

THE INTELLIGENT CORE FOR 5G ADVANCED & BEYOND

5G 
PRODUCTS

5G CORE NETWORK



info@telentra-networks.com
www.telentra-networks.com


TELENTRA
Networks

About TELENTRA Networks

TELENTRA Networks, an i2i Systems company, is a global Information and Communications Technology (ICT) provider specializing in next-generation core and access network solutions. Backed by extensive industry expertise, the company delivers a robust portfolio of advanced products tailored to meet the evolving demands of the telecommunications ecosystem.

TELENTRA Networks seamlessly integrates its proprietary core network products into both public and private 5G and LTE networks. Developed in strict compliance with 3GPP standards and specifications, these components offer maximum architectural flexibility, allowing for deployment either as a comprehensive, full-stack infrastructure or as independent standalone modules. Beyond its production-grade 5G Core Network Functions successfully deployed within Tier-1 mobile broadband operators, the company possesses profound expertise in PCF-PCRF solutions for mobile and fixed broadband, 5G Fixed Wireless Access (FWA), and private 4G/5G network deployments.

Customers



Partners



TELENTRA 5G CORE NETWORK

THE INTELLIGENT CORE FOR 5G ADVANCED & BEYOND

The TELENTRA 5G Core is a carrier-grade, 3GPP Release 18 compliant, cloud-native 5G Standalone core; purpose-built for MNOs and enterprises demanding deterministic performance, linear scalability, and zero-downtime operations. Built on a fully standards-compliant Service-Based Architecture, it supports both Standalone deployments and seamless EPC interworking.

It is designed to support Mobile Public Networks, Mobile Private Networks (MPNs), and Fixed Wireless Access (FWA) deployments across a wide range of operator and enterprise environments. The TELENTRA 5G Core is engineered specifically to meet the demands of Mobile Network Operators (MNOs) and large-scale enterprises.

Figure 1 (below) summarizes the TELENTRA 5G Core at a glance: the 3GPP-compliant network functions in the Control and User Planes, the supported platforms (bare-metal, VNF, and CNF running on Kubernetes or Red Hat OpenShift), and the four core value propositions — Future-Ready, High Performance, Operational Efficiency, and Secure & Reliable.

