



Java, XML and Web Services The Future of Enterprise Computing

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Java and Web Computing

- Java's future is inextricably tied to the future of Web computing
- Web computing is expanding to cover
 - Browser based services
 - Web aware mobile clients
 - Web aware rich clients
 - XML message based services
- Java is the best platform for implementing all these

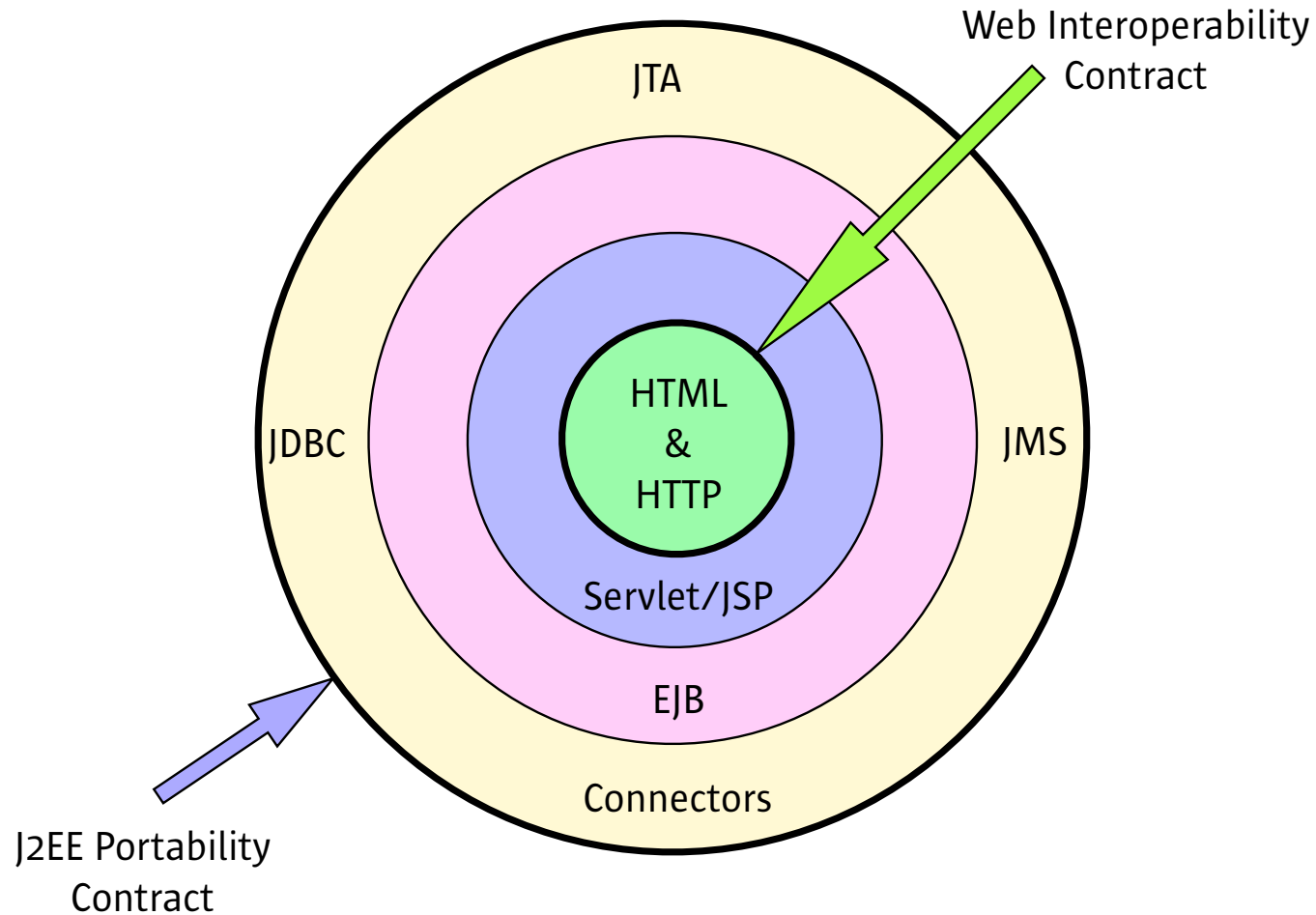
XML Schema

- Tables -> SQL
- Lists -> Lisp
- Objects -> Java, C++, C#, (OODB)
- Structs/Arrays -> C
- Records -> Cobol
- XML Schema ->
 - XSLT, XQuery, BPEL, SVG, WSDL, Soap, SAML, ACORD, POSC, etc

