

Before the

Federal Trade Commission

**Hearings on Competition and Consumer Protection in the 21st Century
Project Number P181201**

**Comment on Topic 2: Competition and Consumer Protection Issues in Communication,
Information, and Media Technology Networks**

August 20, 2018

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The Electronic Frontier Foundation is the leading nonprofit organization defending civil liberties in the digital world. Founded in 1990, EFF champions user privacy, free expression, and innovation through impact litigation, policy analysis, grassroots activism, and technology development. We work to ensure that rights and freedoms are enhanced and protected as our use of technology grows. EFF represents over 40,000 dues-paying members, including consumers, hobbyists, artists, computer programmers, entrepreneurs, students, teachers, and researchers.

Increasing market concentration and structural barriers to competition for Internet-related businesses threaten the values of free expression, privacy, and the innovation that has made the Internet a powerful force in daily life. It is imperative that policymakers and industry address competition issues actively and thoughtfully, avoiding approaches that will themselves harm the rights and freedoms of Internet users, or impede innovation.

A. Consolidation and Centralization in Internet Platforms Threatens Freedom of Speech. Antitrust Enforcement and Other Sound Competition Policy Are Part of the Solution

The power of the Internet historically arose from its edges: innovation and growth came from its users and their contributions, rather than from a centrally controlled core of overseers. But today, for an increasing number of users, there is a powerful center to the net—and a potentially uncompetitive and unrepresentative center at that. The Internet as a whole is still vast, enabling billions of users to communicate regardless of their physical location. Billions of websites, apps, and nearly costless communications channels remain open to all. Yet too many

widely relied-upon functions are now controlled by a small number of companies. Worse, unlike previous technology cycles, the dominance of these companies has proven to be sticky. It's still easy and cheap to put up a website, build an app, or organize a group of people online—but a few large corporations dominate the key resources needed to do those things. That, in turn, gives those companies extraordinary power over speech, privacy, and innovation.

Google and Facebook dominate the tools of information discovery and the advertising networks that track users' every move across much of the Western world. Along with Apple, Microsoft, Twitter, and a few similar companies, they moderate an enormous volume of human communication. This gives them extraordinary power to censor and to surveil.

Amazon dominates online retail in the United States and back-end hosting across much of the globe, making it a chokepoint for a broad range of other services and activities. A few credit card networks process most online payments, giving them the power to starve any organization¹ that relies on sales or donations. Even more fundamentally, most people in the U.S. have little or no ability² to choose which company will connect them to the Internet in the first place. That gives a few broadband ISPs the power to block, throttle, and discriminate against³ Internet users.

A lack of competition and choice impacts nearly every facet of Internet users' civil liberties. When so much of our interaction with friends, family, and broader social circles happens on Facebook, its arrangement and takedowns⁴ of content matter. When so much search happens on Google, and so much video discovery on YouTube, their rankings⁵ of results and recommendations matter. When Google, Facebook, and Amazon amass a huge trove of people's communications as well as data about purchases, physical movements, and Internet use, their privacy policies and practices matter. When Comcast and AT&T are the only options for fixed

¹ Joe Mullin, *Following Copyright Law Should Be Enough—Even When Payment Processors Say it Isn't*, EFF Deeplinks (June 8, 2018), <https://www.eff.org/deeplinks/2018/06/following-copyright-law-should-be-enough-even-when-payment-processors-say-it-isnt>.

² Ernesto Falcon, *While the Net Neutrality Fight Continues, AT&T and Verizon are Opening a New Attack on ISP Competition*, EFF Deeplinks (June 8, 2018), <https://www.eff.org/deeplinks/2018/06/while-net-neutrality-fight-continues-congress-and-states-att-and-verizon-are>

³ *New Neutrality*, Electronic Frontier Foundation, <https://www.eff.org/issues/net-neutrality>.

⁴ *Facebook, Instagram Lack Transparency on Government-Ordered Content Removal Amid Unprecedented Demands to Censor User Speech, EFF's Annual Who Has Your Back Report Shows*, Electronic Frontier Foundation (May 31, 2018), <https://www.eff.org/press/releases/facebook-instagram-lack-transparency-government-ordered-content-removal-amid>.

