ADTRAN virtual Wireless LAN (vWLAN)
Provides Wi-Fi Coverage Across the Sochi Winter Olympics

About the Sochi XXII Winter Olympic Games

The XXII Winter Olympic Games were held in Sochi, Russia, in February 2014, with over 2,800 athletes competing. Visitors, media and athletes came from all over the world to attend.

The Challenge

With digital, broadcast and social media increasingly important to the success of the games, it was essential that Sochi have virtually unlimited bandwidth and an extremely reliable wireless network at the events, hotels and common areas. Additionally, the Sochi Olympic Committee wanted to live stream Olympic events at five stations throughout the city so visitors could see the latest happenings.

The Solution

New Systems Telecom (NSTel) deployed the ADTRAN vWLAN at the major hotels, venues and throughout public gathering places during construction of the Olympic infrastructure. APs and antennas created to fit the aesthetic design of the games were used for maximum coverage.

The Benefit

Visitors, media and athletes were able to seamlessly connect to the Internet throughout the city. Additionally, over 500,000 visitors watched events and concerts at the live stations throughout the city.

In February 2014, over 2,800 athletes from 88 countries came to Sochi, Russia, to participate in the XXII Winter Olympic Games. Spectators and media from around the world also attended the historic games, and over 1.1 million tickets were sold to the combined events. Sport fans unable to attend in-person were able to watch a new record of 102,000 hours of event coverage broadcasted on television and digital media. Social media played an even larger role in the Sochi Games than previous Olympics with 2.2 million new followers on Facebook and Twitter, and a total 7.7 million Facebook fans.

Reliable and Affordable Wireless Internet Essential for Olympic Games

With increased reliance on digital technology for the 2014 Winter Olympic Games, it was a high priority to provide fast and reliable wireless connectivity for media, spectators and athletes. With no existing infrastructure to support the event, hotels and venues were built from the ground up and technology was integrated into the design. Additionally, the committee wanted to provide a live digital broadcast of events throughout the city so that spectators in Sochi that were unable to secure tickets could watch the competitions. Athletes would also be relying on VoIP technology, such as Skype, to communicate with friends and family in their home country, making a high level of bandwidth support a requirement.

Three years before the Olympics, the Olympic Committee began investigating the best solutions for providing near unlimited bandwidth at an affordable cost. After reviewing multiple vendors, the committee decided that the ADTRAN® Bluesocket® vWLAN® cloud wireless solution would provide the scalability to connect hotels, open spaces and venues in a cost-effective way.

ADTRAN vWLAN Deployed in Hotels, Streets and Venues

One of the reasons the ADTRAN vWLAN was selected was for its ability to simplify the management of many simultaneous high-bandwidth video transmissions. ADTRAN's vWLAN virtualizes the centralized management and control function of wireless network architecture onto software, thereby removing 100% of the controller hardware and dramatically reducing the cost of deploying large-scale Wi-Fi® networks and significantly simplifying operations.

New Systems Telecom (NSTel) was contracted to install the new wireless network in Sochi and worked in conjunction with ADTRAN's customer support during the process. In 2012, the ADTRAN vWLAN was deployed in the Radison, Mercury, Golden Tulip and Heliopark hotels. During the 10 days of installation, Rostelecom—one of the largest national telecom operators in Russia and Europe and a partner of the Sochi 2014 Olympic Games—provided the transport network, power supply and equipment installation locations. These locations included routers, switches and ROADMs to ensure full network transparency. Rostelecom also provided engineering staff for managing the interconnection of the Wi-Fi network with existing Rostelecom infrastructure. Project management, engineering and seamless operations maintenance was provided by NSTel, and the installation was completed without any issues. The resulting network provided users with connectivity over a 25,000 square meter range and over 6,000 users could access the network simultaneously with a speed of 512 kbit/sec per user.

In addition, ADTRAN's vWLAN provides wired-equivalent performance to wireless users, with seamless roaming and enterprise-class security and policy management. The solution also allows individual sites to create unique portal authentica-

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tion settings for users. To provide coverage inside hotel lobbies, access points (APs) with built-in antennas were used, and visitors could access free Wi-Fi. Antennas were specially designed for this project to increase the radius of coverage– dual band 3x3 MIMO antennas with circular coverage. The design and colors of the antennas and installation fixtures were coordinated and agreed upon with architectural designers of the Olympic Village to fully comply with overall and individual building designs. Additionally, over 500 APs were installed along river banks of the Rosa Khutor settlement to increase connectivity.

After the initial project, the local ski resort also benefitted from the new and improved Wi-Fi network built on the ADTRAN vWLAN solution by installing additional APs in the mountain range. ADTRAN's vWLAN solution was also installed in the Sochi Ice arena, where the XII International Investment Forum was used as a test of the system's capacity and connectivity before the games. During the event, the ADTRAN vWLAN provided simultaneous connections for over 1,500 users and not a single user complaint was logged.

Providing Reliable Connectivity for Athletes and Visitors

Throughout the games the media, spectators and athletes were able to easily access the free Wi-Fi in the streets and hotel lobbies throughout the Olympic Village. Over 500,000 visitors to the XXII Sochi Winter Olympics watched the sporting events in real-time at one of the five Live Sites located throughout the city. These Live Sites provided a real-time transmission of the Games on huge screens that streamed coverage of fan gatherings, concerts and other public events. Seamless authentication was provided and users did not have to re-login when traveling between the venues and hotels. The connectivity was exceptionally reliable, and allowed both visitors and athletes to check e-mail, surf the Internet and video chat with loved ones back home.

NSTel isn't finished building out its Wi-Fi network, either. The company has plans to continue to expand the network and add more connectivity for Sochi and its future visitors.