

# Agenda

## Advancing economics in business

### Bargaining over slices of cloud: should IP interconnection markets be regulated?

EU ‘net neutrality’ regulations prevent Internet service providers (ISPs) from blocking or degrading consumers’ access to online content and application providers (CAPs). However, the rules are mostly silent on the wholesale relationship between ISPs (such as Orange or BT) and CAPs (such as Netflix) in upstream IP interconnection markets—who should pay whom, how much, and on what basis. What are the economic issues involved in this relationship, and what are their implications for policymaking?

In late 2015, the European Commission, Council and Parliament agreed on the text of a new Regulation introducing net neutrality rules across the EU.<sup>1</sup> The rules aim to ensure that Internet users can access any (legal) CAP of their choice without interference from their ISP. Alongside other measures, the new rules explicitly prevent ISPs from:

- **blocking** access to specific online services;
- using **traffic-management** technology to degrade the quality of users’ connections to specific services, or to prioritise traffic to/from specific CAPs (except where necessary on technical, rather than ‘commercial’, grounds).

These rules come shortly after similar rules were introduced in the USA.<sup>2</sup>

The public and policy discussion of net neutrality has centred mainly on issues of traffic management connected with the delivery of Internet access services—such as retail broadband services bought by residential consumers.<sup>3</sup> A different, but closely related, set of issues—revolving around the upstream commercial relationship between CAPs and ISPs—has until recently received far less public and policy attention.<sup>4</sup> The box overleaf provides an overview of the current commercial relationships between ISPs and CAPs.

Given the increasing importance of online services and their impact on broadband networks and services, these upstream ‘wholesale’ issues are likely to be the focus of continued regulatory attention over the coming years. This article looks at the debate, the economic issues involved, and some of the policy questions it raises.

#### The balance-of-payments debate

##### A parallel debate

The question of the ‘balance of payments’ between ISPs and CAPs—who should pay whom, how much, and for what—has usually been resolved through private and unregulated commercial negotiations. However, disputes have frequently seeped into the public realm and have occasionally drawn the attention of policymakers and regulators, leading to what one observer described as ‘a business negotiation being conducted in a policy arena’.<sup>5</sup>

Policymakers and regulators have, until recently, sought to keep commercial ‘wholesale’ issues separate from the more ‘retail’ discussions about net neutrality (which have traditionally revolved around consumer concerns). This separation is beginning to blur, with net neutrality regulations on both sides of the Atlantic now giving regulators some degree of authority over commercial disputes.

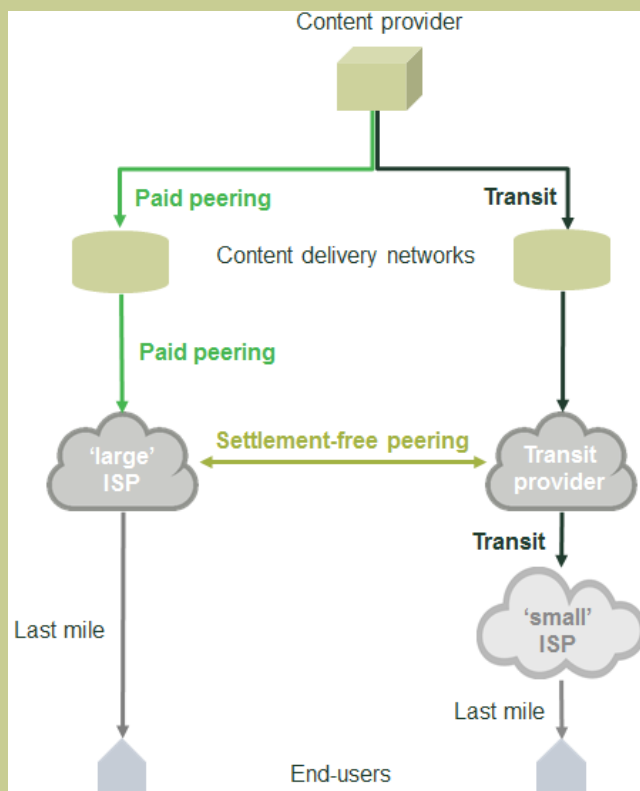
The case for intervention at the wholesale level has been made most prominently by streaming provider, Netflix. Indeed, in the context of a US regulatory ruling on net neutrality, Netflix alleged that ISPs have the ability to extract an ‘arbitrary tax’ on CAPs due to the fact that they provide the only way for CAPs to reach an ISP’s subscribers.<sup>6</sup> Critically, Netflix’s complaint related to harm that it claimed to have suffered *not* as a result of blocking or adverse ‘traffic management’ applied to its service, but from disputes about ‘IP interconnection’. As a solution, Netflix proposed what it termed ‘strong net neutrality’: rules that would bar ISPs not only from blocking or throttling traffic, but also from charging CAPs for reaching their subscribers.

