

How telcos can deploy next-generation networks effectively

Next-generation networks combine the best of Internet Protocol (IP) and traditional telephony networks, a convergence that will better telecommunication services. The ultimate goal is a single network and offering for voice, data, video and mobile.

By [Sarthak Rohal](#) 21 Jun 2021



Sarthak Rohal, VP - IT services at AlphaCodes | image supplied

However, the concept of NGN exponentially increases the complexity of network deployments, and there are a number of security and other risks that need to be considered. The right partner is essential in delivering optimised, efficient and end-to-end NGN architectures and network deployments.

Why NGN?

NGNs are an interworking environment of heterogeneous networks of wired and wireless access networks Public Switched Telephone Network (PSTN), satellites, broadcasting, and so on, all interconnected through the service provider's IP backbone and the internet. In addition to technology convergence, NGN promise high-quality end-user experience that would ensure customer loyalty.

NGN telecommunication solutions are based on an open architecture that supports open service creation, independent provisioning that promotes competition and agility, and flexible configuration to support multiple access technologies. By leveraging the best of traditional telephony and IP-based solutions, telcos can take advantage of a number of benefits. Such as reduced capex, lower transmission costs, enhanced power saving, reduced physical footprint and the ability to offer a wider range of services faster than ever.

For end-user consumers, benefits include reduced call charges, the ability to make use of multiple service providers on a single network and consolidated billing for voice, data, video and mobile services.

Increased complexity, increased risk

While the benefits of NGN to both telcos and consumers are numerous and tangible, there are also inherent risks. For example, with the deployment of NGN, the complexity of networks increases exponentially. There may also be challenges involved in interactions with existing and legacy systems, due to tightly coupled implementation technologies.



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Then there are security concerns around cybercrime and malicious actors. Some of the issues that may arise include: IP/identity spoofing; over-billing attacks; Spam over Internet Telephony (SPIT); unauthorised access to Voice over Internet Protocol (VoIP), IP Centrex, or other services; Signalling System 7 (SS7), Session Initiation Protocol (SIP) and H.323 protocol abuse; the use of rogue IP diallers used to generate false traffic; customer identification and vendor identification manipulation; Illegal interception of traffic; and attacks on payment gateways.

Mitigating these challenges

The risks of moving to a NGN environment based on a fully IP based communication and control system are significant. Communication Service Providers (CSPs) that are changing out their entire network or significantly upgrading to fully IP, need to consider the longer-term risk management strategy.

It is essential to first understand the risks inherent with NGN, and then take steps to manage this risk. CSPs need to determine a baseline of the current position with respect to risk and fraud control by performing a strategic risk review. Then it is necessary to create a risk register covering the current and expected mitigating controls, and develop clearly defined control frameworks. Policies and procedures for the measurement and management of risk and fraud control must also be implemented. In addition, security protection technologies are a must in NGN for access control, authentication, non-repudiation, data confidentiality, communication security, data integrity, availability, and privacy.

Partnerships are crucial to success

The path towards achieving the ideal NGN is fraught with formidable challenges for operators. The most critical of these is the need to optimise operations support systems (OSS) and business support systems (BSS), along with the associated platforms, technology systems, and processes. Some aspects of this include deploying and operating HetNets, Voice over LTE (VoLTE), next-generation content and applications, and dealing with next-generation platforms including virtualisation, cloud-based infrastructure, and software-defined networks.

While the opportunities offered by NGN may be well-recognised, the lack of standardised frameworks may prove to be a stumbling block. This is where the right technology partner becomes crucial. A partner with experience in delivering end-to-end NGN solutions can help telcos to cover all of their bases, with industry leading solutions and support in the complex world of NGN/IP communications. A partner with expertise and industry experience, coupled with proven design and deployment methodologies, can ensure a cost-effective, timely deployment, helping CSPs to focus on technology transformation and leverage the multiple benefits offered by NGN technology.

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