

Making a Positive ID Just Got Easier

Cogent Systems implements a new AFIS for Los Angeles County

Technology is an important enabler. Businesses use it to create efficiencies, improve productivity, and ultimately increase revenues. Law enforcement agencies use it as well, to help identify and process individuals—quickly and accurately. One of the key technologies used in these endeavors is an automated fingerprint identification system (AFIS). An AFIS helps to electronically capture and store fingerprint images for faster identification. AFIS becomes an increasingly important tool in identifying suspects and can help greatly accelerate the investigative process.

Los Angeles law enforcement agencies rely heavily on AFIS technology. Representing approximately 88 law enforcement agencies in the greater Los Angeles area, the LASD and LAPD must process all fingerprint matches for their region. So, when it was time to upgrade the central AFIS system, a committee was assembled that included representation from all key agencies in the area. Currently headed by Lieutenant Larry Bryant, from the Los Angeles Sheriff's Department the committee identified critical functionality required by each agency. It also specified "nice to have," leading-edge technological advancements. With technology changing rapidly, the Los Angeles County Regional Identification System (LACRIS) committee wanted to start ahead of the curve and work with a vendor that could keep them there well into the future.

After a highly competitive RFP process and testing vendor systems, the LACRIS committee decided Cogent Systems was that vendor. Based in South Pasadena, California, Cogent Systems is a leading provider of AFIS and additional fingerprint biometric solutions serving governments, law enforcement agencies and other organizations worldwide. Cogent Systems combines its proprietary software algorithms with optimized hardware from IBM to deliver industry-leading accuracy rates and performance.

Within a year, Cogent Systems implemented the Los Angeles AFIS (LAFIS), improving the accuracy and speed with which it identified criminals and solved crimes. The LAFIS was based on the Cogent System's automated palm and fingerprint identification system (CAPFIS). Using CAPFIS, Cogent configured the workflow, interfaces, and overall system to meet the LACRIS's specific needs.

Perhaps the biggest challenge for Cogent was meeting the LACRIS's need to transfer approximately three and a half million fingerprint cards to electronic records at 1,000 pixels per inch (ppi). Up until that time, high-speed scanners could only provide resolution up to 500 ppi. Greg Hochstetter, Program Manager, Cogent Systems, explains how his company addressed this challenge, "We worked with a partner that provides scanning technology to develop and test a scanner that could deliver images at 1,000 ppi. But it was more than just developing the technology. Since scanners used in an AFIS must be FBI approved, we worked with our partner to ensure the new model met and passed all requirements. Once we had FBI approval, we were on our way."

Another challenge was interfacing with the various types of systems used by the LASD, LAPD, and the criminal justice community throughout Los Angeles. "We run a wide range of systems—from web-enabled to legacy systems," explained Beatriz Calderon, IT Systems Supervisor and LAFIS project coordinator for the LASD. "Cogent was able to ensure the new LAFIS would be able to seamlessly integrate with all of them."

LAFIS in action

Law enforcement agencies use an AFIS in two ways. First, they use the system to identify criminals. Upon arrest, a criminal's fingerprints are taken and run through the system, providing important background information and criminal history. For states with a "three strikes" law that require automatic incarceration upon the third arrest, having immediate access to this data is critical. In fact, the committee required that these searches take no longer than 4 minutes. According to Lieutenant Larry Bryant, who now leads

the Los Angeles County Regional Identification System effort, Cogent has not only met their requirement, but surpassed it. "We wanted to see a positive ID of a ten print image in four minutes. LAFIS consistently provides results in less time."

Second, an AFIS is used in crime scene investigation. Images found on items at the scene (latent or flat) are processed and scanned into the system. The system then searches for a match against a database of known offenders. In most cases, an AFIS would search the latent images against rolled images, or images taken during the booking process. LAFIS from Cogent Systems takes it a step further. "The Cogent system searches latents against both rolled and flat images," offered Lt. Bryant. "As a result, we've had a 13 percent increase in the number of hits."

While speed is an issue, accuracy is much more important—particularly when trying to match a suspect with prints already in the system. Cogent Systems has also enabled the LASD to improve their accuracy rates, which reduces the need for human intervention in matching prints. And less manual intervention translates into reduced costs. "The accuracy standard for most systems is 94 to 95 percent," offers Lt. Bryant. "Cogent Systems was the only vendor willing to commit to a 99 percent accuracy rate and in its acceptance test, hit 100 percent."

Bryant continues, "LAFIS is unique in how it operates. Most systems use binning and filtering of records to make matches. Cogent uses a highly effective one-to-one type of comparison that is a much more precise way to match prints."

Hochstetter explains, "By providing this level of accuracy, our system improves the efficiency of the overall print-matching process. It allows us to offer "lights out" operations, which means no human intervention is required for matches with a specified percentage of certainty in the identification of criminals. On the investigative side, the high accuracy greatly reduces the number of candidates that must be viewed. Thus, our system increases the productivity of latent examiners and reduces the costs associated with the process."

LAFIS from Cogent Systems uniquely enables the LACRIS agencies to enroll the unmatched prints into an unsolved latent file. So, a criminal's 10-print record is automatically processed against the file. This helps ensure that those responsible for committing crimes will be identified. LAFIS also is able to store multiple prints for the same subject, which helps increase the odds of finding a match.

Performance and availability powered by IBM

As a clustered solution, LAFIS provides high availability and redundancy and heavily leverages IBM hardware and software. The system included LAFIS software running on IBM pSeries and xSeries hardware. For data storage and data management, Cogent Systems leveraged the IBM SAN (Shark), Linear Tape-Open (LTO) tape backup and Tivoli Storage Manager. And to minimize downtime, Cogent Systems included IBM High Availability Cluster Multiprocessing (HACMP).

IBM technology adds numerous benefits to LAFIS. Hochstetter explains, "The power and availability of the IBM platform make it an ideal choice for this type of application. And by implementing an IBM-based system, the LASD was able to shrink its datacenter footprint to 1/8th from what the previous system occupied."

To meet its IBM hardware, software, and services needs, Cogent Systems partners with Avnet Partner Solutions. "Avnet provides support in a variety of ways, from facilitating product purchasing to providing technical assistance," offered Hochstetter. "In this particular case, Avnet configured the solution in its integration center and shipped it directly to the LASD."

Innovations throughout the system

The LASD had developed a list of cutting-edge features that they would like to leverage—if not today, then sometime in the near future. Cogent Systems offered a highly innovative design and state-of-the-art capabilities that would allow the LASD to incorporate these features whenever they were ready.

Wireless functionality is important to the LASD. "To be able to run a fingerprint through the system in a patrol car and get an instantaneous positive ID is extremely valuable," stated Lt. Bryant. "Right now, we are running several wireless test programs using LAFIS where we've been able to accurately identify subjects in the field."

The ability to integrate other biometric systems, such as facial recognition, into LAFIS is another capability the LASD hopes to use one day. Plus, they want to be able to expand captured images beyond fingerprints and palms to include all parts of the hand and fingers. The LASD also plans to interface with additional outside systems, in order to share resources and further improve its criminal identification process.

"Cogent Systems is a forward-thinking company," concluded Lt. Bryant. "They provided us with new technology that will help us do our job more accurately and efficiently, not only today, but into the future."

