

Super Surveillance

by By Scott Goldfine

Whichever two competitors square off at Dolphin Stadium Feb. 7 in sports' greatest spectacle - Super Bowl XLIV - each will have epitomized the concept of teamwork in their quest to capture the NFL's Lombardi Trophy. This will be plain to see for the 75,000+ fans in attendance and some 100 million watching on TV. Not nearly as conspicuous yet critical to the enjoyment and safety of all is the equally cohesive teamwork behind the event's video surveillance system.

The key players on this team are Aware Digital, Sony Electronics Security Systems Group and the Miami Dade Police Department (MDPD) Homeland Security Section, in conjunction with the FBI and Miami Dade County Fire Department. The systems integrator, manufacturer and first responders have forged a special partnership dedicated to designing and deploying the best possible solution to ensure smooth operations in and around the stadium, which also hosts the Pro Bowl on Jan. 31.

"The system will provide added situational awareness for law enforcement on the stadium grounds as well as offsite to many different agencies," says Joshua Mann, president of Miami-based Aware Digital. "The system will be used for inbound and outbound traffic control, incident management and overall force multiplication."

The project entailed digitally encoding the stadium's existing analog cameras, converting them into IP and adding standard and high definition (HD) IP pan/tilt/zoom (p/t/z) and rapid deployment cameras using wireless transmission. These cameras will be augmented by the venue's approximately 200 existing IP cameras. It was critical to bring all the feeds into a centralized video management system (VMS) so everything that transpires will be readily available for live viewing and/or review by stadium security, MDPD and other responders and emergency management agencies.

"This solution was requested in order to provide the absolute highest quality video coverage and deployment flexibility for the Super Bowl, a worldwide event," says Mann. "Our company offered extensive experience with rapid deployment cameras, and the Sony HD cameras and encoder products, as well as integration of outside feeds to provide a single situational awareness platform."

That awareness will help authorities mitigate anything and everything from crowd control to potential terrorist activity - a heightened threat for this type of event ever since 9/11. If all goes off as planned, Miami will have successfully, and safely, served as the site for a record 10th Super Bowl.

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Integrator Partners With Police

To say extensive planning and preparation goes into orchestrating an event of this magnitude would be an understatement. The site is selected four years in advance, and groundwork for the security component is laid out soon thereafter.

"The project was thoroughly planned through coordination of Miami Dade Police Department's



Homeland Bureau, Miami Dade Fire Department and the Super Bowl Security Coordination Committee, which is comprised of police, fire, emergency management and other federal agencies," says Mann, whose company specializes in integrated solutions using IP video, wireless and mesh security technologies for commercial, gaming, government and law enforcement customers.

Aware Digital's extensive experience working with public agencies in Miami Dade County, and other local and state agencies

and municipalities worked to its favor. The integrator bid and was awarded the Super Bowl project by MDPD, which allocated some its own budget as well as grant proceeds to fund the initiative.

For Aware Digital, a big part of its success can be attributed to relationship building. In this case, it is something the security contractor had been cultivating with MDPD for some time, having provided equipment and services several times prior.

"We have worked with Aware Digital for more than two years now. They have always helped me out whenever I needed anything for other events such as the Miami Dade County Youth Fair," says Detective Juan "Johnnie" Villalobos, a 23-year veteran of the force who is coordinating the department's surveillance system efforts for this event.

According to Mann, his company has recently seen a particularly strong opportunity in collaborating with law enforcement to leverage advanced security solutions as a means to fortify crime-fighting efforts.

"The role of technology is growing in all aspects of law enforcement. Cutting-edge solutions allow our men and women on the front lines to perform their jobs better and more efficiently, as well as be in more places at the same time," he says. "The key is understanding the actual, in-the-field needs of law enforcement and creating solutions that are complex yet easy to use."

In addition to having its finger on the pulse of law enforcement, Aware Digital has established a track record of providing services for large-scale events involving as many as 100,000 or more people. Among the firm's recent credits are the NASCAR Championship in Homestead, Fla., Wings over Homestead Air Force Air Show and National Mayor's Conference.

Solution Ties It All Together

The municipal/law enforcement market poses unique challenges in



Aware Digital Director of Tactical Field Operations Adan Canuelas (left) and President Joshua Mann (right) discuss the surveillance system plan with MDPD Detective Juan "Johnnie" Villalobos on Dolphin Stadium's field. Miami is hosting its 10th Super Bowl.

providing the right solution for the many different missions of the various agencies. These challenges are further compounded when several different agencies require video surveillance images through a range of delivery mediums. Such was the case for Super Bowl XLIV, which necessitated a keen blend of technology and coordination.

"Video from many different sources, including analog, IP PTZs, microwave, mast-mounted cameras and more, has to be consolidated and distributed out to many different locations and in many different formats such as Mac, PC, flash, iPhone, etc.," says Mann. "Aware Digital is providing solutions to not only distribute these feeds but also to bring in additional outside feeds from other agencies and devices."

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In a nutshell, the mission was to design a solution that would provide the best quality and highest frame rate to all the agencies involved in the most flexible and efficient manner possible. To achieve this, the integrator and end user selected Sony IP cameras and digital encoders, OnSSI's VMS platform and recording software, with BridgeWave Communications supplying some of the wireless gear. The FBI, however, is using a Milestone VMS.

As it does on many projects of this scope, Sony worked closely with Aware Digital and MDPD to provide technical expertise and consultation. The project incorporates SNC-RH164 HD IP p/t/z cameras, SNC-RX550 standard definition (SD) IP p/t/z cameras and SNT Series SD IP video encoders.

Among other features, the integrator and end user were impressed with the equipment's video quality and real-time frame rate of 30 images per second.

