

# CS 4873: Computing, Society & Professionalism

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## Week 11: Net Neutrality

March 31, 2021

*Slides adapted from Sauvik Das, Munmun de Choudhury, and Amy Bruckman*

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No matter where it started, it's got the same 'speed limit' and audience access as any other chunk.

**LITTLESITE.COM**



**YOUTUBE.COM**



In other words, data sent by my little teeny-weenie site can go just as fast as, and reach the same people as, data sent by a giant like YouTube.

**LITTLESITE.COM**



**YOUTUBE.COM**



All things being equal, you, the **consumer**, will see no difference in load times. And you can access all content. No one's filtering it.



All things being equal, you, the **web site owner**, can deliver content just as fast, to the same people, as YouTube.

**LITTLESITE.COM**



**YOUTUBE.COM**



WELL, I CAN'T AFFORD  
THE SERVERS, BUT AT  
LEAST I HAVE THE SAME  
POTENTIAL TOP SPEED.

That state of equal-ness, and/or the philosophy that drives it, is called **Net Neutrality**\*.

**LITTLESITE.COM**



NET  
NEUTRALITY,  
HUZZAH!

**YOUTUBE.COM**



\* Tim Wu, a Columbia Law professor, coined the term back in 2003.

# Net Neutrality

- Principle that internet service providers (ISPs) and governments should treat all data on the internet equally, irrespective of content, site, platform, application, equipment or mode of communication.
- First coined by Columbia University media law professor Tim Wu in 2003

# Net Neutrality

- At its core, net neutrality is the concept of a “free” and “open” Internet
  - “free” as in devoid of bias privileging the packets of one player over another
  - “open” as in easily accessible for all players, big and small
- Sounds...pretty good?



# How did it become Such an Emotionally Laden Topic?

**AJIT PAI KILLED NET NEUTRALITY.**

LET'S PASS THE CRA AND GIVE HIM THE WORST DAY OF HIS CORRUPT CAREER.



**RUIN HIS DAY**

2 65.4k URGENT Join the Battle for Net Neutrality! We need to stop them from allowing ISPs to charge us extra fees to access ebooks, games or anything else! (battlenet.com)  
submitted 3 hours ago by ghedean to r/books  
874 comments share save hide report

3 21.8k URGENT I almost never post, but this is important. The internet is in danger. Do your part and make your voice heard. Contact your representatives and tell them to vote against this. (battlenet.com)  
submitted 3 hours ago by adsl to r/Reform  
158 comments share save hide report

4 30.1k URGENT You know what's crappy? Letting comcast control what you do online. (battlenet.com)  
submitted 4 hours ago by IranGenius2 (M) to r/CrappyDesign  
187 comments share save hide report

5 9716 URGENT YSK: Your last chance to save the freedom of fairly priced internet access is ENDING. Make our voices heard here! (URGENT!) (battlenet.com)  
submitted 3 hours ago by Philadelphe (M) to r/YouShouldKnow  
46 comments share save hide report

6 45.9k URGENT Join the Battle for Net Neutrality! Net neutrality will die in a month and will affect WoahDude and many other websites and services, unless we fight for it! PSA (battlenet.com)  
submitted 4 hours ago by nishadude to r/woahdude  
156 comments share save hide report

7 20.3k URGENT American Racing Fans, Net Neutrality effects us all, Ajit Pai is worse than Brian France, call your local representatives. (battlenet.com)  
submitted 4 hours ago by jacob2 to r/NASCAR  
237 comments share save hide report

8 38.6k URGENT FELLOW HUMAN BEINGS, THE FCC IS THREATENING TO CHARGE US FOR SUCH SIMPLE JOYS AS WATCHING VIDEOS OF NICE KITTENS PRANCING AROUND. RUNSCRIPT: ASSIST IN THE SAVING OF NET NEUTRALITY. (battlenet.com)  
submitted 4 hours ago by Splashforce to r/totallynrobots  
116 comments share save hide report

9 17.6k URGENT Cute kitty loading...Wait for the cuteness! (media.giphy.com)  
submitted 3 hours ago by Farnouxkumare to r/irlife  
277 comments share save hide report