⁵ Julie Samuels and Mitch Stoltz, *Google's Opaque New Policy Lets Rightsholders Dictate Search Results*, EFF Deeplinks (August 10, 2012), <https://www.eff.org/deeplinks/2012/08/google-opaque-new-policy-lets-rightsholders-dictate-search-results>.

broadband Internet access for millions of people, their decisions to block, throttle or prioritize certain traffic matter.

The influence of these companies is so great that their choices can impact our lives as much as any government's. And as Amazon's recent sale of facial recognition technology to local police demonstrates, the distance between the big tech companies and government is shrinking.

Careful action to bring a variety of options back in these important portions of the Internet could re-empower users. Competition—combined with and fostered by meaningful interoperability and data portability—could let users vote with their feet by leaving a platform or service that isn't working for them and taking their data and connections to one that does. That would encourage companies to work to keep their users rather than hold them hostage.

Antitrust enforcement has played an important role in the Internet's development. The explosive growth of the Internet in the 1990s owes a lot to the Department of Justice's breakup of AT&T's telephone monopoly in the '80s. That antitrust action spurred ISPs to use the telephone system to connect people to the Internet. And the DOJ's antitrust case against Microsoft over its abuse of the Windows operating system monopoly effectively forced the company to abandon its practice of strangling new competitors in their infancy (including the nascent Google and Amazon).

A fresh look at U.S. antitrust doesn't require abandoning a rigorous approach grounded in economics and practical experience. Declines in the quality of products and services are a harm that antitrust law recognizes. And as EFF has long advocated, avoiding censorship and protecting users' privacy are at the heart of any definition of quality for a digital service or product.

B. The Commission Should Use Its Section 5 Authority to Investigate the Stalling of Fiber to the Home Deployment for High-Speed Internet Access.

The Commission requested comment on the application of its Section 5 authority to broadband Internet access markets. EFF encourages the Commission to investigate the deployment of broadband via fiber to the home (FTTH), which we believe has been artificially limited for anticompetitive reasons. In addition, absent Federal Communications Commission rules forbidding discriminatory treatment of Internet data by consumer Internet service providers (i.e., net neutrality rules), the FTC should investigate such practices to the extent of its ability. To the extent the FTC's authority over ISPs is curtailed by Supreme Court doctrines that limit the applicability of antitrust law to regulated industries, the FTC should support statutory reform.

1. Fiber to the Home Deployment Is Stagnant

Fiber to the home is a network architecture that is able to scale and upgrade at comparatively low costs while providing tremendous capacity for future Internet innovations. Yet the Federal Communication Commission's data indicate that a staggering 85 percent of Americans either cannot receive broadband services that exceed 100 Mbps, or have access to only one provider. Barely 10 percent of US consumers have access to a FTTH competitor to the local cable company delivering comparable or better speeds. Few people in the U.S. benefit from

competitors like Verizon FiOS, Google Fiber, Competitive Local Exchange Carriers, or publicly owned fiber networks.⁶

When last exploring ISP access competition and network neutrality, the FTC focused heavily on the issues of scarcity in capacity at the last mile by ISPs.⁷ However, fiber optic networks have now advanced to such a degree that concerns regarding congestion are outdated.

The agency also found the market to be competitive due to competition between DSL, cable modems, satellite, and the potential entry of broadband over powerlines. With the benefit of hindsight, we now know that cable companies are effectively unchallenged in a vast majority of the US broadband market. Major telephone companies have no plans to aggressively deploy FTTH or other higher-bandwidth technologies. In fact, nearly half of American deployment in FTTH has fallen on the shoulders of small ISPs in isolated markets.⁸ The complete absence of nationwide FTTH deployment plans by major ISPs should be alarming to the FTC because it has happened *after* deregulation by the FCC and billions of dollars in new corporate profits caused by the recently enacted tax cuts.⁹

The lack of competition and prospective competition in high-speed Internet access has allowed the industry to begin a trend towards monopoly status for broadband of speeds in excess of 100 mbps. Cable companies, which stand unopposed in nearly 85 percent of the market, have little need to upgrade to speeds of a gigabit or higher as their main rival, telephone companies, have opted out of doing more than upgrading their DSL lines to middle tier speeds of 25 mbps over the past few years. Wireless and satellite are not competitive alternatives at these speeds.

