Big Telco vs Big Tech, why telcos want money for traffic (again)

This time Telcos are right! So it is the final time!

5 oktober 2022, Rudolf van der Berg

Who am I?

- Rudolf van der Berg
- Senior Consultant at Stratix
- Previously Tele2, OECD, Logica, Ministry of Economic Affairs
- Work on 5G regulation, standardization, interconnection, IP-networks, M2M etc.
- Typical clients; government (local, national), regulators, telco customers, smaller telco, utilities etc.
- Technology, business and regulation that work together

https://www.linkedin.com/in/rudolfvanderberg/ https://twitter.com/internetthought Rudolf.vanderberg@stratix.nl



Disclaimer

• This presentation is ironic. The way I speak and discuss is often ironic. This is not alwas recognized. Today I will be ironic and sometimes even sarcastic.



Disclaimer: Me attempting irony (T-Mobile NL Routing incident)

consultancy and gin distillery Meanie, Coloclue association, Dutch Rail, the Dutch public broadcasters, RTL and the Dutch lawful intercept service platform association (NBIP), the Surfnet academic network and a whole bunch of hosting and VoIP providers. In the Netherlands just anyone would get an AS, an IP-range and hook up to AMS-IX. All these networks very irresponsibly failed to call their favorite Deutsche Telekom Sales person in Germany to purchase massive amounts of traffic and interconnection capacity. Stunning irresponsible (the Germans would think).

Disclaimer: When irony is missed; report for BnetzA

5.2.2.3 T-Mobile NL Routing

Another spectacular case of turbulence in internet traffic caused by the re-routing decision of a major ISP occurred in the Netherlands in October 2019. Van der Berg (2019) reports the critical situation of mainly small service providers as a result of a sudden change in peering policy by T-Mobile NL. T-Mobile drastically reduced their capacity at the IXP AMS-IX from 200 to 20 Gbit/s in October 2019 and rerouted all traffic of fixed and mobile customers via Germany. In order to reach T-Mobile's customers, all players peering at the AMS-IX had to renegotiate their peering agreements with T-Mobile. The smaller players did not do this and could no longer reach T-Mobile's customers. This also affected a number of cities and municipalities that are directly represented on the AMS-IX. Van der Berg (2019) derives from this

Disclaimer: I don't dislike telcom firms or their staff

- I like telecom, I like telecom firms.
- I like working with telecom firms.
 - The cooperation between the Programme manager 5G and Digital Connectivity of the Dutch Association of Municipalities (me), the Dutch mobile operators and the Dutch government was excellent: Example antenna policy, small cell policy, contracts, fees, processes etc.
- I greatly appreciate the positive reaction of ETNO and many others to the accessibility of 112 over VoLTE and VoNR- issue I raised together with EENA.
- I greatly appreciate the interactions with many colleagues in telecom firms, the help they give me and the smart debates we have.

17 Big Telco CEOs are very clear; We need to get paid more!

Connectivity for a sustainable internet ecosystem

A sustainable, thriving internet ecosystem is in the interest of all European citizens and it relies on the achievement of the EU goals. Timely action is a must: Europe missed out on many of the opportunities offered by the consumer internet. It must now swiftly build strength for the age of the metaverses.

For this to happen, and to be sustainable over time, we believe that the largest traffic generators should make a fair contribution to the sizeable costs^{vi} they currently impose on European networks. We must ensure that Europe does not suffer from scarcity of digital infrastructure.

^{vi} The network costs generated by tech giants on EU telecom networks is estimated in a range of €15bn to €36bn/year. Source: Frontier Economics, 2022, <u>Estimating OTT traffic-related costs on European telecom networks</u>

Their predecessors said the same before! At OECD-meetings

- It is always about big US firms. Just different ones
- 1996: Internet is US-centric; up to 15% of transatlantic IP traffic was DNS to .com!
- 2001: "Building an IP Backbone to offer IP transit on a "Best Effort Delivery" basis is no longer a viable business". Telia
- 2001: The Flat Rate Fallacy, "finding risk sharing models (investment risks; set-up risks)". Deutsche Telekom
 - "Incumbents have incentives to offer local interconnection services for internet services"
- 2006: "as mobile and IP networks converge, it is necessary to retain a "calling-party-pays" system to avoid degraded quality and efficiency, lack of scalability or admission control" – GSMA
- 2011: advocating for an adequate return on investment based, where appropriate, on the principle of sending party network pays ETNO to ITU

BEREC-OECD Meetings on IP-interconnection 2011/2012

- Deutsche Telecom advocating for an adequate return on investment based, where appropriate, on the principle of sending party network pays
- Alcatel Lucent presented research that that content peering leads to a net-loss in revenue for the Internet economy and ISPs
- The EU-project Economics and Technologies for Inter Carrier Services (ETICS) by telcos and Alcatel Lucent
 - Enabling the delivery of end-to-end multi-carrier network services supporting ser-vice differentiation.
 - Allowing for a fair distribution of revenue shares among all the actors of the service delivery value-chain.
- BEREC wasn't convinced and said the ETNO proposals would be bad.

