Leaseweb Network (Bart van der Sloot

Dear BEREC team,

Please find below my contributions:

- Page 4 (Executive Summary), “BEREC considers that the IP-IC ecosystem…”: given that there seems to be consistent complaints from many market parties about the IP Interconnection policy of Deutsche Telekom, clearly hurting Germany consumers, I believe it makes sense to include this in the Executive Summary.
- Page 8, Figure 1: Do the percentages reflect the percentage of total traffic that is received through the different IP-IC methods? So for “total”: is 35% of traffic received through “bilateral peering”, 5% through IXP’s etc.? Or do 35% of the IAS proivders use Bilateral Peering, 5% use IXPs etc.? The latter would not make sense, since IAS providers will use multiple IP-IC methods. Or do these percentages reflect something else?
- Page 9, 4th bullet: the share of transit in the “highest inbound traffic” group is lower than in the smaller groups, which contradicts the text in this bullet. Should this be “The considerable share of Bilateral Peering…” (and the rationale would be, that these large IAS providers have global backbones – vertically integrated - that have bilateral peering with e.g. Tier 1 providers).
- Page 15, 4.1 Transit costs: it would be good to explain the difference between data traffic (expressed in GigaBytes or Tera/PetaBytes) and bandwidth (expressed in Megabits per second, Mpbs). These two are now used in the same text block without clearly explaining the difference. Peak bandwidth determines the cost of the network/interconnection.
- Page 15, “The increased prevalence…”: I would expect the continuing decrease in transit prices is primarily caused/enabled by ongoing strong competition in the Transmit market and a decrease in technology cost per Mbps (e.g. due to migration from 100G to 400G technology and less power consumption), not primarily by increased prevalence of CDNs in IAS networks.
- Page 18, “Prices for IAS providers…”. I would expect private peering is usually settlement free. I recognize however that large IAS providers are pushing to be paid for such prive peering ports. If prices are estimated to be between few cents and several tens of cents…, who is paying who? If this is supposed to reflect that IAS providers charge private peering connections to CAP’s, it would be better to reword this as “Prices charged by IAS providers are estimated…”. It would be good to clarify that only large IAS networks show this behavior (and are in a position to enforce this). Smaller IAS providers are just establishing private peering to achieve better quality, more control and lower costs.
- Page 20, conclusions in grey box: I fully agree with the statements in the bullets preceeding the grey box, but the text in the grey box does not reflect at all that the behaviour of e.g. Deutsche Telekom makes customers suffer, breaches the principle that all traffic must be treat equally by exploiting the termination monopoly etc. Imho the text in the grey box should stronger and more explicit.
- Page 21, Investments in transport infrastructure: it would make sense to add that IAS providers benefit by decreasing their Transit costs, since CAP’s deliver the content that their customers requests on the doorstep of the IAS provider.
- Page 29, Figure 11: I believe the arrow between “CAP” and TIER-1 Transit provider” should be removed, since the text indicates that all content is served via a CDN.

- Page 30, “ACM addressed…”: I trust DT means Deutsche Telekom, but this is not explicitly clear in the text. I recommend to write the full name. It is common knowledge that Deutsche Telekom deliberately restricts it interconnection capacity with Tier-1 networks (e.g. Arelion, Lumen, GTT, Tata, Cogent) in an attempt to have CAP’s procure Transit/Peering services directly from Deutsche Telekom at excessive prices.
  The suggestion that CAPs cause congestion issues by intentionally routing traffic via congested interconnection links is ridiculous. In the case of Deutsche Telekom, the root cause is that Deutsche Telekom does not enable sufficient interconnection capacity with any Tier-1 network. CAP’s using Transit services desparately try to find a Tier-1 network that has some free capacity to Deutsche Telekom during peak hours (and may reroute from Arelion to Tata to GTT to Cogent from time to time to see if that avoids packet loss), but that is not to intentionally route traffic via congested interconnection links, but it aims to avoid such congested links to avoid packet loss. This impacts CAPS of all sizes.
- Page 33: I miss a statement about the difference in bargaining position between CAP’s that have their own “primary visible content” (e.g. Netflix, Google/YouTube) and smaller CAP’s and CDN’s. In case of a competitive IAS market, an IAS Provider cannot afford to have “bad” Netflix or Youtube quality, so will be more flexible towards those companies to get to some arrangement (which can e.g. be “Netflix pays for peering traffic” in exchange for “IAS Provider pays for having NetFlix app in their Settop box”). Smaller CAP’s and CDN’s however are rather invisible to the consumer and don’t have such bargaining power.