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UDDI and ebXML Registry: A Co-Existence Paradigm

How two prominent E-Business registry specifications can co-exist and support different business needs

Universal Description, Discovery, and Integration (UDDI) specification and the Electronic Business XML (ebXML) Registry are the two most prominent types of e-business registries that currently exist. There has existed a certain level of uncertainty among those selecting an e-business registry (referred to as "registry selectors") as to the main differences between the two specifications, and which specification may be best for their specific needs. The objective of this paper is to clarify the major focus of, and differences between, each of these registry specifications[1], in an effort to educate registry selectors and therefore enable them to make the best choice possible. It is also intended to help implementers understand the major differences between the two registry specifications, especially within their information models.

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We envision an environment in which there is a co-existence of both UDDI registries and ebXML registries, and in which the strengths and focus of each registry specification support its market presence and primary usage. We do not foresee a merging of the two specifications, as co-existence of both specifications is the best possible scenario given their complementary strengths.

[1] This paper will reference the Version 3.0 specifications of both registries.

What is an E-Business Registry?

An e-business registry is a software product that acts as an organizing focal point for the wealth of information and interactions that conducting e-business requires. E-business registries serve various purposes, including:

- Enabling the discovery of trading partners and their various capabilities
- Classification, association of e-business artifacts such as XML schemas, Document Type Definitions (DTDs), and trading partner profiles
- Registration and discovery of Web service descriptions, such as Web Services Description Language (WSDL) documents

E-business registries are central to the execution of e-business because they allow for the registration, management, and discovery of those critical items that are crucial for the conduct of e-business. The UDDI and ebXML registries are considered e-business registries, each with a different primary focus.

History of the Specifications

UDDI

The UDDI project began in October 2000 as a collaboration between Microsoft, Ariba, and IBM. Its main goal was to speed interoperability and adoption for Web services through the creation of standards-based specifications for service description and discovery, and the shared operation of a business registry on the Web. Before the UDDI project, there was no industry-wide, accepted approach for businesses to reach their customers and partners with information about their products and Web services. UDDI enables enterprises to quickly and dynamically discover and invoke Web services, both internally (to the enterprise) and externally.

The initial idea behind UDDI was that software companies, standards bodies, and programmers would populate the public “UDDI Business Registry” with descriptions of different types of services, while businesses would populate the registry with descriptions of the services they support. Marketplaces, search engines, and business applications would then query the registry to discover services at each others’ companies. Businesses would also use this data to facilitate easier integration with each other over the Web. UDDI may also be employed as a “private” registry (i.e. behind a firewall) that is hosted by an e-marketplace, a standards body, or a consortium of organizations that participate in a given industry.

UDDI was moved into the Organization for the Advancement of Structured Information Standards (OASIS) in July 2002. The UDDI Version 2.0 and Version 3.0 specifications are both Technical Committee-approved specifications. The Version 2.0 specification was submitted for approval as an OASIS Open Standard in March 2003.

