



Network Function Virtualisation

Network Functionality Within The Cloud

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INTRODUCTIONS

Alternative Networks – Providing Solutions From Device to Data Centre

**ALTERNATIVE IS
ONE OF ONLY 5%
OF BSI
ACCREDITED
BUSINESSES
GLOBALLY TO
HOLD MORE
THAN FOUR ISO
CERTIFICATIONS**



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RECENT PARTNER AWARDS

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- 2014 SMB Avaya Partner of the Year
- 2013 Citrix Platinum Partner
- 2012 Juniper UK & Ireland Partner of the Year
- 2012 Avaya Growth Partner of the Year
- 2012 Mitel Signature Partner
- 2011 Extreme Partner of the Year
- 2010 Juniper UK & Ireland Partner of the Year
- 2010 Mitel Premium Partner

RECENT INDUSTRY & BUSINESS AWARDS FOR THE GROUP



AGENDA

One of our current development area's is with Network Function Virtualisation (NFV), and how we can integrate hybrid virtual and physical network infrastructure.

1. Why NFV connectivity testing and not straight into SDN and orchestration / automation
2. NFV and ETSI
3. What are we doing at Alternative:
 1. Continual connectivity testing within hybrid environments (VXLAN / EVPN)
 2. Virtual Route Reflector / Virtual Routing deployment as virtual host
 3. SDN – move NFV connectivity into Openblock (service chaining)

Why NFV connectivity testing and not straight into SDN

- Network function virtualisation can be tested and deployed today without SDN orchestration tools
- Understand ease of deployment of virtual network function and packet flow
- Look at hybrid and virtual network environments in context of NOC operator / or user
- Core network integration with virtual network elements , VXLAN, MPLS , EVPN
- Once the virtual and physical network connectivity is understood, we will be in a better position to understand SDN overlay and orchestrated deployment of virtual network elements.
- Did not want to be just another voice in the room talking about the same SDN controller concepts.

Network Function Virtualisation and ETSI

Network Functions Virtualisation

An Introduction, Benefits, Enablers, Challenges & Call for Action

OBJECTIVES

This is a non-proprietary white paper authored by network operators.

The key objective for this white paper is to outline the benefits, enablers and challenges for Network Functions Virtualisation (as distinct from Cloud/SDN) and the rationale for encouraging an international collaboration to accelerate development and deployment of interoperable solutions based on high volume industry standard servers.

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ATT, Century Link, Verizon
Group Specification

BT, Colt, Deutsche Telecom
Orange, Telecom Italia
Telefonica

China Mobile, KDDI, NTT, Telstra

Disclaimer

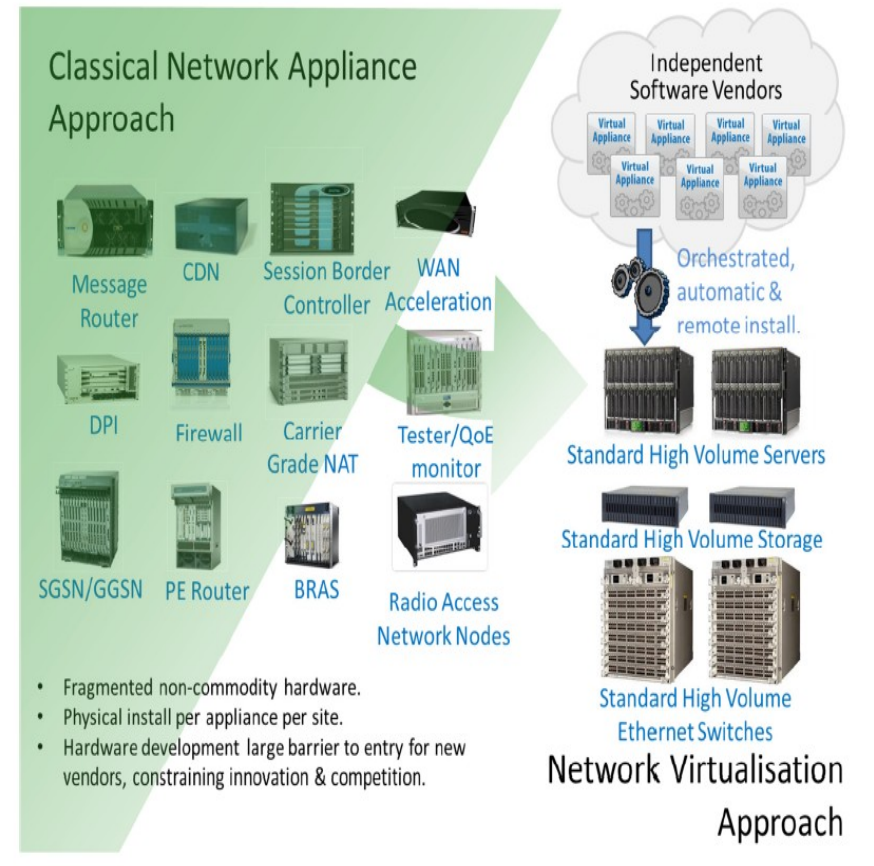
This document has been produced and approved by the Network Functions Virtualisation (NFV) ETSI Industry Specification Group (ISG) and represents the views of those members who participated in this ISG. It does not necessarily represent the views of the entire ETSI membership.

