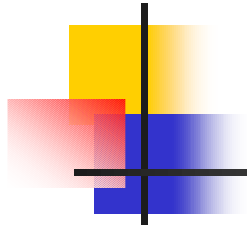


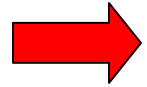
Enterprise Application Integration (EAI) Technologies for Data Administrators

Section 3

EAI Technologies for Data Administrators



Session Topics



A. XML EAI Messaging Using BizTalk

B. XML EAI Messaging Using ebXML

C. EAI Technologies for Data Warehousing



A. XML EAI using Microsoft BizTalk

BizTalk Server Supports:

- Business to Business (B2B) and e-Commerce
 - **Trading Partner Integration**
- Automated Procurement
 - **Maintenance repair and operations (MRO) pricing and purchasing, order tracking, government procurement**
- Business to Business Portals
 - **Trading communities, electronic catalog management, content syndication, post-sale customer management**
- Business Process Integration or Exchanges
 - **Commerce site to ERP, to legacy and ERP to ERP integration**



A. BizTalk Product Features

- Support of complex business process definition, automation and integration
- Document interchange, business-rules-based routing
- Application integration for ERP applications
- Security with digital signature and encryption
- Support for existing industry data formats
 - Including XML, HTML, Flat Files, EDI X12, EDIFACT
- Support for industry transport protocols
 - Including HTTP, SMTP, SMIME, FTP, DCOM, MSMQ, SNA, EDIINT



A. Document Transfer Scenarios

Securities Industry Example

- Multiple document interchanges
 - **For buy/sell of securities**
- Quotes and Orders
- Settlement of Trade

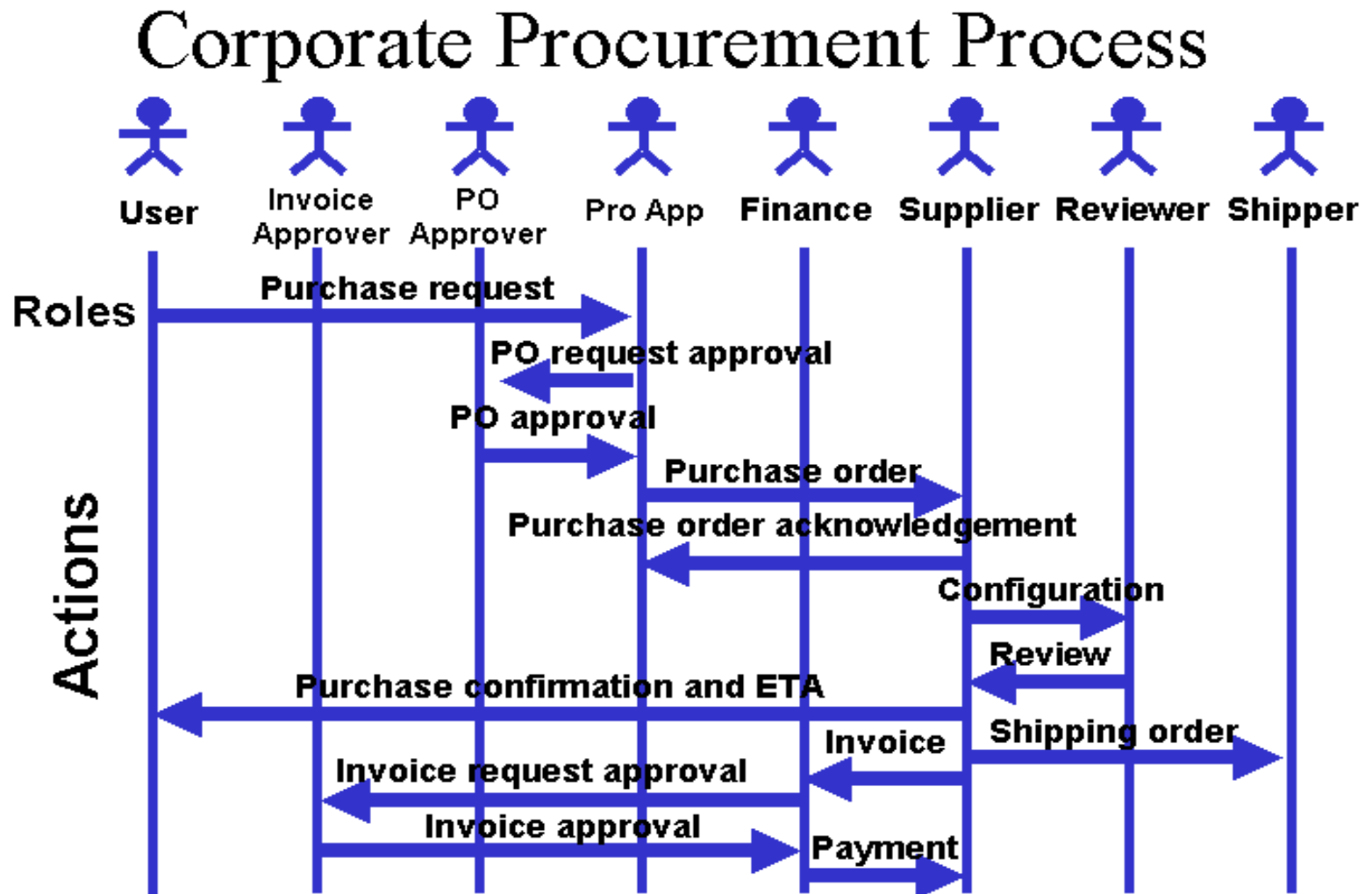
Healthcare Industry Example

- Admission and Eligibility Verification
- Observations and Orders
- Submission of Claims and Remittance
- Discharge of Patient

Supply Chain Example

- Request for Quotation (RFQ)
- Purchase Order (PO)
- Order Receipt
- Supplier Invoice and Payment

A. Multiple Document Interchanges





A. BizTalk Server 2000

- **BizTalk Server**

- **Supports Enterprise Application Integration (EAI)**
- **Supports B2B Orchestration of Business Processes**
 - Windows 2000 Professional, Windows 2000 Server, Windows 2000 Advanced Server or Windows 2000 Data Center
 - Windows XP Professional, Windows.NET Server, Windows .NET Advanced Server or Windows.NET Data Center.

- **Web-based development and execution**

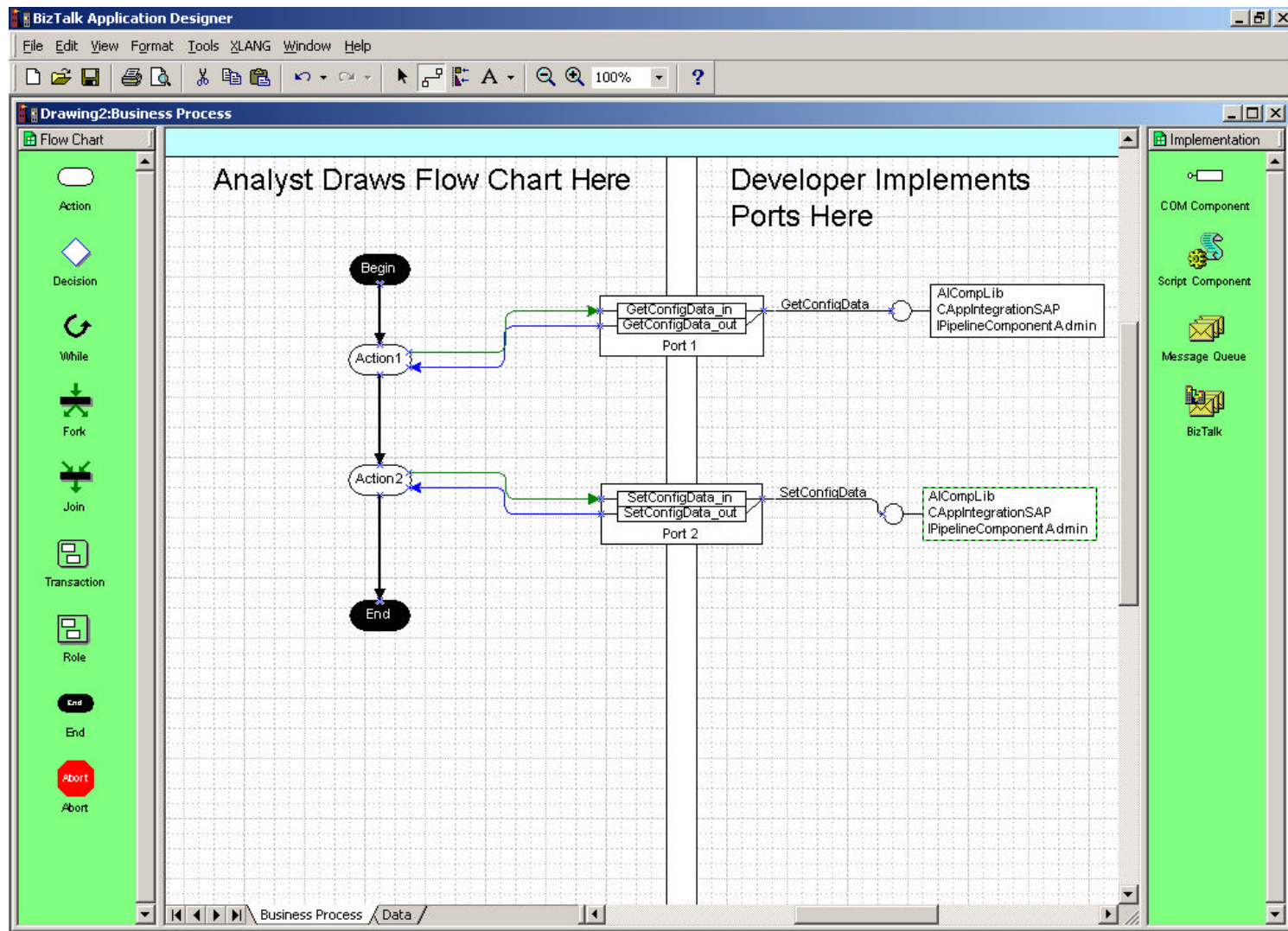
- **Integrates loosely coupled, long-running business processes within and across enterprises**
- **Handles transactions that run for weeks or months, not just minutes and hours**



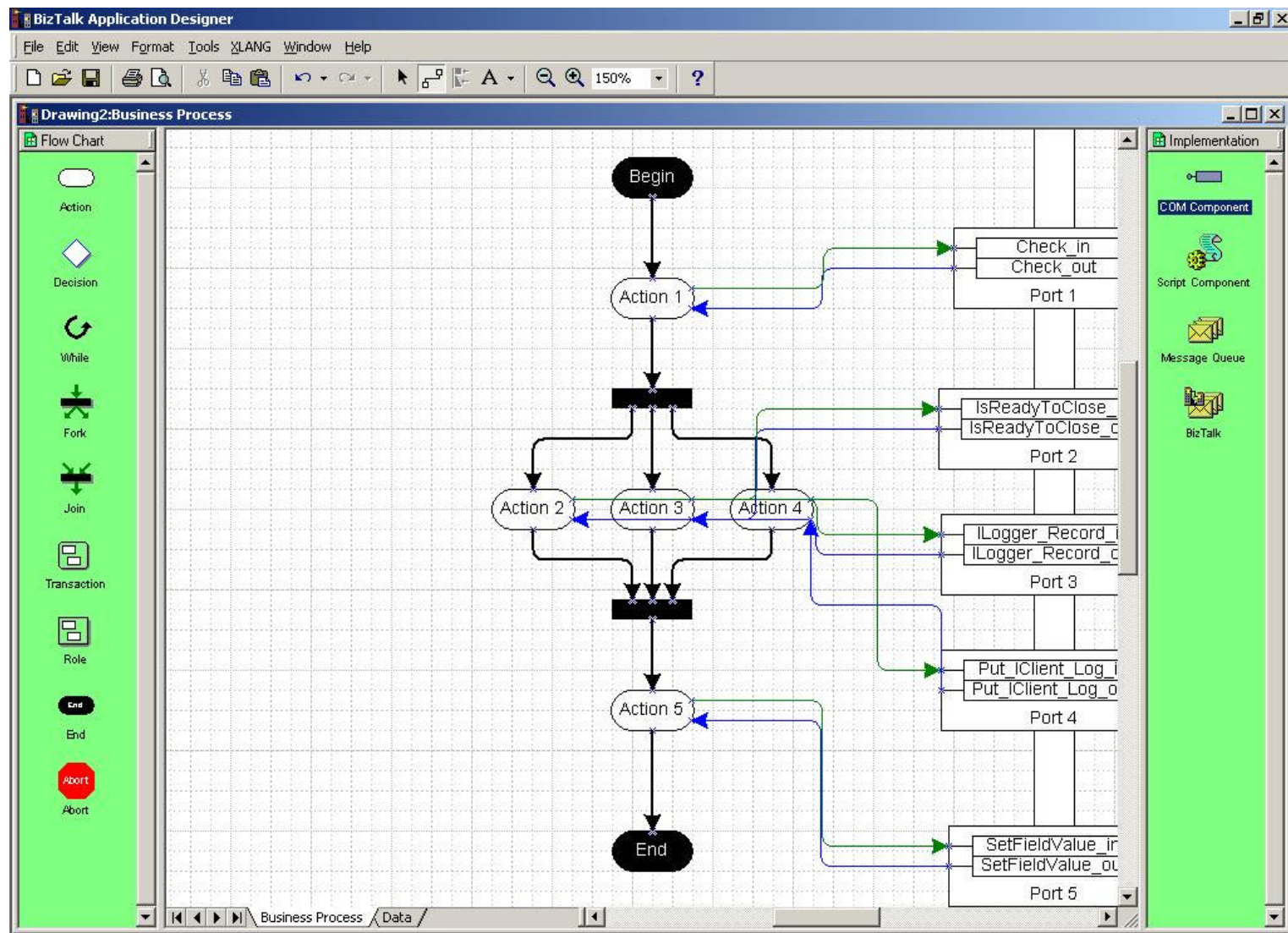
A. BizTalk Orchestration Services

- **Create schedule drawings that describe business processes**
- **Implement business processes**
 - Connect specific actions within drawing to ports
 - Represent locations to which messages are sent or from which messages are received
- **Define flow of data between messages for business processes**
- **Compile schedule drawings into process schedules**

