

 **SummaNetworks**

PCRF/PCF

Voice PCRF for VoLTE/VoWiFi

Full PCRF for data and quota
management

Pioneering Smart Connectivity
for a Connected World

Policy management and control made easy

As defined by industry standards, **Policy and Charging Rules Function (PCRF)** is the software node designated in real-time to determine policy rules in a multimedia network supporting the creation of rules and then automatically making policy decisions for each subscriber active on the network. Such a network might offer multiple services, quality of service (QoS) levels, and charging rules. PCRF can provide a network agnostic solution (wireline and wireless) and can also enable multi-dimensional approach which helps in creating a lucrative and innovative platform for operators. PCRF can also be integrated with different platforms like billing, rating, charging, and subscriber database or can also be deployed as a standalone entity.

PCRF plays a key role in VoLTE as a mediator of network resources for the IP Multimedia Systems network for establishing the calls and allocating the requested bandwidth to the call bearer with configured attributes. This enables an operator to offer differentiated voice services to their user(s). Operators also have an opportunity to use PCRF for prioritizing the calls to emergency numbers in the next-gen networks.

Summa Networks has implemented a Policy management and control function with a word in mind: simplicity.

Cumbersome solutions with complicated design rules, clanky web interfaces have been the norm in the PCRF space for years. Therefore we have decided to create a simple yet complete PCRF suite of solutions including:

- Voice PCRF for VoLTE, VoWiFi and basic data capabilities.
- Full PCRF for data policy and control functionalities.
- Transparent extension to 5G PCF.

Besides, our PCRF can work as a standalone solution or in conjunction with our converged 3G-4G-5G HLR/HSS, UDR/UDM, in a bundled solution which brings benefits from both operational and TCO perspectives.

Finally, our solution can work as a converged policy center for both 4G and 5G simplifying the transition into standalone 5G networks of the future. Manage your different bearers from a single policy product!

Adapted to multiple use cases

Voice PCRF Use Cases:

Summa Networks has developed a voice version of PCRF to act as the perfect companion of an HSS-IMS for VoLTE and VoWiFi deployments. It allows carriers to go VoLTE/VoWiFi easily controlling the investment and deployment complexity, paving the way as well for VoNR.

- VoLTE calls made without the need for any provisioning
- Filter calls by location
- Filter calls by IMEI
- Apply roaming rules
- Filter calls by device model
- Apply rules based on the time of the day or days of the week (happy hour)
- IMS applies rules based on the media type of the session
- Filter emergency traffic
- Filter by charging characteristics

Full PCRF Use Cases:

Summa Networks has developed a fully-fledged PCRF affordable for any kind of communication provider. It can adapt to any number of subscribers or traffic patterns, from a few thousand to scaling up to the millions, allowed by its design to run on virtualized environments as well as cloud-native systems.

- Provision and Management of Plans
- Provision and Management of Subscribers
- Plan Subscription for Subscribers
- Bill Cycle Management
- Quota Management
- Advanced Subscriber Profile
- Perform isolated testing of policies in production
- Integration with OCS

Unified Policy control:

Summa Networks PCRF is as well a PCF for 5G allowing to extend the rules and policies to subscribers in 5G SA networks as well as to those interworking between technologies (4G /5G) during the networks transition to 5G SA

Key Features

5G PCF:

- It communicates with the SMF and the AF

Non-functional:

- Web based dashboard for operational functions
- Alarms, CDRs, EDR, KPIs, and logs are generated for customers use
- Live session parameters query
- Multi-tenancy
- Integrated Subscriber Profile Repository
- Web based policy editor
- REST API for provisioning of profiles and usage plans

Unique benefits

Product flexibility: Choose a PCRF flavour according to your needs. Voice PCRF for VoLTE/VoWiFi only or a fully fledged PCRF extended to Data Policy, Quota management and the rest of functionalities. And add a 5G PCF at your convenience.

Built on cloud native architecture but allowing flexible deployment models: Built on cloud-native principles from scratch, our PCRF can be flexibly deployed into any cloud, including containers on bare metal managed by Kubernetes, virtual machines (VMs) or any hybrid deployment model.

The Summa Networks promise: Always compliant with latest 3GPP specifications. As in our SDM product, PCRF will always be updated to 3GPP standards, so you take advantage of the most innovative features without having to wait.

Comprehensive capabilities: Addresses a wide range of use cases with a comprehensive set of field-proven capabilities.

Integration: Naturally integrated with our SDM, but ready to be integrated to any other 3GPP compliant element in the network. GUI and API functions of a service platform to interact with CRM and other systems.

Multi-tenancy: Tenant separation based on IMSI: Either MCC/MNC differs between tenants, MSIN ranges of tenants. Tenant separation based on User-Profile flag: No tenant-distinct decision prior to reading profile (user profiles of all tenants are mixed in the profile repository(ies)).

Powerful yet easy handling for simple rule creation and management: Friendly user interface to create rules without relying on fixed rule table schedules supported by A.R.T rule system. Product includes a flexible and robust web interface that enables users to configure policy rules and their evaluation criteria based on their unique business needs. This helps operators create highly contextual and personalised offers that resonate with subscribers' digital lifestyles. Features include:

- Easy-to-use GUI to create policy rules with a rich set of policy conditions.
- Manages policy profiles for UE, AM, SM (session and PCC rules).
- Provides a high-performance flexible rule engine for policy evaluation.

