

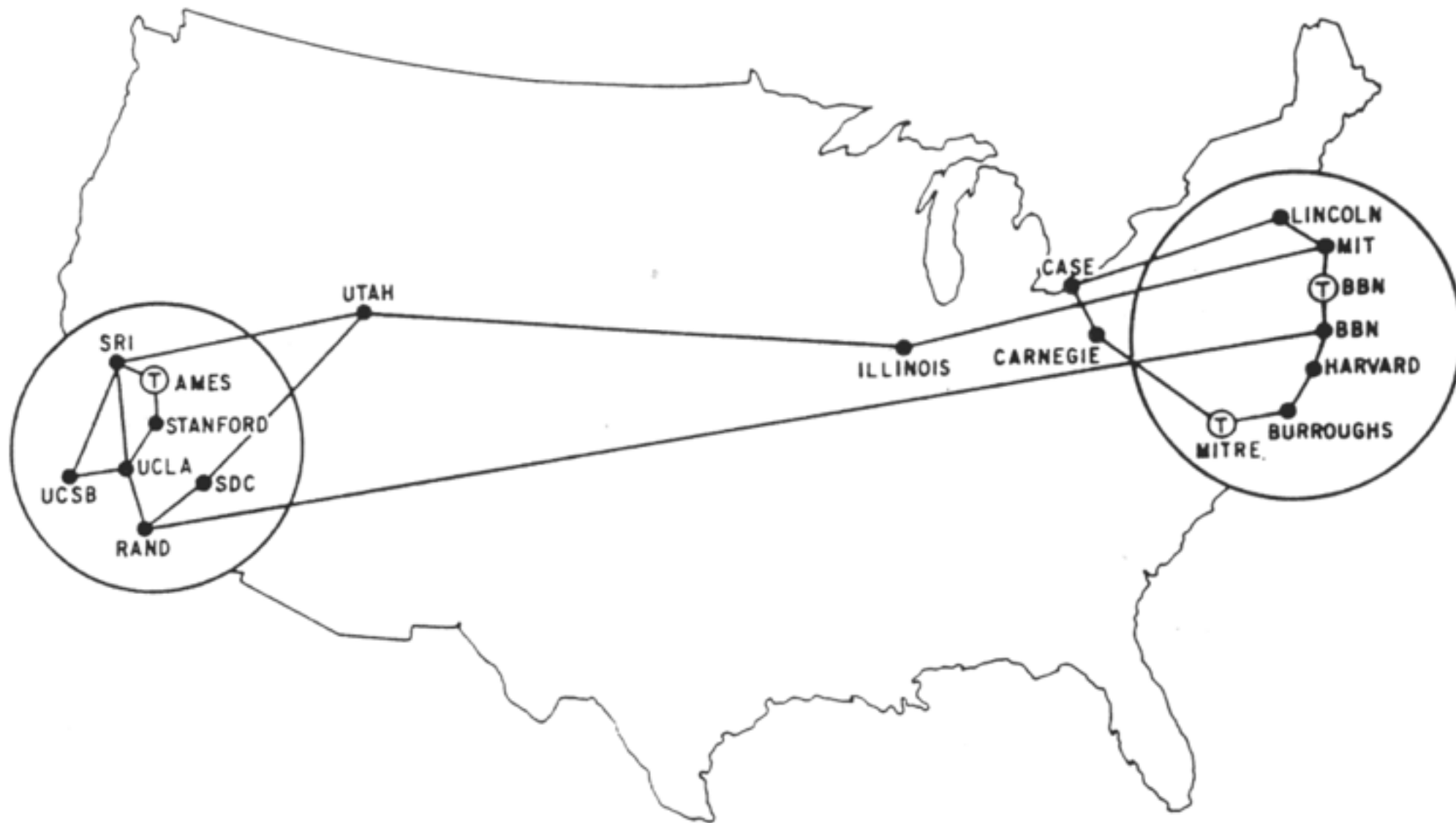


Net Neutrality and Social Justice

CSCI 245: Life, Computers, and Everything