10 18.0k URGENT The lack of Net Neutrality could eventually lead to us not being able to go to certain sneaker-related websites, not being a creators, and quite possibly not use this subreddit. Find your representative today. (Repost per mod's request) (battlenet.com)  
submitted 4 hours ago by smact123 to r/9to5ers  
50 comments share save hide report

11 33.2k URGENT Join the Battle for Net Neutrality! Net neutrality will die in a month and will effect many websites and services, unless we f (battlenet.com)  
submitted 4 hours ago by carson111000 to r/insanepeoplefacebook  
108 comments share save hide report

12 31.8k URGENT I don't know about you guys, but I'm not up for an extra 10 bucks just to visit funwaa.com, so join the fight for net netur (battlenet.com)  
submitted 4 hours ago by longpang1 to r/ComedyCemetery  
138 comments share save hide report

13 44.0k URGENT We need players for the new FCC raid boss! (battlenet.com)  
submitted 5 hours ago by TheVisi0nary (M) to r/Boastlight  
130 comments share save hide report

# Who are the players?

- “Anti”-net neutrality
  - ISPs (Comcast, Verizon, AT&T)
- “Pro”-net neutrality
  - Content providers, especially the biguns:
    - Facebook
    - Google
    - Netflix

# What do they want?

- “Anti”-net neutrality
  - The government to stay out of their business
- “Pro”-net neutrality
  - Regulations that prevent ISPs from controlling and privileging content

# Why do they want it?

- “Anti”-net neutrality

- Freedom (other industries aren’t regulated like this)
- Efficiency (regulators don’t know enough to make good decisions)
- Return on investment (ISPs spend a lot to improve infrastructure and should be rewarded for that)

- “Pro”-net neutrality

- Prevent ISPs from having too much control over the content people see
- Keep the Internet more equal

“The reality is that four companies — Verizon, Comcast, AT&T and Charter — control 72 percent of all the homes in America for broadband. And 75 percent of all the homes in America have only one choice, at most, as to where they get internet service. If you don’t like your Ford, you can get a Chevy. But if you don’t like your Comcast service, you’re out of luck. And that kind of monopoly allows companies to be able to set the terms and conditions that benefit them. It is the exact situation that exists today with cable television.”

- Tom Wheeler, former FCC chair under President Obama

# NET NEUTRALITY

All internet users can go the same speed regardless of their Internet Service Provider.



COMCAST

AT&T

EVERYONE  
ELSE

Without net neutrality, ISPs can create "fast lanes" for those who can afford it, while "slow lanes" and tolls are created for those who can't.



# So the FCC won't let me be....



Verizon sues the FCC  
over net neutrality  
regulations in the 2010  
Open Internet Order

# If Net Neutrality loses...

Effect 1:

If the FCC rules in the ISPs' favor,  
they'll be permitted to completely  
block data from one source.\*

That's just plain scary.

\*<http://www.fcc.gov/openinternet>



# If Net Neutrality loses...

## Effect 2:

If the FCC rules in their favor, ISPs may also limit bandwidth, and provide 'full speed' for a fee.

Some sites will pay, and get faster.  
Others won't, and get slower.

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**YOUTUBE.COM**



In the long run, this will probably work itself out. It's happened in other communications media.

But it won't be pretty. Those who can't afford to pay the 'fast lane' fee will be at a competitive disadvantage.

Some sites will pay, and get faster.  
Smaller sites won't, and get slower.

**LITTLESITE.COM**



**BIGSITE.COM**



SIGH. I GUESS I'LL GO  
BUY AT BIGSITE.COM. I  
DON'T WANT TO WAIT.

Smaller web sites will get left in the dust.

**LITTLESITE.COM**



I USED TO BE A SPEEDY  
CHUNK LIKE YOU. THEN I  
TOOK AN ARROW FROM  
THE FCC.