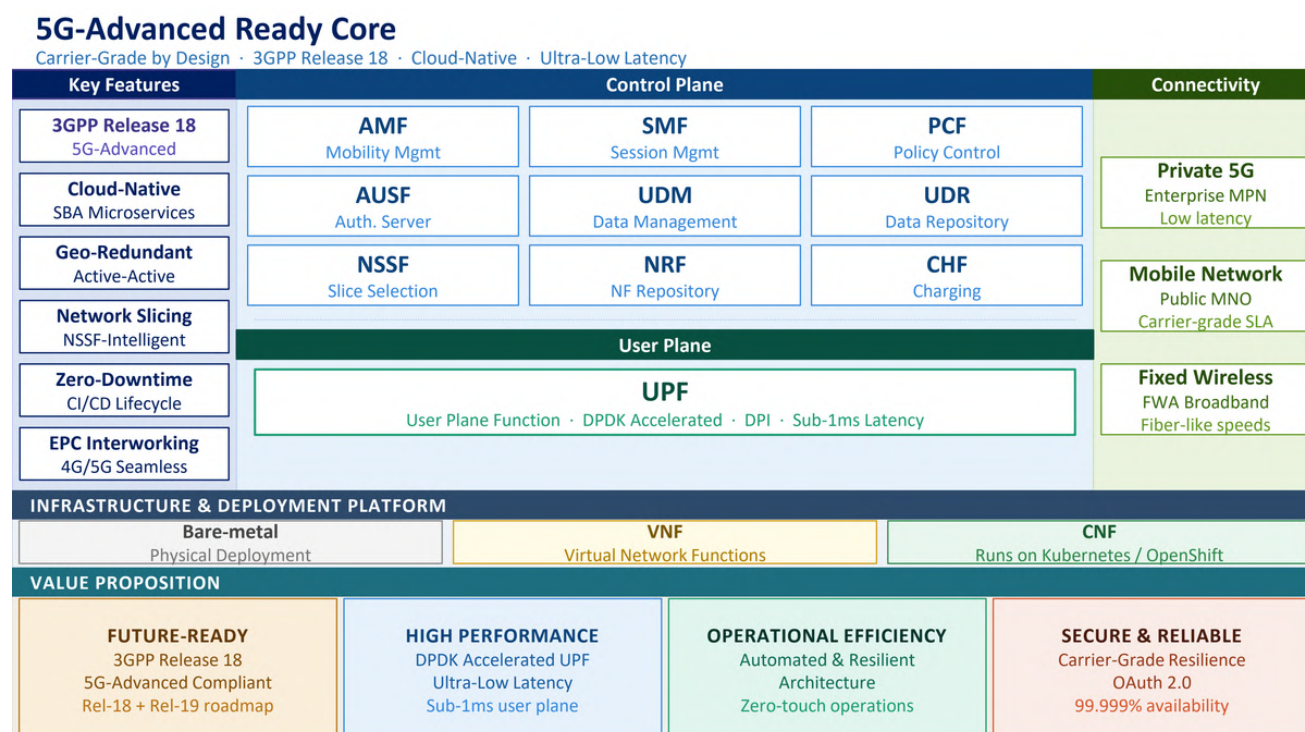


Figure 1: TELENTRA 5G Core — 5G-Advanced Ready Core Overview

Deployment Models

TELENTRA 5G Core supports multiple commercial scenarios:

5G Mobile Public Network

Carrier-grade 5G connectivity for MNOs, delivered over a nationwide public network infrastructure. Designed for tens of millions of subscribers with geo-redundant active-active architecture and carrier-grade SLAs.

5G Mobile Private Network (MPN)

A dedicated 5G network tailored for enterprise environments, ensuring enhanced security, performance, and operational control. Ideal for manufacturing, logistics, and critical infrastructure requiring isolated data planes and sub-10ms latency.

5G Fixed Wireless Access (FWA)

High-speed broadband delivered wirelessly to homes and businesses, providing fiber-like performance without the need for wired infrastructure. Accelerates broadband rollout in underserved areas with rapid site activation and scalable subscriber management.

Architecture & Design Principles

TELENTRA 5G Core is built around modern cloud-native telecom engineering principles spanning cloud-native architecture, scalability, security, and operational resilience:

- 3GPP Release 18 compliant
- Service-Based Architecture
- Stateless microservices architecture
- Bare-metal, VNF, and CNF deployment support
- Hybrid cloud (Private / Public) readiness
- High availability (intra-site and inter-site)
- Active-Active geo-redundant architecture
- State decoupling with real-time data replication
- Automated CI/CD lifecycle management
- Zero-downtime upgrades
- Horizontal scalability with real-time state decoupling
- Unified data management architecture
- Integrated observability & performance monitoring
- Reliable & secure connectivity

Figure 2 (below) illustrates the end-to-end cloud-native architecture of the TELENTRA 5G Core: the Control Plane NFs (AMF, SMF, PCF, AUSF, UDM, UDR, NRF, NSSF, CHF) and the User Plane (UPF) deployed on Kubernetes and Red Hat OpenShift. The solution includes a dedicated O&M Center — the core network's own management system with web-based user interfaces — covering Subscriber Provisioning, Configuration, Performance, Fault and Log Management. Additional layers include a Security module (IAM, SSO, RBAC), session and subscriber databases, a CI/CD toolchain (Git, Jenkins, Helm, SonarQube, Podman), and a full observability stack (Prometheus, Grafana, Elasticsearch, OpenTelemetry, Istio).