ETSI NFV Home Page

http://www.etsi.org/technologies-clusters/technologies/nfv_highlight=YToxOntpOjA7czozOiJuZnYiO30

Network Function Virtualisation and ETSI

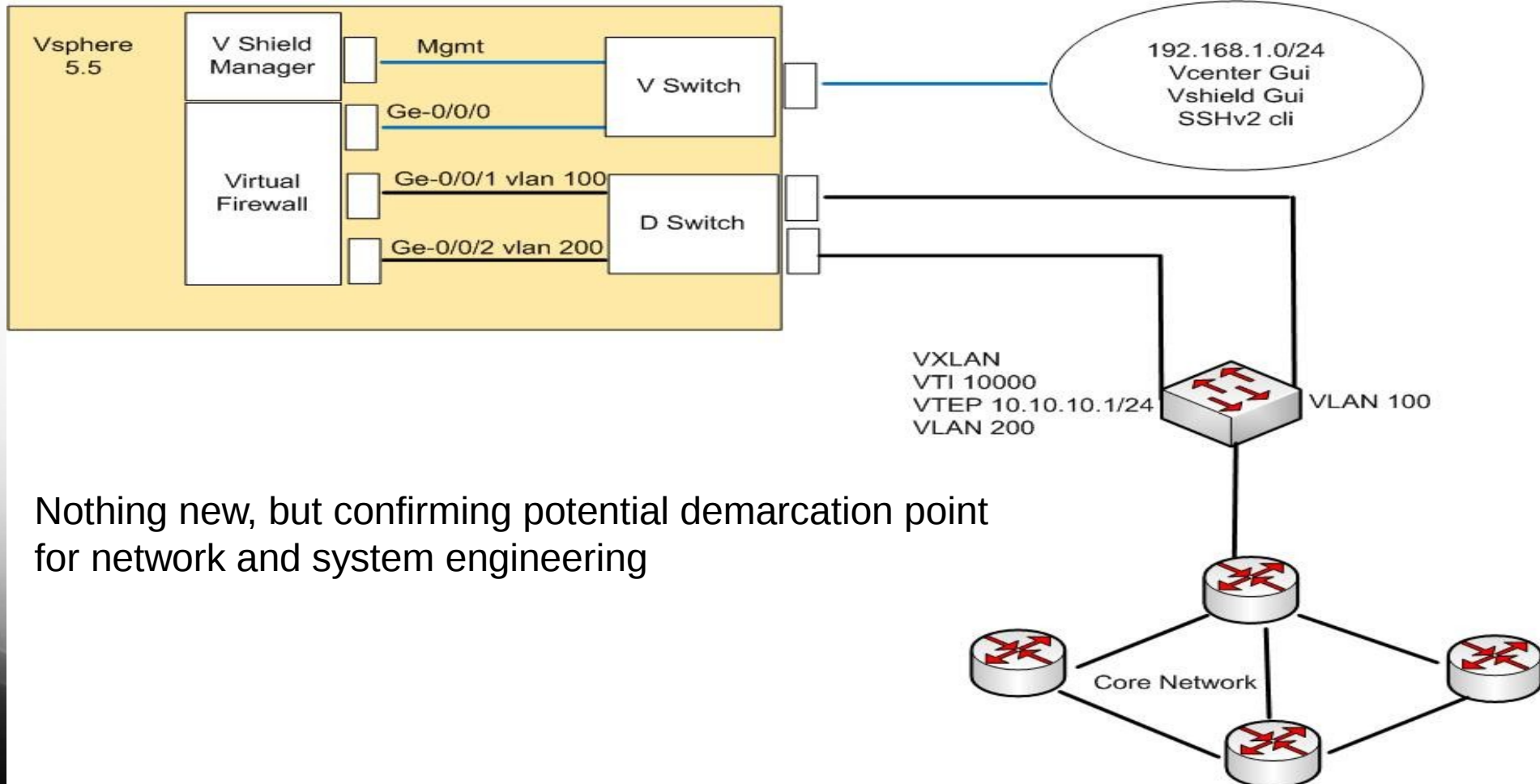
*“...Leverage standard IT virtualization technology to consolidate many network equipment types onto industry standard high volume servers, switches and storage that can be located in **DCs, Network Nodes and in the end-user premises.**”**