L. Felipe Perrone, Computer Science

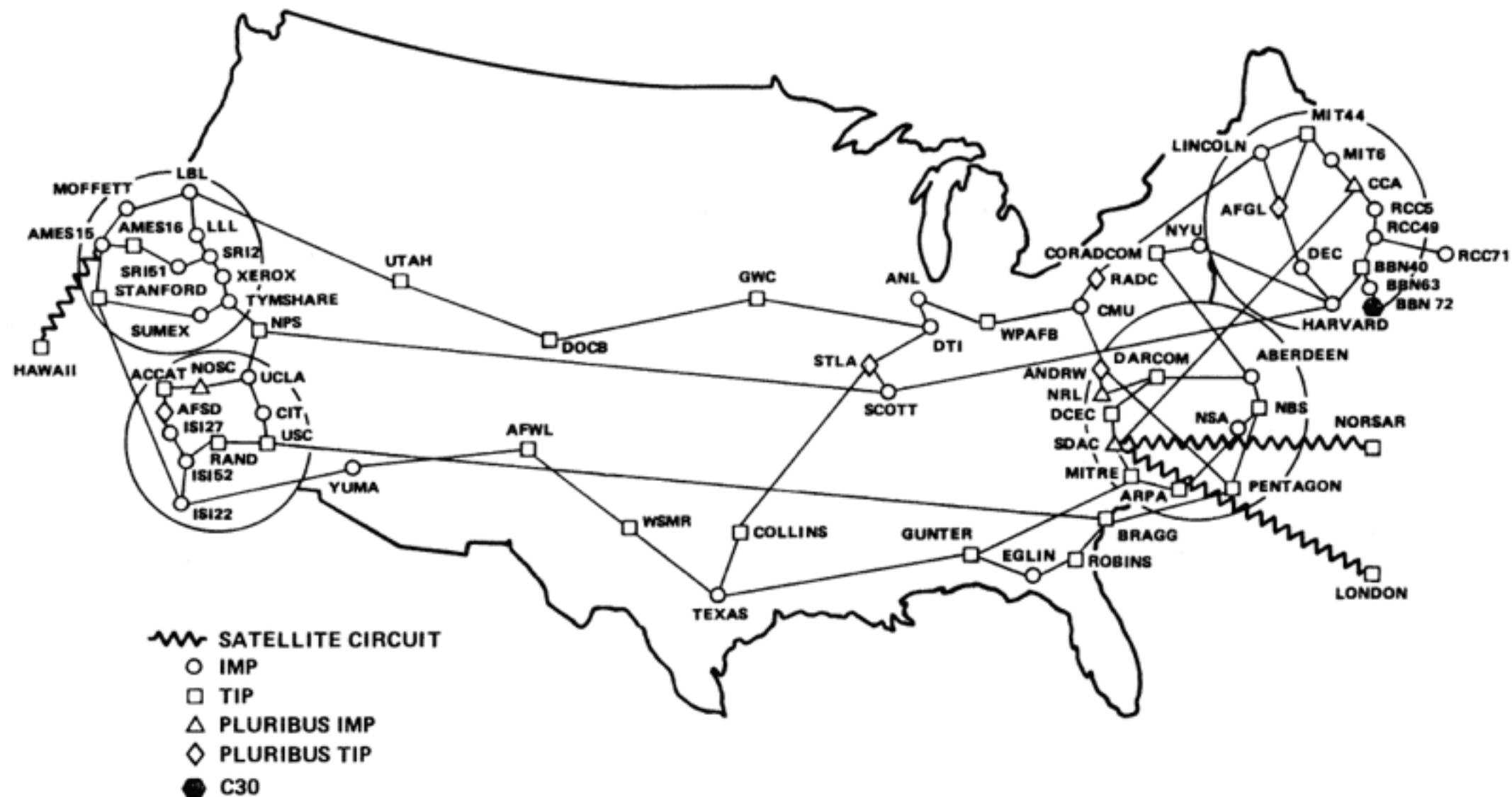
Who built the Internet?



MAP 4 September 1971

Who built the Internet?

