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Comcast's deal with Netflix makes network neutrality obsolete

By Timothy B. Lee
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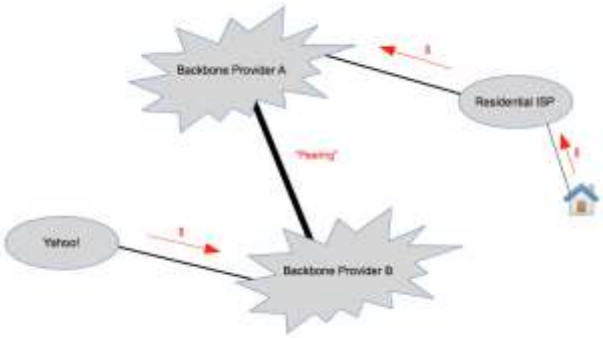
For the past two decades, the Internet has operated as an unregulated, competitive free market. Given the tendency of networked industries to lapse into monopoly—think of AT&T's 70-year hold over telephone service, for example—that's a minor miracle. But recent developments are putting the Internet's decentralized architecture in danger.

In recent months, the nation's largest residential Internet service providers have been demanding payment to deliver Netflix traffic to their own customers. On Sunday, the Wall Street Journal reported that Netflix has agreed to the demands of the nation's largest broadband provider, Comcast. The change represents a fundamental shift in power in the Internet economy that threatens to undermine the competitive market structure that have served Internet users so well for the past two decades.

The deal will also transform the debate over network neutrality regulation. Officially, Comcast's deal with Netflix is about interconnection, not traffic discrimination. But it's hard to see a practical difference between this deal and the kind of tiered access that network neutrality advocates have long feared. Network neutrality advocates are going to have to go back to the drawing board.

The classic Internet

To understand what's going on, it's helpful to review the structure of the "classic" Internet.



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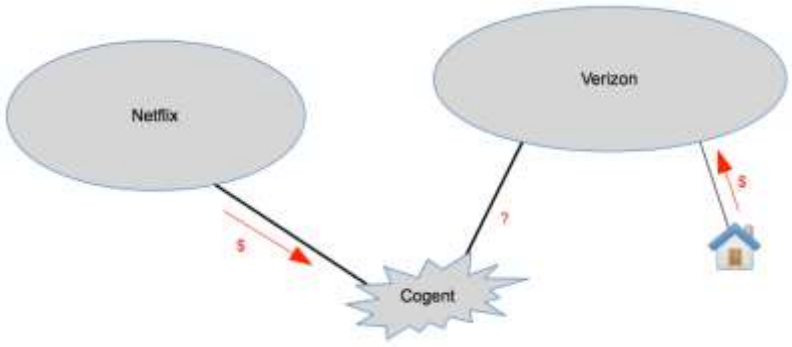
This diagram is an idealized depiction of how the "classic" Internet of the late 1990s worked. Backbone Provider B provides Internet service to Yahoo, carrying traffic to users around the world. Provider B connects with other companies, such as Backbone Provider A. The residential ISP on the right is a customer of Backbone provider A, and it, in turn, offers Internet access to individual households. The red arrows indicate who pays whom for service. Because the two backbone providers are roughly the same size, they engage in what's called "settlement-free peering": They exchange traffic with each other with no money changing hands.

A big advantage of this industry structure is that the backbone market is competitive. If Backbone Provider B overcharges Yahoo for connectivity, Yahoo can switch to another backbone provider. I've only drawn two backbone companies, but in the real world there were a number of them competing with one another. The fact that the largest backbone providers engage in settlement-free peering ensures that every computer on the Internet can reach every other computer. Competition among backbone providers helps keep prices down and service quality up.

