Final Study Report on ROR

May 2010
SC32WG2 Kunming, China
Hajime Horiuchi
Background

• The study period project was initiated at the SC32 Sydney Meeting (May 2008) and extended one year at the SC32 Jeju Meeting (Jun 2009).
• The project was being in charge of the investigation of many possibilities of “Registry Interoperability” In term of ROR (Registry of Registries).
• The final conclusion was made as a standard by which any heterogeneous registries could be described as simple profiles.
• The standard for the registry profile could be a part of the MFI-6 (Registration procedure).
Objectives of the study

• Originally, ISO/IEC 19763 (MFI: Metamodel Framework for Interoperability) in SC32 was addressing the ROR concept.
Cases investigated

- Case-1: Registry Integration Service
- Case-2: Hierarchical Registry Connection
- Case-3: Registry Interface Virtualization
- Case-4: Registry Profile
Case-1: ROR as a Registry Service Integrator

Cloud

User

Service lookup

Service enjoy

ROR Registry Service

RaaS

Service Integrator

Interface Specification between Service Registry and Service Integrator

Metadata used by Service

Service Interface Specification

Catalogue Information

Service Profile Specification in the Registry

Registry Service Federation

Service Integrator

Reference

Service Platform (J-SaaS)

Service Platform (SFDC)

S1

S2

S3

S4

Sn: Service

★: Targets to be standardized

2010/05/17

13th Open Forum for Metadata Registry, Kunming, China
Experimental trials on RaaS

Service Registry

http://mr-devel.tiu.ac.jp

MDR Registries

MFI Registries

RaaS

http://serviceregistry.tiu.ac.jp/WS/mdr

http://serviceregistry.tiu.ac.jp/WS/mfi

ROR
(Registry Service Integration)

http://modelregistry.tiu.ac.jp

Client

Browser
Case-2: Service Hierarchy

Tier-3
- Service User
- Service User

Tier-2
- Service Integrator
- Service Integrator

Tier-1
- SaaS vender
- SaaS vender
- SaaS vender

Registry Service
- Registry Service Integration

- Service Registry

RaaS Vender
- Registry as a Service
Case-3: Registry Service Virtualization

- MDR Registry
- MFI Registry
- XML base Registry
- PLIB
- ebXML RR

Unique independent Interface

Standard Interface

Registry Integration Service

Web SService

2010/05/17

13th Open Forum for Metadata Registry, Kunming, China
 Might invite Confusions

Registry Service ≠ ? Service Registry
Case-4: Registry Profile

- Only collection of Registry Profiles
- Everybody can collect and store a set of profiles
- Change will be informed by Notification (RSS)
## Metamodel for Registry Profile

<table>
<thead>
<tr>
<th>Organization</th>
<th>Attribute</th>
<th>DataType</th>
<th>Multiplicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Text</td>
<td>1..1</td>
<td></td>
</tr>
<tr>
<td>Identification</td>
<td>Identifier</td>
<td>1..1</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>Text</td>
<td>1..1</td>
<td></td>
</tr>
<tr>
<td>Reference</td>
<td>Class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identification</td>
<td>Identifier</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Logo</td>
<td>Picture</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Contact</td>
<td>Attribute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identification</td>
<td>Identifier</td>
<td>1..1</td>
<td></td>
</tr>
<tr>
<td>Department Name</td>
<td>Text</td>
<td>1..1</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>Text</td>
<td>1..1</td>
<td></td>
</tr>
<tr>
<td>Reference</td>
<td>Class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postal</td>
<td>Address</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Telephone</td>
<td>Communication</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td>Attribute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identification</td>
<td>Identifier</td>
<td>1..1</td>
<td></td>
</tr>
<tr>
<td>Postcode</td>
<td>Code</td>
<td>1..1</td>
<td></td>
</tr>
<tr>
<td>Line One</td>
<td>Text</td>
<td>1..1</td>
<td></td>
</tr>
<tr>
<td>Line Two</td>
<td>Text</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Line Three</td>
<td>Text</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Contact</td>
<td>Attribute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identification</td>
<td>Identifier</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>URI</td>
<td>Communication</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Picture</td>
<td>Attribute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital Image</td>
<td>Binary Object</td>
<td>1..1</td>
<td></td>
</tr>
<tr>
<td>Identification</td>
<td>Identifier</td>
<td>1..1</td>
<td></td>
</tr>
<tr>
<td>Subject</td>
<td>Text</td>
<td>1..1</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Text</td>
<td>1..1</td>
<td></td>
</tr>
<tr>
<td>Composite Service</td>
<td>Attribute</td>
<td>Identifier</td>
<td>1..1</td>
</tr>
<tr>
<td>Name</td>
<td>Text</td>
<td>1..1</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>Text</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Version</td>
<td>Identifier</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Public Flag</td>
<td>Indicator</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Publication</td>
<td>Date Time</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td>Numeric</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td>Indicator</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Reference</td>
<td>Class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Logo</td>
<td>Picture</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>Contact</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Classification</td>
<td>1..*</td>
<td></td>
</tr>
<tr>
<td>Application</td>
<td>Document</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Consisting</td>
<td>Software Service</td>
<td>1..*</td>
<td></td>
</tr>
<tr>
<td>Connecting</td>
<td>Software Service</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Sales Information</td>
<td>Attribute</td>
<td>Identification</td>
<td>1..1</td>
</tr>
<tr>
<td>Name</td>
<td>Text</td>
<td>1..1</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>Text</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Reference</td>
<td>Class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attached</td>
<td>Binary File</td>
<td>0..*</td>
<td></td>
</tr>
<tr>
<td>Sales Information</td>
<td>Attribute</td>
<td>Identification</td>
<td>1..1</td>
</tr>
<tr>
<td>Name</td>
<td>Text</td>
<td>1..1</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>Text</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Reference</td>
<td>Class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attached</td>
<td>Binary File</td>
<td>0..*</td>
<td></td>
</tr>
<tr>
<td>Sales Information</td>
<td>Attribute</td>
<td>Identification</td>
<td>1..1</td>
</tr>
<tr>
<td>Name</td>
<td>Text</td>
<td>1..1</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>Text</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Reference</td>
<td>Class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attached</td>
<td>Binary File</td>
<td>0..*</td>
<td></td>
</tr>
<tr>
<td>Sales Information</td>
<td>Attribute</td>
<td>Identification</td>
<td>1..1</td>
</tr>
<tr>
<td>Name</td>
<td>Text</td>
<td>1..1</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>Text</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Reference</td>
<td>Class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attached</td>
<td>Binary File</td>
<td>0..*</td>
<td></td>
</tr>
<tr>
<td>Sales Information</td>
<td>Attribute</td>
<td>Identification</td>
<td>1..1</td>
</tr>
<tr>
<td>Name</td>
<td>Text</td>
<td>1..1</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>Text</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Reference</td>
<td>Class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attached</td>
<td>Binary File</td>
<td>0..*</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Classification</th>
<th>Attribute</th>
<th>DataType</th>
<th>Multiplicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>System</td>
<td>Identifier</td>
<td>1..1</td>
<td></td>
</tr>
<tr>
<td>Class</td>
<td>Code</td>
<td>0..1</td>
<td></td>
</tr>
<tr>
<td>Class Name</td>
<td>Text</td>
<td>0..*</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>Text</td>
<td>0..*</td>
<td></td>
</tr>
<tr>
<td>Reference</td>
<td>Class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attached</td>
<td>Binary File</td>
<td>0..*</td>
<td></td>
</tr>
</tbody>
</table>