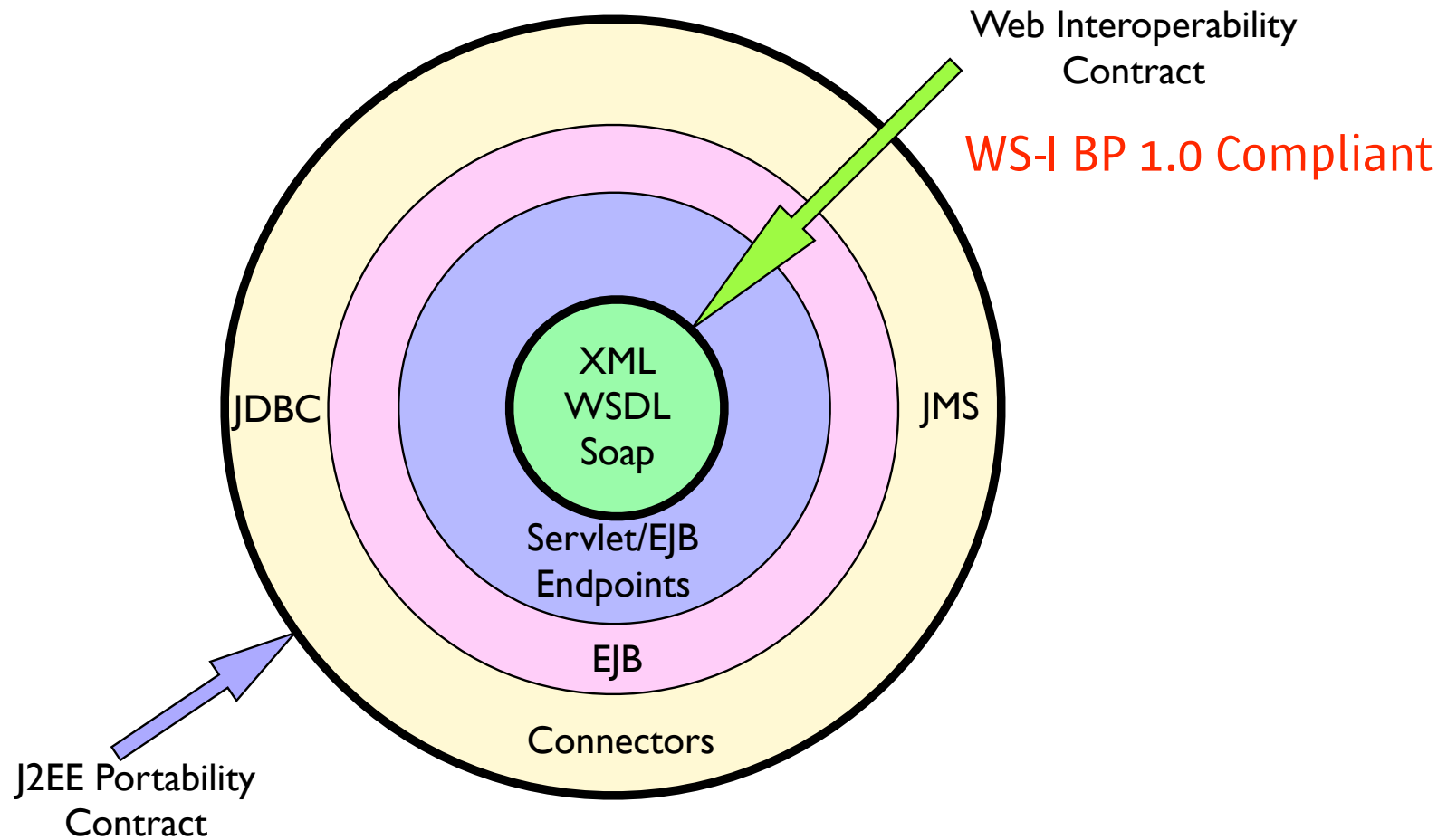
Web Computing

- The Human Web
 - Web Sites
 - Portals - Web Site Composition
- The Application Web
 - Web Services
 - Business Processes - WS Composition

