

Oracle Communications Convergent Charging Controller

As providers invest in 4G, 5G, and digital services, established SS7-based intelligent-network services can remain commercially and operationally important. The challenge is to sustain these services without carrying unnecessary complexity across separate service-control environments, while retaining the flexibility to evolve charging and monetization on a business-led timetable. Oracle Communications Convergent Charging Controller (OC3C) helps providers consolidate, operate, and evolve established service-control environments for voice, messaging, self-care, routing, and voucher operations—while supporting coexistence with modern charging and monetization components.

OC3C within Cloud Scale Monetization

Oracle Communications Convergent Charging Controller (OC3C) is the established service-control component of Oracle Cloud Scale Monetization. It helps providers operate, consolidate, and evolve SS7-based intelligent-network services, with control for voice and messaging charging, self-care, notifications, routing, and voucher management. OC3C can work with Oracle Communications Elastic Charging Engine for real-time charging and balance management, enabling providers to sustain critical services while modernizing charging and monetization at a business-led pace.

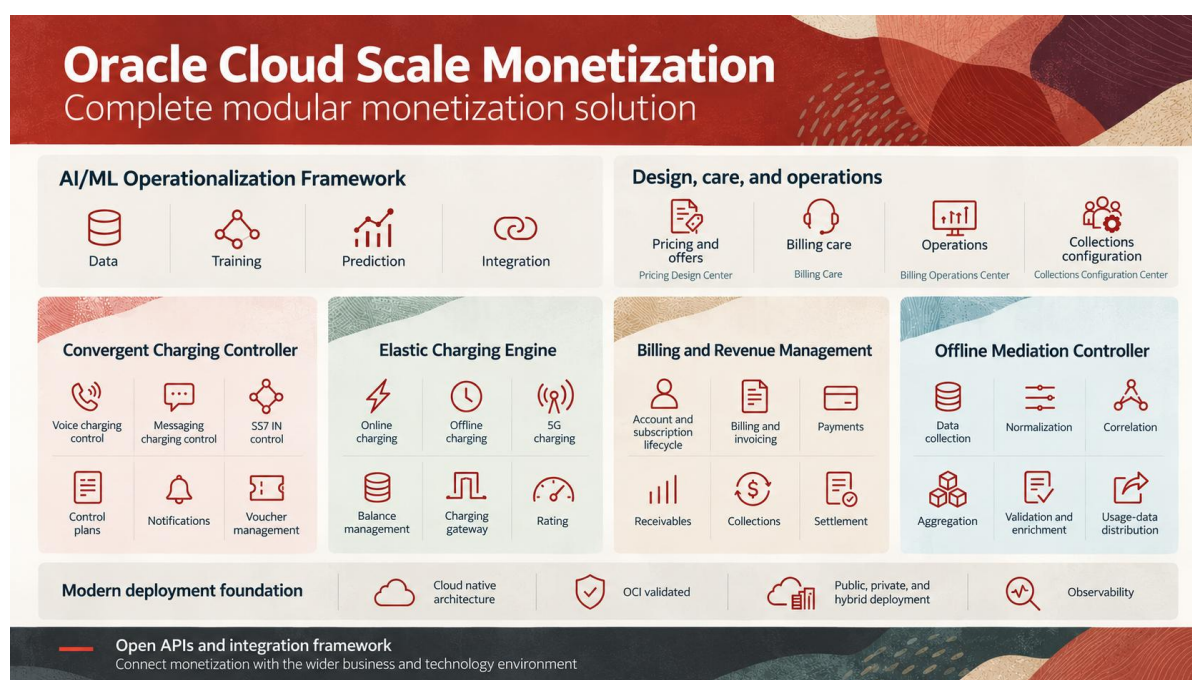


Figure 1. Oracle Communications Convergent Charging Controller within Oracle Cloud Scale Monetization.

Sustain established service control while modernizing monetization

- **Sustain important services with greater operational consistency.** Consolidate established SS7-based Service Control Point environments onto a more consistent foundation for service logic, subscriber interactions, routing, and voucher processes.

