

Portal Integration Strategies

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Sequoia Software

- Established in 1992
- Headquartered in Columbia, MD with International operations: North America, Europe, Asia
- Utilized SGML in late 1995; XML in 1996
- Sequoia XPS 3.0 June 2000
- 200+ employees
- Deloitte & Touche's Fast 500 for 1997, 1998, 1999
- Publicly held company "SQSW"

Agenda

- Housekeeping
- Why Portal Software?
- Requirements
- Integration Strategies
- Role of XML in Integration
- Service Integration Alternatives
- Emerging Trends
- Summary

Agenda

Why Portal Software?

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Housekeeping

E-business Landscape



Portal Delivery Interface



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Requirements



Requirements

- Content Delivery
 - Role-based Access
 - User Personalization
- Application Integration
 - Bi-directional
 - Multiple integration points
- Ready for Growth
 - Users, Data, Geographic
- Open Architecture
 - Standards based, Flexible

Portals provide...

- Aggregated access to multiple data sources at the desktop and beyond
- Personalized views of pertinent information, no matter where it resides
- Improved collaboration between all parties, both inside and outside the enterprise
- 2nd (or 3rd) Generation Portals
 - ↑ Collaborative Spaces – dynamic, user defined
 - Incorporate Business Processes – transaction support
 - Scale – built upon Application Server framework

Integrated Data Services

- Search & Retrieval
 - Full Text and XML (Contextual Queries)
- Categorization
 - Corporate Directory or Taxonomy
- Content Management
 - Version Control and Workflow
- Collaboration
 - Message Boards, Chat, Instant Messaging
- Web Services
 - Screaming Media, iSyndicate, News, Mail
- Business Intelligence
 - Report Generation

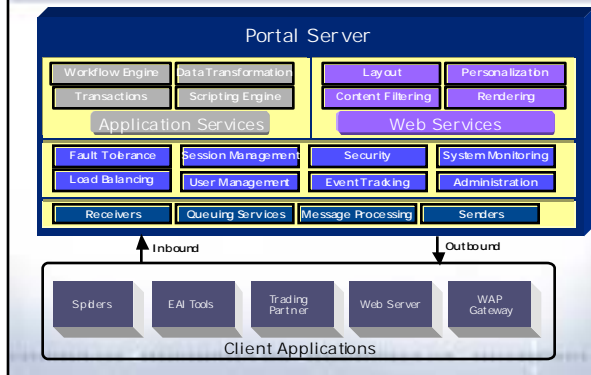
E-Business Services

- Data Mapping
 - Schema-to-Schema
- Data Generation
 - Forms entry
- Business Process Modeling
 - WYSIWYG interface
- Business Process Automation
 - Service integration (Web and Application)
 - Information routing between services Extensible
- Easily add new services

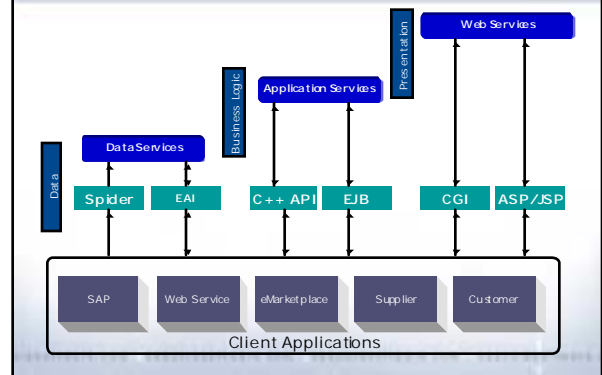
Agenda

Integration Strategies

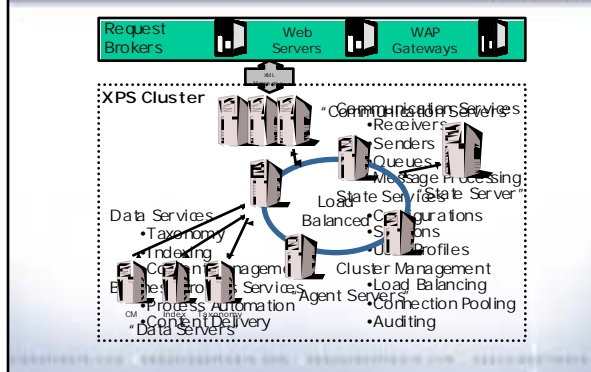
Portal Components



Portal Integration Gateway



Ready for Growth



Three Integration Layers

- Presentation
 - Provide one-way streets that communicate directly with a web service
 - Tunnels through the portal directly to a web-enabled application
- Business Logic
 - Communication with applications through application programmable interfaces (API)
 - Synchronous interaction with applications
- Data
 - Asynchronous interaction via information packets between data sources
 - Batch loading and inter-enterprise integration

