryman concludes, "We continually reinvent the way we do television. The Cisco platform gives us the flexibility to meet our customers' evolving requirements."

Next Steps

Post-production applications and storage are transitioning from fibre-channel to 10 Gigabit Ethernet, and Technicolor is investigating using Fibre Channel over Ethernet (FCoE) to connect servers as well as storage. This approach will eliminate the costs of maintaining separate data and storage networks. Technicolor's new network platform also prepares the company to use the new generation of Ethernet (rather than RS-232) video equipment. Another plan is to offer playout services to other broadcasters. "Broadcasters are recognizing that it makes more sense to outsource to a managed services provider with SLAs than to maintain a tape-based environment," says Steven.

PRODUCT LIST
• Cisco Catalyst Switches 6509-VE, 4500, 4948, and 3750E
• Cisco Firewall Services Module

Technical Implementation

Technicolor built a fully redundant core network using Cisco Catalyst 6509 Switches interconnected with VSS technology. "During the network design process, the Cisco team was available to us at every step," says Steven. Solution components include:

- Core and aggregation layers, built from Cisco Catalyst 6509-V-E Switches using VSS and Cisco Firewall Services Modules (FWSMs). Customers have different SLAs, so Technicolor uses FWSM contexts to isolate their transmission chains. The network platform can support up to 25 different contexts, of which the company has so far used only 12.
- Access layer, built from Cisco Catalyst 4500 Switches with Cisco Catalyst 4500 Supervisor Engine 6-E, and Cisco Catalyst 3750E Switches in some areas.
- Top-of-rack connectivity for application servers, using Cisco Catalyst 4948 Switches that connect to the aggregation layer over 10 Gigabit Ethernet.

For More Information

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