INTERACTIVE SESSION: ORGANIZATIONS   Should Network Neutrality Continue?

What kind of Internet user are you? Do you primarily use the Net to do a little e-mail and look up phone numbers? Or are you online all day, watching YouTube videos, downloading music files, or playing massively multiplayer online games? If you're the latter, you are consuming a great deal of bandwidth, and hundreds of millions of people like you might start to slow the Internet down. YouTube consumed as much bandwidth in 2007 as the entire Internet did in 2000. That's one of the arguments being made today for charging Internet users based on the amount of transmission capacity they use.

According to one November 2007 report, a research firm projected that user demand for the Internet could outpace network capacity by 2011.

If this happens, the Internet might not come to a screeching halt, but users would be faced with sluggish download speeds and slow performance of YouTube, Facebook, and other data-heavy services. (Heavy use of iPhones in urban areas such as New York and San Francisco has already degraded service on the AT&T wireless network.)

Other researchers believe that as digital traffic on the Internet grows, even at a rate of 50 percent per year, the technology for handling all this traffic is advancing at an equally rapid pace.

In addition to these technical issues, the debate about metering Internet use centers around the concept of network neutrality. Network neutrality is the idea that Internet service providers must allow customers equal access to content and applications, regardless of the source or nature of the content. Presently, the Internet is indeed neutral: all Internet traffic is treated equally on a first-come, first-served basis by Internet backbone owners. The Internet is neutral because it was built on phone lines, which are subject to "common carriage" laws. These laws require phone companies to treat all calls and customers equally. They cannot offer extra benefits to customers willing to pay higher premiums for faster or clearer calls, a model known as tiered service.

Now telecommunications and cable companies want to be able to charge differentiated prices based on the amount of bandwidth consumed by content being delivered over the Internet. In June 2008, Time Warner Cable started testing metered pricing for its Internet access service in the city of Beaumont, Texas. Under the pilot program, Time Warner charged customers an additional $1 per month for each gigabyte of content they downloaded or sent over the bandwidth limit of their monthly plan. The company reported that 5 percent of its customers had been using half the capacity on its local lines without paying any more than low-usage customers, and that metered pricing was "the fairest way" to finance necessary investments in its network infrastructure.

This is not how Internet service has worked traditionally and contradicts the goals of network neutrality. Advocates of net neutrality are pushing Congress to regulate the industry, requiring network providers to refrain from these types of practices. The strange alliance of net neutrality advocates includes MoveOn.org, the Christian Coalition, the American Library Association, every major consumer group, many bloggers and small businesses, and some large Internet companies like Google and Amazon.

Internet service providers point to the upsurge in piracy of copyrighted materials over the Internet. Comcast, the second largest Internet service provider in the United States, reported that illegal file sharing of copyrighted material was consuming 50 percent of its network capacity. At one point Comcast slowed down transmission of BitTorrent files, used extensively for piracy and illegal sharing of copyrighted materials, including video. Comcast drew fierce criticism for its handling of BitTorrent packets, and the FCC ruled that Comcast had to stop slowing peer-to-peer traffic in the name of network management. Comcast then filed a lawsuit challenging the FCC's authority to enforce network neutrality.

Net neutrality advocates argue that the risk of censorship increases when network operators can selectively block or slow access to certain content. There are already many examples of Internet providers restricting access to sensitive materials (such as anti-Bush comments from an online Pearl Jam concert, a text-messaging program from pro-choice group NARAL, or access to competitors like Vonage). Pakistan's government blocked access to anti-Muslim sites and YouTube as a whole in response to content they deemed defamatory to Islam.

Proponents of net neutrality also argue that a neutral Internet encourages everyone to innovate without permission from the phone and cable companies or other authorities, and this level playing field has spawned countless new businesses. Allowing unrestricted information flow becomes essential to free markets and democracy as commerce and society increasingly move online.

Network owners believe regulation like the bills proposed by net neutrality advocates will impede U.S. competitiveness by stifling innovation and hurt customers who will benefit from "discriminatory" network practices. U.S. Internet service lags behind

other many other nations in overall speed, cost, and quality of service, adding credibility to the providers' arguments.

Network neutrality advocates counter that U.S. carriers already have too much power due to lack of options for service. Without sufficient competition, the carriers have more freedom to set prices and policies, and customers cannot seek recourse via other options. Carriers can discriminate in favor of their own content. Even broadband users in large metropolitan areas lack many options for service. With enough options for Internet access, net neutrality would not be such a pressing issue. Dissatisfied consumers could simply switch to providers who enforce net neutrality and allow unlimited Internet use.

On September 21, 2009, the U.S. Federal Communications Commission (FCC) announced its intention to formalize a set of rules supporting net neu-

trality based on principles that the FCC has embraced since August 2005. These rules entitle consumers to lawful Internet content, applications, and services of their choice, and to use devices of their choice to connect to the Internet. The rules also support competition among Internet network, application, service, and content providers. Two new rules would prevent ISPs from discriminating against particular content and ensure disclosure of their network management practices. For the first time, all of these rules would be applied to wireless companies.

Sources: Fawn Johnson and Amy Schatz, "FCC Chairman Proposes 'Net Neutrality' Rules," *The Wall Street Journal*, September 21, 2009; Grant Gross, "FCC Chairman Calls for Formal Net Neutrality Rules," *IDG News Service*, September 21, 2009; Joanie Wexler: "Net Neutrality: Can We Find Common Ground?" *Network World*, April 1, 2009; Andy Doman, "Is Your Network Neutral?" *Information Week*, May 18, 2008; Steve Lohr, "Video Road Hogs Stir Fear of Internet Traffic Jam," *The New York Times*, March 13, 2008; and Peter Burrows, "The FCC, Comcast, and Net Neutrality," *Business Week*, February 26, 2008.

CASE STUDY QUESTIONS

1. What is network neutrality? Why has the Internet operated under net neutrality up to this point in time?

2. Who's in favor of network neutrality? Who's opposed? Why?

3. What would be the impact on individual users, businesses, and government if Internet providers switched to a tiered service model?

4. Are you in favor of legislation enforcing network neutrality? Why or why not?

MIS IN ACTION

1. Visit the Web site of the Open Internet Coalition and select five member organizations. Then visit the Web site of each of these organizations or surf the Web to find out more information about each. Write a short essay explaining why each organization is in favor of network neutrality.

2. Calculate how much bandwidth you consume when using the Internet every day. How many e-mails do you send daily and what is the size of each? (Your e-mail program may have e-mail file size information.) How many music and video clips do you download daily and what is the size of each? If you view YouTube often, surf the Web to find out the size of a typical YouTube file. Add up the number of e-mail, audio, and video files you transmit or receive on a typical day.

Internet Services

A client computer connecting to the Internet has access to a variety of services. These services include e-mail, electronic discussion groups, chatting and instant messaging, **Telnet, File Transfer Protocol (FTP)**, and the Web. Table 6.3 provides a brief description of these services.

Each Internet service is implemented by one or more software programs. All of the services may run on a single server computer, or different services may be allocated to different machines. Figure 6-10 illustrates one way that these services can be arranged in a multitiered client/server architecture.