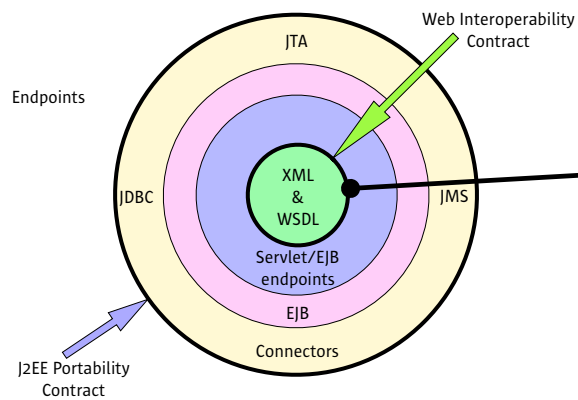
J2EE Web Application



J2EE 1.4 Web Service



Core Java WS APIs

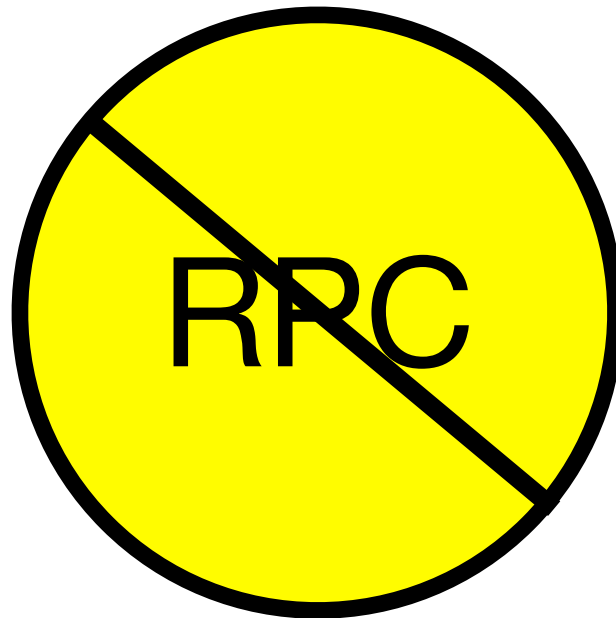


JAXRPC - The Java WSDL MEP API

JAXB - The Java XML Binding API

JAXP - The Java XML Parsing API

WSDL Message Exchange Patterns



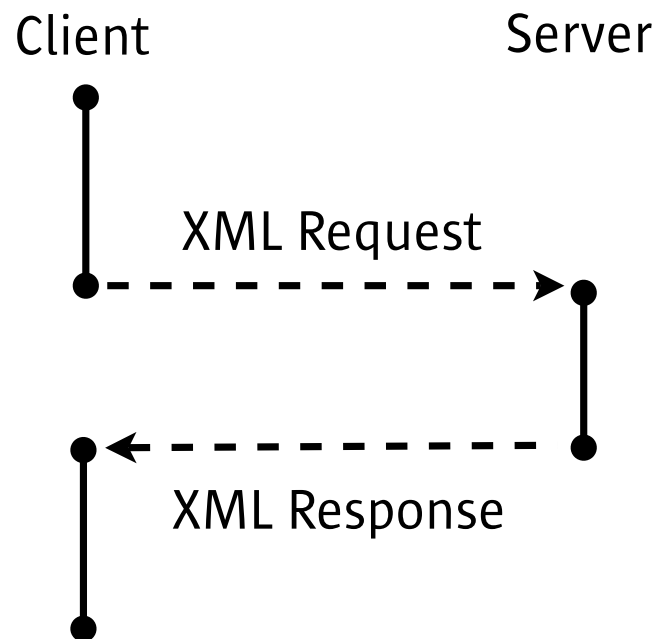
XML Schema Messaging

- Dispatch on Schema Type
- WSDL MEP - 'micro' interaction pattern
- Client/Endpoint APIs are 'views'
 - Proc signature
 - DOM
 - JAXB
 - etc

