Using ebXML Registry for the
Canadian National Routing System

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About Farrukh Najmi

• **XML Standards Architect, Sun**
  - Focused on content management

• **Specification Lead, Java API for XML Registries**

• **Co-author and editor, ebXML Registry**

• **Co-founder, freebxml.org**

• **Lead Architect, freebXML Registry**
Question

Why should National Routing System use ebXML Registry as its foundation?
Agenda and Objective

- Agenda
  - Introductions (All)
  - Why ebXML Registry as foundation for NRS (Farrukh)
  - Introduction of the PWGSC registry service (Aziz)
  - Questions and answers
  - Next steps
Major NRS Use Cases

- Register federal and P/T organizations
- Protect the privacy of individuals and data
- Define and store custom data
  - e.g. Coroner/Medical Examiner data
- Query custom data using custom queries
  - e.g. Query a P/T birth event database to ascertain the authenticity of a birth certificate
Major NRS Use Cases (Cont.)

- Define custom events (e.g. Death Event)
- Notify subscribers of events of interest
- Limit subscriptions to authorized parties
- Allow event subscribers to choose the frequency of receipt and for the level of detail
Register Federal and P/T Organizations

- Ability to register organizations
- Ability to define custom relationships between them
- Ability to store custom data for each organization
- Ability to register Persons along with custom person data
- Ability to associate Persons with organizations using custom relationships
Protect the Privacy of Individuals and Data

• Secure Architecture
  – Digital signature based authentication
  – Role Based Access Control (XACML)
  – Event Archiving - complete audit trail

• Content Integrity
  – All submissions must be digitally signed by a registered Submitter
  – Digital signatures of all submissions must be verified by the registry
  – All registry responses must be signed
Define and Store Custom Data

- Can define new ObjectTypes within RIM
  - e.g. BirthEvent, MarriageEvent, DeathEvent
- Can define new attributes for new types using Slots
  - e.g. Add attribute dateOfBirth to existing Person class
Query Custom Data Using Custom Queries

- Application specific queries
  - Ad hoc queries
  - SQL 92 and XML Filter Query syntax

- Content based queries
  - Find me all deaths in the last month in Manitoba where the Person is between age 18-24

- Parameterized, stored queries
Define Custom Events

• Relies on ability to define custom data

• Custom events specified by Selector queries
  – All features of ad hoc queries available in selector queries
Notify Subscribers of Events of Interest

- Subscriber subscribes using *Selector Query*
- Subscriber receives event notifications using:
  - SOAP interface: NotificationListener
  - Email
Limit Subscriptions to Authorized Parties

• Role Based Access Control (RBAC) feature reused to hide event data from unauthorized subscribers
  - All the rich features RBAC of ebXML Registry are available
  - Custom access control policies may be created and assigned
Choose the Frequency of Receipt and for the Level of Detail

- Notification interval is configurable per Subscription
  - Allows immediate notification or batched delivery at periodic intervals

- Notification granularity is configurable per delivery Action within a Subscription
  - Choice of delivery of actual data or handle to data
Major ebXML Registry Features at a Glance

- Federated Architecture
- Secure Architecture
- Web Services Registry
- Content Management
- Standard Metadata
- Events
- Content-Based Event Notification
- Publish, Discover & Manage Web Services
- Cataloging, Validation of Content, WCM Version Control
- Classification, Associations, Taxonomies
- Federated SQL & XML Queries
- DSIG, Role-Based Access Control, Audit Trail
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Advantages of using ebXML Registry as a solution for NRS

- Offers out-of-the-box functionality that meet NRS needs
- Minimal customization is required
Limitations, problem areas of ebXML Registry

- Very generic capabilities means more flexibility. But it also means more configuration and initial ramp-up

- Requires mapping from business information model to Registry Information Model

- Events tied to registry actions: Create, Update, Deprecate, Undeprecate, Delete
Limitations, problem areas of ebXML Registry (cont.)

- Nothing of this scale has been done before
  - If we find scalability issues then the freeebXML Registry dev team is committed to fixing them
Maturity of the technology

• The ebXML Registry standard is nearly 5 years old and on its 3rd major revision
• The freebXML Registry project is nearly 3 years old and on its 3rd major revision
• Loyal user community of 200+ and growing fast
• Several significant deployments exist
• Expect to reach feature completeness for 3.0 with comparable quality to Sun products by early 2005
Alternatives to ebXML Registry

• Standards:
  – None. UDDI is sometimes compared to ebXML Registry but the capability differences make it not possible to meet NRS requirements with UDDI

• Products:
  – Proprietary vendor specific content management software
Parallels with the Epidemic Management project

• Similarities:
  − Both have strong RBAC requirements
  − Both define custom data and events
  − Both have need for custom content based queries
  − Both have need for customizable content based event notification

• Differences
  − Different domains
  − Epidemic demo had many more technologies to show them working together. They are not needed for NRS
Why Should NRS Use freebXML Registry

- Meets NRS requirements
- PWGSC has positive experience with it
- Is based upon open standards
  - No vendor lock-in
- Is open source and platform neutral
- Is an enduring and focused project with a passionate dev team and loyal user base
- Has commitment of Sun Microsystems
Costs of deploying this service

- Difficult to estimate without a detailed analysis
  - Costs less than developing a new application because all the functionality is already built-in the registry

- Some costs to consider are:
  - Professional services / consultants cost (variable)
  - Cost of support staff
  - Sun Java Enterprise System costs $100 per employee per year
Handling new feature requests

- The freebXML Registry is a community driven project
- The ebXML Registry is a community driven standard
- New features are added to specs and implementation if they have community support
Handling new feature requests (Cont.)

- New features are not added if they are special needs of one customer
- The freebXML Registry project has many points of extensibility allowing customers to plug in special features that are custom to them