XML : The Glue between Existing IT and E-commerce

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Session AD-03

The Goal…

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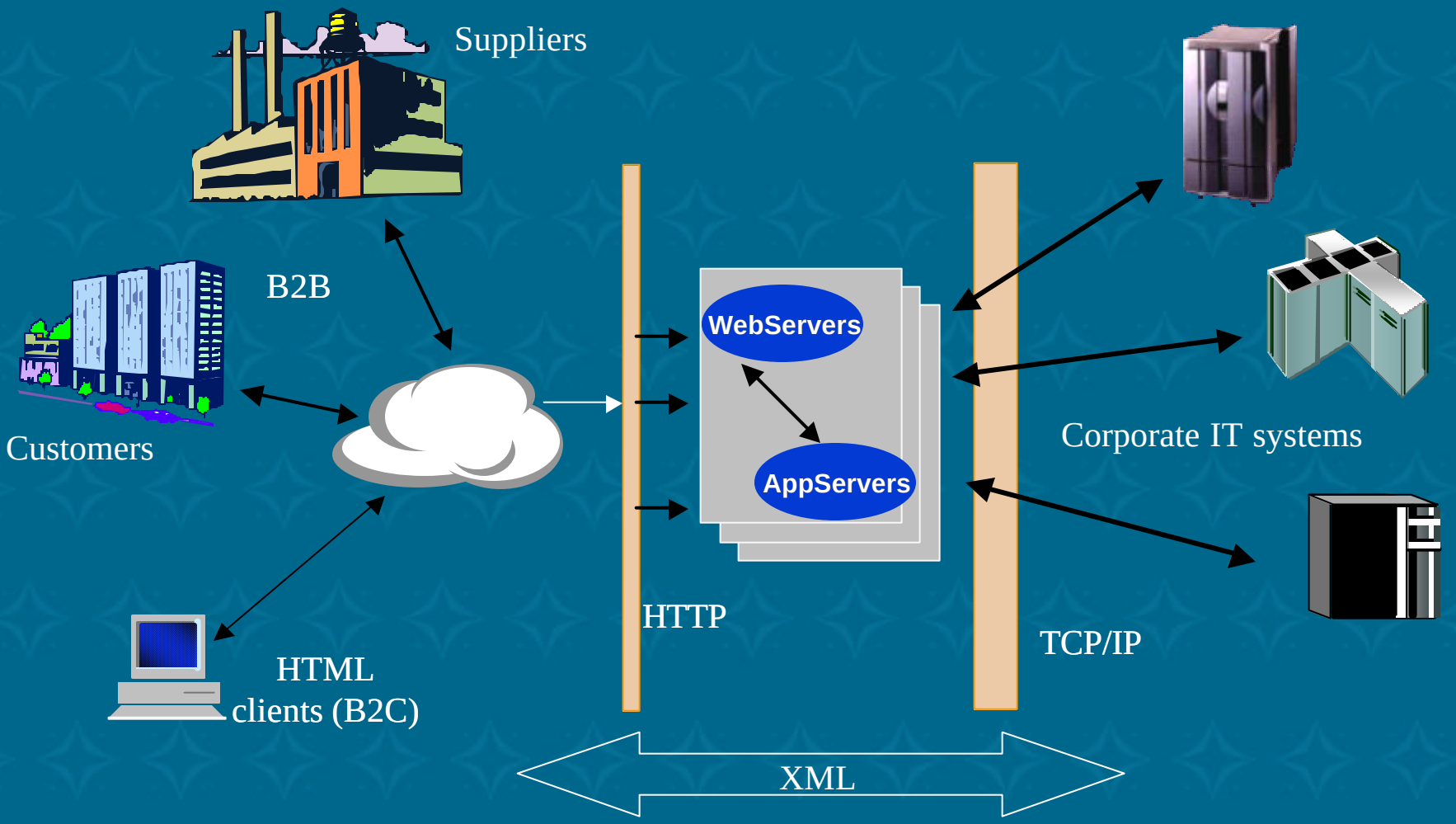

What's so special about XML ?

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```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE WORKSPACE SYSTEM "workspace.dtd">
<workspace>


<tcpipDefaults>
        <connection TCPIP_ADDRESS=190.50.50.23 TCP_NODELAY=1 TCPIP_BUFFER_SIZE=32767/>
        <connection TCPIP_ADDRESS=190.50.50.25 TCP_NODELAY=0 TCPIP_PROCESS_NAME=$ztc2/>
</tcpipDefaults>


<preferences>
    <defaultProtocol>TCPIP</defaultProtocol>
    <iniType dynamic=0 chained=0 />
     <filePreferences useFifo=0 useCfile=0/>
    <tracePreferences MSGLOG_LEVEL=NWDS_MLSERROR MAX_ERRORS=3/>
    <userNamePreferences USER_NAME_GROUP=commonUser/>
</preferences>
</workspace>
```

- Self –describing
- Greatest common divisor for many products and interfaces.

Self Describing Messages

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Take a simple 3 field message layout:

- Partnumber = “DRX3”
- Quantity = 22
- Cost = “$1.20”

Each field in an XML message is “tagged” so that location in a message becomes largely irrelevant

Legacy Format

DRX322$1.20

XML Format

```
<Partnumber>
                “DRX3”
</Partnumber>
<Quantity
                22
</Quantity>
<Cost>
                $1.20
</Cost>
```

Application Co-dependence

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If the sender (Application1) changes the message content to :

Partnumber = “DRX3”

Weight = 47

Quantity = 22

Cost = “$1.20”

Legacy Format

DRX34722$1.20

Then the receiver (Application2) must change as well, at the same time, in order for the system to continue functioning properly.

Reduced Interdependence

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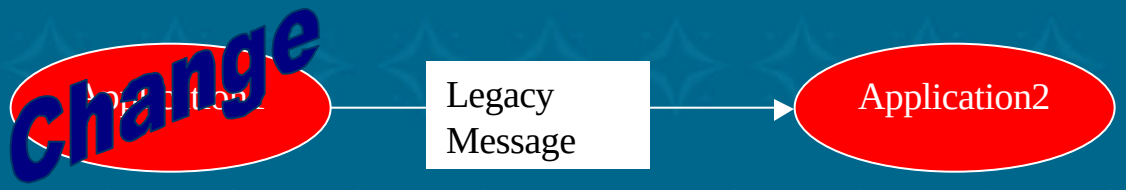
- The receiver (Application2) can still obtain Partnumber, Quantity, and Cost without regard to the new field "Weight"
- The sender and receiver applications can be modified and upgraded independently (in many cases).

