Texas Prisons Migrate to Network Video

By Michelle Lyons, Public Information Officer,
Texas Department of Criminal Justice, Dec. 15, 2011,
as downloaded by Michael G. Maness on January 1, 2015. [1]

Because funding to upgrade to newer technologies is difficult to obtain, many prisons across the United States still use older, analog, even black-and-white video systems that don't archive, so no evidence is produced despite the availability of options providing far superior performance. The Texas Department of Criminal Justice (TDCJ), which is embracing the latest IP-based video technologies to enhance surveillance within its prisons, has demonstrated the value of investing in state-of-the-art surveillance technology.

An incident in 2008 highlighted the need to increase security, especially related to contraband inside Texas prisons. A death-row inmate used a smuggled cell phone to make calls from prison to State Senator John Whitmire, D-Houston. Senator Whitmire chairs the Texas Senate Criminal Justice Committee and helped facilitate availability of state funding to install security systems to help prisons deal more effectively with the issue of contraband.

There are 112 prisons across Texas housing about 156,000 offenders statewide. While many facilities have camera systems, the sophisticated new video surveillance systems have been installed in three prisons - the Allan B. Polunsky Unit in Livingston, Texas; the Mark W. Stiles Unit in Beaumont, Texas; and the Darrington Unit in Rosharon, Texas. Additional new video surveillance systems may be rolled out in the next five to ten years in Texas prisons, contingent upon funding. "Video surveillance is not a new concept in the correctional environment, but technological advances offer opportunities that cannot be ignored to further enhance security, increase staff and offender safety and combat contraband," said Brad Livingston, TDCJ executive director. "In my opinion, the comprehensive video surveillance system in use at several TDCJ facilities represents an effective application of the latest technologies and is making a significant contribution to security and safety."

Sigma Surveillance (STS), Plano, Texas, is designing and installing the new systems from and has also installed a full network infrastructure because prisons are not wired for any

The Polunsky Unit of the Texas Department of Criminal Justice Correctional Institutions Division is the location of Texas' Death Row; the A Tower in the background is located nearest to the front gate and has a Sony PTZ camera.

Cameras such as this vandal-resistant fixed dome (top of photo) provide an "eye in the sky" to help Texas prison wardens see their units like never before, which has dramatically increased control.

Panasonic WV-NW502S 3 megapixel cameras view all areas of the perimeter fence; the Polunsky Unit Administration and Death Row buildings are visible through the fence.

OnSSI's Ocularis software provides easy access to multiple views of the entrances, buildings, walkways and the perimeter at the various prisons of the Texas Department of Criminal Justice Correctional Institutions Division.

---

[1] Only modification was to capitals in title and sub-titles, and color for sub-titles.
See www.SecurityInfoWatch.com/news/10534358/texas-prisons-migrate-to-network-video. Do compare with STS360's VP Jessica Clark's 2013 article http://security-today.com/Articles/2013/09/01/Behind-the-Bars.aspx.
    See www.PreiousHeart.net/OIG/Clark-2013.pdf and www.PreciousHeart.net/OIG/Lyons-2011.pdf, in case any of the primary sources change the original addresses to the articles.

networked technology. Fiber optic cable was installed at every single building on the installations so far, as well as at every perimeter post and guard tower. To date, Sigma Surveillance has visited other prisons as well to design and engineer future systems in order to provide TDCJ with the ability to budget for future expansions. During the fiscal year 2012-2013 biennium, TDCJ will expand the use of surveillance systems at two to three additional prisons. Additional future upgrades are contingent on available funding.

The new IP-based systems at the three facilities use the Ocularis video management software system by OnSSI with over 2,000 Panasonic network cameras system wide to capture detailed video of everything that happens within the prison walls, making it available to wardens and other prison staff. Wardens are now accustomed to using the system as part of their everyday routine and have captured video of assaults on staff and offenders as well as other incidents. The systems also allow them to give accolades to prison staff members who are witnessed via video as they do the "right thing."

The Panasonic cameras have been used to investigate contraband such as drugs, cell phones and money drops inside the prison. The system catches the "drop" and provides evidence to corroborate the incident. They have also been used to prove cases in criminal and administrative proceedings.

Wardens value the ease of use of the Ocularis system. Simplified interfaces do not take a lot of space on the monitor screen, and the staff appreciates the search features, especially the motion searches. On playback, prison staff can use the "little blue box," a feature that enables them to designate a specific area on the screen and identify on playback when there is motion within the box. The Panasonic cameras deployed consist mainly of WV-NW484S and WV-NW502S fixed dome network cameras. Together, these cameras deliver high-quality video in virtually any lighting condition to deliver clear and continuous coverage of activities within the prison system.

