Introduction to the BRIDGE Platform MD18

The BRIDGE® is completely based on open standards like UML®, XML, SOAP, Web services, etc. These standards are widespread and widely accepted in the commercial arena (Microsoft®, IBM®, Sun, SAP, etc.). The following chapter explains these standards briefly and gives you a short overview about the Bridge.

Installation of Software

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Terminology

As some important terms are used throughout the course, they are explained briefly.

Term	Explanation
HTTP	The HyperText Transfer Protocol is the protocol of the Web, by which servers and clients (typically browsers) communicate. An HTTP transaction comprises a request sent by the client to the server, and a response returned from the server to the client.
SOAP	The Simple Object Access Protocol is the message protocol that allows Web services to talk. SOAP is an XML-based protocol for exchanging information between computers. Although SOAP can be used in a variety of messaging systems and can be delivered via a variety of transport protocols, the main focus of SOAP is on Remote Procedure Calls (RPC) transported via HTTP. SOAP is platform independent, and therefore enables diverse applications to communicate with each other.
UML ®	The Unified Modeling Language (UML) helps you to specify, to visualize, and to document models of software systems, including their structure and design, in a way that meets all of the application's requirements. You can use UML for business modeling and modeling of other non-software systems, too.
Web service	A Web service is any piece of software that makes itself available over the Internet and uses a standardized XML data format. XML is used to encode all communications to a Web service. For example, a client invokes a Web service by sending an XML message, and then waits for a corresponding XML response. As all communication is in XML, Web services are not tied to any one operating system or programming language. Thus, they work like a middleware that enables and simplifies application-to-application connectivity.
WSDL	The Web Service Description Language is an XML grammar that allows a Web service to describe what it can do, what messages it accepts, and what response it returns.
XMI®	The XML Metadata Interchange Format is an exchange format for UML models. It standardizes the representation of UML models in XML.
XML	XML is a markup language for documents containing structured information. It is a meta-language for describing markup languages. In other words, XML provides a facility to define tags and the structural relationships between them. It is being optimized and designed to deliver structured content over the web and supports a wide variety of applications.

BRIDGE®

Services based on the BRIDGE are defined via a purely model driven approach. The end-to-end modeling process is done in UML (Unified Modeling Language) comprising the modeling of use cases, data structures, processes, business logic, and architectural deployment configuration as to how the service is used in production.
The implementation of any Bridge-based service is done entirely using standard UML diagrams, enhanced with a selection of stereotypes and pre-defined tagged values.

To use the BRIDGE, in theory it is possible to use any UML editor, which supports the standard model exchange format XMI® (XML Metadata Interchange). All information, which is necessary to build a service is contained in the XMI document, which will later be compiled and deployed to an xUML Runtime.
Specifying a service in UML provides a reasonable high-level documentation of its inner workings, as well as a description of the backends it uses. As the UML model strictly reflects all the data flows, event handlers, and operations that the service will comprise, your documentation will always be up-to-date and reflect the service as it is used in production.

Besides modeling the implementation of service operations, the Model Driven Integration approach implemented by the BRIDGE also emphasizes the modeling of the service architecture. This is done by defining the architectural service components and their deployment configurations explicitly in the UML model. In our point of view, this aspect is crucial to keep an SOA or an EDA maintainable and manageable.
The BRIDGE is faithful to the UML standard specifications. All enhancements follow the guidelines of the OMG to extend the UML base via stereotypes, and pre-defined tagged values.

For an explanation of the BRIDGE architecture refer to Bridge Architecture Overview in the BRIDGE Integration Platform User's Guide.