

The Unnamed Rulers of Information and Content on the Internet

American customers pay handsomely for Internet access at home, and the connection speeds are gradually slipping below the worldwide average. Customers pay an Internet service provider (ISP) a subscription for access to their broadband network. A broadband network is located nationwide, and it is used connects users to the Internet. This network transmits users' data at a bandwidth. Bandwidth, measured in megabits per second (Mbps), is the speed at which a user can send or receive—upload or download—data over the Internet.

The website Netindex.com uses the 50 million monthly results from its sister site Speedtest.net to compare bandwidth internationally (“About”). As of July 2, 2011, the United States' download speed ranks thirtieth in the world with a national average of 11.14 Mbps. Its upload is even worse, with an average speed of 2.73 Mbps, ranking it fortieth. Comparatively, South Korea, who ranks number one on each scale, has an average download of 34.58 Mbps and an upload of 25.65 Mbps (“Household Download”; “Household Upload”).

In order to remain competitive with the rest of the world, changes must be made to America's broadband infrastructure. Where the change needs to occur is debatable. One suggested change is technological: upgrading the network from the reportedly deprecated connections it currently uses. The other change is political: regulating the telecommunications and cable companies, who are the network owners as well as the sole ISPs, to unbundle their networks. Unbundling would allow new ISPs to without a network to use the current network to establish businesses and create a more competitive

market. A competitive market, not a high-tech network, is the requirement for quality Internet service as well as a neutral network.

Innovators still claim the installation of a new network may seem to be the right solution, especially with users' increasing bandwidth demands. Case in point, South Korea's speeds are due to its government built and operated fiber optic broadband network (Bar 114). The current American broadband network is an amalgamation of old and new technologies: telephone's copper wires, cable television's coaxial cables, fiber optics, and satellite and microwave radios (109), but implementing a fully fiber optic network in the United States would require an investment of at least \$100 billion. Since the network is privately owned, teleco and cable companies would make the investment, and they state that network regulations give them little incentive to invest (125).

In the United States, the Federal Communication Commission regulates the broadband network. The FCC established in August 2005 their guidelines regarding network neutrality. Net neutrality has two basic principles. The first principle dictates that ISPs have no control over the data being sent over their network (Engadget Explains). Examples of control would be prioritization of data. Data must be sent in the order it is received in the network, so data with large bandwidth consumption and data with low bandwidth consumption must be transmitted equally and at the time they are received. The same principle applies to data sent from a competitor and data sent from a partnering company. Network owners claim that these regulations cause them to lose potential revenue. If the regulations did not exist, ISPs could charge premiums on customers who use applications with high bandwidth demands, such as multiplayer gaming or high

definition video streaming. Network operators could also be reimbursed for allowing a partner's content to be sent first.

The second principle of net neutrality states that network owners cannot block any device connected to their network (Engadget Explains). Companies like Vonage sell devices that use the Internet to deliver telephone services, known as voice over Internet Protocol (VoIP). The network owners do not receive revenue from these VoIP services outside of providing the user with an Internet connection. They would prefer to have the right to block these devices so that customers purchase their telephone, television, and Internet from them, a subscription method referred to as a triple play (Bar 121). This guideline allows for a small amount of competition, but ISPs claim that being a common carrier for everyone's traffic is an obstacle preventing them from earning revenue to innovate the network (113; 115). Technology analyst Sarah Sorensen supports this claim. She states that an upgraded network would actually decrease favoritism of data and devices, but that favoritism must first occur in order to support a network overhaul (166). However, there is nothing to suggest that network providers would stop profitable practices like prioritizing data or blocking devices after the construction of a faster network is complete.

Major content providers on the Web, such as Google, Yahoo!, and eBay, claim that is exactly what would occur without the existence of net neutrality. The emergence of the Internet as it exists today derives from its end-to-end (E2E) architecture. E2E architecture gives the control of data to devices at either end of the network, not the network itself. In other words, computers and content providers are responsible for delivering content and information to the Internet. The network only exists to transmit the

content. The Internet thrives on constant experimentation of new content; a process that is shared between currently established content providers, start-up companies, and end-users (Bar 111). If network operators were allowed to surpass net neutrality simply to fund an improved network, then they would have the power to prioritize content. This would limit the accessibility of any number of sites. These sites could develop to become the next important content providers, yet network owners continue to state that this is the best path towards network innovation. They argue that a network overhaul is necessary, but there is evidence to the contrary.

Technology journalist Janko Roettgers has reviewed the Netindex.com statistics as well. He points to China, who is a leader in peer-to-peer (P2P) video sharing. P2P allows users to share large video files, and it requires fast upload speeds. Ironically, the country's average upload speed is 2.23 Mbps, a speed that is barely surpassed by the U.S. average. The average Chinese download speed is 3.98 Mbps, a fraction of what is available in the United States, yet China is able to easily share high definition videos. Roettgers infers that how the bandwidth is used may be more important than the quality of the infrastructure (Survey Says).

In the United Kingdom, the bandwidth is improving while the cost is dropping. The British use mostly copper wiring, not fiber optics. The reason for the improvement without an overhaul was due to the unbundling of the network. Previously, the only network provider available in the U.K. was British Telecommunications. Regulators believed BT's monopoly caused high prices and poor service, so they required BT to unbundle their network. This allowed new ISPs to emerge and create competition, and they used BT's network instead of building an entirely new infrastructure. Now, BT is

substantially more profitable with more than four hundred ISPs using its network. Ironically, British ISPs offer premiums. Special premiums are offered to businesses that use the Internet only during the day or to home users who only use their Internet for web browsing and email (Why). This practice of premiums can only exist with more competition where customers can shop for fairer prices and better service depending on their needs. The current network duopoly in the United States would make this impossible. The handful of American companies creates consolidation and slower speeds. The physical network is not as decrepit as some believe, and it is not the cause for slow bandwidth.

On December 23, 2010, the FCC released its revised policy regarding network neutrality. The same rules applied as before: no discrimination of network traffic and no blocking of devices. An addendum was added that requires transparency of network performance, such as making reported bandwidth speeds viewable. Mobile broadband, used by cellular phones, is referenced in the policy as well, but only the newest stipulation applies to it (United States). On April 8, 2011, the U.S. House of Representatives passed a resolution to strip away the FCC's power to regulate ISPs, thereby nullifying the new net neutrality policy (H.R. Res.).

The resolution is awaiting passage by both the Senate and the President. If it is signed into law, then the network owners will have free reign, and there will be too few ISPs in the market to create a competitive environment. Cable companies Time Warner and Comcast own 50% of the U.S. cable market, and instead of competing, they consolidate themselves into regional monopolies (Bar 112). Network owners are in control of the connections to the Internet and the prices users are charged. If no net

neutrality policies existed, then they would also have control over the data sent through the network. A national policy to unbundle the network is necessary to establish any competition in this market. The created competitiveness would ensure a cost-effective network as well as a neutral network.

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