Tim Simmons, senior warden, Polunsky Unit, sometimes uses the system to establish when an item became missing by accessing archived video to browse back to a point when the item was there. "I can highlight the item [with a blue box], and 'smart search' will look through the video and freeze when there is movement in the area. There is a timeline on the screen, and you can see exactly what time a certain door was opened."

Systems Installed in First Three Prisons

Allan B. Polunsky Unit is a 472-acre maximum-security prison that houses about 2,900 offenders at a range of custody levels including maximum security and death row. Originally designed to house 2,250 offenders, the Polunsky unit has been expanded with the addition of dormitory buildings. The prison encompasses a total of 19 buildings, including a medical and education facility with a standard library and a legal library, a supply warehouse, four general population chow halls, one officers' dining room, a laundry room, an administration building, a maintenance building, a vocational facility, and two gyms that are also used as chapels. The facility also includes a tree farm and a dog kennel. Security for the Polunsky Unit includes video coverage of every building and every walkway as well as the perimeter. Aiphone video intercoms are also installed on the premises to provide efficient and easy communications with the correctional staff. Warden Simmons confirms the system makes him more efficient and enables him to evaluate various aspects of the facility more quickly and thoroughly.

Another prison whose video system has been upgraded is the Mark W. Stiles Unit, which was also originally designed to accommodate 2,250 offenders and also now has additional dorms

to serve a current occupancy around 2,900. Stiles has about 20 buildings, including a separate chapel.

Richard Alford, senior warden at Stiles unit, has used the video system to monitor and critique his staff's response to unit emergencies. "You get a minute-to-minute response to suicide attempts and things of that nature," he said. Such incidents require an administrative review, and the video provides a valuable tool. Alford also says the system helps to quickly dismiss false offender complaints without merit- the video can easily prove if complaints are unfounded.

Darrington Unit, where video system installation is also almost complete, is a very old high-security prison, built in 1930. It is made up of a single building (in contrast to the multiple buildings and campus setting of the other units). Darrington houses about 2,000 offenders and uses about 490 cameras.

The advanced video system provides an advantage for prison wardens to help reduce incidents of contraband, gang activity and other challenges unique to a prison environment, as well as increased productivity and safety.

"Without the video you have to do more questioning and investigative measures to find out what occurred," said Brenda Chaney, senior warden, Darrington Unit. There are times when you can't get to the bottom of what occurred (without a camera). If there's a fight - who was involved? When security comes, they spread out, but with a camera you would see who's involved. With a camera, you've got them."

In each installation, the fiber infrastructure includes a 10-gig backbone and 1-gig horizontal to smaller network rooms. Each cable pull has 12 fiber strands, which allows plenty of dark fiber to add future bandwidth. "We were cognizant of the need to facilitate the future expansion in all areas of the units, so as to avoid costly expansions in the future in order to continue to take advantage of the latest security trends," said Jose Garza, CCNP, technical project manager of STS. "Upgrades will be simple and an absolute given in the future course of high security vigilance."

The fiber is underground out to the perimeter but runs when necessary along and inside buildings, protected by a 4-inch, rigid conduit. Fiber connects to six main hubs (network rooms), which include server storage and there are 23 intermediate distribution frame (IDF) locations.

HP ProLiant DL320 servers are used to run the Ocularis 2.0 software, and ProLiant DL380 servers are used for recording using OnSSI's IS software and for initial temporary archives. Each NetDVR server runs 50-plus cameras, which takes a lot of processing power, so Ocularis, the "brains" of the system was assigned its own server. The storage array includes network-attached storage (NAS) [HPX160, two at each unit] and direct-attached storage [HP StorageWorks D2600 DAS Hard Drive Array and HP MSA60]. The servers and workstations are HP, and HP switches are used throughout the network rooms. Each unit has 16 servers used as network video recorders (NVRs) and one Ocularis server. The system can record continuously for 20 days, 24 hours a day, seven days a week, full streaming at all times with no motion-based recording in order to prove when things "don't happen" as well. This is a unique prison need to immediately disprove a falsely filed complaint against an officer and reduce the agency the cost of lengthy investigations. PowerDsine mid-span injectors are used to provide Power-over-Ethernet, a less expensive option than PoE switches.

STS made an extra effort to distribute video archiving across multiple servers and NAS attachments for cameras in each single pod. Therefore, cameras in the same area are archived to different storage areas to ensure continued redundant coverage. The approach merely involved extra planning up front and attention to mitigating a possible risk.

In a challenging environment like a prison unit, TDCJ officials realize that no one tool is the solution. "The video surveillance system is another means at our disposal. We'll continue to look to technology, combined with other security measures, as a way to enhance the safety and security of institutions across the state of Texas," said Livingston.

