SAP Exchange Infrastructure
XI-3.0 Features Overview

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XI 3.0 in SAP NetWeaver

SAP Mobile Infrastructure
- Tight coupling and alignment with SAP business solutions

SAP Enterprise Portal
- Business packages
- Collaboration

SAP Business Information Warehouse
- Business content
- Open architecture (Crystal, Ascential)

Master Data Management
- Centralized Mgmt

SAP Exchange Infrastructure
- Cross-component business processes
- Shared integration knowledge

SAP Web Application Server
- Proven, scalable, comprehensive toolsets
- Leverage existing infrastructure/skillsets

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SAP XI is an Integration Technology and Platform

- for SAP and non-SAP Applications
- for A2A and B2B Scenarios
- for Asynchronous and Synchronous Communication
- for Cross-Component Business Process Management
- based on Web Service and Industry Standards
SAP Applications that use SAP XI

More and more SAP applications leverage SAP Exchange Infrastructure.

Including:

- **xApps** (such as xRPM, Resource and Program Management)
- **MDM** (SAP MDM, Master Data Management)
- **SRM** (SAP SRM, Supplier Relationship Management)
- **ICH** (SAP Inventory Collaboration Hub within SAP SCM)
- **BI** (SAP Business Intelligence, for Global Spending Reporting)
- **R/3 Enterprise** (Industry Standards Support)
- **CRM** (SAP CRM, Customer Relationship Management, for Extended Order Management)
- **SBO** (SAP Business One)
Agenda

SAP Exchange Infrastructure XI3.0: Overview

**XI3.0: Architecture & Features**

XI3.0: CCBPM & Web Services

XI3.0: Adapter Framework

XI3.0: B2B & Industry Standards

XI3.0: Q&A, Resources
XI Architecture Overview

Shared Collaboration Knowledge

Integration Builder

Integration Repository (IR)

Integration Directory (ID)

System Landscape Directory (SLD)

Execution of Collaborative Business Processes

Central Monitoring

Integration Server (IS)

SAP Systems

3rd Party Systems

3rd Party Middleware Component

Marketplace/Business Partner
XI Architecture – Details

Central Monitoring

Integration Server
- Business Process Engine
- Integration Engine
- Adapter Engine

Integration Directory
System Landscape Directory

Integration Engine
- Local Integration Engine
- IDocs RFCs
- File DB JMS
- 3rd Party Apps

SAP Web AS ≥ 6.20
SAP System

RosettaNet, ...

XI Protocol

Partner Connectivity Kit
Apps of (small) Business Partner
Apps of Business Partner

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Describes your landscape

- What component is actively available on which machine/instance/client, etc.
- Information about domain contained, i.e. in which network environment (local / remote) are components accessible
- Any number of different landscapes

Allows any type of component

- SAP, partner products, other packages, legacy systems
- All SAP software components delivered as content
- Open architecture, based on Common Information Model (CIM)
Integration Builder – Design Time

Integration Builder

- Scenario Editor
- Process Editor
- Mapping Editor
- Condition Editor
- Interface Editor

Integration Repository

- Business Scenarios
- Business Processes
- Mappings
- Context Objects
- Message Interfaces
  - Message Types
  - Data Types

Software Component Version
- Software Component

System Landscape Directory

J2EE/ABAP
- Proxies

SAP Web AS
≥ 6.20

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Integration Builder – Generic Functions

Integration Repository
- Layout Building Blocks
- Personalization
- Navigation

Integration Directory

Integration Builder Client Framework
- Zero Installation Client (through Java Web Start)

Integration Builder Server Framework
- Query Service & Cross References
- Import/Export & CMS interface
- Internationalization
- Change list Management
- Versioning
- Locking
- Authorization & Authentication

UI Client

Server

DB
The Integration Server retrieves required Collaboration Knowledge on Routing, Mapping and Address resolution from the Integration Directory.
The Integration Builder uses the change and Transport Management functions provided by the Change Management Server (CMS).

