



The Network neutrality and Internet sustainability

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Traffic management: General Considerations

The traffic grow exponentially and the number of users at least in a linear way, therefore the network usage grow exponentially.

The users main categories differentiations:

- Minimum bandwidth differs between B2C and B2B;
- Within B2B a certain IP traffic prioritization for the SLA assurance regardless potential congestions (ex: voice or video traffic guarantee for specific B2B clients).

Users differentiation within the same category:

- Maximum information rate different for different products;
- Different or even no abuse limits or even none for different products;
- Premium products for which the operator limitations are exclusively the security and legal ones..

For the business model sustainability, the operator take the clients needs& wants and segment the services SLA's accordingly (products for browsing, products for P2P etc.)





Traffic management: Congestion monitoring and prevention

The P2P traffic (over 80% of the total traffic if no limitations applied) is the biggest resource consumer and needs a special monitoring for not abusing the network:

- usually the upload traffic is 50% bigger than the download ;
- the P2P traffic is frequently unwillingly generated by the user accessing different social networks applications (trackers, hubs etc.), an unusual upload traffic being the result.

Abuse limitation:

contractually the operator has the right for protecting the network against abuses;

- the excess usage is statistically analyzed in order to prevent the traffic abuses;
- the abuse definition includes a traffic excess quota per use per a certain period, for P2P or any other traffic, correlated with the purchased product.





Traffic management: Abuse monitoring and prevention

Currently there are two thresholds in monitoring a connection:

- the Warning one, triggering the identification of a potential upgrade solution, and
- the Critical one, immediately triggering the upgrade.

Congestion avoidance systems:

- even observing the capacity planning procedures, congestion situations may occur in different network parts, even triggered by special, unpredictable events (virus or DoS attacks), therefore congestion avoidance systems are needed:

- the traffic prioritization systems kick in when specific congestion limits are reached; below these certain levels these systems, though present, are not triggered, the users being able to enjoy the capacity of the purchased product;

- the statistical Multiplexing and different peak-hours for B2B and B2C allow the operator to better balance the allocated resources (IP transit or peering) with the congestion risk, mitigating the latter.





Traffic management: Interventions

The operator intervention on traffic is necessary in certain clear situations:

- an user, voluntarily or not, affiliation to a spam network generating the operator's address space blacklist and therefore affecting all its customers;
- denial-of-service type attacks from one or multiple users;
- malware.

Intervention ways:

- Immediate blocking the user access and notification to take the appropriate measures;
- Temporary limitation for a certain traffic to limit the spread of virus or DoS type applications by using a “detection and prevention” system.





Issues

- the smaller operators end-user customers access to applications hosted by large, SMP operators require additional resources and slow-down the competition.

This situation may be compared, in voice terms, to an interconnection fee, contradicting the network neutrality.

- the Romanian Internet market, with a small ARPU and slowed growth, the user protection necessary investments are an additional financial challenge.