## Net neutrality and IP interconnection arrangements

Whereas the concept of net neutrality is typically concerned with traffic-management practices in the ‘last mile’ of the Internet connection process (once traffic has reached the ISP network and is delivered to the end-user), IP interconnection concerns the relationship between CAPs and ISPs further upstream. Three types of agreement can exist at this level:

- settlement-free peering (which involves no payments between the communications service providers due to similar volumes of traffic going both ways);
- paid peering (with some form of payment arrangement for sharing traffic);
- transit charges (which tend to exist where the direction of traffic is more unequal).

The diagram below provides a stylised depiction of these arrangements.



Source: Oxera.

In the event, the Federal Communications Commission (FCC) did not grant Netflix’s request, but it did assert broad ex post jurisdiction over wholesale commercial arrangements, such as interconnection and ‘zero rating’ (the subject of a companion *Agenda* article).<sup>7</sup> Notably, in its reasoning, the FCC considered that:

broadband providers are in a position to act as a “gatekeeper” between end users’ access to edge providers’ applications, services and devices [CAPs] and reciprocally for edge providers’ [CAPs] access to end users. Broadband providers can exploit this role by acting in ways that may harm the open Internet, such as preferring their own or affiliated content, **demanding fees from edge providers [CAPs]**, or placing technical barriers to reaching end users<sup>8</sup> [emphasis added]

Such a view on ISPs’ market position has not been widely shared by EU policymakers and regulators, which have generally been more reticent about intervening in wholesale matters. Nonetheless, like its US counterpart, the new EU legislation does contain provisions designed to ensure that commercial disputes (including those relating to interconnection) do not result in an undermining of consumers’ unimpeded ability to access CAPs.<sup>9</sup>

As discussed below, such disputes are unlikely to go away.

## Interconnection, zero rating and the future of the balance-of-payments debate

If ISPs are legally barred from threatening to block or throttle traffic, then their leverage when negotiating with CAPs could be impaired. Given this, one might be tempted to conclude that the introduction of strict measures against such practices would make further balance-of-payments disputes unlikely.

However, this is not necessarily true. While net neutrality removes some key potential sources of dispute, others remain unaffected, as in the following two examples.

- **Interconnection:** ISPs are free to refuse to interconnect (i.e. establish a direct link between two parties’ networks) with CAPs or their intermediaries, or to devote sufficient resources to these connections. This does not normally result in a CAP becoming unable to reach the ISP’s subscribers, as traffic may be ‘re-routed’ through intermediary transit providers. However, it could increase costs for either or both sides; result in a poorer user experience if intermediaries’ connections are not sufficiently strong; or (in rare cases) result in content becoming inaccessible. From the perspective of end-users, this could have the same effect as a violation of net neutrality rules—i.e. online services could become slow or unusable. However, because such issues are not a result of ISPs actively blocking or interfering with traffic from a given CAP, they have until recently been seen as outside the scope of net neutrality regulations.
- **Zero rating:** through zero-rating arrangements, consumers can access certain online services without this counting towards their data usage allowance. The principles that should govern that assessment are examined in a companion *Agenda* article.<sup>10</sup>

