

# DCNM and NAM Virtual Blades on the Nexus 1010 & 1010-X

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# Public Webcasts Series, Spring 2012

Date	Technical Track Topics	Webinar
2/14/12	Virtual Security Gateway (VSG) v1.3 Technical Deep Dive	<a href="#">Play</a>
2/22/12	Nexus 1000V v1.5 Technical Deep Dive	<a href="#">Play</a>
2/29/12	Nexus 1010-X v1.4 Technical Deep Dive	<a href="#">Play</a>
3/7/12	vWAAS and Nexus 1000V Technical Deep Dive	<a href="#">Play</a>
3/14/12	FlexPod & Nexus 1000V/1010	<a href="#">Play</a>
3/21/12	QoS for multimedia traffic in the Virtualized DC (w/ Nexus 1000V)	<a href="#">Play</a>
3/28/12	Vblock & Nexus 1000V / VSG / vWAAS	<a href="#">Play</a>
4/4/12	vCloud Director, Nexus 1000V, and VXLAN Technical Deep Dive	<a href="#">Play</a>
4/11/12	Cisco's CloudLab Deep Dive: Hands-on labs for N1KV, VSG & VXLAN	<a href="#">Play</a>
4/18/12	NAM and DCNM: Virtual Blades on the Nexus 1010 & 1010-X	<a href="#">Play</a>

Above table and presentations: [www.cisco.com/go/1000vcommunity](http://www.cisco.com/go/1000vcommunity)

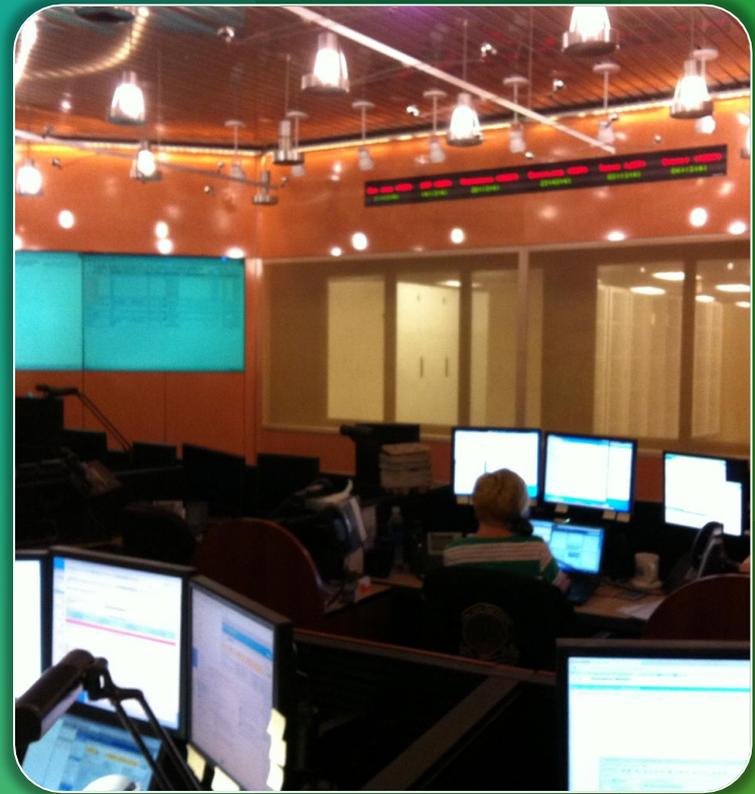
# Agenda

- DCNM
- NAM
- Resources
- Q&A as we go...

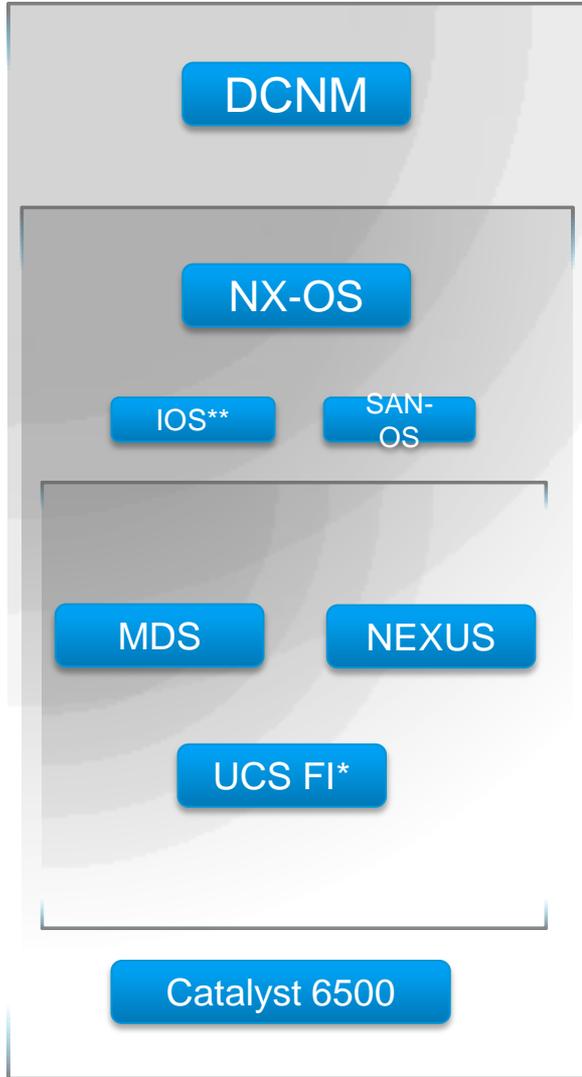


# Data Center Network Manager

<http://www.cisco.com/go/dcnm>



# Managing Unified Fabric with DCNM



- Fault Management
- Resource Management
- Configuration and Provisioning

- **LAN:** *FabricPath, OTV, VPC, VDC...*
- **SAN:** *FCoE, IOA, SME, DMM, FCIP, IVR..*



