

Introduction

COMP467
Networked Computer Systems

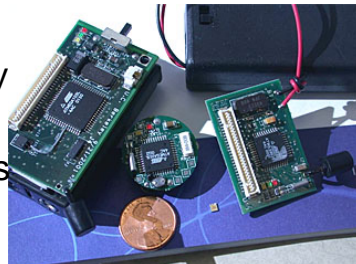
Networks are Everywhere

- People don't buy computers to compute. They buy computers to **network**.
- Email and web surfing is what people do with computers.
- Network your toaster.
- Consider monitoring grandma's refrigerator light to make sure that she is active.



Everything is Networked

- All computers on campus are networked.
- Almost every computer sold is network capable.
- Most cell phones will run Java.
- Small wireless sensor networks connect many small sensors.
- The Amazon Kindle lets you read books.

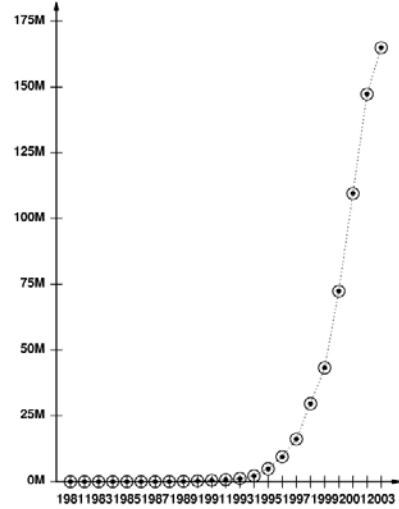


Internet history

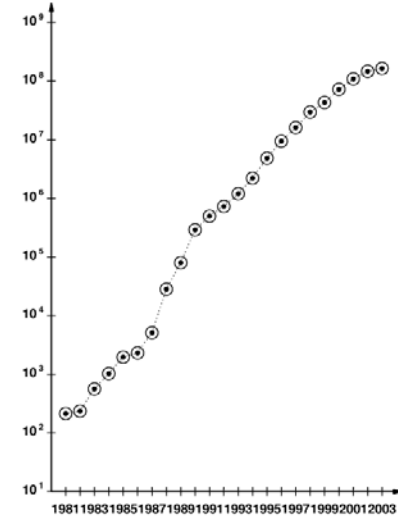
- Started as Arpanet with about 10 universities in the 1970's
- Internet used by academia for email until web developed in early 1990's
- Now over 250 million computers are on the Internet

Size of the Internet

number of computers connected to the Internet

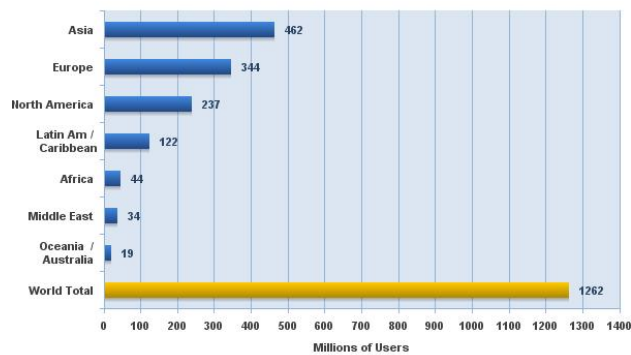


Size of the Internet *log scale*



Many People use the Internet

World Internet Users - November 2007

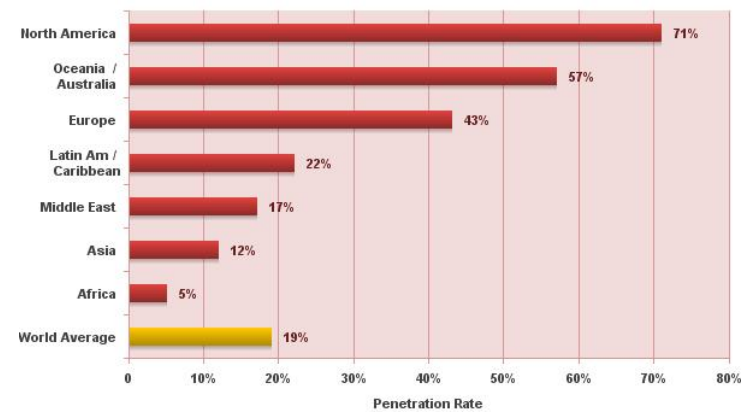


Source: www.internetworldstats.com
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- As of September 30, 2007, 1.244 billion people use the Internet according to Internet World Stats