- **Continue evolving customer and service experiences.** Configure and maintain call handling, self-care, notifications, messaging, and voucher journeys for established services without requiring an immediate replacement of service-control investments.
- **Modernize at a business-led pace.** Retain OC3C for established SS7-based service control while introducing Oracle Cloud Scale Monetization components, including Oracle Communications Elastic Charging Engine (ECE), as charging, billing, and usage-data requirements evolve.

Build a practical foundation for established service control

Over time, providers may accumulate multiple Service Control Point (SCP) silos to support SS7-based intelligent-network (IN) services. Maintaining separate environments can create complexity across service logic, network interfaces, subscriber interactions, routing, notifications, and voucher processes.

OC3C is an advanced SCP for established SS7-based environments. It provides a practical product for consolidating and continuing to operate voice, messaging, self-care, routing, and IN service-control functions. Providers can use OC3C to simplify the operation and evolution of critical services while preserving a path for modular charging and monetization modernization.

OC3C is not positioned as the strategic future-state charging platform for 4G and 5G. It enables providers to continue supporting established SS7-based services while they adopt strategic charging capabilities where and when they are needed.

Use service control with strategic charging and balance management

OC3C provides online charging control for voice and messaging services for prepaid and postpaid subscribers in established fixed and mobile network environments.

For voice services, OC3C supports fund authorization through to rejection when funds are exhausted, including mid-session commits with each authorization. For event and messaging charging, it supports reserve-and-confirm and direct charging methodologies.

For established SS7-based services, OC3C provides service control and supports CAMEL over SIGTRAN for circuit-switched voice and SMS. It can be used with ECE, which provides real-time charging and balance management for those services.

ECE also operates independently as the strategic converged charging product for 4G, 5G, digital, enterprise, and usage-based services. This lets providers maintain OC3C for established SS7-based service-control requirements while using ECE for associated charging and balance management, as well as for strategic new-service charging requirements.

OC3C supports traditional network control through productized control agents, including:

- Fixed voice: ISUP, INAP, and SIP
- GSM/UMA voice: ISUP, CAP, and SIP
- CDMA voice: IS-41, IS-826, and ISUP
- GSM messaging: MAP, CAP, SIP, and SMPP
- CDMA messaging: IS-826

An SDK supports development of custom control agents where provider-specific service-control requirements extend beyond the supplied agents.

Configure and evolve established services with control

OC3C provides a graphical, workflow-based environment for configuring service and charging-control logic. Its control-plan editor enables teams to model, validate, modify, and maintain service flows using reusable, production-ready building blocks.

Teams can use the control-plan editor to configure call handling, routing rules, IVR handling, call-completion rules, service logic, announcements, and notifications. For example, service logic can include low-balance announcements, IVR menu routing, or advice-of-charge notifications.

The environment includes service validation, connection diagnosis, and logic tracing to support controlled implementation and operational troubleshooting. An open web framework and SDK enable extensions through plug-ins for service management, network integration, service logic, and inbound or outbound third-party services.



Figure 2. The control plan editor provides a drag and drop service configuration environment.

Support self-care and customer communications

OC3C supports established self-care mechanisms including IVR, USSD, SMS, and web. Providers can use the control-plan editor to design self-care menus with real-time queries and account-management interactions, then apply the relevant structure to supported channels.

Capabilities include:

- Delivering account and balance information through IVR
- Providing advice-of-charge and service-configuration information
- Adding or modifying charging-system data and updating third-party data through SOAP interfaces
- Redeeming vouchers and purchasing offers or bundles
- Subscribing to additional services
- Supporting web-based recharge through payment-gateway, retailer, or ATM integrations

OC3C can also act as a notification gateway. It can consume notifications generated across the monetization environment through JMS and Kafka, enrich notifications using templates and relevant balance or profile information, and use defined service logic to determine delivery.

Notifications can be configured for events such as a balance falling below a defined threshold. Depending on deployment design and available integrations, delivery can use SMS, USSD, email, web, or a mobile self-care application. Providers can define templates, timing controls, and subscriber-preference logic where appropriate to the service design.

Manage vouchers, recharges, and service-related incentives

OC3C includes Voucher Management (VOMS) capabilities for voucher-lifecycle and recharge processes. Providers can create and manage recharge programs that support multiple balance types and quantities, individual expiration policies, user-selected scenarios from a single voucher, and date-based incentives.

