

# FOSS IN TELCOS

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Is it something new for the TELCOS ?

June 2015

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**WARNING: All Software presented on this presentation is Free Open Source Software (FOSS)**

# Why Free Open Source?

- The promise of FOSS is better quality, higher reliability, more flexibility, lower cost and the opportunity to drive open standards.
  - Faster, lower cost and higher quality development through sharing of resources via collaboration.
  - Community decisions about new features and roadmaps.
  - A common environment for users and App developers.
  - Ability to focus resources on differentiating development.
- *Bottom Line: The open source model significantly accelerates consensus, delivering high performing, peer-reviewed code that forms a basis for an ecosystem of solutions.*

# Does it something new ?

- The Internet is based on FOSS, as standards base, as well technologies ;-) from the beginning...
- All telcos using FOSS projects in some parts of their infrastructure.

# What is new ?

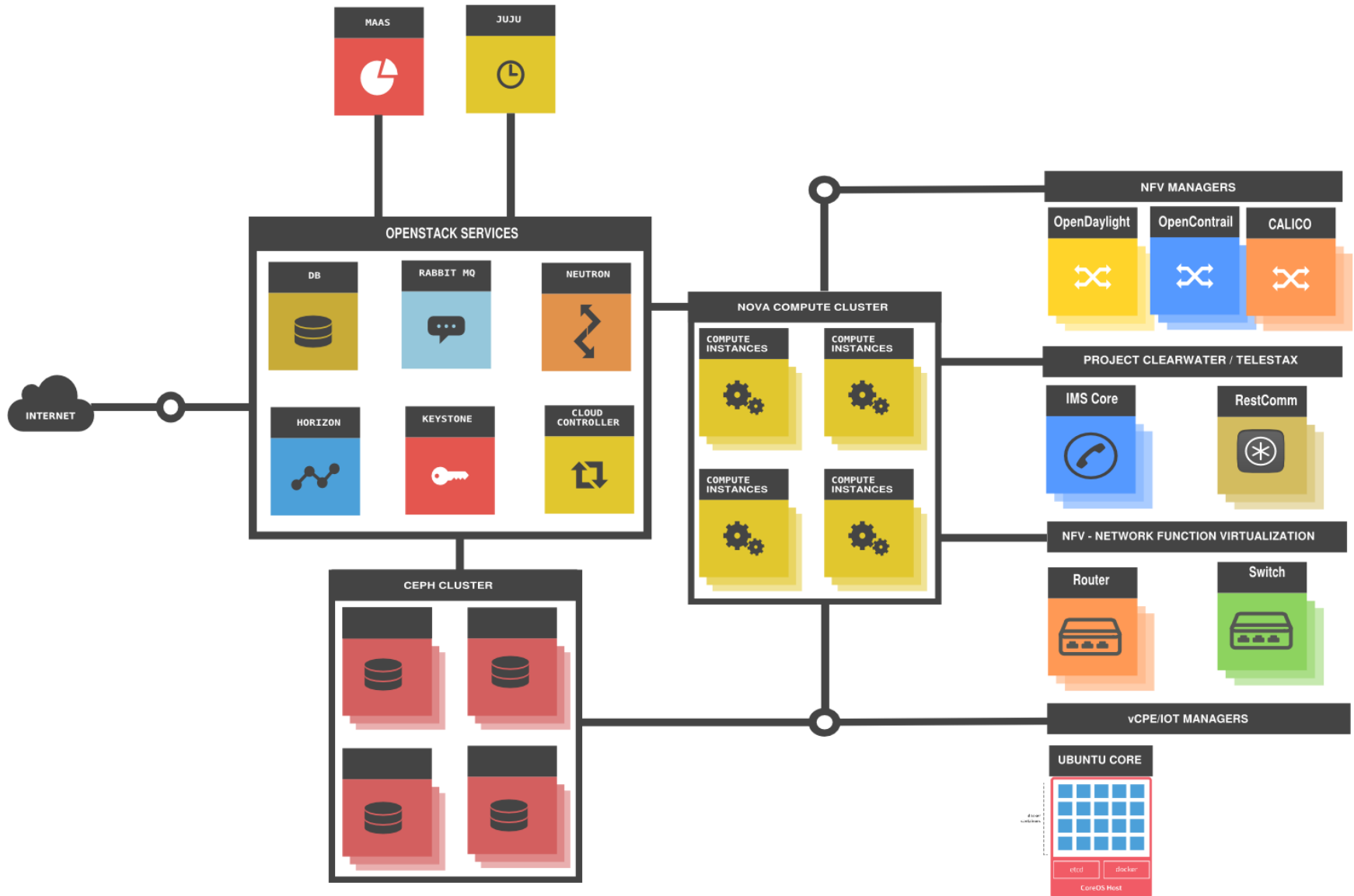
- “Show the code. Not the the Standard. We have to be agile”
  - The telcos industry change rate is increasing
  - The talks “Open Standards vs Open Source” have started to be around, but seems the answer is: we have to use both of them in a right time/way... see the SDN&NFV Summit presentation from Orange: Open Source & Standardization – moving away from competition in Paris, March 2015
- The number of FOSS business-driven projects appeared:
  - OpenStack / CloudStack
  - OpenDayLight(ODL) / ONOS
  - OPNFV
  - and many others ...
- This projects already proven, they have changed the rules in the DC/Content delivery business, now time for the TELCOS industry?

# Some real case examples:

## Network Interoperability LAB.

- Each telecom operator has needs to test different services/scenarios before using them in the network or physical LAB.
- Using the NFV images from the vendors and “networking overlay” feature from OpenStack it is possible to make the testing environment based on as much server resources as needed, without a lot of configuration and connecting real devices.
- Using the “tenants” feature of the OpenStack one can isolate the workload from one person from another.

