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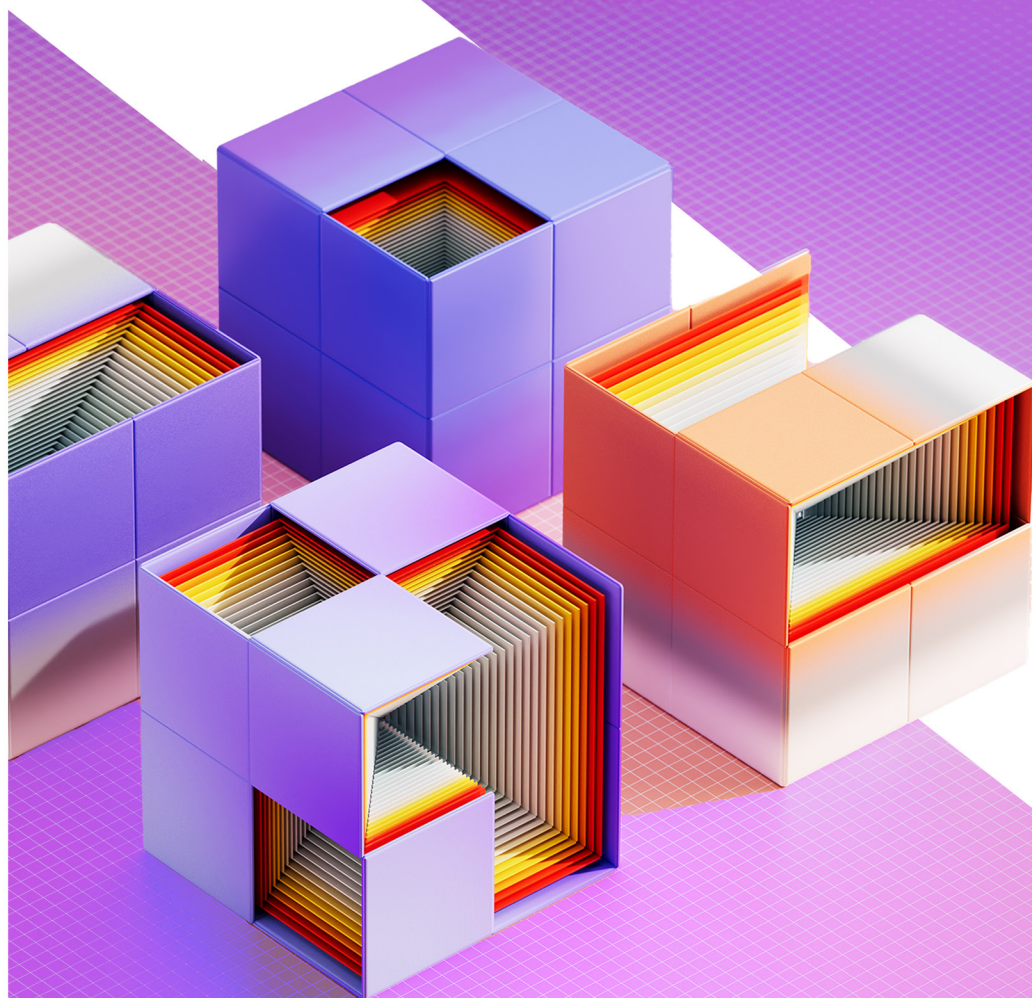
Nokia AAA Solution Powers Telefónica España's Digital Transformation

Case study

The Telefónica Group is a Tier 1 global telecommunications leader, serving over 343 million subscribers across its mobile and fixed business segments. In Spain, Telefónica has emerged as a key customer for Nokia, delivering a robust portfolio of services, including Mobile Broadband (MBB) and Fixed Broadband (FBB). This strategic partnership encompasses all three of Nokia's business groups, positioning Nokia as an essential partner in Telefónica España's digital transformation journey. Together, they are redefining connectivity and enhancing customer experiences in an increasingly digital world.

Case Background

Telefónica España pursued a robust and reliable AAA (Authentication, Authorization, and Accounting) solution to manage its diverse network services effectively. This encompassed mobile broadband (MBB), fixed broadband (FBB), Voice over WiFi (VoWiFi), IPTV/VoD, and fixed VoIP services. The ideal AAA system must be highly scalable, customizable, and seamlessly integrated with various network functions, including session management, DHCP, LDAP, and IP Address Management (IPAM).

To address the complexity of its service offerings, Telefónica España had specific requirements, including:

- Streamlined management of MBB and FBB services for consumer (B2C) and enterprise (B2B) segments.

- AAA as DHCP for IPTV/VoD services.

- Reliable AAA support for VoWiFi services.

- A secure and efficient IPAM system for managing fixed VoIP services.

Challenges

Telefónica España faced several challenges before implementing the Nokia AAA solution:

Outdated Infrastructure: The company's original AAA deployments, implemented over a decade ago, needed an update.

