Microsoft's response to the BEREC consultation on its 2023 Work Programme

Introduction

Microsoft thanks BEREC for organizing a consultation on the draft BEREC 2023 Work Programme, building on the BEREC Strategy 2021-2025 to promote full connectivity, support sustainable and open digital markets and empower end-users, in support of Europe's vision, targets and avenues for Europe's Digital transformation.

The digital economy is a key driver of Europe's growth in the years to come. Against the backdrop of the COVID-19 pandemic and the on-going war in Ukraine, Europe has undertaken an unprecedented digital transformation, evidencing the importance of connectivity and its role in ensuring economic continuity and resilience, empowering end users, as well as the key role of technology in support Europe's twin transition ambitions.

All of these developments entail policy and regulatory issues that require a focus and a follow-up, in areas such as spectrum or connectivity policy, but also underline the need to continue developing appropriate cybersecurity frameworks and embracing green technologies that mitigate the climate impact of the ICT sector. In this context, BEREC will play a key role in deploying its expertise around telecommunications and connectivity writ large. Therefore, Microsoft looks very much forward to co-operating and engaging with BEREC and is keen to bring useful expertise particularly in critical areas such as cybersecurity or green and emerging technologies, amongst others.

We hope the following detailed comments can serve as a constructive contribution to BEREC's deliberations on its draft.

Strategic Priority 1: Promoting full connectivity

As mentioned in the preceding section, Microsoft continues to fully support BEREC commitment to promote full connectivity, by encouraging secure, competitive and reliable high-capacity network such as 5G, fibre and WiFi. Particularly, without sufficient investments in and spectrum allocations to Wi-Fi, the investments in fibre will not reap their benefits towards the end user. This is very worrisome as already today; indoor connectivity carries the vast majority of internet traffic[1]. We therefore strongly encourage BEREC to start measuring end-user traffic in terms of technologies used, so that further efforts to promote full connectivity can be based on a truly data-driven approach in addition to predictions about the future.

1.6 BEREC External workshop on secure and reliable connectivity in Europe from low earth orbit satellites.

The war in Ukraine has evidenced the growing importance of satellites as connectivity providers and critical assets to Europe's security, economic power, digital leadership, digital resiliency, competitiveness, and societal progress. Therefore, we welcome BEREC's proposal to hold a workshop in Q1 2023 that broadens its knowledge of the opportunities and challenges of NGSO satellite communication networks. In our view, ensuring state of the art space connectivity in Europe is a global exercise, that requires an effective commitment to collaboration and a coordinated global approach and joint efforts, from government, European institutions and agencies, European space companies and

the technology industry working in close cooperation. As a result, we are supportive of such a workshop and appreciate the opportunity to bring forward this topic of discussion.

1.9. Report on BEREC's activities to support initiatives for secure 5G networks

Microsoft welcomes BEREC's continued commitment to support the European Commission, NIS Cooperation Group and ENISA in fostering exchange of information and best practices, knowledge building and cooperation, and promoting supply chain resilience as part of the key objectives for the next steps on cybersecurity 5G networks. With equipment providers operating largely in a cross-border mode, Microsoft especially welcomes the efforts that will be done to harmonize 5G cybersecurity requirements across the European digital market. We believe the recent report by the OECD highlights why a harmonized approach to the cross-cutting issues of digital security is so important for the telecommunication sector.[1] In addition, Microsoft would also encourage more advanced discussions on the additional security benefits that cloud computing technology can bring to 5G networks. Microsoft believes there are three principles that future 5G network security should incorporate: 1) existing security baselines into 5G networks, 2) encourage the use of zero trust security principles for operators and 3) promote sustainable, transparent and continuous dialogue on security roles and responsibilities between operators and their vendors.

