

Solution Architectures

- What are solution architectures
- Web-based solution architecture overview
 - How Web technologies fit into picture
 - From CGI to components
- Overview of component-based architectures
- Architectures of OCSI Applications
- Examples of solution architectures (patterns)

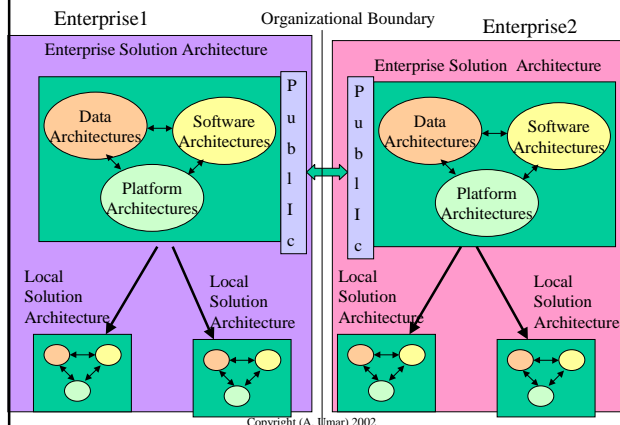
Amjad Umar

Introduction

- Solution architecture:
 - combine applications and infrastructure components into a solution for customers
 - Typically include
 - application architecture
 - data architecture
 - platform architecture
 - Can exist at several levels in enterprises
 - local solution architectures of individual apps (e.g., departmental inventory)
 - enterprise-wide solution architectures (e.g., ERPs)
 - inter-enterprise (B2B) solution architectures (e.g., SCMs, emarkets)
 - Our focus: enterprise and inter-enterprise

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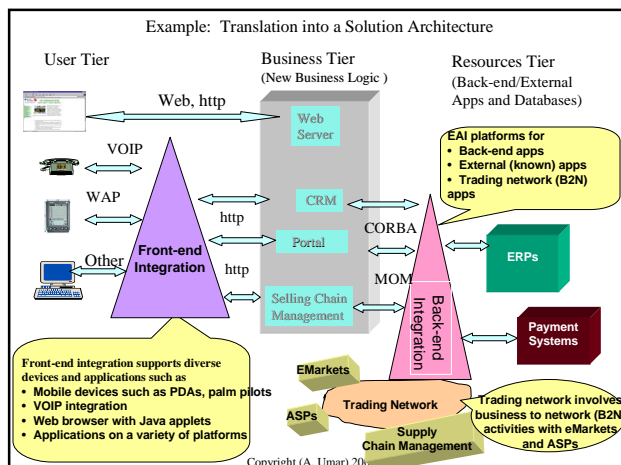
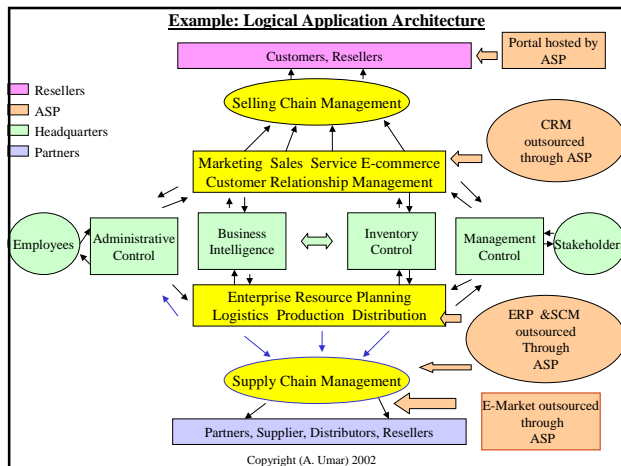
Levels of Solution Architectures



How to Build Enterprise Solution Architectures

- Build a logical application architecture
 - shows enterprise applications
 - flows between applications
 - logical: does not show any technical information
- Translate into solution architecture
 - add data architectures (shared common data), if needed
 - physical: does include infrastructure considerations (networks, middleware)

