Commission's Secretary
Marlene H. Dortch
Federal Communications Commission,
445 12th Street, SW, Suite TW-A325,
Washington, DC 20554

Amplex Electric, Inc. has built and installed a broadband wireless network that is offered to the public in northwest Ohio with a coverage area of approximately 800 square miles. Amplex does perform limited traffic shaping on Peer to Peer traffic in order to maintain the desired level of performance on the network.

All current last mile delivery technologies in widespread use have limited capacity to carry information. This limitation is due to the frequency constraints of the carrier medium (rf, copper, coax, fiber). Given a limited capacity to deliver information a residential customers connection is asymmetric. The network has more capacity to deliver information to the end user than to receive it. This asymmetric design of the network is an engineering and marketing compromise based on the traditional demands of the end users who in the vast majority prefer high speed delivery of content to them. The network is not designed for large quantities of traffic coming from the customer.

A basic design assumption of the network is that bandwidth usage for residential customers is intermittent. This statistical averaging of traffic and demand allows a provider to design a network that can carry the average and normal traffic surges at a reasonable economic cost. This concept of building facilities to carry the average and normal peak traffic is a widely used economic model. Examples in the physical infrastructure abound - roads, electricity, water, phone service, sewer, airports, etc. are all based on average or peak demand for service. There is no economic or physical model that will allow every car owner to travel on a road at the same time just as there is no cost effective model that will allow every computer to use an Internet connection at full capacity.

Peer to Peer (P2P) applications significantly alter the traditional traffic flow of a network by massively increasing the quantity and duration of traffic from the end user. This traffic, multiplied across

multiple end users, can and does exceed the capacity of the network if not managed in some fashion. As a provider we have seen multiple customer complaints from customers affected by the P2P traffic of other customers. Several customers on a network node with unrestricted P2P upload traffic can and will interfere with the download traffic for other customers.

An important question to ask is "what is the economic reason customers for customers to generate P2P traffic?". There seem to be 2 major uses for P2P distribution of content:

1. Relatively anonymous distribution of copyrighted or other illicit materials.
2. Cost reduction for content providers.

The anonymous distribution of material was and is largely a result of the legal challenges by the music industry to the practice of sharing copyrighted materials. Early providers of music sharing sites (such as the original Napster corporation) made it fairly easy for the copyright owners to locate offenders. The current P2P applications make this much more difficult.

Cost reduction for content providers is a newer phenomenon that has both good and bad potential. Some current uses for P2P technology such as the distribution of open source software (http://www.opensource.org/) make good and effective use of the technology. This is a situation where a community is creating content (which they own) and distributing it free of charge to others. The participants distributing this software via P2P are choosing to use resources they have purchased (their Internet connection) to distribute content for their own purposes (presumably the good of the community).
There is a growing desire by for-profit enterprises to distribute proprietary and/or copyrighted content via P2P technology. Amplex sees this as a disturbing trend that will have considerable implications for both end users and network providers. The typical model for this would be a provider renting movies for home viewing. For a fee a customer can download and view a movie distributed via P2P technology. The use of P2P in this case allows the provider to distribute the movie once to several customers (using bandwidth the company has purchased) while any

additional customers requesting the movie receive it by transferring the data from the prior viewers. This model drastically reduces the costs for the rental company as they no longer have to pay to repeatedly distribute the content from their own network or to pay Content Distribution Networks (CDN's) such as Akamai. P2P allows the company to shift the distribution cost to the end user (and the end users network provider). The use of the customers bandwidth to further distribute the rental companies content has little benefit for the end user and depending on the level of knowledge of the end users may very well be done without the knowledge or consent of the end user.

Amplex's current traffic management does not block P2P traffic but does rate limit the traffic to an average level based on the capacity of the network. Each group of customers in a specific area have a limited amount of P2P bandwidth that is shared between them. The amount to be shared is based on the capacity of the network. This practice is disclosed in our terms of service documentation.

Amplex is of the opinion that the FCC should NOT regulate providers management of networks with respect to P2P traffic other than to require disclosure of practices.

FCC regulation will not change the underlying physical reality of limited upload capacity in the network. If the FCC does chose to prohibit traffic shaping or management of P2P traffic providers will be forced to change the economic model of the Internet as it currently exists in the United States. To deal with the inability to manage P2P traffic should regulations be implemented by the FCC Amplex (and we believe all other providers) will do one or more of the following:

a) Reduce the available upload bandwidth per customer to a level that can sustain continuous upload traffic. This penalizes the current majority of customers who do not use P2P networks and will likely reduce the quality of other types of traffic such as VOIP.

b) Implement caps on the amount of data uploaded per customer.

c) switch to a per-byte billing system so that customers using P2P traffic pay more when uploading large quantities of traffic.

Restriction on P2P traffic management by the FCC will very likely result in the Internet industry in the United States moving away from the current fixed price model. There is a significant possibility that movement away from the current fixed price model will happen with or without action from the FCC due to the increasing technical difficulty in controlling P2P traffic.

Regulation of P2P traffic by the FCC at this point in time is neither necessary or advisable. Amplex believes the FCC should limit it's involvement to requiring
disclosure of practices.

Sincerely,

Mark Radabaugh
Vice President
Amplex Electric, Inc.