# Network Interoperability LAB overview

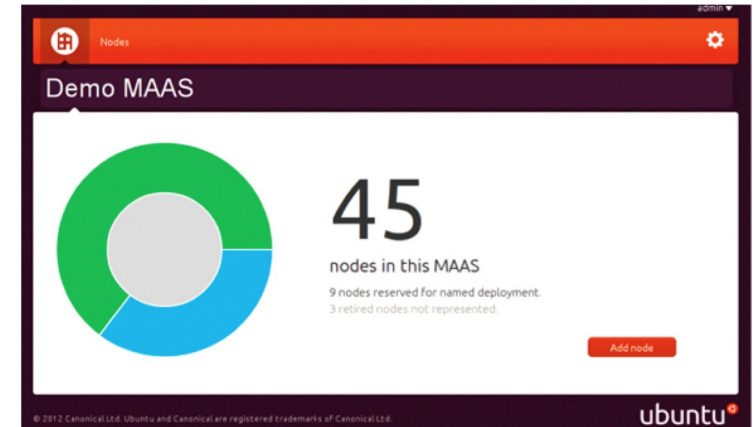
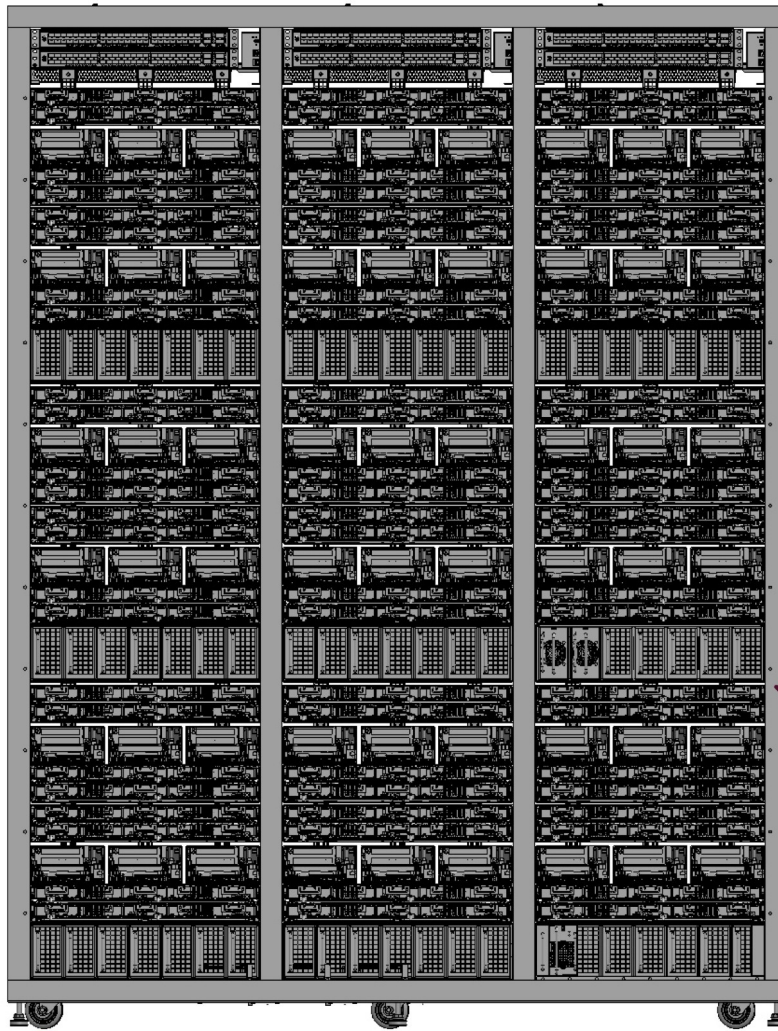


# Main components

- Ubuntu MAAS
- Ubuntu Juju
- Ceph storage
- OpenStack (horizon, nova-cloud-controller, nova-compute, cinder, glance, neutron)
- Metaswitch Project Calico, Juniper OpenContrail
- NFV images from the vendors
- Metaswitch Project Clearwater
- Telestax AS – Restcomm server for WebRTC/SIP/PSTN

