Getting Started with Process Definition Languages

Summary

Orchestration Definition Languages such as WS-BPEL, BPEL4People and UML define the sequence and conditions in which the processes within a business are executed. Orchestration Definition Languages are important to SAP as they are used to specify composite applications created from Enterprise Services.

Choreography Definition Languages define the sequence in which messages are exchanged between cooperating businesses or processes. Choreography Definition Languages are important to SAP as they are needed to define how one SAP system interacts with other SAP, or non-SAP, systems operated by other companies.

Visualization/UI languages are used to define flows of information between computers and people.

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Orchestration Definition Languages

Typically internal business processes in a business involve the execution of several sub-processes involving multiple systems both within, and often, outside the business. They may also involve human user interaction. **Orchestration Definition Languages** are used to define the sequence and conditions in which the processes and human user interactions within a business are executed. For example it could define that the processing of an order involves, credit authorization, stock availability checks, delivery scheduling, etc.

The following languages can be used to specify orchestrations:

- **Unified Modeling Language (UML)** is often used at design time to specify the dependencies between different processes and flows of information between them (see the SDN UML-page for more information).
- **Web Services Business Process Execution Language (WS-BPEL)** is used to define the sequence and rules in which Web services are executed (see the SDN WS-BPEL-page for more information).
- **WS-BPEL Extension for People (BPEL4People)** developed by SAP and IBM, is layered on top of WS-BPEL to support human user interactions (see the SDN BPEL4People-page for more information).
- **WS-BPEL Extension for Sub-processes (BPEL-SPE)** developed by SAP and IBM, allows for the definition of sub-processes that can be reused within the same or across multiple WS-BPEL processes (see the SDN WS-BPEL-page for more information).

Orchestration standards are important to Enterprise Services as they are languages that are used to create composite applications. In practice though, the languages are rarely written directly by the developer or analyst as they are usually created using graphical development tools.

Choreography Definition Languages

A business usually has a lot of control over how its internal business processes work. In fact "better" internal business processes, are often used as a means of providing competitive differentiation. However this control disappears as soon as a process interacts with other processes outside the business. In this case, each business has to agree with the other businesses how they will cooperate. For example if a buyer sends a supplier an order, the supplier needs to know how to respond. Should they: a) return an order response indicating the extent to which they can meet the order, b) just ship the goods and send an invoice or c) do something different. Choreography definitions solve this problem by defining the sequence and conditions in which messages are exchanged between cooperating businesses or processes.

Vertical industry standards groups define choreographies as they lower the cost of implementation if the businesses in an industry agree on standard sequences in which they exchange business messages.

Precise definitions of choreographies are important to Enterprise Services as they are essential to the building of composite applications that reach beyond organizational boundaries.
For example, UML Sequence Models can be used at design time to specify the sequence in which messages are exchanged. Other standards include WS-Choreography (WS-CDL) and the UN/CEFACT Modeling Methodology (UMM).

**Visualization/UI Definition Languages**

Visualization Process Definition languages are used to define the sequence and content of the flows of information between people and computers. For example, the well-known HTML is used to define web browser interfaces.

Voice XML is a language for defining voice user interfaces particularly for use with phones. It is often used to drive automated voice response systems used by many company’s customer-service telephone systems such as your bank. It uses speech recognition and/or the telephone keypad as input providing the response using electronically synthesized speech. For more information on VoiceXML see [http://www.voicexml.org/index.html](http://www.voicexml.org/index.html).

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