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# Global Justice XML Data Model

## Use Case

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Automated Regional Justice Information System

Field Interview



# ARJIS

## JPA – JOINT POWERS AGENCY

- A Joint Exercise of Powers Agency (JPA) in compliance with California Government Code Sections 6500-6530. – 50 Local, State, and Federal Agencies covering SD & Imperial Counties

## ARJIS VISION

- Recognized for leadership, collaboration, information sharing, and regional acquisition of effective information technology.
- Uses community partnerships and regional information technology to address and anticipate public safety issues and to improve the quality of life.

# ARJIS Vision Elements

- SAFETY
  - **ARJIS provides officers with state-of-the-art information technology that enhances both officer and public safety.**
- EFFECTIVENESS
  - **Public safety personnel have seamless, cross-jurisdictional access to essential data in a timely manner.**
- REGIONAL
  - **ARJIS is the convening agency for information technology.**
- PUBLIC AND COMMUNITY RELATIONS
  - **The community is a partner in the decision-making process and has confidence in their public safety agencies.**

## **ARJIS MEMBER AGENCIES**

Carlsbad Police Department  
Chula Vista Police Department  
Coronado Police Department  
El Cajon Police Department  
Escondido Police Department  
La Mesa Police Department  
National City Police Department  
Oceanside Police Department  
San Diego County Sheriff  
San Diego Police Department

# ARJIS MEMBER AGENCIES

California Department of Insurance  
California Department of Justice (DOJ)  
California Department of Parks & Recreation  
California Department of Insurance  
Donovan Correctional Facility  
Federal Bureau of Investigations (FBI)  
Internal Revenue Service (IRS)  
Naval Criminal Investigative Service  
Palomar Community College Police  
San Diego City Schools Police  
San Diego Community College Police  
San Diego State University Police  
San Diego Superior Court  
San Diego City Attorney  
San Diego Probation Department  
San Diego Medical Examiner  
San Diego District Attorney  
US Naval NSSO (Federal Protection)

Southwest Community College Police  
Unified Port District Harbor Police  
UCSD Police  
U.S. Attorney  
U.S. Border Patrol  
U.S. Bureau of Alcohol, Tobacco & Firearms  
U.S. Coast Guard  
U.S. Customs Service  
U.S. Department of State  
U.S. Drug Enforcement Administration (DEA)  
U.S. Forest Service  
U.S. Immigration & Naturalization Service  
U.S. Marshal  
U.S. Naval Brig-Miramar  
U.S. Postal Inspectors  
U.S. Probation  
U.S. Pretrial  
U.S. Secret Service  
Imperial County Sheriff's Department (LECC)  
Miramar Air Station

# ARJIS Strategic Framework

## Records Management System

- Agency Process Specific
- FBI Mandated Reporting
- Evidence & Property Inventory
- Lab Analysis
- Personnel & Resource Management
- Case Management
- Agency Document and Photo Storage
- Regional and Agency Validations Standards
- Document Retrieval

## Regional Data Exchange

- Data Distribution Clearinghouse
- Validation Rules Management
- Data Translator
- Publish/Subscribe Routing
- Alerts/Notifications Routing
- Transfer to External Databases

## Regional Data Warehouse

- Regional Repository of Justice data
- Photo and Document Pointers to external data
- Regional Validation Tables
- Stored State & Federal Applications/Data

## Automated Field Reporting

- Field and Office Data Input
- Regional and Agency Validation Standards

## External Interfaces

- CLETS/NCIC/DMV
- Courts
- Joint Terrorism Task Force
- DOJ Cal-Photo

## Specialized Investigations

- Domestic Violence
- Registered Sex Offender
- Cal-Gang

## Regional Applications

- Offender Identification
- Officer Notification
- Global Query
- Photo Retrieval
- Mapping
- Data Mining
- Crime Analysis
- Crime Statistics
- Crime Trends/Forecasting
- Link Analysis
- Publish/Subscribe

# Most roadblocks to information sharing are political and social rather than technical.

- XML to SD Justice Executives is
  - Confusing
  - Complex
  - Costs \$\$\$\$
- Chiefs think XML is a special sized shirt:
  - Xtra Medium Large
- Need to justify XML projects based on enhancing public and officer safety
- Basically how does this affect the officer in the street in his black and white at 2:00 a.m.
- Need to provide justification for prioritization

