What You've Done with NSX

700+
NSX Customers

100+
Production Deployments
(adding 25-50 per quarter)

65+
Organizations
invested US$1M+ in NSX

What You're Doing Next

EXPANDED SECURITY

New security partners, integrations, and projects and applications of NSX.

DEEPER INTEGRATION

New infrastructure and operations partners, integrations, and frameworks for IT organizations

APPLICATION CONTINUITY

New functionality to scale deployments across vCenter instances, with the ability to:

- Pool resources from multiple data centers
- Recover from disasters faster
- Deploy a hybrid cloud architecture

- **NSX 6.2 contains over 20 new features**
- **Tested against over 1000 new scenarios**

vmworld®

2015 Gartner MQ Data Center Networking
# Arista placed in the **leadership quadrant**

*1. Arista is by far the **fastest-growing** vendor in this MQ.*
*2. Arista provides **high-performance solutions with deep buffers** and **low latency** to deal with the complexities of modern DC applications.*

Gartner Data Center Networking Magic Quadrant
May 11, 2015

Figure 1. Magic Quadrant for Data Center Networking

Arista 2015

Arista 2014
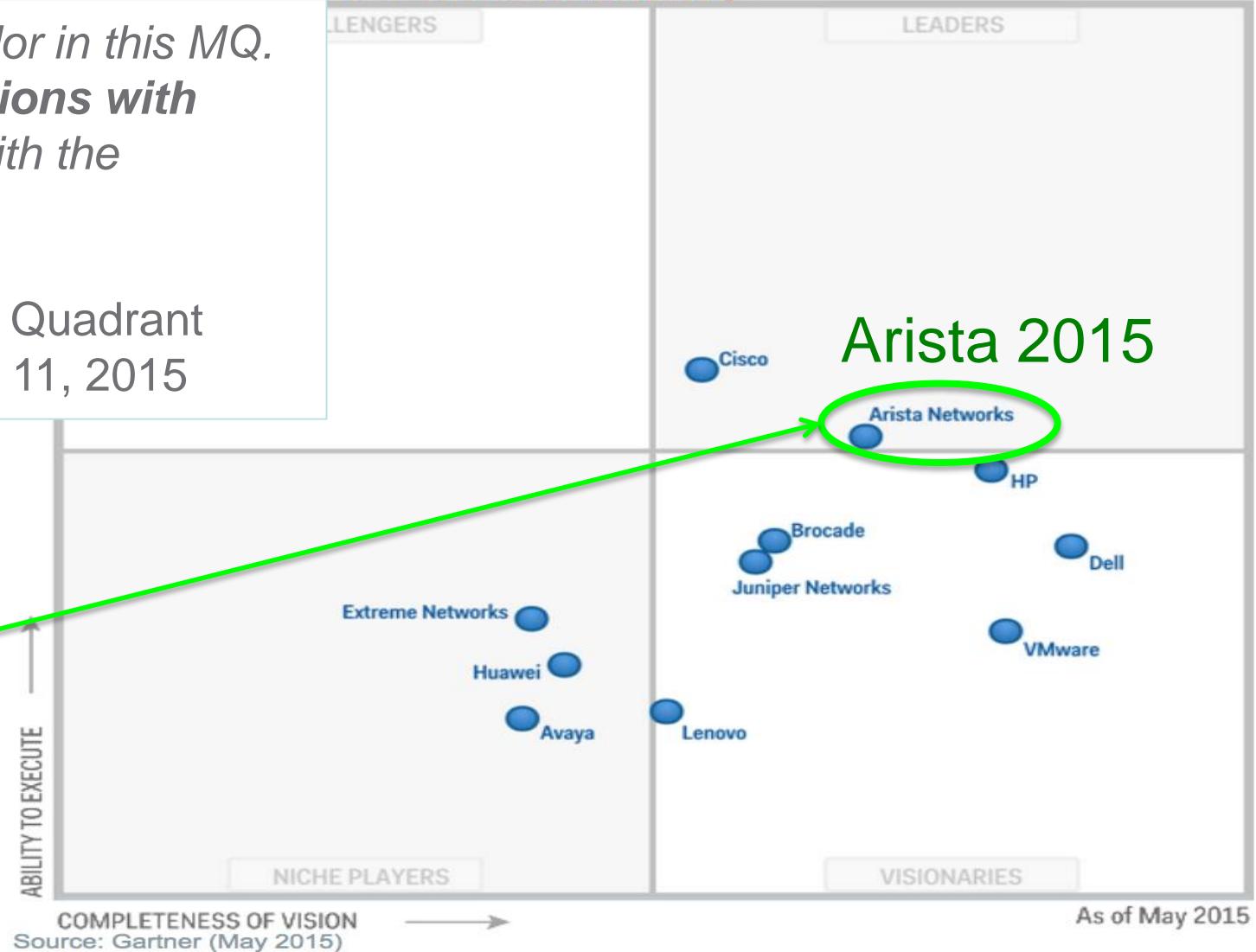
Arista Market Share vs Cisco

High Speed Data Center Switching Market Share in Ports (10/40/100GbE)
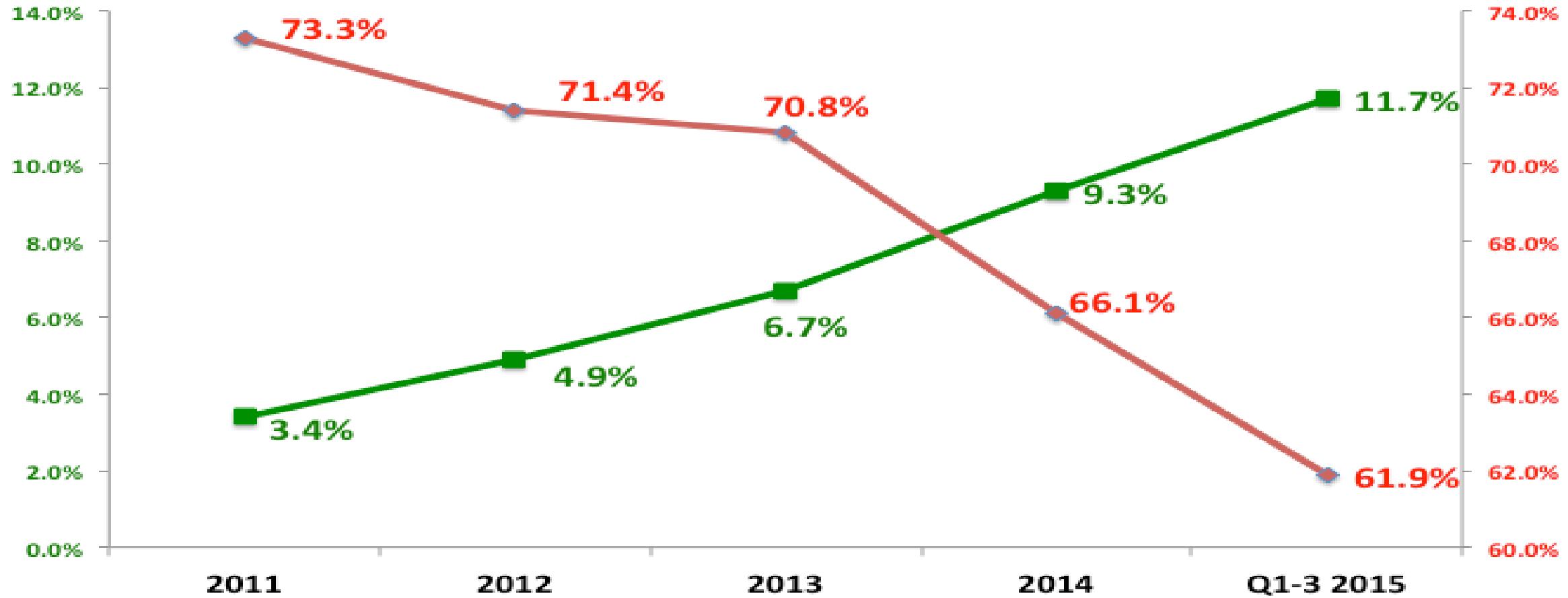
ARISTA vmware®

Virtual and physical integration

Arista and Vmware vCenter

vmware®

Arista and VMware Innovating together

A History of Innovation

vmware® **+** **ARISTA**

2008-2009   2015+

Arista Launches Cloud Networking Vision

VM Tracer for vCenter

Jointly Developed VXLAN

VMware delivers NSX

VMware builds public clouds with Arista

Arista & NSX Network Integration
(L2GW with OVSDB)

