



## **Chapter IV**

# **Web Services**

Web services aim to provide application-to-application interoperability. Messages are exchanged between two parties called service provider and service requestor. The messages are described in an abstract way and then bound to a concrete network protocol and message format. The message exchange between provider and requester results in the invocation of an operation. A collection of operations represents an interface to the service. This interface is then bound to a concrete protocol and message format via one or more bindings. The interface definition and operation implementation are the responsibility of the service providers.

According to W3C, a Web service is defined as follows:

*A Web service is a software system identified by a URI whose public interfaces and bindings are defined and described using XML. Its definition can be discovered by other software systems. These systems may then interact with the Web service in a manner prescribed by its definition, using XML-based messages conveyed by Internet protocols.*

A closer look at the definition and some investigation of the actual “plumbing” gives you a simpler view of a Web service; it is a software application, accessible over the Internet or Intranet through a URL. Web service clients use XML-based protocols, such as the SOAP to transfer data over HTTP. The

access to this Web service application is obtained through the interfaces and bindings defined with the XML based Web Services Description Language (WSDL).

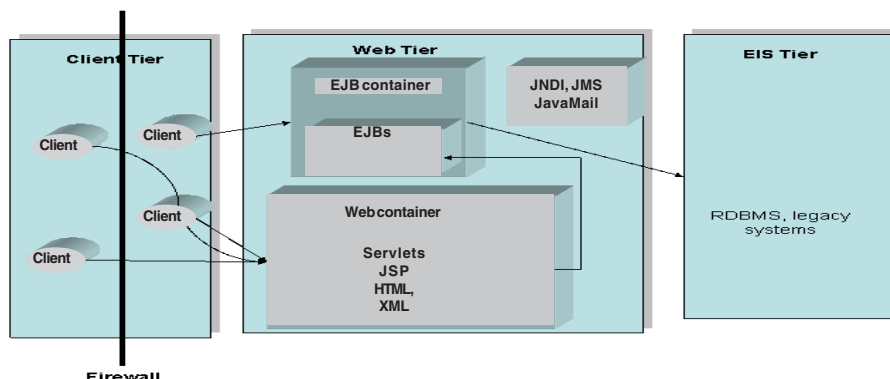
Traditionally, Web services are data oriented. Data is extracted from a service provider in a raw format, and then moved to the requestor in a message. On the other hand, with the invention of portals, there is a requirement for the provision of presentation oriented Web services. Presentation oriented services contain user interfaces, and the data is presented to the end user in the form of a remote portlet (Web Services for Remote Portlets [WSRP], 2003).

## Multi-Tier Component-Based Architecture

The J2EE platform supports a multi-tier distributed application model. A typical structure defines a client tier, a middle tier, and a back-end tier (Figure 34). The client tier is expected to support a variety of client types inside and outside of company firewalls. The middle tier is composed of one or more sub-tiers and interacts with clients. This tier utilizes Web containers and business logic implemented in components such as JavaBeans and Enterprise Java Beans. The back end of these applications is formed by the enterprise information systems (EIS tier).

In order to understand Web service concepts as well as the structural composition of Web service endpoint implementations with J2EE, we need to explain briefly J2EE as a component-based development model. This model

Figure 34. J2EE multi-tier architecture



25 more pages are available in the full version of this document,  
which may be purchased using the "Add to Cart" button on the  
publisher's webpage: [www.igi-global.com/chapter/web-services/5966](http://www.igi-global.com/chapter/web-services/5966)

## Related Content

---

### Portals for Integrated Competence Management

Giuseppe Berio and Mounira Harzallah (2007). *Encyclopedia of Portal Technologies and Applications* (pp. 788-794).

[www.irma-international.org/chapter/portals-integrated-competence-management/17964](http://www.irma-international.org/chapter/portals-integrated-competence-management/17964)

### FSaaS: Configuring Policies for Managing Shared Files Among Cooperating, Distributed Applications

Marco Di Sano, Antonella Di Stefano, Giovanni Morana and Daniele Zito (2013). *International Journal of Web Portals* (pp. 1-14).

[www.irma-international.org/article/fsaas-configuring-policies-managing-shared/78348](http://www.irma-international.org/article/fsaas-configuring-policies-managing-shared/78348)

### Gateways to Portals Research

Arthur Tatnall (2009). *International Journal of Web Portals* (pp. 1-15).

[www.irma-international.org/article/gateways-portals-research/3024](http://www.irma-international.org/article/gateways-portals-research/3024)

### Adaptation and Recommendation in Modern Web 2.0 Portals

Andreas Nauertz and Rich Thompson (2009). *International Journal of Web Portals* (pp. 1-17).

[www.irma-international.org/article/adaptation-recommendation-modern-web-portals/3029](http://www.irma-international.org/article/adaptation-recommendation-modern-web-portals/3029)

### Usability Engineering and Research on Shopping Portals

Yuan Gao and Hua Luo (2007). *Encyclopedia of Portal Technologies and Applications* (pp. 1050-1053).

[www.irma-international.org/chapter/usability-engineering-research-shopping-portals/18007](http://www.irma-international.org/chapter/usability-engineering-research-shopping-portals/18007)