Technology Acquisition Project
Case Study

California Department of Justice CAL/GANG® System

Background on the Study Site and the Problem

The state of California has the seventh largest economy in the world and the population to back it up. With those statistics comes a corresponding level of crime and especially gang-related crime. Combating that crime are hundreds of diverse agencies, from monolithic police and sheriff's departments like those in Los Angeles, to smaller departments throughout the state, like the El Cajon and Redlands Police Departments.

Over time, a grass roots-developed gang information database—the GREAT system—had developed in California. It was in regular use by the early 1990s and had enjoyed moderate success. By 1995, though, it became obvious to the California Department of Justice (Cal DOJ) and numerous local agencies that new technologies could provide a more robust and user-friendly system. This awareness led to the development of CAL/GANG®. The new system has resulted in some unprecedented successes and has been embraced by most of the state's law enforcement personnel who have been exposed to it. However, in addition to technological challenges, the CAL/GANG® system has faced significant hurdles in overcoming entrenched jurisdictional and political objections and suspicions regarding the new system.

With the establishment of the GREAT system in the 1980s, California was the first state to have an investigations tool and database that was focused entirely on combating the proliferation and growth of violent street gangs. While GREAT began as a grass roots effort out of the Los Angeles Sheriff's Department, it quickly dominated the state's efforts to attempt to capture the vast amounts of gang data being gathered through the literally hundreds of different law enforcement agencies in California.

Although the gang problem first showed itself as a problem in urban areas like Los Angeles and San Diego, the gangs' influence had quickly spread throughout the state. In the last seven to ten years, gangs have gained prominence in less dense urban areas like Sacramento, as well as in predominantly agricultural regions whose largest cities include Stockton and Fresno. As the street gangs grew, prospered, and spread, the difficult-to-use, DOS-based GREAT system strained to keep up. The system was faced with political, architectural, ease of use, and capacity problems.

Assessment and Decision Making Phase

In 1993, the strains on and limitations of the GREAT system led Cal DOJ to investigate what options might be available using new technologies that had been developed since implementation of GREAT. CAL/GANG® was designed as the modern replacement for the outdated GREAT system. It is an extremely powerful and sophisticated relational database and link analysis tool developed by Orion Scientific Systems, Inc., based in Irvine, California. It resides on an intranet backbone accessible through any user-friendly web browser, including Netscape and Internet Explorer.

Since Cal DOJ viewed GREAT's difficult interface and cumbersome language as its biggest drawbacks, they were very excited about finding a way to apply the developing Internet technologies to their gang information challenge.

Officers at various departments, while having some complaints about the CAL/GANG® system (mainly about the political issues surrounding its administration), are unanimous in one regard: the GREAT system had to go. They all point out how entering even small blocks of information required several intricate key commands that officers had to remember. As one sergeant said, "You had to re-learn the system and the commands every day." In addition, if investigators in San Diego, for example, wanted to search the entire state for a gang-related suspect, they would have to dial up each node separately. This effort ate up a lot of staff hours.

Finally, one of GREAT's biggest drawbacks was its extremely high cost. According to Don Mace, Special Agent in Charge at Cal JOJ, the GREAT system was lucrative for the vendor because the vendor retained the source code, and every change or additional node had to be paid for separately.

Procurement Phase

Cal DOJ first began looking into replacing or upgrading GREAT in late 1993. To accomplish the task, they were using a $300,000 grant from the Office of Criminal Justice Planning (OCJP) that was designed to expand the existing system. To make the changes, they turned to a computer consultant who, in the end, seemed more focused on his own enrichment than on increasing effective access to gang data. From 1993 to 1995, this consultant worked on the system; but the process, as described by several people, was like pulling teeth. After paying several invoices without seeing much in the way of results, Cal DOJ asked for a demo of the system under development before they would pay out any more funds. That demo left a lot to be desired, according to one source, and the potential did not seem to be much of an improvement over the existing system.

After spending $100,000, Cal DOJ faced a difficult decision, although they felt the answer was obvious. Rather than continue to spend money on a system that promised little improvement over what they were replacing, Cal DOJ cut ties to the consultant and went back to the drawing boards in late 1995.

