

MAKES NETWORK SERVICES AND RESOURCES INNOVATIVE

5G
PRODUCTS

i2i POLICY MANAGER

COMBINED PCF/PCRF

info@i2i-systems.com
www.i2i-systems.com

 **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 POLICY MANAGER (COMBINED PCF/PCRF)

MAKES NETWORK SERVICES AND RESOURCES INNOVATIVE

Service providers need Policy Control Function PCF & Policy and Charging Rules Function PCRF solution in order to use their network resources effectively and efficiently among millions of subscribers, manage, control, and classify the quality of service of data flowing over the network in real time. PCF & PCRF provides this solution by implementing certain policies on the service providers' customers.

These policies can be applied based on time, specific applications, subscriber category/segment, UE information, customer quota information, location information, and so on. PCF & PCRF get this information as input and use it to proceed with policy decisions. In this way, service providers allocate and utilize their network resources effectively, fairly and efficiently for their millions of subscribers.

i2i Policy Manager is a 3GPP Release 18 compliant Policy and Charging Control (PCC) suite for mobile, Wi-Fi and fixed broadband networks.

It supports the following main features:

Main Features

- Fully Compliant with 3GPP Release 18
- Support for all PCC interfaces such as DIAMETER (Gx, Rx, Sy etc.) and 5G Service Based Interfaces (SBI) (N7, N15, N5, N28, N36, etc.) with strong network interface compatibility
- Fixed-Broadband, Wi-Fi and 2G/3G/4G/5G NSA/SA Composite Support
- Flexible and Real-Time Policy Management & Establishment Support
- Ability to Provide Flexible Policy Rule Diversity
- Includes SPR/UDR for subscriber database (optional)
- Supports multiple deployment options such as PLMN level, slice shared and slice specific
- Home-routed & Local Breakout Roaming



Architecture & Deployment Capabilities

- Support for Physical, Virtual and Containerized Deployments
- Support for VM-Based Cloud Infrastructure Based on ETSI Network Functions Virtualization (NFV) Architecture
- Red Hat OpenShift Certified
- Hybrid, Private and Public Cloud Deployment Support
- Integration with DevOps Workflows, Supporting CI/CD

Reliability & Performance

- Active-Active deployment model that provides high availability and redundancy
- Wide Range of Solutions Against Disaster Scenarios
- Periodic Backup & Restore (Hourly, Daily, On Demand etc.)
- Version Upgrade Without Service Interruption
- High Performance
- Periodically validated using the i2i Test Automation tool, which includes over 500 comprehensive test cases.

Operations & Management

- Contains a cutting-edge EMS system compliant with Fault, Configuration, Accounting, Performance and Security (FCAPS) model
- Integration capability with 3rd Party Element Management System (EMS) / Network Management System (NMS)
- Policy Configuration & OM-Center User Friendly GUI

Even though it is a combined policy manager, it is possible to deploy PCF and PCRF entirely independently.



i2i Policy Manager Key Features

i2i Policy Manager can be located at 2G/3G/4G/5G NSA/SA mobile networks as illustrated in the diagram below:

