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Northeast Gang Information System:

Description of the System and Lessons Learned

Police Executive Research Forum

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Contents

Introduction

In 1996, police across the country were growing alarmed over a marked increase in violence, drug trafficking, and related crimes traceable to youth gangs. Much of the crime growth seemed to follow gangs' migration into new areas for fresh members and markets. Police were frustrated by newcomers' distinctively colored clothing, tattoos, cryptic hand signals, and graffiti. The police did not know who the youths were, where they came from, or what illegal objectives they had in mind. In response, several states in the northeast corridor (Connecticut, Massachusetts, New York, Rhode Island, and Vermont) monitored gangs' growth, activities, and migration. Arrest data, surveillance, and other information sources pointed to a clear pattern: gang members from New York and more distant states were using interstate highways 93 and 95 to expand gang membership and activities into New England.

Through various research projects, the National Institute of Justice (NIJ) had been tracking gang organization and recruitment, backgrounds of youths recruited into gangs, involvement of local gangs in developing crack cocaine markets, and police response to the growing gang problem. NIJ's studies and law enforcement intelligence confirmed that the expansion of local drug markets overlapped with burgeoning traffic in high-powered firearms. The result was a combination of factors that encouraged gang formation, recruitment, branching, and criminal activity.

Police realized that, unlike the rigid, stable hierarchies of the Mafia and other organized crime groups, the structure of contemporary gangs was decentralized and loose. When gang members' entrepreneurial drive was combined with geographic mobility and access to firearms, gangs came to represent a serious and increasingly deadly threat to communities. A report by Attorney General Janet Reno, *A Coordinated Approach to the Challenge of Gang Violence*, highlighted those factors and noted that the growing number and strength of gangs posed a formidable challenge to law enforcement throughout the nation.

On May 13, 1996, President Clinton and Attorney General Reno held a press conference on youth gangs and related violent crime. The meeting featured a demonstration of a prototype law enforcement information-sharing network, developed by the Massachusetts State Police and based on Lotus Notes. Attorney General Reno noted that U.S. Attorney Donald Stern of the District of Massachusetts had been working with federal, state, and local police to coordinate responses to gang activity and share information on a statewide basis. Stern announced three requirements for the gang information network. It had to be

- useful to investigators,

- collaborative, encouraging people to talk to each other, post queries, and get information back, and

- capable of sharing information with other states in New England.

At the press conference President Clinton announced that the Department of Justice would support the development of a pilot multistate gang information-sharing network. The network would be based on the Massachusetts prototype and would link Connecticut, Massachusetts, New York, and Vermont (with Rhode Island joining later). In response, NIJ awarded the Police Executive Research Forum (PERF) a cooperative agreement with $424,000 in funding to

- help the participating states design the Northeast Gang Information System (NEGIS),

- assist in procuring the necessary computers and telecommunication equipment,

- train users, and

- document the experience and lessons learned.

The following sections describe the reasons for establishing NEGIS, detail how NEGIS works, and present lessons learned from the experience.

Purpose of NEGIS

For several years, gangs have been migrating from metropolitan New York City to urban and rural areas of Connecticut, Massachusetts, and upstate New York. More recently, gangs began to migrate to Vermont, Rhode Island, New Hampshire, and Maine. Typically, these newer gangs compete with entrenched locally based gangs for members and markets. Competition between the older and newer gangs, and between competing new gang factions in a locality, can quickly erupt into serious acts of violence.

The greatest obstacle keeping law enforcement agencies from effectively tracking and arresting gang members is the lack of regional police agency networks that offer 24-hour-a-day, seven-day-a-week access to information databases. Law enforcement investigators and analysts need such systems so they can quickly access a broad, integrated database of information on gangs, gang members, gang intelligence, gang member history, and their alleged offenses. Before NEGIS, criminal information databases offered an index or "pointer" system, notifying an inquiring officer about other agencies with information on a specific subject. However, no system offered a true pooling of information. In that regard, NEGIS was a first.