Online services and applications will become more dependent on high-speed connections that a majority of Americans will soon be unable to utilize or will have to utilize through their local cable monopoly. Being unable to make use of the latest advancements in Internet technologies means an impending national crisis in economic prosperity lies over the horizon as next generation application and services will not simply wait for the US market to catch up to the world. Reliance on a local cable monopoly for rapidly increasing capacity needs raises a real danger to American innovation and further exacerbates concerns regarding network neutrality.

⁶ See *Community Network Map*, *supra* note 7.

⁷ FEDERAL TRADE COMMISSION, *Broadband Connectivity Competition Policy*, FTC Staff Report (June 2007).

⁸ Krista Tysco, *A Mid-Year Roundup of the 2017 Global FTTH Broadband Market*, PPC BROADBAND, PPC BLOG, Aug. 3, 2017, available at <http://www.ppc-online.com/blog/a-mid-year-roundup-of-the-2017-global-ftth-broadband-market>.

⁹ Tax Cuts and Jobs Act of 2017, Pub. L. No. 115-97, 131 Stat. 2054; See also Ryan Knutson & Austen Hufford, *Verizon to Pay Down Debt, Given Employees Stock Awards with Tax Windfall*, WALL ST. J., Jan. 23, 2018, available at <https://www.wsj.com/articles/verizon-dials-up-wireless-revenue-growth-1516714601> (reporting an extra \$ 4 billion of cash on hand for Verizon); See also Reuters & Fortune Editors, *AT&T Is the Latest Company to Report a Tax Reform Windfall*, FORTUNE, Feb. 1, 2018, available at <http://fortune.com/2018/02/01/att-earnings-tax-reform> (reporting an extra \$3 billion of cash on hand from Congress cutting corporate taxes).

2. *Fiber to the Home Is the Superior Technology for Consumer Broadband.*

For both copper and fiber, the basic principle of operation is the same. A cable is laid between two endpoints. The origin quickly taps out a sequence. This sequence of taps is read out at the other end. The faster the taps, the more information is received at the other end per unit time. This is referred to as a “frequency” of the data.

The frequency itself is only the first clue to understanding the total potential bandwidth, though, because a technology called “multiplexing” allows multiple frequencies to be sent over the same wire simultaneously. While there are infinite frequencies in any given range, each of which could carry its own data, the physical properties of the medium limit the number of separate “channels” that can be sent over a wire simultaneously. Frequencies that are too close will essentially blend into each other when sent over an imperfect medium.

Essentially, bandwidth depends on how quickly information can be sent along a single channel, and how many distinct channels can fit into a single cable. Therefore, the range of frequencies that a cable can support becomes vital to understanding the total bandwidth of a cable. The maximum theoretical bandwidth of a cable is a function of the range of frequencies that can be sent over that cable, along with the signal-to-noise ratio for that range.

For both the range of frequencies available and the signal-to-noise ratio, fiber greatly exceeds copper cable. For example, fiber optic cables carry information in the optical range of 400-800 THz, whereas copper transmits at the radio frequency range of up to 5000 MHz. Sending a higher frequency signal along a cable increases the amount of noise in a channel, and it does so much more punishingly for electrical signals being sent along a copper wire than for optical signals being sent along a fiber optic cable.

Copper cannot operate at higher frequencies because information degenerates more rapidly as frequency increases. Existing copper cables lose 92.8dB/km at the maximum end of their range (5000 MHz)¹⁰; operating at any higher frequency would only be useful at exceedingly small distances. In contrast, fiber optic cables operate at frequencies tens of thousands of times higher, and lose only 0.2 dB/km.¹¹ This also means that fiber optic cables are suitable for longer distance communications, thus requiring less equipment infrastructure to operate.

In practice, data does not get sent at this limit, but technological advancements in endpoint technology push us closer to that limit without replacing the existing cables. Current research focuses on how to build a device to insert data at as many frequencies as possible into the medium, to achieve bandwidths closer the theoretical limits of both copper and fiber optic cables.

¹⁰ RADIO FREQUENCY SYSTEMS, *Product Datasheet*, available at <http://products.rfsworld.com/WebSearchECat/datasheets/pdf/cache/LCF78-50JFNA-A0.pdf>.

¹¹ CORNING, *Optical Fiber Product Portfolio*, available at <http://www.corning.com/media/worldwide/coc/documents/Fiber/COF-006-AEN.pdf>.