XML Format

```
<Partnumber>
                "DRX3"
</Partnumber>
<Weight>
                47
</Weight>
<Quantity>
                22
</Quantity>
<Cost>
                $1.20
</Cost>
```



Translation

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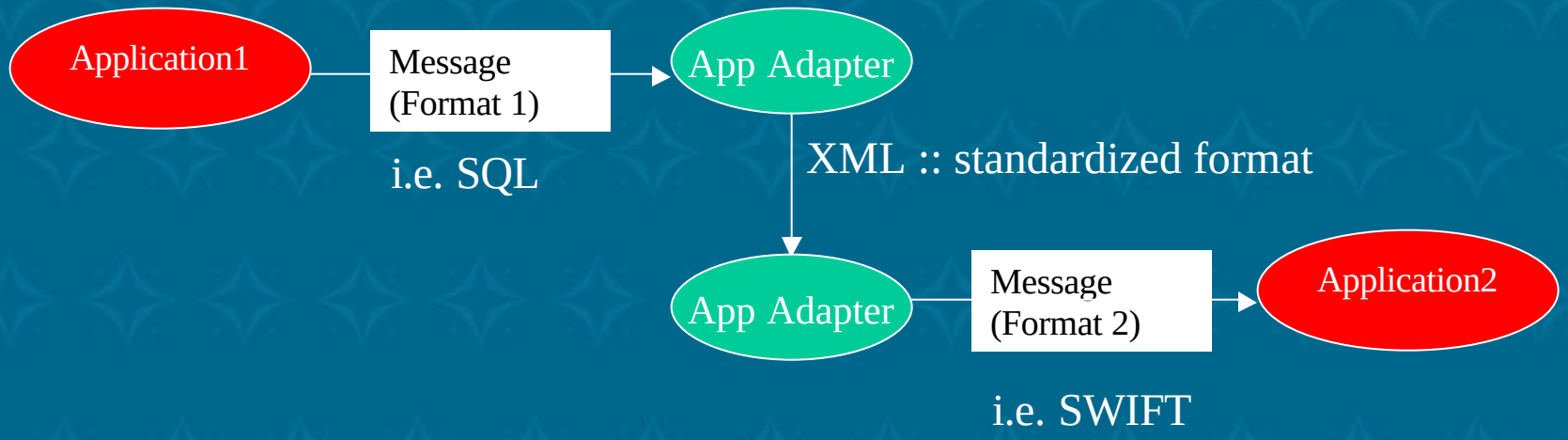
- The ability to take a given data format or interface and convert it into a “standardized” representation.
- Application “Adapters”, or “Wrappers”



Transformation

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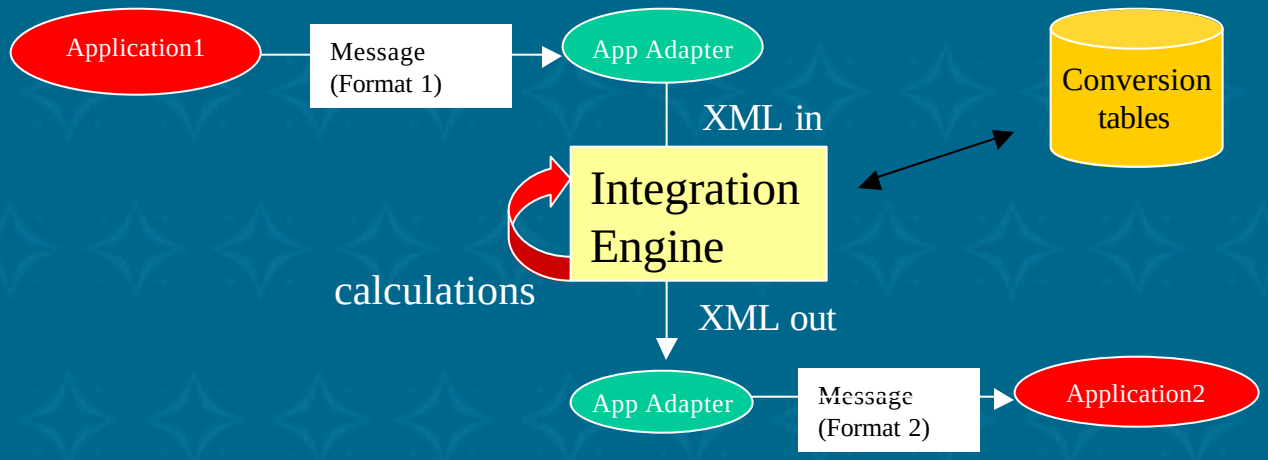
- The ability to derive field-level information from calculated and/or external sources.
- For instance, Part Number conversion between systems, or a calculated total price, given unit price and quantity.



*XML is not the first self-describing data representation (ASN.1/BER), but it ***is*** the first with widespread support*

Most, if not all, EAI and B2B integration tools today have a XML story, or they are not a serious player

However…

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- XML is not standardized (Different “dialects”)
  - DTD’s (1.0) vs. Schemas (2.0)
  - SOAP (Simple Object Access Protocol)

  Co-operating applications must agree on the XML dialect with all parties, or support multiple dialects
