



**Study Period Interim Report of RoR.
- Registry Service Integration Architecture -**

2009/11/12

SC32/WG2 Japan



Contents

- Background
 - Current environment and Issues
 - Information about services is scattered on the heterogeneous registries.
- Registry Service Integration Architecture
 - Scope & Field of Application
 - Architecture Overview
 - Service Profile
 - Registry Service interaction
 - Registry Service access model
- Future work

Bibliography

Background

Current environment and Issues

intelligence sharing system using the internet environment

- SOA technology and a web service skill, the specification about EDI were enriched, and Cloud Computing became possible.
- A lot of application services in the Internet that becomes something useful in the enterprise are open to the public by the spread of SaaS.
- Informational common system can be constructed at a low price by uniting the application service in the Internet.

Information about services is scattered on the heterogeneous registries.

- Information about those service is needed beforehand for application service to use it and combine each.
- The web service and EDI which become a foundation of Cloud Computing have the standard of Registry such as UDDI Registry and ebXML Registry.

Issues

- Necessary information about the service which is to combine application service on the internet is interspersed among heterogeneous registries.
- It's different in access method to each registry.

Information about services is scattered on the heterogeneous registries.

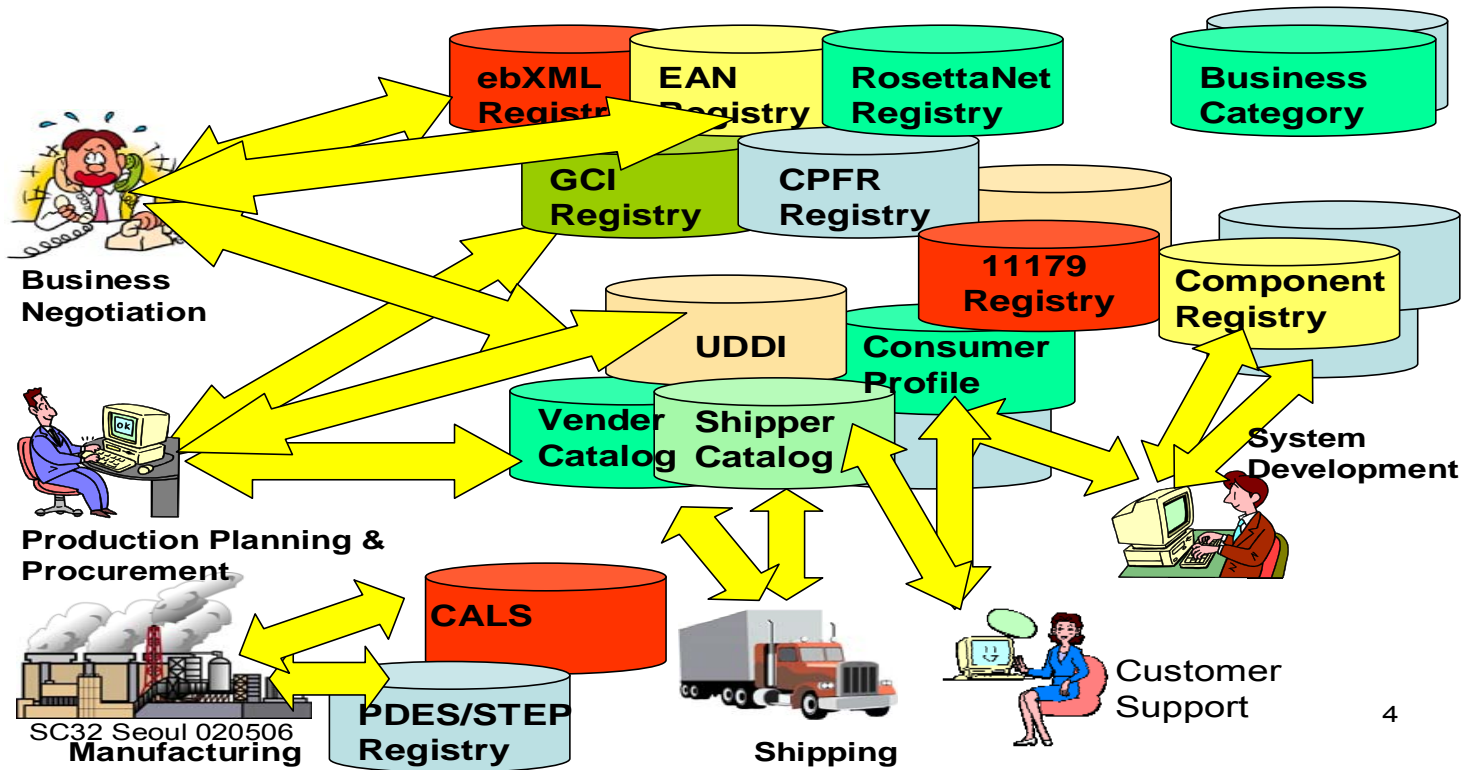
There is a registry specification every technology which becomes a foundation of Cloud Computing, and each registry is mounted much already.

