Brevard Uniform Laptop Law Enforcement Tracking System Version 5

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Abstract

By 1988, crime reporting at the Brevard County Sheriff's Office had become very inefficient. A simple case report could take weeks to reach the Records Division in Titusville and another few weeks before making it into the county-maintained Criminal Justice Information System (CJIS). After careful review and on-site visits, the Sheriff's Office decided to purchase a new laptop-based computer system known as BULLET -- the Brevard Uniform Laptop Law Enforcement Tracking System. This paper provides an overview and evaluation of the system's development, and shows how important planning and user input can be in the development process.

Introduction

The problems experienced by the Brevard County Sheriff's Office with its mainframe computer were not unusual. Charges for the Criminal Justice Information System (CJIS) running on the county mainframe were nearing a quarter of a million dollars per year. Data extraction and report generation required waiting for a programmer, unless the department had its own, since these tasks could not be handled by the average end user in the Brevard Sheriff's Office. The jail experienced similar problems with its portion of CJIS: not enough terminals, awkward data input, not user friendly, inflexible programming, etc. Changes in available technology and continuing frustration in the department proved the mainframe system was obsolete.

In 1988, the Sheriff's Office created a committee of four to review problems, determine solutions, and submit recommendations on an improved reporting system. The committee submitted two alternatives for consideration:

> A call-in reporting system where clerks file reports based on information supplied by the deputy over the phone. This system was promoted in the city of St. Louis.
>
> A laptop computer system similar to that used by the St. Petersburg Florida Police Department. This system would allow for case report approval and data extraction as well.

Because the call-in system would require the time of two employees to file a report, it was determined to be too costly. The laptop system was then explored as a reasonable alternative by staff members.

After careful review and on-site visits, the department decided to purchase the laptop computer system, including software from Highland Technologies. Later the same year, the Brevard County Sheriff's Office purchased a Unisys computer system for laptop generated reports and computer support for other units in the department. This was the birth of the Brevard Uniform Laptop Law Enforcement Tracking (BULLET) System.

BULLET offered several advantages over the earlier mainframe system. First, it

was tailored to meet the specific needs of the Sheriff's Office. Second, user friendly software reduced the need for programming staff. Third, the "open" Unix system allowed for programming modifications by Sheriff's Office staff. IBM, a proprietary system, can only be updated or modified by an IBM programmer in conjunction with IBM programs. Fourth, manual input by the data clerks would no longer be needed once the BULLET system was fully operational and used for UCR reporting. Finally, payback on the Unisys system would be less than three years; the services the system would provide might have cost an additional $200,000 per year if offered on the mainframe.

Laptop Computer Training

In November 1989, a training program was established to instruct each employee in the use and capabilities of the laptop portable computers. The training program was divided into two parts -- Computer Technologies I: Introduction to Portable Computers, and Computer Technologies II: Introduction to Database Computers.

Technologies I

Technologies I (24 hours) taught the line officer how to generate crime reports based on the Florida Uniform Crime Reporting System. The course included basic computer operations and specifics on the department's records system. The course was divided into four parts: Basic Computer Operations (12 hours), Computer Transfer (2 hours), Impres Report Generator (8 hours), and UCR and CJIS Codes (2 hours).

Technologies II

Technologies II (8 hours) provided additional training for supervising the collection, archiving and distribution of computer generated crime reports. Computer Technologies I was a prerequisite for the course. The course was divided into 3 parts: Basic Computer Operations (6 hours), Printer Operations (1 hour), and Communications (1 hour).

For each module of instruction, the course and lesson plans were validated and sanctioned by FDLE and Brevard Community College. The training was subsequently accepted and approved by FDLE as meeting mandatory re-training standards.

Problems

Although the vendor advertised this system as capable of accommodating the needs of the Brevard Sheriff's Office, the original hardware would not handle the number of users planned for the department. The system was designed for the complaint reports of a small law enforcement agency; each laptop would hold only three complaint reports before it had to be "dumped."

Software reprogramming made the system conform to user needs. This meant that the entire report writing program and the way deputies formulated reports had to be reconstructed. Modifications were made in the reporting format to cut it back from three pages to one page. Each laptop was then capable of holding at least 12 complaint reports.

