Rhode Island Department of Corrections and Department of Children, Youth, and Families Juvenile Criminal History Data Exchange Project

A Technical Case Study of the Implementation of
Global Reference Architecture (GRA) and
Global Privacy Technology Framework

May 10, 2016

NCSC
National Center for State Courts

Dennis Weldon
IIR
Institute for Intergovernmental Research

TABLE OF CONTENTS

1. ABSTRACT

The purpose of this technical case study is to present the tools and methodologies used to implement information exchanges between the Rhode Island Department of Corrections (RIDOC) and the Rhode Island Department of Children, Youth and Families (DCYF). RIDOC and DCYF partnered with SEARCH—The National Consortium for Justice Information Statistics, and the National Center for State Courts (NCSC) to develop specific, standards-based, information exchanges. Utilizing the Global Reference Architecture (GRA), Global Privacy Technology Framework, Policy Decision Point (PDP), Policy Enforcement Point (PEP), and Extensible Access Control Markup Language (XACML), SEARCH was able to create reusable information exchanges that allow justice stakeholders and partners in Rhode Island to effectively share vital information within the framework of national information sharing standards.

> **Global Reference Architecture (GRA)**
> The GRA is a service-oriented reference architecture for justice and public safety information sharing. The GRA offers guidance on the design, specification, and implementation of services and related infrastructure for organizations that are looking for an architectural solution to sharing information through external exchanges and common messaging standards between information sharing systems. GRA defines a very flexible mechanism for information exchange and defines the exchange content through the use of the National Information Exchange Model (NIEM).
>
> More information regarding GRA can be found at https://www.it.ojp.gov/initiatives/gra (reference link as well). Reference: Global Reference Architecture (GRA) Frequently Asked Questions http://it.ojp.gov/documents/GRAFAQ2012_compliant.pdf

2. PROBLEM STATEMENT

Since as early as 2004, it has been apparent to all involved in offender reentry initiatives in the state of Rhode Island that many of their state agencies share many of the same clients. Historically, the RIDOC had been unable to effectively share necessary data electronically between the state agencies. Starting in 2006, RIDOC began work to define information sharing requirements with key partner and stakeholder agencies including noncriminal justice agencies such as the Departments of Housing, Education, Labor and Training, and DCYF as part of an initiative to improve the risk assessment process. RIDOC utilizes a series of standardized risk/need assessment instruments in the committing process, including the Level of Service Inventory-Revised (LSI-R), to determine offender risk of recidivism and to identify need areas and rehabilitative services that are appropriate for offenders during their incarceration. RIDOC and DCYF identified 11 items on the LSI-R and two other risk assessments that could be provided using juvenile criminal history data stored in the Rhode Island Children's

> **Global Privacy Policy Technical Framework**
> The technical framework outlines a sequence of steps for implementing a set of electronic privacy policy rules. The electronic policy rules are based on written policies, such as privacy policy, laws, documents, memoranda of understanding, contracts, and agreements. The framework requires that all electronic information requests be submitted with a set of electronic identity credentials to allow the policy service to determine whether the requestor has the authorization to access the information resource. The policy service is composed of software modules referred to as policy decision points (PDPs) and policy enforcement points (PEPs). It ensures that the request is authenticated, authorized, and audited before granting access to the information resource. In addition, the policy service may impose a set of obligations on the consumer regarding restrictions on further information dissemination, record retention, and audit logging.
> *Technical Privacy Training, www.TechnicalPrivacyTraining.org*

Information System (RICHIST). This same data also could be used to inform future assessments RIDOC may acquire that include juvenile criminal history data in determining offender risks and needs. To more efficiently and effectively service the same population, and to increase the validity of interviews and the assessments process through collateral information sources, RIDOC needed to establish an effective, seamless means of electronic data sharing across state agencies to improve case management for their shared clientele.

3. BACKGROUND

For several years, the Rhode Island Department of Corrections (RIDOC) worked on designing, developing, and implementing a set of information sharing capabilities that could be used by the corrections community to exchange information with criminal justice and human/social services partners as part of the offender reentry process. To facilitate effective offender reentry, RIDOC needed to address how the variety of programs and agencies involved in reentry initiatives could share accurate, timely, complete, and appropriately secured information among one another. Information sharing activities help effectively manage offenders upon release, provide appropriate notifications to victims and service agencies, and facilitate effective offender reentry to the community after incarceration. To this end, RIDOC sought out agencies that would participate, cooperate, and collaborate to make information sharing a success for the reentering offender population and the communities of Rhode Island.

