

Enterprise and Inter-Enterprise Application Integration

- Enterprise application integration
- B2B integration
- EAI/eAI Platforms
- An Example
- A methodology

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eBusiness Integration

- Key idea: Integrate applications for competitive edge
 - Within the enterprise
 - External partners
- Why?
 - On the average, a customer purchase involves 10 to 11 applications
 - These systems, if not integrated, can increase service time, introduce errors, increase “hassles”
- Integration: minimizes user effort in getting the job done
- Integration does have a few pitfalls

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Possible Pitfalls of Integration

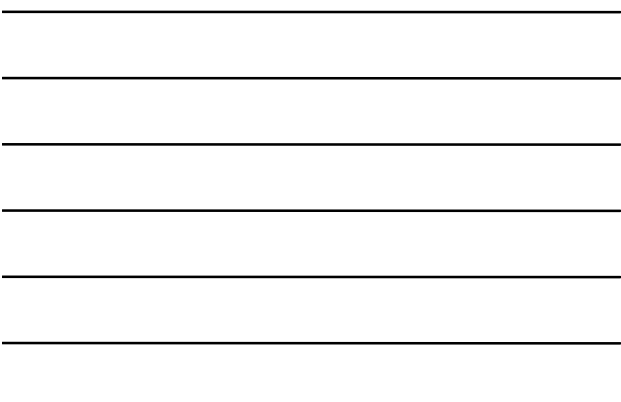
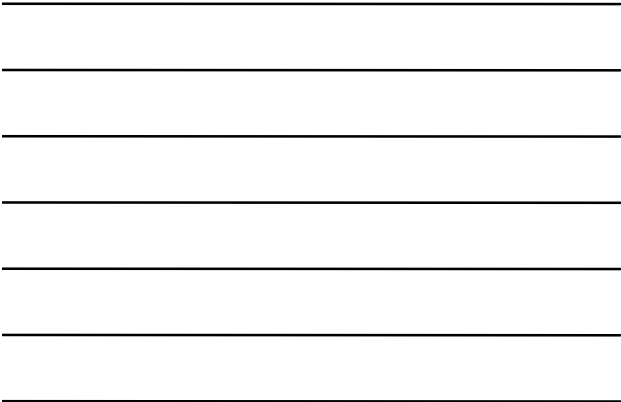
- Integration of legacy systems does add workload to the legacy systems, thus causing serious problems.
- Legacy systems that are integrated with other systems will require many changes to keep up with the demand of the integrated world.
- Increased pressure of modifications, due to integration, can deteriorate the “structured-ness” of existing applications.

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Technologies to support Ebusiness

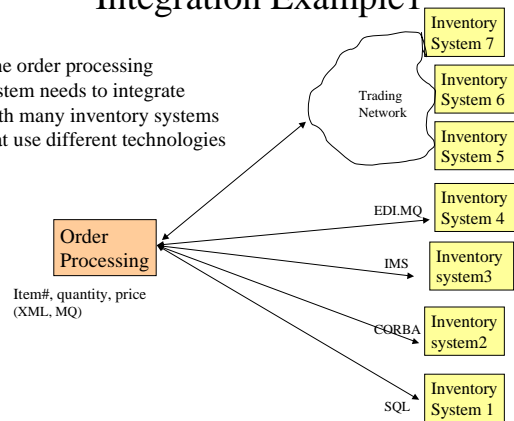
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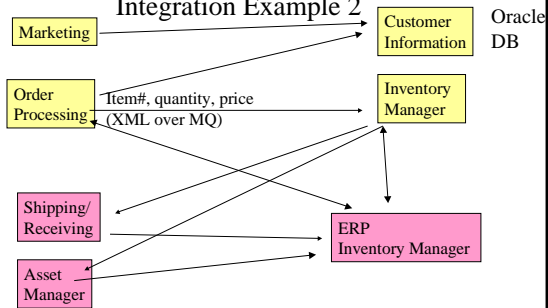
Integration Example 1

One order processing system needs to integrate with many inventory systems that use different technologies



