

Oracle Cloud Scale Charging

A recent Oracle Communications [survey](#) shows that while 73% of communications service providers (CSPs) plan to launch 5G networks by 2022, 94% have challenges with their existing charging systems. As these CSPs look to monetize everything from streaming videos and network slicing to telehealth and virtual gaming, they worry their outdated charging systems will hinder customer experience, performance, and the ability to get new offerings to market quickly.

Charge for anything at any scale

CSPs are striving to pivot from telco to “techco” (technology company). Technology-centric CSPs offer more than just connectivity, they are moving up the value chain to provide guaranteed connectivity experiences as a foundation for cross-industry business offerings while diversifying revenue streams and becoming more competitive and efficient. As part of this transition, techco CSPs realize the need for scalable, converged charging systems that enable them to monetize services or usage experiences. There is a focus on creating value for customers and businesses by incorporating new 5G pricing levers, such as speed, latency, and quality of experience (QoE).

To address these challenges, many tier 1 CSPs are preparing for 5G by investing in Oracle’s Cloud Scale Charging - a converged charging system (CHF/CCS) powered by an in-memory grid which can charge for anything at any scale while ensuring efficient online and offline charging of any fixed or mobile network, service, experience, metric, or attribute. The solution is aligned with TM Forum Open Digital Architecture (ODA) and Open APIs and can interoperate with existing billing and business support systems (BSS).

Key business benefits

Charge for anything at any scale with Oracle’s Cloud Scale Charging:

- **Ready for 5G charging demands.** In-memory charging grid providing ultra-low latency, elastic scalability, and unrivalled service continuity.
- **Harness IT agility and efficiency.** Cloud native deployment option takes advantage of modern compute and infrastructure environments.
- **Monetize value-based digital offers.** Combine charging models for the 5G multi-slice future with real-time experiences powered by open APIs.
- **Third party billing integration.** Continue to interoperate with existing billing systems with an optional cap and grow evolution strategy.

“We needed to transform our online charging capabilities while consolidating legacy systems and reducing costs. Oracle’s Converged Charging System provides us with critical, rapid monetization of innovative prepaid commercial offers and an evolution path to meet future requirements.”

Sedin Kahrman
General Manager
BH Telecom

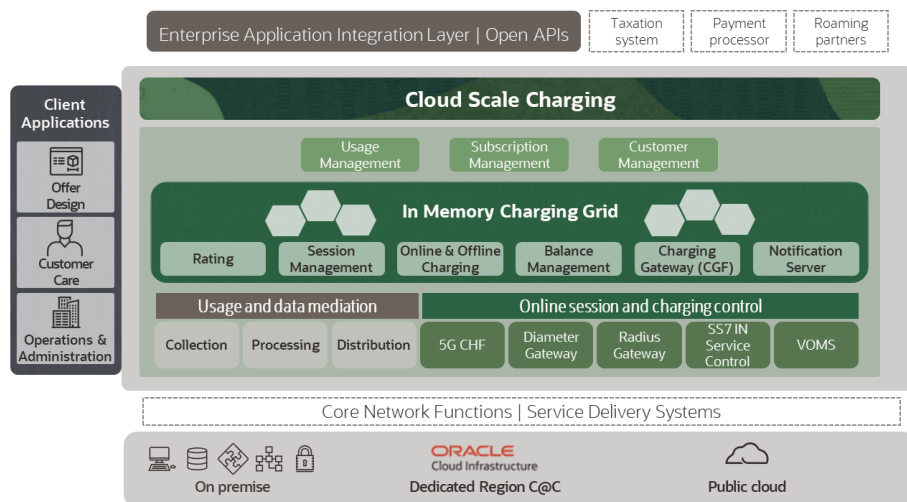


Image 1. The logical Architecture / IT view of Oracle's Cloud Scale Charging solution.

Converged charging system

Multigeneration offline and online charging system. Consolidate, protect, and grow revenue with a single offline and online charging system. Cloud Scale Charging is compatible with any fixed or 2G-5G mobile network for any service, payment type and business model. It is aligned with 3GPP standards and supports converged charging architecture in both standalone (SA) and non-standalone (NSA) 5G core networks using an HTTP/2 and Diameter gateway. SIGTRAN-CAMEL (circuit-switched voice and SMS) is also supported.