Nexus 7000 Series  
Core Switches



Nexus Access Series  
Switches



MDS 9000 Series Switches



Catalyst 6500 Series Switches

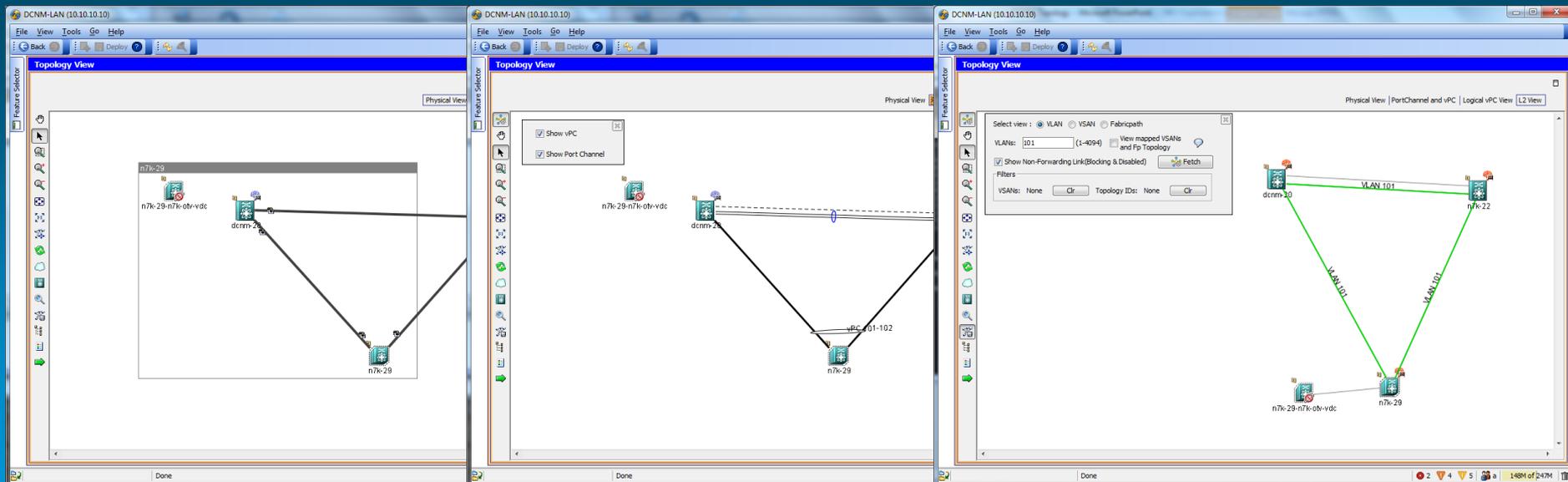


UCS Series Fabric Interconnects

Web Services API

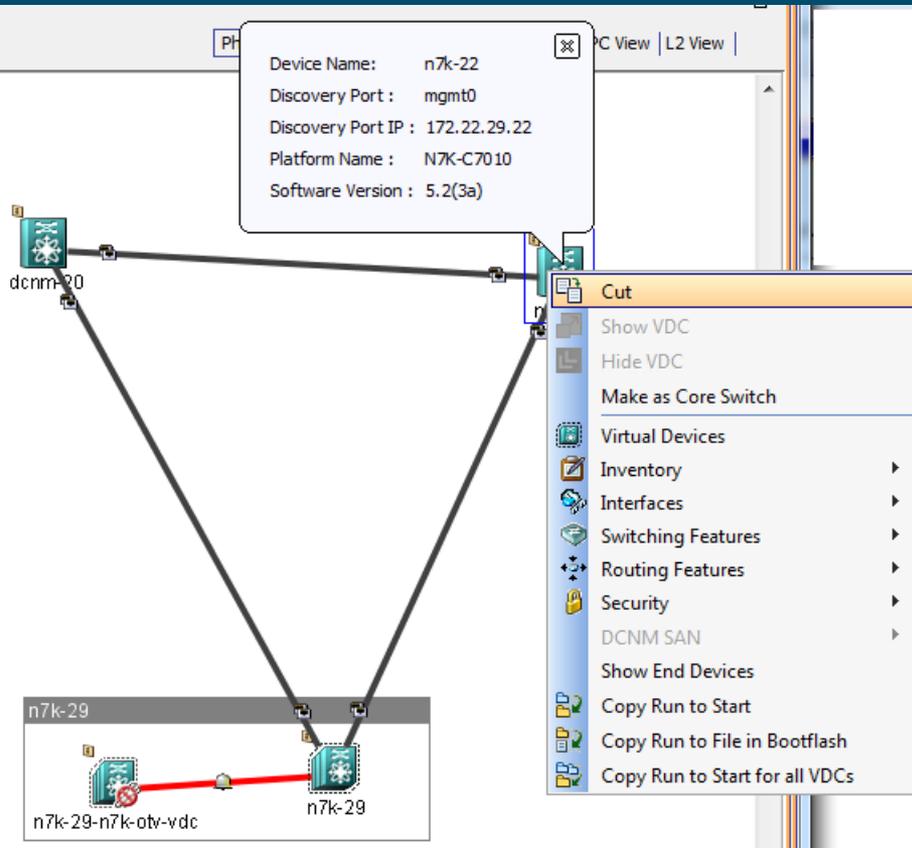
SNMP/XML/SMIS

# DCNM Topology Overlays



- Physical View
- Port Channel and vPC View
- L2 View

# Events and Navigation

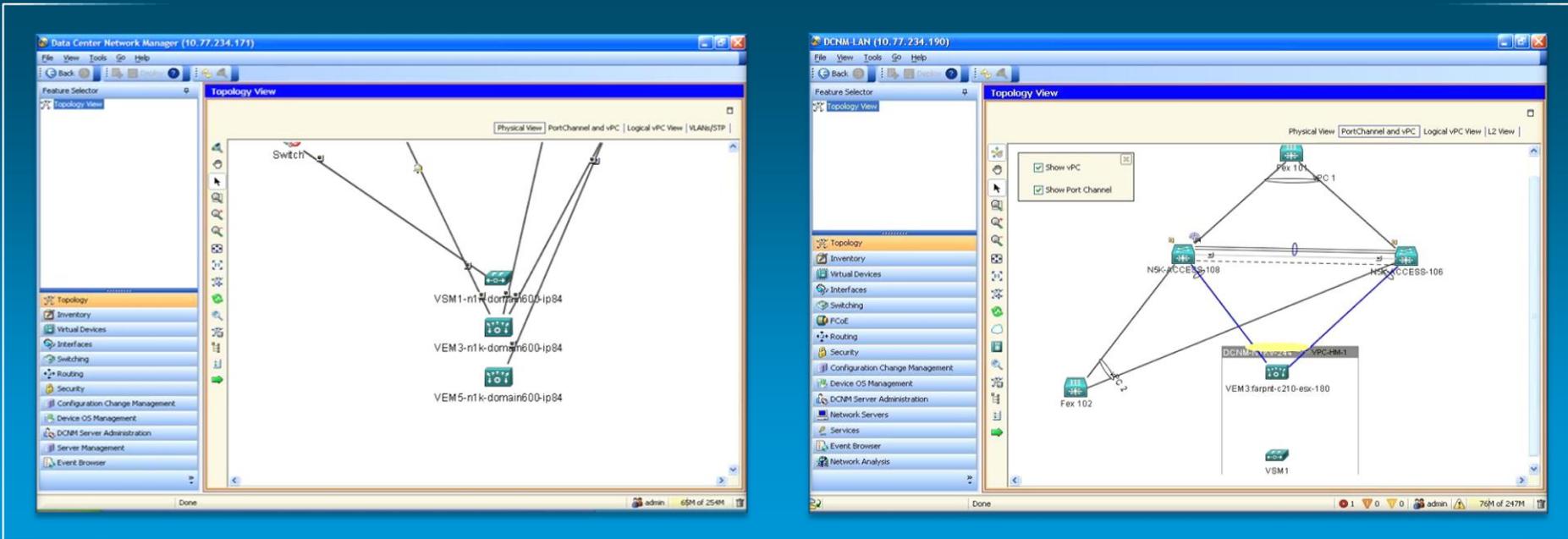


VDCs, devices added/deleted are automatically updated

Auto-handling of port, port-channel and vPC syslogs

Navigation to other features

# Managing Nexus 1000V with DCNM



**Topology Views** of virtual chassis with VSM and VEM interconnections

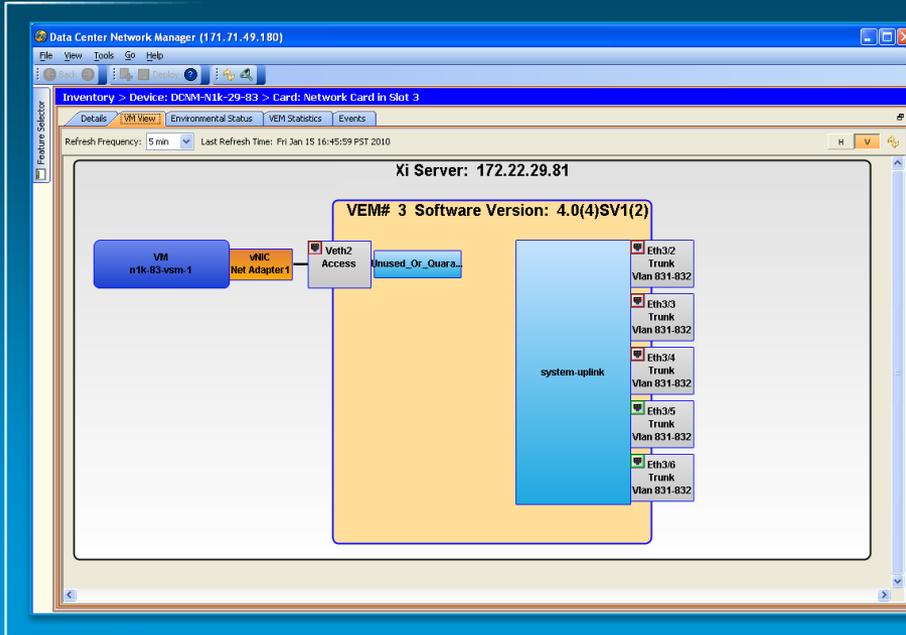
**Troubleshooting** through the use of the Overlay Topologies

VLAN, Port Channel, VPC, VPC-HM and MAC pinning

**Image Management**

**Role Base Access Controls**

# Nexus 1000V VEM view with DCNM



Data Center Network Manager (10.77.234.154)

Inventory > Device: DCNM-N1K-29-83 > Card: Network Card in Slot 3 > vNIC: n1k-83-vm-1

Port Profile

Name	Description	Capability	Max Ports	Type	Inif Count	vEthernet profile	State	Admin Status
E2	Port-group created for N...	N/A	32	vEthernet	1		Enabled	Up
Unused_Or_Quarant...	Port-group created for N...	N/A	0	Ethernet	0		Enabled	Down
Unused_Or_Quarant...	Port-group created for N...	N/A	32	vEthernet	0		Enabled	Down
if		N/A	0	Ethernet	0		Enabled	Down
manan		N/A	0	Ethernet	0		Enabled	Down
newpro		N/A	32	vEthernet	1		Enabled	Up
new		N/A	0	Ethernet	0		Enabled	Down
