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SUCCESS STORY

ACCELERATE:
VIDEO SURVEILLANCE

Maricopa County Sheriff's Office Strengthens Law Enforcement Leadership with Advanced Video Surveillance System Powered by High-Performance, Reliable DDN® Storage

CHALLENGES

- Aging legacy video surveillance system was unreliable and couldn't accommodate growing site requirements
- Producing footage from tape-based archive was slow, error-prone and difficult
- Persistent performance problems hampered county's ability to keep pace with data-intensive workflows

SOLUTION

A fully integrated security controls system, featuring Genetec's unified IP security system, Bosch high-definition cameras built on Sierra Detention Systems' PSIM technology powered by DDN Storage Fusion Architecture® (SFA™)

RESULTS

- HD resolution surveillance footage at 15 frames per second is retained for a minimum of 60 days
- 100% surveillance coverage across six facilities that is 10x more readily available, which reduces the cost of litigation and saves taxpayer's dollars

THE MARICOPA COUNTY SHERIFF'S OFFICE IS NATIONALLY recognized for its zero tolerance toward crime and unwavering focus on innovation in law enforcement, detention and support services. As the nation's third largest Sheriff's Office, Maricopa County averages between 7,500 to 10,000 inmates in its jail system, which comprises state-of-the-art facilities considered to be among the most secure and technologically advanced in the country.

Headed by Sheriff Joe Arpaio, known as "America's Toughest Sheriff," Maricopa County embraces hard-hitting enforcement methods, including posting the mug shots of all those arrested on the Sheriff's website. With just under one million hits daily, the Maricopa County Sheriff's Office website is one of the most visible law enforcement sites on the Internet.

According to Lt. Brandon Jones, public information officer and project lead designer for the Maricopa County Sheriff's Office, the ability to maintain the highest levels of visibility across the county's jail system is another major crime deterrent. "We capture and record all activity 24/7 to ensure the security and safety of our inmates, detention officers and staff," he explains.

THE CHALLENGE

As its legacy video surveillance system neared end-of-life, Maricopa County decided to re-evaluate emerging technologies to better meet its growing needs for highly reliable, real-time data capture, storage and processing. In replacing the aged system, Jones led a group of colleagues who compiled a list of goals detailing what they wanted, including better reliability, alerting, improved user friendliness, standardization, faster access to footage and forensic quality images.

Of paramount importance was improving how the county stored and retrieved real-time video surveillance and sensor data.

Previously, Maricopa County struggled to produce footage from its tape archive in a timely manner, which made it difficult to respond quickly to law enforcement requests for 30 days of footage. "With our legacy system, it could take up to 60 days to identify, access and retrieve a month's worth of video surveillance data," Jones adds. "We didn't want to wait even 24 hours to pull data off the system—it had to be nearly instantaneous."

The sheer rate of data growth also presented some major hurdles as the Sheriff's office wanted to capture multiple petabytes of surveillance and sensor data from thousands of new IP cameras. Additionally, reliability was a major concern as Maricopa County encountered a lot of persistent technical problems with the older platform,

BUSINESS BENEFITS

- Maricopa County Sheriff's Office is taking crime detection and intervention to the next level with its ability to easily and quickly capture and retrieve petabytes of HD surveillance and sensor data

- The Sheriff's Office is reducing the cost of litigation and saving taxpayer's dollars with its improved video surveillance capabilities

