

Oracle Communications ASAP

The growth in network connectivity from the volume rollout of new 4G / 5G customer services and sensor enabled IoT devices is highlighting the importance for communications services providers (CSPs) to be able to activate services rapidly and efficiently for end customers, enterprises, and industrial devices 7x24, at extreme scale and with very low latencies.

ASAP context within Oracle's Unified Orchestration solution

ASAP is a key component within Oracle's Unified Orchestration solution, shown below, that provides a multi-domain service orchestration platform to deliver intent driven automation.

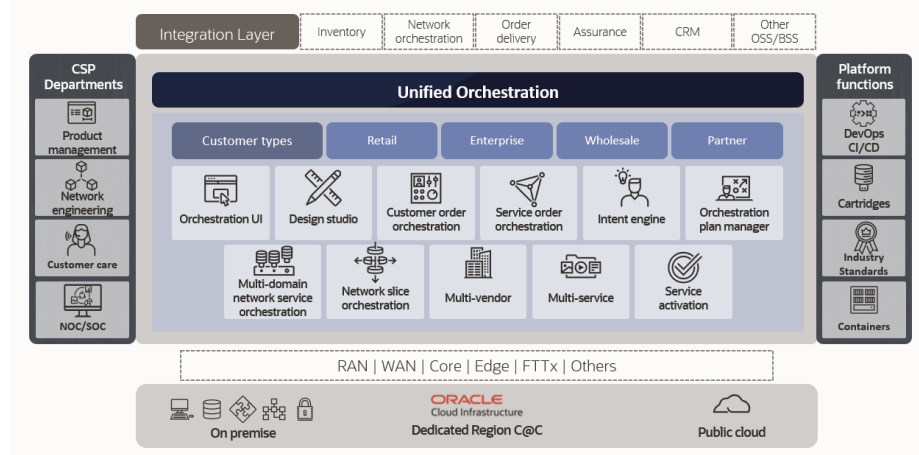


Image 1. ASAP context within Oracle's Unified Orchestration solution

Automated Service Activation Platform

Oracle Communications ASAP provides a convergent service activation platform that automatically activates services for end customers, enterprises and industrial devices in a heterogeneous, multi-vendor network and IT environment. It supports the activation of consumer and business services in fixed and mobile domains against network and IT applications at the highest level of abstraction provided by the respective network domains (controllers, orchestrators, NMS / EMS / NE). ASAP enables rapid service design and network technology introduction by means of its metadata-driven architecture, design-time configuration environment, and catalog of pre-built activation cartridges to reduce deployment time, cost, and risk. The application has been deployed for mobile (4G / 5G) services, fixed multi-play (broadband, voice, video, and IT)

Key benefits

- Rapidly design and deploy new service activation capabilities against new or updated network interfaces
- Automate service activation across multiple domains and vendors
- Support on-demand services and unassisted channels with a scalable, highly available, and low latency service activation solution
- Leverage pre-built activation support for faster design and deployment
- Minimize errors through automation and flexible error processing
- Reduce costs with a single converged solution and skill set
- Eliminate network equipment vendor lock-in with a proven multi-vendor solution

services and sensor-enabled IoT services in communications service providers, cable providers and large enterprise environments.

It may be deployed in a fully integrated manner as part of the Oracle Communications Unified Orchestration solution or directly integrated with third-party upstream systems. Market-proven for high-volume performance and scalability, Oracle Communications ASAP is deployed by more than 75 service providers worldwide and activates services for approximately 300 million subscribers and devices globally.

ASAP context within Oracle's Unified Orchestration solution

ASAP is generally deployed as the service activation component within the Unified Orchestration solution architecture and receives fully assigned activation orders from the Oracle Communications Order & Service Management (OSM) component that manages the lifecycle of the service order.

Rapid activation design – as a highly configurable, metadata driven application, ASAP may be configured using Design Studio to develop, assemble, configure, and deploy the activation solution – leveraging pre-built cartridges to support activation of the target services and network technologies.

Automated service activation – ASAP provides a high-performance service activation platform that receives incoming activation orders, decomposes them from activation bundles to service actions and atomic network actions. It then executes the network actions against the network and IT applications required to automatically activate all services on the received order. It also coordinates the activation between potentially multiple related orders.

Design studio for ASAP

ASAP provides a single, integrated design time tool used by partners, customers, and Oracle developers / consultants to dramatically simplify service design to enable the rapid assembly and deployment of both new and redesigned cartridges, services, and activation bundles. The metadata driven architecture of ASAP, combined with the ease of cartridge / solution design, test and deployment provided by Design Studio, enables ASAP to rapidly support:

- New service domains such as 4G / 5G, IoT, FTTx, IPTV, Digital Apps, etc.
- New vendors within a service domain such as a new vendor UDR in a 5G network
- New versions of vendor equipment with enhanced functions

This capability together with the layered architecture of ASAP allows service providers to abstract and insulate their network changes from upstream service order management and inventory processes by technically decoupling the different layers and thereby supporting operational agility.