Arista vRealize Log Insight content pack

Gateway P/V integration with NSXv

Joint vRealize Operations
(advanced services)
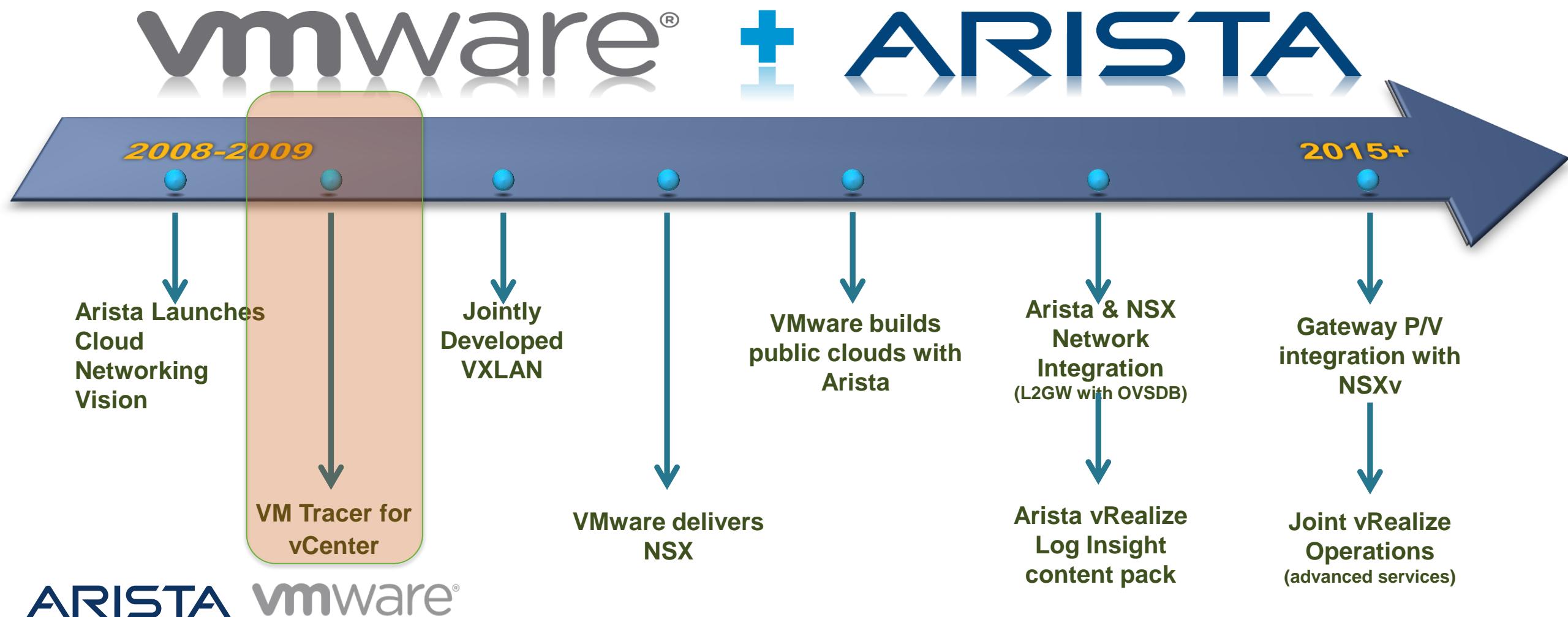
ARISTA **vmware®**

快速佈建虛擬主機及網路路徑 (VMTracer)

VMTracer

vmware®

VMware vCenter Server

Arista   Arista

Arista   Arista   Arista   Arista

VMware vSphere   VMware vSphere

解決方案:
　使用Arista switch 可與VMware vCenter 整合, 當vCenter 佈建虛擬主機時, 也同時佈建以Arista switch 之網路路徑, 解決原本需設定多品牌網路設備問題, 更使得 MIS 人力資源可以更有效率利用.
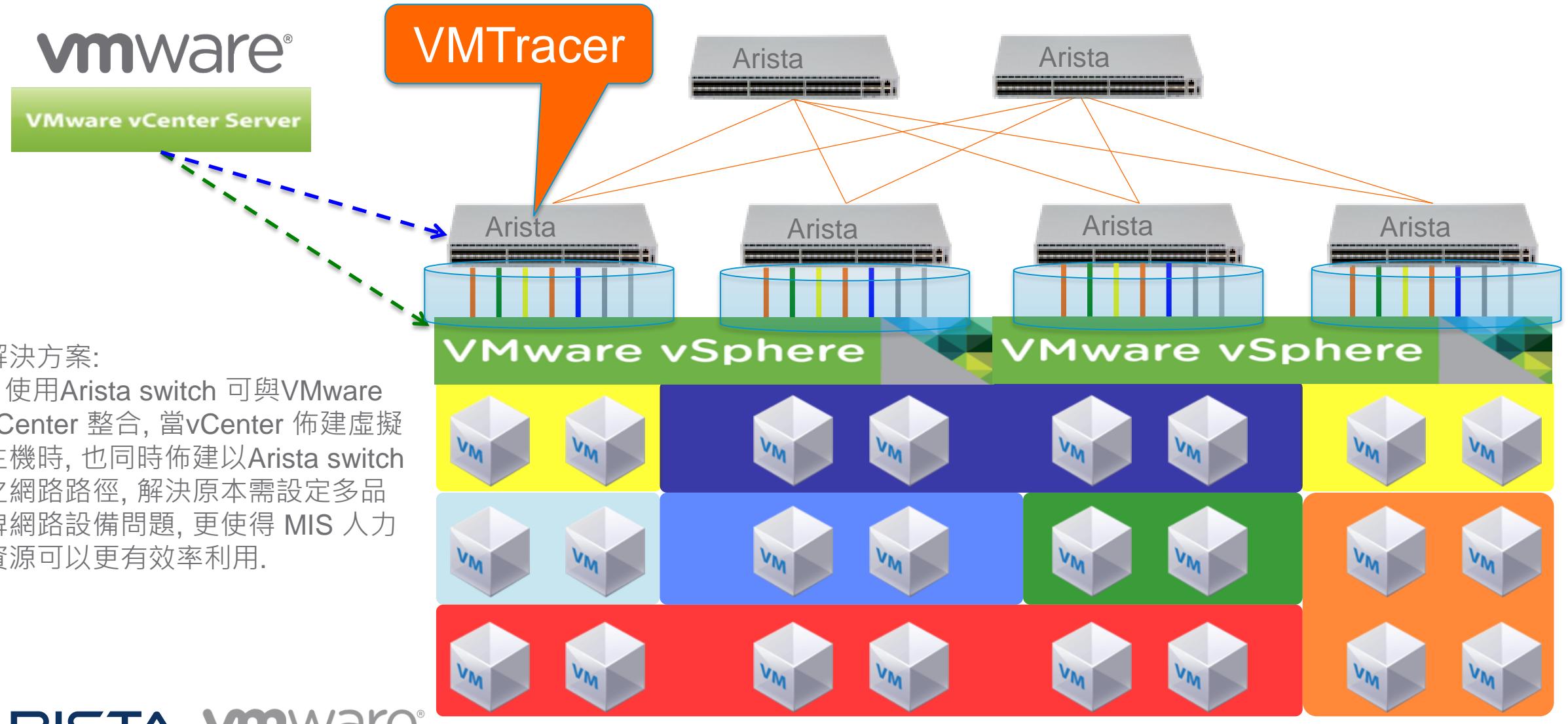
ARISTA vmware®

VM Tracer – 3 commands to enable SDN

Licensed Software Feature on Arista EOS 4.5 and higher on all Arista switches

Works with VMware vSphere v4.0 or higher. Works with all vSphere editions. VM Tracer is an independent re-startable and patchable process in the EOS SW Architecture

vmtracer session demo
```
url https://192.168.24.90/sdk
username administrator
password 7 bE5JvPGrbEpVHd9AejIfrw==
allowed-vlan 1-4094
```

VMware vCenter

vCenter API

7100S

7100T

7048T

ARISTA vmware

VMware vCenter setup

VM Tracer - Host Discovery

VM Tracer reads the IPMI data from vCenter
for each host. EOS then displays the following
information:

```
Ethernet46 :        esx-1.aristanetworks.com
Manufacturer:       Dell Inc.
Model:              PowerEdge 2950
CPU type:           Intel(R) Xeon(R) CPU 5110 @ 1.60GHz
CPUs :              1
CPU Cores:          2
NIC Manufacturer:   NetXen
NIC Model:          NetXen NX3031 Dual Port SFP+ 10GbE
Service Tag:        ABCDEF1234
```

Host discovery provides the network admin more
information than ever about connected interfaces.

Result: smarter bandwidth provisioning, and easier
troubleshooting.

