Business Performance Management Standards

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BPM Architect
Business Performance Management

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IBM

Business performance management

Taking an holistic approach, companies align strategic and operational objectives with business activities to fully manage performance through smarter decisions and actions for greater success. Leveraging business intelligence, process management, business service management, activity monitoring and corporate performance management enables businesses to fully manage company-wide performance through insightful decisions that can help drive success.

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How Can Standards Help

- **Why do Customers Care?**
  - Choice: The choices I make today don't limit the choices I can make in the future.
  - Flexibility: I can connect to internal departments and external partners that made different technology choices.
  - Speed:
    - I can build new solutions that involve multiple hardware and software platforms quickly.
    - I can adjust to changing business parameters (new opportunities, new partners, new employees) quickly.
  - Skills: I can find skilled resources that understand these solutions

- **Why do Vendors Care?**
  - Standards provide a level playing field
  - They permit interoperability with other solution components
  - Investment can be directed to solutions rather than underlying technology
  - Time to market reduced with use of common interfaces, components

Standards: the foundation of an on demand operating environment

An on demand operating environment **is a defined set of integration and infrastructure management capabilities that businesses use, in a modular and incremental fashion, to become an on demand business. It is:**

Modular

Built for change

Standards-based

Standards help customers (and vendors) respond quickly to new business opportunities, customer demands and external threats.

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The Open Platform Approach

Category	Platform	IBM Contribution
Open Grid / On Demand Computing	**On Demand Computing Environment**	IBM defined "On Demand" computing and leads in grid technology
Open Development Integration Platform	**Eclipse**	IBM donated $40M of initial technology
Open Application Integration	**Web Services**	IBM led or co-led the creation of SOAP. WSDL, UDDI, WS-Security, BPEL4WS …
Open Application Server	**J2EE and Apache**	IBM contributed significant technology to J2EE & helped form the Apache Software Foundation
Open Operating System	**Choice Includes Linux**	IBM is the #1 commercial supporter

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IBM's investment – how important *we* think it is…

Major technical initiatives led by IBM with partners

- SOAP, WSDL, UDDI, Reliable Messaging, Security, Transactions, Process , CBE, ...

Open standards commitment @ W3C, OASIS, WS-I, OMG, DMTF

- 18 WG chairs, 12 editorships, active participants in over 50 WG

Significant contributions to open-source

- XML Parsing, XSL Transformation, Apache SOAP, Axis, WSIF, eclipse framework

Rapid inclusion in products

- First production application platform (WAS4.0)

- First production Integrated Development Environment (WSAD4.0)

Advanced technology shared with the community

- Alphaworks Emerging Technology Tool Kit refreshed approx. every 2 months

- Early access to implementations of all WS-* specifications

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IBM Leadership

Provider of best of breed middleware and industry thought leader
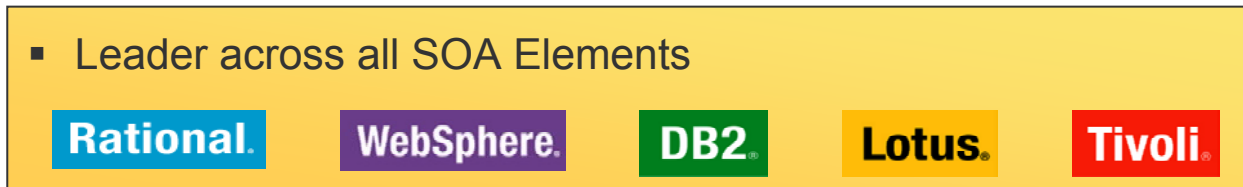
Standards Leadership

- Multi-vendor interoperability
- Investment protection
- Enhanced modularity and reduced cost structure

Product Leadership

- Modular – Integrated, Componentized & Incremental
- Enterprise secure and scalable