system-uplink-2		N/A	32	vEthernet	0		Enabled	Down
system-uplink		N/A	0	Ethernet	0		Enabled	Up
system-uplink-2		N/A	0	Ethernet	1		Enabled	Up
vm-doman100-dell...		N/A	0	Ethernet	1		Enabled	Up
vm-doman100-uplink...		N/A	0	Ethernet	2		Enabled	Up
vm-doman100-uplink...		N/A	0	Ethernet	0		Enabled	Up
veth_access_70		N/A	32	vEthernet	0		Enabled	Up

Settings | Advanced Settings | Features | Events

Deploy | Refresh | Last Refresh At: 02 Mar 2010 18:46:05 EST

port profile type vEthernet E2  
switchport mode access  
switchport access vlan 6  
switchport trunk allowed vlan 5  
switchport port security  
switchport port security maximum 1  
switchport port security violation shutdown  
no ip dhcp snooping limit rate  
ip dhcp snooping trust  
channel-group auto mode active  
no shutdown

**Configuration and Monitoring of Key Performance Indicators on Virtual Ethernet Interfaces (VEMs)**

**Virtual Ethernet Module Topology View of Adapters and vEthernet port-profiles**

**Port-profile Configuration of vNIC and Ethernet and port-profile visibility**

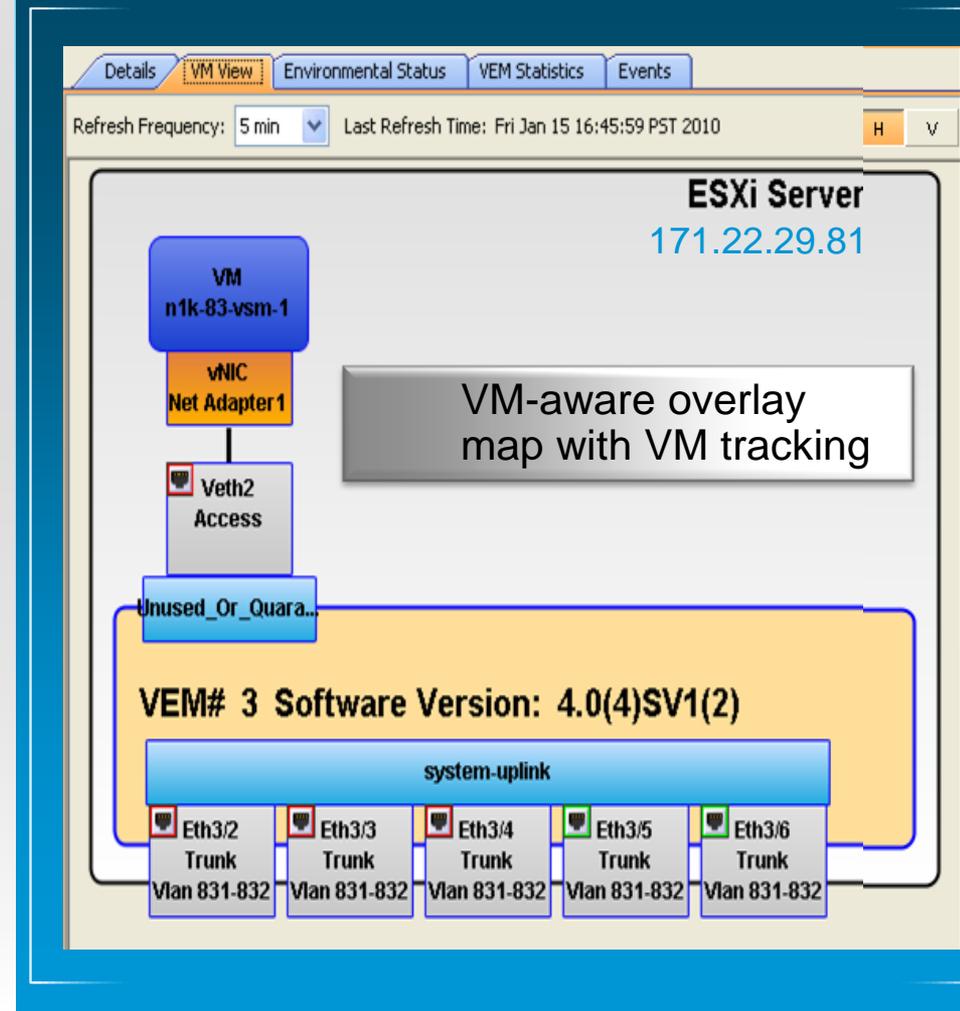
# Nexus 1000V VN-Link and DCNM

## Port Profile Configuration

- Bind port profile to vEth interfaces
- Augment or override the applied port profile
- Set up vEth global policy (auto-delete, auto-setup, force-detach)
- Configure static pinning
- Nested port profiles visualization

## Monitoring

- Status of vEth interface
- Traffic statistics for vEth interface and VEM
- Aggregate traffic statistics for Virtual Machine



