



ecta RESPONSE

**TO THE PUBLIC CONSULTATION BY
BEREC ON THE DRAFT REPORT ON**

**CLOUD AND EDGE COMPUTING
SERVICES**

BOR (24) 52

24 APRIL 2024

1. Introductory remarks and key ecta considerations on BEREC draft report

1. ecta, the [european competitive telecommunications association](https://www.ectaportal.com/about-ecta),¹ welcomes the opportunity to provide feedback on the public consultation launched by BEREC on a “*DRAFT BEREC REPORT ON CLOUD AND EDGE COMPUTING SERVICES*” BoR (24) 52 (hereinafter “the draft Report”).
2. ecta represents those alternative operators who, relying on the pro-competitive EU legal framework that has created a free market for electronic communications, have helped overcome national monopolies to give EU citizens, businesses and public administrations quality and choice at affordable prices. ecta represents at large those operators who are driving the development of an accessible Gigabit society, who represent significant investments in fixed, mobile and fixed wireless access networks that qualify as Very High-Capacity Networks (hereinafter “VHCN”) and who demonstrate unique innovation capabilities.
3. ecta warmly welcomes BEREC’s initiative, which explores in a well-structured and detailed manner, and with insight into the evolution of cloud and edge computing services, initiates a proper reflection on potential implications for the regulatory framework for electronic communications networks and services.
4. ecta would like to highlight that the evolution of cloud and edge computing services is an important issue for its members. Thanks to the pro-competitive and pro-consumer EU regulatory framework, ecta members have been able to enter and expand into markets, and they have contributed very significantly to the current EU state of the art regarding VHCN deployment and take-up, resulting in consumers, businesses and public administrations benefiting from affordable, inclusive, and innovative VHCN service offers by multiple operators.
5. Some ecta members have been and remain front runners, in terms of both investment and the adoption of new technologies and business models, including cloud and edge computing services. They are profitable businesses, operating across Europe, and are bringing innovation to the market by relying on those technologies. For instance, Colt provides in all EU a wide range of connectivity solutions on Ethernet, Optical, SD-WAN, IP VPN and Internet technologies enabling customers to connect to the cloud providers (multi-cloud) of their choice, via the transmission solutions of their choice. Fastweb, in Italy, is active in cloud and network virtualization. AIIP has among its members some of the largest Italian service providers of connectivity and cloud solutions. Iliad, in France, is active in cloud and AI, through Scaleway. Eurofiber provides connectivity to the cloud in Belgium, France, and the Netherlands. 1&1 is active in cloud services through Ionos in Germany and across Europe. Thus, many ecta members have entered cloud and edge computing markets, and others will soon enter in those markets. Some are offering novel technologies in B2B market environments, such Colt which is a recognised leader in software defined networks (“SDNs”), private

¹ <https://www.ectaportal.com/about-ecta>

networks, edge cloud, SaaS etc. Transatel is a global leader in IoT services, notably for connected mobility.

6. In this fast-changing world, connectivity, linking customers to multiple cloud providers is more mission-critical than ever, and therefore it's vital to have the right cloud strategy in place. **ecta** believes that effective access to electronic communications infrastructures is and will remain a fundamental pillar also in a world characterized by the advent of cloudification and virtualization. Effective and fit for purpose infrastructure access is propaedeutic for the operators to provide access to cloud and edge computing services to consumers and businesses and to continue to innovate at the virtual layers of the network where those services are provided. Any option aimed at restricting access to the infrastructures of operators with significant market power, if approved would disrupt irreversibly the advent of innovative technologies including cloud and edge computing services.
7. **ecta appreciates the BEREC draft report and believes that the issues raised by the draft report reflect well the overall picture and all the main risks/problems.**

Scope of electronic communications regulation in relation to cloud and edge computing.

8. As regards the key topic of the sectoral regulation's scope in relation to cloud and edge computing technologies, **ecta** fully agrees with BEREC when it states: *"The EECC takes into consideration the functionality provided by the services independently of the underlying technology used. Such general approach for the definition of the services is applied as well on cloud-based networks, in line with the abovementioned recital 14 EECC. Therefore, in general terms, the substitution of physical elements by software elements would not impact the definitions and, thus, the scope of application of the EECC."* (ecta emphasis added)
9. **ecta** notes that BEREC, in light of the EC's Exploratory Consultation (2023) first, and the EC's White Paper (2024) thereafter, calls for a case-by-case analysis, due to the fact that ECN/S, IT and cloud/edge computing services are increasingly intertwined. BEREC adds that, with the current and expected evolution of new digital services, the boundary between ECN/S and the cloud services provided (most of them, currently out of the scope of regulation) becomes more and more blurred.
10. **ecta** notes and appreciates BEREC's proposed exploration and is happy to contribute.
11. To such purpose, **ecta** would like to underline that, as of today, **ecta** does not acknowledge any cases that would require a review of EECC's scope of application due to network cloudification or virtualization. The current competition in the markets is the key factor that enables their evolution.

