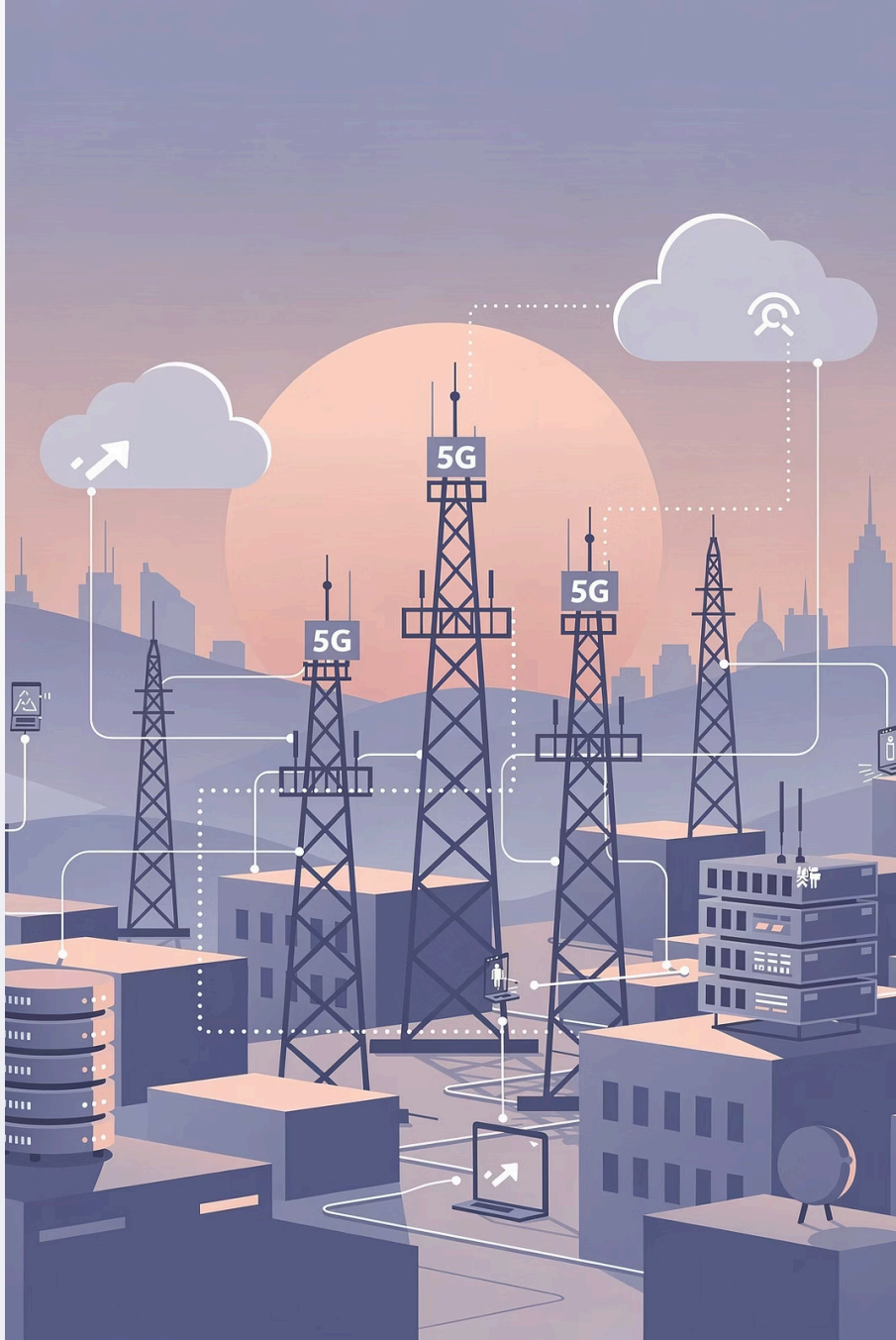
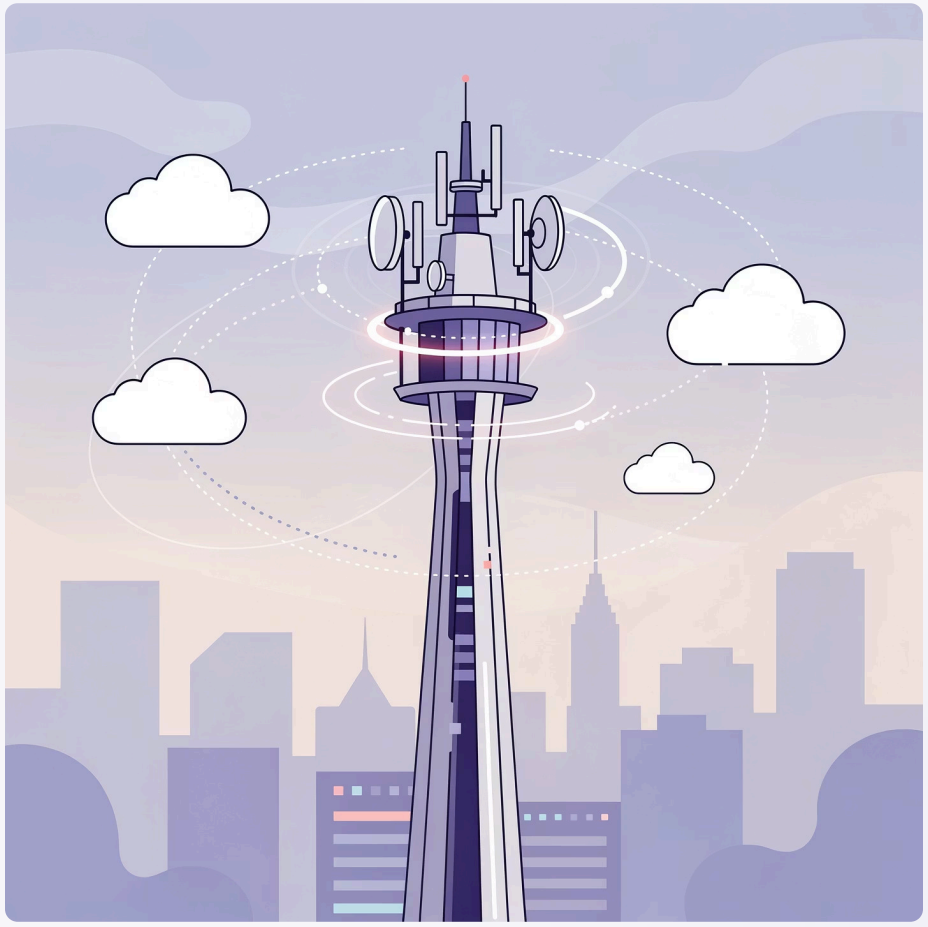
Roadmap to the Cloud Native Telco: Blueprint for Transformation