TELENTRA 5G Cloud-Native Core Network

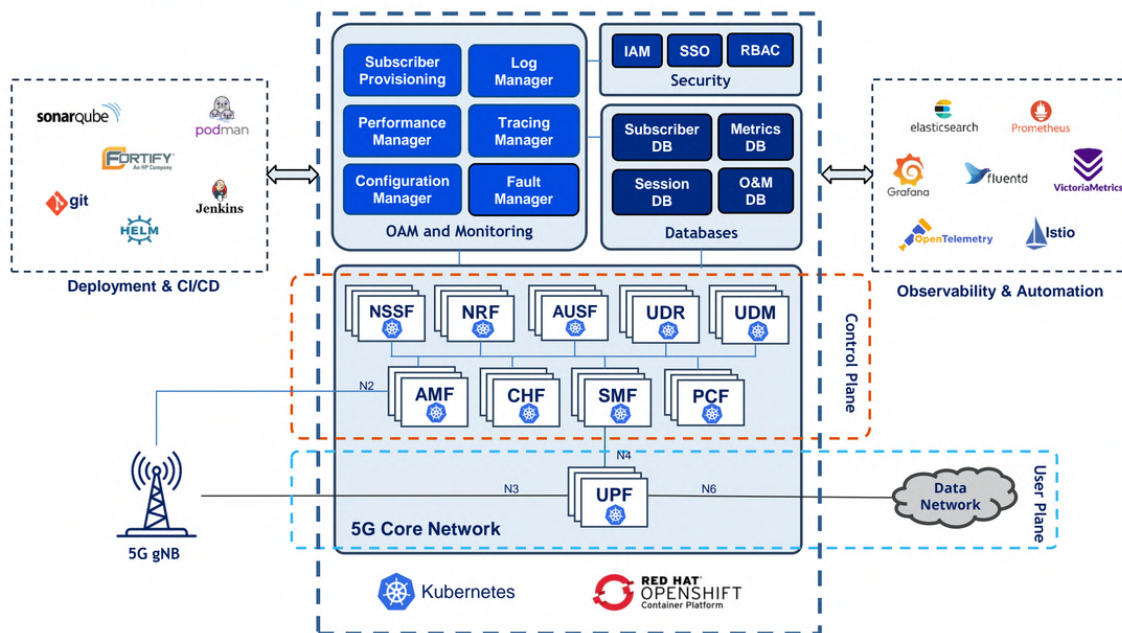


Figure 2: TELENTRA 5G Core — Cloud-Native Deployment Architecture

5G Core Network Functions (CNFs)

TELENTRA 5G Core includes all mandatory 5G SA network functions:

- Access and Mobility Management Function (AMF)
- Session Management Function (SMF)
- User Plane Function (UPF)
- Policy Control Function (PCF)
- Authentication Server Function (AUSF)
- Unified Data Management (UDM)
- Unified Data Repository (UDR)
- Network Slice Selection Function (NSSF)
- Network Repository Function (NRF)
- Charging Function (CHF)

All functions are fully SBA-compliant and interoperable with multi-vendor RAN and ecosystem components.

Key 5G Core Capabilities

The TELENTRA 5G Core puts the full power of 5G in the hands of MNOs and enterprises, with a complete set of 3GPP-defined capabilities across every domain of the network. It keeps subscribers seamlessly connected through mobility and access management, handover and roaming, while intelligent session and policy control delivers every service with precision, and monetizes it with ease. Rich user services such as emergency and location services are reinforced by enterprise-grade security and 5G network slicing, while built-in integration with existing networks and regulatory environments makes the TELENTRA 5G Core a complete, standards-compliant core that's ready for any deployment scenario. Figure 3 (below) provides a comprehensive view of the TELENTRA 5G Core's capabilities across mobility management, session control, security, network slicing, and interworking.

