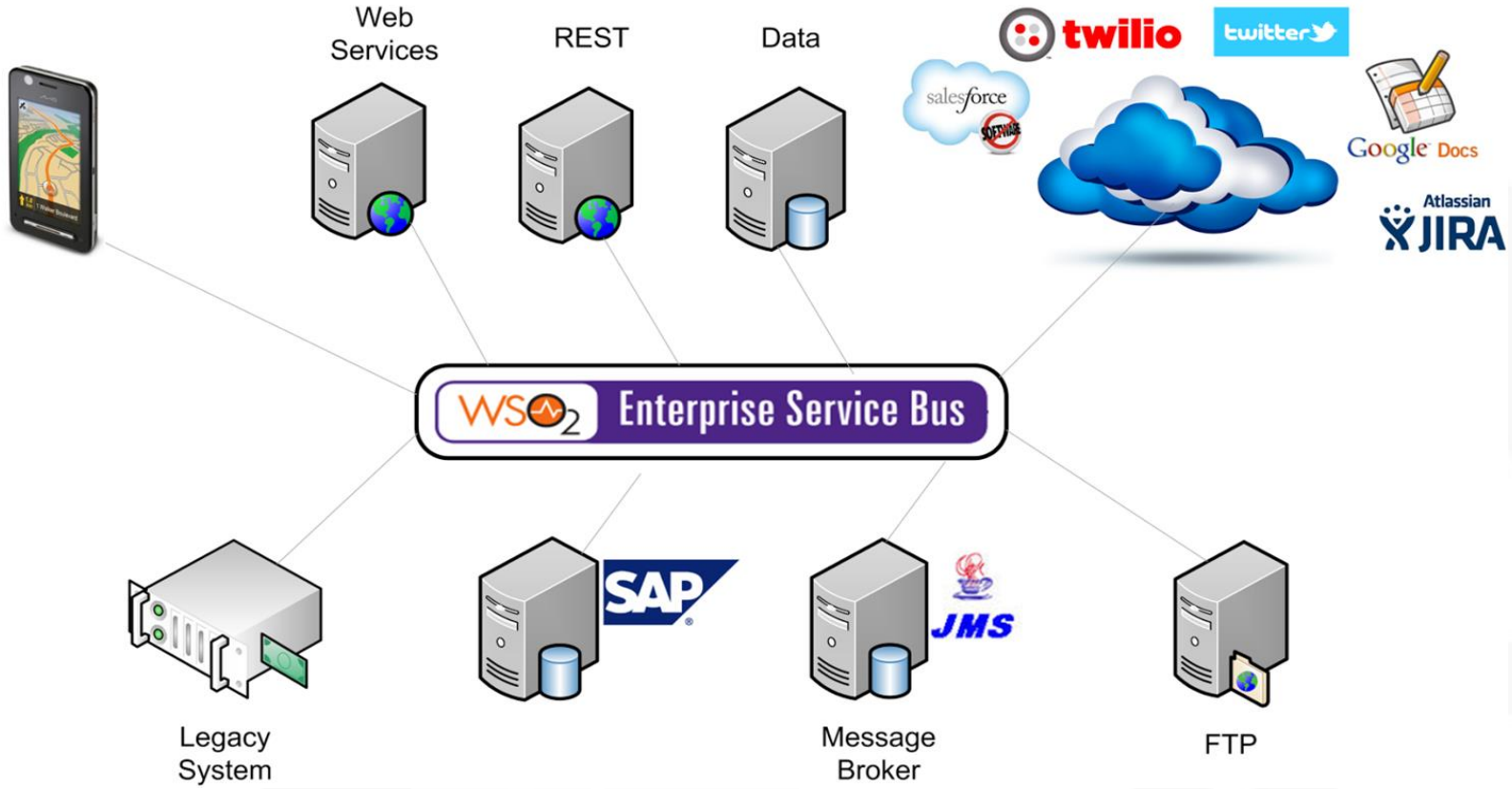
WSO2 Enterprise Service Bus

Getting Started Prequel

WSO2 Training

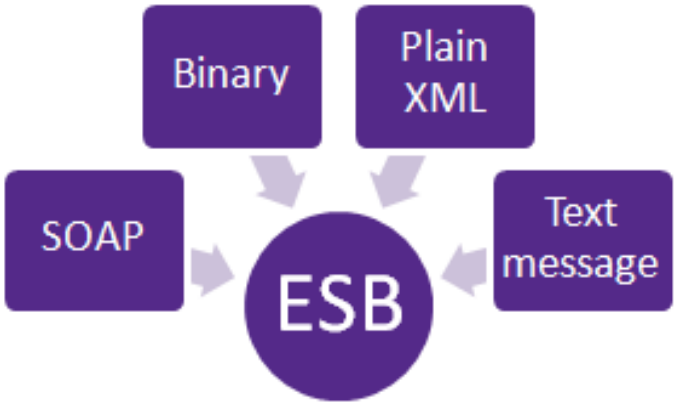
