IS BROADBAND THE NEW PUBLIC UTILITY?

THE ROLE OF STATE REGULATORS AND CONSUMER ADVOCATES IN ACHIEVING AFFORDABLE, UBIQUITOUS BROADBAND IN THE NEW WORLD.

"What must justify public utility regulation, then, is the necessity of the regulation and not merely the necessity of the product."
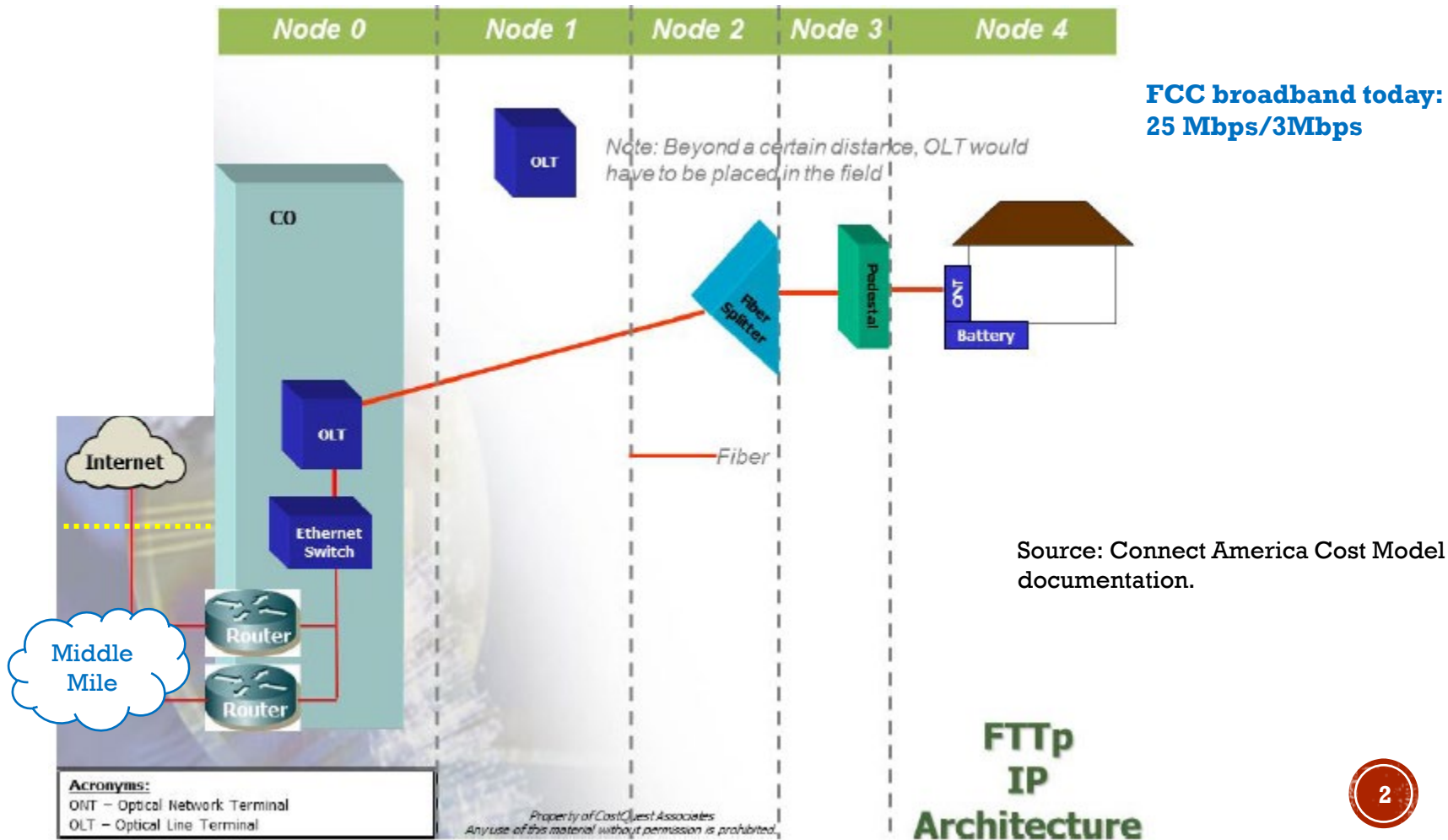
~James Bonbright

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Trevor R. Roycroft, Ph.D.
2020 NASUCA Virtual Meeting
November 9, 2020
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WHAT IS BROADBAND?