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Integration Example 2

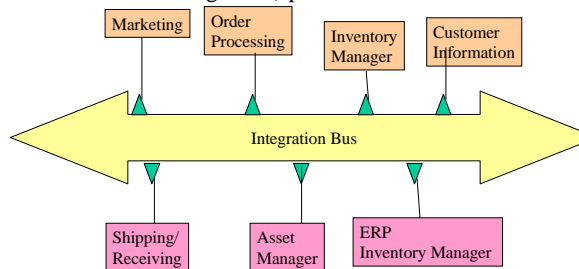


Order processing needs to interact with many, many systems

- Message transport differences (e.g., CORBA, MOM, FTP, TOPCOM)
- Message format differences (FCIF, XML, others,...)
- Diversity of applications (at different platforms from different suppliers)

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Integration Through the EAI (enterprise app integration) platforms



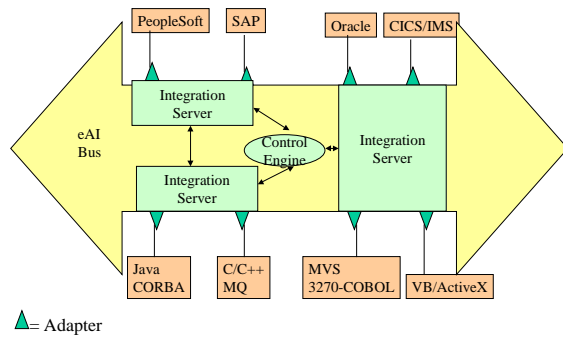
▲ =
Adapter/Data Mapper

EAI Platforms handle:

- Message transport differences (e.g., CORBA, MOM, FTP)
- Message format differences (EDI, XML, others,...)
- Diversity of applications (Mainframe, Unix, Windows)

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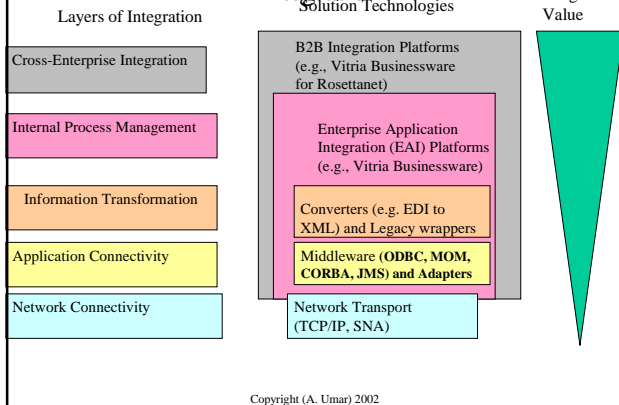
eAI -- A Closer Look

