



Biting the hand that feeds IT

[The Register](#) » [Comms](#) » [Networks](#) »

Original URL:

[http://www.theregister.co.uk/2008/03/28/comcast\\_to\\_stop\\_busting\\_bittorrents/](http://www.theregister.co.uk/2008/03/28/comcast_to_stop_busting_bittorrents/)

---

## Comcast admits it can do the impossible

---

By [Cade Metz in San Francisco](#)

Published Friday 28th March 2008 02:26 GMT

Faced with continued [scrutiny](#)

([http://www.theregister.co.uk/2008/03/11/kevin\\_martin\\_eyes\\_comcast\\_slap/](http://www.theregister.co.uk/2008/03/11/kevin_martin_eyes_comcast_slap/)) from the US Federal Communications Commission, Comcast has agreed to release its choke hold on BitTorrent and other peer-to-peer traffic. It says it will soon adopt an alternative method of controlling upload traffic on its cable-based internet service.

This also means that Comcast has acknowledged there's an alternative method of controlling upload traffic on its cable-based internet service.

Today, with an early morning press release, the big-name American ISP and cable television provider said it would switch to "a capacity management technique that is protocol agnostic" by the end of the year.

"We will have to rapidly reconfigure our network management systems, but the outcome will be a traffic management technique that is more appropriate for today's emerging Internet trends," Comcast Cable CTO Tony Werner said in a canned statement. "We have been discussing this migration and its effects with leaders in the Internet community for the last several months, and we will refine, adjust, and publish the technique based upon feedback and initial trial results."

Werner did not point out that Comcast also spent the last several months publicly [defending](#) ([http://www.theregister.co.uk/2008/02/13/comcast\\_fcc\\_network\\_management\\_filing/](http://www.theregister.co.uk/2008/02/13/comcast_fcc_network_management_filing/)) its right to [bust BitTorrents](#)

([http://www.theregister.co.uk/2007/08/22/comcast\\_throttles\\_bittorrent\\_users/](http://www.theregister.co.uk/2007/08/22/comcast_throttles_bittorrent_users/)).

Comcast's press release described the company's about-face as part of an "agreement" with BitTorrent Inc., the San Francisco-based company that uses the BitTorrent peer-to-peer protocol to distribute movies, TV shows, music, and video games. As part of this agreement, the folks at BitTorrent Inc. acknowledged that ISPs should be allowed to manage their networks.

In other words, it agreed to acknowledge the obvious. At the same time, BitTorrent Inc. CTO Eric Klinker told *The Reg* that network management should not include using forged reset flags to break individual BitTorrent connections. The company has no problem with a more equitable means of management.

"The pursuit of protocol and application agnostic techniques are obviously the right answer here, not just for applications that are important today but for applications that

will be important tomorrow," he said.

Klinker also made it clear that Comcast should adopt its new techniques sooner rather than later - and that the FCC should continue to investigate Comcast's treatment of BitTorrent and other peer-to-peer applications. And the FCC is in full agreement.

"I am concerned...that Comcast has not made clear when they will stop this discriminatory practice," FCC chairman Kevin Martin said in his own canned statement. "It appears this practice will continue throughout the country until the end of the year and in some markets, even longer. While it may take time to implement its preferred new traffic management technique, it is not at all obvious why Comcast couldn't stop its current practice of arbitrarily blocking its broadband customers from using certain applications.

"Comcast should provide its broadband customers as well as the Commission with a commitment of a date certain by when it will stop this practice. The Commission will remain vigilant in ensuring that consumers have the ability to access the lawful content of their choice on the Internet."

---

## The Cover-up

Martin has also said there's [another matter](#) ([http://www.theregister.co.uk/2008/03/11/kevin\\_martin\\_eyes\\_comcast\\_slap/](http://www.theregister.co.uk/2008/03/11/kevin_martin_eyes_comcast_slap/)) that deserves a bit more scrutiny. For many months, Comcast denied it was busting BitTorrents, and even now, the company stops somewhere short of telling the whole story.

