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ConnectedDB - An Introduction to SOAP

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SOAP

The issue of interoperability lies at the root of fundamental software design. Primarily, the business logic of an application is stored in a body of code known as a “Procedure”. A collection of similar procedures defines an “Object” of an application. These objects can be created to be used by multiple applications and systems. Although possible, this ability was limited greatly because objects tended to be platform specific. An object designed for an application that functions on one platform may not be easily accessible by another software application written for a different platform. This limitation has made the sharing of objects across different systems and platforms difficult, thus making object sharing over the Internet environment even more difficult.

SOAP is a Microsoft sponsored standard for invoking procedures on servers, services, components, and objects. The main goal of SOAP is to facilitate interoperability. SOAP is primarily used for communication between the client and data architecture. SOAP functions under a “request/response” message model. When an application requires the functionality of a particular procedure, a SOAP message will be generated and sent to the service provider. The SOAP standard defines a structure to call procedures as well as to pass parameters with these procedures. When the service provider receives the initial SOAP message, it will implement the procedure and generate another SOAP message to return the result. The service provider will return a SOAP message containing an error value if the desired procedure was not successfully implemented. The SOAP standard defines a structure to return requested values as well as error values. SOAP defines a standard for Remote Procedure Calls (RPC) and enables systems to become highly distributed by permitting the full accessibility of objects.

The SOAP messages discussed above are encoded in Extensible Markup Language (XML). XML is a widely accepted standard for structuring, storing, and sending data. XML can be thought of as a universal communication medium because it is a cross-platform, software and hardware independent tool for transmitting information. The use of XML for describing procedure invocations in SOAP guarantees a large scale of interoperability because XML provides a strong foundation of flexibility. Another reason why XML is ideal for SOAP is because XML documents can easily be transported through HTTP. Combining HTTP and XML into a single solution produces a whole new level of interoperability. SOAP messages are able to pass through corporate firewalls and proxy filtering. Because HTTP is used virtually everywhere, SOAP messages can be understood by any application, which supports the widely adopted technologies of both HTTP and XML.

ConnectedDB applications can expose / and access external web services. This allows for easy integration of heterogeneous technologies. For example Open Advantage has a workflow engine, external applications can submit tasks via a web service call to Open Advantage, Open Advantage in turn upon completion of a task could

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trigger a third party application by accessing an external web service.

ConnectedDB also uses SOAP internally as a means to support both the .NET and J2EE environments. As a client interacts with an application, Remote Procedure Calls (RPCs) are made to a server. These requests are serialized into SOAP messages, which define parameter values. SOAP messages are interpreted by a server that is capable of remoting objects. This server calls on a “sessionObject” to execute the actual procedure code, which returns the desired value. This value is then serialized into a SOAP message and sent back to the client-side, where it is deserialized.