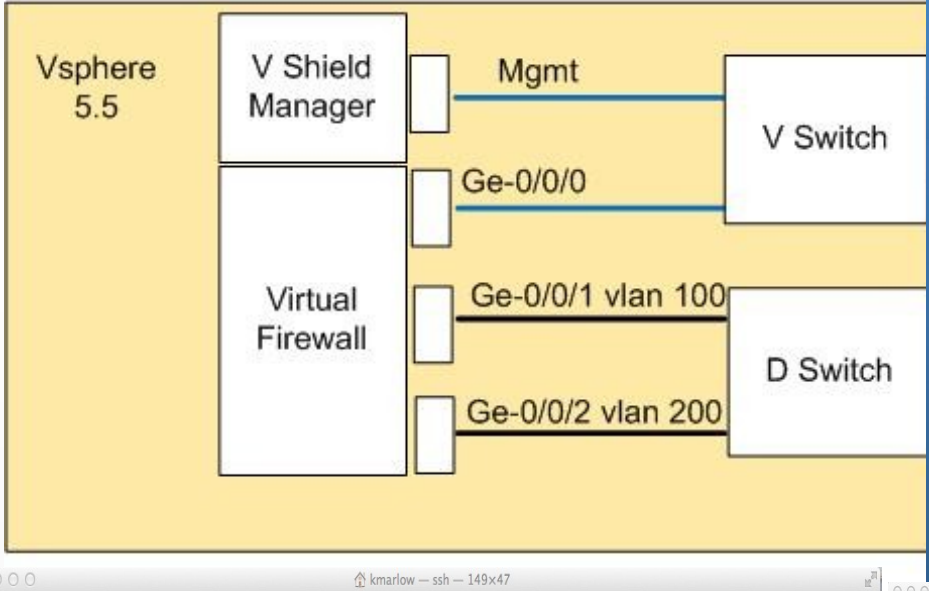
Network Function Virtualisation and ETSI

Test from ETSI use cases based on current user requirement

Virtual CPE – Hybrid virtual and physical network infrastructure



Network Function Virtualisation and ETSI



```
lab@custA# edit
Entering configuration mode

[edit]
lab@custA# run show route

inet.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

20.20.20.0/24    *Direct/0/1 id 0:25:10:0
> via ge-0/0/1.0
20.20.20.2/32   *Local/0/1 id 0:25:22:27
> Local via ge-0/0/1.0
192.168.1.0/24  *Direct/0/1 id 0:25:22:23
> via ge-0/0/0.0
192.168.1.220/32 *Local/0/1 id 0:25:22:34
> Local via ge-0/0/0.0
```

```
[edit]
lab@custA# show interfaces
ge-0/0/0 {
  description mgmt-link;
  unit 0 {
    family inet {
      address 192.168.1.220/24;
    }
  }
}
ge-0/0/1 {
  description core-linknet;
  vlan-tagging;
  unit 0 {
    vlan-id 100;
    family inet {
      address 20.20.20.2/24;
    }
  }
}
ge-0/0/2 {
  description vxlan-corenet;
  mtu 9192;
  unit 0;
}
```

```
[edit]
lab@custA#
```