Working Relationship with the Vendor

Through chance, Mace came across Orion giving a demonstration of their investigative software about the same time that Cal DOJ was ending its relationship with the consultant. Orion is a software developer that specializes in high-tech work for federal agencies like the CIA and NSA, and has in the last several years expanded its reach into state and local law enforcement. The user-friendly approach of the software intrigued Cal DOJ, and a series of meetings was quickly arranged.

At the first meeting, the Cal DOJ team presented their problems with GREAT and asked Orion to make a proposal. At the second meeting, in November 1995, Cal DOJ realized they had not been clear in their desires when Orion proposed a way to create links between GREAT and the state backbone. "We stopped them immediately and said, 'We don't want a link; we want a replacement,'" explained Cuong Nguyen, bureau chief for Cal DOJ. In December 1995, Cal DOJ and Orion had a third meeting at which the vendor sketched out the first outline of what would later become CAL/GANG®.

Cal DOJ went to OCJP with a feasibility study report and request for funds. At the same time, Orion was lined up with the San Diego Police Department, the California Gang Node Advisory Committee (CGNAC)[1] and Cal DOJ to create a working prototype.

The first CGNAC meeting was held in December 1995. Work on the prototype began and was completed in January 1996. The prototype was presented to the CGNAC board and Cal DOJ that same month, and the San Diego node was on-line in August of 1997. The system was declared officially complete in April 1998.

Throughout this process, Don Mace was the key individual at Cal DOJ, lobbying for funds and coordinating the development process. Nguyen was his direct Cal DOJ supervisor at the time.

"What we laid out as our requirements was that we wanted Web technology—we had already had our fill of a closed proprietary system—and it had to be a system that anyone could step into and learn how it works quickly and easily," said Mace.

In addition to containing text-based data, as GREAT did, CAL/GANG® catalogues just about every piece of information imaginable, including tattoos, mug shots, vehicle types and photographs, nicknames, and known associates. It was designed based on the idea that gangs of every type survive and prosper by creating internal links and tiers of power. Through an easy graphical user interface (the web browser), CAL/GANG® allows officers to use collected gang data and images to track, retrieve, and analyze gang-related information.

It is important to note that CAL/GANG® is more than just a database of information, it is an investigative tool that allows investigators to quickly create and illustrate links between disparate information. In addition, the data and the link and image tools can all be accessed through laptops in the field. This aspect of the system is not in extensive use yet, but it is possible.

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[1] CGNAC is an advisory board created to guide decisions affecting the original GREAT system. Since GREAT was a grass roots-developed system, some CGNAC members needed extensive lobbying to agree to abandon the archaic system and follow an untested vendor. CGNAC has since been rolled over to an expanded advisory role for the CAL/GANG® system. CGNAC meets quarterly.

Surprisingly, despite CAL/GANG® being a complex and broad system developed from scratch, the system was brought on-line extremely quickly. Cal DOJ first started working with Orion in November 1995 and by January of 1996 they had a working prototype established between San Diego Police Department and Cal DOJ. Project approval and budgeting negotiations at the state level postponed formal launch of the project until May of 1997, at which time the project goal was to launch a usable system within 18 months. Seven months later, CAL/GANG® was fully on-line with seven nodes in operation throughout the state.

"Why did this happen?" project director Mace asked rhetorically. "It happened because the vendor felt like it was a matter of principle to bring the project in on time and [on] budget. They were responsive throughout development and have continued to be."

System Funding and Ownership

Funding the CAL/GANG® system was unique and was drawn through a politicized process. In addition, there developed a partnership between Orion and Cal DOJ that resulted in the vendor being able to create and prove a system that they could sell elsewhere, while DOJ was able to purchase the system for the funds they could find.

From their initial OCJP grant to expand and link the GREAT system, Cal DOJ had $100,000 left in their coffers. Obviously, a new system was not going to be built for $100,000, so Mace went back to OCJP with Orion and the San Diego-developed prototype/demo. Orion was asking for $750,000 to purchase the system. (Orion said that this initial bid included not just CAL/GANG® but several of their other investigative software tools as well.)

By this point, Mace was doing demos of the software for local law enforcement agencies in California. Very quickly, the concept gained enthusiastic support, and Mace encouraged local law enforcement leaders and CGNAC members to lobby OCJP and the Governor's office. The biggest break came in May 1997, when then Governor Pete Wilson announced at a press conference that he would commit over $800,000 to get CAL/GANG® up and running. In the end, the money did come, but in chunks as opposed to all at once.

