Top three drivers for investing in orchestration solutions include:

- Delivering services to customers more quickly
- Offering services on demand with updates in real time
- Reducing OPEX

Most operational processes today for delivering communications services are rooted in fixed procedures and include a collection of pre-defined workflows, scripts and hard-coded processes. As a result, they lack the agility and scalability needed to support the evolving, real-time needs of new Cloud, SDN, NFV, IoT or 5G-based services. A procedure-oriented approach is also insufficient to compete effectively with more agile over-the-top (OTT) players.

As an open and scalable platform designed for all domains, the Oracle Communications Service and Network Orchestration solution provides a step-by-step approach for increasing operational agility – in terms of both service launches and service delivery – while reducing overall complexity and total cost of ownership over time. By optimizing orchestration processes across layers using a model-driven approach that promotes a high level of re-use, the solution efficiently enables dynamic orchestration for highly customized on-demand services, together with on-demand network scaling, while simplifying operations in an environment of continuous change.

Agile Operations for Concept-to-Cash-to-Care

The Oracle Communications Service and Network Orchestration solution plays a key role in streamlining and accelerating service providers’ concept-to-cash-to-care processes. Interworking with Oracle and/or third party components, the solution enables agile service design and delivery across diverse technologies and networks, including physical and virtualized infrastructure with both on-net and off-net components.

Figure 1: Oracle Communications Concept-to-Cash-to-Care portfolio
Multi-Domain Platform Optimized for Cross-Layer, Model-Driven Orchestration

The solution provides an open, multi-domain, cross-layer orchestration platform for delivering operations and network agility as service providers shift towards Digital, NFV, SDN and Cloud enabled-services while continuing to leverage traditional networks.

Figure 2: Oracle Communications Service and Network Orchestration solution

The solution’s modular capabilities include:
- Integrated cross-layer design across product, service and resource layers
- Dynamic service orchestration across multiple technologies and domains
- Dynamic network orchestration across physical, virtualized and Cloud infrastructure, together with support for physical network build-out as needed
- Wide Area Network (WAN) control for MPLS and Metro Ethernet networks
- Open APIs for streamlined integrations with third party components such as assurance, an existing network inventory, SDN controllers or partner gateways

The solution’s core design principles – modularity, extensibility and re-usability – enable faster time-to-market and economies of scale while also supporting easier maintenance.

Autonomic, Closed-Loop Operations

The solution’s orchestration capabilities are re-usable across business functions, including fulfillment, assurance and capacity expansion, meaning that the same capabilities are used to dynamically fulfill order data and react to events such as congestion, increased aggregate demand or resource failures.

Figure 3: Solution support for autonomic scaling and healing across layers

The solution’s open APIs and configurable, policy-driven orchestration behaviors interwork seamlessly with third party and/or open source analytics and/or assurance
KEY FEATURES

• Consistent carrier-grade orchestration processing across all services and domains
• Business-driven conceptual model for cross-layer orchestration
• DevOps and graphical cross-layer design environment
• Hierarchical, autonomic building block service assembly approach
• Domain behavior supported through model-driven logic versus coding
• Product to service order mapping
• Dynamic, cross-layer orchestration plans
• Self-realizing service and resource design
• Manual processes integrated within automated orchestration framework
• Comprehensive service and resource lifecycle management, including for network services and VNFs
• Consistent and structured modeling of delivery systems
• WAN control for MPLS and Metro Ethernet networks
• Pre-built domain and network vendor support, including rapid onboarding with TOSCA and YANG-based support
• Open APIs

systems, to enable autonomic, closed loop operations. These systems feed data and intelligence into orchestration at various layers, to automatically trigger orchestrated scaling and healing of services, network services (NSs), virtual network functions (VNFs) and network function virtualization infrastructure (NFVI).

Agile and Graphical Cross-Layer Design Approach

The solution’s common design approach across layers, together with hierarchical modeling of re-usable building blocks at different levels of abstraction, enable agile design of new services, features and technologies for rapid time-to-market. This consistent approach empowers business analysts to quickly implement new services or capabilities without requiring knowledge of the underlying systems. Cross-team collaboration around new service, feature or technology launches is also simplified.

Figure 4: Agile and graphical cross-layer design environment

These DevOps design capabilities enable fast configuration of new service and technology variants as well as rapid, focused changes. The solution auto-generates application catalog data to rapidly align solution applications with design. By localizing changes, minimal testing is required in contrast to the full regression testing often required with more hard-coded or workflow-centric systems. Overall, with this approach, the design process is simpler, more predictable and easier to manage.

Dynamic Cross-layer Orchestration Enabling On-Demand Customized Services

Unlike fixed or procedure-oriented workflows, the solution’s object-based and model-driven approach uses abstracted operations and orchestration entities at the product, service and resource levels to enable autonomic, building block service assembly, thereby enabling real-time delivery of customized services across any domain.

