SAP's Exchange Infrastructure

Interoperability Summit

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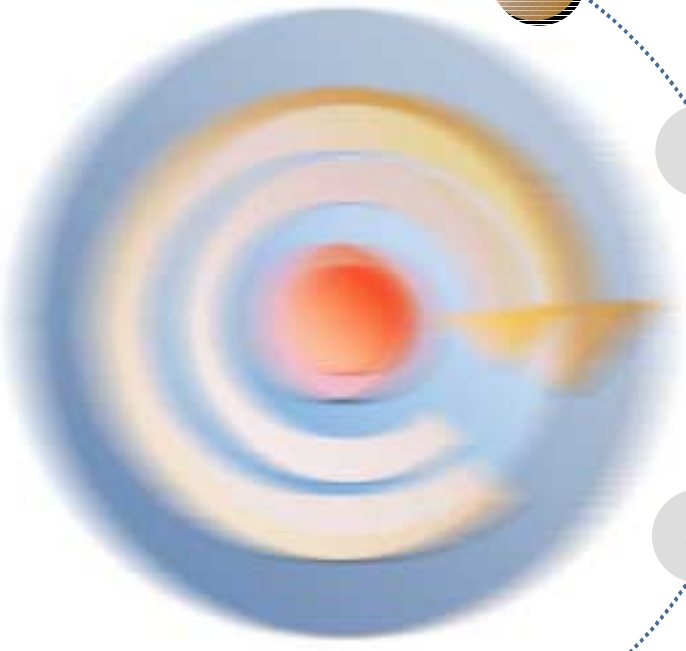
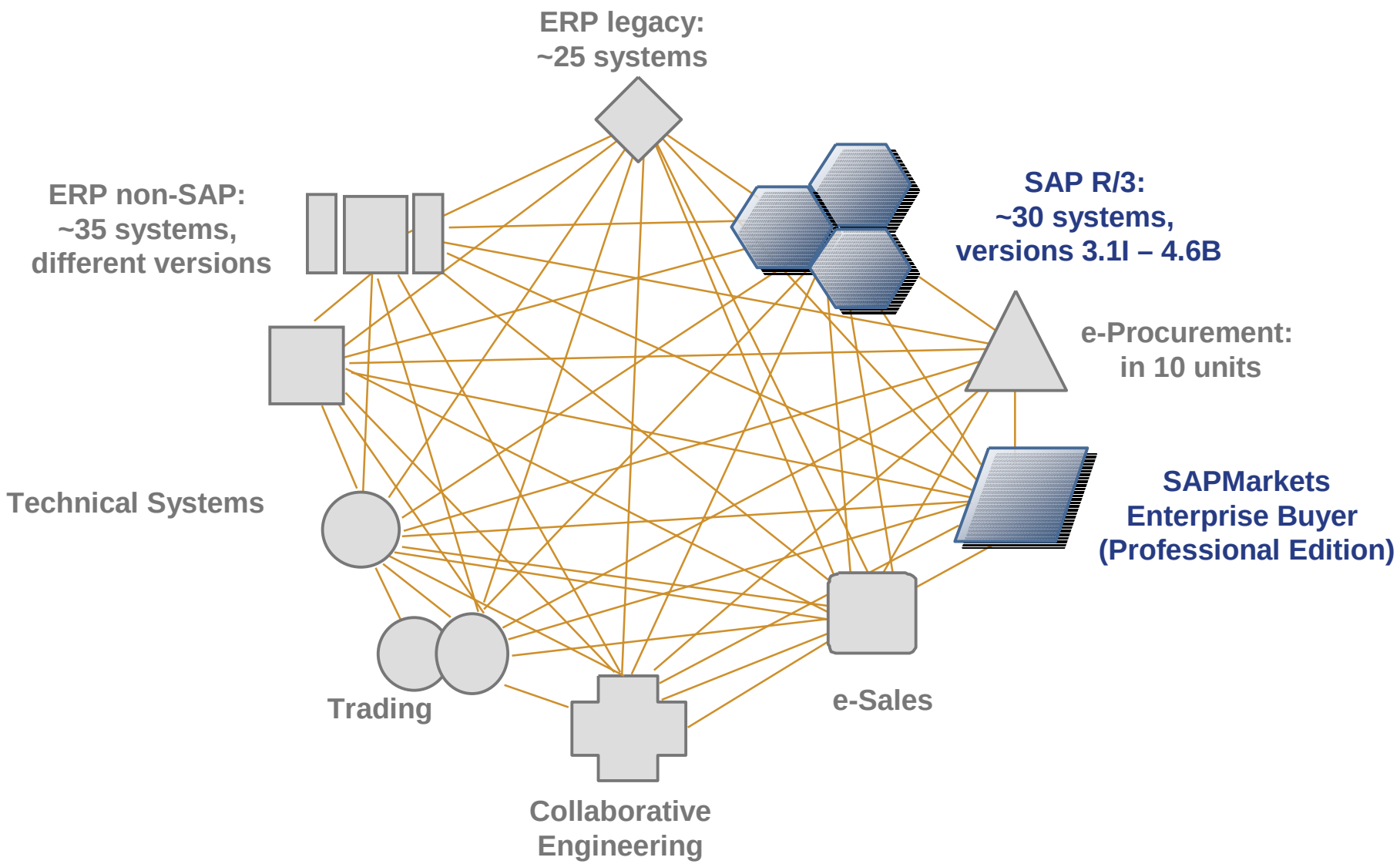
Content

