Interconnection and Regulated Traffic Obligations

An Internet Society Public Policy Brief

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Executive Summary

The Internet's success is built on voluntary interconnection. However, recent proposals to mandate payments between online services and network operators threaten this foundation. This policy brief examines the growing pressure to regulate the relationships between online services and telecommunications operators. Such interventions have been proposed under different names, like "sender pays", "fair-share", "cost-sharing", or lately through a "dispute settlement mechanism", but share common characteristics in their attempts to regulate interconnection arrangements.

Framed as a solution to funding network investments or ensuring service quality, these proposals are based on flawed understandings of current interconnection models and the Internet architecture. For example, Internet traffic is originated from end-users *requesting* content, not from online services *sending* it unsolicited.

Forcing payments from online services to Internet Service Providers (ISPs) for delivering user-requested traffic risks distorting incentives, fragmenting the global network, impacting resilience and service quality, and undermining competition. The Internet Society strongly opposes such models and urges policymakers to reject this approach in favor of protecting the open, globally connected, secure, and trustworthy Internet.

Key Considerations

The Internet is built through the voluntary interconnection of more than 80,000 independent networks. Each one of them makes use of widely adopted open standards to set up their connections and produce a shared platform that allows people all over the world to

communicate. These voluntary interconnection agreements[1] are underpinned by market-driven incentives and technical efficiency, and are typically in one of two forms[2]:

- **Transit** is an arrangement by which the transit network agrees to provide its customers with connectivity to the rest of the Internet for a fee. Transit providers act as common intermediaries for the thousands of networks on the Internet that would otherwise have to be directly connected with each other. Some transit providers operate international networks with the ability to move data across the globe. This enables the customer purchasing transit to reach many endpoints without having to physically connect to and negotiate agreements with each one.

- **Peering** is an agreement by which two networks agree to a mutual exchange of traffic to and from users on their own networks (but not via their transit links), usually on a "settlement-free"[3] or no-cost basis. Peering arrangements reduce the amount of traffic a network must send through its upstream transit provider, potentially lowering the average cost of traffic delivery. To facilitate peering, many networks choose to build connections to and participate in various local, regional, and global Internet exchange points (IXPs)[4].I

For decades, this model has supported growth in connectivity, traffic and user choice[5]. It has been made possible by continued investment in higher-bandwidth infrastructure and the development of new services, such as video streaming, that respond directly to user demand. Importantly, traffic has grown because of end-users requesting it, not because online services send it unsolicited. This point was made very clear in BEREC's *preliminary assessment of the underlying assumptions of payments from large CAPs to ISPs* (BEREC 2022[6]), in which it strongly refuted the description of online services as "causing" the traffic.

[1] Policy Brief on Internet Interconnection, Internet Society, October 2015 - https://www.internetsociety.org/policybriefs/internetinterconnection/

[2] ISOC Policy Brief on Interconnection

[3] "Settlement-free peering" means that neither party pays the other for the exchange of peered traffic between the two networks.

[4] IXPs are physical locations at which many different networks meet to peer and exchange traffic over a common switching infrastructure.

[5] Internet Traffic Exchange: Market Developments and Policy Challenges, OECD Digital Economy Papers No. 207, January 2013, http://dx.doi.org/10.1787/5k918gpt130q-en

[6] Preliminary assessment of the underlying assumptions of payments from large CAPs to ISPs, BEREC, October 2022, https://www.berec.europa.eu/en/document-categories/berec/opinions/berec-preliminary-assessment-of-the-underlying-assumptions-of-payments-from-large-caps-to-isps

However, some of the largest telecommunications operators[7,8] argue, under proposals that have different names, including "*fair share*", "cost-sharing", and "dispute settlement mechanism", that online services are the cause of this traffic and should contribute directly to their network costs. Proposals to this end have emerged in multiple regions, including South Korea, Brazil[9], and the EU. In all cases, telecom companies argue that online services should help fund infrastructure investments (Frautschy, 2022; Gahnberg, 2022; Internet Society, 2023).

Yet, any policy based on the premise that online services generate traffic overlooks the fact that traffic is a consequence of user demand and is already part of the services paid for under existing access agreements. It also overlooks the fact that online services also pay for their own connectivity, sometimes by deploying their own networks, and have strong incentives to minimize traffic while maximizing service quality. This is why many collaborate with Internet Exchange Points (IXPs) to establish efficient peering arrangements or distribute servers and caches closer to end-users, thereby reducing costs and improving performance.