# VMpath Analytics

VM

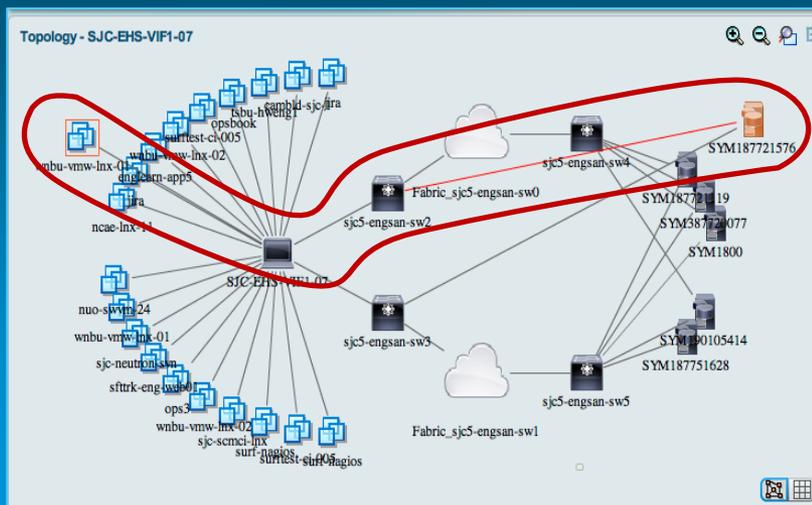
PHYSICAL SERVER

BLADE SWITCH

ISLs

NETWORK SWITCH(S)

TARGET PORT



- VM-aware discovery and correlation
- VMpath: **Path analytics** from VM to storage ports
- **VM performance** stats on CPU, Memory, Disk-IO, Latency, Reads/Writes
- Host to storage **path troubleshooting** with performance trending and events

# Additional Resources

“How To” Videos: [Cisco.com/go/dcnm](http://Cisco.com/go/dcnm)



**DCNM Summary Dashboard**  
Learn how Summary Dashboard offers 24 hour view



**DCNM Host Dashboard**  
Learn how Host Dashboard offers end-to-end view



**Performance Management with Converge**  
Get an overview of performance management. (3:10)

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**How to Videos Series**



**Discover Fabric**  
How to discover fabric with DCNM. (4:59 min)



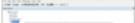
**Set Up Performance Monitoring**  
How to set up performance monitoring with DCNM. (3:20 min)



**Generate Custom Reports**  
How to generate custom reports with DCNM. (4:08 min)



**Set Up Events Forwarding**  
How to set up events forwarding with DCNM. (3:20 min)



**Provision Zone**

## YouTube Videos



**Data Center Network Management**  
by CiscoDataCenter's channel

▶ Play All   Share   Like   Comment

- 

Cisco Data Center Network Management :Obtain a...  
by CiscoDataCenter  
3:45
- 

Cisco Data Center Network Management: Host Das...  
by CiscoDataCenter  
6:41
- 

Cisco Data Center Network Management:Performa...  
by CiscoDataCenter  
3:11
- 

Cisco Data Center Network Management: Summar...  
by CiscoDataCenter  
4:33
- 

Cisco Data Center Network Management : Outage...  
by CiscoDataCenter  
2:34
- 

Cisco Data Center Network Management: Provision...  
by CiscoDataCenter  
3:56

## Configuration Guides

**Cisco DCNM for SAN Release 5.x**  
[Fabric Configuration Guide, Cisco DCNM for SAN, Release 5.x](#)  
[High Availability and Redundancy Configuration Guide, Cisco DCNM for SAN, Release 5.x](#)  
[Intelligent Storage Services Configuration Guide, Cisco DCNM for SAN, Release 5.x](#)  
[Inter-VSAN Routing Configuration Guide, Cisco DCNM for SAN, Release 5.x](#)  
[Interfaces Configuration Guide, Cisco DCNM for SAN, Release 5.x](#)  
[IP Services Configuration Guide, Cisco DCNM for SAN, Release 5.x](#)  
[Quality of Service Configuration Guide, Cisco DCNM for SAN, Release 5.x](#)  
[Security Configuration Guide, Cisco DCNM for SAN, Release 5.x](#)  
[System Management Configuration Guide, Cisco DCNM for SAN, Release 5.x](#)

## Product Literature

### Data Sheets and Literature

<a href="#">HOME</a>	Offers a detailed exp
<a href="#">PRODUCTS &amp; SERVICES</a>	
<a href="#">NETWORK MANAGEMENT AND AUTOMATION</a>	<a href="#">At-a-Glance</a> (2) <a href="#">Bulletins</a> (4) Updated news and it and revisions.
<a href="#">CISCO DATA CENTER NETWORK MANAGER</a>	<a href="#">Data Sheets</a> (3) Technical specificati usage guidelines. <a href="#">Presentations</a> (1) Audio, video, or mult interactive 3D produ <a href="#">Q&amp;A</a> (1) Information about Ci
<b>Data Sheets and Literature</b>	
<a href="#">At-a-Glance</a>	
<a href="#">Bulletins</a>	
<a href="#">Data Sheets</a>	
<a href="#">Presentations</a>	
<a href="#">Q&amp;A</a>	



# Cisco Prime Network Analysis Module (NAM)

**Visibility into Virtual Machine (VM) Network**

Deepak Bhargava  
Product Manager, NAM

April 18, 2012



# Agenda



**Introduction to Cisco Prime NAM**

**Functional Overview**

**Visibility into Virtual Machine Network**

**Use-Cases Examples**

**Resources**

# Cisco Prime Network Analysis Module

## Network Traffic and Performance Analysis

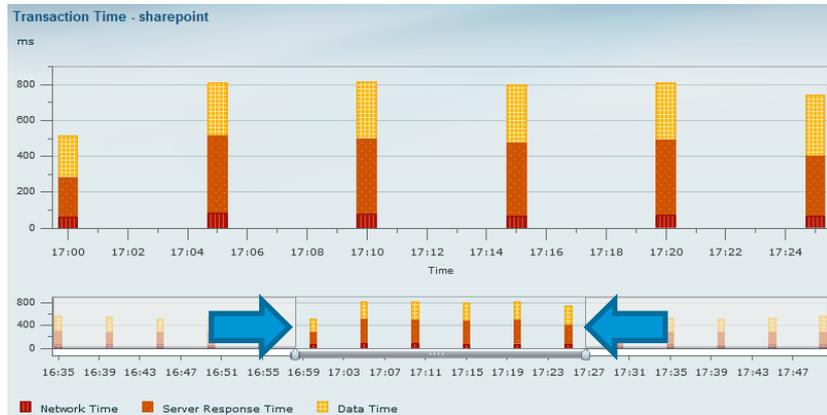
Deliver network visibility to optimize resources, troubleshoot performance issues, and ensure consistent end-user experience

- Improves operational efficiency
- Provides enhanced application performance visibility across the network
- Reduces total cost of ownership