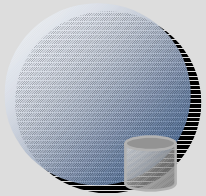


The Customers Integration Landscape



Historical Development

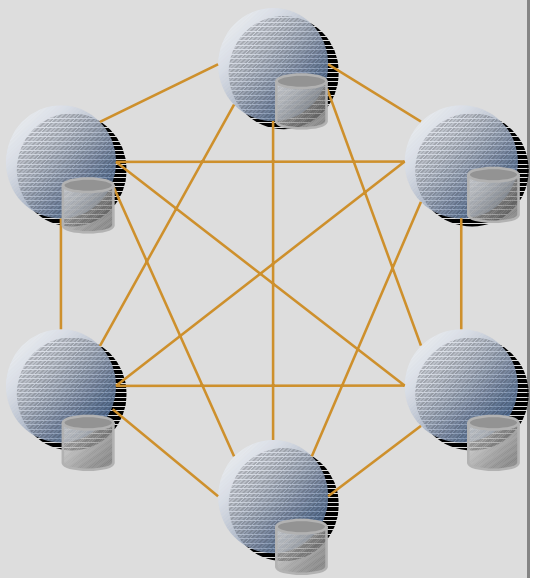
Enterprise Resource Planning



Database Integration

Integration by single centralized data model

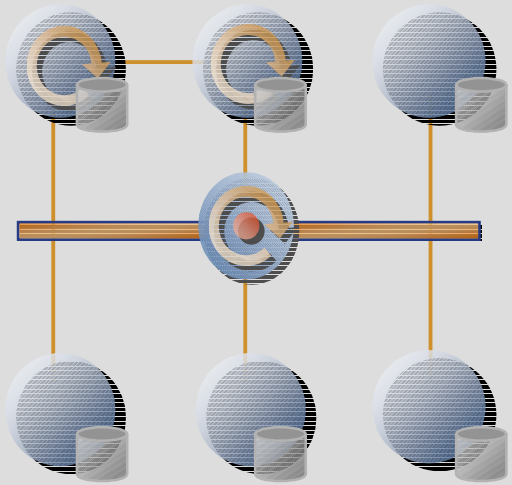
Inter-/Intra-Enterprise Co-operation



Direct Connections

Integration nightmare Exponentially growing complexity