ARPANET GEOGRAPHIC MAP, OCTOBER 1980



(NOTE: THIS MAP DOES NOT SHOW ARPA'S EXPERIMENTAL SATELLITE CONNECTIONS)
NAMES SHOWN ARE IMP NAMES, NOT (NECESSARILY) HOST NAMES

Internet Backbone Today



Internet Backbone Today

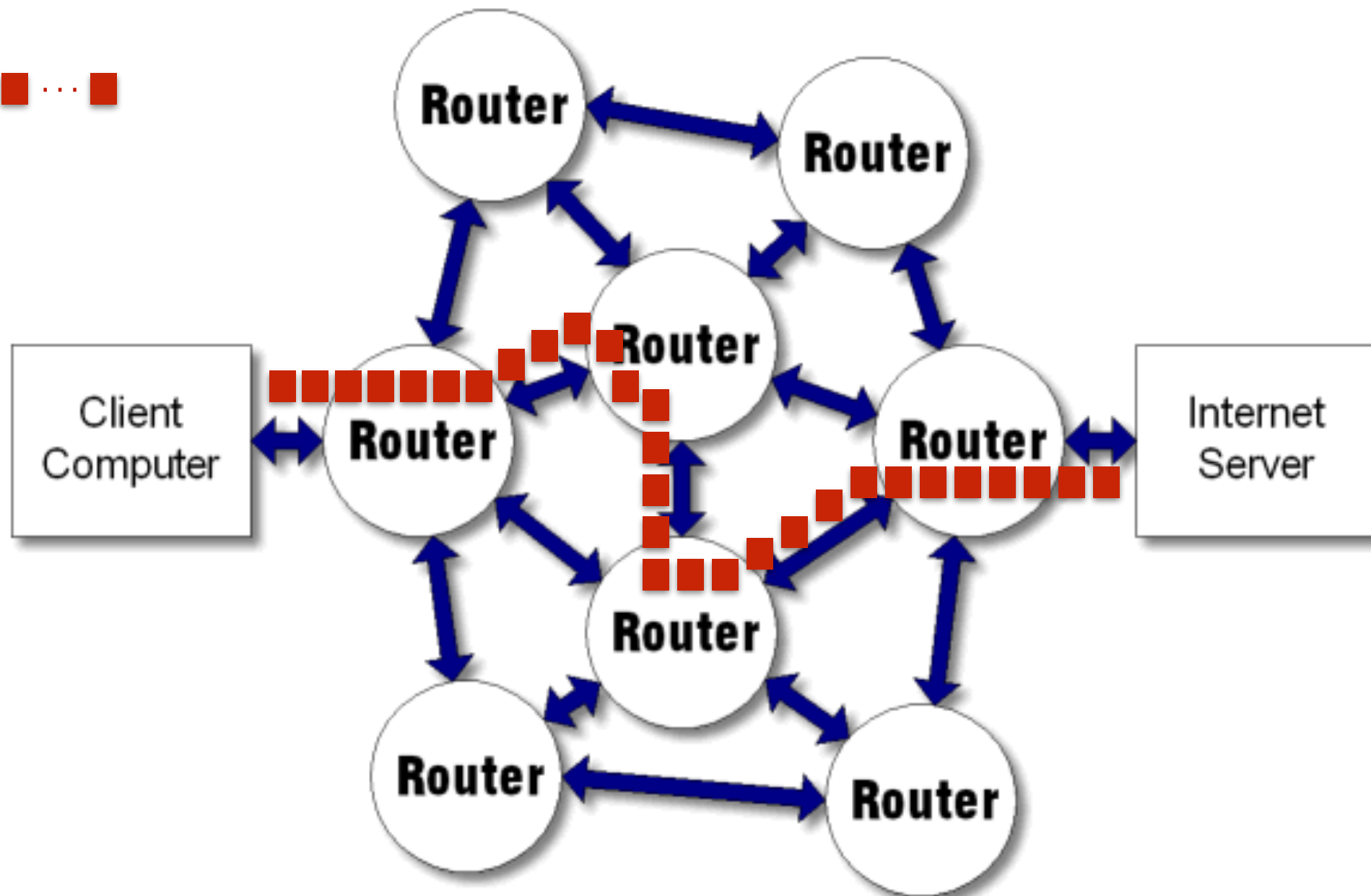


AT&T, Comcast, Cogent,
EarthLink,
Integra, Level3,
Suddenlink, Verizon,
Zayo, CenturyLink, Cox,
Deutsche Telekom, HE,
Inteliquent, NTT, Sprint,
Tata, TeliaSonera, TWC,
XO

How The Internet Works

packet ■

route ■■■■■ ... ■



What do we use
the Internet for?