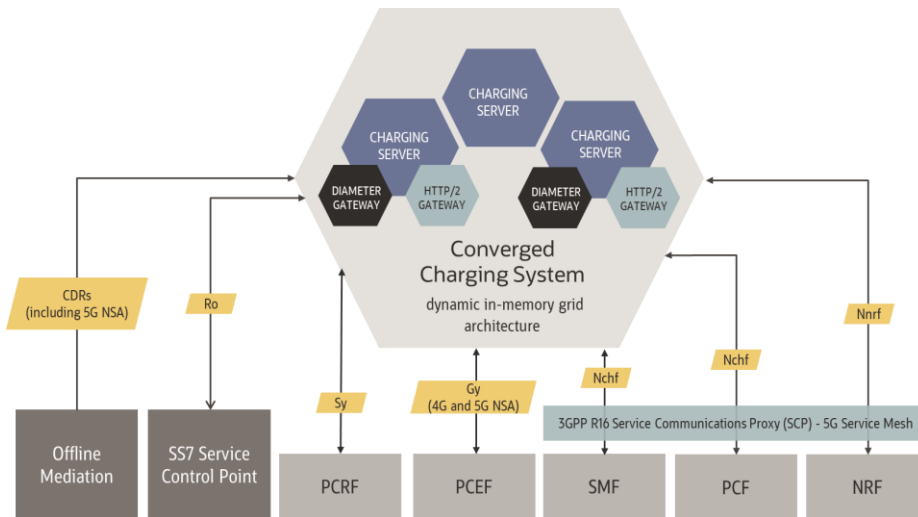


Image 2. Total convergence that supports core network integration with 2G-5G networks

Flexible pricing and offer schemas. Move beyond connectivity with pricing models that incorporate any unit or attribute combined with new 5G pricing levers in any account structure. Enhance customer experience with advanced data session charging that utilizes flexible quota allocation.

Distributed in-memory charging grid. Cloud Scale Charging is powered by industry-leading, in-memory data grid technology enabling low latency charging to be accurately processed with complete transactional consistency regardless of pricing or account model complexity.

Active-active mode. If there is a node, machine, or site failure, avoid disruption to business continuity. Federate the charging grid across a distributed multi-site deployment without dropping sessions or losing revenue/data.

Monetize value-based digital offers

Cloud Scale Charging allows service providers to combine new charging models for the 5G multi-slice future with real-time experiences powered by open APIs.

Innovate. Launch compelling consumer offerings by creating personalized offers, plans, and subscriptions that comprise metering, unlimited data with speed tiering, spending limit control, content bundles and dynamic sharing / gifting. For IoT-focused offerings, incorporate new pricing metrics aligned to the value of the CSP's role in the ecosystem such as content type, IoT device, business outcome, uplink/downlink, and provisioned 5G network slice.

Key features

- 3GPP compliant CCS supportive of both SA and NSA 5G core networks
- In-memory charging grid enabling extreme scalability with cutting-edge resiliency
- TM Forum certified pricing UI designed for the business user with intuitive, web-based navigation workflows
- Rate any metric or attribute
- Support any payment option
- Authorize all transactions in real-time
- Modern architecture with cloud native foundations supporting DevOps agility and efficiency
- Modern, secure web-based Billing Care and Business Operations Center applications
- Productized software that can be extended by developers with a fully documented and supported software development kit
- API framework to integrate with external applications such as self-service web apps, notification platforms, order provisioning, customer care and policy management
- Active-active disaster Recovery
- Kafka notification framework, Prometheus and Grafana metrics monitoring support

Comprehensive multiple-site charging deployments

Engineered options to meet your business continuity needs:

- Active – warm standby
- Active – hot standby
- Segmented active – active
- Active - active

Real-time experience. Publish real-time notifications using a JMS or Kafka notifications framework based on triggers such as threshold breaches, spend control, low balance, offer purchases and lifecycle changes.

Digital self-care. Open APIs and a rich API framework enables integration with customer experience and mobile self-care applications to enable a precise, up-to-date view of all balances, subscriptions, and transaction history.

Business support system integration

Real-time charging engine for existing billing systems. Perform online charging with real-time usage notifications and wallet queries for all payment types. Increase ROI from existing billing systems by sending pre-rated Call Detail Records (CDRs) for postpaid bill production.

Large scale rated event generation. Rated events processed by the charging grid are cached in-memory and written to persistent storage for high availability purposes and transformed into CDR files for downstream billing consumption.

Cap and grow evolution. Keep third party billing for existing offerings and supplement Cloud Scale Charging with Oracle’s industry-leading Cloud Scale Billing for 5G revenue management. Option to migrate subscribers when activating a 5G plan and phase out legacy systems over time.