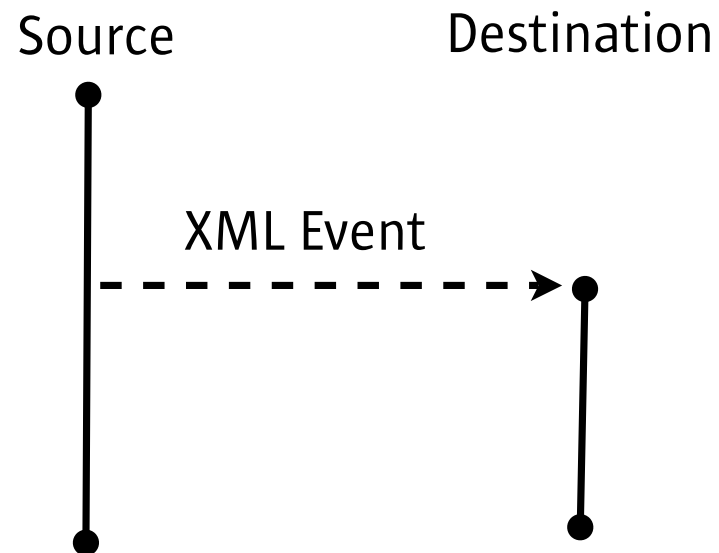
Message Bindings

- Document Literal
 - Schema type
- RPC Literal
 - Schema type
 - 'helper' proc signature info
 - no .Net support

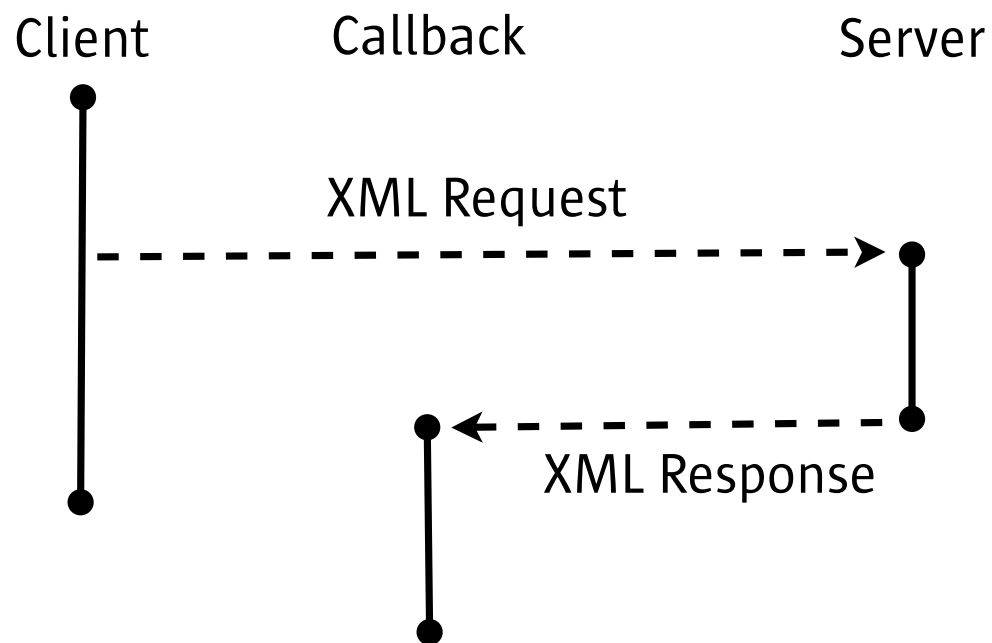
Request-Response MEP



One-Way MEP



Callback MEP



* Informal WS-I BP 1.0 Sample App MEP

Service Oriented Architecture

- Loose coupling via shared message schema
- Convergence of Synchronous and Asynchronous interactions
- Composition by Conversation
- Orchestration within a role
- Choreography across roles

