

# Internet History

- Internet: a network of computer networks and the people who use them.

# Internet History

- Precursors:
  - Vannevar Bush – 1945 “As We May Think”
  - Norbert Wiener – 1948 “Cybernetics: Control and Communication in the Animal and Machine”
  - Douglas Engelbart – 1968 Demo: mouse, windows, online connections
  - Ted Nelson – 1960 Hypertext (nonsequential writing)

# Internet History

- ARPANET
  - 1957 – Sputnik → 1958 DARPA
  - JCR Licklider in 1962 – “memos on a galactic network” – the research at DARPA focuses on networking
  - 1965 Larry Roberts makes first long distance connection through a telephone line (Mass → California)
  - Compatibility problem – host computers → idea of IMP (interface message processors)
  - 1967 idea is presented at a conference

# Internet History

- Paul Baran at Rand corp designs a network that will resist to a nuclear blast. Concepts:
  - Distributed network
  - No central point
  - Redundancy in the nodes
  - Digital signals
  - Packet switching with “hot potatoes” switching in nodes

The project is ready in 1962 with 1024 nodes, microwave network

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- Donald Davies in 1965 (in UK) designs a packet switching network:
  - 1024 bits/packet with data, source, destination, control bit, sequence number
  - At destination a confirmation is released to the message sender

# Internet History

- 1968 DARPA makes a Request for Proposal for the development of 4 IMP's and the first network
  - 1 Sep/1 Oct primele IMP UCLA, Stanford RI
- BBN receives the contract and for 1 mil. USD builds the IMPs
- Network Working Group functions at DARPA (mostly grad students). They start the RFC-s
- First network applications: TELNET, FTP, E-MAIL

# Internet History

- Email – 1971 BBN Ray Tomlinson @
- 1971 – 1973 Kahn/Cerf – gateway between (unreliable) networks
- 1974 new protocol TCP/IP (Ethernet model from Xerox PARC)
- 1983 – all networks --> TCP/IP

# Internet History

- Other networks:
  - Bell Labs, GE, MIT -> Multics OS project (unfinished) From here, two programmers design an OS simple -> UNIX – free for Universities
  - Two Unix computers could communicate through UUCP and a soft NetNews. From here a new network: Usenet (short articles on a computer requested by another)

# Internet History

- Other networks:
  - PC community: 2 PC could connect through a software: MODEM
  - 1978 – a software to store and forward messages from one computer to another: CBBS → BBS
  - This network: FidoNet (short distance calls overnight) – 3 million users

# Internet History

- WWW:
  - Tim Berners Lee at CERN to solve an information management problem
  - 1990 starts the project: writes a browser, protocols, client-server model, interface technologies: URL, HTTP, HTML
  - 1993 Mark Andreessen writes a browser that interprets images NCSA Mosaic

# Internet Concepts/Technologies

- Open Source Software – Richard Stallman “all software should be free”
    - Free Software Foundation, GNU project
- Open Source software: Linux OS,  
Apache Web Server, Netscape/Mozilla,  
MySQL Database

# Internet Concepts/Technologies

- Web development: HTML, DHTML, JavaScript, CSS, XML, PHP, CGI-Perl
- Programming Languages: C, C++, Java, SQL
- Web Servers: Apache, IIS, AOL Web server
- Databases: Oracle, MS SQL, MySQL

# Internet Concepts/Technologies

- Web: DNS, domain names, protocols
- Internet access:
  - Dial up
  - Cable
  - ADSL
  - Radio/Mobile
  - Optic cable

# Online Resources

- **Internet History:**  
<http://www.isoc.org/internet/history/>
- <http://www.netvalley.com/intval1.html>
- **Browser history:**  
<http://www.dejavu.org/>
- **Internet concepts:**  
<http://en.wikipedia.org/wiki/Category:Internet>