12. At the same time, **ecta** would like to underline that cloud and edge computing technologies will soon be implemented and used by the operators to a greater extent. This will create a spillover effect to many other industries thanks to the wider spread of standalone 5G technologies, which, as stated by BEREC, are cloud native. The presence of VHC networks and 5G Stand-Alone (and beyond) networks is key for exploiting the full potential of cloud and edge computing technologies. It is therefore important to underline that, irrespective of the different state of development of those technologies in specific regions of Europe and among different players, cloud, and edge computing, for their existence and diffusion, *sine qua non*, need to rely on very high capacity networks and 5G Stand-Alone networks. Access to infrastructures by the different parties will remain key in order to have the multiple spill-over effects in the electronic communications sector and for multiple industries that will rely on, and benefit from, those technologies.
13. The fixed and mobile electronic communications markets, while presenting some different patterns² are both characterized by structural bottlenecks which impede the development of sustainable competition and consumer benefits. For fixed networks, access to the civil engineering infrastructure, physical access to bottleneck network elements, and where needed in addition, wholesale active access, remains key, requiring ex-ante regulation in many circumstances. In fact, civil engineering works require huge investments, deploying fibre in ducts requires significant investments, and the duplication of a network covering a large part of the territory does not seem realistic, according to experiences in the EU except in few cases. Therefore, in many cases, NRAs are likely to conclude that appropriate wholesale passive (i.e., access to local loop) and active network access will still be needed. Similarly, for mobile and fixed wireless networks, spectrum, which is the basic and key underlying input, is, and will remain, a scarce resource, requiring efficient and balanced distribution amongst operators as well as efficient and effective use.
14. The European Electronic Communications Code (EECC) addresses the restrictive practices that can come from the parties holding ownership and bottleneck control over essential and non-replicable network infrastructure. The EECC is structured notably around the concept of designating, only where justified by a fully-fledged analysis and on an evidence basis by NRAs, specific network operators as holding Significant Market Power, which must mandatorily be addressed by specific regulatory obligations placed on them. Naturally, in case NRAs find that the three-criteria test³ is not met, or NRAs find that there are no competition problems in the relevant markets, then the market is not regulated, or the existing regulation is lifted. In this frame of reference, it should be highlighted that in networks based on SDN and NFV, civil engineering

² Historically, across Europe, in each Member State, 3 or more mobile networks, all with national coverage, have been deployed, while the fixed very high capacity networks (mainly FTTB/H, except by the incumbent operator which is the ex-monopolist of the Member State, generally have not been deployed by multiple players with a national coverage but instead due to the very high cost of deploying civil infrastructure, especially digging costs, they have been concentrated on some areas/ regions of the Member State.

³ The three criteria test is met if the market meets all of the following criteria: (i) high and non-transitory barriers to entry, (ii) a structure that does not tend towards effective competition and (iii) competition law alone is insufficient to adequately address the identified market failures.

infrastructure, physical networks (and access), and, where needed in addition, wholesale active access are still essential, in the same way as in the networks of today.

