RIPE Cooperation Working Group Small Task Team response to the European Commission's Consultation on the Future of the Electronic Communications Sector and Its Infrastructure

Introduction and summary

Amsterdam 19 May 2023

The RIPE Cooperation Working Group (Coop WG) welcomes the opportunity to submit a separate written response to the European Commission - to complement our response to the EC survey questionnaire[1] concerning the future of digital Infrastructure in the EU.

In May 2022, the Coop WG organised a working session panel with over 300 participants, following the publication of an ETNO commissioned report promoting a 'fairer balance between tech giants and telecom operators'[2]. In January 2023, anticipating the European Commission's public consultation on "Fair Share" or the "Senders Party Network Pays" topic, the RIPE Coop WG launched an open call for volunteers to work on the EC consultation which was later published in the form of a questionnaire. A team of seven diverse RIPE Coop WG volunteers worked on a draft response and shared it publicly with the RIPE community on May 3rd 2023 to further consider the community's input and the position.

We focus our response on the question whether direct or indirect mandatory contributions from Content and Application Providers (CAPs) should be made towards the business costs of Internet Access Providers (IAPs).

There is no need for external intervention in existing technical and financial mechanisms in place for how traffic is exchanged; the interconnection market works soundly and appears more than capable of dealing with the increase in traffic. A preliminary assessment of BEREC[3] also concludes that no regulation in the interconnection market is needed. Unnecessary legal intervention in the current proven working model for the exchange of Internet traffic, even if it is done with the intention of adhering to network neutrality rules, would enable traffic discrimination and as such breach the EU Network Neutrality Regulation.

In case such a mandatory mechanism of payments were introduced, it could be considered an undesired reward for the termination monopoly IAPs have over end-users. This would not only require additional regulatory oversight, but most likely more regulatory intervention would be needed because of unforeseen responses from market actors[4]. CAPs for instance might try to

[1] https://ec.europa.eu/eusurvey/runner/Future_of_Connectivity#page1
[2] https://etno.eu/library/reports/105-eu-internet-ecosystem.html
[3] https://www.berec.europa.eu/system/files/2022-10/BEREC%20BoR%20%2822%29%20137%20BEREC_preliminary-assessment-payments-CAPs-to-ISPs_0.pdf
[4] https://www.internetsociety.org/blog/2022/09/sender-pays-what-lessons-european-policy-makers-should-take-from-south-korea/

recoup mandatory contributions by increasing the prices for their services for the end-users who are already paying to IAPs to access the content provided by CAPs. Or it could impact the locations of where CAPs and IAPs interconnect, i.e. CAPs could move their points of presence to locations outside of the EU to avoid paying the contributions, which would detrimentally affect the quality of their services as experienced by end-users.

There is no evidence that demonstrates that future challenges presented by increased traffic growth or the introduction of new players and technologies like Low Earth Orbit satellites, require a change in the technical and financial model of how traffic is exchanged and supported by different layers and services. Traffic growth is based on user demand. Part of that demand is an expectation that content will be delivered in a way that matches users' needs. To achieve this, a diverse system of actors in Internet provisioning as well as a diverse set of voluntary interconnection agreements exist - transit and peering, free and paid for - and together, without regulatory intervention, they ensure the continued resilience and evolution of the Internet.

Our document has three parts: a. a set of Core Principles necessary for the evolution of EU digital infrastructure; b. our answers to the Section 4 of the survey and questions 54 -60 specifically and c., a technical perspective, regarding the Internet wholesale connectivity ecosystem, based on the RIPE community's expertise. An appendix has been added with visuals to illustrate how traffic and money flows on the Internet.

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https://www.ripe.net/participate/ripe/wg/active-wg/coop

Part A. Three Core Principles concerning traffic exchange, which support the continued evolution of the EU digital infrastructure

1. The Core Net Neutrality principle supported by the 2015 EU Open Internet Regulation is vital for the EU's strategy to preserve an open Internet where innovation can happen. It is in that context essential to ensure that the Internet traffic is exchanged between autonomous systems without discrimination, whether at the IXP or provider level, and is not subject to traffic manipulation, such as bandwidth throttling or intentional blocking.

