

CASE STUDY

Deutsche Telekom
and Nokia prove
the benefits of
multi-vendor
Open RAN

NOKIA

Image source: <https://www.telekom.com>



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“This deployment reinforces our strong commitment to multi-vendor Open RAN, and diversifying our supplier base for radio access networks.

The Open RAN network has consistently delivered outstanding performance and an exceptional customer experience in our initial deployment areas. Building on that success, we are now pleased to scale up our Open RAN deployment in Germany, with Nokia on board.”

Abdu Mudesir
Group CTO, Deutsche Telekom

Deutsche Telekom, Europe’s largest telecommunications provider, has built a reputation for innovation and leadership in the telecommunications industry. With a track-record of delivering exceptional customer experience based on cutting-edge technology and engineering excellence, Deutsche Telekom is continuously exploring ways to stay in front by enhancing network agility, efficiency and scalability. As a co-founder of the O-RAN Alliance it has been at the forefront of the development and adoption of Open RAN, an innovative approach to network architecture that aligns with its vision of fostering supplier diversity and creating a more dynamic and open ecosystem. Deutsche Telekom views Open RAN as a critical component in its strategy to modernize network infrastructure while addressing the growing demands of 5G and future technologies. By embracing Open RAN, Deutsche Telekom aims to reduce reliance on proprietary technologies, increase interoperability and accelerate automation and innovation across its network.

This commitment underscores Deutsche Telekom’s forward thinking approach to transforming the telecommunications landscape and positioning itself as a leader in shaping the future of connectivity.

OBJECTIVE

Driving network modernization and supplier diversity with Open RAN

Deutsche Telekom's objectives when making the shift to Open RAN were rooted in its broader strategic vision to modernize its network while fostering a more resilient and innovative supplier ecosystem. By embracing a multi-vendor Open RAN approach, Deutsche Telekom aims to create a flexible, scalable system that enable seamless integration of best-in-class technologies from multiple partners. Another major objective was to modernize its network infrastructure by replacing legacy vendor equipment with secure, trusted, energy-efficient and high-capacity systems.

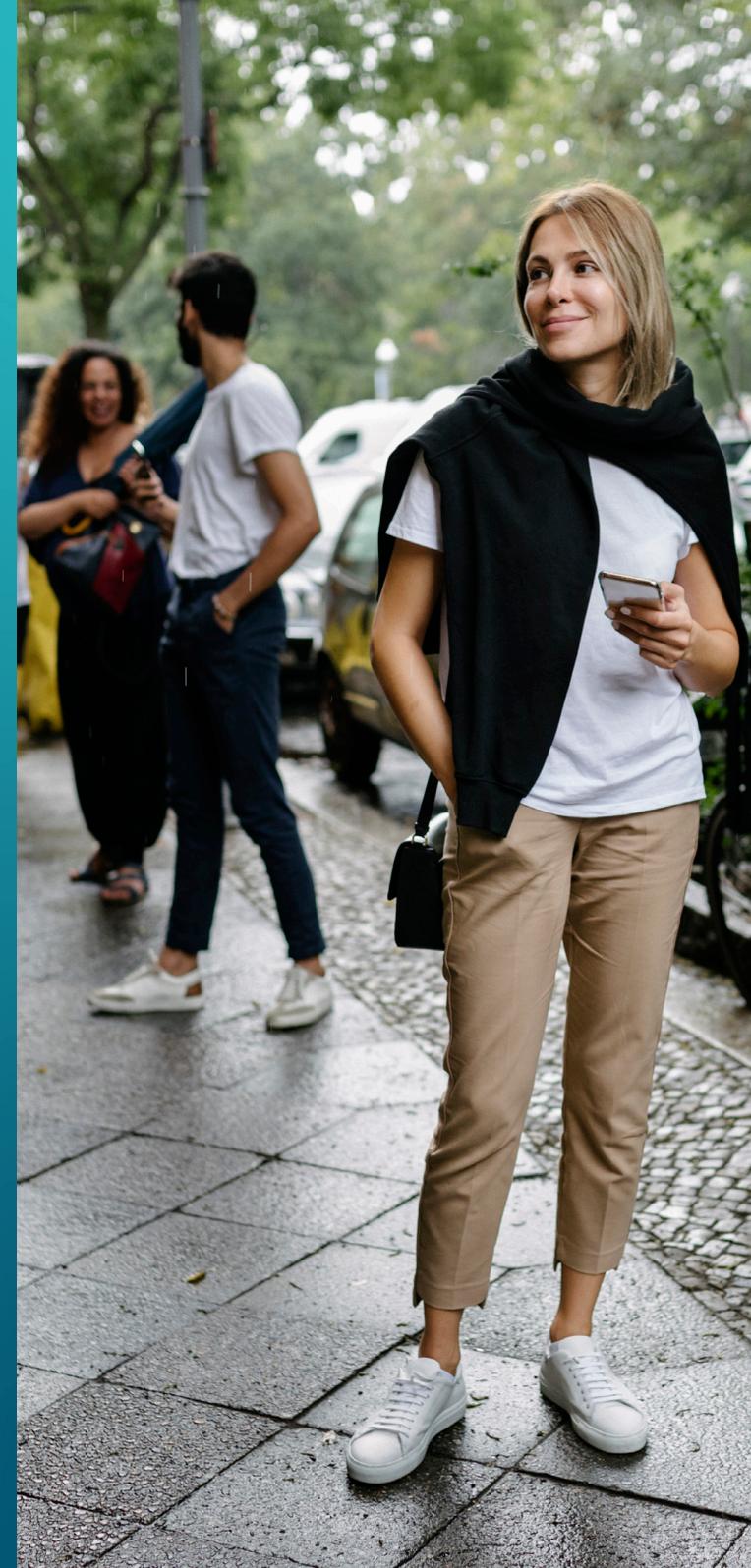
This modernization is particularly important for extending mobile broadband connectivity to underserved rural areas as well, where cost-effective solutions were essential. Additionally, the deployment has to support both