The metadata of the each domain is defined in the each registry specifications. The information a service provider also offers to all except for the metadata defined by the standard is also important information.

It's different in access I/F every registries.

Domain	Registry	STD#	Metadeta Specs.	Registry Access I/F
Data element Registry	MDR	ISO/IEC 11179	X	ISO/IEC 20944
Model Registry	MFI	ISO/IEC 19763	X	N/A
Master Data Registry (Dictionary)	PLIB	ISO13584	X	API on Web service (ISO 29002)
	OTD	ISO 22745	X	
	RDL	ISO 15926	X	
Web Service Registry	UDDI	OASIS	X	Access API on SOAP
EDI Registry	ebXML	ISO/TS 15000	X	ebXML RS (SOAP/REST)

Information about services is scattered on the heterogeneous registries.



Registry Service Integration Architecture

Object of standardization (Scope & Field of Application)

Definition of the environment and architecture

Define the assumption matter concerning the environment that this specification targets.
Define the architecture that enables the service cooperation in the Cloud environment.

Standardization of definition method of the Service Profile

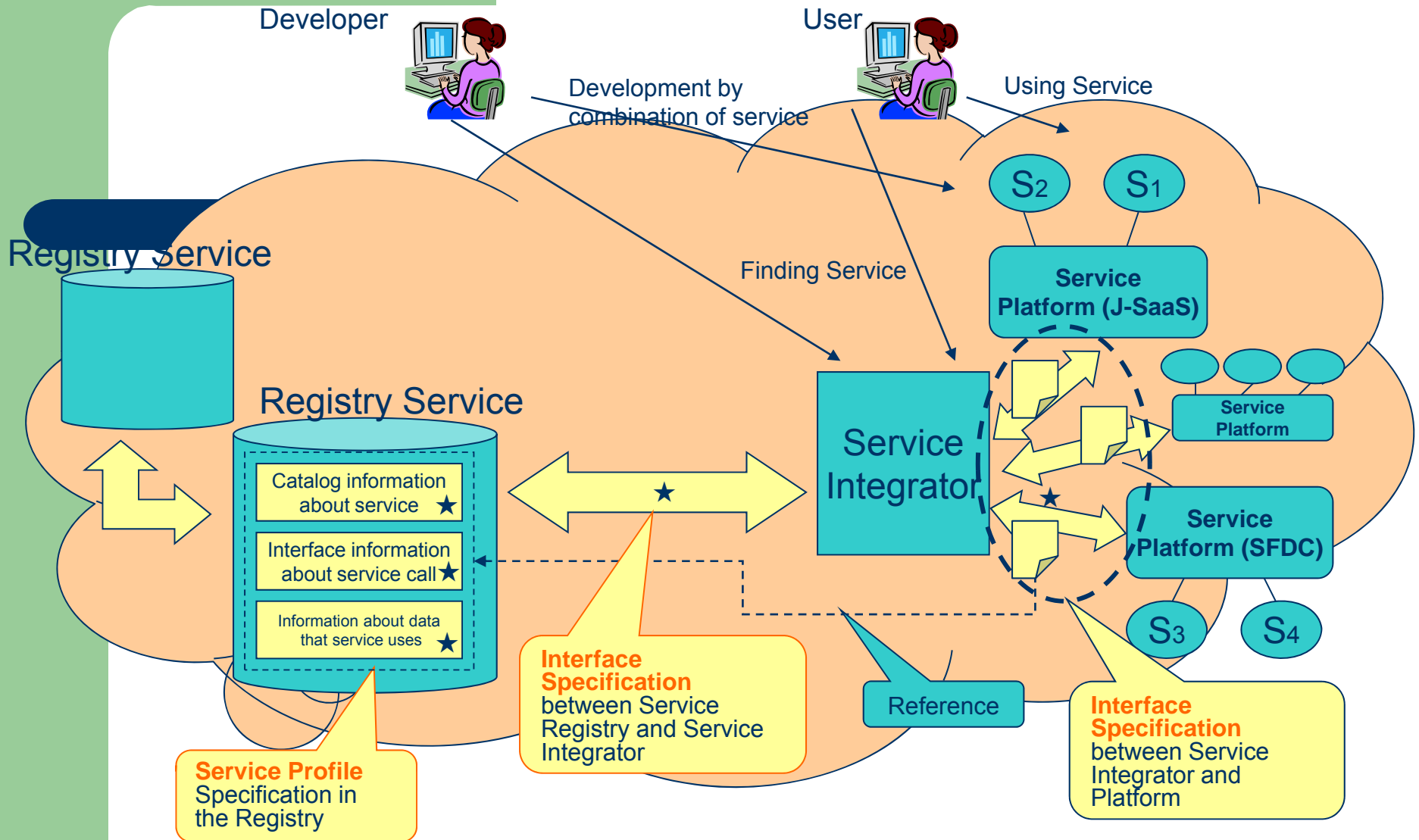
- Arrangement of the requirements of the service profile.
- The part where the existence standard can be quoted and an original part are recognized.
- Arrangement of the user profile to a cloud.

user profile : The matter the user expects and requests in a cloud.

Definition of a registry service interaction

- Definition of the procedure which acquires a service profile from heterogeneous registries.
- Definition of a reference protocol for service profile acquisition.

