

# Net Neutrality: Understanding Internet Governance

Can we return towards a layered approach?

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# Title II is really the wrong debate

- Since the mid-2000s, the debate has been over whether or not ISPs should be regulated in order to provide “network neutrality”
- But before then, there was no problem to be solved. The old system worked.
  - It used this obscure\* concept called “layers”

\*obscure to an FCC or telephone company attorney, not to an engineer

# Computer II made the public Internet possible

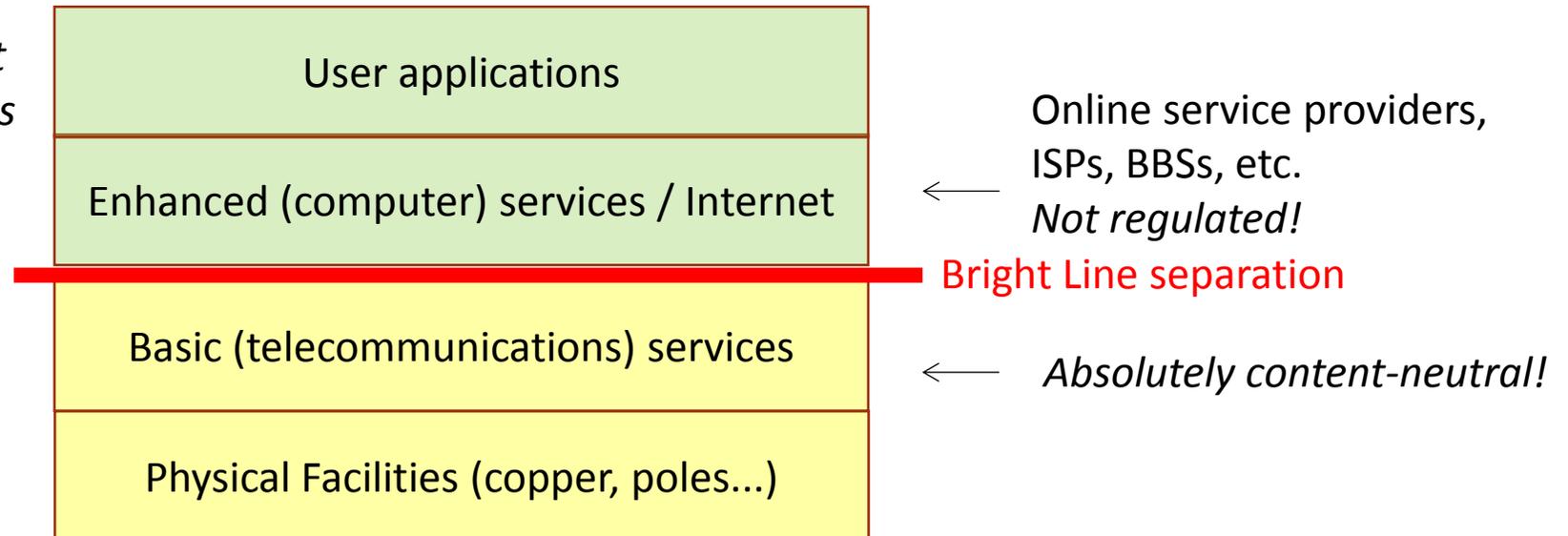
- In 1980, the FCC's Computer II Order divided *telephone company* services into two layers
  - Basic services (regulated, mostly monopoly)
  - Enhanced services (unregulated, competitive)
- A telephone company could not provide *enhanced* services unless it tariffed its underlying *basic* services
  - AT&T and GTE also needed separate subsidiaries
- ISPs were enhanced service providers, so there was plenty of ISP competition using the monopoly telco wires (dial-up and early DSL)
- This policy made the consumer Internet possible!

# Layers from a regulatory perspective

- Layered models permeate network design
- Computer II drew a bright line between basic and enhanced layers

*Enhanced services were what the customer of basic services used them to carry*

*Basic services were telephone company common carrier services (dial tone, private lines, etc.)*



# Telecom Act drew from Computer II

- In the Telecom Act of 1996
  - “Telecommunications services” (Title II) are very similar to “basic services” in Computer II
    - ILEC physical media became “network elements”
  - “Information services” are very similar to “enhanced services”, and *not* regulated by FCC
    - The FTC has authority by default
- Congress understood layering!
  - The FCC had gotten it right in 1980

# So what went wrong?

- Cable companies were not covered by Computer II, and cable modems were not required to offer basic service to other ISPs
  - This was affirmed in the *Brand X* case
- Telcos had a sad, and demanded equal treatment
  - Only around 90% of telco “basic” DSL customers used their “enhanced” captive ISPs
- FCC accepted Verizon’s petition and overturned Computer II in 2005, treating it all as an information service
  - Layering went away. “Broadband” is thus vertically integrated
  - Now, no wireline alternative is left for ISPs

# Public outcry was aimed at big ISPs

- The “network neutrality” trope was aimed at preventing abuse by big ISPs
  - But the FCC typically writes rules that require small players to act like, and pay the same fines as, big ones
  - Telcos now call themselves ISPs (it’s sexier)
- Hence the ongoing kerfuffle about how to protect consumers
- This led to FCC rules regulating “BIAS”
  - Which includes vertically-integrated Internet access
    - But which also sweeps up any remaining “pure” ISPs
  - WISPs basically take collateral damage
  - First under Section 706, then under Title II
- Recent FCC moves to “free ISPs” also deregulate pure Title II services

# WISPs are the competitors

- FCC says it likes vertically-integrated “facilities-based competition”, but that’s usually too expensive
  - *Overbuilding* is a very fast way to lose money
- We’re here because WISPs are the *survivors*
  - But Part 15 is impractical for many (though not all) urban applications
  - Unlicensed spectrum is busy/noisy (LAA anyone?) and licenses are too expensive (mobile auctions)
  - Millimeter wave works for some clear rooftop shots
- Most NN activists have no idea WISPs exist (they may still have dreams of WRT54GL m\*sh networks)

# Recognizing layers can fix the problem

- In classic Internet terminology, IP sits on top of a “network”, which is telecom
  - The “network” is assumed to be neutral carriage, and an internet is basically a computer application atop it
  - Most “network neutrality” advocates miss the distinction
  - Some telecom networks use IP internally as a multiplexing technique (Voice Using IP), which confuses the FCC
    - IP is not always the Internet; it’s just a multiplexing header
- Fix: Regulate the “network” (again), not the “internet”
  - Apply Title II but only to basic telecommunications services from providers with market power

# Reframing the debate

- We have to frame the question correctly in order to get the right answer, not just “Title II yes or no” applied to “BIAS”
- If vertical integration of monopolies is accepted, the debate is in the wrong place
  - Apply Title II (or other telecom regulation) to information services? Or deregulate all telecommunications services (gut Title II)?
    - *Both answers are wrong!*
  - But the right answer is staring us in the face: Treat the telco/cable telecom and Internet layers differently
    - This is what the law actually calls for
- Even better (but currently unlikely): Break up the Bells again, this time at the facilities (not services) layer
  - And don't treat us little guys like big monopolists