

SAPS Exchange Infrastructure

Interoperability Summit

June 27th - 28th, 2002

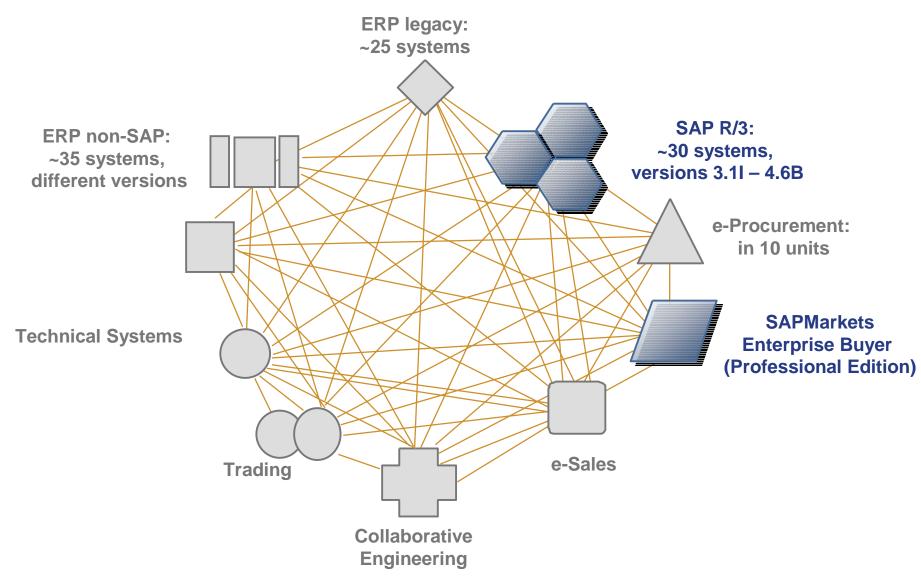
Orlando, Florida

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SAP Labs, Palo Alto, CA





The Customers Integration Landscape



Historical Development

Enterprise Resource Planning

Inter-/Intra-Enterprise **Co-operation**

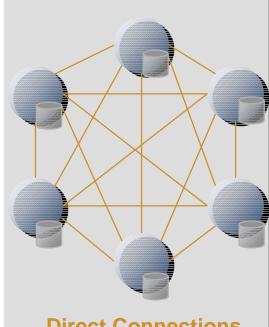
Collaborative Business





