FOX SPORTS UPGRADES INFRASTRUCTURE TO SUPPORT HDTV ACROSS AUSTRALIA

Summary

Industry: Broadcast media

Challenges: Deploy a network infrastructure that enables FOX SPORTS to transmit multiple HD video, voice and data channels from sporting venues across Australia.

Selection Criteria: Reliability and availability of network infrastructure, as well as low latency.

Network Solutions:

· EX4200 Ethernet Switch

· MX240 Universal Edge Router

Results:

Juniper delivered high-quality service and a means for FOX SPORTS to provide additional value-added services to its subscriber base. The new infrastructure has enabled FOX SPORTS to increase program quality and deliver greater HD content in an efficient and cost-effective manner. Future developments will leverage the installed equipment base to include enhanced data and media applications, in addition to automating and streamlining production activities, and realizing production cost savings.

FOX SPORTS is Australia's leading sports producer and broadcaster. FOX SPORTS compiles and produces the FOX SPORTS, FOX SPORTS NEWS, FOX SPORTS PLAY, FOX FOOTY, FUEL TV and SPEED subscription TV channels, Foxsports.com.au and a range of video, text and statistical content for television, mobile phone and online delivery, including the new sports video application for Apple iPad, FOX SPORTS VIEW.

FOX SPORTS broadcasts an average of 23 hours of LIVE sport per day into 2.3 million homes around Australia with over seven million potential viewers through FOXTEL, AUSTAR and OPTUS TV. FOX SPORTS also provides the FOX SPORTS NEWS channel via IPTV through FetchTV, produces a dedicated FOX SPORTS NEWS TV mobile phone channel and provides mobile content to all three major Australian telcos.

The FOX SPORTS channels are also available in more than 5,100 hotels and licensed venues as well as 180,000 hotel rooms throughout Australia.

Challenges

In moving from SD to HD production, the impact on capacity and performance of contribution and production networks is significant. Increasing the amount of native HD content for FOX SPORTS subscribers meant the existing FOX SPORTS delivery and contribution solutions needed a major review and critical assessment.

For program contribution, FOX SPORTS typically used a combination of one-way-satellite and telco digital video network (DVN) services. However, these solutions are generally bandwidth restricted, requiring heavy video compression and encoding, which can severely impact the overall broadcast quality delivered to subscribers.

FOX SPORTS' desire was to secure high-capacity services in key sporting locations, removing costly satellite capacity and eliminating the need for heavy video compression. In addition, FOX SPORTS also wished to deploy a converged video, data and communications solution to enable full two-way communications between the various venues and the TV station. The net result would be a huge increase in its HD capability and quality, while streamlining back-end HD broadcasting production processes.

To achieve this, FOX SPORTS decided to deploy its own private network infrastructure over fiber carrier services and upgrade its existing network environment. This solution enables FOX SPORTS to transmit multiple streams of HD and SD video, and voice and data content from multiple locations over a single, homogenous network. It is a huge amount of data with a requirement for very high levels of quality of service (QoS) and reliability.

To build its new virtual private network, FOX SPORTS required a new Ethernet switching and routing layer on the existing fiber network.

Selection Criteria

FOX SPORTS sent out a Statement of Requirements to two Ethernet switch and routing solutions vendors, with one going to Juniper. After receiving initial feedback from both vendors, FOX SPORTS was impressed with Juniper's offering and decided to take Juniper's solutions to the next stage of the selection process—the technical evaluation.

After completing the technical evaluation, FOX SPORTS selected Juniper Networks® EX4200 Ethernet Switch and Juniper Networks MX240 Universal Edge Router.

"One of the Juniper solutions' key selling points is its Junos® operating system," said Michael Tomkins, FOX SPORTS Chief Technology Officer. "We use a wide range of equipment from different vendors. The Junos operating system provides us with a uniform feature set across all our equipment which makes equipment management and deployment so much easier and quicker."

FOX SPORTS also selected carrier Nextgen Networks to implement a new dedicated GbE fiber network to 16 sports venues around Australia, including Perth, Adelaide, Melbourne, Newcastle, Canberra, Brisbane, and the Gold Coast.

Solution

The FOX SPORTS solution comprised two elements—portable outside broadcast (OB) equipment and a fixed-service router deployment. FOX SPORTS deployed two EX4200 Ethernet switches in a Virtual Chassis configuration to each of its 12 OB units. The OB units travel with the main broadcast production vehicles, allowing interconnection of the venue media and data services to the FOX SPORTS TV center.