We would encourage the NIS work-stream to take in consideration first, existing security standards that relate to digital technologies and cloud-based capabilities, including ISO 27001 and ISO 27017, which are well established security baselines. These standards provide two platforms for the broad telecommunication sector, as more networks incorporate virtualized components from a diverse set of vendors and across a wide value chain. We also believe that in addition to these well-established security standards, it will be increasingly essential for telecommunication networks to adopt a zero-trust mindset[2] as networks become more connected and complex than before.

Finally, the security of a deployed network is the result of many actors and processes working together. The mobile network specifications can be seen as the initial blueprint taking into consideration the security of the architecture aimed to support a set of use-cases. This blueprint is then materialized in products using the possibilities and security principles that ICT technology and particularly cloud technology offer and by taking into account regulatory requirements.

Microsoft has done an extensive analysis of 5G security standards across the globe, including the 5G cybersecurity toolbox and its adoption across different Member States. Microsoft is happy to share the results of this analysis to help improve requirements and facilitate a better alignment of both leading security practices (as they apply to 5G networks, such as zero trust) and what we see as the best path forward for roles and responsibilities on 5G security between operators and vendors.

Microsoft therefore appreciates the proposal for a report on secure 5G networks to be published at Plenary 2 2023.

1.12. Report on cloud services and edge computing

We support 2030 Digital Compass and Digital Decade targets including the use and uptake of cloud services and edge computing, as well as the European Commission's ambition to look into new digital

[1] Policy Report: Communication regulators of the future, OECD Digital Economy Papers, October 24 2022 (Link)
[2] Zero Trust Model - Modern Security Architecture | Microsoft Security

opportunities such as the metaverse. We welcome BEREC's proposal for a report on cloud services and edge computing to be published at Plenary 4 2024, appreciate the opportunity to contribute to the public consultation, and hope to be a useful discussion partner in this regard.

Strategic Priority 2: Thriving sustainable and open digital markets

We welcome BEREC's commitment to open and sustainable European digital markets, the essence of Europe's Fit for the Digital Age ambitions.

2.4. Potential ad-hoc work on ICTs sustainability in the frame of the European Green Deal implementation

For Microsoft it is clear that digital technologies must be green and as a technology company we also bear a responsible to support other sectors of the economy to realize their own green transition. We welcome BEREC's continued commitment to limit the sector's impact on the environment and contribute to the acceleration of the twin green and digital transition. To that end, we believe it is timely to foster potential ad-hoc work on ICTs sustainbility around greener network deployment, transparency of environmental footprint, circular economy and energy efficiency, the impact of emerging technologies and the enabling effect of the ICT sector on other sectors.

As laid down in a recent GSMA report, sustainability has become the cornerstone of how operators design and implement networks. Green investments are not only the right thing to do, but also it is also a business case, as those operators who do to invest in the green transition may hinder their own long-term competitiveness. It is clear, the momentum behind the green agenda continues to grow across the telecoms sector, with both investments in sustainable technology but also reduction in carbon emission from directly controlled operations.

Renewable power sources and energy efficiency increase will be key in managing the green transition that we are in the middle of. Renewables are critical for the transition to a zero-carbon economy, incentivizing a transition to more sustainable networks relates back to technology, including for example the use of OpenRAN equipment as part of the broader networks virtualization or embedding efficiency into 6G standards. Energy efficiency is a top purchasing priority amongst operators, technology here also plays a key role, mainly Artificial Intelligence (important for analysing, processing, and translating data intro insights); software and network virtualization (helping centralize network intelligence and control at the software layer and standardizing hardware); and site simplification (offering a lean and streamlined power supply).[3]

2.7. Assessment of the IP interconnection ecosystem and impact of the potential sending party network pays principle on Internet ecosystem and on end-users (carry-over)

Microsoft commends BEREC's preliminary assessment on the IP interconnection ecosystem and impact of the potential sending party network pays principle on Internet ecosystem and on end-users, published on October 12 and reaffirming its 2012 conclusions. We appreciate BEREC's commitment to continue to analyse the impacts such a proposal would have on end users and on the entire Internet

[3] Mission sustainable: 5G efficiencies and the green network, GSMA Intelligence, 2022, Mission sustainable: 5G efficiencies and the green network (gsmaintelligence.com)

ecosystem. Furthermore, we appreciate BEREC's effort to take into consideration the findings and observations from the case of South Korea, and the negative impact the introduction of mandatory 'sending party network pays' mechanism has had on end-users in the country.

