

# Fiber to the Brain

By Hunter Newby



There is an increasing amount of debate occurring these days on the subject of public Internet capacity availability. The concerns are arising mainly out of the knowledge that peer to peer (P2P) video traffic has jumped on most Internet networks to more than half of the overall traffic and it is still rising. This is pushing the limits and the business model of the pure-play Internet service provider (ISP).

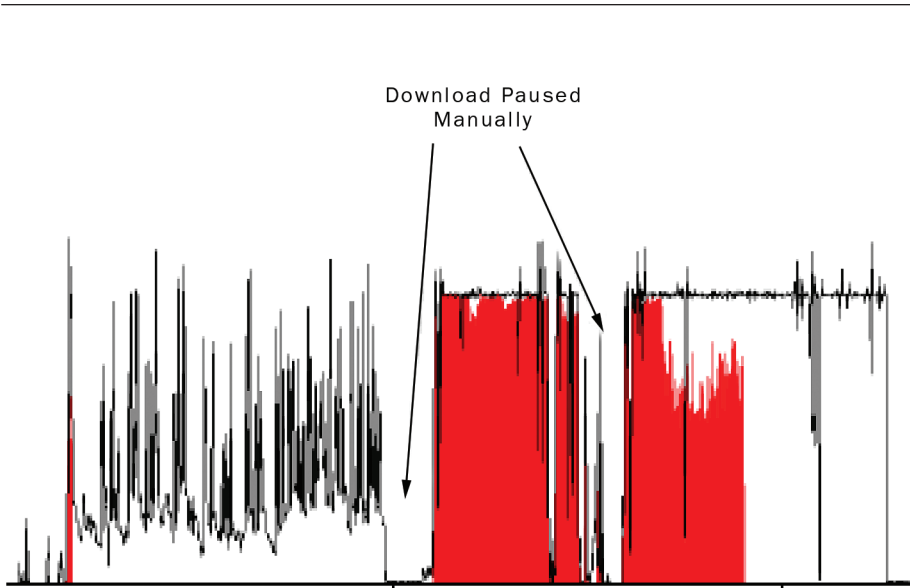
The cause for concern is that P2P is not controlled by any one entity or group so basically no ISP has the benefit of having the service bound to the same rules of economics and

While P2P use increases and traffic grows as a result, the end users are essentially consuming more of the pipe they have been paying for, but they are not paying more for it as the traffic jumps. This means that the expense side for the ISP is increasing as they need more core ports to connect to other networks and pass the traffic, but their revenue is not increasing. This can and is becoming problematic from a business model standpoint. How can the ISPs afford it?

The trick with ISPs peering, or exchanging traffic with other ISPs directly, is that it really helps to know where the traffic is coming from or going to so that a “peer” connection can be established with the other ISP. The requirement is the specific identity of the other network. The problem with “peer to peer”

end user generated traffic is that it is very unpredictable for the ISPs and it constantly shifts and moves from one place to another in varying volumes. From a network perspective there is no one entity.

This lack of unpredictability also causes major problems. It requires the ISPs to have full access to all possible access and distribution options at all times with plenty of available capacity to grow dynamically. Without those options available to them as and when needed, they risk significant delays and latency as too much demand tries to fit in to a limited supply. Basically the ISPs are just keeping their heads above water as they



Note: The chart above shows a very telling trend. P2P instance-based downloads stress the access connection to the maximum. As a singular event this would be manageable, but when this event is coupled with all of the others like it happening simultaneously it puts that maximum strain on the upstream providers. These downloads happen 24x7x365 and are increasing in numbers daily.

Source: [ipdev.net](http://ipdev.net)

capital expenditures as they are. P2P blocking has actually been attempted under the guise of “illegal downloads.” This demonization was really a hopeful justification and a means to control the rising tide. The end result was that “bad” P2P could not be identified and separated from “good” file sharing programs. This means that P2P can’t be stopped unless it is outright blocked and then that could become a constitutional issue and/or create all sorts of other problems for the ISPs.

don’t want and can’t afford to overspend on the network.

Today this is a real problem that is getting more difficult to manage. As we all ponder the issues of growth and demand management, imagine this: How would the Internet perform if half of the fiber routes it runs on were cut. **FAT**

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