- Leader across all SOA Elements

Business Performance Management Reference Architecture

■ **IBM Business Performance Management Software Offerings**
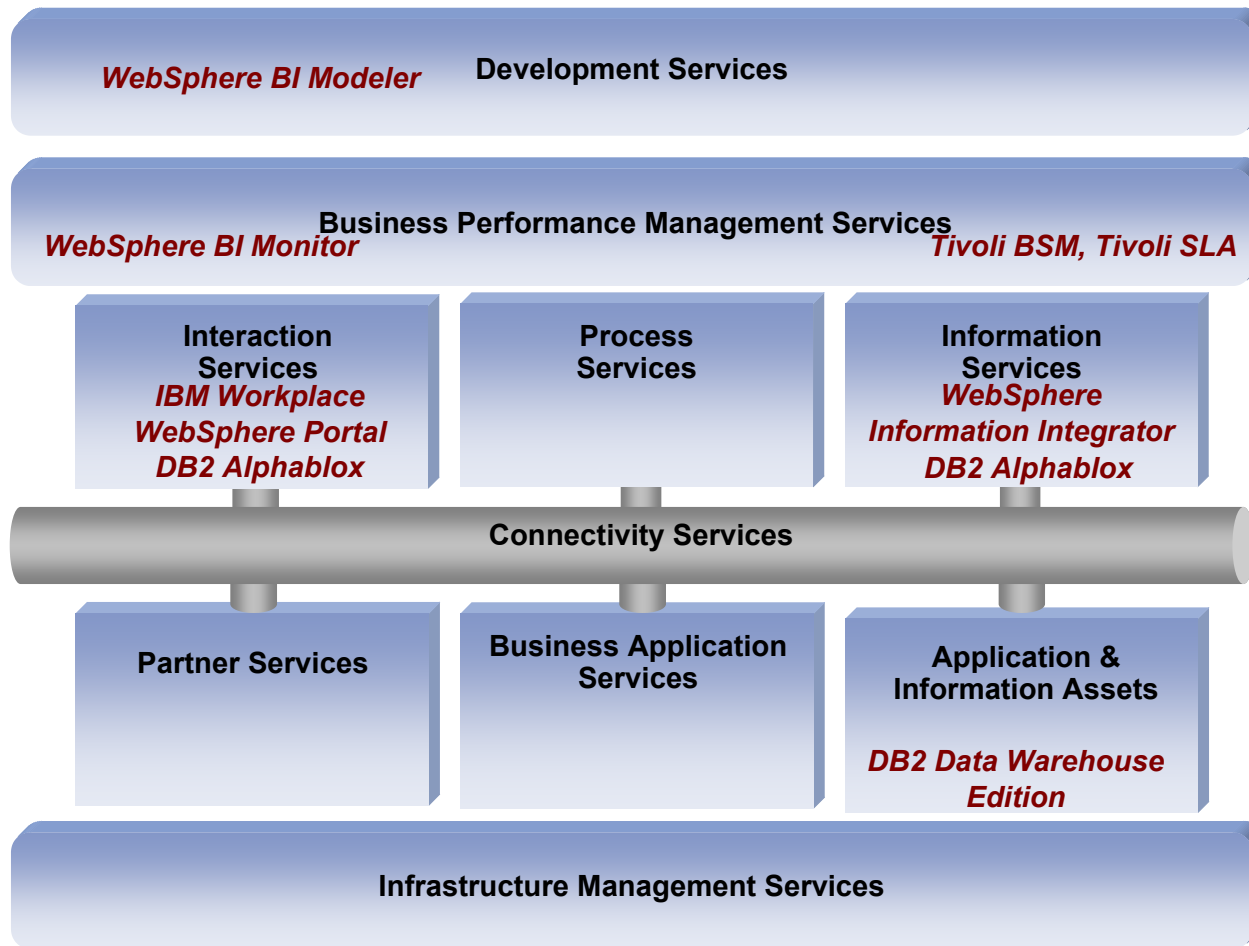
Development Services
WebSphere BI Modeler

Business Performance Management Services
WebSphere BI Monitor   *Tivoli BSM, Tivoli SLA*