> **Extensible Access Control Markup Language (XACML)**
> The standard defines a declarative access control policy language implemented in XML and a processing model describing how to evaluate access requests according to the rules defined in policies. XACML also has the advantage of leveraging the relatively mature XML standards for
> Web Services Security (WS-Security).
>
> Reference: Implementing Privacy Policy in Justice Information Sharing: A Technical Framework October 31, 2007
> http://it.ojp.gov/documents/ImplementingPrivacyPolicyATechnicalFramework.pdf
> Implementing Privacy Policy in Justice Information Sharing: A Technical Framework October 31, 2007 Executive Summary
> https://www.it.ojp.gov/documents/implementingprivacypolicyininformationsharingatechnicalframeworkexecutivesummary.pdf)
> OASIS XACML Site
> https://www.oasis-open.org/committees/tc_home.php?wg_abbrev=xacml

Through multiple phases, a series of funding opportunities, legislative authorization changes, and technical assistance from national agencies, RIDOC partnered with DCYF to implement information exchanges of juvenile criminal history records that would inform several risk assessments being conducted by RIDOC. RIDOC received service specifications, direct funding, and technical expertise from SEARCH (the lead implementation TA provider on this project), as well as funding and support from the National Center for State Courts (NCSC). This funding opportunity provided the necessary technology and resources to enable RIDOC to see the results of the multiple years of planning. In addition to the original goals of information exchange, RIDOC committed to developing information exchanges following the GRA. Through Technical Assistance (TA) provided by SEARCH, an infrastructure was created, using Global standards, that will enable RIDOC and other criminal justice stakeholders and partners in Rhode Is land to share data in a safe, reliable, efficient, and sustainable manner through the adoption and use of the GRA.

> **NIEM**
> NIEM is a community-driven, standards-based approach to exchanging information. NIEM is designed to develop, disseminate, and support enterprisewide information exchange standards and processes that will enable jurisdictions to automate information sharing. More information regarding NIEM can be found at https://www.niem.gov/.

4. TECHNICAL IMPLEMENTATION

4.1 Requirements

Based on the work performed in 2006 that identified many of the data elements that could be supplied by other state agencies and systems, along with legislative restrictions and privacy protections, RIDOC created a written policy and rules for a request message from the target data source, the Juvenile Justice section of DCYF's Rhode Island Children's Information System (RICHIST).

The RIDOC policy rules are as follows:

> RIDOC asserts in its request message that the target data source is the Juvenile Justice section of DCYF's RICHIST data system.

> RIDOC asserts in its request message that the business purpose is risk/need assessment. In conformance with Rhode Island's statute, RIDOC will use DCYF's juvenile history data to score more accurately an offender's risk/need assessment for the purpose of effectively classifying the offender and placing him or her in appropriate programs.

> RIDOC asserts in its request message that the offender has executed a Release of Confidential Information directing DCYF to transmit the offender's juvenile history to RIDOC, in conformance with Rhode Island's statute. RIDOC retains a scanned image of the offender's release in the Transition from Prison to Community Data System (TPCDS). DCYF does not require that the offender's release be transmitted to it. (DCYF may request access to audit RIDOC's releases.)

> RIDOC asserts in its request message that its desired actions on the target data are to read and to copy. RIDOC stores the offender's juvenile history in its database to enable integration into assessments.

As an additional security measure, RIDOC's audit log records the date/time stamp of the request to DCYF. The audit log can be analyzed periodically for requests that fall outside of normal RIDOC intake hours and known overtime hours (which must be authorized). The policy also requires RIDOC to assert an end point or "systemID" for the requestor. The system ID serves as identification of the requestor for audit and authentication purposes.

Although the Policy Decision Point does not evaluate the date/time of requests initially, RIDOC and DCYF can add an XACML condition in the future if analysis of the audit log indicates a security risk.

4.2 Tools and Methodologies

To successfully implement the electronic sharing of juvenile information, which adheres to access and privacy policy rules, and the creation of reusable information exchanges in Rhode Island, there was a requirement that SEARCH would utilize GRA and the Global Privacy Policy Technical Framework.

