

Introduction

CMPE 273 Enterprise Distributed
Systems

Prerequisites

- CmpE 272
 - Special cases may waive 272 - if you have professional software engineering experience (not internships) – must have instructor consent
- Proficient in one or more OO languages
 - Java preferred
- Strong organizational and team skills

Projects

Projects are an opportunity to further discussions and exploration through practical experience.

3 Programming projects and 1 class project

1. Programming projects – individual
2. Class project: Team project design and implementation

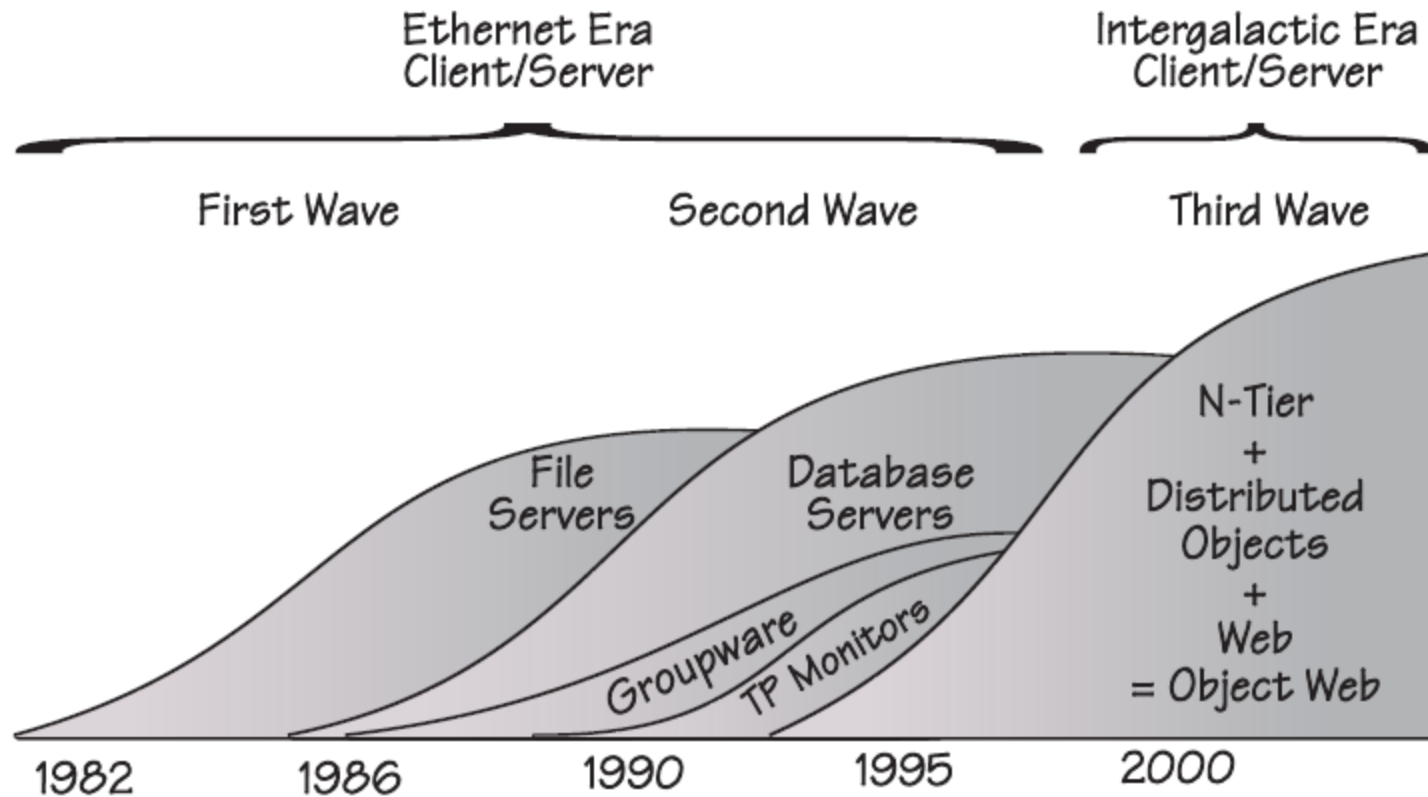
Manage your time carefully

- Projects take 30-70 hours to complete
 - **Do not wait until the last week**
 - **Rather program every day or every other day**
- What you have to plan for
 - Project investigation
 - Understanding concepts and technologies
 - Implementation
 - Testing
 - Documentation

