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Oracle Communications Cloud Native Core, Converged Policy Solution for 4G & 5G

Oracle Communications Converged Policy Solution is designed and built as microservices on cloud native principles. It simplifies the task of simultaneously managing policy infrastructure in a 4G and 5G network. Helping you to design and deploy network policies with a few clicks, without having to worry about the different 4G or 5G network protocols seamlessly and intuitively.

In the endeavour to seek a revenue stream beyond connectivity to offset subscriber saturation and competitive pricing pressures, policy management will become increasingly more important as you strive to monetize customized and differentiated services while making the most of cloud native technologies and what 5G has to offer.

Converged policy management platform

Policy management in the 5G control plane is significant as organizations strive to customize use cases and rapidly deploy new services that make the most of what 5G has to offer. Oracle Communications converged policy management cloud native platform takes the policy design experience to the next level by providing flexibility, extensibility, and modularization to deploy new policies supporting different and existing use cases rapidly and securely. The converged policy solution supports both 4G and 5G networks, thereby helping you to manage your heterogeneous network in an intuitive and consistent manner, while enabling seamless interworking and migration between 4G and 5G.

Evolving to 5G and its implications on policy management

The 5G policy framework has expanded its functionality with a more coherent and unified policy across the network with the Policy Control Function (PCF) as its brain, providing all types of policies from the ones it traditionally provided in 4G (e.g., QoS, Charging) to mobility management, network access and UE route selection. It also helps to dynamically route low latency applications to edge data networks all the while taking network data analytics and slice information into account to provide the most adequate policies to minimize network resource utilization while maximizing the user's quality of experience. A 5G policy solution needs to flexibly manage different domain

Oracle Communications converged policy a cloud native telecom policy management solution enables intelligent, real-time policy decisions and provides a seamless interworking and migration between 4G and 5G

"Oracle is helping us reduce complexities with solutions that ease the migration to 5G and introduce innovative new services."

Howard Watson
Chief Technology Officer, BT

Key Business Benefits

- Intuitive, extensible, and flexible policy design and testing framework to enable you rapidly define policies and service delivery across 4G/5G

- Seamless support for both 4G EPC and 5G core network

- Event based policy management independent of the subscriber session based in 4G EPC or 5G Core

- Deployment flexibility, containers or bare metal in Oracle or any other Cloud

specific policies; be granular enough to manage individual services and be capable of managing diverse services across slices.

By logically separating virtualized network resources into specific slices, doors open to new services like network-as-a-service (NaaS) and ultimately more differentiated, personalized customer offerings. With custom-fit network slices, new use cases will capitalize on 5G's high bandwidth, massive connectivity, and ultra-low latency (i.e., augmented reality and virtual reality, connected cars, smart factories, and smart cities).

The Oracle Communications Policy Management solution is a cloud native solution encompassing both, a 4G Policy and Charging Rules Function (PCRF) and a 5G Policy Control Function (PCF) as a unified framework enabling you to design, test and deploy services in an intuitive, user-friendly fashion, significantly shortening service delivery time. It helps you determine how and under what conditions subscribers and applications use network resources thereby minimizing network utilization while maximizing the user's quality of experience. It is designed so that you can add and re-configure the triggers, conditions and actions governed by policies, such as subscriber tiers and entitlements, and bandwidth and data volumes. Oracle's cloud native policy solution supports deployments into any cloud, including containers on bare metal managed by Kubernetes or containers on VMs managed by Openstack or the like. Oracle's 5G offering includes 5G Non-Standalone (NSA) and Standalone (SA) deployments enabling 5G use cases such as enhanced Mobile Broadband (EMBB), ultra-Reliable Low Latency Communication (URLLC), Mobile Internet of Things (MIoT) and User Equipment (UE) polices.

Why a cloud native unified policy framework

The evolution to 5G core is different from previous mobile network generations, since 5G introduces several innovative and disruptive networking paradigms, many of which had not been applied to mobile networks in the past. As per ABI research white paper, which highlights the cloudification of telecom equipment, revenue for Physical Network Functions (PNFs) in LTE Evolved Packet Core (EPC) is expected to decrease from US$2.3 billion in 2021 to US$1.9 billion in 2026. By contrast, revenue for Virtual Network Functions (VNFs) is expected to grow from US$1.8 billion in 2026 to US$3.2 billion in 2026 at a CAGR of 13%. Additionally, revenue from CNFs is expected to grow from US$142 million in 2021 to US$1.2 billion in 2026 at a CAGR of 52%. The Oracle converged policy solution allows you to support your current LTE and 5G NSA (option 3x) deployments and be ready to support 5G core and additional 5G services with a modest runtime update, as simple as a configuration change. This approach will allow you to focus on investing in 5G business cases that will yield results in the near term, with plans to evolve as 5G technology proves itself in global deployments.