**BIGSITE.COM**



# CONSUMER EXPLOITATION

- Force to Use Certain Services
- Block all Peer to Peer Technologies
- “Exclusive” Deals with Content Providers
- Monitor all Online Activity

**+ Smart Net**  
Oferta da 1ª mensalidade de uma Smart Net com 10GB/mês adicionais <sup>(1)</sup>

MESSAGING	SOCIAL	VIDEO
		
€4,99/mês <del>€6,99/mês</del> 1 mês grátis	€4,99/mês <del>€6,99/mês</del> 1 mês grátis	€4,99/mês <del>€6,99/mês</del> 1 mês grátis
<a href="#">Aderir</a>	<a href="#">Aderir</a>	<a href="#">Aderir</a>
MUSIC	EMAIL&CLOUD	MEO
		
€4,99/mês <del>€6,99/mês</del> 1 mês grátis	€4,99/mês <del>€6,99/mês</del> 1 mês grátis	Tráfego grátis para apps MEO já incluído no seu tarifário
<a href="#">Aderir</a>	<a href="#">Aderir</a>	

# FCC Ruling

On February 16, 2015, the FCC voted 3-2 on party lines to approve strong rules to protect net neutrality, a landmark decision that was widely support by the American public.





# The duality of FCC

...and then repeals those rules 3 years later

## FCC Repeals Net Neutrality Rules; Pai Lashes Out At Internet Giants



REINHARDT KRAUSE | 01:45 PM ET 12/14/2017

The Republican-led Federal Communications Commission on Thursday voted to repeal utility-like oversight on internet service providers, delivering regulatory reversal sought by **Comcast** ([CMCSA](#)), **AT&T** ([T](#)), **Verizon Communications** ([VZ](#)) and other ISPs.

Urged on by Chairman Ajit Pai, a Trump administration appointee, the GOP-majority panel jettisoned "Title 2" regulations that were imposed by the FCC in 2015 under the direction of then-President Barack Obama. The FCC is handing off enforcement of consumer protection related to broadband issues to another federal agency, the Federal Trade Commission.

Pai said the FCC's new rules will "return regulatory parity to the internet economy."

He said some giant internet companies engage in anti-consumer behavior, while ISPs have been unfairly targeted by regulators.

"Some giant Silicon Valley platforms favor imposing heavy-handed regulations on other parts of the Internet ecosystem. But all too often, they don't practice what they preach," Pai added. "Edge providers regularly block content that they don't like. They regularly decide what news, search results, and products you see — and perhaps more importantly, what you don't. And many thrive on the business model of charging to place content in front of eyeballs. What else is "Accelerated Mobile Pages" or promoted tweets but prioritization?"



# There's clearly a correct answer, right?

- As a general rule, there is usually some shadiness to both sides in big corp vs. big corp debates.
- Facebook, Google, Netflix and Amazon aren't usually the "people's champions" if recent years are any indication.
- Also looking out for their own interests...

# What People Get Wrong in the Debate about Net Neutrality

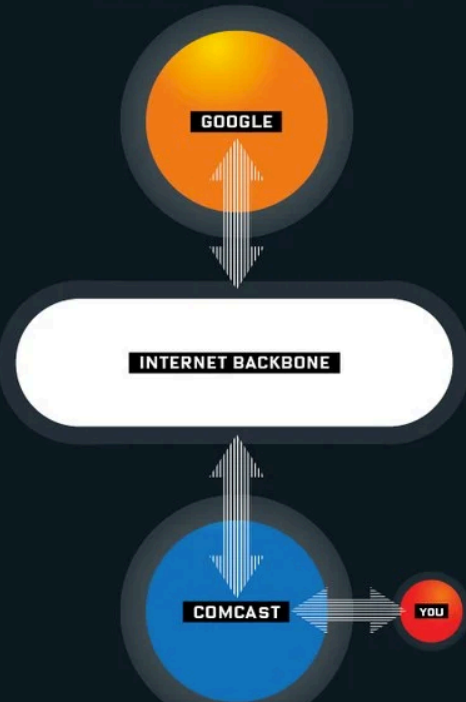
## So...Why is this a problem?



- People are using more internet now than ever before
- Netflix accounts for ~30% of internet capacity at peak hours
- ISPs (Time Warner, Comcast) want to charge content providers (Netflix, Youtube) for using so much of the internet
- ISPs have to work harder now more than ever to sustain their network infrastructure.
- Which side are you on?