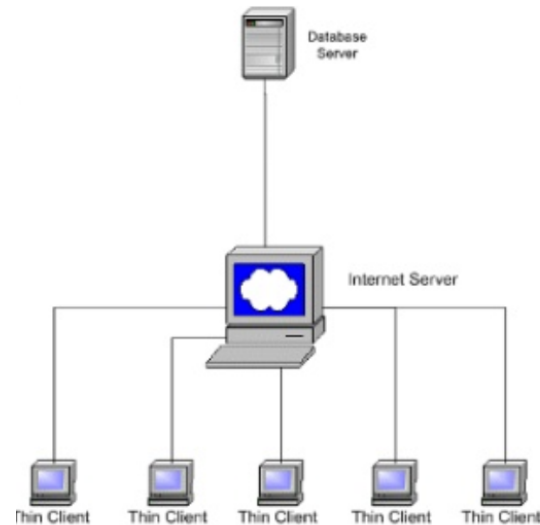
Client Server Architecture

- A three-way interaction in a client/server environment
 - User interface is stored in
 - Business application logic is stored in
 - The data is stored in

Client/Server



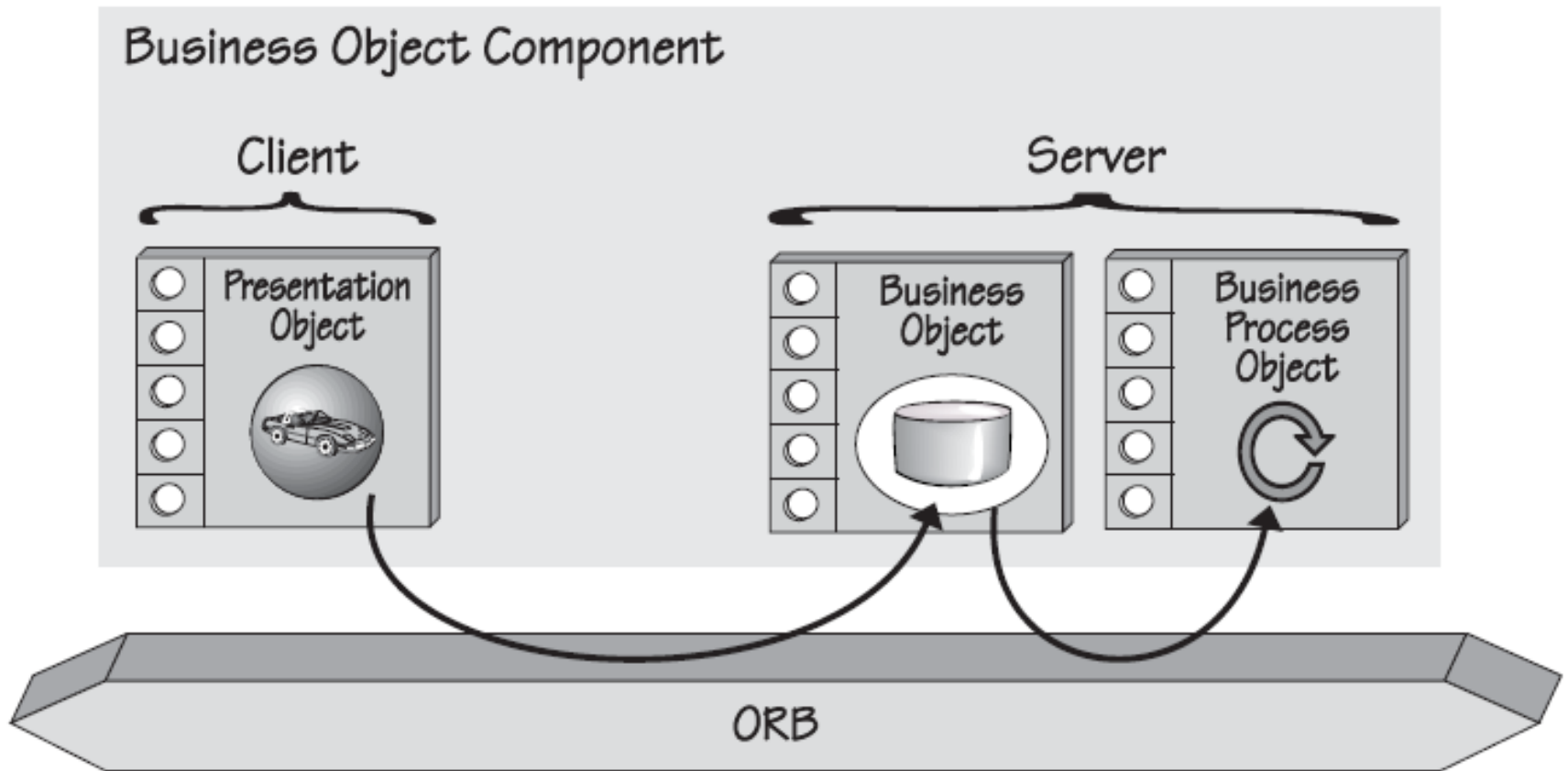
- Single Tier: “Mainframe” era
- Dual Tier: “personal Computer” era
- 3-Tier: “thin client”



