



## **IP interconnection in the Netherlands: a regulatory assessment**

### **Introduction**

1. ACM has offered Netflix, Inc. (hereinafter: “Netflix”) the possibility to provide input on the draft report IP Interconnection in the Netherlands: a regulatory assessment (hereinafter the draft “Report”) of August 2015.
2. Netflix welcomes and supports the initiative to research the past and expected developments of IP interconnection in the Netherlands. Netflix was one of the Content and Application Providers (hereinafter “CAP”) that was interviewed by ACM during the research and is happy to provide input on the draft Report.

### **About the Netflix model**

3. Netflix is a subscription on demand (SVOD) service with more than 65 million members in over 50 countries worldwide. Subscribers of Netflix currently watch over 100 million hours of content per day on average. For one low monthly price, members can watch as much as they want, anytime, anywhere, on nearly any Internet-connected screen. Netflix launched its SVOD service in the United States in 2007.
4. The Netflix service is delivered via the public Internet, a method of video distribution commonly referred to as over-the-top (hereinafter “OTT”). In every country where Netflix offers its service, consumers should simply be able to purchase Internet access from any ISP and subscribe to the Netflix service. Netflix does not tie itself to specific pieces of physical infrastructure or facilities, and Netflix members do not need to purchase or rent equipment such as set-top-boxes; they can watch Netflix on almost any web browser or a connected device.
5. In the EU, Netflix currently offers its services in the United Kingdom, Ireland, Norway, Denmark, Sweden, Finland, Germany, Austria, Switzerland, France, Belgium, Luxembourg and the Netherlands. The Netherlands is an important market for Netflix. Netflix launched its service in the Netherlands in September 2013 and has transferred its European headquarters, Netflix International B.V., which provides the Netflix service in Europe, to the Netherlands in January 2015.

### **Interconnection and Netflix’s interconnection strategy**

6. As emphasized in chapter 3 of the draft Report, the Internet is a ‘network of networks’, which allows data packets to flow from one network to another. This network of networks is defined by

the end-to-end principle, which ensures that anyone on the Internet can reach any other connected person or entity. Interconnection, or the way autonomous networks connect with each other, is a means to an end to facilitate the working of this important principle. Without interconnection of ISP networks, the Internet will not function properly and anyone dependent on the public Internet for the delivery of their service will have issues reaching their full audience.

7. Netflix aims to interconnect efficiently with ISP networks that provide Internet access to Netflix members and the ISP's Internet access customers. For this exact purpose, Netflix has built a content delivery network (hereinafter "CDN") called 'Open Connect' to deliver its content locally. The Open Connect program is Netflix's standard model for interconnecting with ISPs worldwide. It is a flexible program that allows ISPs to peer with Netflix in whatever way is most convenient for them. Open Connect peers at Interconnect Exchanges as well as privately. Finally, the Open Connect servers can be embedded into an ISP's network.
8. Open Connect both improves quality and it increases efficiency of traffic by reducing the distance the video traffic has to travel before it reaches a Netflix member. Placing servers closer to members limits the number of possible congestion points and thus ensures better video streaming and a higher quality viewing experience. ISPs merely have to install a port card on their own equipment and accept a cable from the Netflix server to their routers, as they would do to receive any traffic. The costs of this connection are nominal and expected, as ISPs always have to receive traffic in order to connect their customers. There is also no special technical expertise or equipment required to receive Netflix traffic from Open Connect other than an Open Connect server when they are localized on the ISP's network, in which case Netflix will provide the server free of charge. The ISP is receiving traffic just as it would from any other localized source. Allowing Netflix's CDN in its network does not harm ISPs and does not violate security and traffic control.
9. Apart from Open Connect, Netflix can reach ISPs' networks in a variety of ways. Netflix and an ISP can agree to a peering agreement, in which case the Netflix traffic destined for subscribers of an ISP is delivered directly from Netflix's network to the network of the ISP. Typically, peering agreements do not involve payments, in which case they are "settlement free". Another possibility is to connect through transit, in which case both Netflix and the ISP buy connectivity from a transit provider (hereinafter "Transit Provider") to the entire Internet. Netflix can further buy transit from a peer of an ISP and access the ISP's network via that peer, or, vice versa, an ISP can buy transit from a Netflix peer.

### **Interconnection problems**

10. It is important to note, however, that for Netflix as an OTT service provider who operates its own CDN, not all modes of interconnection are equal. As discussed in paragraphs 6-9 above, deliverance of Netflix's content through Open Connect improves quality of the content and increases efficiency for both the ISP and Netflix. Settlement-free peering is a cost-neutral or cost-reducing method to interconnect. Open Connect brings the traffic to the ISP and removes

the need for Transit Providers to transport that content to the ISP. Transit on the other hand, is a paid service that usually brings costs for the ISPs, Netflix or both.

