

Understanding the economic impact of cloudification in telecoms

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Communications service providers' (CSPs') networks are undergoing significant changes with the adoption of cloud technologies and the transition towards virtualising network functions. Cloud-based network technologies enable more open and disaggregated network architecture, flexible deployment and commercial models, and new modes of operations, all of which alter the traditional network cost economics for all industry stakeholders, including CSPs, technology suppliers and regulators/policy makers.

Analysing cloud cost economics is an integral part of formulating CSP network cloud and digital transformation strategies

Cloud is driving a major shift away from monolithic, closed telecoms functions to new network architecture and consumption models that are based on disaggregated and distributed network software and hardware layers. The cloud developments that are happening in the 5G mobile era have brought the introduction of cloud-native technologies, such as containers, microservices and Kubernetes, to address challenges in delivering high-performance, low-latency, and scalable services to customers in the mobile core and RAN (including vRAN/Open RAN). Network cloudification activities have also started to extend beyond mobile networks to include transport networks, which are increasingly becoming cloud- and software-based and disaggregated.

CSPs face crucial decisions on how to bring together these disaggregated network cloud components to create common, highly automated digital platforms. [CSPs worldwide are expected to spend USD32 billion on network cloud infrastructure by 2027](#), and need to understand the complete set of costs associated with various approaches to sourcing a disaggregated cloud platform to make informed decisions about their network cloudification strategies and roadmaps. Making informed decisions involves a series of complex steps and factors, including the following.

- **Building a business case justification for investment.** Although CSPs are generally enthusiastic about open and disaggregated cloud network technologies such as Open RAN, they need to secure internal support and make investments to adopt these technologies. Therefore, CSPs should consider holistic total cost of ownership (TCO) studies, such as [Analysys Mason's Open RAN model](#), to test and demonstrate the short-term economic viability, and enable sign-off, of cloud-native network investments.
- **Identifying the most suitable network cloud procurement and implementation models.** CSPs are evaluating multiple paths for building their cloud platforms including vertically integrated clouds from network equipment providers (NEPs), do-it-yourself private clouds using software-only IT vendors' technologies and public cloud providers' (PCPs') cloud technology stacks. Each model has its advantages and disadvantages that CSPs should evaluate carefully. For example, a recent [Analysys Mason TCO study](#) showed that taking a PCP-managed cloud platform approach to 5G standalone core networks could offer significant opex savings (44%) compared to a do-it-yourself cloud model.

- Increasing operational and organisational readiness.** Successful implementations of the cloud-native and disaggregated networks require CSPs to make significant changes to their current mode of operations and investments to bring or build cloud-native software skills in the organization. [Our TCO study on IP network disaggregation](#) showed that while the use of white boxes in the network provides capex savings, CSPs need to make large upfront investments in operational automation and relevant skillsets for the end-to-end lifecycle management of disaggregated networks, which has a considerable impact on TCO.

CSPs need to consider several other key factors when they are forming their network cloud strategy and investment decisions such as choosing the right vendor(s), identifying optimal network architecture (centralised or distributed) and cloud delivery models (on-premises, hybrid and SaaS). Each of these has been analysed in TCO studies and cost modelling exercises that Analysys Mason has developed for CSPs, vendors and regulators.

Vendors and regulators must understand cloud cost economics if they are to take advantage of network cloudification

Network cloudification and disaggregation are also transforming the competitive and regulatory landscape by changing CSPs’ relationships with their suppliers, enabling the entry of new players and value-chain disruptions, and raising new regulatory and policy-related considerations.

Understanding the cost economics of network cloud, and educating the market about it, should be a priority for network technology suppliers such as NEPs, PCPs, OSS/automation vendors and system integrators. This will enable them to foster the adoption of their network cloud solutions, promote best practices and strategies through white papers, case studies and webinars, and guide their R&D efforts and product roadmaps. By doing so, vendors can improve their position in the market and develop solutions that cater to CSPs’ needs, ultimately gaining a competitive advantage.

Like CSPs and vendors, regulators and policy makers need to assess the potential benefits, opportunities and challenges that cloudification presents (Figure 1). For example, they will need to understand the potential cost savings from cloudification and how these savings will affect the cost of regulated services, how cloudification may allow new forms of network sharing, and whether disaggregation of the control and data plane or the more complex supply chain could potentially lead to cyber-security threats, etc.

Figure 1: Overview of opportunities and risks that network cloudification presents to the telecoms industry

Stakeholder	Opportunities	Risks
CSPs	<ul style="list-style-type: none"> • Cost savings from higher utilisation • Cost savings from lower prices due to increased vendor competition • Increased service agility improving time to market and new services supporting revenue generation • Potential customer experience improvement 	<ul style="list-style-type: none"> • Cost of, and time taken for, operational and organisational changes • Cost of technical evaluations and performance trade-offs
Vendors	<ul style="list-style-type: none"> • Potential technical improvements • Opportunities for new vendors (such as PCPs) and expansion into new markets • Opportunity for new pricing models 	<ul style="list-style-type: none"> • Potential supply chain disruption if using multiple vendors including smaller players • Cost of, and time taken for, operational and organisational changes • Technical challenges adopting new software skills and technologies

Stakeholder	Opportunities	Risks
Regulators	<ul style="list-style-type: none"> • Potential for increased competition, innovation and reduced cost • Opportunity for new forms of network sharing • Opportunity for new forms of network access in regulated markets 	<ul style="list-style-type: none"> • Potential market disruption from or increased dependence on non-traditional players (for example, PCPs) • Security issues and data privacy • Potentially not clear which party carries responsibility or liability if the system breaks

Source: Analysys Mason

In conclusion, the transformative impact of cloud technologies on the telecoms industry demands immediate and informed action from CSPs, technology suppliers, and regulators/policy makers. As network cloudification continues to reshape cost economics and industry dynamics, understanding and navigating these changes is essential for success. CSPs must make strategic investment decisions, vendors need to adapt and innovate to maintain a competitive edge, and regulators must assess the implications of this shift to ensure a secure and thriving market. All stakeholders need to collaborate, learn, and embrace the potential of network cloudification, leveraging studies and comprehensive market analysis to shape a sustainable and stable future in the era of cloud-based networks.

For more details about how Analysys Mason can support you with any of the issues outlined in this article, please contact Gorkem Yigit and Gilles Monniaux.