- XML is a (meta) language. XML dictates how, not what, is exchanged.

  Field sets and field semantics must be understood between communicating parties

Integration tools help..

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- XML based integration tools may provide support for multiple XML dialects, and provide mapping/manipulation services to tailor data for specific applications.
- B2B and EAI differentiation and convergence.

B2B and EAI space delineation

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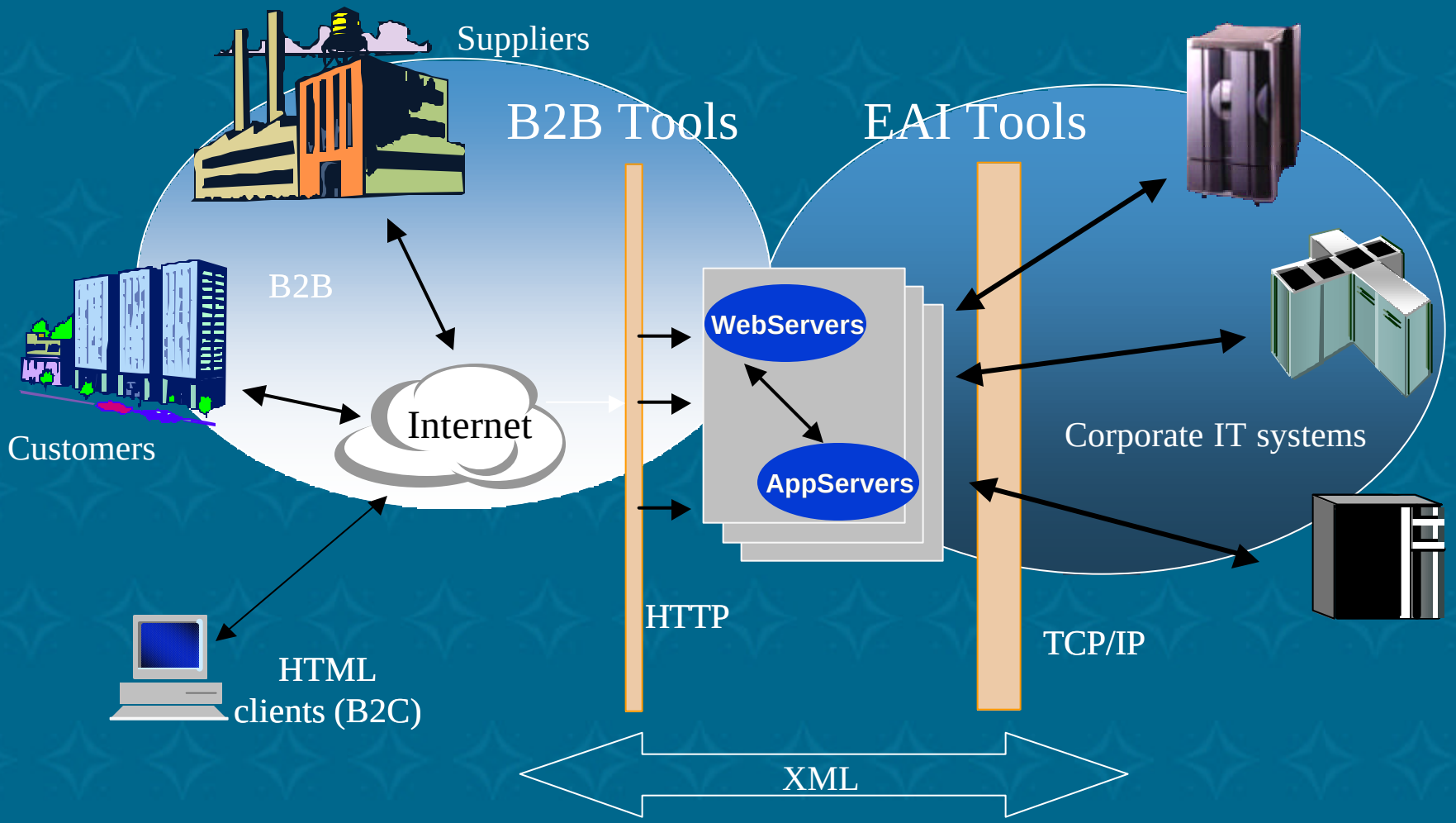

Integration Platforms

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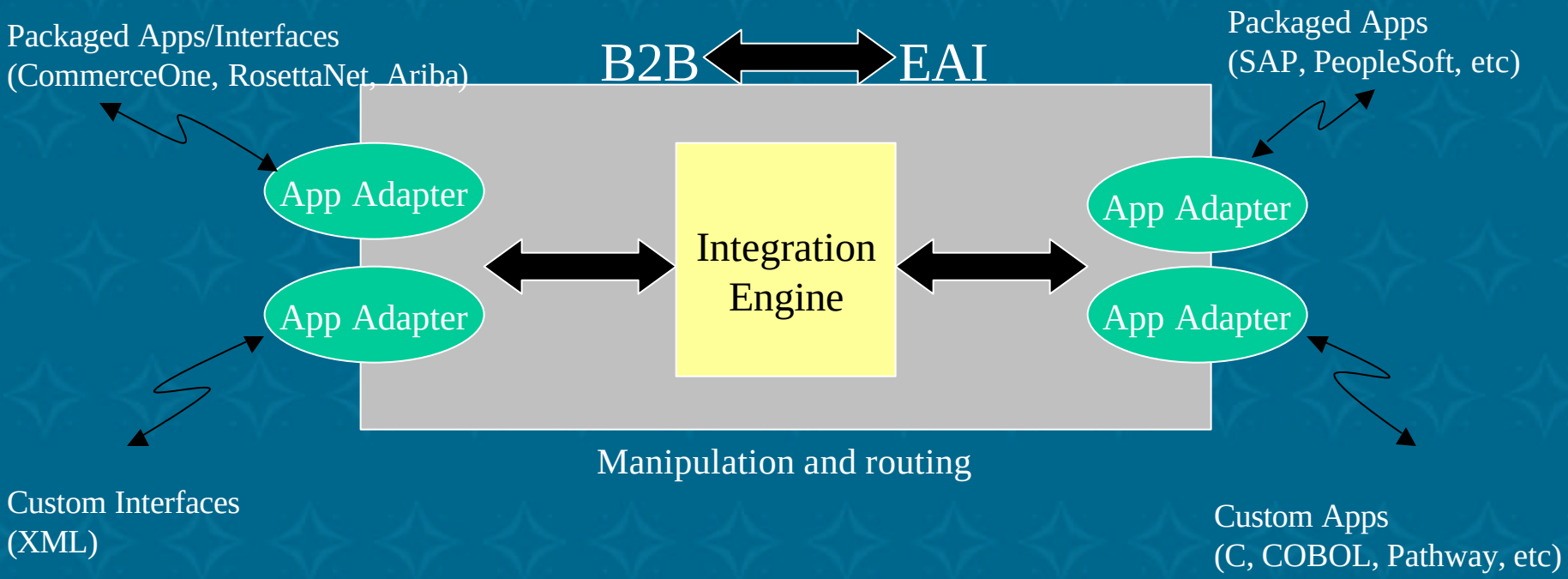
B2B and EAI platforms share a number of common features:



Differentiating Features

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B2B

- Inter-Enterprise Integration
- XML/EDI and EDI Interfaces
- Certificate-based Security
- HTTP based transports
- Trading Partner support and setup.

EAI

- Intra-Enterprise Integration
- Custom interface adapters
- 3rd Party package adapters
- Workflow management
- Message brokering

Convergence

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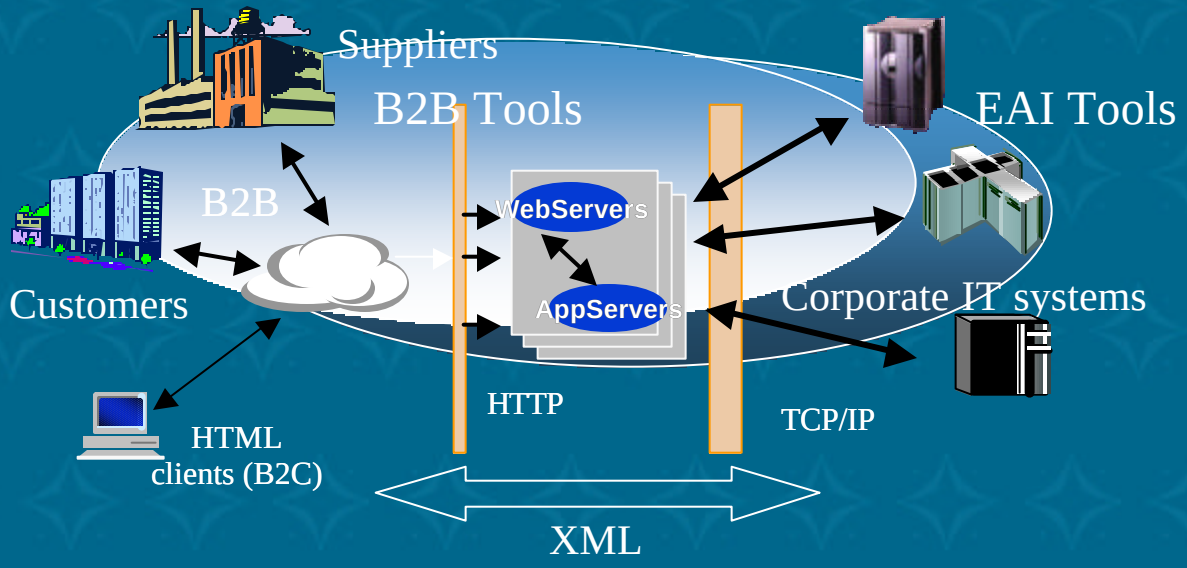
The distinctions between B2B and EAI tools are blurring.

