Seattle Police Department Program Narrative – Real Time Crime Center

Problem Statement

The Seattle Police Department (SPD) recognizes that the volume of information available to an officer responding to a 911 call can be overwhelming. These sources include internal and external records management systems, social media sources, multiple news media sources, criminal history databases, state licensing databases, and intelligence operation centers. Due to the volume and the lack of integration the information is usually correlated well after the call for service has ended, making:

- the initial response less effective and efficient;

- the time and resource commitment for follow-up much greater.

What is needed is real time information based on threshold parameters, predictive analytics, case history, trends, and intelligence that can be provided to first responders and patrol operations.

Currently, SPD does not have a solution that pulls data from these disconnected systems, integrates them, interprets them, and applies both a technological and human analytical methodology to interpret the data into actionable, just in time information that is relevant to an officer responding to a call.. Additionally, there currently is not a system that:

- correlates all of the disparate data and applies predictive analytics to determine anomalies in crime patterns;

- provides supervisors in the field with real time data to inform resource allocation and special event management;

- provides Command Staff with integrated and analyzed crime data for tactical and strategic long range planning.

What is needed is actionable information on a real time basis that is based on crime analysis, intelligence, social media, predictive analytics, and threshold parameters. A real time view of the full scope of an event, as it unfolds, would be invaluable to first responders, supervisors, dispatchers, the Operations Center, and the Command Staff. Our goal is to develop a system that will enable us to leverage actionable information for both tactical and strategic operations, thus utilizing predictive analytics to improve early identification of anomalies and improve the effectiveness of response operations. The ability to extract data and information to drive predictive policing from this volume of information is gated by numerous data collection systems, interoperability of policing software, timely analysis, and various computations through end to end system solutions. Additionally, from a scalability perspective the solution must provide meaningful information from routine 911 calls to those spanning the greater metropolitan area including our inter-agency partners. By improving the efficiency and effectiveness of first responders, SPD will reduce crime and further improve the Department's efficiency by reducing the number of cases requiring follow-up.

Based on the success of Real Time Crime Centers in other agencies (Los Angeles, San Diego, Boston and Chicago), and efficiencies gained from our pilot, SPD has decided to move forward with an implementation of a 24 X 7 RTCC.

Project Design and Implementation

Seattle Police Department has chosen to focus on an open architecture using an incremental approach to define the problem; develop objective outcomes; identify data sources; and determine how we manage the mechanisms to provide the desired outcome, getting critical information to the police officer. The project team will re-use as much existing solution sets as possible, these can be locally developed, procured or copied from a peer agency. It is not our

intention to re-invent the wheel. On the other hand we do not want to use a square when a wheel is the desired outcome. Our solutions and approach must address the problems we are solving.

We will build a system that collects and analyzes data about background rates and spikes, correlates them and creates a knowledge base for future reference and information when similar events or circumstances happen. We will build the system by using a crawl, walk, run method, while learning and building our capabilities on the way. This learning will influence when and where we add more data sources and analytic tools.

SPD Command Staff has established a Real Time Crime Center project team, co-led with an Information Technology Project Manager and a Lieutenant from the Intelligence Unit reporting directly to SPD Chief Information Officer and the Chief Operations Officer. The project team is composed of membership from the Intelligence Team, Communications Center, Crime Analytics Unit (CAU), Information Technology and Seattle Police Operations Center (SPOC). The Program Manager and Lieutenant organize and prioritize the work effort based on Command's directions and lessons learned from the initial RTCC concept phase. The Communications Center provides knowledge and experience on how officers are dispatched on 911 calls. The Crime Analytics Unit provides the measurements and analysis capabilities of the Department, assisting with identification of data sources and potential integration points. IT representation provides systems' and data base development and configuration experience. Additionally we have agreements with the Washington State Department of Corrections, Port of Seattle and King County for Mutual Aid.

Our goal is to improve the deployment of officers and resources to an incident, but we would be foolish to assume we can achieve that goal at the outset. Instead our mental model will be to experiment (sectors and crime types), along the following continuum:

(1) correctly identify a problem for a human being to take action on such as an increase in 911 activities

(2) when we can accurately detect the issue we will suggest an action for the operator to take such as re-deploy resources from sector A to sector B

(3) once we have proven the system works through testing we can suggest automation of resource deployment.

