An Introduction to the Internet

History and background

Uses and Issues Associated with the Internet

The terminology

The Conceptual 4-Layer Model

Protocols in the stack

Standards and RFCs

Services

Addresses and URLs

Routing

Summary

1957 Russia launch SPUTNIK and the USA create ARPA (Advanced Research Project Agency) who after creating a satellite look at computer networking

1969 ARPANET 4-nodes

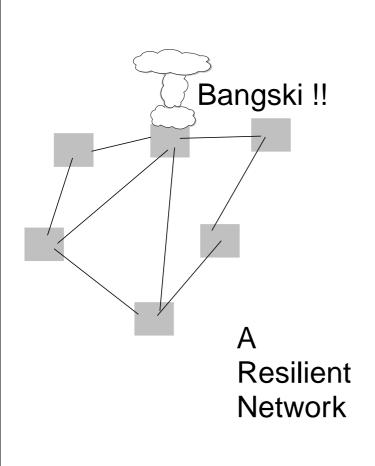
1971 15-nodes

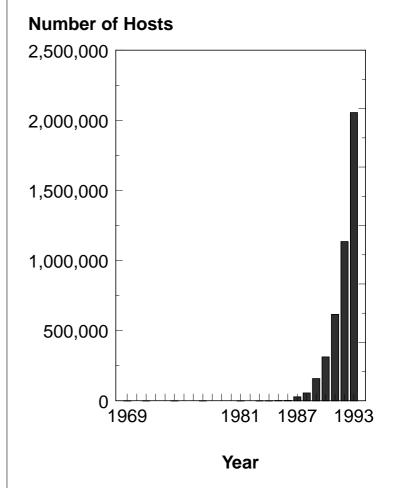
1973 First international connections to ARPANET

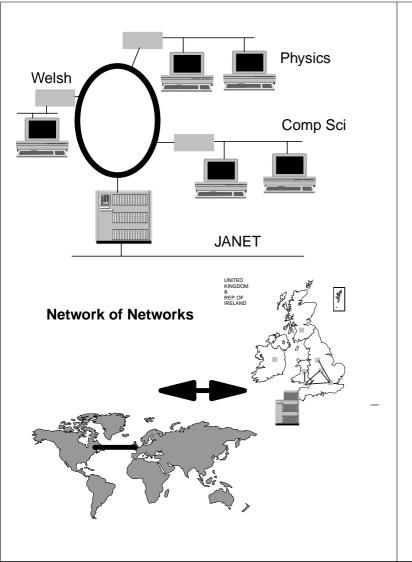
1982 TCP/IP established as protocol suite for ARPANET

1992 World Wide Web released by CERN

1993 Mosaic







Uses and Issues Associated with the Internet

Use Issues

Finding information Quantity/time

File Transfer Suitability of material

Security

Advertising and commercial money/information

News

Discussion Groups No control

Bulletin boards

e-mail Authentication

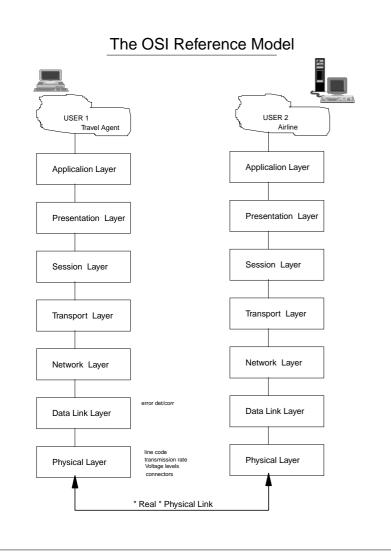
Ouglity of data

Quality of data

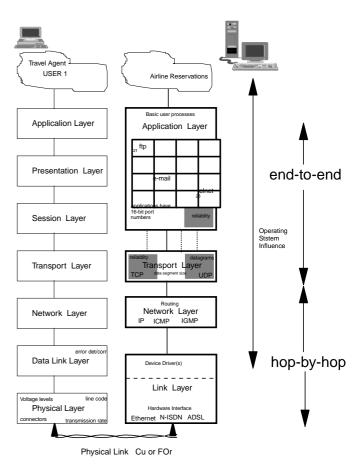
Video conferencing environmental -

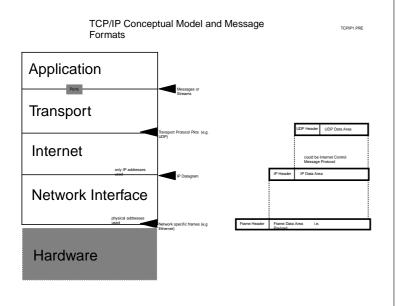
travel/presence

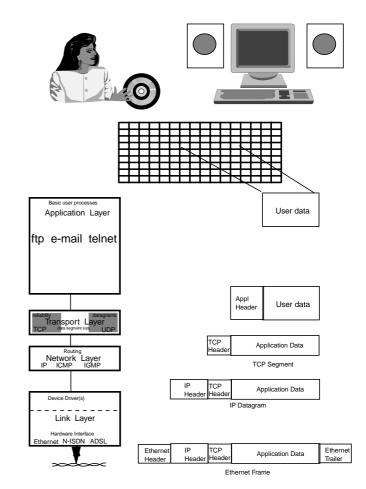
Surveillance and Control? Democracy



The Reference Models









Application Layer					
rlogin	ftp	http			Management
rsh					protocols
Transport Laver					
TOD					
TCP					UDP
Network Layer					
ID and others					
IP and others					
Link Layer					
Н			Hardw	/are	ARP and
Interfa					RARP
			•		
		\times			$\supset \subset$
Physical Medium					

Internet Standards and RFCs

There are a number of groups that control the technology used by the Internet:

The Internet Society (ISOC)

- promotes the growth and evolution

The Internet Architecture Board (IAB)

- technical overview and co-ordination
- quality of Internet standards

The Internet Engineering Task Force (IETF)

- develops the specifications that become standards
- helped by the Internet Engineering Steering Group (IESG)

The Internet Research Task Force (IRTF)

- long term research

Official and non-official (even spoof) standards are published as a **Request for Comment**

Possible QoS Related Topics Dealt with by Internet Engineering Task Force Internet Engineering Task Force All Areas Noted Only Potentially QoS related Working Groups Noted Hypertext Transfer Protocol http - Applications Area Notifications & Ack. Regs notary - IP: Next Generation area Dynamic Host Configuration dhc - Internet Area Internet Stream Protocol v2 st2 Messageway msgway Pt-to-Pt Protocol extentions pppext Remote Network Monitoring rmonmib - Network Management Area SNMP ver 2 snmpv2 - None Internet Standards 95 poised95 Benchmarking methedology bmwg Operational Requirements Area Generic Internet Service Description gisd Network Status Reports netstat - Routing Area Open Shortest Path First IGP ospf Source Demand Routing sdr Audio/video Transport avt - Security Area Integrated Services intserv Multiparty Multimedia Session Control mmus - Transport Area ONC Remote Procedure Calls oncrpc Resource Reservation Setup Protocol rsvp

User Services uswg

TCP Large Windows tcplw

- User Services Area

Internet Addresses, Ethernet Addresses and URLs

Every interface on an internet must have a unique Internet Address (IP address)

There is structure to IP addresses

32-bit address in a dot decimal notation e.g. 144.124.16.21 osfa

Ethernet Card Addresses e.g. 00:CC:A8:40:12:90

Uniform Resource Locators (URLs)
e.g. http://www.aber.ac.uk/departments.htm
type://host computer address/directory and file

