Maturing OpenStack Together To Solve Telco Needs

Ehud Malik
Product Management
Nokia, CloudBand
Agenda

- Nokia/CloudBand portfolio description
- CloudBand Software Infrastructure with RedHat
- Enabling E2E Telco Grade NFVI/VIM
- Monitoring tools for virtualized infrastructure
- NOVL visibility tool
- Summary
Nokia Telco Cloud End-2-End Solution

- CloudBand Network Director (CBND)
- CloudBand Application Manager (CBAM)
- CloudBand Infrastructure Software (CBIS)
- 3rd-Party

Components:
- NFVO
- VNFM
- NFVI / VIM
- HW

Hardware:
- Dell PowerEdge
- Nokia Airframe
- HP C-7000

Software:
- vSAM
- NCIV
CloudBand Infrastructure Software (NFVI/VIM)
Differentiation & Value Added

Carrier Grade Operations
- Pre-integrated and validated
- Automated installation
- Security Hardened
- Upgrade
- Monitoring: FM/PM, RCA

Optimized for VNF Performance
- Performance enhancement
- Performance tuning
- Addressing VNF requirements
- Bug fixes and missing features

Enhanced NFV Capabilities
- Integrated Tools for monitoring and troubleshooting
- Integrated SDN Solution

E2E PRODUCTION READINESS
CloudBand Infrastructure Software (NFVI/VIM)
Architecture and highlights

- CloudBand Infrastructure Software is a complete NFVI and VIM software stack providing a turnkey solution for service providers deploying NFV
- CloudBand Infrastructure Software is built for operational excellence, with enhanced operational tools that includes a hand picked set of SW components, integrated and tested on a variety of HW choices
- CloudBand Infrastructure Software leverages CloudBand’s experience in building and deploying NFV platforms using open source and standard API’s, ensuring stability and streamlined operations
CloudBand Infrastructure Software (NFVI/VIM)
CBIS components High Level View

Each component requires special treatment on top of NFVI/VIM to address Telco needs...

- Automated Install and Upgrade
- Highly Available Architecture (SW and HW)
- Integrated SDN And Acceleration
- Operational Tools
- Open Source and open API
- Monitoring
- Flexible storage solutions
- Security

Telco Challenges
NFVI/VIM Platform monitoring

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- Physical/Virtual Resources typically monitored by Ceilometer, AODH, Zabbix, Sensu, Nagios or other...
- Those tools provide FM and PM monitoring capabilities per specific resource, however they do not provide a holistic monitoring view of a system.
Vitrage in a nutshell
Official OpenStack project for Root Cause Analysis

Complete FM/PM support for virtualization environment

- Root Cause Analysis – understand why faults occurred
- Deduced alarms and states – raising alarms and modifying states based on system insights
- Holistic & complete view of the system
Vitrage High Level Architecture

Horizon Plug-in:
- Hierarchical view
- Vitrage alarm list
- RCA diagram per alarm
- Entity graph view
- Templates list

Multiple Data Sources (extendible):
- External monitoring tools: Nagios, Zabbix
- OpenStack projects
- Physical topology

Templates for deduced alarms and RCA:
- Each template can contain one or more scenarios (scenario = condition + action)
- Human readable
- Configurable

Expose Vitrage alarms and state changes to other projects or external systems

Monitoring
telco challenges
Fault Management with OpenStack Congress and Vitrage, Based on OPNFV Doctor Framework

Demo: OpenStack and OPNFV – Keeping Your Mobile Phone Calls Connected
CloudBand Infrastructure Software (NFVI/VIM)
CBIS components High Level View

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NFVI/VIM OPEX reduction
NFV Platform Operational Tools
VNFI/VIM Visibility

• Each VNF has a specific configuration for virtualization which enables optimal functionality & performance

• As VNFs are spread across multiple components of the infrastructure (Hypervisor, OpenStack controller, network equipment, etc.), during deployment it becomes necessary to enforce the NFVI/VIM configuration rules
NFV Platform Operational Tools
Introducing NOVL (Node Validation Tool)

• CBIS provides a Node Validation tool (NOVL), which exposes configuration parameters, allowing quick validation per VNF specific need

• This enables swift onboarding of complex VNFs
NOVL User Configuration Parameters

- NOVL provides the ability to configure validation criteria parameter limits
- Parameters are related to the physical level and OpenStack related items
NOVL Report Example

NOVL provides a short summary as well as a detailed report which exposes the user to the actual configuration of a complex NFVI/VIM infrastructure.

NOVL helps reduce planning and boarding time for complex VNFs such as IMS, VoLTE, vEPC.
Summary

Mature Ecosystem

Monitoring /RCA for Visibility Vitrage

Operational Tools, reduce TTM

Complete solution NFVI, NFVO, VNFM