Interaction Services
IBM Workplace
WebSphere Portal
DB2 Alphablox

Process Services

Information Services
WebSphere
Information Integrator
DB2 Alphablox

Connectivity Services

Partner Services

Business Application Services

Application & Information Assets
DB2 Data Warehouse Edition

Infrastructure Management Services

Business Performance Management Standards Topics
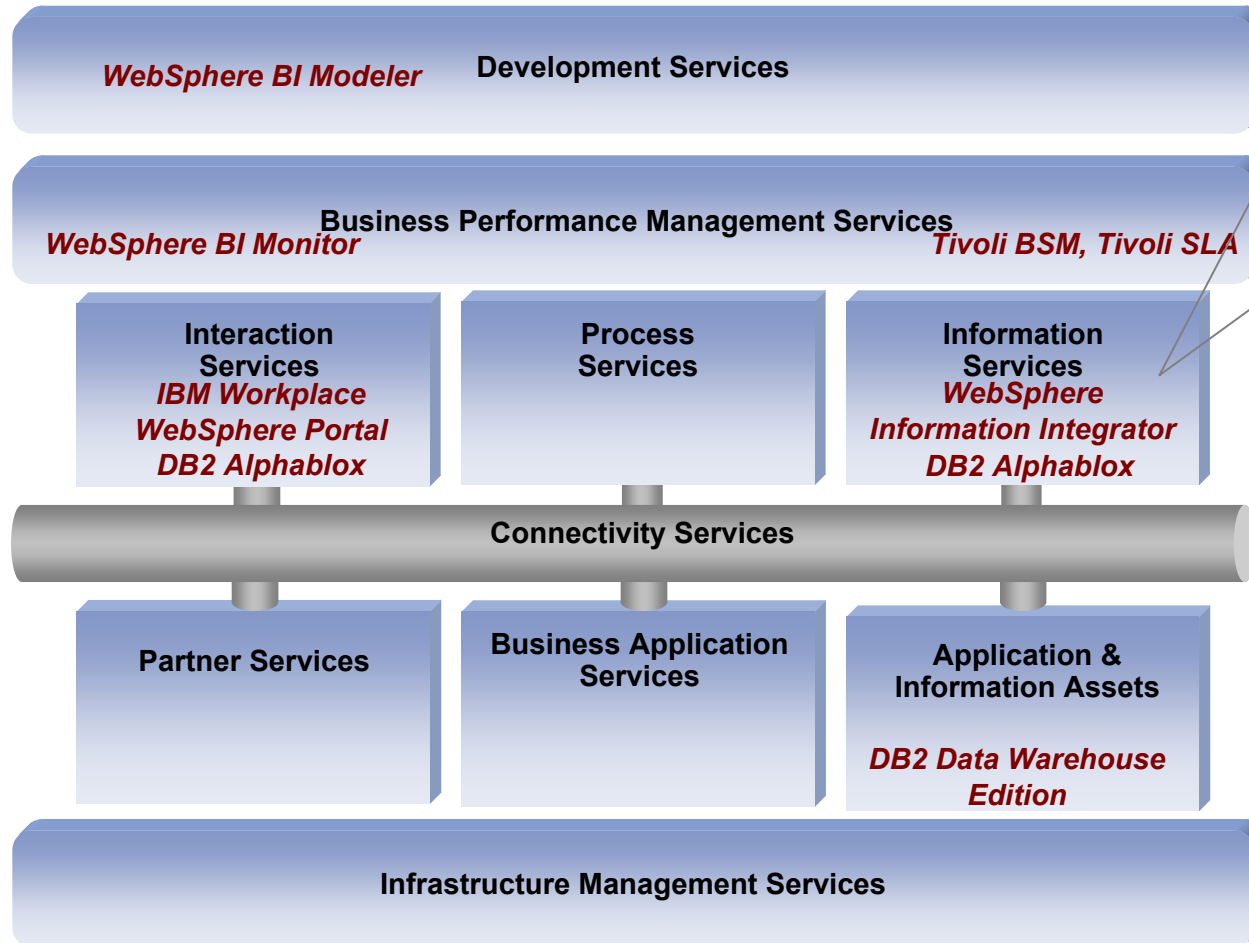
▪**Information Services Standards**

▪**Business Services Standards**
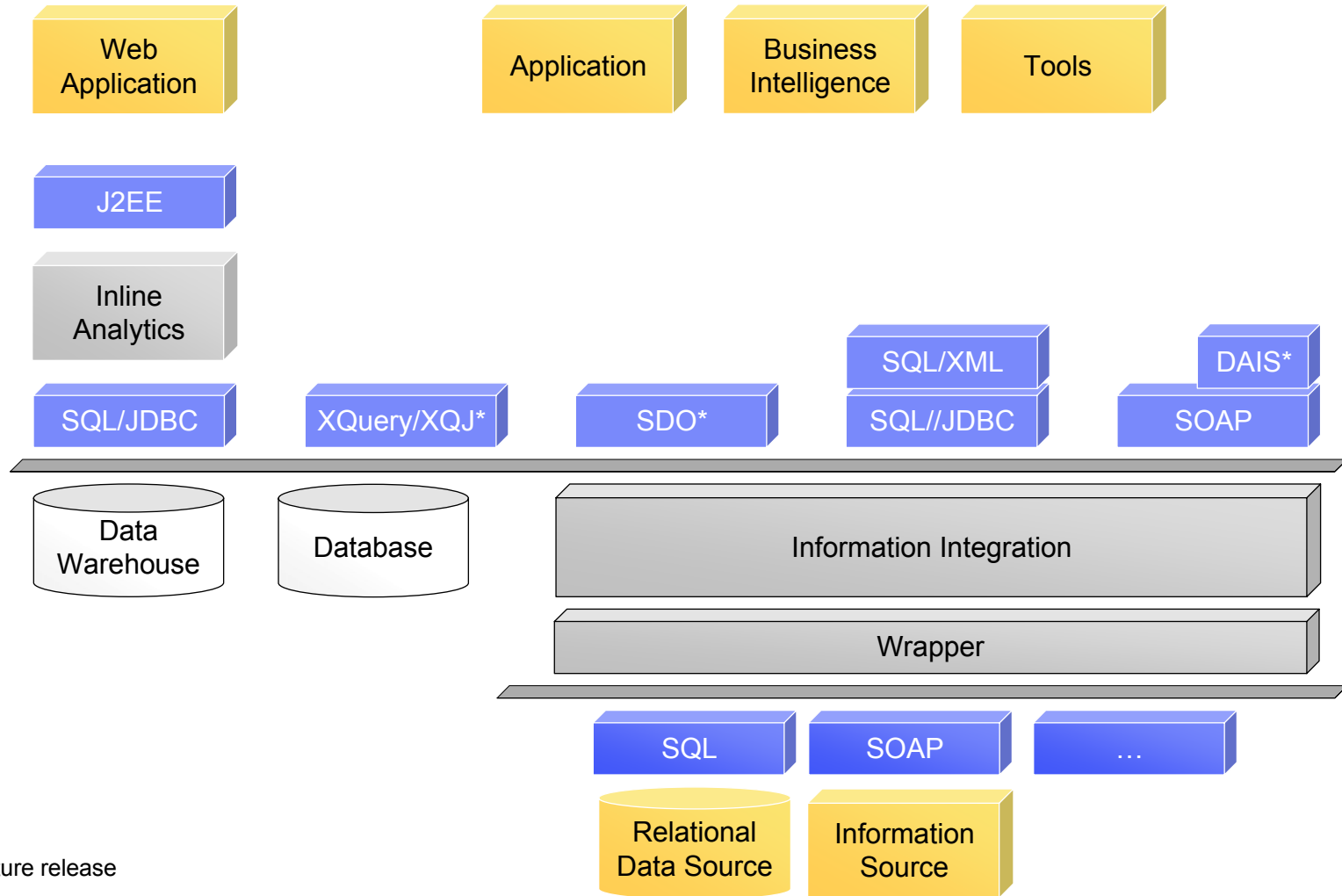
▪**Business Modeling Standards**