Protocols Supported

Our product is based on 3GPP standards and will keep evolving with them:

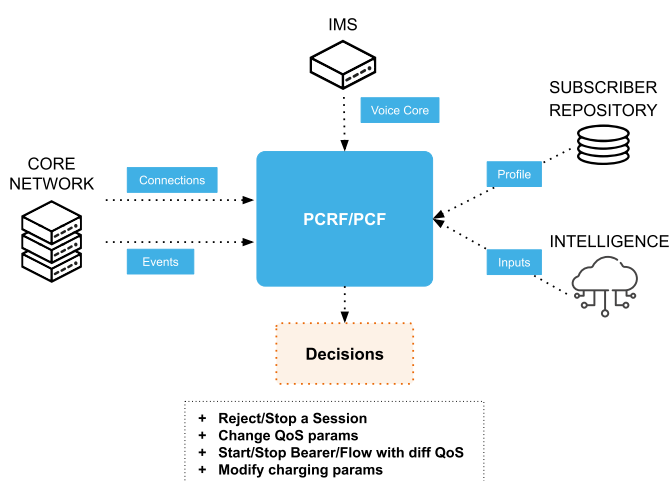
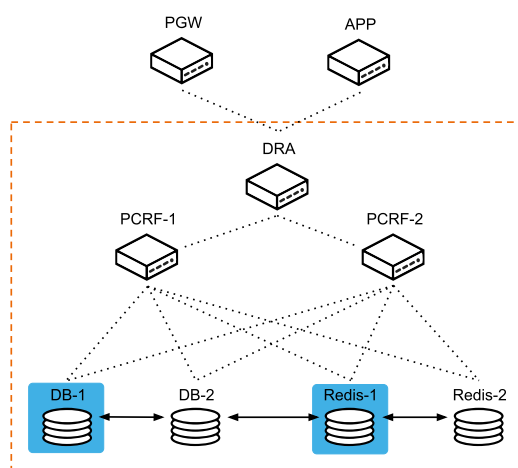
- **Subscribers based:** 23203 (Architecture), 29212 (Gx), 29214 (Rx), 29213 (Flows and QoS mappings), Sy (29219)
- **PCF:** 29512 (N7), 29414 (N5), 29513 (flows and QoS mapping), 29519 (Access to UDR)

Interoperability with 5G

Summa Networks joint combo PCF+PCRF solution naturally implements policy control requirements in 4G as well 5G networks. It provides a unified platform for configuring and managing policy decisions based on various network parameters, user subscriptions, and usage to deliver the policies.

The use cases supported are:

- Seamless session continuity for inter-RAT handover.
- Static as well as dynamic policies.
- Access mobility policy.
- Session management policy.
- IMS integration for VoNR and VoLTE.
- 4G, 5G-NSA, 5G-SA deployments.





Sustainability statement

Summa Networks is committed to sustainability from the ground up, it is an energy-efficient company by design.

Telecom industry represents 3% of energy consumption and carbon footprint.

Within that, while the Radio Access Network (RAN) significantly contributes to global energy usage, accounting for approximately 73% of energy consumption in telecom networks, Mobile Core, where Summa Networks operates with its software, represents only 0.06% of the energy consumption within the telecom sector.

Nevertheless, when it comes to our energy-efficient software production, we can highlight how we design and develop our solutions in ways that optimise hardware and energy resource usage. This involves implementing efficient algorithms, optimising code, and responsibly utilising system resources, all of which reduce the burden on hardware equipment and minimise energy consumption during the execution of our applications. We could also emphasise that our software development philosophy includes a continuous commitment to improving and innovating in energy efficiency.

Moreover, we have a clear compromise with the sustainability principles:

- 🌱 We focus on producing software that minimises resource consumption, including CPU, memory, and disk usage, ensuring efficient operations while reducing environmental impact.
- 🌱 Our commitment to sustainability extends to our operational practices. With no physical office, we prioritise remote work, enabling our employees to work from home using personal PCs. This not only reduces our carbon footprint but also promotes a healthier work-life balance. By embracing remote work, we minimise commuting emissions, alleviating traffic congestion and air pollution in our communities.
- 🌱 We use cloud services for our processes, taking advantage of their green policies on our behalf.

Furthermore, Summa Networks partners with responsible suppliers who share our commitment to ethical and environmental standards. Our internal servers are located in data centres with green certification, and all our code resides in secure cloud systems where we rely on green initiatives by Hyperscalers. This ensures that our operations align with sustainable practices and contribute to a more sustainable future for all.

In summary, Summa Networks is dedicated to sustainability in every aspect of our operations. From our minimal energy consumption as a software producer to our remote work policies and responsible supplier selection, sustainability is woven into the fabric of our company. We believe that by prioritising sustainability, we can make a meaningful contribution to a greener, more sustainable future.

About Summa Networks

Summa Networks is the market specialist in Subscribers, Policy, Identity and Connectivity Management. Our mission is to help carriers of all sizes and types to navigate their long and complex transition to 5G with a unique suite of Control Plane products that cover 2G, 3G, 4G, 5G NSA and 5G SA in a single system. Summa Networks facilitates a swift transition to 5G while ensuring the business-as-usual helping carriers to control their TCO with a future-proof technological evolution as a main principle. Interworking is key for the years to come and Summa Networks is a well recognized player in converged control plane technology.

Our trusted SDM solution, including an HLR, HSS for LTE, HSS for IMS, EIR, ENUM, AAA, PCRF and 5G NSA and as well UDR, UDM, AUSF, PCF provided in a single piece of software, has a numerous set of features like Multi-IMSI (for 4G-5G), Lawful interception (HSM) and the ability to be deployed in any kind of environment: bare metal, VMs, Kubernetes or a hybrid environment.

Our solution is suitable for MNOs, MVNOs, MVNE/As as well as segments like IoT, Private Networks and Satellite Communications.

With us, your network is ready to evolve into 5G.



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