



Cornell raises its game on streaming live sports

How Cornell University uses Wirecast systems from Telestream to deliver HD quality live streams of its Big Red home games to the Ivy League Network, ESPN3, and other digital platforms.

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John Lukach, Director of Multimedia, Production and Web Communications for the Athletics Department at Cornell University, Ithaca, NY

ITHACA, NY

The streaming media revolution has thrust the nation’s top college athletics departments into the role of full-fledged college sports broadcast networks.

Instead of having to wait for major TV and cable sports networks to drive up their HD trucks to cover their campus-based sporting events, many prestigious colleges and universities have taken it upon themselves to produce their own games.

Using their own video production equipment and streaming media capabilities, universities like Cornell are now delivering live streams of their events to broadcast networks, such as the ESPN3 online sports network as well as social platforms like Facebook Live.

Like many other universities, Cornell—a private Ivy League research university in Ithaca, NY—now controls the way its match-ups are showcased. With the cost-efficiency of streaming, Cornell is able to deliver its Big Red games directly to their alumni and other loyal fans that are passionate about following their teams. They’re even able to stream events like field hockey and soccer, which are often overlooked by major sports networks looking to draw big audiences for their advertisers.



The initiative

Cornell is not alone among Ivy League schools. Insatiable demand to watch Ivy League sports led to the 2013 launch of the Ivy League Digital Network, now the Ivy League Network, a 9-channel sports broadcasting service that offers games taking place across The Ivy League live and on-demand through a League-branded app or two OTT device apps as well.

The network dedicates one channel to each of the eight Ivy League schools, with the ninth channel reserved for conference championships and other special programming. As members of this consortium, each Ivy League school is responsible for producing its own home games for the streaming sports network. The participating schools include:

- Brown University (Brown Bears)
- Columbia University (Lions)
- Cornell (Big Red)
- Dartmouth (Big Green)
- Harvard (Crimson)
- Princeton (Tigers)
- University of Pennsylvania (Quakers)
- Yale (Bulldogs)

Ivy League Network subscribers can either buy a package that focuses on a particular Ivy League school, such as Cornell-only, or buy a League-wide package that gives them access to all available Ivy League games. Besides being part of the Ivy League Network, The Ivy League itself has an agreement with ESPN that its schools will also live stream many of their top events to ESPN3.

The challenge

With dozens of different sports to cover for both its Ivy League Network and ESPN3 commitments—as well as its own Facebook Live page—Cornell's athletics department faces the daunting task of live streaming 16 of its 37 NCAA Division I sports, which amounts to hundreds of games annually.

On busy game days, Cornell Athletics may have to send multiple video crews across the campus to cover six or seven simultaneous events, including the following sports:

- Football
- Basketball
- Ice hockey
- Soccer
- Volleyball
- Wrestling
- Field hockey

Unlike ad-supported TV or cable sports networks, Cornell's broadcast operation runs on a tight budget, and relies largely on crews comprised of about 30 students. Despite these limitations, they deliver a 720/60p HD product, encoded using H.264 compression, with production standards that meet or exceed their fans' expectations.

As Cornell University's Director of Multimedia, Production and Web Communications, John Lukach serves as the executive producer of their sportscasting operation. His job description includes managing such broad issues as:

- What video gear to send out to cover that day's sporting events
- Which people to assign to each crew position
- How to produce each event
- What new video equipment to buy to continually raise their game

In the hectic run-up to each event, the student crew must pack up the video gear into fly-packs, and move the road cases to the venue. Once on-site, they set-up the gear, test it, produce and live stream the show, and pack it all up again at the end.

"We had been using conventional video fly-packs, which are a group of discreet video products packed into a portable road case. These components need to be set-up and integrated on-site before they can be used as a unified live production workflow. We found the answer to this problem when we began using Wirecast software, an integrated streaming production solution, which we installed on two laptop PCs. Unlike third-party fly-packs, Wirecast software integrates the essential video production tools and functionality of all those disparate boxes into a single solution."

— John Lukach, Director of Multimedia, Production and Web Communications for the Athletics Department at Cornell University, Ithaca, NY.

Instead of lugging and setting up the fly-packs, Wirecast users load the software onto a computer, usually a Mac or PC laptop, and configure the workflow with external, third-party devices, such as a video capture card, audio mixer, encoder, camera ingest device, and of course cameras. While Wirecast is a multi-camera live switching system, the Cornell crews limit their productions of most sports to a single camera, just to keep their set-up simpler.



The solution

Cornell's athletics department now uses something new and improved, also from Telestream. It's Wirecast Gear, a solution designed to make live streaming with Wirecast software faster and easier. It does this by pre-loading Wirecast—along with the functionality of external third-party devices, like video capture cards and an encoder—onto a Windows 10 Pro appliance. Wirecast Gear and the PC-based Wirecast system both use the same Wirecast software, with the same user interface.

