Service and Network Orchestration
Introduction to the SNO solution and its Reference Implementation

Orchestration Product Management
Oracle Communications Applications GlobalBusiness Unit

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Safe harbor statement

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Service and Network Orchestration Solution Overview
Challenges of Today’s Service Providers
Any technology/service/channel seems possible, but complexity limits execution

- More of everything
- More diverse
- More frequently changing
- Disappearing silos: many-to-many
- Overwhelming number of combinations
Service and Network Orchestration
Distinctive concepts and features

Design Approach
• Ways of thinking about variability, regularity, reuse and separation of concerns that allow you to manage complexity

Architecture
• Functional blueprint, information model, and behavior patterns are designed for flexibility, transparency and localization of impact

Process
• Concept-to-market approach leverages the architecture to enable efficient and predictable cycles
What SNO Is, and What It Does

Multi-Service, Multi-Domain Fulfillment Solution
- Use it to rationalize CAPEX across services, regions and LOBs
- Leverage expertise across standardized IT environment
- Lowers cost and gives you control

Comprehensive Multi-Layer Orchestration Platform
- Maximizes fulfillment automation
- Coordinates a diverse mix of systems
- Integrates well with existing systems
- Tames your application mess

Intelligent Productized Fulfillment Behavior
- Automatically handles both high-volume and complex/long-running orders
- Uses a simpler way to configure fulfillment
- Provides rich core logic so you don’t have to

Intelligent Network Resource Management
- Maintains view of networks from logical, physical, geographical and service perspectives
- Plan capacity & manage projects to build, extend and maintain networks
- The source of truth about your networks
Business Benefits to the Service Provider

Rapid Time to Market
- Proven solution architecture
- Auto-generation of application artifacts
- Encapsulation facilitates incremental development and re-use
- Methodology, best practices, domain examples

Reduced cost of fulfillment
- Automation reduces manual operations per order, reduces fallout and improves order times
- Multi-domain, multi-layer platform consolidates infrastructure, and thus simplifies operations

Reduced cost of development
- Base of rich fulfillment functionality applicable across domains
- Consistency and predictability of implementation
- Strong encapsulation reduces regression costs
- Improved cycle times as methodology is established, re-use exploited

Improved Solution Quality
- Simple Conceptual Model abstraction clearly expresses intent and aligns solution
- Encapsulation and decoupling isolate change impacts
- Consistency of implementation minimizes creative variations resulting in easier understanding and debugging
Service and Network Orchestration Fulfillment Solution

**SNO Platform**
Run-time providing multiple levels of dynamic orchestration

**SNO Design Environment**
Efficient model-driven catalog development

**Rapid Service Design Methodology**
Predictable agile Solution Development

**SNO Reference Implementation**
Working implementation illustrating multiple domains
Licensed Oracle Communications applications performing specific roles within architecture. Available from Oracle Software Delivery Cloud

Primary Applications:
• Oracle Communications Order and Service Management
• Oracle Communications Unified Inventory Management
• Oracle Communications Design Studio

Optional Applications
• Oracle Communications ASAP
• Oracle Communications IPSA
• Oracle Communications Network Integrity

SNO Platform – Standard Product Integration
Following a well-defined architectural blueprint
SNO Design Environment
A collaborative Design Environment for defining SNO Solution behavior

Oracle Communications Design Studio is a licensed application available from Oracle Software Delivery Cloud
Rapid Service Design Methodology
Guidance for efficient, predictable, consistent and maintainable solution development

Conceptual Model
• Component-based Assembly Model
• Definition of key interfaces and behaviors
• Enables high-level solution definition and coordination

Model-driven Application Realizations
• Conceptual Model ensure consistency of overall solution
• Implementation aspects unique to solution are strongly encapsulated

Project Planning
• Enabled by consistent implementation patterns
• Predictable set of activities determined by general nature of project
SNO Reference Implementation
Solution configuration and domain-specific solution definitions with corresponding run-time implementations

Broadband Internet
- Comprehensive illustration of a common subscriber service included modeling assumptions and walk-through of development process
- Illustrates multiple technology implementations supporting a single upstream service abstraction

Mobile Subscriber Services
- Subscription of individual subscribers to mobile services
- Illustrates multiple generations of wireless technology as distinct technology domains
- 5G technology domain illustrates association of a service instance to a specific network slice

Layer 3 Value Added Services (L3-VaS)
- Incremental services (Firewall, Antivirus, Intrusion Protection, Filtering) provided for existing Broadband customers
- Illustrates service delivery via either conventional physical equipment or using Virtual Network Functions

Carrier Ethernet
- Complex B2B connectivity services aligned with MEF’s Ethernet service definitions
- Illustrates patterns of connectivity design involving path analysis, as well as manual operations during design and assign
Oracle Communications Service and Network Orchestration Overview

As an open and scalable orchestration solution designed for all domains, the Oracle Communications Service and Network Orchestration (SNO) solution provides a model-driven approach for increasing operational agility—both for service launches and service delivery—while reducing overall complexity and total cost of ownership over time. By optimizing orchestration processes across the product, service, and network layers using a model-driven approach, the solution efficiently enables dynamic orchestration for customized on-demand services and network scaling while simplifying operations in an environment of continuous change.

