

Software Architectures

Assignment 3: Service Oriented Architectures

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Structure

- Brief Introduction to SOA Technologies
 - WSDL + XML
 - BPEL: Service Orchestration
- Assignment 3

1. XML – The Standard Language

Used to provide info about a document using a standard format, using tags.

XML is a *meta-markup* language – it can be used in other languages (XSL, RSS, HTML, SVG, BPEL)

Web services ➡ WSDL ➡ XML



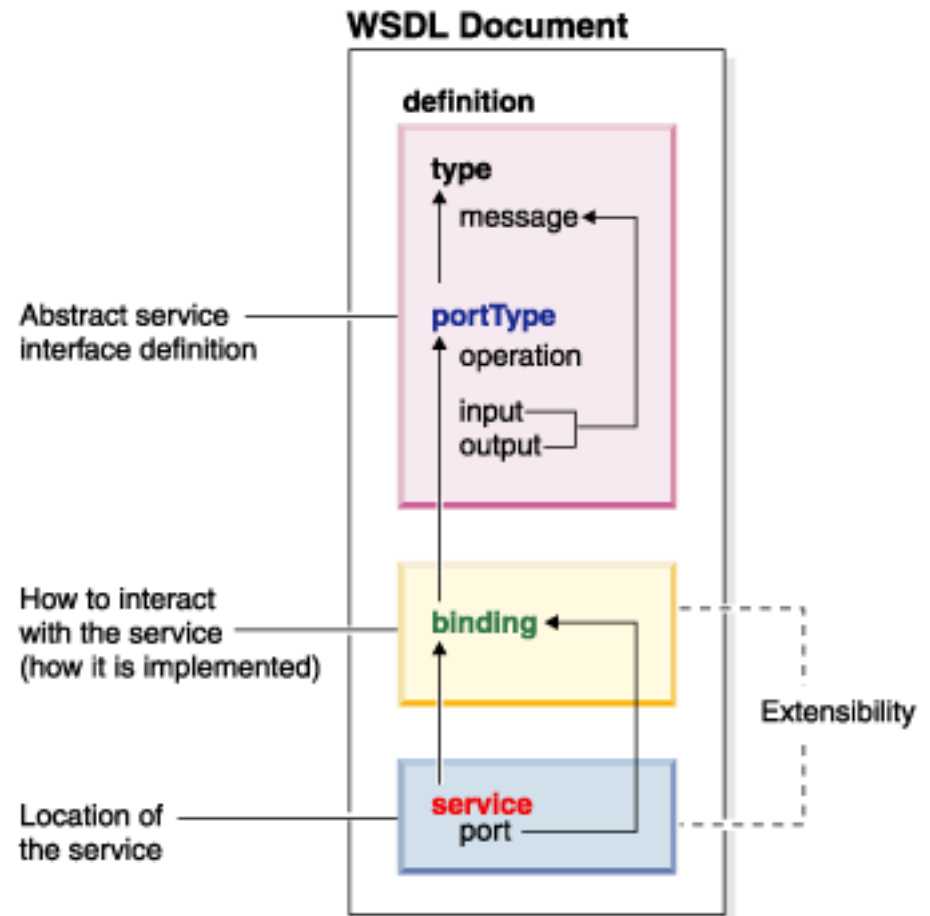
Example of XML syntax

```
<LibrarySearchResponse xmlns="urn:soft.librarysearch">
  <books>
    <book>
      <author>William Sleator</author>
      <year>2008</year>
      <isbn>810993562</isbn>
      <language>en</language>
      <publisher>Amulet Books</publisher>
      <title>Test</title>
    </book>
  </books>
</LibrarySearchResponse>
```