7100S

Eth46   Eth47   Eth48

esx1   esx2   esx3

ARISTA **vmware®**
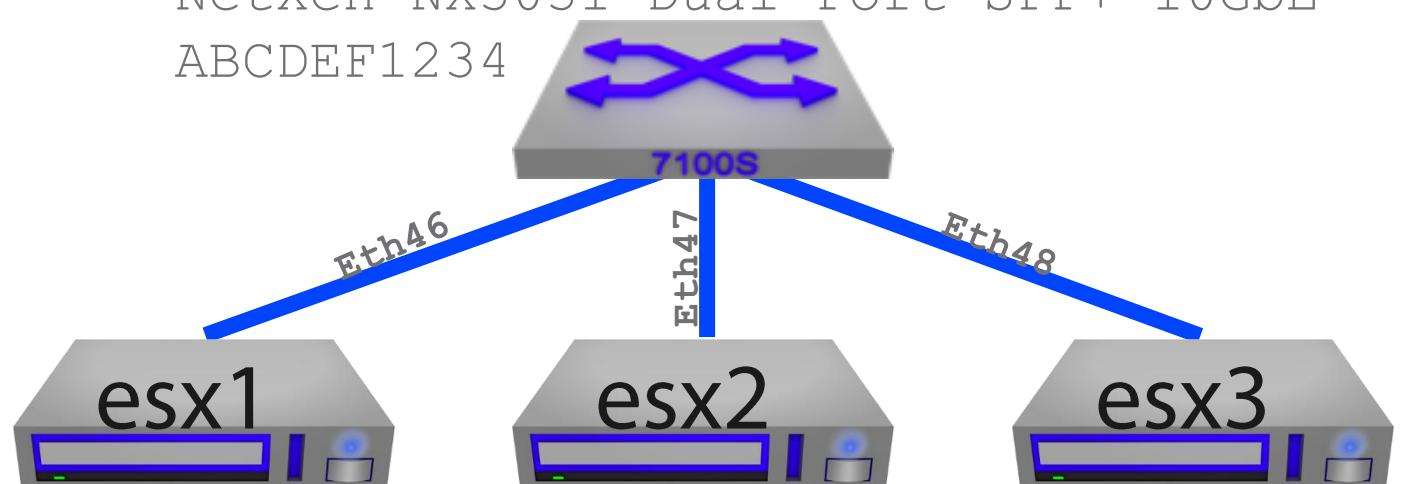
VM Tracer - VM Discovery

VM Tracer subscribes to the vCenter API and learns which Virtual Machines are connected to which vSwitch and which uplinks. EOS can now display the VM bindings as well--

```
show vmtracer interface Ethernet46
Ethernet46: esx1.aristanetworks.com/ndsTest/dvuplink1
```

VM Name	Network Adapter	VLAN	Status	State
Exchange	Network adapter 4	7	up/up	--
Apache	Network adapter 3	6	up/up	vMotion
MySQL	Network adapter 1	5	up/up	FT-A

VM Name   Adapter Name   VLAN/Status/State

Status:
Up/Up - VM Booted/Connected to Arista Switch
Up/Down - VM Booted/NIC Disconnected
Down/Down - VM Down
State:
vMotion - VM actively being vMotioned
FT-A - Active member of a VM-FT pair
FT-S - Standby member of a VM-FT pair
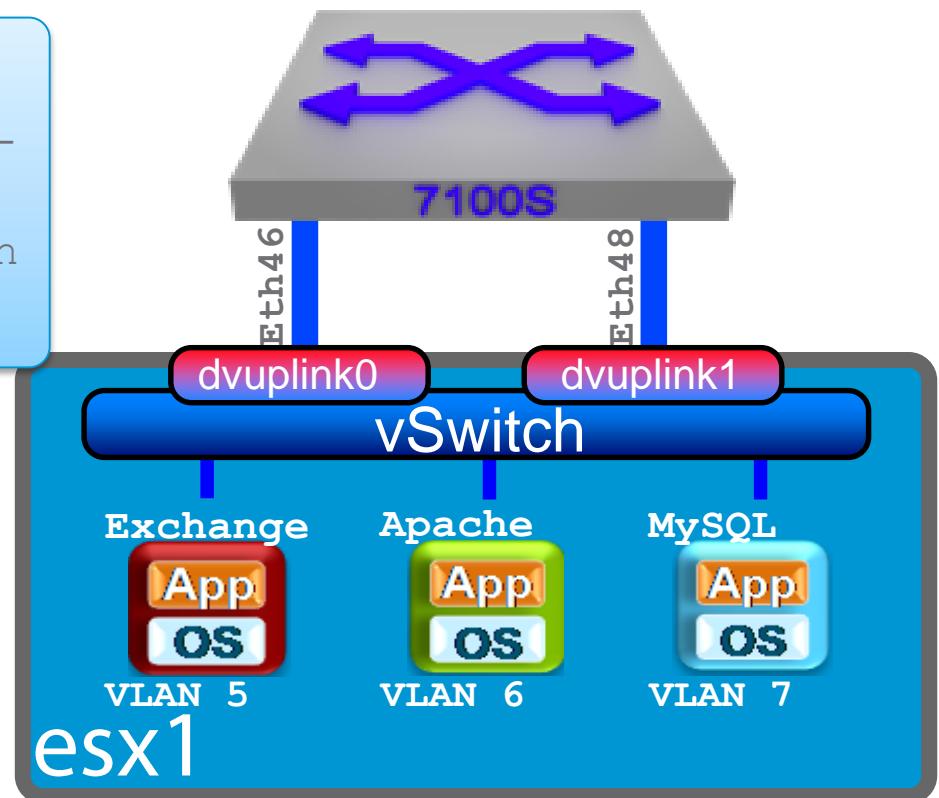
Log for VM add and delete
on Arista switch

Jul 7 08:37:11 7150S VmTracer: %VMTRACERSESS-6-ADD_VMENTRY: VM Server1 nic 網絡介面卡 1 mac 00:50:56:97:00:3e portgroup dvPG_IN_V101 vlan 101 switch dvSwitch_IN_ACC   host 192.168.180.1 datacenter ABC-DC intf Ethernet4

Jul 7 08:56:29 7150S VmTracer: %VMTRACERSESS-6-DEL_VMENTRY: VM Server1 nic 網絡介面卡 1 mac 00:50:56:97:00:3e portgroup dvPG_IN_V101 vlan 101 switch   host datacenter intf Ethernet4
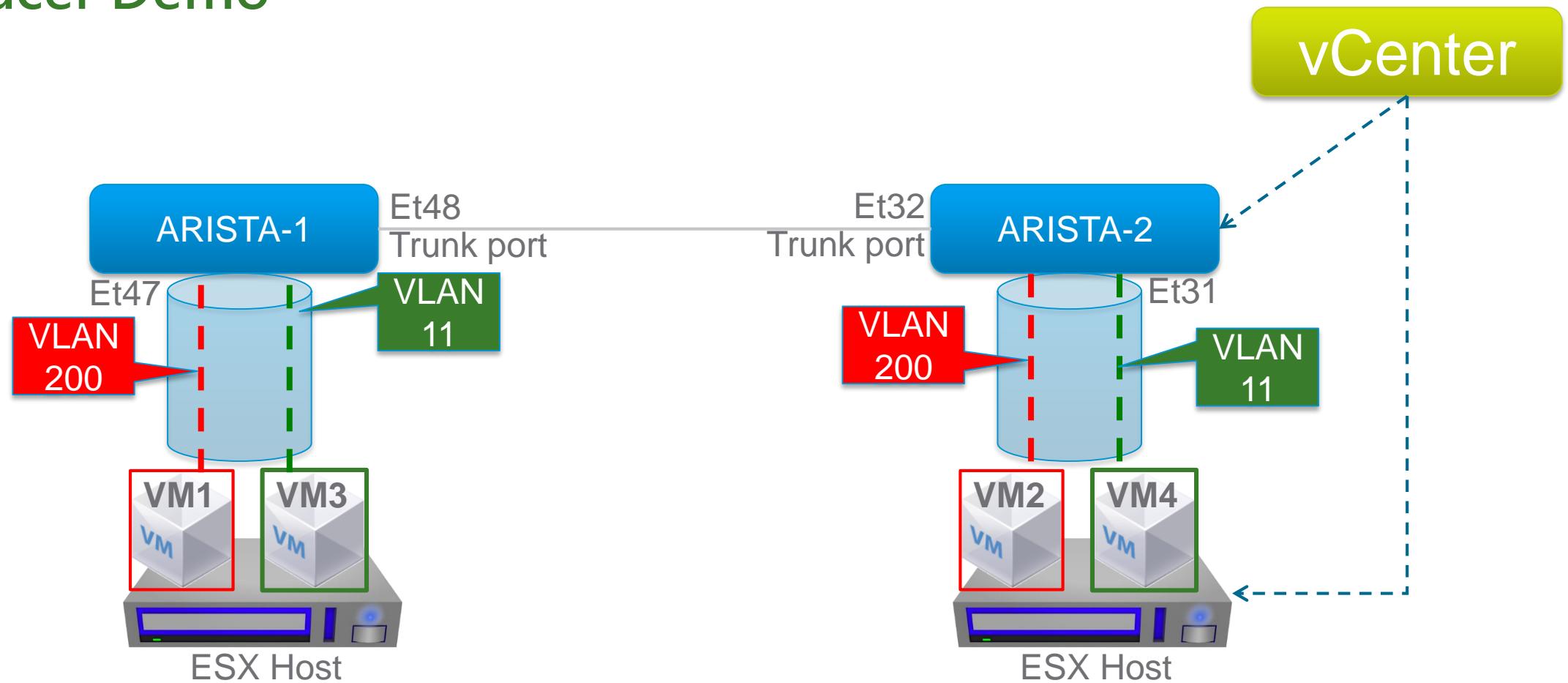
VM2 vmotion to Arista-1