Operational Complexity: Isolated AAA systems for services like MBB, FBB, VoWiFi, and IPTV made system scalability and maintenance difficult.

Integration Issues: Integrating the Nokia AAA system into Telefónica's existing Operations Support Systems (OSS) presented a significant challenge. Seamless integration was crucial for reliable service delivery.

These challenges impacted Telefónica España's ability to maintain service continuity, manage system upgrades, and respond to the growing demand for high-quality connectivity and digital services.

Solution

Nokia AAA Solution: Telefónica España chose the Nokia AAA solution, a highly customizable platform designed to meet the specific requirements of its MBB, FBB, VoWiFi, and IPTV services. The solution included various releases, ranging from 18 to 24.3, with plans to upgrade to the latest versions (23.8 and 24.7) by Q2 2025. These newer releases aim to improve performance, scalability, and security.

Key features of the solution included:

- **Customization:** Except for the VoWiFi instance, all AAA implementations were fully customized to meet Telefónica's unique requirements.

- **Deployment:** The AAA instances were deployed on Telefónica's NFVI (Network Functions Virtualization Infrastructure) using a combination of bare-metal servers and virtual machines (VMs).

- **Session Management:** AAA was integrated with session management systems for MBB and FBB services, ensuring seamless service delivery and session continuity.

- **IP Address Management:** The NACF-CLF module (IPAM for fixed VoIP) enabled efficient IP address management, which is vital for VoIP services.

Implementation Process: Deploying the latest AAA instances took between 6 and 12 months, with the duration influenced by the complexity of integrating with external OSS systems. While AAA deployments have been implemented for over 15 years, recent integrations with Telefónica España's OSS ecosystem presented significant technical challenges, requiring substantial effort.

Results

Quantitative Improvements:

Improved Operational Efficiency:

Consolidating multiple AAA instances into a unified platform reduced manual interventions and streamlined management of Telefónica España's MBB, FBB, and VoWiFi services. This led to significant reductions in operational overhead and accelerated the time-to-market for new services.

Enhanced Service Performance:

The upgraded AAA system improved service uptime, minimized authentication errors, and enhanced overall network reliability, contributing to higher customer satisfaction.

Scalability and Flexibility:

The customizable nature of the Nokia AAA solution allowed Telefónica España to scale its services as the demand for broadband connectivity and digital services grew, especially during the surge in remote work and digital services.

Qualitative Improvements:

Improved Customer Experience:

Implementing a more reliable and efficient AAA system enabled Telefónica España to deliver uninterrupted services, enhancing the overall user experience for its broadband and VoIP customers.

Seamless Service Integration:

The customizable AAA solution allowed seamless integration with existing OSS and IPTV/VoD services, reducing system complexity and ensuring smoother operations.

Testimonial

Telefónica España's technology team highlighted the flexibility of the Nokia AAA solution as the most significant benefit.

"The customizable nature of the Nokia AAA platform has allowed us to tailor the system to our evolving needs, ensuring smooth operation across a wide range of services. The system's scalability has been crucial in supporting our growing customer base."

Telefónica España CTO.

Telefónica

Key Takeaways
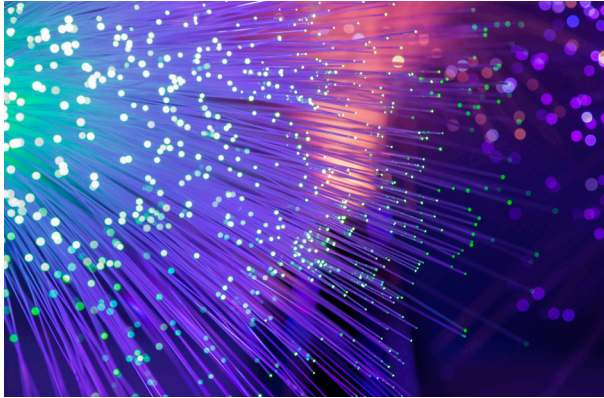
Importance of Customization:

Telefónica España's experience highlighted the value of a highly customizable AAA solution that can be adapted to the unique requirements of multiple network services. This flexibility was essential for managing the operational complexities associated with diverse service offerings and ensured that the AAA platform could evolve alongside Telefónica's expanding needs.

Integration Challenges:

One of the key takeaways was the importance of having a well-coordinated integration process when working with complex OSS ecosystems. Early and active engagement with Nokia's delivery and support teams was critical to a smooth integration, underscoring the need for close collaboration and proactive planning when implementing advanced technology solutions.

Knowledge Transfer:

With the departure of the original team responsible for the early AAA deployments, Telefónica España recognized the importance of thorough documentation and ongoing knowledge transfer. These practices proved invaluable in ensuring that future system updates and maintenance could be managed effectively, minimizing disruptions and preserving operational continuity.

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, which is celebrating 100 years of innovation.

With truly open architectures that seamlessly integrate into any ecosystem, our high-performance networks create new opportunities for monetization and scale. 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.