



FOX Sports tees up live 4K streaming of the U.S. Open Golf Championship thanks to **5G** AT&T technology

- **Business Needs** - Often at the leading edge of broadcasting, FOX Sports wanted to find new ways to help fans view sporting events. To launch its innovative ideas, the company needed a wireless provider capable of transmitting extremely large, ultra-high-definition images.
- **Networking Solution** - AT&T 5G technology enabled FOX to stream 4K ultra-high-definition images from the U.S. Open Golf Championship.
- **Business Value** - Streaming with 5G, sports fans were able to experience a more vibrant and realistic view of the golf championship, with 4 times the resolution of traditional high definition video.
- **Industry Focus** - Network broadcasting
- **Size** - FOX Sports brands are capable of reaching more than 100 million viewers in a single weekend.

About FOX Sports

FOX Sports is the umbrella entity representing 21st Century FOX's wide array of multi-platform U.S.-based sports assets. The company includes ownership and interests in linear television networks, digital and mobile programming, broadband platforms, multiple websites, joint-venture businesses, and several licensing partnerships. FOX Sports includes the sports television arm of the FOX Broadcasting Company, FS1, FS2, FOX Sports Regional Networks, affiliated regional websites, and national programming.

The situation

FOX Sports is known for introducing creativity into sports broadcasting. The company is always searching for new ways to enable fans to view sporting events. The network set its sights on streaming 4K footage from the 2018 U.S. Open Golf Championship, but few carriers had the capacity to transmit this ultra-high-resolution video.

Solution

AT&T 5G technology enabled FOX Sports to stream 4K video from the 118th U.S. Open Championship on Long Island. 5G is the latest development in cellular technology, engineered to greatly increase the speed and responsiveness of wireless networks. It allowed FOX Sports to provide its spectacular 4K video to multiple platforms.

Engaging viewers with technology

Founded in 1996, FOX Sports Net comprises a group of regional U.S. sports networks that are primarily owned and operated by the FOX Entertainment Group division of 21st Century FOX. The networks carry the games of regional professional, collegiate, and high school sports teams. In less than 25 years, FOX Sports has become an elite media brand, with a value estimated at more than \$1 billion.

The network's growth is impressive, especially considering that most of its competitors have been in the sports broadcasting business for decades longer. The popularity of FOX Sports has helped its parent company, FOX Broadcasting Company, gain major network status.

FOX Sports executives believe the network's success has been built on engaging viewers. "FOX Sports is in the storytelling business," said Mike Davies, senior vice president of field operations for FOX Sports. "We're using technology to convey stories and do it differently than anybody else."

Technology has the potential to attract audiences by giving them tools to see more of what they want. "People are going to demand customization of their broadcasts," Davis said. "Some may want to see a full-time strike zone, others may not. We're working to give them things like mixed reality, virtual reality, and augmented reality."



For the 2018 US Open Golf Championship, which took place at the challenging Shinnecock Hills Golf Club, FOX wanted to provide golf fans an entirely new experience – the ability to view the action in 4K, which has a much higher resolution, more realistic color, and higher frame rates. But transmitting ultra-high-definition video requires extensive bandwidth. FOX Sports required a network provider capable of streaming 4K video over 5G, the newest, most powerful generation of cellular networking.



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Director, Global Business technology
FOX Innovation Lab

Speed, responsiveness, resolution

FOX Sports chose AT&T’s 5G technology to stream 4K video from this year’s U.S. Open Golf Championship. 5G is engineered to greatly increase the speed and responsiveness of enabled wireless networks. The

technology allowed FOX to send the first 4K footage from a premier U.S. golf event.

For the first time ever, viewers were able to access the U.S. Open in ultra-high-definition video. The network used the powerful AT&T cellular network to send the live, high dynamic range (HDR) streams across the U.S. for viewing on DIRECTV. Two FOX Sports cameras positioned on Shinnecock’s tricky seventh hole shot the film, said Robert Powers, director of global business technology for FOX Innovation Lab.

“We captured 4K HDR content and distributed it over a 5G network, wirelessly, from the camera, to the production truck, to be streamed to our audiences,” Powers said. HDR technology makes images seem brighter and appear with more depth by significantly expanding the range of contrast and color. “AT&T provided the spectrum that serves as the foundation for all of the signals that we’re sending,” he added.

Viewing sports in brand new ways

Combining HDR and 4K technology enhances the resolution of video and provides more realistic color and higher frame rates. FOX Sports was proud to introduce the technologies to its viewers during the U.S. Open, allowing them to get closer to the players than ever before.

“FOX Sports has always been at the forefront of broadcast innovation, and 5G is very important to how we see the future of broadcast,” Powers said. “For an event like the U.S. Open, we needed a world class network operator like AT&T.”

Far beyond another “G” in the earlier 3G and 4G wireless generations, 5G represents a revolution in how sports and media are distributed and consumed. It provides entirely new ways for users to engage with an event. “It’s part of our FOX Sports DNA to aggressively explore evolving technologies as part of our live sports production,” Davies said. “This is exactly the kind of effort we consistently put into the leading edge of today’s technology, in preparation for what will become the industry standards of the future.”

AT&T used millimeter wave spectrum to deliver the 5G connection. The networking leader worked with FOX Sports to assemble the right set of technologies and the right set of subject matter experts. As a result, sports fans can get the content they want, with the ability to experience the championship almost as if they were in the crowd, but in the comfort of their own home.

Transforming premium content delivery

The 4K HDR transmitted by the AT&T 5G network from the U.S. Open is just the beginning of what sports fans can expect to see. 5G ultimately promises to transform the video experience. The high-speed and low-latency technology allows the cameras to move without being restricted by cables, creating a unique filming environment.

AT&T officials believe live sports will ultimately be transformed by 5G – whether it’s virtual and augmented realities for those watching from afar or using connected sensors to help analyze golf swings, wind conditions, and even the speed of greens for golfers.



In the future, 5G could possibly be used to deliver real-time virtual reality views from the golf course and endless other sports venues to viewers. Whatever the future holds, FOX Sports is determined to be at the vanguard of improving viewers’ experience.

“The FOX Innovation Lab was started 4 years ago for exactly this type of initiative – to test emerging technologies and bring them to life in real-world applications by working across 21st Century FOX and in partnership with leading technology companies,” said Danny Kaye, executive vice president and managing director for FOX Innovation Lab. “We are excited about the potential of 5G to transform the way we capture and deliver premium content to audiences.”

Supporting leading-edge technology breakthroughs requires a trusted team of partners. “FOX Sports seeks out innovative people to collaborate with,” Davies said. “AT&T and FOX Sports have been great together. Forging ahead with new technology like 5G is one of the things that I think we probably do best together.”