A strategic guide to adopting cloud native architecture in the telecommunications sector



INDUSTRY TRANSFORMATION

Why Cloud Native is the Future of Telecom



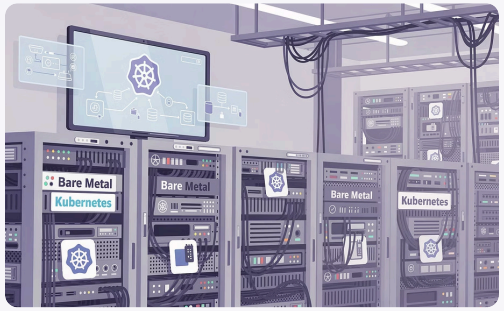
Orange's CTO Laurent Leboucher advocates for a Cloud Native Manifesto to fundamentally revolutionise telco networks. This transformation isn't optional—it's essential for survival.

Cloud native architecture enables the agility, scalability, and resilience crucial for delivering 5G services and preparing for next-generation networks. The Next Generation Mobile Networks Alliance (NGMN) has established key principles guiding operators through this critical shift.

Early adopters are already seeing competitive advantages in service delivery and operational efficiency.

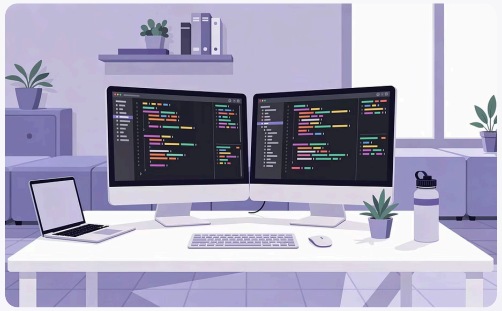
SUCCESS STORY

Real-World Pioneer: Deutsche Telekom's Cloud Native Journey



On-Premises Excellence

Built an on-premises, bare-metal Kubernetes platform, deliberately avoiding dependence on hyperscalers for strategic control.



Open-Source Foundation

Leveraged open-source technologies to ensure flexibility, transparency, and long-term vendor independence.

Industry Leadership

Demonstrates how telcos can drive innovation internally with cloud-native infrastructure rather than following hyperscaler models.