2. Network resilience is a crucial factor in the future of digital infrastructure. A diverse network of large and small SMEs and network operators can contribute to achieving network resilience, necessary for further growth. Local provisioning of interconnection, unhindered by a regime of mandatory financial contributions, can enhance network resilience by ensuring that the traffic can be routed locally even if there are disruptions in other parts of the network.

3. The Internet is based on autonomous networks. What this means is that each operator of an autonomous network is responsible for the maintenance, upgrades and policies of its own network; it is therefore responsible, also financially, for how it connects to the rest of the Internet. The only minimum requirement to be part of the global Internet is to "speak" IP. This autonomy is what allows the Internet to scale and drives innovation.

These core principles are important in this conversation. They serve as a reminder that the Internet is designed in a very different way, and obeys different rules, compared to the telephone network. Attempting to reverse or, even undermine, these rules will potentially disturb collaborative relationships that exist today, creating disruption to competition and innovation. Therefore it is essential to ensure that these principles are upheld and maintained to sustain the future of digital infrastructure.

Regulatory instruments should be evidence-based and developed to support the model where each level pays for itself. It is a concern that where cross subsidies occur for instance from content and application revenue into the lower layer connectivity function, this can create market distortions, unfair competition, user capture, failure to serve innovation as well as arbitrary technical damage.

Part B: Survey Response to Questions Section 4

Q54: The European Declaration on Digital Rights and Principles states that all digital players benefiting from the digital transformation should contribute in a fair and proportionate manner to the costs of public goods, services and infrastructures to the benefit of all people living in the EU. Some stakeholders have suggested a mandatory mechanism of direct payments from CAPs/LTGs to contribute to finance network deployment. Do you support such a suggestion and if so why? If no, why not? [Only one option can be selected]

Answer to Q54: No

The DDRP quote describing that players should "contribute in a fair and proportionate manner to the costs of public goods, services and infrastructures" does not only indicate that CAPs might contribute to ISPs ("infrastructures"), but also indicates that ISPs might contribute to CAPs ("good, services"). It is necessary to take the whole internet ecosystem into account. ISPs and CAPs are mutually dependent on each other. CAPs contribute content and applications, as well as platforms and network infrastructure. Finally, end-users contribute through their internet access subscriptions.

In case a "mandatory mechanism of direct payments" were introduced, a termination monopoly will emerge, which ISPs with end-users connected may exploit, such market development will need regulatory oversight, and regulatory intervention may be needed (ref. termination monopoly in telephony networks).

For these reasons, among others, there should be no such mandatory payment mechanism.

Q58: Do you see any possible risks of a contribution to finance network deployment in the form of direct payments and if so, which? Please substantiate your answer, including with data.

Use drag&drop or the up/down buttons to change the order or accept the initial order.

Answer to Q58:

Negative effects on the incentives for innovation

Sustainability within the internet ecosystem.

Please specify “Other”

100 character(s) maximum

Negative consequence on service quality and internet resilience

Negative consequences for consumers

Negative consequences on medium/small traffic generators

Negative consequences on the competition between large and small providers of ECNs

Please explain your answer

1000 character(s) maximum

Any payment obligation would constitute a Sending Party Network Pay regime and establish a termination monopoly of the telecom company over their customers as known from the telephony era. Such regulatory intervention in the inter-connection market risks doing irreparable harm to the internet ecosystem on an unprecedented scale. Nothing is calling for such regulatory intervention, particularly not the current network roll-out situation in Europe. Quality of Service for most CAP services risks deteriorating because network topology will adapt to avoid artificial price regulation instead of the current optimization to bring data closer to end-users (caching) and build-up inter-connection capacity fastly without monetary or administrative burden. These increased costs will trickle down to all customers of hosting services, including public administration, public and private broadcasters and SMEs. Lastly, traffic is generated by customers and not CAPs. The Commission's framing is incorrect.

Q59 What mitigating measures could be put in place to avoid the risks indicated in Q58?

