ANAGRAN

Application Brief: *Equitable* Management of *100%* of P2P Traffic *Without DPI*

Premise: Deep Packet Inspection (DPI) techniques cannot effectively manage P2P traffic or economically scale. Anagran Equitable P2P Management (EPM) protects all key applications by managing 100% of P2P traffic at a fraction of the cost of DPI.

Challenge: Costly DPI approaches cannot control all P2P traffic. So P2P consumes large portions of network capacity, impacting other applications and increasing costs.

Solution: Manage P2P *WITHOUT DPI* – Anagran's *Equitable P2P Management (EPM)* controls 100% of P2P.

Why DPI is *NOT Necessary* to Provide P2P Fairness

Contrary to current popular opinion, P2P traffic *can* be equitably managed *without* DPI. Reasons:

- As more traffic becomes encrypted, DPI becomes useless because it cannot identify application signatures – all traffic appears as a random sequence of meaningless data. Recognizing *per-flow behavior*, rather than *per-packet identity*, is the only way to detect and manage all P2P traffic.
- Looking deep within every packet is too time-consuming – it increases delay and prohibits economic scaling beyond 1 Gbps.
- It is not necessary to know the specific P2P application to equitably manage all flows … however, knowing which *users'* traffic is consuming most of the network capacity is critical.
- Anagran's EPM equitably meters traffic from every specific *user* who attempts to use too much network capacity. *If you manage the user, then you successfully manage the traffic.*

Therefore, the key to successfully managing P2P is not to waste time and expense trying to identify every application, but to *equalize* the amount of network capacity available to *each user*. This ensures fairness for all users, and can only be done by managing *flows*.

A Brief History of P2P

Peer to Peer (P2P) protocols were initially developed as a very efficient method for distributing network content. Over the past few years however, P2P has emerged as a bandwidth-hungry "viral" form of traffic that consumes extensive amounts of network capacity, impacting the quality of key network services and increasing infrastructure costs by prompting massive bandwidth over-provisioning and frequent recurring network build-out.

In an attempt to curb the unfair behavior of P2P, some networks have deployed DPI appliances to first identify, and then hopefully control, P2P.

DPI is Not Adequate for Managing P2P Traffic

Unfortunately, in networks with a variety of application services, DPI fails to identify roughly 30% or more of the P2P.[1] This is because …

- P2P developers constantly find ways to disguise P2P through signature changes and encryption, and DPI simply cannot keep pace with the continually changing P2P traffic.
- DPI is extremely processing-intensive and faces scalability challenges at speeds beyond 1 gigabit per second.

For example, per Figure 1 below, if 75% of P2P users are detected by the DPI appliance, the remaining 25% automatically expand their traffic to over 70% of network capacity, severely reducing capacity available to the average network user.

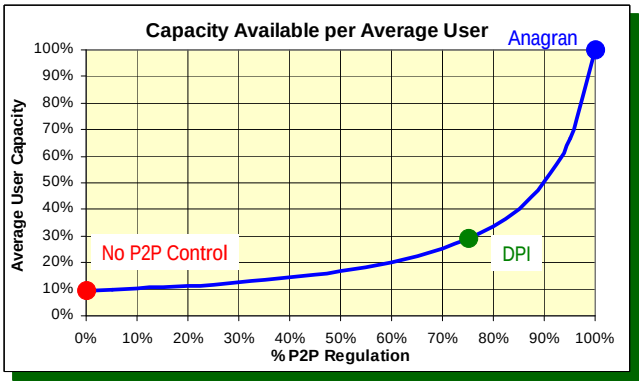

Figure 1. *Capacity Available per Average User*

Anagran in the Network

Anagran offers the first and only product that maintains flow state information on every flow while closely observing each flow's behavior. A flow is an end-to-end network activity such as a video stream, a voice call, an image download, or a file transfer. Alongside a router or "in line", Anagran observes every flow, immediately detects any and all forms of P2P via real-time behavioral analysis at wire speed, and equitably applies appropriate metering measures across all similar flows at speeds from sub-GigE up to 10 Gbps. Consider Figure 2.

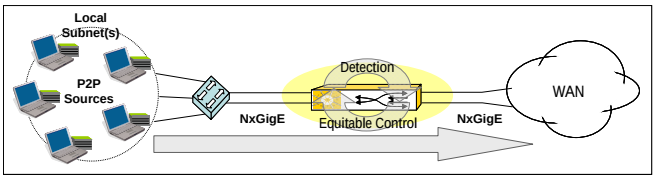

Figure 2

100% *Equitable* User-Based P2P Control

Anagran keeps track of the aggregate amount of traffic generated by any single network user. This enables detection and management of all P2P traffic, regardless of its shape or form – either as a few very large bulk flows, or as tens or hundreds of seemingly harmless flows. In either form, the product's subscriber-based traffic management algorithms clearly define which specific users are using exactly how much of the network's capacity. Automatic equalization of aggregate user traffic ensures that all users paying for the same service get equal access to network capacity *even when congestion occurs in the network*.