ebXML Registry

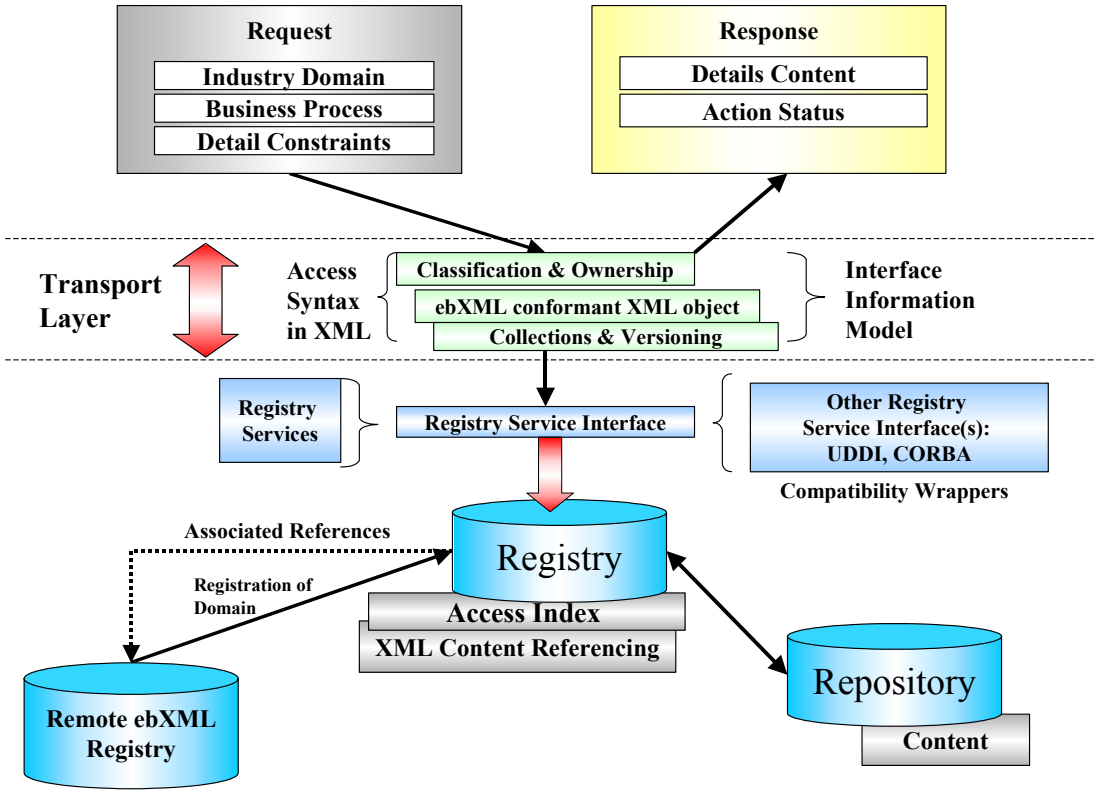
The ebXML Registry specification[2] was created as part of the 18-month ebXML initiative that ended in May 2001. Sponsored by the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) and OASIS, ebXML is a modular suite of specifications that enables enterprises of any size and in any geographical location to conduct business over the Internet. ebXML provides companies with a standard method to exchange business messages, conduct trading relationships, communicate data in common terms and define and register business processes. An ebXML registry provides a mechanism by which XML artifacts can be stored, maintained, and automatically discovered, thereby increasing efficiency in XML-related development efforts.

The OASIS/ebXML Registry Technical Committee was created in May 2001 to build on the ebXML initiative efforts. The ebXML Registry Version 2.0 specification is a Technical Committee-approved specification, and the ebXML Registry Version 3.0 specification is in the final phases of development.

ebXML Technical Architecture

When considering ebXML Registry in comparison to UDDI, it is necessary to view the ebXML Registry within the context of the ebXML Technical Architecture. The ebXML Registry is a central component of the ebXML Technical Architecture, as it serves as a storage facility and discovery mechanism for the various artifacts that are necessary for engaging in electronic business using the ebXML framework. This is shown in the following figure:

[2] The ebXML Registry specification is actually comprised of 2 specifications – ebXML Registry Information Model (ebRIM) and ebXML Registry Services (ebRS). We refer to these specifications collectively here as the "ebXML Registry specification".



Source: ebXML Technical Architecture Specification v1.04

In the figure above, an ebXML registry interacts with both a local repository and a remote ebXML registry. Requests are sent to the registry and responses are received from the registry through a *Registry Service Interface*. The Registry Service Interface may interact with other Registry Service Interfaces, such as UDDI, and open interface standards such as Common Object Request Broker Architecture (CORBA).

In addition to storing and managing XML artifacts, an ebXML registry is also intended to store and manage various artifacts that support business collaboration, in support of the ebXML framework. Examples of such artifacts are:

- Collaboration Protocol Profile (CPP): Describes the message-exchange capabilities of a Party involved in a business collaboration; also used for trading partner discovery purposes.
- Collaboration Protocol Agreement (CPA): Defines the capabilities that two Parties need to agree upon to enable them to engage in a business collaboration.

