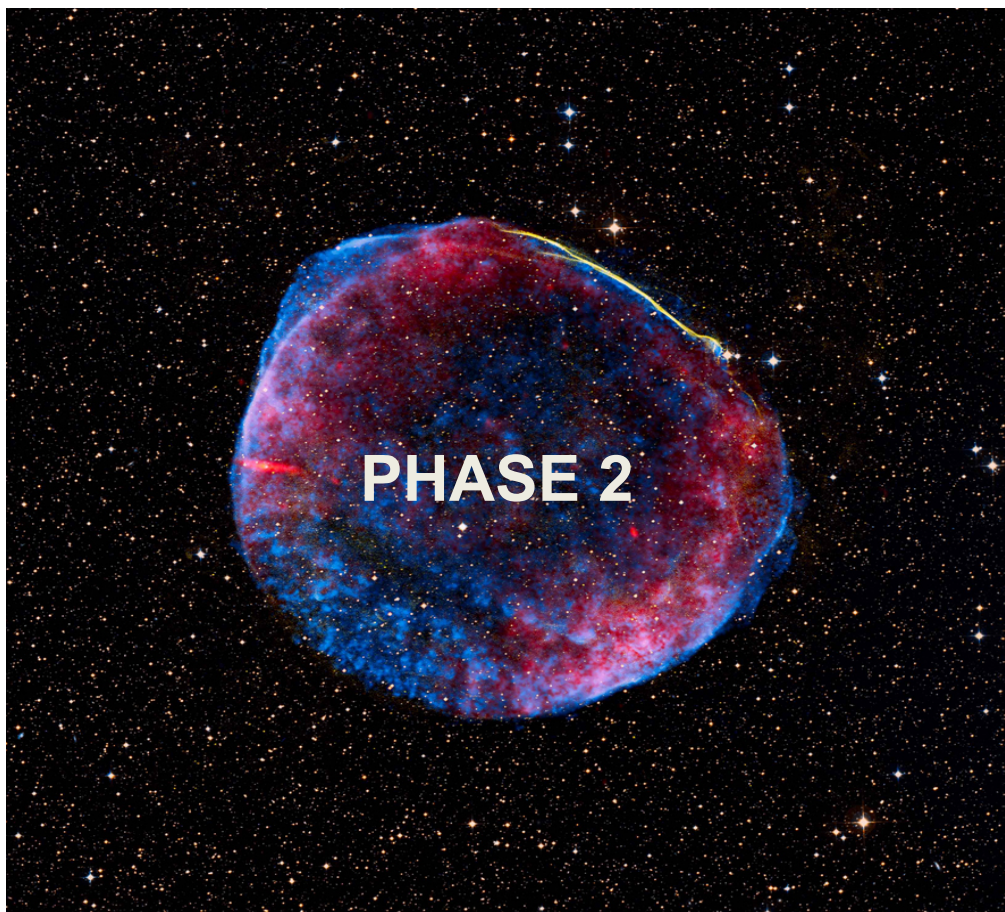


# **IMPACT OF 5G AND CLOUD ON TRANSFORMATION OF TELECOM NETWORKS: PHASE 2**

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## **ABSTRACT**

This LightCounting report focuses on the changing marketplace facing the communications service providers (CSPs). In particular, the impact of adopting cloud practices and the associated challenges, and the advent of 5G and other technologies, on the CSPs' networking infrastructure.

Embracing cloud technologies represents a key inflection point for the CSPs as they change how they build and operate their networks. Instead of working with select systems vendors for individual service introductions and network upgrades, the CSPs are turning to software, network disaggregation and even white-box hardware to make their networks open and software-defined. The CSPs continue to work closely with established systems vendors as they transform their networks but by adopting open disaggregated designs, they are engaging a wider community of suppliers. With networks based on disaggregated designs and software, the CSPs seek to more easily update their networks, switching in and out vendors as required. Separating the software from the hardware and opening up designs also promise the faster introduction of services, a long-sought goal of the operators and key to improving their revenues and innovativeness. But such a transformation is challenging and is a major upheaval for the CSPs and for the telecom industry in general.

The industry has come a long way since the European Telecommunications Standards Institute (ETSI) Network Functions Virtualization (NFV) White Paper first articulated the network transformation vision in 2012. And much remains before the goal of network transformation is achieved. Yet there are already glimpses as to what is becoming possible for the CSPs. One is the emergence of Rakuten Mobile demonstrating an Open RAN-based mobile network built using a disaggregated design and code-based network functions, while Deutsche Telekom has gone live with its first Access 4.0 disaggregated broadband access platform – based on software and servers - providing fiber-to-the-home (FTTH) services to customers in Stuttgart, Germany.

What is clear is that the industry is on a new path: the leading CSPs have consigned to history the traditional way of building networks based on proprietary platforms from individual vendors. The CSPs are more hands-on, defining their needs to the vendor community working through open networking organizations, and using incremental steps to achieve their goals. Another consequence of disaggregation and the software-defined network is the internet content providers' (ICPs) growing role in telecoms. Amazon Web Services, Microsoft Azure and Google Cloud all recognize the opportunity telecoms represents and are partnering with the CSPs as both expand their cloud footprints at the network edge.