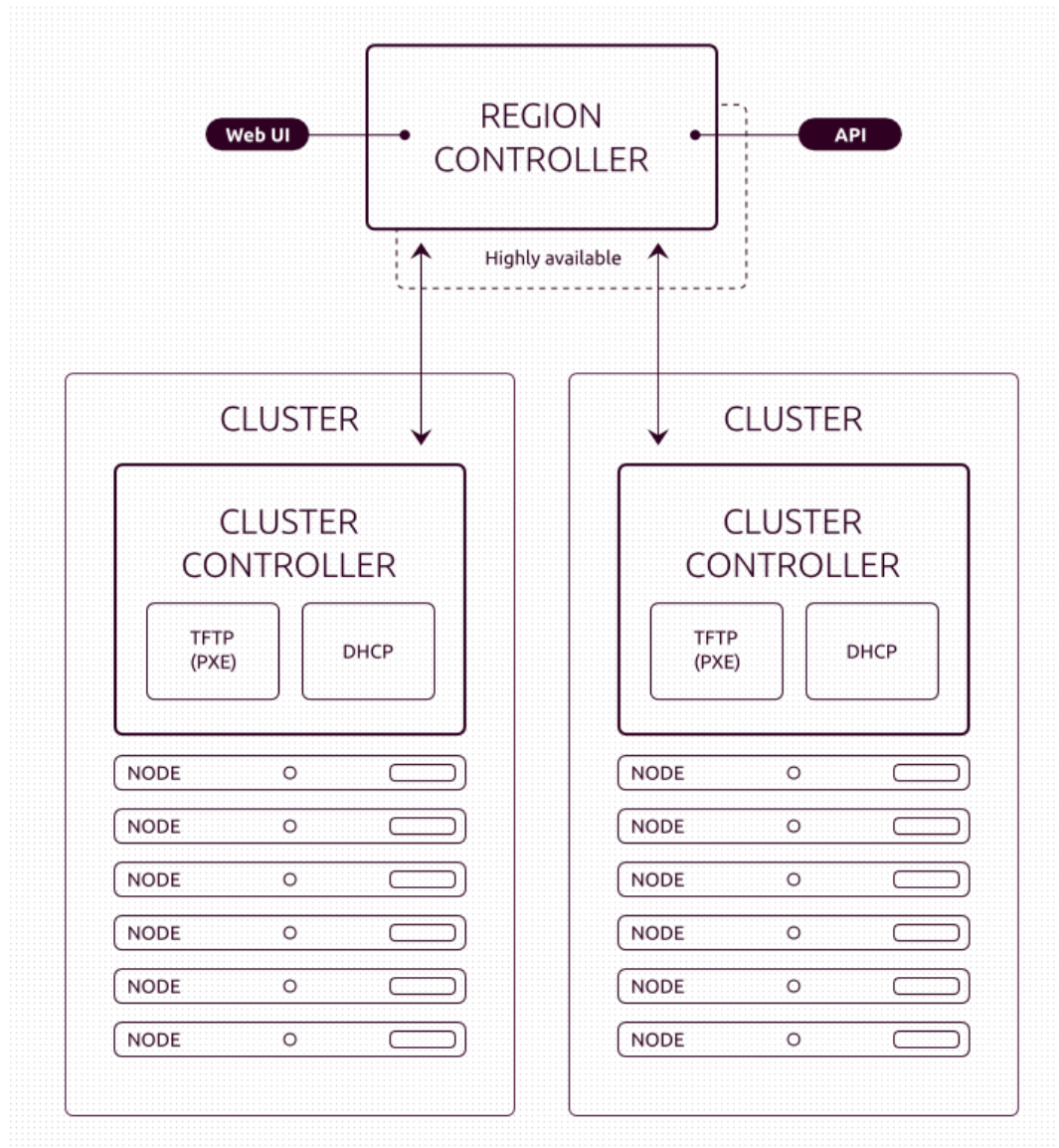


# MAAS: Metal As A Service



Bare-Metal  
Provisioning in  
Minutes

# MAAS: Architecture



# MAAS: Web interface

The screenshot displays the MAAS web interface. At the top, there is a navigation bar with tabs for 'Nodes', 'Clusters', 'Zones', and 'Networks'. A 'juju' dropdown menu and a settings gear icon are also present. Below the navigation bar, a blue banner contains a warning: 'Third party drivers may be used when booting or installing nodes. These may be proprietary and closed-source. The installation of third party drivers can be disabled on the [settings](#) page.'

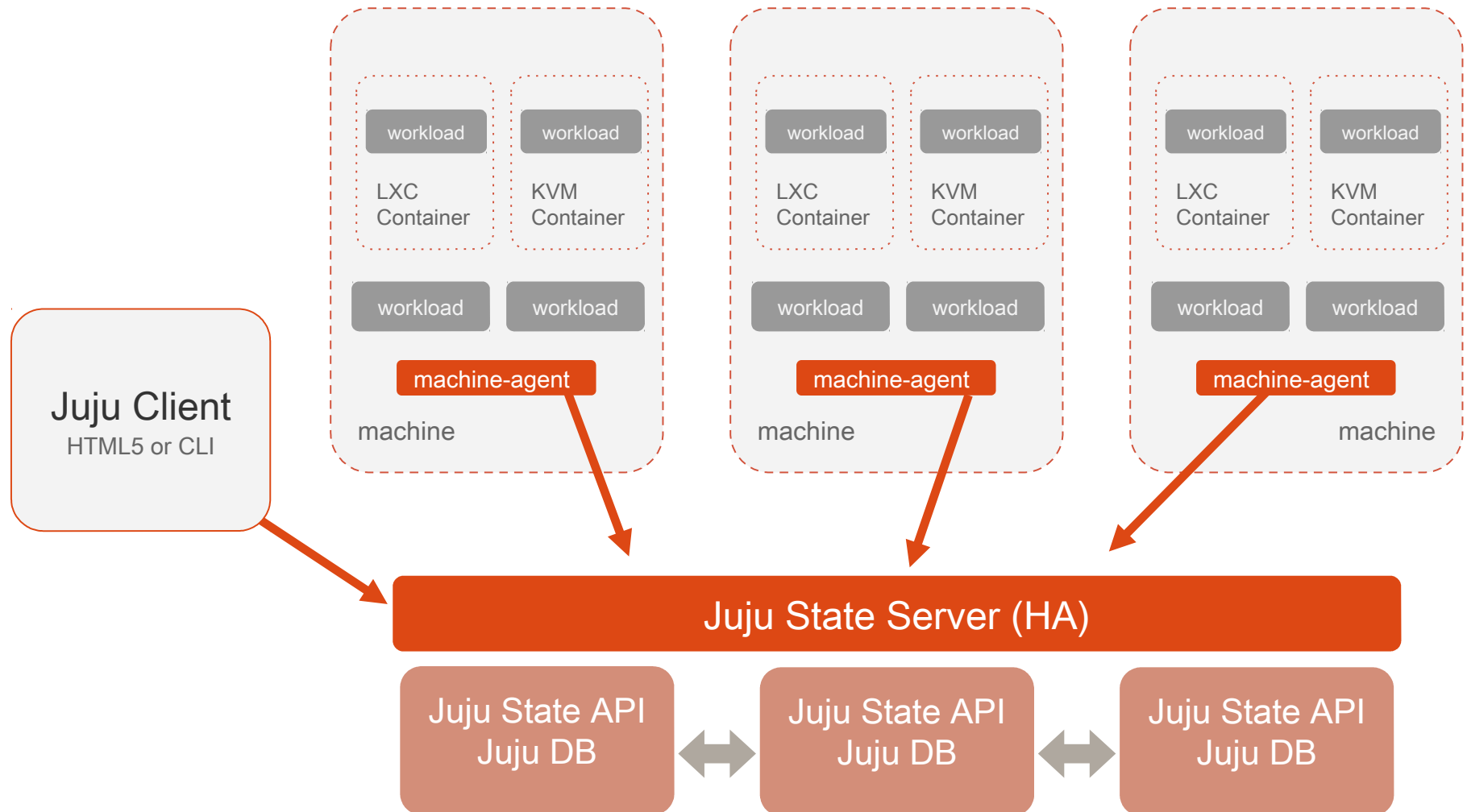
## 17 nodes in maas MAAS

Bulk action:

<input type="checkbox"/> <a href="#">FQDN</a>	<a href="#">MAC</a>	<a href="#">Status</a>	<a href="#">Zone</a>
<input type="checkbox"/> kite.maas.fgts.ru	00:10f3:20:aebf, 00:10f3:20:aebc, 00:10f3:20:aebd, 00:10f3:20:aebc, 00:10f3:20:aebb, 00:10f3:20:aeba, 00:10f3:20:aeb9, 00:10f3:20:aeb8	Allocated to juju	default
<input type="checkbox"/> e89rx.maas.fgts.ru	08:00:27:00:ee:c5	Declared	default
<input type="checkbox"/> hawk.maas.fgts.ru	90:e2:ba:6d:f6:01, 00:25:90:95:ba:2d, 90:e2:ba:6d:f6:00, 00:25:90:95:ba:2c	Allocated to juju	default
<input type="checkbox"/> eagle.maas.fgts.ru	00:10f3:25:66:99, 00:10f3:25:66:98, 00:10f3:25:66:97, 00:10f3:25:66:96, 00:10f3:25:66:95, 00:10f3:25:66:94, 00:10f3:25:66:93, 00:10f3:25:66:92	Allocated to juju	default
<input type="checkbox"/> quantum.maas.fgts.ru	52:54:00:08:44:ad, 52:54:00:96:0a:0a	Allocated to juju	default
<input type="checkbox"/> bubo.maas.fgts.ru	90:e2:ba:02:27:99, 90:e2:ba:02:27:98, 00:25:90:2b:1a:33, 90:e2:ba:75:35:35, 00:25:90:2b:1a:32, 90:e2:ba:75:35:34	Allocated to juju	default
<input type="checkbox"/> neutron-api.maas.fgts.ru	52:54:00:a8:9b:15, 52:54:00:b7:5fab	Allocated to juju	default
<input type="checkbox"/> ninox.maas.fgts.ru	90:e2:ba:75:34:e9, 90:e2:ba:75:34:e8, 00:25:90:2b:90:1f, 00:25:90:2b:90:1e	Allocated to juju	default
<input type="checkbox"/> tyto.maas.fgts.ru	90:e2:ba:6a:e5:5d, 90:e2:ba:6a:e5:5c, 90:e2:ba:02:26:ad, 90:e2:ba:02:26:ac, 00:25:90:2b:15:bf, 00:25:90:2b:15:be	Allocated to juju	default
<input type="checkbox"/> cinder.maas.fgts.ru	52:54:00:e3:57:f3	Allocated to juju	default
<input type="checkbox"/> glance.maas.fgts.ru	52:54:00:24:64:f4	Allocated to juju	default
<input type="checkbox"/> nova-cloud-controller.maas.fgts.ru	52:54:00:d6:c2:85	Allocated to juju	default
<input type="checkbox"/> dashboard.maas.fgts.ru	52:54:00:55:20:91	Allocated to juju	default
<input type="checkbox"/> keystone.maas.fgts.ru	52:54:00:6f:50:ca	Allocated to juju	default
<input type="checkbox"/> rabbit.maas.fgts.ru	52:54:00:3f:4b:f6	Allocated to juju	default
<input type="checkbox"/> mysql.maas.fgts.ru	52:54:00:f8:21:03	Allocated to juju	default
<input type="checkbox"/> juju.maas.fgts.ru	52:54:00:49:78:d5	Allocated to juju	default

[View enlistment preseed](#)

