Who Governs the Internet?

- What does the IETF govern?

- What does ICANN govern?

- What does the FCC govern?

- What does IANA govern?

- Who makes the laws? Who enforces them?

Rules and Regulations?

  - How many addresses is that?
  - What does this mean: http://bit.ly/qsGRes

- What is the IETF and what does it run?
  - http://www.youtube.com/watch?v=tqc8vd_jPpg

- What does 'Open' mean here?
  - Is this like open source? Why?

What is Net Neutrality?

The secret of the Internet’s success has been its openness to new services. Google and Facebook were started by students; eBay was started by a guy in his apartment. These innovators didn’t need to beg or buy permission from anyone. Once they bought a connection to the Internet, their traffic got the same treatment as everyone else’s.

Ed Felten http://nyti.ms/boxZJx

Three Flavors of Net Neutrality

- Net Neutrality as End-to-End Design:
  - Engineering Principle

- Net Neutrality as Nonexclusionary Business Practices
  - Economic Principle

- Net Neutrality as Content Nondiscrimination
  - Free speech principle

Freedom to Tinker http://bit.ly/4PgC
What is Net Neutrality?

Network neutrality is best defined as a network design principle. The idea is that a maximally useful public information network aspires to treat all content, sites, and platforms equally.

http://timwu.org/network_neutrality.html

How Tea Party might help Net Neutrality

Red State, a conservative blog that many tea partiers read, endorsed the House net neutrality bill. Red State tech blogger Neil Stevens wrote on September 29 that "House Republicans need to get on board and support" Energy and Commerce Committee Chairman Henry Waxman's legislation. That same day, Waxman's bill collapsed due to lack of GOP support.


http://huff.to/ou5kRx and FCC/big 6

1. Consumers are entitled to access whatever lawful internet content they want.

2. Consumers are entitled to run whatever applications and services they want, subject to the needs of law enforcement.

3. Consumers can connect to networks whatever legal devices they want, so long as they do not harm them.

FCC Six Principles

4. Consumers are entitled to competition between networks, applications, services and content providers.

5. Service providers are not allowed to discriminate between applications, services and content outside of reasonable network management.

6. Service providers must be transparent about the network management practices they use.
Bits and Atoms

  ➢ Are there differences?
● I want to watch Hot Tub Time Machine
  ➢ Right now vs. tomorrow, in my living room
  ➢ Netflix, Amazon, Pirate Bay/isohunt, Rapidshare
  ➢ Shipping bits or atoms? Differences?
● Negroponte's Being Digital
  ➢ http://bit.ly/12xV0f
  ➢ “Worse, a book can go out of print. Digital books never go out of print. They are always there.”

Bits and Atoms again

● Amazon, Kindle, 1984
  ➢ July, 2009

Comparing Bits and Atoms

● Number of atoms in the observable universe
  ➢ Where do you find an answer to this?
  ➢ What about atoms on Earth? Different?

● Number of IPv6 addresses
  ➢ Where do you find this out?
  ➢ How does compare to IPv4?
  ➢ What is the v in IPv? 

What is IPv6?

● What is the 6 in IPv6? Is Vint Cerf in on it?
  ➢ When will the Internet stop growing?
  ➢ What did Chicken Little say?
  ➢ Who made up IPv4 and IPv6?

● Difference between 32 bits and 128 bits?
  ➢ \( 2^{32} = 4,294,967,296 \)
  ➢ \( 2^{128} = 340,282,366,920,938,463,463,374,607,431,768,211,456 \)
YouTube Popularity index

- What's the difference: IPv6 and "bite me"
  - According to YouTube and rank by views
  - According to erudition and Internet knowledge

- What about Internet Traffic?

- What about Google?

Background on Bits

- Bit is a “binary” “digit"
  - What’s binary? What’s a digit?
  - It’s all zeros and ones in computers on Internet?
  - What about MP4, MP3, .aac, .jpg, .pdf, …

Scale and Bits: Binary Digits

- Number of IPv4, 32-bit addresses?
  - How many 33-bit addresses?
- If you use a 32-bit encryption key, and computers can test one billion keys/second
  - # seconds to break with brute force?
  - If we add 1 bit, how many seconds?
  - # seconds for 128-bit encryption key?
- Skype uses 256-bit encryption key!

BIT: Binary Digit

- Why do humans use base-10 numbers?
- Why do computers use base-2 numbers?

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