ESB and SOA
Terminology and Background

Leveraging the ESB



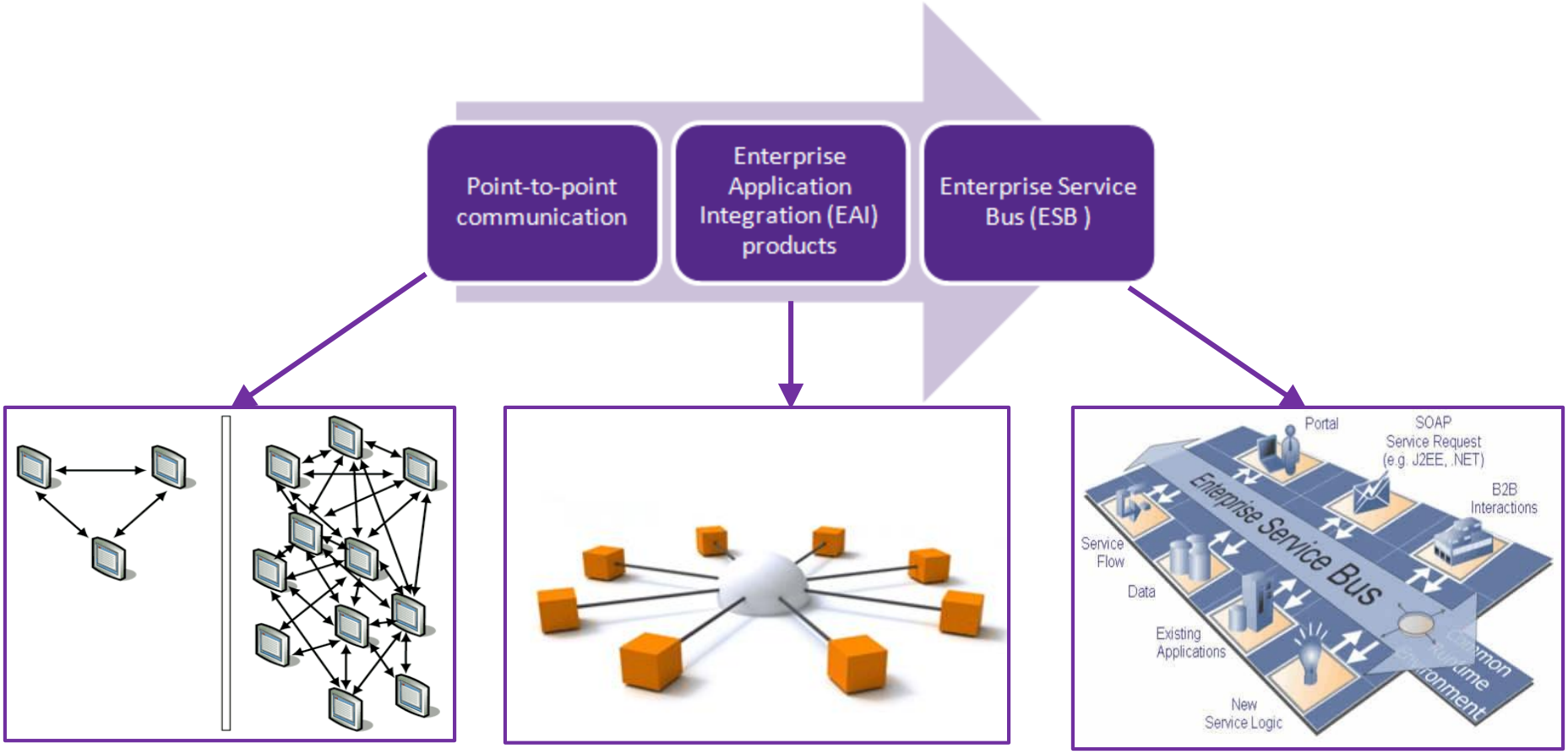
What is ESB?

