

1. Enterprise Applications Integration (EAI) – An Overview

EAI Goals

EAI should provide seamless integration of Enterprise/Business Systems for sharing and exchanging data between systems, and conducting business electronically. The successful implementation of EAI requires a Broad Experience with

- Networking
- Administration
- Project Management
- Tools
- Multiple Software Products, Operating Systems and Hardware Platforms
- Software Development for Multiple Platforms
- Across multiple industries

Requirements for Data Sharing

- Concurrency – allowing multiple applications or users accessing and updating the same set of data
- Security – need-to-know based, control list
- Extensibility – self-describing data

Requirements for Exchanging Data

- Preset Agreement
- Definite data exchange format with assumption elimination

Features of Enterprise Architecture

- Service-Oriented Architectures
- Legacy System Migration
- Web-based
- Application Integration
- Datacentric Architecture

EAI Enabled Virtual Applications

- Data-Centric
 - Loosely coupled integration
 - Many-to-many systems
 - Allow only pure data objects to enter and leave systems
 - Implementations can change without affecting systems
- Interface-Centric
 - Tightly coupled integration
 - Point-to-point

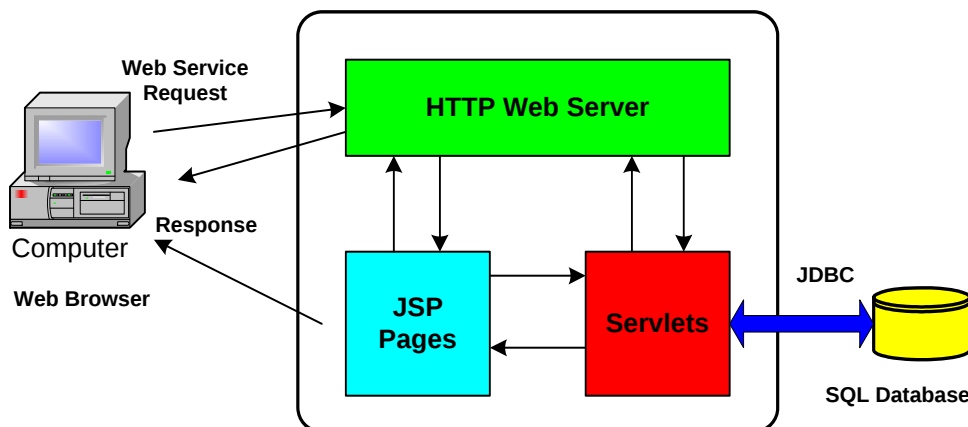
Emphasize

- Service Access and Mode of Delivery
- Service Platforms and Infrastructure
- Service Interface and Integration
- Process Automation Services
- Real-time
- Adaptive

EAI Infrastructures (from Enterprise Application Integration with XML and JAVA, JP Morgenthal and Bill La Force, Prentice Hall, 2001)

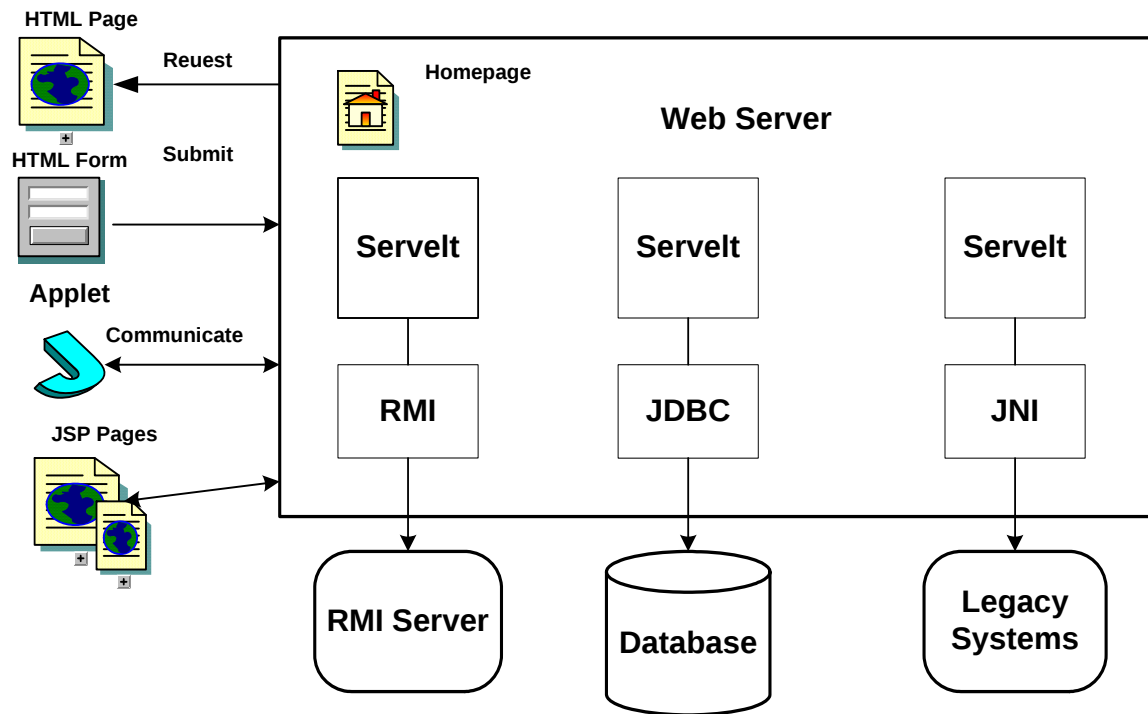
- Communication Layers (Horizontal layers)
 - HTTP, FTP, SMTP, DBMS, DCOM, Queues, CORBA, Java, RMI, EJB, TCP/IP 3270, 5250, X/A, LDAP
 - Open Database Connectivity (ODBC) for interacting with SQL-based databases
 - Message-Oriented Middleware services (MOM) via TCP/IP
 - Legacy Application Mining
 - Object Request Broking (ORBs)
- Routing & Broking Layer & Functions
 - Aggregation
 - Transformation
 - Metadata brokering
 - Object request brokering
 - Message routing
 - Event handling
- Business/Enterprise Intelligence Layer
 - Data analysis
- Security
 - Data security and integrity
- Management
 - Remote management of each layer
 - Most needed data
 - Auditing, logging, and alert management
- Message Routing
 - Windows Messaging System
 - Java Method Calls
 - Asynchronous Messaging
 - Interprocess communications (pipes, queues, Microsoft COM)
 - Distributed object computing (Microsoft DCOM and CORBA)
- Metadata and Rule Repository

