OpenNaaS-based Networking Solution for DC Automated Management

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Propose OpenNaaS as a vendor independent overlay platform for DC network infrastructures to simplify the administration of operational functions of an IaaS Provider.

OpenNaaS as a service management tool
- to provide with a unified way to configure networking resources
- ease the administrative networking load across the different network segments end to end.
• José I. Aznar - PM at I2CAT Foundation (Barcelona, Spain).

• Working around NaaS, SDN and NFV technologies

• Focus on Network connectivity services.

• Special interest on making IaaS, PaaS and SaaS providers’ life easier.
The Problem

10%
Goal and Objectives

• Main Goals:
  – Simplify the administration of operational functions of SURFsara.
  – An “easy to everything” solution.
    • Easy to deploy.
    • Easy to configure.
    • Easy to manage.

• Objectives:
  – Unified way to configure DC networking resources.
  – Fit flexible operation with minimal management effort.
  – Avoid service impact.
The Solution concept
The Solution concept

Virtualization Layer
The Solution concept

Virtualization and Control Layer

Virtualization Layer

Virtual Resources
The Solution concept

Virtualization and Control Layer

Virtual Network Functions

Virtual Resources

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The Solution Approach: OpenNaaS

http://www.opennaas.org
OpenNaaS Community

• OpenNaaS Founders are the EC FP7 Mantychore project participants:

Developer documentation on extensions

http://www.opennaas.org/development

Or join our development mailing list

http://www.opennaas.org/community
What is OpenNaaS?

- **Open Source Framework** for:
  1. Virtualizing network resources.
  3. Deploying dynamic network infrastructures.
  4. Supporting heterogeneous network devices.
  5. Implementing multi-tenancy through slicing.
  6. Orchestrating Network DC services.
  7. Dual L-GPL/ASF licensing schema.
OpenNaaS Architecture

OpenNaaS-based Networking Solution for DC Automated Management

L-GPLv3 License
ASLv2 License
Any License
Platform Layer

Platform
• Reusable building blocks, common to all extensions.
• Controls access to the infrastructure.
  • Integrity, Policy, etc..

Managed infrastructure
NaaS Layer

- Network HAL abstraction to infrastructure.
- Resources manageable by the user.
  - Access controlled by the Sec. Manager.

RESOURCE TYPE CAPABILITIES

<table>
<thead>
<tr>
<th>Resource Type</th>
<th>Capabilities</th>
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<tbody>
<tr>
<td>Router</td>
<td>Chassis</td>
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<td>ROADM</td>
<td>Connections</td>
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<td></td>
<td>Monitoring</td>
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OpenNaaS: Resources & Capabilities

- Lightweight Abstracted operational model (HAL)

- OpenNaaS allows the creation of a virtual representation of physical resources (i.e. network, router, switch, optical device or computing server).
Network Intelligence Layer

Network Intelligence
- Integration with Northbound Middleware
  - IaaS/Cloud managers
  - Other NMS.
- The user
OpenNaaS Solution: The MUST HAVEs

- Abstraction of Layer 2 and Layer 3 protocols.
- Topology awareness.
- Multi-vendor support.
- User authorization.
- Monitoring options:
  - Topology Overview
  - VLAN Overview
  - Queue Overview
  - Resource chassis
  - Resource info
  - Resource queue

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OpenNaaS-based Networking Solution for DC Automated Management
Demo showcase: Under the Hood

http://demo.opennaas.org:8080/
Dakara nani? (So what?)

- Reduction of administrative load of network staff by delegating small operational tasks to the system administrators of the server equipment.
- Better understanding of network infrastructure and more freedom to connect server equipment on the access layer.
- The administrative freedom and increased insight into the network will potentially lead to an OPEX reduction, since fewer resources are required to manage the network.
Other OpenNaaS Services and Developments

• Additional Showcases and pre-production deployments:
  • BoD, AUTOBAHN, MDVPN
  • Integration with CMT (OpenNebula, OpenStack)
  • Integration with SDN controllers for service composition
  • NFV implementation : vCPE
  • Integration with GEANT BoD and AUTOBAHN services.

• Additional information sources:
  • OpenNaaS Community (http://www.opennaas.org/community)
  • Youtube Videos
  • Other Demos
Thanks for your attention!

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