In late 2006 and early 2007, an independent researcher named Robb Topolski first noticed that Comcast was clipping at least some of his peer-to-peer uploads. By May 2007, his tests showed that the ISP was preventing users from "seeding" BitTorrents and other P2P files. When one machine downloads a file and promptly attempts to upload that file to another machine, in certain cases, Comcast sends out a duped "reset flag" that breaks this peer-to-peer connection.

"I retested this every few weeks," Topolski says. "Each time, Gnutella was totally blocked. eDonkey was 75 per cent blocked. And BitTorrent was 40 per cent blocked." In other words, Comcast was sending reset flags to 40 per cent of his established BitTorrent connections.

Several months later, in August, Topolski's tests were trumpeted by the P2P-obsessed blog [TorrentFreak](#) (<http://torrentfreak.com/comcast-throttles-bittorrent-traffic-seeding-impossible/>), and when *The Register* [phoned](#) ([http://www.theregister.co.uk/2007/08/22/comcast\\_throttles\\_bittorrent\\_users/](http://www.theregister.co.uk/2007/08/22/comcast_throttles_bittorrent_users/)) Comcast, the company flatly denied the practice.

Then, in November, *The Associated Press* published tests that [confirmed](#) ([http://www.theregister.co.uk/2007/10/20/comcast\\_denies\\_bittorrent\\_busting\\_again/](http://www.theregister.co.uk/2007/10/20/comcast_denies_bittorrent_busting_again/)) Toploski's findings. At this point, Comcast told us that it was "managing" BitTorrent traffic rather than "blocking" it. But in clipping BitTorrent connections with reset flags, the company is indeed *blocking* BitTorrent traffic.

After *The AP's* story hit, several members of the SaveTheInternet coalition formally [asked](#) ([http://www.theregister.co.uk/2007/11/02/savetheinternet\\_tells\\_fcc\\_to\\_slap\\_comcast\\_for\\_bittorrent\\_bagging/](http://www.theregister.co.uk/2007/11/02/savetheinternet_tells_fcc_to_slap_comcast_for_bittorrent_bagging/)) the FCC to investigate Comcast's behavior and the FCC said [OK](#)

([http://www.theregister.co.uk/2008/01/09/fcc\\_to\\_investigate\\_comcast\\_bittorrent\\_busting/](http://www.theregister.co.uk/2008/01/09/fcc_to_investigate_comcast_bittorrent_busting/)). By January, with a letter to the FCC, Comcast told the world [a bit more](#) ([http://www.theregister.co.uk/2008/01/09/fcc\\_to\\_investigate\\_comcast\\_bittorrent\\_busting/](http://www.theregister.co.uk/2008/01/09/fcc_to_investigate_comcast_bittorrent_busting/)) about its "management" techniques. But it appears the company was still hiding at least a portion of the truth.

Comcast says it only "manages" BitTorrent uploads "during periods of heavy network traffic" and "when the customer is not simultaneously downloading." But independent tests tell a different story.

Topolski says that Comcast is blocking 40 per cent of his uploads *at all times of the day*. "Middle of the day. Late at night. Weekends. Weekdays. The results are always the same," he says.

His tests also show that uploads are blocked while he's still downloading. "Comcast starts interfering as soon as any of your downloads switches to an upload mode," he explains. "It doesn't wait until all your downloads are done." So if you've just finished downloading File A, Comcast may prevent it from being uploaded - even if File B is still downloading.

---

## The Defense

Whatever the case, Comcast has robustly defended its treatment of P2P traffic. And so have others. In the [pages](#) ([http://www.theregister.co.uk/2008/01/09/fcc\\_to\\_investigate\\_comcast\\_bittorrent\\_busting/](http://www.theregister.co.uk/2008/01/09/fcc_to_investigate_comcast_bittorrent_busting/)) of *The Register*, network architect Richard Bennett has argued that BitTorrent puts an unreasonable strain on Comcast's network - and that the company's best option is to clip the app's wings.

