

NETWORK MANAGEMENT:

Should We Have a Smart or a Stupid Internet?

by Tom Giovanetti and Bartlett D. Cleland

The degree to which network owners could continue to both manage and leverage their networks became controversial in 2006, when major Internet companies suddenly felt vulnerable to the potential for network owners to leverage their networks in ways that might pose a competitive threat.

As a result, some Internet companies began a campaign for “network neutrality,” wherein a set of laws or regulations would restrict the ways network owners could use their networks.

In that vein, activists have become suspicious of even technically necessary network management practices. They are now calling for the federal government to intrude into the details of how network owners manage their networks for optimum efficiency in order to best serve their customers.

But those who demand that the federal government disallow (or itself regulate) broadband network management are ignoring both the reality of economics and the technical reality of network operation and management.

ALL NETWORKS ARE MANAGED

A necessary part of the efficient and effective function of any network is management of that network, whether it is a network for electricity, water, airline and automobile traffic, or traditional telephone service. In fact, there have recently been efforts to build *more* intelligence (read: capacity for management) into such networks, especially air traffic control and the electrical grid.

BROADBAND NETWORKS ARE LIKEWISE MANAGED

Today, broadband network companies manage their networks and are making enormous investments in order to give consumers the performance, products and services they want. And consumers want HDTV that does not pixellate on the night of the Super Bowl. They want their VoIP communications (and especially VoIP communications between first responders and hospital emergency

rooms) to be clear and crisp without degradation from filesharing applications. They want spam and viruses contained to the degree possible by the network itself.

NETWORK OWNERS HAVE A *RIGHT* TO MANAGE THEIR NETWORKS

It is important to point out what broadband networks *aren't*—they aren't public infrastructure. Networks don't “belong to the people,” and they don't belong to the government, either. Implicit in the arguments of network neutrality proponents and network management critics is the assumption that the Internet is some sort of quasi-public property.

In fact, the Internet is almost entirely a collection of private networks that have agreed to exchange traffic for the benefit of their customers. Seen in this light, the Internet is a demonstration of the success of markets in finding ways to provide useful goods and services to consumers.

The question, then, is to what degree should government interfere in the functioning of private broadband companies? And the right answer, given the economic experience of the 20th Century, is that government should only interfere when and if *significant* problems are demonstrated.

As the owners of their networks, broadband companies have the right to manage their networks in the way they think best serves their customers.

NETWORK OWNERS HAVE AN *OBLIGATION* TO MANAGE THEIR NETWORKS

Beyond their right to manage their networks, broadband companies have an *obligation* to manage their networks. In almost all cases, network management today is unnoticed by consumers. The opposite, a total lack of management, would not be true. If network operators were precluded from managing their networks, consumers would clearly be negatively affected. Imagine a day where, as

some would have it, all “management” was abandoned. The result could be a complete or partial breakdown of our communications infrastructure.

Critics suggest that, rather than network management, the solution is simply ever-greater amounts of bandwidth. But this criticism ignores a basic tenet of economics—scarcity.

THERE ISN'T “ENOUGH” INTERNET BANDWIDTH

Networks have to be managed because Internet bandwidth, like every other resource, is “scarce” in the economic sense. “Scarce” does not mean rare, but rather means that there isn't enough of it that everyone can have as much of it as they want.

Policymakers run into real problems when they deny scarcity. For instance, assuming an unlimited supply of water has led to a lack of sound water management policies, such as growing rice in the deserts of California while people only a hundred miles away are experiencing water rationing for their homes.

INTERNET BANDWIDTH WILL *ALWAYS* BE SCARCE

Not only is there not enough Internet bandwidth today, but Internet bandwidth will *always* be scarce. Say's Law (simplified) says that “supply creates its own demand.” Say's observation was that, whenever there is an abundant supply of a valuable commodity, people find useful things to do with it.

The Internet is a perfect example of Say's Law. As soon as broadband became widely available, suddenly people started posting video clips on websites such as YouTube. As soon as we had an increased supply of Internet bandwidth, people found new ways to consume it.

This will continue to happen. It won't matter that we'll have more bandwidth in the future than we have today. By then there will be amazing new applications that will demand it all. And then, as today, that bandwidth will have to be managed.

NETWORK OWNERS SHOULD BE FREE TO EXPERIMENT

A functioning market is an information-processing machine. Experiments with business models result in either failure to be learned from, or success to be emulated. Either way, the market assimilates the information and moves on to greater production.

Broadband companies, like all companies, should be free to experiment with business models and network management practices. It is possible that some companies might choose, for instance, to offer metered or tiered pricing to customers who consume a disproportionate amount of bandwidth, and might thus abandon some network

management practices for those customers. Companies should be free to do so, if they choose, but should not be required to do so by government regulation. Government regulation biases the information-processing function of markets, and skews the outcome of such business model experiments.

CONCLUSION

The Internet is an incredible success story. Broadband technology is rolling out and being adopted at a much faster rate than any previous technological revolution, such as electricity, or radio, or television. There is no evidence that consumers are being harmed, or even slightly inconvenienced, by network management practices.

Those skeptical of broadband companies will not be satisfied until ISPs are transformed into “dumb pipe” utilities which add neither innovation nor value to their networks. But we've already seen the errors of that model. Regulators and legislators should therefore resist calls to insinuate themselves into what is clearly a dynamic, growing market that is delivering value to both consumers and investors.

As Congress and the FCC consider calls from activist groups demanding restrictions on how network companies manage their networks, they should begin with the understanding that Internet bandwidth, like everything else, is a scarce commodity and must be managed to give businesses and consumers the kind of speedy and robust Internet that we have all come to depend on—both now and in the future.

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