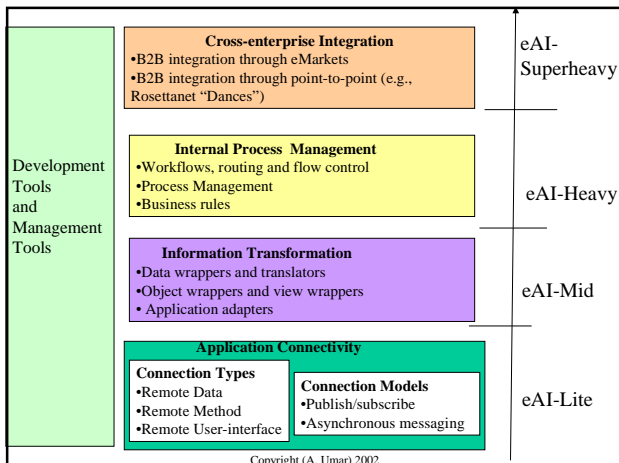


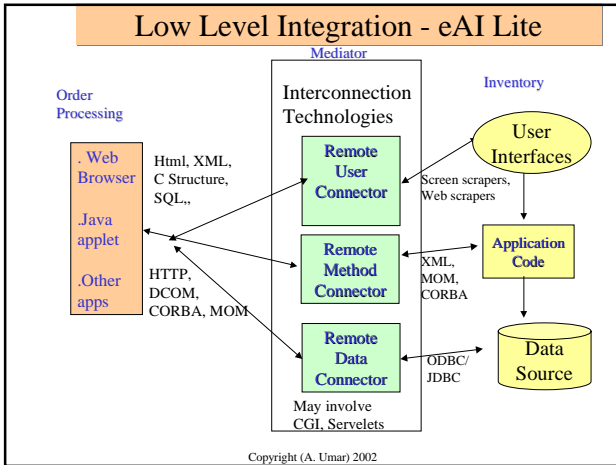
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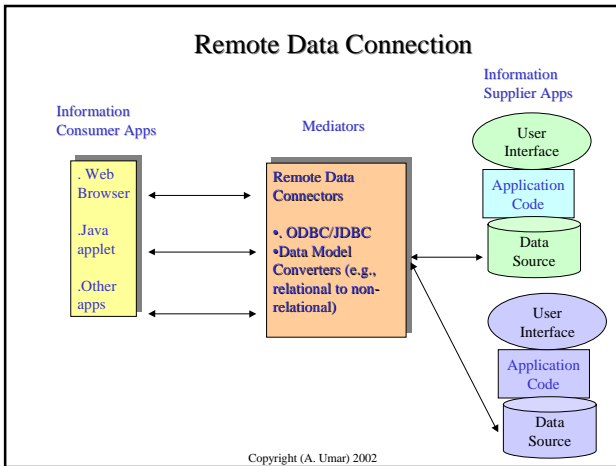
General Framework for Discussing

