ITN choose Arista Networks for major SMPTE ST2110 media network upgrade to support evolving production and studio

Highlights

Challenge

To support its growing requirements, ITN built a SMPTE ST2110 based media and control network using Arista Networks technology that has improved performance, reliability, and scale through an innovative software defined architecture.

Solutions

- Arista 7000 Series spine and leaf switches for high performance, low latency, and scalability.
- CloudVision software delivering a single view of the entire network for simplified management and powerful network visibility.
- Integrates seamlessly with core Grass Valley and EVS elements across the campus.

Results

- High performance IP-based media and control networks delivering mission critical reliability.
- Open standards-based approach to simplify support, upgrades, and automation.
- Full support for evolving broadcast IP standards including SMPTE ST2110 to ensure future upgrades.

ITN is one of the world's leading multimedia content providers, producing news, entertainment and factual programming across a range of platforms. Following a decade of growth, ITN's underlying SDI network at its studio and production complex in London was starting to meet its limits. For the upgrade and modernisation of the production galleries, ITN chose Arista Networks as the core of a new SMPTE ST2110 based IP media network. The successful project has delivered scalable performance, reliability, and simple transition to meet its evolving production needs and future growth.

Company Background

For sixty-five years, ITN has been one of the UK's foremost television production and news organisations. Combining cutting-edge technology and innovation with expert story-telling flair, ITN is recognised globally for its quality, integrity and creativity. ITN makes the award-winning daily news programmes for ITV, Channel 4 and Channel 5 in the UK, providing comprehensive and impartial news to the British public and reaching millions of viewers every day. ITN Productions, ITN's independent production division, produces high quality content across sevendistinct areas: television production, sports, advertising, industry-specific programming, education content, entertainment and news footage syndication, and post-production.

Challenge

ITN moved into its news headquarters, a purpose-built building in the Gray's Inn Road, London in 1991. The site has six studio spaces and hosts ITN Productions, its award-winning creative production arm that produces over 10,000 hours of content every year for broadcasters, businesses, brands, rights holders and digital channels. Over the last 30 years, ITN output has grown and although its production environments have adapted using the prevailing technology – the underlying network based on SDI routing was starting to limit its ability to scale.

As Jon Roberts, Director of Technology, Production & Innovation explains, "Our needs have changed as ITN has grown and today it is critical for us to be able to adapt to new demands and workflows with flexibility at scale. The move to an IP network is a significant change for us – and it will be with us for a long time – so our scoping project was extremely thorough."

Over a multi-year process, ITN technical teams evaluated networking designs, suppliers and technologies before selecting dB Broadcast as its lead system integrator and Arista Networks for its core IP infrastructure.

"We had already had Arista successfully deployed in our wider enterprise network," explains Jon Roberts, "And we were impressed not only by the network's reliability, but also the openness and adherence to standards, along with many successful deployments within similar large scale broadcasting facilities."

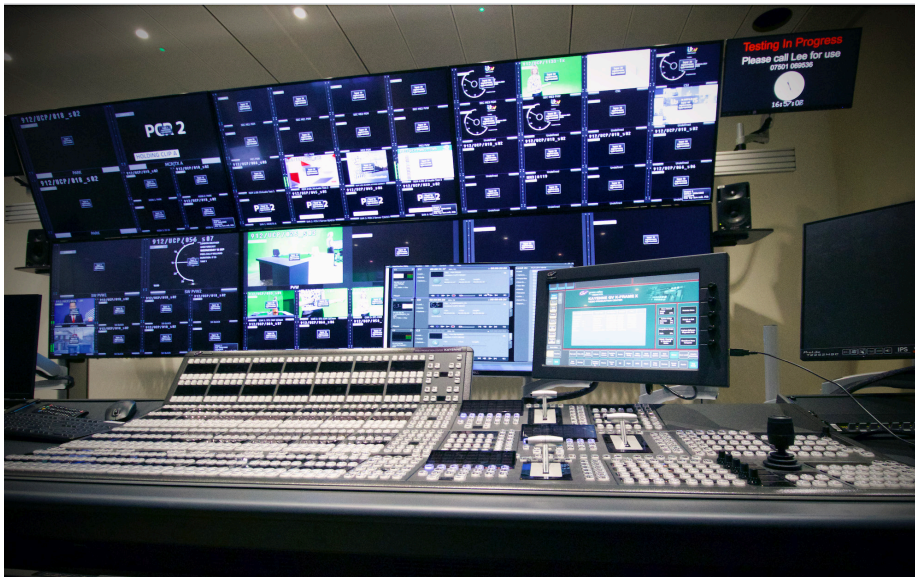
One of the main criteria for the project was to deliver a solution based around the SMPTE ST2110 standard that provides an industry wide framework for integrating IP based media infrastructure. As part of this approach, ITN also chose to deploy an EVS Cerebrum Broadcast Control System (BCS) and IP based production equipment from Grass Valley on top of a high-performance Arista Network infrastructure. This 'best of breed' implementation has been field proven in a number of similar environments and aligned with ITN's longer term strategy to deliver a software defined approach to network orchestration.

Solution

dB Broadcast worked extensively on the design and proposed two separate networks. The first is the ITN PTP & Media Network using a fully redundant architecture. The heart of the new network features an active/active pair of Arista 7280CR3-96 series switches which are purpose built around a flexible arrangement of 1G/10/25/40/50/100GbE ports to support the widest range of connected devices and workflows.

Alongside the media network is the ITN Monitoring & Control Network which uses a spine and leaf design that again implements a fully redundant design based on a pair of Arista 7050X3's – with 10G active interconnects - that spans out to multiple Arista 7010T leaf switches that connect to various locations including newsrooms, editing suites, MCR's and other critical elements. All Arista 7000 series products run the same Arista EOS® software and binary image, simplifying network administration with a single standard across all switches.

"This approach offers high resiliency, flexibility and can scale out quickly," explains Mike Bryan, Technical Director at dB Broadcast Ltd. "The whole solution is supported by Arista CloudVision® which gives a detailed view of the entire network and integrated seamlessly with EVS Cerebrum that allows us more control over the entire media workflows. It really is state of the art!"



Conclusion

As a 24/7 organisation, the new media and control networks have been deployed in parallel with the existing infrastructure. The first SMPTE ST2110 enabled gallery was ready to put into service in early November 2021 and over the next few months, Bryan and the team at ITN plan to migrate the core ITV production galleries, Channel 4 and Channel 5 plus ITN Productions over to the new networks.

Although the new network design and move towards an all-IP infrastructure is part of a longer- term strategy to modernise and scale the ITN environment, there have been significant immediate improvements. "We have built more resilience into our media operations by removing single points of failure such as the old SDI routers," says Jon Roberts. "While the implementation of CloudVision and Cerebrum not only gives us a lot more visibility over our media operations, it also allows us to make significant changes and create new production workflows quickly."

"The next stage is to start to implement more orchestration and automation capabilities to allow us to better utilise new IP based technologies. Ultimately, this is part of a longer-term strategy to utilise innovative technology to support the best news, entertainment and factual storytelling that is at the heart of the ITN brand," Jon Roberts concludes.

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