**Open Source Message Switch Project Charter**

The purpose of this project charter is to document the project goals, scope, governance and design principles as well as formally recognize and authorize the Open Source Message Switch project.

**Project Description**

The Open Source Message Switch (OSMS) Project is funded by the Bureau of Justice Assistance Technology Innovation for Public Safety (TIPS) Program through a grant to the Puerto Rico Department of Justice (PRDOJ). PRDOJ, in turn, sub-awarded funds to SEARCH, The National Consortium for Justice Information and Statistics, to lead the project.

**Vision/Project Goal**

The goal of this project is to develop a viable law enforcement message switch computer system that uses open source technologies and components and that implements national justice information sharing standards.

**Background and Business Case**

## Background

A law enforcement message switch is a specialized computer system that links together multiple specialized computer systems to provide law enforcement access to data resources and capabilities required to identify people and property, request and receive warrant, arrest, criminal history and hot file information. The key business function of the message switch is to provide authorized users the capability to interact with multiple state and national law enforcement data systems to enter and retrieve law enforcement sensitive information. In providing this business capability, the message switch must provide the ability to monitor system performance and individual transactions that occur throughout the system. The message switch should provide the following capabilities:

* Allow users to access and manage information in national and state criminal justice information systems
* Connect disparate criminal justice information systems in the format and protocols native to each information system
* Support a wide variety of message formats and protocols that use configurable and flexible message processing and interface capabilities
* Provide guaranteed message delivery with high availability and high performance
* Act as the control terminal message switch for systems such as NCIC and Nlets that require connection to a single criminal justice information system in a state
* Support the latest information sharing technologies and standards
* Integrate with legacy technologies

## Business Case

State message switches are designed to support law enforcement requests and responses to criminal justice, driver license, vehicle and a host of other information needed by law enforcement to keep officers and the public safe. They also can provide access to state and NCIC mirror files including hot files (databases with wanted and missing persons, stolen vehicles, guns, boats and securities), in-state warrants, the Interstate Identification Index (III), sex and violent offender registries, criminal history records, protection orders, conceal carry permits, and juvenile tracking systems. The message switch is an integral tool for law enforcement information sharing.

Most states use proprietary message switch products and rely on the vendor to maintain and support them. These are very specialized computer systems that are expensive to acquire and maintain. The goal of the OSMS project is to develop a message switch using justice information sharing standards (GRA and NIEM) and open source technologies in a cost-effective manner that does not tie the agency to a proprietary product and vendor.

**Project Scope**

The following related activities **are included** in the scope of this project:

* Develop a message switch computer system that enables law enforcement to query and receive the critical information currently available through existing message switch products. This will allow users to access information – through client software, records management systems, and mobile devices - from a variety of systems.
* Development of open source interface/data exchange standard specification(s) that enables other entities to develop interfaces from their client software[[1]](#footnote-1) to interact with the message switch. This interface will be designed based on existing client messages in use in Puerto Rico and Montana.
* The initial exchanges that the project team will develop are those based on a routine law enforcement traffic stop, including:
* FBI National Crime Information Center (NCIC)
  + Query Vehicle (QV)
  + Query Person (QW)
  + Query Wanted Person (QW)
  + Gun Query (QG)
  + Article Query (QA)
* Nlets (The International Justice and Public Safety Network)
  + Vehicle Registration Query (RQ)
  + Commercial Vehicle Status (AVQ)
  + Interpol Vehicle Query (IVQ)
  + Driver’s License Query (DQ)
  + Interpol Person Query (IPQ)
  + Interpol Gun Query (IGQ)
  + Canadian Gun Query (CGQ)
* National Weather Service (NWS)
* State Motor Vehicle Systems (DMV)
* State Computerized Criminal History Systems (CCH)
* III Criminal History (NCIC)
* State Hot Files
* Administrative Messages
* Other (e.g. Sex Offender Registry, watch lists, etc.)

The following related activities **are not** within the scope of this project:

* The project team does not plan to develop a commercial client solution. However, the project will provide specifications for client applications to interface with the OSMS.
* This project does not include the long-term support and maintenance required of a mission-critical 24/7/365 system. Sustainability planning will be discussed and evaluated to understand the sustainability requirements.
* User management and user account management is not part of this project. However, we will create test identity provider (IdP) capabilities to prove the rules and policies for access control.

**Project Objectives**

The project objective is to provide the following capabilities that are integral to current legacy message switches:

1. validate messages;
2. route and manage messages;
3. provide connectivity to remote systems;
4. send, receive and correlate messages sent to multiple remote systems; and
5. log and audit transactions.