- Enterprise Service Bus
  - Enables communication among various heterogeneous applications, handling transformations and routing of messages
  - Uses event-driven and standards-based messaging engine
  - Performs variety of Enterprise Integration Patterns (EIPs) including filtering, transforming and routing



Evolution of the ESB

- Enterprises are (and will continue to be) heterogeneous



Why use an ESB (VETO vs. VETRO)?

EAI pattern : VETO

- Validate Data
- Enrich (Add/correlate data)
- Transform
  - Adapt business data
  - Translate format
- Operate
  - Operate the integration toward the target using proprietary tools or programmatic tools

ESB pattern : VET(R)O

- Validate, Enrich, Transform
- Route
  - Find the right target
  - Loose coupling (Standards)
  - Context based resolution (content/protocol)
- Operate
  - Delegate by remote call or send message
- Promote Configuration
  - Configuration vs. Development
  - Leverage EAI Best Practices

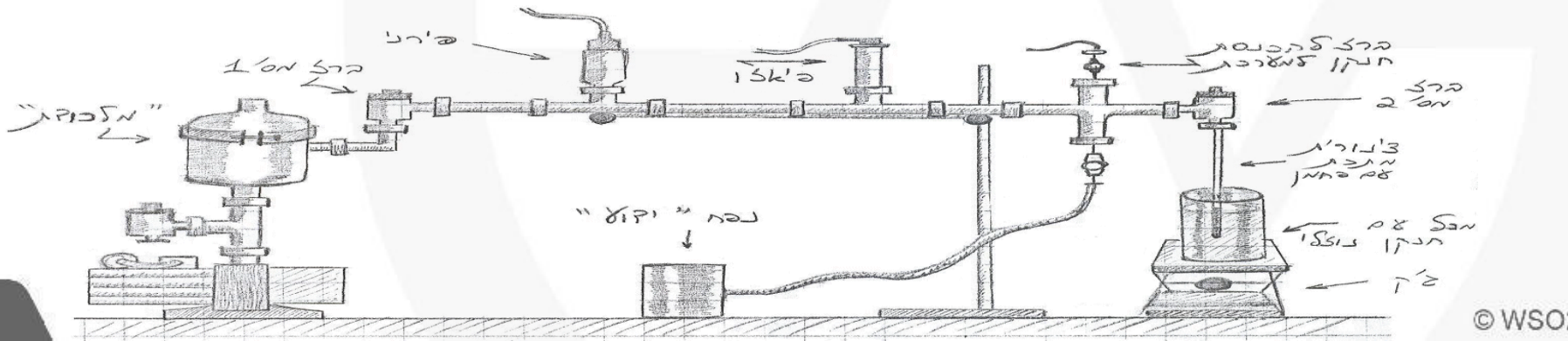
Class Lab 0: Prerequisites

- Installing and Running ESB
  - Review Product Installation
  - Quick overview of key directories in <ESB_HOME>
  - Creating shortcuts to configuration files

  http://docs.wso2.org/display/ESB481/Getting+Started

- Installing and Running Develop Studio
  - Review Product Installation
  - Quick overview of key directories and UI