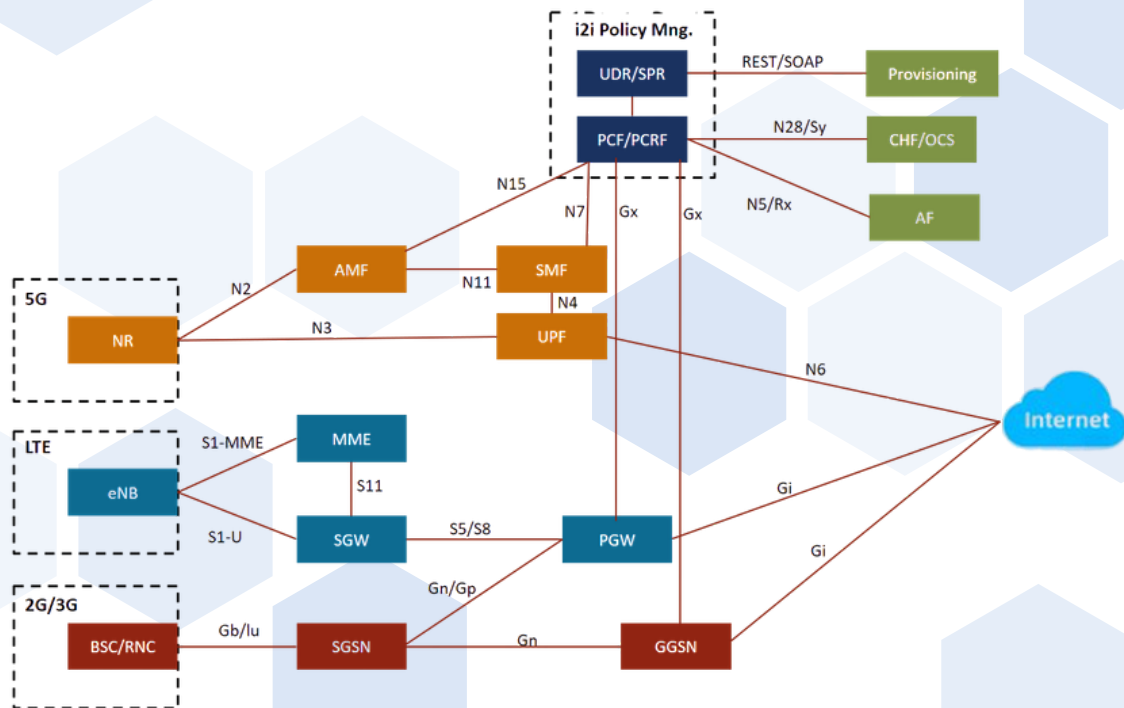


Figure 1 - i2i Policy Manager in 2G, 3G, 4G, 5G NSA, 5G SA

i2i Policy Manager can be located at Fixed Broadband as illustrated in the diagram below:

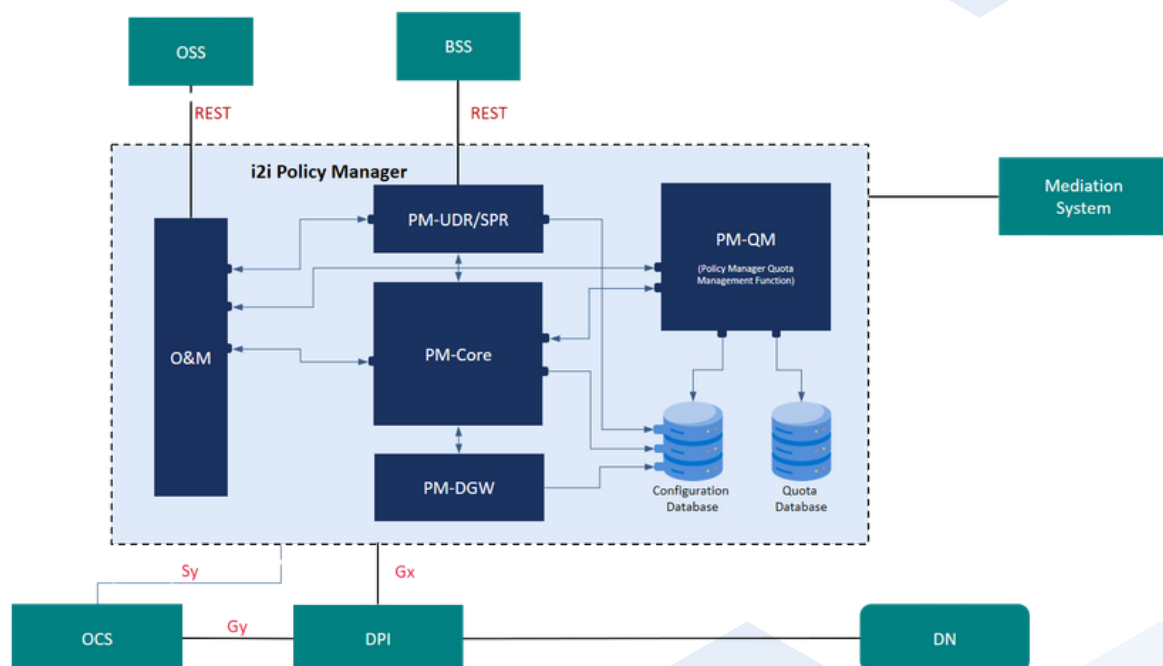


Figure 2 - i2i Policy Manager at Fixed Broadband

i2i Policy Manager supports many features including but not limited to the following:

- Provisioning control of policy decisions related to QoS and bandwidth management
- Provisioning control of charging characteristics, gating, and service flow detection for session management services
- Dynamic & Predefined Rule Support
- Application Based Policy Support
- Usage Monitoring Based Policy Support
 - Advanced Quota Enforcement & Traffic Control
 - Application-Specific Quota Monitoring
 - Quota-Aware Time-Based Policy Control
 - Quota-Based Add-On Management
 - Zero-Rated & Excluded Traffic Handling
- Spending Limit Based Policy Support (Sy & N28)
- Time of Day Policy Support
- Location Based Policy Support
- Subscriber Customized Policy Support
- Multi-PCEF Session Binding Support
- Custom AVP Support
- Access management services such as RAT/Frequency Selection Priority and Service Area Restrictions over N15



- UE policy services such as transfer of UE route selection policies (URSP) and access network discovery and selection policies to UE
- Presence Reporting Area (PRA) Support
- Gating control, charging-related information support, integration with AF over Rx and N5
- Policy management for IMS and AF Services
- IMS Emergency Calls Support
- Multimedia Priority Services
- Network Location (NetLoc)
- Event-based data reporting
- SMS - Email Notification Support
- Diameter-based Subscriber Trace Management
- Subscriber Profile Monitoring and Management Interface
- User Friendly Policy and System Monitoring Interface (i2i Policy Builder)
- Overload Scenario Coverage
- Policy Update Without Service Interruption
- Next-Generation Non-Functional Capabilities (Scalability, High Availability, Redundancy, etc.)
- Advanced Command-Line Interface (CLI) for Administrators
- Sensitive Data Masking (Subscriber specific data management)
- Authorization & Authentication (LDAP/Active Directory Integration)



Some example use cases that can be easily configured by the operator using i2i Policy Manager are listed below. Apart from the listed use cases, the operator can imagine, design and deploy many additional innovative use cases based on their real-time network, location, subscriber data and time, etc. parameters provided by serving and peer network functions such as SMF, AMF, PGW, GGSN, AF, BNG and CHF/OCS:

- PCC Rule Prioritization
- Service Priority Management
- Quality of Service and Speed Control Policies
- Access Limit Policies
- Traffic Direction Based Policies
- Policy Management Based on Quota Information
- Fair Use Policies
- Add-On Packages
- Freemium Service Support (try and buy etc.)
- Free of Charge Services
- Sponsored data offers
- Shared data plans
- Time of Day Based Policies (Daily, Weekly, Monthly, etc.)
- Location Based Policies
- Same Customer on Different Location Policies (Seasonal Internet Services etc.)
- User Equipment Type & Model Based Policies
- Customer Category Based Policies (Job, Gender, Location, age, etc.)
- Stage & Category Based Policies (gold, silver, premium, etc.)
- Application Based Policies (Pubg, Social Media, YouTube, Netflix, Twitch, etc.)
- AF services such as VoLTE, VoNR and VoWiFi
- Loyalty Policies (Birthday, Anniversary, Play & Win, etc.)
- Happy Hour Policies
- Family/Parental Control
- Default PCC Rules



i2i Policy Manager

Future-Ready Deployment Architecture

i2i Policy Manager is designed with a modular and cloud-native architecture to meet scalability, flexibility, and high availability requirements. Supporting multiple instance types, it can easily adapt to varying traffic loads, service types, and network topologies. The solution operates on Red Hat OpenStack (VNF) and OpenShift (CNF) environments with native scale-in/scale-out capabilities, enabling dynamic scaling based on operational parameters such as TPS, total session count, CPU utilization, and memory usage. This ensures performance continuity during traffic peaks while optimizing resource utilization during low-demand periods.