In order to meet these objectives, the project team will work to ensure that:

1. The OSMS is portable and readily deployable in different operating environments and by different users/customers.
2. The OSMS is configurable to enable the customer to create and manage as many functions as possible using configuration capabilities rather than having to rely on a technology service provider to perform these functions. This will not remove the need for technological expertise, but if such expertise exists in-house, the customer could leverage that expertise and does not have to depend on a vendor to make such updates.
3. The solution is standards-based. It will implement justice and industry standards. This will include the adoption and use of the Global Standards Package and National Information Exchange Model.
4. The project utilizes non-proprietary products and components including open source components, products and technologies whenever possible.
5. The solution is reusable solution and key elements componentize in a granular manner to maximize flexibility and reuse whenever possible. For instance, the message switch will be designed in a manner that decouples it from any single client application.
6. The OSMS ensures message correlation – much of the functionality of the message switch relies on the ability to process transactions asynchronously with multiple disparate end points and correlate the multiple separate responses into a single response.
7. The OSMS provides security and reliability. The message switch must be able to meet CJIS security requirements at a minimum, provide high reliability, and guarantee message integrity and delivery.
8. Only the current XML standard messages with Nlets and NCIC will be implemented and the project does not plan to implement legacy socket-based protocols.
9. The message switch administrative software will include the capability to provide administrative messages, audit reports from the system and transaction logs, detect and resolve message errors, and monitor system performance and functionality.

**Assumptions and Constraints**

The project has the following assumptions:

1. Subject matter experts (SMEs) will be available to provide functional expertise, support and testing of user functionality.
2. Technical SMEs will be available to provide technical guidance, development and support.
3. The OSMS will meet the functional and technical requirements as documented in the backlog and user stories.

The project has the following constraints:

1. The project team consists of subject matter experts, developers, project managers and administrators that are located across the country including Puerto Rico. This may limit the availability and accessibility of team members and hinder effective communication.
2. The OSMS project is funded by a federal grant. These funds are limited and the project is under strict spending controls and timelines.
3. The OSMS solution will be constrained to only the message switch. It will not include a client solution, but will include a specification that client software developers can use to develop client interfaces to the message switch.
4. The OSMS solution will not include user authentication and authorization. It will include specifications for user assertions.

**Initial Project Risks**

The project has the following risks:

* The grant funding is limited, which may affect the ability to complete all of the required components and exchanges.
* The timeline is aggressive due to the grant timeline. This could affect the ability to deliver a complete and proven message switch.
* Project team members’ availability may be limited due to delays in starting the project, which may cause project team members’ priorities to be re-aligned, which would affect the project implementation timeline.
* Developing a sustainable support and maintenance model that considers all factors of supporting a 24/7/365 high-demand environment will need to be addressed as the message switch nears implementation.
* Proper understanding and documentation of the messages could affect the ability of developers to fully understand the requirements of each message and spawned message.
* Poor coordination among the project team could impact the project timeline.
* The project has experienced significant delays due to the grant oversight process. Continued delays adversely affect the timeline and add overhead cost due to the additional work required.

**Project Staff Resources and Responsibilities**

Staff Resources: The following core staff resources will be needed in order to successfully plan and execute this project. Additional resource requirements may be identified during the planning process. The project team consists of representatives from the Puerto Rico CJIS agency (Sistema de Informacion de Justicia Criminal (SIJC)), the Montana Department of Justice – CJIS Division (MT DOJ), Nlets – the International Justice and Public Safety Network, and SEARCH.

Project Sponsors: Denisse Cintron, Puerto Rico (PR) SIJC

* Responsibilities: Receive and review regular status updates from Project Manager. Provide course correction and assist in the management of risk. Approve any deviation from original scope, timeline and budget.

Grant and Project Administrator: Mark Perbix, SEARCH

* Responsibilities: Develop, review and submit documentation to satisfy grant reporting requirements. Coordinate approvals with Puerto Rico Department of Justice

Product Manager & Lead Architect: Andrew Owen, SEARCH

* Responsibilities: Lead architect and development resource manager. Administrator of the vendor contracts and works closely with the Project Manager to develop the backlog and work order tasks for each backlog item. Oversees and approves all technical components and artifacts. Ensures that the system capabilities perform as expected. Oversees software development expenditures.

