

Discussion on Net Neutrality

A summary of opinions
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Contents

1. Summary of Paper “ Risks and benefits of mandating net neutrality” –Jon M. Peha
2. Summary of Paper on two sided market analysis with an application to net neutrality by Musacchio, Schwartz and Walrand
3. Questions from TRAI document and opinion from the above discussed papers

Risks and benefits of mandating net neutrality

- Quest for Balanced Policy
 - Quoted from paper : “we argue that the network neutrality debate should be refocused on the search for a *balanced policy*, which is a policy that limits the more harmful discriminatory practices in markets where there is insufficient competition, with little interference to beneficial discrimination or innovation”
- Challenge
 - Ability to discriminate
 - not exploit to harm end users
 - In a way benefits end users

Contd...

- Ways to discriminate
 - Flow classification and Deep packet inspection
 - traffic control, scheduling policies
 - redirection in routing , content based etc.
- Benefits of discrimination
 - Security: Dropping virus packets
 - Monitor non TCP traffic
 - Guarantee higher QOS for higher pay

Contd...

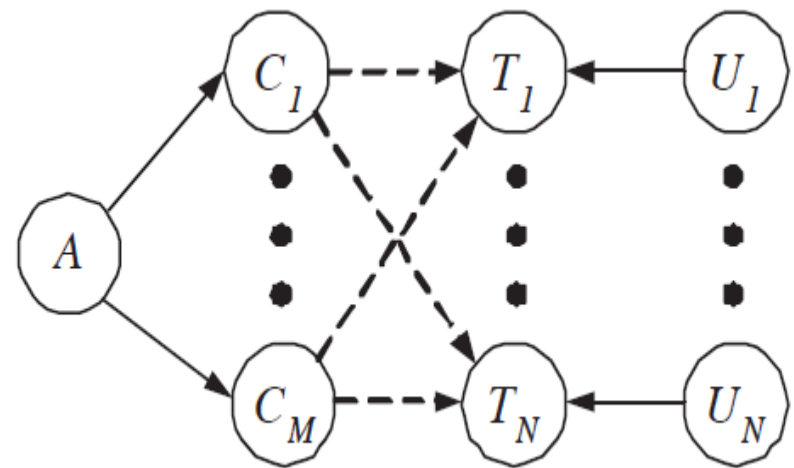
- Damage from discrimination
 - Degrade service say, VOIP
 - Charge more for specific type of data say Video, songs etc.
 - Degrade QOS to push customers to purchase higher fee plans
 - Biggest threat is vertical integration & block rivals or affiliation (Zero rating)
 - Charge for VOIP services up to the phone call cost

Contd...

- Balanced Net Neutrality Policy
 - Allowed
 - Prioritization based on class of traffic and charge differently
 - Block threats, dangerous packets
 - Offer unique services without blocking others
 - Not allowed
 - Charging differently for VOIP and gaming that require same rate and QOS.
 - Cannot charge users differently for similar services
 - Cannot degrade QOS/ block based on content

Two sided market analysis with an application to net neutrality

- Study a model to conclude which is better and when among “one sided – neutral” and “two sided – non neutral” markets
- Model
 - N ISPs (monopoly)
 - M Content providers



Contd...

- Model
 - End user click Rate

$$B_n = \left\{ \frac{1}{N^{1-w}} (c_1^v + \dots + c_M^v) \left[(1 - \rho) t_n^w + \frac{\rho}{N} (t_1^w + \dots + t_N^w) \right] \right\} e^{-p_n/\theta}$$

– Results

- a/θ is the measure. “a” advertising revenue, θ ISP revenue/earning
 - For extreme a/θ , two sided market preferable
 - For mid range of a/θ , one sided market is preferable
 - Also as N increases the range of one sided superiority increases
- ## – Castles on Rhine effect
- Increases with N

Questions from TRAI document

- Is it too early to regulate or should some frame work be established and evolved with time for OTTS?
 - Framework needed. Yardstick to any future provisioning
- Should the OTT players be brought under license regime?
 - Not needed for P2P OTT but for OTTs that have an option to call to telephone

Questions from TRAI document

- How should the OTT players offering app services ensure security, safety and privacy of the consumer?
 - Authentication steps like mobile number verification through OTP and encryption of user data
 - Regulation on OTTs to not collect data or expose user data

Questions from TRAI document

- Is the growth of OTTs impacting TSPs traditional revenue?
 - Yes. But data revenue is increasing too.
- Does the data revenue increase compensate the traditional revenue of TSPs?
 - Not fully. May charge if there is imbalance as modelled in paper by Walrand

Questions from TRAI document

- Should the OTT players pay TSPs ? what pricing options can be adopted?
- Could such options include prices based on bandwidth consumption? Can prices be used as a means of product/service differentiation?
 - Yes. Imbalance in revenue should be considered for charging. (Bandwidth consumption would mean high popularity of OTT and hence more revenue)
 - Price differentiation may be used for different class of traffic

Questions from TRAI document

- What forms of discrimination or traffic management practices are reasonable? What should or can be permitted?
 - As discussed in paper by Peha. Class differentiation is allowed not content discrimination

Questions from TRAI document

- Should the TSPs be mandated to publish various traffic management techniques used for different OTT applications? Is this a sufficient condition to ensure transparency and a fair regulatory regime?
 - A set of regulatory rules for balanced policy is to be made
 - OTTs should follow atleast the regulations

Questions from TRAI document

- What should the frame work be to address issues of imbalance in regulations of OTT?
 - For comm OTTs
 - privacy, security and other concerns need to be addressed
 - Call records and other logs must be available
 - For other OTTs
 - Avoid misuse of users data
 - Regulate charging
 - Traffic class based charging
 - QOS based charging

Questions from TRAI document

- How to create balanced environment between ISPs and OTTs?
 - Balance revenue with a regulatory framework policy
- Who should pay for network upgrade?
 - ISPs. With balanced policy (not fully neutral)

Questions from TRAI document

- Is there justification for differential charging for data access and OTT communication services
 - Yes. If differentiation is based on traffic class and QOS

Questions from TRAI document

- Need to regulate subscription charges on OTT?
 - Yes OTTs under license regime must be regulated in charging customers the way traditional services are regulated