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Training

ANSAwise - Exploiting IT Trends in the 1990s

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Abstract

Organizations have much IT already in place, representing a large investment. They need to understand how the technology is likely to evolve.

This module of the ANSAwise training programme describes the advances in networking, operating systems, hardware, and related areas, and predicts how they are likely to evolve

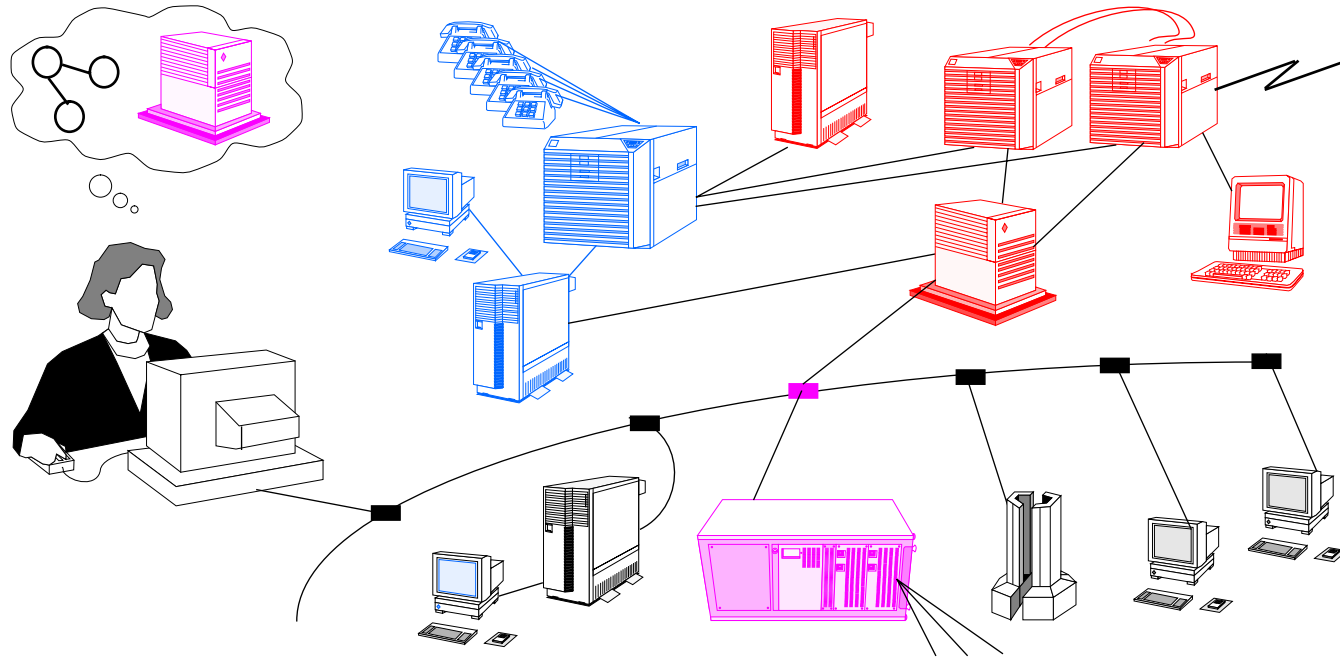
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Exploiting IT Trends in the 1990s

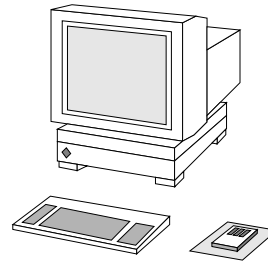




In this session

- *Review the advances made in IT during the 1990s*
 - in computer hardware, user interfaces, and operating systems
 - in networking (local-area)
 - in telecommunications (wide-area)
 - in packaged applications and software development
- *Predict the likely effect of these trends in the rest of the 1990s*
- *Show how to exploit these trends*

The rise of the PC



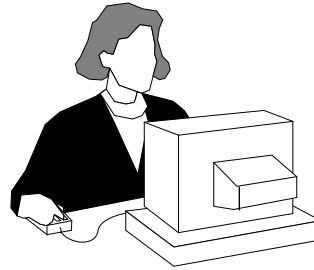
- *Wide choice of applications software*
- *Low purchase price*
- *Built from standard components*



PCs in the 1990s

- *The PC is now a consumer product*
 - innovation is aimed at the small-office/home-office (SoHo) market
- *Prices may not fall much further*
 - but will offer extra performance and capacity
- *Software will consume this extra performance and capacity*
 - hardware obsolescence will remain an issue
- *Portable computers will continue to improve*

The rise of the graphical user interface (GUI)



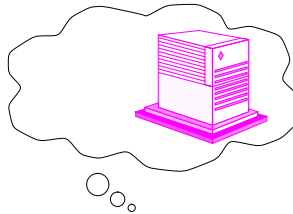
- *GUIs offer increased end-user productivity and flexibility*
- *Ease of use - but this is not the same as ease of learning*
 - *GUIs can require more training than menu-based user interfaces*