A. Business Process Orchestration



A. Concurrent Process Orchestration





A. BizTalk Orchestration Benefits

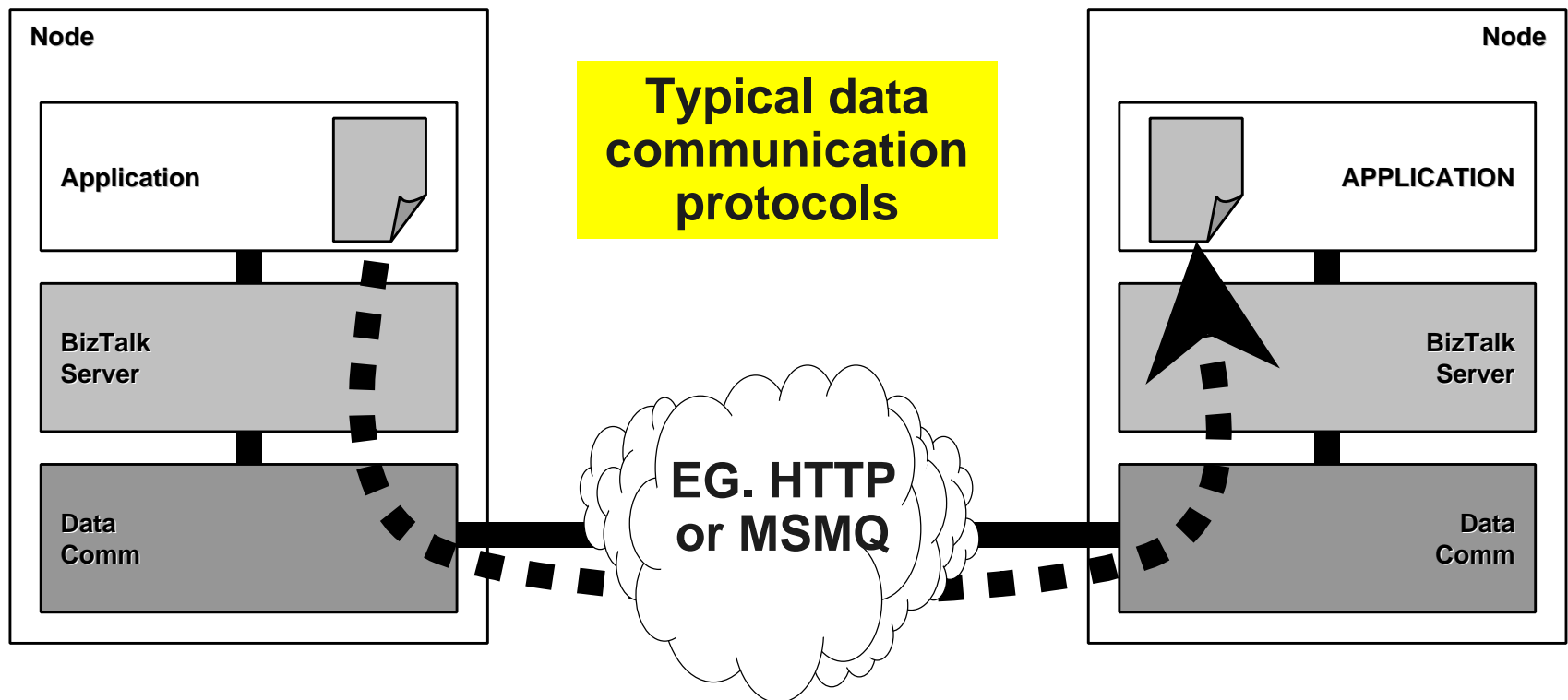
- **Integrated, graphical modeling environment enables BizTalk Orchestration Services to provide following benefits:**
 - When business processes change, graphical specification can be quickly and easily redefined, then recompiled
 - Concurrent processes can be easily designed, implemented, and maintained
 - Transactions (long-running, short-lived, and nested) can be easily structured and maintained



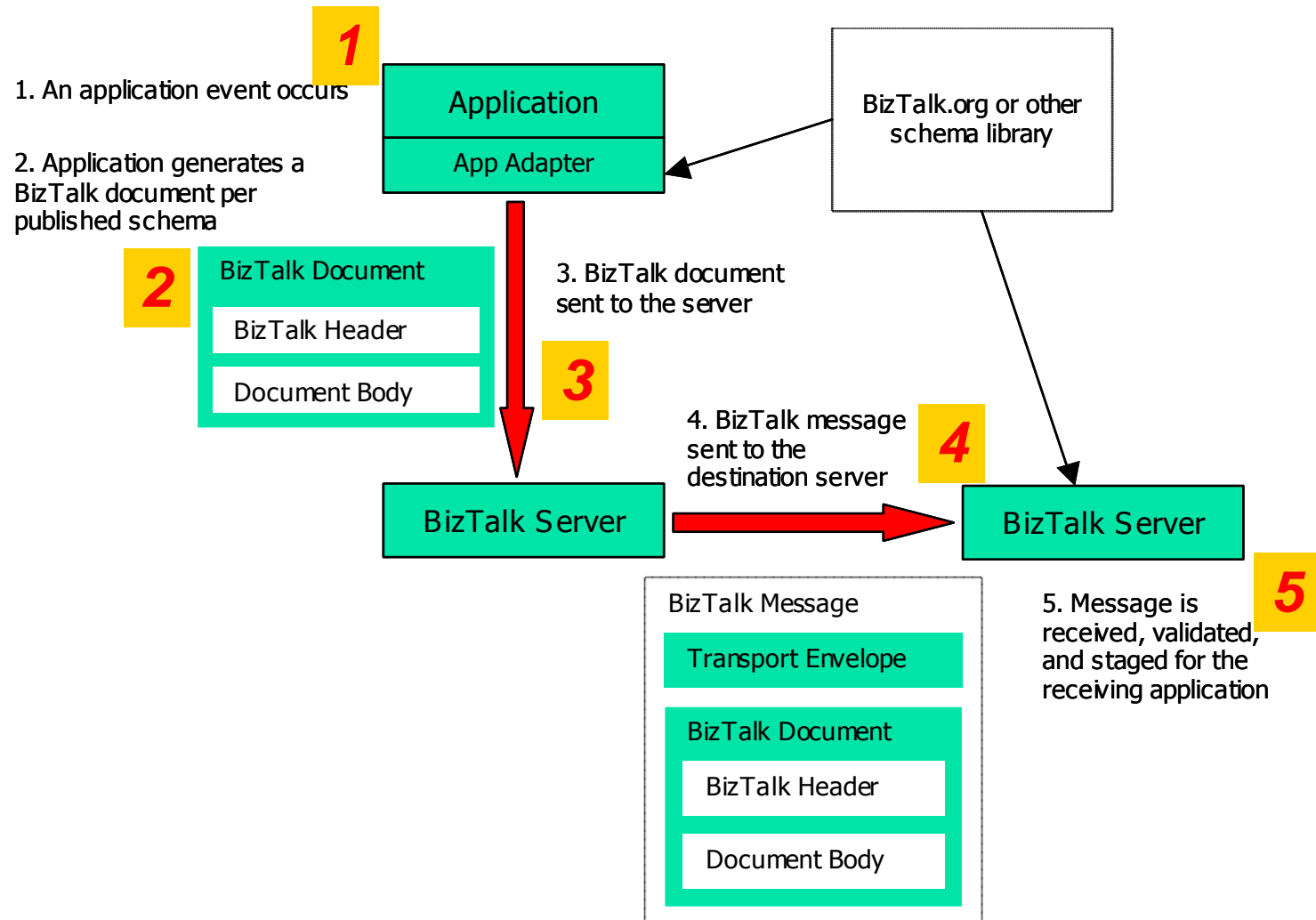
A. BizTalk Messaging Services

- **Track inbound and outbound messages**
- **Parse and validate inbound messages**
- **Generate and correlate receipts**
- **Ensure data integrity and security**
- **BizTalk XML Transformation Data Mapper**
 - Uses maps to change data structure and format

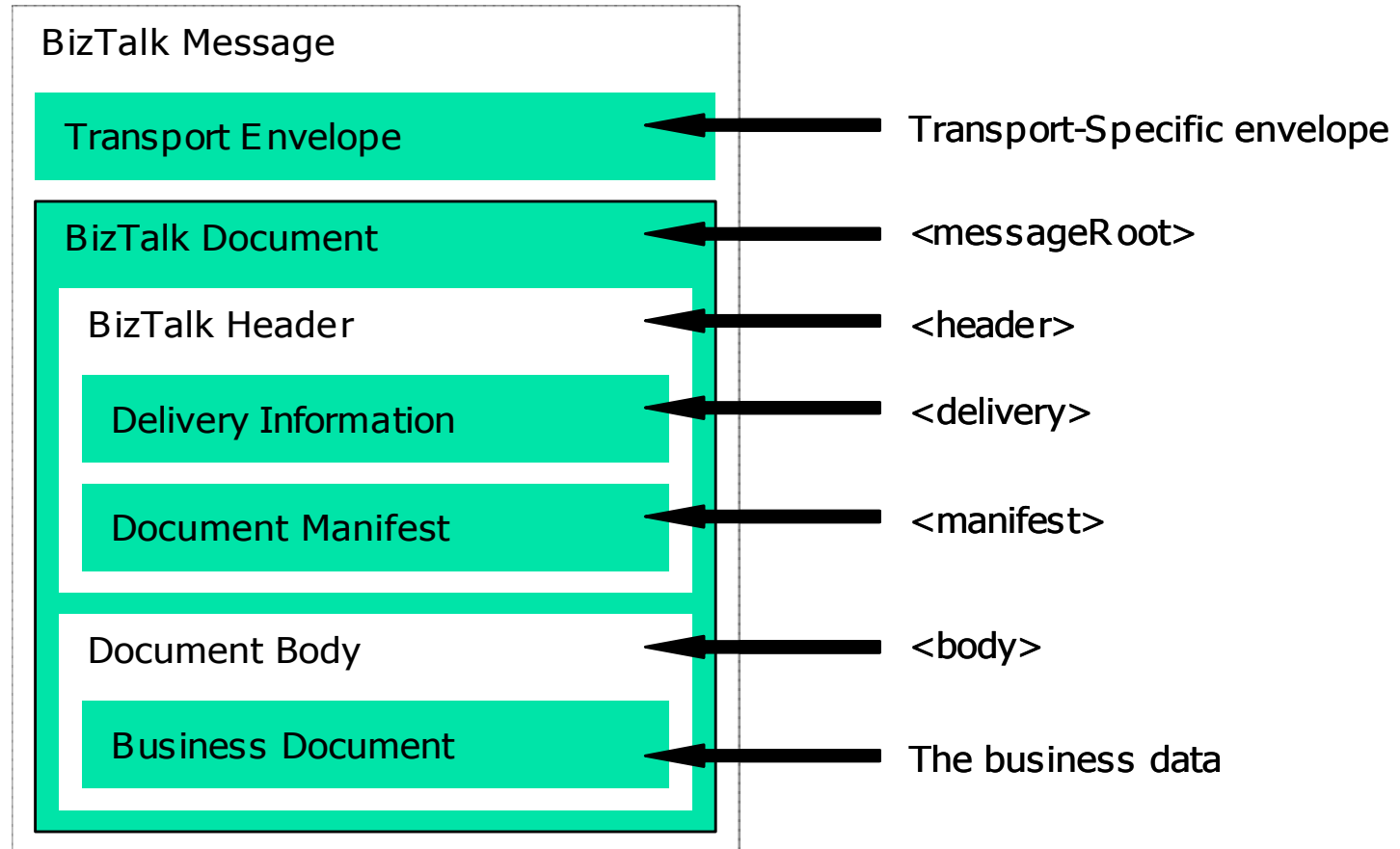
A. BizTalk Message Transmission



A. Sending a BizTalk Message



A. BizTalk Message Structure



Document body contains relevant business documents



A. Sample BizTalk Document - 1

```
<?xml version='1.0'?>
<biztalk_1 xmlns="urn:schemas-biztalk-org/biztalk_1.xml">
  <header>
    <delivery>
      <message>
        <messageID>8230948204820</messageID>
        <sent>1999-01-02T19:00:01+02:00</sent>
        <subject>New Purchase Order</subject>
      </message>
      <to>
        <address>http://www.fabrikam.com/recv.asp</address>
        <state>
          <referenceID>123</referenceID>
          <handle>7</handle>
          <process>yourprocess</process>
        </state>
      </to>
      <from>
        <address>mailto:foo@contoso.com</address>
        <state>
          <referenceID>123</referenceID>
          <handle>7</handle>
          <process>myprocess</process>
        </state>
      </from>
    </delivery>
    <manifest>
      <document>
        <name>fabrikam_PO_1</name>
        <description>Purchase Order</description>
      </document>
    </manifest>
  </header>
```