Answer to Q59: ’other’

Please specify “Other”

*

100 character(s) maximum

Refrain from regulatory intervention in the interconnection market

Please explain your answer

1000 character(s) maximum

No threshold for a payment obligation in the form of a LTG definition could be tailored granular enough to not proliferate towards other stakeholders and increase their prices as well. European Broadcasters make up a significant amount of traffic in their respective countries and often host and sometimes monetize their content on popular online platforms. Similarly, media pluralism will suffer by the artificial price increase for providing popular online platforms and thereby hit creators on those platforms. Only a handful of very large telecom companies demand such a change in the business model of the internet. Most competitive telecom companies and internet exchanges reject such proposals. Any attempt by the Commission to introduce regulation in this market, will cause more harm than good. As is evident in the South Korean example, any regulation probably leads to further problems which have to be addressed with subsequent regulation - thereby creating a slippery slope. We suggest refraining from any regulatory intervention in the interconnection market.

Q60 **The European Declaration on Digital Rights and Principles states that all digital players benefiting from the digital transformation should contribute in a fair and proportionate manner to the costs of public goods, services and infrastructures to the benefit of all people living in the EU. To achieve this, some stakeholders have suggested to introduce a mechanism consisting of a EU/national digital contribution or fund. Do you support such suggestion and if so why? If not, why not?** [Only one option can be selected]

Answer to Q60: <u>No</u>

Please explain your answer

1000 character(s) maximum

The quoted paragraph from the DDPP simply states the current situation on the internet where everybody contributes to their part of the internet ecosystem. In its preliminary analysis BEREC couldn't find evidence for free riding and hence there is no basis to assume an imbalance. As outlined in our response to question 54 and 59 any such regulatory intervention would cause more harm than good. Changing from direct to indirect payment is no remedy to the problems for competition among CAPs, deterioration of service quality because of adaptations in network topology towards artificial monetization of interconnection traffic flows and the collision with the net neutrality rules in the Open Internet Regulation (Article 3(1) and Article 3(3) subpara 1). Lastly, the DDPP speaks of a fair contribution. It wouldn't be fair to monetize traffic flows as they are neither directly linked to revenues generated by the CAPs nor to any significant cost on the side of the telecom operator which isn't already covered by paying internet subscribers which demand any particular content to be sent to the network of the telecom operator.

Part C: A technical perspective on the Internet wholesale connectivity ecosystem - technology and market rules combined and how it works in practice

The Internet architecture has a few charateristics that makes it different from the traditional telecommunications' model. One of the most fundamental ones is that the architecture is layered which implies that there is a multitude of competing providers of wholesale services that can be used by whoever is ultimately responsible for the Internet access for the end user: the so-called Internet Access Provider (IAP).

It cannot be emphasised enough that each of the involved parties is solely responsible for fully funding whatever the respective party is doing. One can choose whether one is implementing each piece of the puzzle or whether one gets it on a wholesale basis.

The RIPE community is of the opinion that there's no failure in the Internet interconnection market. There should be recognition that the Internet interconnection market is based on a very specific financial model. More is explained about this, including Transit and Peering, in the Appendix as well as in Eco's White Paper on Internet Interconnection and infrastructure[5].

1. The Internet works. It has grown from a couple of hosts only 40 years ago to the billions of devices and users exchanging petabytes of data today. The Internet "model" has enabled investment in the capacity to meet the growth in applications, services and users (both human and Internet of Things). The model works on a basis of "permissionless innovation." This means that the Internet is a general purpose network that delivers data packets on a best effort basis without concern for the application or service involved, where users are not required to ask permission or secure special terms from intermediary networks to deploy services and applications across the Internet.

2. The result is a rich diversity of applications. Innovation in services over the Internet remains healthy and is driving growth in the market for Internet connectivity. That is a plus for networks because they today can take confidence in an increasingly secure community of customers and services which should reduce risk in making longer term investments in network connectivity enhancing "traffic value".

3. It should be seen as a sign of a healthy network infrastructure if the share of revenue flows of the networks is much lower than those of services and applications running over them. This should be clear when one considers that the Internet's networks are but one "industry" compared to the thousands running services over the Internet.

