

# EXECUTIVE SUMMARY

## **Costs Of Neutral Unmanaged IP Networks**

**Richard N. Clarke**

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Debate over “network neutrality” has tended to focus on issues such as who “manages” the Internet and how to ensure its maximum utility. Notably absent is any examination of the costs to consumers of the various management models and whether consumers can afford unmanaged completely neutral IP networks.

This paper examines the cost of an unmanaged network and demonstrates that as Internet usage patterns evolve and become both more bandwidth-intensive and real-time oriented, a model of pure neutrality would be extremely expensive for the typical consumer. Right now, the Internet activities of most residential consumers center around e-mail, web browsing and modest file downloads. Thus, the shared elements of current IP networks are scaled to accommodate the aggregate of this moderate use. Other applications, such as real-time, television-quality video services and business services typically have been delivered over managed networks.

However, usage is beginning to explode. As high bandwidth, real-time services such as streaming music and video proliferate on the Internet, existing IP network capacity is being exhausted and large upgrades to the local access, regional and core backbone portions of the Internet are required. The extent of these required upgrades depends on the degree of management network operators are allowed to exercise. If a completely unmanaged/neutral network is required, the required upgrade investments appear to be massive. Indeed, to provide sufficient network capacity to accommodate expected growth in traditional Internet data services as well as use of Internet connections for bandwidth-intensive applications equivalent to just two simultaneous SDTV channels per home, customers may need to pay roughly \$140 per month for their Internet service only – before they additionally pay for the video content itself. But if customer data use or viewing habits become more intense – say, the equivalent of viewing two simultaneous HDTV channels, Internet service bills may reach \$466 per month.

It seems unlikely that enough customers would be willing to pay the fees (between \$140 and \$466 per month) that fully unmanaged IP networks would require. Such fees are so high as to make such networks commercially nonviable.