Core Concepts: CNFs, Kubernetes & Microservices Architecture

Cloud Native Functions

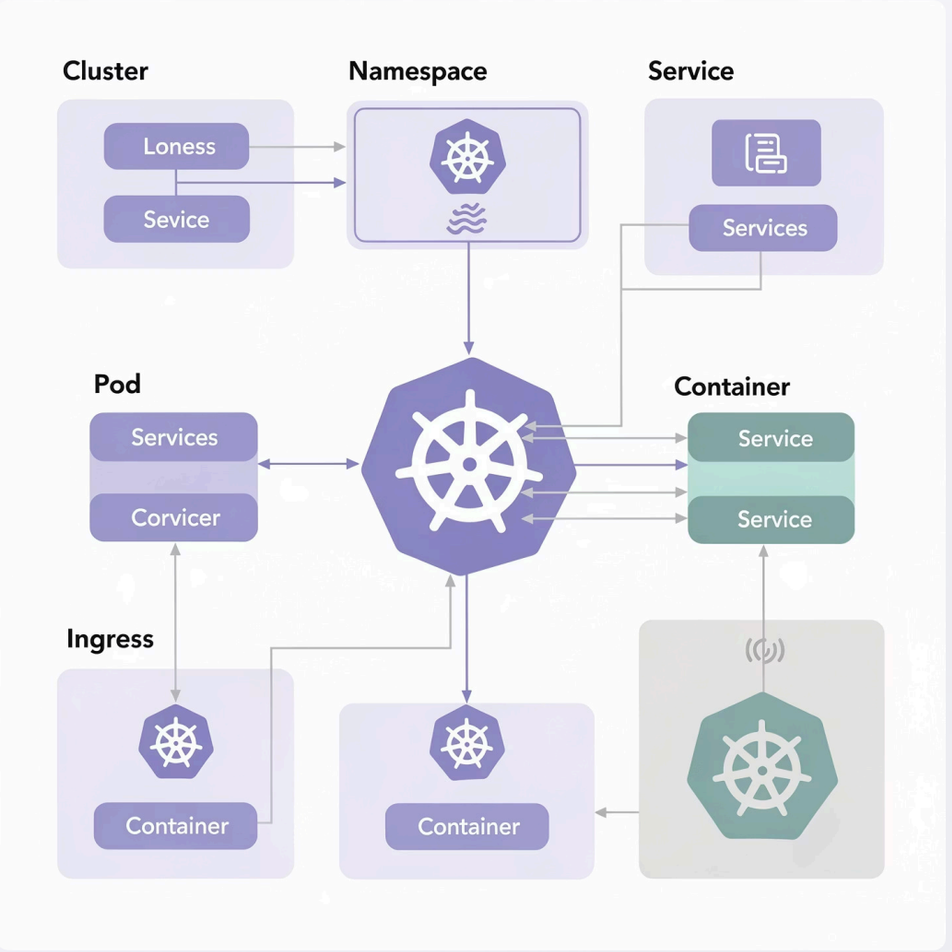
CNFs evolve traditional VNFs into containerised, lightweight, and highly scalable network functions optimised for cloud environments.

Kubernetes Orchestration

Kubernetes automates deployment, scaling, and lifecycle management of microservices across distributed infrastructure.