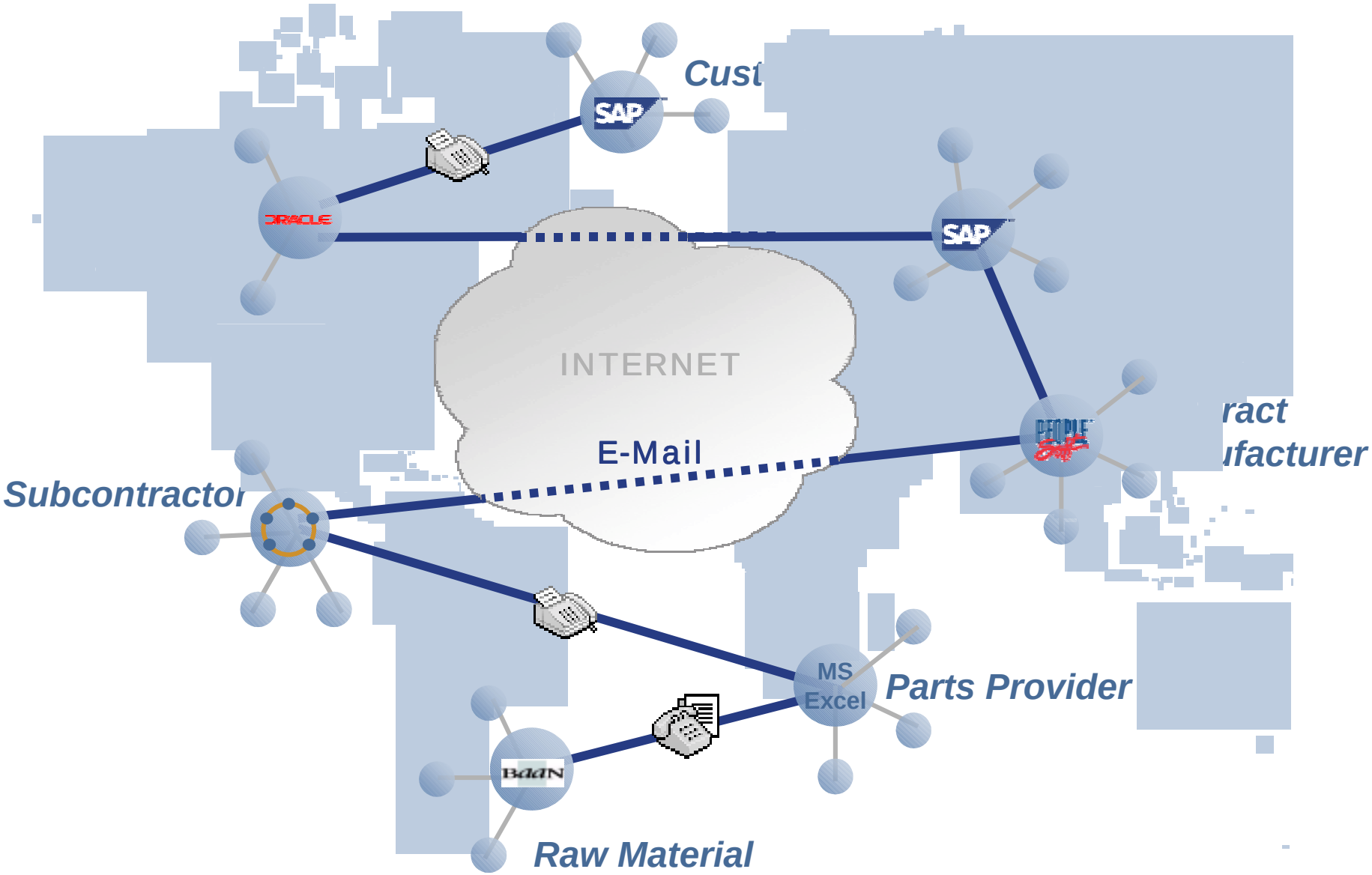
Collaborative Business



Integration Engine & Bus Infrastructure

Shared central knowledge, Small number of peer-to-peer connections

The Networked Economy



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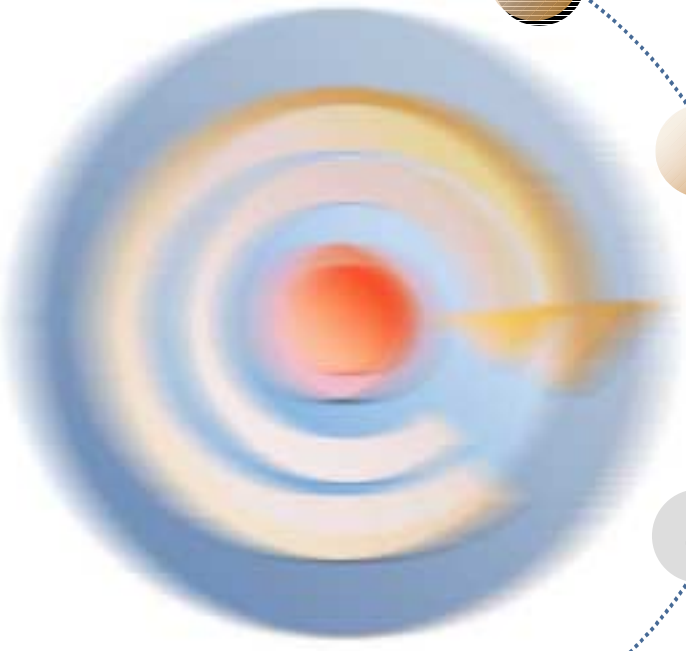
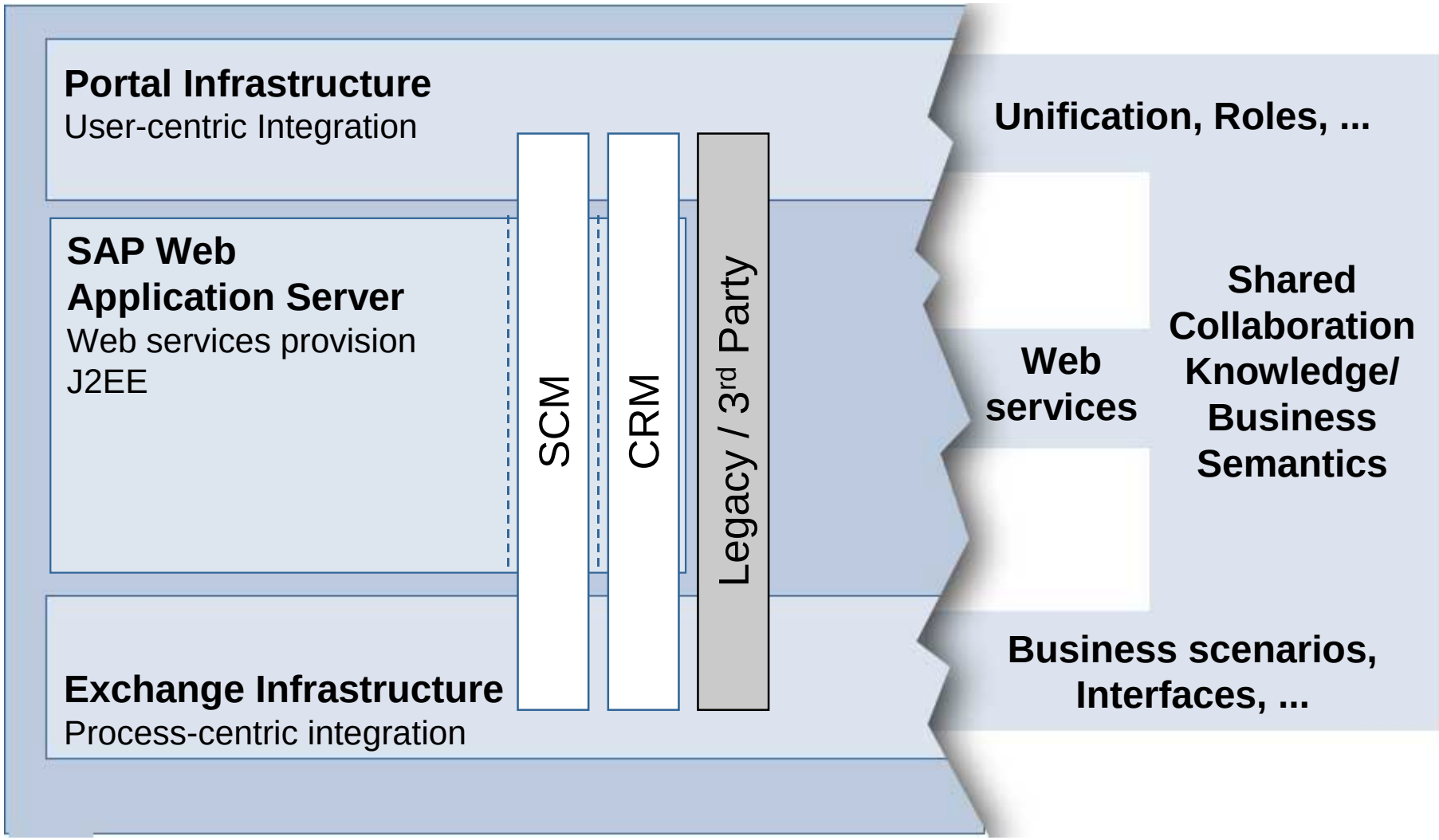
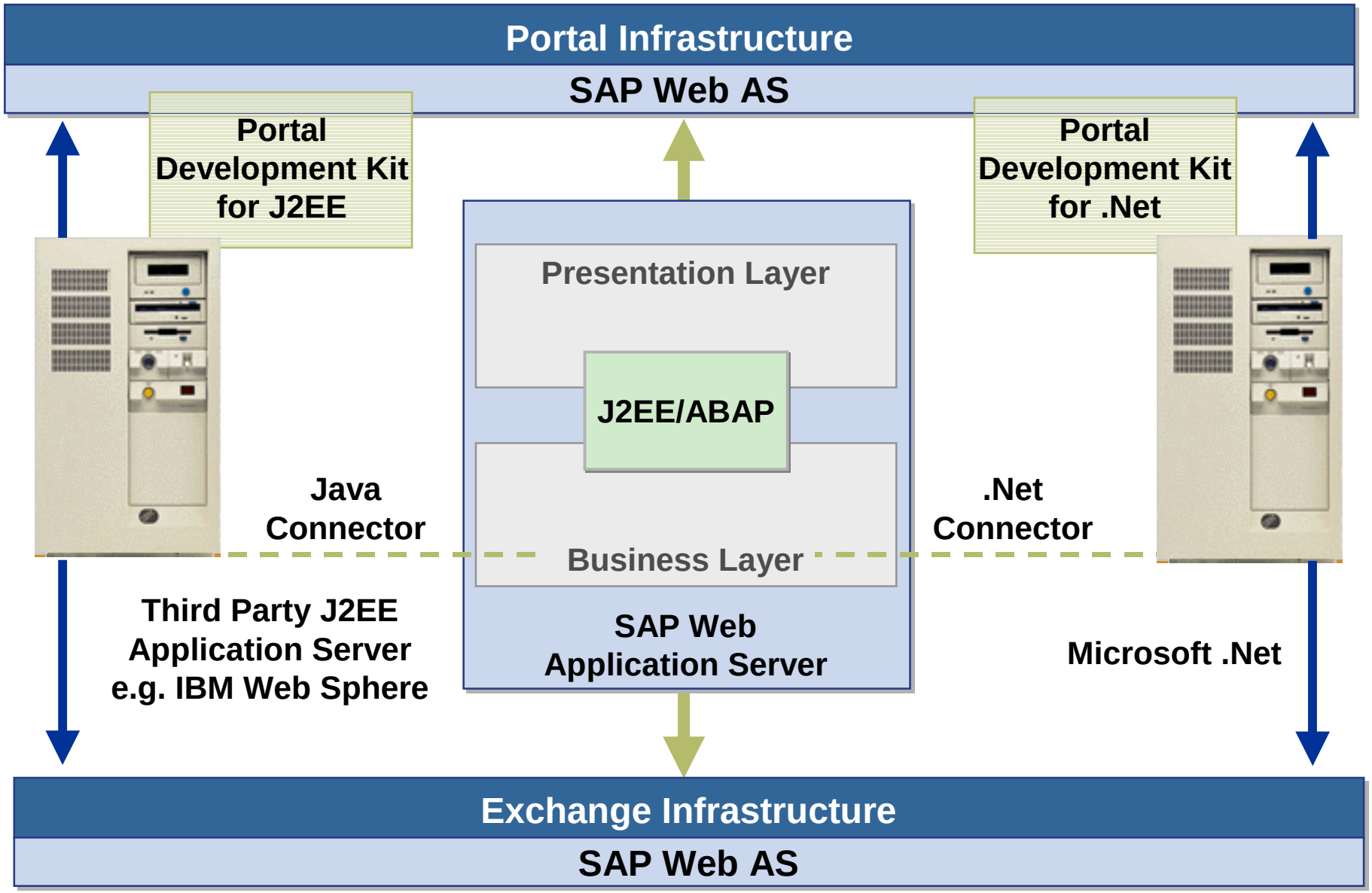