Previously, though the medium of optical fiber itself was significantly better for transmitting data, it was hard and expensive to build the machines to reach anywhere near that capacity. Now, technology is starting to catch up to the capacity of the medium. A 2018 study managed to put 159 Tb/s in a fiber optic cable over a thousand kilometers long.¹²

Wireless broadband faces even more challenges to be on par with FTTH. For wireless transmissions, factors such as weather, physical obstructions, distance, power levels, and competing transmissions over the same space all interfere with its ability to transmit data. The frequency that is being used for transmission also has an impact on the amount of data that can be transmitted, the distance it can travel, and its capacity to penetrate obstacles. A basic rule of thumb is the higher the frequency of the spectrum band that is being used, the more difficulty it has passing through objects. That is because the airwaves we use for wireless technologies is the same as light that would come from a flashlight (it just operates at a much lower frequency beyond visible range). In fact, we can see that from demonstration lamps being used to transmit high definition video quality data transmissions.¹³

3. *Comparing the U.S. Market to International Markets Reveals How Last-Mile Internet Access Is Starved of Potential Capacity.*

Today, approximately 57.8 percent of Europeans have access to DOCSIS 3.0 and FTTH with FTTH reaching 26.8 percent of EU homes and DOCSIS 3.0 reaching 44.7 percent of homes.¹⁴ The aggregate number demonstrates how the American market is behind our European counterparts even when not every EU nation is on track to meet the metrics of universal coverage at 30 Mbps and 50 percent coverage at 100 Mbps and above by 2020.¹⁵

When we explore individual member states of the EU, we find that the aggregate number masks extraordinary advancements across the Atlantic that show how far behind American deployment truly is today. For example, FTTH in Portugal, Latvia, Lithuania, and Spain exceed 70 percent coverage. Spain in particular has enjoyed an extraordinary rise in FTTH coverage

¹² Sachiko Hirota, *Record Breaking Fiber Transmission Speed Reported*, PHYS.ORG (Apr. 16, 2018), available at <https://phys.org/news/2018-04-fiber-transmission.html>.

¹³ Harold Hass, *Wireless data from every light bulb*, Technology, Entertainment, Design (TED) Global 2011 (Jul. 2011), http://www.ted.com/talks/harald_haas_wireless_data_from_every_light_bulb?language=en.

¹⁴ FTTH is known as fiber-to-the-premises (FTTP) in Europe.

¹⁵ EUROPEAN COURT OF AUDITORS, *Broadband in the EU Member States: Despite Progress, not All the Europe 2020 Targets Will be Met*, available at https://www.eca.europa.eu/Lists/ECADocuments/SR18_12/SR_BROADBAND_EN.pdf.

with a growth of 8.6 percent for 2017¹⁶ as a result of a commercial co-investment and network sharing agreements.¹⁷

In fact, every EU member except for Ireland, Germany, the United Kingdom, Belgium, and Greece is ahead of the United States in FTTH deployment and even among those lagging nations an active rethinking or new implementation of telecom policy is occurring. For example, Ireland's fiber growth has exploded at a meteoric 419.6% increase from 2016-2017 as a result of wholesale-only initiatives.¹⁸ The United Kingdom is currently imposing structural separation remedies on British Telecom to address their current lack of fiber deployment.¹⁹

Ahead of even the best-performing EU nations, South Korea has achieved near-universal deployment of fiber connections to the home.²⁰ Such connectivity was on display during the 2018 Winter Olympics as part of a plan by Korean ISPs to deploy the first 5G networks.²¹ Such networks are reliant on fiber and were showcased during the games. Near universal coverage by fiber also allowed Korea Telecom to deploy 3D virtual reality viewing of the games²² and support self-driving mass transit,²³ things that are simply not supportable with current U.S. infrastructure.

¹⁶ EUROPEAN COMMISSION, *Broadband Coverage in Europe 2017*, available at <https://ec.europa.eu/digital-single-market/en/news/study-broadband-coverage-europe-2017>.

¹⁷ Enrique Medina, *Why Spain is a Case Study for Super-Fast Broadband*, TELEFONICA, Nov. 20, 2017, available at <https://www.telefonica.com/en/web/public-policy/blog/article/-/blogs/why-spain-is-a-case-study-for-super-fast-broadband>.

