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Training

ANSAwise - Introduction to Client/Server Systems

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Abstract

The business problem addressed is that of coping with change: political, economic, social, and technological.

Client/server technology is often adopted with the aim of providing the flexibility of coping with these changes. However, client/server technology introduces its own challenges. This presentation suggests that middleware, within an architectural framework, may be a solution.

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Briefing Note

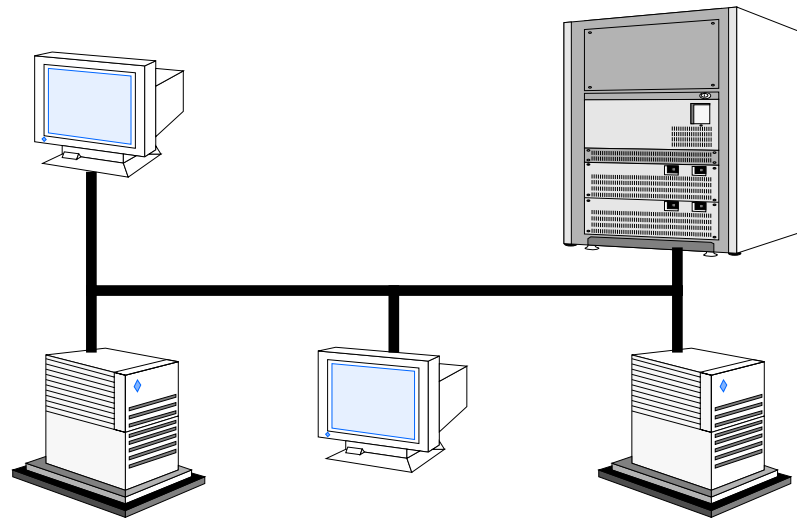
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Introduction to Client/Server Systems





In this session

- *Review the business case for client/server*
- *Examine the state of play in client/server systems*
- *Discuss the issues for large-scale client/server systems*
 - *and how distributed environments affect this*
- *List the key issues for client/server implementation*



What's the real business challenge?

