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HOW THE FCC'S NET NEUTRALITY PLAN BREAKS WITH 50 YEARS OF HISTORY

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FEDERAL COMMUNICATIONS COMMISSION chair Ajit Pai has proposed repealing longstanding net neutrality rules. Only he has a different phrase for them: “The Obama administration’s heavy-handed regulations.” Wait a second: Did Obama really invent net neutrality? Even in a country with famously short attention spans, at least some people might have noticed that net neutrality has been around longer than that. So where did net neutrality come from? How did it get started?

WIRED OPINION

ABOUT

Tim Wu is a professor at Columbia Law School and the author of *The Attention Merchants* and *The Master Switch*.

For better or worse, I was there pretty much from the outset of the modern era. In the interest of trying to get things right, I offer this history.

Early History—the 1970s

What’s now called the “net neutrality debate” is really a restatement of a classic question: How should a network’s owner treat the traffic that it

carries? What rights, if any, should a network's users have versus its owners? The question is ancient enough to be relevant to medieval bridges, railroad networks, and other "common carriers." But let's skip 500 years or so and keep the focus on telecommunications networks, where what we now call net neutrality policy really has two ancestors, both dating from the 1970s.

Those ancestors can be understood as reactions to the great AT&T monopoly, its ideology, and its comprehensive control over communications networks. In the late 1960s, (in a sign of how the politics have changed), the Nixon administration's FCC sought to increase the prospects for competitors in telephone markets. At that point AT&T had been the nation's communications monopolist for many decades, and as a matter of ideology the firm believed in "one system"—namely, that it, and it alone, should control everything on or attached to the network.

The FCC became interested in a new group of businesses that ran "over the top" of AT&T's nationwide network. These were at the time newly formed companies, now lost to history, with names like Tymshare, National CSS, CompuServe, and Dial Data, which offered computer services "over" the network to businesses. These were the first ancestors of today's "over-the-top" operations like Netflix, Wikipedia, Google, and so on. In the jargon of the day, the companies were described not as "apps," "over the top," or "internet companies" but as providers of "data-processing services."

The FCC recognized the great potential in such "over-the-top" services and the importance of what it called the "confluence of computer and communications technologies taking place." In 1971 the commission declared the data-processing industry "a major force in the American economy," and predicted "its importance to the economy will increase in both absolute and relative terms in the years ahead." But it was also obvious that the new

industry, as it ran on AT&T's lines, was vulnerable to and could be destroyed by the monopolist, whose jealousy was legendary. As the commission stated in 1976: "We were concerned about the possibility that [the Bell companies] might favor their own data processing activities by discriminatory services, cross-subsidization, improper pricing of common carrier services, and related anticompetitive practices and activities."

As US district judge Harold Greene later put it:

That the ability for abuse exists as does the incentive, of that there can also be no doubt. As stated above, information services are fragile, and because of their fragility, time-sensitivity, and their negative reactions to even small degradations in transmission quality and speed, they are most easily subject to destruction by those who control their transmission.

By 1970, the commission had put in place the first rules meant to protect over-the-top services from discriminatory or unfair treatment by AT&T. By 1976 it had a working framework to distinguish "basic" communications services from what it then called "enhanced" services—that is, the equivalent of today's applications, like Skype, or the web. A major goal of these rules, known as the Computer Inquiries, was to protect the stuff "on" the network from the network carrying the traffic. They are therefore fairly described as the "first" net neutrality rules, or the direct ancestor of today's net neutrality rules.

The End-to-End Design Principle

Around the same time, a group of legendary network engineers, including Vint Cerf, Robert Kahn, Jon Postel, and many others, was collectively designing the main operating protocols of the internet. The internet, as its name suggested, was an "inter-network" or a "network of networks," designed to join a diverse array of computer networks together to be used for just about anything. Among the key features of the internet was its "layered"

design, which was agnostic both as to the means used for carrying information and to what the network could be used for. The goal of the internet was to connect any network and support any application—hence, to be a “neutral” network.

In the jargon, the internet’s design principles were sometimes described as following the “end-to-end” principle of network design. That meant roughly that the “ends,” or the users of the network, would decide what the network was for, rather than the network operator. Like the first FCC rules described above, this implied, above all, a principle of nondiscrimination—that the owner of the network should not choose what the network be used for.

This new design philosophy stood in sharp contrast to AT&T’s philosophy at the time, which emphasized a centrally organized network specialized for specific purposes—modeled, of course, on the telephone network. That policy was, unsurprisingly, good for AT&T, but gave little or no room for outsiders, startups, and other non-AT&T innovators. The end-to-end design principle, in contrast, favored outsiders and startups, who were also “users” of the network and could therefore innovate without the permission of the network owner.

On this foundation—the idea of the “open internet”—was built the founding applications of the internet, now omnipresent, such as the World Wide Web and email, plus later innovations, like streaming video and social networking. All of these inventions depended heavily on the internet’s end-to-end design, which made possible “permissionless” innovation, and an extraordinary and fabled era of change.