GUIs in the 1990s

- *Microsoft Windows (and MacOS) will be the mass market*
 - continuing compatibility with older applications will be an issue
- *Some existing non-GUI systems will be retained for many years*
- *Specialist devices will need specialist (non-GUI) interfaces*
 - for example, low-cost portable devices

The rise of Unix



- ***Open systems support application portability***
 - can buy hardware from one vendor, application software from another
 - can upgrade hardware and replace application software independently
- ***Open systems can be interconnected***
 - different systems from different vendors



Openness

- *Which of these would you class an “open system”?*

	Yes	No	Don't know
IBM PC			
Apple Macintosh			
Unix			
Microsoft Windows			
The worldwide telephone network			
Novell NetWare			
A 4GL that you know			

- *Which system most closely fits your idea of an open system (it may not be listed above)?*



Thinking about openness

- *Looking at your answers, try to write down what you think defines “openness”. (A list of keywords is fine)*

- *Try out your definition with some other systems you have heard of*

	Yes	No	Don't know

Get ready to discuss this



Your notes



Operating systems market (1994)

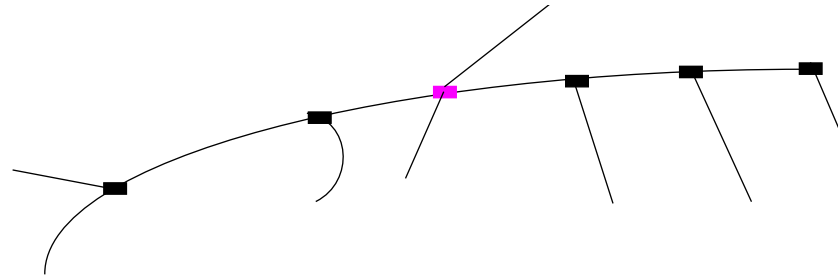
Vendor	System	Installed units worldwide	Market
IBM	MVS	15,000	Large mainframe systems
IBM	OS/400	300,000	Mid-range (AS/400)
DEC	VMS	500,000	Workstation up to large mid-range
Microsoft	Windows NT	750,000	Workstation up to server
Novell	NetWare	1,000,000	LAN server
IBM	OS/2	5,000,000	PC
(various)	Unix	6,000,000	Workstation up to supercomputer
Apple	MacOS	10,000,000	Apple Macintosh
Microsoft	Windows	50,000,000	PC
IBM/Microsoft	DOS	200,000,000	PC



Operating systems in the 1990s

- *'Bare DOS' will gradually fade away, being upgraded to Windows+*
- *It is unlikely that there will be a new mainstream operating system in the 1990s*
- *Operating systems will become portable to different hardware platforms*
- *More and more functions will be placed in the operating system*
- *Coexistence and interoperability with Unix will be important*

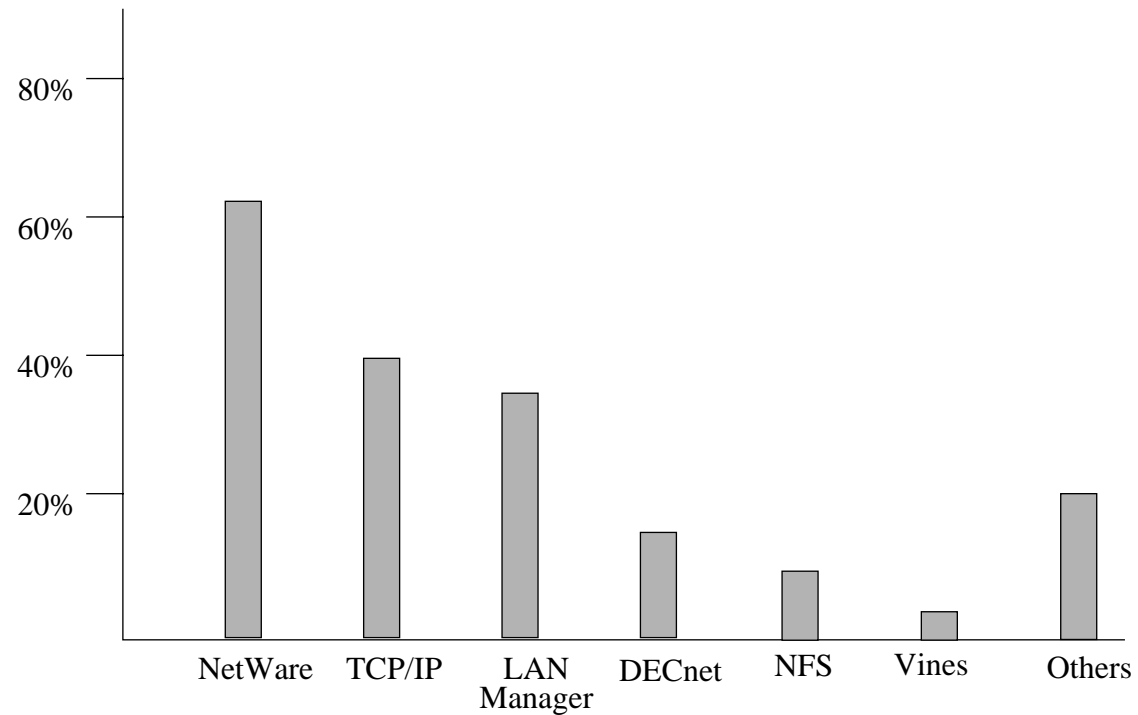
The rise of the local area network (LAN)