TELENTRA 5G Core - Solution Architecture

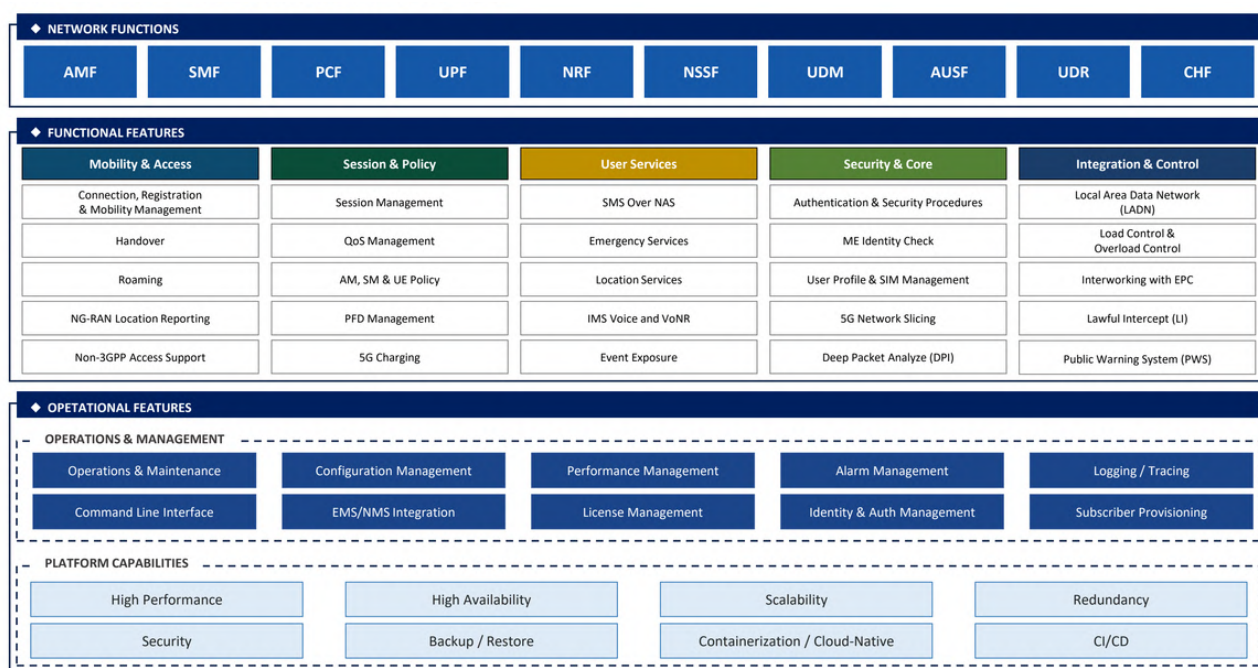


Figure 3: TELENTRA 5G Core Capability Map

Technology & Performance

The TELENTRA 5G Core is engineered to meet IMT-2020 performance targets. NFs (Network Functions) can be deployed on containerized or virtualized infrastructure using a distributed, redundant, and stateless architecture.

Scalability: By utilizing NF Sets, individual and functionally self-sufficient NF instances can be distributed across different locations. New instances can be added or removed seamlessly because the NFs are "stateless," storing all session information in a separate, centralized cluster.

The architecture supports intra-site and inter-site high availability with distributed deployment models and real-time subscriber/session synchronization.

Optimization:

- **Latency:** To achieve ITU IMT-2020 objectives, the system uses in-memory databases, caching mechanisms, and asynchronous, non-blocking messaging.
- **Protocol Efficiency:** Control plane NFs use HTTP/2 to reduce latency and increase scalability.
- **User Plane Acceleration:** The UPF utilizes the DPDK library to bypass OS kernel networking routines, significantly reducing latency. It also incorporates Deep Packet Inspection (DPI) capabilities, enabling traffic classification, application detection, and policy enforcement at line rate — essential for QoS management, fair-usage policies, and lawful interception.

The TELENTRA 5G Core provides performance metrics, logs, alarms, and statistics via periodic or on-demand counters. Besides its owned management system, it also integrates with the CNCF observability stack for KPI measurement, performance monitoring and fault management.

The architecture enables linear scalability and deterministic latency performance across distributed data center environments. Figure 4 (below) summarizes the key technology and performance pillars underpinning the TELENTRA 5G Core's architecture.