Vmotion

```
Arista-2#show vm int e31

Ethernet31 : 192.168.4.4/vSwitch1/vmnic3
    VM Name                         VM Adapter           VLAN   Status      State
    2012IOmeter-2                   Network adapter 1    30     Down/Down --
    VM4-Win7_2.2                    Network adapter 1    11     Up/Up       --
    VM2-2012R2                      Network adapter 1    200    Up/Up       VMotion
```

```
Arista-2#show vm int e31

Ethernet31 : 192.168.4.4/vSwitch1/vmnic3
    VM Name                         VM Adapter           VLAN   Status      State
    2012IOmeter-2                   Network adapter 1    30     Down/Down --
    VM4-Win7_2.2                    Network adapter 1    11     Up/Up       --
```

ARISTA **vm**ware®

VM2 vmotion to Arista-1

vmotion

```
Arista-1#show vm vm
VM Name              Esx Host                      Interface VLAN   Status

VM3-2003_2.1        192.168.4.3                   Et47      11     up/Up
VM1-Centos6-3       192.168.4.3                   Et47      200    up/Up
2012IOmeter         192.168.4.3                   Et47      30     down/Down
VM2-2012R2          192.168.4.3                   Et47      200    up/Up
Arista-1#
```

Virtual and physical integration

Arista and VMware NSX

vmware®

Arista and VMware Innovating together

A History of Innovation

vmware® + ARISTA

2008-2009

2015+

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(advanced services)

ARISTA **vmware®**
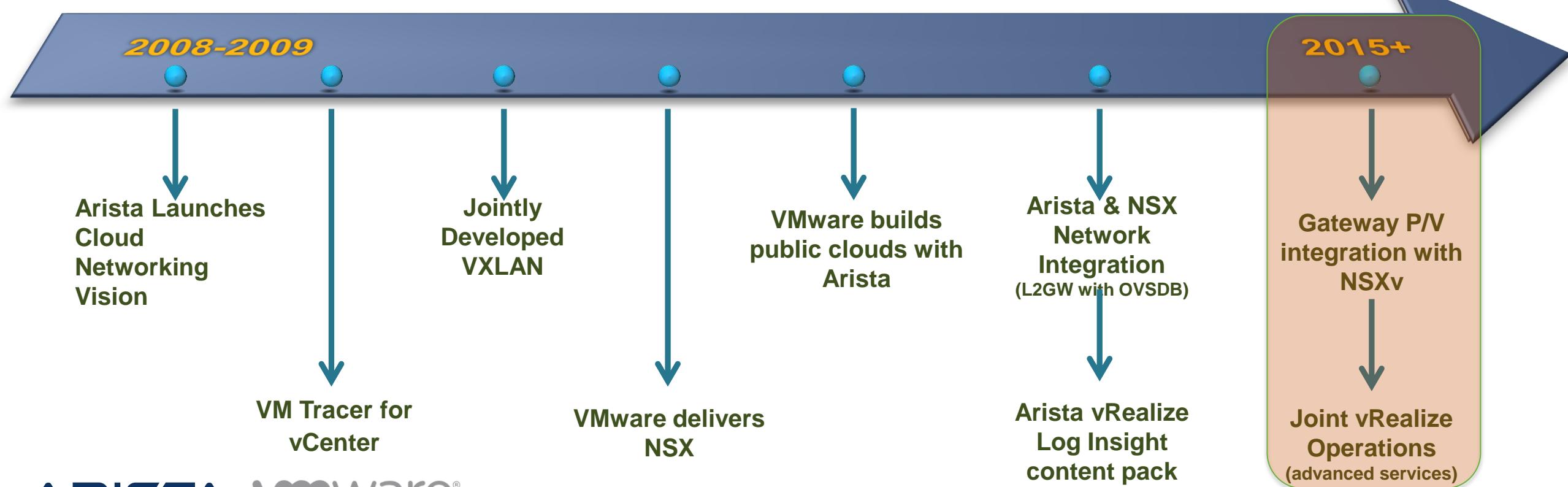
Seamless physical/Virtual Integration

Virtual to Physical connectivity

Physical to Virtual connectivity with VMware NSX

- Software VXLAN gateways
- Full featured L2 and L3
- Redundant and scalable

Wire Speed 10/40/100G VXLAN Gateway with Arista

- Hardware based high performance L2 VXLAN gateways
- High Availability with gateway redundancy
- Single point of Integration with NSX for hardware based gateways

