

Dealing with P2P Traffic in an Operator Network: State-of-the-Art

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Background

- We studied what mechanisms are available in theory and what mechanisms are actually being used today
- We have spoken to around 20+ ISPs
- We also talked to the Finish regulator to determine the state of the art.
- We understand that this is not a scientific result

Situation

- Profit margins are low
 - Situation different throughout different parts of the world depending on the competitor situation
- Acquisition cost much higher than monthly revenue
 - Different costs for different locations depending on available infrastructure and density of population
- Difficulty to change contracts
 - Example: Difficulty to add “fair usage policy” to an existing contract
- Heavy hitters are a perceived problem. The increase of traffic due to P2P file sharing may not have been expected and hence statistics did not work out for some operators.
 - 5% generate 75% of traffic
 - 20% generate 90% of traffic(Problem: Measurements vary significantly)

Available Tools

- Volume based accounting
 - Mainly in mobile networks
 - Customers prefer flat-rate pricing
- Shaping
 - Upper limit (possibly combined with fair usage policy)
 - Usage data from accounting systems
 - Actions
 - Shaping
 - Blocking Traffic
 - Charging for excessive traffic

Tools cont.

- Add bandwidth
- Deep packet inspection
 - Quite expensive CAPEX and OPEX
 - Not well received in media
- Giving higher QoS to new flows (for a short period of time)
- Limiting subscriber flows
- Banning servers from residential access
 - Blocking traffic
 - Discontinuing contracts
- Maintaining Super Peers or/and Content Cashes
 - Legal aspects are likely to be challenging
- Block Subscriber
 - Typically only used in context of DDoS mitigation

Finland Case*

1st Study: March 2004 (40 ISPs provided answers)

ISPs were not blocking traffic at application level or applying any caching or query redirection solutions.

½ of the ISPs banned P2P usage by banning the subscribers to maintain servers as part of the contract. Was, however, not enforced.

20 % of the ISPs were policing P2P traffic at least for some of their connections (by prioritizing the traffic)

Many ISPs indicated interest to consider usage of various tools to deal with heavy hitters.

2nd Study: December 2007 (44 ISPs provided answer)

Quite a few operators have any sort of mechanism in place.

1 operator boosts priority of new connections temporarily.

Regulator does not see need to take actions based on the current situation.

***: Data has been provided by Finish regulator, Klaus Nieminen**

Conclusions

- There is a problem with heavy-hitters
- Many operators claim that this is a business / marketing problem rather than a technical problem.
- Fair number of tools available
 - Do we need more tools?
 - What are implications to CAPEX and OPEX?
 - What about legal aspects (contracts, copyright), marketing (bad press)