Open E-Business Integration



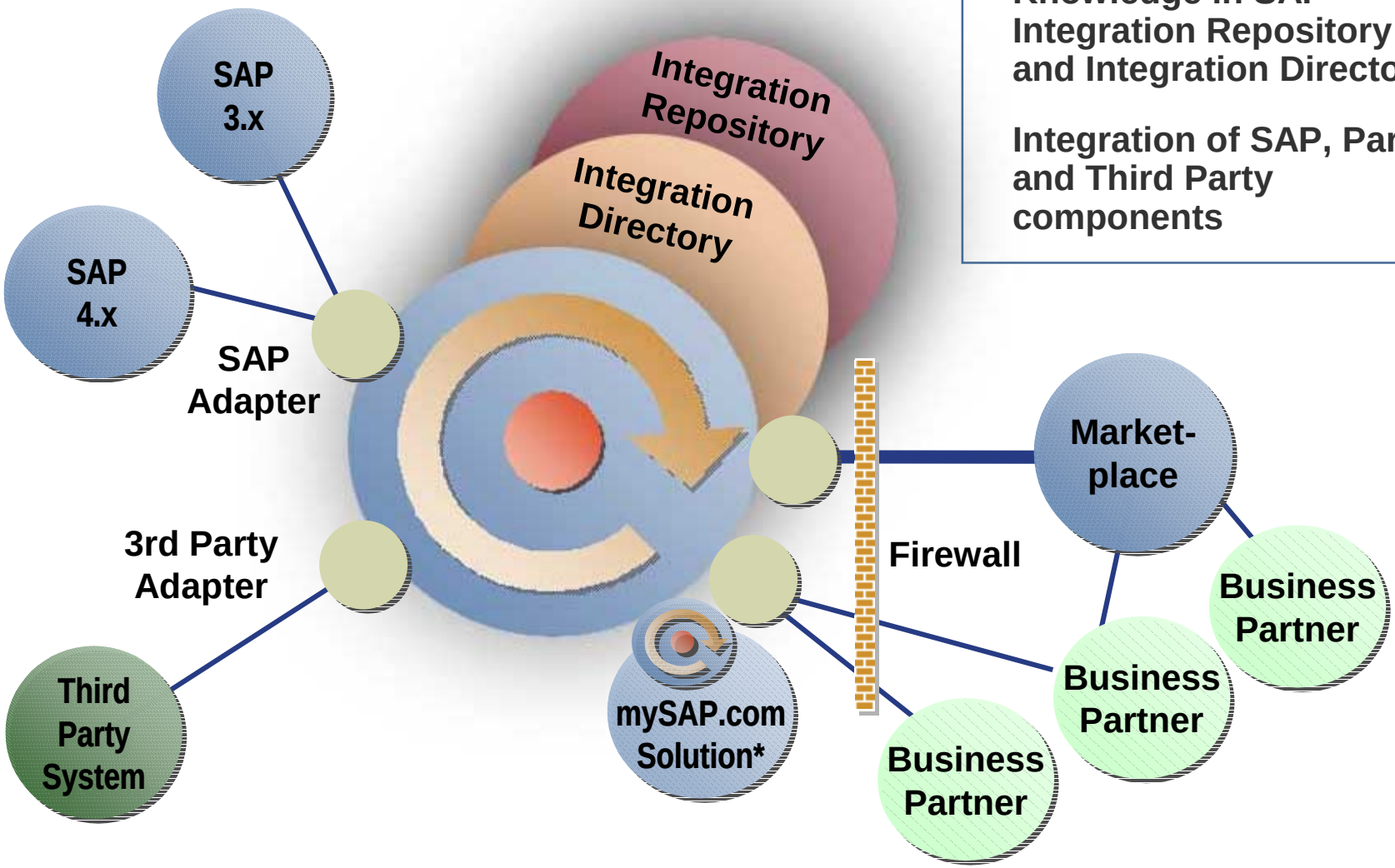
Web Application Server – The Integration Infrastructure



Exchange Infrastructure – Overview

Shared Integration Knowledge in SAP Integration Repository and Integration Directory

Integration of SAP, Partner and Third Party components



* based on SAP Web Application Server 6.20+

Providing Integration Contents on different Levels

Integration Repository

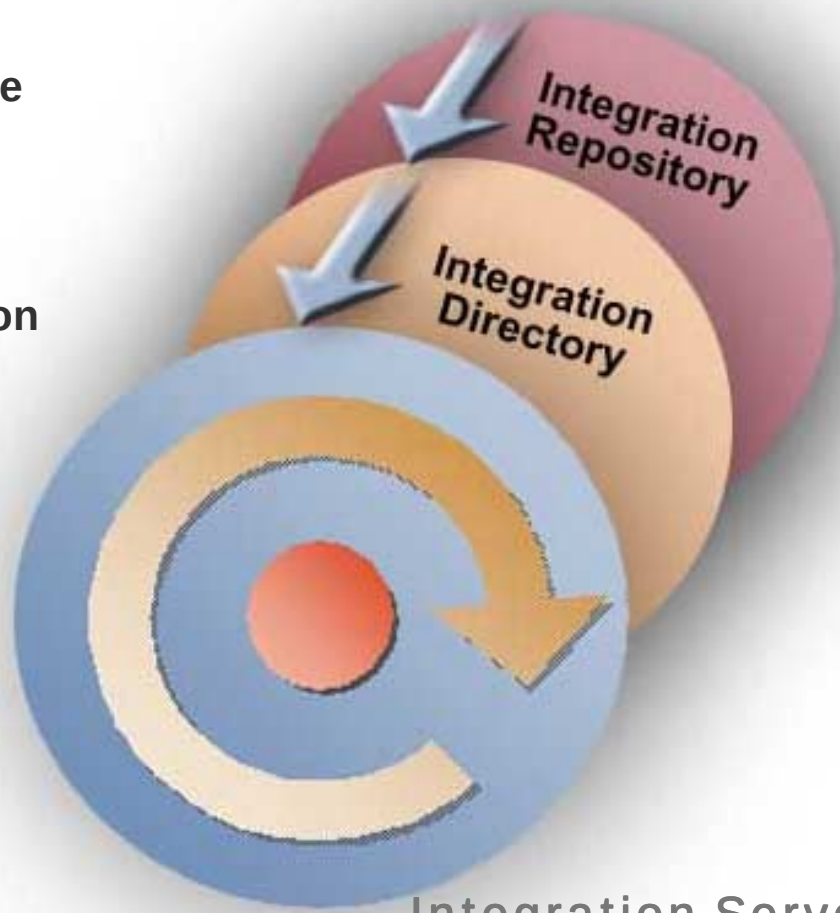
- Product to be used at design/development time
- At SAP, partner, and customer site
- Shipped along with content