- Maricopa County is leading the way in complying with the Prison Rape Elimination Act by ensuring 100 percent surveillance coverage across its facilities
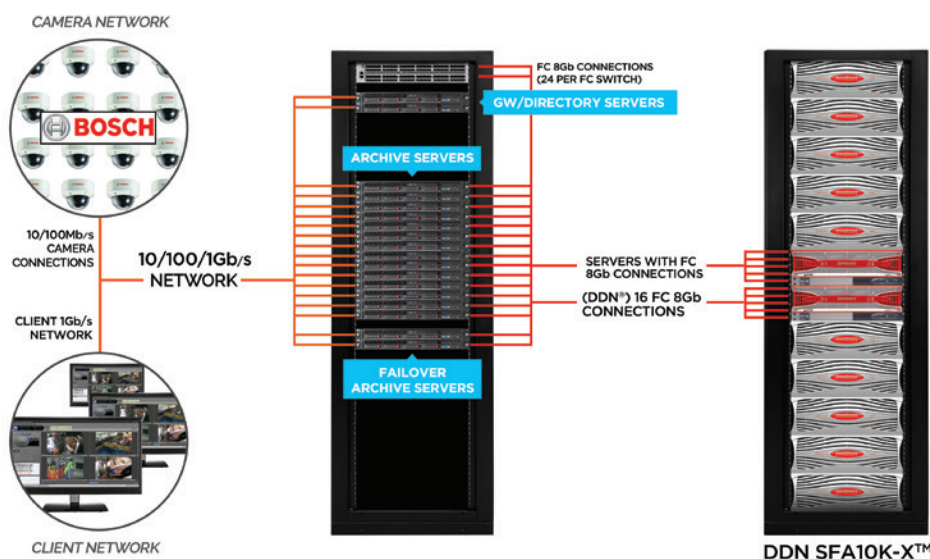
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encompassing corrupted tapes, cameras that suddenly went offline and ongoing system failures. "There were no alerts when something happened, so we were constantly fighting a battle instead of being proactive," notes Jones.

The ability to expedite resolutions to recurring performance and reliability problems was hampered by the fact that the county had deployed different video surveillance systems across its six facilities. While the Sheriff's Office started out to replace a legacy system at three facilities, it quickly became apparent that similar failures at other locations necessitated a complete overhaul of the county's video surveillance approach. "We wanted one vendor that would be responsible for deploying and supporting an end-to-end system that could scale significantly without compromising ease of use," Jones adds.

THE SOLUTION

When Maricopa County sent out an initial bid for a new video surveillance solution, about 80 vendors responded with nearly 200 technical questions to address the scope and depth of the requirements. The Sheriff's office assembled a team of five officers and hired a contractor to establish selection criteria and vet the various vendors' approaches.

Based on the responses to a formal Request for Proposal, Maricopa County narrowed its search to three contenders, which included Sierra Detention Systems, a Colorado-based company focused on delivering innovative approaches to security. "Sierra had the most professional proposal and they understood that redundancy was our number one priority," says Jones. "They provided guidance on how to achieve the highest levels of reliability within our budget."

Sierra Detention Systems offered insight into attaining redundancy and high-performance for all aspects of the system, including goals for frame rates and retention timeframes. "We counseled Maricopa on striving for 15 frames per second, which is the industry standard for high-resolution, full-motion video," explains Paul Sims, chief technology officer for Sierra Detention Systems. "Additionally, we shared our experiences with other correctional facilities and the consensus was that typically surveillance recordings are archived for 30 days."

Armed with this knowledge, Maricopa County visited correctional facilities in Minnesota, North Carolina, and Colorado along with a trip to the Chicago Federal Reserve to talk to end-users. "We wanted to get a sense of how the systems worked and how well they

TECHNICAL BENEFITS

- DDN's high-performance storage has enabled Maricopa County to capture HD resolution surveillance footage at 15 frames per second with a 60 day retention period
- The new system is 10 times faster than its predecessor, enabling Maricopa to double its recording capacity to exceed 2,500 incidents annually
- With DDN's powerful storage, Maricopa can retrieve two months of footage in seconds

were supported," Jones says. "After all the visits and conversations, we determined that Sierra Detention Systems was strongest in their approach and support."

As part of the proposed solution, Sierra Detention Systems recommended a fully integrated security controls system, featuring Genetec's unified IP security system, Bosch high-definition cameras and high-performance, scalable and reliable storage powered by DataDirect Networks (DDN) SFA high performance Big Data storage. "There was a great deal of interest from many of the big players in the storage industry when word got out about a security project of this size and scale," recalls Sims. "We also looked closely at storage from EMC, HP, NetApp and Dell before determining that DDN was best suited in terms of performance and support."