It seems anti-competitive that one industry, the telecom / cellular access networks, should claim a revenue share from all the other industries of the world just because they provide some of the infrastructure to enable those industries.

In practice cross subsidising from applications into networks increases the risk of damaging interconnectivity of Internet networks regionally by breaking current mechanisms for

[5] https://international.eco.de/download/209997/

establishing local traffic valuations (traffic values) between networks without having alternative ways to establish such valuations and so increasing the risk to the interconnection fabric.

It also intervenes in content and service delivery which adds risk by eroding "permissionless innovation". That has worked so well in underpinning economic growth, employment opportunities and effective government services as the Internet expands.

Given there are already working financial incentives and well established mechanisms for charging to access the Internet, the case for inventing an artificial incentive by cross subsidies is not convincing.

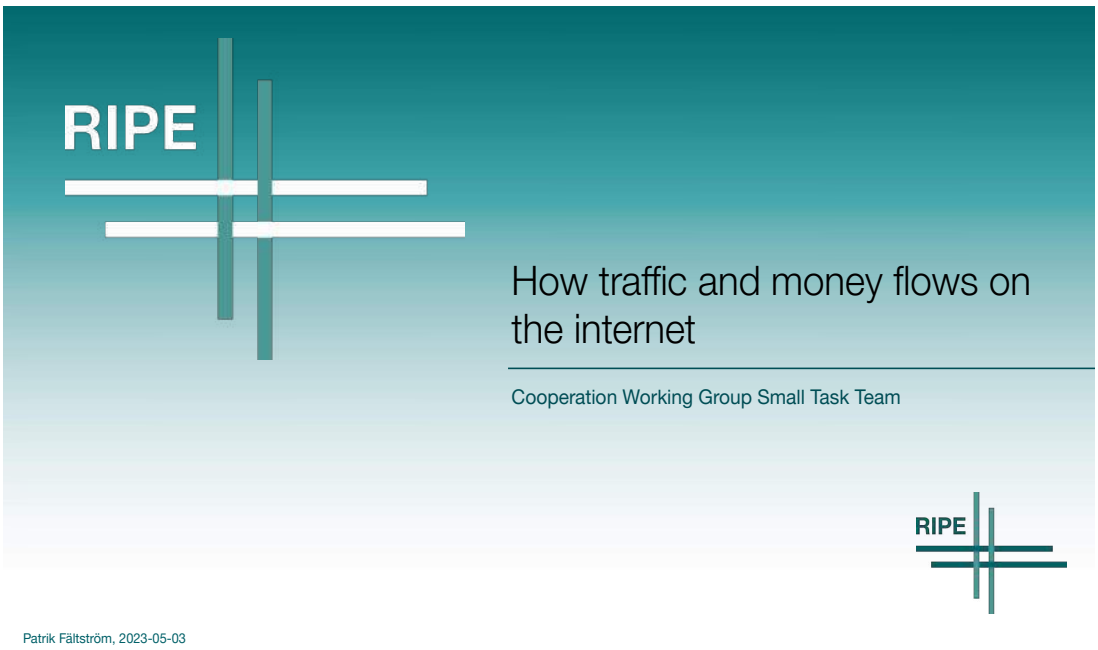
That is important to bear in mind is the layered nature of the Internet architecture and the fact that Internet access is an enabler for services; If direct or indirect contributions from the Content Access Providers towards the business costs of IAPs', CAPs service providers would likely transfer to or recoup these future costs from the end-users who are already paying for their service provisioning, e.g. an access to CAPs content and its services.

