

Pricing residential broadband access for the emerging Internet

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Abstract

Residential penetration of broadband Internet access, both DSL and cable, is growing very rapidly. Furthermore, technology may soon expand available access bandwidth from about a maximum of 10Mbps today to 100Mbps in the near future. Demand for broadband access is fueled by the desire for “value-added” services (such as interactive gaming, emerging peer-to-peer applications, IP telephony, etc.) and by the affordable additional cost of subscription over dial-up access. We will discuss the commercial and cyber security concerns of such a dramatic increase in residential broadband access (RBA). A “first hop diffserv” architecture is proposed so that the infrastructure providers of RBA can recover costs from the value-added services they enable, and also address security concerns, by offering a premium service that is more reliable. Specifically, we focus on the packet memories feeding the links connecting the first-PoP layer-3 routers of the RBA provider to the Internet. A differential enqueue policy is devised and the dynamics of user access are studied when there is congestion (excess demand) in the memory.

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