

# SAP Exchange Infrastructure

## XI-3.0 Features Overview

**Prasad Illapani**

**SAP Netweaver RIG-XI**

**SAP Labs, LLC., USA**

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 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

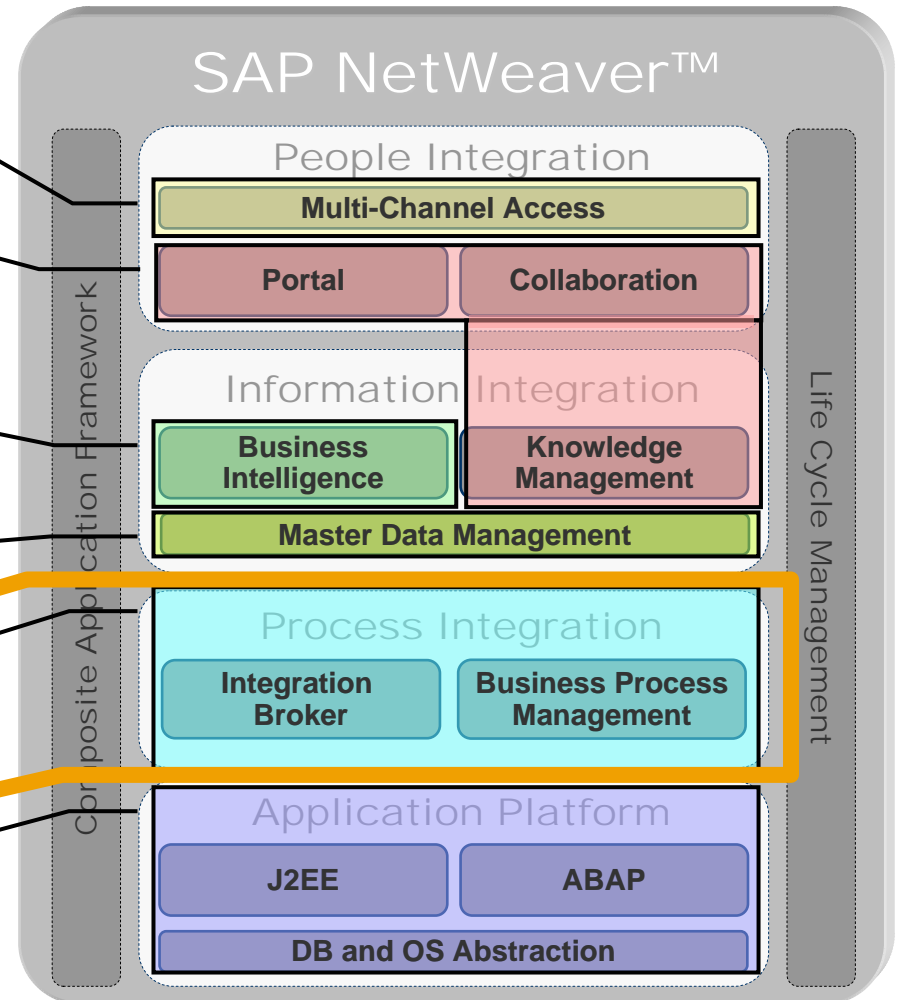
- Centralized Mgmt

## SAP Exchange Infrastructure

- Cross-component business processes
- Shared integration knowledge

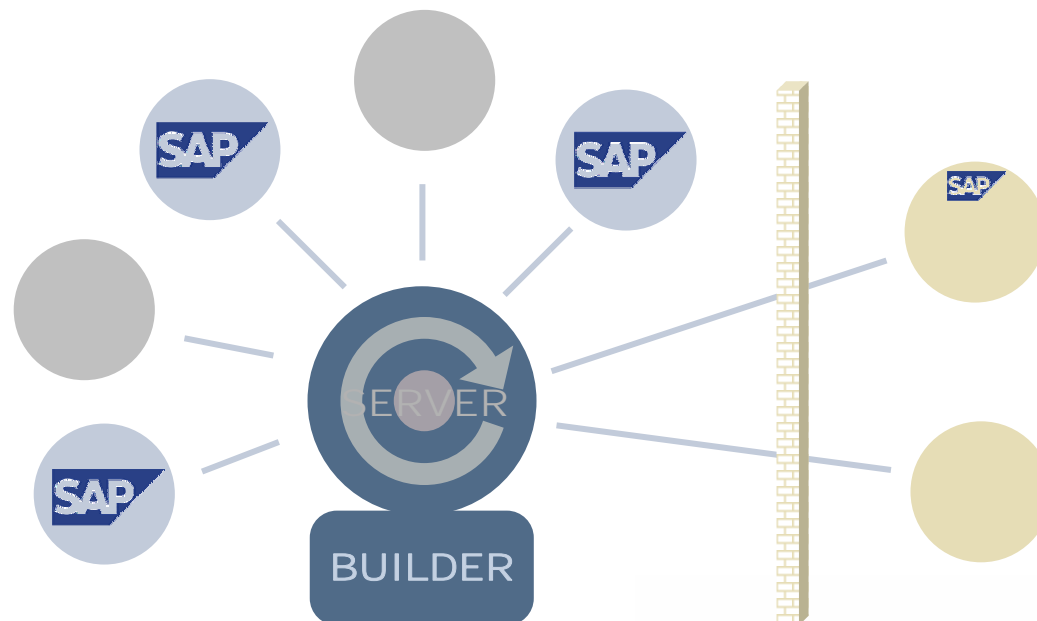
## SAP Web Application Server

- Proven, scalable, comprehensive toolsets
- Leverage existing infrastructure/skillsets