The programmer for the vendor was recruited and subsequently employed by the Sheriff's Office, putting aside the major hurdle of not having computer expertise on

board. This action resulted in tremendous cost savings as well as a user-friendly system for the entire department.

The programmer took the time to meet with each individual deputy and unit to explain the proposed system, and also what it could do presently and what it might do in the future. He allowed each to state what and how they would like for the utopian system to be. For the most part, he was successful in complying with most of their requests within reason. This small effort from the programmer created the attitude among the users that they had a part in creating the system, and therefore increased their pride in and satisfaction with the final product.

One of the more difficult tasks to overcome was changing the mindset of the deputies in accepting the innovation of computers. This was particularly difficult due to the average tenure of deputy sheriffs - 10 years or more. These deputies were set in their ways. It was unheard of for a deputy to use a laptop computer as opposed to the good old pen and report form.

A unique approach was taken to address this mindset. The North Precinct, which is the smallest precinct of the four in the county, was selected as the experimental unit for the laptop system and training. As expected, training was met with resistance and at times hostility. The efforts of the system's programmer and trainer eventually resulted in a very worthy system and made the other employees understand its mechanics and respect it.

Once the first two class sections were completed, a change of mind toward the laptop system was evident. The gradual acceptance of the system was because of word-of-mouth by the deputies who had been trained. An article was published in the Sheriff's Star, which praised the deputies and the department for the innovation.

Originally it was believed that the Uninterrupted Power System (UPS) within the communication unit would be utilized for the laptop system, but after two lightning strikes, an independent system was purchased to protect only the laptops. This has proven to be money well spent, not only for equipment damage, but more importantly, the loss of valuable time in reprogramming lost systems.

The 1992 Upgrade

System overload occurred because of the overwhelming success of the applications following initial installation. The original Unisys system, which was designed to handle 128 devices under maximum load, was maintaining support for over 130 devices. System locking and channel overloads occurred with greater regularity because of the increased use by personnel. This caused significant inconvenience to those employees who had come to rely so heavily on the system and its capabilities.

By June of 1992, it became evident that the current system would not accommodate the future needs of the Sheriff's Office. Research on a possible upgrade identified the following issues:

- easy transition from the old system to the new system
- capacity for both present and future needs
- opportunity for system expansion after installation
- upgrade without substantial financial investment

Negotiations were initiated with Unisys to upgrade to a system for up to 1,000

devices, with storage capacity in excess of any possible demands generated by the Sheriff's Office. Unisys arranged a site visit to another company using the proposed system. This was an important part of the decision making process.

Unisys agreed to accept the Office's "old" system in trade, offering $72,960 -- almost the original purchase price -- toward the cost of the proposed system. Its proposal included wiring, software, and any technical support needed to complete the installation. It did not address the changes required in the physical environment or the cost for communications equipment to support the jail. The Sheriff's Office would be allowed to retain ownership of the old system until all conversions to the new system had been completed, so that field personnel would not be inconvenienced during the crossover.

The decision was made to move forward with the acquisition of an upgraded computer system from Unisys at a net cost of $392,031, with software and wiring at a cost of $158,921, for a total of $550,952. Since the system was on state contract and included trade-in, the department was not required to process a formal bid.

Expanded Systems

After the upgrade decision had been made, a questionnaire on the current system was sent to each unit of the department. Input from the users of the system was solicited for several reasons. The department wanted to maintain the high interest of the users that had been exhibited to date and allow each user to create and be a part of his/her own unique system within BULLET. This was possible because the department employed an innovative computer programmer.

The following are systems requested for future users of BULLET:

1. Fleet Maintenance. History tracking for vehicle maintenance; inventory control; property control; fleet mileage; test part tracking; automatic forms generation; model quantity analysis; bar coding; vendor tracking.