All objects of the Integration Repository and Directory can be transported. You can package objects in different ways:

- All objects of a specific change list (design and configuration time)
- All or some objects of a software component version or of a namespace (Integration Repository)
- A freely defined selection of directory objects
- All objects of a scenario (Integration Directory)
XI 3.0 Monitoring

Integration with central SAP monitoring infrastructure
  - Message tracking / processing path

Improved monitoring overview and drill down capabilities
  - Overview from endpoint to endpoint
  - Drill down to individual process steps

Use of SAP Web AS Alert Framework
  - Classification of errors
  - Alerting channels, such as e-mail available

Adapter monitoring in CCMS
Runtime Workbench – Message Monitoring

XI Runtime Workbench

Component Monitoring | Message Monitoring | End-to-End Monitoring | Performance Monitoring | Configuration

End-to-End Monitoring

Domain Monitoring

Domain monitoring: domain.05.is0045
Display

XI Domain domain.05.is0045 27.11.2003 08:50:11

Prozessübersicht

- Es sind Fehler aufgetreten

Statistikdaten

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Einstellungen

- Es sind Meldungen über das Prozessmonitoring vorhanden
- Monitoring eingeschaltet seit 27.11.2003 17:13:42

Weitere Einstellungen...
High Availability

- SAP XI will run in HA system landscapes with the support of switchover clusters

Support for all released UNICODE SAP Web AS platforms

- Such as e.g. Oracle and MS SQL

Use of SAP User Management Engine – User Management of SAP NetWeaver

Use of change and transport management functions provided by the Change Management Services (CMS)

Performance Enhancements

- Allow SAP XI to support massive message loads
- Synchronous and near real-time processes will perform better
Agenda

SAP Exchange Infrastructure XI3.0: Overview
XI3.0: Architecture & Features

**XI3.0: CCBPM & Web Services**

XI3.0: Adapter Framework
XI3.0: B2B & Industry Standards
XI3.0: Q&A, Resources
Business Process Management (BPM)

SAP NetWeaver BPM
- A comprehensive BPM solution
  - Ad-hoc Workflow controls team-driven processes
  - Cross-Component BPM controls inter-application processes
  - Business Workflow controls intra-application processes

Ad-hoc Workflow
- Team-driven processes
- Spontaneous events
- Collaboration

Cross-Component BPM
- Design, execute and monitor automated processes across applications and systems
- Stateful interaction model
- Cross application execution

Business Workflow
- Design, execute and monitor processes within applications
- Apply standard business rules
- Business events
- Human interaction
**Cross-Component BPM with SAP XI 3.0**

**SAP NetWeaver**
- SAP
- SAP Business Workflow
- ccBPM*
- other Integration Solution
- mainframe application
- 3rd Party
- 3rd Party
- Programmed Workflow

**Business Partners**
- SAP
- 3rd party
- ccBPM*
- RosettaNet Middleware
- Business Partner Application
- Marketplace

* Integrated in SAP XI
Design, execute and monitor automated processes across applications and systems.

Provides process control in the central technology layer.

Contains a Graphical Modeler.

Integral part of XI:
- Modeling enables linkage to XI design objects: interfaces, mappings …
- BPM runtime is embedded in the Integration Server runtime.

Adheres to standards:
- Industry Standard support (BPEL4WS)
- Import/export of process definitions.

Technical Process Monitoring:
- Integrated with general technical Monitoring of XI
- Graphical Process Monitoring.
Integration Repository
- Contains Graphical Process Builder
- Business Process object is incorporated in a namespace, identified by a name

Integration Directory
- Contains a reference to its originating repository process
- Can only be deployed not created in the directory
- Does not contain a process definition

Routing and Mapping
- Business process is a source or target and can be addressed like any Business System

BPM runtime extends Business Workflow runtime
- Business Process Engine to execute processes adhering to standards
- Proven, scalable, robust technology
- Integral part of SAP XI’s Integration Server
Value-added Web Services Through XI 3.0

- **Integration Server**
  - Mapping
  - Routing
  - Business Processes

- **Web Service Client** (SAP/non-SAP)
  - SOAP

- **Adapter**

- **3rd Party App**
  - IDocs
  - RFCs

- **SAP System**
  - SAP Web AS ≥ 6.40
    - Proxy
    - Proxy Runtime
    - Local Integration Engine
    - Web Services Framework

- **Web Service Client** (SAP/non-SAP)
  - SOAP

- **‘Enhanced’ Web Service**
  - XI Protocol or SOAP

- **‘Basic’ Web Service**
Value-added Web Services Through XI 3.0

Any XI sender (possibly via adapter) → Any XI receiver (possibly via adapter)

Web service client → Web service provider

Integration Server

Mapping
Routing
Business Processes

Ability to go beyond Web Services and provide Enterprise Services

- Integration Repository to manage Web Service definitions / content
- Content-based Routing, Mapping, Business Process Management, integrating non-Web service enabled senders and receivers

SAP XI communicates via SOAP natively
Synchronous point-to-point shortcut in XI via Web services