Bennett points out that BitTorrent runs "dozens (or even hundreds) of TCP streams concurrently" - and that other apps typically open only one. "Fundamentally, this Comcast-BitTorrent issue isn't real complicated," he says. "What it comes down to is the fact that the BitTorrent user is essentially transmitting several times more data upstream on the Comcast network than anyone else."

He acknowledges that at any given time, BitTorrent uses only a small fraction of the TCP streams it opens, and that Comcast could put a general cap on each user's upload traffic - without specifically targeting BitTorrent. But he's adamant this method doesn't suit a cable network. "Eventually, it would have the effect of reducing the amount of traffic that BitTorrent offered on the congested upstream link, but it would also be slower and much less effective."

And in the end, he believes it doesn't matter how Comcast deals with BitTorrent. "If the fundamental problem is that you have a class of user who are bandwidth hogs, and if we recognize the ISP has a legitimate responsibility to prevent bandwidth hogs from consuming so much bandwidth on their ISP network that other people can't have a good internet experience, do we really care what method they use to fulfill that responsibility?"

Bob Briscoe, chief researcher at the BT Network Research Centre, has no interest in taking sides in the Comcast-BitTorrent debate. But he will say that capping overall upload traffic on a cable network is more problematic:

The problem is there's no equipment that's under the complete physical control of the cable operator and located before upstream traffic starts to share the cable

network used by other customers.

So instead of physically limiting traffic on entry, most traffic management solutions limit traffic half-way across the network. When such boxes drop packets from p2p data flows, the transmission control protocol (TCP) software in the operating system of the sending user's PC assumes there's congestion and slows down voluntarily.

If the sender's OS didn't voluntarily back off, the heavy user would still swamp other users on the cable network. All the offending traffic would be dropped once it got to the policer - but too late to have prevented any harm to others.

Fortunately (currently) nearly\* all p2p solutions use choose to use TCP to control their transmission, which responds voluntarily to perceived congestion.

\*[I know of a couple that don't]

Yes, he says, an operator could position some sort of policing equipment closer to the end user - but this would be expensive. And if a cable operator does find a way to effectively cap each user's upload traffic, Briscoe adds, it faces another quandary. "If they just cap all a heavy users' traffic indiscriminately, the non-heavy apps (Web etc) of a heavy user also slow to a crawl."

Of course, Comcast has now said that a fix is on the way.

---

## The Solution

Comcast's new management techniques don't require bigger pipes. In its press release, the company said it will soon roll out the wideband DOCSIS 3.0 standard. But when the end of the year hits, this will reach only 20 per cent of the company's customers. And its new management techniques will apply to the other 80 per cent as well.

And these techniques don't require changes to the BitTorrent protocol. "There is no dependency on BitTorrent changing anything," Klinker said. "Any changes at the application (ours or others) will be the result of future dialogue between the companies. Comcast will implement their protocol agnostic network management techniques without any modifications to the BitTorrent application, completing the roll out by the end of the year."

Meanwhile, as we wait for Comcast's new solution, the FCC will continue to probe. Yes, managing a cable network is a difficult task. But when Comcast began surreptitiously busting BitTorrents back in the winter of 2007 (or earlier), that wasn't the company's only option. And the FCC wants to ensure that nothing less than reasonable network management prevents American internet users from accessing all the (lawful) content they're interested in accessing.

Comcast has [argued](http://www.theregister.co.uk/2008/03/19/comcast_fcc_legal_authority/) that the FCC doesn't have the right to regulate internet service providers. And no doubt, the company has trumpeted its BitTorrent "agreement" in the hopes that the FCC will back off.

But the FCC's Comcast probe is more important than ever. According to Jonathan Kramer, a telecoms-savvy attorney with the [Kramer Telecom Law Firm](http://www.telecomlawfirm.com/) (<http://www.telecomlawfirm.com/>), the commission *does* have the right to regulate the country's ISPs - and it should exercise that right.