"Our new HD p/t/z cameras being deployed at Dolphin Stadium incorporate proprietary Sony technologies such as XDNR dynamic noise reduction and Visibility Enhancer for scene contrast optimization," says Miguel Lazatin, senior marketing manager for Sony's Security Systems Group. "Combined they improve overall picture quality, increase sensitivity and make scenes more visible, especially in low light. These technologies and 10x optical zoom of our SNC-RH164 HD cameras are extremely critical when capturing incidents at long distances, and in densely populated environments such as the Super Bowl."



Aware Digital's Joshua Mann (left) and Adan Canuelas install one of the project's Sony SNC-RH164 high definition pan/tilt/zoom cameras. Many of the cameras are semi-permanent in that they can be easily deployed as events dictate.



In all, 290 cameras will watch over Super Bowl XLIV at Miami's Dolphin Stadium. Selected existing analog cameras (inset) will be converted for digital transmission via Sony encoders and fed to the many agencies attending to the big game.

The stadium's expanded surveillance system is a semi-permanent installation that allows for quick deployment, removal and redeployment as needed for future events. As such, cabling and mounting equipment is permanently installed and select cameras are added when warranted.

Crowd Control Is Critical

The parking and general public areas surrounding Dolphin Stadium as well as multiple traffic spots will be covered by the IP p/t/z cameras. Selected cameras from the venue's interior are being integrated via multiple microwave downlinks that flow into encoders to be redistributed, with some feeds routed to mobile devices and even helicopters. In addition, the live game TV feed will be integrated into the surveillance/situational awareness platform.

"The system will be monitored from a command vehicle and multiple other agencies during the Pro Bowl and Super Bowl events," says Mann. "This will be connected back to the stadium cameras using a gigabit millimeter wave wireless link by BridgeWave Communications."

The installation itself required placing cameras where they could provide the best possible vantage points for monitoring the tens of thousands of fans, VIPs, facility staff, vendors and the teams and associated personnel. This meant mounting them in some extreme locations, including on top of the scoreboards.

"The NFL is very concerned about crowd control. They want to make sure that people making it to the Super Bowl get there as quickly and as safely as possible," says Villalobos. "There is a tailgate party between 1 p.m. and 5 p.m. that's also an event where we will need to get people inside as quickly as possible."

Aware Digital is making sure MDPD is thoroughly trained on operating the sophisticated surveillance solution well before the big game. Villalobos is excited about the system's capabilities and eager to take full advantage of them.

"Sony covers all the features that we would use and what we would need," he says. "Their cameras provide an analog and an IP option, which is a big plus. I also like features like day/night, being able to put the cameras on a schedule, the ability to zoom in, the aspect ratio, remote monitoring; it's just got so many great capabilities. And HD for security is amazing, especially for identifying people."

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Surveillance Part of Bigger Picture

It has been demonstrated time and time again that the most effective security involves a layered approach encompassing many different but well coordinated practices and systems. It's all those vital pieces that add up to create a truly comprehensive solution. As such, video surveillance is only one aspect of the Super Bowl's multipronged plan.

"The stadium is going to have intensive security checks as fans enter. Women can bring in their purses but there are no



umbrellas, no backpacks, etc.," says Villalobos, who worked with the NFL on previous Super Bowls in Miami. "All delivery trucks will be thoroughly searched and their drivers screened."

That truck screening area will be equipped with three Sony cameras to capture license plates and an overview of the parking area.

"We are going to set up a command bus in the Public Safety Village this year," says Villalobos. "The fire department is setting up a compound for agencies providing assistance to the fire and police departments."

Ultimately, some instances of drunk and disorderly conduct, fights, theft and the like have to be anticipated in and around a scene such as the Super Bowl. However, the enacted measures should keep them to a minimum and lessen their severity. Beyond that, it is of the utmost importance to be on high alert and ready to swing into immediate action should greater threats arise.

"Obviously, we are doing a lot of this to prevent any type of terrorist act. We are on the watch for anything that could possibly endanger the fans," says Villalobos. "MDPD looks forward to putting the technology into practice at one of the largest security events in the world."

Although they will not get to spike a football after scoring a touchdown, hoist a trophy high above their heads or shout "I'm going to Disney World!" the security team of Aware Digital, Sony and MDPD will nevertheless share in all the glory thanks to their own super security triumph.



Aware Digital technician Adan Canuelas places a Sony SNT-RS3U chassis equipped with SNT-EX154 encoder blades (inset) into an equipment rack while Detective Juan "Johnnie" Villalobos interfaces with the system. The solution records at 30 frames per second.

Super Bowl Fast Facts

- Green Bay defeated Kansas City 35-10 in the first Super Bowl in 1967
- New Orleans and Miami have hosted the most (nine)
- Pittsburgh has won the most (six)
- Longest winning streak is two (held by seven teams, Pittsburgh twice)
- Minnesota, Buffalo and Denver have lost the most (four)
- Mike Ditka, Tom Flores and Tony Dungy have all won as a players and coaches
- In 1981, Oakland's Rod Martin set a record with three interceptions
- In 1989, San Francisco receiver Jerry Rice had 11 catches for 215 yards

- In 2000, St. Louis QB Kurt Warner passed for a record 414 yards
- In 2009, Pittsburgh's James Harrison had the longest run with a 100-yard interception

Super Bowl XLIV Equipment List

Manufacturer	Description
BridgeWave Communications	AR80 millimeter wave radio
OnSSI	NetDVMS
OnSSI	Occularis video management software
Sony	SNC-RH164
Sony	SNC-RX550
Sony	SNT-RS3U encoder chassis
Sony	SNT-EX154 encoder blades

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