2. Warrants.

   a. Immediate visual identification of wanted subjects - Photographs would be imposed onto the Warrants Division with all physical descriptions and warrant information, e.g., charge, judge, case number and bond amounts.

   b. Immediate access to Brevard County arrest records, which will expedite the processing of felony bench warrants.

   c. Access to the NCIC fingerprint classification.

   d. Interfacing with NCIC/FCIC, eliminating double entries -Entries are presently made into CJIS computer and then into NCIC/FCIC. The time used for researching ID information, processing information and entering it into two computers would be considerably reduced.

3. Staff Services. Training records on each employee; FTO program; career incentive programs; internal investigation files; department vehicle accident files; review board data (new hire, promotion); mutual aid data (local/state).

4. Uniform.
   a. Master Name Access - Criminal History Information.

   b. Report Generator - Eliminates the requirement for so many typewriters, and relieves pressure on clerical help.

   c. Traffic Citation System - Provides information regarding where, when, and by whom citations are issued. Used frequently to provide data to concerned citizens requesting traffic control.

   d. BOLO System - A source of pass-on information for shifts to utilize as they go on duty; provides direction as to criminal activity within each patrol zone.

   e. Report Management System - Useful in keeping abreast of activity with respective precincts.

   f. CAD System - Valuable information for precinct commanders such as calls for service, response times, time on each complaint report, areas of activity.

   g. Graphical Analysis System - Specific information as to the time of offense occurrence and location by grid as opposed to zone.

5. Investigations. Computer software program to provide computer aided analysis of telephone numbers which have been obtained through investigations, wire taps, and other cases. This program would allow input directly from pen register equipment.
   Pen register input would be expanded to include several different analytical options. The options should include the ability to retrieve subscriber lists, both alphabetic and numerical, as related to target telephone numbers; frequency of particular phone numbers called, as compared to total number of calls; and the ability to compare phone numbers from different sources, i.e. toll to toll and DNR to DNR.
   An Intelligence System has been created which provides a database for historical and current intelligence information. This database is shared with the Brevard County Drug Task Force and serves to eliminate duplication of efforts. This program should be modified to allow the agents the option to create an intelligence file from the person's block of case reports.

6. Computer Generated Time Sheet System - Garcia. The program automatically computes straight and overtime hours, according to the Garcia Ruling. The program provides a computerized printout of the time sheet, which is turned into Finance along with the individual time cards. This worked excellently and is a tremendous time saver for unit supervisors. It also eliminates the need for a written recap report and can be retrieved.

7. Criminal History Files. Search by partial name; mate records included within the history files; case dispositions; DNA database; search by physical characteristics;

search by crime types or M.O.; search by geographical location; photo imaging; automatic fingerprinting identification.

8. Inmate Management System. The Inmate Management System centers around classifications. The majority of the data collected and the users of the data will come from the classification section. The implementation of the inmate management system and the design of a classification profiling system will allow the detention center to move forward in a more defined and efficient classification process. Ultimately it will allow the organization to reduce the staff required for the medium security felon inmates who have demonstrated no behavioral problems while incarcerated, and provide the possibility of going to a direct supervision program in the future, if the department so desires.

   Essential in the implementation of this program would be the close coordination between other factions of county government. The coordination of the Court Clerk's Office and pretrial release will eliminate as much double data entry as possible and make data which is currently being stored by either the clerk, pretrial release, or the Sheriff's Office available to other user units.

   The system consists of three component parts - the first being the mainframe data storage computer. The second is the photo imaging system, which requires a stand alone system with enough storage capabilities to meet current and future needs. Last of the component parts is the bar coding system which allows for inmates to be identified by a unique number. The spin number would allow for easy tracking of the inmates from the time of incarceration until the time of discharge. The spin number is utilized on any subsequent incarceration periods and is used by the other investigative and operational units within the department to identify and track a particular inmate through the system.

9. Imaging. The imaging system runs from a mini-mainframe computer at the detention center with three entry systems at the jail and one at the Viera booking station. One color and one black-and-white image processor will accomplish the following tasks:

   a. They will replace the requirement for polaroid photos taken during the booking process for attachment to booking folders for identification during booking and releases. Since imaging supplies do not have the shelf life limitations of Polaroid film, this will simplify supply requirements and eventually create a cost savings.

   b. Imaging will eliminate the requirement of 35mm photos being taken during booking. The color image processor can generate the same type picture without the need for a second photograph. It will allow for a copy of the image to be placed on the inmate's arm band for positive identification for all jail activities including: medical evaluations, meals, commissary visits, recreation, visitation, and razor issue and retrieval.