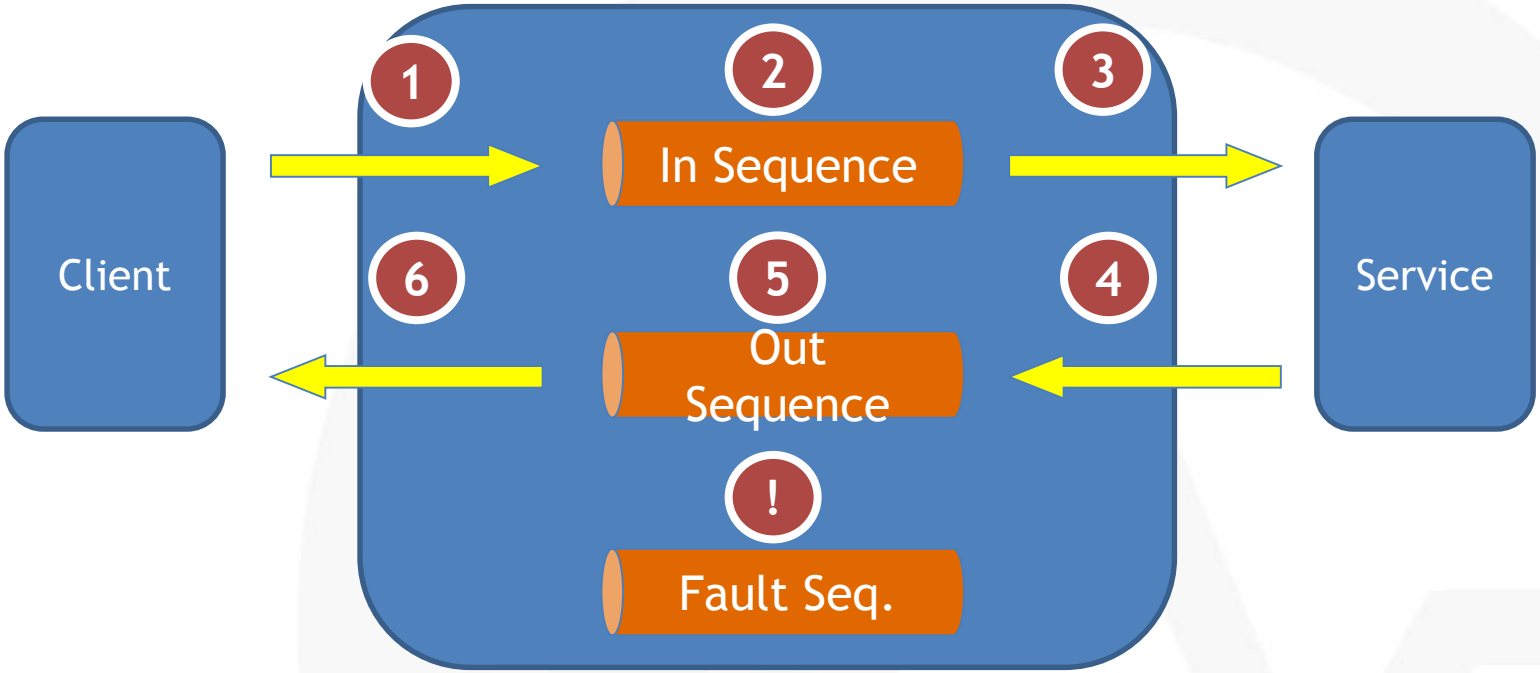
  https://docs.wso2.org/display/DVS360/Getting+Started