- Broadband Internet Access Service (BIAS): "A mass-market retail service by wire or radio that provides the capability to transmit data to and receive data from all or substantially all Internet endpoints, including any capabilities that are incidental to and enable the operation of the communications service, but excluding dial-up Internet access service." *In the Matter of Protecting and Promoting the Open Internet, GN Docket No. 14-28, March 12, 2015.*

FCC broadband today: 25 Mbps/3Mbps

Source: Connect America Cost Model documentation.

Is Broadband a Necessity?

TRUST ARTICLE

America's Digital Divide

As the internet becomes increasingly intertwined with daily life, millions of Americans, from rural areas to inner cities, still lack access to high-speed broadband service. But states are finding ways to make new connections.

July 26, 2019   By: Joyce Winslow   Read time: 5 min

The Digital Divide and Educational Equity

A Look at Students with Very Limited Access to Electronic Devices at Home

RAEAL MOORE, PH.D., DAN VITALE, AND NYCOLE STAWINOGA

We are leaving older adults out of the digital world

Jessica Fields   9:30 AM EDT • May 5, 2019   💬 Comment

Closing the digital divide: a more connected workforce means a more prosperous Dallas

Broadband connectivity is worst in the parts of our city that need it most.

Telehealth and the Digital Divide

🔗 Share

October 2018   ·   📄

By Craig Settles | Gigabit Nation

Telehealth holds the promise of reducing health care costs and improving health outcomes. However, inadequate broadband in both rural and urban areas prevents telehealth services from reaching those who most need them.

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THE POST-COVID-19 VIEW

America's surprising breeding ground for inequality: The internet

By Clare Duffy and Anneken Tappe, CNN Business

Updated 12:30 PM ET, Sun May 17, 2020

https://www.cnn.com/2020/05/17/economy/internet-access-universal-wifi/index.html

CIO JOURNAL

Pandemic Broadband Speeds Are Faster, but Insufficient for Some

Many work-from-home employees continue to struggle with patchy internet connections, especially workers living in remote regions

Wall Street Journal

https://www.wsj.com/articles/pandemic-broadband-speeds-are-faster-but-insufficient-for-some-11600364365

By Angus Loten

Sept. 17, 2020 1:39 pm ET

TECHTANK
What the coronavirus reveals about the digital divide between schools and communities

Nicol Turner Lee · Tuesday, March 17, 2020

https://www.brookings.edu/blog/techtank/2020/03/17/what-the-coronavirus-reveals-about-the-digital-divide-between-schools-and-communities/

COVID breathes life into North Carolina's rural telehealth, but broadband remains an obstacle

Dr. Charles Sawyer transitioned to telemedicine amidst the coronavirus pandemic. Photo credit: Monica Bracy.

May 14, 2020 by
Liora Engel-Smith

https://www.northcarolinahealthnews.org/2020/05/14/coronavirus-rural-telehealth/

Doing Schoolwork in the Parking Lot Is Not a Solution

In a pandemic-plagued country, high-speed internet connections are a civil rights issue.

The New York Times

By The Editorial Board
The editorial board is a group of opinion journalists whose views are informed by expertise, research, debate and certain longstanding values. It is separate from the newsroom.
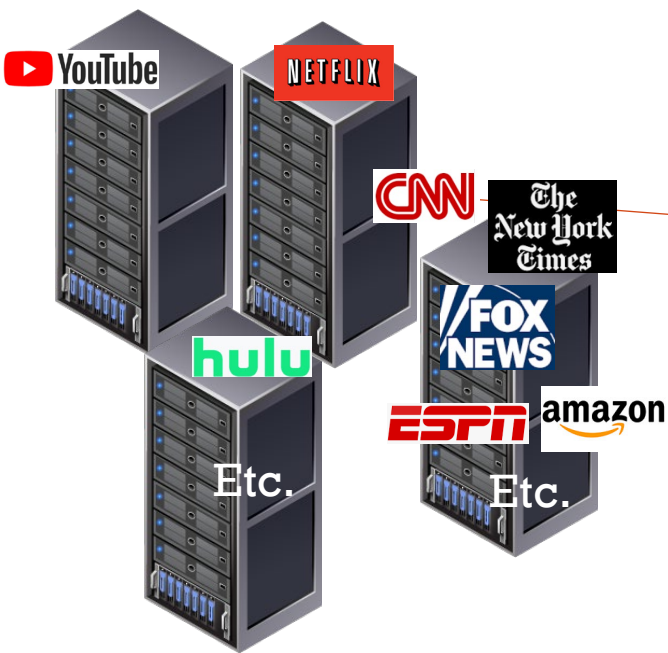
July 18, 2020