- EAI tools producing B2B features
- B2B tools acquiring EAI features
- Merger/Acquisition activity as Vendor space consolidates



Some Vendor Tools and details

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A review of XML integration methods and capabilities

IBM MQ Series Integrator

Microsoft .NET

mercator

bea BEA Tuxedo/eLink

IBM MQ Series Integrator

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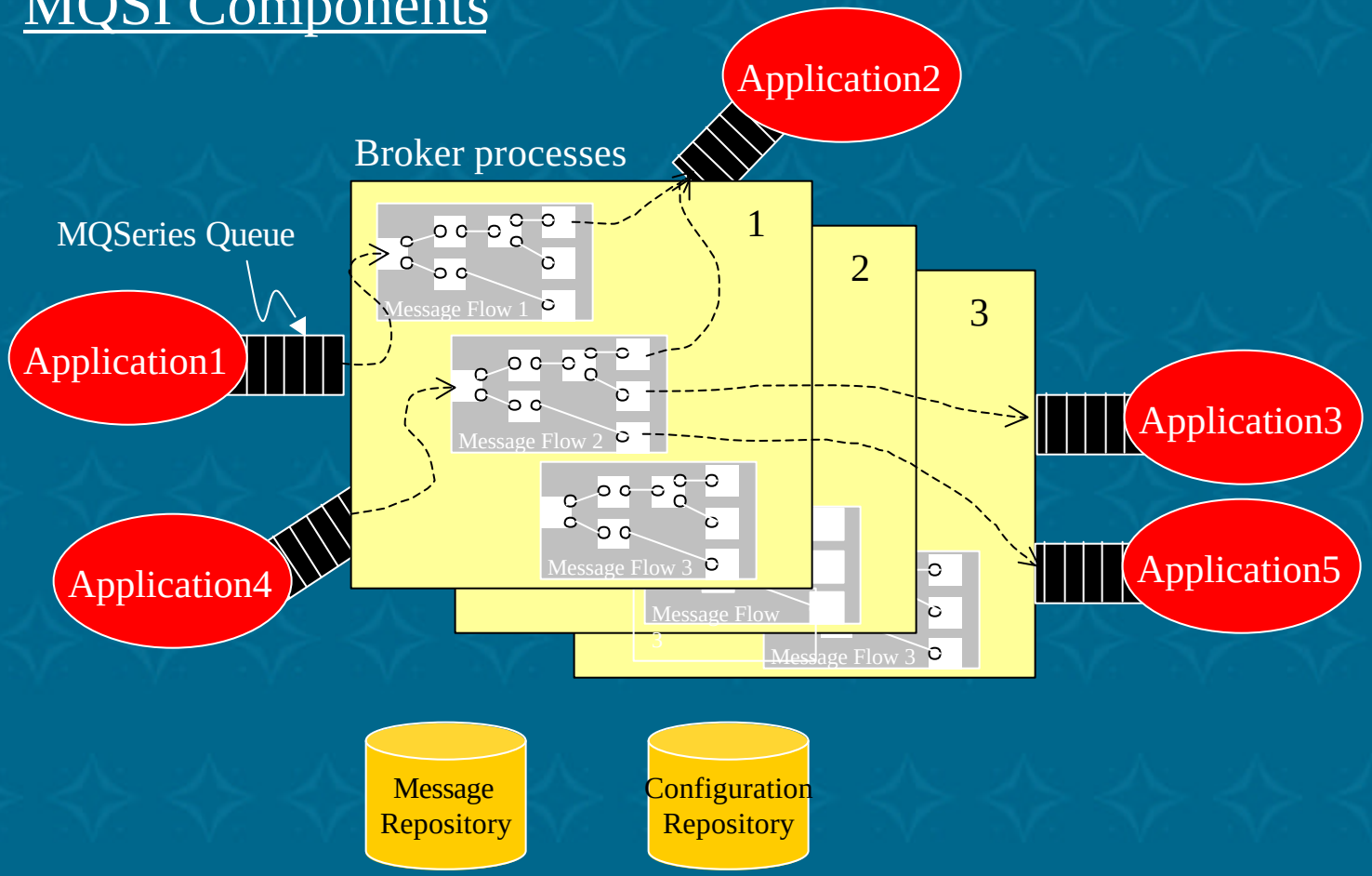
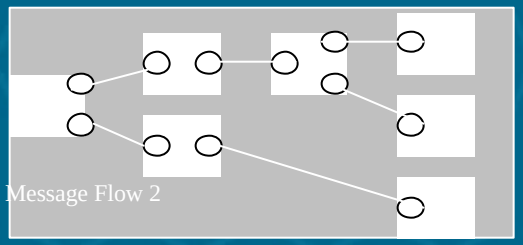
MQSI Components



MQSI

Applications send and receive messages from the MQSI broker through standard MQ Series message queues.

The broker contains user-written message flows, which interrogate inbound messages, perform calculations and make routing decisions, and construct outbound message(s) as desired.



MQSI Message formats

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- The user-written Message flow can reference message data logically. (I.e. “message.body.price”)
- The MQSI Message Dictionary provides mapping between logical and physical model.
- Physical message formats may be XML, OAGI Business Object Documents (BODS), Legacy record format, and/or SQL.
- Logical/Physical message operations are done on both inbound and outbound messages.

MQSI message flows

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- User written message flows provide conditional logic, message routing based on content, and message manipulation irrespective of physical format.
- MQSI provides building-block nodes for constructing message flows:
  - Input and output nodes
  - Conditional nodes (I.e. test)
  - Calculation nodes
- Message flow development consists of hooking together building blocks visually.

MQSI Platforms

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- MQSI operates on Windows NT/2K, AIX, and Solaris.
- Some GUI components (Control/Configuration Management) must run on Windows NT/2K.
- Applications operating on many other platforms may participate via MQ Series queues.

Mercator E-business Broker

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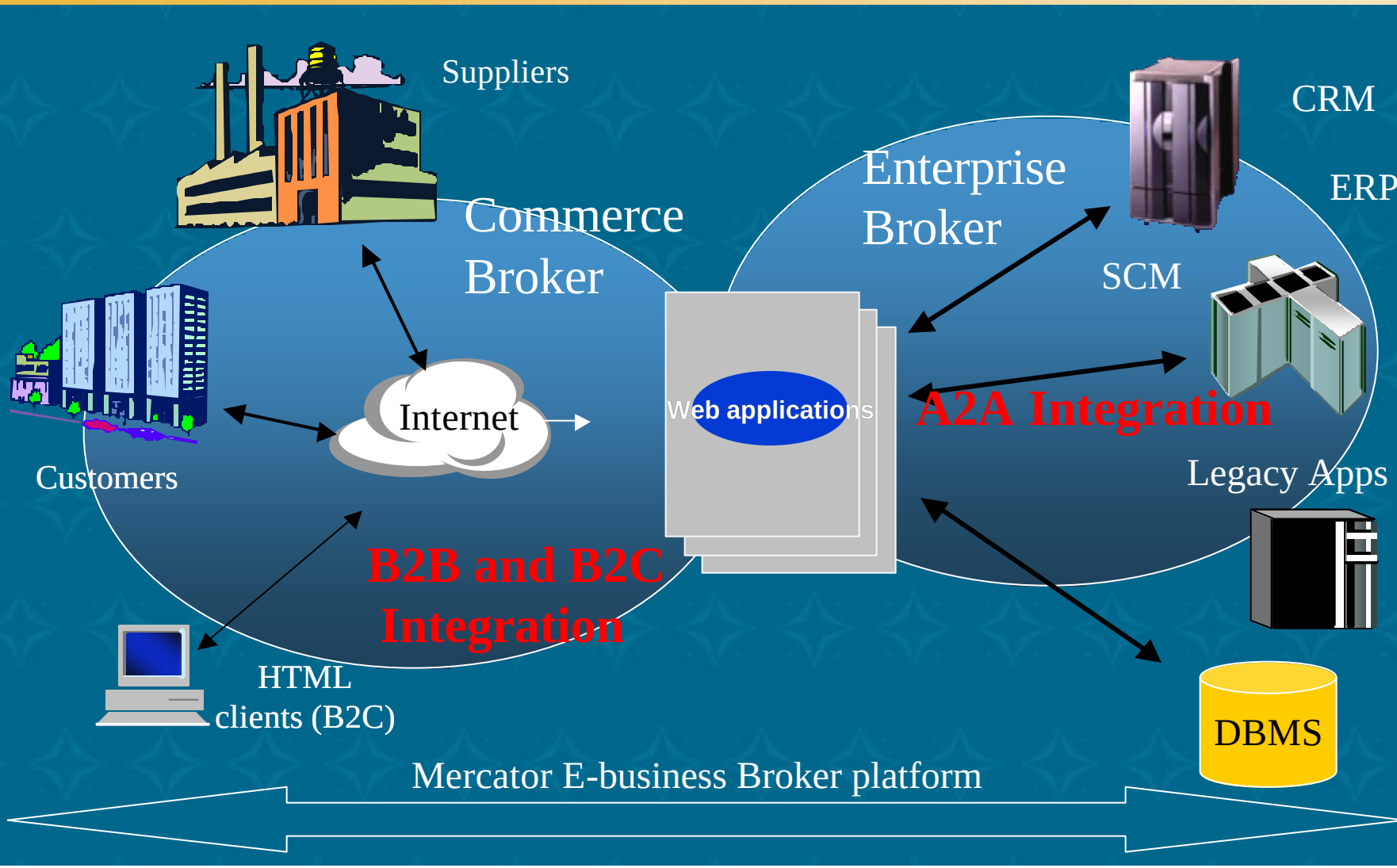

Mercator E-business platform

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- Consists of the Enterprise Broker for Application to Application (EAI) integration.
