WS-MAP: A WEB-BASED SURVEY OF WEB SERVICES STANDARDS

Interoperability is a critical requirement in enterprise software because most business processes cross organizational boundaries. One of the most important steps in achieving the integration and interoperability of Web Services is the adoption of standards. WS-Map is a survey of key Web Services standards and highlights the effort that is being put into the development of the standards by different organizations.

Web Services standards define the elements that are essential to an ecosystem of Web Services in order to enable the creation, consumption, and publishing of services. This survey covers some of the most important Web Services standards, including WS-Addressing, WS-AtomicTransaction, WS-BusinessActivity, WS-BusinessProcess, WS-BusinessRole, WS-CallActivity, WS-Collaboration, WS-Context, WS-Core, WS-Eventing, WS-Notification, WS-Process, WS-Reliability, WS-Transaction, and WS-ConsumerProfile.

Business Processes

Business processes are standardized across different domains in a variety of services. These standards provide a framework for the design and implementation of Web Services. The standardization effort aims to simplify the development and deployment of Web Services by defining common patterns and best practices. The standards also help in ensuring the interoperability and compatibility of Web Services by providing a common set of interfaces.

Security

Security standards define how to protect and secure Web Services. These standards address the confidentiality, integrity, and availability of data, as well as the authentication and authorization of users. Security standards are crucial for ensuring that Web Services are secure and reliable. The standards also help in protecting the privacy of users by ensuring that their data is not misused.

Reliable Messaging

Reliable messaging standards address the reliability of message exchange in a distributed environment. These standards ensure that messages are delivered reliably, even in the presence of network failures. Reliable messaging standards are essential for ensuring that data is not lost or corrupted during transmission.

Transactions

Transaction standards provide well-defined semantic properties for a group of operations, like ACID properties, consistency, isolation, durable, and concurrency. The standards also define how transactions should be coordinated and how they should be rolled back in case of failure.

Discovery

Discovery standards define how to discover and find Web Services. These standards enable clients to locate Web Services by using various discovery mechanisms, such as UDDI (Universal Description, Discovery, and Integration) and WSDL (Web Services Description Language).

Contract

Contract standards describe the data, functions, and policy of a Web service, enabling client-server binding. The standardization effort aims to provide a common set of contracts for Web Services, which can be used by clients to discover and bind to Web Services.

Message

Message standards define the structure of the communication and messages exchanged between Web Services. These standards ensure that messages are well-formed and can be understood by clients and servers. Message standards also define how messages should be encoded and decoded.

Transport

Transport standards define how data is transferred between Web Services. These standards define the protocols and mechanisms used for data transmission. Transport standards are essential for ensuring that data is transmitted reliably and securely.

Data representation

Data representation standards address the problem of heterogeneous representation. These standards define how data is represented in a format that is understood by both clients and servers. The standards also define how data should be encoded and decoded.

Interoperability

Interoperability is a critical requirement in enterprise software because most business processes cross organizational boundaries. The standardization effort aims to simplify the development and deployment of Web Services by defining common patterns and best practices. The standards also help in ensuring the interoperability and compatibility of Web Services by providing a common set of interfaces.

Management standards address the problem of keeping the services up-and-running. Management has two complementary aspects: monitoring and control, and configuration flexibility. The use of management standards is essential for ensuring that Web Services are usable and reliable.