Business Performance Management Reference Architecture

- Structured Query Language (SQL)
- Predictive Modeling Markup Language (PMML)
- XML Query (XQuery), XQuery API for Java (XQJ);
- Web Service Definition Language (WSDL); Simple Object Access Protocol (SOAP)
- Extensible Markup Language (XML); XML Schema
- Meta Object Facility (MOF); XML Metadata Interchange (XMI)
- Eclipse Modeling Framework (EMF)
- Java 2 Platform, Enterprise Edition (J2EE); Java Database Connectivity (JDBC)
- Service Data Objects (SDO)

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Information Access

| Web Application | | Application | Business Intelligence | Tools |

J2EE

Inline Analytics

| | | | SQL/XML | DAIS* |
| SQL/JDBC | XQuery/XQJ* | SDO* | SQL//JDBC | SOAP |

| Data Warehouse | Database | Information Integration |
| | | Wrapper |

| SQL | SOAP | … |

| Relational Data Source | Information Source |

* future release

IBM

Sharing Metadata

Data Mining Tool

Data Modeling Tool

Development Tool

System Mgmt Tool

EMF

MOF

XML Schema

| PMML | XMI | SQL (DDL) | XQuery/XQJ* | WSDL | UML/SQLMODEL | CIM* |

Data Warehouse

Database

Information Integration

Wrapper

SQL

WSDL

…

Relational Data Source

Information Source
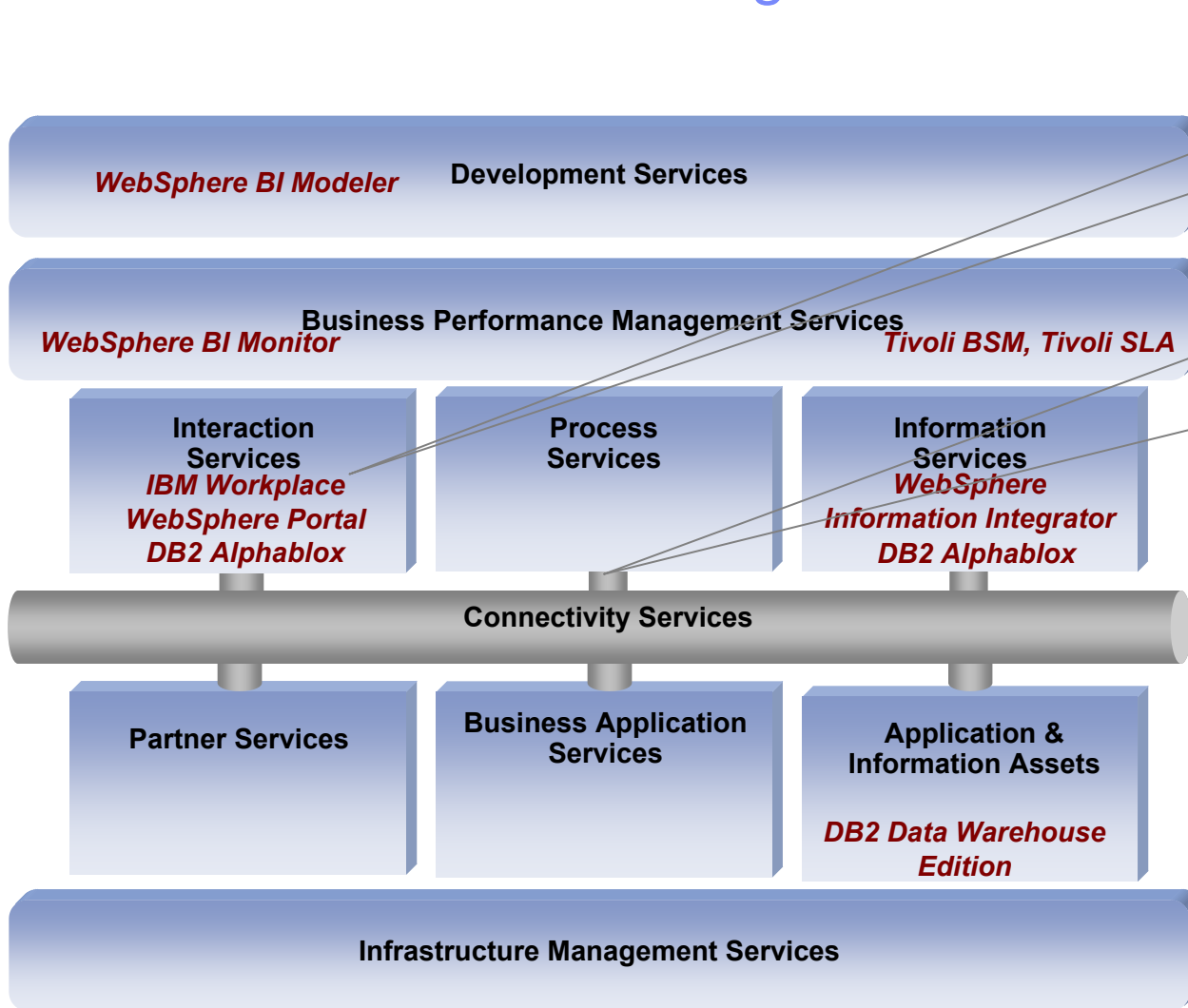
* future release

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Business Performance Management Standards Topics

- **Information Services Standards**

- **Business Services Standards**

- **Business Modeling Standards**

Business Performance Management Reference Architecture

- JSR-3 , JSR-77
- Common Information Model (CIM)
- Application Response Measurement (ARM)
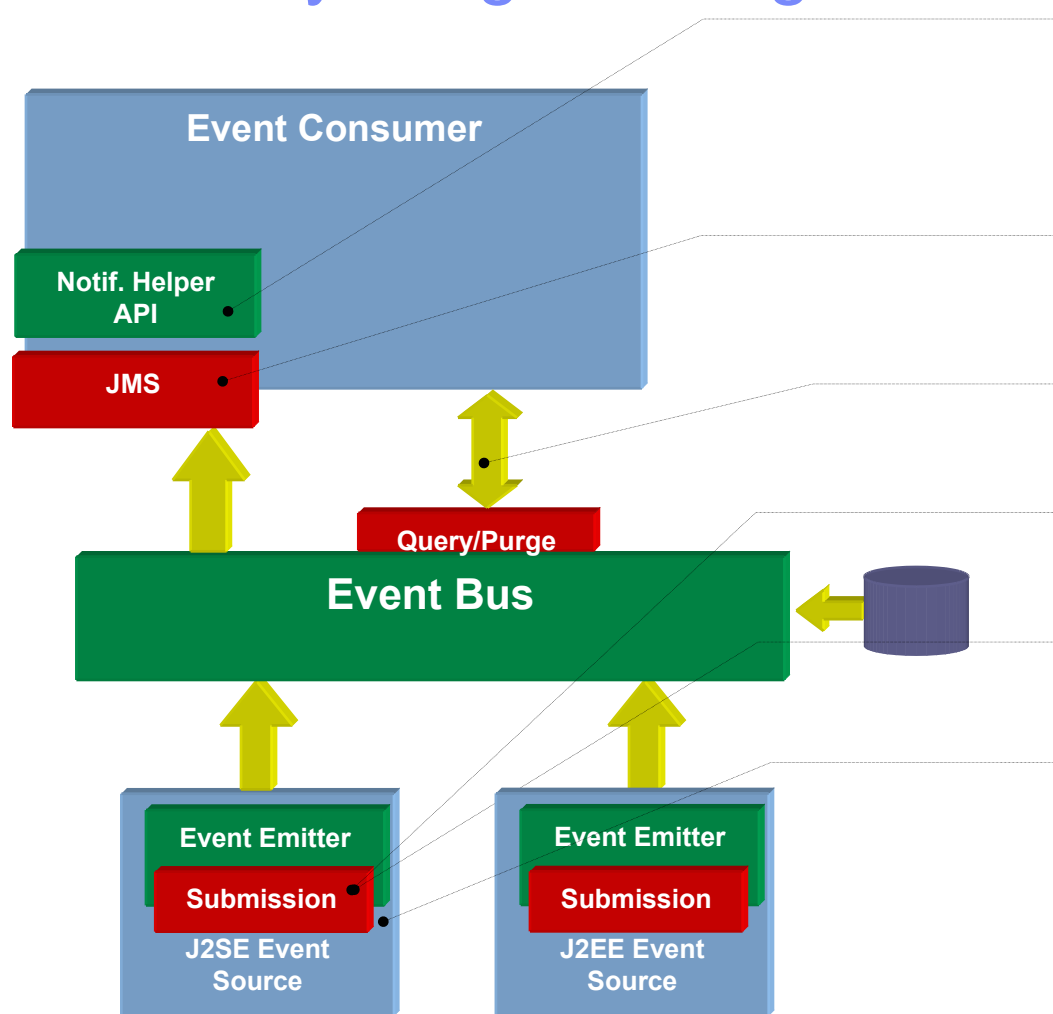
Development Services