11. Sometimes, transit is not even an option at all: Netflix has experienced instances where ISPs have congested all transit paths into their networks in order to force Netflix to pay for direct interconnection. While there may be international transit available, this option is more expensive and less robust than direct interconnection. Finally, a transit customer needs both sufficient capacity between transit providers and an ISP, but also needs to take into account the connections of a specific transit provider and their relationships with ISPs. For example, there are major transit providers, like Cogent, which do not have peering relationships with major ISPs in a market, which means that paths that are available to them route their traffic via the US, and back, causing strong degradation of the quality of the service.
12. Transit and peering thus are not substitutable means, and Netflix therefore disagrees with the assumptions in the draft Report that indicate otherwise (see paragraphs 24 and 26).
13. As indicated, there are clear benefits and incentives for to peer with CAPs such as Netflix. However, there is a large number of ISPs that does not wish to peer with Netflix's CDN. Netflix is convinced that this is due to anticompetitive reasons which are not sufficiently reflected in the draft Report.
14. Especially large and vertically integrated ISPs have an incentive to demand interconnection fees. In the event of the vertical integration of an access network and Pay TV and OTT services, there are incentives for ISPs to force Netflix to increase its subscription fee by demanding fees for peering, for reasons that are clearly uncompetitive. By demanding fees for peering, an ISP increases its revenues. This risk materializes in particular where an ISP aims to protect proprietary existing business models such as its own existing Pay TV- and/or transit services.
15. Net neutrality law guarantees equal treatment of Internet traffic on the last mile, which is important for end-users as well as for online service providers like Netflix. Absent such a rule, an ISP can promote the traffic of certain services over others, which would infringe on the freedom to receive information and frustrate the ability of innovative services to enter or to survive on the market.
16. However, even where net neutrality laws are put in place, the risk of frustration of innovative services by ISPs continues to exist on the interconnection level. In most jurisdictions, peering and transit relations between ISPs and OTT services are not formally governed by any 'neutrality' requirement. This means that ISPs that have incentives to extract fees from services that are offered over their networks, can continue to do so by demanding access fees for traffic flowing via their network. This anticompetitive behaviour has similar effects as discrimination between types of traffic: congesting interconnection points and demanding payment where there is no economic justification harms innovative services and end-users alike.

17. The US Federal Communications Commission has recognized this important issue: its recent Open Internet Order therefore states that points of interconnection are a crucial component of Internet service which can be used to harm consumers in conflict with the goals of net neutrality.<sup>1</sup>
18. Netflix considers that settlement-free peering is the only model that can be justified, since it provides the most efficient way, both in terms of economic and technical management, to deliver high bandwidth Internet content. Settlement-free peering also ensures that the Internet remains an open source for unhindered communication and innovation. Netflix believes that interconnection fees are a problem in need of a regulatory solution. Netflix strongly advises to establish rules requiring settlement free interconnection with networks of a given size. Recent US developments have shown the positive consequences of such measures.

### **Netflix comments on the draft Report**

19. The draft Report concludes that the likelihood of competition problems in the market for IP interconnection resulting in consumer harm is currently very low in the Netherlands. As follows from the above, Netflix cannot agree with this conclusion and the assumptions it is based on. This section of our response relates to these assumptions, included on page 63/64 of the draft Report and which underpin the ultimate conclusion. Please note that Netflix will not respond to the entire draft Report.

#### Assumption ACM: Interviews with market players and experts have not revealed any significant problems.

20. In its interview with ACM, Netflix has indicated that generally speaking, interconnection in the EU has *in the past* been easier than in the US. This is a result of the fact that *at that time* there were fewer larger ISPs in the EU.
21. However, the structure of the Dutch market has radically changed with the Ziggo/UPC merger and acquisition by Liberty Global. In Netflix's experience and as indicated in paragraph 14, the larger and more vertically integrated the ISP, the less willing the ISP is to interconnect settlement free. The changed landscape of the Dutch market has resulted in very little competition, which in the past has led to interconnection problems. The current situation on the Dutch market can therefore not be qualified as stable and could very well alter in the near future. As a result, the assumption that the retail market for Internet access in the Netherlands can be distinguished from markets for Internet access in the United States and various other European member states is no longer valid.
22. Furthermore, Netflix has informed ACM that Liberty Global is not willing to peer with Netflix settlement free (in the Netherlands or anywhere). Although Netflix has not yet experienced any degradation in the quality of its service in the Netherlands, Netflix has already experienced such

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<sup>1</sup> <https://www.fcc.gov/document/fcc-releases-open-Internet-order>.

degradation in other markets, such as the United States. Congested transit links causing the average speed to decrease is the main reason for degrading quality of the Netflix service.