Broadband Applications

Activity	Minimum Download Speed (Mbps)
Email	0.5
Web browsing	
Job searching, navigating government websites	0.5
Interactive pages and short educational videos	1
Streaming radio	Less than 0.5
Phone calls (VoIP)	Less than 0.5
Watching video	
Standard streaming videos	0.7
Streaming feature movies	1.5
HD-quality streaming movie or university lecture	4
Video conferencing	
Basic video conferencing	1
HD video conference and telelearning	4
Gaming	
Game console connecting to the Internet	1
Two-way online gaming in HD	4

<https://www.fcc.gov/reports-research/guides/broadband-speed-guide>

Bandwidth Matters

FCC broadband definition:

> 4Mbps down

> 1Mbps up

South Korea average = 26.7Mbps (global 1st)

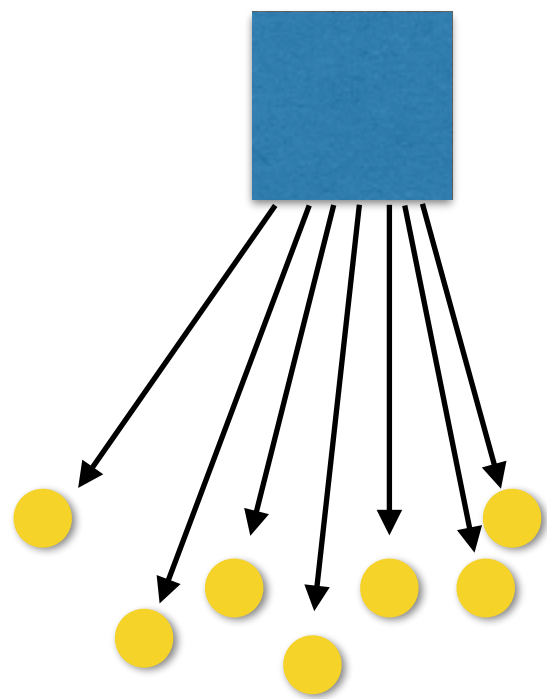
Denmark average = 16.1Mbps (global 10th)

US average = 12.6Mbps (best within the Americas)

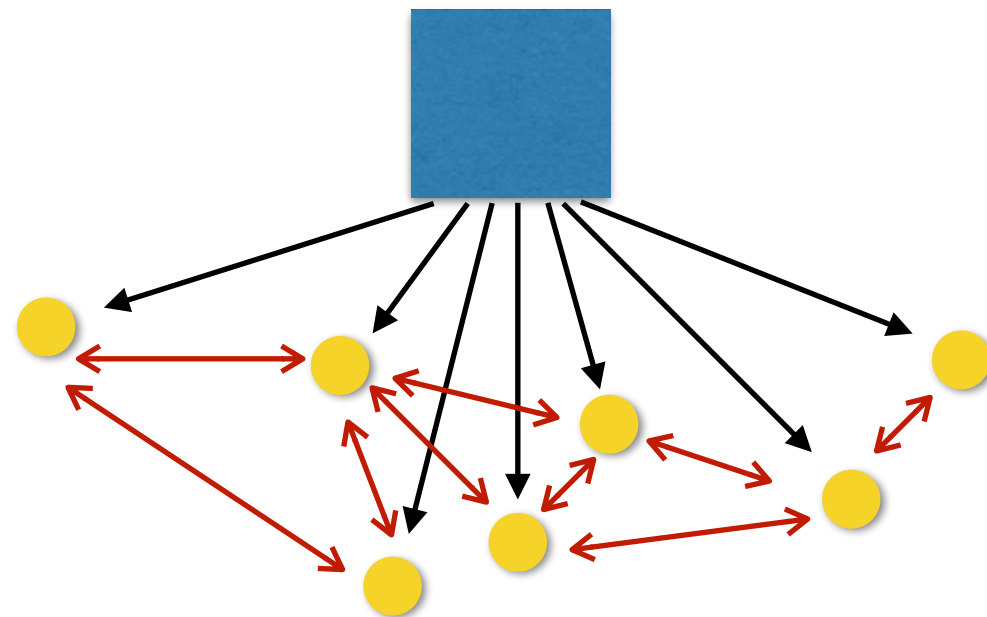
Transformative Uses

- Direct access to government representatives
- Access to government services
- Local community organizations
- Commerce
- Health services
- Information and education resources (free content)

Very Importantly



before



after

“By disintermediating government and corporate control of communication, horizontal communication networks have created a new landscape of social and political change.”