# Analysis Workflow Example

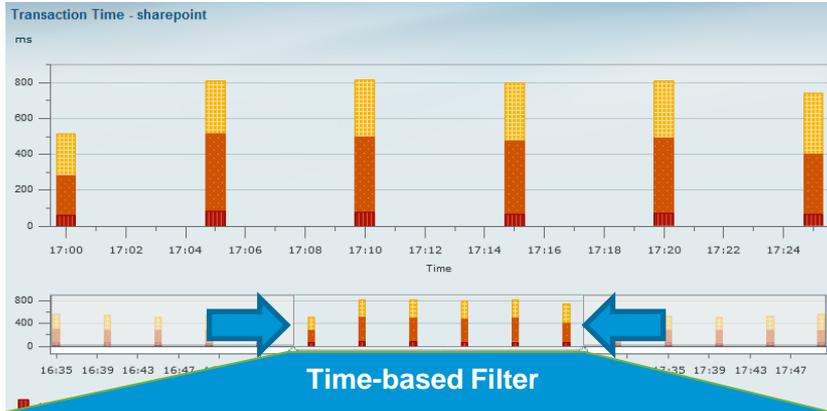
Quickly respond to performance trouble-tickets



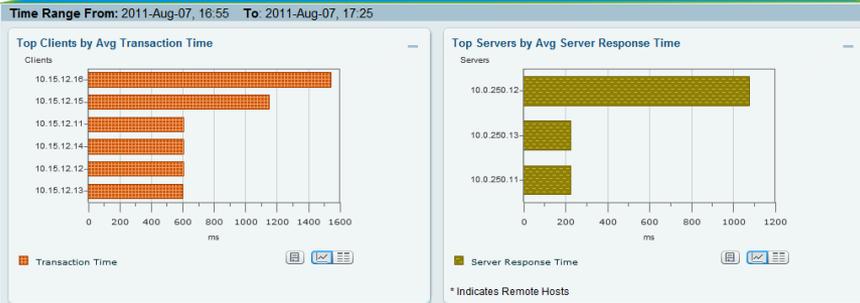
**Client: 10.15.12.16**  
**Application: sharepoint**  
**Reporting Time Range: Last 1 hour**  
**Site: San Jose Campus**

# Analysis Workflow Example

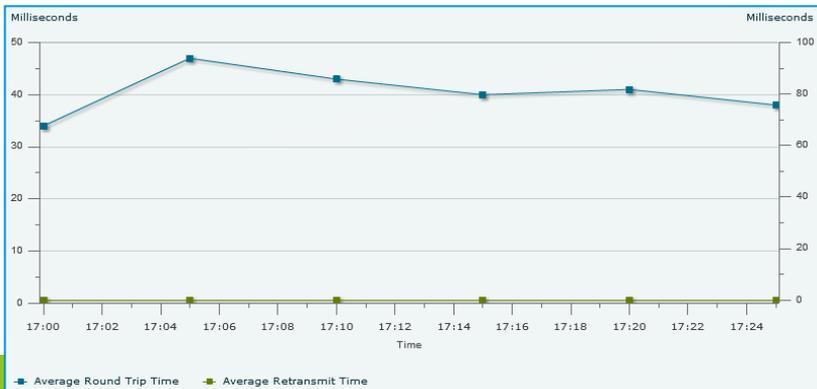
Quickly respond to performance trouble-tickets



Client: 10.15.12.16  
Application: sharepoint  
Reporting Time Range: Last 1 hour  
Site: San Jose Campus



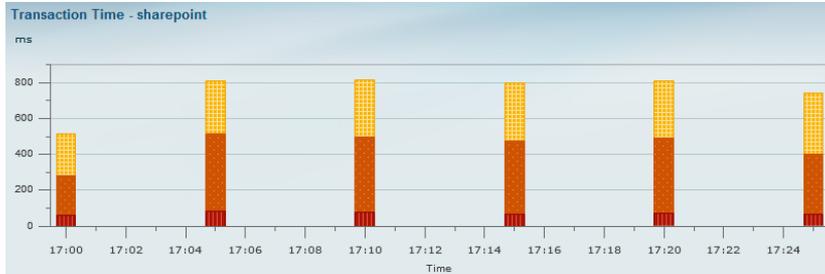
Identify the participating servers



Analyze Network Key Performance Indicators

# Analysis Workflow Example

Quickly respond to performance trouble-tickets

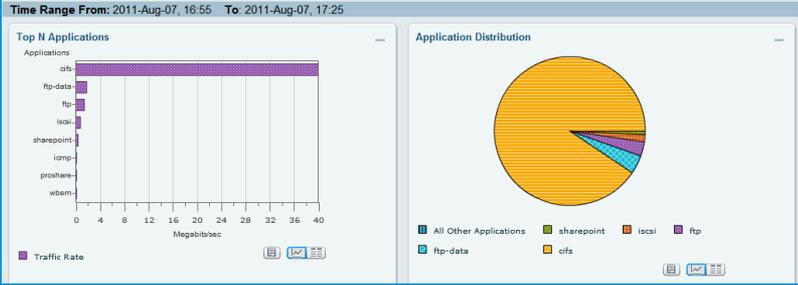
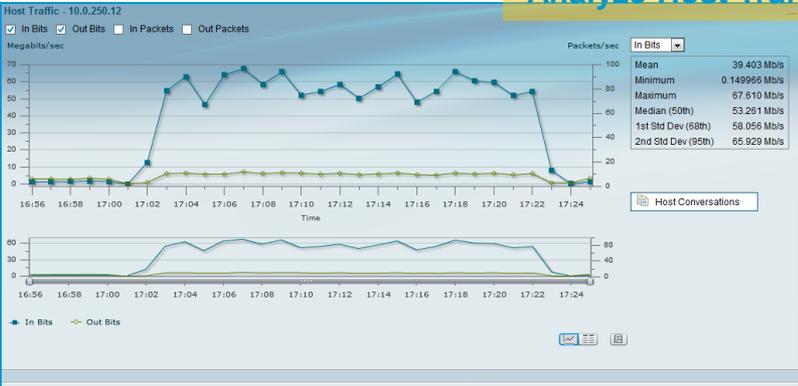
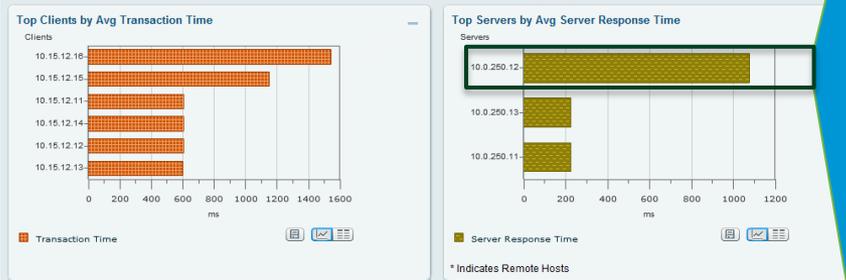


Client: 10.15.12.16  
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Analyze Host Traffic