A. Sample BizTalk Document - 2

```
<body>
  <PO xmlns="x-
schema:http://schemas.biztalk.org/BizTalk/cfwau8qx.xml">
    <POHeader
      refPromise="0"
      fromCust="111111111"
      poNumber="PO# 12345"
      description=""
      paymentType="INVOICE"
      shipType="AIR1D" />
    <Contact
      contactName=""
      contactPhone=""
      contactEmail="" />
    <POShipTo
      street1="200 Smith Rd"
      street2=""
      street3=""
      street4=""
      attn="Bob Smith"
      city="Anytown"
      stateProvince=""
      postalCode="54321"
      country="USA" />
```



A. Sample BizTalk Document - 3

```
<POBillTo
    street1="1500 what st"
    street2=""
    street3=""
    street4=""
    attn="Joe Accountant"
    city="Somewhere"
    stateProvince=""
    postalCode="12345"
    country="USA" />
<POLines
    count="2"
    startAt="1">
    <Item
        line="1"
        partno="mcdunna1"
        qty="150"
        unitPrice="30"
        uom="PC"
        discount="0.0"
        needAfter="1999-07-31"
        needBefore="1999-09-29" />
    <Item
        line="2"
        partno="ikypop1"
        qty="500"
        unitPrice="14.5"
        uom="PC"
        discount="0"
        needAfter="1999-07-31"
        needBefore="1999-09-29" />
    </POLines>
</PO>
</body>
</biztalk_1>
```



A. BizTalk Manifest with <attachment>

- **References XML or non-XML files sent as attachments**

```
<manifest>
  <document>
    <name>myCom_claim_1.0</name>
    <description>Insurance Claim</description>
  </document>
  <attachment>
    <index>1</index>
    <filename>claim.tif</filename>
    <description>Claim Document</description>
    <type>tif</type>
  </attachment>
  <attachment>
    <index>2</index>
    <filename>smash.jpg</filename>
    <description>Photo</description>
    <type>jpg</type>
  </attachment>
</manifest>
```

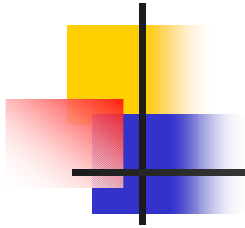


A. BizTalk References

- **BizTalk Server 2000 Product Documentation**
 - Visit <http://www.microsoft.com/biztalk/> and download BizTalk Product Documentation, White Papers and Help File

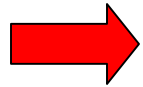
- **Microsoft BizTalk Server 2000 Evaluation**
 - Download BizTalk Server 2000 Evaluation or Buy CD from <http://www.microsoft.com/biztalk/>

- **BizTalk.org Web Site**
 - Visit <http://www.biztalk.org/> and register to Login
 - Password will be emailed to you immediately
 - BizTalk.org is Repository for BizTalk Documents
 - Has Headline News, BizTalk Schemas etc etc



Session Topics

A. XML EAI Messaging Using BizTalk



B. XML EAI Messaging Using ebXML

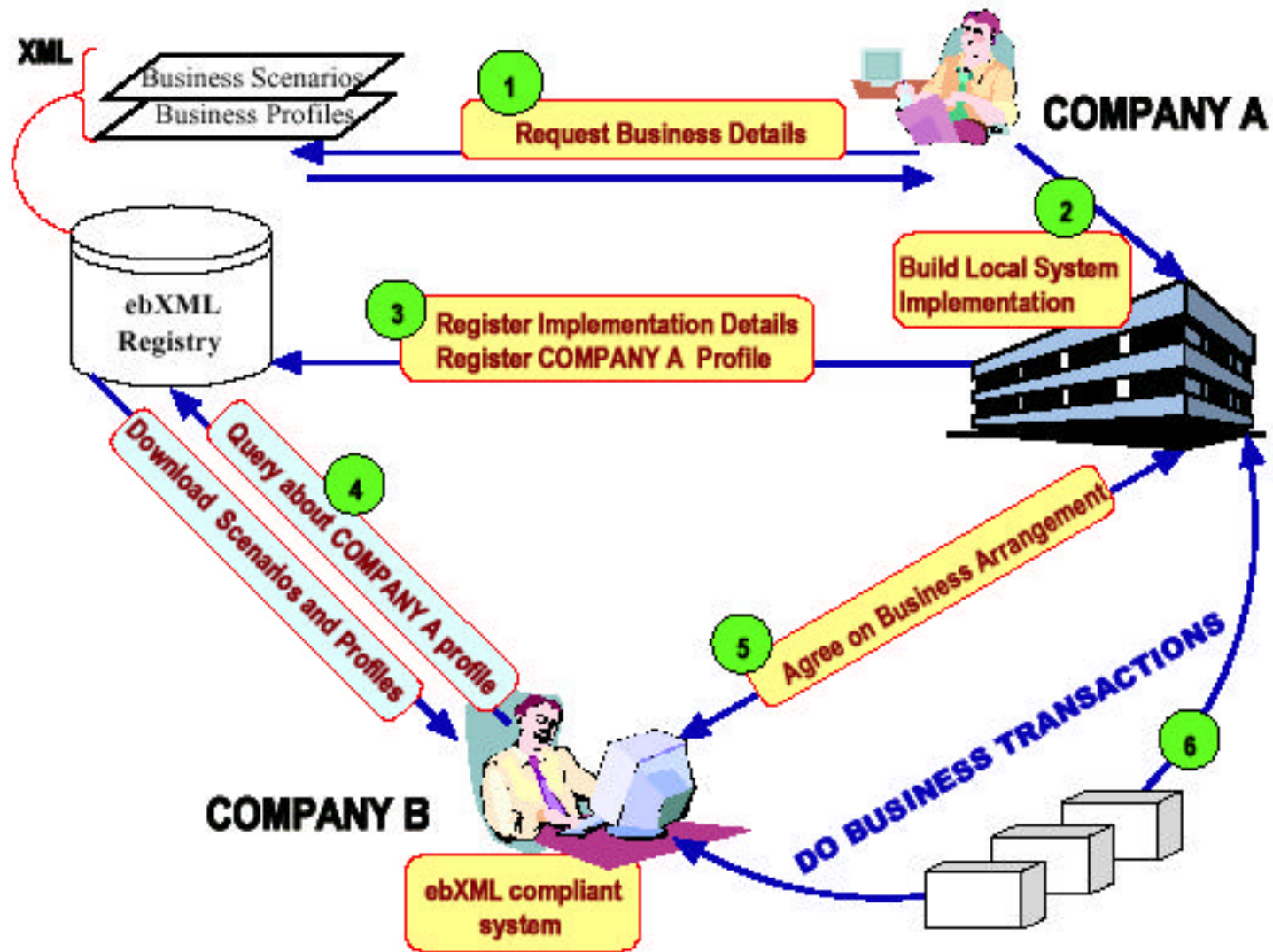
C. EAI Technologies for Data Warehousing



B. ebXML – Electronic Business XML

- **JOINT EFFORT**
 - UN/CEFACT - The United Nations body for Trade Facilitation and Electronic Business
 - OASIS - Organization for the Advancement of Structured Information Standards
- **Worldwide project to standardize XML business specifications**
- **Technical framework that will enable XML to be utilized in a consistent manner for the exchange of all electronic business data**
- **18-month project – Nov 1999 through May 2001**
 - Visit www.ebxml.org for current specs

B. ebXML Registry Operation



Source: http://www.ebxml.org/specs/ebTA_print.pdf



B. ebXML Business Transaction Environment

- **Company defines Business Transaction Environment:**

- Business Operational View (BOV)
- Functional Service View (FSV)

- **BOV Addresses Semantics of:**

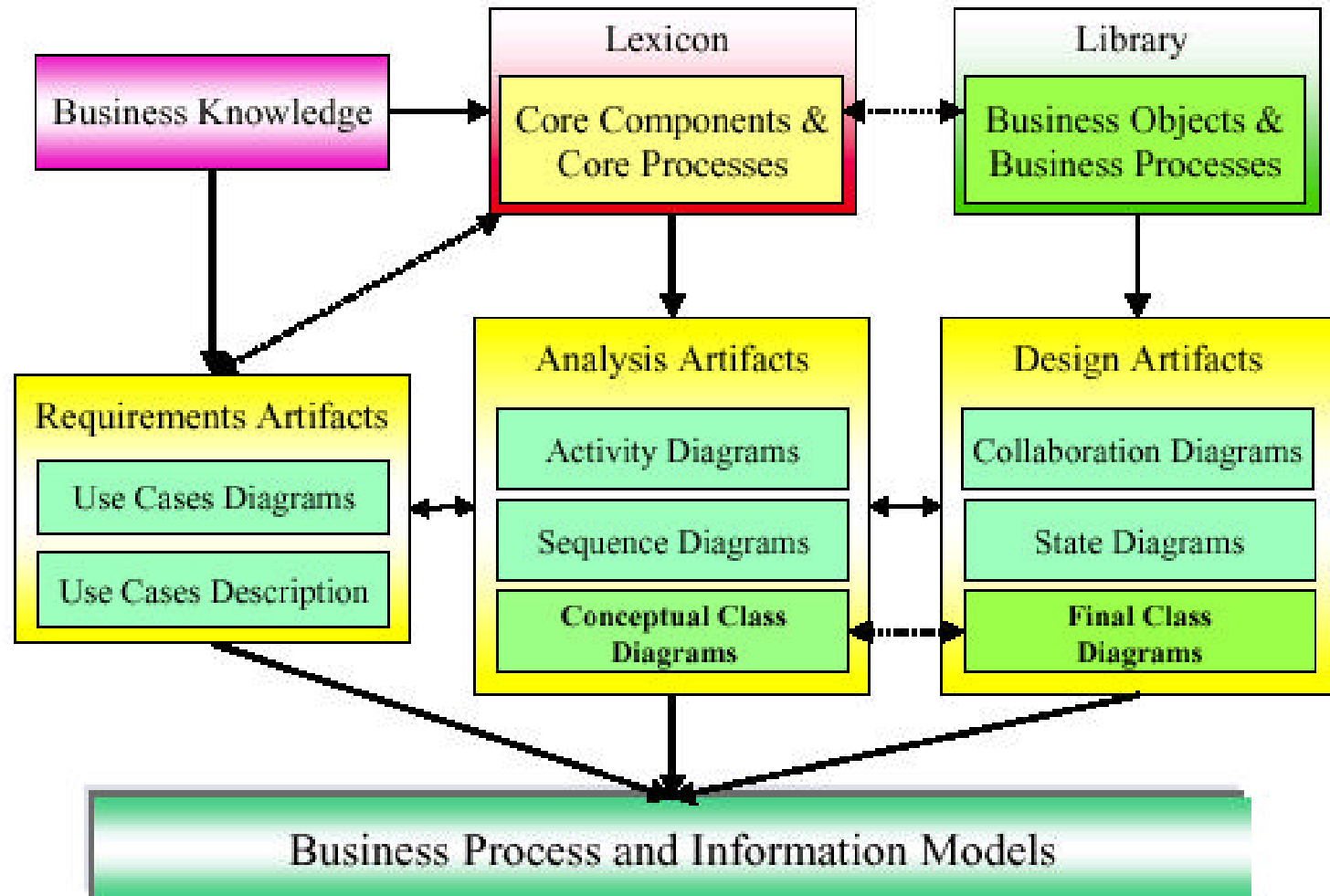
- Business data in transactions and associated data interchanges
- Architecture for business transactions, including:
 - Operational conventions and agreements;
 - Mutual obligations and requirements
- Apply to business needs of ebXML Trading Partners

- **FSV defines Supporting Services for ebXML**

- Focuses on Information Technology aspects of:
 - Functional capabilities; Service interfaces and Protocols

