



Koan Advisory Group's Comments for the Trai Consultation Paper on Framework for Service Authorisations for provision of Broadcasting Services under the Telecommunications Act, 2023

The Telecom Regulatory Authority of India (Trai) released a consultation paper (CP) on [The Terms and Conditions of Network Authorisations to be Granted under the Telecommunications Act, 2023](#) on October 22, 2024. We appreciate and thank the regulator for consulting stakeholders on the issue. Please see our response to Q.5

Q.5. Whether there is a need to make any changes in the eligibility conditions, area of operation, validity period of authorisation, scope, and terms & conditions (general, technical, operational, security etc.) of the Content Delivery Network (CDN) authorisation, as recommended by TRAI on 18.11.2022? If yes, what changes should be made in the eligibility conditions, area of operation, validity period of authorisation, scope, and terms & conditions (general, technical, operational, security etc.) of the CDN authorisation? Kindly provide a detailed response with justification.

RESPONSE SUMMARY

Recommendation: There is no need to regulate CDNs under the Telecommunications Act, 2023

Rationale:

- CDNs are auxiliary caching services that accelerate the delivery of content, and they are different from telecom networks.
- There is no evidence of market failure or harms and the present regulatory treatment of CDNs works well for the market.
- The proposed framework under the 2022 Recommendations will throttle innovation and growth.
- Agreements between CDNs and access service providers are confidential business-to-business arrangements and there is no stated benefit in seeking the disclosure of these agreements. Trai can use their existing powers to request information from access service providers and does not need licensing to achieve this.



A. CDNs are caching services and not telecom networks

The Telecommunications Act, 2023 defines a telecommunication network as a system or series of systems of telecommunication equipment or infrastructure, and it includes terrestrial, satellite submarine or a combination of these networks.¹

CDNs are not telecommunication networks. They are auxiliary services that enhance the quality of service of existing telecommunication networks. They enhance the overall efficiency of access service providers like ISPs and TSPs and contribute to a seamless user experience. They reduce the geographic distance that data packets travel and the number of network hops that they make. Most CDN services have direct interconnection points with last-mile networks which lead to higher traffic quality during content transmission.

Globally, interconnection services have evolved in response to the growth in the volume and diversity of Internet users, content, and applications. The Internet backbone had a hierarchical structure like traditional telephone networks in 1990. Last-mile networks served end-users, and regional ISPs contracted with a private backbone provider to carry traffic to the public internet. However, as network players faced congestion, they created multipathway structures that deliver content through interconnection and peering arrangements. CDNs are similar peering arrangements that optimize content transmission over existing network capacity. The main prerogative for the government in telecommunications regulation is to regulate scarce spectrum, but data centres and CDNs help optimise transmission over scarce resources.

In its Recommendations dated November 28, 2017, TRAI noted that CDNs perform an important function in delivery of traffic on the Internet.² In doing so, CDNs create efficiencies like optimised delivery of content housed on CDNs and free up network capacity for other content. So, the TRAI recommended that CDNs should not be included within the scope of any restrictions on non-discriminatory treatment, which are designed specifically to cover the providers of Internet Access Services.

The FCC has a similar position. The US communications regulator distinguishes CDNs, hosting and data storage services from ‘mass market’ services because they do not have the ability to transmit data to and receive data from all internet endpoints.³ The European Union’s Body of European Regulators for Electronics Communications (BEREC) also categorises interconnection services like CDNs differently from internet access services.⁴ The regulator adopts distinct regulatory treatment for different players like access networks, IP transit services or digital infrastructure like CDNs which contribute to the internet ecosystem. Communication regulation

¹ The Telecommunications Act, 2023, available at: <https://egazette.gov.in/WriteReadData/2023/250880.pdf>.

² TRAI Recommendations on Net Neutrality (2017), available at: https://www.trai.gov.in/sites/default/files/Recommendations_NN_2017_11_28.pdf.

³ Restoring Internet Freedom Order, Federal Communications Commission, 2018, available at: <https://www.fcc.gov/document/fcc-releases-restoring-internet-freedom-order>

⁴ BEREC, “What is covered and protected by the regulation”, available at: <https://www.berec.europa.eu/en/what-is-covered-and-protected-by-the-regulation>.



regimes in Norway, Australia, United Kingdom and South Korea also exclude CDNs from licensing and authorization regimes that apply to access service providers for this reason.