## 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**



## 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)

SAP Exchange Infrastructure XI3.0: Overview

**XI3.0: Architecture & Features**

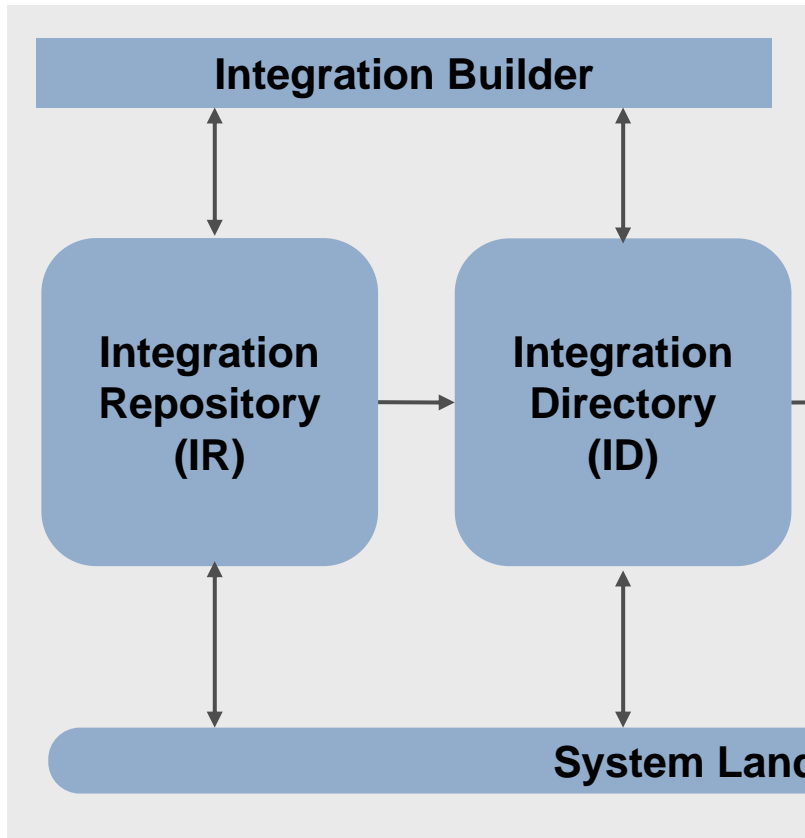
XI3.0: CCBPM & Web Services

XI3.0: Adapter Framework

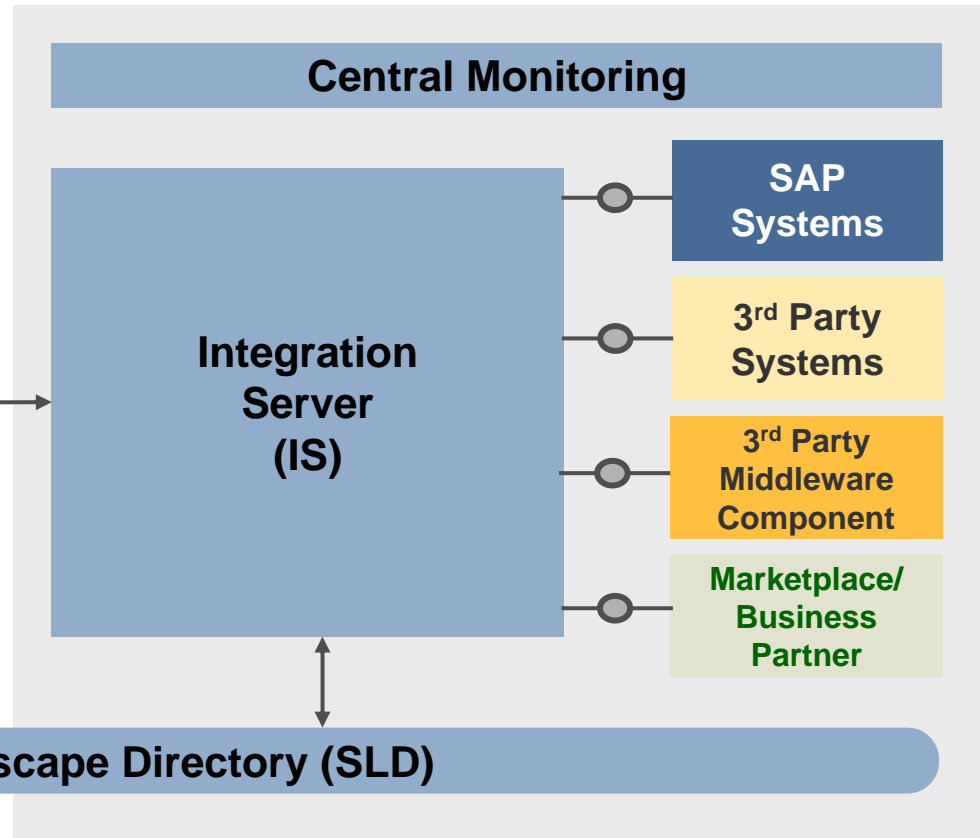
XI3.0: B2B & Industry Standards

XI3.0: Q&A, Resources

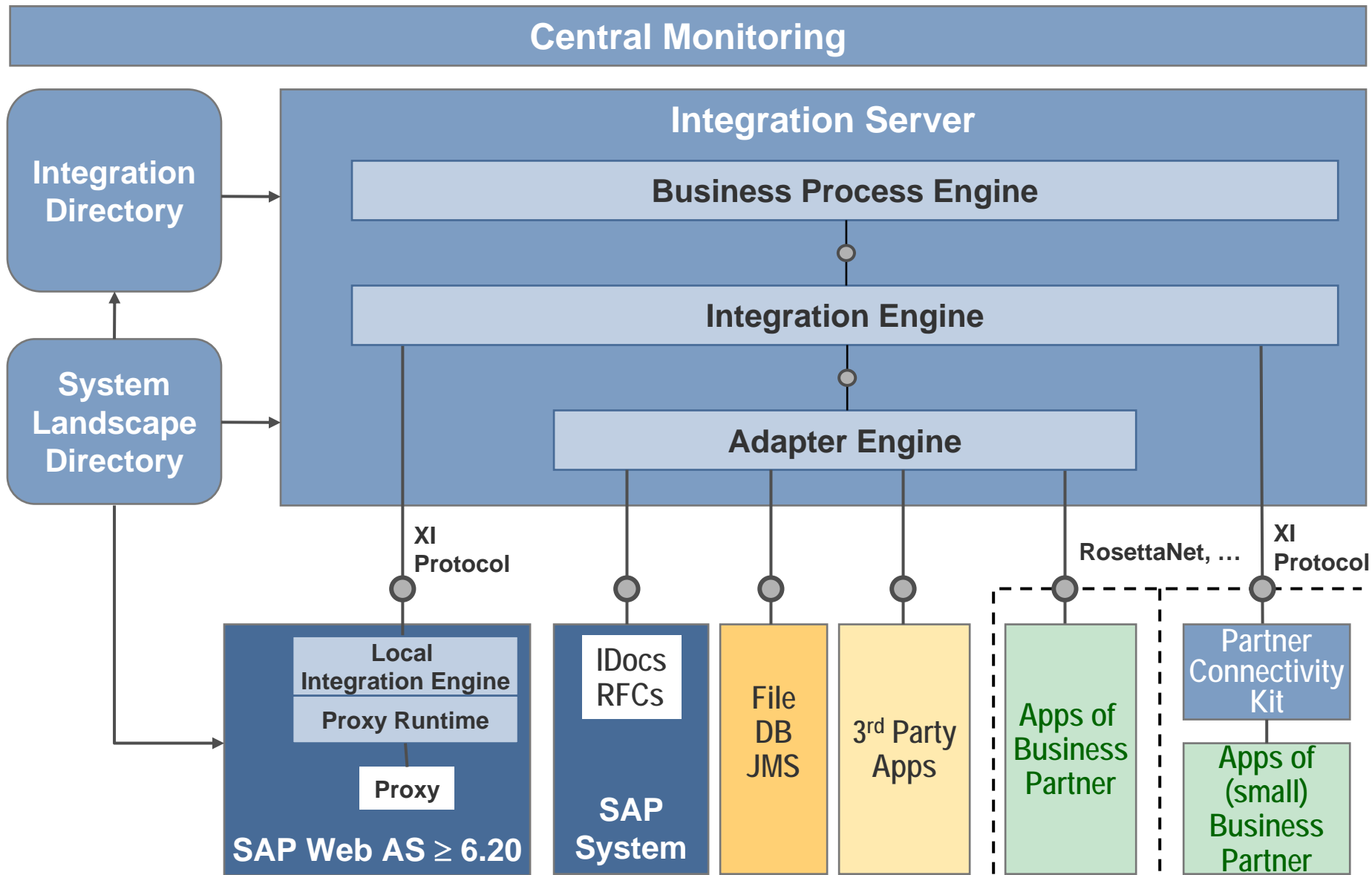
## Shared Collaboration Knowledge



## Execution of Collaborative Business Processes



# XI Architecture - Details





## 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)

## Software Catalog

Search for products and software components.

Software Type:  Display Filter:

Product	Versions
<a href="#">AMC CONNECTOR MESSAGING</a>	<a href="#">1.0</a>
<a href="#">AMC CONNECTOR TELEPHONY</a>	<a href="#">1.0</a>
<a href="#">BP FOR PORTAL USERS</a>	<a href="#">50.1</a>
<a href="#">CRM IPC</a>	<a href="#">2.0A</a> , <a href="#">2.0B</a> , <a href="#">2.0C</a> , <a href="#">3.0</a>
<a href="#">CRM MOBILE</a>	<a href="#">2.0A</a> , <a href="#">2.0B</a> , <a href="#">2.0C</a> , <a href="#">3.0</a>
<a href="#">CRM SERVER</a>	<a href="#">2.0A</a> , <a href="#">2.0B</a> , <a href="#">2.0C</a> , <a href="#">3.0</a> , <a href="#">3.1</a>
<a href="#">DUN&amp;BRADSTREET</a>	<a href="#">D&amp;B 2.1</a>