Interconnection and zero rating are not the only potential sources of conflict. Wherever one side can deny the other something that it needs in order to operate, or that allows it to increase its profits, the profits at stake may be the focus of negotiations—and potential disputes. Other examples include ISPs collaborating with CAPs on consumer billing, consumer data, or the bundling of CAP and ISP services. There have also been cases of a CAP denying ISPs' subscribers access to its services in the course of negotiations (i.e. the converse of ISPs using their alleged power to prevent consumers' access to content).<sup>11</sup>

Not all of these issues are equally likely to attract regulatory interest. For the purposes of this article, a key point is whether a party is in a position to fundamentally harm the other side's business as a result of its decisions. In particular, it might matter if the party empowered to make these decisions is the ISP rather than the CAP, since—generally, but not always—the former can be argued to have a stronger position in the market as a result of its 'gatekeeper' role, irrespective of its retail market share.

At this point a key question arises: to what extent are concerns about ISPs' gatekeeper role valid, particularly in the presence of competitors? As discussed below, certain arguments—put forward by the FCC, among others—suggest that competition may not be enough.

## ISPs' gatekeeper role and market power

In regulatory discussions about net neutrality and related issues, it has often been argued that any risks of harm relating to ISPs' power would be significantly reduced, if not eliminated, by competition. This argument has the following two variants.

### Competition among ISPs

It could be argued that, if consumers can easily switch among multiple competing ISPs, any ISP that interfered with consumers' ability to reach a CAP might see a proportion of its subscribers defect to the competition. This should not only prevent ISPs from interfering with consumers' access to CAPs, but also prevent them from credibly threatening to do so as part of negotiations. Effective competition should then not only ensure that consumers are assured of unimpeded access to CAPs, but also protect CAPs from ISPs seeking to extract excessive fees. Net neutrality is therefore a tool designed to address a market failure linked to a lack of competition. Considerations such as these inform the regulatory emphasis on consumer switching that can be found in regulations in the EU and the USA.

However, an alternative argument has been put forward. In its 2015 Order, the FCC argued that ISPs' economic power to restrict CAPs' traffic and charge for the services they furnish to them does not 'depend on [ISPs] having market power with respect to their end users', since:

**regardless of the competition** in the local market for broadband Internet access, once a consumer chooses

a broadband provider, that provider has a monopoly on access to the subscriber.<sup>12</sup> [emphasis added]

This is similar to the concept of 'termination monopolies' that has played a key role in EU regulation of 'termination charges' in mobile telephony—the fees that telecoms operators charge each other for putting through ('terminating') a call. This argument stipulates that, since a subscriber of operator A wishing to call a subscriber of operator B has no acceptable substitutes to using operator B, the latter is deemed to hold a monopoly on the termination of calls to its own subscribers. Since this applies to any operator, *all* operators—irrespective of size—are deemed to have a monopoly over their own subscribers (even where there is competition between operators for subscribers). Consequently, in order to prevent consumers from not being able to place a call to their intended contact, all operators are required to interconnect and to provide termination services at regulated prices.

If this concept is applied to the Internet, note that, even if a (local) market had a large number of competing ISPs, each of these would effectively hold a termination monopoly on the wholesale market for access to its subscribers by CAPs.

The situation has been considered in a general context by the literature on 'competitive bottlenecks',<sup>13</sup> which suggests that, when mutually undifferentiated CAPs compete with each other, ISPs may be able to appropriate nearly all the relevant profits. The reason for this is that, if consumers see multiple CAPs as mutual substitutes, they might not penalise an ISP that prevents access to some of them; in turn, this would allow the ISP to drive a hard bargain in any negotiations with CAPs. However, it could be argued that CAPs also hold a 'monopoly' over access to their services and, particularly for certain 'must have' content, might therefore be able to exert significant pressure over an ISP if it threatened to withhold its service from its subscribers.

Thus, while ISPs' power with regard to CAPs (and any concerns that this may give rise to) may persist in the presence of strong competition, this power is not necessarily unchecked. However, the check is not necessarily due to competition between ISPs, but to the countervailing power of differentiated and popular CAPs.