Example 1: A Typical Java-based Web Server and Applications

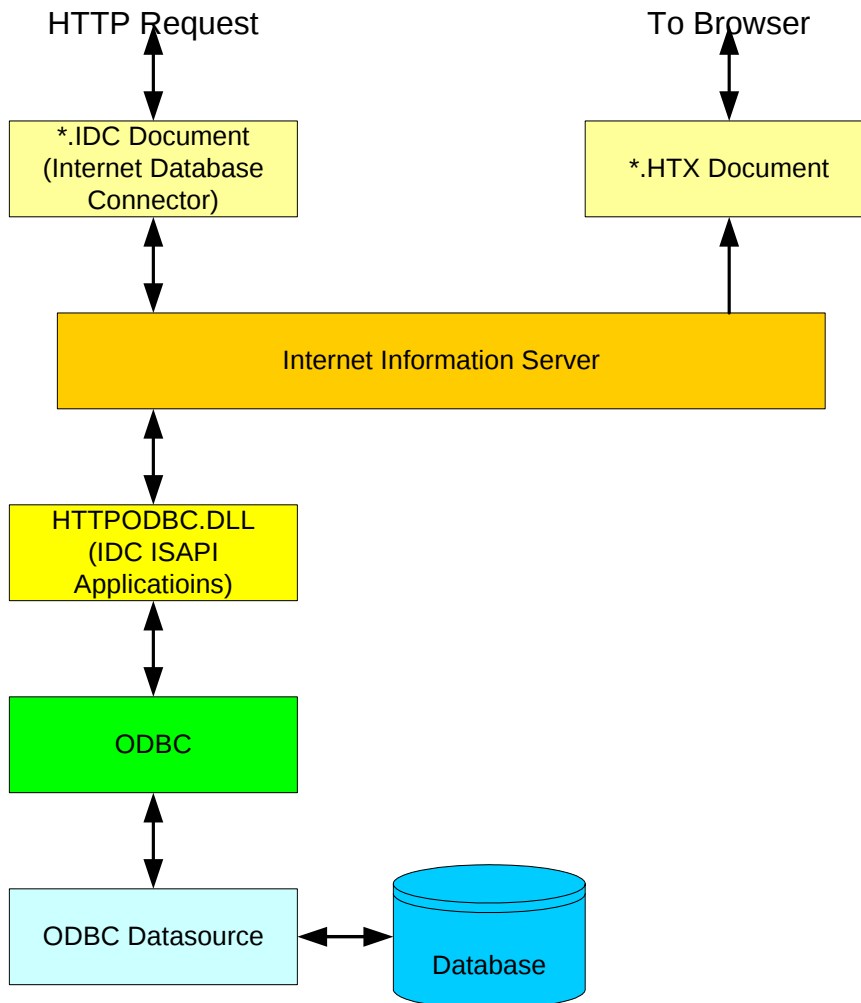


Java Web Server using JSP and Servlets

Example 2: An EAI Infrastructure Build on Java Technology



