

Chapter 1

Introduction

Introduction

- The Internet is familiar to everyone
- But networks have been around for a long time
- A network is any means to connect entities together so they can communicate

Introduction

- Resource sharing
- Communication and collaboration
- Information gathering
- Reliability through replication
- Entertainment

Introduction

Metcalfe's Law

The value of a network expands exponentially as the number of users increases

Introduction

- The telephone system
- The mobile phone system
- TV and radio
- Cable networks
- Data networks
- The Internet

Introduction

Classification by Size

- LAN Local Area Network
- MAN Metropolitan Area Network
- WAN Wide Area Network
- CAN, PAN, WPAN etc.

Introduction

Classification by Speed

- Narrowband
- Broadband

Actually not speed: real meanings distorted by marketing

Introduction

Documentation

- RFC Request for Comments
 - Be as close to the RFC as possible in what you do yourself, but be as liberal as possible regarding what you accept from others

Introduction

Documentation

- RFC Request for Comments
- IEEE Institute for Electric and Electronic Engineers
- ISO International Standards Organisation
- IEC International Electrotechnical Commission
- lots more

Introduction

History

- 1958: The Russians launch Sputnik
- ARPA Advanced Research Projects Agency formed
- mid 1960s a project to share computing systems
- decentralised and *packet switched*

Introduction

Switching and Circuits

- A circuit is a single dedicated path from source to destination
- Packet switching chops the data into chunks, each of which is sent individually

Introduction

History

- 1969 First Internet has just four nodes
- Runs NCP Network Control Program
- Email and discussion groups are popular
- 1973 Internet reaches London
- 1974 TCP/IP replaces NCP
- 1980s 1000s of machines on the Internet
- Domain Name System arrives

Introduction

History

- 1980/90 Original ARPANET decommissioned
- Commerce arrives
- Other networks are replaced by Internet
- 1992 1000000 hosts
- Gopher
- Tim Berners-Lee invents the Web

Introduction

History

- The Internet starts to enter the home
- Microsoft falls into line
- The Dot Com boom
- The Dot Com crash
- Broadband to the home
- Large commerce over the Internet

Introduction

Internet Management

- Internet Society (ISOC)
- Internet Architecture Board (IAB)
- Internet Engineering Task Force (IETF)
- Internet Engineering Steering Group (IESG)
- Internet Research Task Force (IRTF)
- Internet Research Steering Group (IRSG)
- Internet Assigned Numbers Authority (IANA)

Introduction

Internet Management

- Internet Corporation for Assigned Names and Numbers (ICANN)
 - Address Supporting Organization (ASO)
 - APNIC
 - ARIN
 - RIPE
 - LACNIC
 - AfriNIC

Introduction

Internet Management

- Internet Corporation for Assigned Names and Numbers (ICANN)
 - Address Supporting Organization (ASO)
 - Country-Code Names Supporting Organization (ccNSO)
 - Generic Names Supporting Organization (GNSO)