15. Therefore, **ecta** kindly invites BEREC to clearly specify in the final text of its Report that, **irrespective of the virtualization and cloudification trends of the networks, the networks do rely on civil engineering and physical infrastructure which remains non-substitutable by higher layers (virtual layers where cloudification occurs) and remains essential for access to the networks, and to have greatest control over the networks. Where needed in addition, wholesale active access, also remains key.** BEREC making this statement appears essential to clarify the context and to avoid the confusion that can derive from the European Commission’s White Paper and its tendency to create the impression that network cloudification and virtualization, in combination with the alleged flaws of the EU model (Europe lagging behind its peers in terms of VHCN, 5G deployment and in terms of investments) would require a substantial change in the EU regulatory framework in terms of deregulation of wholesale access markets.
16. As a matter of fact, SDN and NFV virtualize network infrastructure, enabling new forms of managing networks, but they do not create new civil engineering and passive network infrastructure. These technologies can be applied to all kinds of networks regardless of underlying technology be it a full fibre network or a cable one or 5G network and in this sense the technology neutrality feature of the EEC perfectly captures the regulatory essence of SDN and NFV technologies.
17. **ecta** firmly believes that the conclusions reached by BEREC regarding access to passive network infrastructure, in its Input paper to the EC on potential regulatory implications of software-defined networks and network functions virtualisation - BoR (16) 97⁴, remain valid: *“In networks based on SDN and NFV, passive network infrastructure is used in the same way as in the networks of today. Therefore, SDN and NFV do not have any impact on the access to passive network infrastructure”*. (**ecta** emphasis added). Therefore, **ecta** kindly invites BEREC to take a clear stance and should again include this finding in the final text of the Report.
18. Similarly, the same conclusions remain valid when it comes to (active) fixed network access. In 2016 BEREC stated that: *“SDN and NFV have the potential to enable new forms of fixed network access which provide alternative network operators with more control over the network of the incumbent compared to current Layer 2 wholesale access products (e.g. VULA). However, today this is not the case and it needs to be seen whether SDN and NFV will be developed further in order to enable such new forms of fixed network access”*.
19. 7 years after the release of this BEREC input paper, **ecta** notes that there haven’t been any substantial technological and standardization developments that would change the conclusions BEREC reached in 2016. **As of today, new forms of fixed network access which provide alternative operators with more control over**

⁴ Available [here](#)

the network compared to current Layer 2 wholesale access products with multi tenancy capabilities, which enable several parties to control the same physical network, are still not available.

Competition issues in relation to the cloud and edge computing.

20. **ecta** acknowledges and agrees with BEREC that the cloud computing market is characterised by huge economies of scale, scope and network effects. **ecta** appreciates BEREC's meticulous analysis of the competitive state of art in relation to the structural features of the cloud and edge computing markets, including the risk of leveraging market power into adjacent markets.
21. **ecta** appreciates BEREC's careful monitoring of the competitive dynamics, including interoperability which appears a key feature for the future openness of cloud and edge markets. In fact, interoperability obligations are pivotal for future competitive cloud markets in order to prevent any lock -in effect.
22. **ecta** believes that the recently introduced Data Act will have concrete beneficial effects on switching and interoperability, but it also believes that fully-fledged enforcement of the EEC and the provision of additional pro-competitive measures for bundled offers comprising electronic communications networks and services with cloud and edge services is relevant. Attention to switching and interoperability is also relevant in the context of ensuring effective application of the package for regulating the digital sector, notably the Digital Markets Act.
23. **ecta** is eager to provide its contribution for the design of such additional measures and will continue to collaborate with BEREC.

ecta considerations on specific BEREC public consultation questions

Q1: Chapter 6.2 develops on electronic communication networks migration to the cloud. One of the preliminary considerations pointed out in this section regards to the scalability constraints that face ECN that might hinder taking fully advantage of network cloudification benefits. It is also argued that mobile networks may face less limitations than fixed networks. Do you agree with these preliminary findings? Please, explain your answer. Are there other scalability constraints to be considered?

24. **ecta** agrees with the limits to scalability mentioned by BEREC.
25. However, **ecta** would like to underline that not only the cloudification of ECN is challenging, but also that not all operators need a total cloudification and virtualization of their networks (e.g. some of them operate in specialized parts of the value chain, or do not see a business need for it).
26. As correctly underlined by BEREC in its draft report, the networks are limited to geography and consequently configured to provide services in particular areas. So, for certain network domains, scalability benefits are less than for public clouds: networks require local unused resources to support unexpected peak demands.

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27. When it comes to the distinction between the cloudification over public or private cloud, **ecta** agrees again with BEREC's factual analysis: most operators are still reluctant to move network workloads to public cloud and prefer the migration to a private cloud, Drawbacks for public cloud include lack of control, resiliency, security or cost uncertainty.
28. Another issue that sometimes hampers operators to go to the cloud is the security authorizations required. Growing pressure from relevant legislation can be a factor to slow down or can even lead to the decision to not opt for cloudification of the networks.
29. Obligations ensuring interoperability and transparency and publication of API specifications would also allow not only to level the playing field between ECS providers and CSPs when it comes to cloud and edge markets, but would also enhance market confidence towards cloud as, it would allow to overcome lock-in effects.

Q2: Is there a risk that investments in cloud-based networks crowd out private investments in network coverage and network capillarity? Are investments in network innovation and network coverage substitutes or complements?