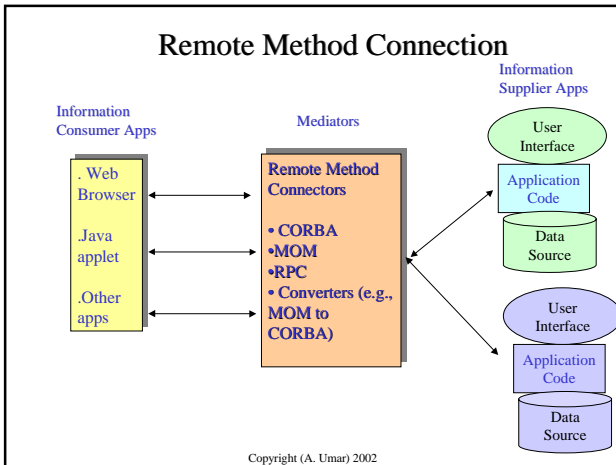
Integration



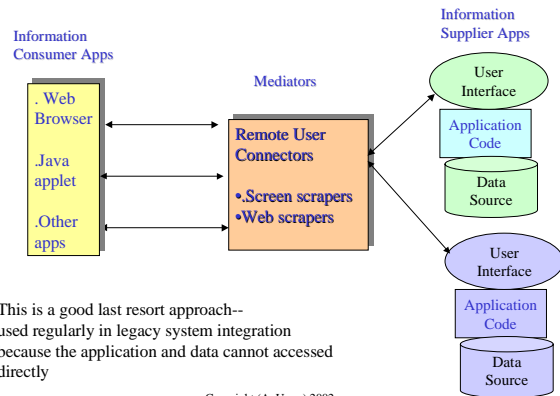




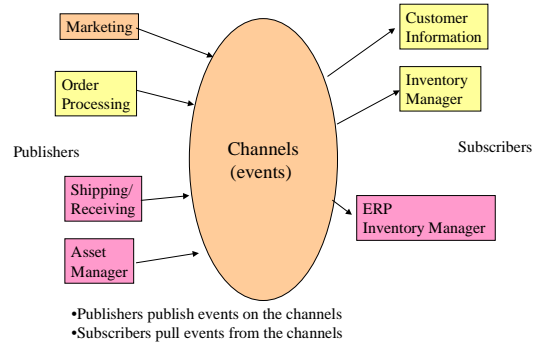




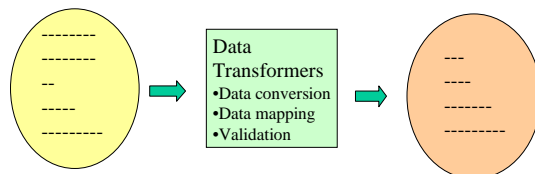
Remote User-Interface Connection



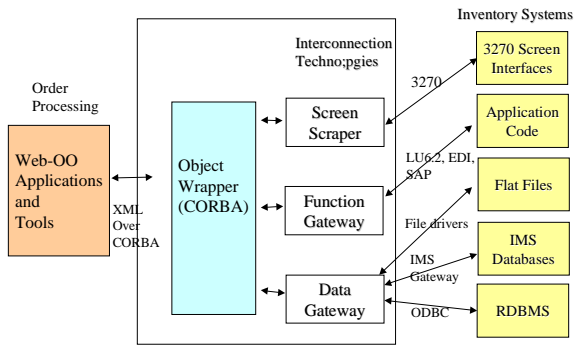
Publish/Subscribe Model



eAI Mid: Data Transformers

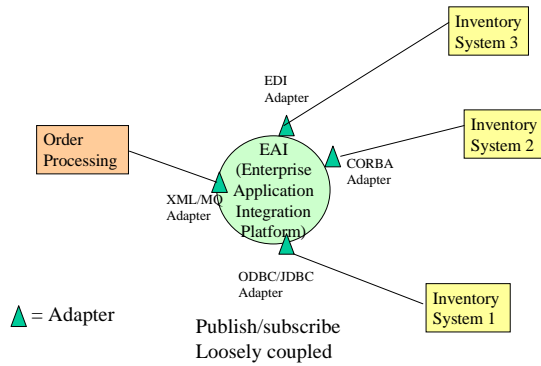


Object Wrappers -eAI Mid



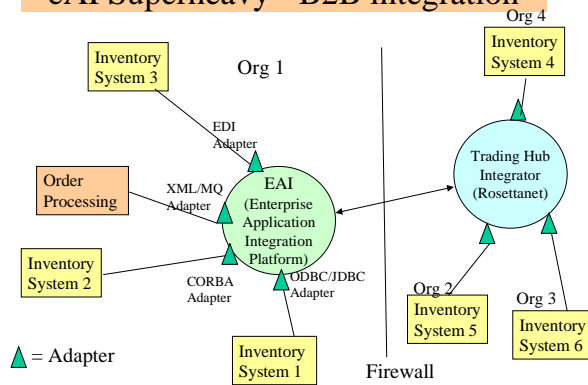
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eAI -Heavy - Within an enterprise

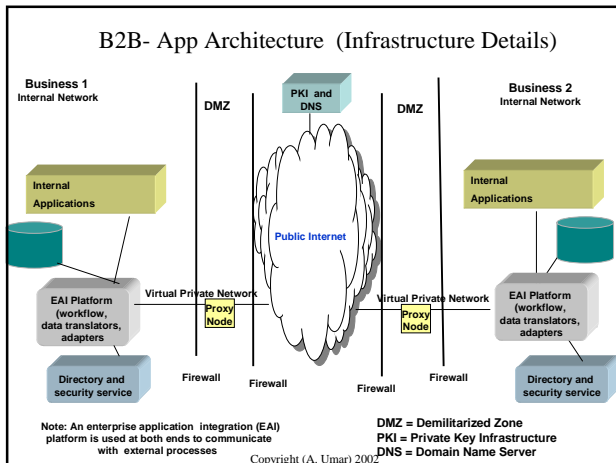


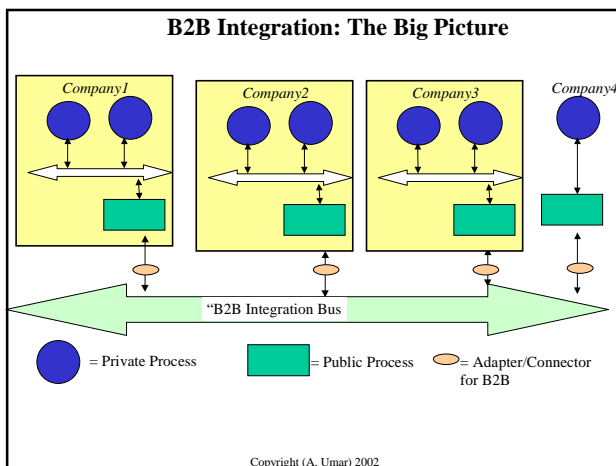
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eAI Superheavy - B2B integration