| Data Type: Core Component Data Type. |
Registry Profile
Difference between ROR and UDDI

1. Establish Service Collaboration
2. Use Service (Interchange)
3. Find Service
4. Use Data/Model/Semantic Registry

ROR

Service Providers

Data/Model/Semantic Registry

Electronics Parts

Automobile

Service Providers

Data/Model/Semantic Registry

Service Registry (UDDI)
Final Decision

• Let the Registry Profile be a part of MFI-6 (ISO/IEC19763-6: Registration procedure)
Relationship among MFI & MDR Packages

- MFI-2: Metamodel (Model)
- MFI-3: Metamodel (Ontology)
- MFI-5: Metamodel (Process Model)
- MFI-7: Metamodel (Service)
- MFI-8: Metamodel (Service)
- MDR/MFI: Registration Core Package
- MDR-6: Registration Process
- Registration Record
- Registered Item Instances
- Registration Process
- RGPS Constructs
- MFI-6: Registration Process

Specify

- Model
- Model Constructs
- Service
- Service Constructs
- RGPS
- RGPS Constructs
MDR/MFI Registration
Common Core Package

From ISO/IEC 11179 ED3

MDR/MFI Registration Core Package

ISO/IEC 11179-3 Ed3

Basic

- Contact
- Date-and Time
- Individual
- Language_Id
- Organization
- Phone_Number
- Postal_address
- Registration_A_ID

Registration

- Namespace
- Registry Authority
- Registrar
- Administered_Item
- Stewardship_Record
- Submission_Record
- Registration_Record

Identification Designation & Definition

Registry profile
MFI-6 package (Registration)

MDR/MFI Registration Core Package

- **Basic**
  - Contact
  - Date-and Time
  - Individual
  - Language_Id
  - Organization
  - Phone_Number
  - Postal_address
  - Registration_A_ID

- **Registration**
  - Namespace
  - Registry Authority
  - Registrar
  - Administered_Item
  - Stewardship_Record
  - Submission_Record
  - Registration_Record

- **Identification Designation & Definition**

MFI Registration Process

- Registry Common Process
- Lifecycle Process (Service)
- Registration of Model (Service)
- Registration of Ontology (S)
- Registration of Service (S)
- Registration of Goal & Role (S)

MDR-6 (ISO/IEC11179-6)

Out of scope of this document
How MFI metamodels to be used in the Registration

MDR/MFI Registration Core Package

Basic
• Contact
• Date-and Time
• Individual
• Language_Id
• Organization
• Phone_Number
• Postal_address
• Registration_A_ID

Registration
• Namespace
• Registry Authority
• Registrar
• Administered_Item
• Stewardship_Record
• Submission_Record
• Registration_Record

Identification
Designation & Definition

Namespace • Registry Authority • Registrar • Administered_Item • Stewardship_Record • Submission_Record • Registration_Record

MFI Registration Processes

Register

MFI Registry

Specify

MFI Metamodels

• RA,
• Registrar,
• Stewards,
• Submitters

MFI-6 (ISO/IEC19763-6)

Registry Common process

Lifecycle Process (Service)

Registration of Model Proc.

Registration of Ontology

Registration of Service

Registration of Role & Goal