The Broadband Era

The current net neutrality debate took shape during the early broadband era, beginning around 2000. During the 1990s, most people had reached the internet using dial-up services like AOL and CompuServe (the descendants of the “data-processing industry”), or thousands of small independent Internet Service Providers. AOL and these other firms technically relied on the underlying telephone network, and the protections of those 1970s rules—the Computer Inquiries—from interference or abuse by the telephone company.

But as phone and cable companies began deploying broadband networks in the late 1990s—using high-speed (for the time) DSL and cable-broadband technologies—the questions first addressed in the 1970s reasserted themselves in new forms. How would the owners of “the pipes”—the wires that constitute the physical network—treat the applications that ran over those wires?

This is the question that interested me when I left Silicon Valley and moved into academia in 2002. It seemed to me that the broadband carriers had mixed motives. On the one hand, the sellers of broadband wanted and needed consumers to ditch dial-up and pay (more) for broadband. Many consumers were already accustomed to getting the “whole” internet from an ISP, not just a few sites approved by the carrier. AOL’s “walled garden” strategy—a network of sites that paid AOL—had backfired, suggesting that consumers wanted the open internet.

At the same time, broadband providers had both incentives and the means to block, throttle, or threaten some applications or sites. First, some of the new internet applications, like “voice over IP” telephone service or streaming video, competed directly with the carriers’ telephone or video offerings. Second, the phone and cable providers wanted to use their control over access to extract more money, either from the new internet sites (so called “termination fees”) or from customers. These aspirations were memorably captured by AT&T CEO Ed Whitacre in 2005:

"Now what they [the Internet firms] would like to do is use my pipes free, but I ain't going to let them do that because we have spent this capital and we have to have a return on it. ... Why should they be allowed to use my pipes? The internet can't be free in that sense, because we and the cable companies have made an investment and for a Google or Yahoo or Vonage or anybody to expect to use these pipes free is nuts."

Indeed, by the early 2000s there were signs that the cable and phone companies intended to use their control of the physical architecture in restrictive ways. For one thing, some of the broadband carriers began to block a tool known as a "virtual private network," or VPN, most commonly used by people to log into work computers from home. Comcast was among the firms that blocked VPNs, and made its motives clear in this [2001 message](#) to a user:

Thank you for your message. High traffic telecommuting while utilizing a VPN can adversely affect the condition of the network while disrupting the connection of our regular residential subscribers. To accommodate the needs of our customers who do choose to operate VPN, Comcast offers the Comcast @Home Professional product. @Home Pro is designed to meet the needs of the ever growing population of small office/home office customers and telecommuters that need to take advantage of protocols such as VPN. This product will cost \$95 per month, and afford you with standards which differ from the standard residential product. If you're interested in upgrading

Other carriers, like AT&T, offered terms of service that tried to block users from using a variety of applications, including gaming applications, and from allowing more than one computer to use the broadband service by attaching a Wi-Fi device. As AT&T told users in its 2002 terms of service for DSL:

Examples of prohibited programs and equipment include, but are not limited to, mail, ftp, http, file sharing, game, newsgroup, proxy, IRC servers, multi-user interactive forums and Wi-Fi devices

Theft of Service. Customer shall not connect the Service or any AT&T Broadband Equipment to more computers, either on or outside of the Premises, than are reflected

in Customer's account with AT&T Broadband. Customer acknowledges that any unauthorized receipt of the Service constitutes theft of service, which is a violation of federal law and can result in both civil and criminal penalties.

But the most intense test of the tension between the owners of the wires and the internet industry arose when new internet applications, like Skype and Vonage, allowed users to make telephone calls using the internet (so-called VoIP) services either for free or for a fraction of the cost of traditional phone service. These services competed directly with the offerings of the phone and cable companies, and hence represented a potential erosion of revenue.

At the suggestion of Lawrence Lessig of Stanford Law School, I wrote a [memo](#) documenting these concerns, which became a [paper](#), both of which used the phrase “network neutrality” to capture the idea of protecting the traditional neutrality of the internet. (I had originally thought the term “inter-net-neutrality” was more accurate, but it lacked the alliteration.)

On February 8, 2004, then-FCC chair Michael Powell, a Republican appointee, gave a speech in Boulder, Colorado, titled “[Four Internet Freedoms](#)” (modeled after FDR's “Four Freedoms”). Noting the rise of restrictions on broadband usage, Powell declared that users of the internet should have:

Freedom to access content

Freedom to use applications

Freedom to attach personal devices

Freedom to obtain service plan information

Powell soon gave these user “rights” legal force. In 2005, a small phone company and DSL provider in North Carolina named Madison River began blocking Vonage, then a popular voice-over-IP program. Powell [fined](#) Madison River and [ordered it to stop blocking](#). Through these actions the FCC transformed the basic net neutrality rules into a legally binding regime.