- Commerce Broker provides B2B and B2C integration capabilities
- Mercator is the transformation & translation king, supporting the broadest array of data formats.

mercator

Mercator & Middleware

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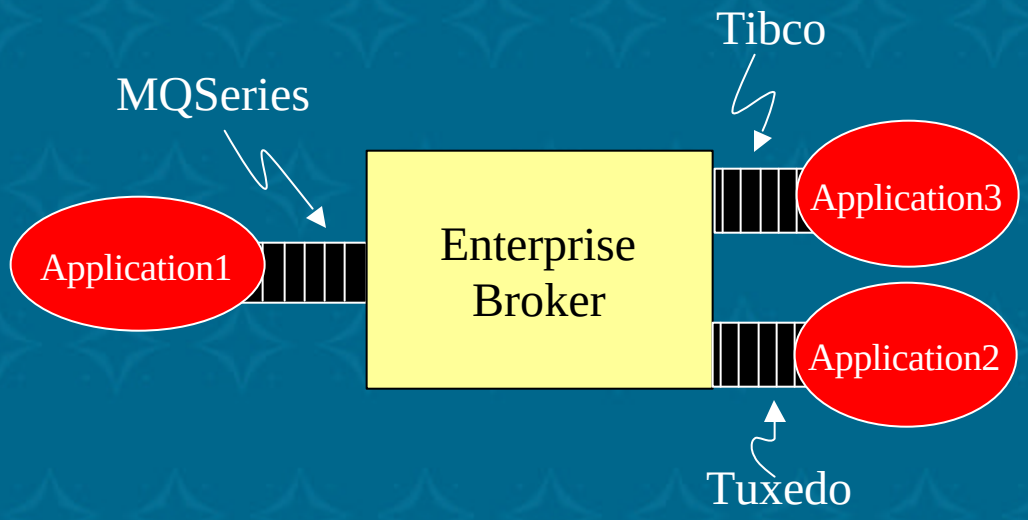
- Middleware agnostic -

  Enterprise Broker supports MQSeries, MSMQ, BEA Tuxedo, Tibco Rendezvous, Candle Roma, and others.



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Data Format & Interface support

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- Broad Data Format support
  - XML, SWIFT, X12 EDI, EDIFACT, ODBC, Legacy Record definitions, Odette, HL7.
- Broad 3rd Party package support
  - SAP, PeopleSoft, and Oracle.

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Mercator Design Studio

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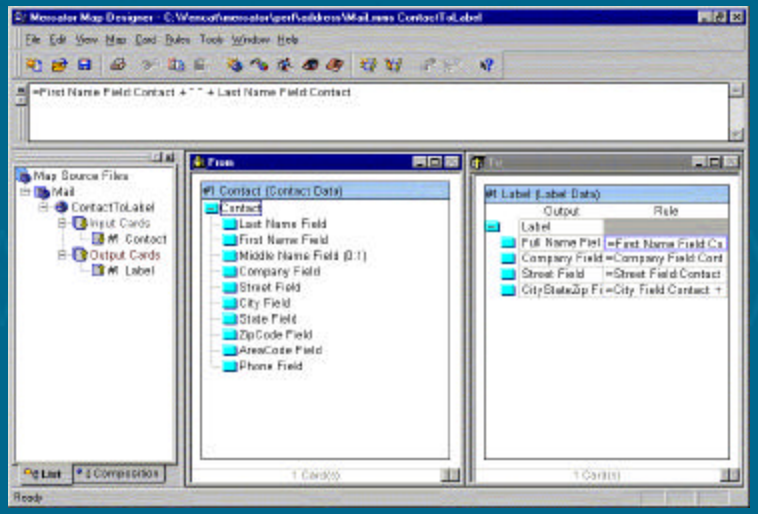
- Windows based GUI for interface definition and configuration.
  - **Interface Flow Designer**. Graphical, tool-based flow creation tool.
  - **Type designer**. Creates and/or imports data definition schema
  - **Map designer**. Definition of data content transformation and content-based routing



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Platform Support

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- Windows 9x/NT/2000
- IBM AS/400 – OS/400
- UNIX : AIX, Solaris, HP-UX, Stratus FTX, Pyramid Reliant
- Compaq OpenVMS, Tru64, NSK
- IBM Mainframe (MVS, CICS)

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Compaq ZLE

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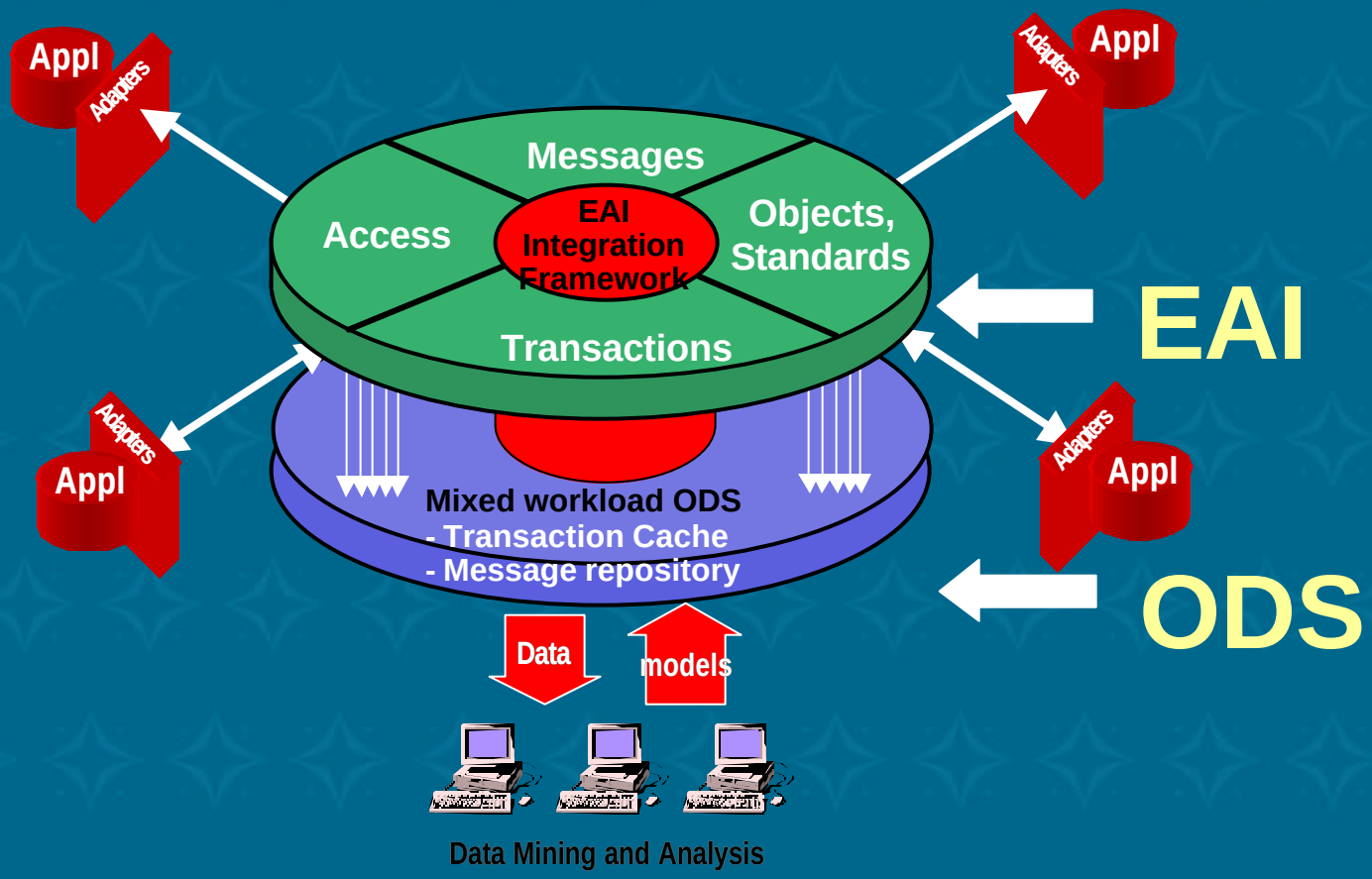