Object Orientation

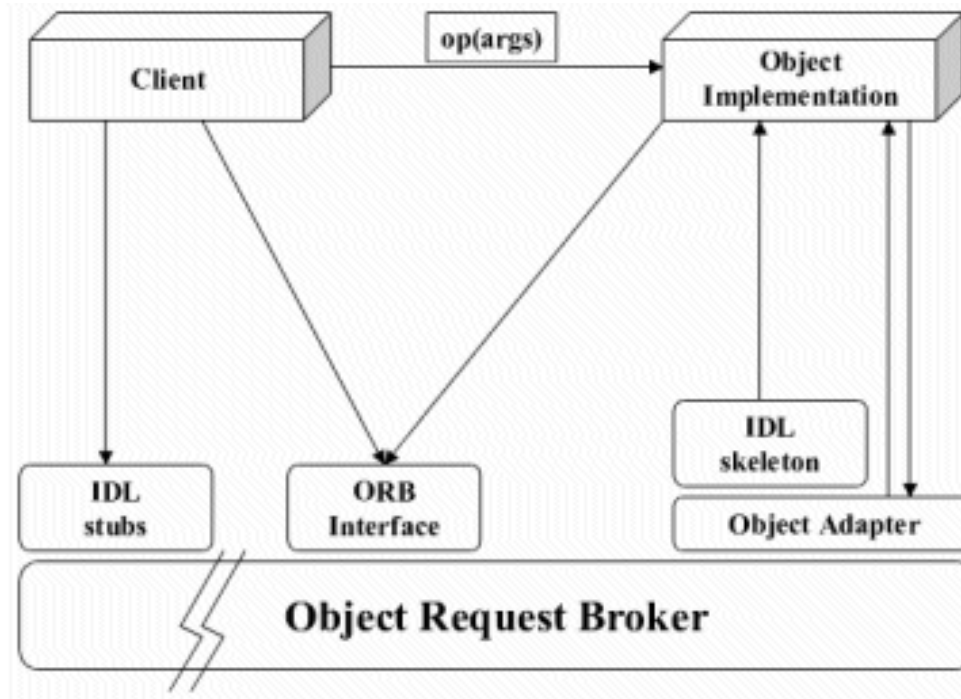
- Class encapsulation
- Polymorphism
- Inheritance

Distributed Business Object Component



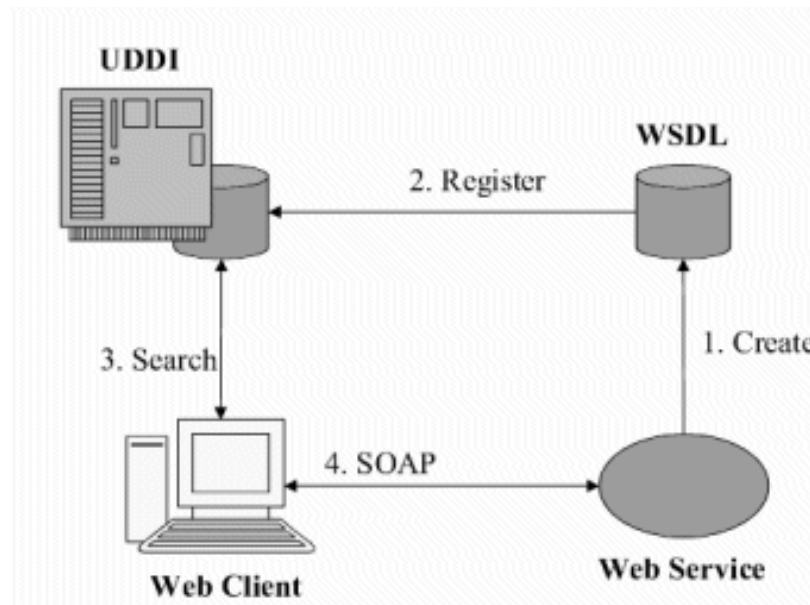
CORBA

- CORBA objects can be either collocated with the client or distributed on a remote server, without affecting their implementation or use.