Integration Directory

- Product to be used at configuration time
- At customer site
- Content partially derivable from Integration Repository by configuration tools

Integration Engine

- Product to be used at runtime
- At customer site
- Relies on content of Integration Directory



Integration Repository

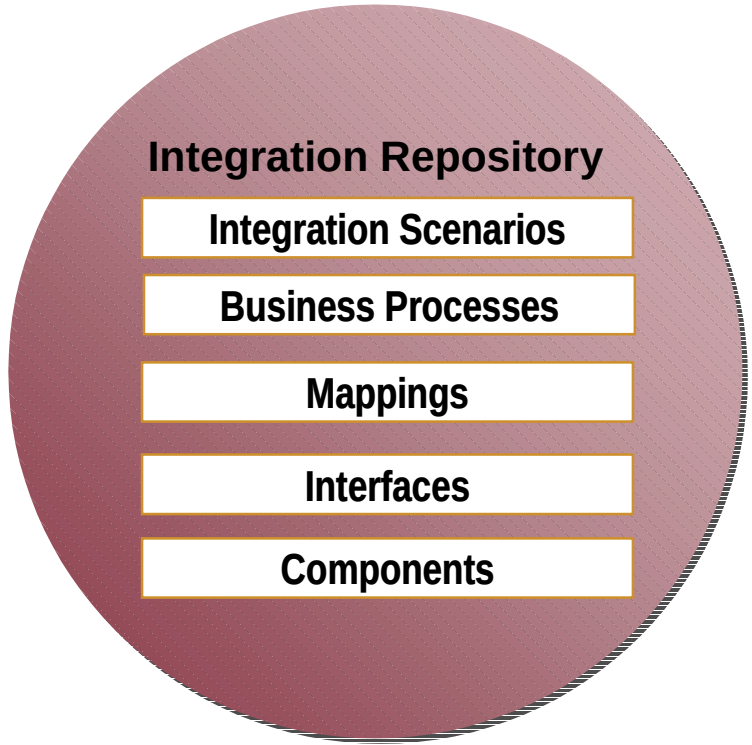
Integration Content provided at Design Time

Already contains Integration knowledge for mySAP.com e-Business platform

Open for Partner and 3rd Party components

Content can be filled from different sources using open standard descriptions (e.g. WSDL, xCBL, etc.)

XML and Java based tools



Integration Repository - Interfaces

Central place to define and catalog global and component-specific interfaces

- Interfaces assigned to components
- Tracks different interface versions
- Descriptions of all existing BAPI, IDOCs and RFCs

Includes message types and data types for high reusability

Based on WSDL (Web Service Description Language, W3C)

- Outbound and inbound interfaces
- Synchronous and asynchronous interfaces
- XML Schema to describe data types

Basis for Proxy generation

Interfaces ➔ Integration Repository

Global interfaces and types (xCBL, RosettaNet, etc.)

populate

populate

Application developer designs a new interface

Integration Directory

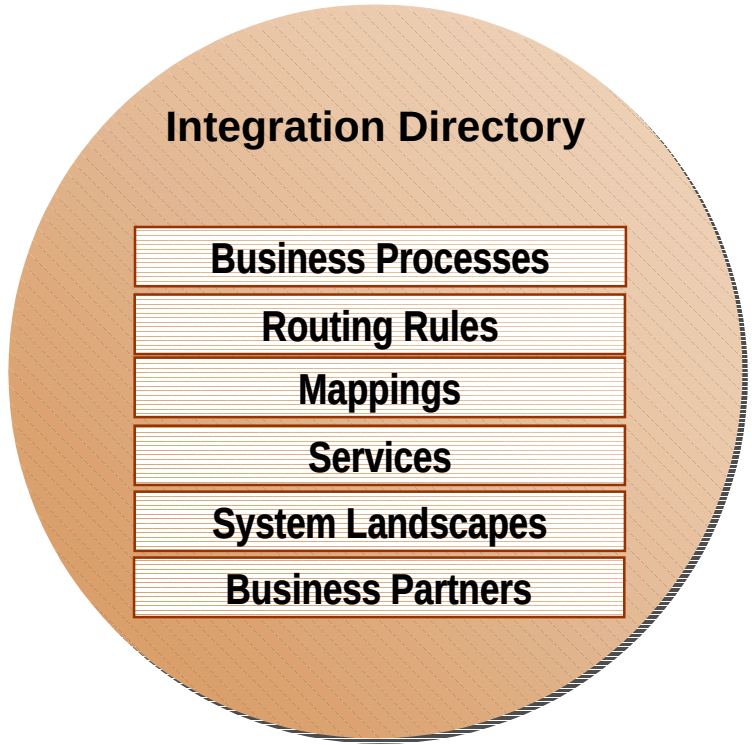
Integration Content provided at Configuration Time