> *The greatest obstacle was the lack of "24/7" access to gang information.*

To combat illegal gang activity, police need to know who the gang members are. Unfortunately, when gangs move into a community, it may take police 12 to 18 months to learn the new gang members' identities and to develop response strategies to their criminal activities. During that learning period, gangs operate anonymously, recruiting new members and clashing with the older, established gangs in the area.

However, gangs' methods are strikingly predictable. Police can best develop effective enforcement strategies if they share information with each other—and if they do so quickly, before gangs have gained a solid foothold in a new community. A user-friendly system that allows front-line law enforcement officers to exchange data could dramatically improve the effectiveness of crime reduction efforts. Thus, the goal of NEGIS is to provide state and local police officials with comprehensive, high-quality information on gangs, gang members, and their movements and alleged criminal offenses.

Design of NEGIS

NEGIS uses Lotus Notes e-mail for communication and employs five databases, most of which were built from standard Lotus Notes templates. The databases provide a framework for communication and collaboration among gang investigators in different police organizations. Using the templates enabled the investigators who designed NEGIS to shorten the development cycle considerably, saving both time and money.

The NEGIS component databases are these:

- **Electronic Messaging.** NEGIS users are provided with secure e-mail. Investigators post queries, continually update each other on trends and other developments of concern, and send messages to specific investigators in other states. Using a "file attachment" feature, participants can send and receive pictures (mugshots, photos of tattoos or graffiti, etc.) and documents.

- **Law Enforcement Directory.** This database contains an inventory of specialized language, investigative, and other skills possessed by investigators working for state and local agencies that participate in NEGIS.

- **Reference Library.** This library contains statutes, court decisions, news reports, and public domain information that investigators can use for background research.

- **Leads Database.** This database serves as an automated bulletin board for posting questions, raising issues, sharing observations on trends, commenting on cases, and sharing other information useful to the investigation of gangs but not derived from ongoing investigations.

- **Criminal Intelligence Database.** This database was designed as the core of the NEGIS system. It contains information on specific gangs, gang members, and criminal activities. The information is supported by documented sources and meets the standard of "reasonable suspicion." This database, unlike the others, was not developed around a standard template. Rather, it is a modification of a program developed for the Connecticut State Police Intelligence Network (SPIN). SPIN is a proprietary application developed under a Bureau of Justice Assistance project. NEGIS participants selected SPIN as the intelligence module because it was already developed and was available at no additional cost. Now, three of the original five NEGIS states subscribe to SPIN.

Designing the databases was only one step in the process. System developers also had to address the following major issues: adoption, integration, and administration; server architecture; communications infrastructure; and configuration of client computers.

Adoption, Integration, and Administration

In NEGIS, all interagency communication (e-mail, database access, etc.) occurs from state server to state server. The state servers are housed within state police agencies that serve as administrators overseeing each state's NEGIS participation. To be able to use the NEGIS databases, each participating agency had to adopt Lotus Notes as the foundation of its information exchange network. The challenge facing each state police agency was to set up the Notes-based foundation to meet the needs of state users while also integrating with the larger multistate NEGIS system.

Developers also had to consider these issues:

- **Communications.** This issue involved determining how the various clients would connect to the Notes servers within each state police organization, as well as how servers in different state police agencies would communicate with each other.

- **System-wide Administration.** Developers had to consider how to keep information flowing between the five NEGIS states. They devised a database replication and mail routing strategy that ensures that no matter where data is entered into the system, it can quickly flow throughout the entire system.

- **Notes Administration.** Each state police agency needed a specially trained, responsible person—the system administrator—to keep track of security requirements, make backups, add and delete users, and perform general troubleshooting activities. NIJ project funds provided for special training on Lotus Notes server administration, including security and maintenance. Personnel from several states took intermediate and advanced courses.

> *No matter where data is entered, it flows quickly throughout the entire system.*

Server Architecture

NEGIS agencies selected Intel-based servers running the Windows NT operating system as the server architecture. That architecture had the best balance of price and performance; moreover, new Notes functions are generally released for Windows NT first. In additional, the architecture is highly "scalable," meaning it can provide full NEGIS functionality to systems both large and small.

