

Protecting Public Safety at Large Sports Complexes

How hybrid solutions are giving security operators the best of analog and IP

By Milind Borkar
Infinova

Security at Sports Complexes was brought to the forefront of public attention last month when the U. S. Department of Homeland Security and the FBI issued an intelligence bulletin to law enforcement agencies alerting hotels and sports complexes to review their security procedures.

"While DHS and FBI have no information regarding the timing, location or target of any planned attack, we believe it is prudent to raise the security awareness of our local law enforcement partners regarding the targets and tactics of previous terrorist activity."

A DHS spokeswoman said in a statement.

Public Safety at Large Sports Complexes

Protecting public safety from terrorist attacks at large public facilities has always been a high priority for law enforcement agencies globally. Sports complexes are a particular concern because of their open nature and their many thousands of daily visitors. This article describes how Infinova implemented a hybrid solution (analog and IP working together as a single system) for the security and surveillance system that protects the Nanjing Olympic Sports Center, a national sports complex in Nanjing, China.

Nanjing Olympic Sports Center

The Nanjing Olympic Sports Center is one of China's largest sports facilities, this site covers 90 hectares and was host to China's 2005 10th National Games. The sports complex consists of several best-in-class public sports venues including a large multipurpose stadium with a capacity of 80,000, an indoor gymnasium with a capacity of 15,000, an aqua-center with 4 pools and a tennis center with 20 professional courts, plus a technical operations center and related facilities.

The security team had multiple project requirements for the video surveillance system including scalability, high reliability, precise camera control, and a robust architecture. The security system they selected was designed utilizing Infinova's ruggedized hybrid technology including Networked Matrix Switchers, PTZ dome cameras, fixed cameras and fiber optic transceivers.

A Hybrid Solution, Analog for Video, IP for Control

Infinova's unique security architecture based on a distributed Matrix Switch control over Ethernet (IP) contributed significantly to system reliability. The Matrix Switchers are controlled via Ethernet, enabling the creation of a distributed network of Matrix Switches throughout the entire sports complex. There is no "Master" matrix switch that can become a single point of failure for operator control. These Video Matrix Switchers incorporate advanced



Video Loss

Detection on each input to automatically monitor video signals and issue an alarm if the video camera fails or the video cable is cut by vandals.

The main stadium is equipped with two Matrix Switchers and the two other remote locations, the Tennis Center and Aqua-Center, each have a Matrix Switcher that are linked together in a hierarchy of switchers through a fiber optic backbone. Each switcher transmits video back to the Central Matrix Switcher in the Central Control Room where operators view and control the system. The Matrix Switchers are controlled over the network by sophisticated surveillance software that includes electronic maps of the facility for "click to view" functionality.

Multiple cameras are installed through-out the complex and are controlled by operator keyboards or Video Management Software. The keyboards can uniquely communicate with the Matrix Switchers over the network or via a direct RS-232 connection. This provides an additional level of flexibility in how operator stations are configured.

Overview of System Design

Each Sports Center is a long distance from the Central Control Room, so the designers selected Infinova Fiber Optic Transceivers to connect all the Matrix Switchers together. An additional advantage is that fiber optics provides excellent protection against lightning because electrical interference from a lightning strike does not affect fiber optic cables. This leads to increased operational reliability for the surveillance system. Plus from a financial point of view, using a single fiber for multiple cameras resulted in a significant reduction of installation cost over traditional coax cable.

Given the diverse size and location of the complex, the system had to be flexible, highly reliable and provide excellent quality video. To achieve this, solution designers opted for straight analog video from Infinova's ruggedized PTZ Dome cameras directly viewed and controlled through Matrix Switchers. Using direct control guaranteed the video quality required and as well as the best real-time PTZ control of the cameras. Security operators have precise PTZ control with no noticeable delay between the time they move their joystick and the time the camera responds.

A Best-in-Class Solution using Infinova's Hybrid technology

The combination of analog video, fiber and Ethernet as a hybrid solution allowed the best technology to be combined to create a best-in-class solution for the sports complex. Fiber provides crystal clear video while the distributed robustness of Ethernet allows for problem free control. Even though they chose an analog solution, because the Infinova Matrix Switchers and Keyboards are hybrid technology, being IP enabled through their Ethernet ports, they did not have to give up the advantages of IP technology.

About Infinova

Infinova is a high-end security manufacturer of complete solutions with industry-leading customer service. We manufacture our products at Infinova facilities under strict production and quality controls that are certified to ISO 9001:2000 standards.

By complete solution we do not mean proprietary. From the control room to the cameras Infinova designs and manufactures security products that are compatible with the leading brands in the industry creating a best-in-class solution for our Channel Partners. Under our complete solution approach, we are responsible for the technology, quality and reliability of the solutions we deliver. Our Channel Partners have one vendor to work with, Infinova.

Infinova is an industry leader in customer service offering our Channel Partners advance replacement with 24-hour repair turnaround. As a manufacturer we have the flexibility to customize a solution to meet their business needs precisely, both hardware and software.

Learn more at www.infinova.com.