The SNO solution includes network functions virtualization (NFV) orchestration (NFVO) capabilities, which manage the lifecycle of NFV-based network services. NFVO orchestrates virtualized functions and resources through real-time interaction with Virtual Network Function Managers (VNFMs), Element Managers (EMs), Virtualization Infrastructure Managers (VIMs), and SDN controllers. This enables SNO’s multi-layer solution to dynamically orchestrate services comprised of a mix of physical and virtualized components.

The SNO solution is an evolution of the Rapid Service Design and Order Delivery (RSDOD) solution provided in earlier releases. The SNO solution encompasses a broader scope of functionality than RSDOD, while still following the Rapid Service Design methodology. Please see this introduction to the SNO solution approach and Reference Implementation.

What is SNO?

Oracle Communications SNO is a comprehensive approach to fulfillment of communications services that reduces time-to-market for new services, and minimizes the impact of inevitable revisions to a service provider’s technical portfolio. Oracle Communications SNO solution can be best understood from four distinct perspectives:

- **SNO Platform** – Run-time environment composed of licensed Oracle Communications Orchestration products that provide multiple levels of dynamic orchestration via metadata driven orchestration capabilities, pre-integrated applications and Open APIs for integration with third-party systems.
- **SNO Design Environment** – A collaborative integrated environment for efficiently defining a model-driven catalog.
- **Rapid Service Design Methodology** – A collection of modeling guidelines, best practices, and documentation that can be leveraged and re-used for predictable agile solution development.
- **SNO Reference Implementation (RI)** – A set of working implementations illustrating multiple domains. The working implementations are complete with installers, catalogs for specific domains, application integration logic, readiness data, sample orders and documentation.

SNO Reference Implementation Solution Overview
Installing the SNO RI
Procedure overview

- Acquire the installers
- Acquire all the install media and collect it in the staging folders as specified by the Software Source Locations
- For RI runtime (server-side)
  - Plan the installation and prepare the installation environment
  - Install and configure the installer
  - Run the installer
- Do the same for RI design time (desktop)

Start
- Unix server system without Oracle Communications Apps
- Prerequisites and topology options as specified

End
- A WebLogic Admin server and repository database
- Managed servers for ASAP, OSM and UIM
- Intra-suite messaging infrastructure, system emulators
- Deployed configuration of apps for SNO
- Deployed sample catalogs for selected domains

Design Time Environment

Start
- Windows desktop system without Design Studio
- Prerequisites as specified

End
- Design Studio on Eclipse
- SDKs for OSM and UIM
- Required Oracle and 3rd party development tools
- Selected sample catalogs ready to be explored & tailored
SNO Design Time Environment with SNO RI Samples
IDE with pre-installed domain catalogs, leveraging common infrastructure

- Design Studio with application plug-ins and development tools
- Workspaces pre-populated with projects that configure OSM, UIM or ASAP according to the SNO blueprint
- Illustrative domain-specific data sets built using the Rapid Service Design methodology – structured for rapid change

Domain catalogs and other material sourced from OTN are provided free of charge, as-is without Oracle product support commitment.
Installing the Design Time Environment
Using the automated installer

Prerequisites
- Windows, minimum 8Gb RAM
- Ant, JDK installed
- Installation media in place

Installer Options
- Install any or all of Smoke Test, Broadband, Mobile, Carrier Ethernet catalogs in a single Workspace

Installation should take about 30 minutes once media is collected
**SNO Run-time Platform**

Pre-configured Service Order processing system, with sample orders

OSM, UIM, ASAP and IPSA servers, with messaging infrastructure and adjunct system emulators

Pre-configured with SNO-standard domain-agnostic configuration for each application

For each sample service domain:

- Pre-deployed application-specific catalog data sets
- Pre-loaded inventory of ready resource instances
- Library of sample service orders

Order submission test harness

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The default installation is “PoC ready”, not performance-tuned or secure for production use.
Prerequisites

- 64-bit Linux hosts, 16 GB RAM
- Installation media in place

Installed

- OSM, UIM, ASAP, WLS, Oracle DB 11g on a single host
- Optional distribution of applications across multiple servers, WLS clustering, use of previously installed DB

Installation should take about 2 hours once media is collected
Beyond the Reference Implementation
Understood and evaluated, now what?

Systems Integrator Sales & Pre-Sales teams
  • Integrate RI into standard demo kit
  • Use as basis for customer-specific proofs-of-concept

Ongoing Education
  • Integrate RI into courseware, use to build exercises

Production Deployment
  • License necessary product components
  • Work with Oracle and SI to design and set up a server environment suitable for large-scale production
  • Clone/own-modify/extend domain catalogs using Rapid Service Design Methodology
  • Integrate 3rd party systems

Questions or issues with the Reference Implementation?
  • Oracle Consulting for architectural expertise in production deployments
  • My Oracle Support for issues with product components