Sveriges Television AB (SVT) selects Arista Networks to help deliver one of the world's largest remote production at the 2019 FIS Alpine World Ski Championships

Highlights

Challenge
SVT needed network reliability, low latency and scalable performance to support the largest ever remote TV broadcast for the 2019 FIS Alpine World Ski Championships.

Solutions
- Arista 7280SR Family Switches
- Arista Cloudvision network-wide workload orchestration and automation
- Arista EOS®

Results
- Deep buffer technology for lossless and low latency transmission
- Continual analytics and network telemetry for operational monitoring
- Fully standards based to seamlessly integrate with broadcast workflow

Sweden's national public television broadcaster SVT is a pioneer in the field of remote production, a concept highlighted by its popular coverage of winter sports. Ahead of its largest ever remote production, SVT turned to Arista Networks to provide critical network infrastructure to deliver over 10,000 hours of HD video from 75 remote cameras across a 12-day event without interruption.

svt

photo credit: HB Sport and Henrik Wilsson

Project Background

Sveriges Television AB (SVT) is the Swedish national public television broadcaster and the biggest TV network in Sweden. Winter sports have been a key roster of its coverage over the years and high-profile events, including the FIS Alpine World Ski Championships, attract millions of national and international viewers. To broadcast the Championships requires a major relocation of staff from the SVT broadcast centre in Stockholm to Åre, some 800 km away, along with multiple outside broadcast units, studio and technical teams.

Challenge

As part of an ongoing strategy to innovate in production methods with the aim of simplifying the workflow and improving the viewing experience, SVT decided to implement a remote IP production for the 2019 FIS Alpine World Ski Championships. The setup included 75 uncompressed HD camera signals transmitted over 700 km to its broadcast centre in Stockholm where content was managed by three separate control rooms handling live, studio, packages and international distribution.

The project has been planned for several years and technical teams from SVT worked with several technology vendors including Grass Valley for remote IP cameras, EVS for digital video production systems, Net Insight for media transport and Telia for WAN connectivity.

In smaller scale labs testing, the solution had worked well but previous events had never deployed so many remote HD cameras. However, as the SVT teams started rigging up and testing the full-scale system in Åre, it became clear that there was an issue with the underlying IP network.

"Each remote camera outputs between 2 to 8 Gbps of data and with 75 cameras active, the underlying IP network was having serious issues that were leading to latency and dropouts," says Daniel Lindberg, Head of Production Technique at SVT. "We previously had technical discussions with Arista ahead of this project and it was decided that we would bring them in overnight to replace the switches."

Solution

The local Arista team requisitioned multiple 7280R Series fixed configuration switches which were delivered to the SVT broadcast centre in Stockholm that night. Another Arista technical expert was sent on a 700km journey to Åre to provide local technical assistance for any configuration changes.

During a six-hour window, the joint SVT and Arista technical teams began diagnosis and replacement of the existing media core switches at SVT Stockholm. The replacement 7280R features 48 x 10G ports plus 6 x 100G uplinks that offer a throughput of 2.16 Tbps. Deployed in pairs, the 7280R includes dynamic deep buffers in a fixed form factor that makes it an ideal top of rack switch where lossless performance and in-cast problems are expected, ideal for live video workloads.

SVT also deployed Arista's Cloudvision software to provide comprehensive distributed network-wide visibility and analytics of dataflows across the switches at Åre and Stockholm.

The joint team worked overnight to replace the existing IP infrastructure along with several configuration changes including the setting up of a segmented PTP and recategorizing of quality of service and traffic routing to ensure that critical flows would reach the Stockholm production centre with minimal latency.

Conclusion

With final testing complete, day two of the Alpine World Ski Championships began with remote video, control signals and metadata now flowing across Arista switches. During that day, the SVT team were able to deliver content from up to 75 remote cameras simultaneously; setting a record for the largest ever remotely produced event. For the following 12 days of the event, the Arista solution performed flawlessly and by the end of the closing ceremony, the switches had transported over 8000 TB of data, and roughly 10,000 hours of HD video without any failures.

"The Arista team were invaluable in helping us to deliver a successful event," says Daniel Lindberg, Head of Production Technique for SVT. "The combination of technology, people and teamwork helped us overcome a major technical hurdle and moving forward, the experience offers us a benchmark for how we deliver subsequent remote productions."

As a result of the event, SVT has purchased additional Arista 7280R switches which were deployed in March for its next major remote production sporting event at the 2019 IBU World Championships Biathlon in Östersund.

photo credit: HB Sport and Henrik Wilsson

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