Non-virtualized workloads or appliances

ARISTA **vm**ware®
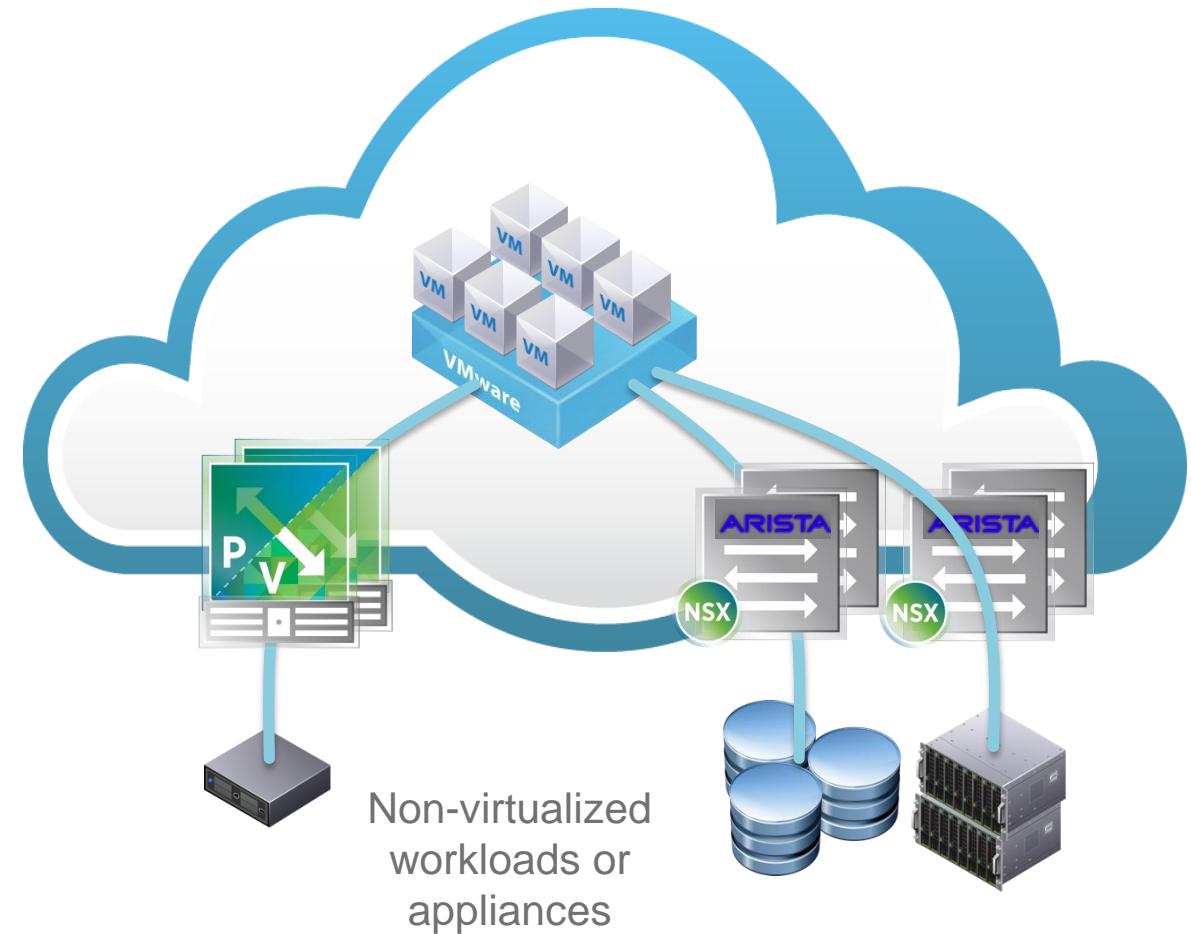
HW Bridge Redundancy

Several physical HW VTEPs are presented as a single logical one to the HV
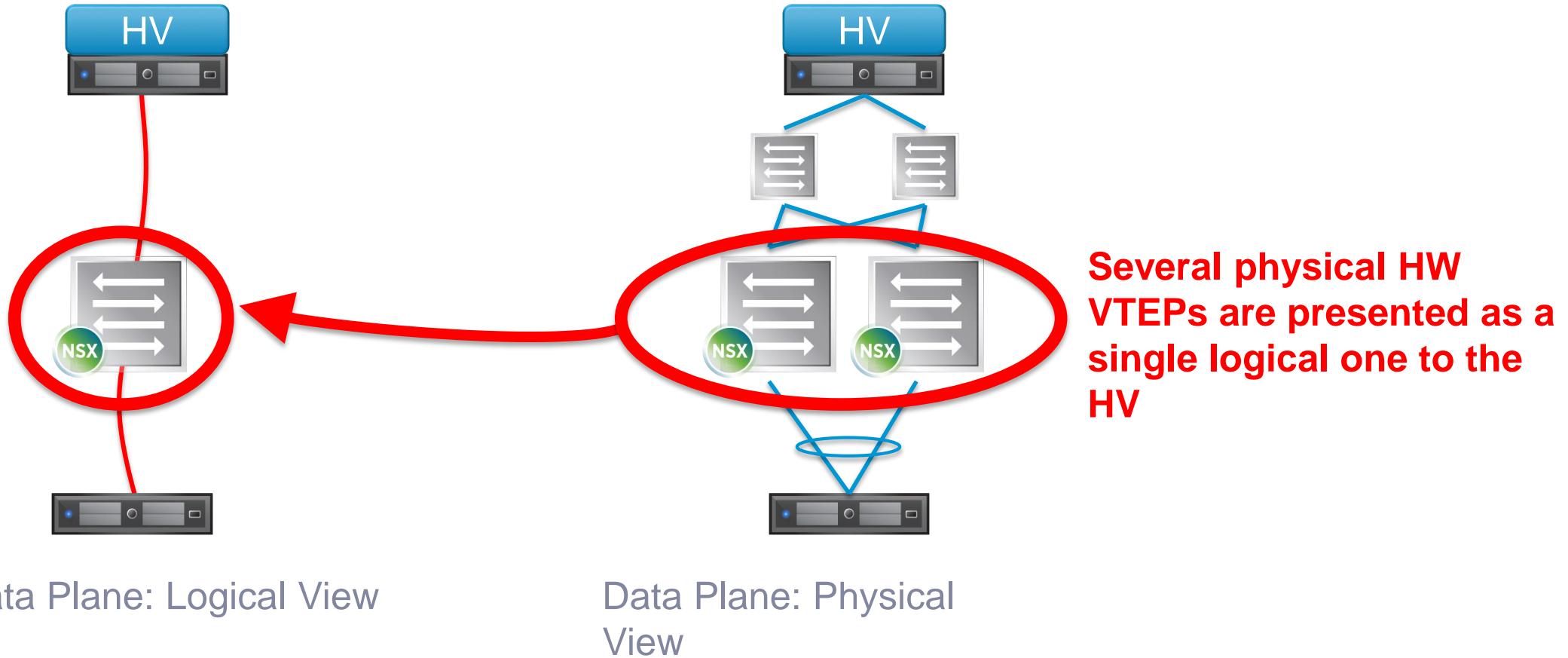
Data Plane: Logical View

Data Plane: Physical View

Virtual and physical integration (1)

VXLAN/
VM Tracer

VTEP

VTEP

VTEP

VTEP

Virtual

Virtual

Physical Firewalls/
Server Loadbalance

Physical Servers
& Storage

ARISTA **vm**ware®

Virtual and physical integration (2)

VXLAN/
VM Tracer

Virtual

Virtual

Physical Firewalls/
Server Loadbalance

Physical Servers
& Storage

VTEP

VTEP

VTEP

ARISTA **vm**ware®

Virtual and physical integration (3)

