

## System types

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- Personal systems that are designed to run on a personal computer or workstation



# Distributed Systems Architectures

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## Topics covered

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## Multiprocessor architectures

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- Simplest distributed system model
- System composed of multiple processes which may execute on different processors
- Architectural model of many large real-time systems
- Distribution of process to processor may be pre-ordered or may be under the

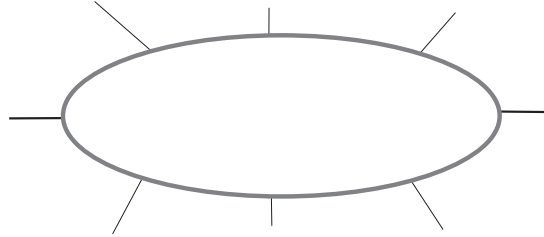
## Client-server architectures

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- The application is modelled as a set of services that are provided by servers and a set of clients that use these services
- Clients know of servers but servers need not know of clients
- Clients and servers are logical processes
- The mapping of processors to processes is not necessarily 1 : 1

## Computers in a C/S network

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## Fat client model

- More processing is delegated to the client as the application processing is locally executed
- Most suitable for new C/S systems where the capabilities of the client system are known in advance
- More complex than a thin client model especially for management. New versions of the application have to be installed on all clients

## server ATM system



## Layered application architecture

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- Presentation layer
  - Concerned with presenting the results of a computation to system users and with collecting user inputs
- Application processing layer



## An internet banking system

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## Distributed object architectures

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- There is no distinction in a distributed object architectures between clients and servers

## Advantages of distributed object architecture

27

- It allows the system designer to delay decisions on where and how services should be provided
- It is a very flexible and scalable system architecture that allows new resources to be added to it as required
- It is possible to reconfigure the system dynamically with objects migrating across the network as required

## Uses of distributed object architecture

28

- As a logical model that allows you to
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## Middleware

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- Software that manages and supports the different components of a distributed system. In essence, it sits in the









## Inter-ORB communications

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- ORBs handle communications between objects executing on the same machine
- Several ORBs may be available and each computer in a distributed system will have its own ORB
- Inter-ORB communications are used for distributed object calls

## CORBA services

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- **Naming and trading services**
  - These allow objects to discover and refer to other objects on the network
- **Notification services**
  - These allow objects to notify other objects that an event has occurred
- **Transaction services**
  - These support atomic transactions and rollback on failure

## Additional Resources on CORBA

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