Web Service Profiles - An Introduction

The Need for Profiles

Since SOAP 1.1 was released in April, 2000, there has been tremendous industry uptake in the basic specifications that constitute Web services as we know them today. SOAP 1.2, WSDL 1.1, and UDDI 2.0 are the latest specifications that are used to describe, publish, enable discovery, and invoke Web Services. Each of these specifications is based on XML and, in particular, XML Schema. Given this small set of specifications, it is not hard to keep track of products and their degree of support for the specifications.

This is only the beginning of the design and creation of specifications and standards to support the full Web services vision. For example, additional work is necessary for message extensibility, binary attachments, routing, correlation, guaranteed message exchange, signatures, encryption, transactions, process flow, inspection, and discovery. Even this list is an oversimplification, as many of the areas have multiple interdependencies, sometimes with conflicting requirements.

Given the potential to have many necessary interrelated specifications at various versions and schedules of development, it becomes a very difficult task to determine which products support which levels of the specifications. Thus even though the industry may have the best intentions of ensuring interoperability on a specification by specification basis, a CIO, purchaser or other user of a Web service product (be it a tool, runtime, or web service itself) would find it very difficult to match several pieces of software necessary to complete a task or build a solution.

The Web Services Interoperability Organization (WS-I) addresses this need through the concept of “Profiles”.

What is a Profile?

A Profile is a named group of Web services specifications at specific version levels, along with conventions about how they work together. WS-I will develop a core collection of profiles that support interoperability for general purpose Web services functionality.

Profiles make it easier to discuss Web services interoperability at a level of granularity that makes sense for developers, users, and executives making investment decisions about Web services and Web services products. WS-I focuses on compatibility at both the individual specification and at the Profile level.

To be a useful concept and avoid confusion, the number of Profiles should remain relatively small. At the same time, too few profiles would require some Web services products to be forced to add unneeded features simply to conform to some Profile and assert interoperability. It will be an ongoing task of WS-I to design and update profiles that reflect real Web services usage in the industry.

There is already strong industry consensus on what constitutes the most basic Web services profile. More advanced Profiles will therefore likely include this basic Profile as a foundation.
Similarly, we expect that vertical industries will build on the WS-I Profiles by adding industry-specific standards. We do not consider it to be within the scope of WS-I to do this industry-specific work, but rather expect that cooperation with industry groups will ensure that their Profiles are consistent with conventions established by WS-I, and can leverage testing tools and technologies appropriately.

Previous experience with standards and standards-in-progress has demonstrated that despite the best intentions of the standards authors, there may be ambiguities or areas that are so under specified that interoperability becomes difficult. A specification might also be of such a general nature that further conventions or recommended practices are necessary for interoperability. Therefore, in addition to the list of specifications or standards, a Profile may also contain one or more documents that resolve ambiguities or make recommendations for common usage. Such documents may apply to an individual Web service specification, or may pertain to how multiple specifications should work together.

These conventions and recommendations will be available to the standards organizations that are working on the specifications included within the WS-I Profiles. WS-I will work closely with each of these organizations to ensure that feedback is exchanged quickly and easily.

**The First Profile**

Through the first phase of Web services adoption, four specifications have risen to prominence as providing the basic functionality required to start developing Web services. These specifications are XML Schema 1.0, SOAP 1.1, WSDL 1.1, and UDDI 2.0. The first profile proposed is WS-I Basic Web services.

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<th>WS-I Basic</th>
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<tr>
<td>XML Schema 1.0</td>
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The conventions and best practices associated with this Profile will be developed by one or more WS-I Working Groups.

**Additional Profile Areas**

The development of additional or updated WS-I Profiles depends on the continued evolution and maturity of Web services specifications and standards. Each of the areas listed in the beginning of this paper is a candidate for additional Profile work as specifications are developed. Additional work in message extensibility, binary attachments, routing, correlation, guaranteed message exchange, signatures, encryption, transactions, process flow, inspection, and discovery is expected. These areas will help drive the evolution of these areas, support gap analysis for required functionality, and provide the context for an overall roadmap for vendors, users, analysts, and media to understand the direction of Web services standardization and interoperability. The WS-I team will be working proactively with industry standards organizations to help in this evolution.