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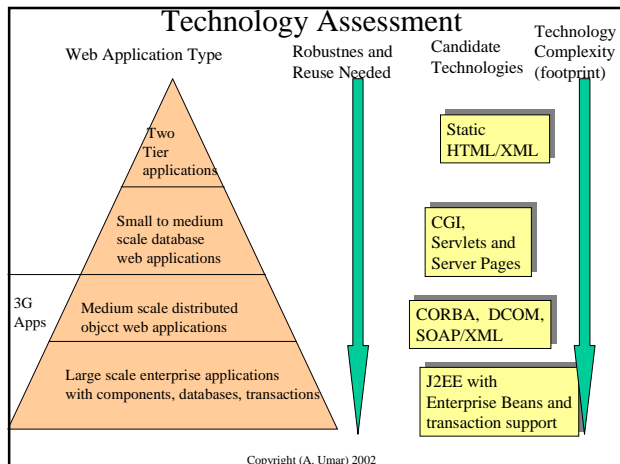


Solution Architectures -- A Closer Look

- Solution architectures are largely web-based
- Web technology used depends on the type/complexity of apps
 - Simple client-side applications**
use static HTML/XML for web advertising or use Java applets that access a remote database through a JDBC interface.
 - Small to medium scale web database apps** - employ CGI, servlets, JSPs, etc
 - Distributed object apps** that use CORBA, DCOM, SOAP/XML.
 - Component-based enterprise wide applications** that imbed business logic as components.

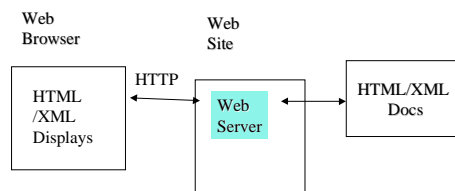
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Technology Assessment



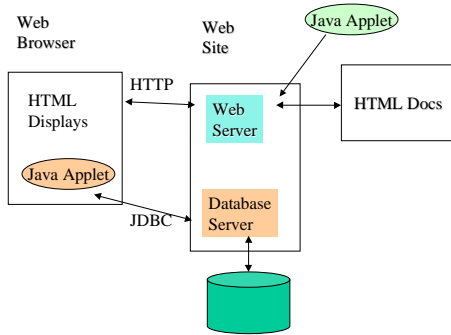
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Simple Static Applications



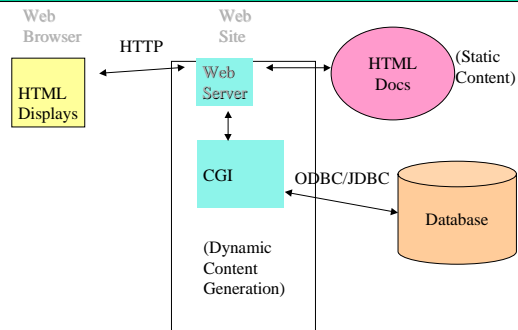
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Database Access Through Java Applets



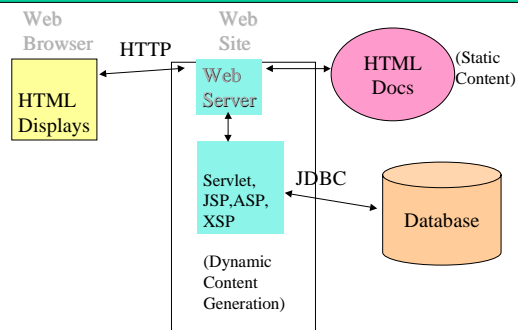
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CGI-based Apps



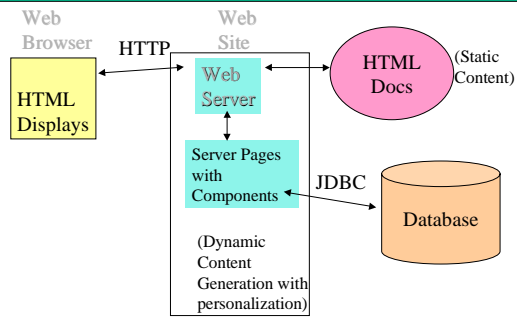
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Sevlets and Server Pages



