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Data Sheet

Oracle Communications Cloud Native Core, Policy, and Charging Rules Function

Oracle Communications Cloud Native Core, Policy, and Charging Rules Function (CNPCRF) handles policy and charging functionality in a 3G and 4G network. It helps you to deploy complex network policies, supporting wireless, fixed, cable and IoT/M2M networks quickly and easily. The carrier grade cloud native policy solution leverages Oracle's cloud expertise with signalling and policy heritage, with more than 60 deployments worldwide within the most demanding tier-1 carrier networks.

Oracle Communications Cloud Native Policy and Charging Rules Function (CNPCRF) solution incorporates new architecture with spring microservice framework as backend support technology stack and Kubernetes Cloud Native Environment as running environment

Key Business Benefits

- Oracle Communications CNPCRF is the one stop solution for creating and managing complex policies in a telecom core network. CNPCRF provides following business benefits:
- Prepares the network for coming wave of massive IoT connections and broadband services
- Reduces cost of managing a 4G network
- Enables CSPs to provide better QoS and create differentiation for their services

Overview

Telecom networks are evolving rapidly in response to the growing demand for better, faster connectivity and the changing lifestyle of consumers. The onus of preparing the network infrastructure for this evolution falls on you as service providers. Moreover, the proliferation of IoT devices together with the increasing consumer base, promise to test the scaling limits and intelligence of carrier deployments and their ability to use network resources dynamically and efficiently. To deal with this demand, an intelligent and robust policy management system must be integrated at the centre of the telecom core network.

The adoption of cloud native architecture provides operators the much-needed scalability, flexibility as well as the CAPEX reductions, these are required to support todays and tomorrow's networks. You will be required to leverage full capabilities of your network, while still having to maintain Quality of Service (QoS) and providing better, differentiated services to your customers. This can be done by crafting a sophisticated policy management system at the core of the network; one which provides flexibility, scalability, resiliency, visibility, and agility.

Product description

Oracle Communications CNPCRF is architected as microservices based on the cloud native principles. It provides the flexible and resilient network policy system needed to meet the demanding requirements. The CNPCRF also helps in enabling a smooth transition for the telecom network from 4G to 5G. Oracle Communications PCRF is an independent policy management system and has received exhilarating response from operators around the globe. The Oracle Communications PCRF is architected from the ground up for the cloud, including upgraded features to further enhance the efficiency of policy management in a telecom network, by providing ultimate flexibility,

extensibility, modularization, and assurance to you to deploy new policies and support existing and new use cases rapidly and securely. This solution helps to avoid multiple platform migrations and leapfrogs the policy solution directly to the 5G core industry defined target Service Based Architecture.

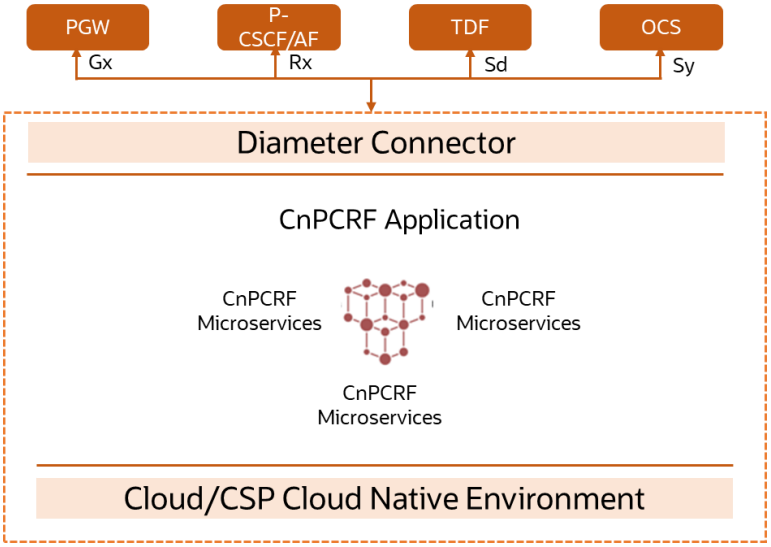

Figure 1. Oracle Communications Cloud Native Core, PCRF System Architecture

The Oracle Communications CNPCRF core features

Oracle Communications CNPCRF has the Oracle's PCRF functionalities with brand new product architecture designed for the cloud. The CNPCRF comes with a new policy designer/configuration & troubleshooting GUI, besides a set of new functionalities and architectural changes, the prominent features are listed below: -

- Compliant with 3GPP
- Supports hardware neutral deployment including operators' specific hardware type for 5G CNE or legacy PCRF hardware
- Leverages a common Oracle Communications Cloud Native Environment (CNE)
- Packaged to support VM-based and container-based cloud infrastructure
- Policy solution handling 4G Policy and Charging Control (PCC) use cases with support to legacy diameter-based interfaces
- Supports CI/CD
- Integrated with Kubernetes and 5G/CNE common services
- Integrated with DevOps workflows
- Supports all legacy diameter interfaces

Oracle communication CNPCRF supports segregation of connectivity, business and data management tier following the corresponding logical grouping of microservices/components.