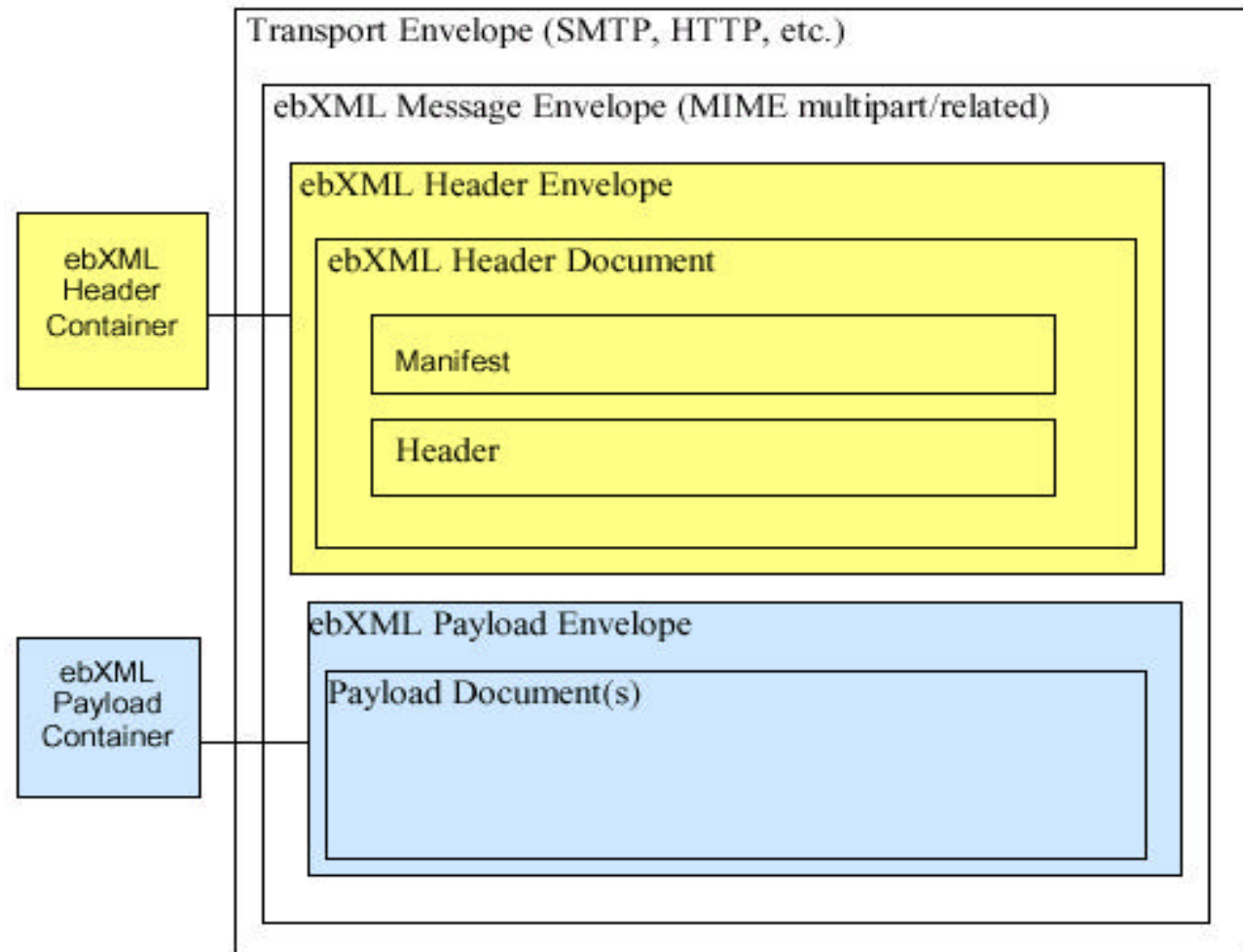
B. ebXML Business Operational View

- Business Processes and Data defined using UML

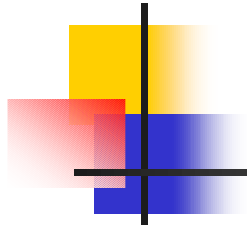


Source: http://www.ebxml.org/specs/ebTA_print.pdf

B. ebXML Message Structure



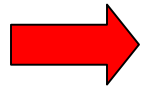
Source: http://www.ebxml.org/specs/ebTA_print.pdf



Session Topics

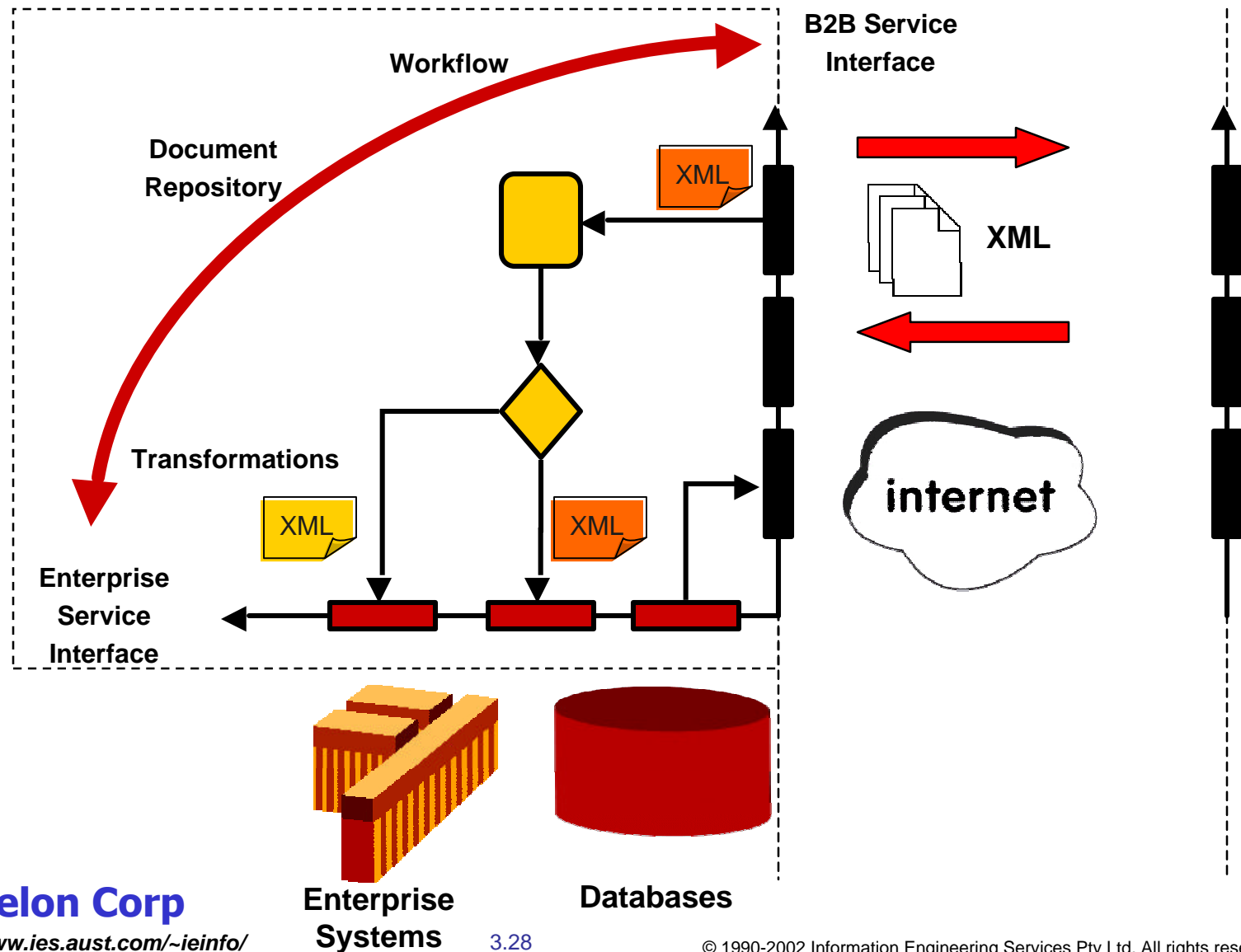
A. XML EAI Messaging Using BizTalk

B. XML EAI Messaging Using ebXML



C. EAI Technologies for Data Warehousing

B. Integration Automation Concepts (EG: eXcelon B2B Integration Server)



Source: eXcelon Corp

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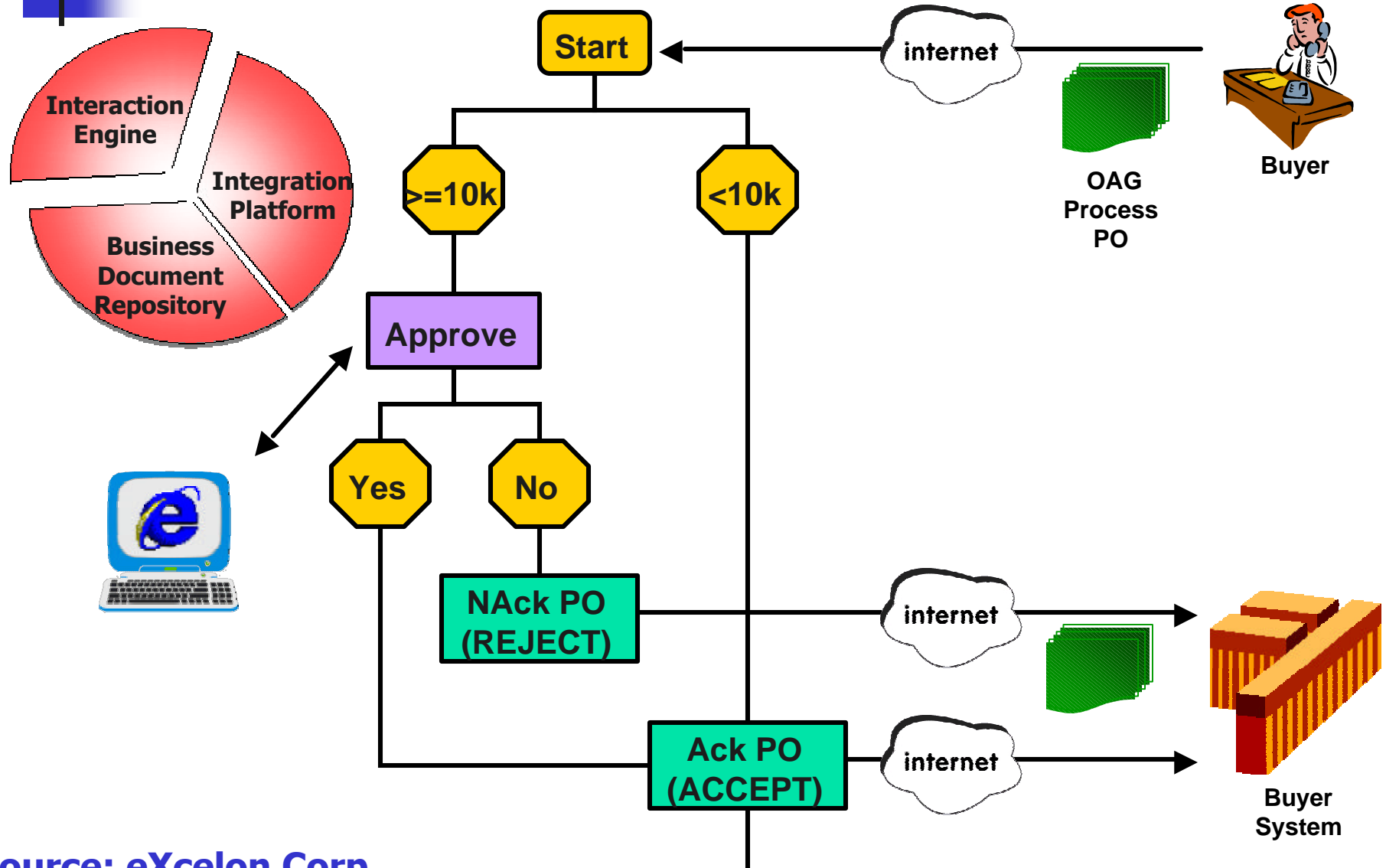
Enterprise
Systems

3.28

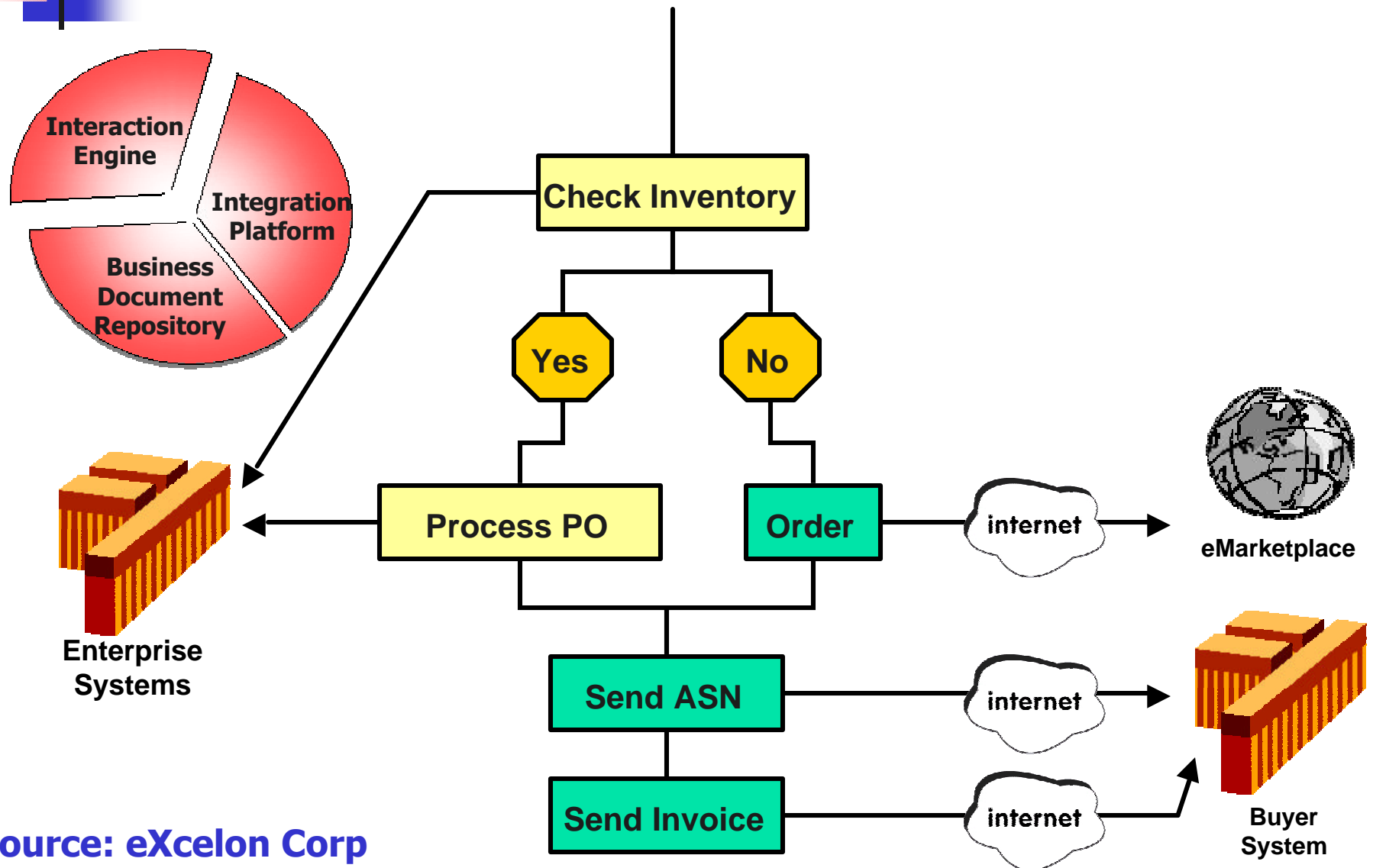
Databases

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B. Interaction Engine: Workflow Example (EG: eXcelon B2B Integration Server)