The diagram in Figure 1 depicts a high-level view of the privacy technical framework.
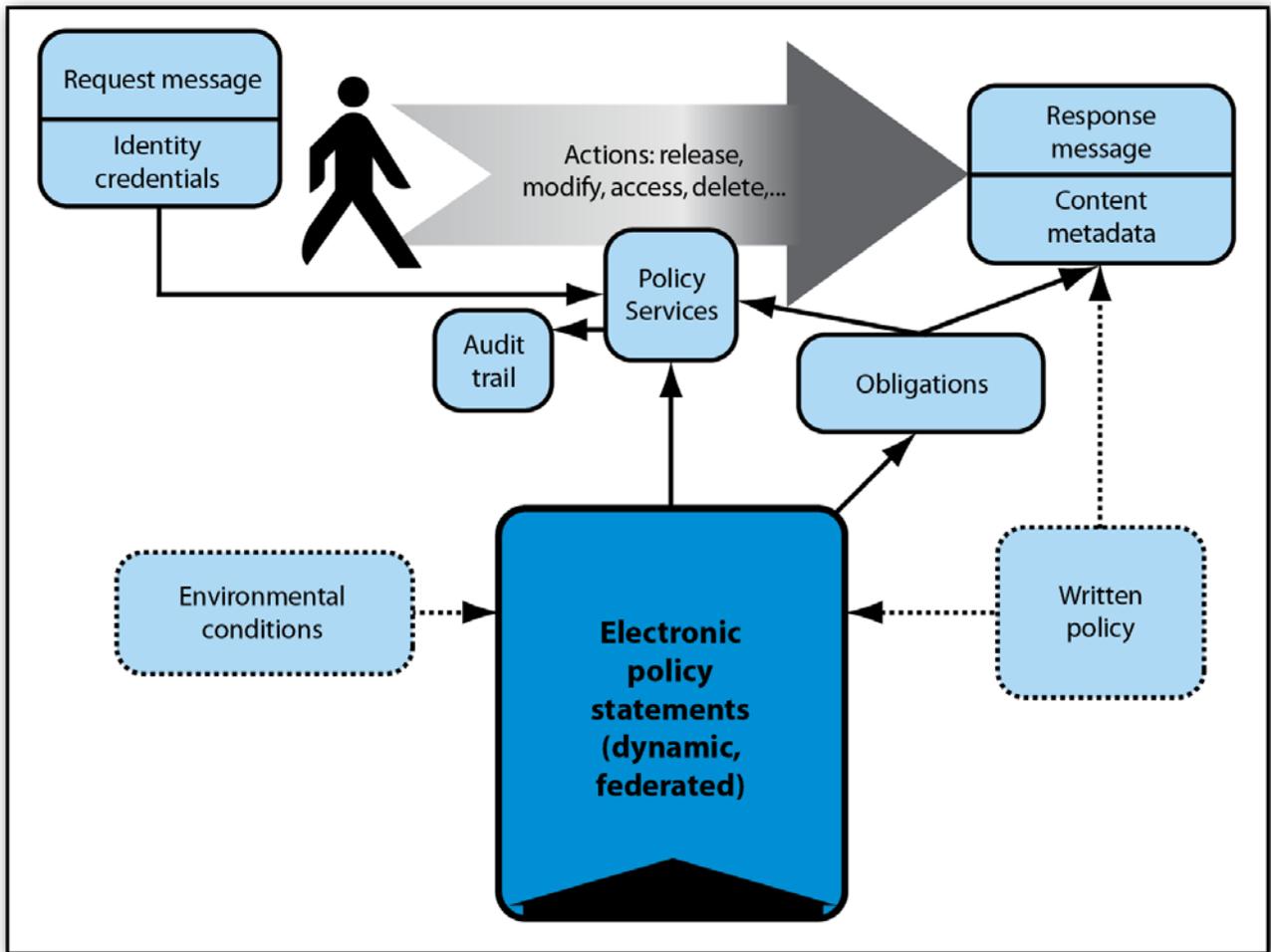
Figure 1—Global Privacy Technical Framework

SEARCH researched various open source tools to implement a PEP/PDP that would conform to the Global Privacy Policy Technical Framework. The Web Services that SEARCH developed and implemented are based on Java. The PEP/PDP policy engine was implemented using an open source tool called Balana (https://github.com/wso2/balana). Balana allowed implementation of XACML while conforming to the Global Privacy Policy Technical Framework. Balana supports XACML 3.0, 2.0, 1.1, and 1.0 versions. The tool also simplified and streamlined the incorporation of XACML into the Open Justice Broker toolset. Future implementations can now leverage the work performed for reuse (https://github.com/ojbc/main/tree/master/shared/ojb-policy-decision-point-service).

4.3   Personally Identifiable Information (PII)

In addition to the core design requirements of capturing consent and authorizing appropriate access and use of juvenile criminal history data, rules had to be established to prevent unauthorized exposure of PII related to someone other than the person providing consent. This situation could arise if a search request resulted in finding records for the wrong individual or if multiple records were found using the same search criteria. Both of these scenarios could occur when performing a basic search using last name, first name, and date of birth.

> **Open Justice Broker Consortium (OJBC)**
>
> The Open Justice Broker Consortium is a nonprofit membership organization of government agencies and jurisdictions, dedicated to improving justice information sharing through the reuse of low-cost, standards-based integration software. The OJBC unlocks the power of open source software and cross-boundary collaboration to promote a more effective, efficient justice system. The core Open Justice Broker functionality is licensed as open source (Reciprocal Public License–1.5). Users—whether or not they are members of the OJB Consortium—become licensees. http://www.ojbc.org/

To prevent the accidental exposure of a different person's PII, secondary identifiers were added to the match criteria, including name suffix, middle initial, and mother's first and last name. This information is requested as a challenge question, should ambiguities exist as to the precise identification of the person. This approach avoids a more standard search method where multiple records are presented to the user with additional identifying information so the user can select the correct individual. The mere existence and presentation of multiple records violates the privacy rights of the "other" individuals, and the challenge question approach prohibits the intake counselor from seeing any additional data pertaining to anyone other than the person in question.

