

Application Brief: The “P2P-Proof” Cable Network – Honoring Triple-Play Service Level Agreements While Preserving User Privacy

Premise: Anagran’s Fast Flow Technology™ recognizes and manages all P2P traffic to ensure perfect-quality VoIP, HD video, and data under all traffic conditions, all the time.

Challenge: Growing volumes of P2P traffic harm the quality of tiered voice, data, and SD/HD video services. Adding DPI devices invades user privacy and is proven insufficient

Solution: Anagran is the first vendor to solve the P2P traffic problem in a truly network-neutral manner, without requiring invasive deep packet inspection, for perfect quality voice, video, and data under all conditions.

As cable companies of all sizes migrate to offer true “triple play” voice, video, and data services, a common deterrent to honoring service level agreements (SLA’s) and providing new, monetized value-added services is the growing onrush of peer-to-peer (“P2P”) file sharing traffic. Often “disguised” via encryption and other means, P2P is notorious for consuming as much network capacity as possible, often to the detriment of key revenue-generating services like SD video, HD video, VoIP, Internet access, and tiered service plans based on varying levels of subscribed quality. Left unmanaged, a single P2P user can wreak havoc on a multitude of cable subscribers whose traffic aggregates on the same cable modem termination system (CMTS).

Since the CMTS is where RF traffic from potentially thousands of cable modems across the HFC cable plant converges onto the IP access network and vice versa, this is the point in the converged service network where application contention due to the unlimited growth of P2P does its damage. To cable subscribers, this “collision point” at the RF-to-IP junction is commonly evidenced in their homes by pixilation and jitter on their TV screen (especially HD channels), agonizingly slow TV channel changes, dropped or “choppy” voice calls, and inconsistent, often slow Internet response. And of course, whenever these symptoms appear, service level commitments from the cable operator are blatantly compromised.

In response to the threat posed by the ceaseless onrush of P2P traffic, some cable service providers have deployed deep packet inspection (DPI) technology to first identify any of the various flavors of P2P traffic along with those subscribers consuming the bulk of it, and then mitigating their impact by invoking policies to either reduce the P2P traffic or stop it altogether. DPI, as the name implies, looks deep into user packet content in an attempt to find a telltale byte sequence called a “signature” that uniquely identifies that packet as part of a P2P flow. Unfortunately for cable companies, DPI has proven inadequate in limiting P2P because:

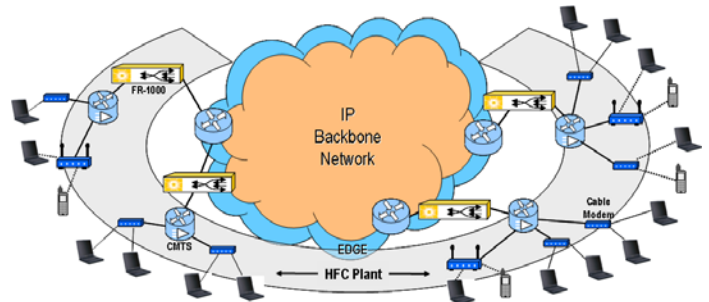
1. Signatures used to ID various P2P-based applications constantly change in order to disguise P2P traffic. Staying current with these dynamic signatures is impossible.

2. Most P2P traffic is now being encrypted at the source to thwart any attempts to identify it, accurate signature or not. DPI is useless when traffic of any kind is encrypted.
3. Since DPI looks inside the user content portion of traffic flows, it leaves any cable operator at risk by invading user privacy
4. Growing traffic volumes and faster link speeds make DPI less realistic as a traffic management tool in general; since DPI is extremely processing-intensive and does not economically scale beyond speeds of a few hundred megabits per second.

The Answer: High-Capacity Behavioral Traffic Management

Fortunately for cable companies wanting to attract and retain happy subscribers, Anagran offers the FR-1000 high capacity flow manager, the first product designed from the ground up to effectively manage all network traffic including P2P, encrypted or not, at speeds from less than 10 Mbps to **up to 10 Gbps** in an extremely economical 1RU form factor. And it poses zero threat of user privacy invasion.

Located between the CMTS(s) and the IP network aggregation router(s), the FR-1000 precisely manages the rate of every flow between the IP network and the cable network subscribers distributed across the hybrid fiber/cable (HFC) cable plant.



By managing the rate of each flow by its behavior, the FR-1000 instantly determines which users are consuming the most network capacity by correlating the amount of traffic and the number of flows to or from those users over any given time period. All P2P traffic consuming the vast majority of network resources is immediately pinpointed in spite of any efforts to masquerade via encryption, port hopping, or any other means by which clever programmers try to disguise it. For the first time, cable operators can “P2P proof” their network by simply adding FR-1000s at key aggregation points.

In addition to pinpointing all P2P traffic all the time, the FR-1000 can automatically equalize the amount of network capacity available to all subscribers within the same service level. For example, for all subscribers within the “standard” service level as defined by the cable operator, the FR-1000 ensures equal capacity at all times. If there is little overall traffic (e.g., 3am), then all users of the same service level will enjoy an equal amount of extra network capacity. At 8:00pm when network video, voice, and data services are highly active, all members of the same service tier

continue to receive exactly the same capacity, albeit at a lower amount for each user. This ability to guarantee equal access for equal pay, at all times, keeps P2P users from ever consuming more than their fair share of the network, while ensuring consistent service quality for all other subscribers.

ANAGRAN FEATURE SPOTLIGHT

Key Anagran Features That Manage P2P and Enable SLA Adherence for Cable Operators All the Time

Instant P2P Detection and Control:

- Recognizes all P2P traffic, encrypted or not, to enable precise control via simple policy setting. All other key network services are instantly protected from P2P.

Automatic Per-User Equalization:

- Settable on the FR-1000 within minutes, automatic equalization ensures "equal capacity for equal pay" for all users within any given subscription level, all the time

Unsurpassed Scalability and Economy:

- Economically scaling from less than 10 Mbps to *up to 10 Gbps* per port in a 1RU form factor, the FR-1000 breaks new ground for top-tier traffic management per dollars-per-megabit value

Conclusion:

Cable networks, long the leader in delivering a broad range of high quality video to the home, face an array of new competitors offering their own forms of voice, video and data "triple play" services. With Internet access now available to all subscribers, a new threat looms that did not exist even a few years ago – P2P file sharing. Left unmanaged, P2P traffic can visibly harm video, interrupt or even drop voice calls, and turn Internet access and gaming into painfully tedious experiences.

With DPI approaches proven to be ineffective against P2P, Anagran delivers the only "P2P proof" technology that not only manages P2P in all its many forms, but also ensures equal capacity for equal pay. In either case, P2P traffic is instantly rendered harmless while P2P users get no less than their fair share of the network. Service level agreements can be honored, unique new tiered services can be monetized and rolled out with confidence, and any cable network can again deliver consistent, revenue generating services to all subscribers, all the time.

Honor triple play service SLAs and preserve user privacy all the time, even in the presence of heavy P2P usage, with Anagran!