Assumption ACM: Although players do not always get their way of preferred interconnection, interconnection capacity is ultimately sufficient.

23. Congesting traffic at interconnection points is an example of ISPs using their control of their subscribers' Internet connection and an effective way to force OTT services like Netflix into paid peering deals. Such congestion will affect all traffic from Internet services over that specific interconnection point and force OTT services into paid peering deals. Whenever an ISP charges for interconnection, this will ultimately result in higher prices for online video services, setting them back against video services of ISPs that do not need to factor in these access charges.
24. This behaviour is problematic since ISPs use scarce public sources to deliver Internet services and are thus charged with acting in the public interest. As discussed above, congesting interconnection points has a negative effect on the functioning of the Internet and interferes with the delivery of services, a violation of widely accepted net neutrality principles. Said behaviour should therefore be of great concern to regulators charged with promoting the public interest and should not be waived as an issue that the market can solve as long as there is sufficient capacity.
25. Contrary to what ACM states in its draft Report, Netflix believes there is a great risk that there will not remain sufficient interconnection capacity (please also see paragraph 11) and fears issues like in the US may occur in the Netherlands as well as other European markets. As indicated in paragraphs 10-12, transit is not a substitute for direct interconnection as it is neither optimized for nor economically efficient.

Assumption ACM: Transit providers experience sufficient competition as a result of which alternatives are presumable efficiently priced.

26. This assumption fails to acknowledge in the first place that transit is not a suitable substitute for peering as a method of interconnection (see paragraphs 10-12).
27. Moreover, making CAPs such as Netflix dependable on transit is an incentive for Transit Providers to raise prices. The competitiveness of the transit market should not be taken as a given. Although the transit market has been competitive for a number of years, the market is becoming less competitive due to consolidation, especially for parties like Netflix.
28. Finally, it cannot be assumed that parties that refuse to peer will continue to provide sufficient transit capacity. Parties like Netflix who are denied direction because of a restrictive peering policy of an ISP, do not have a free choice of using an affordable Transit Provider to reach the network of that ISP because this ISP will enforce the same restrictive peering policy upon the available Transit Providers.

29. Becoming a customer of a Transit Provider might tip the ratio for that provider on its peering with the denying ISP and hence this Transit Provider will be forced into either a dispute which will harm the end-user (such as the Cogent vs Comcast case discussed in the draft Report) or increase the price for the transit service to cover the cost of the fee paid for the unbalance - a cost which in the end might also end up with the end-user and is a negative development for the development of new services on the market.

Assumption ACM: Settlement fees seem to be rare or absent.

30. At this time, settlement fees may be rare or absent in the Netherlands, but that does not imply that all interconnection is settlement free. When an ISP does not allow Netflix to peer settlement free, Netflix will pay for transit in order to reach the subscribers of that ISP.
31. Furthermore, the larger and more vertically integrated the ISP, the less willing the ISP is to peer settlement free (as explained in Paragraph 14). Netflix has indicated that it expects the demand for access fees will increase in the future because of the recent and upcoming mergers and acquisitions.
32. As stated in the draft Report, Liberty Global does not interconnect settlement free. Liberty Global held a market share of 45-50% at the end of 2014. When an ISP with a market share this large refuses to peer settlement free, it is naturally not to be expected settlement fees to remain rare or absent in the Dutch market.

Assumption ACM: ISPs are relatively small and face relatively strong competition

33. ACM has not performed a market analysis of the retail market for Internet access in the presence of access regulation. Nevertheless, the draft Report states that ACM considers this market to be effectively competitive as a result of the imposition of effective access regulation.
34. As stated above, in the opinion of Netflix, the recent changes on the market have not sufficiently been taken into account in the draft Report since the structure of the Dutch market has radically changed. After the merger of Ziggo and UPC the number of cable operators is reduced two-to-one with a combined share of approximately 95% on the cable segment. The merged entity represents close to 50% of the broadband Internet subscriber base, as well as 50% of Netflix's members in the Netherlands.
35. The European Commission also has concerns about ACM's analysis of competition on the retail market for consumer Internet access, and about the related question whether KPN can continue to benefit from its strong position on the relevant wholesale market when confronted by the cable operator UPC/Ziggo, whose network also serves such consumers throughout almost the entire country.<sup>2</sup>

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<sup>2</sup> <http://ec.europa.eu/digital-agenda/en/news/european-commission-questions-dutch-regulators-analysis-wholesale-market-local-access-telecom>.