Time Range From: 2011-Aug-07, 16:55 To: 2011-Aug-07, 17:25

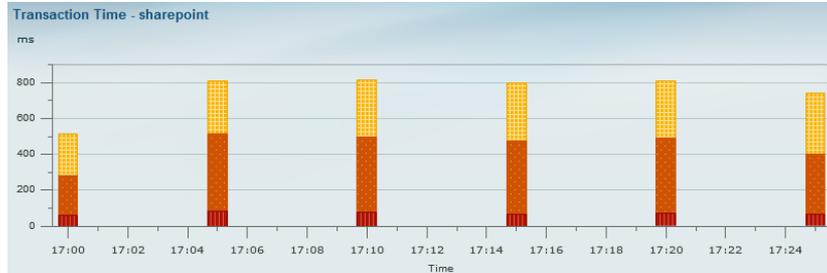


Analyze Network Key Performance Indicators



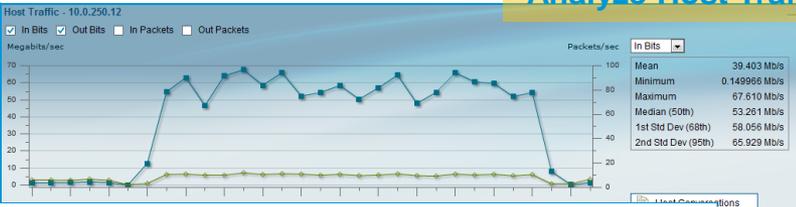
# Analysis Workflow Example

Quickly respond to performance trouble-tickets

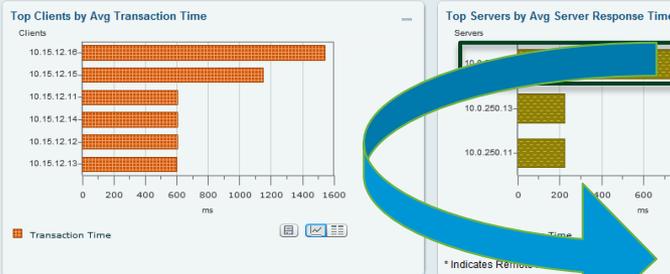


Client: 10.15.12.16  
Application: sharepoint  
Reporting Time Range: Last 1 hour  
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Analyze Host Traffic



Time Range From: 2011-Aug-07, 16:55 To: 2011-Aug-07, 17:25



**CISCO NAM Traffic Analyzer - Packet Decoder**  
Capture Session ID: 0

Packets: 13594-14593 of 40178

Pkt	Time(s)	Size	Source	Destination	Protocol	Info
13594	0.000	68	128.107.191.112	192.168.153.131	T.38	UDP: UDPTLPacket Seq=44372 data:unknown
13595	0.000	68	128.107.191.112	192.168.153.131	T.38	UDP: UDPTLPacket Seq=44372 data:unknown
13596	0.000	222	2.2.2.9	1.1.1.9	UDP	Source port: 1604 Destination port: 3270
13597	0.000	222	2.2.2.9	1.1.1.9	UDP	Source port: 1604 Destination port: 3270
13598	0.000	222	2.2.2.9	1.1.1.9	UDP	Source port: 1604 Destination port: 3270
13599	0.000	222	2.2.2.7	1.1.1.7	UDP	Source port: 1600 Destination port: 3266
13600	0.000	222	2.2.2.7	1.1.1.7	UDP	Source port: 1600 Destination port: 3266
13601	0.000	222	2.2.2.7	1.1.1.7	UDP	Source port: 1600 Destination port: 3266
13602	0.000	222	2.2.2.20	1.1.1.20	UDP	Source port: 1609 Destination port: 3275
13603	0.000	222	2.2.2.20	1.1.1.20	UDP	Source port: 1609 Destination port: 3275

**Packet** Number: 13594 - Arrival Time: Oct 20, 2010 11:48:26.000391000 - Frame Length: 68 bytes - Capture Length: 68 bytes

- + **ETH** Ethernet II, Src: 00:18:73:b5:7a:3f(00:18:73:b5:7a:3f), Dst: 00:11:5d:03:b8:00(00:11:5d:03:b8:00)
- + **VLAN** 802.1Q Virtual LAN, PRI: 0, CFI: 0, ID: 32
- + **IP** Internet Protocol, Src: 128.107.191.112(128.107.191.112), Dst: 192.168.153.131(192.168.153.131)
- + **UDP** User Datagram Protocol, Src Port: 5654(5654), Dst Port: 6004(6004)
- + **T38** ITU-T Recommendation T.38
- + **MALFOR** [Malformed Packet: T.38]
- **EXPERT** [Expert Info (Error/Malformed): Malformed Packet (Exception occurred)]
- EXPERT** [Message: Malformed Packet (Exception occurred)]
- EXPERT** [Severity level: Error]
- EXPERT** [Group: Malformed]

```

0000 00 11 5d 03 b8 00 00 18 73 b5 7a 3f 81 00 00 20  ..]....s.z?...
0010 08 00 45 00 00 24 70 d2 00 00 77 11 38 ef 80 6b  ..E..$p...w.8..k
0020 bf 70 c0 a8 99 83 16 17 74 00 10 06 c6 ad 54    .p.....t.....T
0030 9b 82 75 6c 73 32 00 00 00 00 00 00 00 00 00  ..uls2.....
    
```



# Cisco Prime NAM Functional Overview

## Integrated Visibility Simplifies Operational Manageability

### Application Performance Visibility

- Application Response Time Analysis
- WAAS Visibility
- Voice Quality Analysis
- URL Monitoring

### Traffic Analysis

- Applications, Host, Conversations, DSCP/QoS, VLAN
- Per-application and per-user granularity

### Troubleshooting

- Advanced Filters, Packet Capture, Decodes, and Error Scan
- Port/Interface statistics



Cisco Prime NAM for Nexus 1010



NAM 2200 Series Appliance



Cat65xx NAM Integrated Service Blades



Cisco Prime NAM for ISR G2 SRE

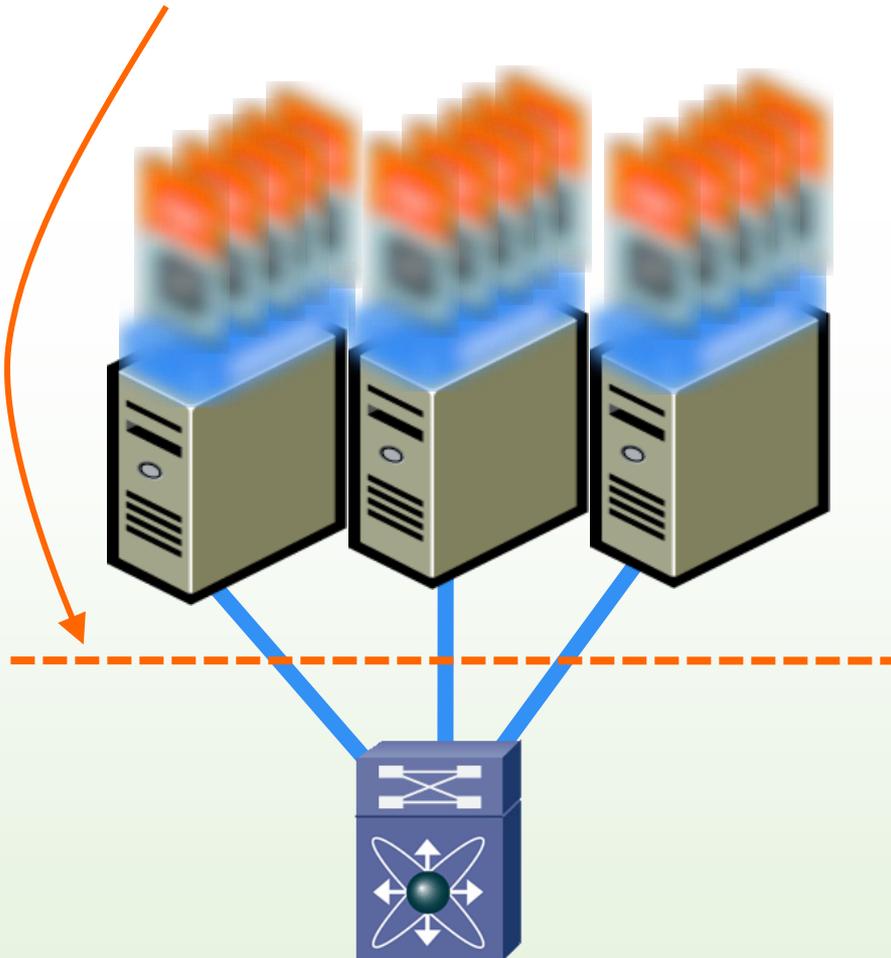
# Eliminate virtual environment blind spots