### Competition among intermediaries

Finally, in the specific case of Internet interconnection, ISPs' power may be further eroded by the presence of intermediaries (such as transit providers and content delivery networks), through which CAPs may buy indirect access to ISPs. Indeed, previous national-level investigations by European regulators have found that this can act as an effective constraint on ISPs' pricing power and ability to discriminate.<sup>14</sup>

However, this effect does not by itself remove ISPs' termination monopoly over their own subscribers when negotiating with intermediaries, since in principle an ISP might be able to extract monopoly charges from each

intermediary that it deals with. Rather, any mitigation of ISPs' power is likely to come from the intermediaries' own countervailing bargaining power with regard to ISPs. Assessing this effect is potentially complex; for example, whereas many intermediaries are large global operators that might be expected to exert significant clout in negotiations with ISPs, competition among intermediaries can be intense, which can act to constrain their power with regard to ISPs.

The discussion above leads to the question of whether ISPs' gatekeeper role should require ex ante policy intervention—i.e. over and above net neutrality rules. In the absence of explicit competition policy concerns, this question is fundamentally one about preferred policy outcomes, but it is one in which economic evidence and analysis can (and must) play a central role.

## Conclusions and questions for policy

The discussion above suggests that different CAPs may fare differently in their negotiations with ISPs, depending on their countervailing buyer power—in particular, some might have to pay while others might be paid.

Is there anything wrong with this? If imbalances in bargaining power are simply a feature of the market and do not involve abuse of a dominant position, and providing that there is no blocking or throttling of online content, it could be argued that no further intervention is required.

Alternatively, intervention might be warranted on one of the following two grounds.

First, the view might be taken that it is desirable to ensure an environment for CAPs in which wholesale negotiations have been de-risked and the corresponding charges are known and/or small (or zero). This in turn might be motivated by an

explicit objective aimed at encouraging entry and growth in the CAP industry, or at maximising funding for investment in content. However, such a policy might act at the expense of innovation, investment and growth in the ISP industry, which might otherwise be better placed to develop new wholesale propositions.

Second, it could be said that there is indeed a competition issue when an ISP is in a position to exert termination monopoly power, even in the presence of intense competition among ISPs. For example, if ISPs have significant market power in the wholesale market for CAP access to their subscribers (itself a non-trivial question for the reasons outlined above), then ex ante measures (such as interconnection obligations and fair and reasonable wholesale terms, including with regard to prices and capacity) might be said to be applicable, just as in the case of call termination.

Alternatively, a lighter-touch approach might involve interconnection obligations without requirements for fairness and reasonableness, but perhaps with recourse to binding arbitration in case of disputes (such interconnection obligations already apply to ISPs, including small ones, but only in the context of ISP-to-ISP connections).

The forthcoming review of the EU Telecommunications Framework<sup>15</sup> provides a relevant setting for discussions of any measures along these lines. Net neutrality rules may well be principally about relatively narrow issues of traffic management and consumer protection, but they clearly also have wider industrial policy implications. The same arguably applies to the IP interconnection and balance-of-payments debate addressed in this article. To the extent that this is the case, discussions about future policy changes should address these issues explicitly, informed by detailed economic analysis of the relevant trade-offs.

