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ITB11575

This chapter appears in the book, *Internet Strategy: The Road to Web Services Solutions* by Matthew W. Guah. © 2006, Idea Group Inc.

Chapter II

Web Services

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Abstract

Organizations today are desperate to identify new opportunities in the facilities provided by the Internet. Few have attempted to link interorganizational, interfunctional and interpersonal levels of their organizational processes via Web services. They have undertaken this process in anticipation of reshaping and improving their core business processes. This chapter details how Web services could potentially make a significant different in the integration of software applications across multiple platforms, sites and departments of an organization. The chapter concludes by advising that organizations, in the process of reviewing their Internet strategies, should at least investigate the potential impact of Web services integration because this could sooner or later become a permanent business necessity and not just a competitive advantage material.

What are Web Services?

Web services are the small software components that are available over the Internet. Publishing as Web services makes the software applications more reusable and shared by many more users. Web services enable business partnering and thereby generate a great way of revenue streaming for the companies. It also helps in reducing the development, integration, and maintenance cost of the software application.

Simple Object Access Protocol (SOAP) is the communication protocol that helps in transporting the Extensible Markup Language (XML) messages between the client and server. SOAP is nothing but XML over Hypertext Transfer Protocol (HTTP). When the Web service client makes a request, the SOAP client application programming interface (API) constructs a corresponding XML message containing the remote method name and value for its parameters and sends the XML message over HTTP to the server hosting the Web services. The server receives the XML message, executes the business logic (may be written in Java), and sends the response back to the client.

The Web services paradigm includes a programming model for application integration that does not discriminate between applications deployed inside and outside the enterprise. Integration and development of Web services can be done in an incremental manner, using existing languages and platforms and adopting existing legacy applications (Figure 2.1). One of Web services' anticipated benefits is that human end-user interaction in the normal data entry Web application can be replaced by direct application-to-application communication.

When we talk about the benefits of Web services, we cannot overlook a few issues in using Web services as well (Sleeper & Robins, 2002). The primary issue is security. The other Web applications, such as Java Servlets, are being accessed via HTTP browser. The user-specific information can be stored in the HTTP session and used for users' session tracking. A fine example of this is the shopping cart application.

However, because Web services are being invoked by the stand-alone client applications, the server could not have any idea about the user who is actually making the request. This would pose a major problem that any unauthorized user may consume our Web services and we do not have any control on this. Another serious problem is the tampering of XML messages while they are transmitted over wire (Wilkes, 2002).