- **Without routing, mapping, business process management capabilities**
- **Joint use of Web Services Framework of SAP XI and SAP Web AS (ABAP Engine)**
  - Synchronous XI inbound proxies can be used natively as Web services in SAP Web AS like Remote Function Modules
  - Unified programming model and proxy generation for XI and Web services in SAP Web AS
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Adapter Framework: Overview

Based on Java Connector Architecture (JCA)
- Applicable for SAP’s and 3rd party adapters

Ability to integrate application systems and business partners via Resource Adapters
- Technical Resource Adapters
- Non-SAP backend integration adapters
- B2B Adapters
- Ability to integrate adapters for centralized Monitoring, Error Handling, Configuration

Adapters work as plug-ins to the Adapter Framework
- Reduced TCO, no separate runtime required

Adapter Development Kit (ADK) - customers and partners can develop adapters

Central Adapter configuration

SAP NetWeaver Certification of 3rd party adapters based on the JCA Adapter Framework
Adapter Engine Deployment

Two deployment options
- Central deployment on Integration Server
- Decentral deployment close to application

Provides Scalability, Failover, High Availability

Standardized approach for adapter integration
- Repeatable integration pattern
Adapters List

Adapters provided by SAP

- SAP Application Adapters: IDoc, RFC (BAPI).
- Technical Adapters: File, FTP, JDBC, JMS, SOAP, HTTP.
- Industry Standard Adapters: RosettaNet (via Business Packages)

Ecosystem of partners that provide adapters

- To achieve broad coverage, SAP offers open framework
- Adapter reseller agreements
  - iWay Software UCCnet, more to come in due course
  - SEEBURGER AG EDI related industry specific adapters
  - WebMethods Oracle, Siebel, PeopleSoft, Baan, etc.
- Certification process for partner’s adapters
SAP XI PCK (Partner Connectivity Kit)

SAP XI Partner Connectivity Kit (PCK) is based on Adapter Framework

PCK’s objective is to enable XML document exchange between SAP XI and business partner not using SAP XI

Communication between SAP XI and PCK is via SAP XI messaging protocol

PCK provides connectivity options to access:

- SAP Adapters
  - File / FTP
  - JDBC (Database)
  - JMS (MQSeries, SonicMQ, …)
  - RFC

PCK is deployed on stand-alone SAP J2EE Engine (part of SAP Web AS) within business partner’s landscape
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B2B and Industry Standards

- SAP XI Partner Connectivity Kit
- Native XI B2B
- RNIF 2.0
- Integration Builder
- ccBPM
- Routing
- Connectivity
- Security

Industry Standard content
- Processes
- Mappings
- Document Schemas

Technical partner data
- Parties & Services
- (Standard) Protocols
- Security

XI Partner Connectivity Kit
- to connect ‘small business partners’
SAP XI3.0 Provides Industry Standards Support

Integration Directory
- Collaboration Agreements
- Collaboration Profiles

Integration Repository
- Business Scenarios
- Business Processes
- Mappings
- Message Interfaces

Integration Server
- BPE
- Integration Engine
- Adapter Engine
- Adapter Framework

SAP Industry Solution IDOC/Proxy

SAP CRM

Business Partner

Application ↔ Standard ↔ Business Doc Schema

Industry Standard Protocol
SAP® Business Packages For Industry Standards

Provides Solution Kits for specific industries and delivers Mappings for RosettaNet, CIDX

Application adoption

- Enhance business applications like mySAP CRM or mySAP SCM to support SAP® Business Packages for high priority processes

Mapping

- Including message sets for the industries according their priority
- Support Mappings: versions, upgrade, maintenance

Process Integration

- SAP® Business Packages’ message protocol implementation (such as RNIF 2.0 and RNIF 1.1 for CIDX)
- Provision of Collaboration Agreements
- Business Process Management support
Prepackaged Integration Scenarios – RosettaNet

**Design Time**
- PIP’s as Business Scenario in the Integration Repository
- Import of DTDs into the Integration Repository
- Mappings from standard interfaces to application interfaces

**Run Time**
- RNIF 2.0 adapter in the adapter framework

**Config Time**
Collaboration Agreements in the Integration Directory

- Identify PIP – party and service configuration
- Security handling based on party
- Endpoint configuration
- Policy overrides
- RNIF protocol header overrides
- Business Activity Performance controls
Questions??
XI 3.0 Resources

Service Marketplace  http://service.sap.com
- NetWeaver information: alias /netweaver
- XI general information: alias /xi
- XI Roadmap: alias /xi -> XI in Detail -> XI 3.0
- Ramp-Up: alias /rampup

SAP Developer Network  http://sdn.sap.com

- Follow SAP NetWeaver > SAP Exchange Infrastructure
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