The scope of the RIDOC-DCYF pilot did not include the implementation of an obligation (what must be carried out before or after an access is approved) handler. However, to support potential audits of conformance with Rhode Island's statute, both RIDOC and the intermediary maintain logs of RIDOC's requests, the PDP's access-control decisions, and DCYF's responses.

In addition to defining and developing the policy rules and infrastructure needed to implement the exchanges, significant changes had to be made to the business operations and data systems used to complete the intake process, where the initial risk and needs assessment is performed. Intake counselors perform this assessment using the RIDOC's TPCDS. Screens were modified or added to perform the following functions:

1. Provide a hard copy of the consent form to the offender and obtain a signature, indicating the offender's consent to allow the counselor to view juvenile criminal history information.

2. Scan and store the signed consent form into the RIDOC document management system.

3. Indicate within TPCDS that the consent has been acquired.

4. Select and view "Inmate Details" from the TPCDS menu.

5. In the "Juvenile Data Request" screen, generate the request for juvenile criminal history data, including the required security assertions.

6. A new "Juvenile Information" menu option is automatically generated. Select the option to view the juvenile data.

7. Refer to the data provided in the "Juvenile Information" screen and type the information into the assessment instrument.

4.4   Solution

In order to process the specific business and technical requirements, SEARCH created the Juvenile Record Query (JRQ), consisting of a (JRQ) Business Process Description Document, and two services: JRQ Request Service (JRQReqS) and JRQ Results Service (JRQResS). These services were created for the purpose of information exchange between the adult justice community (RIDOC) and the juvenile justice/human services community (DCYF) as an effort to increase the validity of interviews and assessments processed through collateral information sources and as a classification of risk assessment of an adult inmate. The JRQ allows a querying entity to query for a juvenile record and receive results from the query. The query results are used for classification and risk assessment of an adult inmate.

4.4.1   Components of the JRQ

4.4.1.1   JRQ Business Process Description Document

The JRQ business process description document explains the purpose, scope, and description of the query and also provides a visual illustration of the query through the Business Process Model (BPM) and the Service Interaction Process Model tables and diagrams. It serves as the road map for detailing the business-level perspective of the information exchanges.

The Business Process Model Diagram (Figure 2) illustrates the high level business flow of the JRQ.
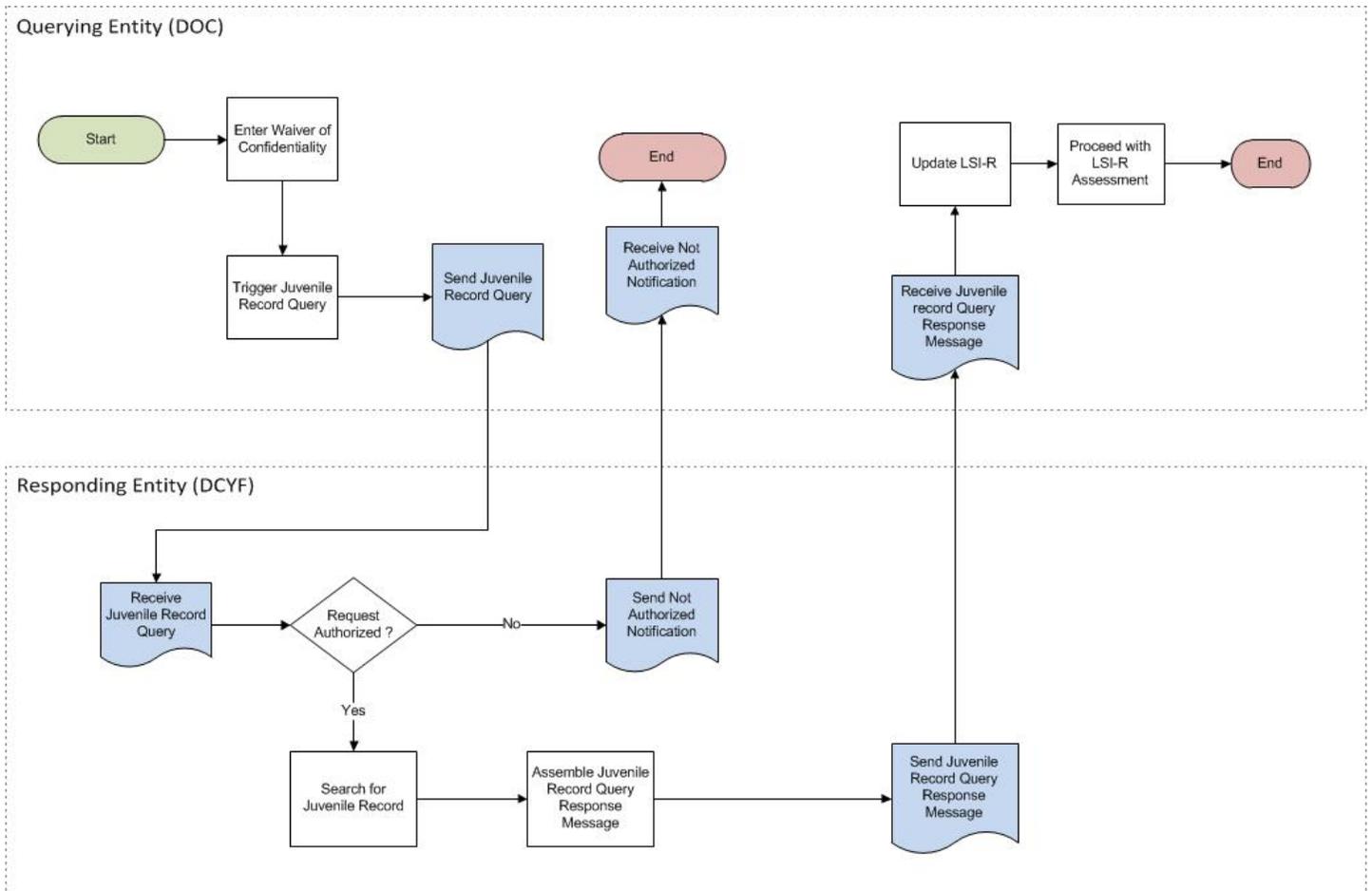
Figure 2—Business Process Model Diagram