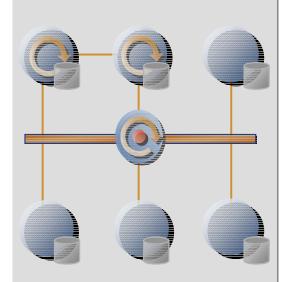


Integration by single centralized data model



Direct Connections

Integration nightmare Exponentially growing complexity

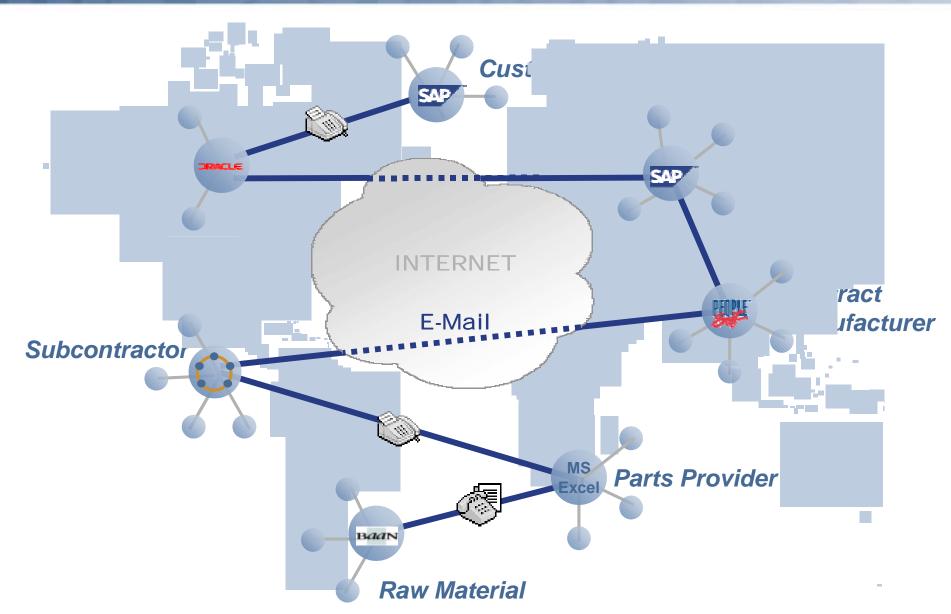


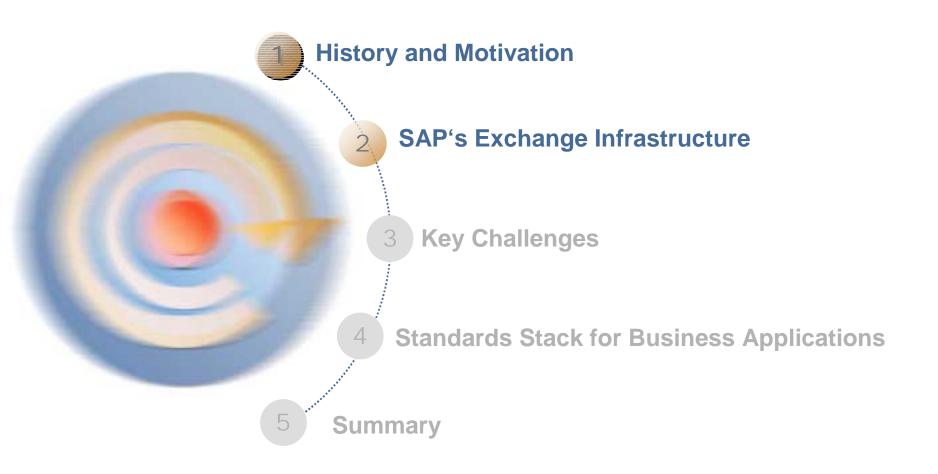
Integration Engine & Bus Infrastructure

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



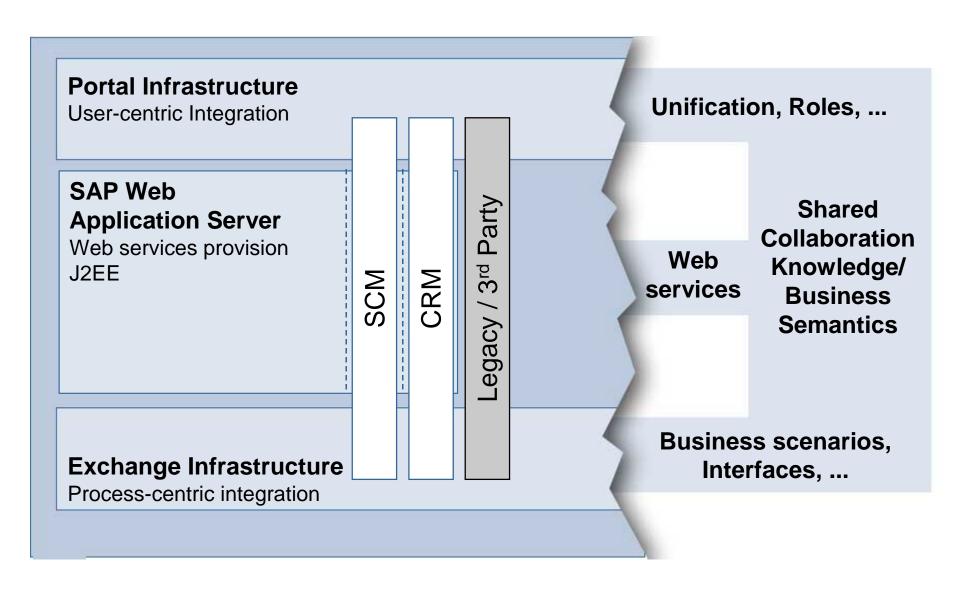
The Networked Economy