Coping with change

The pressures for change

- *Political, economic, social, and technological...*

- **Globalization**



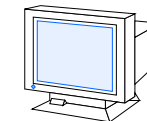
- **Rapid organizational change**



- **Increased customer expectations**



- **Inexpensive computing and telecommunications**



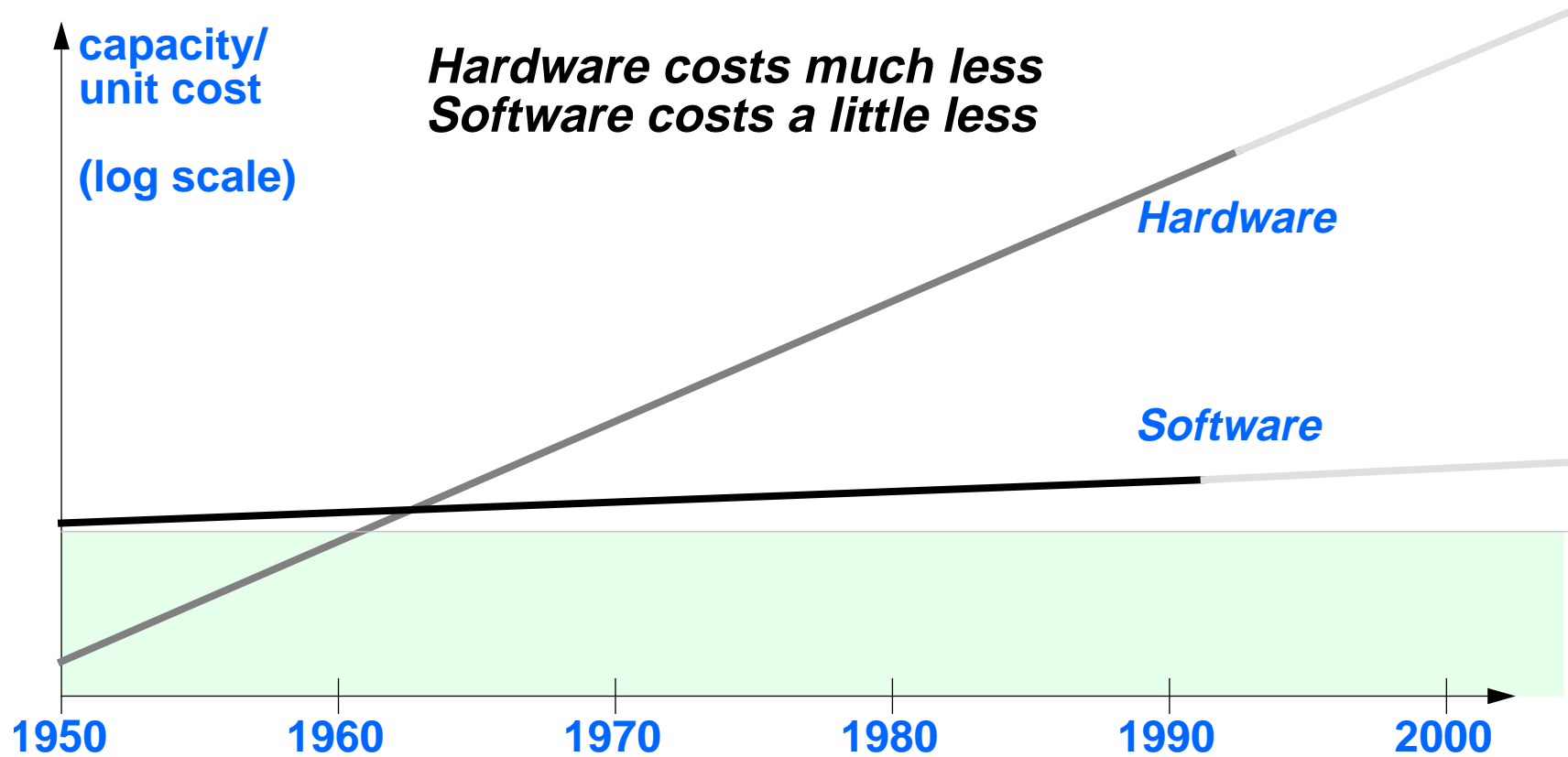


Meet the customer's expectations...

- *timely:* *I want it immediately*
- *customised:* *I want it to meet my needs*
- *competitive:* *I want to pay as little as necessary*
- *available:* *I want it to be reliable*
- *integratable:* *I want it connected to my customers*

....before your competitor does

Costs of provision





Optimism or disillusionment?

- *Open systems have not delivered their promise*
- *IT/IS costs continue to rise*
- *System development backlogs persist*
- *Business benefits have not been delivered*

... but...

- *Packaged software has become acceptable*
- *Packaged software is available at low cost*



What enterprises really need

- *Rapid and flexible application development*
- *Manageable communications infrastructure*
- *Secure access to corporate data from all users*
- *Protection of investment in legacy systems*
- *Security against theft or virus attack*
- *Cost-effective platforms*
- *Evolution rather than revolution*



What is client/server?

- *'The splitting of an application into tasks that are performed on separate computers, one of which is a programmable workstation'*
- *'User control of applications, IT control of infrastructure'*
- *'The marriage of the usability of PCs to the infrastructure of the mainframe'*
- *'Distributed data + distributed processing + graphical user interface'*

...?



What People Say About It: Facts Or Fallacies?

- *“By the year 2000 there will be no mainframes”*
- *“70% of all commercial applications at the enterprise level will be Unix by 1996”*
- *“UK leads the world in client-server deployment”*
- *“Only 1 in 4 department client/server applications built today ever gets completed”*
- *“Client/server is more expensive than mainframes”*



The Chinese Curse - Choice without Order

- *Diverse types of solution elements*
 - networks
 - platforms
 - operating systems

- *Diverse types of requirements*
 - for services
 - for applications

- *... but who is responsible for the end-to-end solution?*



Constructing the end-to-end solution

- *We have solution elements...*
 - ...networks, platforms, operating systems, middleware
- *We have approaches...*
 - ...open systems, client/server, object-orientation, development tools
- *...we need a framework for choice*