Who are the biggest traffic generators? (on a 1 second scale)

Organisation	Bandwidth use to my home
ETNO website	112Mbps
Telefonica website	50Mbps
KPN website	15Mbps
Youtube streaming	5 – 20 Mbps
KPN IPTV	5 – 10 Mbps
Netflix	5 – 10Mbps

Who profits from the network?

- Faculty of Public Administration, Twente University, 1995 – fl30K less in postage due to email!
- Dutch central government 64 server rooms to 4 datacenters – 235GWh to 128GWh reduction
- Dutch tax service; Almost all tax filing online

Guidance raised again (second time in 2022)

On August 11, 2022 the Deutsche Telekom published its financial results for the second quarter 2022.

Financial Results

PRESS ROOM 12/05/2022

#Shareholders & investors

Telefónica increases revenues across all markets and earns 706 million euros in the first quarter

The network doesn't care about traffic. Traffic is the fill rate





Cable networks probably have the most traffic; TV never stops!



Everyone can watch the World Cup final in unicast 20Mbps 4K!





7750 SR-14s

• 432 Tb/s (HD); 27RU or 28RU

• 12 slots, 18 Tb/s (FD) each, with

- 19.2 Tb/s intelligent aggregation
- 288 x QSFP-DD 800GE
- 576 x QSFP-DD 400GE
- 2304 x QSFP28 100GE
- 4320 x QSFP28 10GE
- E 384 x SFP-DD 10/25/100/200GE

Traffic is not that surprising either: 5mbps/sub with 21% growth







Some telcos have serious problems! 7MB per customer/day too much!

How sustainable is unlimited data growth on the Internet?



Deutsche Telekom AG.

YouTube generates the most data traffic on Telekom's mobile network: In 2021, it averaged **357 terabytes per day**, an increase of a remarkable 96 percent over the previous year. Today, mobile networks carry almost **three hundred times more** mobile traffic than in 2011. There is no question about it: the digital infrastructure is the backbone of society, education and the economy - especially in times of pandemics. Rapidly increasing data traffic requires high investments in the continuous expansion of networks: around **300 billion euros** across Europe by 2030. At the same



Gigabytes don't matter, says BT to investors





Much of traffic is (should be) handled locally

In 1998 IXP-policies were tough in some places. Not anymore today. Peering and caching handle bulk

Ireland (INEX)	Members must have their own permanent international connection to the Internet. As a rule of thumb, new members must have a route from their network to MAE-East in the United States which does not pass through an existing INEX member. Each member must be licensed by the Department of Communications. End-users who do not sell Internet services may not connect to the INEX. Internet resellers who buy connectivity from existing INEX members, and/or who do not have international capacity independent of members are likewise excluded from membership. Members may not connect more than two wide-area circuits to their router. Each member must publish the contact to whom requests for peering should be sent. Any peering request by a potential new member must be responded to within seven working days of the request. Members will not install "sniffers" to monitor traffic passing through the INEX.
Netherlands (AMS- IX)	After being connected and up and running the ISP needs to arranges its own peerings.
Sweden (D-GIX)	Each ISP manages its own router and decides with which other ISPs it will set up peering sessions for exchanging traffic at the D-GIX. There is no obligation to exchange traffic with all other participants, but each ISP must peer with at least two other ISPs on the D-GIX.

Proportion of peak time traffic offloaded via caching (up to 14-Jan-18)



Some Telcos already try to charge everyone (pre-Covid)





Some Telcos already try to charge everyone (post-Covid)

Most telcos charge already - France



But surely it costs alot?



Conclusion

- This really should be the last time European Telcos shoud start this debate
- For 25 years they have been saying the same thing
 - It's the Americans!
 - We can't afford to build the network
 - The traffic grows too much
 - It is unsustainable
 - There is no quality of service
 - Someone else is making too much money on the network
- There is nothing to support those claims