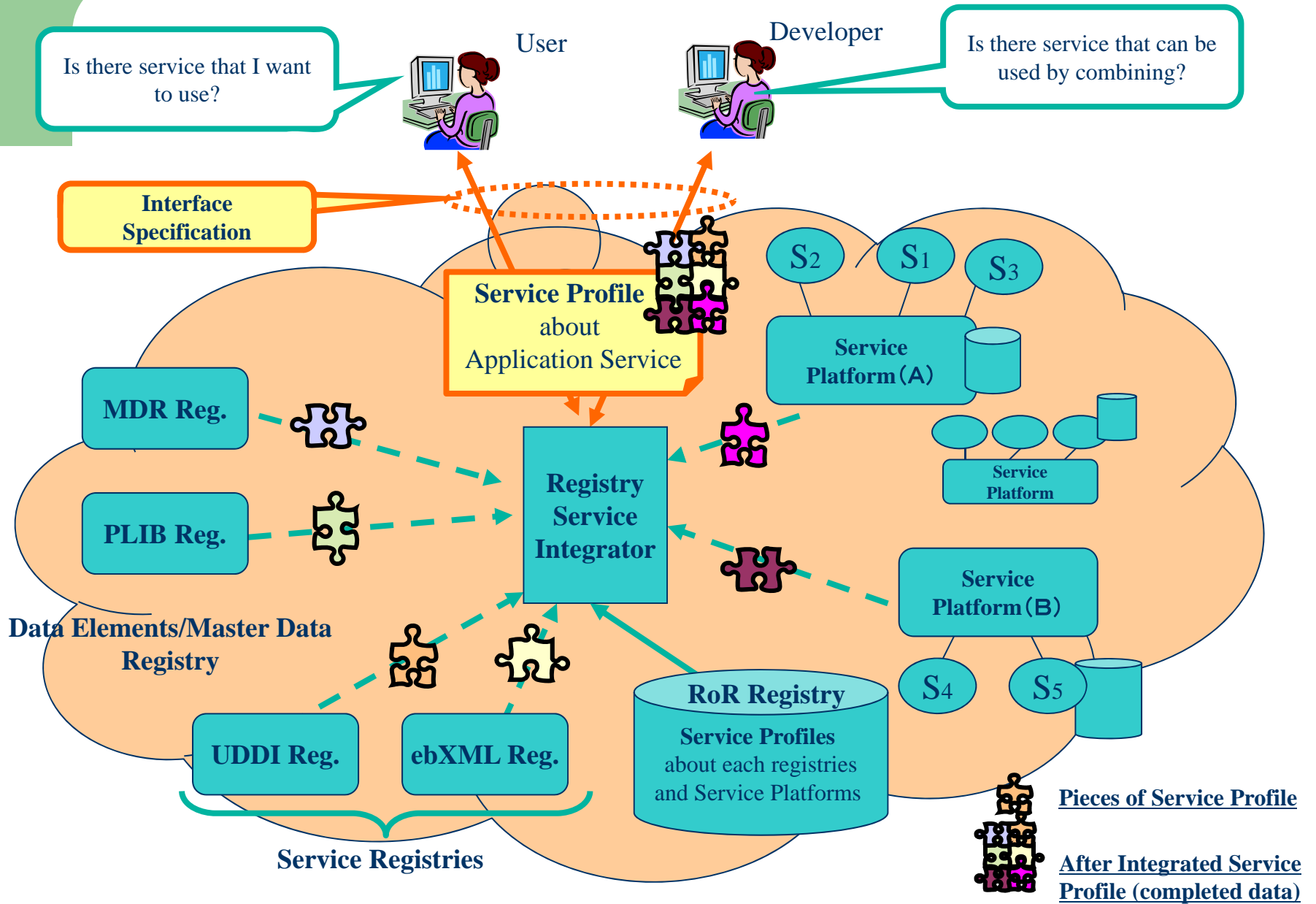
Architecture Overview (universal mode)



★: Components to be standardized

S_n: Service

Architecture Overview (Focus on Registry Service)



Service Profile - 1

Function requirement of a service profile (provisional)