Appendix: slides ‘how traffic and money flows on the Internet’

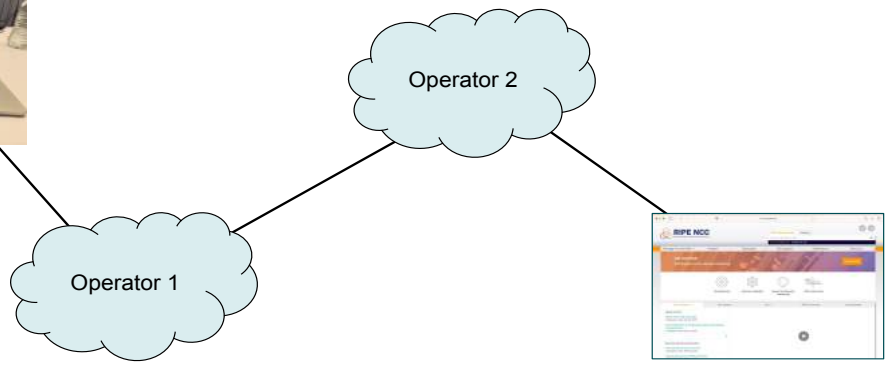
To illustrate ‘how traffic and money flows on the Internet’, the following pages show slides that were presented during a RIPE Cooperation Working Group session on the 3rd of May 2023. A recording of which can be found at:

https://www.ripe.net/participate/ripe/wg/active-wg/coop/interim-sessions/coop-wg-interim-session-3-may-2023

The team kindly offers to go into more detail on request, e.g. by providing a presentation to the European Commission if so desired.

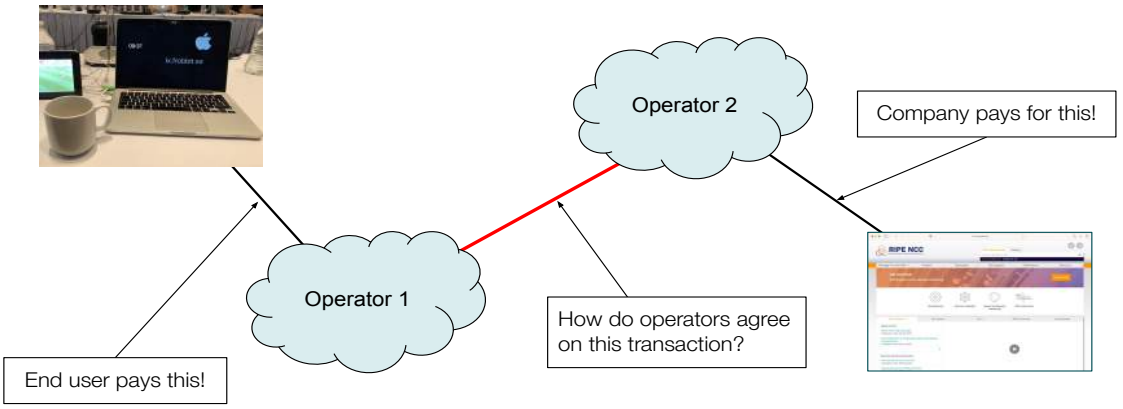


Traffic flow on the Internet



Traffic flow on the Internet

Traffic flow on the Internet



Why exchange traffic in the first place?

- One provider can never have all customers
  - Providers will also have different customer segments, eyeballs, companies, colocation, banks etc
- Situations will occur when a provider with a limited footprint wants to exchange traffic with a provider with a larger footprint
- A simplified model is:
  - **Peering** is exchange of traffic for free
  - **Transit** is exchange of traffic for a fee
    - Money flows in one direction only

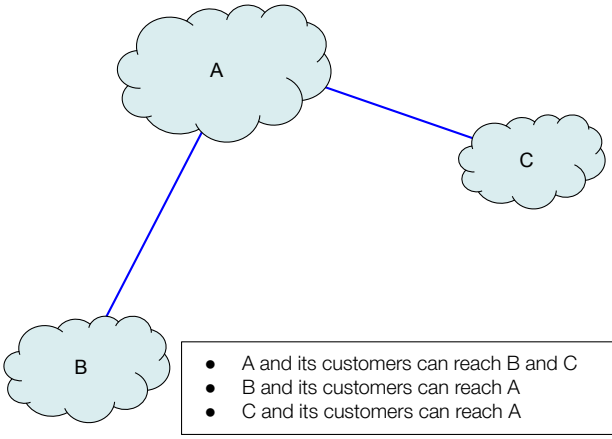
Why pay for traffic?