Contains productive integration knowledge at customer site

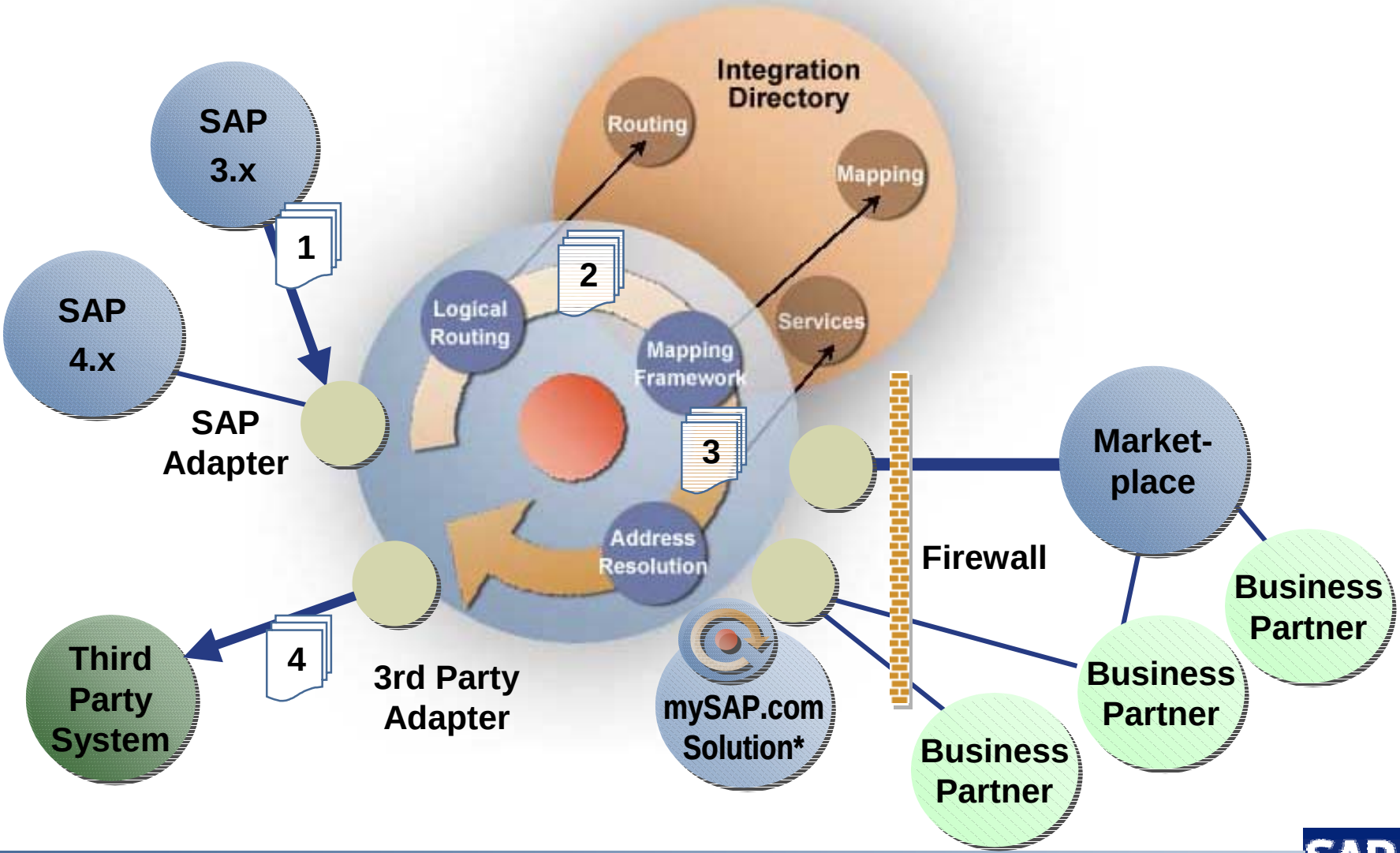
- **Can be derived from Integration Repository**

Open for Partner and 3rd party components

XML and Java based tools



Message Flow in the Integration Server



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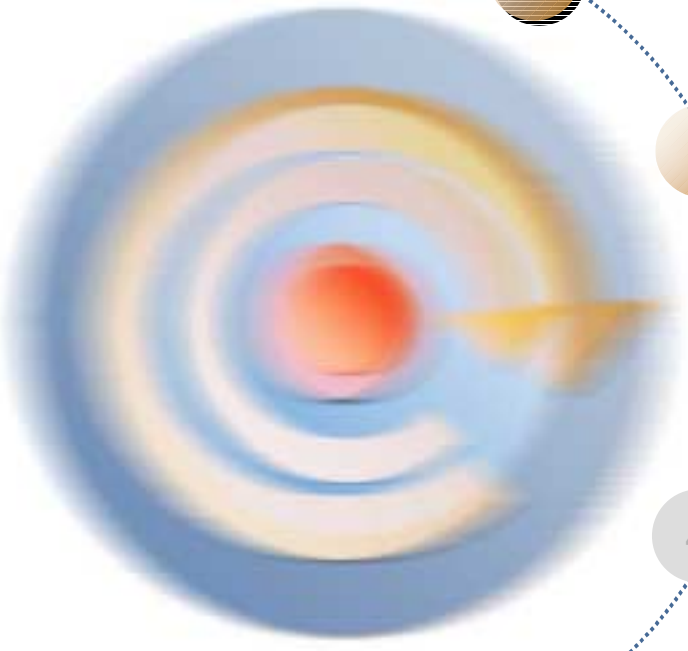


1 History and Motivation

2 SAP‘s Exchange Infrastructure

3 Key Challenges

4 Standards Stack for Business Applications

5 Summary

Challenge – Non-Stop Business

Highly-scalable Integration Server

- „Exactly once“ delivery of messages and execution of services
- Error handling and Monitoring

Availability

- Critical for real time services, where instant responses are needed
- Can be managed more easily for asynchronous, message-based interactions

Lose coupling via XML-Messaging

- Asynchronous communication as far as possible
- Synchronous communication where required

Evolution

- Allow easy and non-disruptive addition of new services and processes
- Integration of existing SAP components
- Integration of existing customer and 3rd party components

Challenge – Shared Business Semantics

Shared process descriptions

- For a common understanding how collaborative work
  - how responsibilities are divided across participants / systems
  - which messages are exchanged under which conditions and events

Shared business rules

- conditions for acceptance of documents, pricing, delivery, payment ...

Shared Integration Repository and Directory

- Of business, services, interfaces, message types
- For distributed execution in multiple businesses, multiple locations and multiple software components

Shared classification and discovery of business and services (UDDI)

- For discovery of businesses which provide certain types of services
- For discovery of services which adhere to certain interfaces and protocols
- Based on common taxonomies like location, industry code

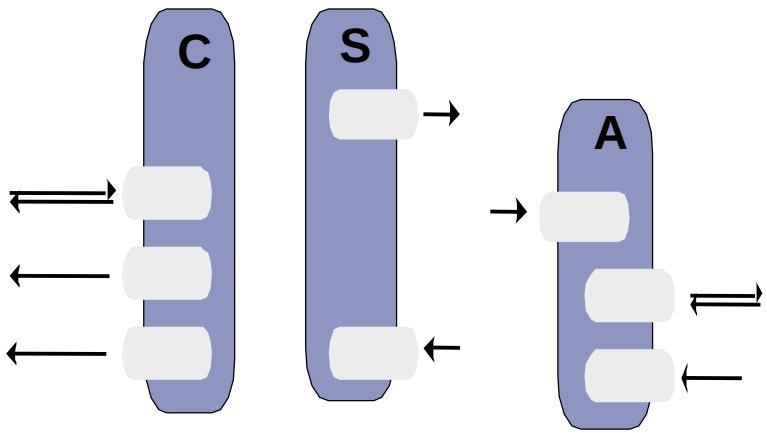
Challenge - Web Services Choreography

Download
http:/ifr.sap.com/wsci/

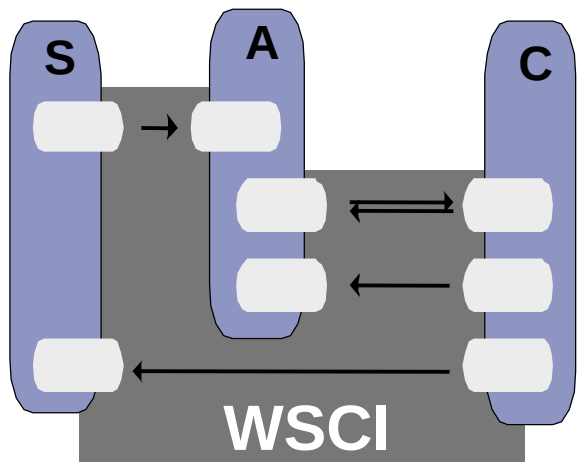
WSCI (Web Service Choreography Interface)