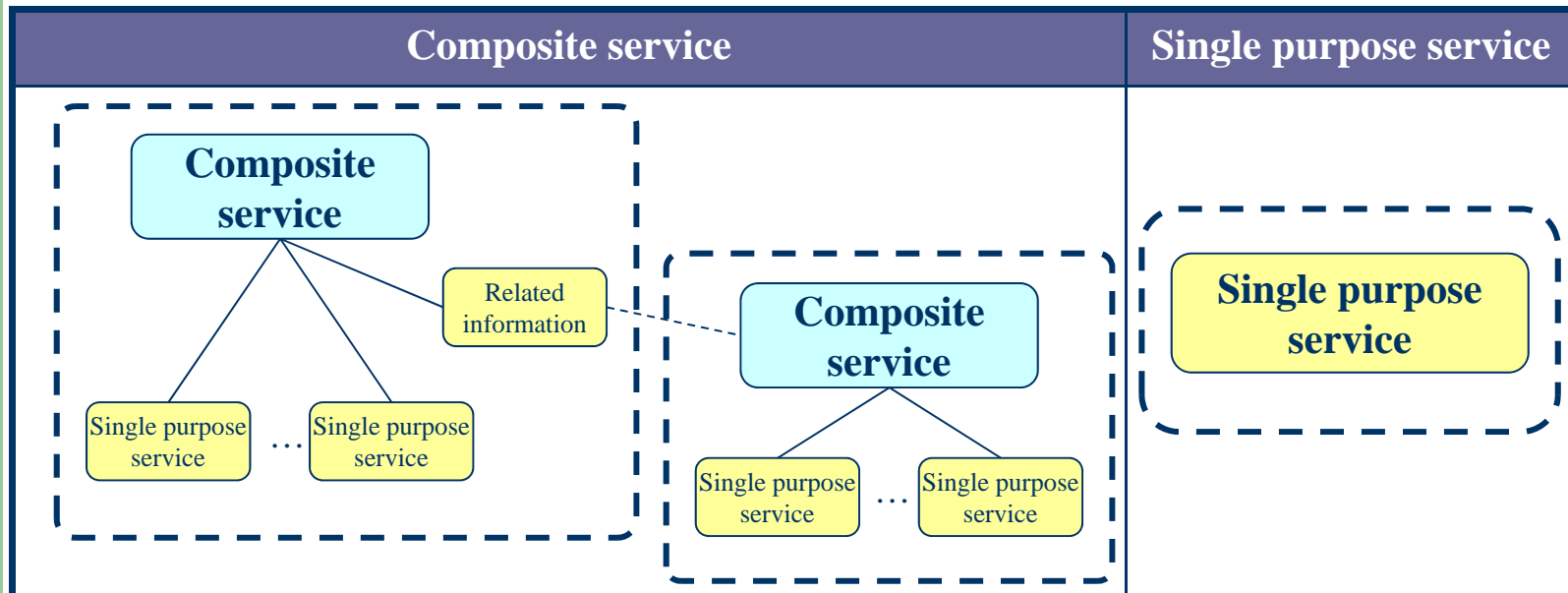
1. A service profile expresses following application service.
 - Registry Service (Data Element Registry service , Service Registry service , Master data Registry service and so on.)
 - The application service opened on the internet.
2. Each function must be explained at each application service.
3. Information on the offer (use price and offer form, etc.) must be explained individually when the use of the application service is for a fee.
4. The procedure for using the application service must be explained.
 - Explanation concerning contract procedure.
 - Technical explanation when application service is used.
⇒ Various technical intelligence is required not to depend on a specific specification like proprietary protocol etc. and to exist together.
5. Service provider's where to make contact must be described clearly.
 - Window concerning contract.
 - Technological window
 - Window concerning operation
6. Information on the operation of the application service must be explained.
7. Have information that concerns the cooperation if it is possible to open it to the public with cooperation with other application services.

Service Profile - 2

Arrangement of service that service profile targets

The granularity of the application service that the service profile expresses is assumed to be two kinds "Composite service" and "Single purpose service".

- Composite service is ..
 - Composite service is composed of one or more single purpose service.
 - Composite service can have "Related information" with other composite services.
- Single purpose service is ..
 - Single purpose service is a component of composite service.



Service Profile - 3

Composition of service profile

Service Profile

■ Service provider information

Information about a provider of service.

such as name of provider of service, addresses, and where to make contact

■ Service catalog information

The user who has "Buy it" and "Use it" purposes uses service for this information.

Static information about service.

Information for information (price, condition, and range etc. of security) contract concerning service name, function explanation, operation, and offer and information of use manual.

■ Service technology information

The developer who has the purpose of the tie of development, customizing, and the service of service mutually etc. uses it.

Technical intelligence when service is used.

■ Technology Model information

It is information on how to call it as for service.