BPEL

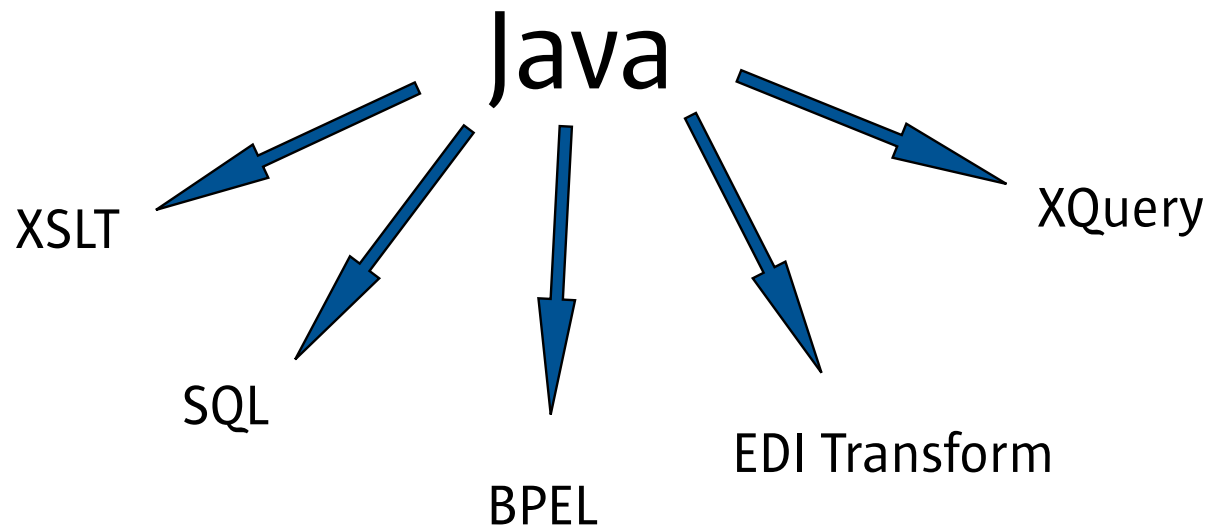
- Business process instances
 - Implement conversational roles
 - Interleave conversations
- Conversation Identity
 - Aggregation of correlation values
 - Unique to BP instance

Java Business Integration (JBI)