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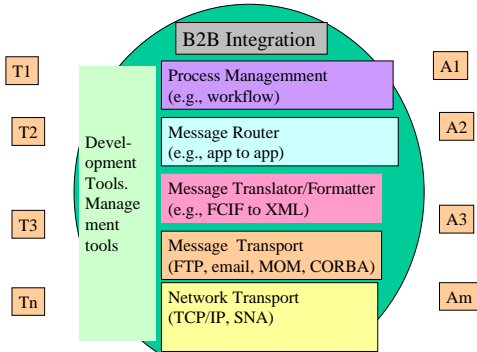


EAI Platforms

- Many platforms available for integration
- Support integration at several levels (see diagram on next page)
- Examples:
 - Businessware from Vitria (www.vitria.com)
 - Activeware from Webmethods (www.webmethods.com)
 - MQ Integration family from IBM
 - Tibco Integrator from www.tibco.com
 - Fusion from sun (www.sun.com)
 - Many others

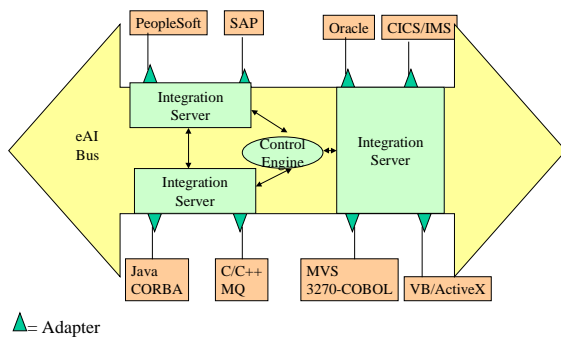
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EAI PLATFORMS - Coceptual View



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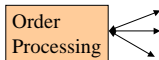
eAI -- A Closer Look



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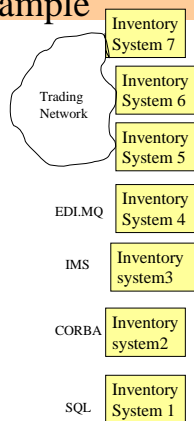
Integration Example

- An order processing application needs to talk to different inventory systems
- Integration challenge is easy (inventory system 1) to difficult (inventory system 2)

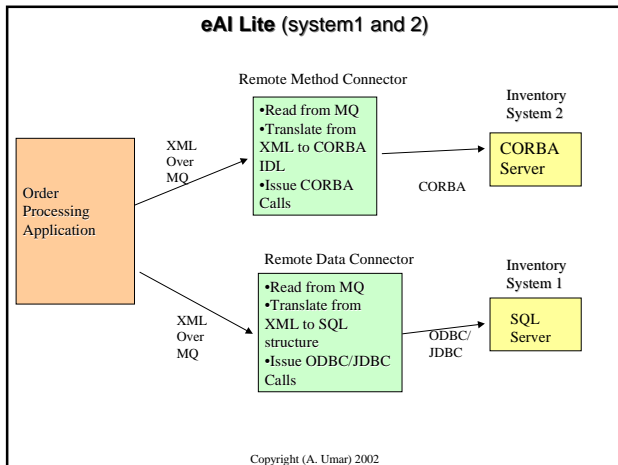


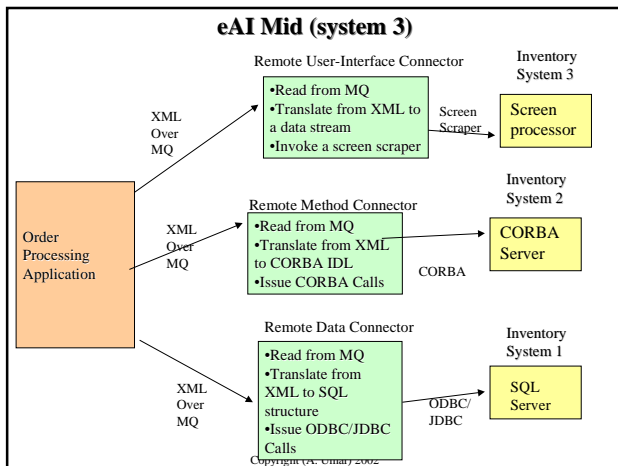
Item#, quantity, price
(XML, MQ)