VXLAN/
VM Tracer

VTEP

VTEP

VTEP

VTEP

Internet

VM   VM   VM   VM

Virtual   Virtual   Physical Servers
& Storage

Physical Firewalls/
Server Loadbalance

ARISTA vmware®
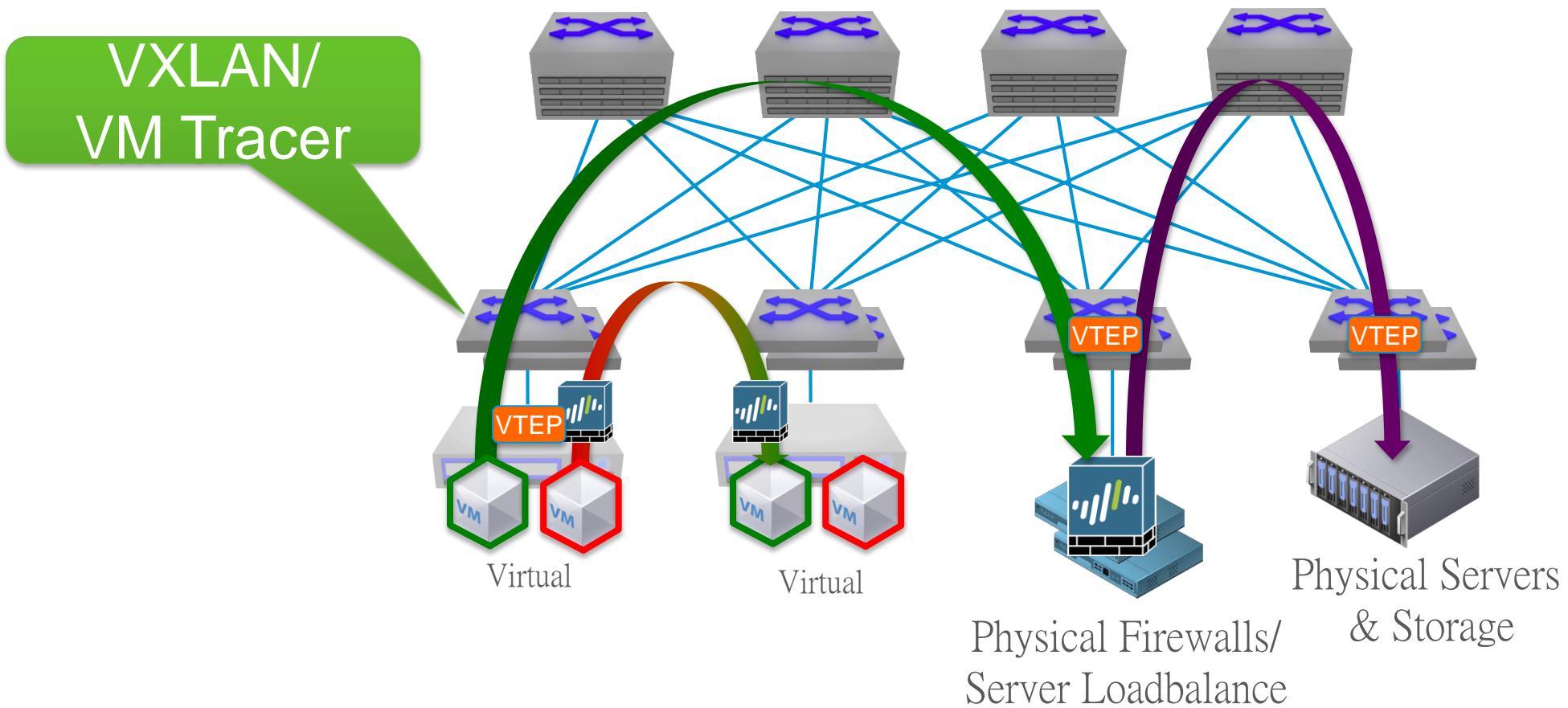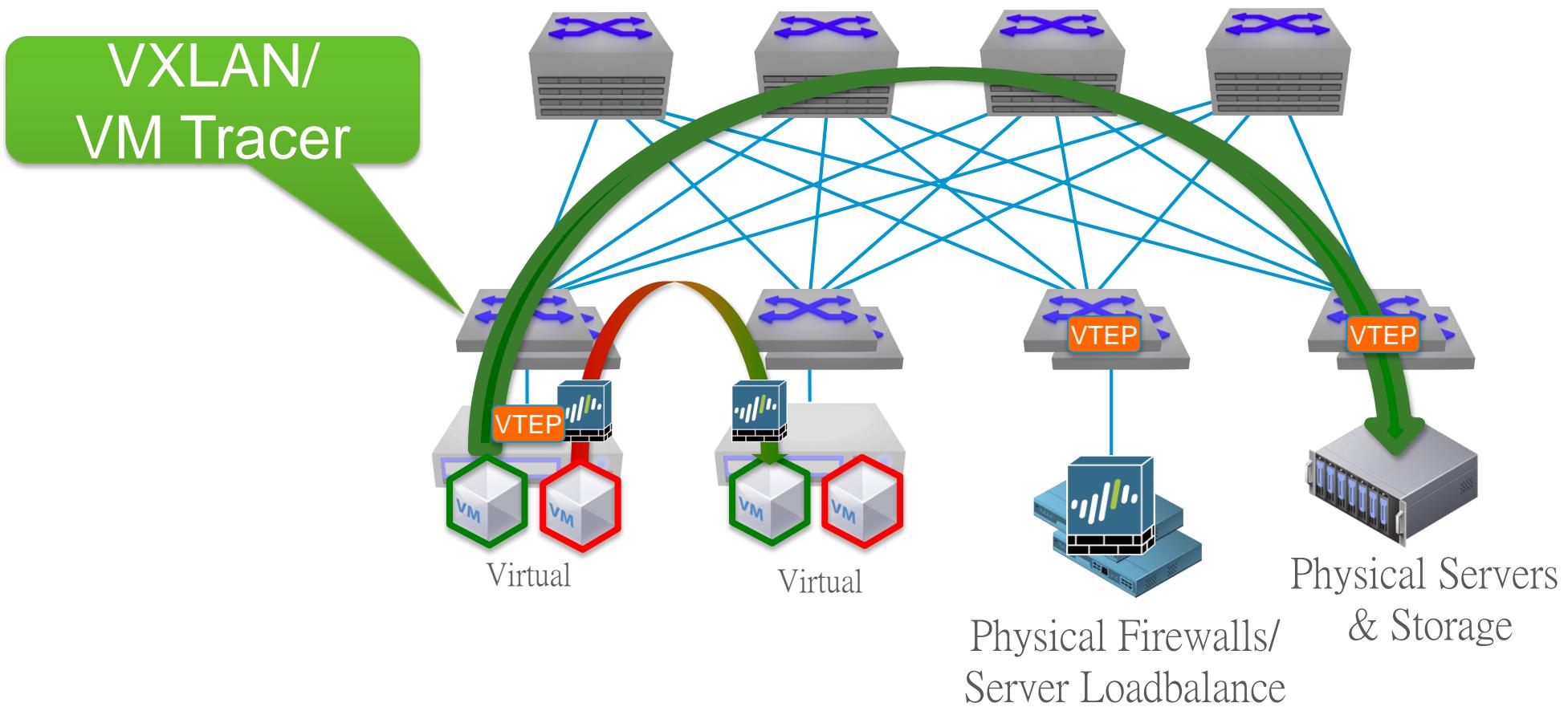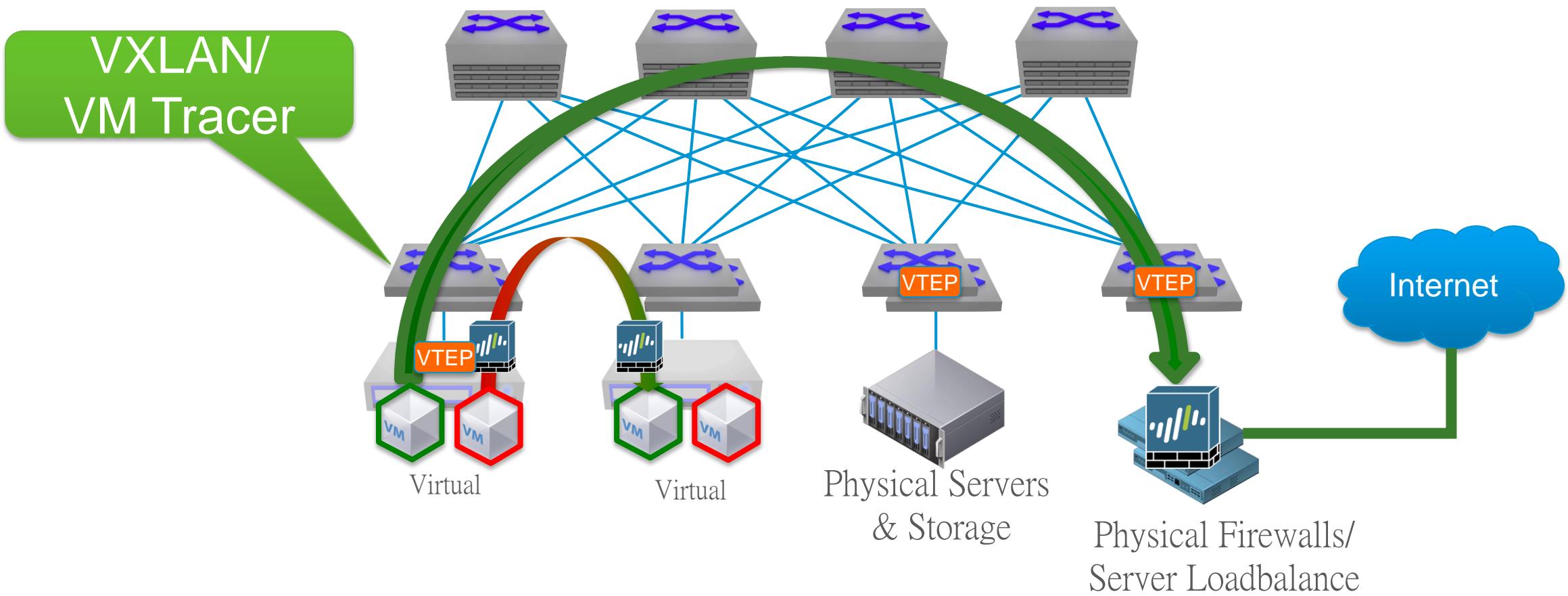
Logical & Physical Network Visibility

Visibility into NSX VMs and Correlation to Physical Network

Get Visibility into Virtual Infrastructure with NSX

- Locate VMs on hosts and logical switches
- Locate hosts on physical infrastructure via LLDP

Get End-to-End Visibility with Arista VM Tracer & NSX

- Provides visibility into vCenter and NSX-V workloads
- Correlates physical ports to logical switches and VM
- Real time tracking of logical switches and VMs

vmnic0

All Properties CDP **LLDP**

Link Layer Discovery Protocol

Chassis ID	00:1c:73:5c:42:7c
Port ID	Ethernet3/4
Time to live	95
TimeOut	0
Samples	383708
MTU	9236
Management Address	10.114.211.206
Port Description	Connected to Lab3(Pooja): dl11
System Description	Arista Networks EOS version 4.13.1F running on an Arista Networks DCS-7250QX-64
System Name	prmh-nsx-tme-7250qx-1
Vlan ID	1

VXLAN/ VM Tracer

```
Leaf#sh vmtracer vm
```
Point of attachment to physical network

VLAN or VXLAN segment of VM

| VM Name	Esx Host	Interface	Logical Switch/VLAN	Status	VTEP IP
app-non-nsx/LS	172.22.28.15	Et2	100	Up/Down	--
web-non-nsx/LS	172.22.28.210	Et3	101	Up/Up	--
app-02	172.22.28.15	Et3	LS-app	Up	192.168.100.100
web-02	172.22.28.210	Et4	LS-web	Up	192.168.101.100
db-02	172.22.28.210	Et4	LS-db	Up	192.168.101.100

Outer Src/Dst IP of VXLAN packet to/from VM

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Virtual and physical integration (4)

VXLAN/
VM Tracer

VXLAN
Tunnel

Layer2
VLAN

VM Tracer

VTEP

VTEP

VTEP

Virtual

Virtual

Physical Servers
& Storage

Virtual

Virtual

VMware NSX Network

Firewall Policy
visibility

Physical Firewalls/
Server Loadbalance

Legacy VLAN Network

ARISTA **vm**ware®

Virtual and physical integration (4)

```
Policy                    Firewall                  (location)
_____          _____          _____

SAP_ERP_Web_to_App        172.22.28.35 et1/5        bizdev-tor4 Et5

   Policy Applied To         (location)                        Rate Active
   _____          _____          _____

   10.1.100.35               bizdev-tor1 Et22                22 Mbps 11d14h
   10.1.100.36               bizdev-tor1 Et27               221 Kbps 11h14h

Policy                    Firewall                  (location)
_____          _____          _____

SAP_ERP_Web_to_DB         172.22.28.35 et1/7        bizdev-tor4 Et7

   Policy Applied To         (location)                        Rate Active
   _____          _____          _____

   10.1.100.73               bizdev-tor1 Et44               483 Mbps 11d14h
   10.1.100.74               bizdev-tor1 Et45               922 Mbps 11d14h

cvx#
cvx#
```

ARISTA **vm**ware®

Operational Visibility for the SDDC

Visualize & Correlate traffic flows from the virtual to physical

Flow monitoring on virtual infrastructure with NSX Trace flow:

- Capture traffic in the virtual environment
- Capture at several locations across the flow (hypervisor, vSwitch, etc.)
- Advanced filters

Get end-to-end flow monitoring with Arista Path Tracer and NSX Trace flow

- Trace physical ports in a flow
- Real time tracking of flow for end-to-end troubleshooting
- Consolidated output

Logs

```
1  Egress VM host 1
2  Ingress vSwitch host 1
3  Egress vSwitch host 1
4  Egress Uplink host 1
5  Arista switch #1, port X
6  Arista switch #2, port Y
7  Arista switch #3, port Z
8  Ingress Uplink host 2
9  Egress vSwitch host 2
10 Ingress VM host 2
```