# Keep it Simple!

- Use terms LE and Justice Executives understand
  - Avoid Technical terminology: GJXDM, Schema, DTD,
- User Driven Requirements & Approach
- Follow Project Methodology
  - XML facilitates agencies coming together to jointly agree on information sharing
  - Don't think XML is an off the shelf silver bullet that you just buy and plug in
  - Ensure you have a completely documented project plan with:
    - Timeline and Costs
    - Test Plan for Validation
    - Evaluation
    - Ongoing Support and Maintenance

## 2 Way Court Citation

- LE strengthen relationship with courts – LE funded
- Don't assume you both do business the same way
  - 1) Courts priority is the charge, appearance date and time, bail amount, and address/ zip code to send the citation
  - 2) LE priority is the vehicle description, location, date and time of crime
- Courts did not validate vehicle make and model or address,
- LE did not have most current charge codes/associated bail and did not care about zip codes

# 2 Way Court Citation Benefits

- Courts/LE agreed to use same validations and enter fields on behalf of each other
- Courts/ARJIS data was standardized – 1<sup>st</sup> time in 30 years!
- Courts backlog of 3 weeks was totally eliminated
- Huge improvement in customer service
- Courts saved on data entry personnel – 3 FTEs

## 2 Way Court Citation Benefits

- Courts processes greatly streamlined
- Courts/LE agency relationship improved
- Courts now willing to participate and help with funding other Courts
- Adding red light photos to the exchange took only one week

# Complexity and Costs

- Generic Interface - ARJIS XML MPI Version 1.0 Object based - 3 agencies RMS
- Interface to legacy more complex than expected
- Overall Costs - \$75,000 labor & R&D
- Build in more costs at the front – reusable – will get easier and cheaper
- Can be reused now with 290 sex registration registry, RMS/AFR