Security Considerations

- Authentication requirements
 - User
 - Role (i.e. guest, anonymous, manager)
- Leverage existing Access Control rights
- Maintain defined business logic
- Transaction integrity

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Role of XML in Integration

Communication Models

- Synchronous
 - Direct processing (open a dialogue)
 - HTTP, D/COM, EJB, Corba
- Asynchronous
 - Indirect processing (when you get to it)
 - Directory polling, SMTP, HTTP, Queuing

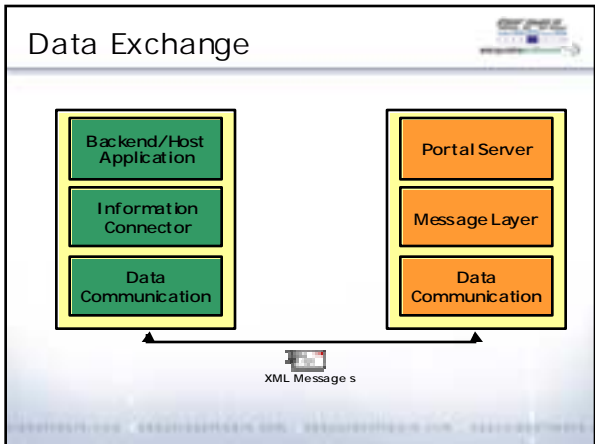
Communication model available often dictates the integration layer and the technologies used in the solution.

Leveraging XML

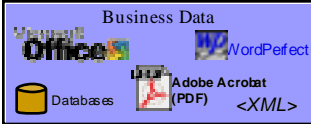
- Packaging for Transmission
- Inter-application Communication
- Validation
- Data Transformation
- Device Independent Delivery

Integration Matrix

	Presentation	Business Logic	Data/Storage
Application Coupling	Tightly	API Dependent	Loosely
Transactional Integrity	Single Application	All Services	None
Data Visibility	None	All Services	All Services
Interactivity	Dependent on Web-enabled API	Not Applicable	Not Applicable
Data Freshness	Must	Not Applicable	Latency OK
Data Security	Maximum	Session Dependent	Minimum
Application Defined Business Logic	Maintained	Maintained	Not Maintained



Message Structure



Business Data

Message Structure

```

Routing Markup
<distalk:xml xmlns="urn:schemas-microsoft-com:distalk:distalk" >
<header>
<deliver>
<message>
<messageID="22F3CC-B8A-1D3-BAW-00C0P79123" />
<sent="200-03-M17:13:19" />
</message>
<to><address><address></to>
<from><address><address></from>
</deliver>
<manifest>
<document><name>message</name></document>
</manifest>
</header>
<body></body>
</distalk:xml>

```

Interface Markup
Metadata Markup
Business Data

Message Structure

```

Metadata Markup
<metadata>
<data name="author"> Bryan Capozzi </data>
<data name="file_type"> MS Word </data>
<data name="subject"> User Guide </data>
<data name="orig_date"> 01/01/2001 </data>
<data name="pub_date"> 02/01/2001 </data>
<data name="exp_date"> 03/01/2001 </data>
<data name="company"> Sequoia Software </data>
<data name="keywords"> XML, XPS, Portal Software </data>
</metadata>

```

Business Data

Data Validation

```

<class xmlns="urn:schemas-microsoft-com:distalk" >
<student id="1234" >
<name>Aidan </name>
<GPA>3.8 </GPA>
</student>
</class>
<?xml schema="urn:schemas-microsoft-com:distalk" >
<student id="1234" >
<name>Aidan </name>
<GPA>3.8 </GPA>
</student>
</class>

```

Message Structure

```

Interface Markup
<request>
<service name="repository" server="machine" />
<method name="check_in">
<param name="doc_id">12345 </param>
<param name="doc_type">User Guide </param>
</method>
</request>

```

Metadata Markup
Business Data

Data Transformation

```

<?xml version="1.0"?>
<portfolio xmlns="urn:schemas-microsoft-com:distalk" >
<stock exchange="NYSE">
<symbol>ZCXM</symbol>
<price>288.75 </price>
</stock>
<stock exchange="NASDAQ">
<symbol>ZFFX</symbol>
<price>22.50 </price>
</stock>
<stock exchange="NASDAQ">
<symbol>ZYSZ</symbol>
<price>203.13 </price>
</stock>
</portfolio>

```

Transformation Service

```

<?xml version="1.0"?>
<portfolio>
<stock>
<symbol>ZCXM</symbol>
<exchange>NYSE</exchange>
</stock>
<stock>
<symbol>ZFFX</symbol>
<exchange>NASDAQ</exchange>
</stock>
<stock>
<symbol>ZYSZ</symbol>
<exchange>NASDAQ</exchange>
</stock>
</portfolio>