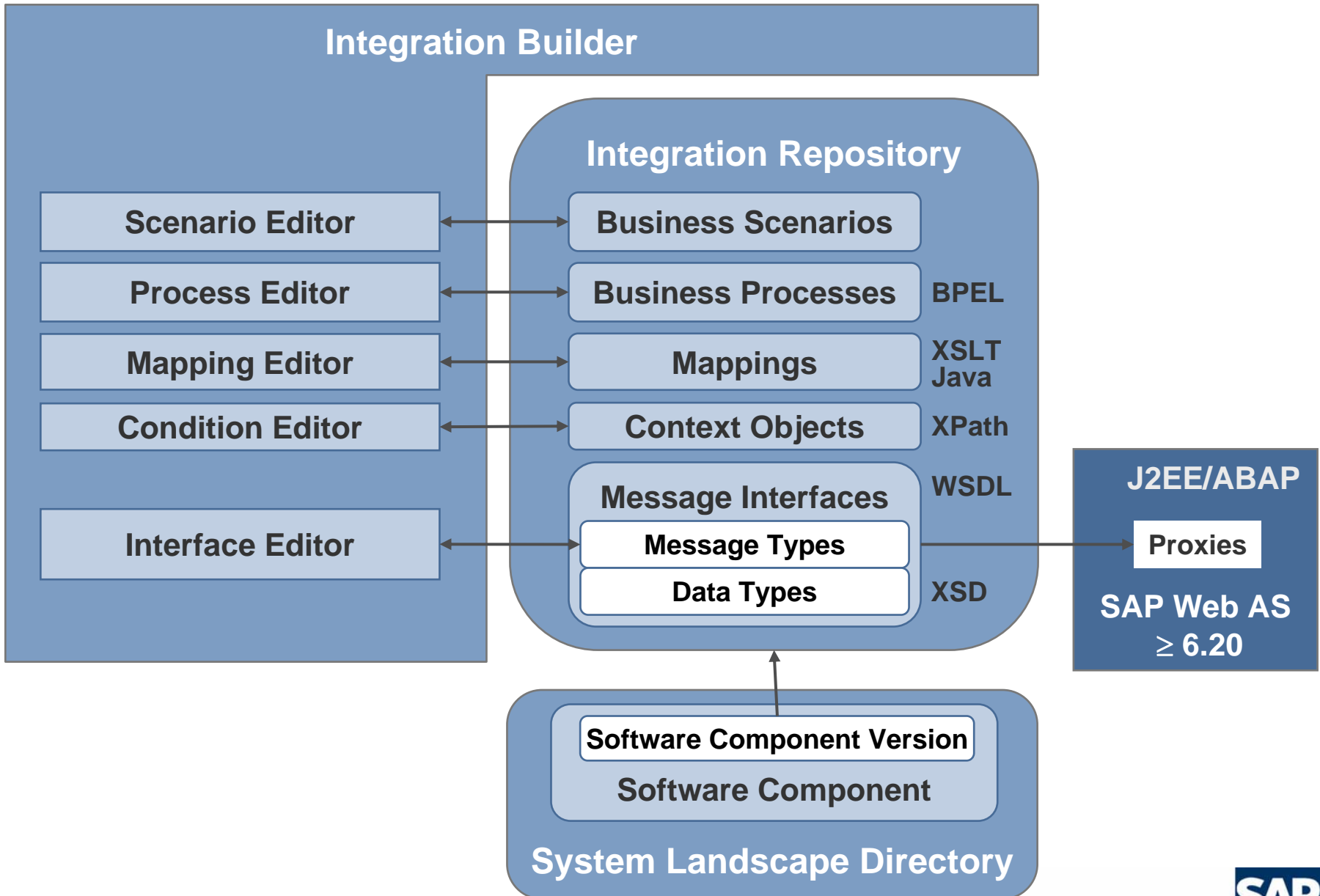
## XI Landscape

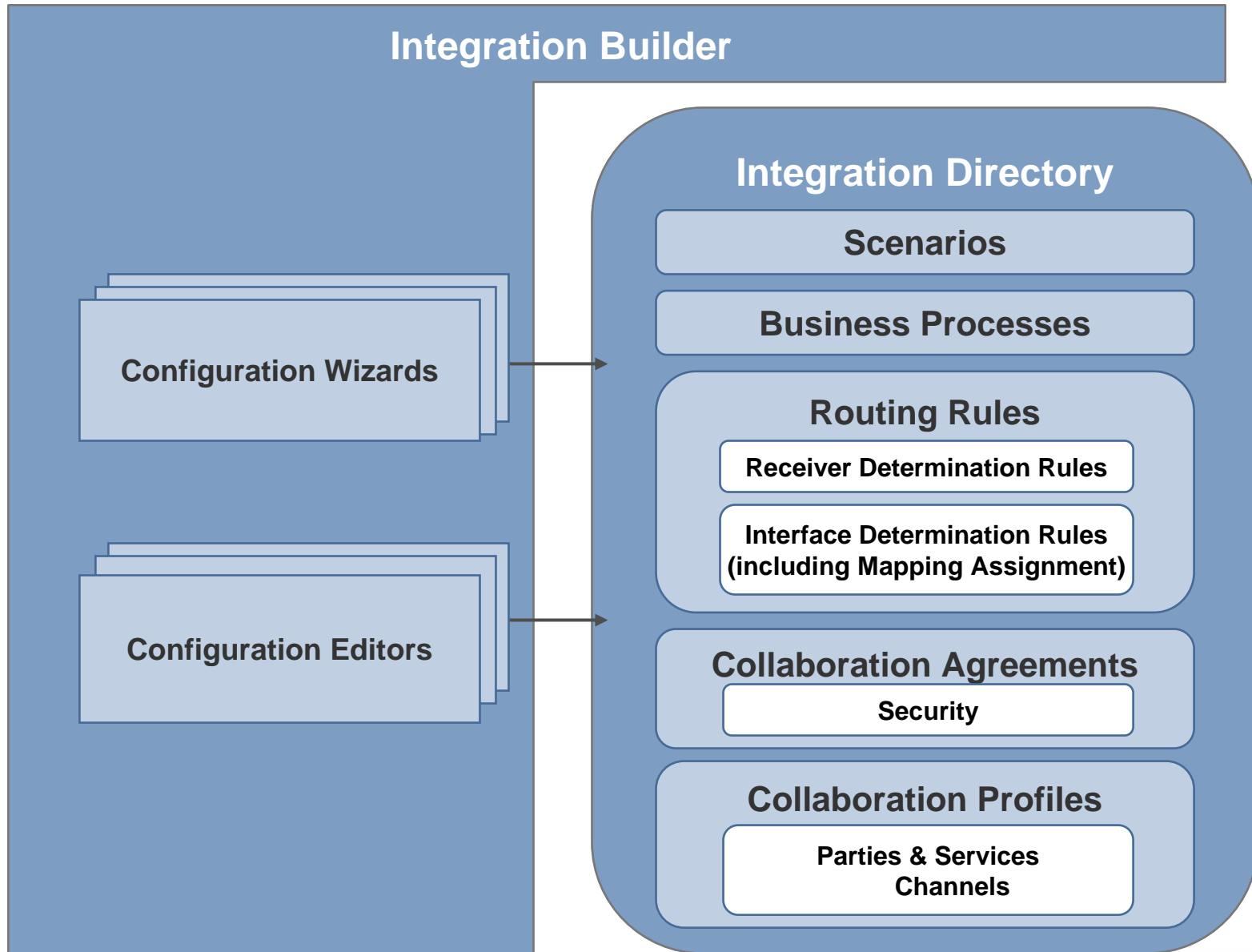
View and configure business systems for use in the Exchange Infrastructure (XI).

System Type:  Group:  Disp

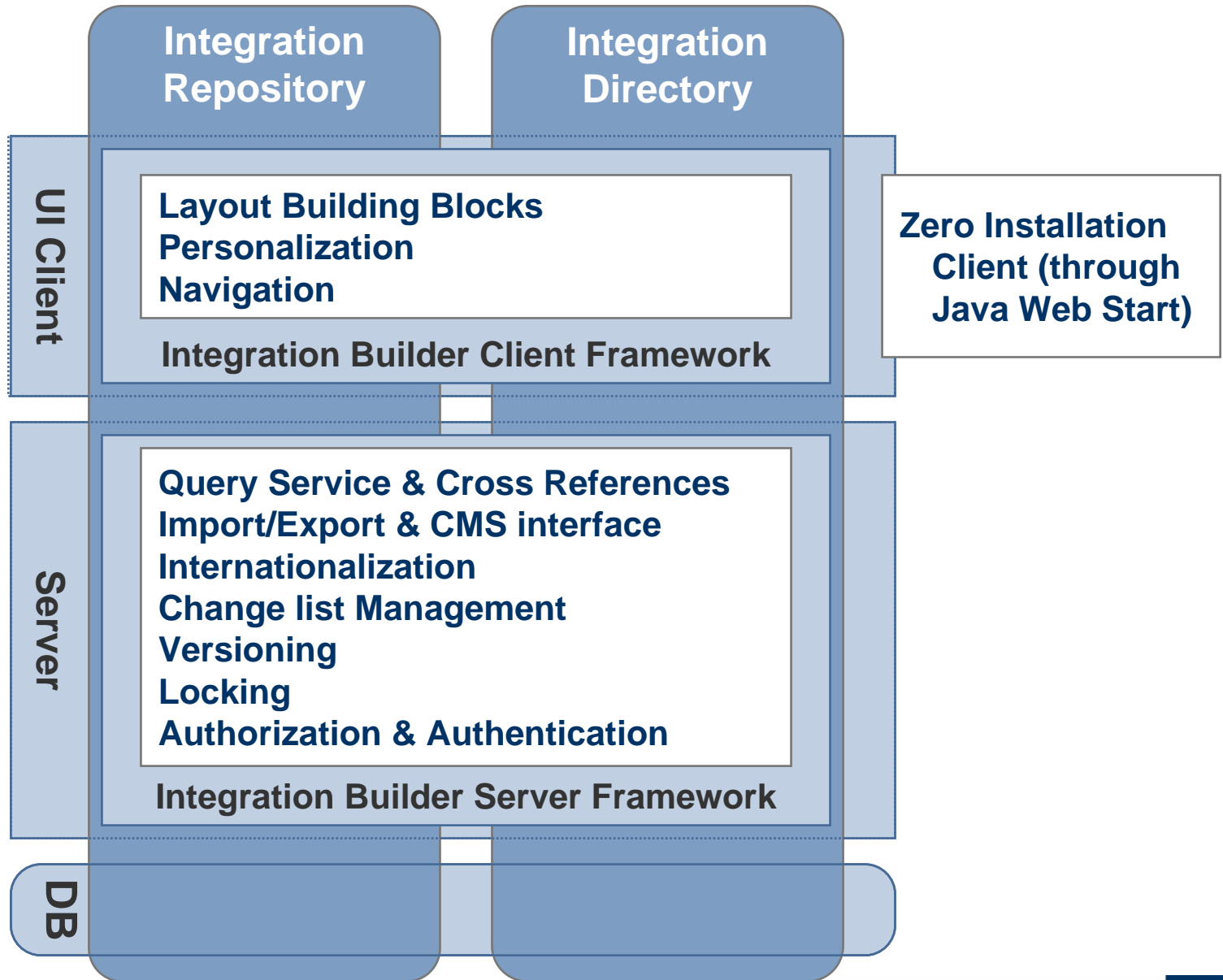
Name	System
<input type="checkbox"/> <a href="#">Airline Group One</a>	RKE on iwdf9075
<input type="checkbox"/> <a href="#">Airline Group Two</a>	RKE on iwdf9075
<input type="checkbox"/> <a href="#">Integration Server RKE800</a>	RKE on iwdf9075
<input type="checkbox"/> <a href="#">Training</a>	RKE on iwdf9075
<input type="checkbox"/> <a href="#">Travel Agency Summer</a>	RKE on iwdf9075

