The Tuolumne Band of Me-Wuk Indians Partners with Surveillance Systems Integration to Upgrade Video Surveillance System in Phased Project

Avaya Fabric Connect technology and Virtual Service Platform with SPB protocol manages network traffic at Black Oak Casino Resort

By: Todd Flowers, President, Surveillance Systems Integration

In beautiful Tuolumne, California, set in the scenic Sierra Foothills of the Sierra Nevada mountains, an area known for its history in the timber industry with the remnants of logging operations still visible, sits the Black Oak Casino Resort, owned and operated by the Tuolumne Band of Me-Wuk Indians. Greeting guests with the traditional native welcome of "M-Chucksus!", the Black Oak Casino Resort provides 164,000+ square feet of gaming and entertainment options: a conference event center, reel and video slot machines, table games, poker, nine restaurants and bars, a bowling center, players club, gift shop, a kids' arcade, and an entertainment venue, the Willow Creek Lounge, which hosts live entertainment three nights a week. The casino also features the state's largest smoke-free gaming area. "We aim to offer our guests a resort destination for the whole family," says Edewaa Ti Foster, the Commissioner and Vice Chair of the Tuolumne Me-Wuk Tribal Gaming Agency.

Providing an environment where there are activities for all age levels, protecting the physical safety of its patrons, employees and others in the gaming facility as well safeguarding assets that are associated with the facility is not an easy task, and the type of surveillance security employed at the Black Oak Casino Resort becomes a top priority. "With a property as large as the Black Oak Casino Resort and with so many various activities, keeping an eye on assets and balancing that with creating a safe environment is definitely a challenge," said Todd Flowers, President of Surveillance Systems Integration (SSI), based out of Roseville, California, the company selected to manage the project.

The Black Oak Casino Resort, operating in Tuolumne since 2001, recently decided that it was time to upgrade its existing surveillance system to keep up with the changing needs of its facilities. "The surveillance system we had just felt dated, and we kept hearing about newer technologies, like full virtual matrix systems that could handle the volume of network traffic that is usually associated with such high resolution images that the latest security surveillance cameras provide," Foster said. "We knew we needed a partner that could help guide us through the new technology, make recommendations, and work on our project in phases to avoid causing any disruptions in the services."

"Working with the Tuolumne Me-Wuk Tribal Gaming Agency, we could immediately see how the property could benefit from an upgrade that would include a new video management system as well as cameras, servers and a new control center to especially be more efficient in covering the onsite casino hotel and gaming floor, and eventually expanding to the exterior sites, such as the parking lots," added Flowers.

The primary goals for Black Oak Casino Resort were to switch to high definition cameras, enhance the virtual matrix capability, provide a migration strategy and the equipment to upgrade to a full internet protocol (IP)-based system, and transition in a way that would be easy for the security staff to adopt. The initial project was to be done in phases over a period of 15 months.

"We started with replacing the existing standard definition analog cameras with over 400 new high definition (HD) fixed cameras, along with HD, 1080P PTZ dome cameras," said Flowers.

High definition cameras offer security surveillance employees and law enforcement officers superior access and use of video surveillance, with more detail and wider coverage, especially helpful for video review and identification purposes. Although HD images are larger and would naturally take more bandwidth, and possibly clog up the IT infrastructure, there have been advancements in the handling of IP-based data streams, using unique data routing protocols, and advanced codecs, like H.264, are able to compress the video and audio for transmission with significantly less bandwidth burden.

In addition to the new cameras, SSI also removed the existing legacy analog video matrix that provided live video and control of the existing analog pan/tilt/zoom (PTZ) cameras and replaced it with the latest Pelco Endura 2.0 Video Management System (VMS). The change was made to allow full virtual matrix capabilities (one of the property's primary goals) as well as analog PTZ control in a complete network environment. This upgrade provided a seamless migration to the new system while allowing the security staff to maintain full control on the existing legacy analog cameras; more importantly, it created the platform that would allow the addition of new high definition IP cameras.

As part of the upgrade, the Black Oak Casino Resort also had to consider how the new IP-based HD video would impact their storage of the surveillance footage. In the phased migration, new Pelco 36 TB network storage managers were installed to replace the legacy network video recorders (NVR). "By replacing the existing storage with a new NSM5200-36 network storage manager, we allowed existing MPEG4 encoded video streams from analog cameras in the system to be recorded on the same platform as the new high definition cameras that stream using the more efficient H.264 protocol. In addition, we could also eliminate single points of failure so that the system could operate without interruption, and allow the recording of multicast data streams," said Flowers.

"We didn't stop with just the cameras, storage, and VMS," Foster reflected, "we felt a true upgrade wouldn't be complete without enhancing our surveillance room, too."

The surveillance room was upgraded with a new video wall that included 20 46" class LED monitors, three 24" LED monitors and a 70" class LED monitor. The video wall monitors are driven by Pelco NET5402R-HD video decoders. Seven operators have a VCD5202 video console display and KBD5000 series keyboard to view live and recorded video at each operator desk. SSI also provided additional video console displays, Endura Workstations and monitors for various personnel outside of the main surveillance room thanks to the upgrade to a full virtual matrix.

SSI chose Avaya's Fabric Connect technology and Virtual Services Platform. Avaya Fabric Connect combines the best of Ethernet and the best of IP-technology, which enables the deployment of layer 2 and layer 3 virtualized services with optimized routing and multicast. The solution included a fully redundant 10-gigabit mesh network connecting the virtual services platforms. This simple-to-deploy network provides full system capability and easy future expansion opportunities.

"In order to properly deal with the tremendous amount of network traffic on this state-of-the-art IP video system and help the property realize the full potential of their video surveillance equipment, we chose Avaya Fabric Connect technology built on IEEE and IETF SPB protocol. This standards-based solution eliminates the complexity and limitations of traditional network offerings, and offered us the flexibility we needed to complete the full virtual matrix and accomplish the goals initially presented to us by the customer," Flowers said.

"Despite the challenges that we knew the upgrades would present, we were extremely pleased with the advanced awareness of retrofit needs and knowledge of new technologies, not to mention the professional way that SSI exceeded our expectations in their service," Foster commented. "The team, including Avaya, really stepped up to the plate and helped us to finish the project in the allotted time and to our satisfaction."

In concluding the current project, Foster had one last thing to say:
"We are proud of all the work our surveillance and security staff members do, and we know that technology plays a big part in it. While security surveillance is usually recognized as the dome cameras you see in businesses, these systems go well beyond the walls of the facility and are critical in helping us provide our guests with a safe and consistent experience while they are at our property. It took a "power team" to produce a power system and I am very proud of the end result! Thank you SSI, Pelco, Avaya and our TGA surveillance and surveillance tech teams."

For information about Surveillance Systems Integration, please visit www.ssicctv.com or contact Todd Flowers, President, at (800) 508-6981. For more information about Black Oak Casino Resort, please visit www.blackoakcasino.com.