ARISTA **vm**ware®
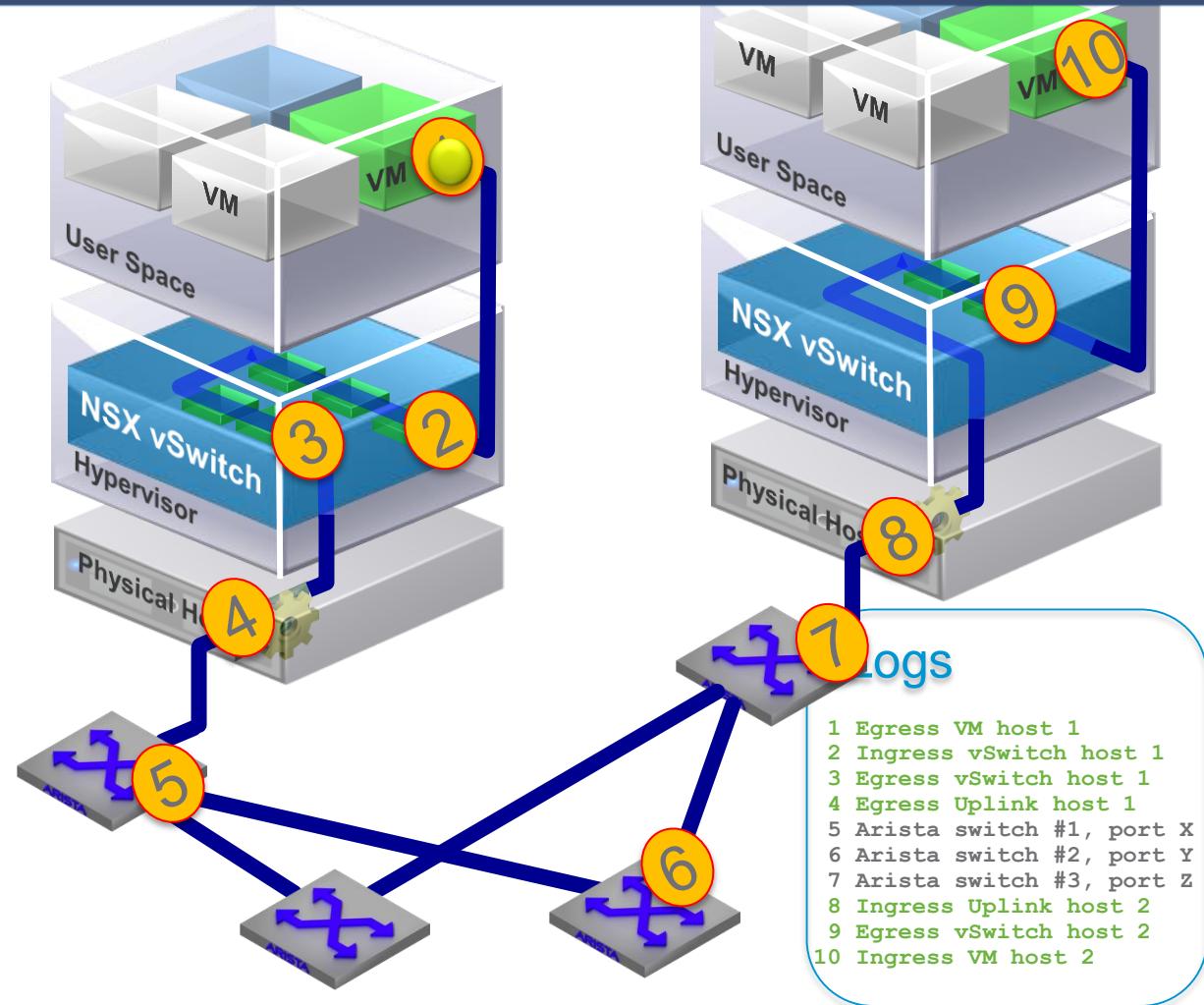
Single Point of Integration & Management

Simplified Management & Better Scalability

VMware Centralized NSX Management

- NSX provides central management (GUI and API driven) for all its features
- The NSX controller leverage standard OVSDB for configuring Arista switches via CloudVision
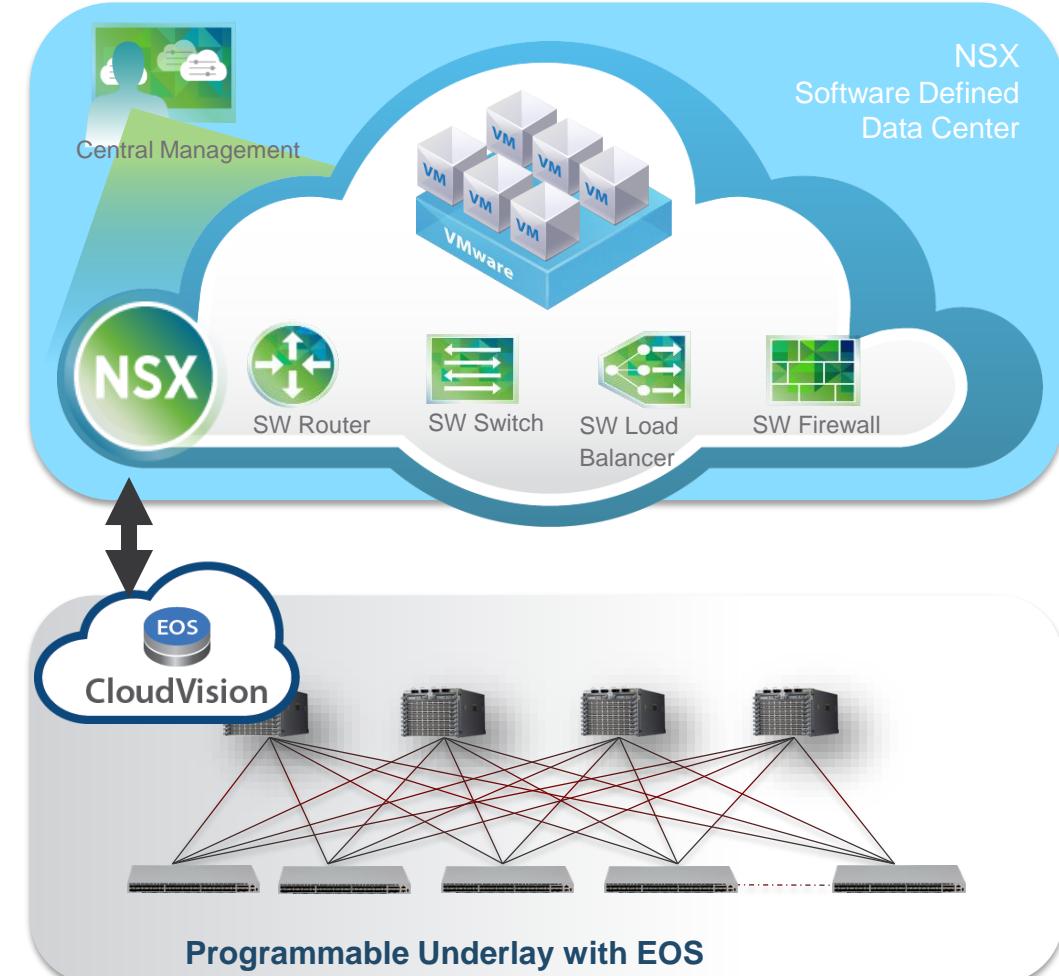
Arista Centralized Management with CloudVision

- Central point of Management for entire physical network
- Present collective state of physical network to NSX
- Coordinate network rollback and auto upgrades
- Abstract topology & hardware from overlay
- Provide software version independency from joint certification