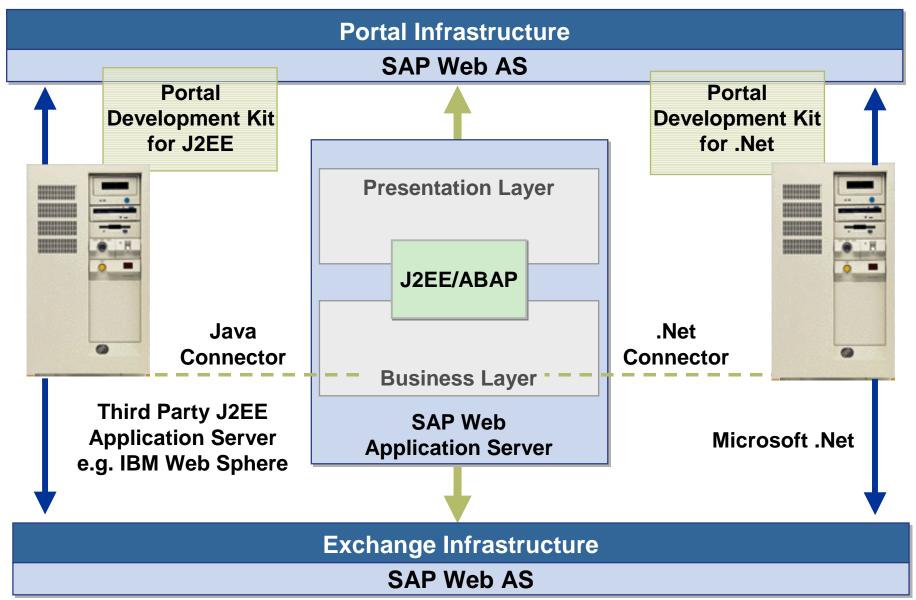




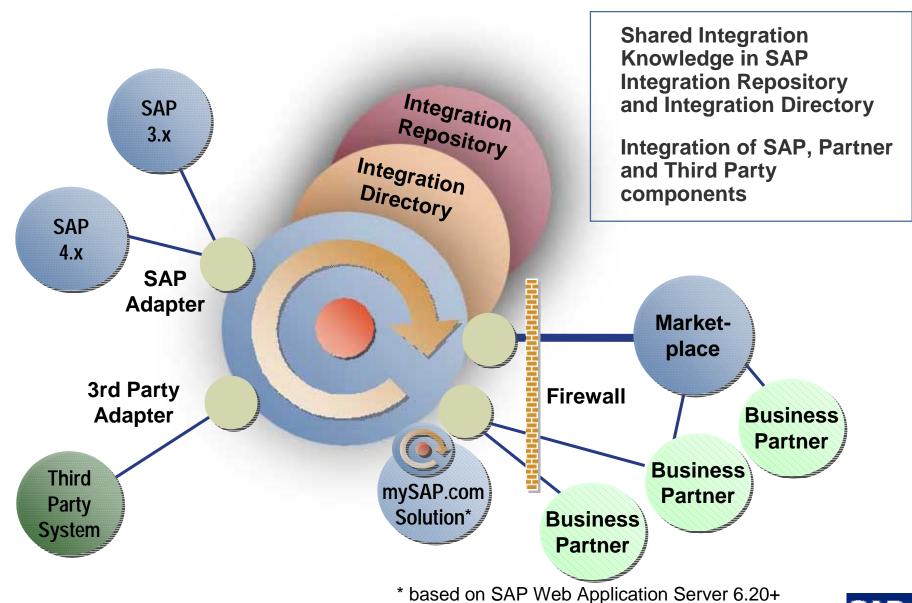
Open E-Business Integration



Web Application Server - The Integration Infrastructure



Exchange Infrastructure - Overview



Providing Integration Contents on different Levels

Integration Repository

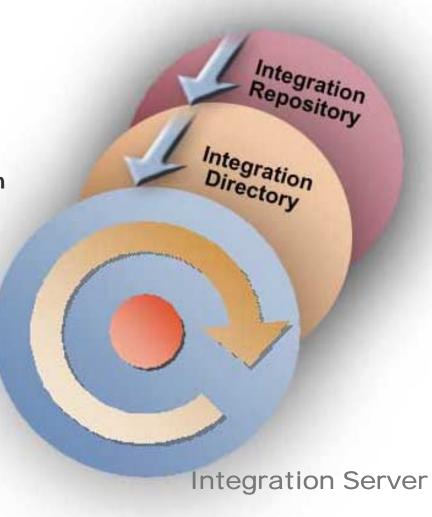
- Product to be used at design/development time
- At SAP, partner, and customer site
- Shipped along with content