First, OCJP provided $120,000 in Byrne and other federal funding plus $300,000 in gang suppression funds. Coupled with the $100,000 left from the earlier grant, Mace had $520,000. The limit to avoid having to put the project out on an RFP was $500,000, so he countered Orion's offer at that number. Orion came back asking for the full $520,000, and Mace applied for and received an exemption on the RFP limits.

In the following year, OCJP awarded the program another $386,000 in gang and violence suppression funds. These funds have been used to finance expansions in hardware and assist local nodes in coming on-line as CAL/GANG® has grown.

The problem for Orion was that at the time when they agreed to accept $520,000, they had already spent close to $1 million on research and development. In addition, Cal DOJ wanted to "own" CAL/GANG® without having to pay for owning it. The vendor and user developed a unique agreement that has proven to benefit both.

If Cal DOJ did "purchase"' the system and became the owner, state law would not allow it to be sold by Orion to anyone else. That arrangement would be unworkable. Instead, Cal DOJ and Orion agreed to a 99-year lease, which granted specific rights to each party. Cal DOJ would receive the source code and contract for maintenance from Orion. Over the 99-year term, Cal DOJ could give the software to any California justice agency. Orion for its part could recoup its investment by retaining the right to sell the system anywhere in the world, though inside California the Cal DOJ could bring on new sites without additional software licensing costs.

The system has enjoyed a huge success both in and out of California, resulting in a win-win for the parties involved. "I got a free proof of concept and they got a cutting edge system they could sell," said Mace. He also pointed out that through the whole process, Orion never missed a single delivery date.

The development of the software drove the hardware needs. Ultimately, the beauty of CAL/GANG® is that all an officer needs to access the system is a computer with a browser and a password. Behind that interface, CAL/GANG® resides on the statewide CLETS Intranet backbone. Each node requires either having a server in the user's offices to keep their data, or utilizing a server that resides at Cal DOJ. Initially, the first seven nodes (there are currently 11 nodes, including Cal DOJ) all purchased on-site servers. More recent nodes have chosen to allow Cal DOJ to maintain their nodes, as this reduces costs in training, maintenance, and hardware.

Servers are Compaq Proline 5000, single 200 processors with a minimum of 256 MB of RAM and 2.1 GB hard drive. Larger users like Los Angeles and Orange County have had to add memory and processor resources. Those two sites currently have 512 MB of RAM backed up by 36 GB hard drives.

Implementation Phase

Obstacles to implementing CAL/GANG®, once designed and built as a prototype with the San Diego Police Department (as described above), were largely political.

First, as noted before, despite GREAT's extreme limitations—to the point of being nearly useless—members of CGNAC had to be heavily pitched to move away from GREAT. It was largely a question of changing from a grass roots-developed system with which they were comfortable. More of a challenge, though, were the power, or perception of power, issues.

Hosting and Maintaining the Data

Based on the technical aspects, it made more sense for Cal DOJ to host and maintain the data, with the nodes accessing the data from their PCs. At that proposal, CGNAC and local law enforcement balked immediately. They already felt like they had seen the state jam several other programs down their throats (like CLETS) and believed that DOJ already had plenty of power just by controlling the purse strings through OCJP.

Ultimately, Cal DOJ bent on this issue, agreeing to allow the nodes to keep their local regional databases and maintain their own data, which is replicated at DOJ. "Politically, we had to do it," said Mace. "Technically, it has been a constant headache."

Cal DOJ continues to allow this choice; however, the funding is set up so that an agency that chooses to place its data with DOJ can save thousands of dollars. Most new nodes are opting for the latter approach. That trend is irritating to some older nodes, especially San Diego, which views it as a push by Cal DOJ to eventually centralize the entire system.

Training and Ease of Use

Training, on the other hand, has been a piece of cake. From the beginning, Cal DOJ insisted on ending up with a user-friendly piece of software and CAL/GANG® is as easy to use as the Internet. There have not been any "ease of use" issues raised at all. "Speed and ease of use were our main goals in development of CAL/GANG®," explained Tom Gates, a former FBI agent who now works for Orion. "We have a lot of former law enforcement people and we went to law enforcement professionals outside of our company for input. The system was essentially developed by police officers for police officers. It is probably the most user-friendly system ever made for law enforcement—it is like having a dog that walks itself."