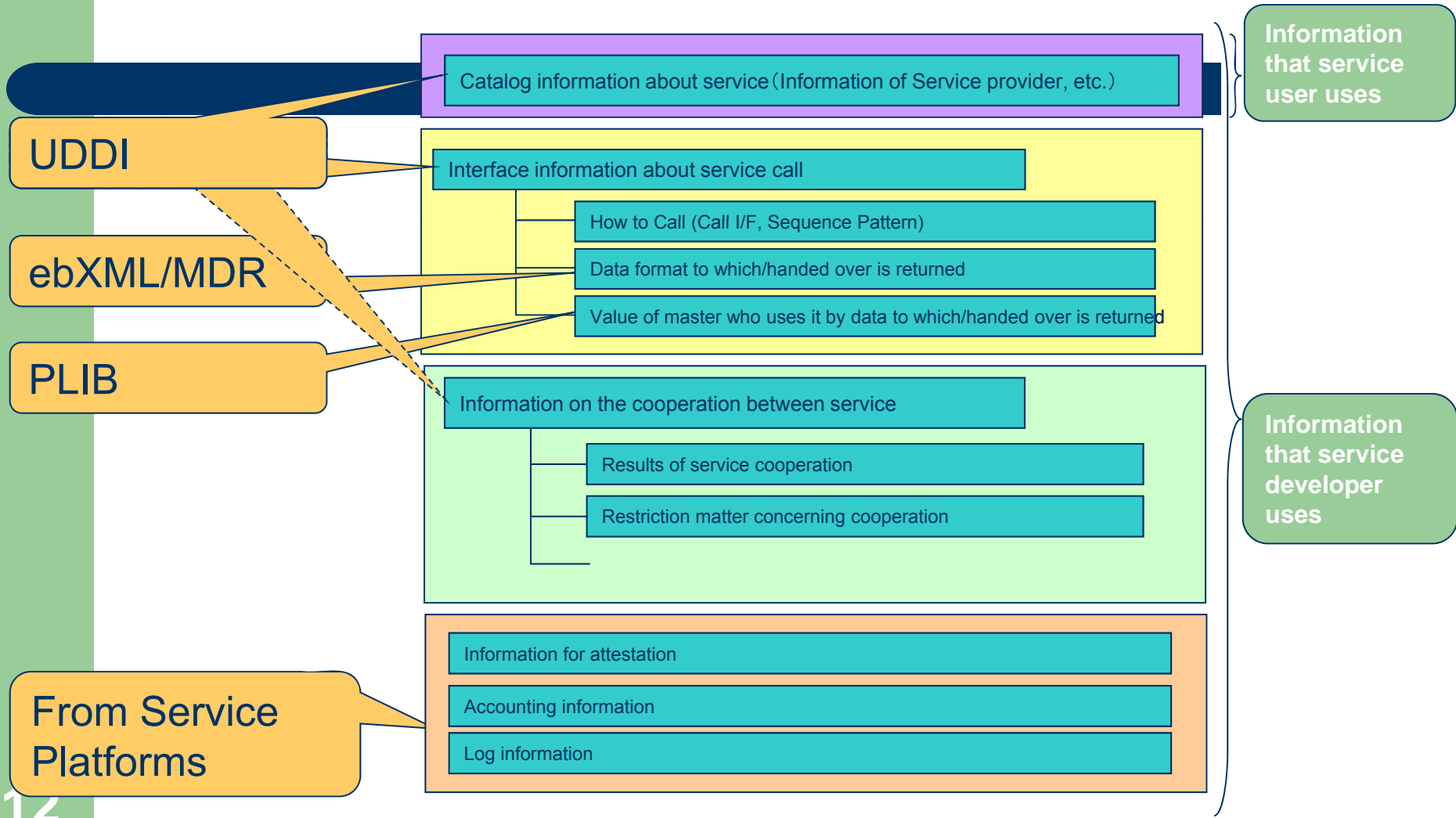
(such as protocol, parameter, authentic method, and parameter item, masters such as codes and ID required to do service use)

■ Service cooperation information

Knowledge information on cooperation of composition of service and service that composes when service is composite service.

Service Profile -4

Information on service are discovered from Heterogynous Registries.