# Juju – Deploy, manage and scale your environments on any cloud



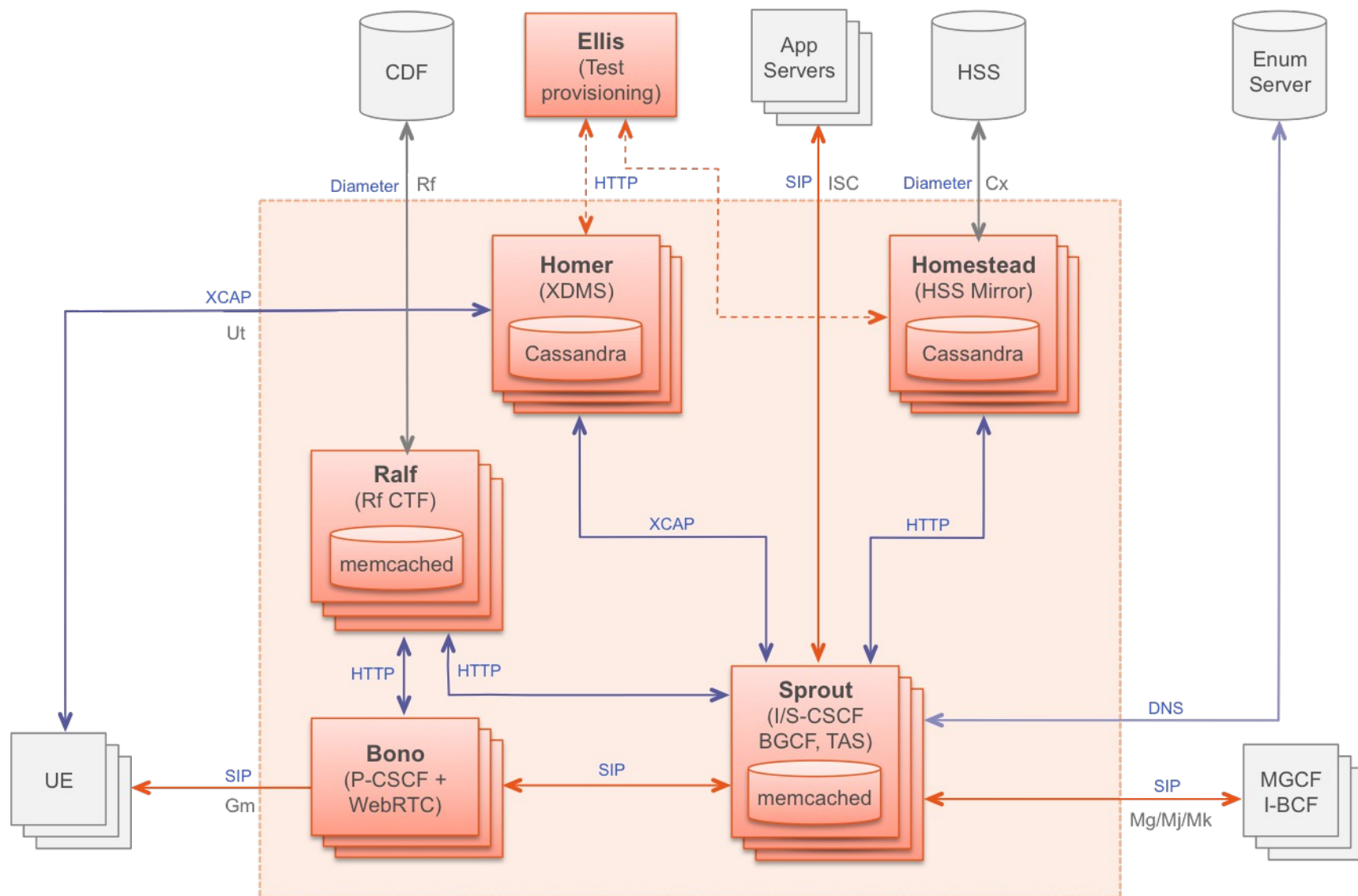
# Juju = Instantly deploy, integrate and scale

Project Calico, OpenContr  
Project Clearwater, Nuage  
RestComm, etc.

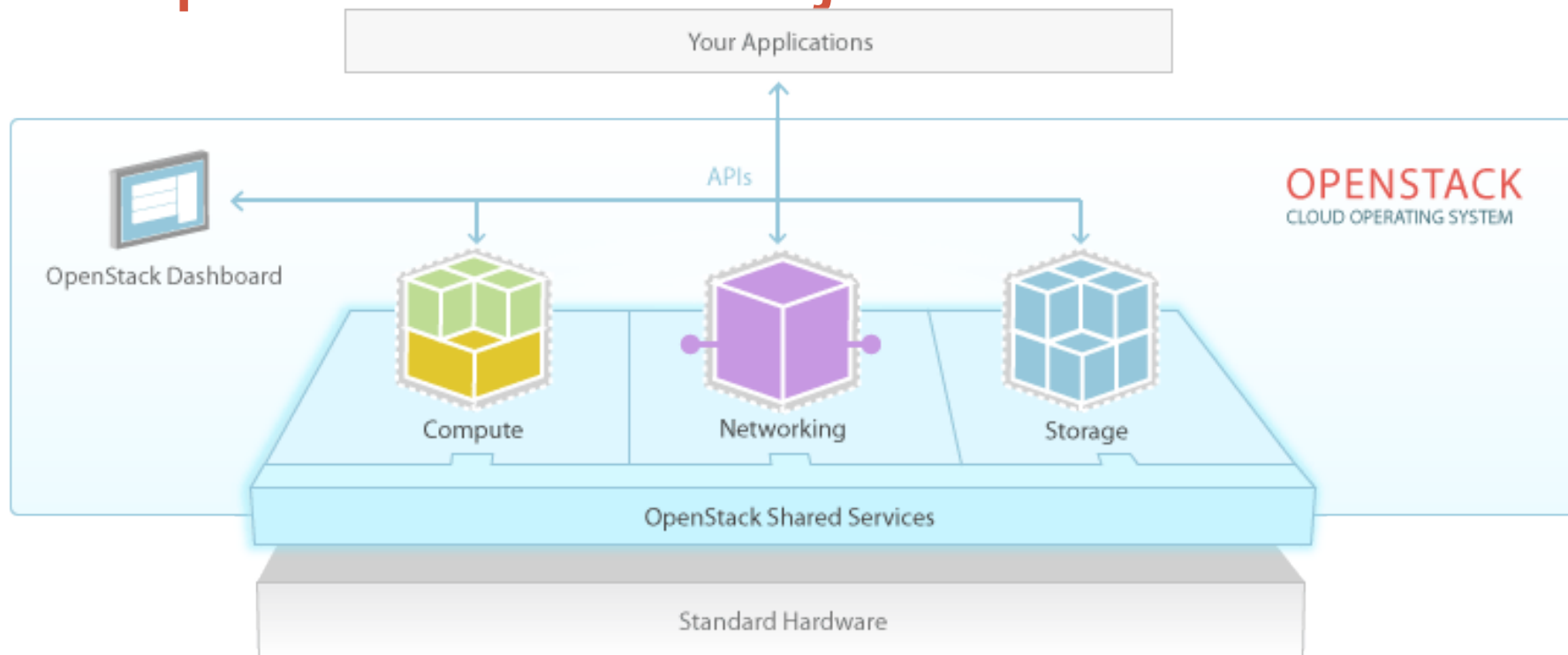
The image is a composite of three parts. On the left is a network diagram with nodes labeled 'dns', 'juju-gui', 'clearwater-homer', 'clearwater-sprout', 'clearwater-ralf', 'clearwater-bono', and 'clearwater-ellis'. These nodes are interconnected by green lines. A tooltip for the 'clearwater-bono' node shows the command 'clearwater-bono:csf - clearwater-sprout:pcsf'. In the top right is a screenshot of the Juju web interface. The top bar shows the Juju logo, 'maas', and a '0' in a circle. Below this is a search bar containing 'clearwater' and a 'Home' button. The main content area has tabs for 'Services' and 'Machines'. A 'Deploy this bundle' button is visible. Below the tabs are links for 'Bundle', 'Readme', 'Deploy', 'Summary', 'Services', and 'Code'. On the right is another screenshot of the Juju GUI showing a network diagram with nodes represented by icons and connected by green lines. A tooltip for a node labeled 'clearwater-homer' shows the command 'cs:~matt-williams-x/precise/clearwater-homer-5 | Units: 1'.