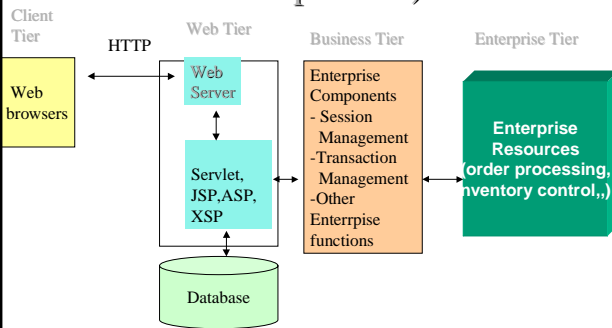
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Server Pages with Components



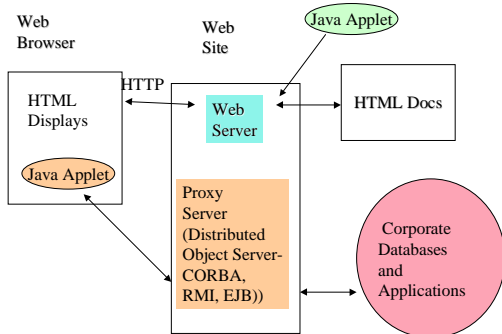
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Enterprise Components (Business Components)



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Second Generation Web Architectures (Java Applets)



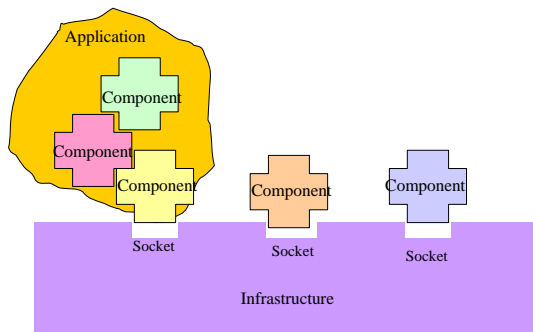
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Components and Business Components

- Architectures based on Business Components can possibly lead to re-use.
- Definition:** A **component** is a self-contained piece of software that has a well defined interface and can be developed, delivered, installed, and run independently.
- In addition, a component must have the following properties:
 - A component is built so that it can be easily combined and composed with other components for enterprise needs.
 - A component has a socket as a software for interface with the infrastructure. For example, a component may have a socket for CORBA or DCOM.

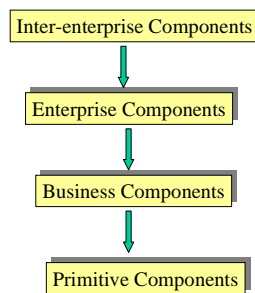
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Components



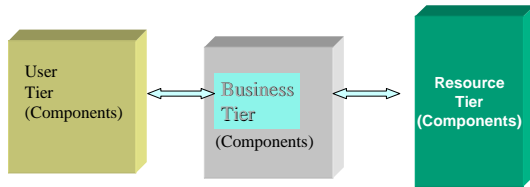
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Granularities of Components



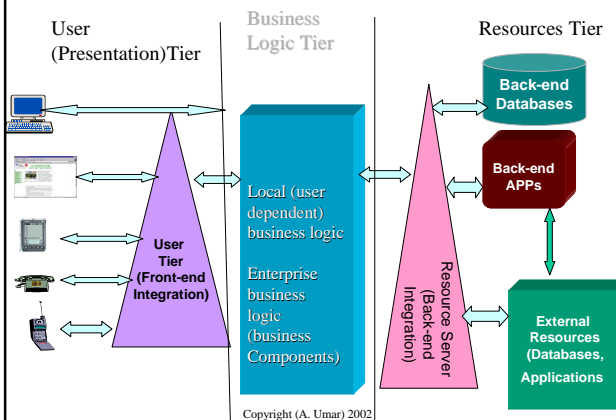
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Component-based Application Architectures - View1



