

Formula 1® selects Arista Networks to commence migration to ST2110/ST2022 IP broadcast infrastructure at its UK Media & Technology Centre.

Highlights

Challenge

Formula 1® needed to rapidly upgrade its UK MCR remote operations systems, in readiness for the 2021 Formula 1® season

Solution

- Arista 7000 series leaf and spine network offering 100G core and wire speed layer 2 and layer 3 features
- CloudVision® software delivering a single view of the entire for visibility and simplified management

Results

- High performance, low latency network connectivity to support live, global broadcasting
- Simplified network operation via the Arista EOS® single image for all devices supported by CloudVision® network management

The global pandemic saw Formula 1® embark on an ambitious project to roll out an advanced remote production capability in just two months prior to the deferred July start to the 2020 racing season. Following on from that success, Formula 1® chose to install Arista Networks infrastructure as the foundation for its new ST2110/ST2022 IP MCR build at its UK Media & Technology centre (M&TC), in readiness for the 2021 season.



Challenge

The delayed start to the 2020 F1® season, due to the global pandemic, saw the F1® IT and Broadcast engineering teams compress a long-term strategy to transition to remote operations into a two month period, in order to be up and running for the restart of 2020 season.

The project saw over 75% of the bespoke containers housing F1® technical and broadcast systems infrastructure that previously travelled to each race venue, now permanently located and operational in the UK. This change highlighted the need for F1® to embark on the migration of its pre-existing UK infrastructure away from coaxial SDI video solutions and onto standards-based IP video networks, enabling the efficient access to the dozens of new content streams now available at its UK facility, and to better monitor, control & distribute content to internal and external stakeholders.

Solution

With the growing maturity of the SMPTE 2110 ecosystems, the plan to accelerate this transition initially required a major upgrade of its MCR networking infrastructure. The team looked at several vendor solutions with particular focus on their suitability for high bandwidth, low latency, and extreme reliability workflows. After a detailed technical evaluation, Arista Networks was selected based on several factors, "It was what the industry was telling us," says Trevor Turner, Head of Media Systems Development at Formula 1®, "We had already undertaken a trial remote production operation during Formula 1's February 2020 winter testing in Barcelona, using Arista Networks equipment, as well as being aware of other major outside broadcast operations using IP networks for which Arista had delivered robust solutions. We were also impressed by the depth of broadcast knowledge of their technical teams and across the course of the project, we used this expertise to validate many of our design choices which was a great sanity check for us."

F1® built its new UK MCR media network infrastructure using Arista 7000 series switches, providing a 100GbE core with flexible 100/50/40/25/10GbE connectivity to end point devices, and an expansion path to 400GbE. The significant upgrade to the F1® UK master control room facilitated better monitoring and easier configuration of the codecs and transmission equipment installed as part of the remote operations upgrade, connecting the live sources at each event to equipment previously transported across the world. The UK production workflow still uses SDI elements, but the vast majority of F1's live content sources are now also available in a SMPTE 2110 & 2022-6/7 environment allowing F1 to further develop its operational production solutions.

Conclusion

For viewers watching the opening Formula 1 Gulf Air Bahrain Grand Prix 2021, the experience was as mesmerising as in previous years. Yet behind the scenes, through its pioneering approach to remote production, the F1® UK MCR media network now monitors all F1® inbound and outbound video and audio services, integrates them with the pre-existing UK infrastructure and distributes the F1® international broadcast coverage of the championship from the UK to transmission partners.

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