## What you think the Internet looks like

If you think at all about how Google and other web services arrive at your home, you probably think that Google sends stuff into a massive “internet backbone” of cables and data centers, before it streams into your living room through Comcast or Verizon or some other home internet service provider. But it’s more complicated than that.



## What the Internet really looks like

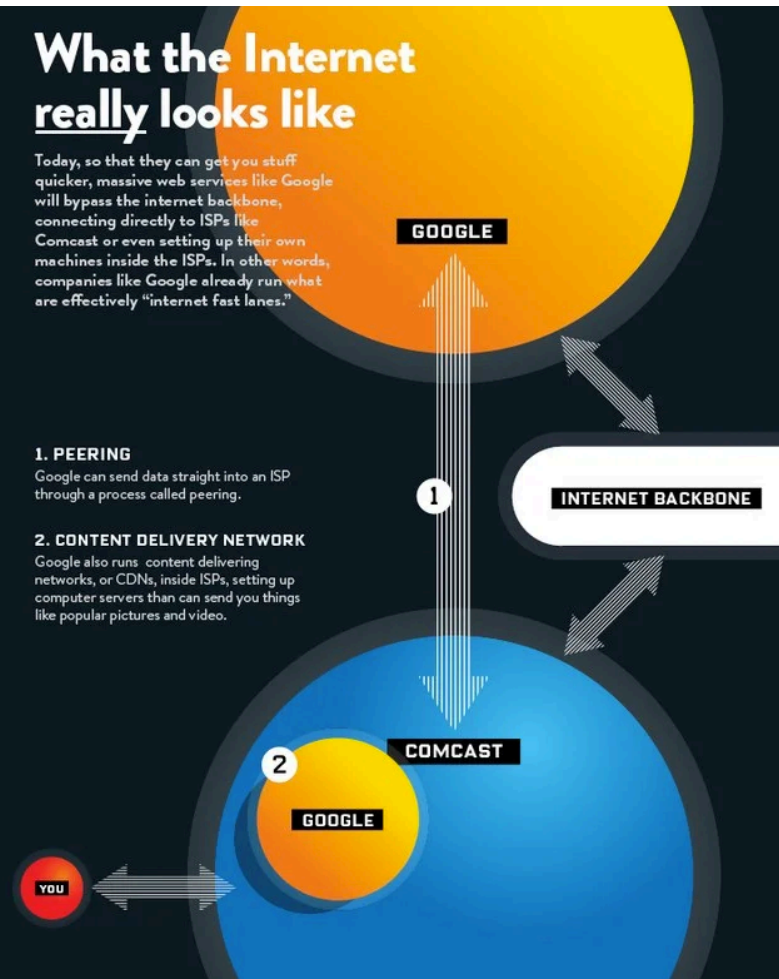
Today, so that they can get you stuff quicker, massive web services like Google will bypass the internet backbone, connecting directly to ISPs like Comcast or even setting up their own machines inside the ISPs. In other words, companies like Google already run what are effectively “internet fast lanes.”

### 1. PEERING

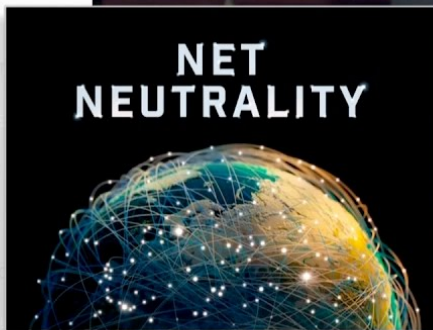
Google can send data straight into an ISP through a process called peering.

### 2. CONTENT DELIVERY NETWORK

Google also runs content delivering networks, or CDNs, inside ISPs, setting up computer servers that can send you things like popular pictures and video.



# The internet is not really neutral now



“[Advocates] should not be talking about protecting net neutrality. They shouldn't even use that phrase. They should call it preventing cable company f\*\*\*ery, because that is what it is.” – John Oliver