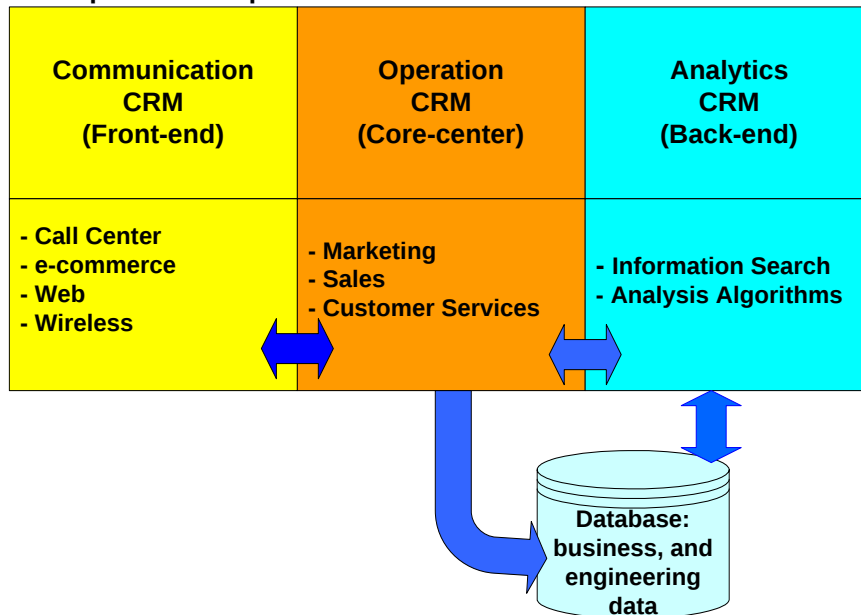
Example 3: EAI Infrastructure Using IIS Web Server



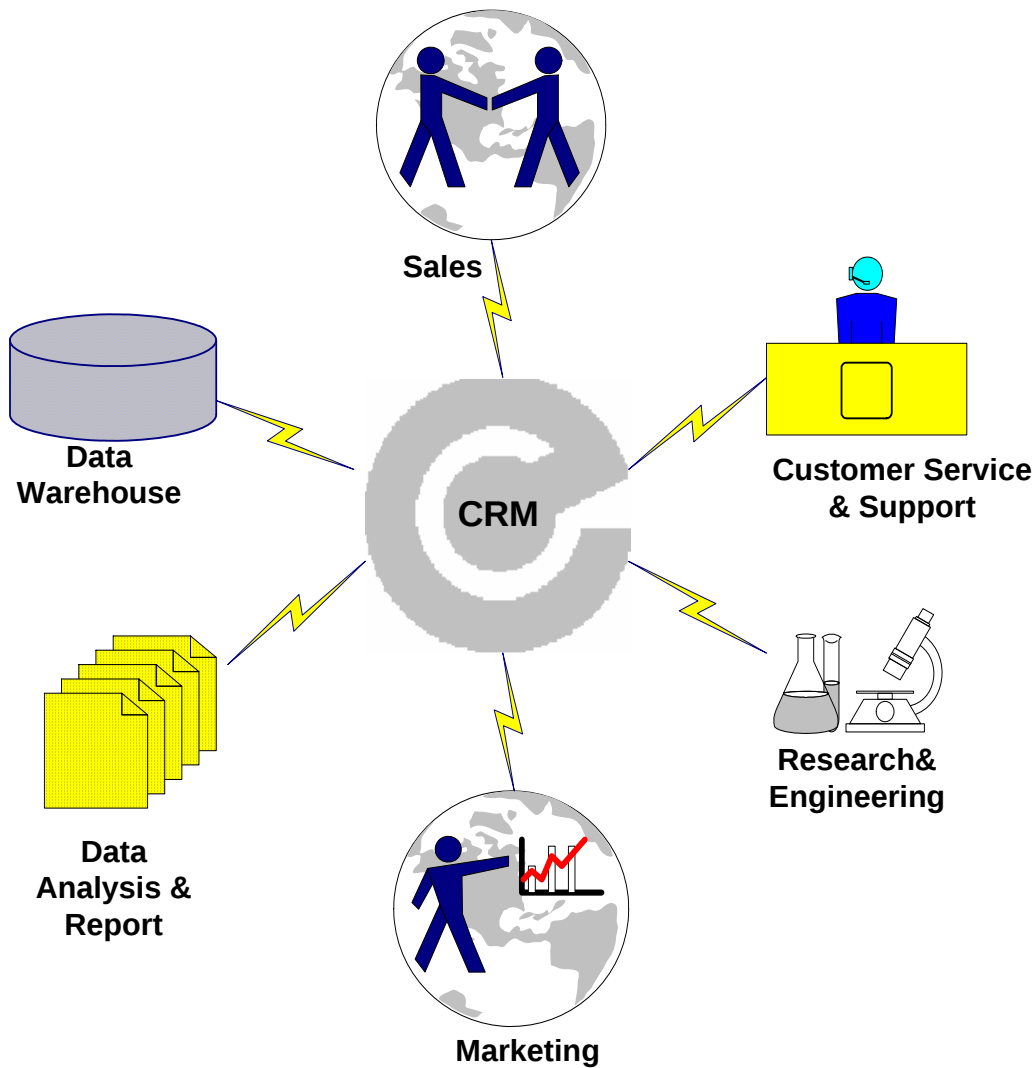
Some Examples of Enterprise /Business Solutions