We expect each sector and crime type to progress along this continuum at a different pace. In fact, we may decide to never progress certain areas beyond detection. To facilitate this approach we will use an architectural approach that is built to be modular, with easily interchangeable components. The RTCC will serve as the control mechanism to ensure the department is responding to the right issues.

Our key measures of success (desired outcomes) are a reduction in crime rates, reduction in response time and an improvement in resource utilization. We will use tools, which exist today; Records Management System to measure reduction in crime rates, and Computer Aided Dispatch to measure response time. A lagging indicator will be a reduction of complaints. We have identified two controllable levers:

(1) the ability to define and manage the background[1] rate recorded in RMS and discussed at SeaStat. This background will drive our staffing / deployment plan (how many officers, when and where should they be located);

(2) the ability to detect and respond to a spike, (for example we see a 15%[2] increase in a specific crime type in a specific sector).

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[1] The background rate is based on historical information for example, we expect to see X burglaries in sector X on Thursday evenings

[2] One of our actions will be to determine what percentage above the background rate constitutes a spike. We do not want to randomize the department. To begin, this will be a judgment call and as we learn I expect the spike will be tailored by type of crime and location

We will build an open platform that will encourage other agencies to join. This platform will intersect with our mobile strategy, so that officers will be notified via their smart phone to change location in response to the spike; and feed into our transparency strategy. A service interface description document will be produced to ease cooperation of information sharing. We know our end state will require mobile technology capabilities, especially to officers on bike and foot patrol. To address this need we have established a parallel focus program called "Mobility" to ensure we can deliver timely information to the officer, while using the GPS capability of a smart phone to know the officer's location.

This project will gather information to help define the problem being solved, and identify the metrics related to this problem. We will appraise resources and other constraints that can either help or retard our progress in solving the problem. Our deliverables will follow an iterative approach, whereas all first copies are considered draft, iterated until the "final" stage is achieved. The approach will focus on and utilize the BJA Global Reference Architecture Framework including:

(1) Scalability, the ability to grow our capabilities as our experience and knowledge increase.

(2) Data Diversity, the ability to accommodate data sources independent of their processing origin, through use of interface and data design documentation.

(3) Agility, the ability to add, remove and or modify our data inputs without impacting our SPD Services and Consumer Systems, see Figure #1 below.

To achieve the desired end goal our tactical approach is:

a. Correctly identify the problem

b. Identify and prioritize the Provider Systems (inputs)