Figure 5: Optimized cross-layer orchestration leveraging model-oriented approach
When a customer requests a unique order tailored to their needs through self-care, or updates an existing service, the solution dynamically generates cross-layer orchestration plans based on order data, catalog data and network constraints, to deliver the service in real-time and, if necessary, coordinates any manual components of delivery within an automated framework.

**Service Orchestration**

The solution’s Service Orchestration layer performs three critical tasks:

**Product and service order transformations from upstream systems**
- Supports both Product and Service APIs to interwork with both mature CRM systems or more lightweight Cloud-based applications – Oracle or third party
- Performs complex order transformations out-of-the-box, including product to service mappings and policy-driven order decompositions

**Service design orchestration**
- Designs and assigns new pending service configurations through decoupled assignments from network resource management – either Oracle or third party
- Generates service delivery technical order based on net changes to service configuration (new, modify, delete)

**Service delivery orchestration**
- Creates and executes service delivery orchestration plan, assigning and sequencing activities across diverse delivery systems and types: Workforce Management (WFM), Supply Chain Management (SCM), Service Activation, EMSs, Domain and SDN Controllers and NFV Orchestration, etc.

**Network Orchestration**

Recognizing that service providers will continue to leverage existing physical infrastructure as they transition to more agile NFV-enabled infrastructure, and that some physical infrastructure will always exist and be part of the service mix, the solution provides extensive orchestration support for both virtualized networks and existing physical networks. Common patterns for modeling physical and virtualized resources enable seamless management of both, or a seamless transition from one resource type to the other.

The network orchestration layer insulates the upstream service orchestration layer from the complex technical details of implementing network services over various technologies and vendor equipment.

**NFV Orchestration**

The solution provides extensive and feature-rich capabilities for NFV orchestration, also known as ETSI Management and Orchestration (ETSI MANO). These capabilities automate and optimize the full lifecycle of NSs and VNFs through real-time coordination with Virtual Network Function Managers (VNFMs), Element Managers (EMSs), Virtualization Infrastructure Managers (VIMs), and SDN Controllers.

Services providers can rapidly onboard TOSCA-based VNFs and design network services in complex hybrid network environments. Lifecycle management processes – deploy, scale, heal and terminate – are either triggered manually or automatically.
Related Solutions and Products

- Oracle Communications Billing and Revenue Management
- Oracle Communications Central Order Orchestration
- Portfolio of Oracle VNFs (applications servers, core session management, edge session management)

Related Services

The following Oracle Communications Consulting services are available for this solution:

- Planning and implementation
- Architecture integration
- Domain/service modeling
- Network/IT vendor cartridge development
- Managed solutions

Hybrid Network Orchestration and Management

While service providers are moving towards more virtualized networks, many services include, and will continue to include, physical components. This means that, as part of the customer order, service providers often have to install and/or configure physical equipment. The solution fully integrates manual processes for deploying and installing physical network equipment within an overall automated orchestration framework. Also, by leveraging the same patterns for configuring both physical and virtualized components, a unified approach is used across hybrid networks.

If needed, comprehensive capabilities are also provided for network resource management (NRM), such as network planning, resource inventory or network data integrity, allowing service providers to plan, build and optimize their networks.

WAN Control

The solution’s WAN Controller provides domain control for wide area IP MPLS and Metro Ethernet networks, enabling service providers to offer enterprises real-time connectivity for more dynamic Cloud-based services. Through the controller’s Programmatic Intent-based Network API, aligned to the MEF Lifecycle Service Orchestration (LSO) specifications, it supports customer and application-driven service control for complex connectivity services.

The controller’s powerful policy-driven approach and expert service models enable the efficient and automated provisioning of Ethernet, IP and MPLS-based connectivity through policy-driven closed-loop monitoring provided by assurance or analytic systems.
services in heterogeneous, multi-vendor networks transitioning to SDN and NFV. YANG vendor models are on-boarded within seconds, producing service configuration policies with full create/modify/delete/rollback configuration capabilities.

Open Platform
The Oracle Communications Service and Network Orchestration solution is an open and modular platform designed to integrate easily with existing systems, such as network inventory, that are already in place, as well as evolve flexibly to support ongoing business needs. Open APIs together with a layered, loosely coupled architecture readily supports integration with diverse systems, including WFM, SCM, SDN controllers, assurance or analytics. Productized support for quickly on-boarding new and evolving vendor capabilities – either virtualized or physical – is also provided.

Summary
Oracle Communications Service and Network Orchestration is an open, multi-domain, cross-layer orchestration platform for delivering operations and network agility as service providers transition to NFV, SDN and Cloud enabled-services while continuing to support traditional networks. As an open and modular platform, the solution provides a low-risk evolution path to operations modernization as operators offer more dynamic, customer-driven, real-time services.

Leveraging agile catalog and model-driven design and assembly together with dynamic orchestration functions that optimize modularity and re-use, the solution enables rapid time to market for new services and capabilities while also supporting scalable operations that reduce IT complexity and costs over time.

CONTACT US
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Integrated Cloud Applications & Platform Services
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