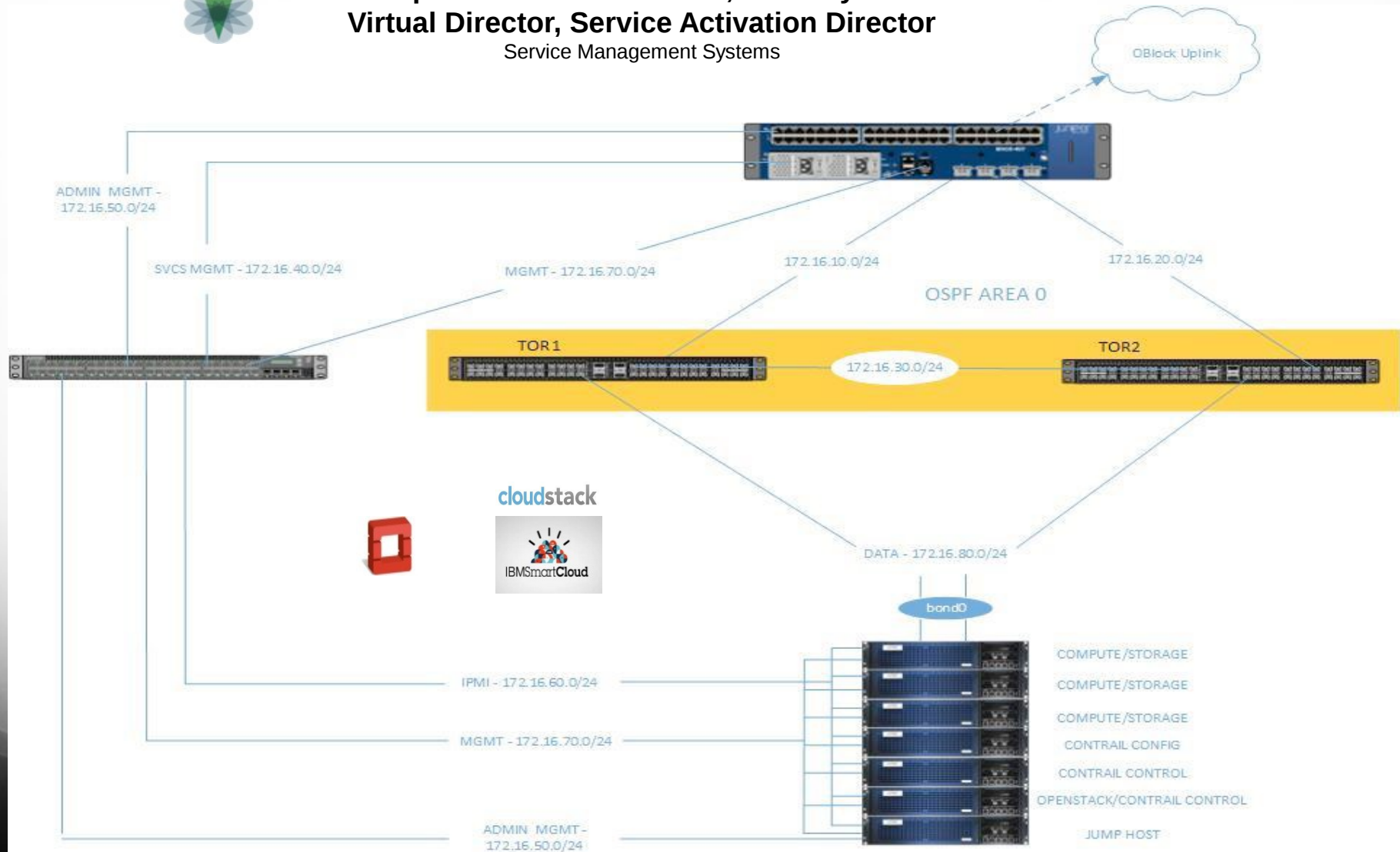
The screenshot shows the VMware vSphere Web Client interface. The left sidebar displays the vCenter hierarchy, including the local host, Datacenter-1, and the core-switch. The main panel shows the configuration of the core-switch, including the Settings, Alarm Definitions, Tags, Permissions, Network Protocol Profiles, Ports, and Resource Allocation tabs. The Topology tab is selected, showing the core-switch connected to the V Switch and D Switch. The core-switch is configured with a Management (Mgmt) interface, a Virtual Firewall, and a Virtual Switch. The D Switch is configured with three interfaces: Ge-0/0/0, Ge-0/0/1 vlan 100, and Ge-0/0/2 vlan 200.

The screenshot shows the Juniper Web Device Manager interface. The top navigation bar includes the Juniper logo and links to various resources. The main panel displays the Dashboard, which includes a System Identification section, a Resource Utilization section, and a Security Resources section. The System Identification section shows the host name, serial number, software version, and system time. The Resource Utilization section shows the CPU, memory, and storage usage. The Security Resources section shows the sessions, firewall policies, and VPNs.