WebSphere BI Modeler

- Common Base Event (CBE)
- Web Service Notification (WS-Notification); WS-Eventing
- WSDM - Management of Web Services
- Production Rule Representation (OMG)
- Web Service Standards: WS-Security; WS-ReliableMessage; WS-Addressing; WS-Agreement, WS-Transaction; WS-Coordination, WS-Resource Properties

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Standards within the Organization for the Advancement of Structured Information Standards (OASIS; WSDM-TC)

- **Common Base Event (CBE) – now called WSDL Event Format (WEF)**
  - The CBE provides rich message format for expressing the information content of both business and IT events.
  - The CBE was jointly submitted to OASIS by IBM and CISCO, and was worked on by BEA, CA, HP, Tibco, and others. It was incorporated into WSDM as WEF.
  - Rational contributed a CBE 1.0.1 implementation to Eclipse
    - www.eclipse.org download the hyades and emf images. The CBE is in: \org.eclipse.hyades.logging.core_3.0.1 hlcore.jar and hlcbe101.jar

- **Web Services Notification (WS-Notification)**
  - The WS-Notification family of specifications defines a standard Web services approach to notification.
    - WS-BaseNotification
    - WS-BrokeredNotification

- **Related WS-I standards**
  - Web Services Addressing (WS-Addressing)
  - Web Services Security (WS-Security)
  - Web Services ReliableMessage (WS-ReliableMessage)
  - Web Services Resource Properties (WS-ResourceProperties)

Connectivity Programming Interfaces

Event Consumer

Notif. Helper API

JMS

Query/Purge

Event Bus

Event Emitter

Submission

J2SE Event Source

Event Emitter

Submission

J2EE Event Source

- Today: Event Consumers use standard JMS API to receive event notification.
- Event Consumers use Notification Helper API to translate event groups and event selector to JMS parameters

- Future Web Services support through WS-Notification interface for consuming and subscribing to events.

- Query interface exposes J2SE and J2EE.

Today: Submission interface exposes J2SE and J2EE APIs.

Future Web Services support through WS-Notification interface for producing events.

Common Base Event is the message format that flows throughout the infrastructure.