Key Features:

Oracle Communications CNPCRF is designed for the cloud, leveraging Oracle's engineering capability and experience of developing a market leading PCRF solution. The main features of CNPCRF are as follows:

- Cloud native solution with support for CI/CD and DevOps workflows
- Supports diameter connector
- Supports geo-redundancy and Life Cycle Management
- Provides configuration management service
- Offer higher capacity throughput with better resource utilization
- Automated and orchestratable solution
- Pre-packages modules from Oracle for use case realization

Oracle Communications Solutions

- Oracle Communications Cloud Native Core, Policy and Charging Rules Function (CNPCRF)
- Oracle Communications Cloud Native Core, Service Communication Proxy (SCP)
- Oracle Communications Cloud Native Core, NF Repository Function (NRF)
- Oracle Communications Cloud Native Core, Unified Data Repository (UDR)
- Oracle Communications Cloud Native Core, Binding Support Function (BSF)
- Oracle Communications Cloud Native Core, Network Function Cloud Native Environment (CNE)
- Oracle Communications Cloud Native Core, Network Exposure Function (NEF)
- Oracle Communications Cloud Native Core, Network Slice Selection Function (NSSF)
- Oracle Communications Cloud Native Core,

- Connectivity: Composed of components interfacing with external entities
- Business Logic: Application layer that runs the CNPCRF/5G Policy Control Function (PCF) business logic, policy engine and various services that can be enabled based on deployment needs
- Data Management: Data layer responsible for storing various types of persistent data Oracle Communications Policy Design and Run-time Environment Oracle Communications CNPCRF comes with the reliable and robust Oracle Communications Policy design and run-time environment.

Security and Edge Protection Proxy (SEPP)

Oracle Communications cloud native deployable Network Functions (NFs) enable you to manage and monetize the 5G network. You can manage and analyse quality of service and create policies for innovative digital lifestyle services through Oracle Communications products and solutions.

Table 1: Oracle Policy Design and Run-time Environment

COMPONENT	DESCRIPTION
Design	• Modular and flexible domain driven policy design • Modules will encompass data model, triggers, conditions, and actions • Modules can be designed via a GUI and will also allow any language supported by JVM (e.g., Java, Groovy, etc.) • Pre-packaged modules provided by Oracle • Modules can be extended or built by operators
Run time	• Run time engine service to expose APIs • Run time engine service to be stateless and independently scalable
Testing	• Automated testing framework to enable regression and validation of policy logic and modules

Virtual PCRF (vPCRF) vs cloud native PCRF (CNPCRF)

Oracle Communications CNPCRF differentiates itself with vPCRF on several grounds ranging from system architecture to platforms supported by them.

Table 2: vPCRF vs CNPCRF

Features	Virtual PCRF	Cloud native PCRF
Architecture	Monolithic architecture with integrated session store	Microservices based 3-Tier architecture with segregation of interface, business, and DB layer
Platform supported	On-Premises, NFV	Cloud Native, Kubernetes over NFV
Configuration management	CMP Policy Wizard	Policy Configuration GUI, API
Alarms and KPI	CMP, SNMP	Prometheus Alert Manager, SNMP support using web hooks
Session store	COMCOL	MySQL cluster
Redundancy support	1+1+1 (Local and Geo Redundancy)	Stateless NFs with DB level redundancy to support local and Geo redundancy
Rule engine	Integrated in MPE	Groovy based Intuitive PRE/GUI as separate micro-service
Policy testing capability	Not supported	Policy testing framework enables policy designers to validate policy logic

Summary

Operators across the globe are utilizing telecom network capabilities to provide differentiated offerings with improved quality of service while moving away from purpose-built hardware, monolithic software, legacy deployment, and adopting a cloud native framework. The need to offer differentiated new services and efficiently monetizing these services will require a reliable and cost-effective policy management. The Oracle carrier grade cloud native policy solution helps you evolve your 3G and 4G networks in a cost effective and efficient way, while you are taking your step towards adopting 5G technologies. Oracle Communications with its decades of experience in this

domain and wide portfolio of advanced cloud technologies is optimally positioned to support you in your evolution towards better and more sophisticated telecom network.

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