With its four HD-SDI and/or HDMI inputs, Wirecast Gear makes it easier for webcasters to get right to the business of streaming media. They only need to plug their cameras into the back of the appliance, and they can live stream media to virtually any online platform.

"While Wirecast software streamlined our production process considerably, compared to our fly packs, the set-up was still somewhat time-consuming and complex for our non-technical crew members to learn. This past summer, while researching alternative solutions, I came across Wirecast Gear, and immediately recognized that this was something we needed to add to our production arsenal. Once we got approval from our purchasing department, we bought a new top of the line Wirecast Gear, and it has since become one of our preferred systems for live production streaming for our more portable required setups at some venues."

– John Lukach, Director of Multimedia, Production and Web Communications for the Athletics Department at Cornell University, Ithaca, NY.

Wirecast Gear is now regularly deployed to a variety of on-campus venues to cover the following Cornell Big Red sports:

- Men's soccer at Berman Field
- Women's soccer at Berman Field
- Women's field hockey at Marsha Dodson Field
- Wrestling at the Friedman Wrestling Center
- Men's ice hockey at Lynah Rink
- Women's Ice Hockey at Lynah Rink

While Cornell Athletics does live stream their football, basketball and lacrosse games, they use a different live video production system that is permanently situated in the "video board control room" associated with the LED video displays on the playing fields. With its large, hardware control surface, the athletics department prefers to leave it set-up in that fixed location.

"When you factor in that Wirecast Gear is a compact, self-contained device that's ready to go in streaming situations, this greatly reduces the time and energy that must be devoted to packing up the gear, moving it and setting it up on site."

– John Lukach, Director of Multimedia, Production and Web Communications for the Athletics Department at Cornell University, Ithaca, NY.

The older Wirecast laptops are still in use, however, they're now reserved as back-ups that are pressed into service whenever there are too many simultaneous events to cover with Wirecast Gear.

The workflow

At Cornell, a single camera is used to cover sports like soccer, hockey, and wrestling. However, now that Wirecast Gear involves simpler camera configurations, it's possible that they could use up to four cameras for those events in 2018. While they already use a mix of three to four Sony NXR-U and JVC HD-SDI broadcast cameras on tripods to cover football and basketball, the Wirecast systems are not used on these events.

To move to the soccer, hockey and wrestling venues, Wirecast Gear is packed into its specially designed travel case, which has room to store a 19-inch monitor and two or three cameras. And once on-site, it can be set up in minutes since it's fully configured for live streaming.

A second travel case is used to transport the audio equipment, including a PV6 6-input audio mixer, microphones, announcers' headsets and more. This audio equipment feeds the 6-input audio mixer via XLR connections, while the mixer itself interfaces with Wirecast Gear via USB.

Lukach is confident that Wirecast Gear is reliable, and feels that they have a long way to go before they max out its processing power, which includes real-time professional features and functionality such as:

- Live, multi-camera switching
- Keying graphics and branding elements
- Displaying lower third supers
- Generating instant replays
- Digital video effects
- Rolling in B-roll and other video clips

In many cases, instant replay footage is ISO-recorded by one of the production cameras, and put onto the Wirecast timeline where it's ready to go into the live show. In addition to the four camera inputs on Wirecast Gear, additional media assets, such as live graphics from Cornell's specially designed branding library, can be brought into the live production over NDI. Lukach is particularly enthusiastic about using NDI because this new networking protocol allows low-latency video to be transported over IP.

Going forward

In the quest for ever-greater efficiency, Lukach is now looking to capitalize on NDI to expand their capabilities to include remote video production over IP. The plan is to designate a centralized control room, such as the video board control room, that can serve as a hub for all of their remote IP productions.

Instead of just routing signals occasionally over NDI, they will use it as the basis for all of their productions. In this way, the crews will only have to take the cameras, mics, and other acquisition gear to the sites, but the technical direction, switching and other production tasks will be based in the central control area.

"Our reliance on Wirecast Gear is only going to grow, especially as we migrate to remote video over IP production. It's extremely important to us that Wirecast Gear supports our future NDI-based roadmap. Its all-in-one design streamlines our training, set-up and operations, saving us a tremendous amount of time. With the ability to bring in four cameras, and enhance the video with real-time graphics, text, effects, and other professional touches, Wirecast Gear has dramatically elevated our production standards, making our Big Red live games that much more appealing to our valued fans."

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For more information

Visit Cornell University's website at www.cornell.edu and www.CornellBigRed.com

Visit Telestream at: <https://www.telestream.net/wirecast-gear/overview-us.htm>