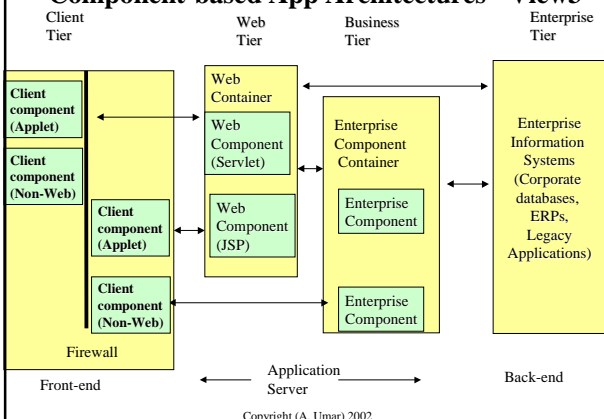
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Component-based Application Architectures - View2



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Component-based App Architectures - View3



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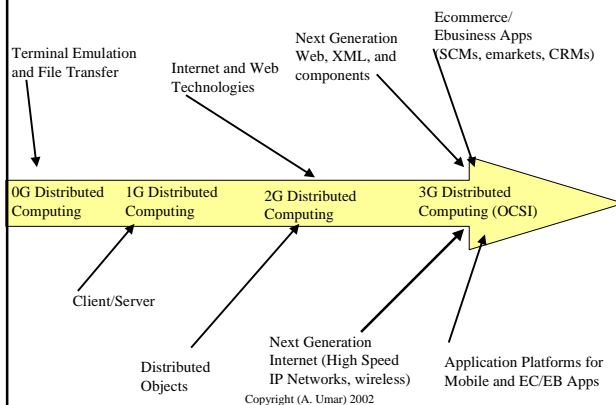
OCSI (object-oriented Client/Server Internet) Applications

Most 3G apps are OCSIs that use:

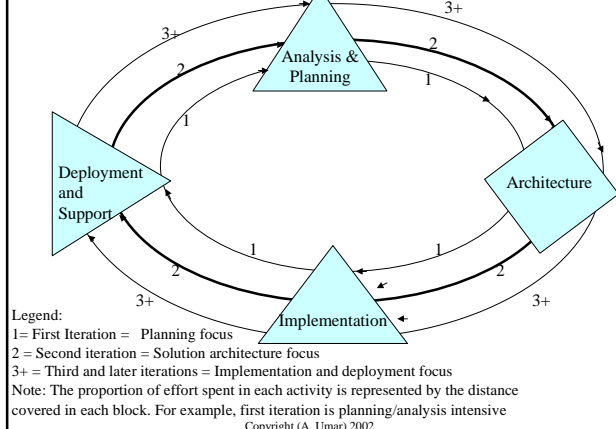
- Object-orientation is used, preferably as components. Enterprise Java Beans (EJB) is a natural outgrowth of object-orientation.
- Business aware functionality is decomposed into servers (service providers) and clients (service consumers).
- Internet and Web technologies are used extensively

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OCSI Applications - An Evolution