Another factor that these claims overlook is that the Internet is composed of an ecosystem of players. Telecommunication operators are traditionally the entities that build the infrastructure that reaches the final user, so they invest heavily in these networks (e.g., by deploying fixed or mobile networks and acquiring the rights to use radio spectrum); online services are traditionally the entities that create content that drives the interest of final users, and invest heavily in this field (i.e. streaming services that produce series and films, cloud infrastructure, or AI solutions). Importantly, there is a balance in the ecosystem, where each player carries a burden of investment and risk.

The current model of voluntary and market-based interconnections allows networks to optimize for price, reliability, and local needs. There is no evidence that this model presents major failures. Instead, proposals to intervene and regulate these interconnection arrangements would undermine this autonomy and place the Internet's global reach, resiliency, and openness at risk.

Challenges

While framed as a way to secure new funding for network infrastructure, proposals to regulate interconnections introduce risks that far outweigh any perceived benefits. They are built on flawed assumptions about how Internet traffic and costs work, and they contradict the principles

[7] Deutsche Telekom Position regarding the European Commission White Paper on the Future of Digital Infrastructure, June 2024 - https://www.telekom.com/resource/blob/1069706/7cdc6a3b8cf516cd8852f63008a4872b/dl-dt-submission-ec-whitepaper-data.pdf

[8] The Digital Networks Act as a solution to the Internet Imbalance, Telefonica, October 2024 - https://www.telefonica.com/en/communication-room/blog/digital-networks-act-solution-internet-imbalance/

[9] Contribution to Public Consultation No. 13/2023 from ANATEL, Internet Society Brazilian Chapter, July 2023 - https://www.pedagionainternet.com.br/_files/ugd/6dff39_c9f29dc6bc554c07b655c3c720011469.pdf

that have allowed the Internet to grow as a resilient, competitive, and globally connected system. Experience from regions where such measures have been attempted shows that they lead to higher costs, degraded service quality, and reduced opportunities for smaller providers. This section outlines the main challenges associated with such interconnection regimes:

Flawed Premise and Contradictions with the Internet Architecture

Most arguments for a new interconnection regime are based on a factually flawed premise that perpetuates a misrepresentation of Internet traffic as being caused by online services. They also assume that more traffic necessarily translates into higher network costs. However, in practice, network costs are linked to building sufficient capacity to handle peak traffic[10], not marginal increases in day-to-day volume. Much like a water pipe, the main cost is linked to deploying wider pipes to handle maximum throughput, but as long as usage remains below capacity, it makes little difference whether they carry 20% or 99% of their maximum flow.

Furthermore, these proposals conflict with the Internet's architecture[11] by introducing a new and problematic principle of cross-network responsibility, where a service provider would be accountable for the costs, or quality of service, when that data is transmitted over another network. Networks that they don't operate or control. This departs from the Internet's networking model, where each network is responsible for their own traffic management and costs, and interconnection is voluntary and mutually beneficial.

In fact, the absence of cross-network responsibility has been essential to the Internet's success, as a network operator only needs to connect to one other network with Internet reachability to access the entire global Internet. There is no need for technical or economic arrangements with every other network along the path to the final user. This simplicity has allowed networks of all sizes to participate, reduced barriers to entry for new innovations, and enabled the Internet's rapid and decentralized growth.

A content startup in Tanger, Morocco, for example, can establish an online presence accessible through a local ISP, making their work immediately reachable by any potential customer in the global marketplace. However, with regulatory intervention in IP interconnection, there is a risk that the global reachability of this startup is drastically reduced. For example, by having to make arrangements with each and every ISP in every single country in order to be reachable by their users. This would, in effect, fragment the global Internet.