The Digital Divide

“The latest Pew Research Center analysis also shows that internet non-adoption is correlated to a number of demographic variables, including **age**, **educational attainment**, **household income** and **community type**. ”

Offline population has declined substantially since 2000

% of U.S. adults who do not use the internet



Source: Pew Research Center surveys of U.S. adults, 2000-2016. Data from 2016 includes surveys conducted March 7-April 4 and March 30-May 3, 2016.

PEW RESEARCH CENTER

48% (2000), 13% (2016)

Of the those not online today:

- 1/3 has no interest
- 1/3 finds it difficult to use
- 1/5 cannot afford a computer or broadband

Also:

- 1/3 of adults with less than high school not online
- 8x more likely to not be online if income <\$30K / year

What is Net Neutrality?

Against Net Neutrality

- It gives the government more power over the Internet
- It's not a free market solution
- Little regulation has worked fine until now
- Classifying the Internet as a common carrier service wouldn't have the intended effect
- Charging everyone the same price isn't fair

<http://mashable.com/2014/05/16/5-arguments-against-net-neutrality/#D7ciEEIqnmqh>

For Net Neutrality

“It prevents Internet service providers from charging a premium for access to Internet “fast lanes” or slamming the brakes on content that poses a threat to their financial or political interests.”

For Net Neutrality

- No preferential treatment for providers that pay more (pro-consumer)
- Enables start up companies to compete with the establishment on equal footing (pro-business)
- Enables businesses and private citizens to have undifferentiated access to Internet resources

Is the Internet as essential
as a utility?

Electricity

Gas

Water

What is the F.C.C.?