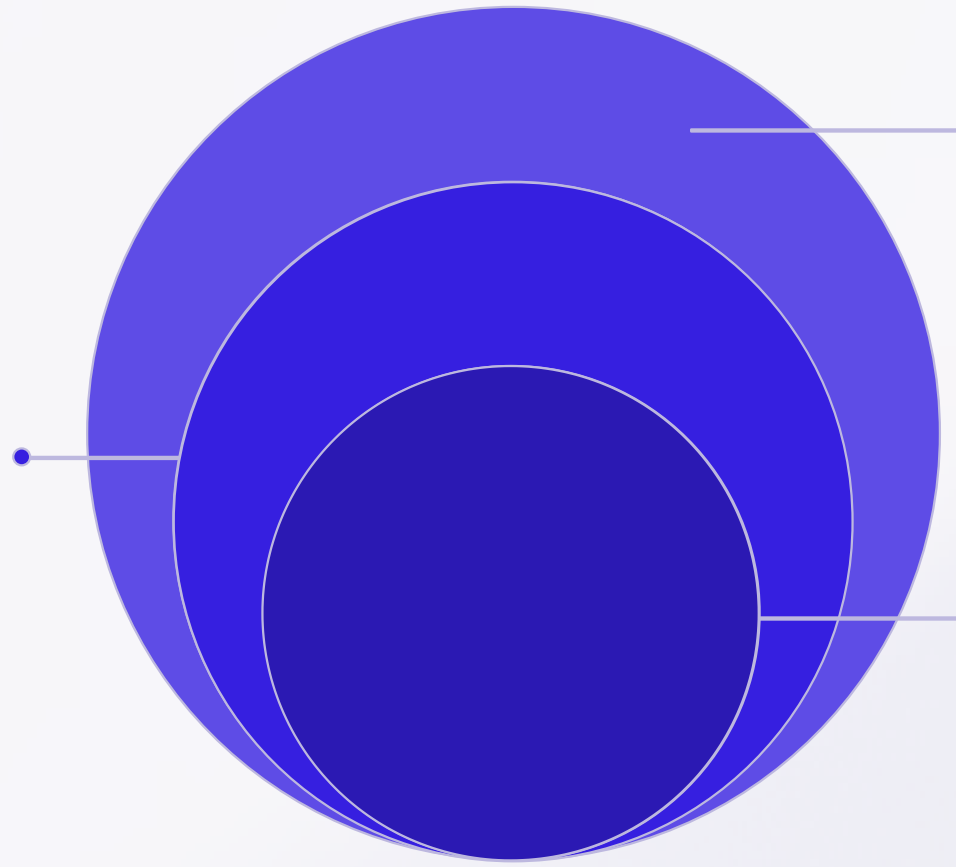
Microservices Architecture

Modernises OSS systems, enabling 5G and IoT-ready networks with unprecedented agility and modularity.



TECHNICAL ARCHITECTURE

The Technical Blueprint: Horizontal Network Cloud Platforms



Infrastructure Layer

Unified compute for VNFs and CNFs

Automation Layer

GitOps-based orchestration and CI/CD

AI-native Services

Intelligent network functions and analytics

Horizontal platforms dramatically reduce operational complexity by supporting seamless coexistence of legacy VNFs and modern CNFs on unified infrastructure.

GitOps Automation

Integrates cloud infrastructure and network functions through declarative configuration management.

AI-Native Networks

Facilitates intelligent, self-optimising networks with open, interoperable technology stacks.

Vendor Independence

Avoids lock-in through standardised interfaces and open-source components.

Stepwise Adoption: Migrating Network Functions One at a Time

Strategic Starting Point: IMS Migration

IP Multimedia Subsystem (IMS) migration offers an ideal entry point—it's microservices-ready, cloud-agnostic, and highly scalable.

60%

TCO Reduction

Potential savings over 5 years for a 10 million subscriber operator

3-6

Month Timeline

Typical migration period with proper planning and execution

Each successful migration provides invaluable lessons, improving processes, refining tooling, and building organisational capability for broader cloud transformation initiatives.

IMPLEMENTATION CHALLENGES

Overcoming Challenges: Skills, Coexistence & Integration

Cloud-Native Skills Gap

Addressing critical skill shortages requires comprehensive training programmes, cultural transformation, and strategic hiring of cloud-native expertise.

Hybrid Environment Management

VNFs and CNFs will coexist for years during transition. Managing these hybrid environments demands sophisticated orchestration and operational discipline.

Legacy System Integration

Integrating with existing OSS platforms and multi-vendor ecosystems requires robust orchestration frameworks and careful interface management.

The Business Impact: Agility, Cost Savings & New Revenue Streams

Transformational Business Benefits

- **Time-to-Market:** Launch new services in weeks instead of months, responding rapidly to market demands and customer needs.
- **Dynamic Scaling:** Infrastructure scales automatically with demand, optimising resource utilisation and reducing waste.
- **Cost Efficiency:** Significant OPEX and CAPEX reductions improve margins in an increasingly competitive market.
- **AI-Driven Intelligence:** Enable intelligent network orchestration and automation for sustainable, future-proof growth.

COLLABORATION

The Road Ahead: Open Standards & Collaborative Ecosystems

Open-Source Blueprints

Initiatives like the Linux Foundation's Project Sylva provide comprehensive open-source blueprints and reference architectures.

Industry Collaboration

Cooperation amongst operators, vendors, and open communities accelerates innovation and reduces duplication of effort.

Digital Sovereignty

Vendor neutrality and digital sovereignty emerge as strategic imperatives for national telecommunications infrastructure.

Embrace the Cloud Native Telco Transformation Today

01

Strategic Enabler

Cloud native is not merely technology—it's a fundamental strategic enabler for tomorrow's telecommunications operator.

02

Pragmatic Approach

Begin with incremental, pragmatic steps focusing on high-impact network functions that deliver measurable business value.

03

Open Partnerships

Partner with open, flexible platforms to unlock agility, drive innovation, and achieve sustainable competitive growth.

04

Future-Ready Networks

The future telco is cloud native—fully prepared to deliver on the transformative promise of 5G, AI, and beyond.