[10] "Peak traffic" refers to the period when the network experiences its highest demand in terms of bandwidth consumption

[11] Critical Properties of the Internet, Internet Society, June 2020 – https://www.internetsociety.org/resources/doc/2020/internet-impact-assessment-toolkit/critical-properties-of-the-internet/

Impact on Resilience and Service Quality

When regulations require payments or restrict settlement-free peering, they discourage efficient interconnection and increase reliance on, and the cost of, transit services. Instead of being able to exchange traffic locally, providers may be forced to negotiate separate contracts with multiple ISPs or to route traffic through more expensive and less direct transit links, even for local traffic. This raises costs and undermines resilience. To cope with these pressures, some online services may reduce the quality of service, interconnect in other jurisdictions, change delivery strategies, or pass costs on to users, while smaller providers may be unable to adapt at all. The overall effect is an Internet environment that is less efficient, less resilient, and more costly, with reduced choice and diminished service quality for end-users.

Evidence of such adverse effects is already visible in South Korea, which has implemented a version of these rules[12].

Market Distortions

Efforts to regulate interconnection disrupt a model that has long functioned effectively without intervention, and do not address any market failure. The Internet's interconnection model is characterized by voluntary agreements shaped by technical efficiency and commercial incentives, which together have created a competitive and adaptable environment. Introducing regulations on a flawed premise not only attempts to solve a problem that does not exist, but also creates new risks that could distort markets, limit competition, and undermine the Internet's global reach.

For example, in the European case, as consistently described by the Body of European Regulators for Electronic Communications (BEREC), the IP interconnection market remains competitive, sustainable, and efficient without the need for regulatory intervention[13] (BEREC, 2024). Regulating interconnection to solve undefined market failures risks causing unintended harm to the digital economy. This includes distorting incentives and creating barriers for smaller providers. The experience in South Korea, where a sender-pays model increased operational costs, lowered key performance indicators, and harmed startups, illustrates the dangers of such measures[14].

[12] See our study into effects of South Korea's Interconnection Rules: https://www.internetsociety.org/resources/doc/2022/internet-impact-brief-south-koreas-interconnection-rules/

[13] BEREC Report on the IP Interconnection Ecosystem, June 2024, https://www.berec.europa.eu/system/files/2024-06/BoR%20%2824%29%2093_draft%20BEREC%20Report%20on%20the%20IP-IC%20ecosystem_1.pdf

[14] A Digital Bad Deal for South Korea, Internet Society, December 2023 - https://www.internetsociety.org/resources/internet-fragmentation/south-korea-sender-pays/

Finally, the introduction of regulated interconnection rules is also in conflict with a fundamental principle of network neutrality, as it allows ISPs to leverage their termination monopoly and impose fees based on the type or size of the content provider. In this light, smaller providers would be disproportionately affected, reducing competition and innovation amongst online services. This market distortion also applies to the Internet access market, where smaller ISPs have expressed concern that mandatory payments would distort the market in favor of large telecom operators (Clover, 2023).

Guiding Principles

Preserve Voluntary Interconnection, under Commercial Agreements

The Internet's architecture relies on the voluntary interconnection of over 80,000 independent networks, typically governed by market-driven incentives through transit or peering agreements. This decentralized, competitive model allows networks to optimize for reliability, price, and local needs. Proposals to regulate these arrangements, such as mandating a “dispute settlement mechanism” that would set prices for traffic exchange, or "network usage fees" payments, would undermine this autonomy, create unnecessary friction, and place the Internet's global reach and resilience at risk. Policymakers must reject regulatory intervention in a market that is already functioning competitively and efficiently.

Recognize user-driven Traffic Demand

Traffic is requested by users, not pushed by services. End-users already pay for the service that delivers this traffic through their existing access agreements with ISPs. Therefore, forcing online services to pay ISPs for delivering user-requested traffic is based on a flawed premise that misrepresents how the Internet operates. It risks distorting incentives for both providers and users and overlooks the fact that online services already pay for their own connectivity and invest heavily to minimize traffic while maximizing service quality.

Protect the Internet’s Architectural Integrity

The Internet is built on a critical principle of independent networks, where each network is responsible for its own traffic management, investment, and costs. This simplicity allows any network, regardless of size, to connect to just one other network with Internet reachability and gain access to the entire global Internet. Introducing a system where an online service is accountable for the costs or quality of service over networks they do not operate or control is a radical departure from this model. It would introduce a new principle of cross-network responsibility that contradicts the Internet’s architecture and risks fragmenting its global reach.