- Customer Relationship Management (CRM)
- Enterprise Resource Planning (ERP)
- Supply Chain Management (SCM)
- Portal
- E-Business and E-Commerce
- Business Intelligent Management

Example 4: Components of a CRM



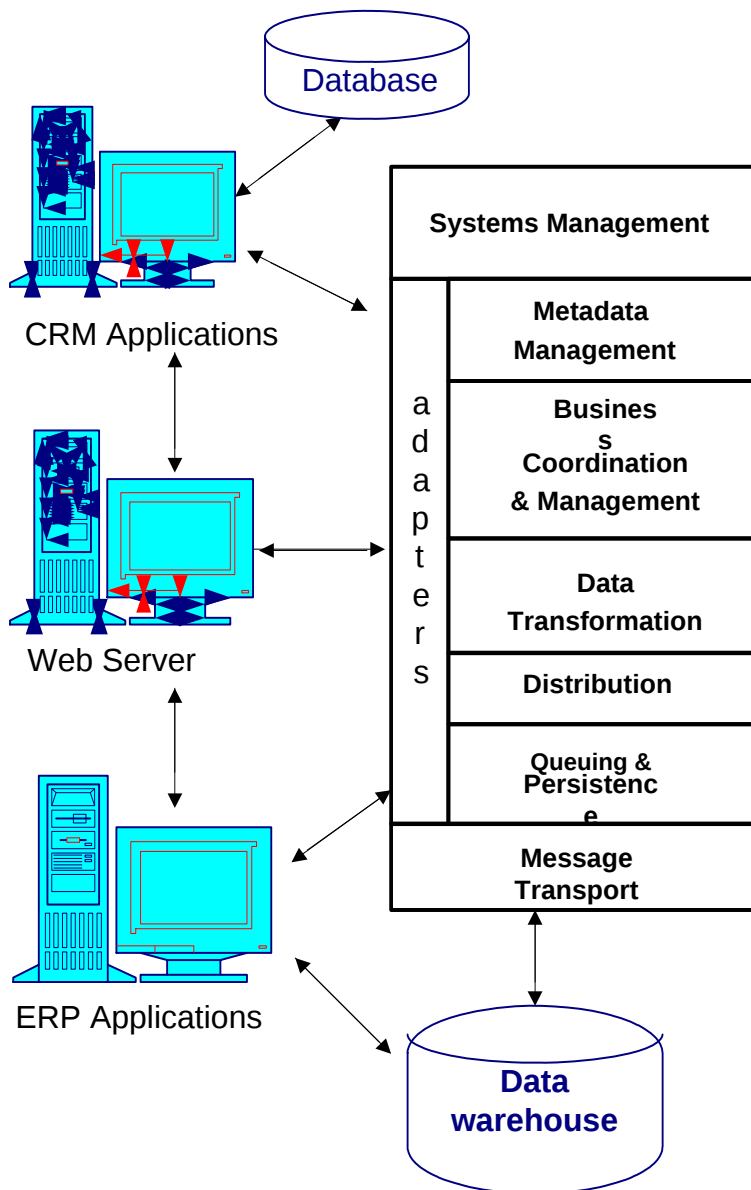
Example 5: A CRM Designed for A Medical Device Manufacturing Company



Examples of Enterprise Applications Integration

- Company portal
- Integration Broker and Enterprise Data Warehousing
- Business Intelligence (decision making)
- Customer Relationship Management (CRM)
- Enterprise Resource Planning (ERP)
- Supply Chain Management (SCM)
- Global Consolidations - enables the consolidation of general-ledger information that is spread across disparate systems
- Sales Incentive Management (SIM)
 - Gather information from variety of applications - for example, human resources, financials, CRM, and ERP
 - Perform sets of calculations that determine a rate of sales incentive compensation, based on a variety factors

Example 6: An Example of Enterprise Applications Integration



Web Site References

- EACommunity <http://www.eacommunity.com/>
- Institute for Enterprise Architecture Development <http://www.enterprise-architecture.info/>
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