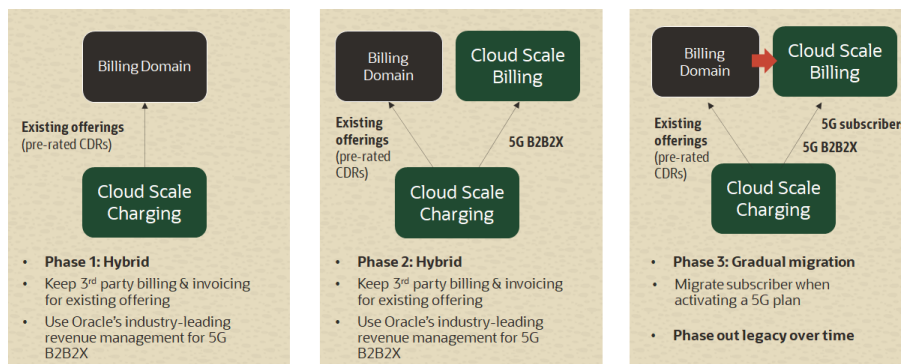


Image 3. Cloud Scale Charging can evolve to include Cloud Scale Billing with a cap and grow evolution

TM Forum alignment

Low code platform aligned with ODA. A productized platform that allows IT, network, and business units to work closely together. Low code configuration and pricing tools for non-technical business specialists enable rapid innovation.

Alignment with Open APIs. An Open API approach facilitates ease of integration with a modern digital experience and increasingly complex value chains, while offsetting any risk of vendor lock-in.

TM Forum SID certified pricing design. TM Forum certified pricing design enables business users to rapidly configure new offers using intuitive, web-based navigation workflows. Productized capabilities further support rapid experimentation with new monetization services.

Integrate with existing product catalogs. Preserve investment in an existing TMF 620 product catalog and simplify operations with an integration framework that can accept state change notifications and provide data model support.

Solution components

Oracle’s Cloud Scale Charging solution is comprised of the following pre-integrated products:

- Oracle Communications Elastic Charging Engine.** A digital experience engine that provides 3GPP aligned, real-time converged data and communications session charging and balance management. Natively integrates into Oracle’s full suite of billing and revenue management capabilities and designed in accordance with TM Forum principles.
- Oracle Communications Offline Mediation Controller.** A carrier-class convergent charging mediation solution designed for multiple network types including 5G and hybrid 4G/LTE/5G networks as well as non-telco applications. It provides comprehensive network data collection, aggregation, and correlation.
- Oracle Communications Convergent Charging Controller.** A highly scalable online charging control platform for SS7-based voice and messaging services, enhanced IN services and voucher management. Consolidate traditional silos onto a single cost-efficient platform with continued support while pivoting to 5G.

Operating at cloud scale

Cloud native. Deploy in a containerized and orchestrated environment to harness cloud infrastructure and DevOps CI/CD tooling. Accelerate innovation, operate more efficiently, and scale as business needs grow.

Harness industry standard observability. The entire solution uses a Kafka notification framework, Prometheus for metrics collection, Grafana for system-wide data dashboards, and provides a framework for logging support. This enables simplified operations and a real-time operational view.

Flexible deployment models. Includes comprehensive multiple-site deployment options engineered to meet disaster recovery and business continuity needs. Deploy on private clouds behind a firewall or public cloud infrastructure.

Verified cloud scale performance. Cloud native performance tests demonstrate low latency, high transaction throughput and efficient resource utilization while supporting linear scalability.

Summary

Charge for anything at any scale with Oracle's Cloud Scale Charging:

- **Ready for 5G charging demands.** In-memory charging grid providing ultra-low latency, elastic scalability, and unrivalled service continuity.
- **Harness IT agility and efficiency.** Cloud native deployment option takes advantage of modern compute and infrastructure environments.
- **Monetize value-based digital offers.** Combine charging models for the 5G multi-slice future with real-time experiences powered by open APIs.
- **Business support system integration.** Interoperate with existing billing systems with an optional cap and grow evolution strategy.

Verified cloud scale performance

In a cloud native performance test* for 100 million subscribers using Oracle Cloud Infrastructure, Oracle Cloud Scale Charging demonstrated wide area active-active deployment with extremely high performance across two sites. This gold standard business continuity architecture was deployed across two data centers located in the West and East coast of the USA with 50 million subscribers on each site with bi-directional charging grid data federation. The test used realistic traffic profiles and demonstrated large scale rated event generation with low single digit charging latency.

[Read the full report](#)

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