ARISTA **vmware**®

Arista and VMware Better Together

Arista and VMware Integration Summary

1. Provisioning & ZTP Automation
2. Persistent Visibility with VM Tracer
3. Selective Overlay Monitoring
4. VXLAN HW VTEP Integration
5. sFlow monitoring for VXLAN Visibility
6. Operational Visibility With Path Tracer
7. DirectFlow™ Firewall Security Assist
8. Event Correlation & Monitoring With Log Insight & vRealize Operations
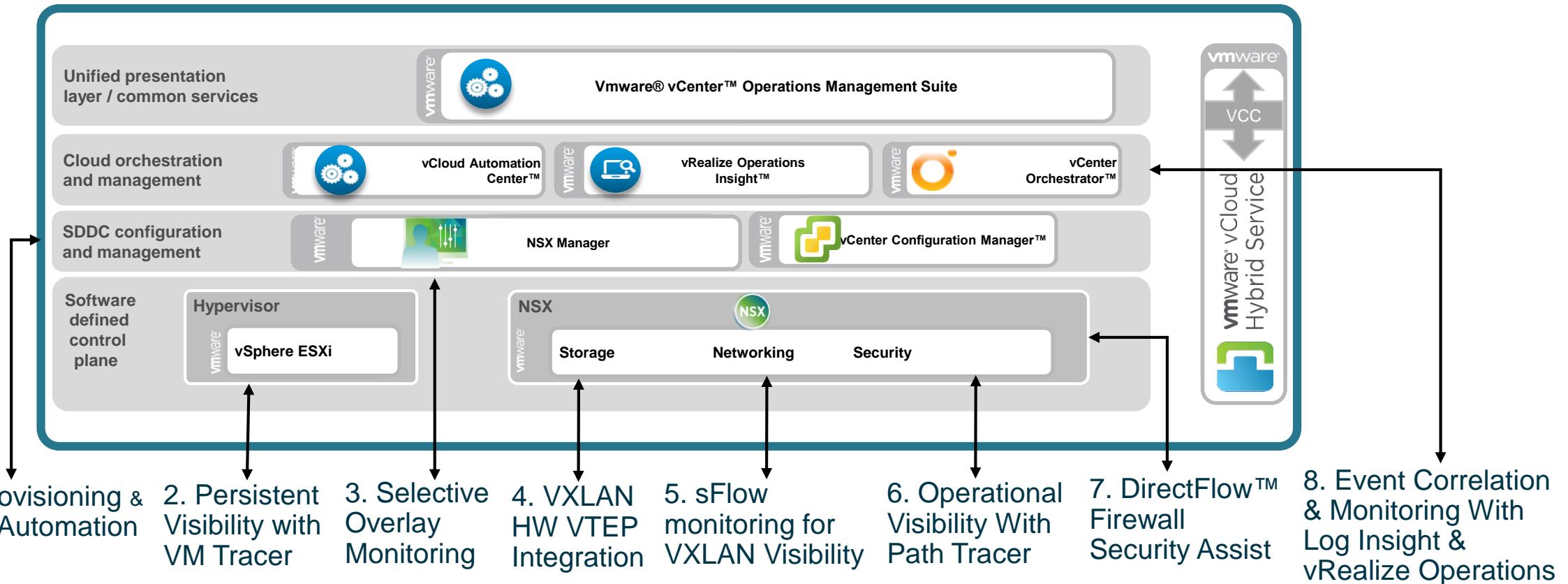
Takeaways

VMware and Arista better together

- Virtual to Physical Network:

    - Vmtracer for vCenter - Arista 實現VLAN自動部署及虛擬主機/網路在實體交換器的可視性.

    - NSX VXLAN L2 Gateway

        - Arista 實現硬體效能VXLAN L2 Gateway自動部署, 並連結虛擬主機與實體主機, 實體防火牆, 實體負載平衡器, 無縫接軌NSX虛擬化網路及既有的傳統網路.

    - Vmtracer for NSX VXLAN - Arista 實現虛擬主機與NSX VXLAN虛擬網路在實體交換器的可視性.

- NSX Trace Flow - 整合Arista switch, 實現end-to-end 追蹤虛擬與實體網路連線路徑, 以利障礙排除.

- Mirror traffic based on NSX Logical segment - 提供監控某個Logical switch 的流量, 以利監控分析.

- Central point of Management for entire physical network – Arista 提供單一管理平台, 使VMware 掌控Arista 實體交換器, 有如其系統的一部份, 達到虛擬與實體網路的無縫整合.

ARISTA vmware®

Universal Cloud Network Design for Any Application

Big Data

IP Storage

Cloud

Web 2.0

Legacy Applications

VM Farms

HFT

VDI

ARISTA **vm**ware®

Network Applications
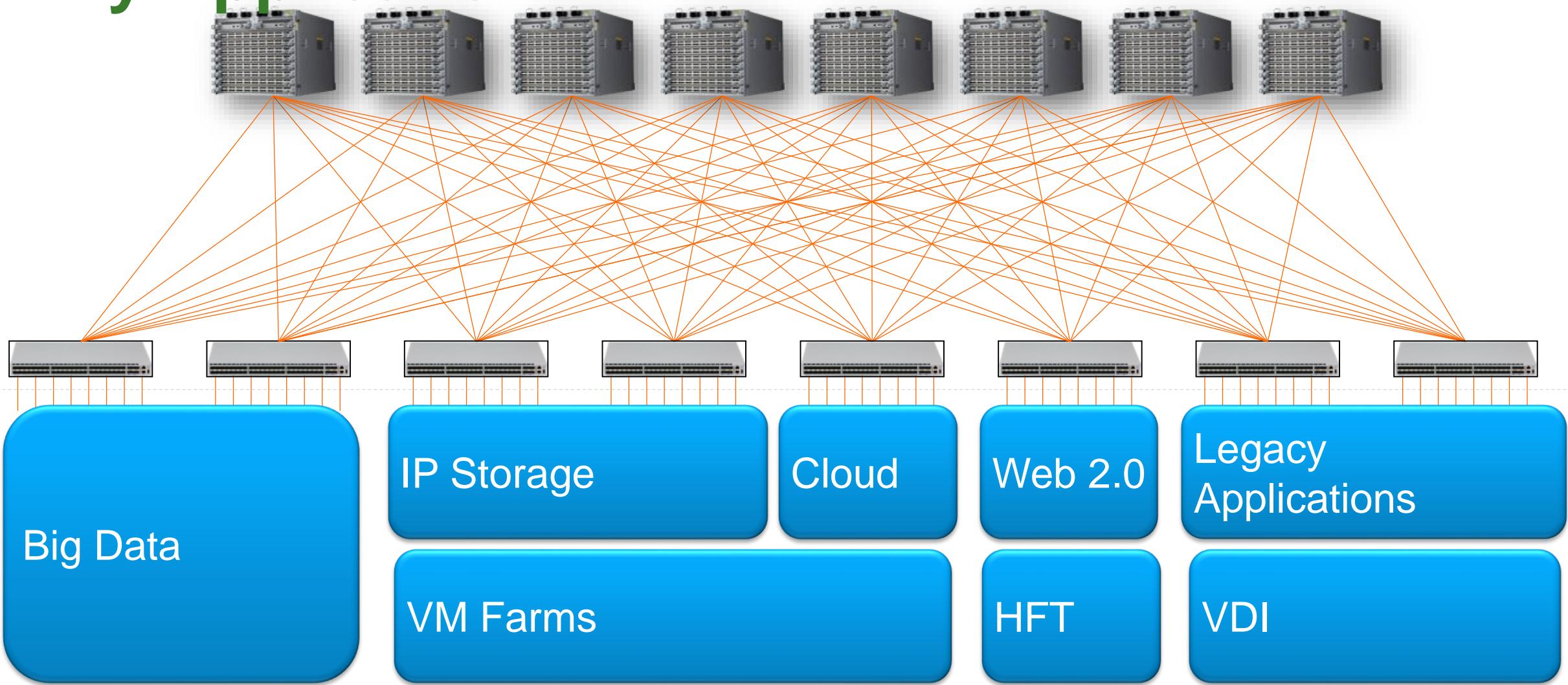
About Arista Networks

10/40/100GbE Networks for the Virtualized Cloud & Data Center

➢ Founded in 2004
➢ Shipping Since Mid-2008
➢ NYSE: ANET in 2014/6
➢ 3000+ Customers
➢ 1000+ Employees

Profitable, self-funded network infrastructure provider

Founded to build the best Network Operating System for Next Generation Data Centers

Arista : The Best Data Center Portfolio

NSX Extensible Operating System

NSX / VXLAN support

100G

100G

100G

100G

7010T & 7048T

48-port Data Center Class Gigabit Ethernet Switch

7150S

Ultra Low Latency 24,52,64-port SFP+ 1G-40GbE Switches LANZ and DANZ

7050X & 7250X

Dense Low Latency 32 & 64-port QSFP

96xSFP+/8xQSFP Advanced Virtualization Scale-out Visibility

7060X

Dense Low Latency 32 & 64-port 100G QSFP

2xSFP+/64xQSFP Advanced Virtualization Scale-out Visibility

7280SE

10/40/100G

Ultra Deep Buffers VOQ and Lossless Enhanced Visibility LANZ/DANZ NEBS

7300X

High Density, Modular System supporting up to 512 40GbE

Cloud Scale Leaf and Spine 10/40G

7500E

Lossless, High Density, Modular Switching System supporting up to 1152 Wire speed 10GbE Ports LANZ / DANZ

Spine 10/40/100G

ARISTA vmware®

Additional Resources

- ## Design Guide: VMware NSX for vSphere with Arista CloudVision®

  http://www.arista.com/assets/data/pdf/DesignGuides/NSX_vSphere_CloudVision_Design_Guide.pdf

- ## Arista CloudVision® & VMware NSX™ Solution Brief

  http://www.arista.com/assets/data/pdf/JointPapers/CloudVision_NSX_Solution_Brief.pdf

- ## Video: VMware on Arista's CloudVision®

  https://www.youtube.com/embed/CumQIIJZNWI?rel=0&wmode=transparent

ARISTA **vm**ware®