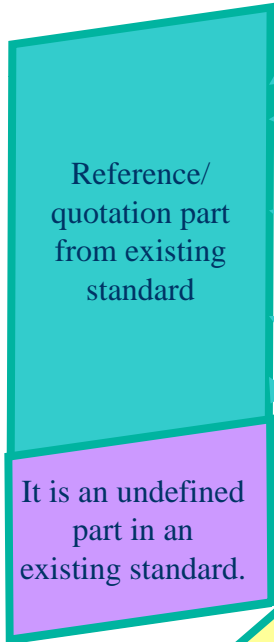
Service Profile - 5

Integration image of service profile.

When using it for the business system construction, it is information on the service to which a corporate user and the system developer refer.

The service profile is composed of information from the platform vendor who is providing various meta data and services.

Service Profile



Parts of
UDDI Registry Data Structures

Parts of
MDR Metadata

Parts of ebXML Metadata.
(CPP, RIM etc.)

Parts of PLIB Metadata.

⋮

Other Metadata
(such as Information from Service Platforms)

Metadata based on
existing standardization

Non-standard meta data

Integrate

Service Profile -6

First assessment concerning integration of service profile.

Service provider information

[Targeted existing registry]

UDDI Registry(businessEntity), ebXML registry(CPP(PartyInfo))

[Primary assessment]

It is possible to compose service provider information roughly by using information that the UDDI registry and the ebXML registry offer.

It will be examined closely whether there is the lack item in the future.

Service catalog information

[Targeted existing registry]

UDDI Registry(businessService), ebXML Registry(CPP(PartyInfo))

[Primary assessment]

There are neither a use price nor contract information, etc. though a part of service catalog information can be composed by using information that the UDDI registry and the ebXML registry offer. Information on the use price and the contract has been disclosed on the site in the service platform etc. in the form of individual. In the service profile, the item to take this information is defined.

Service technology information

[Targeted existing registry]

UDDI Registry(bindingTemplate), ebXML registry(CPP(PartyInfo))

MDR Registry, ebXML Registry(RSM, xsd), PLIB, OTD, RDL

[Primary assessment]

The technological convention concerning the call of service in service technology information can be quoted from UDDI Registry and ebXML Registry. It is possible to quote it from RDL OTD PLIB the exchange data (master data) according to it from ebXML. MDR the exchanged data format. Because information that corresponds to service cooperation information is not clearly defined, the item is defined with the service profile.

Service Profile -7

Examination concerning service profile

- Issues in the first integration evaluation

- Examination concerning presence of lack item of service provider information.
- Examination of offer information item in service catalog information.
- Examination of composition of service technology information.
- Examination concerning information item for service.

Policy of problem
examination

- Refer to other existing standards for the verification of the lack item.
Refer to Core Component Library that UN/CEFACT has opened to the public.
- It refers to a real case when there is no standard of the correspondence.

Registry Service Interactions

Requirements of Registry Service Interactions (for examples)

Discovery of Services.

Discovery procedure of registry where user has information wanting it.

Query of Service's Information.

Retrieval procedure to discovered registry.

Obtaining of Service profile.

Offer of service profile that user demands.

