

# Crossing a minefield - current problems with the internet

**David J. Farber**

**Distinguished Career Professor of  
Computer Science and Public Policy  
School of Computer Science  
Carnegie Mellon University**



# What are the main policy issues of the future and how will that impact the data world:

- Spectrum , spectrum, spectrum
  - SDR and open range
- Competition -- or the lack thereof
  - Increasing consolidation
- The internet - what to do or not do



# Net Neutrality

- What is the real problem?
- What are the solutions?

Regulation?

Anti-trust?

- My view

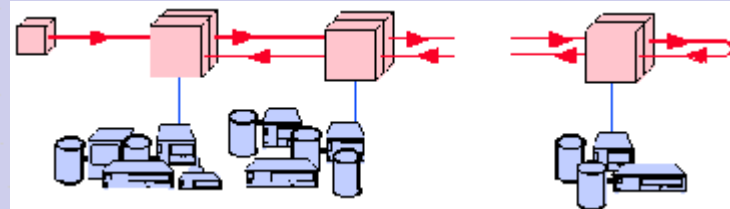
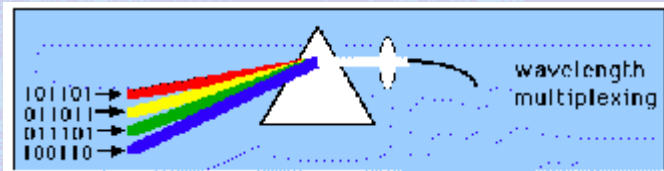


# We are still at the Beginning of a Great Change

- The next 10 years will be still be as wild as the last 25
- Technology will change dramatically



# The *Real/Next* Generation -- Photonic Networks



- Implications
  - Protocols IP?
  - Processor architecture
  - Software systems
- Will it be a fully distributed system -- back to the past



# National LambdaRail

- Dark Fiber National footprint
- Serves very high-end Experimental and Research Applications
- 4- 10.0 GB Wavelengths initially (4 - 40 Gigs planned)
- Partnership



# Firehoses feeding a garden hose

- 100s of megabits to the home and in the home?
  - XDSL,
  - Cable,
  - Fiber
  - **Wireless**



# How to get there from here?

- How to get there
- A challenge to the establishment -- the carriers
- Economics?
- So what do I need it for?



# Mobility

- How long can it exist in the chaos of unlicensed space
- How long can we exist in the chaos of current spectrum use
- Commons vs property rights vs current state



# Security and Availability Will Be the Drivers

- The current internet is vulnerable
- Points of potential vulnerability
  - Service protocols
  - Commercial arrangements
  - Old software
  - Hard to design security in after the fact



# Liberty vs Security

- Location technology
- Identification technology
- Let me listen - I promise I will not wrongly use it
- Can I have security and still liberty?



# Digital Rights Management DRM

- Lots of "we hate it"
- Lots of ban it
- What is it?
- Why might we actually learn to love it



# Privacy Rights Management

- The global data about me
- Who will look at it?
- Who will use it for what
- Accountability



# My favorite quotes

- *They that can give up essential liberty to obtain a little temporary safety deserve neither liberty or safety - Ben Franklin 1784*
- *The Net interprets censorship as damage and routes around it -- John Gilmore*