# Project Clearwater = FOSS IMS Core

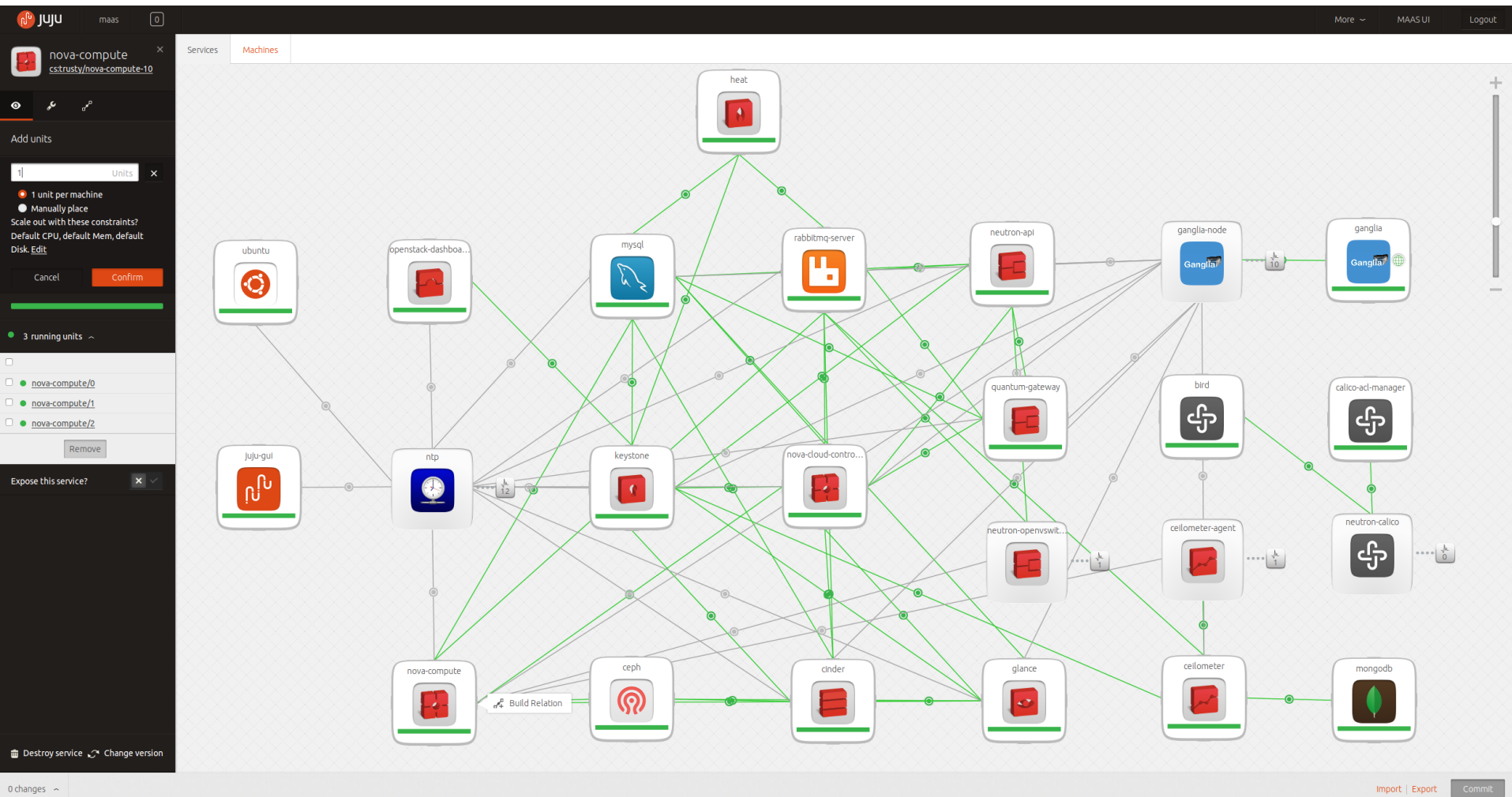


# OpenStack – Project Overview



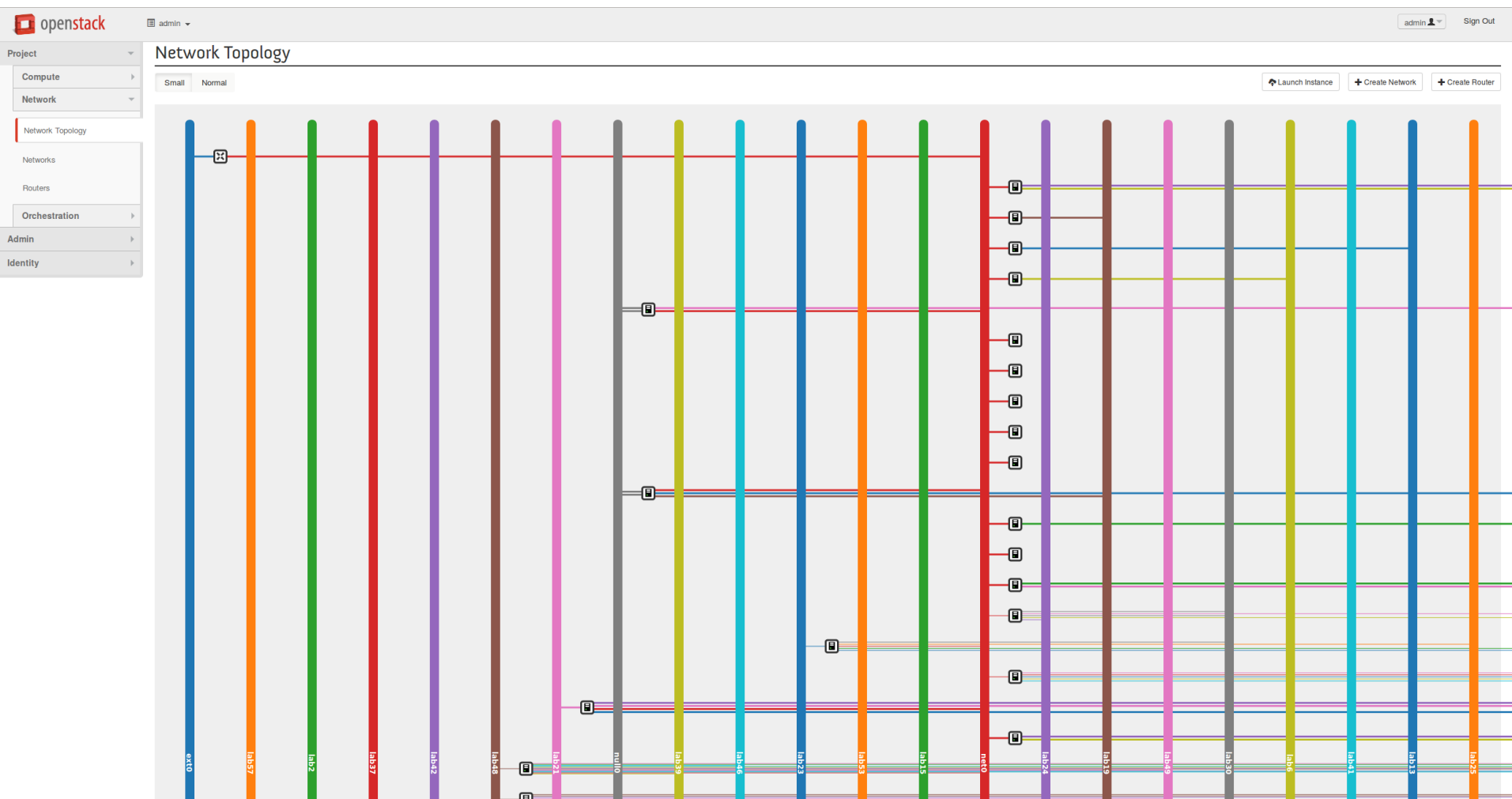
- Currently 14 integrated projects within OpenStack
- All these projects communicate via public API's
- Services have behavioral compatibility with AWS