Open architectural framework for solutions

- *We need an open architectural framework that*
 - guides the choices in solution elements and approaches
 - protects the investment in networking and legacy systems
 - allows integration of products from many vendors
 - minimises risk
 - supports large-scale client/server systems



Large-scale client/server

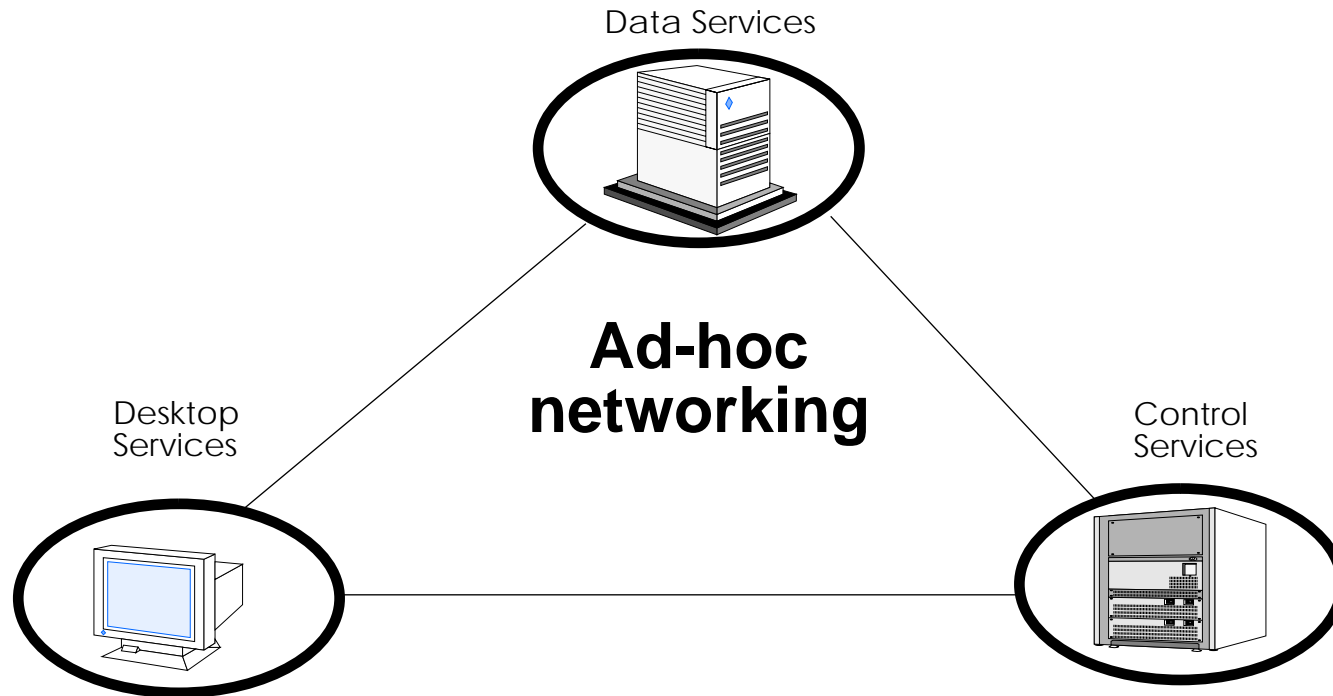
- *Typically, large-scale client/server systems are distributed systems, rather than centralized ones*
 - distributed systems being those which consist of interconnected cooperating components...
 - ...there being no central machine (or group of machines)