# Integration Builder – Design Time

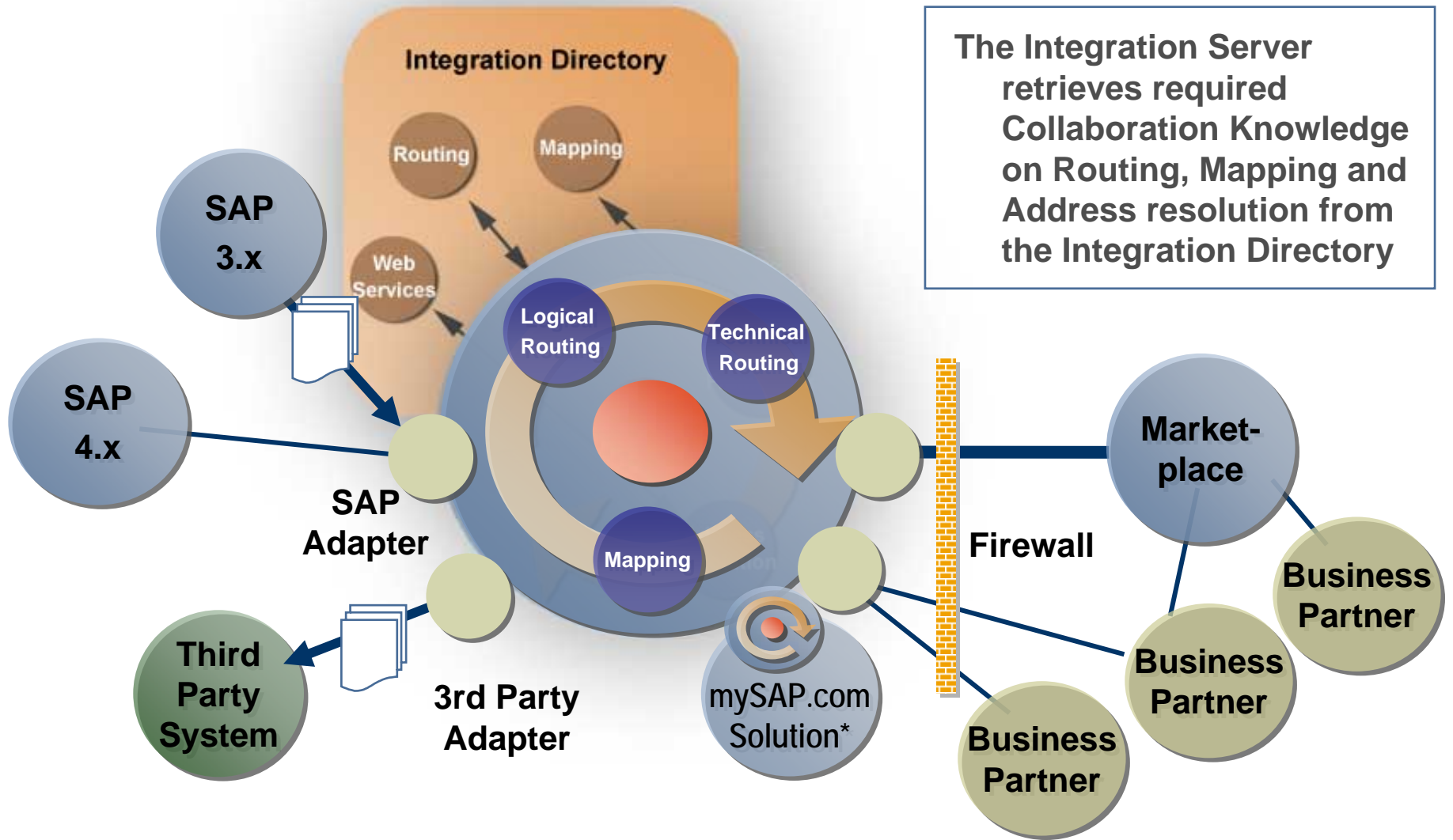




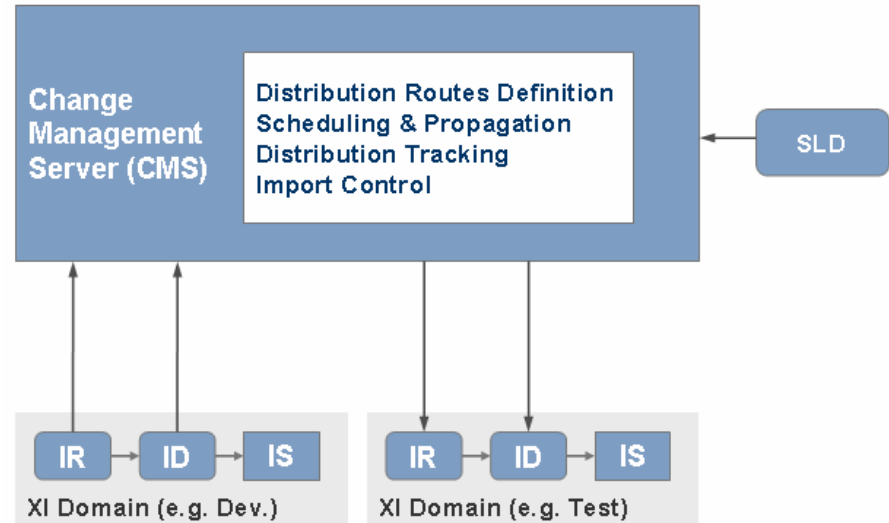
# Integration Builder – Generic Functions



# Message Flow Within the Integration Server



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)

## **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

XI Domäne domain.05.Is0045 27.11.2003 08:50:11 -

### Prozessübersicht

Prozessübersicht  Instanzsicht [Hilfe](#)

XI Domäne domain.05.Is0045 27.11.2003 08:50:11

Es sind Fehler aufgetreten

### Statistikdaten

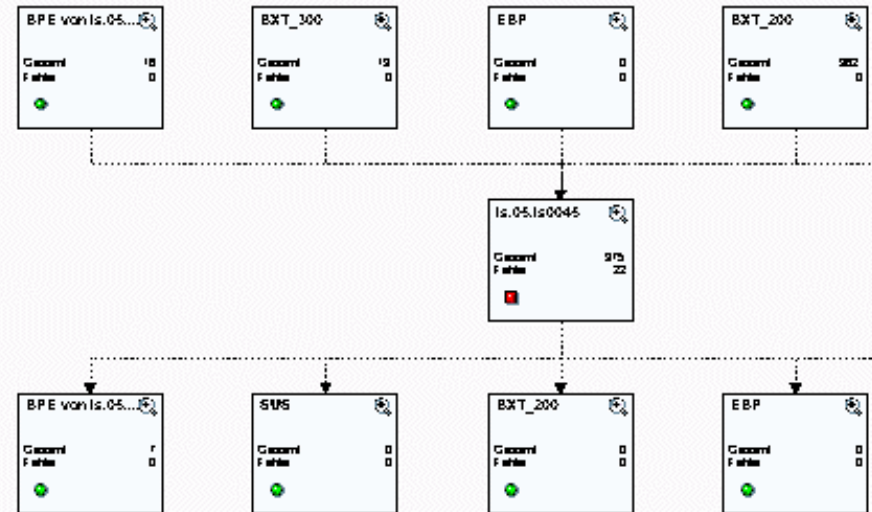
Gesamt	<a href="#">391</a>	Durchschnitt	<a href="#">24 Min. 18,28 Sek.</a>
Offen	<a href="#">136</a>	Maximum	<a href="#">1 Std. 14 Min. 2,30 Sek.</a>
Beendet	<a href="#">236</a>	Minimum	<a href="#">2,08 Sek.</a>
Fehlerhaft	<a href="#">19</a>		

### Einstellungen

Es sind Meldungen über das Prozessmonitoring vorhanden

Monitoring eingeschaltet seit 27.11.2003 17:13:42  
Letzte Aktualisierung 28.11.2003 12:18:55