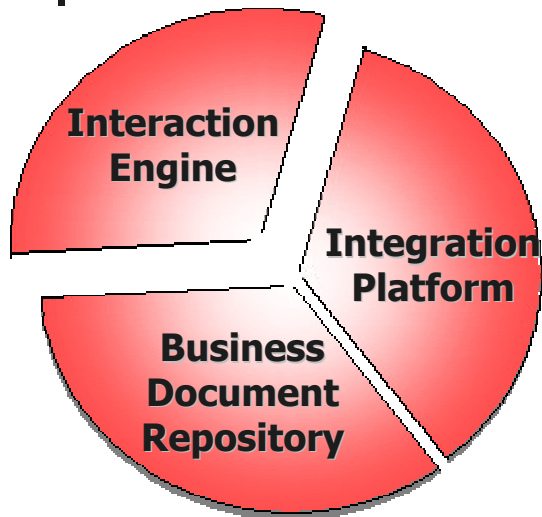


B. Interaction Engine: Workflow Example (EG: eXcelon B2B Integration Server)



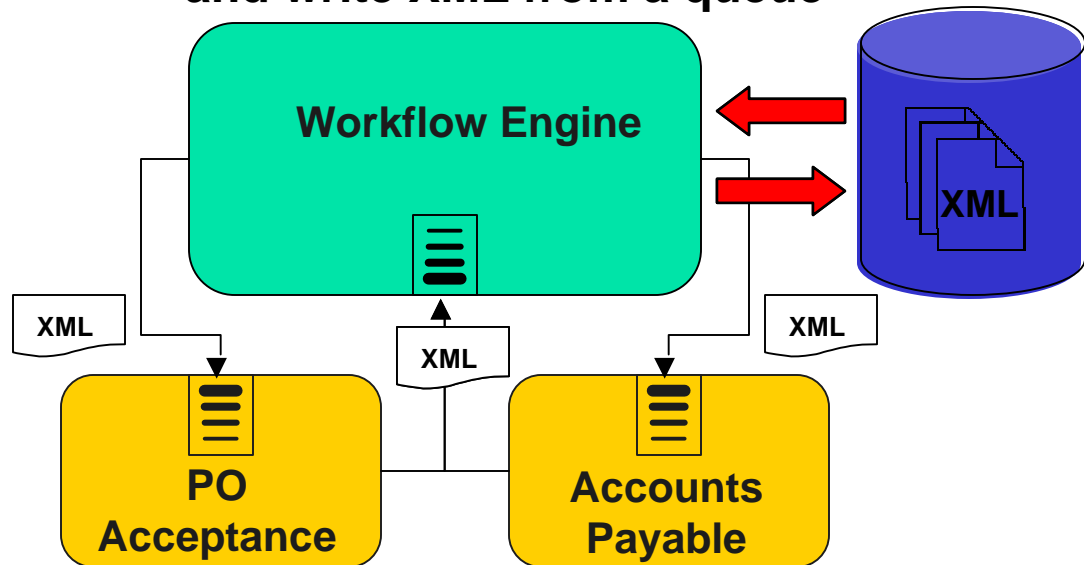
Source: eXcelon Corp

B. Interaction Engine: Workflow Example (EG: eXcelon B2B Integration Server)



- **Service Architecture**

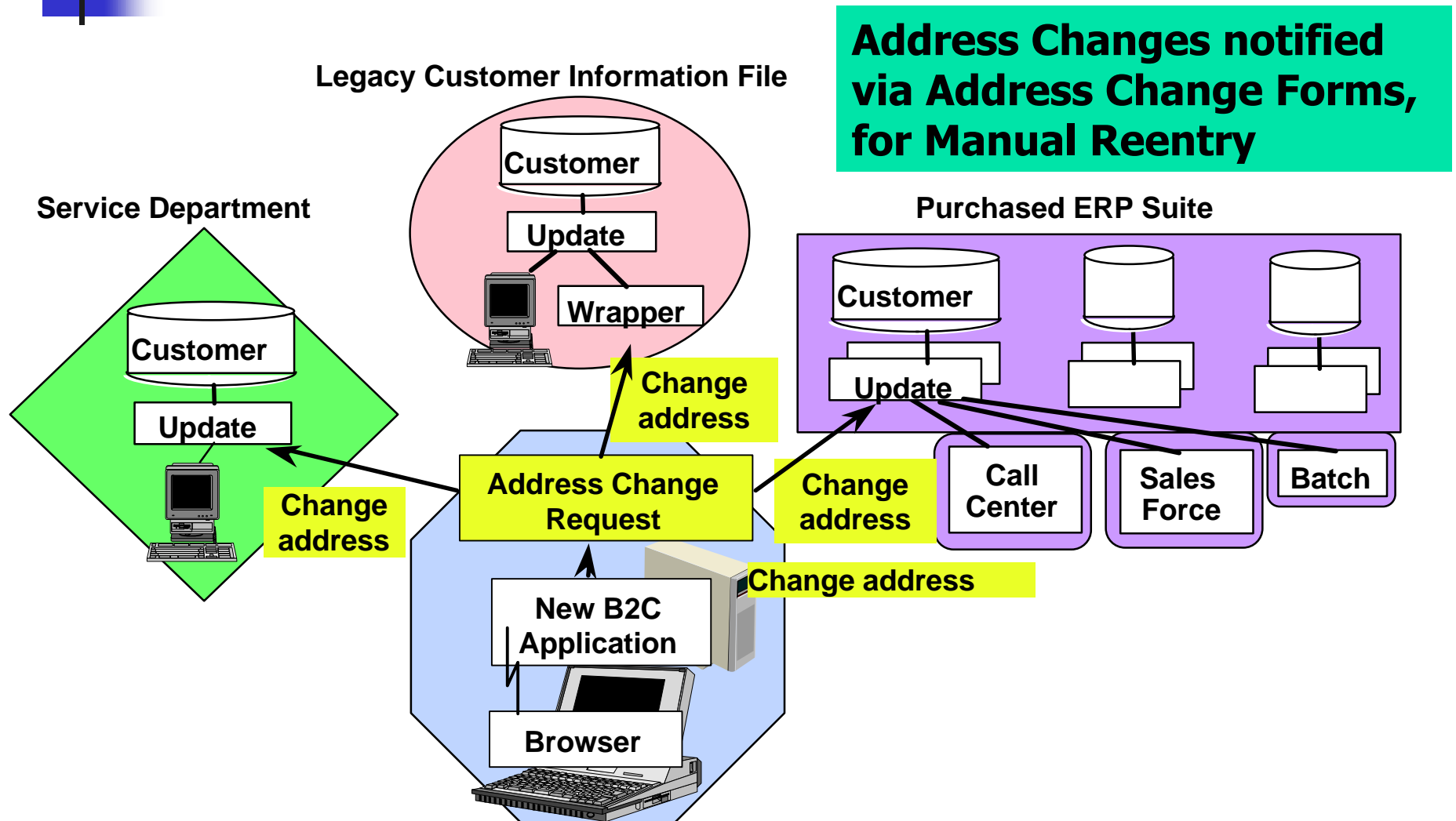
- Any application can interact if it can read and write XML from a queue



- **Allows any type of application to be integrated**
- **Centralizes state management**
- **Removes interdependencies between components**

Source: eXcelon Corp

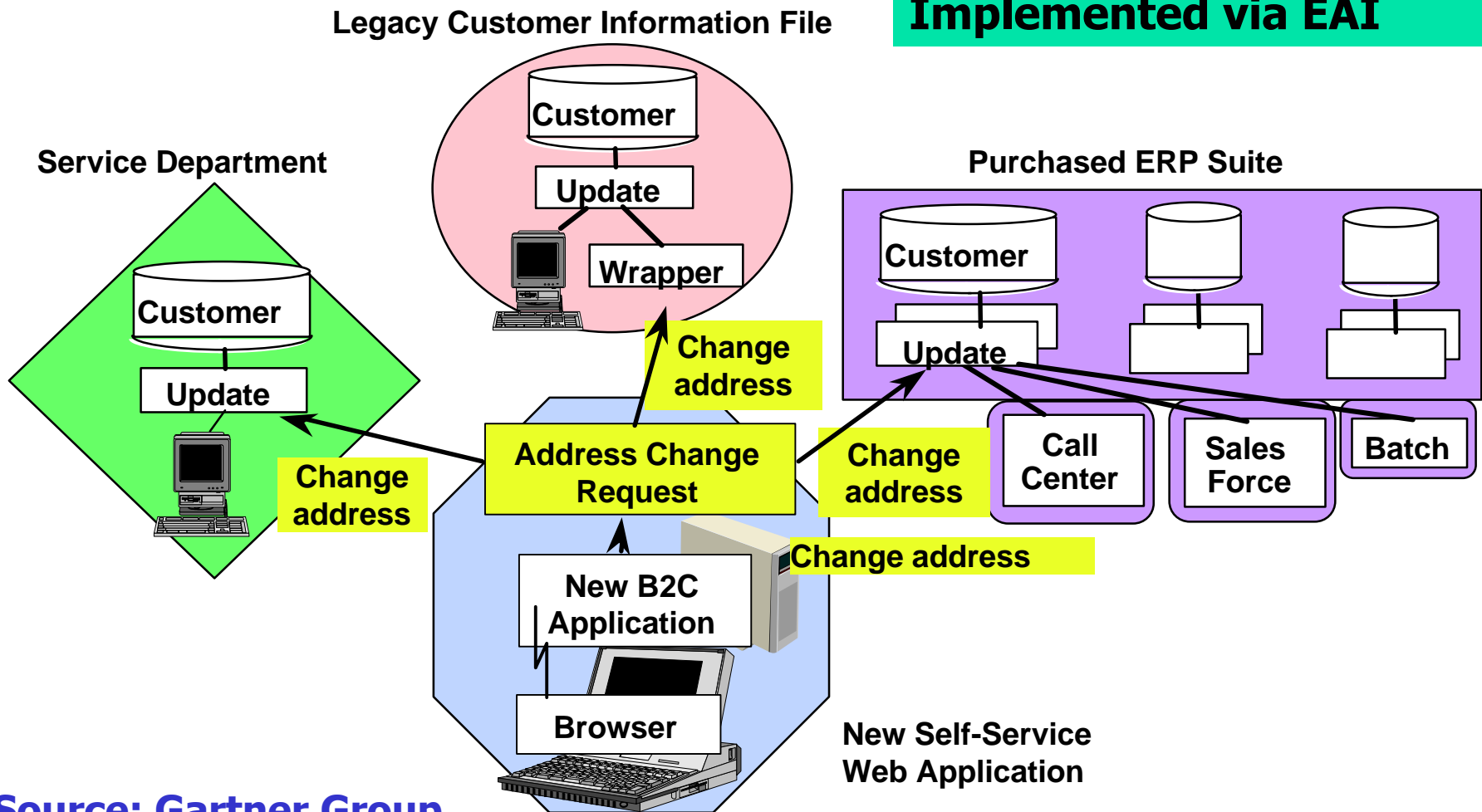
B. Legacy Integration Human Interface for Manual Reentry



Source: Gartner Group

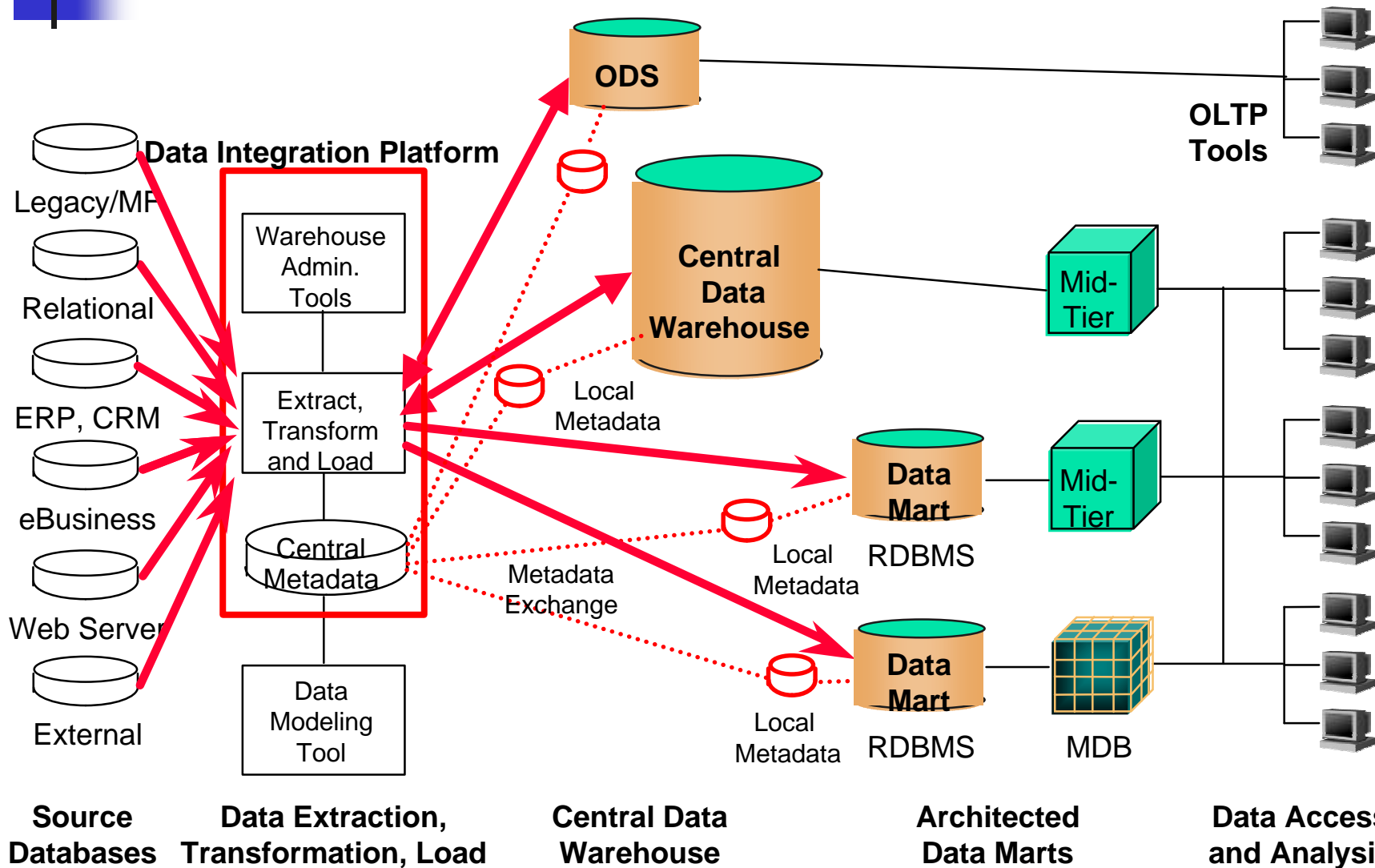
B. Legacy Integration using Enterprise Application Integration

