5G
PRODUCTS

# THE NUCLEUS OF TELECOMMUNICATIONS

## 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.

## Customers - Telecom (CSP)

Türk Telekom Değerli Hissettirir
TURKCELL
vodafone
VIDÉOTRON
fizz
AXTEL 4G
STATE OF QATAR MINISTRY OF INTERIOR
tmcel MOÇAMBIQUE TELECOM, SA
life:) Life is getting interesting!
lifecell
KOREK TELECOM
zain
Asiacell
TÜRKSAT
bouygues

## Partners

Red Hat
MAVENIR
intel.
aws
VOLT ACTIVE DATA
ERICSSON
NEXNET SOLUTIONS
NEARBY COMPUTING
ETIYA
Tech Mahindra
HAZELCAST
TTG

# i2i 5G CORE NETWORK

## A REVOLUTIONARY 5G CORE NETWORK THAT WORKS FOR YOU

i2i Systems is expanding the BSS/OSS product portfolio by developing a 5G Core Network, combining 20+ years of experience in the Telecom Industry and cutting-edge technologies and frameworks.

### Design Principles

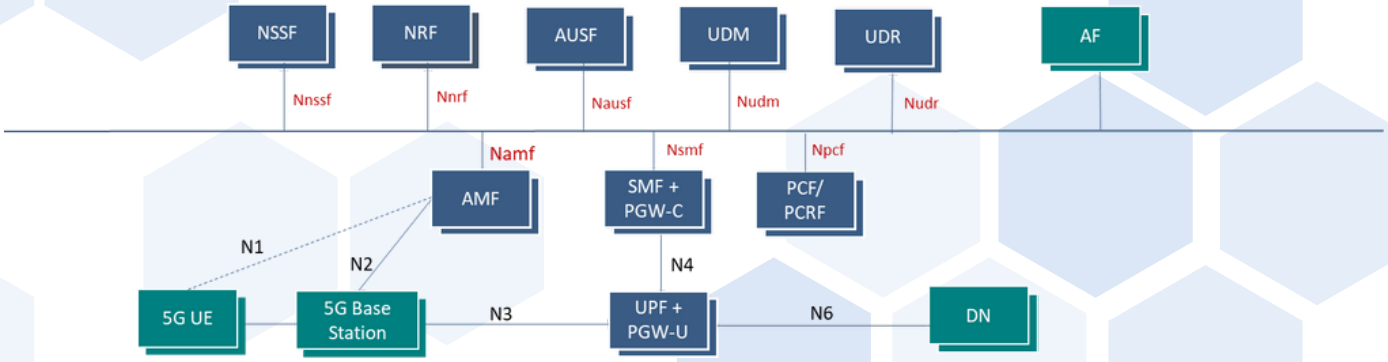
i2i 5G Core is fully compliant with 3GPP specifications and industry standards, supporting SA (Standalone) mode and interworking with EPC. The technical architecture is based on the following contemporary design principles:

- 3GPP Rel-16 Compliant
- Service Based Architecture (SBA)
- Bare-metal, Cloud-native & Heterogeneous Deployment (VNF / CNF)
- Hybrid Cloud, Private/Public Cloud Support
- High availability (Intra-site and Inter-site) with state de-coupled architecture
- Geo-redundancy with distributed architecture
- Active-Active deployment model with session and subscriber real-time data replication on two or more sites
- On-demand scalability is possible for 5G coverage and 5G capacity
- Unified Data Management
- Deployment and the life cycle management provided by a fully automated operations model (CI/CD)
- Easily upgradeable without service interruption
- Efficient network configuration based on service characteristics
- Provides reliable and secure connectivity
- Easily monitor the health of the product and performance results

### i2i 5G Core 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)

## i2i 5G Core Features




i2i 5G Core supports the following main features:

- Registration/Deregistration
- Registration with AMF Re-allocation
- UE and Network Triggered Service Request
- PDU Session Establishment/Modification/Release
- Authentication/Authorization and Access Control
- UE/AM/SM Policy Control
- RAN and AMF Triggered AN Release
- NG Setup, NG Reset, NG Failure
- Both 3GPP and Non-3GPP Access
- NAS Security Integrity Protection & Ciphering
- NRF Registration/Discovery/Subscription
- Communication Models (A, B, D)
- Network Slicing
- Handover (Xn, N2)
- Home-routed & Local Breakout Roaming
- Event Exposure Support
- OAuth 2.0, Authentication with Access Token
- Interworking with EPC
- UE Reachability/Mobility
- IPv4/IPv6, DualStack
- Online/Converged Charging
- SMS over NAS
- Location and Emergency Services
- Overload & Congestion Control
- Public Warning System Support
- LADN (Local Area Data Network) Support
- EMS/NMS Integration

## Technology & Performance

i2i 5G Core NFs (Network Functions) can be deployed on a containerized or virtualized infrastructure, with a distributed, redundant, stateless, and scalable architecture by enabling the addition or removal of NF instances within an NF set. The NF set consists of individual and functionally self-sufficient NF instances that may be distributed to different locations. For scalability, new instances of NFs can easily be added to or removed from the NF set, as the NFs are “stateless” and store state information in a separate cluster.

In order to achieve ITU IMT-2020 performance objectives, in-memory databases and caching mechanisms along with asynchronous and non-blocking messaging are used by the components within and between the NFs. Control plane NFs use HTTP/2 which helps to reduce latency and increase performance and scalability and UPF uses the DPDK library to bypass OS kernel networking routines to reduce latency in the user plane.

i2i 5G Core provides performance metrics, logs, alarms, and statistics by issuing periodic or on-demand counters which are used by the EMS (Element Management System) and other CNCF (Cloud Native Computing Foundation) observability applications such as Open Telemetry, Prometheus, Grafana, etc for KPI measurements, fault management, troubleshooting, and reporting purposes.

5G Core was also integrated with the leader CNF Orchestration and Management platforms to provide easy deployment, automated lifecycle management, and efficient performance monitoring of 5G Core NFs.

## Head Quarter Office

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