The number of servers required per agency depends on the number and geographic distribution of NEGIS users. Because of the volume of activity expected for the host agency (Massachusetts State Police), that agency received two servers, plus a third for state–local police task force operations. Connecticut, New York, and Vermont each received one server plus one for state–local collaborations. Rhode Island received one server.

NEGIS states used the following guidelines in selecting the optimum number of servers:

Number of Users	Server
Less than 100	Single-processor server
100 to 500	Dual-processor server
500 to 1,000	Four-processor server
More than 1,000	Add additional server at the same location

Small clusters of users (generally less than 10) can be supported without a server by using dial-up or wide-area network (WAN) access to a remote server. An alternative is to set up a well-configured desktop system to perform as a small Notes server.
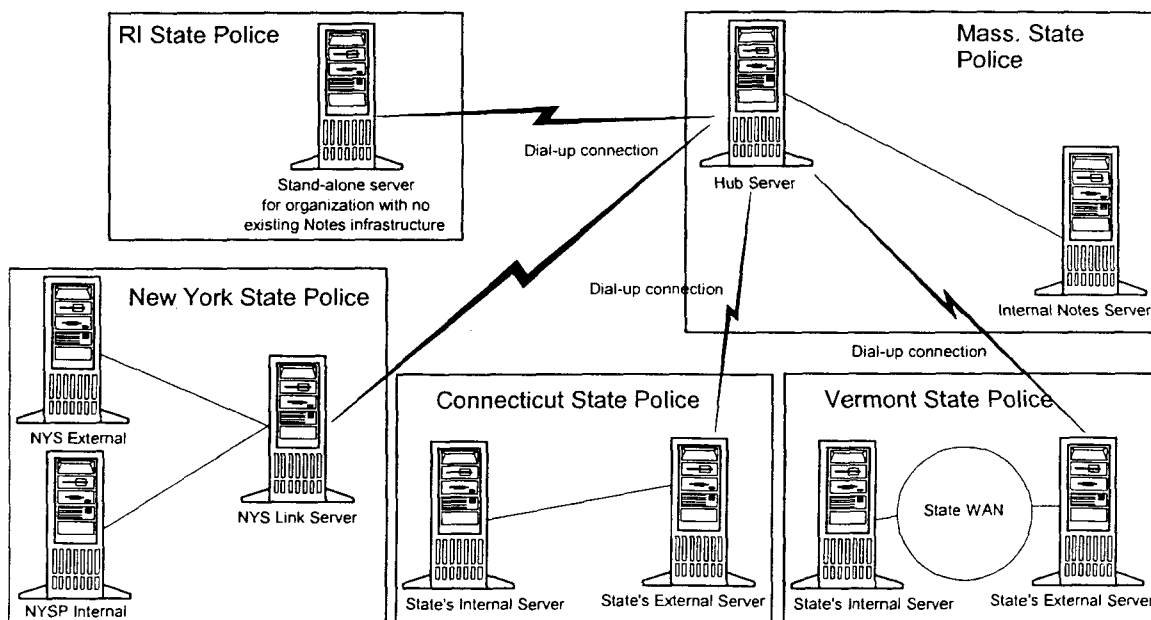
Other server specifications include these:

- **Memory.** The recommend minimum is 128 megabytes of random access memory (RAM), plus 2 megabytes per simultaneous user. The number of simultaneous users was estimated at 30 to 40 percent of registered users.

- **Storage.** Operating system and Notes server software alone require 300 megabytes of hard disk space. Data requires additional space—up to several gigabytes over time. Also, servers should have about 50 megabytes of disk space for each mail user supported on the server.

- **Other Hardware.** A server typically also requires a network card, tape backup system, uninterruptible power supply, and modem.

Communications Infrastructure

The two basic communications issues were (1) connectivity within each agency (that is, between the clients and server in each state) and (2) connectivity between the state servers. Each state police agency approached the internal connectivity issue differently. Vermont enabled all Notes clients to access the Notes server via the preexisting state WAN. Other states used a combination of local area networks (LANs) and dial-up telephone connections.