¹⁸ ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, *Penetration and Data Usage (Growth of fibre subscriptions Dec. 2017)*, available at <http://www.oecd.org/sti/broadband/1.11-FibreGrowth-2017-12.xls>; See also *Wholesale Only Model Study supra* note 29.

¹⁹ Ilsa Godlovitch, Bernd Sorries, & Tseveen Gantumur, *A Tale of Five Cities: The Implications of Broadband Business Models on Choice, Price and Quality*, WIK-CONSULT, Jun. 2, 2017, available at <https://www.stokab.se/Documents/Nyheter%20bilagor/A%20tale%20of%20five%20cities.pdf>.

²⁰ Krista Tysco, *A Mid-Year Roundup of the 2017 Global FTTH Broadband Market*, PPC BROADBAND, PPC BLOG, Aug. 3, 2017, available at <http://www.ppc-online.com/blog/a-mid-year-roundup-of-the-2017-global-ftth-broadband-market> (most noteworthy in this analysis is the role smaller ISPs play in deploying FTTH where nearly 50 percent of the growth in fiber is attributable to CLECs and local government).

²¹ Erwan Lucas, *In South Korea, the Race is on for Olympics 5G Next Year*, PHYS.ORG, Feb. 28, 2017, available at <https://phys.org/news/2017-02-south-korea-olympics-5g-year.html>.

²² Cho Mu-Hyun, *KT to Provide 360 Degree VR for 2018 Winter Games*, ZDNET, Feb. 15, 2016, available at <https://www.zdnet.com/article/kt-to-provide-360-degree-vr-for-2018-winter-games/>.

²³ Diamond Leung, *2018 PyeongChang Olympics Has 5G-Enabled VR, Live Holograms, Self-Driving Buses, Drones*, SPORTTECHIE, Mar. 28, 2017, available at <https://www.sporttechie.com/2018-pyeongchang-olympics-has-5g-enabled-vr-live-holograms-self-driving-buses-drones>.

4. *The ISP Industry Has a Persistent History of Violating Net Neutrality.*

ISPs have a long history of net neutrality violations. In 2005, the FCC found that Madison River, a broadband provider based in North Carolina, had been blocking Voice over Internet Protocol (VoIP) ports, thereby preventing its customers from making use of third-party VoIP services that competed with the company's own phone services. This example of consumer harm is particularly egregious, given that "for those customers who had disconnected their traditional phone lines and were relying solely on Vonage, the blocking meant they had no ability to make calls, even to emergency 911 services."²⁴ The FCC's enforcement action at this time was premised on Title II of the Communications Act, to which Madison River was subject.

In 2007, Comcast was found to be interfering with legitimate traffic based solely on its type. The most widely discussed interference was with certain BitTorrent peer-to-peer (P2P) file-sharing communications, but other protocols²⁵ were also affected. This interference went far beyond network management, and affected its customers' ability to download public domain works, not to mention properly use non-P2P software like Lotus Notes.

In 2012, AT&T chose to block data sent to and from users of Apple's Facetime software.²⁶ In particular, AT&T announced in August of 2012 that only certain, more expensive data plans would be able to use Facetime, even acknowledging that "the company was using it as a lever to get users to switch over to the new plans which charge for data usage in tiers." In other words, customers were forced to pay more to AT&T to send or receive certain types of data, based on a business decision by AT&T.

Also in 2012, Comcast announced that it would favor its own video-on-demand streaming services over third-party competitor services, by charging customers for the data they used to stream competitor services.²⁷ In this instance, customers were harmed by Comcast's decision to take advantage of its gatekeeper power to favor its traffic over its competitors, thereby clearly distorting the marketplace for video-on-demand services. AT&T stands ready to follow suit with its purchase of Time-Warner by engaging in discriminatory zero-rating and preferring its own content over its competitors. This type of self-dealing by AT&T is the central concern expressed in the DoJ's filings when it sued to block the merger.

²⁴ Jonathan Krim, *Phone Company Settles in Blocking of Internet Calls*, WASHINGTON POST (Mar. 4, 2005), available at <http://www.washingtonpost.com/wp-dyn/content/article/2005/03/25/AR2005032501328.html>.