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

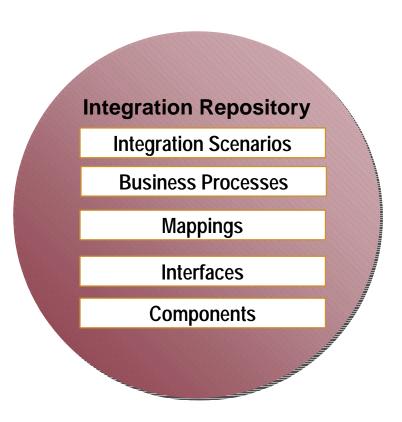
Integration Content provided at Design Time

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

Application developer designs a new interface



Integration Directory

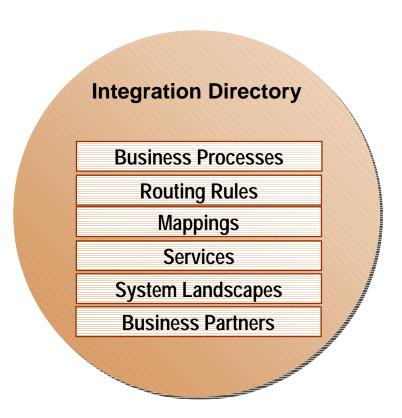
Integration Content provided at Configuration Time

Contains productive integration knowledge at customer site

■ Can be derived from Integration Repository

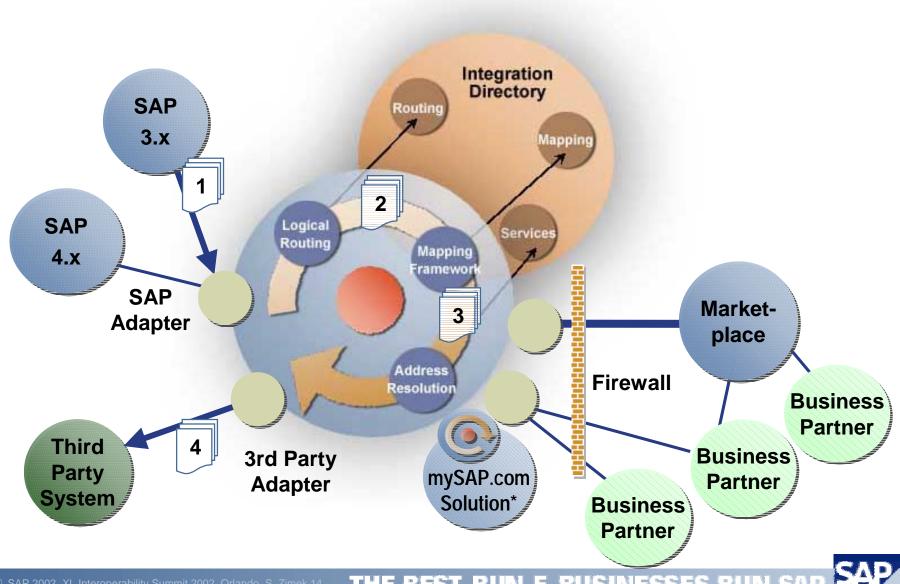
Open for Partner and 3rd party components