Key features

- Simplified service design enables rapid solution assembly and deployment
- Intuitive tooling to support rapid development and testing of activation cartridges
- Comprehensive transactional control of activation request processing
- Sophisticated session and network connection management with high configurability
- Carrier-grade performance, scalability, and active-active application availability
- Decouples network topology evolution from upstream OSS and BSS systems for operational flexibility

Comprehensive activation control

ASAP provides full support for:

- Immediate / future dated scheduling of both individual and batch orders
- Order prioritization and related, supplemental and cancellation orders
- Full transaction management of the order including flexible, configurable rollback
- Dynamic transaction routing based on internal or external rules and tables
- Flexible error processing including point of no return, jeopardy, and fallout management

Sophisticated session and connection management

In addition to activation service design and cartridge development, Design Studio for ASAP also enables highly configurable control of network connectivity to maximize throughput, including:

- Dynamic connection management to maximize throughput based on load
- Flexible parallel and serial processing of activation requests to target elements
- Blackout and maintenance mode support and transaction re-transmission for ease of operations

Carrier-grade performance and scalability

ASAP provides a highly scalable, and reliable platform proven in many large service provider deployments processing up to several million activation orders per day in production environments.

In benchmarks, a single suitably configured ASAP instance co-resident with the Oracle Database server on a single server, is able to support approximately 150 million mobile subscribers (with throughput of more than 2,100 independent network updates per second with sub-second latency). This provides service providers the confidence to seamlessly scale a single ASAP instance for simplified operations.

Active-active high availability using multi-instance ASAP

Using the ASAP order balancer depicted below, ASAP supports the deployment of multiple ASAP instances in an active-active mode for higher throughput and high availability with no service failure. It ensures zero downtime during upgrades and new cartridge deployments. Such deployments distribute the processing load uniformly between ASAP instances, scaling horizontally to increase the throughput of the system.

This configuration includes built-in server affinity to manage order stickiness without the need for any third-party clustering software.

Such deployments are applicable to both traditional and Cloud Native ASAP deployments.

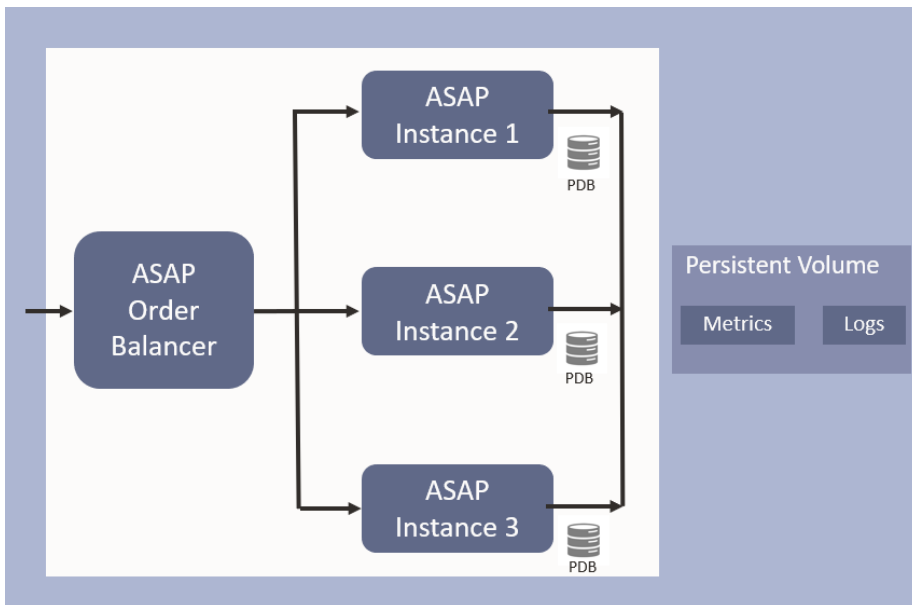


Image 2. Active-active high availability using multi-instance ASAP

ASAP Cloud Native Deployment

ASAP has been re-architected to support cloud native deployment using Container Images in a Kubernetes-orchestrated Cloud Native Environment to facilitate continuous integration, continuous delivery, and DevOps practices.