## **NAM Visibility into Virtual Machine Network**



# The Challenge: Server virtualization creates a demand for VM-level visibility

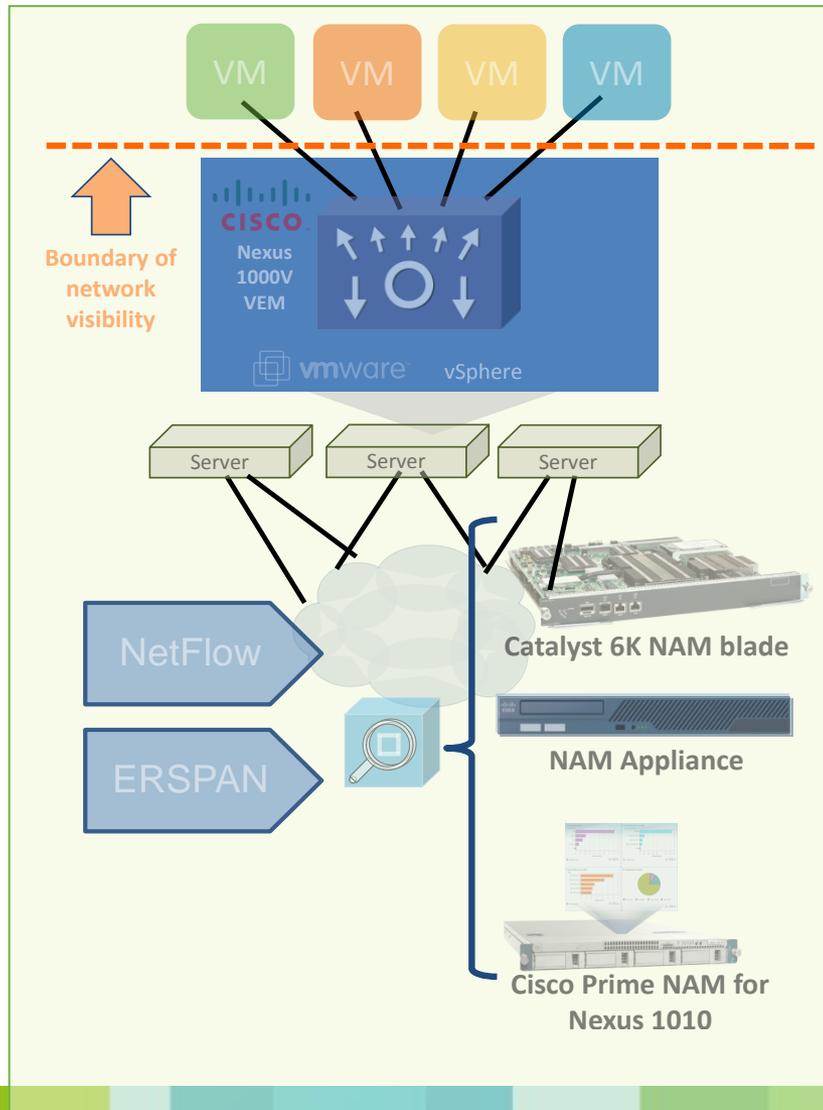
## Boundary of network visibility



- Lack of visibility into network behavior at the VM level
- Lack of visibility into cross-VM interactions
- Need for operational consistency and continuity across physical and virtual network

# Visibility into Virtual Machine Network

Cisco Prime NAM integrates with Nexus 1000V switch



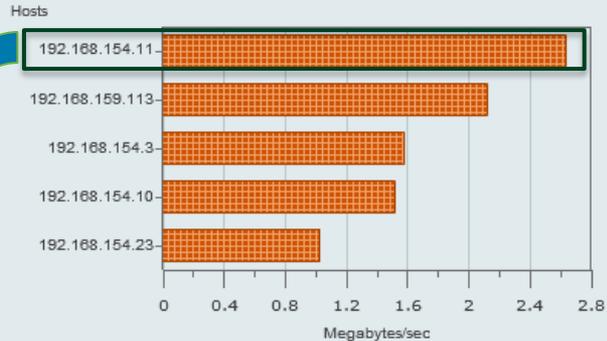
- Extend operational visibility to virtual switching layer
- Assess impact on network behavior due to changes such as VM migration, port profile update, etc.
- Monitor VMs while they migrate with VMotion

# Traffic Analysis: Hosts and Conversations

## Assess Network Resource Usage by VM or Host

### Top N Hosts/VMs

#### Top N Hosts (In and Out)



### Host/Vm Traffic Trend

#### Host Traffic - 192.168.154.11

In Bytes  Out Bytes  In Packets  Out Packets

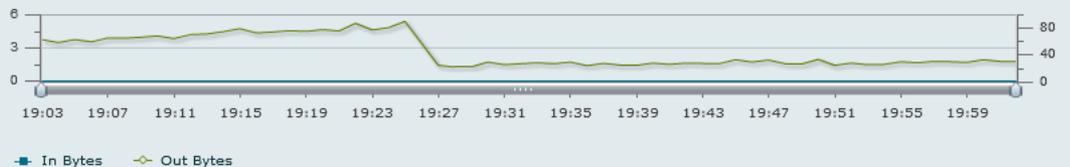
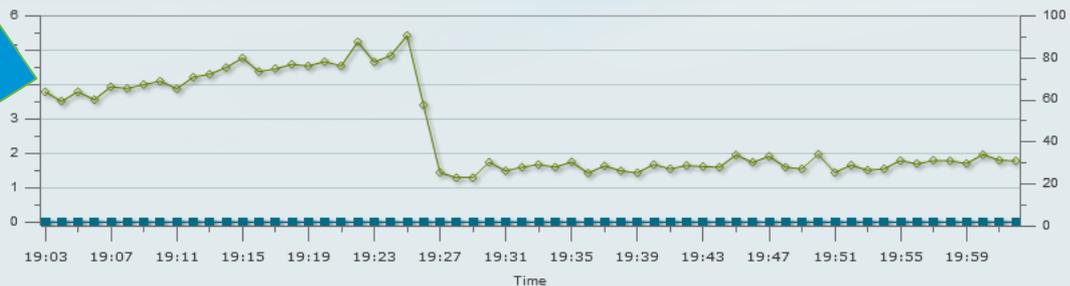
Megabytes/sec

Packets/sec

Out Bytes

Mean	2.699
Minimum	1.283
Maximum	5.430
Median (50th)	1.785
1st Std Dev (68th)	3.804
2nd Std Dev (95th)	4.776