Development Methodology

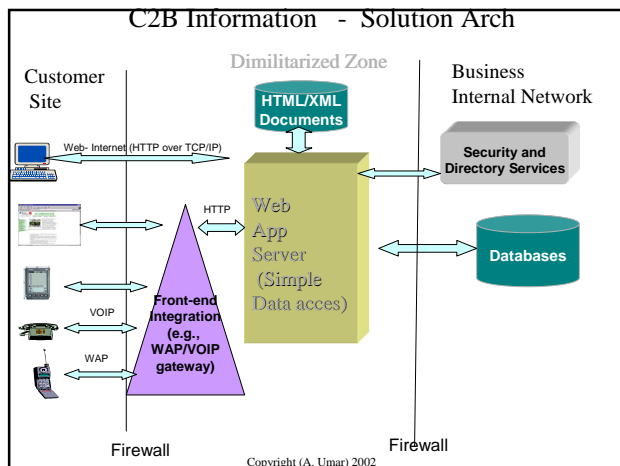


Examples of Solution Architectures

- **Simple Web sites (C2B for Information Services).** Web Advertising
- **Basic Ecommerce (C2B for Online Purchasing).** Web-purchasing.
- **Extended Enterprises (B2B Direct).** Multiple orgs cooperate (e.g., Amazon.com)
- **Next Generation Enterprises (B2B through eMarkets)** The interactions between business partners are conducted indirectly through trading networks and are sometime referred to as B2N (business to network) interactions.

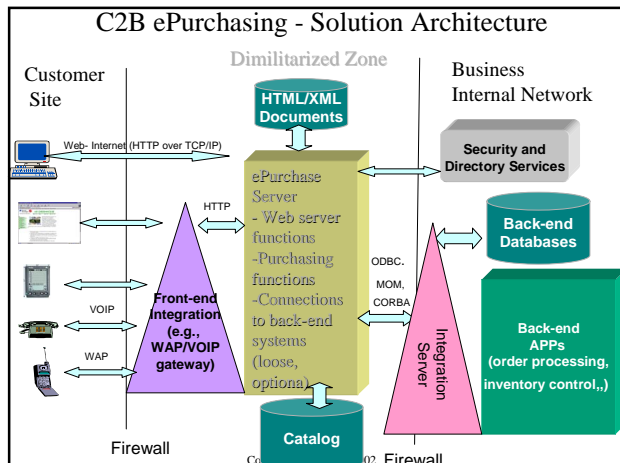
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C2B Information - Solution Arch

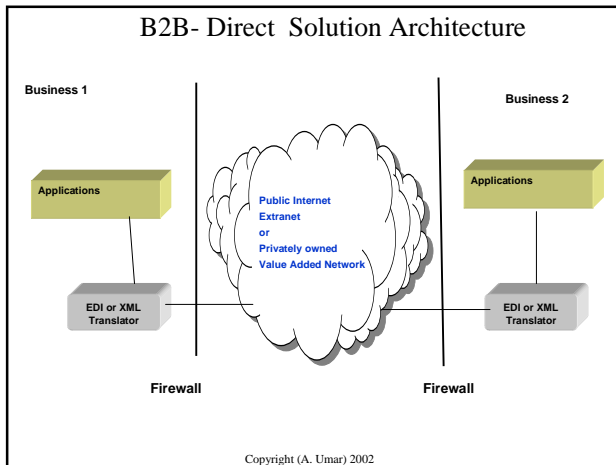


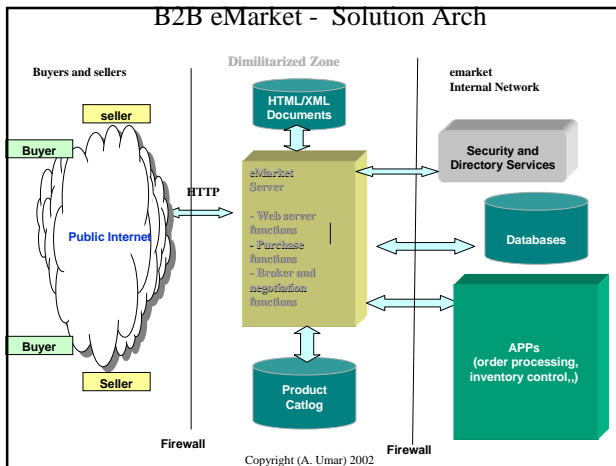
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C2B ePurchasing - Solution Architecture



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Key Points

- A great deal of activity in building solutions
- Solution architecture is a good framework for translating business strategies to solutions that can be used
- Web technologies are playing a key role
- Component-based architectures are gaining popularity
- A systematic methodology is needed

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