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BEREC Report on the entry of large CAPs into the markets for electronic communications networks and services

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Regulatel Plenary - 11 December 2024

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BEREC Report on the entry of large content and application providers into the markets for electronic communications networks and services

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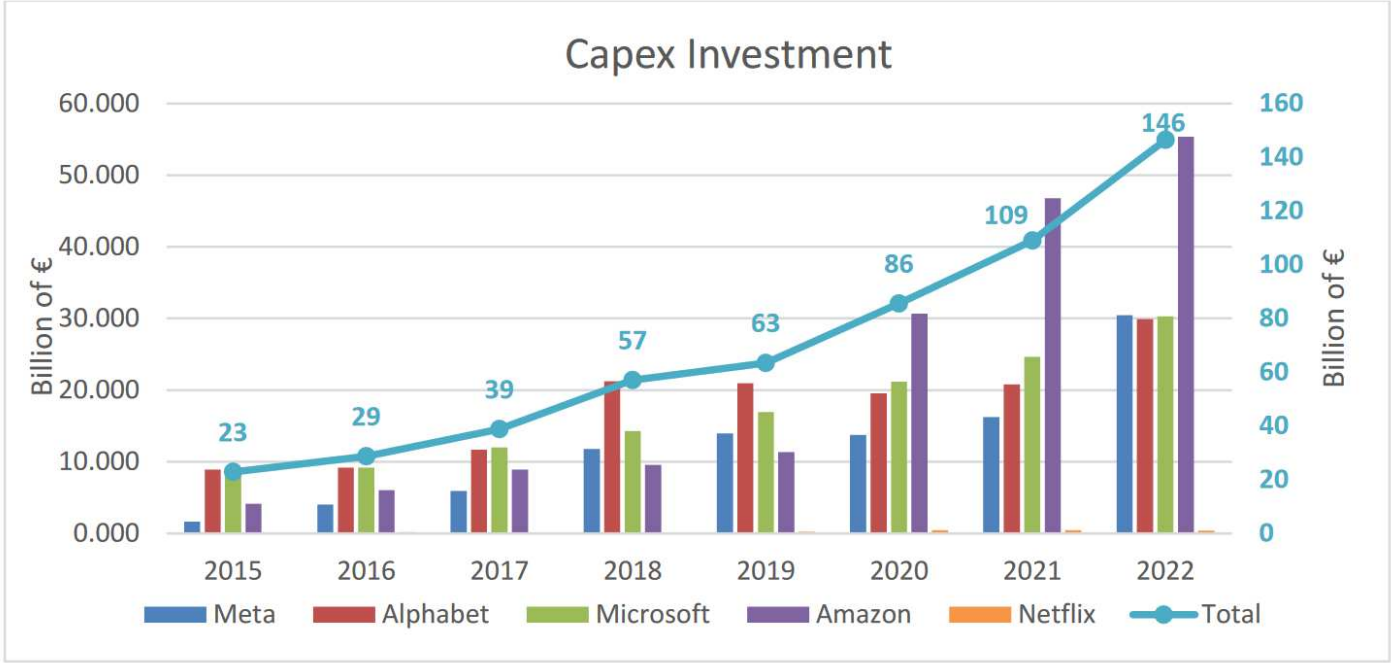
Context

- In October 2024, BEREC published its final Report on the entry of large content and application providers (CAPs) into the markets for electronic communications networks and services (ECN/ECS).
- This report presents the large CAPs' strategies and business models, the market dynamics, as well as CAPs' relations with traditional ECN/ECS providers in terms of competition, cooperation and interdependence.
- It provides **three case studies** where significant investments by large CAPs are taking place: i) CDNs, ii) submarine cables and iii) internet relay services.
- It also presents some cases where ECS/ECN providers' ability to provide access to the network and/or to some functionalities and technologies may be affected.
- It builds on:
  - **Workshops and meetings** were organised with the relevant stakeholders to gather insights on submarine cables, cloud services, internet relay services and the actual potential restrictions imposed by OS/device manufacturers on ECS/ECN providers; and on
  - A **questionnaire** was sent to nine large CAPs and major traditional CDN providers (Akamai, Amazon, Apple, Cloudflare, Dazn, Google, Meta, Microsoft and Netflix) in 2023.