All costs involved in the system have been exactly as expected, according to both the local and regional nodes and Cal DOJ. For formalized training, Orion trained trainers for each node. There is also a formalized, POST-approved (three-day, 24-hour) course. Detectives at most nodes are not allowed on the system until they have completed the training. San Diego detectives said the system was so simple to use that, if it wasn't necessary to bring detectives up to speed on basic computer use, the CAL/GANG® class could be taught in a single six-hour session.

Impact Phase

CAL/GANG® has had a profound effect on gang-related crime investigations since its inception. While there continue to be some challenges—most dealing with traditional law enforcement reticence to embrace new technologies and data-sharing—probably no system in recent memory can boast so many specific examples of a product's impact. "The biggest problem we have had is in underestimating how well it would work, how much it would help, and how quickly local law enforcement would embrace the system. We went from 366 end-users on the first day to over 3,600 now, and growing every day," said Mace. "It helps solve cases—what more can you ask?"

Success Stories

Perhaps the most visible of the CAL/GANG® success stories was the gang rape in May 1998 of three juvenile girls by 14 male gang members. The crime happened in a Fresno hotel, where the girls were lured into a room by a couple of under-aged suspects and were then attacked by the others—all members of the Mongolian Boys Society, one of the many Asian gangs that have sprung up throughout California. In this case, it is possible the criminals would not have faced justice without CAL/GANG®; certainly the process would have been more arduous and time-consuming without the system.

"We had one word to go on—Bolo. It was a name one of the [victims] remembered being used in the room," said Jim Kerns, deputy sheriff in charge of the CAL/GANG® node in

Fresno. "We didn't know whether it was a first name, a last name, or a moniker. Maybe it had no meaning at all. Turns out that Bolo was one of the gang member's street names. That information turned up in CAL/GANG® and gave us his real name. From there we went to work, and now every one of those guys has pled and will be going to prison for 22 to 24 years."

South of Fresno, in Kern County, the system provided the information necessary to conclusively refute a murder suspect's alibi. "Members of our gang suppression unit were able to refute an alibi of a homicide suspect simply by retrieving a three-year-old field interview card from CAL/GANG®," said Carl Sparks, Sheriff of Kern County, in a letter thanking Governor Pete Wilson for funding the system. "The application is extremely vital in our day-to-day work and instrumental in our effort to suppress street-gang criminal activity."

In the San Diego area, the El Cajon Police Department called up the San Diego Police Department with a possible gang member I.D. request: the name "Maria" tattooed across the suspect's chest. The man was from east San Diego County; he was Hispanic; and the incident in question occurred on Sunshine Street. The CAL/GANG® system turned up 13 possible matches. One of those possibilities had an address on Sunshine Street, and an arrest was made. "Ten years ago we couldn't have found this just relying on card files; five years ago the process with GREAT would have been difficult, uncertain, and lengthy," said Dave Rohowitz, Sergeant, San Diego Street Gang Investigations Unit. "Today, with CAL/GANG®, we made the match in less than five minutes."

Drawbacks

While these successes continue to build and are being repeated in other states as well, some drawbacks continue to exist. These are primarily political in nature or related to police officers' natural resistance to accepting change.

One example is that, while the system possesses excellent and easy-to-use photo capabilities, most officers still won't take the time to photograph distinctive tattoos on known gang members. Also, quite a few officers are still reluctant to release the old-fashioned field interview (FI) cards. Instead, they keep their extensive but cumbersome paper files, refuse to enter gang data in the computer, and the police department is relegated to asking volunteers to re-enter this data in the system on a regular basis.

The final issue that has created friction, though it has not affected the efficacy of CAL/GANG®, has been the addition of new nodes. Some agencies have been resistant to the addition of new nodes, especially those outside of traditional law enforcement agency definitions, like the state parole board, which was recently added. Parole was finally added only because state administrators pushed it through. Other questions have been raised when smaller departments, which may not be as security-conscious as they should be, have been added to the system.

In the belief that sharing information is the key to success in law enforcement, Cal DOJ continues to push for expansion of CAL/GANG® not only in their own state but possibly as a nationwide gang information network, all working off the same system.

References

Magazine articles providing further background on the CAL/GANG® system can be found on the Internet at

http://govt-tech.govtech.net/gtmag/1998/jan/jandt/jandt.shtm

http://govt-tech.govtech.net/gtmag/1998/dec/jandt/jandt.shtm

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