Numerous articles available on IBM developerWorks
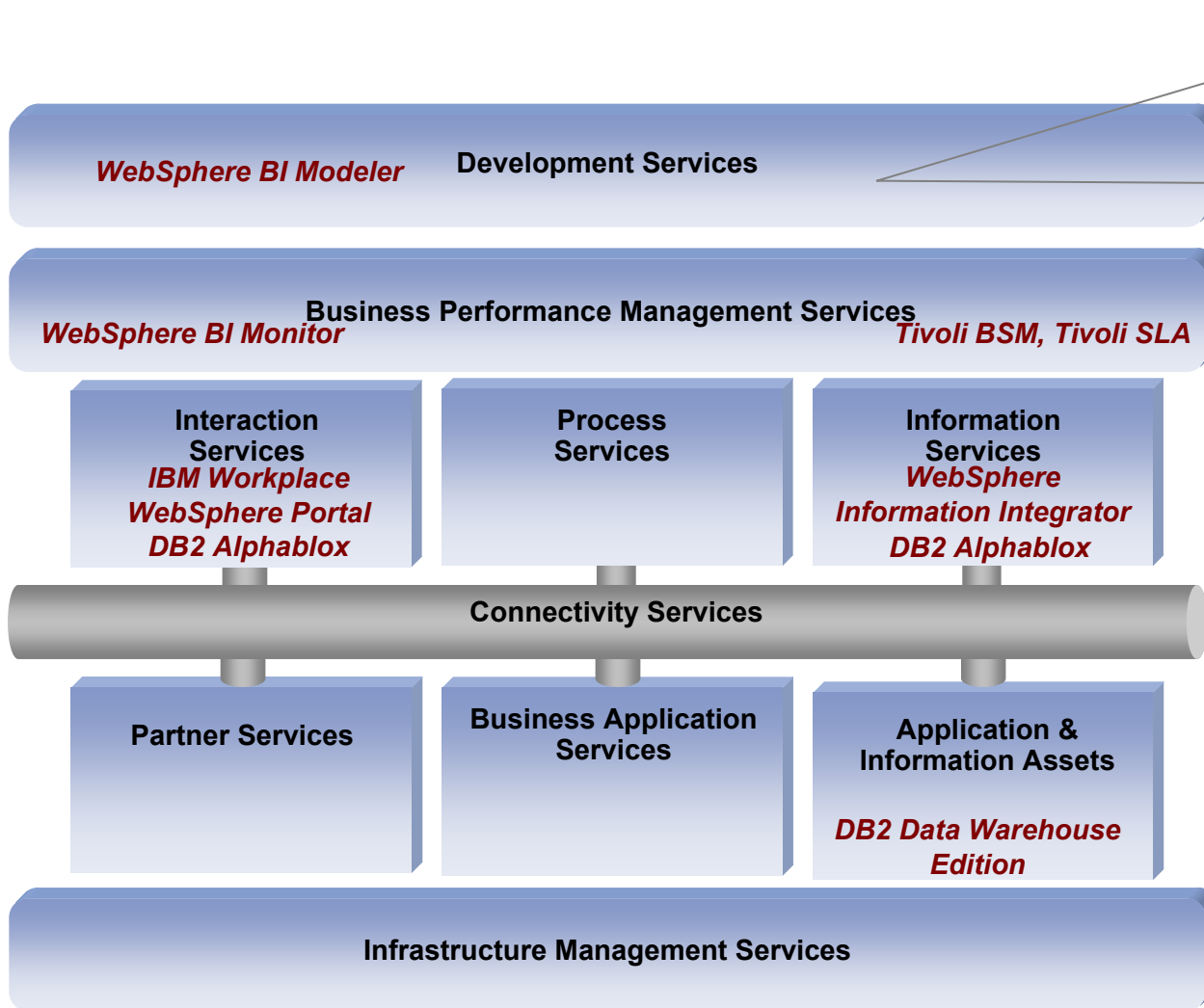
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Business Performance Management Standards Topics

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- **Business Services Standards**
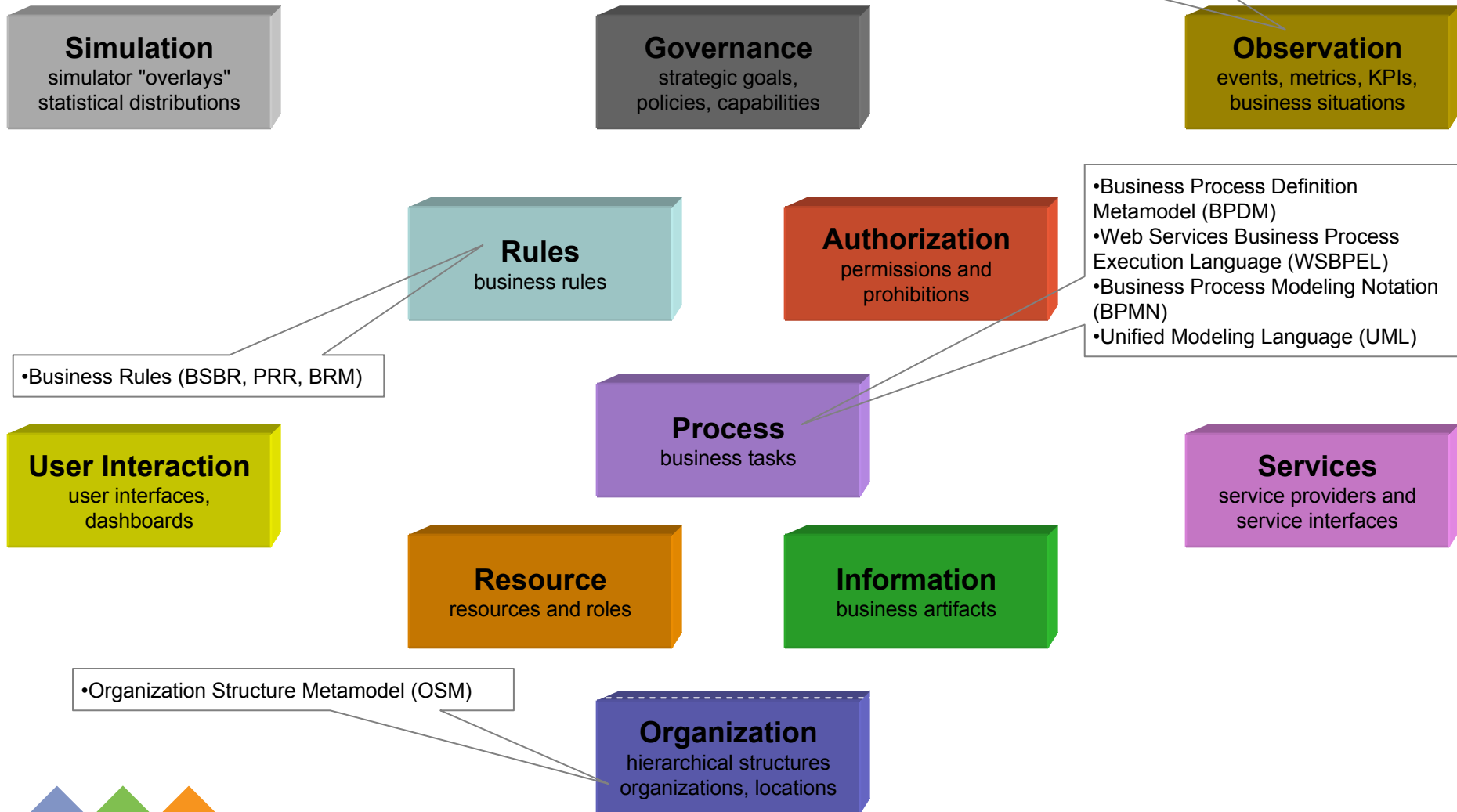
- **Business Modeling Standards**