CAPs investment

- Collectively, the 5 largest CAPs invested a total of 146,3 billion euros in capital expenditures in 2022 globally, which compares with a total of 23 billion euros in 2015;
- CAPs invested on data centres, CDNs, submarine cables, terrestrial and satellite networks, mainly to support the delivery of their own services and bringing content closer to end-users.

Larger CAPs investment in Capex, 2015-2022



Source: BEREC, based on company's financial results reports

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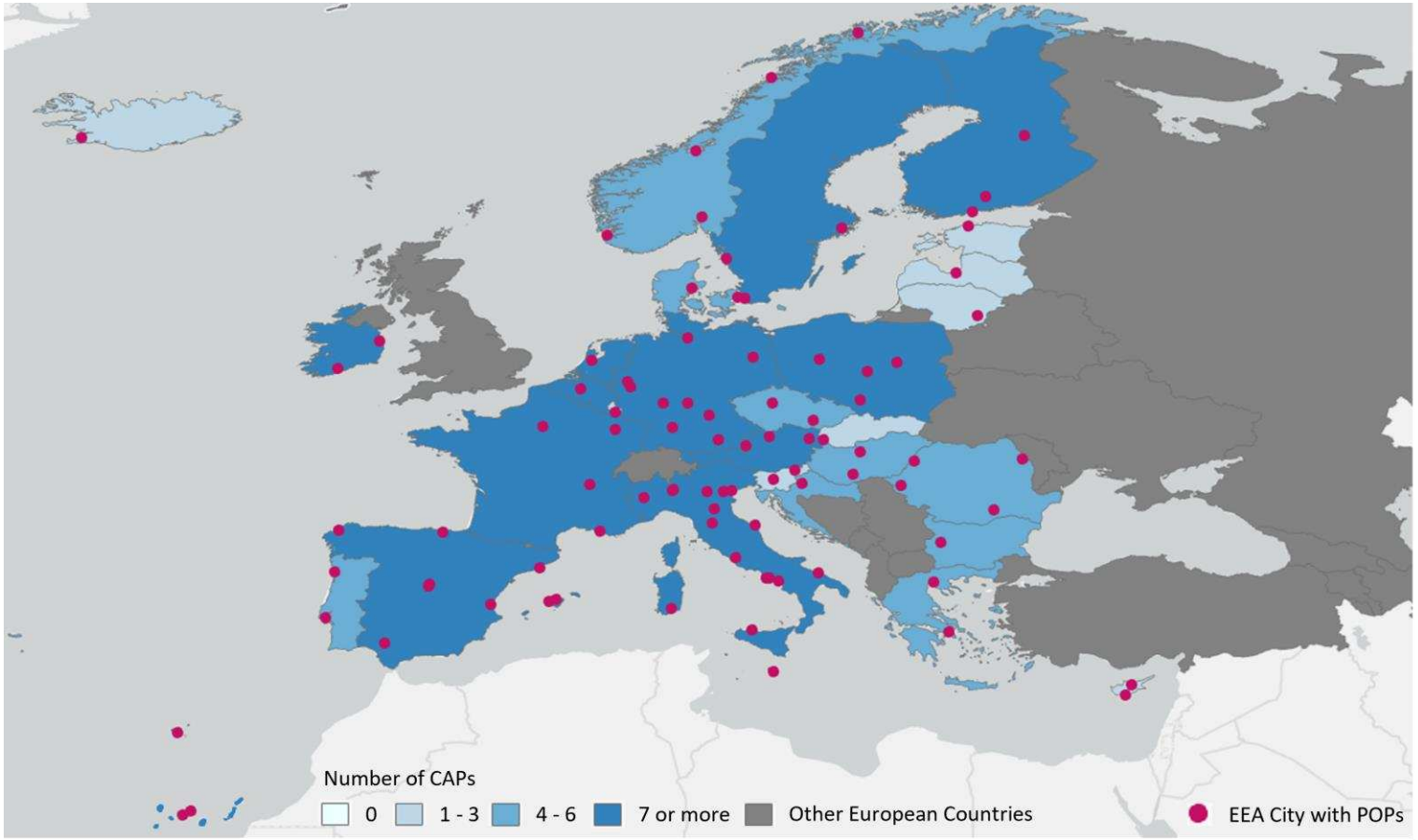
Main take-aways - CAPs' presence in EEA