- Business Process Specification Schema (BPSS): Provides a standard framework by which business systems may be configured to support the execution of business collaborations consisting of business transactions.

Although the information models and underlying architectures of the two registries are vastly different, there are distinct similarities in the types of information that can be registered in each. For example, both registries accommodate the registration of business and Web services information. ebXML Registry, however, is designed to accommodate additional types of content such as schemas, DTDs, and XML documents.

Primary Focus of Each Registry

In examining the primary focus of each registry, we consider that there are two general ways in which an e-business registry may be used: for *discovery* and for *collaboration.* Both registries allow for discovery of businesses, their Web services, and the technical interfaces they make available. However, UDDI is focused exclusively on this discovery aspect, while ebXML Registry is focused on both discovery and collaboration. We believe that, due in large part to its strong branding, UDDI has a much more prominent following than ebXML Registry for discovery of businesses, their Web services, and the technical interfaces they make available.

The primary focus of ebXML Registry extends beyond that of UDDI into collaboration. This can be viewed on two levels: *development* collaboration and *run-time* collaboration. Due to its focus on storing and maintaining XML artifacts, an ebXML registry can enable both collaborative development of XML artifacts within an organization and run-time collaboration between trading partners. For example, users can create XML artifacts and submit them to an ebXML registry for use and potential enhancement by other users. Additionally, once trading partners have discovered each other using the discovery mechanisms defined as part of the ebXML framework (which involve CPPs and CPAs), they can collaborate in data exchange scenarios using the XML artifacts that are registered (and potentially stored) in the ebXML registry. The parties can also conduct business scenarios according to discovered business process specifications.

The ebXML Registry Technical Committee is in the process of finalizing a “Best Practices” document for the registration of Web services in an ebXML registry. We

believe this document will help raise awareness of the capabilities of registering Web services in an ebXML registry.

Interoperability Between Registries

There is the possibility of run-time interoperability between UDDI and an ebXML registry. For example, it is possible to discover an ebXML registry from within UDDI, and vice versa. The UDDI Technical Committee is in the process of producing a Technical Note on the discovery of ebXML registries and "ebXML components" (Collaboration Protocol Profiles, Collaboration Protocol Agreements, Business Process Schema Specifications, etc.) from UDDI. This interoperability leverages the complementary strengths of each registry in an effective manner.

What the Future Holds

We envision an environment in which there is a co-existence of both UDDI registries and ebXML registries, and in which the strengths of each specification support its market presence. We believe that the focus of the UDDI specification on discovery of businesses, their Web services, and the technical interfaces they make available, will enable UDDI to continue to be the most prominent e-business registry specification for discovery purposes. We believe that the strength of ebXML Registry for support of both discovery and collaboration will enable ebXML Registry to continue to be the most prominent e-business registry for collaboration - which first requires discovery. We also believe that the capability of ebXML Registry to register Web service definitions is a necessary feature, as much business collaboration will take place using Web services.

In terms of functionality, Version 3.0 of both specifications have brought the two registries closer than ever in terms of features. This is largely due to market forces that drive the existence of certain features (such as digital signature support), and we foresee this continuing in the future. We also believe that registry selectors should primarily base their decisions on the main focus and strength of each registry (as discussed above) rather than on specific features. A feature that is considered "missing" from one registry specification (because it appears in the other) may very well appear in a later version of that registry specification.

We do not foresee a merging of the two specifications, as co-existence of both specifications is the best possible scenario given their complementary strengths.

However, a greater level of collaboration between the two technical committees will likely occur in the future, in ways that will enable increased interoperability between the two registries.

About the Author

Joseph Chiusano is a Senior Consultant with Booz Allen Hamilton's IT Digital Strategies Team. His XML expertise includes XML schema, Web services, digital security, XML registries, and XML vocabularies. His general technology experience includes such diverse areas as systems architecture, relational database applications design and development, and operating system development.

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