- An operator with a larger footprint will have to transport the traffic over a longer distance
- The cost for maintaining the larger network is higher
  - In principle the transit charges are comparable to transport costs
- An operator with a significantly larger customer base have had larger costs for building out infrastructure
  - Traffic fees are paid from the smaller to the larger

Why **not** pay for traffic?

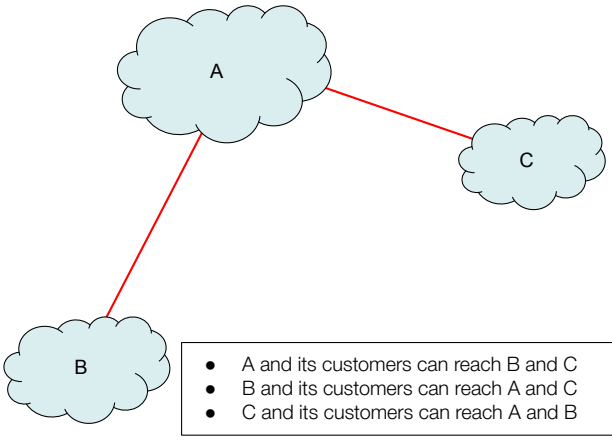
- If two providers consider their network footprint, cost, and traffic volumes more or less equal, sending invoices in one or both directions are unnecessary under the assumption they will be of equal monetary value
- If you have multiple parties that are equal - a free exchange of traffic - peering will lower your transit costs
- Money saved on transit can be invested in better peering infrastructure for the benefit of end users

Peering



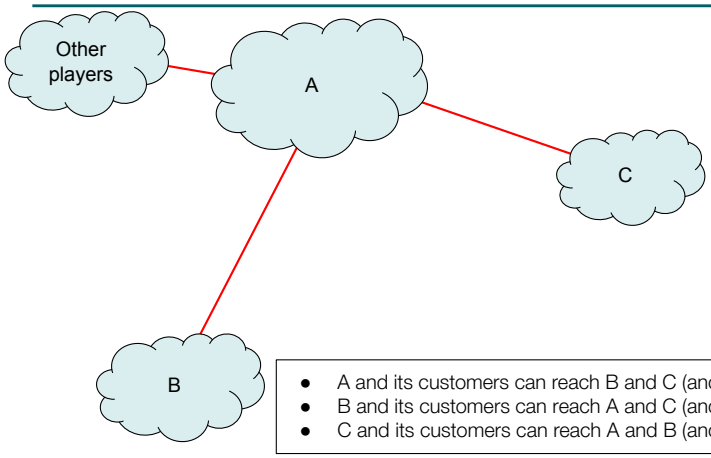
- A and its customers can reach B and C
- B and its customers can reach A
- C and its customers can reach A

Transit



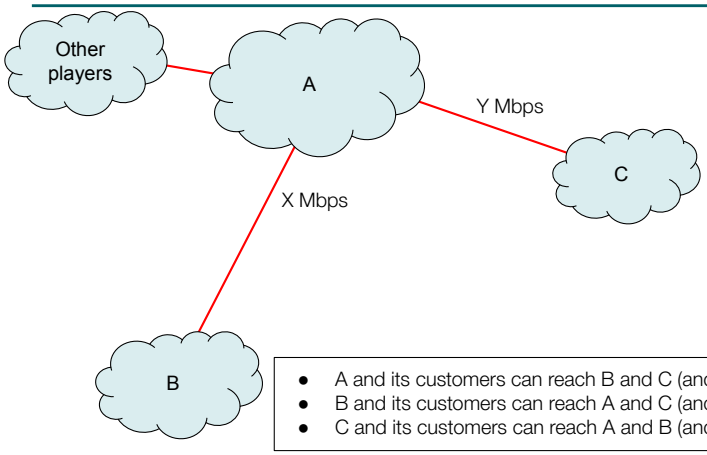
- A and its customers can reach B and C
- B and its customers can reach A and C
- C and its customers can reach A and B

In reality



- A and its customers can reach B and C (and other things)
- B and its customers can reach A and C (and other things)
- C and its customers can reach A and B (and other things)