Two Integration Frameworks

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- Tuxedo/eLink
  - Based on BEA eLink and integratted with the WebLogic Business Platform
  - Focus on X/Open standards, including XA 2PC and XATMI
  - Robust suite of application adapters
  - XML support

- Corba/Java
  - Uses Mercator as the Data Transformation Engine (DTE)
  - Focus on Adapters and middleware support
  - Robust suite of application adapters
  - XML support

eLink Architecture

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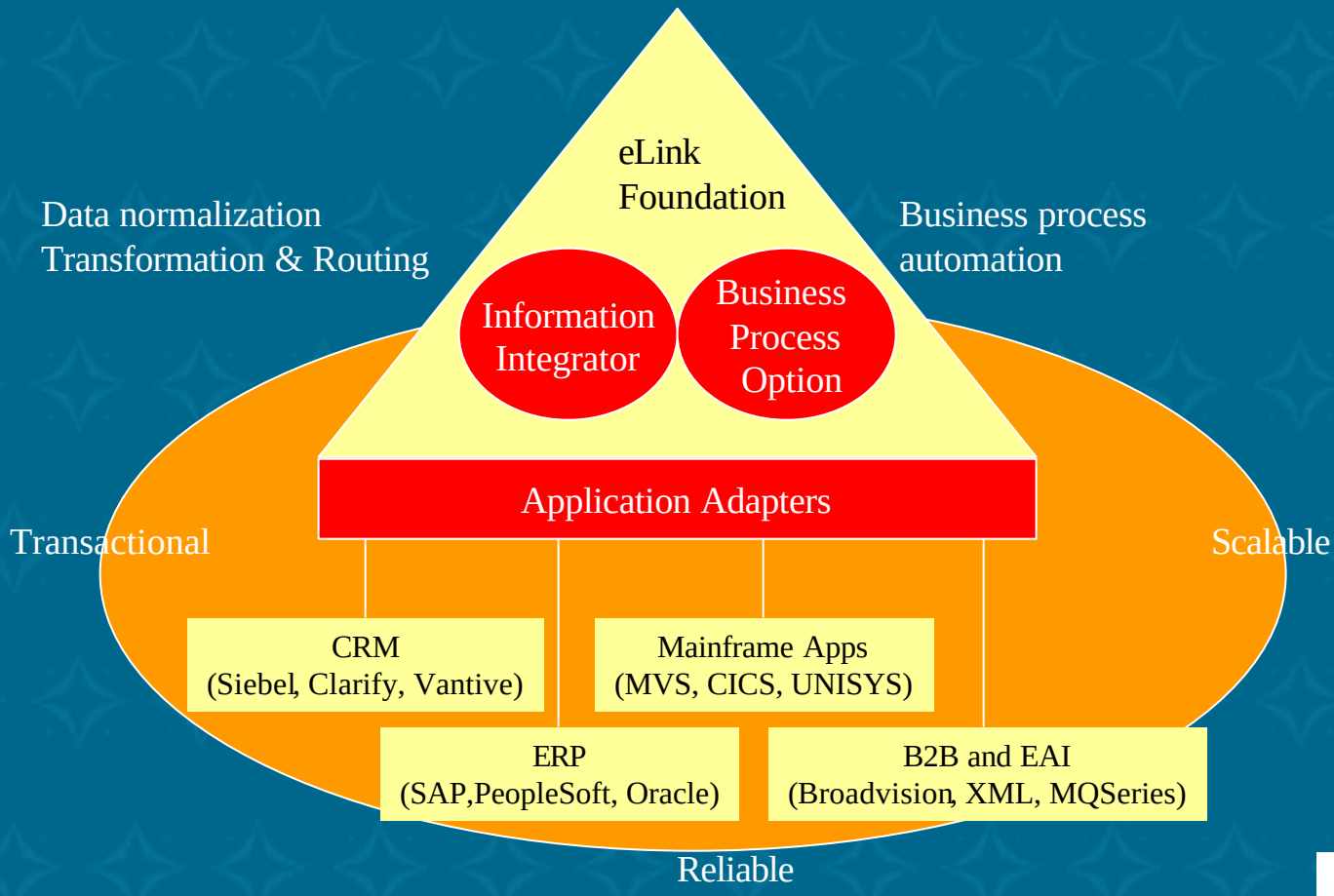

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eLink Integration Integrator

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- Key components
  - Language Loaders (SAP, COBOL,etc)
  - Message Formatter
  - Content and process rules engine
  - Message routing
- Message implode/explode operations
  - Order header/Order lines processing
- GUI-based control interface
  - Test tool, data definition/loading, Rule specification

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Microsoft .Net Initiative

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- New, simplified programming model
  - End of Registry, GUIDS, “DLL Hell”
- Common Language Runtime model that spans four programming languages (C/C++, VB, C#, Jscript)
- “Assemblies” run across all MS Windows platforms, including non-X86 platforms such as WinCE and 64Bit Windows
  - Employs Intermediate Language (MSIL) and Just in Time Compilation (JIT) to machine language
- 3rd parties creating .NET compilation to MSIL for additional languages (Perl, APL, Pascal, Smalltalk, Java!)