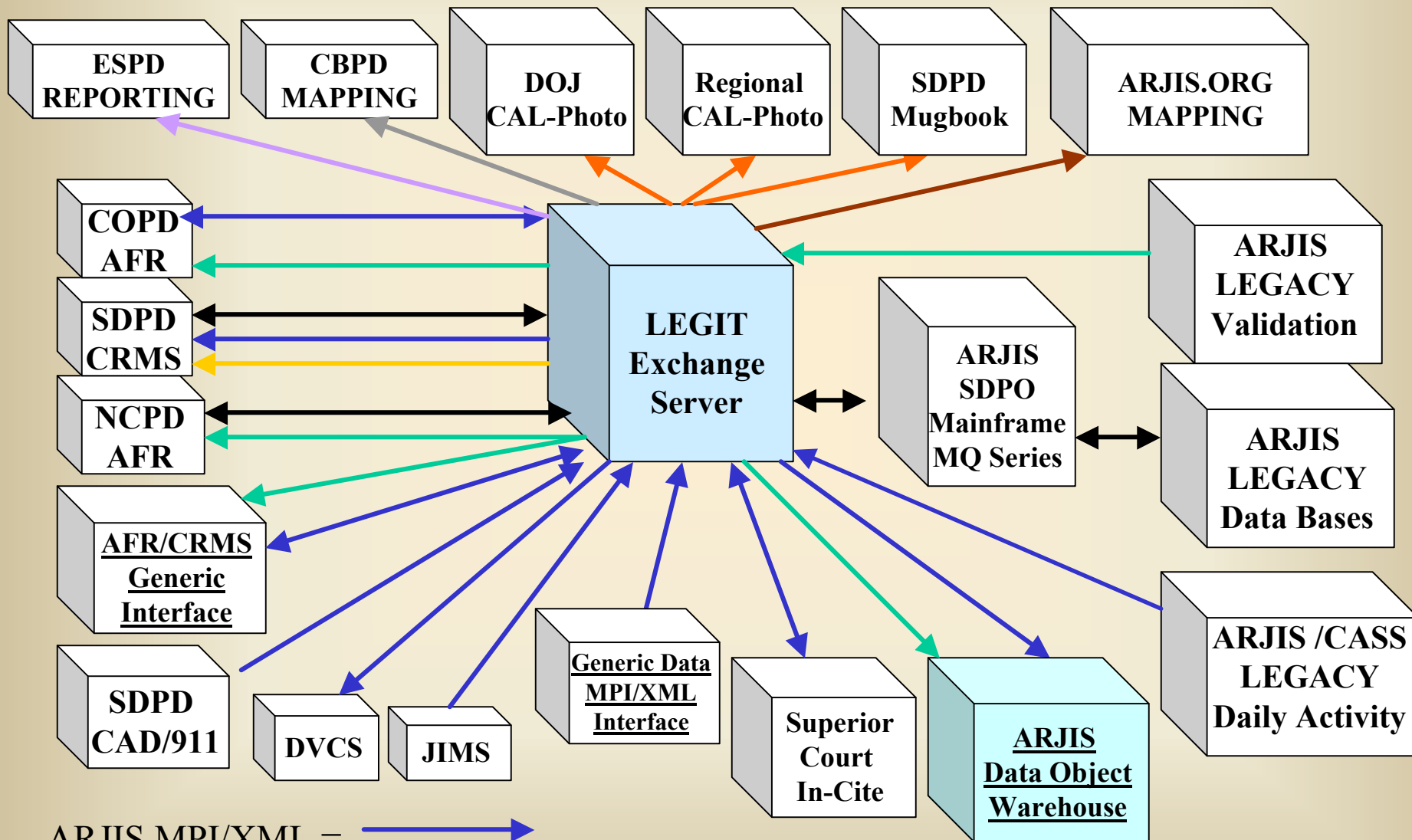
# Current Legit Solution

- **L**aw **E**nforcement **G**lobal **I**nformation **T**ransport
  - Wide Area Network (ARJIS-Net)
  - IBM Websphere MQ Series
  - Hub & Spoke Information Exchange Distribution and Query
  - ARJIS Transport MPI/XML Version 1.0 Object Model

## Benefits in Using Standardized XML Message Model

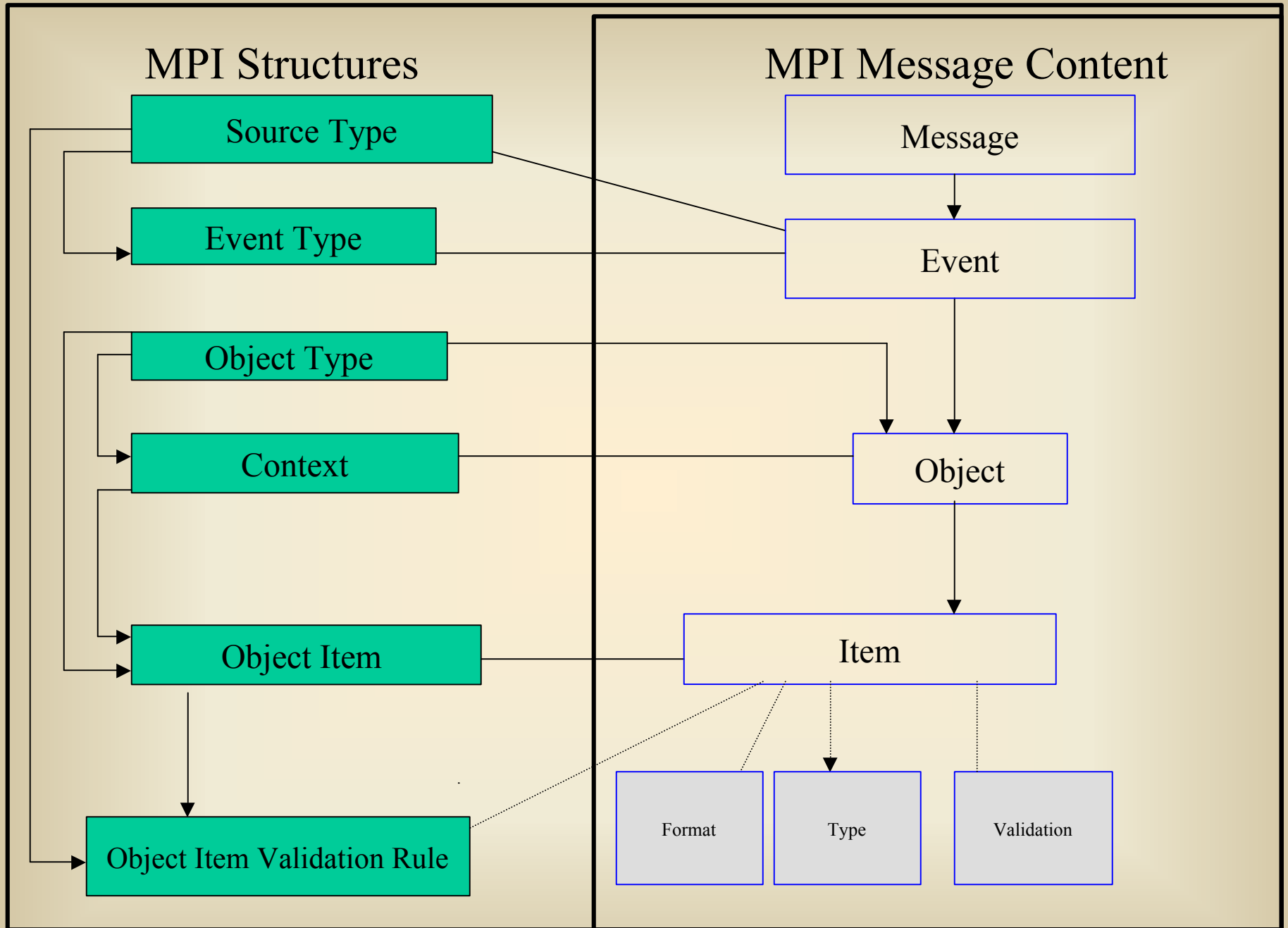
- Application and Database Product Independent
  - SAS, Cobol, Java, C++, etc.
  - Templar, Spawar, SAIC, KnowledgeWare, Orion, etc.
- Reusable Across Jurisdiction
  - Hampton Roads CRIMES network.
  - Florida Department of Law Enforcement (FDLE) Office of Statewide Intelligence (OSI).
  - The Oregon State Police (OSP)
- Easier to Route, Translate, Separate & Publish Data
- Easier to Manage
- Reduces Costs and Confusion