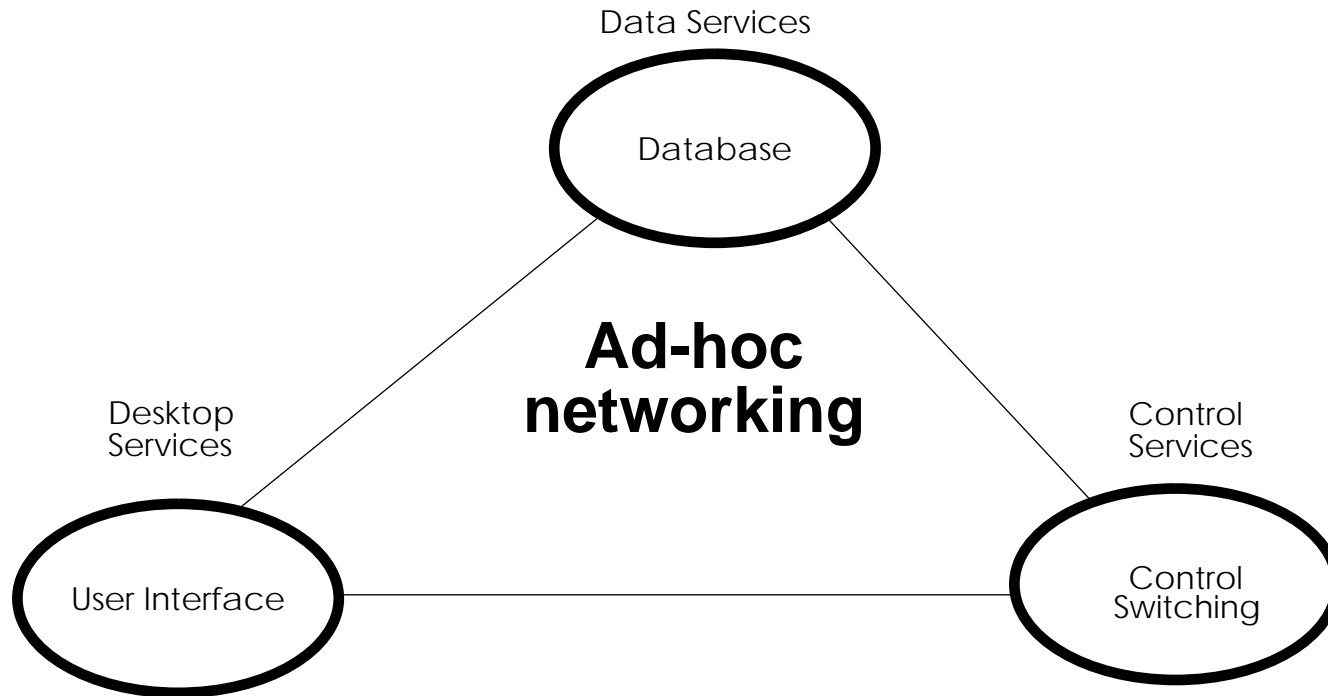
Interoperability in distributed systems

- *Interoperability is difficult to achieve in distributed systems because of the diversity*
 - communication protocols, data representations, hardware platforms,...
- *“Middleware” is a software infrastructure that facilitates interoperability*
- *So, the open architectural framework must embrace distributed systems using open middleware technology*

Integrating services in a distributed system



Typical skills needed to build them





Skills in the Data Culture

- *Remote data access*
- *Distributed databases*
- *Stored procedures*
- *Repositories*



Skills in the Desktop Culture

- *Individual PC productivity services*
- *Group PC productivity services*
- *File and printer sharing*
- *Mobile computing*



Skills in the Control Culture

- *Robust messaging*
- *High availability*
- *Switching and device control*



Technical challenges for client/server implementation

- *Security*
- *Network and system management*
- *Performance*
- *Change control/Versioning*
- *Availability*
- *Interoperability*



Technical solutions for client-server implementation

- *Toolkits and frameworks for security*
- *Toolkits and frameworks for network and system management*
- *Tools for performance evaluation and monitoring*
- *Toolkits and frameworks for change control/versioning*
- *Middleware for availability*
- *Middleware for interoperability*



Large-scale client/server systems - Summary

- *Client/server systems allow organizations to cope effectively with change*
- *Solutions for small-scale client/server systems will be ineffective for large-scale systems*
- *Middleware facilitates interoperability*
 - while masking complexity from applications
- *No one solution will predominate*
 - an architectural framework is needed



Where next?

- *In this course we'll be exploring*
 - ...the topics mentioned here
 - ...some middleware solutions
 - ...and related fields