Microsoft

.Net Integration

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- BizTalk 2000 (2.0) integration server
  - Integration for both EAI and B2B services
  - Native XML support, based on XML Schemas and SOAP
    - Transformation and serialization facilities for conversion to and from non-XML formats (i.e. EDI)
  - Multiple Paradigm messaging services
    - Point to Point (limited scale integration – SMORG)
    - Distribution list
    - Data Distribution Bus using Publish-Subscribe messaging (LORG)
  - Supports Windows (.Net and pre-.Net) and non –Windows applications

Microsoft

Point to Point Configuration

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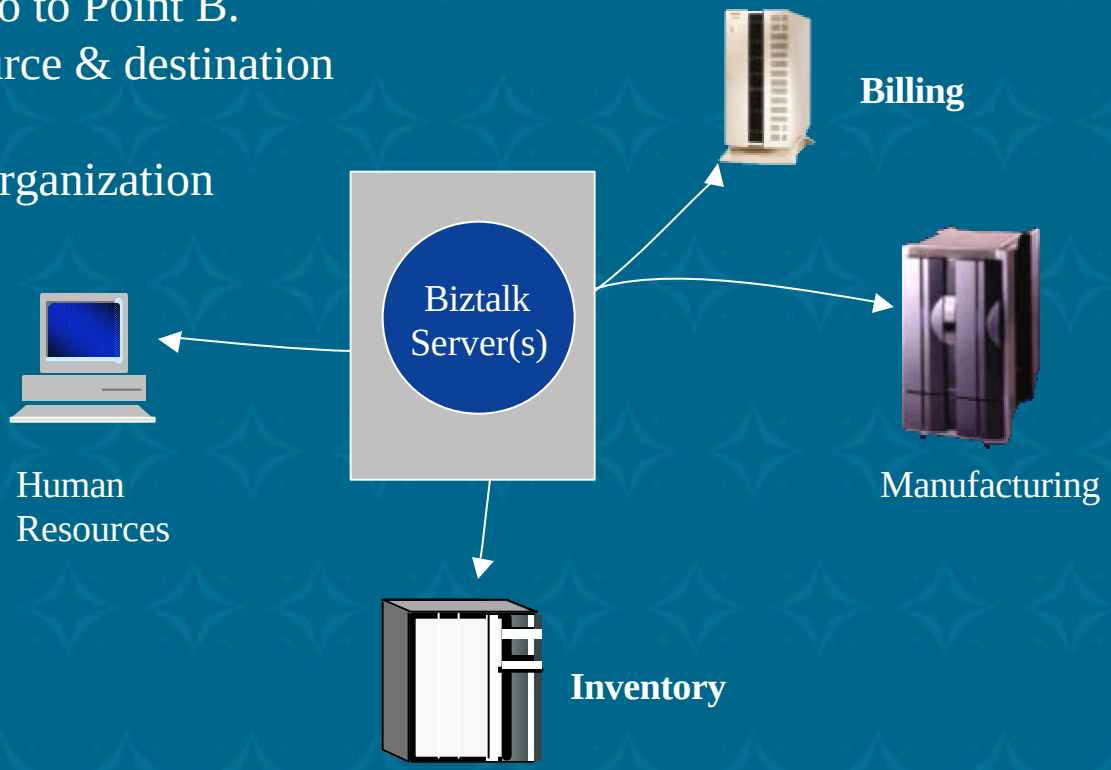
Routing Rules are simple.

- Messages from Point A go to Point B.
- Messages have single source & destination

Typifies a small/medium size organization



Distribution Bus network

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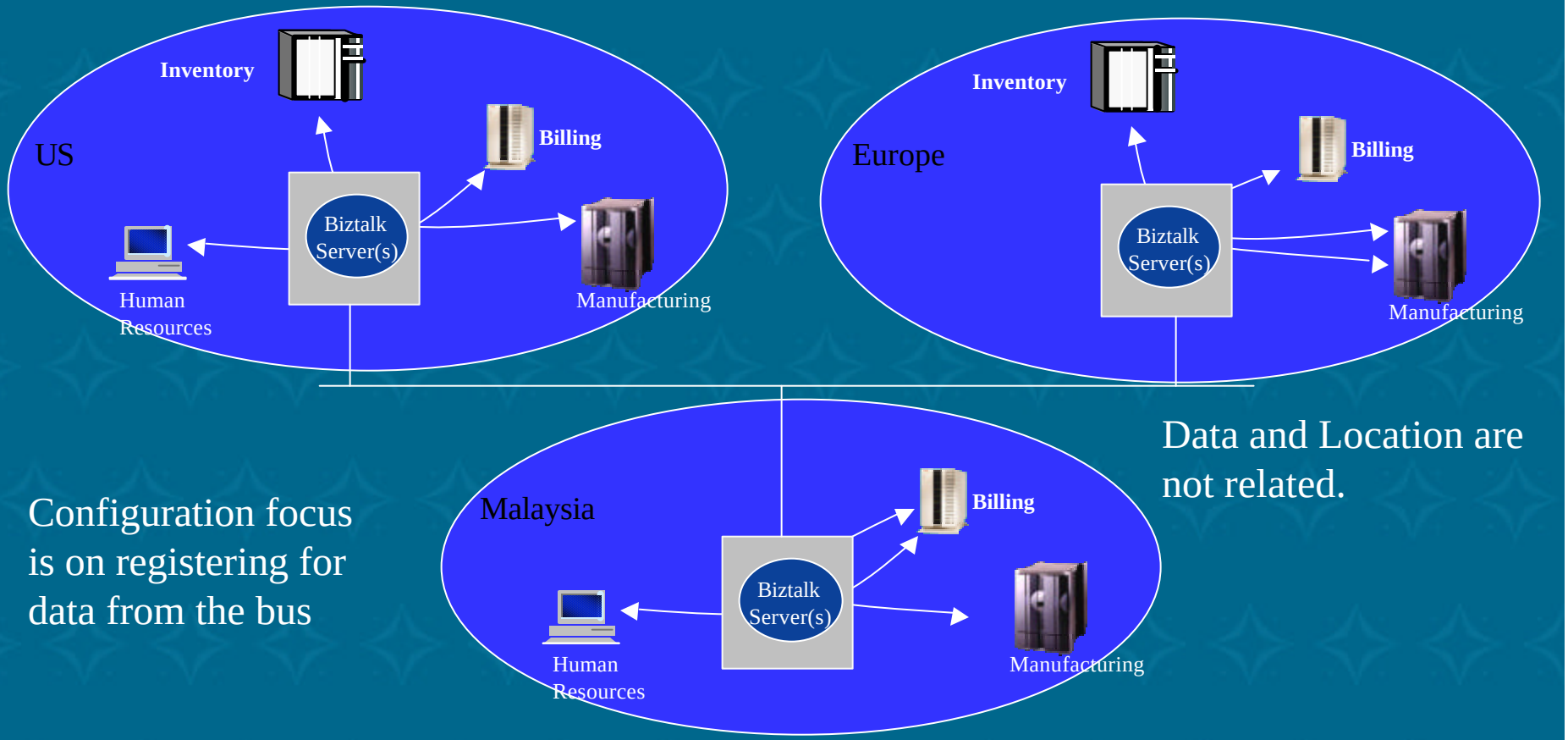
- Large Organizations need a more distributed, decentralized network to match operations to business practices



Configuration focus is on registering for data from the bus

Data and Location are not related.

