Chapter III

Standards for Web Services

Introduction

Chapter II presented the main concepts underlying business services. Ultimately, as this book proposes, business services need to be decomposed into networks of executable Web services. Web services are the primary software technology available today that closely matches the characteristics of business services. To understand the mapping from business to Web services, we need to understand the fundamental characteristics of the latter. This chapter therefore will introduce the main Web services concepts and standards. It does not intend to be a comprehensive description of all standards applicable to Web services, as many of them are still in a state of flux. It focuses instead on the more important and stable standards. All such standards are fully and precisely defined and maintained by the organizations that have defined and endorsed them, such as the World Wide Web Consortium (http://w3c.org), the OASIS organization (http://www.oasis-open.org) and others. We advise readers to visit periodically the Web sites describing the various standards to obtain the up to date versions.

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Table 1 sets the context of this chapter by mapping major concepts and features of e-services to Web service technologies and standards. Although, as shown in Table 1, Web services provide all the basic ingredients (standards/concepts) for implementing and delivering e-services, it does not mean that such standards and technologies are yet fully mature/useable or sufficient. Their limitations will be discussed in the remaining of this chapter.

Table 1. Mapping e-services to Web services standards

<table>
<thead>
<tr>
<th>E-SERVICE CONCEPT/FEATURE</th>
<th>CORRESPONDING WEB SERVICE CONCEPTS AND STANDARDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language for e-service specification</td>
<td>XML, XML Schema</td>
</tr>
<tr>
<td>Formal service description/contract</td>
<td>WSDL</td>
</tr>
<tr>
<td>Channels through which the service can be consumed</td>
<td>Port types, ports</td>
</tr>
<tr>
<td>Advertisement of the service</td>
<td>UDDI, ebXML repositories</td>
</tr>
<tr>
<td>Interaction with the service</td>
<td>SOAP</td>
</tr>
</tbody>
</table>

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Web Services Definitions

According to the World Wide Web Consortium (W3C), a Web service is a software system designed to support interoperable machine-to-machine interaction over a network (W3C, 2004). A Web service has an interface that is described in a machine-processable format such as the XML-based WSDL (described later in this chapter).

A simplified definition of Web services is as a collection of functions that are packaged as a single unit and exposed, or made available, over a network for use by other software programs (Cayron, 2002).

As seen from the above definition, a Web service has many of the elements required to realize e-services such as an interface and message-based interaction over a network between provider and consumer. Therefore using Web services to deliver e-services has several advantages, namely:

- Web services are a new emerging standard that has been created by the W3C Consortium which is also responsible for other Web standards such as HTML and HTTP. Being a universal standard, means that services delivered as Web services have more chances of reaching as many consumers as possible. This would have not been possible to the same extent if services use a proprietary technology known and available to only a few.
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