4G and 5G services concurrently, ensuring continuity of service while delivering a dynamic open ecosystem.

Deutsche Telekom's Open RAN journey

The Open fronthaul adoption as implemented in this multi-vendor deployment is one pillar of the transformative O-RAN approach defined by Deutsche Telekom.

Looking to the future, the other two pillars are a cloudified baseband with network softwarization and the vendor-independent Service Management and Orchestration (SMO) platform to allow for centralized control of multi-vendor RAN environments. Deutsche Telekom regards the seamless integration into its in-house SMO platform as a critical part of its long-term vision for flexible and future-ready network management.



SOLUTION

Nokia's flexible and innovative RAN solutions selected for deployment

To meet Deutsche Telekom's ambitious goals for a scaled commercial deployment, we provided a comprehensive and advanced Open RAN solution, working closely with Fujitsu as a third-party vendor to deliver a multi-vendor system that addressed the specific requirements of the project. Our solution was centered around our O-RAN-compliant 5G AirScale portfolio, powered by our energy-efficient ReefShark System-on-Chip technology.

This included modular, high-capacity baseband units and Habrok Massive MIMO radios, which ensured superior coverage and capacity even in

challenging environments. With a third-party vendor providing O-RAN-compliant mid-band remote radio heads, the solution effectively demonstrated the feasibility and advantages of a multi-vendor approach.

Our technology seamlessly integrated with third-party Remote Radio Unit (RRU) equipment, enabling a consistent, high-performing network. These RRUs, providing O-RAN compliant mid-band remote radio heads, play a complementary role that underscores the effectiveness and flexibility of a multi-vendor approach. This collaboration highlighted the

flexibility and interoperability of Open RAN technology, which allows operators to select the best solutions from multiple vendors. We also deployed our AI-powered MantaRay NM solution, which provided advanced network monitoring, management and optimization capabilities. This system enhances operational efficiency, reduces deployment times and improves troubleshooting processes. Furthermore, the solution supports carrier aggregation and concurrent operation of 4G and 5G on third-party vendor equipment, further showcasing the flexibility of the Open RAN framework.

RESULTS

Transforming connectivity through multi-vendor Open RAN success

The partnership between Deutsche Telekom and Nokia yielded exceptional results, showcasing the outstanding performance of multi-vendor Open RAN technology. One of the most significant achievements was the smooth transition from legacy vendor base stations to our advanced RAN platform. This transition, which involved the replacement of existing network infrastructure with modern, energy efficient systems, was carried out seamlessly, ensuring minimal disruption to customers. The initial deployment in northern Germany delivered outstanding network performance in commercial service operation. Customers in the region benefited from a superb connectivity experience, demonstrating the effectiveness of the Open RAN approach in real-world conditions.

Deutsche Telekom achieved an impressive score of 970 out of 1000 in a 2024 assessment by Accenture/Umlaut across their nationwide network footprint. This recognition highlighted Deutsche Telekom's leadership in network innovation and performance.

Building on the success of the initial deployment, Deutsche Telekom awarded Nokia a contract to expand the project to over 3000 sites by the end of 2027. This large-scale commercial rollout will not only ensure superb network experience for Deutsche Telekom customers but also serve as a blueprint for other operators seeking to adopt multi-vendor Open RAN technology.



GLOBAL PERSPECTIVE

Deutsche Telekom's collaboration with Nokia and Fujitsu exemplifies a global shift toward the adoption of Open RAN technology, a transformative approach to building more flexible and interoperable network architectures. By embracing Open RAN, mobile operators aim to modernize their networks while fostering supplier diversity and accelerating innovation.

Multi-vendor Open RAN empowers operators to reduce reliance on single vendor ecosystems, enabling cost effective and future-ready networks

that adapt to the demands of businesses and consumers.

The success of Deutsche Telekom underscores the transformative potential of this technology, serving as a compelling example for communication service providers worldwide. As mobile operators adopt Open RAN, our proven expertise and commitment to delivering flexible, high-performing solutions position us as a trusted partner in this pivotal industry evolution.



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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.

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