The OB units remain parked in the sports venue for the duration of the match with the EX4200 switches connecting to the FOX SPORTS network using especially rugged optical interface cable and connectors. FOX SPORTS deployed two MX240 routers in its Sydney TV center as well as the Juniper Networks Network and Security Manager solution. According to Tomkins, the EX4200 switches were the ideal solution for FOX SPORTS, offering the high availability and carrier-class reliability of modular systems with the economics and flexibility of stackable platforms.

"Unlike most deployments, our switches are installed in cases that move around the country, so we needed a solution that's very reliable—bomb proof," said Tomkins. "When you're in the business of live broadcasting, the availability of your network and the reliability of your network infrastructure is critical."

"The EX4200 is robust and very fault-tolerant hardware," Tomkins continued. "It offers a redundant power supply to ensure we remain operational even during a power outage. Its scalability was also a draw card. It comes with 24 ports, so it can support our future requirements as we grow."

Tomkins had similar praise for Juniper Networks MX Series Universal Edge Routers and Junos OS:

"Like its switches, Juniper's MX240 routers are very reliable and offer rock solid performance. For extra protection, we deployed two MX240s for full redundancy, so if one fails, the other one kicks in," said Tomkins. "Junos operating system runs across all the Juniper devices and is easy to learn and very intuitive. Our staff no longer has to manage disparate network devices. They have a centralized management platform that simplifies management processes and increases productivity."

"It provides us with a telco-level ability to investigate, diagnose and take any emergency diagnostic action we need to. We don't have to rely on the carrier to maintain our network performance," said Tomkins.

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> Michael Tomkins,
> FOX SPORTS Chief Technology Officer

Results

Superior HD Service for Viewers

By establishing this high-capacity, low-latency connection to each venue, FOX SPORTS is able to provide uncompressed SD and higher-quality HD services, ensuring exceptional quality, which is so critical with fast-moving sports action. The overall IP solution also allows FOX SPORTS to support converged data services and emerging media contribution applications, enabling it to take advantage of two-way communications with highly reliable QoS, which was not previously possible. The new network allows match statistics, player profile information and other production and in-match information to be sent in real time to commentators during live broadcasts.

Streamlined Back-End Processes and Enhanced Communication

The Juniper contribution platform provides a technology path for the development of enhanced production, contribution and distribution solutions.

Tomkins explained, "In some cases, up to 19 different cameras can be used at an event. While currently only one final produced feed is taken from the venue, with the deployed network, alternate camera feeds could easily be collected and used to either enhance the broadcast or be used for other delivery options. We could offer a choice of camera angles to viewers watching live broadcasts, for example."

Currently recovering all the recorded content from the venues is a manual process. The producer has to manually recover all the content from the venue onto a portable drive before it can be edited at the TV station.

"We are looking for options to avoid the manual post-match media recovery, replacing the manual process with a streamed solution, with all OB media content streamed across the IP network in real time from the venue to the TV center," said Tomkins.

The new network means FOX SPORTS can now offer other converged communications services to its production team, such as VoIP.

"We now have a dedicated high-quality link between the Sydney studio and all the sports venues," said Tomkins. "Using VoIP on our own VPN means we no longer have to pay for phone lines at each venue or rely on the telco to ensure phone line availability."

FOX SPORTS also has the opportunity to leverage the network to allow intervenue communication, extending its one-to-one communication capabilities to one-to-many.

"Juniper worked very closely with us in configuring the hardware, ensuring the configurations were optimized and that we would get the most out of the infrastructure," said Tomkins. "Juniper's team had the knowledge required to wring performance out of the devices, so they worked consistently and reliably."

Next Steps and Lessons Learned

FOX SPORTS is an innovative broadcaster that is always looking at ways to enhance the viewing experience for its customers. Having a network that is scalable, resolute and secure means that it can continue to roll out new services and viewing options. For example, the Juniper Networks solution allows FOX SPORTS to broadcast multiple feeds and camera angles to subscribers rather than just the footage decided by the director. It put the control in the hands of the viewers and was first being exploited by the Australian Masters Golf coverage in November 2011. It will allow viewers to choose the action they want to follow and receive live up to date facts figures and leaderboards via its interactive offering.

For More Information

To find out more about Juniper Networks products and solutions, visit **www.juniper.net**.

About FOX SPORTS

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About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at **www.juniper.net.**

3520330-003-EN Mar 2012   Printed on recycled paper