- <sup>1</sup> Regulation (EU) 2015/2120 of the European Parliament and of the Council of 25 November 2015 laying down measures concerning open internet access and amending Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services and Regulation (EU) No 531/2012 on roaming on public mobile communications networks within the Union, <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015R2120&from=EN>.
- <sup>2</sup> Federal Communications Commission (2015), 'Open Internet Report and Order on Remand, Declaratory Ruling, and Order', FCC-15-24, [https://apps.fcc.gov/edocs\\_public/attachmatch/FCC-15-24A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/FCC-15-24A1.pdf).
- <sup>3</sup> The first recital of Regulation (EU) 2015/2120 makes this clear: 'This Regulation aims to establish common rules to safeguard equal and non-discriminatory treatment of traffic in the provision of internet access services and related end-users' rights.'
- <sup>4</sup> For an international review of prominent and recent cases of interconnection disputes and subsequent decisions by regulators, see Authority for Consumers and Markets (2015), 'IP interconnection in the Netherlands: a regulatory assessment', October.
- <sup>5</sup> Lohr, S. (2008), 'The Internet Traffic Challenge: The Policy Dimension', *The New York Times*, 13 March, [http://bits.blogs.nytimes.com/2008/03/13/the-internet-traffic-challenge-the-policy-dimension/?\\_r=0](http://bits.blogs.nytimes.com/2008/03/13/the-internet-traffic-challenge-the-policy-dimension/?_r=0).
- <sup>6</sup> See Hastings, R. (2014), 'Internet Tolls And The Case For Strong Net Neutrality', Netflix media center, 20 March, <https://media.netflix.com/en/company-blog/internet-tolls-and-the-case-for-strong-net-neutrality>.
- <sup>7</sup> Federal Communications Commission (2015), 'Open Internet Report and Order on Remand, Declaratory Ruling, and Order', FCC-15-24, [https://apps.fcc.gov/edocs\\_public/attachmatch/FCC-15-24A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/FCC-15-24A1.pdf), para. 136. Oxera (2016), 'Zero rating: free access to content, but at what price?', *Agenda*, July, <http://www.oxera.com/Latest-Thinking/Agenda/2016/Zero-rating-free-access-to-content,-but-at-what-pr.aspx>.
- <sup>8</sup> Federal Communications Commission (2015), 'Open Internet Report and Order on Remand, Declaratory Ruling, and Order', FCC-15-24, para. 80, [https://apps.fcc.gov/edocs\\_public/attachmatch/FCC-15-24A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/FCC-15-24A1.pdf).
- <sup>9</sup> Recital no. 7 of the 2015 Regulation states that agreements and commercial practices by ISPs should not limit users' right to access online services of their choice.
- <sup>10</sup> Oxera (2016), 'Zero rating: free access to content, but at what price?', *Agenda*, July, <http://www.oxera.com/Latest-Thinking/Agenda/2016/Zero-rating-free-access-to-content,-but-at-what-pr.aspx>
- <sup>11</sup> As part of a dispute that was mainly about retransmission of linear TV channels, in August 2014 US broadcaster, CBS, blocked subscribers of cable operator, Time Warner Cable (also an ISP), from accessing its online catch-up TV service. See, for example, Pepitone, J. (2013), 'Time Warner Cable lost 300,000 subscribers amid CBS blackout', *CNN Money*, 31 October, <http://money.cnn.com/2013/10/31/technology/time-warner-cable-cbs/>.
- <sup>12</sup> Federal Communications Commission (2015), 'Open Internet Report and Order on Remand, Declaratory Ruling, and Order', FCC-15-24, [https://apps.fcc.gov/edocs\\_public/attachmatch/FCC-15-24A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/FCC-15-24A1.pdf), paras 80 and 84. By contrast, as part of an investigation of the Dutch Internet interconnection market, the Netherlands Authority for Consumers and Markets argued that ISPs' power to extract wholesale rents through their 'competitive bottleneck' position would be undermined by retail competition. See Authority for Consumers and Markets (2015), 'IP interconnection in the Netherlands: a regulatory assessment', October, pp. 40–41 and 48.
- <sup>13</sup> Competitive bottlenecks are two-sided platforms in which one side (in this case, CAPs) multi-homes, and the other (in this case, subscribers) single-homes. For example, see Armstrong, M. and Wright, J. (2007), 'Two-sided markets, competitive bottlenecks and exclusive contracts', *Economic Theory*, **32**:2.
- <sup>14</sup> See Authority for Consumers and Markets (2015), 'IP interconnection in the Netherlands: a regulatory assessment', October.
- <sup>15</sup> European Commission (2015), 'Have your say on Internet speed & quality: the European Commission launches a 360° review of telecoms rules', 11 September, [https://ec.europa.eu/digital-single-market/news/have-your-say-internet-speed-quality-european-commission-launches-360deg-review-telecoms-rules?utm\\_source=Twitter&utm\\_medium=Social%20Media&utm\\_campaign=360review](https://ec.europa.eu/digital-single-market/news/have-your-say-internet-speed-quality-european-commission-launches-360deg-review-telecoms-rules?utm_source=Twitter&utm_medium=Social%20Media&utm_campaign=360review).