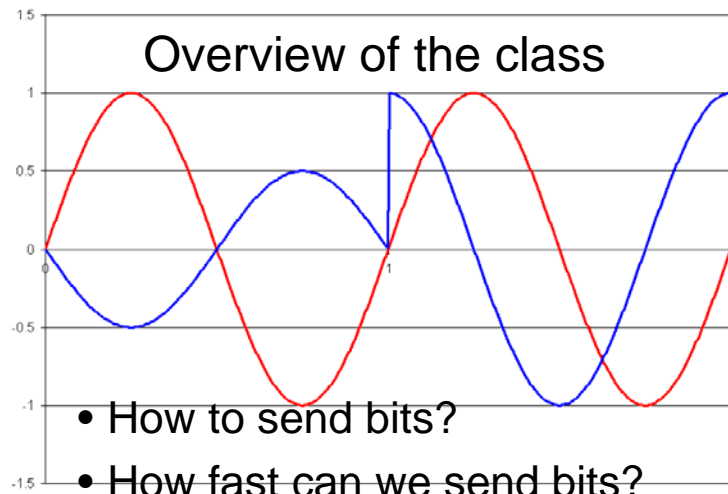
Internet Users as Percent of Population

World Internet Penetration - November 2007



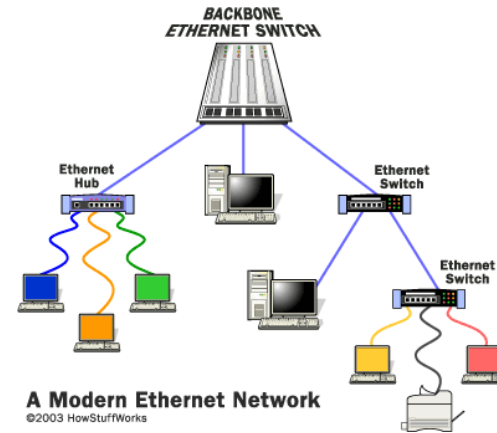
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Overview of the class



- How to send bits?
- How fast can we send bits?
- Why are there modems?

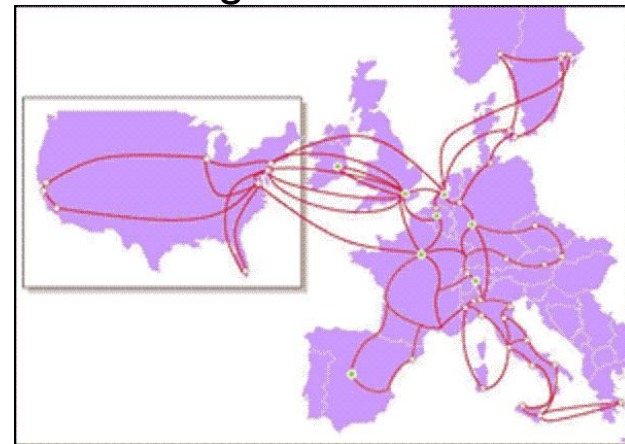
How can we connect a LAN?
How do you connect networks together?



How does the phone network work?

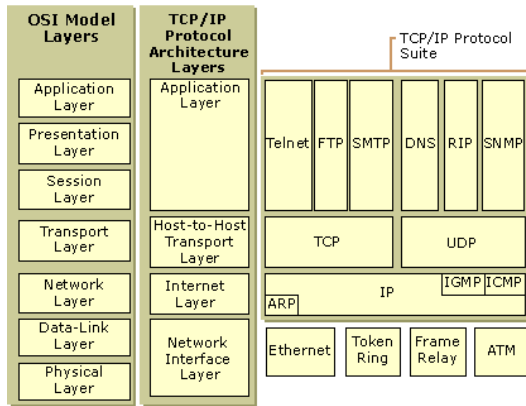


How does data find its way through the Internet?