The George W. Bush administration continued to enforce Powell's basic net

neutrality rules (later codified as guidelines) under chair Kevin Martin, as did the Obama administration under chair Julius Genachowski. Among other things, the FCC tackled Comcast’s blocking of peer-to-peer video streaming, AT&T’s effort to block Skype on the iPhone, and Verizon’s interference with Google Wallet.

But around this time the FCC ran into a new problem. Powell, Martin, and Genachowski had presumed that the net neutrality rules could be enforced using a part of the Telecommunications Act known as Title I, or other “auxiliary” legal authorities. The carriers challenged that premise in court, and in two decisions the courts declared that the agency lacked sufficient authority to enforce net neutrality rules in the manner it had chosen. But the court didn’t rule out using a different basis of authority, and in the second of those decisions the US Court of Appeals for the DC Circuit strongly hinted that the FCC might rely on *another* basis of authority, Title II of the act, which is the agency’s broadest grant of authority—its “[main gun](#).” It had been Title II that anchored the old protections against AT&T that were pioneered in the 1970s.

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During the 2000s broadband proved to be a successful and highly profitable product, especially for the cable companies, whose higher-capacity lines soon put them way ahead of their DSL competitors. The industry, despite the net neutrality rules, invested many billions of dollars in building higher-speed networks, which it could charge more for, and Verizon built out a fiber-optic network (FiOS) in selected parts of the country. Of course, the internet industry also grew rapidly during this period, as the firms that were startups during the early net neutrality battles, like Google, Amazon, and Facebook, absorbed many smaller firms. By 2012 over-the-top television, led by Netflix and Sling TV, had become widely popular, making them an obvious competitive threat to cable television, much as voice-over-IP threatened phone revenue.

Despite the net neutrality rules, the broadband carriers found another way to extract more money from the internet industry, centered on a rise in streaming video. According to the carriers, Netflix was using too much bandwidth and had to pay up; Netflix responded that users were using the high-speed broadband that they had paid for, and it was the carriers' duty to give their users what they wanted. Beginning in 2012, some broadband providers, led by Comcast, refused to upgrade the ports that carried Netflix traffic, even though the cost was trivial. The ports overflowed, causing buffering and delays, and putting into question Netflix's basic business model. Comcast, Time Warner Cable, and others demanded and received new payments (known as "interconnection fees") from Netflix in exchange for allowing its traffic to proceed as before. Hence, the broadband carriers had found a new way to extract more payments for their service, as Ed Whitacre had hoped for in 2005.

But this newer form of extraction was countered in 2015 by Tom Wheeler, Obama's second FCC chair, who reenacted and strengthened the net neutrality rules using the broader and more powerful Title II of the Telecommunications Act. He had initially proposed relying on the weaker, auxiliary authority once again, but following a wave of popular resistance (including millions of comments directed to the agency) and a public plea from President Obama, Wheeler changed direction. Wheeler's new rules were also challenged in court, but in 2016 the DC Circuit Court of Appeals upheld the rules in their entirety. Thus the net neutrality rules, in effect in some form since 2005, now had solid legal foundation.

The Radicalism of the Pai Proposal

In early 2017 President Trump appointed Ajit Pai, then an FCC commissioner and a steadfast opponent of the net neutrality rules, as chair. The FCC soon announced that it would reconsider net neutrality. Last month the commission released its plan to rescind the net neutrality rules in their entirety, and replace them with a "transparency" regime enforced by another agency, the Federal Trade Commission. In short, with a few exceptions, the FCC plans to give up any role in policing how the telephone and cable carriers treat traffic on their networks.

From this brief history, it should now be obvious how radical a break the proposal represents. Since 1970 there have always been *some* rules controlling what the owners of the pipes on national networks can do to the businesses and people who rely on them. And since 2005 there have been clear bans on blocking and throttling internet applications. Hence, the Pai proposal isn't merely tinkering with some of the rules imposed by the Obama administration but, rather, is eliminating the FCC oversight in place for decades. He is, in fact, coming close to eliminating the agency as a relevant institution.

Assuming the rules are adopted by the FCC, the federal court that hears the

inevitable legal challenge will need to address a key question. The Supreme Court requires that an agency demonstrate its action was not “arbitrary” or “capricious”; it must “examine the relevant data and articulate a satisfactory explanation for its action.” And when it changes course dramatically, as the FCC has, the agency must explain why it “now reject[s] the considerations that led it to adopt that initial policy.” In other words, given how long the rules have been in place, and how many firms and people have relied on them, what has changed to justify revoking the rules, and what evidence backs that decision?

So far, the commission suggests that getting rid of the net neutrality rules is justified by encouraging investment in broadband infrastructure that was, according to Pai, disincentivized by Wheeler’s rules. Even if that is true—a matter heavily disputed—it does not speak to the broader issue: the elimination of protections that have been around since 2005 (arguably since 1970) and which have driven billions, if not trillions, of dollars in both investment and development of new markets, like streaming video. Do the main broadband firms, like AT&T and Comcast, still have the incentive and the means to block and throttle traffic to damage their rivals or raise prices? If they do, and if little has really changed, the proposal won’t survive scrutiny in federal court.

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