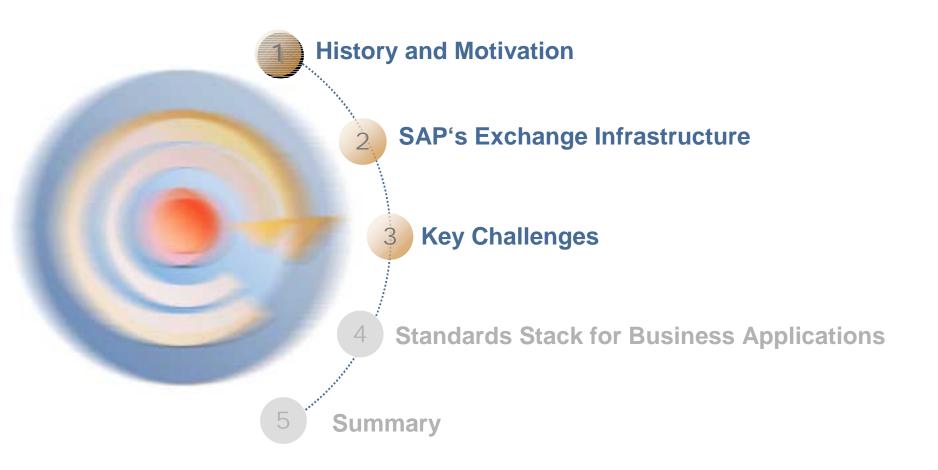
XML and Java based tools





Message Flow in the Integration Server







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



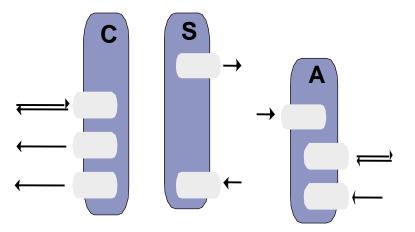
Challenge - Web Services Choreography

WSCI (Web Service Choreography Interface)

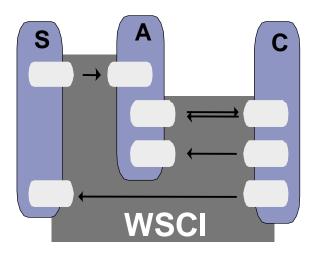
Download http://ifr.sap.com/wsci/

- 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



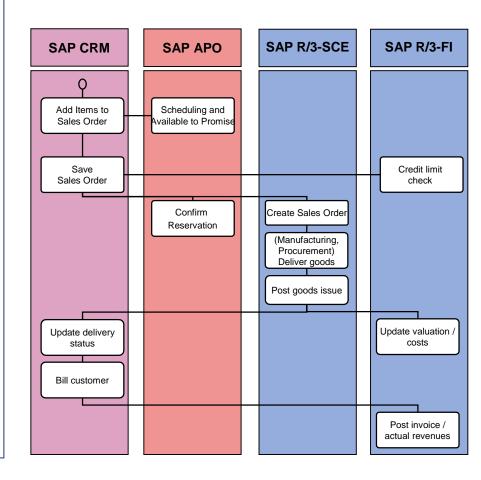


Integration Repository - Integration Scenarios

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







XML Standards Stack for Business Applications

Business Related

. . . .

Application level messages and protocols

Trading partner (ebXML CPPA)

Discovery, Classification (UDDI)

Technology Focused

. . . .

Related Java / J2EE standards

WSCI/BPML/XLANG/WSFL

Transactions (BTP..)

Description (WSDL)

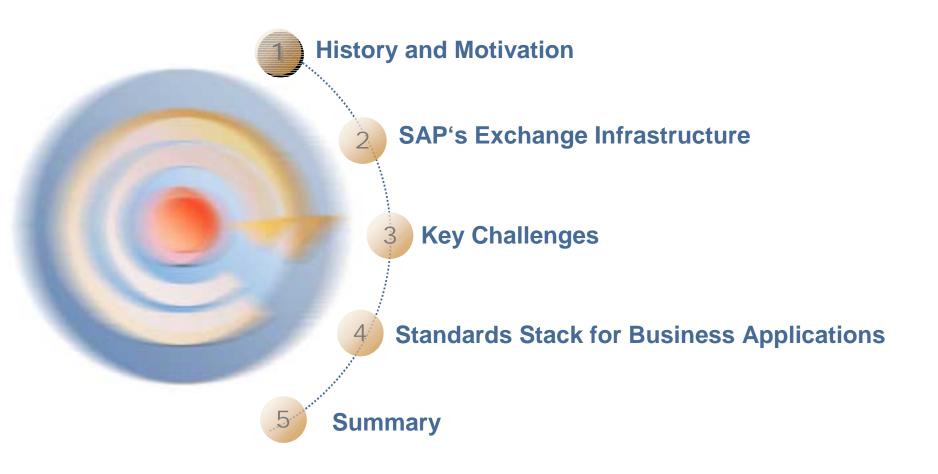
Messaging Services (incl. Reliability, Routing, ...)

SOAP

Data Representation and Transformation (XML, Schema, XSLT etc.)

Transport Protocol (HTTP, SMTP etc.)

SAML Security **Encryption**, **MX**





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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