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Dissenting View:
[W]e find that the data we do have is sufficiently indicative to give us reasonable confidence that advanced telecommunications capability is being deployed in a reasonable and timely manner. ~FCC, 2020 Broadband Deployment Report, 4/24/20.

https://www.nytimes.com/2020/07/18/opinion/sunday/broadband-internet-access-civil-rights.html

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IS BROADBAND REGULATION NECESSARY?

- Market failures?
  - Network effects.
    - Are market forces maximizing the value of the broadband network (broadband universal service)?
    - Are market forces delivering sufficient network resiliency and reliability?
  - Terminating monopoly power.
    - Are edge providers subject to hold-up?
    - Threats to network neutrality?
  - Cost subadditivity associated with broadband infrastructure has led to small numbers of suppliers, or outright monopoly.
    - Evidence of robust price competition?
    - Do broadband providers utilize restrictive bundling practices?
    - Evidence of technology redlining?
      - Lower-income areas.
      - Rural areas.
      - Universal service goals undermined.

WHAT CAN THE STATES DO? ISN'T BROADBAND AN INTERSTATE INFORMATION SERVICE?

IN THE *RESTORING INTERNET FREEDOM* ORDER THE FCC SUPPORTS THAT CLASSIFICATION WITH REFERENCE TO A 1999 DECLARATORY RULING (FCC 99-38, ¶18).

Internet

Broadband ISP
BIAS

THE OLDE TYME "LONG DISTANCE" INTERNET, CIRCA 2008
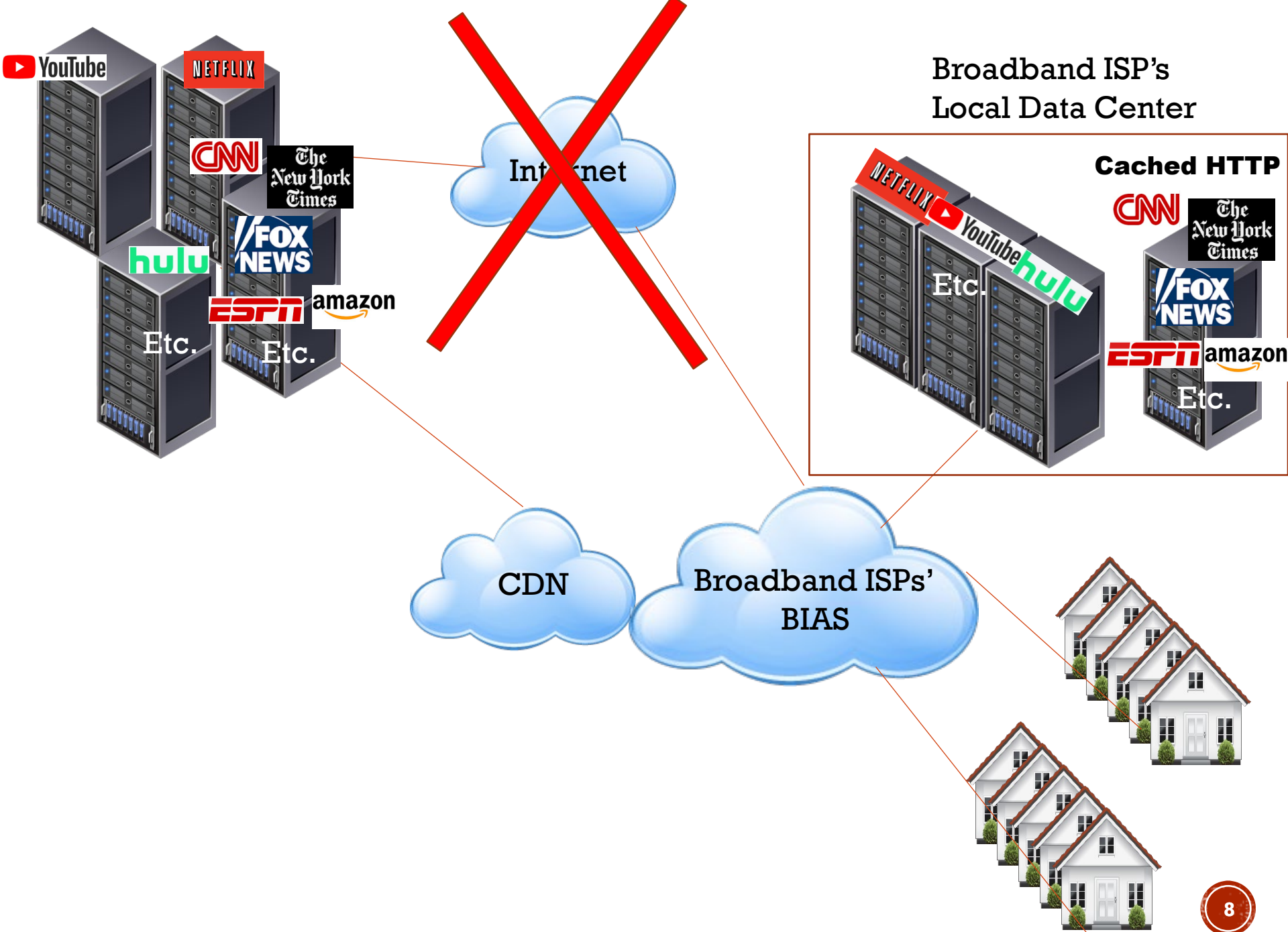
ISN'T BROADBAND INTERSTATE?