c. Identify human actions, determine automation point

d. Define and Establish thresholds

e. Increment, integrate, test, modify, test and document
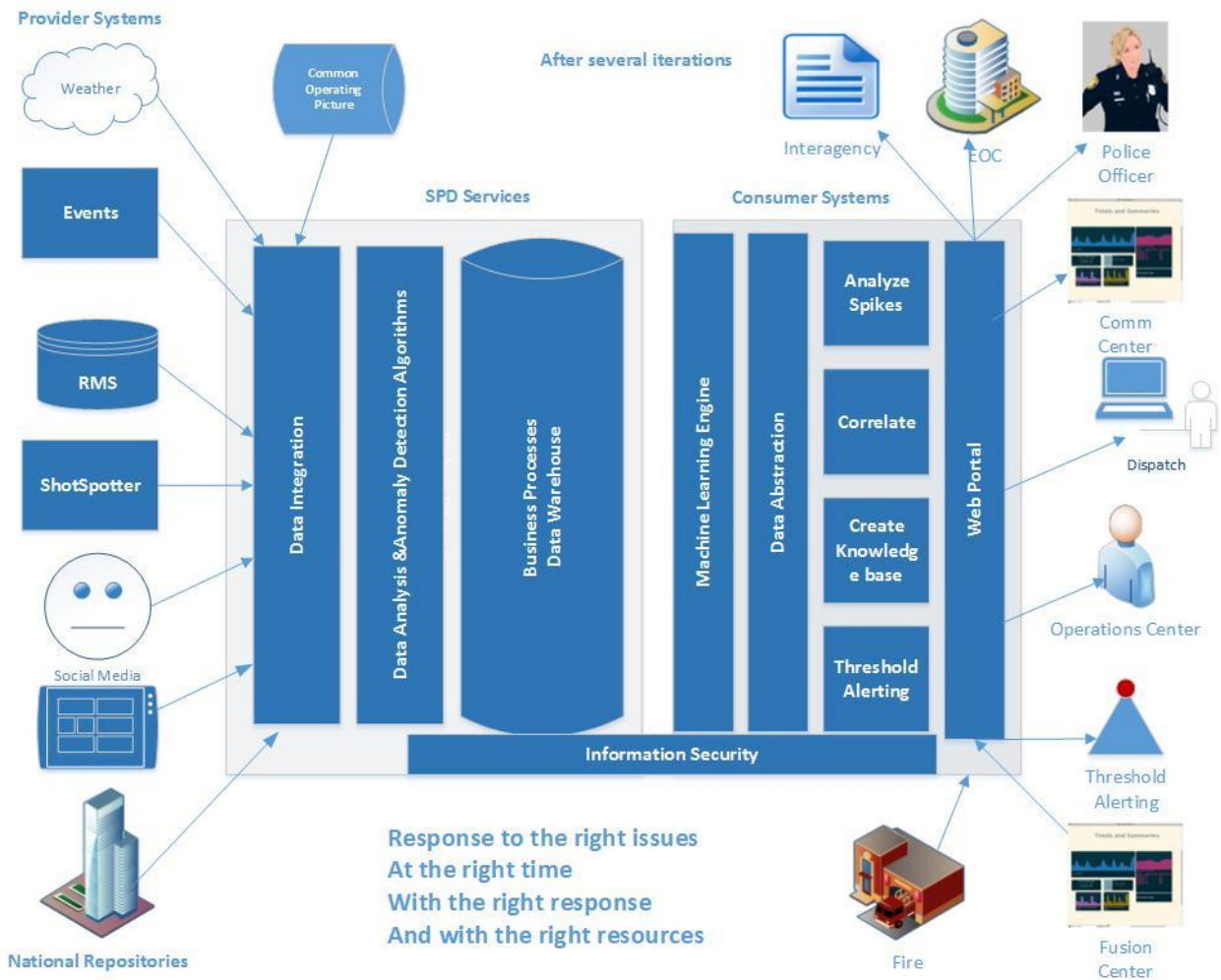
f. Develop and maintain strong communications

Figure #1

SPD has incorporated a number of analytic products to support its operational mission. The missing element is the integration and correlation of the real world effects to further optimize these results. There are eight policing/analytic systems being used at SPD, (CAD, RMS, WASIC, NCIC, LINX, COP, SDOT Cameras, MMIS Cameras) and multiple social media sites,

(Periscope, Geofeedia, Tweetdeck, Facebook, Reddit, and Tmblr). There is information and data available today will that be further processed using a RTCC analytics approach. The data is there, we need to move to the next level of Consumer System processing.

It is our intention to conform to the GRA for our proposed solution to be highly relevant to other jurisdictions/agencies across our metropolitan, state and at a national level. SPD consistently leads information and capabilities awareness through its focused transparency initiatives, our RTCC project will adhere to the same formula. We will invite academia, product suppliers, peer agency and federal representation to discuss the importance of information sharing using scalable, data diversity and agility as models for RTCC foundations.

Seattle Police Department Capabilities and Competencies -

The architecture and approach developed by SPD follows Global Standards Package (GSP), more specifically the Global Reference Architecture and its open, modular and uncoupled approach to data information systems. The architecture we have developed is scalable, allows diversity of data source, is agile, promotes re-use, and aligns with best practice.

The project team is led by Lt. (b)(6), (b)(7)c He is a 29 year veteran of SPD and has a Bachelor of Arts degree in Society and Justice from the University of Washington. For the last eight years he has been the Commander of the Criminal Intelligence Unit. His duties include responsibility for overseeing SPD staff at the Washington State Fusion Center; project lead for the development of the technical and electronics support unit; project lead for the Seattle Shield Public-Private Partnership Program; and project lead for the development of the Cyber-Crimes Open Source Investigations Team.

