



Modernize your network with Nokia Policy Controller's 5G Core upgrade path

Use case.



Operators all over the world are discovering the benefits of 5G Core and how it allows them to offer innovative new services for their customers. Nokia Policy Controller creates a smooth, tailored transition path from the 2G and 3G networks to 5G networks and offer operators the option to run the different domains efficiently and cost-effectively side by side.

Global telecom networks; a complex landscape

While the global 5G transition has been underway for several years, it is by no means yet complete. The current projections indicate that it may be finalised by the end of the decade.

For operators this move has offered substantial advantages beyond simply upgrading to a faster network; it represents a fundamental shift in network architecture and operational capabilities, paving the way for new services and revenue streams. At the same time a significant number of CSPs all over the world, operate legacy networks, for 2G (GERAN) and even 3G (UTRAN). It has been estimated that 30-40% of operators still have 2G or 3G equipment in 2025.

With 3GPP earlier releases, the 5G Core primarily supported 4G (E-UTRAN) and 5G (NR) access technologies. To accommodate 2G and 3G services, Communication Service Providers (CSPs) needed to maintain their separate legacy core network

infrastructure.

This dual-network setup led to increased operational costs due to the expense of maintaining and managing two distinct systems. It also introduced significant complexity from managing diverse protocols, interfaces, and network elements for the two parallel networks. Furthermore, this dual approach was challenging for innovation and new service introduction, as upgrades and service deployments were affected by the need to manage several networks simultaneously.

Policy Controller role in modernizing networks

The 3GPP release 17 with the enhanced N7 and N40 (to CHF), interfaces changed this scenario. The Policy Controller functionality now integrates seamlessly with the enhanced interfaces and enables the 5G Core to interact directly with and manage the 2G and 3G access networks. This creates new avenues for creating efficiency and for streamlining the networks in the transition phase.

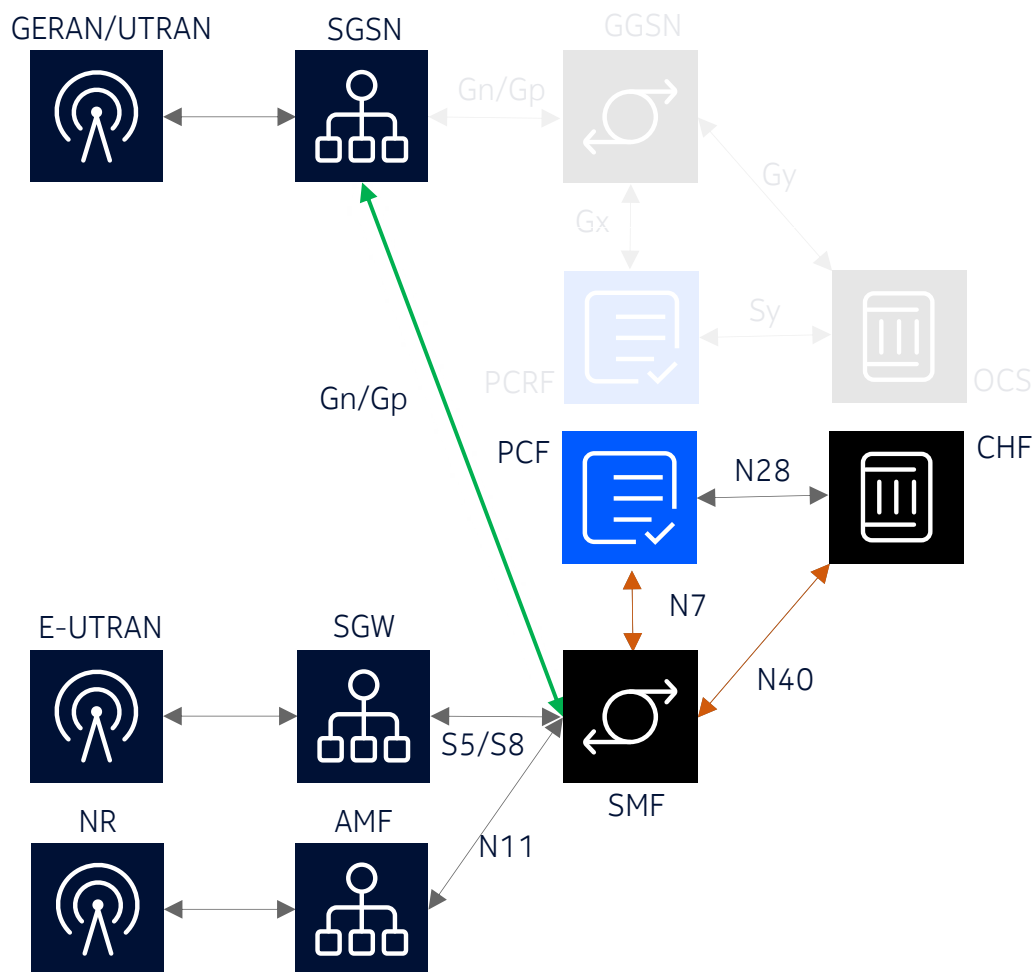
Creating efficiency

By using the Nokia Policy Controller (NPC), operators can consolidate older infrastructure generations and 5G into one single network and significantly reduce operational costs.

Eliminating separate legacy systems eliminates the need for redundant hardware, multiple software licenses, and the specialized personnel required to maintain each. This streamlined approach leads to substantial savings in operational expenditure.