# FY 2004 PRODUCTION EXCHANGE AND MPI/XML DISTRIBUTION



ARJIS MPI/XML = →

May 25, 2004



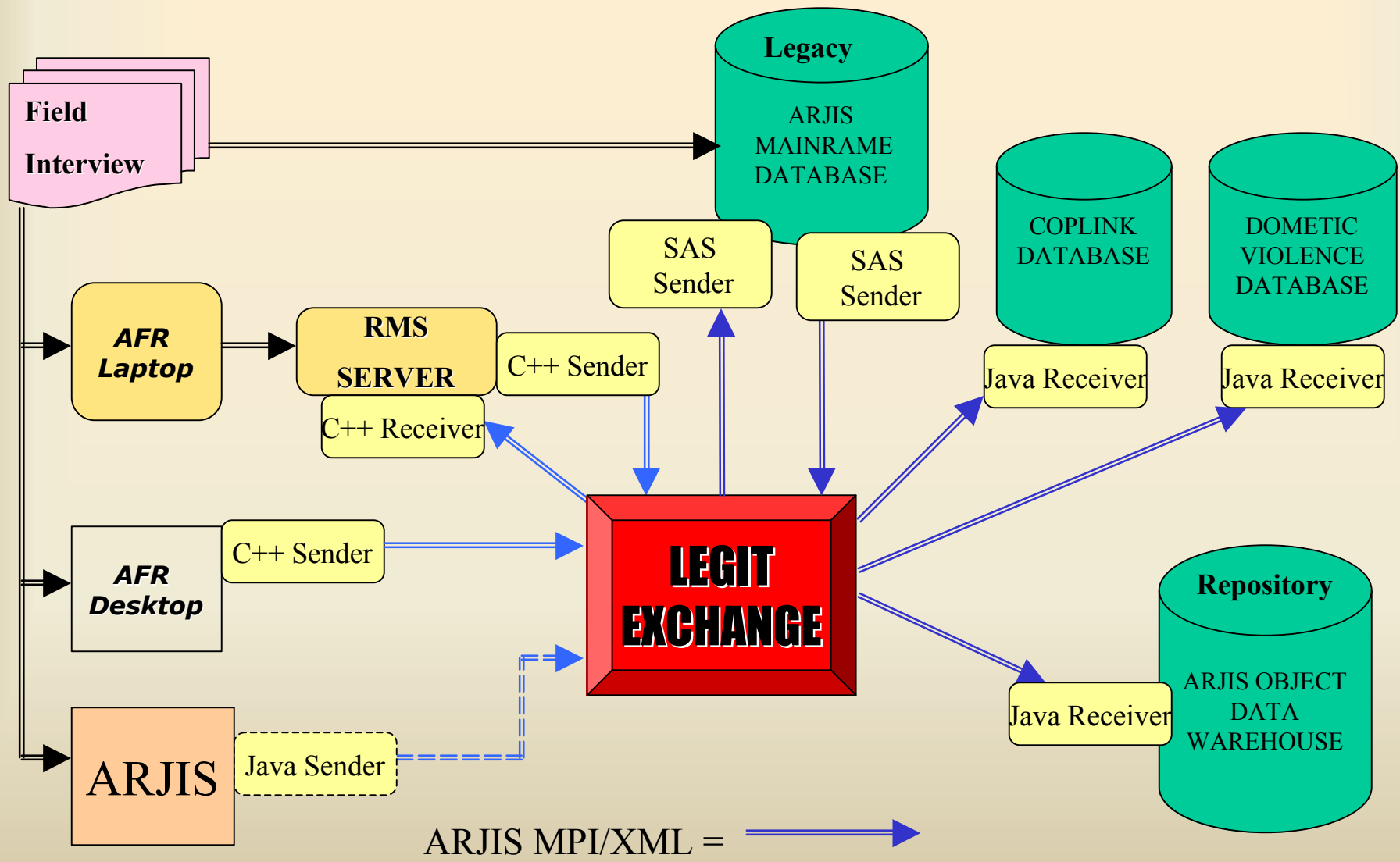
# Field Interview Document

**SAN DIEGO REGIONAL  
FIELD INTERVIEW REPORT**

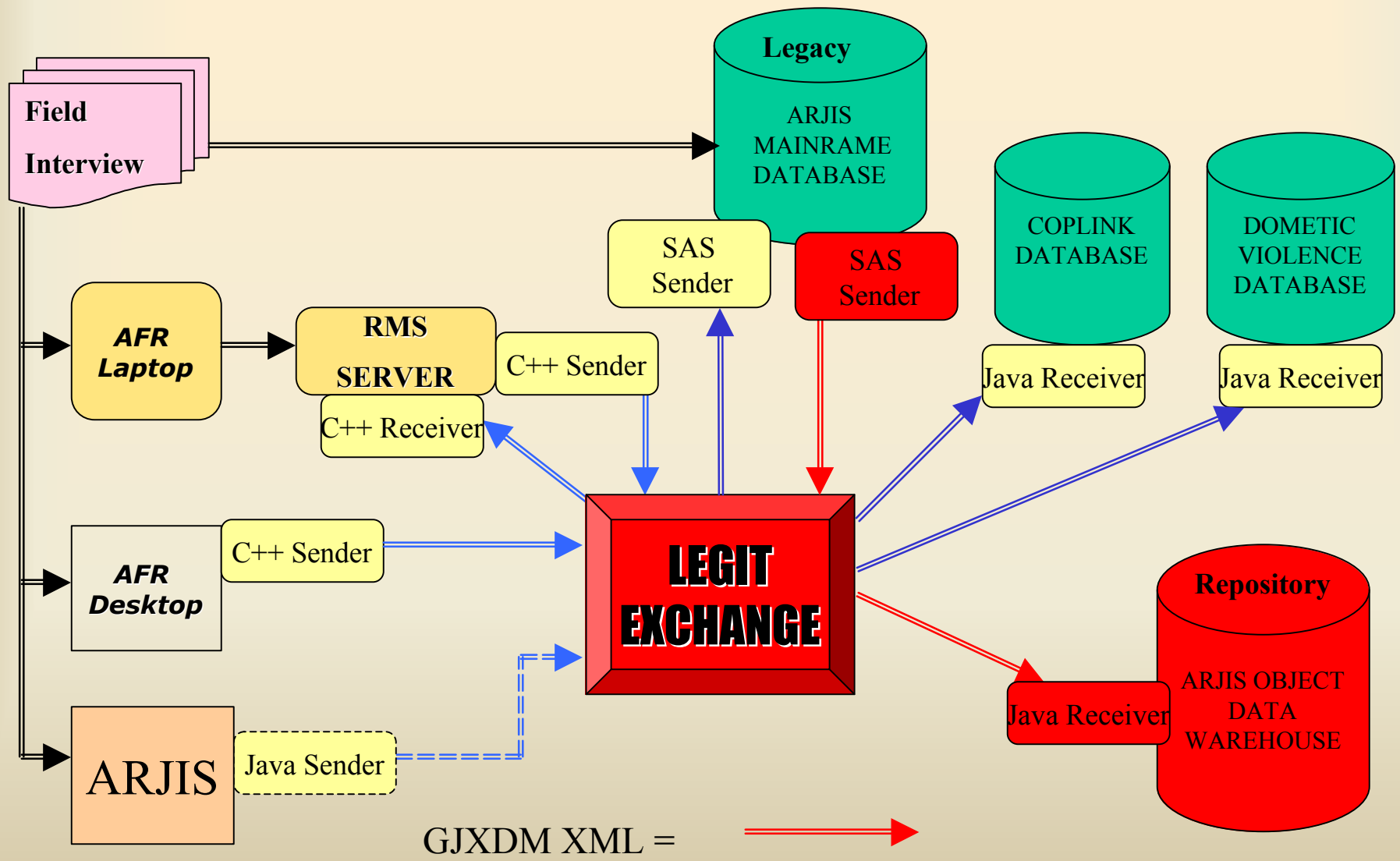
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ARJIS-1 (4-99)