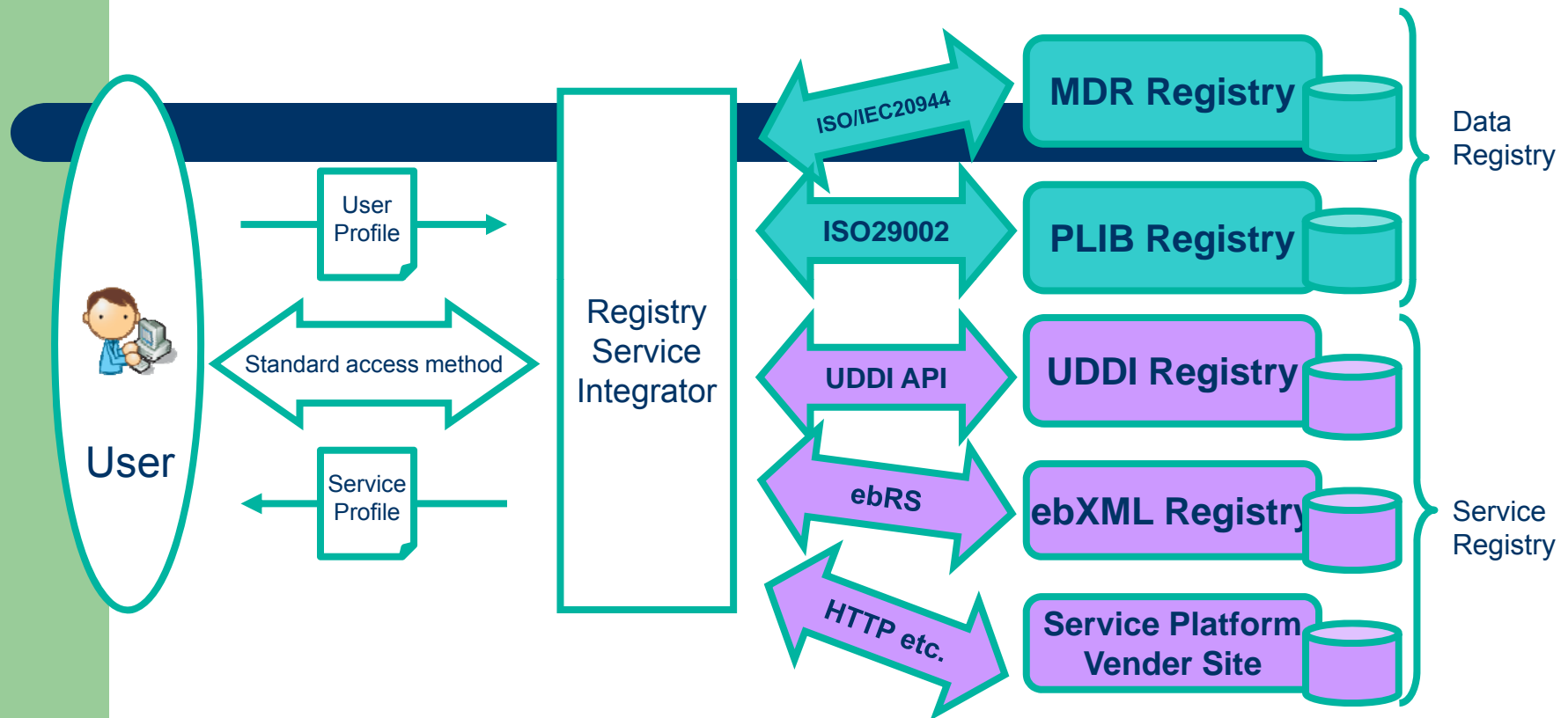
Notification

Notification procedure concerning update of information in each registration.

:
:

And so on.

Registry Service access model



- User's needs are answered in catching, and cooperating with the application service in the Internet.
- The rule to access different registry service is defined.
- The rule contains the definition of demand/response message besides the access method.

Future work

- Arrangement of range of object and assumption matter.
- Arrangement of architecture.
 - Architecture is shown by some views.
- Arrangement of service profile.
 - Requirement arrangement of service profile.
 - Making of data model in service profile.
 - The quotation from an existing specification and the division of a new, additional item etc. are clarified.
- Arrangement of registry interaction.
 - Requirement arrangement of registry interaction.
 - Arrangement of registry access process.
 - Registry access I/F arrangement.
 - Existing registry access I/F is arranged, and registry access I/F is examined based on the result.

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 - ISO/TS 15000 Electronic business eXtensible Markup Language (ebXML)
 - ISO 13584 Industrial Automation Systems and Integration -Parts Library
 - ISO 22745 Open Technical Dictionary
 - ISO 15926 Process Plants including Oil and Gas facilities life-cycle data
 - ISO 29002 Concept Dictionary Resolution Service
 - OASIS: UDDI Version 3.0.2