[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

SAP Exchange Infrastructure XI3.0: Overview

XI3.0: Architecture & Features

XI3.0: CCBPM & Web Services

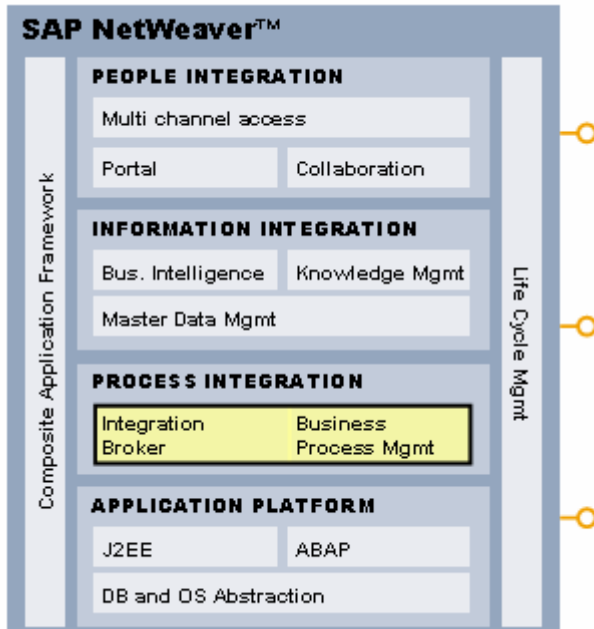
XI3.0: Adapter Framework

XI3.0: B2B & Industry Standards

XI3.0: Q&A, Resources

## 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**

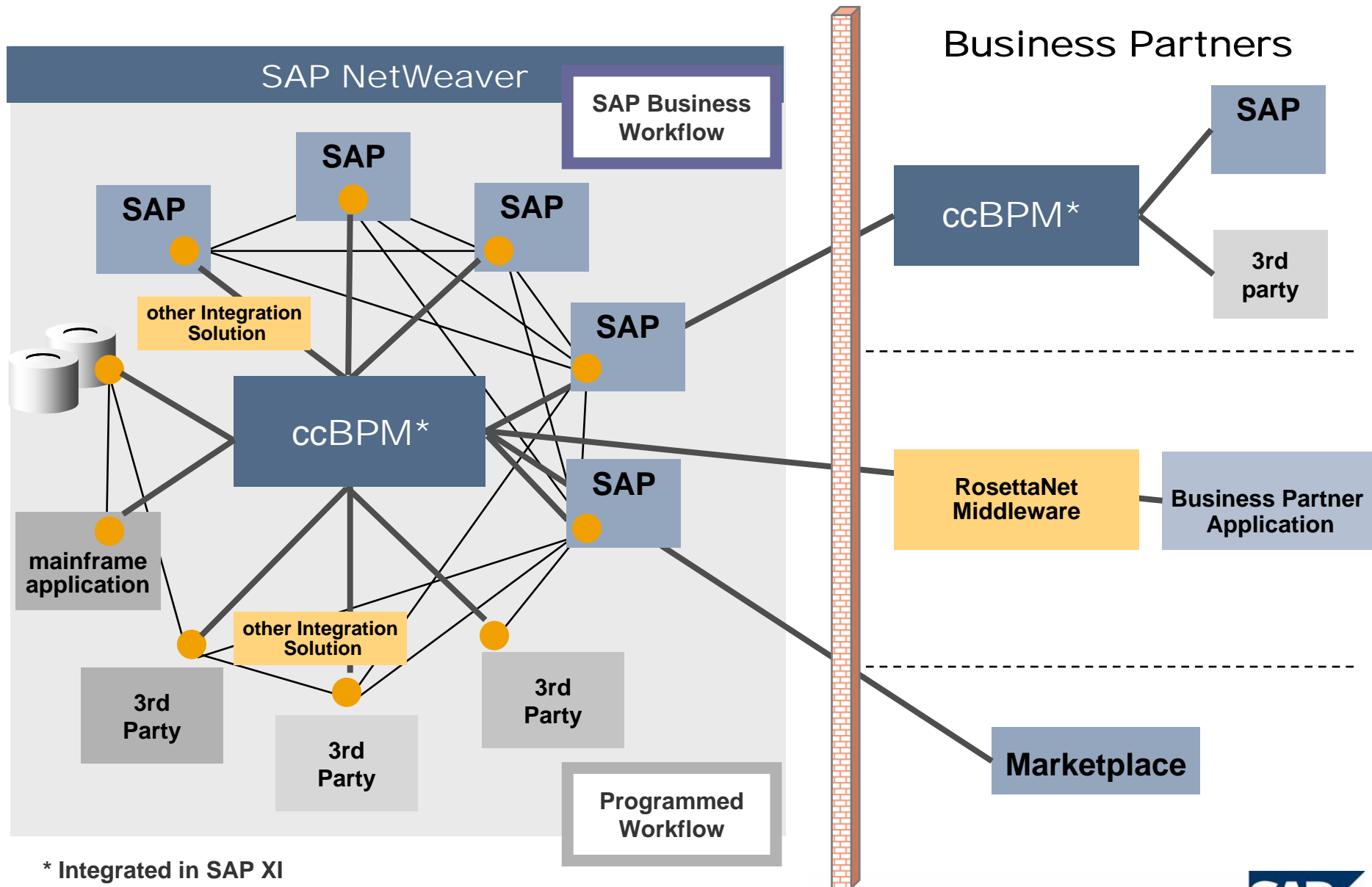
## Cross-Component BPM

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

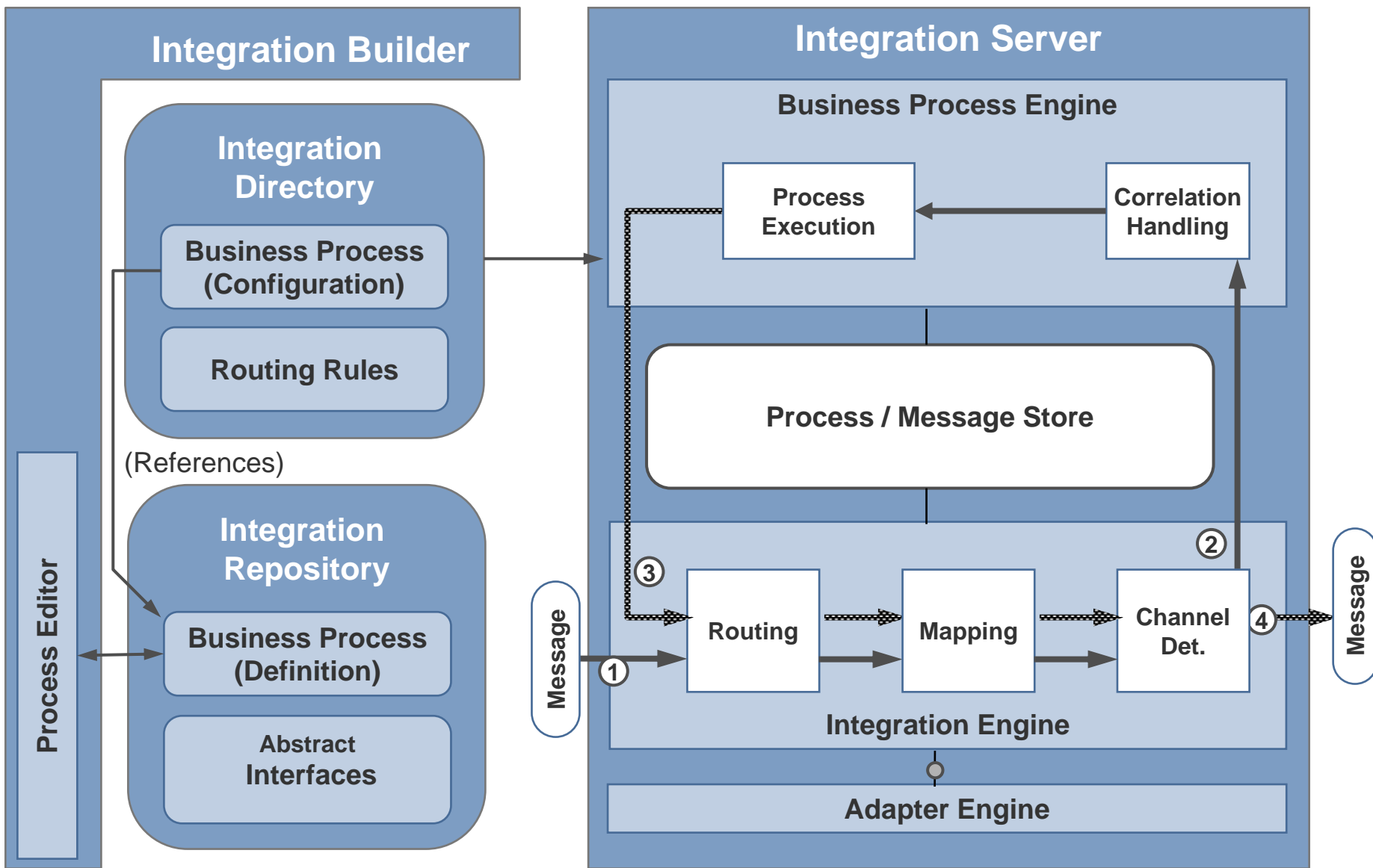
## Business Workflow

- **Design, execute and monitor processes within applications**
- **Apply standard business rules**
- **Business events**
- **Human interaction**

