



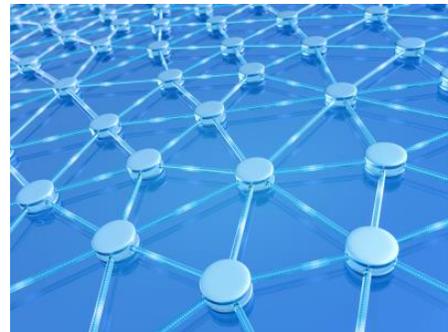
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Paving the Way for Cloud-Native Mobile Networks

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At NGMN, we believe that appealing opportunities arise from the disaggregation of mobile networks. These include a more resilient ecosystem and supply chain, lower market entry barriers, increased competition and innovation, and greater flexibility. With disaggregation, mobile networks are ready to scale, gain agility, and—as expected today—deliver opportunities to significantly reduce overall costs. Operators will be better enabled to react to specific demand and to select only the functionalities needed to address such demand.



These benefits go together with expected challenges such as increasing complexities in interoperability, system integration, and efficient and resilient operation. All these aspects lead to the need for a significant transformation of the operating model. NGMN explores all such aspects in its strategic focus topic “Managing the Route to Disaggregation” with a focus on the end-to-end operating model.

Over the past years, mobile network operators have optimized their way of working, resulting in ease of integration, good performance, expected capacity, superior security, and resilience. New user demands and technologies like 5G necessitate and offer many use cases, and at the same time ask for a wide range of requirements to be flexibly implemented, near real-time. Disaggregation delivers the flexibility, for instance, for singular network component upgrades, supporting such requirements.

Network disaggregation gains momentum

In parallel, digital transformation has led to significant changes in the mainstream IT platforms moving to cloud-based technologies. This has resulted in a separation of functions from underlying hardware and even splitting of the functions and services into microservices with open APIs. By implementing these, network operators follow the general trends in IT. Expectations of reliability, security, resilience, speed, and low latency are very different for telecommunications networks than for IT networks in general. With the introduction of network slicing in 5G, a vast number of additional requirements surfaced that need to be considered.

Network disaggregation can be seen as both a consequence of digital transformation as well as an accelerator of this journey, and it can be observed broadly from two perspectives. The first is vertical disaggregation, in which network functions decouple software from hardware, allowing multiple combinations to be used. The second is horizontal disaggregation, in which established network functions are decomposed into more granular elements and new interfaces are designed and specified.

Ultimately, this creates more players able to develop specific components of the overall architecture, broadening the ecosystem and leading to an acceleration of innovation. The result is better, more cost-effective solutions.

Transformation factors and challenges

Consequently, networks are expected to become increasingly agile, flexible, and responsive. All these factors provide the means to deliver new communication services tailored to the user needs. This leads not only to new business opportunities but also many different services, which need to be managed and operated. Considering that those services are based on a multivendor ecosystem and on new self-caring technologies, it is evident that there is huge impact on operations. This in a broad sense involves people, processes, technologies, and the ecosystem.

As a response to the above-mentioned transformation factors and challenges, and to expand the ecosystem, the industry is driving network disaggregated solutions. Disaggregation is simultaneously one of the mobile telecommunication industry's biggest current opportunities and most daunting challenges. The opportunities coming with network disaggregation are appealing: a healthier and more resilient ecosystem and supply chain, lower market entry barriers for new players, enabled increased competition and innovation, agility, and flexibility.

This upside, however, comes with some new challenges, which operators, along with their suppliers, need to address. Certainly, it demands a new way of working, most likely significant additional integration efforts, and changes in the operational model to embrace new processes, skills, and tools. All such efforts are required to eventually ensure the expected service levels, operational efficiency, performance, resilience, and security, plus the opportunities to offer new and affordable services, meeting user demand.

While the use of monolithic solutions might reduce complexity and simplify deployment, it may lack flexibility, for instance concerning deployments of new functions. Disaggregated solutions, on the other hand, lower the barrier for innovation and facilitate the entrance of new players to the ecosystem.

Whether the benefit of lowering the TCO (Total Cost of Ownership) can be achieved for operators is yet to be proven. Each individual operator will need to eventually make its choices, depending on its strategy and its starting point—greenfield or brownfield, its geolocation, local competition, and more. There are, however, many topics that need to be analyzed and are worth being solved jointly in the pre-competitive area to support global standards, economies of scale and enable competition.

Nevertheless, the operator's target is to simplify automation and management of the entire service delivery lifecycle. Mobile network infrastructure and services need to be automated to optimize deployment and ongoing lifecycle management. Reducing human intervention throughout the entire lifecycle helps to avoid issues caused by human error and facilitates faster response to problems, ultimately leading to optimized OPEX.

Strategic focus topic

“Mastering the Route to Disaggregation” is one of NGMN's strategic focus topics—along with “ODiN – Operating Disaggregated Networks” as one of the flagship projects NGMN launched in 2021.

NGMN ODiN published its first white paper “ODiN – Operating Disaggregated Networks” in October 2021, presenting a current operator view on the opportunities and challenges of disaggregation, all with a focus on the E2E operating model. Following its very successful publication, NGMN invited its entire partnership—in addition to mobile network operators, vendors, system integrators and other interested parties—to jointly start working on industry solutions to the challenges already identified. The project team is now working on a white paper focusing on “Industry Status and Roadmap.” The publication of further results from this activity is expected in spring 2022.

NGMN will deliver guidance for operators to make decisions on how to deal with the opportunities that come with disaggregation and how to apply them to their operating model. The Alliance will further highlight the different operating model options based on current challenges and needs and an analysis of pros and cons of each one. At the end, a target picture will emerge and be reflected in a blueprint and decision tree type of model. NGMN plans to publish this model for the benefit of the industry.

These common blueprints are a key enabler for mastering the disaggregation of mobile networks. They will ultimately enable operators to make educated decisions on how to migrate towards a disaggregated network while taking into account the distinct differences of each operators' network and status. All this work to be done by NGMN will not stand alone but will be developed

in close cooperation with other industry organizations and standards development organizations and be created in close alignment with specific relevant industry verticals to analyze potential gaps and submit requirements to the industry.

Note: This article features and cites the NGMN white paper “ODiN Operating Disaggregated Networks” developed by the NGMN ODiN project operator’s team.