   When combined with bar coding capability, it will allow these activities to be done in a much more efficient manner. Bar codes scanned into the system eliminate the need for manual logging of these activities for inmates.

c. Imaging will simplify identification of inmates who have removed arm bands even when the file copies of the booking photos have been lost or damaged. Since photographs are taken from a keyboard during the booking process, it will not be necessary to physically stand an inmate against a wall for photographing in the event the inmate is resisting. Simply restraining the inmate in a chair will allow the image to be taken.

d. Bar coding inmates in and out of the cell block areas will save money (log books, etc.), reduce archive space requirements, and allow for a much more positive accounting of inmate activity. Investigations as to what inmate was where at a given time would be a matter of a simple keyboard entry.

e. Producing groups for the purpose of line-ups will be a matter of keyboard entry, thus eliminating the traditional manual searching of a file for photographs and physical description which appear to match.

f. Imaging will eliminate the need to take additional photographs of inmates who have been cleared for trusty status. The system will simply generate a badge photograph. Once repeat offenders are in the system, it will allow for another method of identification by matching the inmate with his or her previous booking data.

Computerization 2000

The BULLET system was the first computer venture for the Sheriff's Department from laptop capabilities of report writing, the system has since been fine-tuned with more features added to it. The project has been both challenging and rewarding, and the possibilities of the system are astonishing.

Managing technology within a law enforcement agency on a limited budget required research, planning, and commitment on the part of management. Law enforcement over the past 20 years has seen vendors bring new software and computer applications, sometimes without really knowing a lot about law enforcement. Very few agencies had technical expertise and were sometimes easy prey for companies that left law enforcement agencies with an incomplete package.

Knowing only too well that manpower, due to available funding, will be the law enforcement commodity in shortest supply in the future, all efforts at computerization of various functions should be focused on making the best possible use of available manpower resources. To that end, and toward our best possible manning scenario for the year 2000, I would envision the following phases for computerization of specific detention and law enforcement functions:

Detention

First we need to eliminate our dependence on the county CJIS and establish a link with the current Sheriff's computer. This provides the initial step toward reducing the number of times data on a given individual must be entered. Concurrent with the transfer of our record keeping to the Sheriff's computer, the JMCIDS should be purchased and installed. Additionally, a link between the Sheriff's system and the Clerk of the Courts should also be established. The series of actions will allow a given individual to be booked (including incorporating a picture into the computer file),

previous incarcerations to be reviewed for purposes of classification, and all pertinent court actions to be included into one file with limited requirements for multiple entries of data.

Once the data links are established and hardware is in place, the classification function should be computerized to the maximum extent possible (this should include the medical component of the classification equation). This will allow those individuals requiring maximum supervision during incarceration to be placed in locations where our maximum manpower is concentrated. Conversely, those individuals needing minimum supervision can be placed in locations requiring reduced manpower. We would thus provide management the maximum leeway in the reduction of manpower resources.

Next on the agenda should be inclusion of record keeping for additional functions such as feeding, recreation, commissary, showers, visitor logging, attorney visits, incident reports, etc. Keeping track of these functions not only requires many hours to log in various logbooks and forms, but requires many additional hours maintaining the archive function for these items for the required time frames.

After these functions are in place and working, we should concentrate on some of the functions to save the department additional funds, such as inventory control for the kitchen, office supplies, uniforms, etc. This is not so manpower intensive as the functions spelled out earlier, but there could be considerable savings by putting these functions on the computer.

By the year 2000, following the plan outlined above to its logical conclusion, I would envision the Brevard County Sheriff's Office being capable of the following:

A call comes in to the Communications Center regarding a crime in progress. Using the Computer Aided Dispatch System, the communications officer chooses the nearest available unit and dispatches it by sending all available information, including location, to the computer system located in the patrol vehicle. The shortest possible route and any road hazards to be avoided should also be transmitted. In addition, backup should be assigned and dispatched in the same manner.