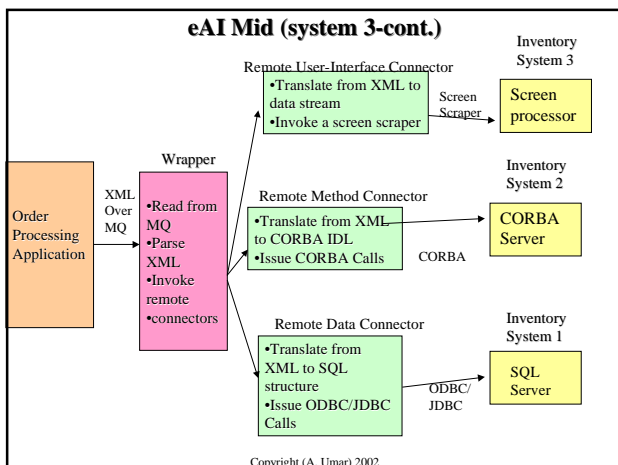
This example will be worked through various levels of integration (eAI Lite, eAI Mid, eAI Heavy, eAI Superheavy)

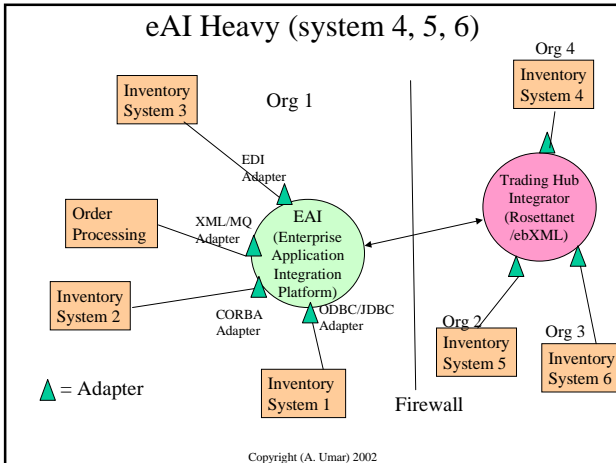


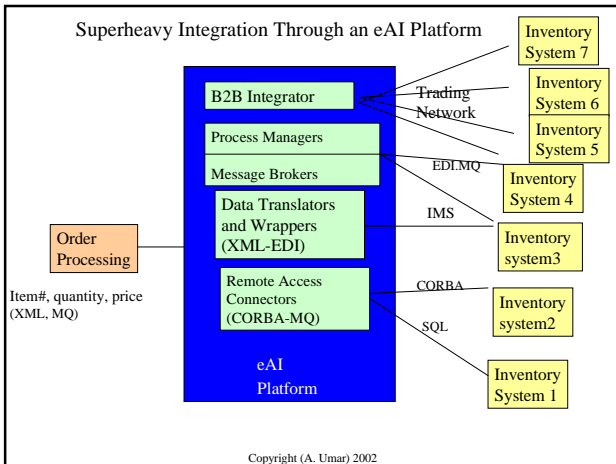
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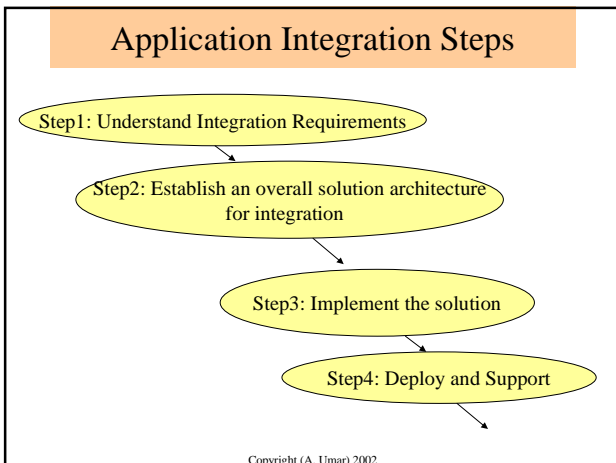