The current approach to interconnection on the Internet, favouring market driven negotiation above regulation, has supported Internet growth and evolution, and unfettered IP interconnection remains fundamental to maintaining this growth and evolution. We firmly believe that IP interconnection is not the problem and regulating it is not the solution.

Even if the telecom operators' revenues may have declined, this is not due to the traffic growth. On the contrary, the internet access business is the most sustainable of their services. We would like to emphasize the available data (including the telecom operators' study published by the GSMA) confirming that telco revenues from internet access connectivity business have grown over the past years. Furthermore, we are not aware of capacity constraints caused by content providers' traffic, due to traffic increase in the telecom networks. The telecom networks managed to support even the traffic boosts caused by significant changes in usage due to the COVID-19 pandemic, traffic seems to have stabilized since then.

It is important to keep in mind that the internet is much more than a last-mile connection; it is a complex ecosystem that consists of many indispensable and interdependent building blocks. It is an ecosystem of contributors, heavy investors and content providers, all of which are key drivers of internet innovation and value creation. The possible introduction of network fees could have unintended negative consequences to the entire ecosystem. Imposing network usage fees or financial contributions on certain content providers would risk unravelling the net neutrality principles and introducing undue regulatory constraints, complexity and costs, undermining significant investments made by the sector, and risk being detrimental to consumers and businesses in Europe. In this context, we believe it is important for BEREC to consider the effects of such a measure on the entire ecosystem.

We appreciate BEREC's commitment to continue to carefully and thoroughly assess all of these elements, and we are looking forward to the adoption of the draft report for the public consultation at Plenary 2 of 2023.

2.10. External study on the trends and policy/regulatory challenges of cloudification, virtualisation and softwarisation in telecommunications

We agree with BEREC's assessment on the relevance of cloud computing, network virtualization and network softwarisation and the impact and opportunities they provide for the networks, evidenced by the growing importance of data centres and the growing demand for cloud computing, and online content and services.

The roll-out of 5G and network cloudification have demonstrated throughout the years, the possibilities that these offer for consumers and organizations alike and the opportunities for a rapid digital transformation. This alone should motivate operators to accelerate network transformation, to improve competitiveness, deliver new services and yield positive financial results both through innovation and growth. In our view, telecom digital transformation starts with the modernization of network core systems and operations.

The relationship between networking and computing technologies is changing rapidly in fundamental ways. In general, the trend for decades has been for what was rendered in hardware (e.g., specialized appliances) to be subsumed by software-based implementations that can be easily distributed and adapted to execute in many different environments. This same trend is now being applied to networking resources as well. In the past the network largely existed as a distinct entity embodied in purpose-built hardware platforms and its primary function was to interconnect the general-purpose computers which executed applications. Virtualization, along with cloud scale and geographic dispersion of computing resources now allow the networking functions to be defined in software and rendered in general purpose computing platforms. Increasingly the cloud embodies all facets of the network except for the physical layer (e.g., modulating wireless wave forms, illuminating fibre, etc.). The scale of cloud computing/storage coupled with massive connectivity that has materialized over the last few years have enabled artificial intelligence and machine learning to emerge with profound implication

We therefore welcome BEREC's proposal to contract a study to gather current trend in the provisioning of electronic communications networks and services and the potential regulatory and policy challenges these may give rise to.

We thank BEREC for the opportunity to comment on its draft Work Programme for 2023 and look forward to working with BEREC on these important topics.