Address Changes are Implemented via EAI

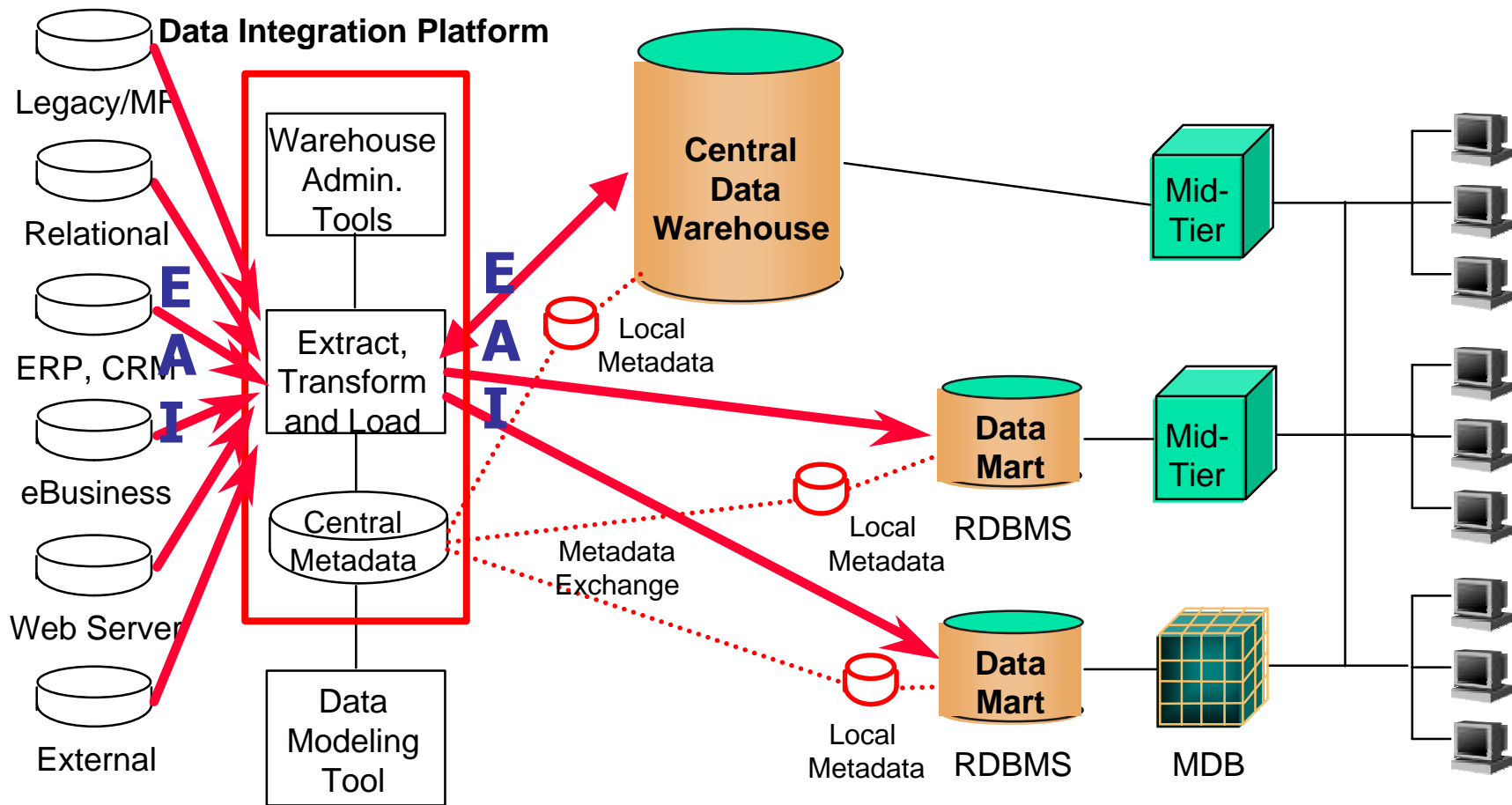


Source: Gartner Group

Recommended DW Architecture



Data Warehouse Integration via ETL Hub using EAI



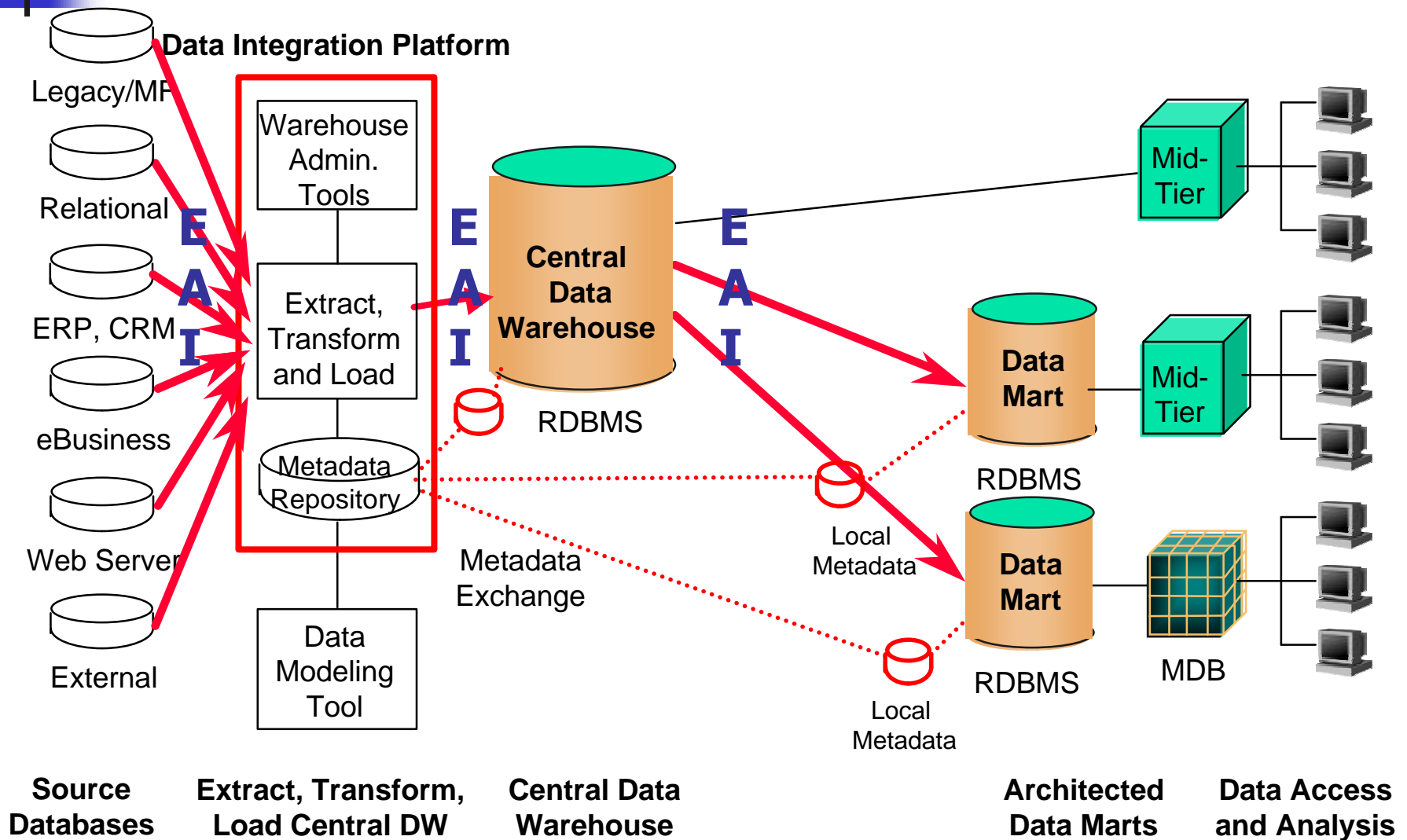
Source Databases **Data Extraction, Transformation, Load**