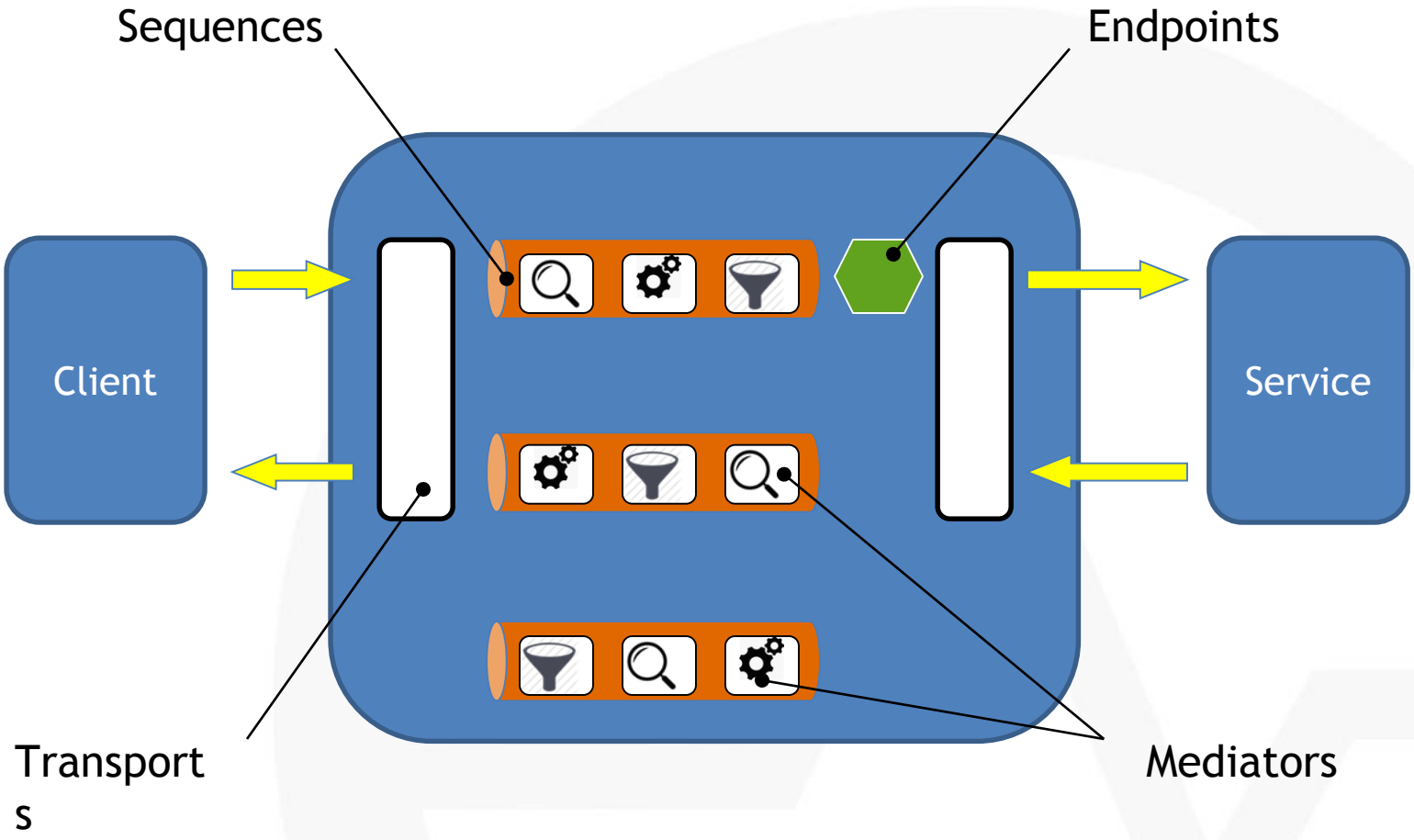
Introduction to
WSO2 ESB

Working with WSO2 ESB

High-level Message Flow (Programming Model)