Once an arrest has been effected, the officer fills out the offense report on his laptop computer. Checking for outstanding warrants, stolen vehicle, and any number of other parameters will also be done at this time. The patrol vehicle then transmits this data through the communications network to all agencies requiring the offense information. Data is automatically transmitted to the jail with a complete record of all data on codefendants, and any other information which might influence the individual's classification. The computer should automatically initiate a check via FCIC/NCIC without the need for operator intervention.

Upon arrival at the jail, classification would have already determined the correct handling for the arrestee. A picture would be taken using the JMCIDS, property would be taken, and the individual taken to an assigned area as determined by classification. Functional areas, such as the kitchen, medical management, etc., would automatically be notified of an additional individual in population.

From this point, every action involving this individual would be logged via the system until the individual is either released or transferred to DOC. The majority of data input during this process could be done by clerks, freeing the law enforcement and corrections personnel to do the jobs for which they have been trained.

When an individual leaves the jail whether through release or transfer to DOC, the

individual's records would again be archived until the next time he/she is arrested. The individual would automatically be removed from meal counts, medical rosters, etc.

Law Enforcement

The primary need of a law enforcement agency from a computer system is the processing of information quickly, accurately and closer to the deputy in the field. Here, in order of priority, are the future developments I hope can be accomplished.

1. Mobile Data Terminals - While MDTs have been around for quite some time, only recently has the price drop made them affordable and the advent of trunked radio systems made them viable. In the past, a separate radio network would have to be in place before MDTs could be put on-line.

Features of MDT'S include case reports being transmitted directly to the road units, and deputies having the ability to access a variety of databases: CJIS, CAD, laptop, FCIC and NCIC. Pictures of the jail imaging system could be accessed from MDTS. Reports could be transmitted to the laptop computer for even quicker input. Maps of Brevard County also could be stored in the terminal MDTs and would reduce the workload on the communications staff. Voice transmissions are reduced and inquiries into teletype would be done from the car. The cost to supply 200 cars with MDT's would be $750,000 to $800,000.

2. Geographic Information Systems (GIS) - With the county committed to the system, all maps of Brevard are digitized and can be accessed. Some benefits for the Department of a GIS system are in crime analysis, man power/resource allocation, and real time maps in critical times.

Using computer work stations, maps can be drawn on the screen with certain parcels highlighted based on one or more criteria: burglaries in a given area for 30 days at a specific time vs. the Field Interrogation Card system. These maps could also be in the MDT's with a best route selected to get there. A screen in the Communication Center would also show the vehicle locations coming from an AVL system. Large maps of an area can also printed on a $50,000 color printer which is presently owned by the county. Cost for the first year is estimated at $40,000. Cost for a work-station is estimated at $15,000.

3. Continued Integration - This short term goal which is currently being pursued, is one relatively inexpensive way to provide the deputy with more information in which to do his/her job. A deputy can process databases from other computers from a terminal within the office or car. It gives a quicker response than writing a letter or calling other agencies on the telephone.

4. Imaging System for Records - While this application may save more in administrative costs, it will also benefit operations and personnel. Imaging of documents allows for copies of memoranda, letters, and case reports to be retained on computer disk instead of microfilm. Imaging allows for clear pictures of documents to be retrieved but also allows for instant access without having to search an entire file cabinet. (An example of this: an agent in Viera or a state attorney could access a case file without having to get

a clerk to assist.) The existing BULLET system could also be very easily tied into the imaging system software, as well as hardware. Improvements at lower costs have made this a viable tool that would be of great benefit to the department and may be expanded to the needs of other units.

The projects will hopefully be funded in the near future, but given tight funds, it is not likely. However, future price reductions and the attractiveness of potential salary savings definitely justify dollars for these projects.

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A graduate of the University of Central Florida with a B.A. in Criminal Justice, he also graduated from the FBI Academy and is pursuing a master's degree in Public Administration. Ronald is a graduate of the Florida Crminal Justice Executive Institute's Senior Leadership Program (Charter Class, 1993).