

# Moving Video Production to IP

Texas A&M University Athletics uses Cisco IP Fabric for Media solution to transition to an IP-based infrastructure



## Texas A&M University Athletics

12th Man Productions

## Industry

Media and entertainment

## Location

College Station, Texas

## Number of employees

18 full-time staff; 100 Texas A&M students

## Business challenge

- Wanted to build a networked media fabric that could be expanded as facilities are moved to a native ST 2110 workflow.
- Sought reliability, flexibility, and control of the network and signals.
- Desired a solution that would let them leverage their existing expertise.

## Network solution

- Transitioned from an SDI router to an IP-based infrastructure using Cisco IP Fabric for Media solution.
- Used Imagine Communications Selenio network processors at the four heaviest load venues.
- Used 100GbE links to two Nexus 9000 C9336C-FX2 spines and three C93180YC-FX leaves.

## Business benefits

- The IP network is dynamic, so resources can be allocated when needed
- Signals are converged into one network, which saves resources
- With a more agile infrastructure, set up, tear down and resource allocation for remote site can be performed quickly
- Scalable with a path for migration and virtualization
- Greater throughput between venues via fiber consolidation
- Improved flexibility with all venues networked vs point-to-point

### Products

- [Cisco Nexus 9000 Series Switches](#)
- [Cisco Data Center Network Manager Media Controller](#)

## The need for reliability, flexibility, and control

12th Man Productions is the broadcast, in-stadium, and post production house for the Texas A&M University Athletics Department. They provide post-production coverage for every NCAA athletic team the university hosts or plays in and in-stadium productions for seven different sports across five different venues. All of the video feeds are networked together back to a central production facility that is housed in the football stadium. 12th Man Productions also produces a majority of the A&M athletics broadcasts for ESPN and approximately 110 live events every year. The 12th Man team has 18 full-time staff and rely heavily on a student workforce with approximately 100 students from all majors and disciplines.

The Society of Motion Picture and Television Engineers (SMPTE) standard ST 2110 defines how video, audio, and ancillary data are carried over IP. The 12th Man team wanted to build a networked media fabric that could be expanded and grow as they slowly move facilities to a native ST 2110 workflow. Ideally, they wanted a workflow that would offer reliability, flexibility, and control over all aspects of the network and signals.

## Moving to an IP infrastructure

When live production is moved to IP, it needs an IP infrastructure that can provide a reliable, non-blocking, scalable, and secure fabric that can deliver SMTPE ST 2110 uncompressed streams from the sources to the destinations. The Cisco IP Fabric for Media solution helps transition from an SDI router to an IP-based infrastructure. In an IP-based infrastructure, a single cable has the capacity to carry multiple bidirectional traffic flows and can support different flow sizes without requiring changes to the physical infrastructure.

After looking at the options and visiting with some of the Cisco reps at the NAB 2018 and 2019 shows, the 12th Man team saw how they could leverage their existing expertise to incorporate this new standard into a robust solution from Cisco. The solution checked all the boxes they were looking for in terms of reliability, flexibility, and control.

The Cisco IP Fabric for Media solution consists of a flexible spine and leaf architecture or a single modular switch topology. The solution uses Cisco Nexus 9000 Series switches along with the Cisco non-blocking multicast (NBM) algorithm (an intelligent traffic management algorithm) and with or without the Cisco Data Center Network Manager (DCNM) Media Controller. Using open APIs, the Cisco DCNM Media Controller can integrate with

various broadcast controllers. The solution provides a highly reliable (zero drop multicast), highly visible, highly secure, and highly available network.

The 12th Man team selected the Cisco solution because of the company's reputation in the network industry, expertise and resources as well as commitment to the project.

## Transport across a Cisco Nexus media fabric

12th Man Productions uses the ST 2110 deployment as a means of inter-venue transport of video signals across a Cisco Nexus media fabric. They have Imagine Communications Selenio network processors at the four heaviest load venues, which are networked back over 100GbE links to two Nexus 9000 C9336C-FX2 spines and three C93180YC-FX leaves.

The Cisco Nexus 9000 Series switches deliver proven high performance and density, low latency, and exceptional power efficiency in a range of form factors. The series also performs line-rate multicast replication with minimal jitter. Each switch can operate as a Precision Time Protocol (PTP) boundary clock and can support the SMPTE ST 2110 and AES67 profiles.

## The benefits of a more agile network

Converging the signals into one network saves resources and the IP infrastructure is agile, which means set up, tear down and resource allocation can happen more quickly. It's easier to connect to remote sites and allocate resources as needed. With the IP network, the signals from remote broadcasts are fed to a centralized production facility, so it's not necessary to send an entire production crew out to the stadium.

As the number of devices being used grows and as the 12th Man team adds more traffic on the network, they want to scale the core infrastructure and repurpose the initial switches. They plan to move the switches out to remote venues, which will simultaneously expand the network capacity and reach. Eventually the team plans to have a fully native ST 2110 facility.

## Accelerating ideas to audience

The media industry needs reliable, scalable, and flexible networks, along with tools to efficiently operate those networks. Cisco has solutions that allow you to reimagine your content workflows, enabling; collaboration, IP fabric, cloud orchestration and data center.

“We knew that we only had one chance to get this right and after researching and learning about the new ST 2110 standard and all the protocols and requirements, the hardware requirement was pretty clear, and Nexus 9000 switches easily met those requirements while also giving us a path for growth. DCNM shows a great deal of promise as it's developed further. The amount of insight it can provide into real-time situations is pretty invaluable.”

**Zack Bacon,**

Chief Broadcast Engineer 12th Man Productions,  
Texas A&M University Athletics

## Learn more

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