# Field Interview Data/Message Flow



# GJXDM Use Case Message Flow



## Use Case Scenario

- Obtain and Review Reference Information
- Convert MPI/XML Naming Standard to GJXDM Standards
- Created a GJXDM XML Data Stream
- Modify Existing Sender and Receiver Applications to Utilized New GJXDM XML Data Stream
- Alpha Test and Compare Against Existing Production Interface
- Create GJXDM Reference Document Schema
- Obtain GJXDM Validation/Compliance for the Reference Document

## Step 1: Obtain and Review Reference Material

- Visited the Global Justice XML Data Model Web Site (<http://it.ojp.gov/jxdm>) and Obtained the Following:
  - Microsoft Excel spreadsheet of types and properties -jxdm-3.0.xls
  - The justice data model, less verbose version. - jxdm.xsd
- Attempted to Find a ‘Compliant’ Reference Document :
  - Incident Report – old GJXDM version
  - Amber Alert - <http://www.ojp.gov/amberalert/standards.html>
- Participated in the Listserv and Obtained the Following :
  - Rules for Creating a Subset Schema  
<http://justicexml.gtri.gatech.edu/technical/schema-subset-rules/index.html>

## Step 2: Convert MPI/XML Naming Standard to GJXDM Standards

- Mapped MPI/XML Objects to the GJXDM Standards as follows:

- Simple Items to Simple Items

firstName	PersonSurName
lastName	PersonGivenName
middleName	PersonMiddleName

- Sub Objects to Complex Types

PersonName	PersonName
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- Objects to Super Types

Person	Person
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## Step 3: Created a GJXDM XML Data Stream

- Copied Amber Alert XML Stream in Notepad and Remapped Super Types, Complex Types and Simple Item Names
- Converted Context into Object Id references (attribute)

- Example :

```
<jxdd:Person jxdd:id="Subject1">
  <jxdd:PersonName jxdd:id="Prime1">
    <jxdd:PersonGivenName></jxdd:PersonGivenName>
    <jxdd:PersonMiddleName></jxdd:PersonMiddleName>
    <jxdd:PersonSurName></jxdd:PersonSurName>
  </jxdd:PersonName>
</jxdd:Person >
```

- Opened Notepad Version in XMLPad to Validate Finished XML Data Stream

## **Step 4: Modify Existing Sender and Receiver Applications and Processes**

- **Modify SAS Sender**
- **Modify SQL Script for Power Table that Maps XML Names to Database Columns**
- **Create New SQL Script to Use GJXDM Names**
- **Create Test Power Table and Database**
- **Alpha Test Load Process using SAS Sender, Exchange and Java Receiver.**

## Step 5: Alpha Test and Compare Against Existing Production Interface

- Message Size
  - 75% Increase in Message Size
- Process Time
  - Little if No Impact on Process Time or Resources
- Problems/Issues
  - Context Attribute Reuse vs. Id Attribute Uniqueness
  - Complex Type Order and Inheritance (Structured)
  - Transaction XML Message vs. XML Schema Document
- Lessons Learned
  - Learn from others who also are learning

## **Step 6: Create JXDD Reference Document Schema**

- Load XML Message into XMLSpy
- Using the Amber Alert Reference Document Schema as an Example, Create Field Interview Schema
- Test Schema Against XML Messages

## **Step 7: Obtain JXDD Validation/Compliance for the Reference Document**

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**Thank You**

**Questions?**