Central Data Warehouse

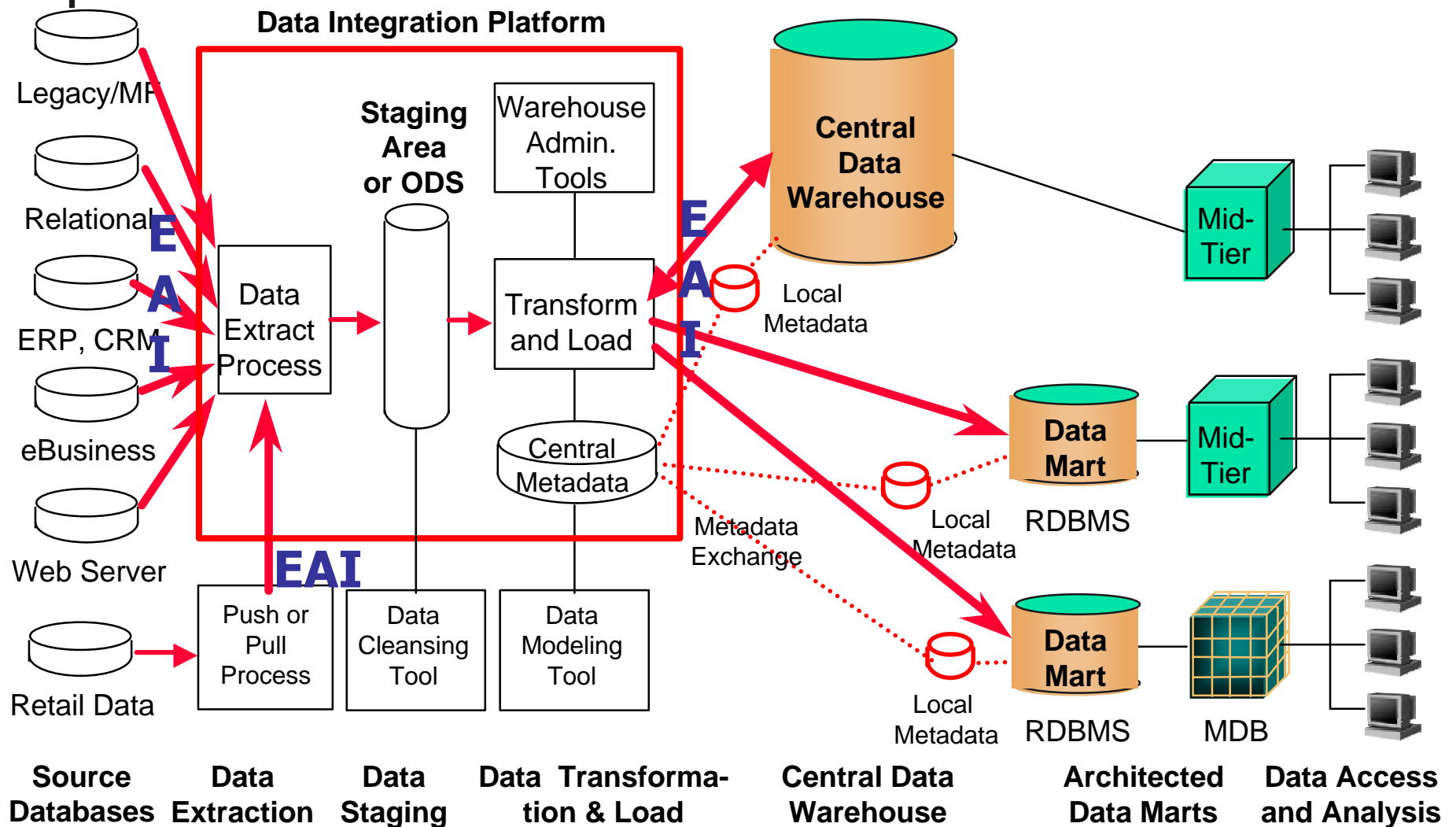
Architected Data Marts

Data Access and Analysis

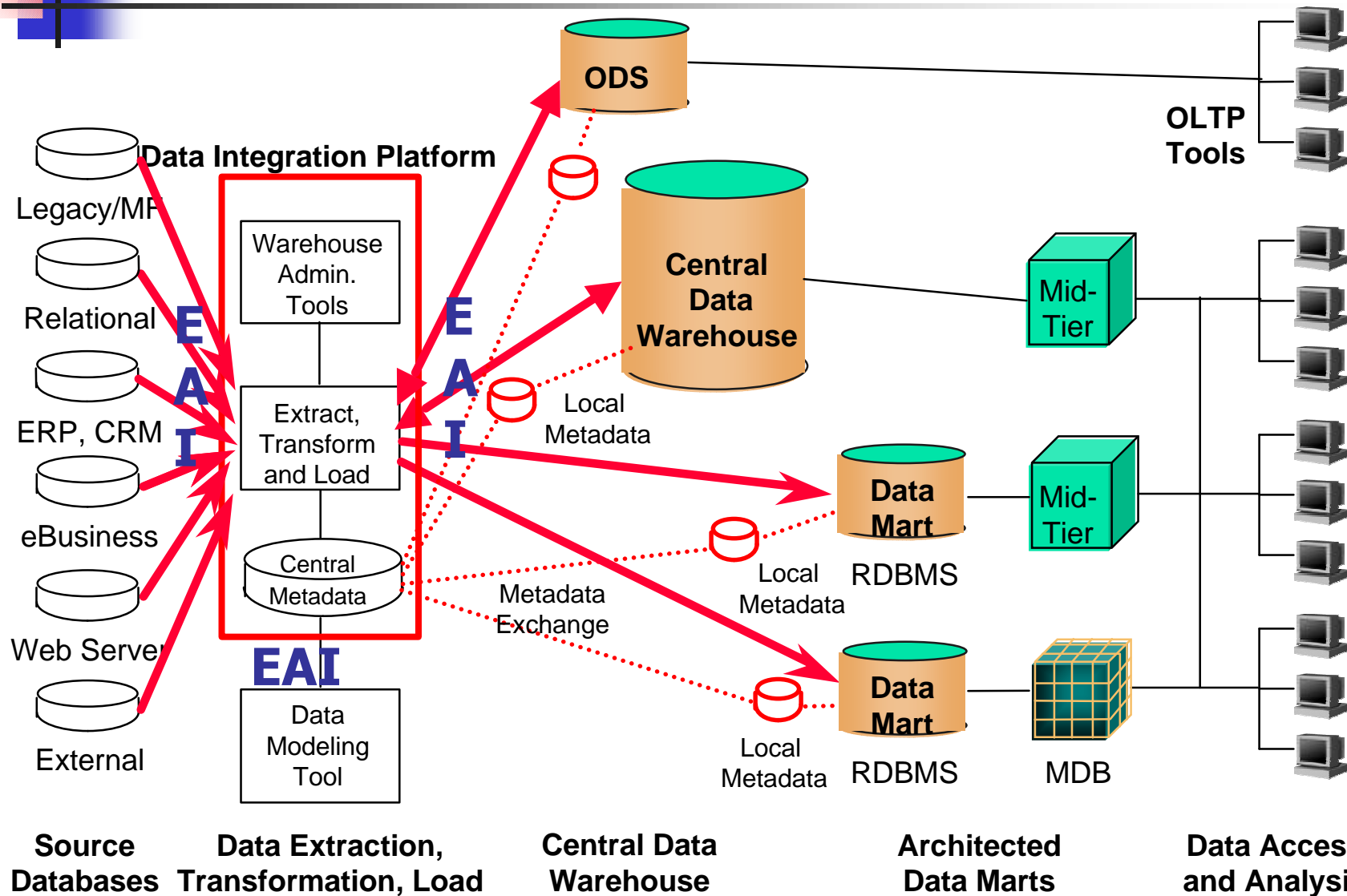
Data Warehouse Integration via DW Hub using EAI



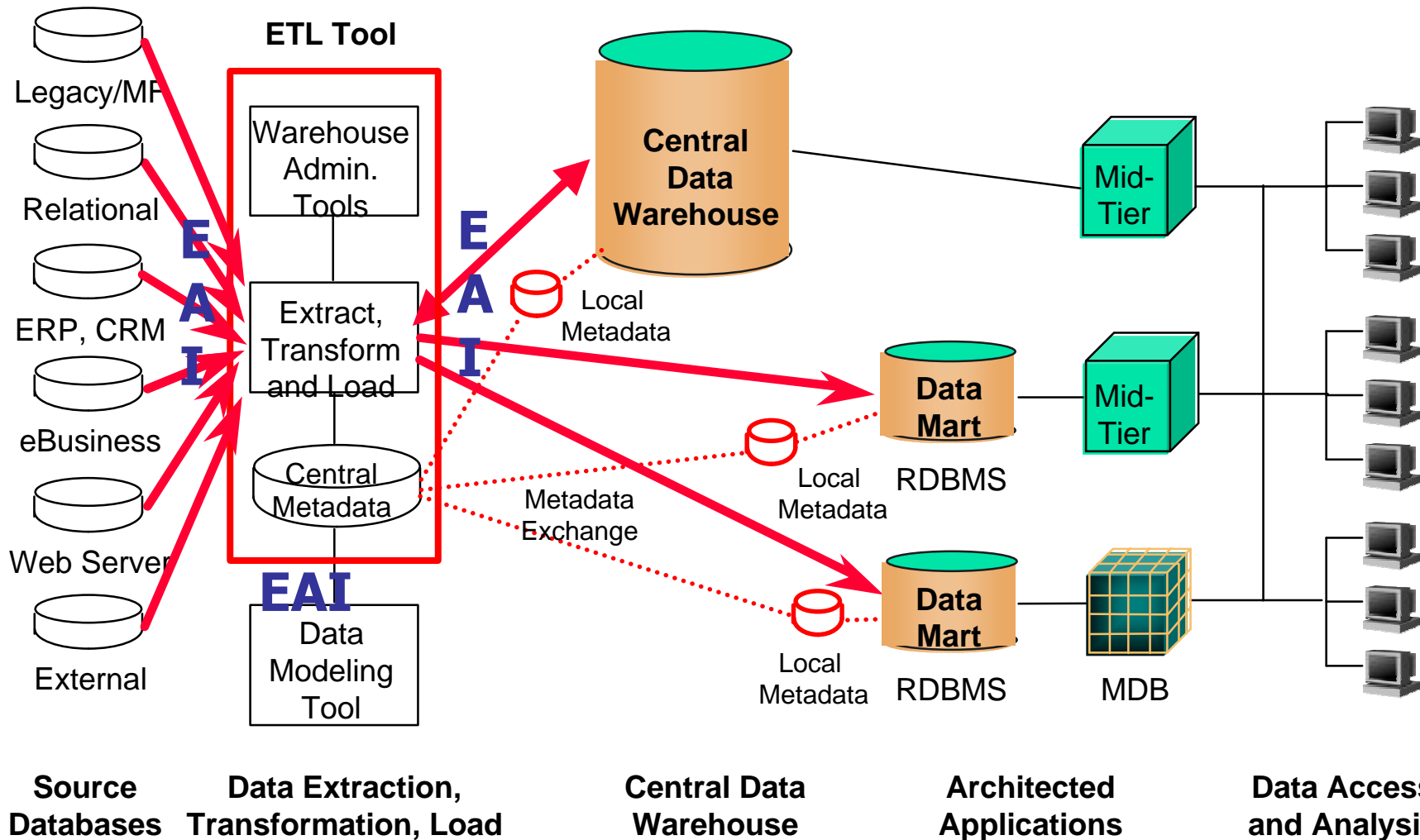
Source Data Integration in Staging Area using EAI



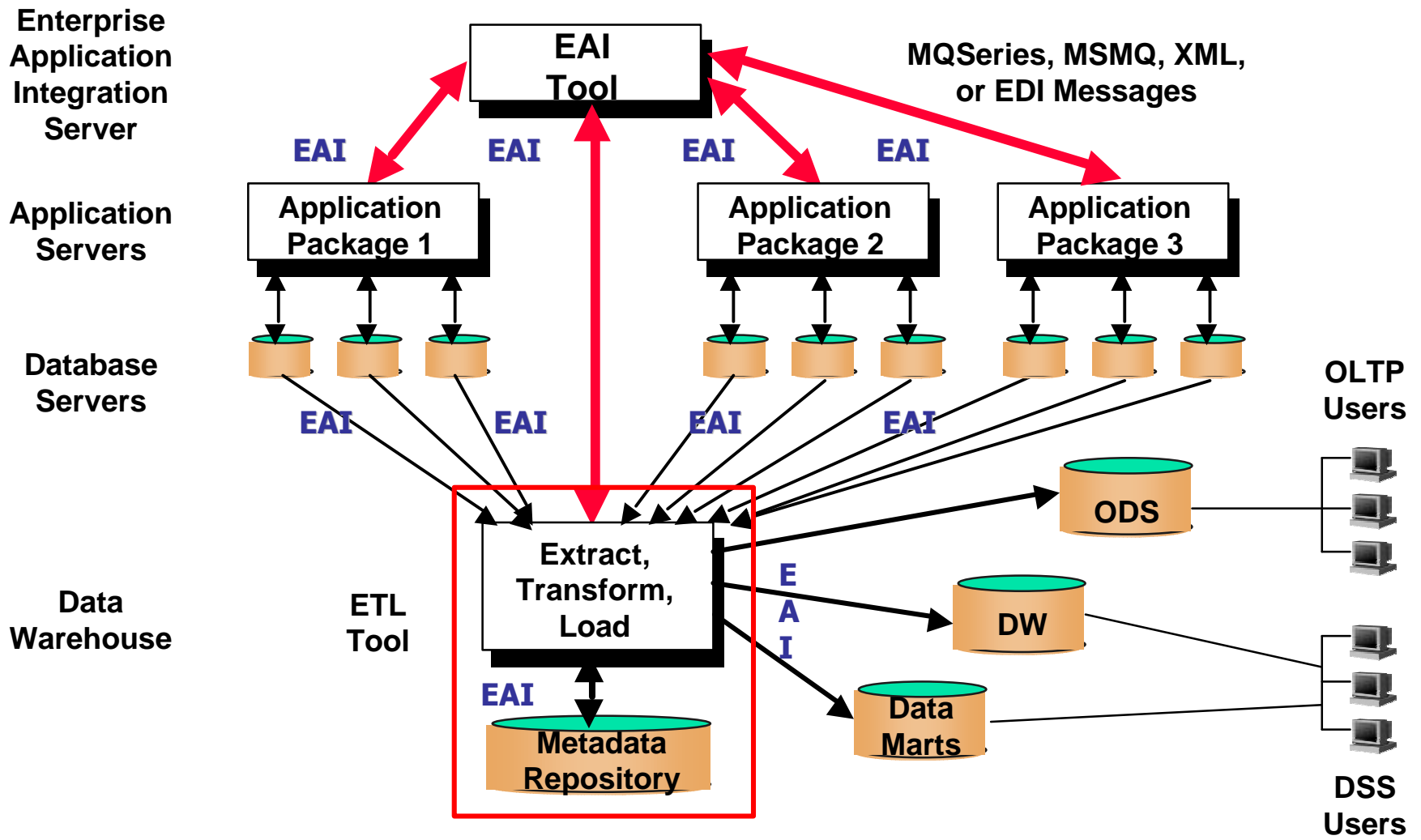
Operational Data Store as DW Source using EAI



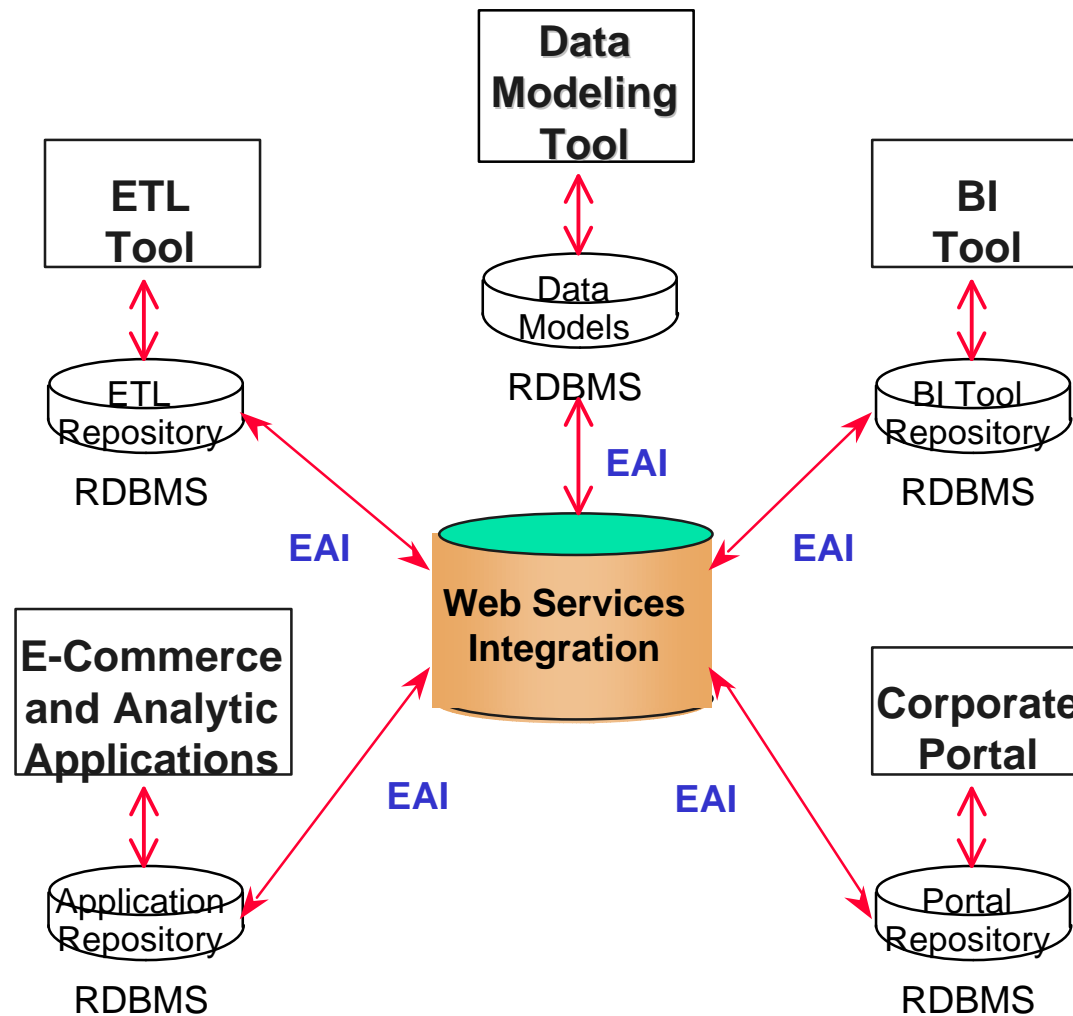
Integrating ERP Packages in DW using EAI