"The FCC is already fully empowered to operationalize Congressional intent by ensuring the orderly and fair development of applications and websites on the internet," he told us. "It can do this by ensuring by regulation that the dominant market players who control pipeline access and throughput don't have unilateral ability to quash applications or sites that they don't like or that might conflict with their bottom lines.

"Players like Comcast, who have a the stranglehold on the neck of the Net for millions of users, pose a real and great threat to implementing Congressional intent for free Internet development. The FCC, as the regulator of interstate telecommunications, is the agency best situated to remove those fingers, one-by-one, from the neck of the Net, and to ensure that Congressional intent is realized through, and not by avoiding, proper regulation."

With today's announcement, Comcast has shown that it can regulate itself. But clearly, this wouldn't have happened without some encouragement from the FCC. ®

### Related stories

[Comcast accuses FCC of impotence](http://www.theregister.co.uk/2008/03/19/comcast_fcc_legal_authority/) (19 March 2008)

[http://www.theregister.co.uk/2008/03/11/kevin\\_martin\\_eyes\\_comcast\\_slap/](http://www.theregister.co.uk/2008/03/11/kevin_martin_eyes_comcast_slap/)

[FCC chair unfazed by Comcast wall of nonsense](http://www.theregister.co.uk/2008/03/11/kevin_martin_eyes_comcast_slap/) (11 March 2008)

[http://www.theregister.co.uk/2008/03/11/kevin\\_martin\\_eyes\\_comcast\\_slap/](http://www.theregister.co.uk/2008/03/11/kevin_martin_eyes_comcast_slap/)

[Cool Rules for the FCC: In the Lions's Den](http://www.theregister.co.uk/2008/02/28/bennett_fcc_neutrality_hearing/) (28 February 2008)

[http://www.theregister.co.uk/2008/02/28/bennett\\_fcc\\_neutrality\\_hearing/](http://www.theregister.co.uk/2008/02/28/bennett_fcc_neutrality_hearing/)

[Comcast pays Americans to oppose net neutrality](http://www.theregister.co.uk/2008/02/27/comcast_rigs_net_neutrality_hearing/) (27 February 2008)

[http://www.theregister.co.uk/2008/02/27/comcast\\_rigs\\_net\\_neutrality\\_hearing/](http://www.theregister.co.uk/2008/02/27/comcast_rigs_net_neutrality_hearing/)

[BitTorrent busts Comcast BitTorrent busting](http://www.theregister.co.uk/2008/02/19/bittorrent_developers_hit_back_at_comcast/) (19 February 2008)

[http://www.theregister.co.uk/2008/02/19/bittorrent\\_developers\\_hit\\_back\\_at\\_comcast/](http://www.theregister.co.uk/2008/02/19/bittorrent_developers_hit_back_at_comcast/)

[Comcast cops to BitTorrent busting](http://www.theregister.co.uk/2008/02/13/comcast_fcc_network_management_filing/) (13 February 2008)

[http://www.theregister.co.uk/2008/02/13/comcast\\_fcc\\_network\\_management\\_filing/](http://www.theregister.co.uk/2008/02/13/comcast_fcc_network_management_filing/)

[Comcast: Our BitTorrent busting is 'best in class'](http://www.theregister.co.uk/2008/02/09/comcast_tweaks_terms_of_service/) (9 February 2008)

[http://www.theregister.co.uk/2008/02/09/comcast\\_tweaks\\_terms\\_of\\_service/](http://www.theregister.co.uk/2008/02/09/comcast_tweaks_terms_of_service/)

[Hogging the Trough: The EFF Strikes Back](http://www.theregister.co.uk/2008/01/23/benett_eff_neutrality_response/) (23 January 2008)

[http://www.theregister.co.uk/2008/01/23/benett\\_eff\\_neutrality\\_response/](http://www.theregister.co.uk/2008/01/23/benett_eff_neutrality_response/)