Payments / traffic



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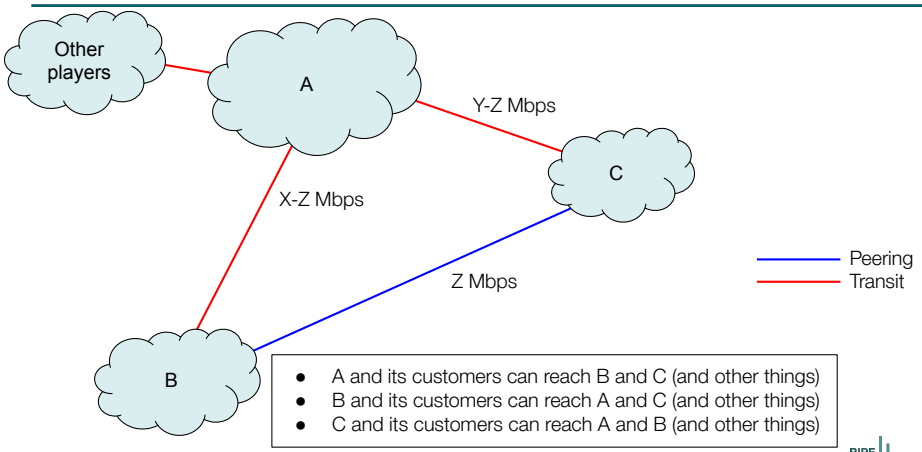
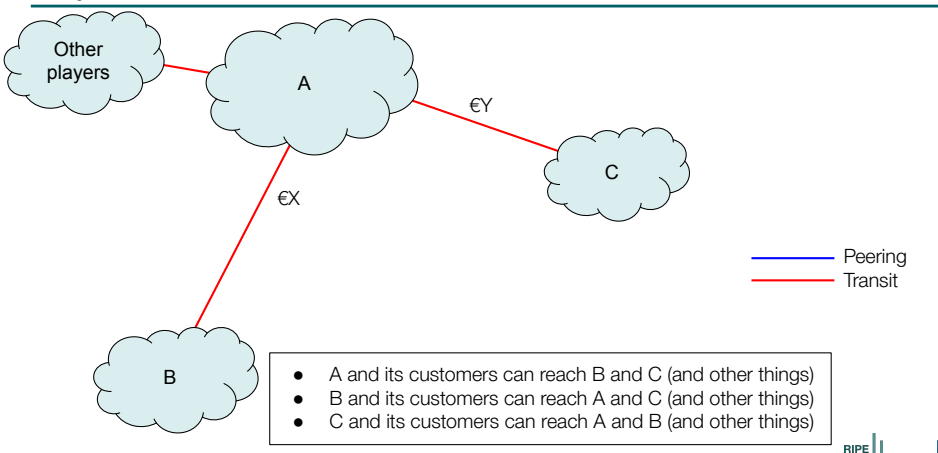
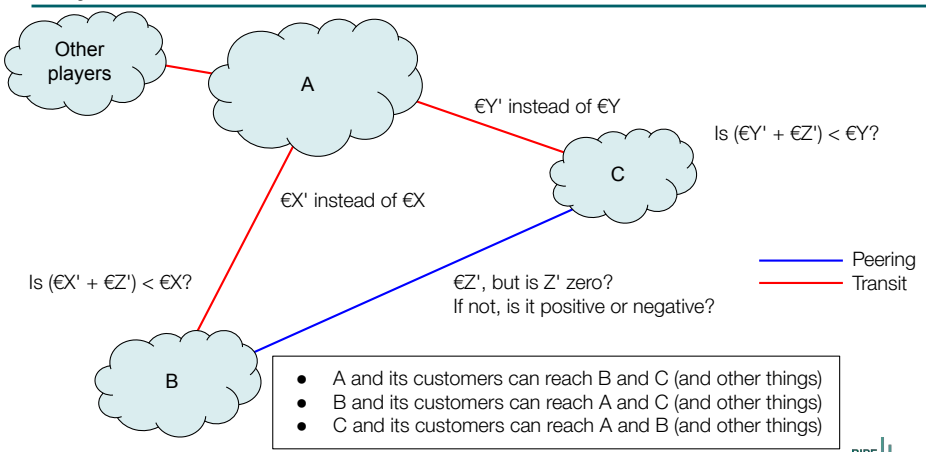
Payments / traffic