- *More than 50% of all PCs are now connected to a LAN*
- *LAN hardware is a 'plug-and-play' commodity market*
- *LAN software (NetWare) is a commodity too*
- *Administering the LAN environment is a challenge*

PC LAN protocols in practice

- *PC networks in Times Top 1000 Companies*





LAN protocol diversity - an example

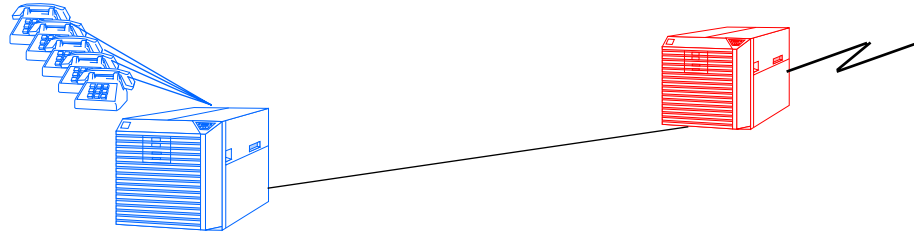
- *Hughes Aircraft Corp. have 51,000 staff*
- *Hughes Enterprise Network Architecture has to cope with*
 - 50,000 ports
 - 860 hubs
 - 9 protocols (NetWare IPX, TCP/IP, Vines IP, Appletalk, DECnet, LAT, NETBIOS, SNA, OSI TP)
- *They aim to get down to 6 protocols*
- *They'd like to get down to 2 protocols*
- *They think it will take until the year 2000*



LANs in the 1990s

- *The current LAN hardware will continue*
 - faster LANs will emerge, but will not displace existing LANs
- *LAN software will make networks somewhat easier to administer*
 - but administration will remain a challenge for the foreseeable future
- *TCP/IP will emerge as the predominant network protocol*

The rise of the wide area network (WAN)



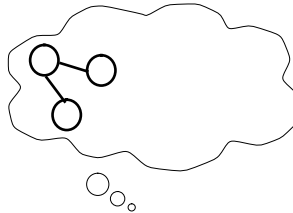
- *Deregulation opened a market in WAN equipment and forced prices down*
- *Some WAN technologies are still expensive to buy and use generally*



Telecommunications in the 1990s

- *Telecommunications tariffing will make supplier selection a complex decision*
- *Wide area network security will remain a thorny issue*
- *Mobile data will become increasingly important*
 - *both proprietary and standards-based wireless mobile data products*

The rise of packaged applications



- *Packaged applications have empowered end-users*
- *PC applications fell sharply in price in the early 1990s*
- *There remain significant hidden costs*



Packaged applications in the 1990s

- *Office productivity applications (word-processor, spreadsheet,...) have become more and more complex*
 - there is a trend towards 'plug-in' components for these applications
- *Line-of-business and vertical-market applications are moving to Unix*
- *It will still be necessary to configure and customize these applications*
 - to match your organization's business procedures and customer needs



The rise of 4GLs

- *Designing forms-based systems is easier with 4GLs*
- *Writing application code is easier with 4GLs*
- *Designing databases is just as challenging as it always was*
- *4GL products can lock you in to that software vendor*



Software development in the 1990s

- ***New software development tools abound***
 - new programming languages (C++, Smalltalk,...)
 - new development techniques (object-orientation, client/server,...)
 - new development methods (RAD, JAD,...)
- ***The costs and risks are significant***
 - building up expertise is time-consuming
 - many products are immature, and methods unproven
 - not all vendors and products will survive
- ***IS developers will acquire a system integration role***



Exploiting the IT trends - Systems and networking

- **PCs**
 - remain aware of standards issues, but keep a tactical eye on vendors
- **Graphical user interface (GUI)**
 - deploy appropriately, and focus the scope of end-user training
- **Operating systems**
 - deploy appropriately, and review upgrade strategy
- **LANs**
 - focus on administration
- **WANs**
 - focus on cost containment and security



Summary

- *IT in the 1990s can be reasonably forecasted; its market cannot*
- *Each organization must define the benefits it requires from open systems*
- *New IT products and techniques will coexist with existing ones*