- New interface standard proposed by SAP, Sun, BEA and Intalio to drive the adoption of collaborative business applications
- Fill gap between Web service definition languages (e.g. WSDL) and process languages that describe executable processes (e.g. BPML)
- Describe how Web Services interact in choreographed, stateful fashion with other Web services
- Providing a global view of a complex process involving multiple Web services
- Foundation for automated, application-application collaboration

Unstructured Web Services



Collaborative Bidding Process

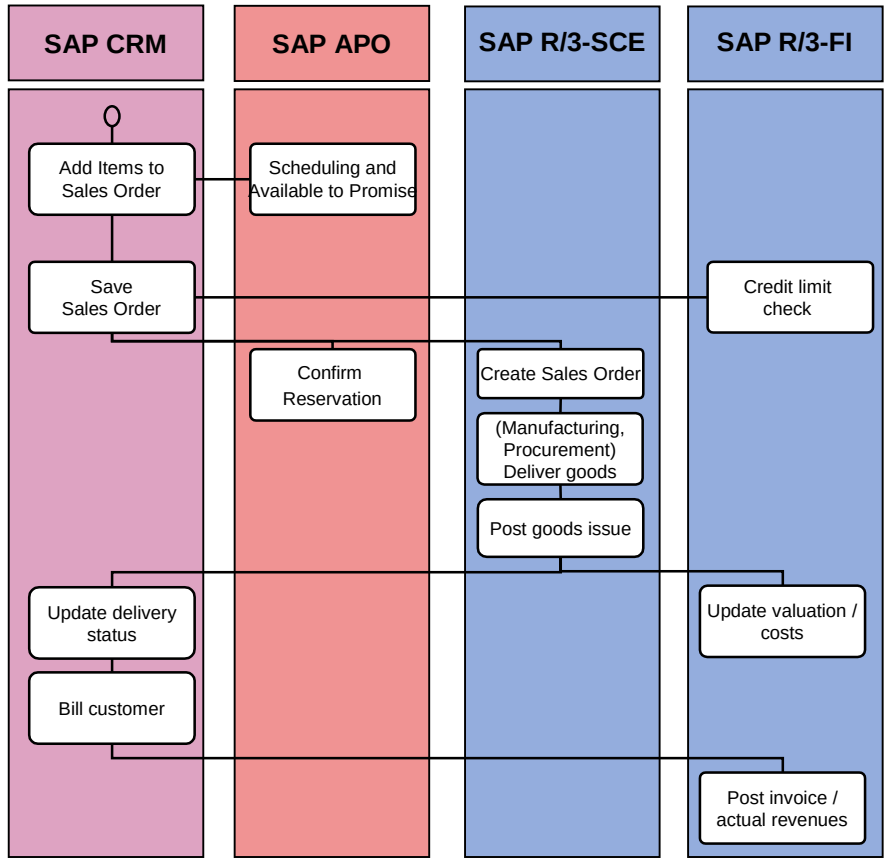


Integration Repository – Integration Scenarios

Design, definition and description of integration scenarios

- Choreography of interfaces and respective components
- Documentation, owner, customizing activities, ...
- Will drive SAP software development process with effect to documentation, test and implementation

Integration Scenarios ➔ Repository



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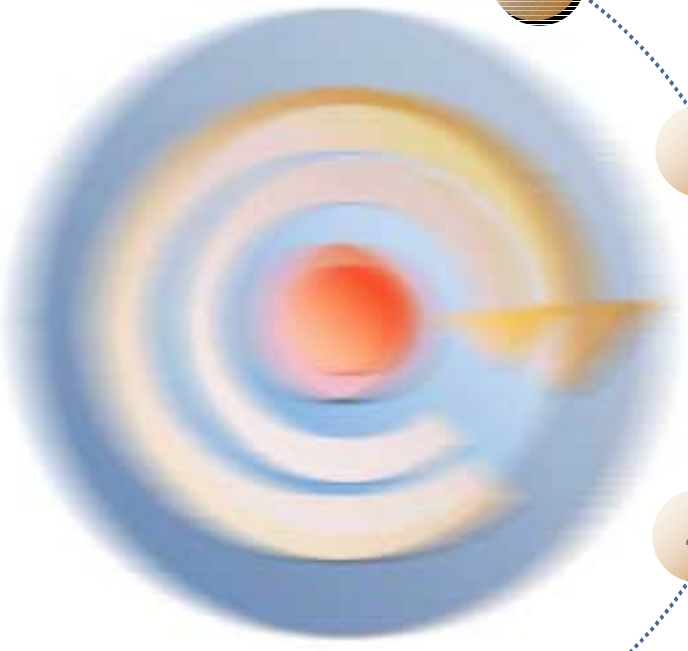

