Two Views

• The Internet
  • Technical View
  • A “Network of Networks”
  • Many providers, many points of interconnection

• The Web
  • User view
  • Everything is connected
  • Any system can have an effect on any other system
  • All information is interconnected

Enter the Internet

• Started as a (D)ARPA project
• Interconnection of a small number of research computers, for
  • Transfer of files
  • Remote control/commanding of computers
  • E-mail/messaging
• Some of these computers were used to relay messages (aka Routers)

Enter the Web

• ARPAnet is up and running
• A number of physics labs have loads of data to share
  • They are all connected by the network
  • There is the thing called SML (Structured Markup Language)
  • The labs put their data into SML and make these files available to a special program called a data browser - Mosaic
• The rest is history....
So, What is “The Web”

- Application providers and consumers
  - PCs, Laptops, Phones are mainly consumers
  - So are XBoxes, TiVos, etc.

- Application/Content providers
  - Google, Facebook, weather.com, NYTimes, Hulu, Netflix, banking, ...
  - Corporate sites: OU Registrar, Student Portal, ...

- Some machines are both consumers and providers

- Transport
  - Access: DSL, Cable, Dial-up, Satellite, Corporate Dedicated lines
  - Transport inside the network

An aside: Careers

- Transport
  - ITS: design, plan, deploy, monitor

- Content
  - VICO: Web content
  - MDIA: Multimedia content, interactive gaming

- Building new stuff from scratch
  - Electrical Engineering: wireless, high speed local area networks, high speed optical networks
  - Computer Science: operating systems, applications, protocols

What we need to know

- What are the parts of a web application?
  - Packet switching needs addresses
  - How are the addresses assigned and managed
  - People use names
  - How do names convert to addresses
  - How do the content provider applications and the content consumer applications communicate
  - Protocols

- Transport
  - What options do consumers and small businesses have to access the internet, and how do they work
  - What options do larger companies have
  - How are devices inside the Internet connected

- Routing
  - We need to find paths through the network for each packet
    - Through very many devices
    - Through many separate (competing) providers