Oracle Converged policy functional diagram

Oracle converged policy has a three-tiered architecture- connectivity tier, business tier , and data tier. It is packaged to support VM-based and container-based cloud infrastructure.

- Reduces the cost of managing 4G/4G Cloud Native/5G networks

Key features

- Compliant with the latest 3GPP Release
- Leverages a common Oracle Communications Cloud Native Environment
- Packaged to support VM-based and container-based cloud infrastructure
- Integrated with DevOps workflows, supporting CI/CD
- Integrated with Kubernetes and 5G cloud native environment
- Supports all legacy Diameter interfaces
- Easy integration with existing systems by flexibly connecting with your various data sources simultaneously

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, Network 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, Cloud Native Environment (CNE)
- Oracle Communications Cloud Native Core, Network Exposure Function (NEF)
- Oracle Communications Cloud Native Core, Network Slice Selection Function (NSSF)
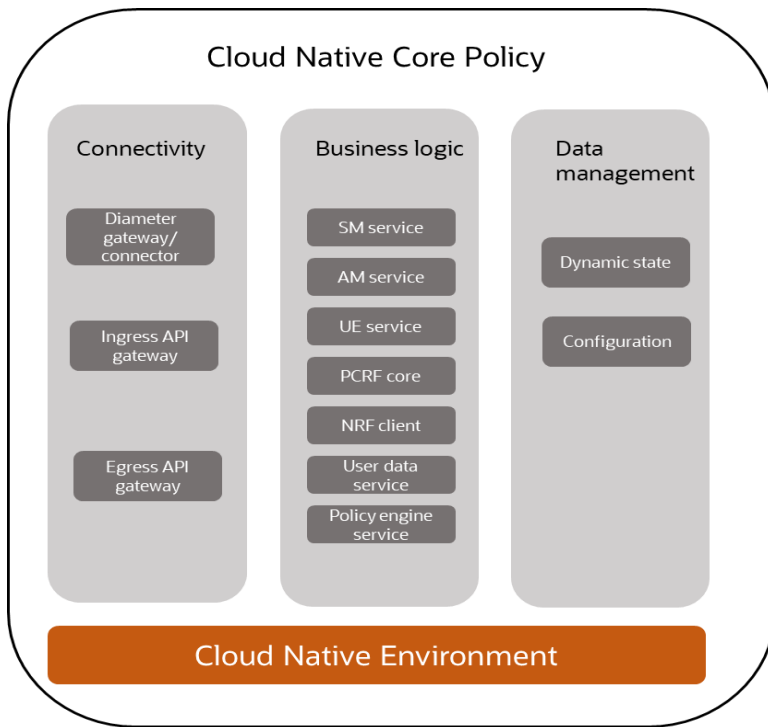
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Figure 1. Functional diagram of converged policy

- **Connectivity tier:** Composed of components interfacing with external entities

- **Business logic tier:** Application layer runs the PCF/PCRF business logic, policy engine and various services that can be enabled based on deployment needs

- **Data Management tier:** Data layer responsible for storing various types of persistent data

Summary

Oracle Communications Converged Policy platform is a one stop solution for managing policies in a 4G/4G+* /5G network. Designed and built as microservices on cloud native principles, Oracle Communications Converged Policy Management Platform uses network, subscriber, and service information to help you to create policies. With more than 60 global deployments with Tier-1 Operators like Vodafone, BT, the solution supports both 4G PCRF and 5G PCF with a consistent, intuitive policy design, testing, and deployment environment for a smooth and seamless evolution to the 5G core network.

It provides you with a subscriber database and a highly available, redundant, and horizontally scalable data tier for storing stateful information. For more information on the Oracle Communications Converged Policy Solution along with the rest of Oracle Cloud Native 5G Core Network Functions visit: https://www.oracle.com/industries/communications/signaling-security/telecom-policy-management/

*4G+ reference to a cloud native microservices based architecture for 4G network functions

[1] Cloudification of Telecom Technologies and Equipment - 1Q 2022 (AN-5279).pdf

- Oracle Communications Cloud Native Core, Security and Edge Protection Proxy (SEPP)

Oracle Communications cloud native Network Functions enable you to manage and monetize your 5G network. You can manage and analyse quality of service and create policies for innovative services through Oracle Communications products and solutions.

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