Web services

- HTTP based
- SOAP/UDDI/WSDL is a general framework (based on XML) for describing network services



RESTful Services

- **Representational State Transfer (REST)**
 - Roy Fielding, 2000 (doctoral dissertation)
 - Examination of the Internet as a stateless service of near-limitless expansion model with a simple but effective information delivery system
- **Key concepts**
 - Resources - source of information
 - Consistent access to all resources
 - As in interface and communication – Not content or function
 - Stateless protocol
 - Hypermedia – links in the information to other data (connectedness)

What is the REST style?

- REST is often described as an architecture style
 - Set of formal and informal guides to creating architectures – “constraints”
 - Client-server
 - Stateless
 - Cacheable
 - Layered system
 - Uniform interface
 - Code on demand (optional)

Cloud Computing

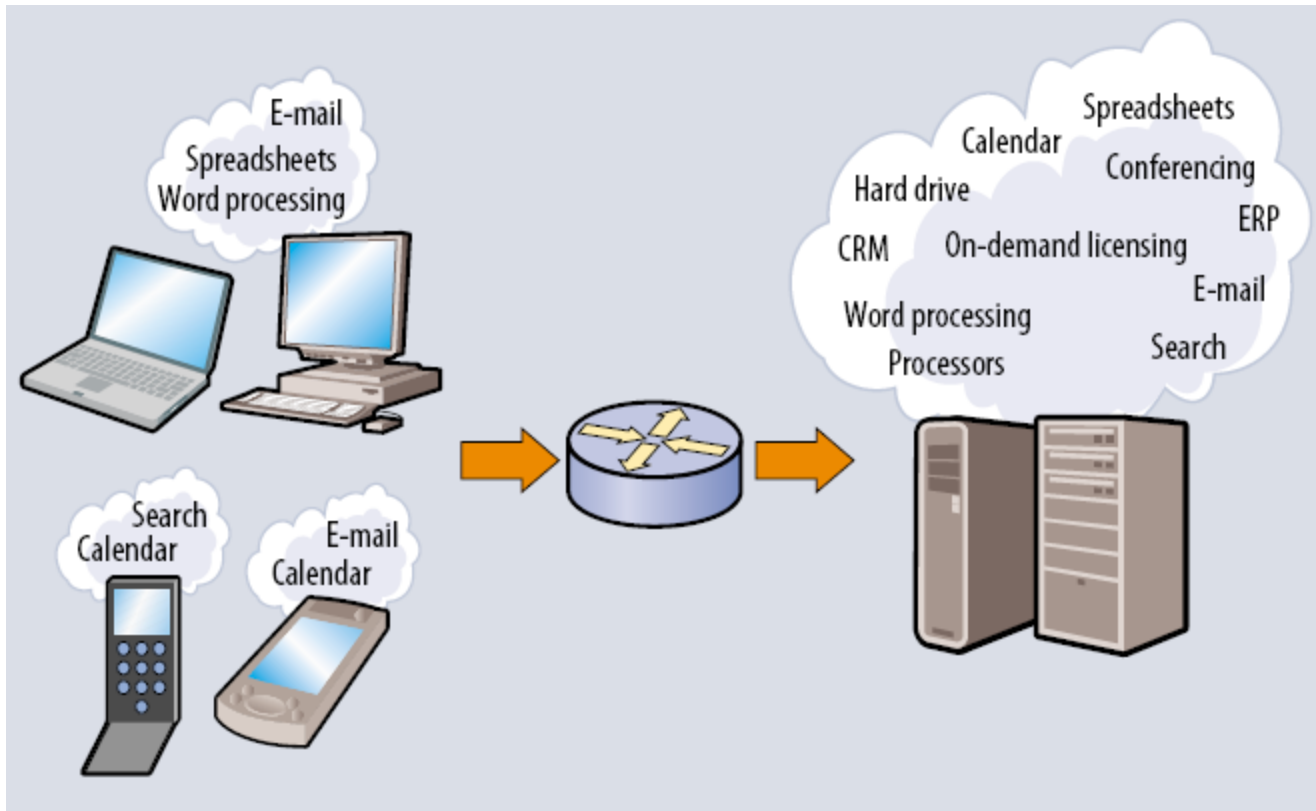


Figure 1. Applications are moving from the local machine to the Ubiquitous Computer.

Cloud



MERN Stack

- MongoDB(M)
- Express(E)
- React(R)
- NodeJS(N)