[Feds to probe Comcast's BitTorrent busting](http://www.theregister.co.uk/2008/01/09/fcc_to_investigate_comcast_bittorrent_busting/) (9 January 2008)

[http://www.theregister.co.uk/2008/01/09/fcc\\_to\\_investigate\\_comcast\\_bittorrent\\_busting/](http://www.theregister.co.uk/2008/01/09/fcc_to_investigate_comcast_bittorrent_busting/)

[Dismantling a Religion: The EFF's Faith-Based Internet](http://www.theregister.co.uk/2007/12/13/bennett_eff_neutrality_analysis/) (13 December 2007)

[http://www.theregister.co.uk/2007/12/13/bennett\\_eff\\_neutrality\\_analysis/](http://www.theregister.co.uk/2007/12/13/bennett_eff_neutrality_analysis/)

[Net watchdog goes pig-sticking on Comcast](http://www.theregister.co.uk/2007/11/29/eff_amps_comcast_attack/) (29 November 2007)

[http://www.theregister.co.uk/2007/11/29/eff\\_amps\\_comcast\\_attack/](http://www.theregister.co.uk/2007/11/29/eff_amps_comcast_attack/)

[Cox pulls a Comcast with eDonkey](http://www.theregister.co.uk/2007/11/20/cox_bagging_edonkey_swaps/) (20 November 2007)

[http://www.theregister.co.uk/2007/11/20/cox\\_bagging\\_edonkey\\_swaps/](http://www.theregister.co.uk/2007/11/20/cox_bagging_edonkey_swaps/)

[Californian sues Comcast over BitTorrent throttling](http://www.theregister.co.uk/2007/11/15/comcast_sued_over_bittorrent_blockage/) (15 November 2007)

[http://www.theregister.co.uk/2007/11/15/comcast\\_sued\\_over\\_bittorrent\\_blockage/](http://www.theregister.co.uk/2007/11/15/comcast_sued_over_bittorrent_blockage/)

[Vint Cerf and Co. sic the world on Comcast](http://www.theregister.co.uk/2007/11/08/net_neutrality_squad_arrives/) (8 November 2007)

[http://www.theregister.co.uk/2007/11/08/net\\_neutrality\\_squad\\_arrives/](http://www.theregister.co.uk/2007/11/08/net_neutrality_squad_arrives/)

[Harold and Kumar go to Comcastle](http://www.theregister.co.uk/2007/11/06/richard_bennett_comcastle/) (6 November 2007)

[http://www.theregister.co.uk/2007/11/06/richard\\_bennett\\_comcastle/](http://www.theregister.co.uk/2007/11/06/richard_bennett_comcastle/)

[SaveTheInterneters to save the internet from Comcast](http://www.theregister.co.uk/2007/11/02/savetheinternet_tells_fcc_to_slap_comcast_for_bittorrent_baggir) (2 November 2007)

[http://www.theregister.co.uk/2007/11/02/savetheinternet\\_tells\\_fcc\\_to\\_slap\\_comcast\\_for\\_bittorrent\\_baggir](http://www.theregister.co.uk/2007/11/02/savetheinternet_tells_fcc_to_slap_comcast_for_bittorrent_baggir)

[Comcast busted for bagging BitTorrents \(again\)](http://www.theregister.co.uk/2007/10/20/comcast_denies_bittorrent_busting_again/) (20 October 2007)

[http://www.theregister.co.uk/2007/10/20/comcast\\_denies\\_bittorrent\\_busting\\_again/](http://www.theregister.co.uk/2007/10/20/comcast_denies_bittorrent_busting_again/)

[Comcast throttles BitTorrent users](http://www.theregister.co.uk/2007/08/22/comcast_throttles_bittorrent_users/) (22 August 2007)

[http://www.theregister.co.uk/2007/08/22/comcast\\_throttles\\_bittorrent\\_users/](http://www.theregister.co.uk/2007/08/22/comcast_throttles_bittorrent_users/)

© Copyright 2008