# OpenStack powered by Juju (services)

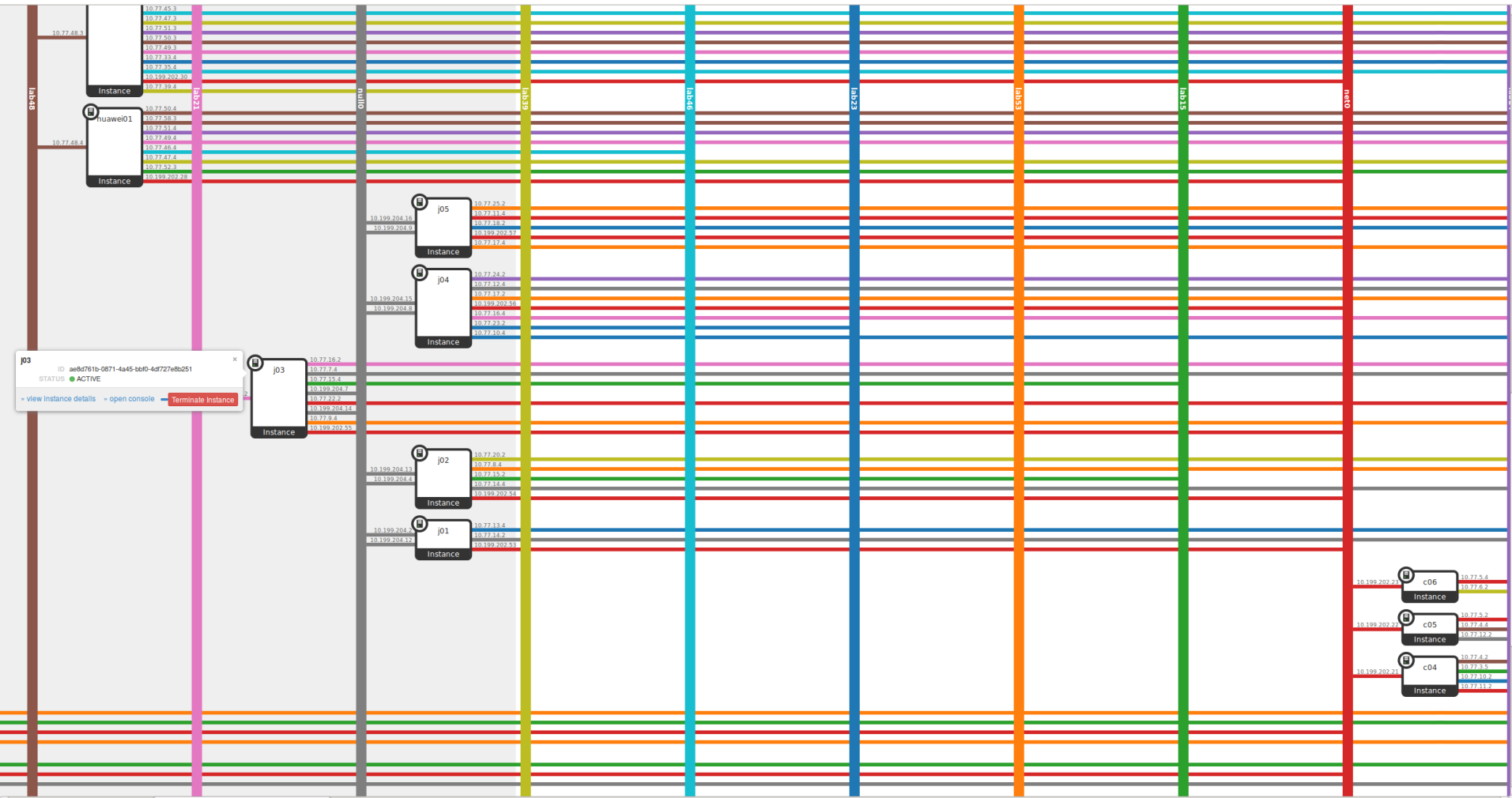




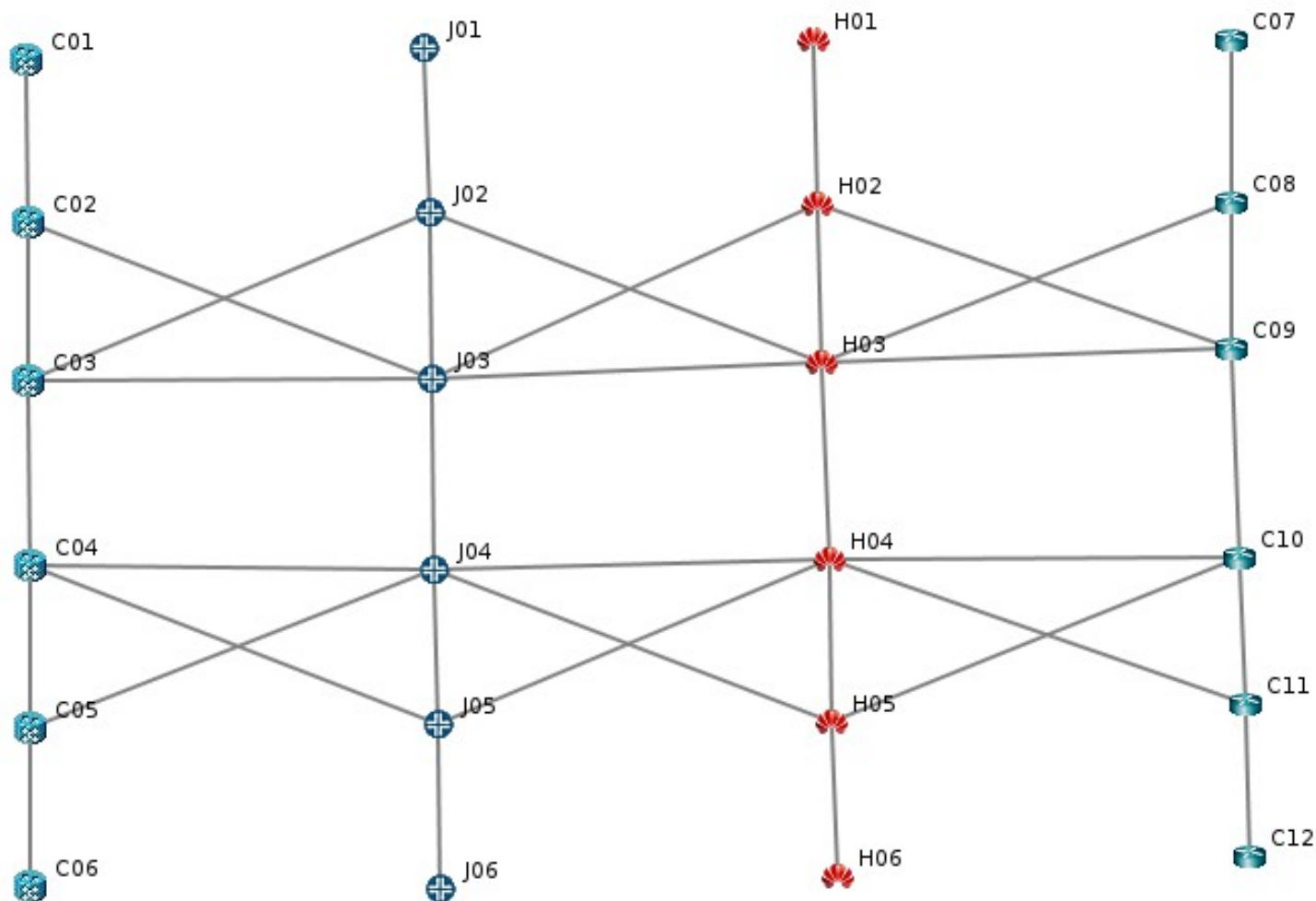
# OpenStack Horizon Network Topology



# OpenStack Horizon Network Topology



# Network topology logical view from OSS



# The conclusion

- TELCOS have to “keep their arms dirty”, to do not miss the momentum of using the right tool in right place, to adopt to rapidly changing market.
- The example of current collaboration (f.e. OpenStack API) can be useful for the TELCOS management domain.
- The ability to develop/deploy FOSS projects makes TELCOS employees leaders of the industry, not just users of the “another vendor” product.

And yes, this is all FOSS,  
please do try, use, attend and  
collaborate ;-)

Thank you for your attention!

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