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Integrator Tasked With Challenging Video Surveillance Project

By Brian Albright, Field Technologies / January 14, 2015

Successfully deploying an ad hoc wireless video network helped forge a long-term relationship with a major marathon.

Setting up an outdoor situational awareness push package and surveillance system is generally pretty straightforward: You place enough cameras to cover the area you need to secure, make sure the network connectivity and power supply are solid, and turn on the monitors. But setting up a similar camera solution for a nearly 30-mile urban marathon so organizers can keep an eye on the course and spectators can watch via a jumbotron is another story altogether.

That was the task faced by VIRSIG, an integrator specializing in network performance monitoring and IP physical security solutions. The New York Road Runners (NYRR), the organization that manages the TCS New York City Marathon, was looking for a way to set up a network of cameras that would push live video back to the race command center and provide video feeds to the jumbotrons.

Cellular coverage is generally spotty on the day of the marathon, because of the large number of people using their phones in the area, and other open radio frequencies are utilized or blocked during the event. That makes setting up a wireless video solution more complex.

Race organizers wanted live viewing of areas of the race (at the start of the race, and particularly around Central Park where the race finishes and medical staff have to assist the runners) where there was no existing network.

For the project, NYRR originally approached Firetide, a provider of wireless mesh network products. Firetide then contacted VIRSIG about working with it to design and deploy the surveillance system.

Partnering For A Wireless Mesh Network

VIRSIG collaborated on the installation with Centennial Security Integration, a New York-based security integration company. A month before the race, VIRSIG sat down with the race organizers, police, and other agencies to determine best placement for equipment. Installation began the week of the marathon.

VIRSIG had to engineer a way to install wireless network equipment to send video feeds along 25 blocks at Central Park West. The video system included Sony IPELA surveillance cameras and a wireless mesh network from Firetide, which were bench tested just days before the race. The cameras, antennas, and wireless nodes Subscribe to Business Solutions magazinewere installed along the marathon route. VIRSIG worked with the NYC Department of Transportation to ensure the equipment could draw power from the poles.

“We had to pick frequencies that weren’t going to be used by police and safety,” Taylor says. “With Firetide, we could create a secure mesh network that was self-healing (that can continue to operate when one node goes down), and we provided redundancy and back-up for the jumbotrons.”

VIRSIG installed infrastructure cabling with spans of more than 3,000 feet across open space at the marathon’s starting point at Ford Wadsworth in Staten Island. It provided close to four miles of communication cable used for the surveillance cameras, voice annunciators, and media broadcast and digital signage, along with the jumbotrons. The system included transmission equipment from Network Video Technologies (NVT TBus Ethernet Transmitters) for Ethernet-over-coax.

VIRSIG deployed commercial-grade monitors in the race command center, along with a Seneca viewing station to control tactical camera operations, and a redundant Seneca xVault server off-location at the marathon’s network trailer. Firetide Hotview Pro software was used for setup and monitoring of the network. VIRSIG used Milestone Systems Xprotect video management software to control the surveillance system. The software allowed up to 36 simultaneous camera views in the command center.

The network of cameras along Central Park West was used to observe and evaluate the crowds in the park at the end of the race. A camera at the finish line recorded every participant’s crossing, while another was used to monitor the post-finish area where medical staff tended to the runners.

During the race, organizers also used Milestone Systems’ mobile client to push video from smartphones to the command center and the VIRSIG viewing station. In fact, when unusually high winds caused power and communications issues, staff was able to push video from mobile phones back to the jumbotrons. The Sony cameras, meanwhile, were able to provide sharp images even after dark when the race finished.

Other large events and marathons have reached out to the company based on their experience with the New York Marathon. “It’s a nice client to reference,” Taylor says.