DW Analytics using EAI

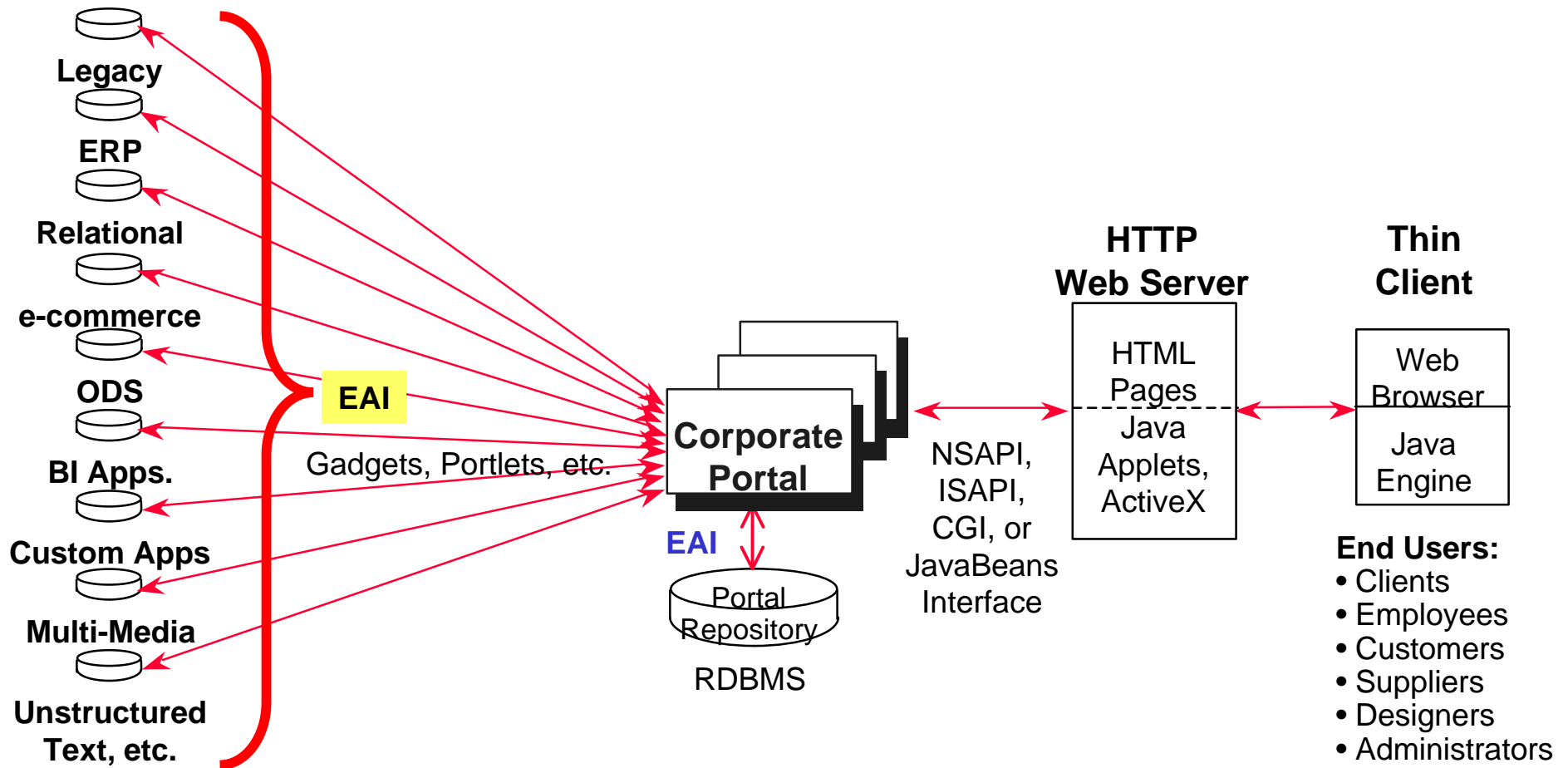


Metadata Integration using EAI

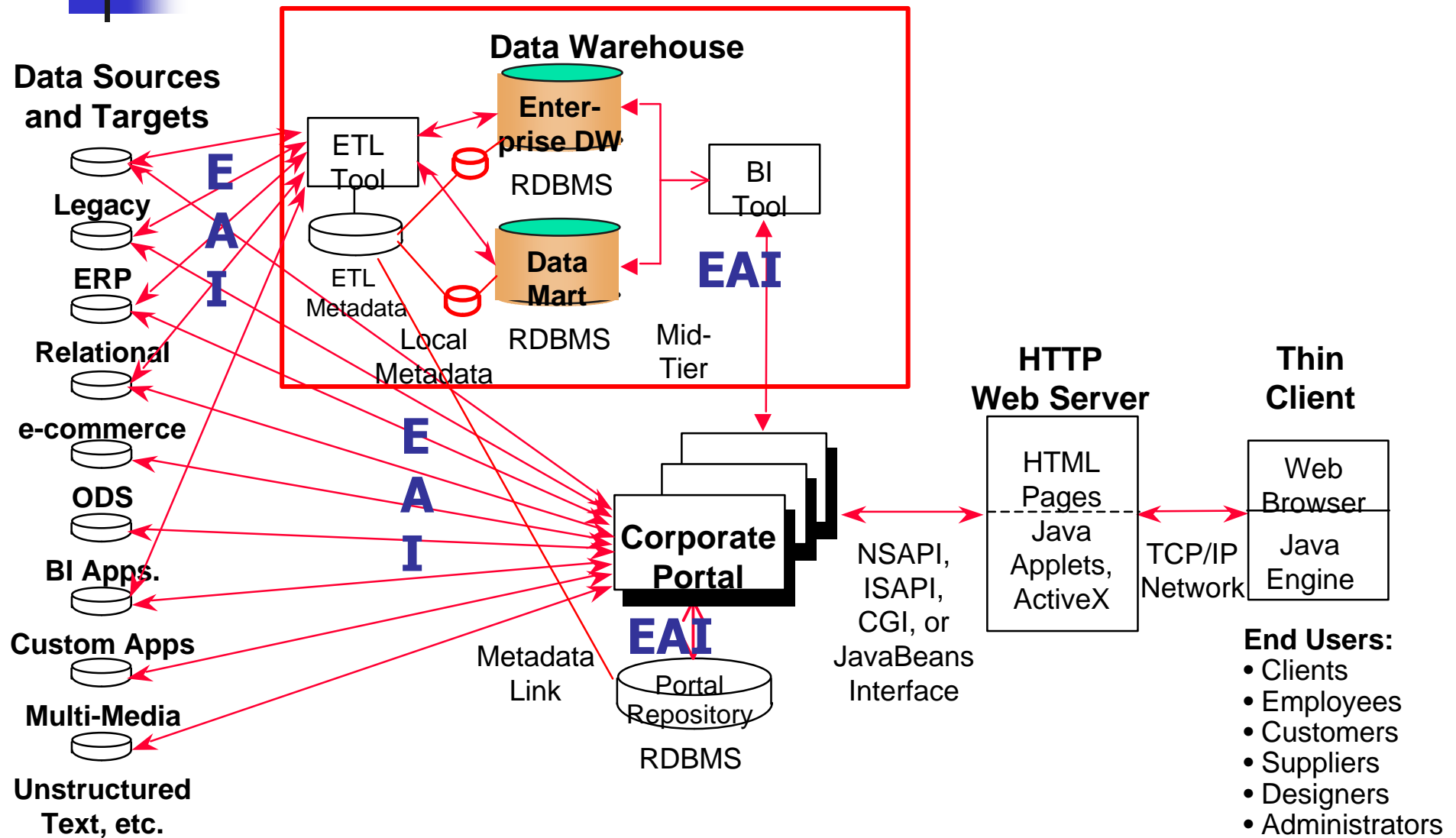


Corporate Portal using EAI

Data Sources and Targets

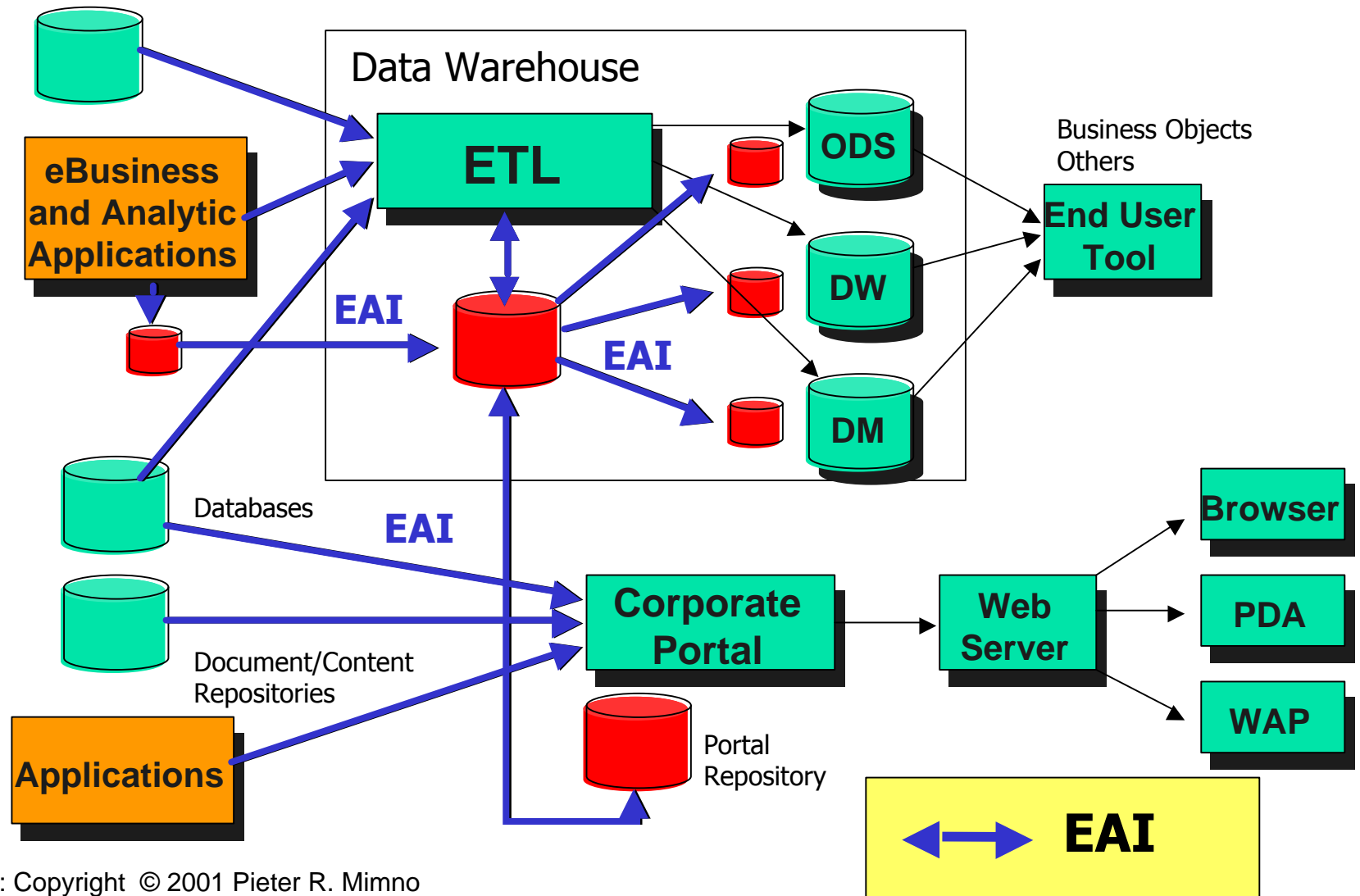


Corporate Portal DW Front-End using EAI



BI Portal Evolution using EAI

Data Sources

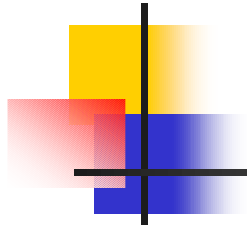


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SUMMARY OF EAI TECHNOLOGIES

A. XML EAI Messaging Using BizTalk

B. XML EAI Messaging Using ebXML

C. EAI for Data Warehousing

- DW EAI Alternatives Follow ...



SUMMARY OF EAI ALTERNATIVES

EAI Alternatives for Data Warehouses

- DW Integration via ETL Hub
- DW Integration via DW Hub
- Source Data Integration
- Operational Data Source
- Integrating ERP Packages in DW
- EAI for DW Analytics
- Metadata Integration for EAI
- Corporate Portal Front-End to DW
- EAI using Corporate Portal

EAI Using Web Services for Data Warehouses

- Follows in Afternoon Session