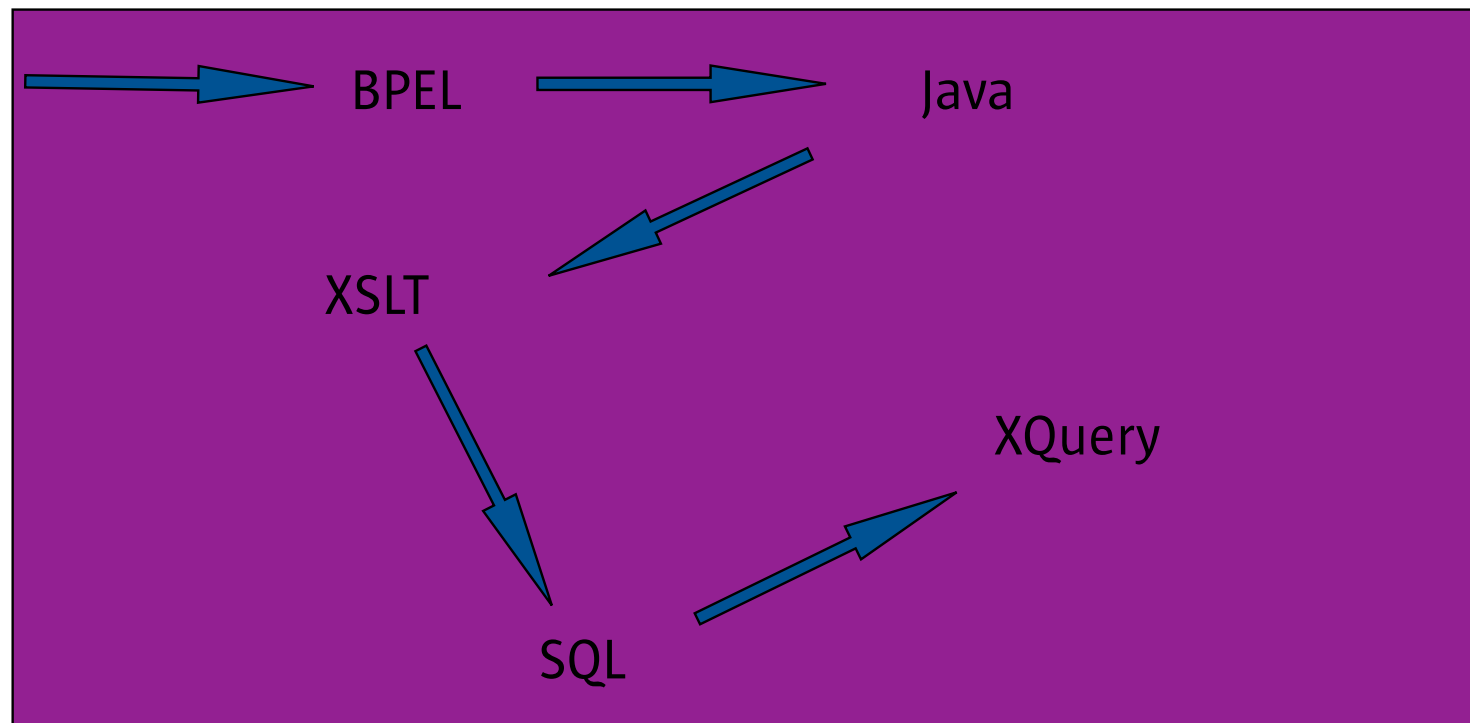
JSR 208

- Extend Java Platform with SOA
 - Composition across services
 - Composition within a service
- SPI for extending platform
 - Business Engines
 - BPEL, XSLT, XQuery, etc
 - MEP Bindings
 - Soap, JMS, AS2, etc
- JBI App is mixture of integration components

From Java on top

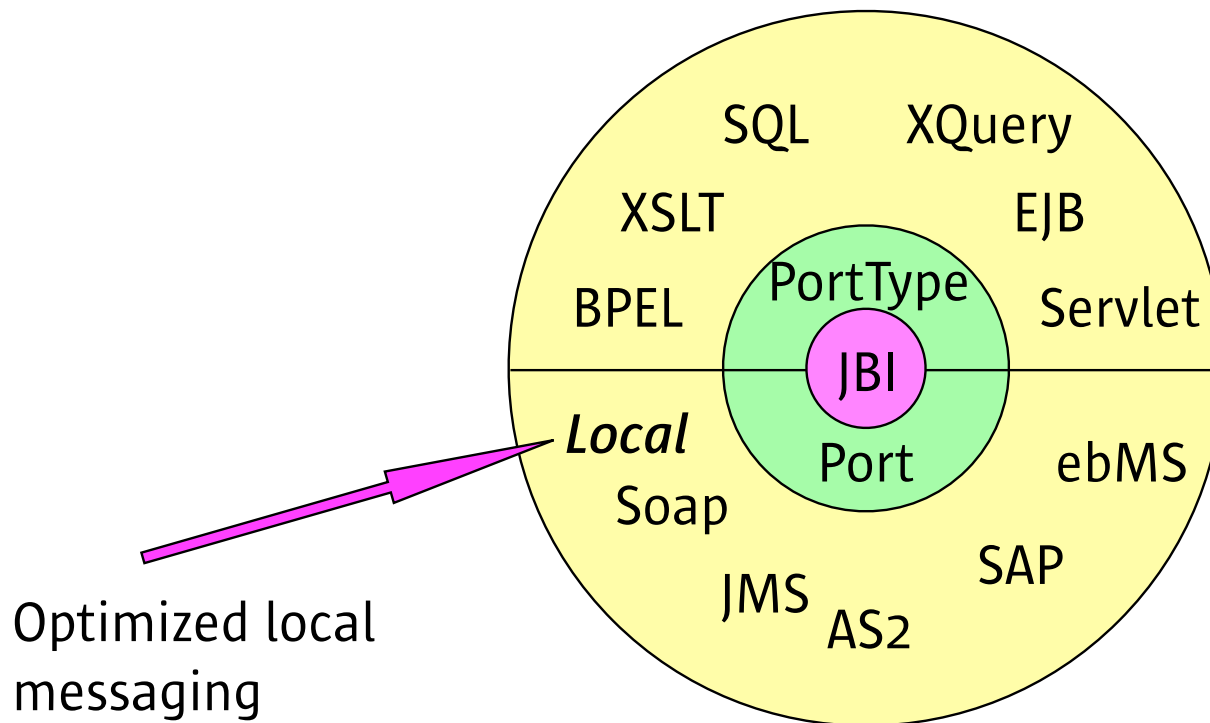


To Java as Partner and Platform



JBI

JBIM Normalized Messaging



J2EE with JBI

- An extensible integration platform
- Many component models
- Many bindings
- All share common
 - WSDL MEPs
 - Composition mechanism

SOA

- Defined by
 - XML Schema Messaging
 - WSDL MEPs
 - Conversations
- Implemented with
 - J2EE Web Services
 - Later with J2EE + JBI