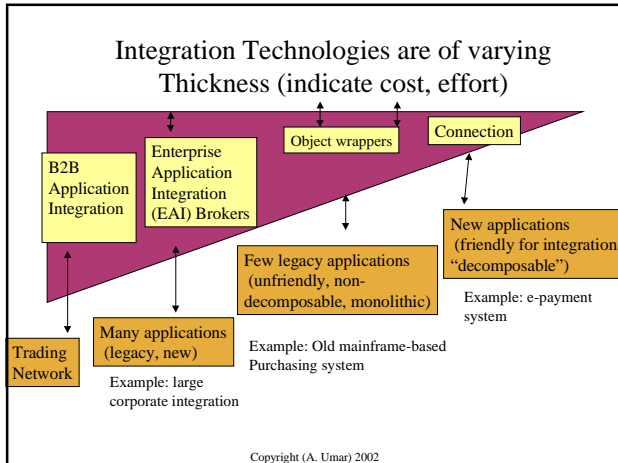


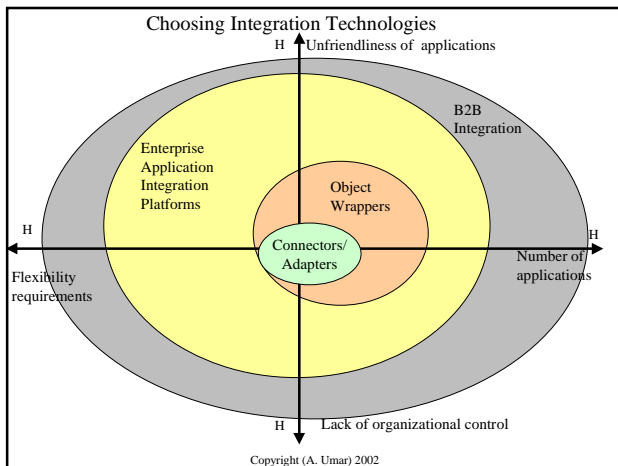












eAI Platform Selection -- High Level Factors

Technical features

- Transport services (MQ, CORBA, etc)
- Adapters available (ERPs, data/function/presentation level)
- Data mapping (XML, EDI, others)
- Event/Message handling (e.g., publish/subscribe, proprietary)
- Broker architecture (centralized hub versus distributed hubs)
- Process Management internal (workflow based, rule/event-based)
- Process Management – B2B interactions (e.g., Rosettanet)
- New Adapter development capabilities (ease of developing new)
- Monitoring and control capabilities
- Operability features (performance, security, fault tolerance, scalability)
- Overall openness and standards-base

Business features

- Company size, start and origin
- Significant alliances and partnerships
- Type and level of technical support (24 hours for overseas products)
- Cost and pricing policies
- Company staying power

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Key Points

- Integration challenges will continue to increase
 - Every new technology claiming to replace existing N becomes N+1
- Promises of integration
 - Leverages investment in existing systems
 - Reduces risks of reengineering by combining old with new
- Pitfalls of integration
 - Increases workload on existing legacy applications
 - May not be good for long range (Migrate, Warehouse)
 - Creates unique testing challenges
- There are many EAI platforms to help (potentially)
 - IBM SI, Vitria, Active, Tibco, STC, Crossworld,,
- Many frameworks are emerging for enterprise wide integration (J2EE, IBM ebusiness Framework, Microsoft's .Net)
- There are many, many testing challenges

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Sources of Additional Information

- eAI Journal
- Lithicum, L., "B2B integration" Addison Wesley
- Ruh, w., "Enterprise Application Engineering", Wiley
- Ovum, "Enterprise Application Integration", Dec. 1999
- IBM's business patterns: <http://www-106.ibm.com/developerworks/patterns/>

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