The Service Interaction Process Model describes and illustrates the steps that are involved in processing the JRQ. RIDOC staff members utilizing TPCDS for the purpose of processing the LSI-R assessment query the DCYF RICHIST system through an intermediary broker. The intermediary hosts both the Request Service and the Result Service. The Request Service or "adapter" at the responding entity conducts the privacy policy and authentication controls through the PEP/PDP. The Result Service receives results based on the request and satisfaction of the policy requirements. The Service Interaction Process (Table 1) lists and describes the exchanges and processes between entities.

Entity	Exchanges and Processing	Agencies
Querying Entity	• Send a Juvenile Record Query Request Message to the Intermediary • Receive a Juvenile Record Query Results Message from the Intermediary	• DOC
Intermediary Broker	• Receive a Juvenile Record Query Request Message from the Querying Entity • Send a Juvenile Record Query Request Message to the Responding Entity • Receive a Juvenile Record Query Results Message from the Responding Entity • Send a Juvenile Record Query Results Message to the Querying Entity	
Responding Entity	• Receive a Juvenile Record Query Request Message from the Intermediary • Process the Juvenile Record Query Request through the Policy Decision Point (PDP) to determine whether the request is allowed or denied based on a given policy or policies • Send a Juvenile Record Query Results Message to the Intermediary	• DCYF