This industry structure has another virtue, too: Network neutrality is protected by default. Traffic from Yahoo comes to the residential ISP in a big bundle along with traffic from lots of other Web sites. As I argued in a 2008 paper for the Cato Institute, that makes non-discrimination the default and gives residential ISPs limited leverage over distant Web sites. If the residential ISP wanted to discriminate against Yahoo traffic, it would need to make an explicit decision to block or degrade it, which would likely trigger a customer backlash. That has allowed network neutrality to thrive in the 1990s and 2000s even though there was no formal network neutrality regulations until 2010.

But the Internet is changing. One sign of that change is the just-announced deal between Comcast and Netflix. Another is Ars Technica's recent story about a dispute between the backbone provider Cogent and Verizon. Netflix is a Cogent customer. Surging Netflix traffic has been overwhelming the links between Cogent and Verizon. Cogent has asked for those links to be upgraded, but according to Cogent, Verizon has demanded payment for upgrading the links. (When Ars asked Verizon for comment, a spokesman declined to comment on the specifics of the negotiation.)

We can depict the dispute like this:



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In this version of the Internet, two big things have changed. First, Netflix is really big. The video streaming site now accounts for about 30 percent of all traffic on the Internet. Second, Verizon acquired the formerly independent backbone provider MCI in 2006, helping to turn itself into a major backbone provider in its own right.

Those changes matter for Cogent's negotiations with Verizon. In the first chart, Backbone Provider A's leverage was limited by the fact that Backbone Provider B could always connect directly to the residential ISP, potentially costing A a customer. That gave A a strong incentive to keep its network fast and its interconnection terms reasonable.

The negotiation between Cogent and Verizon is different. Verizon plays the role of both backbone provider and residential ISP. That puts Verizon in a much stronger negotiating position, because Cogent doesn't have any practical way to route around Verizon. If Cogent wants to reach Verizon's customers, it needs to cut a deal with Verizon.

The FCC's dilemma

The fact that Netflix agreed to pay Comcast suggests that Cogent will likely lose its fight with Verizon as well. And as Cogent's chief executive Dave Schaeffer told Ars, "once you pay it's like blackmail, they've got you, there's nowhere else to go. They'll just keep raising the price in a market where prices [for transit] are falling."

Indeed, in the long run, this development threatens the survival of independent backbone companies like Cogent. If it becomes industry practice for backbone providers to pay residential ISPs, companies like Cogent will become mere resellers of access to the networks of large broadband companies. Or they may be cut out of the loop altogether, as large customers such as Netflix cut deals directly with broadband providers such as Comcast.

Cutting out the middleman might make the Internet more efficient, but it will also make it less competitive. Cogent has many competitors. Verizon's FiOS service does not. If companies like Cogent are squeezed out of business, it will make these already powerful network owners even more powerful.

It would also transform the network neutrality debate. As I mentioned before, the conventional network neutrality debate implicitly assumes that residential ISPs receive Internet traffic from one big pipe. Network neutrality advocates want rules prohibiting ISPs from divvying this pipe up into fast and slow lanes based on business considerations.

But in a world where Netflix and Yahoo connect directly to residential ISPs, every Internet company will have its own separate pipe. And policing whether different pipes are equally good is a much harder problem than requiring that all of the traffic in a single pipe be treated the same. If it wanted to ensure a level playing field, the FCC would be forced to become intimately involved in interconnection disputes, overseeing who Verizon interconnects with, how fast the connections are and how much they can charge to do it.

At this point, the FCC doesn't have any good options. Regulating the terms of interconnection would be a difficult, error-prone process. Trying to reverse the decade-old mergers that allowed America's broadband market to become so concentrated in the first place would be even more so. But the growing power of residential broadband providers will put growing pressure on the FCC to do something to prevent the abuse of that power.

One clear lesson, though, is that further industry consolidation can only make the situation worse. The more concentrated the broadband market becomes, the more leverage broadband providers like Comcast and Verizon will have over backbone providers like Cogent. That gives the FCC a good reason to be skeptical of Comcast's proposed acquisition of its largest rival, Time Warner Cable. Blocking that transaction could save the agency larger headaches in the future.