[1] March 2008 EANTC P2P Appliance Test

This automatic equalization of access to network resources is only possible by managing complete flows per policies based on each user's level of service. Since the FR-1000 knows the number of flows and amount of network capacity used by each user, along with the total amount of network capacity available, flow-based metering is invoked when congestion occurs based on the *aggregate amount of traffic being generated by each user*. For the first time, clever users who deploy tens or hundreds of P2P flows can no longer consume more than their fair share of the network! Consider Figures 3 and 4.

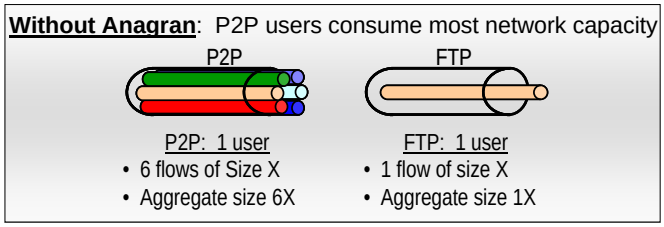

Figure 3

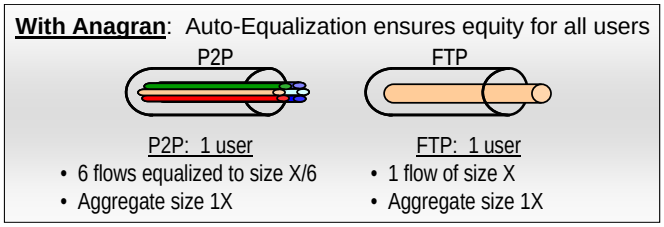

Figure 4

With Anagran, P2P in any form is detected and *always* equitably metered. It does not need to be halted or destroyed, since each P2P flow can simply be metered to where none of the P2P traffic impacts other applications. In essence, Anagran provides a painless "vaccine" that renders all forms of P2P traffic harmless, which maintains equitable treatment for all network users, *including P2P users!*

Flow-Based Network Audit, Reporting, and Insight

Anagran provides unsurpassed levels of audit, reporting, and network insight based on Netflow data. Via standard Netflow collection and reporting, Anagran can reveal which "top talkers" are creating the most flows and the most aggregate traffic over time. In most cases, these users will also be the most prolific P2P participants.

As the only platform capable of producing Netflow records based on complete flows at speeds up to 10 Gbps, Anagran enables reporting based on actual complete flow data, as opposed to widely dispersed sampling techniques used by other networking products. See Figure 5.

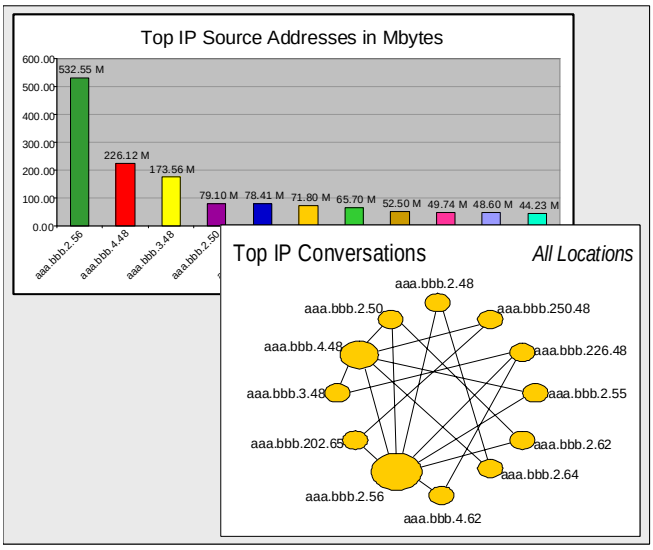

Figure 5

This level of audit and insight, along with the ability to rate-shape individual flows per user subscription levels, allows fine-tuned tiered services based on user subscription levels.

ANAGRAN FEATURE SPOTLIGHT

Key Anagran Features That Enable Economical, Equitable Control of *ALL* P2P Traffic

Usage-Based P2P Detection and Management:

- Insight of shape and duration of every flow, along with aggregate traffic to / from each user, allows for easy control of P2P traffic, including encrypted
- Protocol, application, & format agnostic – Finds and equitably controls *100%* of encrypted P2P, signature-independent

Automatic Traffic Equalization:

- All P2P and similar bulk flows are *equitably* metered when necessary, regardless of how many flows to / from any user, allowing key app traffic to flourish all the time

Conclusion:

DPI cannot effectively manage P2P traffic. Too many packets are encrypted or go unidentified; DPI products cannot scale with today's rich, high-volume network traffic; and looking inside user data packets invites regulatory and compliance concerns. Scalable, *equitable* P2P control depends on recognizing *flows,* detecting P2P per flow *behavior*, and applying policies based on that behavior.

Only Anagran, with Equitable P2P Management (EPM), provides a reliable method of detecting and managing P2P traffic that is

- 100% effective against all current and future P2P
- *equitable* to all network users regardless of flow count
- easily and economically scalable beyond 10 Gbps today

Add instant P2P resilience to your network AND ensure equitable treatment for all users – for today and the future – with Anagran!

ANAGRAN

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