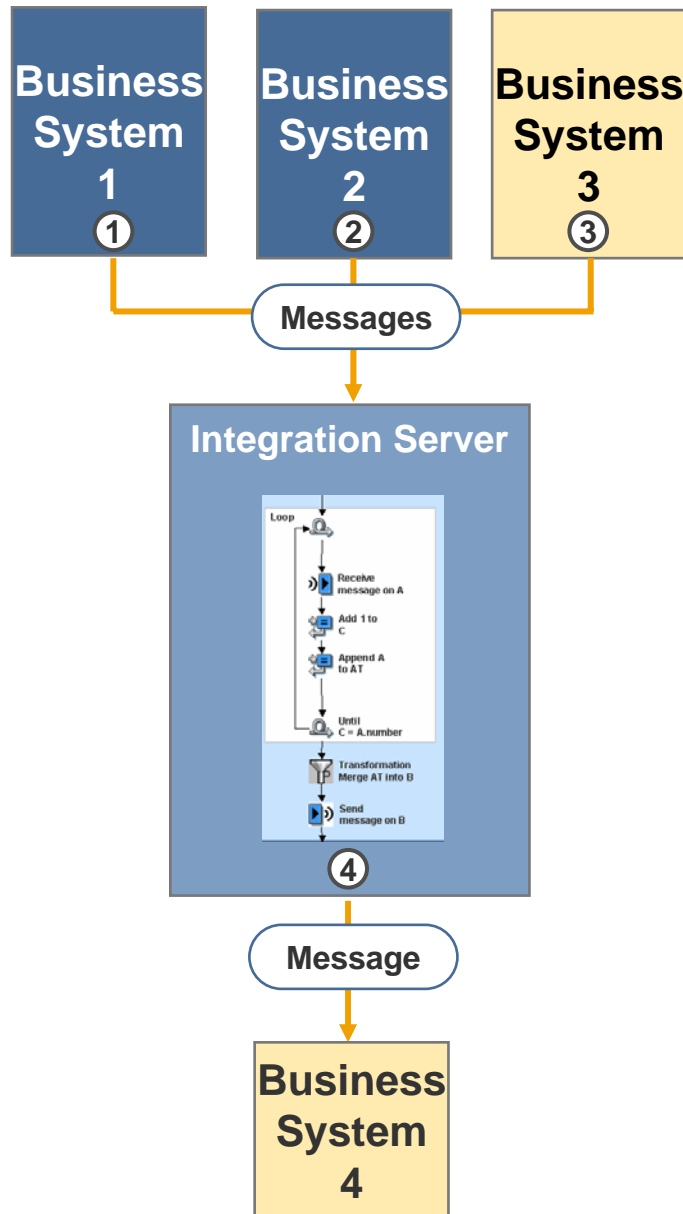
# Cross-Component BPM with SAP XI 3.0



# Cross-Component BPM Architecture - Overview



# Cross-Component Business Process Management



**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**

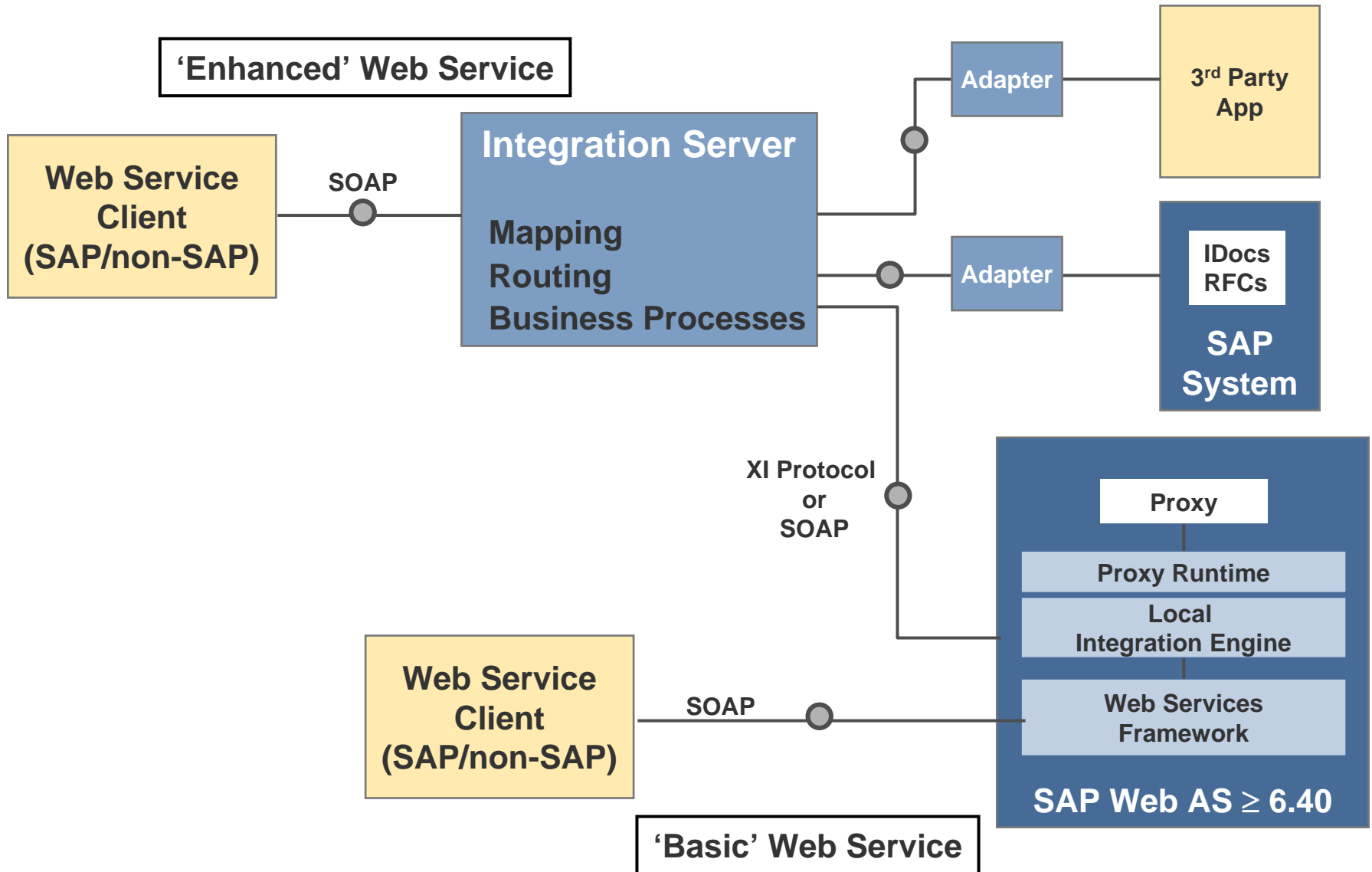
## Routing and Mapping

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

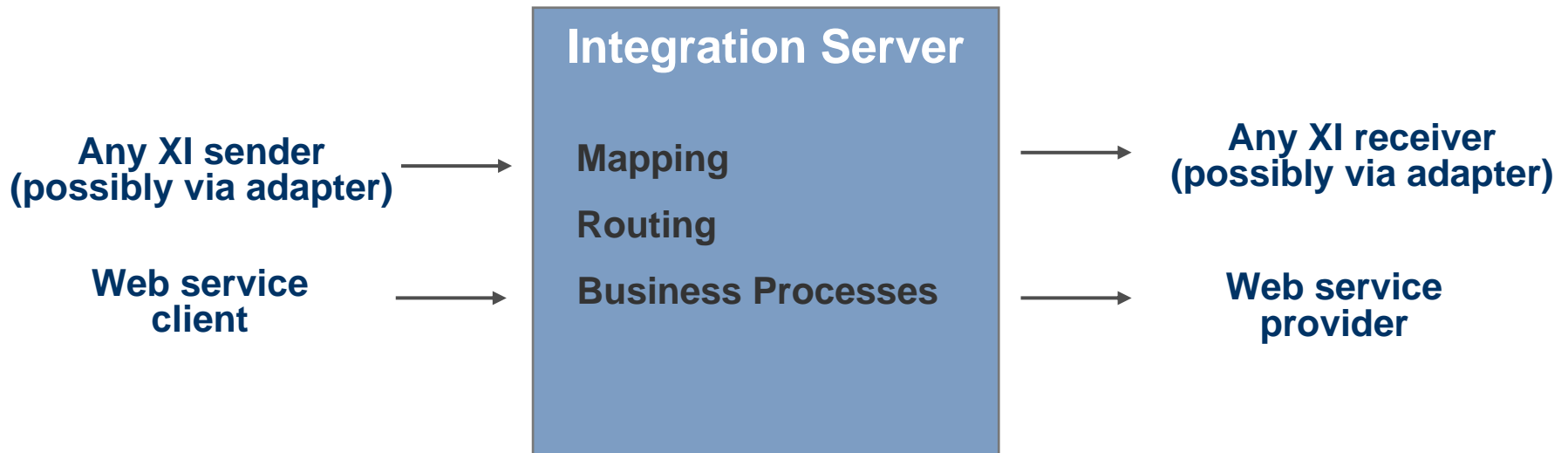
## BPM runtime extends Business Workflow runtime