B. There is no evidence of market failure

India's CDN market is nascent and has the potential to contribute towards the growth of India's digital economy. The \$792.5 million market will grow at an estimated Compound Annual Growth Rate (CAGR) of 13.3% between 2023 and 2030.⁵ The demand for digital services, improved internet connectivity, and widespread smartphone usage contributed to the CDN industry's growth.

Several companies like Cloudflare, AWS, Google, Fastly, CDNetworks, CDNVideo, and Tata Communications offer CDN services in India, and many of them have decades of experience. CDN prices decreased by 300% between 2017 and 2020⁶, which is indicative of a competitive environment. The presence of multiple players leads to an ecosystem where providers decrease prices and offer competitive plans to improve their market share.

It is also a diverse market, and different players have unique CDN use-cases. Telcos partner with CDN providers to reduce latency and decongest their networks, online streaming companies have CDN solutions to optimise content delivery, and smaller operators like picoNETS work to drive adoption in underserved areas.

The present CP and Trai's 2022 recommendations do not highlight a market failure that regulation seeks to rectify. The proposed framework will have a disproportionate impact on smaller players, act as an entry barrier, and throttle the growing market. The Federal Communications Commission (FCC) has repeatedly recorded in their Open Internet Orders that transposing access service provider regulations to other services can dissuade new entrants from innovating on new methods to reach consumers and hinder organic market-led formulation of strategies that are pro-consumer and pro-competition.⁷

Regulatory intervention from the DoT would hinder India's ambitions of achieving the policy target of USD 1 trillion digital economy⁸. It also contradicts the G20's Digital Ministers

⁵Indian Content Delivery Network Market Analysis, Coherent Market Insights, available at <https://www.coherentmarketinsights.com/market-insight/india-content-delivery-network-market-3151>.

⁶ Dan Rayburn, "CDN/Media Pricing See's Big Drop for Largest Customers: Pricing Down to \$0.0006," StreamingMediaBlog.Com, May 11, 2020, available at: <https://www.streamingmediablog.com/2020/05/q1-cdn-pricing.html>.

⁷ In the Matter of Preserving the Open Internet Broadband Industry Practices, Before the Federal Communications Commission, 2010 (and later in 2018), available at: https://docs.fcc.gov/public/attachments/FCC-10-201A1_Rcd.pdf

⁸ Press Information Bureau, Ministry of Electronics and IT, 'Sh. Ravi Shankar Prasad Meets the Industry Leaders to Develop a Roadmap for US\$1 Trillion Digital Economy'; available at <http://pib.nic.in/newsite/PrintRelease.aspx?relid=165697>



Declaration which called for policy frameworks that foster investments in data infrastructure and architecture that have positive spillovers across industries and society.⁹

Additionally, institutions like the Bureau of Indian Standards (BIS) and the Telecommunications Engineering Centre (TEC) oversee testing and standardisation of all CDN equipment. Export controls and Foreign Direct Investment (FDI) norms apply, and businesses must register as per applicable company and taxation laws. They must also follow extant regulations on data security and cybersecurity under the Information Technology Act, CERT-In Guidelines, and the Digital Personal Data Protection Act. Consumer protection laws, competition laws, and general laws also apply. These frameworks provide adequate checks and balances to address any potential harm the regulator expects, and there is no need for a specialised registration requirement under the Telecommunications Act, 2023.

C. Restricting CDN operations to registered networks will stifle innovation

CDN technologies is on a trajectory of constant innovation and growth. In India, providers match devices with the content they prefer to access and deliver optimised versions of webpages and media, specifically tailored for mobile viewing.¹⁰ CDNs have innovated and developed the infrastructure to offer advanced services like adaptive bitrate streaming. Indian CDNs adopt multi-cloud and hybrid cloud strategies, to align their services with various cloud platforms and facilitate seamless integration. An industry-friendly policy affords CDNs the ability to improve their solutions and respond to demand in an agile manner.