Regarding the connections between state servers, NEGIS agencies decided to use dial-up telephone lines. Earlier they had considered using a secure Internet interface, but they decided not to rely on a commercial provider that could go down unpredictably, disabling NEGIS. To keep information up-to-date across the system, replication and e-mail routing connections were scheduled from a central hub server (known as a Class 1 server) that resided with the Massachusetts State Police. "Event-driven connectivity" was configured to ensure that high-priority e-mails are routed through NEGIS immediately.

Notes supports a variety of network protocols, dial-up capabilities, and advanced replication techniques. That means agencies can deploy Notes successfully within almost any existing infrastructure. A diagram showing a part of the NEGIS network is shown below.

The top right part of the diagram shows the Massachusetts State Police component of the NEGIS infrastructure. Massachusetts hosts the hub server, which acts as a central distribution point for all NEGIS information. The hub server is responsible for scheduling replication and routing connections with each participating organization's external or primary NEGIS server. Under the hub-and-spoke methodology, information entered by a user in the Rhode Island State Police is replicated on the Massachusetts hub server and then distributed to the Vermont, New York, and Connecticut servers as well.

The bottom right of the diagram shows the Vermont State Police, which has two Notes servers. In this case, one server is designated as an external server, handling all connectivity with servers outside the Vermont State Police. That type of setup ensures the privacy of Lotus Notes information that users do not intend to share with other agencies.

The top left of the diagram shows the Rhode Island State Police, which has only one Notes server. In this case, the Notes infrastructure is used only for NEGIS, so there is no ancillary Notes information that would need to be kept on a separate server.

Configuration of Client Computers

Every NEGIS user must have (1) an account on a Notes server at the state police agency and (2) a PC capable of running Lotus Notes. NEGIS agencies chose to implement a mix of desktop and portable computers running Windows 95. Lotus Notes client software is also available on Windows 98 and Windows NT 4.0 systems.

These are the hardware recommendations for a Notes client that can support NEGIS functionality:

- **Processor:** Pentium-level or higher

- **Memory:** 16 megabytes of RAM

- **Storage:** 50 megabytes of hard disk space (30 is the minimum, but more is required if the user prefers to make local copies of databases and work on them off-line)

- **Network Card:** required if the user is going to connect to the Notes server over the NEGIS network

- **Modem:** required if the user is going to access the Notes server over dial-up phone lines

Lessons Learned

Police are the clients of NEGIS, and they also designed it. What lessons can be drawn from a process in which investigators—not contractors—designed a law enforcement information-sharing system?

Overall, the use of Lotus Notes turned out to be very important. That software enabled investigators to configure the system's databases to meet their particular need: the rapid sharing and frequent updating of information on gang activities and police tactics.

The following are some of the key lessons learned in the implementation of NEGIS:

1. **Top-level commitment is essential.**
   Commitment by police chiefs, sheriffs, and other law enforcement executives is absolutely essential to the success of a specialized system like NEGIS. Their commitment, support, and feedback must begin at the point of concept development and continue throughout system design, staffing, and implementation. They must understand the level of staffing required to sustain the flow of information and otherwise support the system. Unless police executives are careful, the system may be forced to operate beneath minimum staffing levels. This situation, in turn, can lead to the mistaken impression that the information-sharing network is deficient, when in fact the culprit is insufficient staffing. Progressive police executives will see the wisdom of building a cadre of staff with expertise in creating data systems from scratch. Having such a group can also help the agency deal with many issues besides gangs.

2. **Intelligence is a critical, central feature.**
   In systems like NEGIS, the intelligence-sharing component is the most central and problematic feature. Before agencies start establishing an automated information-sharing system, they should make sure they are comfortable with the basic principle of information-sharing, both within and between agencies and states. Otherwise, they will be automating a concept that is flawed to begin with.