- **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





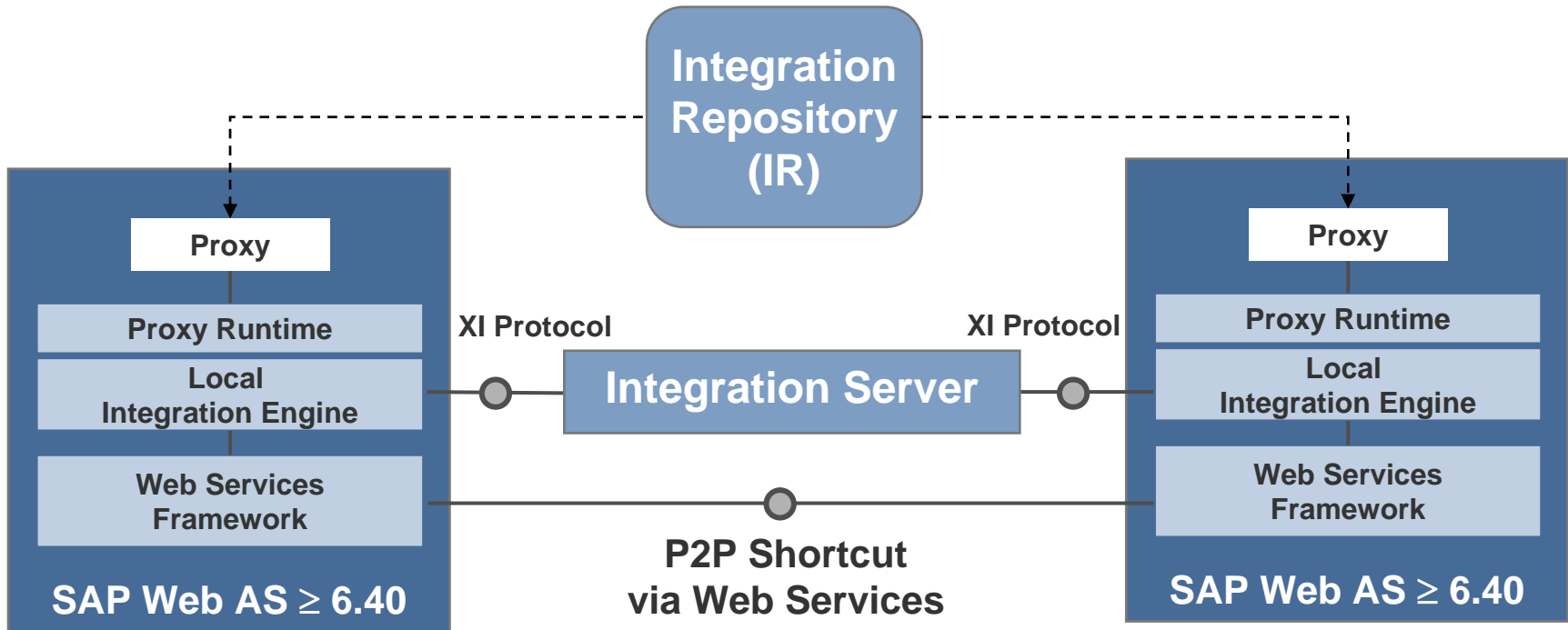


## Ability to go beyond Web Services and provide Enterprise Services

- 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**

# Web Services – What XI Adds To The Picture



## 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

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

## **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**

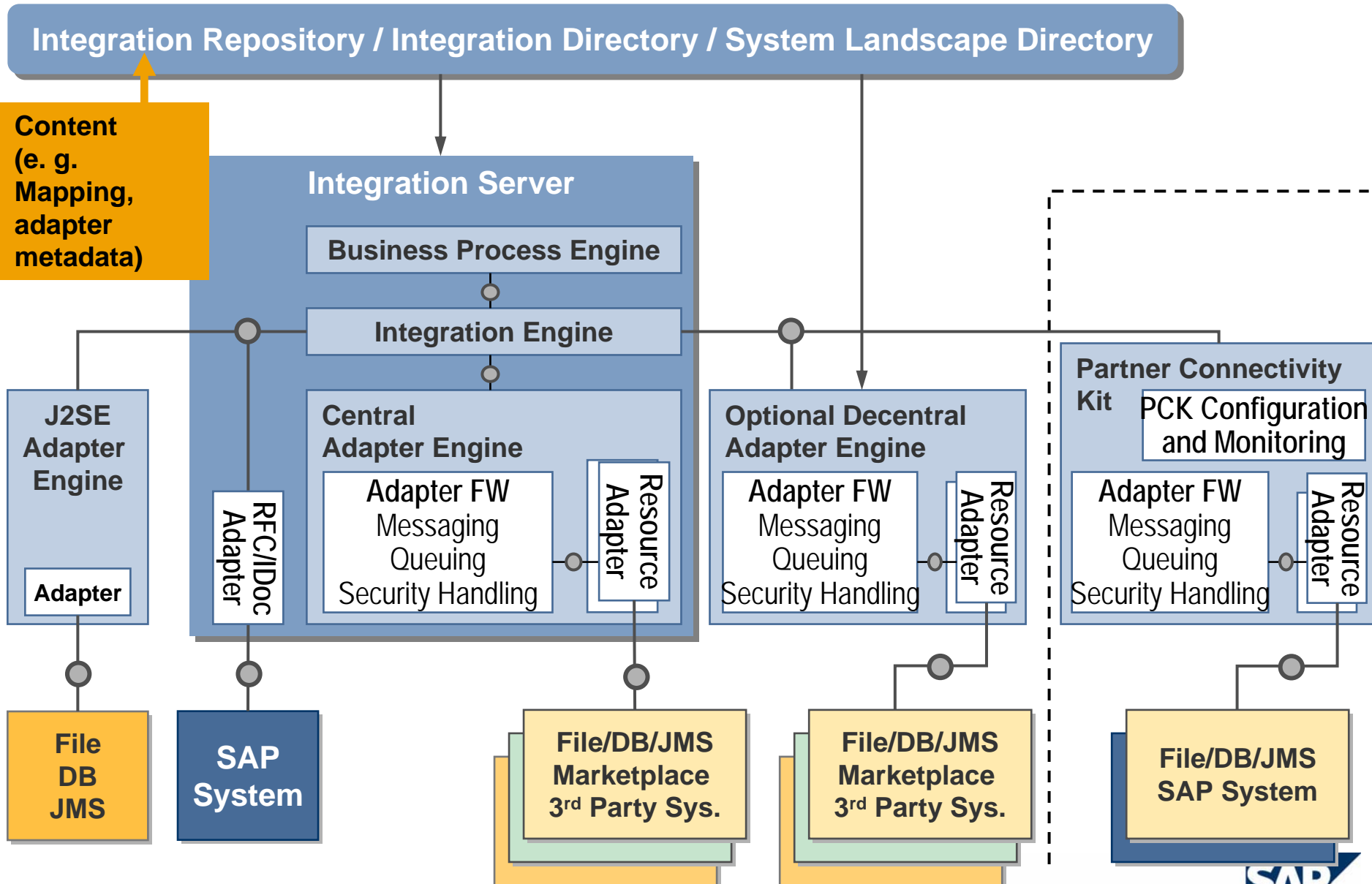
- **Reduced TCO, no separate runtime required**

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

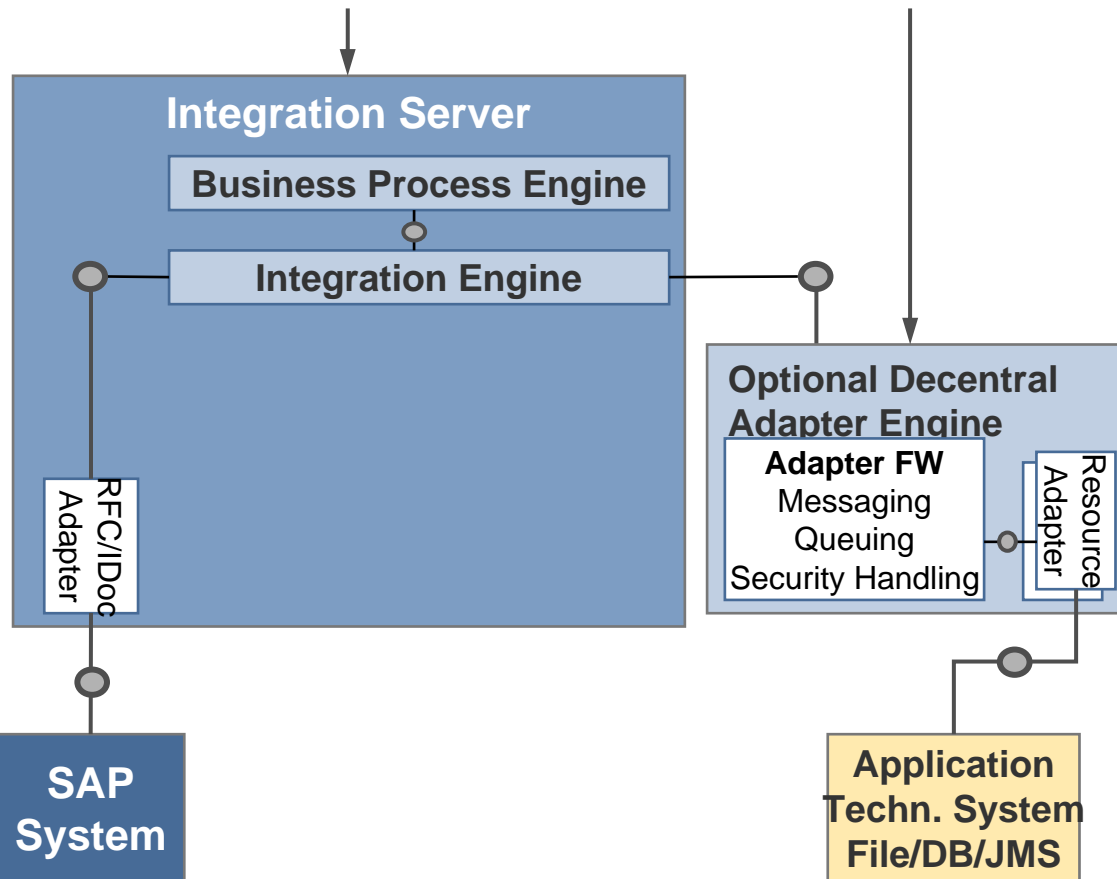
## **Central Adapter configuration**

## **SAP NetWeaver Certification of 3<sup>rd</sup> party adapters based on the JCA Adapter Framework**

# SAP XI 3.0 Adapter Framework Architecture



# 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 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 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**



