



CAROLINA TECHNOLOGY CONSULTANTS

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Tech Brief

Architectural Issues in IT and Data Communications

Topic

Web Services Architecture

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Summary

The Web Services Architecture (WSA) is a general and conceptual architectural model promoted by the W3C. While it does not in and of itself represent a standard, a number of specific web service application areas do have standardized implementation.

Discussion

The W3C Web Services Architecture defines a web service as follows:

A Web service is a software system designed to support interoperable machine-to-machine interaction over a network. It has an interface described in a machine-processable format (specifically WSDL). Other systems interact with the Web service in a manner prescribed by its description using SOAP messages, typically conveyed using HTTP with an XML serialization in conjunction with other Web-related standards.

Web services require a service description, which provides detailed information about the transport, message format, and data structures used in the service. The description also includes the network address(es) where

instances of the service can be found. Service descriptions are expressed using the Web Services Description Language (WSDL) in a machine readable format.

Web services can follow one of four primary architectural models:

- Message Oriented Model
- Policy Oriented Model
- Service Oriented Model
- Resource Oriented Model

Strategy Considerations

The W3C Web Services Architecture is itself non-normative and general in nature. While there are many emergent web service specifications, the lack of a normative text to define a web service leaves interpretation open. The situation becomes more precise as one drills down into particular models, such as SOA.

While web services represents a useful and popular direction, it may not be appropriate for all applications. Careful tuning of the Web services architecture can improve efficiency for specific implementation models.

For Further Information

1. W3C Working Group Note, [*Web Services Architecture*](#), D. Booth, H. Haas, F. McCabe, E. Newcomer, M. Champion, C. Ferris, D. Orchard. February 2004.