NETFLIX

Globally, close to 90% of our traffic is delivered via direct connections between Open Connect and the residential Internet Service Providers (ISPs) our members use to access the internet. Most of these connections are localized to the regional point of interconnection that's geographically closest to the member who's watching. Because connections to the Netflix Open Connect network are always free and our traffic delivery is highly localized, thousands of ISPs around the world enthusiastically participate.

We also give qualifying ISPs the same Open Connect Appliances (OCAs) that we use in our internet interconnection locations. After these appliances are installed in an ISP's data center, almost all Netflix content is served from the local OCAs rather than "upstream" from the internet. Many ISPs take advantage of this option, in addition to local network interconnection, because it reduces the amount of capacity they need to build to the rest of the internet since Netflix is no longer a significant factor in that capacity. This has the dual benefit of reducing the ISP's cost of operation and ensuring the best possible Netflix experience for their subscribers.

"How Netflix Works with ISPs Around the Globe to Deliver a Great Viewing Experience."
https://about.netflix.com/en/news/how-netflix-works-with-isps-around-the-globe-to-deliver-a-great-viewing-experience

Broadband ISP's Local Data Center

Cached HTTP

Internet

CDN

Broadband ISPs' BIAS

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As video moves to 4K and beyond using the broadband will become even more of a local service.

Resolution	Bitrate	1 minute
4K (UHD)	20 Mbps	84MB
1080p (FHD)	5 Mbps	20MB
720p (HD)	1 Mbps	5MB
480p (SD)	500 Kbps	2MB

GLOBAL APPLICATION CATEGORY TOTAL TRAFFIC SHARE

1 VIDEO STREAMING:
2019: 55.44% 2020: 57.64% (+2.20%)

2 SOCIAL NETWORKING:
2019: 8.95% 2020: 10.73% (+1.78%)

3 WEB:
2019: 10.14% 2020: 8.05% (-2.09%)

4 MARKETPLACE:
2019: 5.90% 2020: 4.97% (-0.93%)

5 MESSAGING:
2019: 3.79% 2020: 4.94% (+1.15%)

6 FILE SHARING:
2019: 8.51% 2020: 4.64% (-3.87%)

7 GAMING:
2019: 2.20% 2020: 4.24% (+2.04%%)

8 VPN: 2.56%
2019: 2.46% 2020: (+0.10%)

9 CLOUD:
2019: 1.26% 2020: 1.83% (+0.57%)

10 AUDIO:
2019: 55.44% 2020: 0.39% (-0.39%)

Sandvine, May 2020

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