

THE INTELLIGENT CORE FOR 5G ADVANCED & BEYOND

5G
PRODUCTS

i2i 5G CORE NETWORK

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 **i2i Systems**
innovation to integration

About i2i Systems

i2i Systems is an international information technology company that specializes in developing innovative ideas and solutions. With its highly experienced team in the Telecommunications industry it offers a diverse variety of products in Telco OSS/BSS domains, as well as 5G network solutions.

i2i Systems delivers Next Generation Converged Revenue Management solutions enabling CSPs to unlock new business models, mitigate competition, reduce costs, and quickly monetize new use cases. This is being achieved through systems that are fully convergent, cloud-native, API-first, interoperable, low-code / no-code and modular. The offerings are highly scalable and support subscriber bases ranging from tens of thousands to tens of millions, harmoniously. i2i Systems improves its experience and skills by adapting new technologies and investing in research and development to provide best quality, efficient and visionary products to its customers. In accordance with its disruptive vision, i2i Systems further invests in 5G core-network, offering an end-to-end integrated cloud-based BSS and Network solution for optimizing and converging Service Providers IT and Network landscape thus increasing efficiency and enabling new revenue streams.

Our Customers – Telecom (CSP) & Industry



Partners

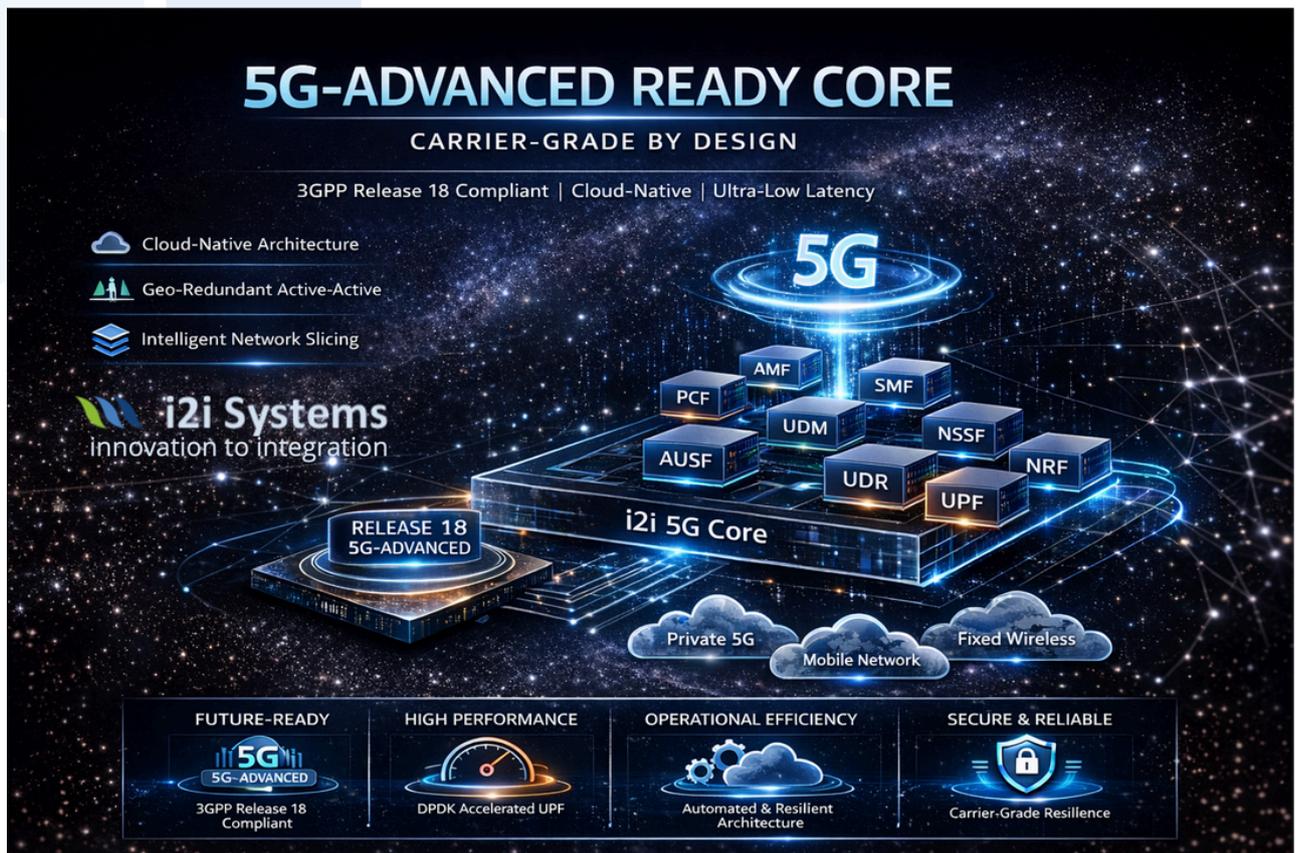


i2i 5G CORE NETWORK

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The i2i 5G Core is a fully standards-compliant, cloud-native Service-Based Architecture (SBA) platform engineered for Standalone (SA) deployments and seamless EPC interworking.

It is designed to support **Mobile Public Networks**, **Mobile Private Networks (MPNs)**, and **Fixed Wireless Access (FWA)** deployments with deterministic performance, scalability, and redundancy. The i2i 5G Core is engineered specifically to meet the demands of **Mobile Network Operators (MNOs)** and large-scale enterprises.



Deployment Models

i2i 5G Core supports multiple commercial scenarios:

5G Mobile Public Network

Carrier-grade 5G connectivity for MNOs, delivered over a nationwide public network infrastructure.

