

Multimedia Quality of Service and Net Neutrality on Wireless Networks

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Wireless and Net Neutrality

Basic Argument

- Multimedia traffic strains oversubscription
- Wireless internet access systems are economically reliant on oversubscription – and more sensitive than other physical media
- Wireless internet access providers will feel the need to apply traffic discrimination



Oversubscription

- Oversubscription is advertising rates that are not obtainable if all users are simultaneously accessing the channel.
- Oversubscription is used in DSL, cable, and wireless access.
- Oversubscription ratios range from 10 – 100.



Multimedia and Oversubscription

- Oversubscription works when traffic is bursty.
- Shift towards multimedia (VoIP, IPTV, internet radio) means shift towards continuous traffic (long hold time).
- So multimedia usage hurts business models that depend on oversubscription.



Fixing Oversubscription with Capacity

- Wireless spectrum is limited and the cost to add capacity (e.g., by cell splitting) is high (e.g., locating and equipping new cell sites, managing geographical reuse).
- DSL networks are not shared on the last mile so cost to reduce oversubscription is limited to the network core.
- Cable networks can do node splitting without needing to add physical sites and also have substantial captive spectrum within the cable plant.



Fixing Oversubscription with Traffic Discrimination

- Alternative approach to managing multimedia traffic demands is to charge a premium or block it.
- Net neutrality advocates are suspicious of this for two reasons:
 - Question the economic necessity
 - Question whether discrimination will be used to promote a service provider's vertically integrated multimedia offerings over other offerings



Wireless and Net Neutrality

- Economic driver for *traffic discrimination* is particularly sharp for wireless
- This will drive wireless internet providers to the front of the network neutrality debate
- Prohibition of traffic discrimination could be particularly hard on wireless providers and undermine their potential as a “third broadband pipe”