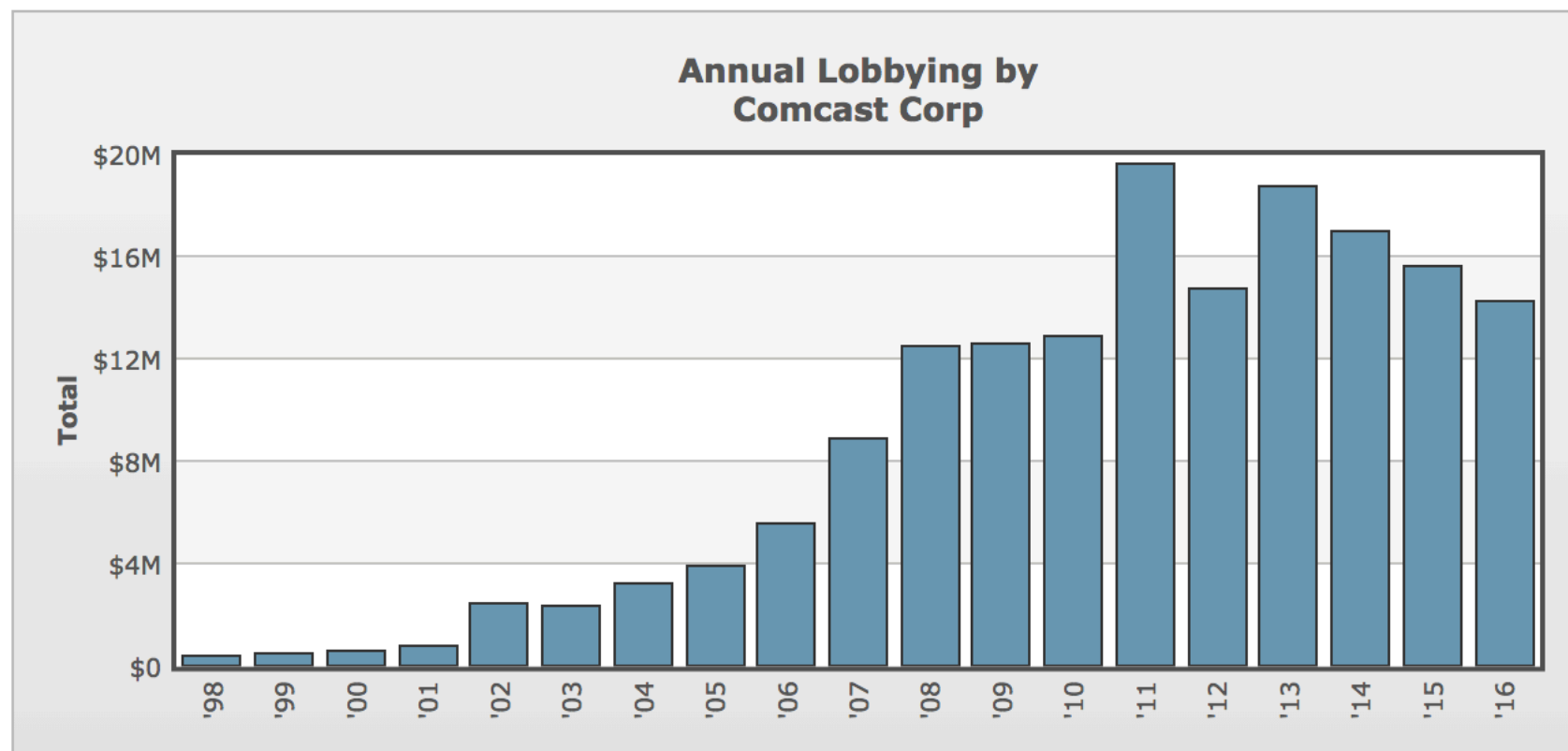
Lobbying Efforts

Industry	Total
Pharmaceuticals/Health Products	\$244,095,383
Insurance	\$146,662,996
Business Associations	\$143,528,696
Electronics Mfg & Equip	\$119,433,358
Oil & Gas	\$117,516,956
Electric Utilities	\$113,683,549
Real Estate	\$103,743,325
Securities & Investment	\$94,997,398
Hospitals/Nursing Homes	\$93,995,578
Telecom Services	\$87,604,223
Air Transport	\$85,800,002
Health Professionals	\$83,640,288
Misc Manufacturing & Distributing	\$78,862,189
Health Services/HMOs	\$75,543,718
Education	\$73,100,265
Defense Aerospace	\$73,064,329
Civil Servants/Public Officials	\$68,888,386
Automotive	\$61,677,268
TV/Movies/Music	\$59,972,297
Commercial Banks	\$59,672,406

Lobbying Efforts

Client Profile: Summary, 2016

Major Political Contributor



<https://www.opensecrets.org/lobby/clientsum.php?id=D000000461>

Meet Tom Wheeler

“Wheeler, a **former cable industry lobbyist**, quickly established himself as the cable industry's worst enemy. Under Wheeler's leadership, the FCC approved net neutrality regulations, pushed for set-top box reform and helped block the massive merger between Comcast and Time Warner Cable.”

<http://money.cnn.com/2017/01/23/technology/trump-fcc-chairman/>



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Turned out not to be a dingo



Timeline

<http://whatisnetneutrality.org/timeline>

Obama's Tech Legacy

“In a historic vote, after an unprecedented outpouring of public support, the FCC voted to enact the strongest net neutrality rules in history on February 26th, 2015. By embracing its Title II authority and creating clear, bright line rules against blocking and discrimination, **Chairman Wheeler and the FCC have earned a reputation as defenders of an Open Internet.**

The decision faced multiple legal challenges from the wireless and cable industries, but the D.C. Circuit Court of Appeals, the same court who originally sent the rules back to the FCC to be reworked in 2014, upheld the FCC's rules in June 2016.”

<https://www.publicknowledge.org/issues/detail/net-neutrality>

Meet Ajit Pai



WaPo

- Former attorney for Verizon, Justice Dept.
- Sitting Republican FCC commissioner
- Advocate of deregulation
- Defended telecom megamerges
- **Voted against network neutrality rules**
- Controversial decision on the Lifeline program