5G Mobile Private Network (MPN)

A dedicated 5G network tailored for enterprise environments, ensuring enhanced security, performance, and operational control.

5G Fixed Wireless Access (FWA)

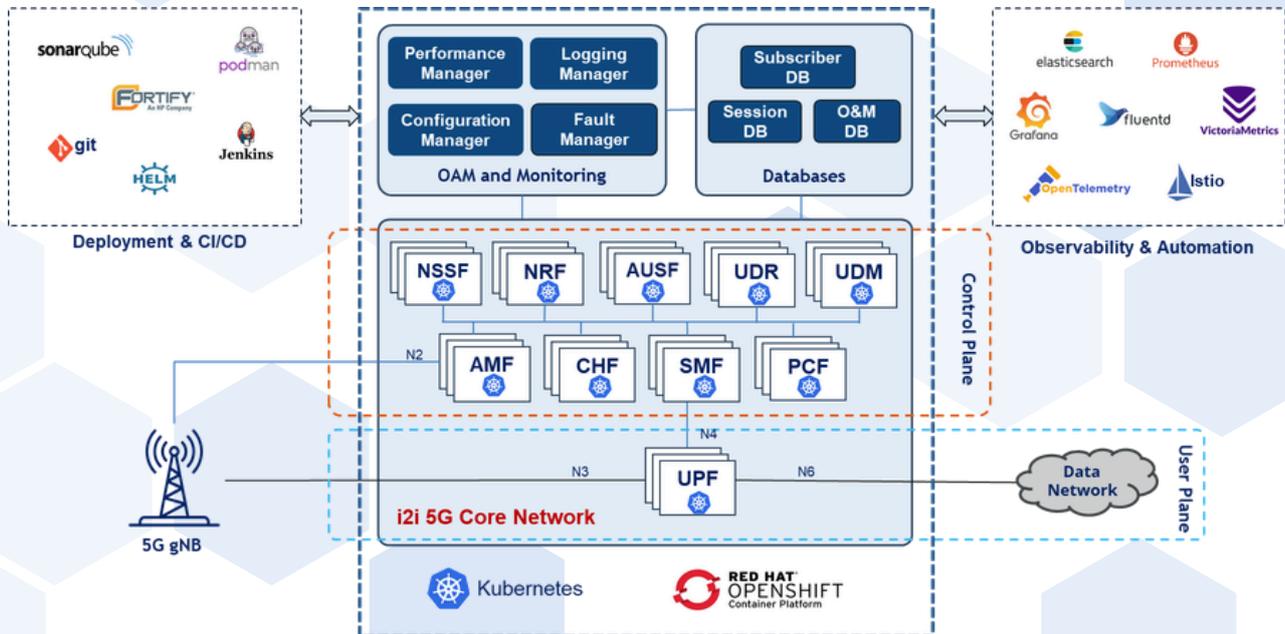
High-speed broadband delivered wirelessly to homes and businesses, providing fiber-like performance without the need for wired infrastructure.

Architecture & Design Principles

i2i 5G Core is built around modern cloud-native telecom engineering principles:

- 3GPP Release 18 (5G-Advanced) compliant
- Service-Based Architecture (SBA)
- 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

i2i 5G Core Network - Cloud-Native Deployment



5G Core Network Functions (CNFs)

i2i 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 platform supports complete 5G SA functional flows and advanced operational capabilities:

Mobility & Session Management

- Registration / Deregistration
- AMF Re-allocation
- UE & Network-triggered Service Request
- PDU Session Establishment / Modification / Release
- Xn and N2 Handover
- UE Reachability & Mobility Management

Security & Access Control

- UE Authentication & Authorization
- NAS Integrity & Ciphering
- OAuth 2.0 / Access Token-based NF security
- Lawful Interception (LI)
- Public Warning System (PWS)

Network Slicing & Service Exposure

- Enhanced Network Slicing
- NSSF-based slice selection
- Event Exposure Framework
- LADN (Local Area Data Network)

Interworking & Roaming

- EPC Interworking
- Home-routed & Local Breakout roaming
- IPv4 / IPv6 / Dual Stack
- 3GPP & Non-3GPP Access support

Charging & Policy

- Converged / Online Charging integration
- UE / AM / SM policy control

OAM & Resilience

- Overload & Congestion Control
- NG Setup / Reset / Failure handling
- EMS / NMS integration
- Fault Management
- Comprehensive KPI, alarm, and statistics reporting

Technology & Performance

The i2i 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.

The i2i 5G Core provides performance metrics, logs, alarms, and statistics via periodic or on- demand counters. It integrates with leading **CNF Orchestration** platforms and the **CNCF** observability stack (e.g., **OpenTelemetry, Victoria Metrics, Prometheus,** and **Grafana**) for KPI measurement, performance monitoring and fault management.

Observability & Automation

- OpenTelemetry integration
- Grafana, Prometheus & Victoria Metrics support
- Real-time KPI exposure
- Automated lifecycle management via CNF orchestration platforms
- CI/CD-driven upgrade and deployment pipelines

The architecture enables linear scalability and deterministic latency performance across distributed data center environments.



AI-Driven Operational Intelligence

i2i Systems 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.

Empowering the 5G Era: i2i Systems Drives Innovation and Efficiency with Red Hat OpenShift AI

i2i Systems' 5G Core Network provides increased productivity and operational efficiency through Red Hat OpenShift AI, which enables intelligent automation, real-time analytics, and adaptive resource management. AI is poised to accelerate the delivery of innovative new experiences while significantly improving business processes and resource utilization, empowering i2i Systems to thrive in the 5G era.



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