Oracle Communications
OSS Service Activation Product Portfolio Overview
The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle’s products remains at the sole discretion of Oracle.
**Oracle Communications Solutions**

**OSS Component Introduction**

- **Order Management** – Process enabled application for optimized delivery of captured customer and network orders. Performs order transformation, decomposition and orchestration of all order activities with full visibility & status aggregation over entire order lifecycle.

- **Inventory** – Unified, accurate inventory of subscribers, services, logical & physical resources together with design / assign capabilities for service fulfillment and actionable network analytics for network optimization.

- **Design Studio** – Design time environment for rapid assembly, config and deployment of new services

- **Activation** – Multi-service, multi-vendor service activation of network and IT applications. Stateful configuration and Service-aware configuration management of enterprise Ethernet / IP services.
Oracle Communications Solutions

OSS Component Introduction

- Oracle Communications Order & Service Management (OSM)
- Oracle Communications Unified Inventory Management (UIM)
- Oracle Communications Network Intelligence
- Oracle Communications Network Integrity
- Oracle Communications ASAP
- Oracle Communications IPSA
- Oracle Communications Design Studio
What is Activation?

An Activation application is a product that...

• Controls and manages the service activation request
  • Receives Activation requests, generally from an Order and Service Management system
  • Translates these requests into vendor-specific commands and provides an abstraction layer to upstream systems
• Interfaces with the network, enabling service
  • Performs the actual activation in the network or onto a server or application through move, add, change, and deleting service definitions and subscription to services
  • Provides feedback of the activation result to other systems (e.g., Order & Service Management)
• Enables flexible Activation & Operational controls
  • Provides a series of activation control functions such as rollback, scheduling, sequencing of requests, retry, and NE connection management.
  • Stateful and service-aware management and control of element configuration for IP/Ethernet based networks
Activation

- Multi-service, multi-vendor service activation and configuration management

Across…
- Mobile Services
- Consumer Multi-Play
- Enterprise IP Services

- Activating over 500,000 mobile service orders per day at a given customer
- Managing some of the largest IP/MPLS networks

Confirmed Market Leadership

“Oracle is the [activation] market leader.”
-

: Market Review – Global Telecom Software Market Analysis, Larry Goldman
OSS Observer April 2008

Oracle
Activation as part of OSS/BSS

Billing System
- Performance Management
- Fault Management
- Workforce Management

CRM System

Messaging/EAI
- Upstream XML OSM API
- OSM Control GUI

Order and Service Management
- Studio – Service Creation GUI
- OSM Control Engine
- View Frame Engine

Inventory
- Service/Subscriber Web GUI
- Service Inventory
- Subscriber Inventory
- Design/Assign/Admin GUI
- Physical Inventory
- Logical Inventory

Activation
- Activation Controller
- Existing Activation System(s)
- High Volume Mass Market Services (ASAP)
- Unique IP-Based Next Generation Services (PSA)

Cartridge Plug-in Framework

Design/Assign/Admin GUI
- Physical Inventory
- Logical Inventory
Activation
High-Level Architecture

Upstream OSS Layer
Order and Service Management & Inventory

OSS/J Activation API & Service Transformation

Activation Controller

Activation Engines
High Volume Mass Market Services
Unique IP-Based Next Generation Services

Design and Runtime Tools
Service Studio
Provisioning GUI

Cartridges
Broadband, Voice, Video, Mobile
IP VPNs, QoS Management

Existing Activation System(s)

Network
## Communication Domains

### Business Applications

<table>
<thead>
<tr>
<th>Mobile Subscriber</th>
<th>Consumer Multi Play</th>
<th>Enterprise IP Services</th>
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<tbody>
<tr>
<td>OSM</td>
<td>OSM</td>
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<tr>
<td>ASAP</td>
<td>ASAP</td>
<td>IPSA and CM</td>
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**Characteristics:**
- **Volumes:**
  - High
  - Medium
  - Low
- **Complexity:**
  - Low
  - Medium
  - High
- **$$$/Transaction:**
  - Low
  - Medium
  - High

**Services being Configured:**
- **Service Only**
  - Layers 4+
- **Network and Service**
  - Layers 1-3 + Layers 4+
- **Network Only**
  - Layers 1-3

**Service Examples:**
- Pre/Post Paid, Voice and Data mobile services
- DSL, Cable, FTTP, Satellite, Consumer & SME VoIP & Video
- L3 MPLS VPNs, QoS, VPLS, Ethernet, etc.

**Customer Examples:**
- O₂
- América Móvil
- Telstra
- Liberty Global
- AT&T
- BT
- BaneTele
- SingTel
- Cable & Wireless

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Activation

Activation Control

Service Transformation

Order Management & Inventory

SOA based OSS/J request

SOA based OSS/J response

Activation Service

Scheduling / Due Date Management

Order Prioritization

Supplemental Processing

Cancellation Processing

Related Order Management

Batch Order Management

Fallout Management Order Control (suspend, edit, abort, retry, resume, etc.)