Table 1—Juvenile Record Query—Service Interaction Process

The Service Interaction Model Flow Diagram (Figure 3) illustrates the flow outlined in the Service Interaction Process from Table 1.
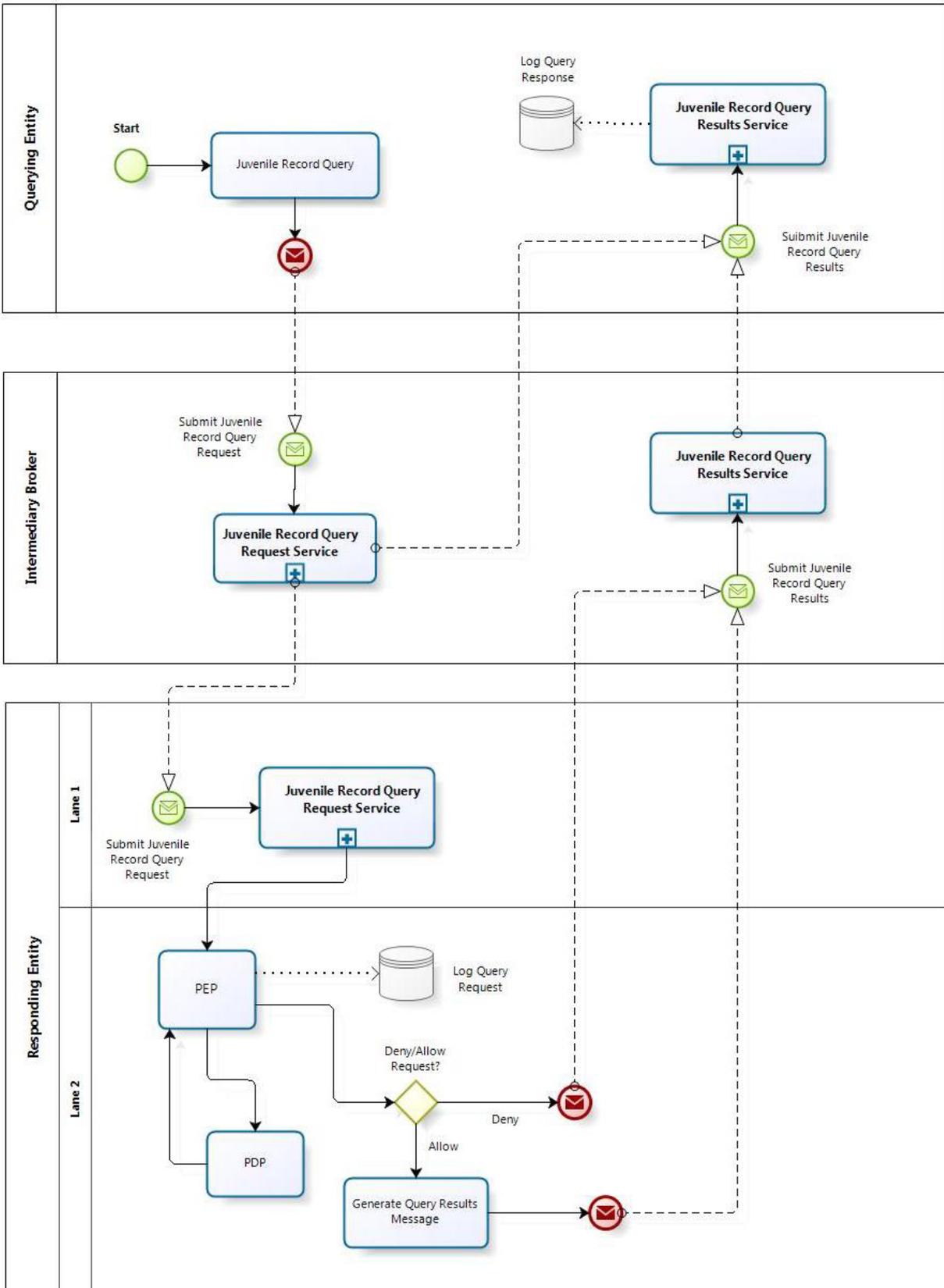

Figure 3—Service Interaction Model Flow Diagram—Asynchronous Flow

4.4.1.2 JRQ Services

Logging occurs both at the request service level and at the result level. This provides auditability for both requests made by RIDOC and results sent by DCYF.

4.4.1.3 JRQReqS

The Juvenile Record Query Request Service (JRQReqS) receives the request and passes it to the PEP/PDP policy engine. Results are obtained only through satisfaction of the policy requirements.

The PEP/PDP policy engine is based on the policy rules defined by RIDOC and implements the following privacy policy.

> *Perform…*
> DISCLOSURE
> *in response to requests from…*
> "RHODE ISLAND DEPARTMENT OF CORRECTIONS"
> "ADULT INTAKE COUNSELOR"
> *to perform…*
> "READ"
> *On…*
> "JUVENILE CRIMINAL HISTORY"
> *If…*
> "INMATE CONSENT HAS BEEN OBTAINED"
> *And…*
> "SYSTEM ID IS EQUAL TO THE TPCDS SYSTEM ID"
> *For…*
> "OFFENDER ASSESSMENT AND PLACEMENT"
> *subject to agreement to the…*
> "LOGGING OF QUERY/RESPONSE DATE/TIME"

