CONTROLLING PEER-TO-PEER TRAFFIC

THE PEER-TO-PEER TRAFFIC CONTROL CHALLENGE

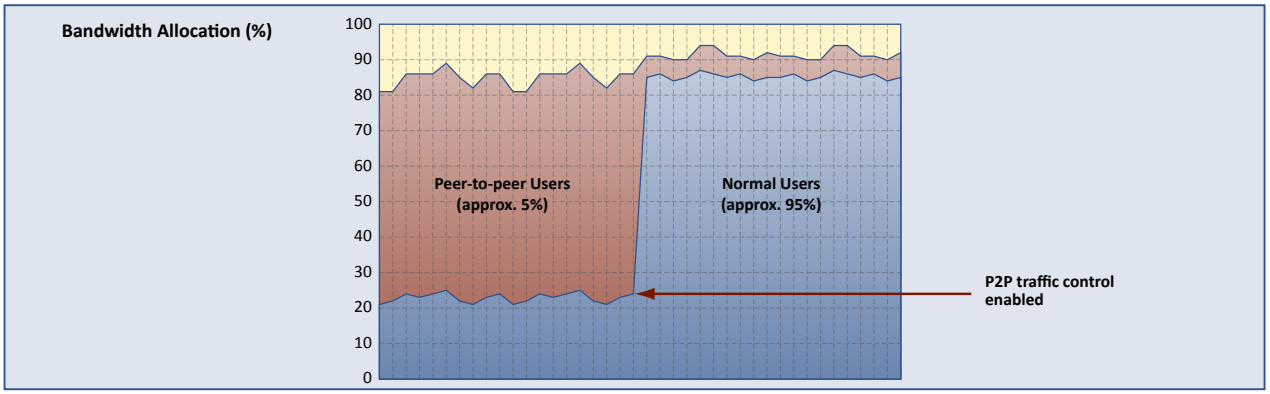
The growth of peer-to-peer traffic (P2P) is a major challenge for network operators of all types. P2P applications are a problem because they consume a disproportionate share of network resources using a variety of techniques, such as opening large numbers of concurrent TCP sessions or masquerading as other applications. Measurements by service providers have shown that as much as 70 percent of total bandwidth can be consumed by these applications, even though less than 5 percent of users employ them.

Until now, network operators have relied on deep packet inspection (DPI) devices to detect P2P traffic. DPI devices inspect the contents of data packets looking for the data patterns (i.e., "signatures") which identify known P2P applications. DPI introduces a number of problems:

- Examining every byte of user data requires significant computational resources. DPI devices consequently either have low performance or are very expensive. Equipping a multi-gigabit network with DPI is prohibitively expensive.
- Successfully detecting P2P applications requires constantly updated signature libraries. But these applications are frequently mutating as their developers try to avoid detection, making the maintenance of up-to-date signatures nearly impossible.
- Increasingly, P2P applications use encryption, making it impossible to detect them using DPI no matter how powerful the processor or how sophisticated the signatures and algorithms.
- P2P applications use as much bandwidth as they can get, so detecting most of them offers little or not benefit. Measurements in service provider networks have shown that eliminating 70 percent of P2P users has no benefit for other users; the remaining 30 percent of P2P traffic simply expands to fill the void.

THE ANAGRAN DIFFERENCE

Anagran Internet traffic management (ITM) solutions focus on detecting the behavior of P2P applications: their use of large numbers of sessions and their high bandwidth utilization. Looking for these "behavioral fingerprints" as opposed to actual signatures (which, again, change and are often encrypted) results in the ability to detect and control 100 percent of P2P traffic traversing operator networks.



Peer-to-peer (or any multi-flow application) fairness balancing

P2P traffic control and Intelligent Flow Delivery provide more capacity for the majority of users, and therefore better network throughput. Importantly, they also yield economic savings for network operators, allowing them to purchase less bandwidth and upgrade capacity less frequently—certainly a more sustainable long term economic model. As indicated in the graphic on the preceding page, Anagran's FR-1000 enforces fairness between P2P and normal users. To the left, the FR-1000 is not controlling the traffic. To the right, it is. The top five percent of users (typically abusive P2P users) are getting 80 percent of the bandwidth without control, and just 10 percent of it with control. As such, the Internet experience for the vast majority of users is greatly improved.

Anagran's ITM solutions do not penalize P2P traffic, they simply ensure that all users of a similar class have fair access to available bandwidth. Within the Anagran ITM product line this is referred to as "host equalization." With host equalization enabled, all hosts will have access to an equal share of network bandwidth, regardless of the number of sessions they have. A user downloading a legitimate video at one address and a neighbor with a greedy P2P application will receive exactly the same share of network capacity.

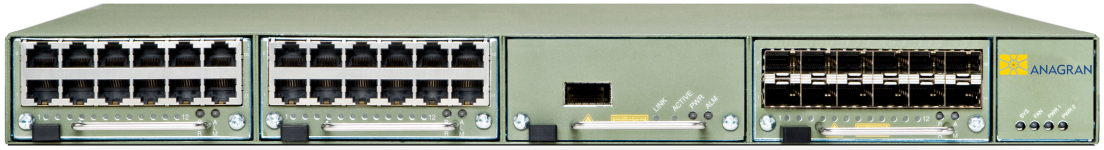
Anagran's FR-1000 operates in real time with a single configuration command. No complex policy setting is needed, and no updating of signature files.

BENEFITS

Three critical benefits are realized when deploying Anagran ITMs: 1) significant improvement in the users' quality of their Internet experience, 2) material improvement in network capacity utilization, lowering the service provider's CAPEX and OPEX, and 3) increased revenue generation opportunities through the delivery of tiered services.

Anagran products:

- Manage individual TCP flows so as to eliminate inherent inefficiencies. In practical terms, this means applying greater intelligence to inevitable packet discards in order to ensure that all flows of a similar class are treated fairly and the TCP slow starts and stalls are completely eliminated. This yields a fairer and more deterministic network experience for all users.
- Reduce the ability of certain applications (e.g., peer-to-peer) to "game the system" by employing multiple flows per session. This reduces aggregate bandwidth requirements and also contributes to fairness between users.
- Allocate bandwidth in such a way the "bulk" applications such as file transfers yield bandwidth to quality sensitive applications such as VoIP and streaming video and "fill the valleys" when these applications are relatively idle. This also reduces overall bandwidth requirements while radically improving performance for quality sensitive applications.



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