30. **ecta** believes that both investments are needed, and they complement each other. Investments in cloud-based networks cannot crowd out private investments in network coverage and network capillarity because the investments in network innovation and those in network coverage are mainly complements rather than substitutes (e.g. trenching, ducts/poles, manholes, cables, transmitters are relevant at different layers and not subject to cloudification).

Q3: What are your expectations on the evolution of competition in the electronic communication markets given network cloudification? Can market failures in the cloud market affect competition and investment in the provision of electronic communication networks and services? To which extent?

31. Whilst **ecta** believes that technological evolution could sometimes have a disrupting effect on the competitive trends, in this specific case, **ecta** would like to highlight that the future trends of competition in the electronic communication markets will significantly depend on the evolution of the existing regulatory framework and not on cloudification.

32. The current pro-competitive and pro-consumer EU model is a great success. It is delivering VHCN deployment and services offered at affordable prices. It is an intelligent framework that foresees regulation only upon the demonstration of market failure by the NRAs. If this framework will be dismantled, then the competition dynamics in the markets still in need of regulation will be worsened irreversibly irrespectively from cloudification.

33. **ecta** firmly believes that the technology neutrality principle, and competition in all its forms, including infrastructure and service-based competition, are core

enablers of innovation and investment in new technologies in telecoms markets, for the benefit of European society. In addition, those principles which are at the heart of the EU regulatory framework for electronic communications have been key for ensuring an inclusive European telecommunications market that is beneficial to end-user interests. These principles enable the current framework to remain adequate in terms of scope of its application, also to deal with the regulatory issues in a world of virtualized networks.

34. At the same time, **ecta** is aware that the market failures in the cloud market could affect competition and investment in the provision of electronic communications networks and services. The huge scale and scope economies and network effects in a highly concentrated market, in which cloud computing services are more and more offered together with the electronic communication networks and services, could need some additional pro-competitive provisions in addition to those effectively foreseen by: i) the technology neutral application of the EEC and ii) the data portability/switching measures of the Data Act and iii) the interoperability and API related provisions of the Digital Markets Act.
35. For instance, the internal teams of the electronic communications operators working on virtualization and cloud for the purposes of optimizing their networks and services may be reliant on implementing their solutions by making use of the services hosted by a hyperscaler. If the electronic communications network operators are not subsequently able to switch to another cloud provider, or internalize their solutions fully, they may face serious lock-in and dependency issues, there is therefore a risk of abuse of dominant position by the hyperscaler in constraining the independence of its clients, notably including ECN/S providers working on virtualization/cloudification on their own account.
36. **ecta** believes that specific measures relating to licensing policies adopted by vertically integrated (data processing and software) undertakings could ensure the pro-competitive effects of data portability and free switching rules introduced by the Data Act.
37. For instance, it would be necessary to ensure that the customers deciding to run their licensed software on third-party data processing services are not impeded from doing so, or by being discriminated by vertically integrated providers (hyperscalers). In this regard, the “bring your own license” principle should operate also when the customer switches from the vertically integrated provider to a different data processing provider (more in general, lock-in clauses should be prohibited). License portability should not be accompanied with retaliations versus customers or alternative providers (e.g. service level degradation). License conditions should be transparent, fair and non-discriminatory (e.g. no extra costs in case of use of the software on an independent data processing service).

Q4: Are all operators and service providers equally equipped to take advantage of network 'cloudification'? What would be needed to ensure that the transition to cloud networks does not create an uneven playing field in electronic communication markets?

38. **ecta** fully agrees with BEREC's analysis insofar as it shows that the virtualization/cloudification of network functions may create asymmetries among network operators, as not all are equally equipped to face the inherent challenges or move to the cloud. Indeed, some (smaller) ECN/S operators may be less able to bargain good deals with cloud providers, resulting in distortions on ECN/S markets to the detriment of competition.

39. **ecta** believes that increasing the interoperability and standardization between cloud-based network solutions may to a certain extent reduce the operator lock-in with cloud vendors. In this sense, **ecta** agrees with the BEREC proposal regarding adopting a common blueprint for deploying ECS on the cloud that all operators could make use of as a possible enabler to create a level playing field; **ecta** therefore, calls on the institutions, including the standardization bodies to reflect on this proposal.

Q5: Chapter 7 develops on regulatory considerations related to the different trends described along the report (e.g. the characteristics of the cloud markets, cloud and ECN/S convergence, synergies and dependencies among players and technologies, etc.). Do you agree that those are potential relevant regulatory matters in the coming years? Is there any other potential risk (or opportunities) that regulators should consider?