Using the above privacy policy, the Juvenile Record Query Request Message (Figure 4) is processed.
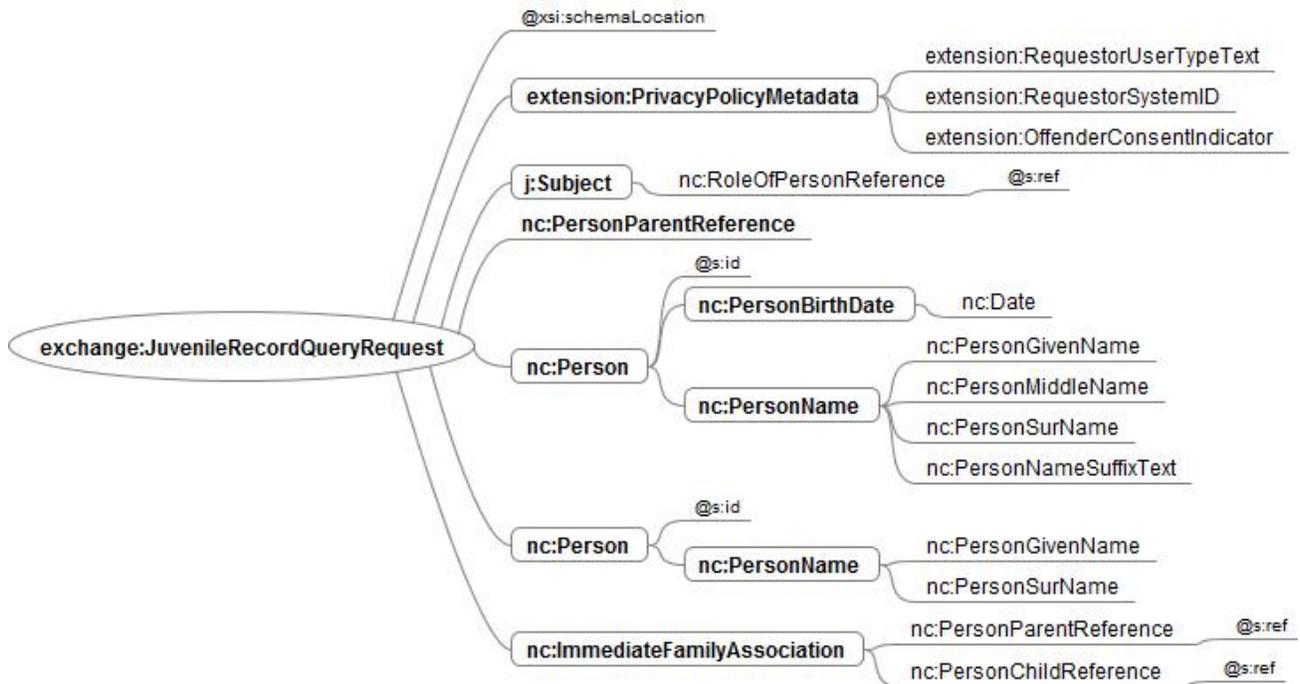

Figure 4—Juvenile Record Query Request Diagram

4.4.1.4 JRQResS

If all of the policy requirements in the Juvenile Record Query Request Message are met, the Results Service receives a result message and logs the query response (Figure 5).
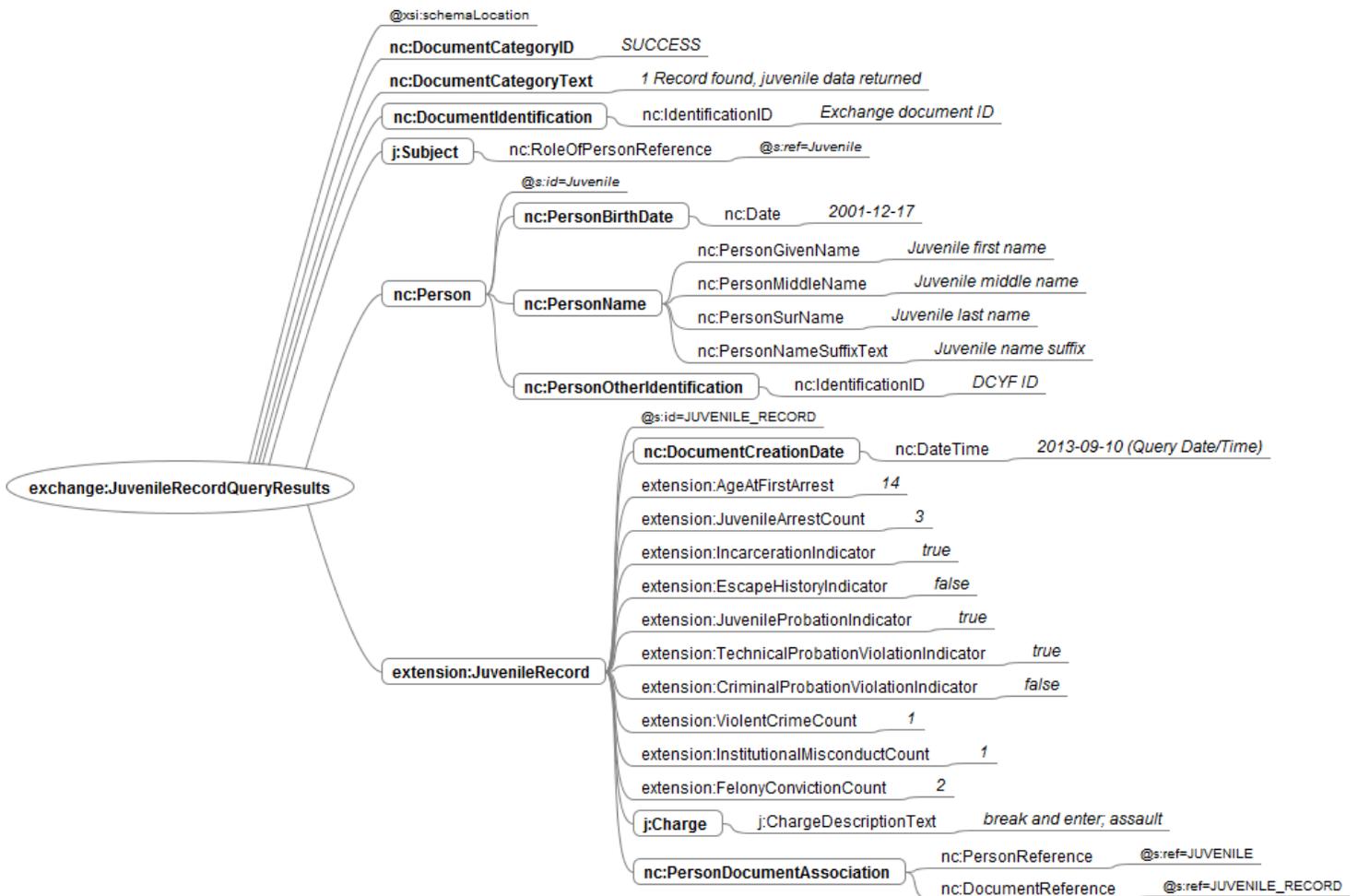