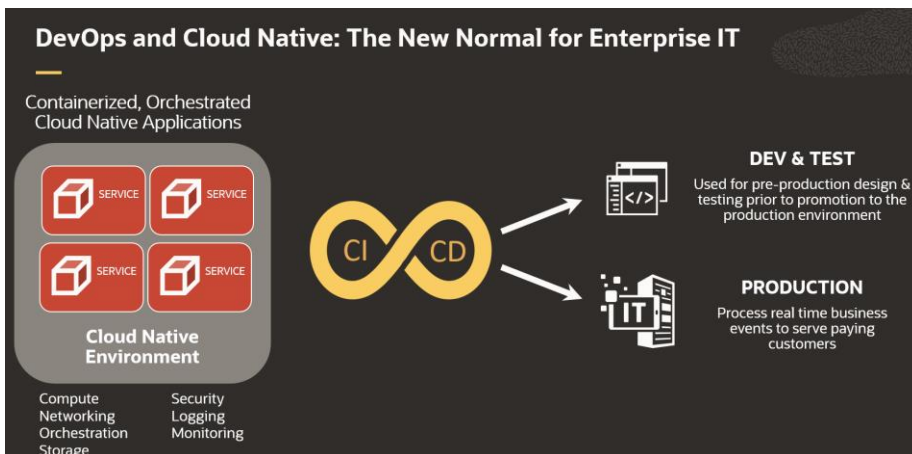


Image 3. Contemporary approach using DevOps and Cloud Native.

This enables the rapid and automated deployment and configuration of ASAP on a Kubernetes cluster and simplified life cycle management of installation and deployment using Helm charts.

It provides near zero downtime and lowers the CAPEX and OPEX through hardware optimization and lower operational costs respectively

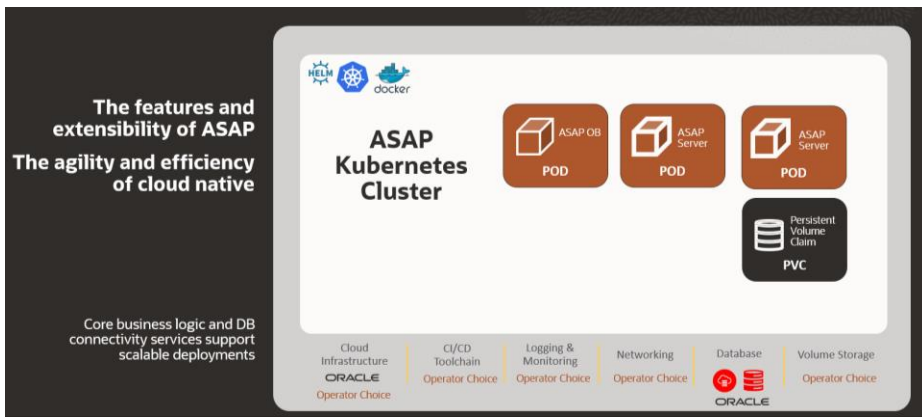


Image 4. ASAP Cloud Native deployment architecture.

This deployment provides a visually appealing dashboard to monitor and collect system metrics. It monitors overall system health & resource utilization using Grafana charts to display pod and application metrics. Pod level metrics collected include number of Docker containers, CPU usage, memory consumption, network I/O, etc. Application metrics include information on various work order states.

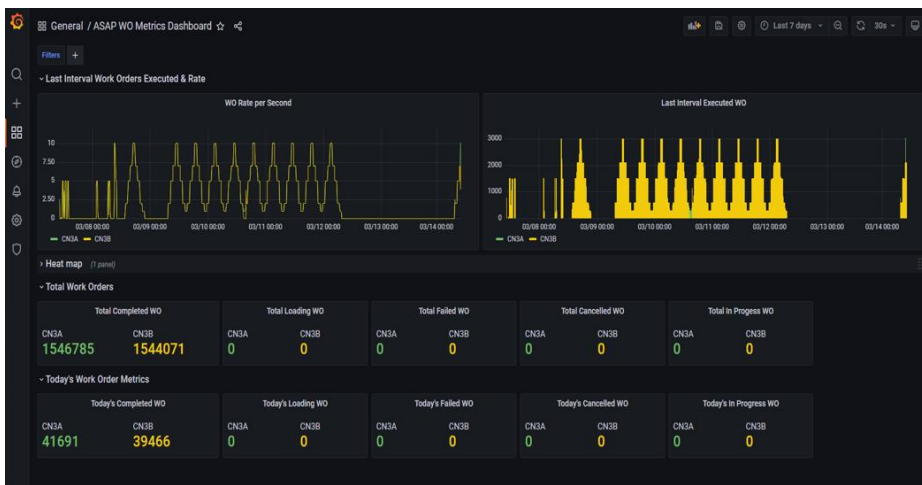


Image 5. ASAP deployment monitoring dashboard

Summary

ASAP provides a functionally mature service activation platform with a contemporary cloud native architecture that enables CSPs to:

- Rapidly design and deploy new service activation capabilities against new or updated network interfaces
- Automate service activation across multiple domains and vendors
- Support on-demand services and unassisted channels with a scalable, highly available, and low latency service activation solution
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