40. **ecta** agrees overall with BEREC and the relevant trends described.

41. However, **ecta** believes that the final text of the BEREC Report should also include the acknowledgement of the fact that civil engineering and physical infrastructure remains non-substitutable by higher layers (virtual layers where cloudification occurs) and remains essential for access to the networks, and to have greatest control over the networks. Where needed in addition, wholesale active access, also remains key. Therefore, access to the key civil engineering and passive network inputs (ducts and network elements such as dark fibre), and where applicable wholesale active access to the networks of the operators holding Significant Market Power will continue to be necessary to enable and promote competition in the electronic communications networks and services markets.

42. This analysis and statement appear a fundamental one for BEREC, considering the ongoing EC White Paper consultation and the push from some stakeholders, including DG CNECT, and the incumbents, calling for a substantial deregulation of the access markets by setting zero markets in a review of EC Recommendation on Relevant Markets Susceptible to Ex-Ante Regulation.

43. **ecta** believes that there is a serious potential risk connected to introducing cloudification / cloud markets in the EC Recommendation on Relevant Markets and/or in the EECC. Alleged blurring of the borders between cloud and electronic communications services, without showing concretely how this blurring trend would de facto affect wholesale network access markets, may be instrumentalised to push for the dismantling of the current regulatory framework.

Q6: What is your opinion on the different hypothetical situations mentioned in Chapter 7.2.2, point vi. “APIs openness and APIs exposure” in which potential issues related to API exposure may arise? Are these hypothetical situations relevant and if so, in what timeframe?

44. ecta appreciates the effort of BEREC to reflect on all scenarios related to the possible potential abusive behaviours that can threaten API openness and exposure. That being stated, ecta does not acknowledge any real cases among its membership and therefore, invites BEREC to continue monitoring while the market will further evolve, and APIs may be more broadly used.

Q7: Technical developments allow for increased connectivity specialization tailored to specific services. From a forward-looking perspective, is there a risk that network capabilities enabled by cloudification, in the context of the observed digital market trends (ecosystems, concentration, network effects, potential for leveraging market power into adjacent markets, etc), could lead to a reconfiguration of the Internet towards separated, proprietary and non-interoperable, environments?

45. ecta believes that the cloud legislation so far adopted by the Institutions (DMA, Data Act), together with the effective enforcement of the EECC, and with some additional pro-competitive measures such as the ones indicated in paragraphs 36 and 37 above, if applied effectively, will avoid the risk of a reconfiguration of the Internet towards separated, proprietary and non-interoperable, environments.

2. ecta Concluding Remarks

46. In light of the observations, evidence and reflections provided above, ecta kindly invites BEREC, in the final text of its Report:

- a. In relation to scope of electronic communications sector regulation, to explicitly state that, **irrespective of the virtualization and cloudification trends of the networks, the networks do rely on civil engineering and physical infrastructure which remains non-substitutable by higher layers (virtual layers where cloudification occurs) and remains essential for access to the networks, and to have greatest control over the networks. Where needed in addition, wholesale active access, also remains key.** In fact, alleged blurring of the borders between cloud and electronic communications services, without showing concretely how this blurring trend would de facto affect wholesale network access markets, may be instrumentalised to push for the dismantling of the current regulatory framework.
- b. Amend the final text in a way to make sure that a paragraph in relation to (active) fixed network access is included to affirm that the BEREC statement of 2016 report remains a valid statement: *“SDN and NFV have the potential to enable new forms of fixed network access which provide*

alternative network operators with more control over the network of the incumbent compared to current Layer 2 wholesale access products (e.g. VULA). However, today this is not the case and it needs to be seen whether SDN and NFV will be developed further in order to enable such new forms of fixed network access” .

- c. Introduce in the final text more emphasis, to call on the EU institutions for coordinated action, to make sure that:
 - a) a common blueprint for deploying ECS on the cloud that all operators could make use of as a possible enabler to create a level playing field is a desirable measure endorsed by the market players.
 - b) some additional pro-competitive measures, as specified in paragraphs 36 and 37, in addition to what is already foreseen by the Data Act, are needed to ensure a level playing field in the context of data portability and free switching.

In case of questions or requests for clarification regarding this contribution, the European Commission is welcome to contact Mr Luc Hindryckx, [ecta](#) Director General, or Ms Pinar Serdengeçti, [ecta](#) Regulation and Competition Affairs Director.