Technology & Performance

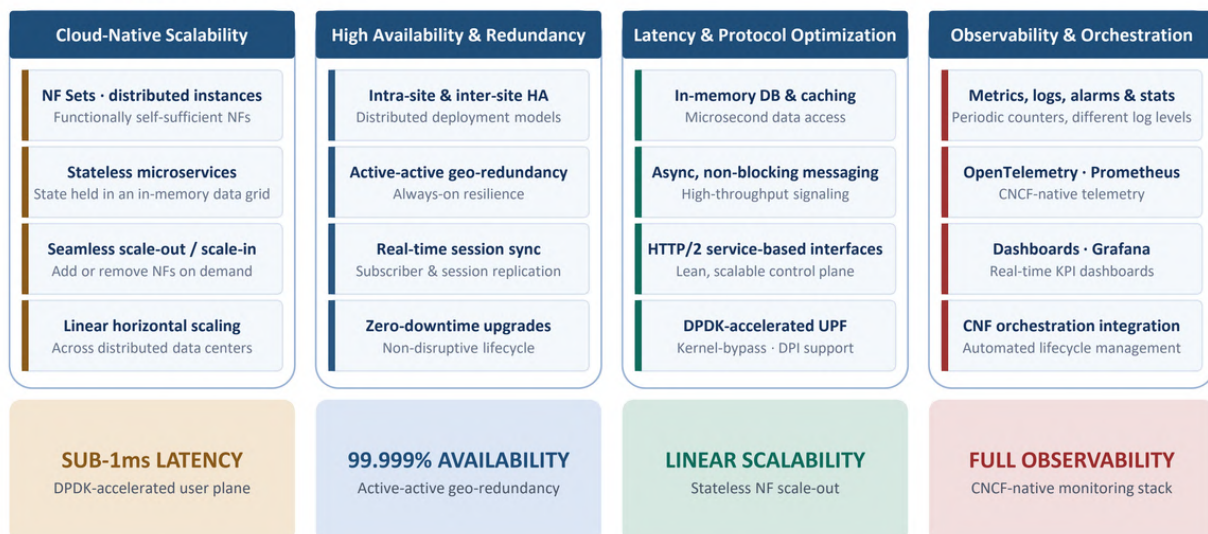


Figure 4: Technology & Performance Pillars

AI-Driven Operational Intelligence

TELENTRA Networks integrates AI-powered automation capabilities leveraging carrier-grade platforms such as Red Hat OpenShift AI to enable:

- Intelligent capacity forecasting
- Adaptive resource allocation
- Automated anomaly detection
- Predictive fault management
- Accelerated service rollout

This enhances operational efficiency while reducing OPEX and time-to-market.

For example: predictive capacity management monitors live traffic patterns and pre-provisions resources before demand peaks, eliminating manual scaling and avoiding congestion events. Automated anomaly detection identifies and isolates faults within seconds, reducing mean time to repair (MTTR) and protecting SLA commitments.

Why TELENTRA 5G Core?

The TELENTRA 5G Core combines 3GPP Release 18 standards compliance with real-world deployment readiness. Unlike generic platform solutions, it is purpose-engineered for telecom-grade workloads: stateless microservices ensure linear scalability without re-architecture, active-active geo-redundancy eliminates single points of failure, and zero-downtime upgrade pipelines protect revenue-generating services during maintenance windows. The result is a core network that MNOs and enterprises can deploy faster, scale with confidence, and operate at lower total cost.

Get Started

To learn more about the TELENTRA 5G Core, please contact the TELENTRA Networks team:

Website: www.telentra-networks.com

E-mail: info@telentra-networks.com

● Head Quarter Office

Sanayi Mah. Teknopark Bulvarı, Teknopark
İstanbul 1C Blok 9. Kat No: 1902 Kurtköy,
Pendik, İstanbul, Türkiye

☎ +90 212 483 74 33

📍 [Get Directons](#)

info@telentra-networks.com
www.telentra-networks.com