Safeguard Competition and Innovation

The current market-driven interconnection model has successfully supported growth in connectivity, traffic, and user choice for decades. Introducing regulated payments creates new barriers to entry for smaller providers and startups, as demonstrated by the adverse effects seen in South Korea. Today, a startup can reach the global market simply by connecting through a local ISP. However, under a new regulatory paradigm for interconnections, it would face the risk of having to negotiate with ISPs worldwide for access to their users, threatening its ability to compete and innovate globally.

Align with Net Neutrality

Requiring payments from online services to ISPs is in conflict with a fundamental principle of network neutrality. It would allow ISPs to leverage their termination monopoly to impose fees based on the type or source of content being delivered. This practice disproportionately harms smaller online services, further reducing competition and innovation. Moreover, it introduces market distortions in the Internet access market, potentially favoring large telecom operators over smaller ISPs.

Call to Action / Policy Recommendations

To safeguard the Internet's openness and resilience, policymakers should:

- Reject distortive interconnection regulations
    - Dismiss "cost-sharing" mechanisms (including "fair share" or "dispute settlement" models).
- Reaffirm commitment to Net Neutrality
    - Maintain the voluntary, market-driven nature of interconnection.
    - Continue strict monitoring for anti-competitive behavior.
    - Uphold net neutrality rules to prevent ISPs from imposing discriminatory fees based on content type or volume.
- Promote Internet resilience through evidence-based policy
    - Focus on resilience, infrastructure diversification, and competition.
    - Encourage deployment and growth of Internet Exchange Points (IXPs) to localize traffic and reduce latency.
    - Provide regulatory and economic incentives for all domestic networks (large and small) to peer at IXPs, enhancing route diversity and national infrastructure resilience.

Convening Global Stakeholders

The Internet Society collaborates globally through coalitions, open letters, and campaigns to oppose harmful interconnection regulations. Examples include engagement with BEREC consultations, advocacy in EU, India, South Korea and Brazil.

Additional Resources

Policy Brief on Interconnection: https://www.internetsociety.org/issues/interconnection/

Fact Sheets: https://www.internetsociety.org/resources/fact-sheets/

Blog Posts: https://www.internetsociety.org/blog/

Press Releases: https://www.internetsociety.org/news/

BEREC Report on IP Interconnection: https://www.berec.europa.eu/en/all-documents/berec/reports/berec-report-on-the-ip-interconnection-ecosystem

OECD Digital Economy Papers: https://www.oecd.org/digital

South Korea Sender-Pays Analysis: https://www.internetsociety.org/blog/2022/05/old-rules-in-new-regulations-why-sender-pays-is-a-direct-threat-to-the-internet/

Internet Impact Brief: South Korea's Interconnection Rules: https://www.internetsociety.org/resources/doc/2022/internet-impact-brief-south-koreas-interconnection-rules/

Internet Governance Forum Resources: https://www.intgovforum.org

IXP Explainer: https://www.internetsociety.org/issues/ixps/

References

BEREC. (2024). *BEREC Report on the IP Interconnection ecosystem* (No. BoR (24) 93). Body of European Regulators for Electronic Communications. https://www.berec.europa.eu/system/files/2024-06/BoR%20%2824%29%2093_draft%20BEREC%20Report%20on%20the%20IP-IC%20ecosystem_1.pdf

Clover, J. (2023, May 4). Telco coalition warns against EU network fees mechanism. *Broadband TV News*. https://www.broadbandtvnews.com/2023/05/04/telco-coalition-warns-against-eu-network-fees-mechanism/

Frautschy, C. G., David. (2022, September 30). Sender Pays: What Lessons European Policy Makers Should Take From The Case of South Korea. *Internet Society*. https://www.internetsociety.org/blog/2022/09/sender-pays-what-lessons-european-policy-makers-should-take-from-south-korea/

Gahnberg, D. F., Carl. (2022, May). Old Rules in New Regulations – Why "Sender Pays" Is a Direct Threat to the Internet. *Internet Society*. https://www.internetsociety.org/blog/2022/05/old-rules-in-new-regulations-why-sender-pays-is-a-direct-threat-to-the-internet/

Internet Society. (2023, December). Cost-Sharing Models Undermine the Global Internet. *Internet Society.* https://www.internetsociety.org/resources/internet-fragmentation/brazils-cost-sharing-proposal/