In particular, Sierra Detention Systems appreciated DDN's lack of bureaucracy and straightforward, "Let me show you how it works" mentality. Patented technology, such as DDN DirectProtect™ Real-Time Error-Correction and Detection, proved that DDN storage was designed to deliver increased reliability, and therefore would require less service. "With DDN, the ability to reset drives on the fly was really attractive as it enabled us to adopt a 'set it and forget it' approach," adds Sims. "Thanks to DirectProtect technology, drive rebuild times are impressive." Time-tested and field-proven examples of DDN storage blended with Genetec's VMS platform at other correctional facilities gave Sierra Detention Systems the final vote of confidence to move forward, which also resonated well with the team at Maricopa County. "We wanted redundancy beyond redundancy and both Sierra and DDN could demonstrate how they could achieve that with redundant power supplies, RAID 6 active/active storage controllers, redundant systems and advanced technology," Jones says.

THE BENEFITS

Together, DDN and Sierra Detention Systems are helping the Maricopa County Sheriff's Office set a new standard in jail system security and safety. According to the Sheriff's office, the rollout of the Genetec VMS platform, DDN high-performance storage and more than 3,000 HD Bosch cameras is well ahead of schedule.

The fully integrated DDN and Sierra Detention Systems solution provides law enforcement with a single pane view of the entire security environment, complete with touch-screen controls of both video and audio recordings. Now, an administrator at the Sheriff's Office can quickly and easily retrieve footage from the storage repository, which archives surveillance and sensor data for up to 60 days. "The new systems is 10 times faster, even though the amount of data the Sheriff's office now captures and archives has increased significantly," says Jones. "As a result, we expect to double our recording capacity to exceed 2,500 incidents each year."

Another strong indicator of performance is the speed with which HD footage can be retrieved. "An officer was able to pull 12 hours of full HD video in 17 minutes, which is astronomically fast," adds Sims. "Normally, it would take at least three hours to pull that much footage."

Ease of use is another attribute of the new system that benefits both the officers and Maricopa County taxpayers. Because the new system is so much easier to learn and use than its predecessor, the Sheriff's Office can eliminate weeks of cross-training. "Having one universal system reduces training considerably," comments Jones. "Funds that used to be allocated for training can go right back to work in law enforcement, which benefits our citizens."

With DDN's highly scalable storage platform, Maricopa County will be able to scale seamlessly from 5.5 petabytes of storage to as many as 30 petabytes as

site requirements evolve. DDN's SFA technology provides real-time bandwidth as well as optimized delivery of low-latency access to spinning (HDD) and flash (SSD) media, resulting in best-in-class IOPS performance. "DDN's approach to storage is very similar to how Sierra Detention Systems approaches security and surveillance," notes Sims. "It's nice to come at it with the same focus on innovation and redundancy, which has enabled us to build an infrastructure that balances Maricopa County's stringent security demands with their budgetary requirements."

According to Sierra Detention Systems, one of the best attributes of DDN storage is the reliability of the system over time. "With any storage system, you measure ROI based on how often you have to replace drives and we saw a better return with DDN," Sims adds. "Additionally, the ability to go back two months in surveillance history and retrieve footage in seconds is a powerful testimony to the benefits of the technology."

For Maricopa County, the speed, reliability and effectiveness of the new video surveillance and security system has enabled the Sheriff's Office to increase coverage from 89 to 100 percent of its current facilities. In doing so, the county complies with new regulations set forth in the Prison Rape Elimination Act (PREA), which requires correctional facilities to protect individuals from prison rape. "Maricopa County is very big on leading the way to keep our facilities the safest and most secure—both from a technological and administrative perspective," says Jones. "Having 100 percent coverage of our facility gives more exposure of images to the tower control officers and facilitators, which is critical to running a crime-free environment."

Previously, Maricopa County couldn't catch everything that happened within its facilities because there weren't enough cameras and officers didn't have sufficient data access. With its new video surveillance system powered by DDN and Sierra Detention Systems, the Maricopa County Sheriff's Office can put more muscle into its "tough-on-crime" stance without raising taxes.

ABOUT DDN®

DataDirect™ Networks (DDN) is the world leader in massively scalable storage. Our high performance, high efficiency data storage solutions and professional services enable content-rich and high growth IT environments to achieve the highest levels of systems scalability, performance, efficiency and simplicity. DDN enables enterprises to extract value and deliver business results from their information.

Our customers include the world's leading online content and social networking providers, high performance cloud and grid computing, life sciences, media production, and security and intelligence organizations.

Deployed in thousands of mission critical environments worldwide, DDN's solutions have been designed, engineered and proven in the world's most scalable data centers to ensure competitive business advantage for today's information powered enterprise.

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