Voucher-management capabilities include:

- Voucher generation, distribution, redemption, and reporting
- Provisioning-interface generation of voucher batches
- On-demand voucher creation with unique transaction IDs
- Multiple balances and expiration handling
- Flexible business-process and integration flows
- Additional voucher-reporting attributes
- Security for sensitive voucher-related data, including SHA-2, SHA-512, and SHA-256 hashing for Human Readable Numbers

These capabilities support operational management of voucher and recharge processes within established service-control environments.

Support routing and messaging requirements

Established IN environments often depend on service-aware routing and message handling as well as charging control. OC3C supports originating and terminating number-routing functions that can be configured using call parameters such as day, time, protocol, calling-party number, calling-party category, and dialed number.

Relevant capabilities include:

- Least-cost routing
- Number portability, including All Call Query, Query on Release, and Onward Routing approaches
- Private and carrier ENUM
- Service numbers, including freephone, toll-free, premium-rate, and televoting services
- Essential-service configurations, including emergency services with location support, carrier pre-select, and universal access numbers
- Virtual private network service logic for on-net and off-net calling and termination

OC3C also supports message-processing and routing functions, including direct SMS delivery for person-to-application and application-to-person messaging, alternate routing attempts, delivery reports, and SMS home routing.

Where required, OC3C includes an SMS anti-fraud capability with controls for screening and identified attack patterns such as spam, spoofing, faking, flooding, and database pumping. This is a secondary messaging capability for relevant deployments; it does not imply packaged AI-based fraud prevention.

Operate with visibility and control

OC3C supports monitoring and a real-time operational view through Prometheus for metrics collection and Grafana for dashboarding and system-wide data exploration. Release 15 includes enhanced system-monitoring support.

The product also supports service validation, connection diagnosis, logic tracing, voucher-creation transaction IDs, enhanced voucher reporting, and improvements for specified timeout scenarios. Release 15 includes product-security updates and updated platform, database, runtime, and third-party dependency certifications.

OC3C supports deployment on x86 servers with Oracle Linux, including Oracle Linux 9 runtime certification, and on Oracle SPARC T-Series servers with Solaris. It supports horizontal and vertical scalability, geographic redundancy, disaster-recovery options, and redundant configurations for applicable service-management, voucher, and service-logic components.

Modernize charging without disrupting established service control

OC3C supports a phased modernization strategy. Providers can retain OC3C for established SS7-based service-control, voice, messaging, self-care, routing, and voucher requirements while using ECE for associated real-time charging and balance management.

ECE can also support strategic converged charging independently across 4G, 5G, digital, enterprise, and usage-based services. BRM and OCOMC can be introduced independently or alongside charging components as billing, revenue operations, and usage-data requirements evolve.

This modular approach supports coexistence rather than a big-bang replacement. Providers can sequence change according to their existing investments, operational needs, business priorities, and migration readiness.

Part of Oracle Cloud Scale Monetization

Oracle Cloud Scale Monetization is a complete, modular monetization solution that brings together converged charging, billing and revenue management, usage-data mediation, and service control.

Within the solution:

- OC3C provides established SS7-based intelligent-network service control.
- ECE provides strategic real-time, converged charging and balance management.
- Oracle Communications Billing and Revenue Management supports billing and revenue-management operations.
- Oracle Communications Offline Mediation Controller provides controlled usage-data mediation for charging, billing, revenue management, revenue assurance, operations, and adjacent business processes.

The products can be deployed independently or together, then expanded as needs change. Trusted monetization context can contribute to the longer-term Autonomous Revenue Management operating-model direction, while people, policies, and authoritative systems remain in control.

Summary

Oracle Communications Convergent Charging Controller helps providers sustain and simplify established SS7-based intelligent-network services. It combines service control for voice and messaging charging with self-care, notifications, routing, and voucher management, and can work with Oracle Communications Elastic Charging Engine for real-time charging and balance management. As part of Oracle Cloud Scale Monetization, OC3C enables providers to continue evolving critical service-control environments while modernizing wider charging and monetization capabilities at a business-led pace.

Learn more

Learn more about Oracle Cloud Scale Monetization at oracle.com/cloud-scale-monetization.

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