By leveraging 3GPP Release 17 enhancements to the N7 (and enhancements to N40 to the CHF) interfaces, the Nokia Policy Controller enables direct interaction between the 5G Core (5GC) and GERAN/UTRAN access networks, eliminating the need for legacy core components (like GGSN, PCRF & OCS). This results in better coverage for devices when they roam in areas where 5G & 4G access are not available but 2G/3G are available. This is especially true for IoT devices which have to operate in multiple parts of the globe.

Fig. 1 The 3GPP rel. 17 enhancements to N7 and N40 interfaces allow decommissioning legacy NFs & protocols



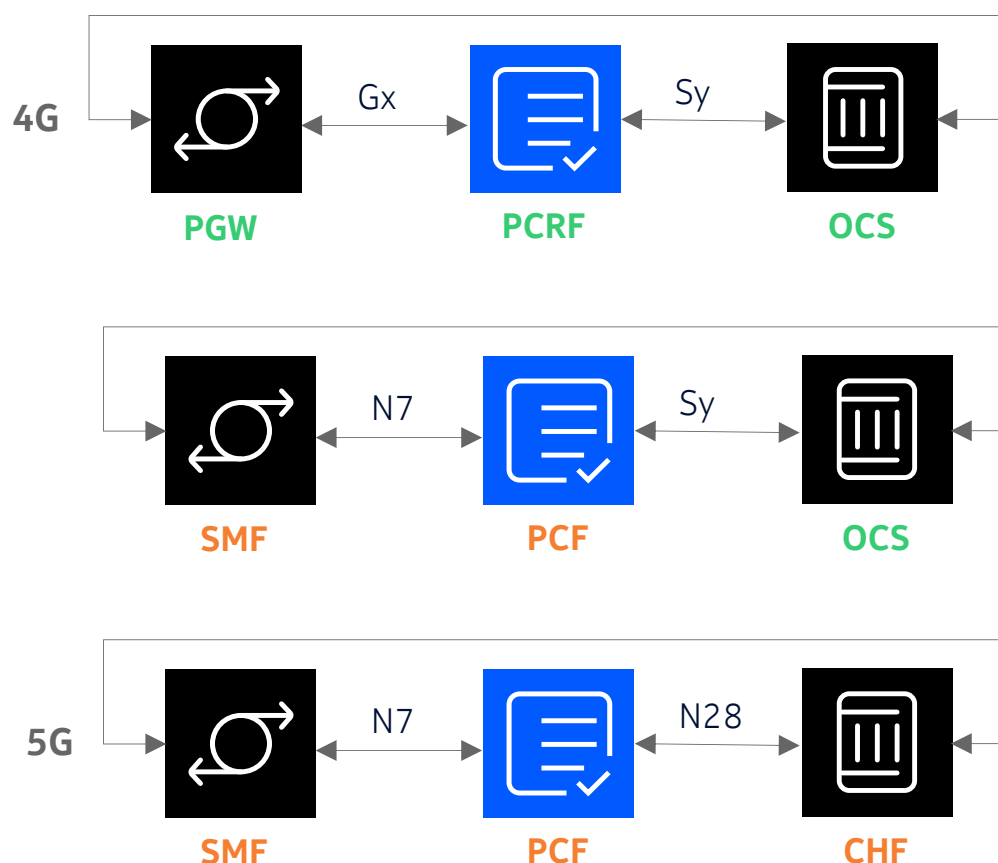
Phased migration

No less important is the possibility of creating a phased migration strategy, which enables a smooth, less disruptive transition to the 5G Core, minimizing service interruptions and ensuring business continuity.

The phased approach allows operators to retain their existing charging and billing systems while transitioning to 5G. This means that operators can seamlessly transition to a 5G Core network, without the disruption of a complete overhaul. The approach minimizes downtime, reduces initial investment, and allows for iterative improvements.

Operators facing budgetary constraints, or those in developing markets will particularly benefit from the phased approach offered by NPC.

Fig. 2: Phased migration decouples upgrading of legacy charging system to 5G Core





Operator competitive edge

While cost-efficiency is an important driver in the use of a NPC for modernizing the network, another major benefit is the faster innovation cycle through rapid deployment of new services and features across all access technologies, allowing operators to quickly respond to market demands and gain a competitive edge.

Why Nokia?

The Nokia Policy Controller is a fully cloud-native solution offering a wide set of field-proven functionalities. These allow operators to maintain an efficient network, rapidly deploy new services and maximize returns by controlling factors like subscription plan, device, access method, and location.

Nokia has a long-standing experience in Nokia Policy Controller solutions as a part of a comprehensive, end-to-end delivery, including those with multiple vendors, for a diverse global customer base. The Nokia Policy Controller boasts of a proven record, supporting policy control in over 80 service provider networks worldwide. Leading operators like Vodafone Idea (India), Orange (Europe) and T-Mobile (US) all rely on Nokia Policy Controller.

About Nokia

At Nokia, we create technology that helps the world act together.

As a B2B technology innovation leader, we are pioneering networks that sense, think and act by leveraging our work across mobile, fixed and cloud networks. In addition, we create value with intellectual property and long-term research, led by the award-winning Nokia Bell Labs.

Service providers, enterprises and partners worldwide trust Nokia to deliver secure, reliable and sustainable networks today – and work with us to create the digital services and applications of the future.

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