Building Blocks



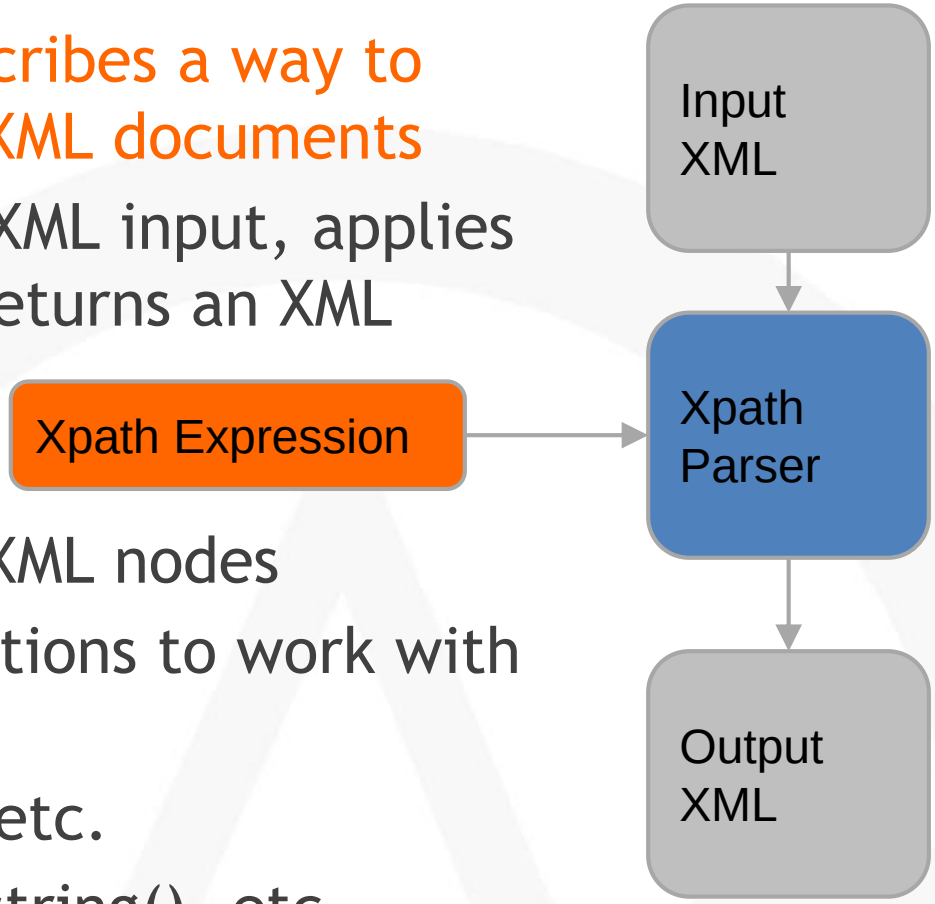
Building Blocks

- Sequences
  - Define logic for handling incoming (request) and outgoing (response) messages
  - Sequences list mediators in order of execution
- Mediators
  - Take action on the message
    - Filter, Transform, Drop, Send, Property, Payload Factory
- Endpoints
  - Define external destination for a message, usually a service
- Transports
  - Carry messages in a specific format

XPath

XPath is a language that describes a way to locate and process items in XML documents

- XPath parser receives an XML input, applies an XPath expression and returns an XML output
- Provides
  - A mechanism to select XML nodes
  - A set of integrated functions to work with selected nodes:
    - **Math**: round(),abs(), etc.
    - **String**: concat(), substring(), etc.
    - **Date**: seconds-from-duration(), etc.
    - **Aggregation**: last(), position(), etc.
    - Custom



For more information, please refer to:
http://www.w3schools.com/xpath/xpath_syntax.asp