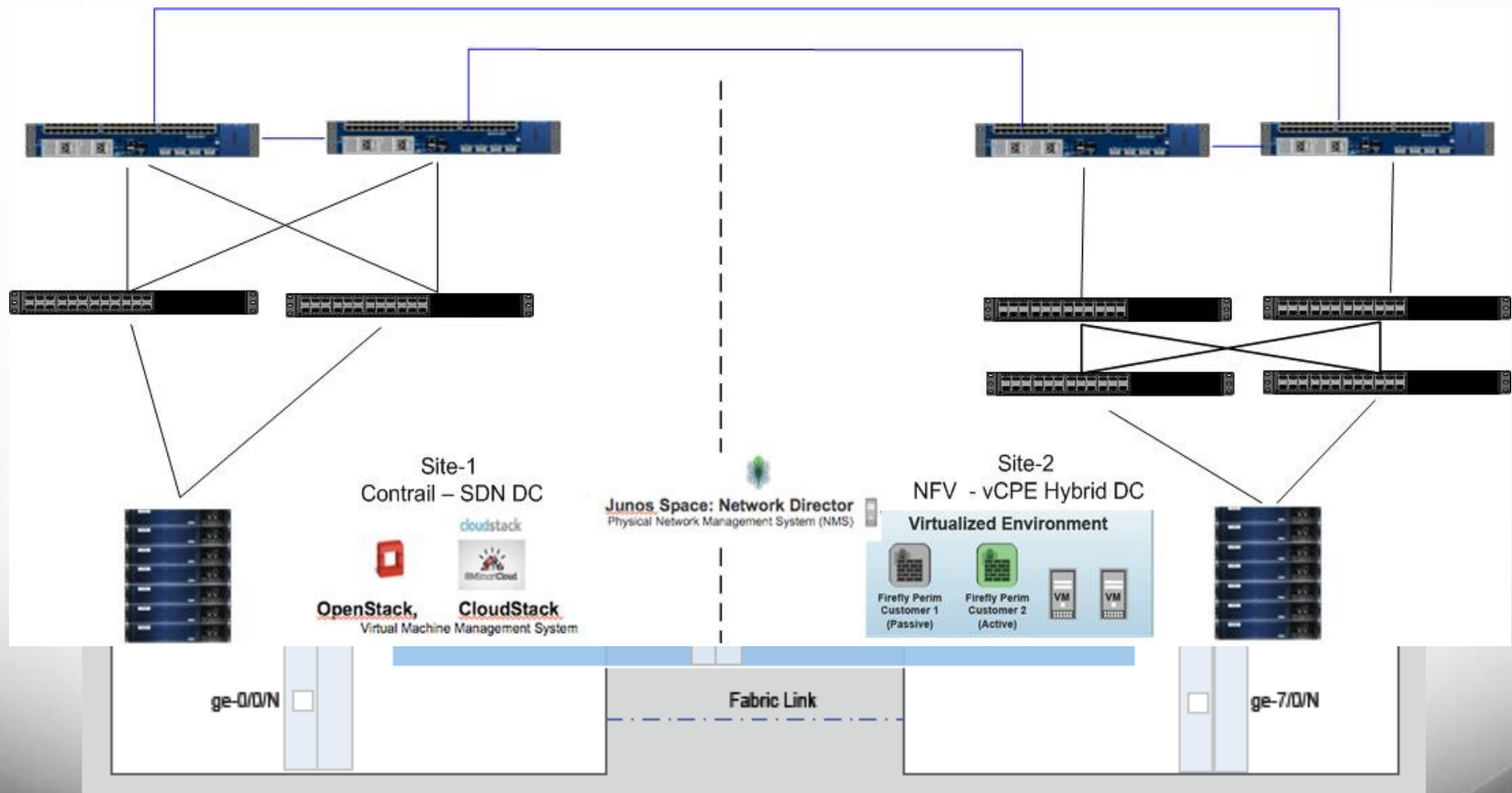
Were next – further testing: OpenBlock - Contrail / SDN POD



Junos Space: Network Director, Security Director Virtual Director, Service Activation Director Service Management Systems



Continual Testing



In Summary

- NFV tested, proven, and moving into production now
- vCPE , seen as potential to drop CPE CAPEX and drive new revenue generation
- Hybrid virtual and physical networks are more likely to be deployed using available tools today.
- No need to wait for production proven SDN orchestration and self care portals to deploy virtual network functionality such as vCPE.
- 80% of the Service Providers surveyed will deploy Virtual CPE by 2016 but 52% will deploy in 2014 / 2015 (***Surveyed Service Providers representing 51% of worldwide telecom operators***)



Thank you

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