Order & Task Timeouts

Activation Control Functionality:

- Activation Transaction Management
- Activation Control Functionality:
  - Activation Transaction Management
  - Scheduling / Due Date Management
  - Order Prioritization
  - Supplemental Processing
  - Cancellation Processing
  - Related Order Management
  - Batch Order Management
  - Fallout Management Order Control (suspend, edit, abort, retry, resume, etc.)
  - Order & Task Timeouts

Transactional Activation Workflow

Cartridge Distribution Layer

Network / Systems

Order Translations

Service Bundles

Service Actions

Network Actions

Scripts

SCE
ASAP Mobile Subscriber Activation

- Corp 250: A profile on the Home Location Register that is pre-configured
- OSM decomposes order and calls ASAP

My Current Price Plan
Corp. 250 Unlimited Eve/Mnds - $25.00
- 250 Weekday Minutes

Additional Services
- Detailed Billing
- Network Features *(Group Calling, CWT, CFW, CFR)
- Call Display
- Corporate Basic Voicemail
- 125 Semi/Unlim Received Text

ADD_CORP_250_SUB

Create Subscriber HLR
HGSUI:IMSI=<imsi>,MSISDN=<msisdn> [,PROFILE=<profile>] [,LMU];

Create Subscriber AuC
AGSUI:IMSI=<IMSI>,EKI=<EKI>,KIND=<KIND>,
A3A8IND=<A38IND>,A4IND=<A4IND>;

Add Basic Voicemail
(Command Code)<ID>[<Optional Parameter1>=<value1>]

HLR
AuC
Voice Mail
Service Modelling

Service Actions on a Device

- Activation Requests
- Service Actions
- Network Actions

• A Service Action:
  • Performs one or more Network Actions with intelligent execution, to one or more network and / or IT elements
  • Facilitate the assembly of device-atomic operations into a service offering

Service Actions to:
- Add Phone
- Add Line
- Add User
- Reset Device

…individually or in a flow on the Call Server

OSSs

Activation

Call Server

ORACLE
Service Modelling

Service Actions Across Devices

Activation Requests

Service Actions

Network Actions

• A Service Action:
  • Performs one or more Network Actions with dependent execution across one or more network elements
  • Also, an Activation Request may contain one or more Service Actions

OSSs

Activation

Service Action to:
  Add Phone
  Add Line
  Add User
  Reset Device
  Add subscriber to Messaging Server

…across the Call Server and Messaging Server
Service Modelling
Bundling Services Across Domains

Powerful capability to define Service Bundles with VoIP subscriber services:
- Add DSL broadband access
- Add VoIP Subscriber (with messaging)

...across the Call Server, Messaging Server, DSLAMs, etc.
In this case, re-combine the VoIP services with a different broadband access and video services:
- Add DSL broadband access
- Add VoIP Subscriber (with messaging)
- Add IP-TV video services
ASAP Cartridges

Definition: A cartridge provides plug-in support for activation of specific services on specific IT and network devices

Catalogue of pre-built cartridges:
- Designed, developed and supported by Oracle
- Leverage hardware vendor relationships and best practices
- May be extended / customized in customer environment

Custom-made cartridges:
- Designed for customer by Oracle Consulting
- Customer or other System Integrator may develop own cartridges and / or extend those from Oracle
- Use Activation SCE available with the product

Value proposition
- Enables rapid service / network introduction
- Lowers ongoing cost of ownership
- Enables rapid introduction of additional vendor equipment
- Full customer empowerment
Activation Credentials
Vendor Support by Domain

Circuit Voice
- Nortel
- Siemens
- Lucent
- Ericsson
- Alcatel
- AGCS

Packet Voice
- Nortel
- Siemens
- Cisco
- Sonus
- Alcatel
- Sylantro
- BayPackets

Broadband Access
- Alcatel
- Lucent
- Cisco
- Nortel
- Huawei

IP-TV
- Microsoft
- Nagra

ATM Frame
- Alcatel
- Cisco
- Lucent
- Nortel
- Redback

IP
- Cisco
- Juniper
- Alcatel
- Foundry
- Huawei
- Nortel
- Riverstone

Mobile
- Ericsson
- Nokia
- Nortel
- Lucent
- Alcatel
- Motorola

Multi-service, multi-vendor cartridges enabled through proactive hardware partnerships and deployments
ASAP Design Studio

IDE for rapidly building and deploying services (subscriber or network build out)

Design, document and deploy Network and Service Activation Cartridges

Design, document and deploy SRT Cartridge for upstream integration

Cartridge relation graph for showing relationships among Service and Network Cartridges, and run-time environments
Activation
IPSA Component Overview

- Policy & role-based management of IP & Carrier Ethernet services
  - Stateful, abstracted, intelligent, multi-vendor
- Seamless operation within Activation or as part of Service Fulfillment for multi-domain, multi-vendor service control
- Integrated Configuration Management for lifecycle management of service and device configurations
  - Archiving, intelligent restore, compliance management

Key Value Proposition
- Productised intelligence for rapid deployment with little / no customisation
- Both activation & ongoing management of device configurations
IP Service Activator
Key Capabilities and Product Values