2. Web Service Description Language

XML description of SOAP
Web Services

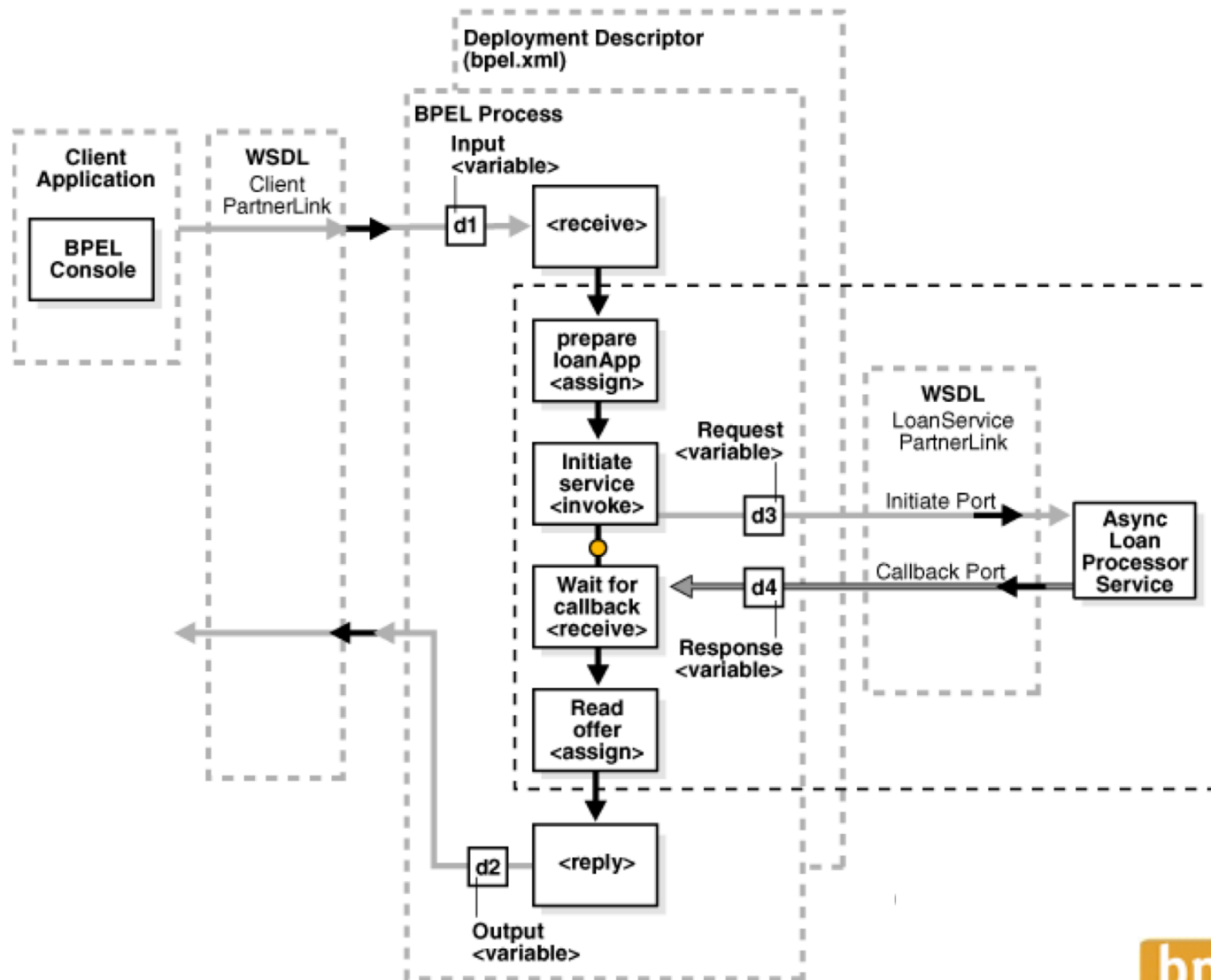
- **Services** are defined by a collection of *ports* (network endpoints)
- **Bindings** define format to be used for *operations*
- **PortType** defines the operations based on *message* definitions



3. Business Process Execution Language

- WSDL describes a Web Service using XML.
- BPEL uses WSDL descriptions to define business processes based on the Web services (orchestrate them)
- Relevant concepts for this assignment
 - Receive/Reply, Invoke, Partner links
 - Assigning BPEL variables
 - Structured Activities in BPEL
 - E.g. Flow, Sequence
- See <http://bit.ly/introtobpel> for an introduction

A loan service application BPEL process



Assignment 3: Service Oriented Architectures

Scenario: Library application, like last assignment

Goal: Add search results from 2 external web services to your library application

1. Use a BPEL process to query web services in parallel
2. Integrate the results in the WebPortal application

Deadline: 24th April 2014