How Staff Use the Systems

In administration at each prison, there is a senior warden and two assistant wardens who have full rights to view the system in their offices. Two majors (three at Stiles) have full rights as well on HP workstations. The senior warden has a 42-inch screen, and everyone else has 19-inch monitors on their desks. Also, a 42-inch monitor is located in an administrative conference room. If an event occurs in the unit, the conference room becomes a command center with more space for team members than a single office.

Video monitors are also located at various "pickets," which are enclosed locations protected from intrusion, where operators can control doors and have keys to certain areas. The 'line control' pickets have a 42-inch monitor and have access to everything on the system except the ability to export video. In the death row building at the Polunsky Unit, a control picket has four 20-inch monitors to push video, and in one of the pods, a 20-inch monitor has rights to view in cell cameras. Inside dormitories, each picket has four 20-inch monitors and has the master stations for the Aiphone video intercom. Ocularis provides a push event when an intercom button is pressed.

Each workstation is located within a lock box for security purposes. Operators can only access the keyboard, mouse and monitor. There is also no access to any of the network rooms, and racks are secured with locks.

Simmons tells about a missing key that an officer said he turned in but which was not recorded by the control picket. Retrieving the video showed that, when the control picket officer had answered the phone, the phone cord had knocked over a clipboard and made the key fall from the desk into a trash can. Through the video, the key was found and helped to avoid the need and expense to switch out the locks opened by the missing key.

Alford uses the system not just as a reactionary tool but as a proactive tool, monitoring traffic flow, counting and search procedures. He sees a continuing and increasing role for video in training his staff. "If I see someone violating a policy, I can download the video and take it to shift turnout and tell them 'this is not what we need to do.'" Shift turnout is a 30-minute meeting before a new shift comes to work when various issues and training are discussed.

Training uses can also extend to the 40 hours of in-service training required each year. Important points can be illustrated using video of actual events. "I can go back and show them, this is reality, and this is the event in real-time," said Alford. "You see how if this officer was over here, this wouldn't have happened." He compares the approach to a football coach meeting after a game to make adjustments to offense and defense. "It can be a positive force in learning. They are more critical of their own performance than I am."

"Holding staff accountable can sometimes be difficult," added Alford. "On a unit this size, you can't walk the whole unit. If I don't walk in a building in a day, I can still look at the video to see things I might not have seen."

Using Video Surveillance a 'No Brainer'

The system's ease of use is critical; corrections officers may not necessarily be IT experts, but Ocularis is so intuitive as to be a "no-brainer." The use of maps in Ocularis simplifies interface with the video system and is intuitive. Many areas in a prison look the same, so it is not

easy to visualize a camera's location. Operators can click into each building, and all the cameras will come up, instead of one camera at a time. It's a useful tool that makes it easy for staff to locate the cameras they are looking for.

The system at Polunsky unit came online in stages over almost a year, and officers began using the system as it became live. "The vendor provided training on the system, but because we started using it as it came up, we basically didn't need any training," said Simmons. "The software is intuitive and extremely user-friendly."

Future upgrades to the system include the likelihood of incorporating scene-change detection to help protect the cameras. Since it's impossible to pull cameras from the walls, offenders often seek to cover up the lens by spraying it or putting a towel over it. Scene detection analytics, which are built into the camera, are being integrated with Ocularis to create an alert notification and event push video for immediate notification of the occurrence. OnSSI and STS are investing in writing code to capture the camera's analytics.

The prisons are also looking to license the Briefcam Video Synopsis software on some of the OnSSI channels, which provides the ability to summarize 24 hours of video in five minutes.

In summary, the system provides prison staff unprecedented access to the units. A warden using the "eye in the sky" can see their units like never before, which has dramatically increased control. Texas prisons have had numerous visitors from other states who have been impressed by the system's functionality; one prominent prison official from another state simply said "I want one."

Despite budget constraints, the Texas Legislature has continued to invest in public safety. "We're grateful to Governor Perry and the Legislature for providing funding to enhance the security of our facilities," said Livingston. "They made this a priority, and we're committed to putting those limited resources to good use."

"The State of Texas Criminal Justice Department is hands-down the most innovative state prison program in its approach to security and can now claim bragging rights to the only agency-comprehensive advanced IP video surveillance system of its kind in the United States," said Jessica Clark, vice president and program manager for TDCJ projects with STS.

"TDCJ's use of best-of-breed technologies, the support of top industry partners and collaboration with TDCJ personnel have created an impressive and invaluable result," said Bobby Khullar, president/CEO of STS.