**Foundations**
- (Transaction Management, Network Models, Discovery, User Mgmt)

**Customer Service Requests**
- (Assign & Design, Policy-based)

**Network Infrastructure Requests**
- (Assign & Design, Policy-based)

**Managed Services**
- (Service Persistency, Service Configuration State Management, Service Auditing)

**Service and Network Activation**
- (MACD, Rollback, Intelligent Configuration Computation, Multi-User Request Consolidation)

**Service Technology Models**
- (L3 VPNs, L2 VPNs, QoS, VLANs, etc.)

**Service Vendor Cartridges**
- (Cisco, Alcatel, Juniper, Foundry, etc.)

**Suite Enablers**
- Service Creation Environment (Future)
- Cartridge Software Development Kit (SDK)

**Platform Enablers**
- Monitoring Cartridges
- Cartridges
- Service Creation Environment (Future)

**Provision Complex**
- IP/Ethernet Services

**Extensive Out-of-the-box Capabilities**

**Rapid Service Introduction**

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IP Service Activator
Key Features

- Easy “drag and drop” provisioning
- True Multi-Vendor IP services
- Full support for service creation, modification, deletion and rollback
- Powerful inheritance and policy-based service management
- Accurate service configuration auditing
- Full transaction support
- Security with user permission control
- Flexible template and in-core product extensibility with SDK
- Thorough OSS Integration capabilities for flow-through provisioning

Faster time to revenue on large IP Service rollouts
Activation
IPSA Component Overview

- IP Service Capability
  - L3 MPLS VPNs (RFC 2547)
  - L2 MPLS VPNs
  - PWE (Martini)
  - VPLS
  - IP/MPLS QoS
  - Dedicated Internet Access
  - Security – ACLs/Firewalls
  - Metro Ethernet VLAN
  - MPLS-TE LSP Management
  - IPsec VPNs
  - VRF Lite

- Extensibility via:
  - Configuration Templates
  - Generic Policies
Activation – IP Service Activation
VPN Configuration Made Easy

- Drag & drop service activation, or wizard-based
- Full support for RFC 2547 MPLS VPNs
- Automatic configuration of PE routers including:
  - VRF table creation
  - PE-CE communication (using eBGP, OSPF, RIP, static routes)
- Device Drivers:
  - Convert generic service requests into device / vendor specific commands
  - Distributed approach drives scalability
- Audit trail in place - no “fire and forget” activation
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Activating an IP/Ethernet service (1/3)
L3 VPN Service – PE VPN configuration (example)

b. Configure L3 MPLS VPN tables on PE

- Creates customer private IP routing domain over shared IP/MPLS Service Provider network

```
router bgp 1
  address-family ipv4 vrf ACME_VRF_Table
  no auto-summary
  no synchronization
  exit-address-family
  ip route vrf ACME_VRF_Table 192.168.1.0 255.255.255.0 Serial4/0.1 192.168.209.2
```

- Sets up private customer IP routing between its sites

```
ip vrf ACME_VRF_Table
  description Customer_ACME
  rd 64532:185518
  route-target export 64532:191606
  route-target import 64532:191606
  exit
```

c. Configure IP routing (dynamic & static) on PE

- Link sub-interface to VLAN (#128), VPN and private IP addr.

```
interface GigabitEthernet1/0/0.300
  ip address 192.168.209.1 255.255.255.0
  encapsulation dot1Q 128
  ip vrf forwarding ACME_VRF_Table
```

d. Activate PE sub-interface with VPN and private IP address

```
```

Activating an IP/Ethernet service (2/3)
L3 VPN Service – Ethernet Virtual LAN on Metro (example)

e. Configure Virtual LAN on Ethernet access network (NEs/trunks)

f. Configure Virtual LAN on Ethernet PE switch customer access port

Configure each switch and trunks in the core to allow Virtual LAN IDs 128 to 314:

```bash
vlan 128-314
exit
GigabitEthernet1/0
  switchport trunk encapsulation dot1q
  switchport trunk allowed vlan 128-314
  switchport mode trunk
  exit
```

Configure customer-facing access port and tags Ethernet frames with Virtual LAN ID 128:

```bash
vlan 128
  name Customer_ACME
  exit
GigabitEthernet2/1
  switchport access vlan 128
  switchport mode access
  exit
```
Activating an IP/Ethernet service (3/3)
L3 VPN Service - QoS on PE and CE
(example)

Configure Classes of Service on PE/CE (traffic mappings)
Create 2 Classes of Service: Silver, Gold

Configure Quality of Service (bandwidth, priority…)
Specify traffic treatment by Class of Service

Class-map Silver
- Match protocol realaudio
- match dscp 34
Class-map Gold
- Match protocol IPTV
- Match protocol VOIP

Policy-map 3PlayBundle1
- class Silver
  - bandwidth percent 25
- class Gold
  - bandwidth percent 40
! interface GigabitEthernet1/0/0.300
  service-policy output 3PlayBundle1

PE Router

CE Router