Using Web Services for B2B
(Opportunities and Challenges)

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B2B Basics
Where Web Services Fit
The Challenges
What SAP is doing
Dear John,

Quotation Acceptance

I am pleased to accept your quotation for the replacement and repair of the roof to the rear of 31 Swift Lane, Upper Sedgemore, IP15 22EN as described in your quotation ref 2784.

I accept the cost of £3500.00 on condition that the work will start no later than 15 February 2003 and be completed by 1 March 2003. Payment will be made 15 days after completion and a satisfactory inspection by our architect John Doe.

Yours sincerely,

Mary Smith
We rely on the postal service and organizations like UPS and FedEx to get documents safely to their destination.

FedEx, UPS and the postal service all provide different levels of services depending on what's needed.

Electronic B2B – 1

Web Services are the technology that makes the low cost interoperable exchange of electronic messages inside and outside the business possible.

Electronic Document

Electronic Message

Electronic Address

Electronic Envelope

Software Delivery System

SOAP

Real World B2B – 2

Purchase Order

Fairly reliable delivery

Purchase Order

Very reliable guaranteed delivery

Electronic B2B – 1
Electronic B2B – 2

Email & the web are not reliable enough. Secure, reliable web services are needed to provide the equivalent of FedEx and UPS … but on the web.

The Opportunities

Standard Integration Technology

No Data Entry

XML and Web Services

Lower integration costs

Lower transaction costs

Faster, better ways of doing business
The Challenges
What SAP is doing

Where Web Services Fit

B2B Basics

B2B Web Services Stack

- Program APIs
  - Program APIs that allow applications to access middleware that provides Web Services functions

- Registry
  - A store of data about Web Services, their definitions and implementations

- Applications
  - The applications that use the Web Services technology to do useful work
  - Languages used to define things, e.g. documents, services, etc
  - Definitions of how to use web services standards in combination or for specific contexts

- Management
  - Techniques that allow Web Service implementations to be managed and controlled
  - Definitions of actual things, e.g. an order, an order management process, etc and their meaning

- Electronic envelope and basic message delivery
  - Electronic envelope and basic message delivery

- SOAP
  - SOAP Extensions/Modules for secure, reliable messaging

- SAP NetWeaver™
  - SAP NetWeaver™

- Operating System
  - Operating System
**Where Standards are Used**

- **Buyer**
  - SRM Application
  - Procurement Application
  - Warehouse Management

- **Seller**
  - Sales Management
  - Stock Control (ERP)
  - Warehouse Management

**Business Processes**

1. Requisition
2. Order
3. Order Sent
4. Allocate Stock Request
5. Allocate Stock Response
6. Order Response
7. Warehouse Pick Request
8. Delivery Note
9. Goods Dispatched
10. Goods Received
11. Goods Arrived

**Choreographies**

- Transformation (maps)
- Messages & Documents
- Secure, reliable delivery
- Agreements
- Profiles & Policies

**Rules**

- Transformations (maps)
- Choreographies
- Services
- Businesses

**B2B vs A2A**

**ERP System**

- App
- Adapter

**Application to Application**

- Adapters

**Manufacturing System**

- App
- Adapter

**Company A**

- App
- Adapter

**Company B**

- App
- Adapter

**Company C**

- App

**Company D**

- App

- Adapter

**Business to Business**

- Many-to-many connections
- Volatile – different connections, new connections, changing connections
- Change can be expensive

**Single point-to-point connections**

- Static – doesn’t often change
- Optimization investment worthwhile

**B2B vs A2A**

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### The Challenges

**B2B Basics**

**Where Web Services Fit**

**The Challenges**

**What SAP is doing**

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**It takes two to tango**

Professional dancers must know exactly what their partner is going to do!
**Knowing what your partner does**

Both sides must agree what they are going to do:
- Messaging – which version of SOAP, what digital certificates, etc.?
- Content – what XML document does each message contain?
- Sequence – in what order are messages exchanged?

… but it could be different for each partner …

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**Standards – there’s so many of them**

... currently over 1000 different standards!!
Too much choice?

Too much choice makes it harder to decide what to do!

Less is more!!

WS-I is profiling and simplifying web services standards to remove ambiguity, reduce choice and make them easier to use.

Company T-Shirt Size – from CIDX workshop

<table>
<thead>
<tr>
<th>T-Shirt Size</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extra Small (XS)</td>
<td>Somebody with just an email system and no ERP access. Perhaps just using spreadsheets. Can't count on 7x24 connectivity or static IP address.</td>
</tr>
<tr>
<td>Small (S)</td>
<td>Company with simple stand-alone single-user ERP like QuickBooks. Can't count on 7x24 connectivity or static IP address.</td>
</tr>
<tr>
<td>Medium (M)</td>
<td>Single company with multi-user networked ERP system. Little or no IT support.</td>
</tr>
<tr>
<td>Medium Large (ML)</td>
<td>Single company with multi-user networked ERP system. Able to install and configure software. Limited code &quot;tweaking&quot;.</td>
</tr>
<tr>
<td>Extra Large (XL)</td>
<td>Potentially has multiple ERP systems, multiple geographies, multiple companies. Can develop software in-house or outsource. Extensive IT support.</td>
</tr>
</tbody>
</table>

"XS", "S" and "M" companies …

- Don't have the IT support to configure web services
- Have no links to “back end” systems, e.g. ERP – manual data entry required
- Don't run HTTP servers – not connected all the time

This makes it hard for the “ML”, “L” & “XL” companies to connect
What SAP is doing ...

SAP NetWeaver™ supports Web Services and XML standards

- Basic Web Services such as SOAP, WSDL, UDDI and the WS-I Basic Profile
- Security Standards such as XML Digital signature, XML Encryption, SAML
- Secure, reliable message delivery including WS Security and WS Reliable Messaging
- Process definition standards such as WS BPEL
- XML Standards including XML Schema and XSLT

Adding more as standards mature

*By building SAP’s “next generation” applications on NetWeaver, SAP is making sure the standards “work”*
SAP Technology Standards Group

SAP Technology Standards Group participates/leads standards activities

- World Wide Web consortium (W3C) that develops standards such as XML, XML Schema, XSLT, WSDL and many other standards
- OASIS that develops standards such as WS BPEL
- Web Services Interoperability Organization (WS-I) – chair sample applications, board member
- The Java Community Process (JCP) – executive board member
- The Eclipse Foundation – board member
- Liberty Alliance that develops standards for managing identity on the web

SAP is bringing its application development experience to help make sure the developer community have the standards they need.

Semantic Standards

SAP leads semantic standards efforts:

- UN/CEFACT – setting the business document & process standard
  - Core Components
  - Naming and Design Rules
- Vertical Industries
  - Aerospace (Spec2000)
  - Agricultural (RAPID)
  - Automotive (AIAG, Star Standard and Odette)
  - Chemical (CIDX)
  - HighTech (RosettaNet)
  - Manufacturing (S95, OPC, MIMOSA)
  - Oil and Gas (PIDX), and Mill Products - Paper (PapiNet)

“Business standards” are just as important as technology standards
Questions?

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