They also innovate to improve their resilience to cybersecurity threats. They integrate robust security features into their offerings like web application firewalls, realtime threat monitoring, and distributed denial of service protection, to address concerns around data privacy and security.¹¹

A mandatory registration regime can impede this. Trai's 2022 Recommendations propose mandatory terms and conditions like eligibility conditions, areas of operation and validity periods. Additionally, pre-conditions also require CDN services to amend registration details with changes in technology. This is likely to increase operational expenses and disincentivise innovation because operators will have to bear compliance costs from constant alterations to the disclosure they make to DoT for every innovation. It will also diminish their agility in responding to technological developments and consumer demands because they will have to make new disclosures each time.

The ability to adapt to market conditions is essential to cater to diverse content delivery requirements.¹² As the same CDNs cater to different kinds of network capacity demands from

⁹ Declaration of G20 Digital Ministers, Leveraging Digitalisation for a Resilient, Strong, Sustainable and Inclusive Recovery (2021), available at: <https://assets.innovazione.gov.it/1628084642-declaration-of-g20-digital-ministers-2021final.pdf>

¹⁰ <https://www.coherentmarketinsights.com/market-insight/india-content-delivery-network-market-3151>.

¹¹ "Europe Content Delivery Network Market," TechSci Research, accessed on August 16, 2024, <https://www.techsciresearch.com/report/europe-content-delivery-network-market/3525.html>.

¹² "The Importance of Flexibility and Scalability in CDNs," CacheFly, available at: <https://www.cachefly.com/news/the-importance-of-flexibility-and-scalability-in-cdns/>.



video streaming, e-commerce, e-learning or online gaming, they must have flexibility. Customisable architecture enables them to adapt to different levels of traffic and demand, depending on the kind of content they are delivering. Proposed disclosures in the 2022 recommendations inhibit flexibility.

Introducing a mandatory registration regime would also stifle growth and hinder the global competitiveness of the Indian CDN industry. A regulatory regime for peering and caching is an anomaly. Global examples cited above show that they are not regulated or required to register.

D. Mandatory disclosure of confidential access service providers and CDN agreements will hurt the industry

In its 2022 Recommendations, Trai proposed mandatory disclosures for these agreements¹³ and suggested guidelines for the registration. The registration requirements dictate the terms and conditions an agreement between a CDN and access service providers and limit the scope for negotiation.¹⁴ Mandatory disclosure of agreements can also leak privileged information like trade secrets that give CDN providers a competitive edge.

This goes against the global norm and several countries including the US acknowledge that market-led negotiation has helped CDNs thrive.¹⁵ Regimes in the US and EU do not mandate CDN providers to disclose commercial terms of agreements with TSPs or ISPs.¹⁶ The ability to negotiate and contract creates favourable conditions for access service providers and CDN providers to enter into mutually beneficial agreements.¹⁷ As India's digital economy continues to grow, it is essential that the voluntary nature of the CDN-ISP relationship and negotiation on fair, reasonable, and non-discriminatory terms between various entities in the value chain is upheld as a principle that regulators do not derogate from. This will allow their arrangements to adapt to changes in the digital world and meet growing connectivity demands. In any case, Trai can use its existing powers to request information from access service providers, and does not need CDN licensing to achieve this.

¹³ Recommendations on Regulatory Framework for Promoting Data Economy Through Establishment of Data Centres, Content Delivery Networks, and Interconnect Exchanges in India, *available at*: https://traigov.in/sites/default/files/Recommendations_18112022.pdf.

¹⁴ Appendix-C, Recommendations on Regulatory Framework for Promoting Data Economy Through Establishment of Data Centres, Content Delivery Networks, and Interconnect Exchanges in India, *available at*: https://traigov.in/sites/default/files/Recommendations_18112022.pdf.

¹⁵ Restoring Internet Freedom Order, *available at*: <https://docs.fcc.gov/public/attachments/FCC-17-166A1.pdf>.

¹⁶ *Id.*

¹⁷ David Abecassis, Michael Kende, Guniz Kama, "IP interconnection on the Internet: a European perspective for 2022," *Analysys Mason*, September 22, 2022, <https://www.analysismason.com/contentassets/25c2739a356a4740ab0ce2ba2308f9bd/ip-interconnection-on-the-internet---a-european-perspective-for-2022---2022-09-22.pdf>.



We hope our submission aids with your decision making. Additionally, we hope to continue to contribute to such consultations in the future and remain at your disposal for any clarifications.

Warm Regards,

A handwritten signature in black ink, appearing to read 'Varun Ramdas', written on a light-colored background.

Varun Ramdas

Manager, Koan Advisory