Overview of 9 large CAPs and major CDN providers points of presence (= physical location or facility that houses network equipment (e.g. servers and routers) to interconnect with other networks)



Source: BEREC

Main take-aways - CDN

- Previously, large CAPs relied on commercial CDNs providers for their services, but in recent years they have been increasingly rolling out their own CDN infrastructure networks
- CAPs mostly use their CDNs for self-provision, but also partly provide CDN services to third-parties
- The market does not seem to be concentrated. However, when large CAPs are present in adjacent markets, they tend to propose bundled offers including cloud and IT services from their own ecosystems, which can be particularly attractive (i.e. lower aggregated prices or zero monetary price) and may raise competition issues.
- On-net CDNs allow to reduce capacity costs for ISPs by locating content closer to end-users

Main take-aways - Submarine cables

- In 2023, submarine cables carried 99% of all intercontinental data traffic.
- Large CAPs have transformed from mere direct or indirect customers of wholesale capacity, to the major submarine cable owners.
- Large CAPs deploy submarine cables primary to their own use, while traditional ECS/ECN providers still play a key role on the transmission of data for other CAPs, connecting areas which may not be economically profitable.
- Large CAPs' investments have a positive but limited impact on the global network resilience, as it remains uncertain whether third-party traffic could be redirected through these cables e.g. under exceptional circumstances (such as damages that result in disruptions of internet services)

Main take-aways - Internet relay services & potential restrictions

Internet relay services

- Used to ensure confidentiality by encrypting the data traffic directly on the users' devices or in the users' domain
- User uptake does not seem to be significant at the moment but such services deserve to be monitored because of their potential impact on traffic flow, on the utilisation of an internet access providers' current interconnections, and, as a consequence, on the decentralised approach of the internet architecture

Other potential restrictions by OS providers

- OS providers can sometimes restrict ECN/ECS providers' ability to correctly give access to services or to the network itself
- Typical examples include the access to 5G slicing functionalities or other restrictions to the provision of the slices, the potential implications of provider-specific solutions for standardised services (e.g. RCS), as well as the difficulties that some MVNOs and smaller mobile operators seem to face in setting up some functionalities of the devices or in configuring the network profile when eSIMs are used

Public consultation

- The draft report was adopted at P1 2024 and opened to public consultation from 13 March to 24 April 2024
- **18 respondents**
  - **7 ECS/ECN providers & their associations**: ECTA, ETNO, GSMA, MVNO Europe, Telefonica, 4iG and 1 confidential contributor
  - **2 CDN providers**: Akamai, Cloudflare
  - **8 large CAPs & their associations**: CCIA Europe, Google, Information Technology Industry Council, Meta, Microsoft, Motion Picture Association, Netflix and 1 confidential contributor
  - **Others**: Shift Project

Public consultation

- **Main feedback received**
  - General support for the analysis
  - Insights and details concerning some services and practices (e.g. restrictions by OS providers on smaller operators)
  - Main disagreement concerned
    - The analysis of competition dynamics in CDN markets
    - The effect of the deployment of submarine cables by large CAPs on resilience

→ The final report was adapted accordingly and the treatment of all inputs was explained in a separate report

Future work

- BEREC contribution to the implementation of the Data Act
- BEREC contribution to the implementation of the Digital Markets Act
- BEREC contribution on the impact of Artificial Intelligence
- BEREC contribution on submarine cables connectivity in Europe