Transforming Documents

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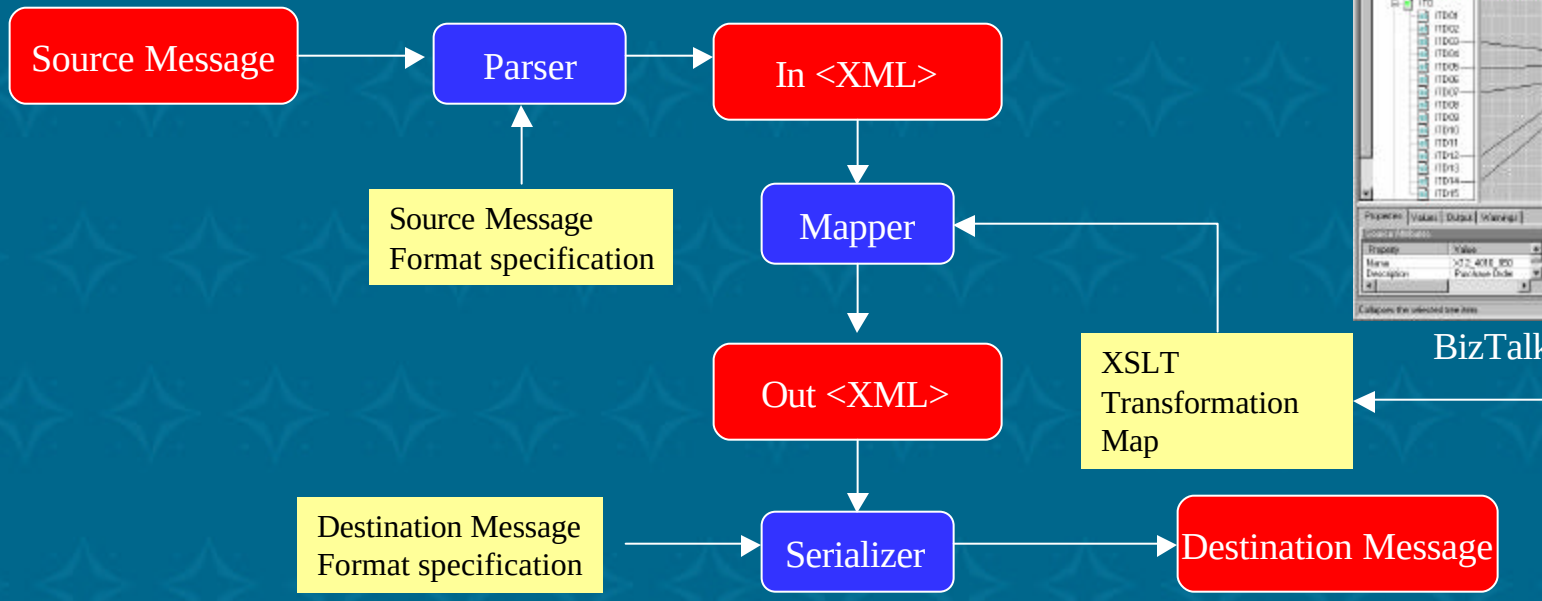
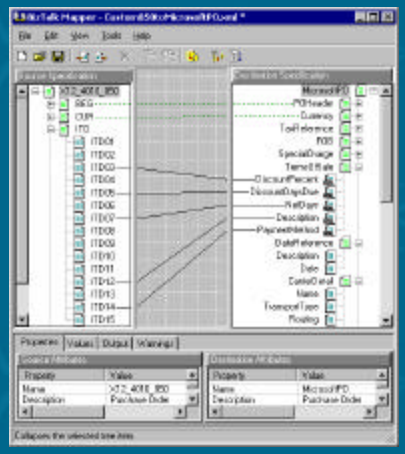
- Biztalk operates on XML formatted messages
- Parsers & Serializers may be supplied with BizTalk (i.e. EDI), written by 3rd Parties, or supplied by customers





BizTalk Editor

BizTalk Orchestration services

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- XLANG scheduling provides business process automation capabilities
- Correlates Source (transport, document specification) operations (mapping, routing) and destination (document spec, transport) together into a business process.
- Provides for long and short-running transaction support
- BizTalk Orchestration Designer provides GUI for specifying and managing XLANG schedules.

Summary

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- We have seen a number of products & technologies with a number of similar features
  - Integration Engines for routing and transformations
  - Application adapters for disparate message format inclusion
- Each has feature points:
  - Mercator :: Broad range of adapter support
  - eLink :: Transactional support, X/Open conformance
- All Support XML :: some natively, some as an adapter technology
  - XML is the minimum integration level that allows these products/services to interoperate

XML as GCD

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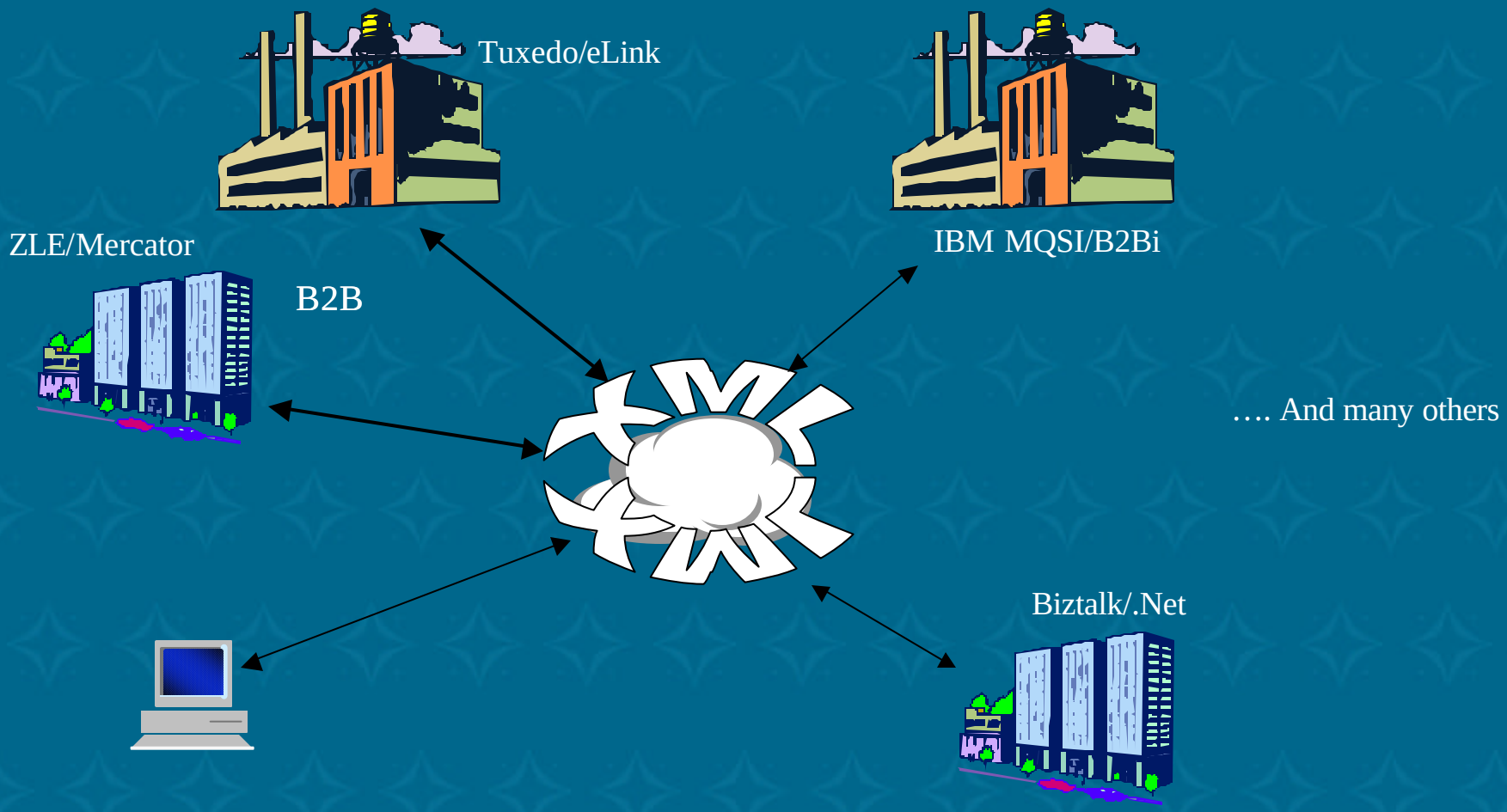

Thanks !

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- Any comments or questions are most welcome.
- For a copy of the slides, drop me an e-mail at ronb@vertexinteractive.com.
- References:
  - www.compaq.com/zle
  - www.microsoft.com/net
  - www.biztalk.org
  - www.mercator.com/products/products_entbroker
  - www.bea.com/elink
  - www-4.ibm.com/software/ts/mqseries/integrator