With its Kubernetes-based architecture on OpenShift Container Platform, i2i Policy Manager benefits from advanced capabilities such as container orchestration, self-healing, rolling upgrades, and automated restarts. This approach enhances service continuity and enables seamless maintenance and version transitions. In addition, it provides enterprise-grade control mechanisms for security, isolation, and resource management, helping operators meet security, privacy, and regulatory requirements.

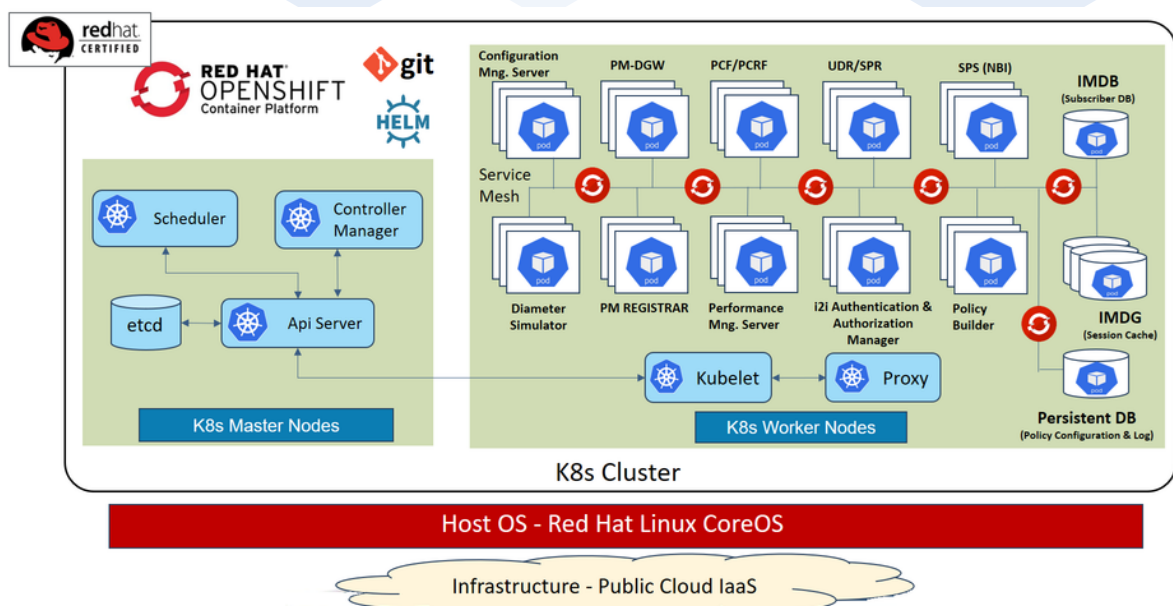


Figure 3 – Deployment Architecture

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.



● Head Quarter Office

Yıldız Teknik Üniversitesi Davutpaşa
Kampüsü Teknoloji Geliştirme Bölgesi D-2
Blok K:1 No:Z-08 Esenler, İstanbul, Türkiye

☎ +90 212 285 48 44

📍 [Get Directons](#)

● YTÜ Teknopark R&D Center

Yıldız Teknik Üniversitesi Davutpaşa Kampüsü
Teknoloji Geliştirme Bölgesi D-2 Blok K:1 No:Z-
08 Esenler, İstanbul, Türkiye

☎ +90 212 285 48 44

📍 [Get Directons](#)

● Teknopark Istanbul R&D Center

Sanayi Mah. Teknopark Bulvarı, Teknopark
İstanbul C1 Blok 9. Kat No:1901-1902 Kurtköy,
Pendik, İstanbul, Türkiye

☎ +90 212 285 48 44

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