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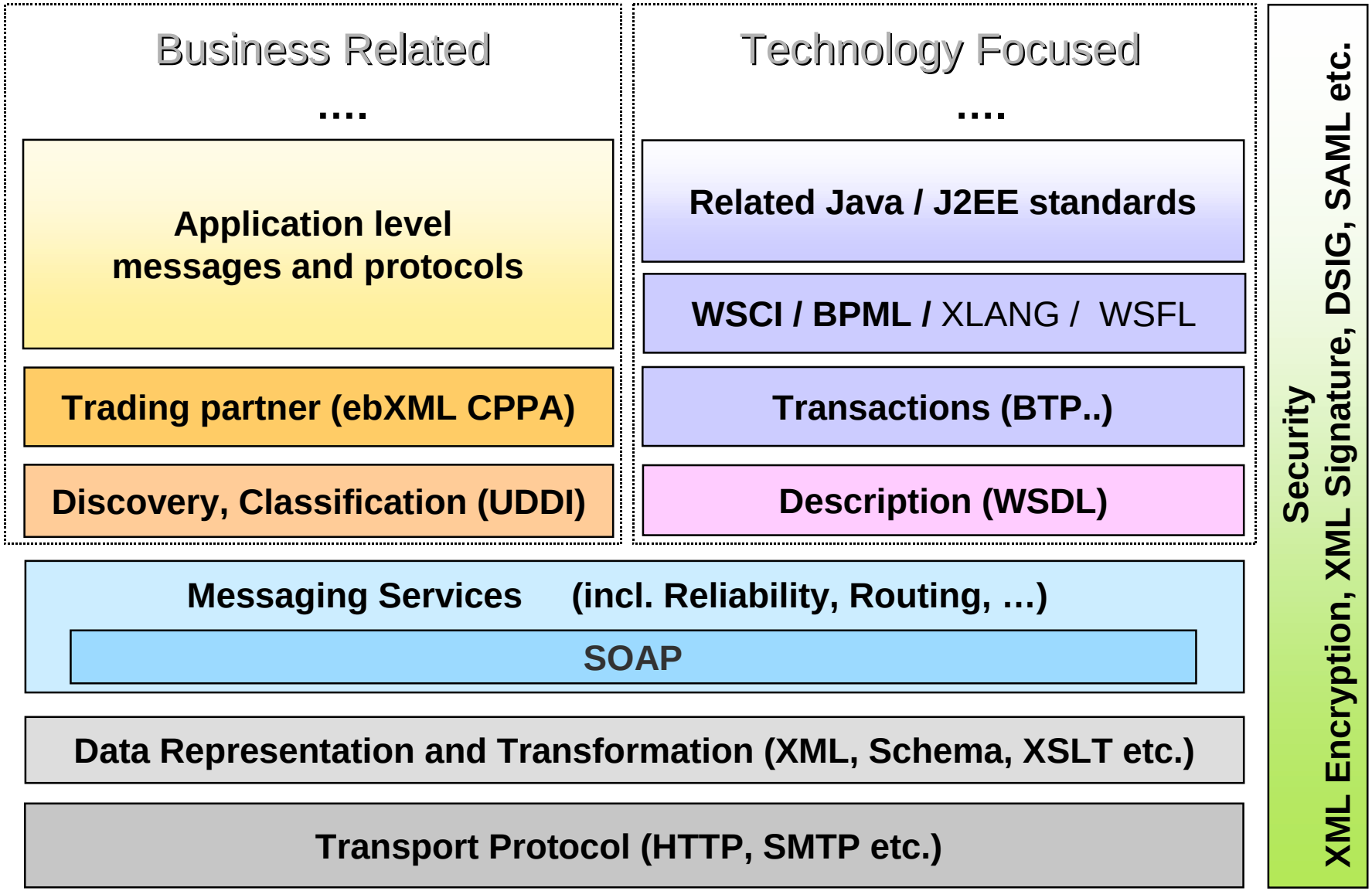
3. Key Challenges
4. Standards Stack for Business Applications
5. Summary

XML Standards Stack for Business Applications



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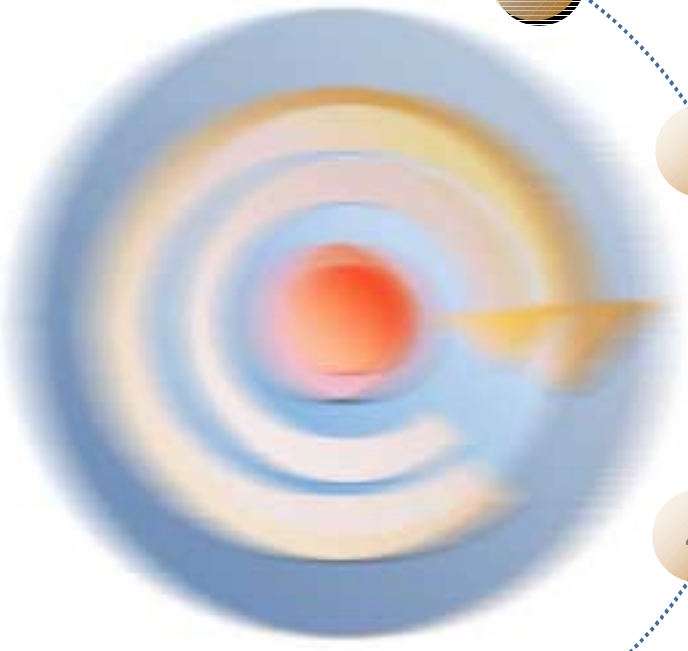

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mySAP.com is an E-business infrastructure

Integration is the key driver for interoperability

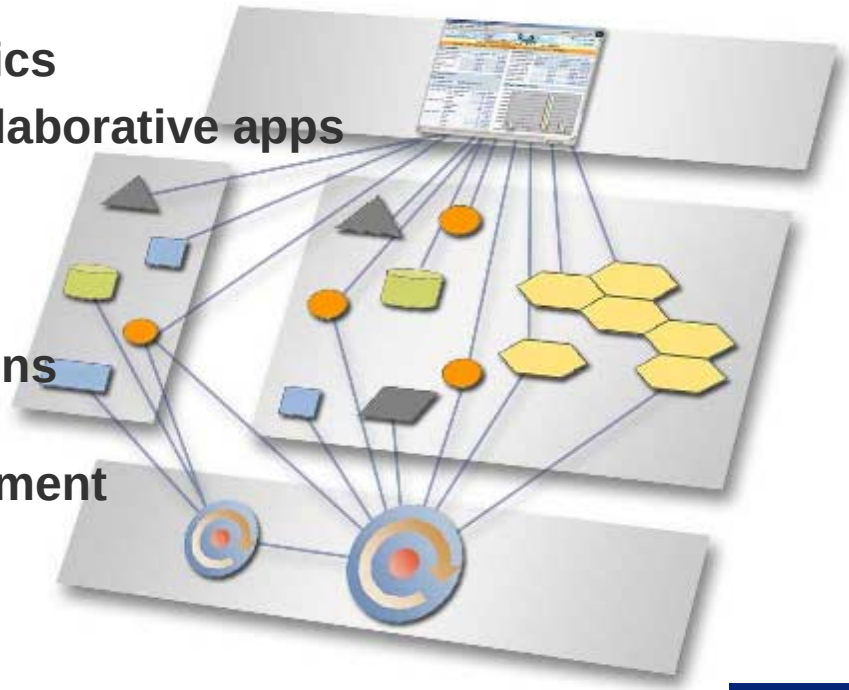
- Collaborative e-business applications
- E-business infrastructure technology
- Non-trivial business applications are requiring to be integrated efficiently

Business applications are still a challenge

- Non-stop business
- Knowledge about business semantics
- Web Services choreography for collaborative apps

Business infrastructure

- Based on open Internet standards
- Integration of XML-based applications with legacy / 3rd party applications
- Direct and guide the future development in interoperability



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