²⁵ Peter Eckersley et al., *Packet Forgery By ISPs: A Report on the Comcast Affair*, ELECTRONIC FRONTIER FOUNDATION, Nov. 28, 2007, <https://www.eff.org/wp/packet-forgery-isps-report-comcast-affair>.

²⁶ David Kravets, *AT&T: Holding Facetime Hostage is No Net Neutrality Breach*, WIRED (Aug. 22, 2012), available at <https://www.wired.com/2012/08/facetime-net-neutrality-flap>.

²⁷ Kyle Orland, *Comcast: Xbox 360 On Demand Streams Won't Count Against Data Caps*, ARSTECHNICA (Mar. 26, 2012), available at <https://arstechnica.com/gaming/2012/03/comcast-xbox-360-on-demand-streams-wont-count-against-data-caps>.

These and many other examples²⁸ regularly demonstrate the gatekeeper incentive that ISPs possess and their willingness to act on that incentive.

5. *FTC Authority Over Broadband ISP Practices May Be Limited.*

While EFF appreciates the FTC's attention to issues of competition and discriminatory conduct in broadband Internet access markets, it is likely that the FTC cannot address these issues alone.

The FCC and FTC Memorandum of Understanding (MOU) regarding oversight of the ISP marketplace illustrates the limits of FTC authority to protect the free and open Internet.²⁹ It details the extent the FCC will mandate disclosure by the ISPs of their intended conduct so that the FTC can utilize its legal power to penalize deceptive assertions. At the heart of the MOU is the basic premise that so long as the industry simply tells consumers what they intend to do in the absence of federal law, self-regulation will curtail the worst practices. This is despite a majority of the public having no choice among high-speed broadband providers, a fact the FCC casually dismissed in its Order when it explicitly choose not to analyze whether high-speed broadband is a different market than low to middle tier speeds. Lastly, perhaps the main failing of this approach is that it allows ISPs to immunize from legal challenge all of the discriminatory and anticompetitive practices listed earlier so long as they disclose such practices broadly in their terms of service.

Many supporters of the Restoring Internet Freedom Order regularly assert that antitrust law can substitute for many of the concerns raised by consumer groups. This presumes enforcement by the FTC and Department of Justice. In practice, Supreme Court doctrine weighs heavily in favor of expert regulators having primary jurisdiction. In fact, the FTC itself told Congress in 2010 that if the current status of antitrust law had been in place 40 years ago, the Department of Justice prosecution of AT&T's monopoly would have likely failed.³⁰

Nowhere within the Restoring Internet Freedom Order does the FCC even attempt to address the impact of the two seminal Supreme Court cases known as *Trinko*³¹ and *Credit*

²⁸ Tim Karr, *Network Neutrality Violations: A Brief History*, Free Press (Apr. 25, 2017), available at <https://www.freepress.net/blog/2017/04/25/net-neutrality-violations-brief-history>.

²⁹ FEDERAL COMMUNICATIONS COMMISSION AND FEDERAL TRADE COMMISSION CONSUMER PROTECTION MEMORANDUM OF UNDERSTANDING, available at https://www.ftc.gov/system/files/documents/cooperation_agreements/151116ftcfcc-mou.pdf.

³⁰ Prepared Statement of the Federal Trade Commission, Committee on Judiciary: *Is There Life After Trinko and Credit Suisse? The Role of Antitrust in Regulated Industries* (June 15, 2010), available at https://www.ftc.gov/sites/default/files/documents/public_statements/prepared-statement-federal-trade-commission-courts-and-competition-policy-committee-judiciary-united/100615antitrusttestimony.pdf.

³¹ *Verizon Communications, Inc. v. Law Offices of Curtis V. Trinko*, 540 U.S. 398 (2004).

*Suisse*³² despite invoking antitrust law enforcement more than 150 times as a fallback enforcement power. Rather, consumers are presented an overly optimistic prognosis of how antitrust law will remedy many of the pending market failures to justify total abdication of responsibility over a critical service for all Americans. To the extent that collusive conduct that would run afoul of antitrust laws take place within the ISP market, the FCC's abandonment of its role as regulator has the potential to create a major obstacle to antitrust enforcement.

Accordingly, while the FTC should vigorously enforce Section 5 with respect to broadband ISPs, it should also recommend affirmative rules on discriminatory conduct by ISPs.

³² *Credit Suisse Securities v. Billing*, 551 U.S. 264 (2007).