36. As ISPs gain a larger share of subscribers in a national market, they tend to limit interconnection with CAPs, which results in interconnection disputes. Unless there are checks on their market power, limiting interconnection with Netflix will result in higher prices for end-users. An example of such checks on market power is the wholesale access obligation imposed on KPN which constrains anti-consumer behavior. The market power of Liberty Global on the cable market, however, is not regulated at all.

Assumption ACM: Consumers are sensitive to price and quality of their Internet access and switch suppliers for this reason. This mitigates the potential for restrictive interconnection behavior resulting in consumer harm.

37. In its interview with ACM, Netflix has indicated that history shows that consumers do not switch ISP because of poor quality of a content (such as video) service.
38. If Netflix's service would degrade because of interconnections problems, Dutch consumers would most likely hold Netflix responsible for the poor service quality, due to information asymmetries on the market. Even if they would hold their ISP responsible, there is a low probability that they would be willing to change ISP, due to a combination of factors, such as:
- Information asymmetries, particularly concerning the minimum technical requirements for an enjoyable viewing experience;
  - The existence of new and more complex subscription contracts, including the bundling of triple play services;
  - The possibility for a period of interruption of the service; and
  - The need to return and replace devices, and re-pay installation fees.

Assumption ACM: Restrictions on peering may be motivated both by anti-competitive exploitation or foreclosure objectives as well as legitimate economic objectives.

39. As described in previous paragraphs, notably paragraphs 10-14, there are no legitimate economic objectives for restrictions on peering, neither in cost nor in exchange of value. This is in the first place due to the fact that interconnection fees are arbitrary and are not related to the underlying costs of direct interconnection. Even if they were, both parties should pay for their own similar costs, as each are receiving mutual value for the exchange of traffic.
40. In the event of the vertical integration of an access network and Transit or Internet Exchange Point (IXP) provider, the ISP is enabled to extract access fees from content and smaller ISPs in different manners, for instance by insisting on traffic ratios as part of a peering policy, or to request peering partners to use the ISP's IXP.
41. Many ISP peering policies refer to traffic ratios. This is unjustified; traffic is not an indicator of value. ISPs have modified their networks to conform to the changes in traffic flow that make ratios irrelevant. CAPs like Netflix are never able, given the nature of their business, to satisfy the requirement of a balanced traffic ratio with ISPs. ACM correctly states on page 15 of the

draft Report that typical traffic ratio requirements mandate a maximum imbalance of 3:1 of in/out traffic. The imbalance of traffic between CAPs and ISPs easily reaches a factor 50:1 because the ISPs' end-users send small requests that generate large responses (i.e., a video). Yet, despite the prominence of the paid peering deal between Netflix and Comcast, in many cases CAPs that peer with ISPs do not pay settlement-fees for these peering links (all CAPs interviewed by ACM for the purpose of this study reported this being the case for all their peering links in the Netherlands). Ratio-based peering, thus, is not the norm. It is rather a tool, applied selectively, to deny peering with CAPs.

42. Another way is to force peering partners to use the ISP's IXP if they want to peer with their network. ISPs with transit business are in the same category. As recognized by ACM, the Transit Provider charges the potential peer for the traffic exchanged between the two networks (as well as for the potential peer's traffic sent to and received from third-party networks). Transit Providers naturally are reluctant to peer since this reduces their transit revenues.
43. Pursuant to the above, there is in the opinion of Netflix no valid reason to negotiate the "typical peering requirements" mentioned by ACM on page 13 of the draft Report. Accepting these peering requirements as common for the whole peering market would provide even more power to ISPs to negotiate such requirements and to refuse to peer settlement free. ACM should assure that ISPs are not invited to perform such anti-competitive behavior.

Assumption ACM: A key element is whether or not a party refusing to peer offers sufficient transit capacity. As long as this is the case, there are alternative routes available into the ISP's network, making it unlikely that consumer harm will occur.

44. As indicated in our previous responses (paragraphs 10-12), transit cannot be regarded a substitute for peering and is not always a good alternative. Furthermore, there is no reason to assume that there will remain sufficient transit capacity (paragraphs 23-25). This renders the assumption that no consumer harm will occur, invalid.
45. One of Netflix's main concerns is that ISPs are limiting and changing how Internet access works, by limiting interconnection capacity and forcing CAPs into paid peering deals. This strategy removes transit as an alternative to peering against fees and, at the same time, removes any price discipline on interconnection. Netflix is concerned about these developments, which are likely to develop into significant costs that might in the end also end up with end-users.

## **Conclusion**

46. Netflix believes that interconnection fees are a problem in need of a regulatory solution. Netflix strongly advises to establish rules requiring settlement free interconnection with networks of a given size. Recent US developments have shown the positive consequences of such measures.