Figure 5—Juvenile Record Query Request Diagram

5. CHALLENGES

The architecture and implementation of the Juvenile Record Query (JRQ) demanded utilization of the GRA and Global Privacy Technical Framework. As with any technical development project, integration of these frameworks was not without its challenges. Although the team brought various high levels of experience and professional skills, the PEP/PDP XACML implementation was a new effort undertaken by all parties involved as well as a new method of policy evaluation for the justice community. Identification of a proper open source tool (Balana) to work as the PEP/PDP engine proved to be one of the most significant and influential challenges conquered by the team.

6. CONCLUSION

The implementation of both the Juvenile Record Query Request and Juvenile Record Query Results Services has provided the Rhode Island Department of Corrections with the ability to automate the process of acquiring data

about an adult offender's juvenile criminal history, while adhering to Rhode Island state law and electronically executing access and privacy rules, in order to inform risk/needs assessments. Utilizing GRA and Global Privacy Technical Framework standards for these services and exchanges, the Rhode Island Department of Corrections is now able to leverage these replicable technical solutions to effectively partner with other state agencies to establish additional information exchanges while protecting confidential sensitive information. In Rhode Island, this project demonstrates the use of national standards for information sharing across different government domains.

REFERENCES

GRA (Global Reference Architecture) Implementation Pilot Project Rhode Island Department of Corrections Juvenile Criminal History Data Exchange Project with the Department of Children Youth and Families, Technical Assistance and Expertise provided by SEARCH, the National Consortium for Justice Information and Statistics, Final Report, October 2014.

Rhode Island Department of Corrections and Department of Children, Youth and Families Juvenile Criminal History Data Exchange Project, Charter and Project Plan, Version 0.1, March 5, 2012.

TPCDS—S.E.A.R.C.H. Functional Requirements & Design, August 21, 2013, Prepared for State of Rhode Island Department of Corrections, by Joseph Marinello.

Juvenile Record Query (JRQ) Business Process Description Document, Version 1.0.0, by SEARCH, June 2013.

The Global Reference Architecture (GRA), Juvenile Record Query Request Service (JRQReqS), v 1.0.0, Service Description Document, Version 1.0.0, by SEARCH, June 2013.

The Global Reference Architecture (GRA), Juvenile Record Query Results Service (JRQResS), v 1.0.0, Service Description Document, Version 1.0.0, by SEARCH, June 2013.

Implementing Privacy Policy in Justice Information Sharing: A Technical Framework, by the Global Security Working Group Technical Privacy Task Team, October 31, 2007, http://it.ojp.gov/documents/ImplementingPrivacyPolicyATechnicalFramework.pdf.

Implementing Privacy Policy in Justice Information Sharing: A Technical Framework, Executive Summary, 2007, https://www.it.ojp.gov/documents/implementingprivacypolicyininformationsharingatechnicalframeworkexecutivesummary.pdf).

Global Reference Architecture (GRA) Frequently Asked Questions, September 2012, http://it.ojp.gov/documents/GRAFAQ2012_compliant.pdf.

Technical Privacy Training, www.TechnicalPrivacyTraining.org.

Open Justice Broker Consortium (OJBC), http://www.ojbc.org/.