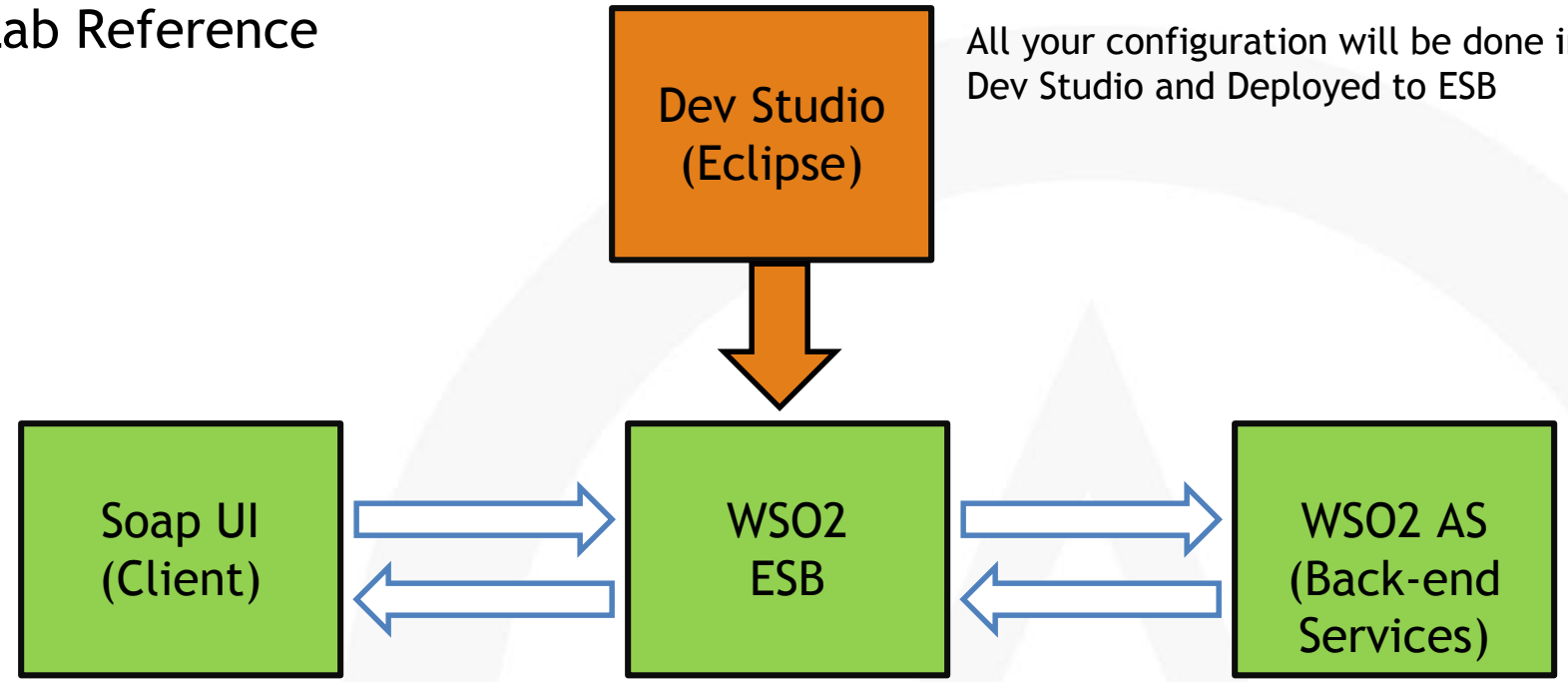
XPath by Example

```
<?xml version="1.0" encoding="UTF-8"?>
<bookstore>
<book>
  <title lang="en">Harry Potter</title>
  <price>29.99</price>
</book>
<book>
  <title lang="en">Learning XML</title>
  <price>39.95</price>
</book>
</bookstore>
```

Path Expression	Result
bookstore	Selects all nodes with the name "bookstore"
/bookstore	Selects the root element bookstore
bookstore/book	Selects all book elements that are children of bookstore
//book	Selects all book elements no matter where they are in the document
//@lang	Selects all attributes that are named lang
/bookstore/book[1]	Selects the first book element that is the child of the bookstore element.
/bookstore/book[last()]	Selects the last book element that is the child of the bookstore element
/bookstore/book[position()<3]	Selects the first two book elements that are children of the bookstore element
//title[@lang]	Selects all the title elements that have an attribute named lang
//title[@lang='en']	Selects all the title elements that have an attribute named lang with a value of 'en'
/bookstore/book[price>35.00]	Selects all the book elements of the bookstore element that have a price element with a value greater than 35.00

Lab 01: Getting Started with WSO2 ESB

Lab Reference



Lab 01: Getting Started with WSO2 ESB

Refer to Lab Kit instructions for details.