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Business Performance Management Reference Architecture

Development Services

WebSphere BI Modeler

•Business Process Definition Metamodel (BPDM)
•Web Services Business Process Execution Language (WSBPEL)
•Organization Structure Metamodel (OSM)
•Business Rules (BSBR, PRR, BRM)
•Business Process Modeling Notation (BPMN)
•Unified Modeling Language (UML)
•Meta Object Facility (MOF)
•XML Metadata Interchange (XMI)
•Predictive Modeling Markup Language (PMML)

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Business Modeling

•Predictive Modeling Markup Language (PMML)

Simulation
simulator "overlays"
statistical distributions

Governance
strategic goals,
policies, capabilities

Observation
events, metrics, KPIs,
business situations

Rules
business rules

Authorization
permissions and
prohibitions

•Business Process Definition
Metamodel (BPDM)
•Web Services Business Process
Execution Language (WSBPEL)
•Business Process Modeling Notation
(BPMN)
•Unified Modeling Language (UML)

•Business Rules (BSBR, PRR, BRM)

User Interaction
user interfaces,
dashboards

Process
business tasks

Services
service providers and
service interfaces

Resource
resources and roles

Information
business artifacts

•Organization Structure Metamodel (OSM)

Organization
hierarchical structures
organizations, locations

Standards within the Object Management Group (OMG)

- **Business Process Definition Metamodel**
  - Metamodel will define an abstract language for specification of business processes that execute within an enterprise (with or without human involvement); and may collaborate between otherwise-independent business processes executing in different business units or enterprises
  - IBM proposal uses UML 2.0 as foundation and integrates UML notation as well as BPMI BPMN notation
  - IBM and Adaptive have submitted a response to RFP, supported by BEA Systems, Unisys and others
- **Universal Modeling Language (UML 2.0)**
  - helps specify, visualize, and document models of software systems, including their structure and design, in a way that meets all of these requirements
  - UML can be used for business modeling and modeling of other non-software systems

Standards within the Object Management Group (OMG), Cont.

- **Business Rules**
  - Business Semantics for Business Rules (BSBR) RFP
    - A metamodel for the specification of business rules by business people and for the capture of vocabularies and definitions of the terms used in business rules
  - Production Rule Representation (PRR) RFP
    - A metamodel with precise dynamic semantics to represent production rules, where "production rules" refers to rules that are executed by an inference engine
  - Business Rules Management (BRM) RFI
    - To formulate requirements for business rule management, identify potential and existing solutions to these requirements that may benefit from standardization

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Standards within the Business Process Management Initiative (BPMI)

- **Business Process Modeling Notation (BPMN 1.0)**
  - A business-oriented modeling notation designed for visualization and communication of business process models
  - Developed with a mapping to executable processes (BPEL4WS)
  - Currently being mapped to the BPDM response

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Standards within the Organization for the Advancement of Structured Information Standards (OASIS)

- **Web Services Business Process Execution Language (WSBPEL)**
  - Provides a language for the formal specification of business processes and business interaction protocols
  - Extends the Web Services interaction model and enables it to support business transactions
  - Defines an interoperable integration model that should facilitate the expansion of automated process integration in both the intra-corporate and the business-to-business spaces
  - Will supercede BPEL4WS