Payments / traffic



Payments / traffic



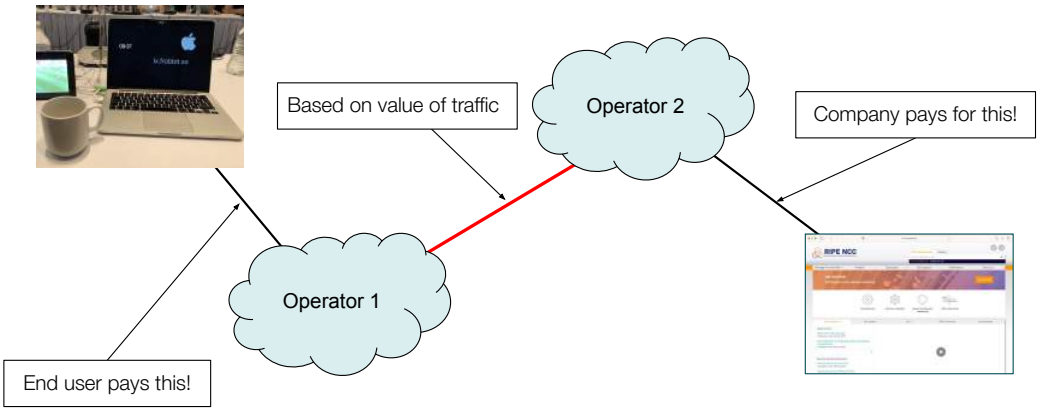
Hybrid models

- There are also hybrid models, for example “paid peering”
  - When a single dominant player (mostly current or former monopolies) charges others operators for sending and receiving traffic to the dominant players customers
  - The cost is lower - and access is limited to the dominant players customers - not the rest of the Internet

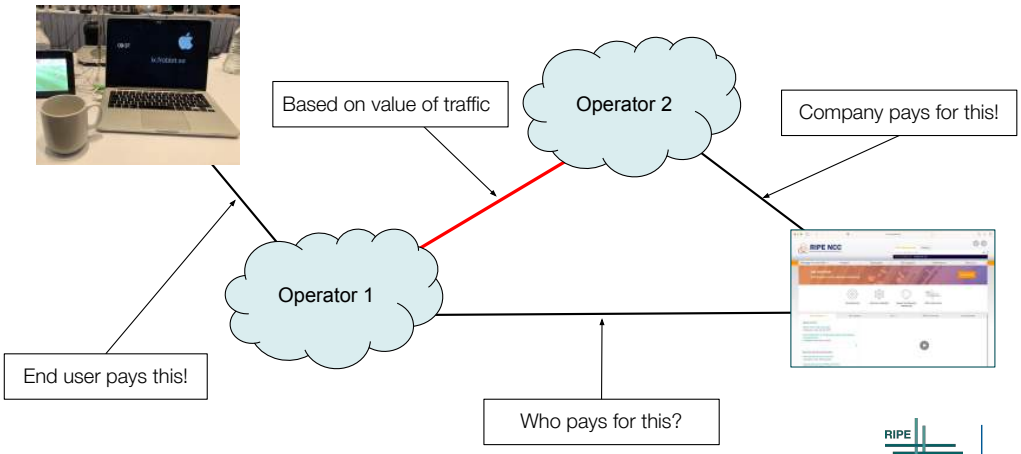
The value of traffic

- In peering discussions it mostly comes down to valuing traffic in each direction
  - The first criteria often used is that in/out should be in balance - but this depends on the peer
- For peers with content (rather than large number of eyeballs) localization of traffic might have value in itself
  - But content is also often considered potential customers
- **IMPORTANT:** ***The internet model of payment settlement is only based on value of traffic***

Traffic flow on the Internet



Traffic flow on the Internet



Traffic flow on the Internet, in reality