(b)(6)   M.S. Information Systems Management, PMP, ITILV3. (b)(6) has delivered several SOA based command and control system solutions for Ground Midcourse Defense as

well as numerous advance technology and integrated technology products, his resume is included.

Technology Capabilities:

- integrated aspects of the Records Management System with various external databases, including our jail computer system and our law department system;

- implemented a centralized digital evidence management system to allow input and manage dissemination of both digital audio and digital photographic evidence;

- implemented a citizen on-line reporting system which allows the public to report certain crime types (primarily property crime) electronically via a web interface;

- implemented a "my neighborhood map" system which allows the public to access mapped incident data via the web, and visualize certain incident types;

- instituted a data warehouse (data.seattle.gov) which enables the public to access certain data for their own analysis;

- developed a Digital Evidence Management system (DEMS), which allows the collection of audio statements and digital photographs into a database;

- implemented a training management system which manages training curriculum, who is scheduled to receive training, who has or hasn't attended training, and provides supervisory reports.

Plan for Collecting Data Required for Performance Measures

Data sharing and coordination are at the heart of intelligence led policing efforts. Additionally, SPD has recently engaged in an initiative to bring together the best practices of community policing within the context of data-driven, which are a blend of the best elements of these dominant management strategies. A RTCC is the next evolution of our efforts to establish

shared understanding, enhance collective efficacy, and accountability in a real time platform. Data and analysis are at the core of these efforts. As the eyes and ears of the Department, the ability to make sense of and take action, in a coordinated way, using the best information is critical to our strategy.

In 2012, SPD entered into a Settlement Agreement with US Department of Justice. As a result, we have well established relationships, not only with the DOJ, but with community stakeholders who have participated in policy reform efforts. Currently, as part of the Department's efforts to comply with the Settlement Agreement, the Department is engaged in a vendor selection process to develop and implement a next generation Data Analytics Platform (DAP). Concurrently, Department resources are being structured in a centralized analytical unit to standardize and make more efficient the development of information for operations, management and administration.

SPD maintains data on administrative systems, including a training management system. In July of 2015, an apparently successful vendor will be selected to build the Data Analytics Platform (DAP). Encompassing law enforcement transactional data systems, as well as administrative and management systems, the DAP will Extract, Transform and Load (ETL) data from existing infrastructure into a state of the art, purpose build data warehouse. This data will feed the RTCC with near real time, actionable intelligence in a Common Operating Picture (COP). In addition to serving the Department, the COP will also serve to integrate with state and federal information sharing resources, such as the Washington State Fusion Center (WSFC). Additionally, this infrastructure will serve to inform required performance reporting requirements as negotiated under this award.

As important as operational efficacy is organizational legitimacy, privacy is a delicate but essential element of every law enforcements agencies toolbox for rendering service to the community. Built on trust, privacy is assured through effective leveraging of accountability and transparency measures. Through operational accountability programs such as SeaStat[3] and proactive initiatives to push out data for public consideration (i.e. SPD's body worn camera channel on YouTube), SPD is committed to engaging our community so that our strategy closely reflects the diverse values of our community. Although strategies to utilize public data sources (e.g. traffic cameras, social media) may be best practices in intelligence led policing, they may not be in line with the values of our community and so governance of the RTCC will rely heavily on an evolving policy process to assure our use of data and data sharing is responsible.

Successful implementation of the program will be measured according to negotiated thresholds for the performance measures identified in the solicitation. The Department will report, through the Program Manager of the RTCC, on several performance metrics. The Department cooperates with the National Incident Based Reporting System (NIBRS) protocols for crime reporting, in addition, the department will report on the specific criteria as indicated under the heading "Data Grantee Provides," in the solicitation. Additionally, the Department will report on program implementation, as outlined in the solicitation. Data related to partner organizations and the support infrastructure (e.g. personnel, network traffic, cost expenditure for maintenance, etc…) will be reported. Data on all performance measures is available through existing or 'in development'[4] data infrastructure.

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[3] SeaStat is an enhanced version of CompStat to integrate performance accountability with our Micro Community Policing Program.

[4] Development to data infrastructure (i.e. the DAP), is a requirement of the court ordered reform process, currently underway.