```

Style Sheet

Device Independent Delivery

XML File: stock.xml + Stylesheet: style_stock.xsl = Results in HTML

The diagram illustrates the process of device-independent delivery. It shows an XML file (stock.xml) and an XSL stylesheet (style_stock.xsl) being combined to produce an HTML output. The resulting HTML table contains the following data:

Symbol	Name	Price
DCOM	delta corp	28.875
ZFFX	zaffrey inc	92.250
ZYXZ	zynga inc	20.313

Presentation Integration

- Criteria
 - Rapid development and deployment
 - Tight integration of web services
 - Personalized content
- Technologies
 - ASP/JSP, CGI, Servlets, Javascript
 - HTML
 - XML, XSLT, WML (wireless)

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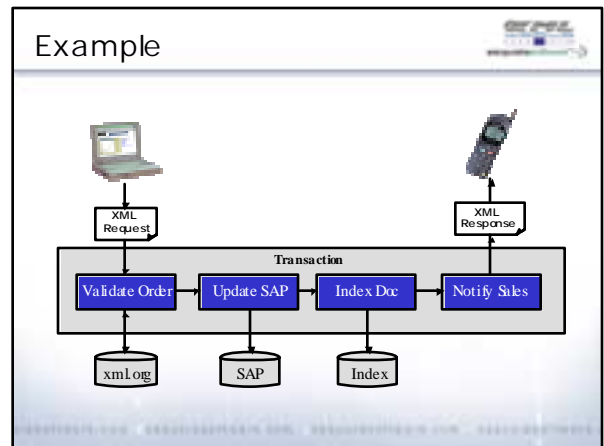
Integration Alternatives

Presentation Integration

- Advantages
 - Rapid development
 - Easy to build and deploy
 - Skill set: web developer
 - Integrate internal and external services
- Limitations
 - Performance
 - Limited reuse (cut and paste)
 - Permeate silos of information

Examples

The screenshot shows a web browser window displaying a complex data table with multiple columns and rows, representing the results of an integration process.



Business Logic Integration

- Criteria
 - High performance
 - Reuse across multiple business processes
 - Maintain existing business rules and access control mechanisms
- Technologies
 - C/C++, Visual Basic, Java
 - COM, Corba, EJB, J2EE
 - Application Servers

Data/Storage Integration

- Criteria
 - Asynchronous, scheduled aggregation of content
 - Many portal services need access to data
 - Interactions not transact-able
- Technologies
 - Spiders or Crawlers
 - Enterprise Application Integration (EAI)
 - Home-grown integration frameworks

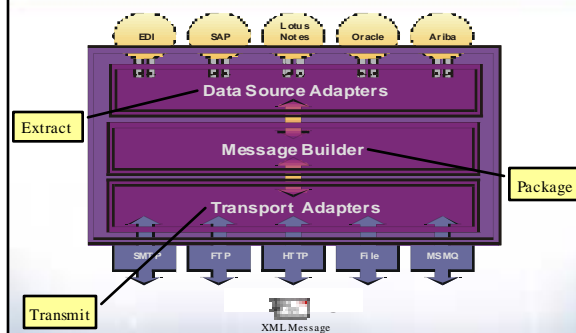
Business Logic Integration

- Advantages
 - Component reuse
 - High security
 - Transactional integrity
 - High performance
- Limitations
 - Requires programmer skill set
 - Communication mechanisms hamper extra-enterprise integration

Data Storage Integration

- Advantages
 - Harvest structured and unstructured data
 - Quick configuration and deployment
 - Requires little/no programming
- Limitations
 - Minimal security / control over data
 - Application business processes disregarded
 - Configuration management issues (new revs of 3rd party applications)

Data Layer



EAI Tools

- Simplify Integration
 - Provide mapping GUI and transformation engine
 - Jump start kits
 - Build connectors using business analysts versus developers
 - Map reuse
- Challenges
 - Expensive
 - Proprietary scripting environments
 - Still a lot of work, not "out-of-the-box"
 - Poor debug facilities
 - Lack of XML support



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Emerging Trends




Summary

- Portals aggregate information, processes, applications and people
- Applications can be integrated within 3 layers
 - Presentation
 - Business Logic
 - Data
- Technologies vary depending on how you apply them
- XML can be leveraged at various stages of information processing
- Questions?

Trends

- Loosely coupled applications versus hardwired monoliths (flexibility)
- Services
 - Applications ← Enterprise
 - Web Content Providers ← Internet
- New integration process
 - Discovery/Description – UDDI, WSDL
 - Subscription – Trading Partner Agreements
 - Registration/Binding – RosettaNet, ebXML



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Summary