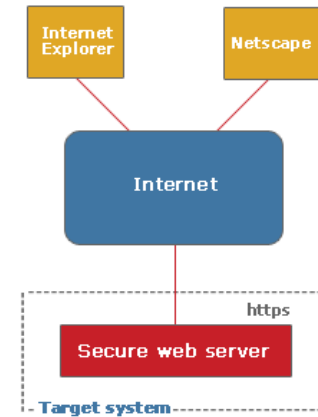


What is TCP?

What are the other options?

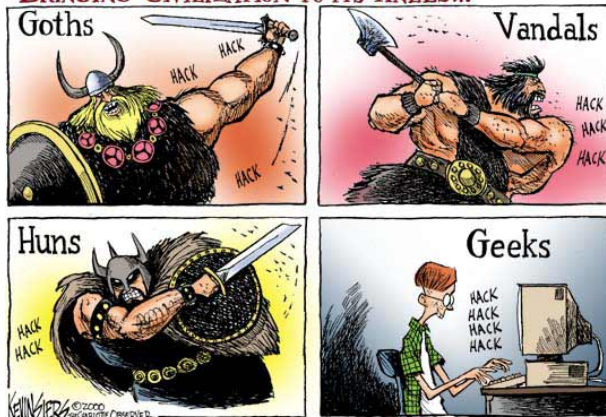


What does HTTP do?



How can you keep your network secure?

BRINGING CIVILIZATION TO ITS KNEES...



History of Networking

- 1793 Claude Chappe develops the optical telegraph
- 1844 Samuel Morse develops the electrical telegraph
- 1876 Alexander Graham Bell invents the telephone

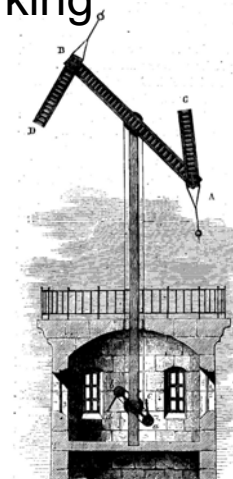


Fig. 15. — Télégraphe de Chappe.

History of the Internet

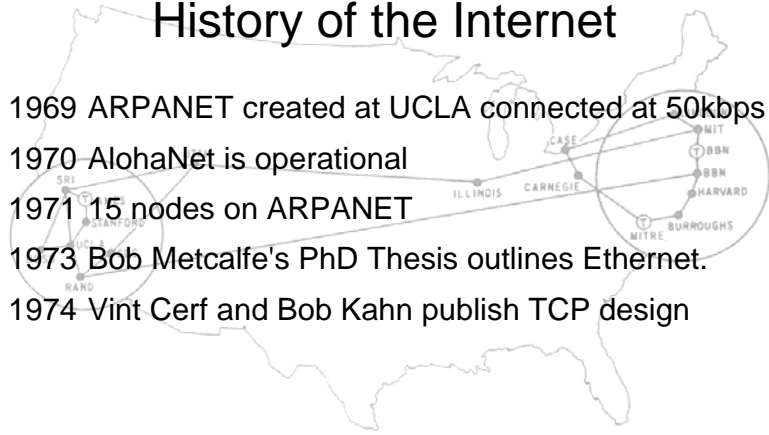
1969 ARPANET created at UCLA connected at 50kbps

1970 AlohaNet is operational

1971 15 nodes on ARPANET

1973 Bob Metcalfe's PhD Thesis outlines Ethernet.

1974 Vint Cerf and Bob Kahn publish TCP design



MAP 4 September 1971

History of the Internet

1978 TCP split into TCP and IP

1981 BITNET and CSNet are created

1981 TCP/IP becomes standard protocol for Internet

1983 Name server developed at U of Wisconsin

1986 Internet Engineering Task Force created

1991 WWW released by CERN; Tim Berners-Lee

1993 World Wide Web Consortium (W3C) created

1995 Sun launches Java

Reading

- Read Chapter 4 of the textbook for Wednesday.