3. **Consensus is the best basis for decision making.**
   In a multijurisdictional setting, decisions on architecture and other system features should be based on consensus. This lesson is especially true of a multistate project like NEGIS. Each participating agency must support the technical configuration of the system, understand its strengths, and find ways to address its shortcomings. If agencies actively participate in the design phase, it is more likely they will "sign on" to the subsequent equipment acquisition, implementation, training, and operational phases. Consensus building takes time, especially when a quorum of busy investigators is required. Planners should leave plenty of time for strategy meetings to resolve basic hardware, software, connectivity, and associated issues. It is best to resolve any conflicts or misunderstandings early in the process, not at the time of system acquisition and implementation.

4. **Key investigative staff must remain available for system maintenance.**
Most of the participating NEGIS states utilize personnel who provide technical support to the gang information system and perform regular investigative (or, in the case of civilians, investigative support) functions. Agency administrators who stretch these staff too thin or who allow this to happen, may encounter system administration problems. The reason is that when overloaded with additional duties, personnel tend to revert to their original roles. Consequently, systems administration and exploitation of the new databases can suffer. Even if investigators are later freed up to resume supporting the new system, valuable time and momentum may be lost.

5. **Tradeoffs between system costs and security should be analyzed early on.**
Various one-time and ongoing expenses are associated with automated gang-information systems. One major cost consideration is the tradeoff between keeping costs low and building,in as much operational security as possible. Because clients must live with the consequences of their tradeoff decisions, they should consider obtaining neutral technical assessments that present them with a range of cost-effective options.

6. **Compliance with 28 CFR requires special attention.**
28 Code of Federal Regulations (CFR) 23 *et seq.* sets forth U.S. Department of Justice requirements for transmitting automated information, maintaining data archives in a proper format, and ensuring the confidentiality and proper use of information in such systems. As a basic requirement, and using 28 CFR 23 as a guide, all regional information-sharing systems should protect the privacy of individuals who are not reasonably suspected of involvement in criminal activities. Some states have equally strict requirements, reflecting a growing legislative concern for citizens' privacy. Compliance with 28 CFR 23 is absolutely essential when federal Crime Control Act funds are used. Although the requirements are clear, complying fully can be a formidable task, especially when many agencies are involved and investigators might prefer to spend their time gathering, analyzing, transmitting, and using the information generated by the new system. Compliance presents substantial educational, management, and paperwork burdens that must be assessed and accepted from the outset.

7. **Converting records and files consumes much time.**
Records placed in the intelligence portion of automated information systems must be "sanitized" so that only information that meets the standards of 28 CFR 23 is included. Also, records may need to be modified to meet the requirements of new automated systems. Such work takes a good deal of time. It may make sense to bring in civilian analysts or other personnel to help complete the conversion and sanitizing of those files.

8. **Careful vendor selection pays off.**
When selecting vendors to provide hardware, software, and possibly other support, system designers should draw up detailed, clear specifications. Client-driven systems like NEGIS could benefit from impartial, third-party assistance in drafting specifications and solicitations. Among other benefits, such assistance can help ensure that no

bias toward any vendor or type of equipment or software is inadvertently embedded in the specification and that criteria for evaluating bids are clear and objective.

Conclusion

NEGIS evolved when enterprising investigators from five northeastern states succeeded in creating a multifaceted information-exchange system targeting mobile gangs arriving and operating in their region. In large part because this user-designed system was based on Lotus Notes, it was fairly easy to create databases for each of the system's different features—from proprietary e-mail messages to the transfer of investigative documents and other files. In fact, a survey of NEGIS participants from the five states rated the quality and ease of use of Lotus Notes between "'very good" and "excellent." Overall, investigators' level of satisfaction with NEGIS has been high.

Other law enforcement agencies seeking to replicate some or all of the system's features should consider this fundamental requirement: participants must first agree to share sensitive investigative information, and only then will automating that information deliver the results expected of it. Once that critical hurdle is overcome, systems like NEGIS will rise to meet the expectations of users.

Appendix: NEGIS Contacts

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