SAP Exchange Infrastructure XI3.0: Overview

XI3.0: Architecture & Features

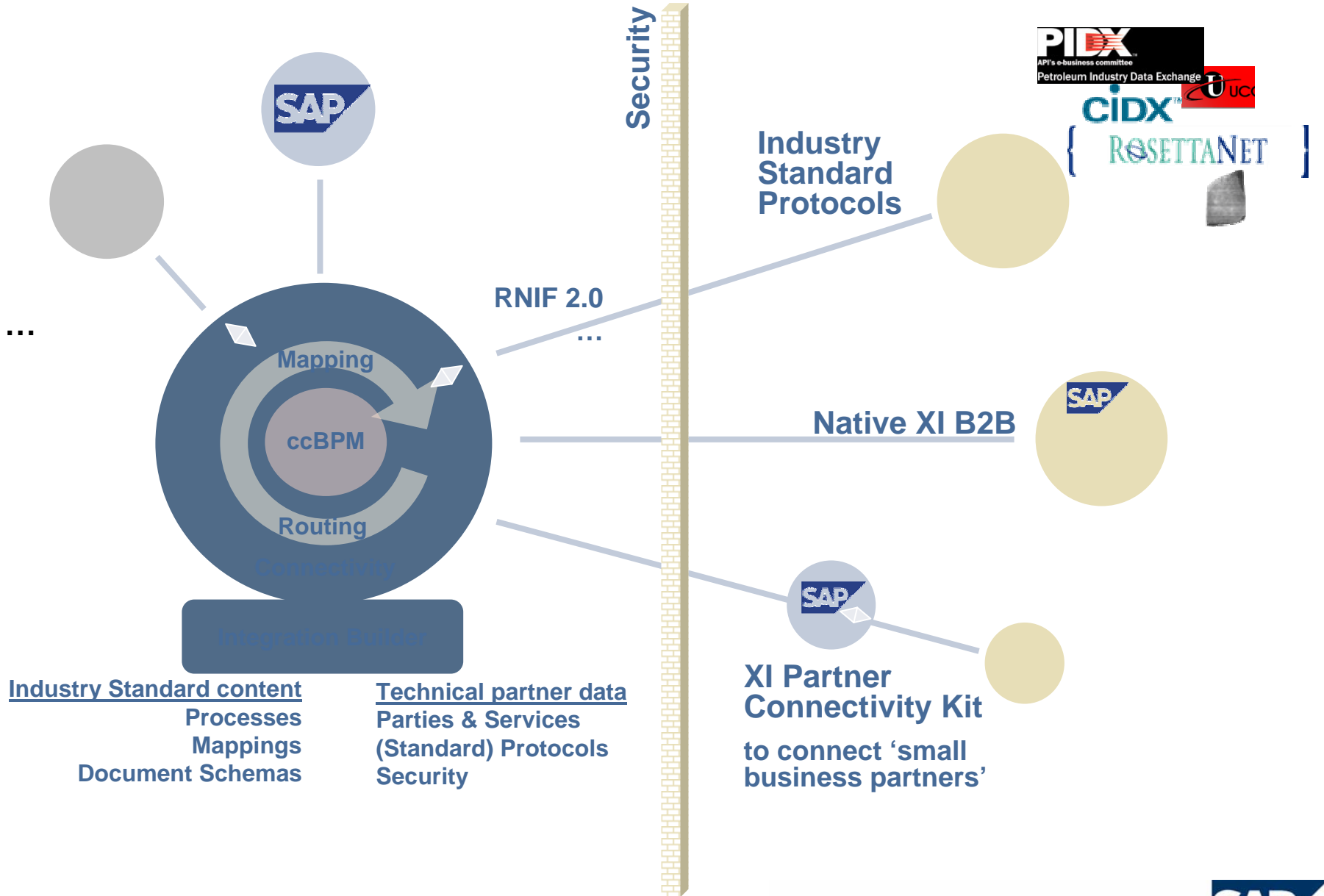
XI3.0: CCBPM & Web Services

XI3.0: Adapter Framework

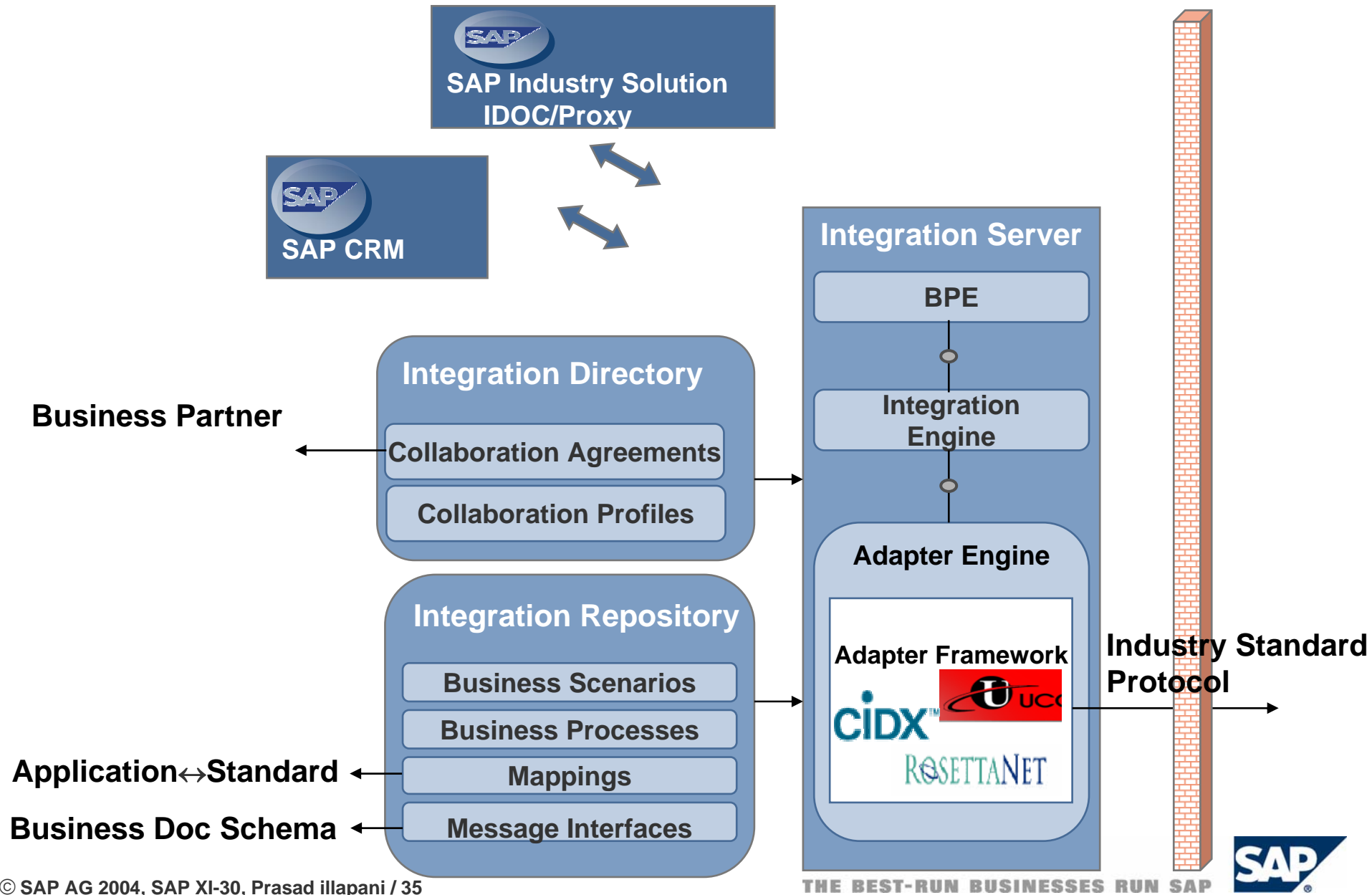
XI3.0: B2B & Industry Standards

XI3.0: Q&A, Resources

# B2B and Industry Standards



# SAP XI3.0 Provides Industry Standards Support



**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**

## 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

Config Time  
Collaboration  
Agreements in the  
Integration Directory

## Run Time

RNIF 2.0 adapter in the  
adapter framework

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



# Questions??

→ 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>

→ SAP Help Portal <http://help.sap.com/>

- **Follow SAP NetWeaver > SAP Exchange Infrastructure**

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP AG. The information contained herein may be changed without prior notice.

Some software products marketed by SAP AG and its distributors contain proprietary software components of other software vendors.

Microsoft®, WINDOWS®, NT®, EXCEL®, Word®, PowerPoint® and SQL Server® are registered trademarks of Microsoft Corporation.

IBM®, DB2®, DB2 Universal Database, OS/2®, Parallel Sysplex®, MVS/ESA, AIX®, S/390®, AS/400®, OS/390®, OS/400®, iSeries, pSeries, xSeries, zSeries, z/OS, AFP, Intelligent Miner, WebSphere®, Netfinity®, Tivoli®, Informix and Informix® Dynamic Server™ are trademarks of IBM Corporation in USA and/or other countries.

ORACLE® is a registered trademark of ORACLE Corporation.

UNIX®, X/Open®, OSF/1®, and Motif® are registered trademarks of the Open Group.

Citrix®, the Citrix logo, ICA®, Program Neighborhood®, MetaFrame®, WinFrame®, VideoFrame®, MultiWin® and other Citrix product names referenced herein are trademarks of Citrix Systems, Inc.

HTML, DHTML, XML, XHTML are trademarks or registered trademarks of W3C®, World Wide Web Consortium, Massachusetts Institute of Technology.

JAVA® is a registered trademark of Sun Microsystems, Inc.

JAVASCRIPT® is a registered trademark of Sun Microsystems, Inc., used under license for technology invented and implemented by Netscape.

MarketSet and Enterprise Buyer are jointly owned trademarks of SAP AG and Commerce One.

SAP, SAP Logo, R/2, R/3, mySAP, mySAP.com and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP AG in Germany and in several other countries all over the world. All other product and service names mentioned are trademarks of their respective companies.