Project Manager: Michael Jacobson, SEARCH

* Responsibilities: Project Management (PM) – work closely with the Product Manager in determining the tasks and resources required to accomplish the work defined by the backlog and document in a work breakdown structure. Manage development of “stories” used to assign tasks and assess results of software developers and other technical service providers. The PM will establish a project schedule and communications plan; communicate and provide regular status updates to Project Sponsors and Grant and Project Administrators to include task accomplished, task planned for upcoming period, task remaining, issues open, issues closed; obtain approvals of the project plan; monitor the work and budget against the approved plans; manage risk and issues identified by stakeholders and team members.

System Analyst: James Douglas, SEARCH

* Responsibilities: Identify and document technical issues as required; develop written recommendation on selection of options most suitable to meet user needs; coordinate testing; help create the test management plan.

Subject Matter Experts: Miguel Soto Pastrana, PR SJIC; Jennifer Viets, MT DOJ; Kate Silhol, Nlets

* Responsibilities: Provide functional expertise on business processes and related system capabilities to assist with requirements definition; create test cases and scenarios; execute tests, and perform training on use of the implemented OSMS.

Developers: SEARCH, GCOM, and Innovatio team members

* Responsibilities: Develop business capabilities based on the requirements using good techniques and practices and following the project methodology. The developers will provide assistance with creating the backlog, estimates for completing required components, assist with writing tests for unit testing, design and develop code, participate in team standup calls as needed, and document technical solutions as needed.

**Communications Plan**

The communications plan includes the processes required to ensure a timely and appropriate generation, collection, distribution, storage, retrieval and disposition of project information.

| ***Group*** | ***Information Needed*** | ***Detail*** | ***Frequency*** | ***Communications Method*** |
| --- | --- | --- | --- | --- |
| **Step 1** | **Step 2** | **Step 2** | **Step 3** | **Step 3** |
| Project Sponsor, Grant and Project Administrator | Project status: Major accomplishments, or issues that need resolution | High-level | Monthly or during regularly scheduled project-related meetings | Written status report and oral report by the Project Manager during the meeting |
| Project Team Members | Detailed information about project schedule, activities, deadlines, plans, issues, and risks | Very specific | Every two-weeks or during regularly scheduled project-related meetings | Variety: Email, written memos, oral reports during bi-weekly meetings, and during ad hoc meetings |
| Users | General updates about project activities | General | Monthly | Email |
| External Agencies | General updates about project activities | General | General | Email |
| Funding Bodies | Project activities, accomplishments, deadlines, funds expended to date, and related budget items | Detailed with regard to funding | When reports are due or requested | Formal, written documentation |

**High-level Timeline**

The milestone list below is a high-level schedule based on the TIPS grant—each one of these tasks will have more detailed activities associated with a backlog and work break down schedule.

|  |  |  |
| --- | --- | --- |
| **Milestone Description** | **Start** | **Finish** |
| **TIPS - OSMS** | 01/02/17 | 03/29/19 |
| Deliverable 1: Requirements Analysis | 3/15/17 | 7/20/18 |
| Deliverable 2: Design and Development | 01/05/18 | 11/9/18 |
| Deliverable 3: Deployment | 07/23/18 | 12/31/18 |
| Deliverable 4: Maintenance and Sustainability | 12/31/18 | 3/29/19 |
| Project Management and Administration | 1/2/17 | 3/29/19 |

**Preliminary Budget**

The budget below is a high-level schedule — each one of these items will have more detailed backup associated with a final budget.

|  |  |  |  |
| --- | --- | --- | --- |
| **Entry** |  | **Federal Funds** | **TOTAL** |
| A. Salary Expense (Salary) | | $ 90,800 | $ 90,800 |
| B. Fringe Benefits Expense | | $ 25,932 | $ 25,932 |
| C. Professional Services Expense | | $233,925 | $233,925 |
| D. Travel Expense | | $ 17,026 | $ 17,026 |
| E. Equipment Expense | | $ - | $ - |
| F. Other Expense | | $ 33,736 | $ 33,736 |
| **TOTAL** | | **$401,419** | **$401,419** |

**Project Success Criteria**

This project will be successful when the open source message switch is successfully demonstrated in at least one location (Puerto Rico or Montana) and has the capabilities to:

1. validate messages;
2. route and manage messages;
3. provide connectivity to remote systems;
4. send, receive and correlate messages sent to multiple remote systems; and
5. log transactions.

1. A client application is required for a user to interact with the message switch. Numerous client products exist that could utilize the service specifications developed through this project to interact with the OSMS. [↑](#footnote-ref-1)