Host Conversations

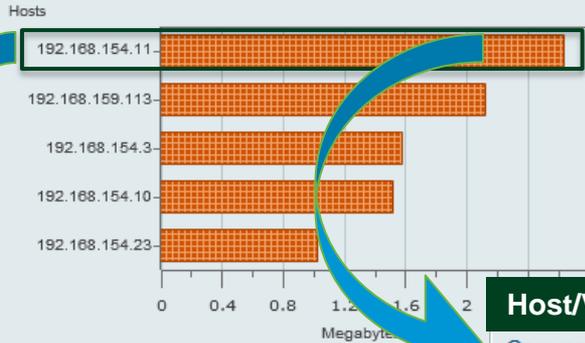


# Traffic Analysis: Hosts and Conversations

## Assess Network Resource Usage by VM or Host

### Top N Hosts/VMs

#### Top N Hosts (In and Out)

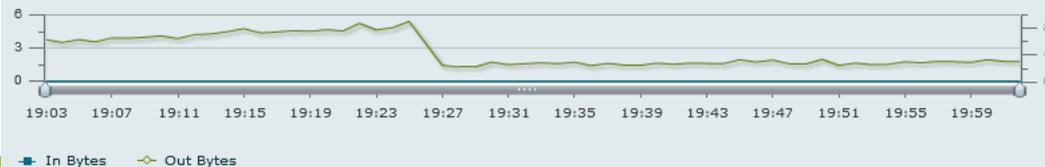
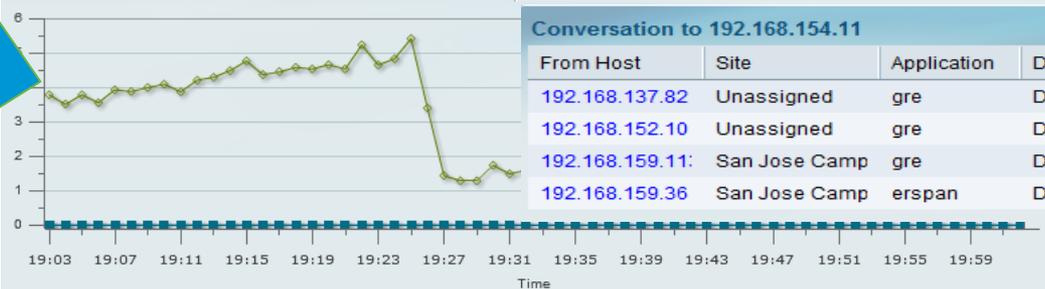


### Host/VM Traffic Trend

#### Host Traffic - 192.168.154.11

In Bytes  Out Bytes  In Packets  Out Packets

Megabytes/sec



### Host/VM Conversations

#### Conversation from 192.168.154.11

To Host	Site	Application	Data Source	VLAN	Packets/sec	Bytes/sec
192.168.137.82	Unassigned	gre	DATA PORT 4	154	3,718.55	532,851.33
192.168.152.10	Unassigned	gre	DATA PORT 4	154	3,709.41	523,110.55
192.168.159.11:	San Jose Camp	gre	DATA PORT 3	32	7,698.67	1,086,962.64
192.168.159.36	San Jose Camp	erspan	DATA PORT 4	154	4,578.36	584,496.63

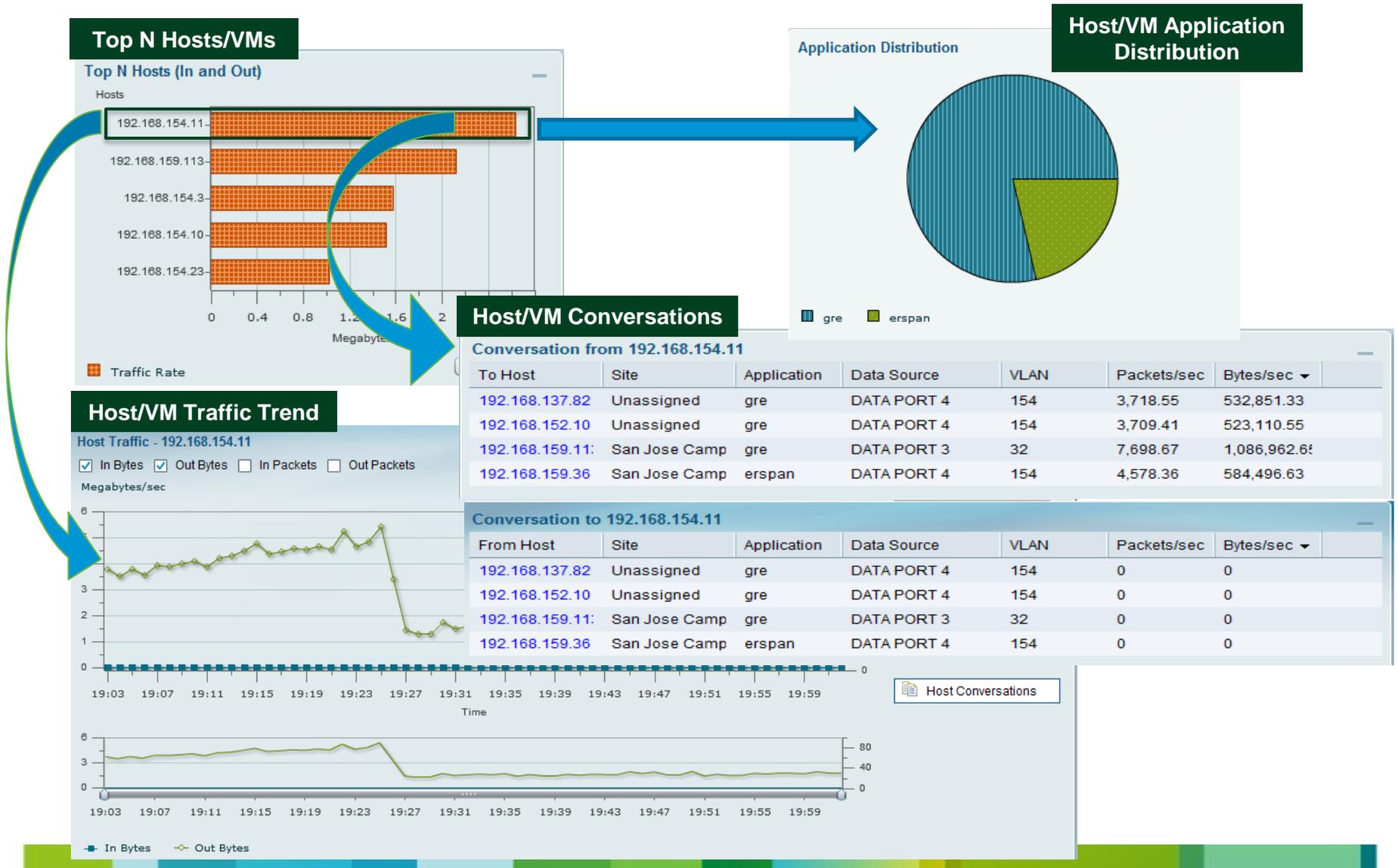
#### Conversation to 192.168.154.11

From Host	Site	Application	Data Source	VLAN	Packets/sec	Bytes/sec
192.168.137.82	Unassigned	gre	DATA PORT 4	154	0	0
192.168.152.10	Unassigned	gre	DATA PORT 4	154	0	0
192.168.159.11:	San Jose Camp	gre	DATA PORT 3	32	0	0
192.168.159.36	San Jose Camp	erspan	DATA PORT 4	154	0	0

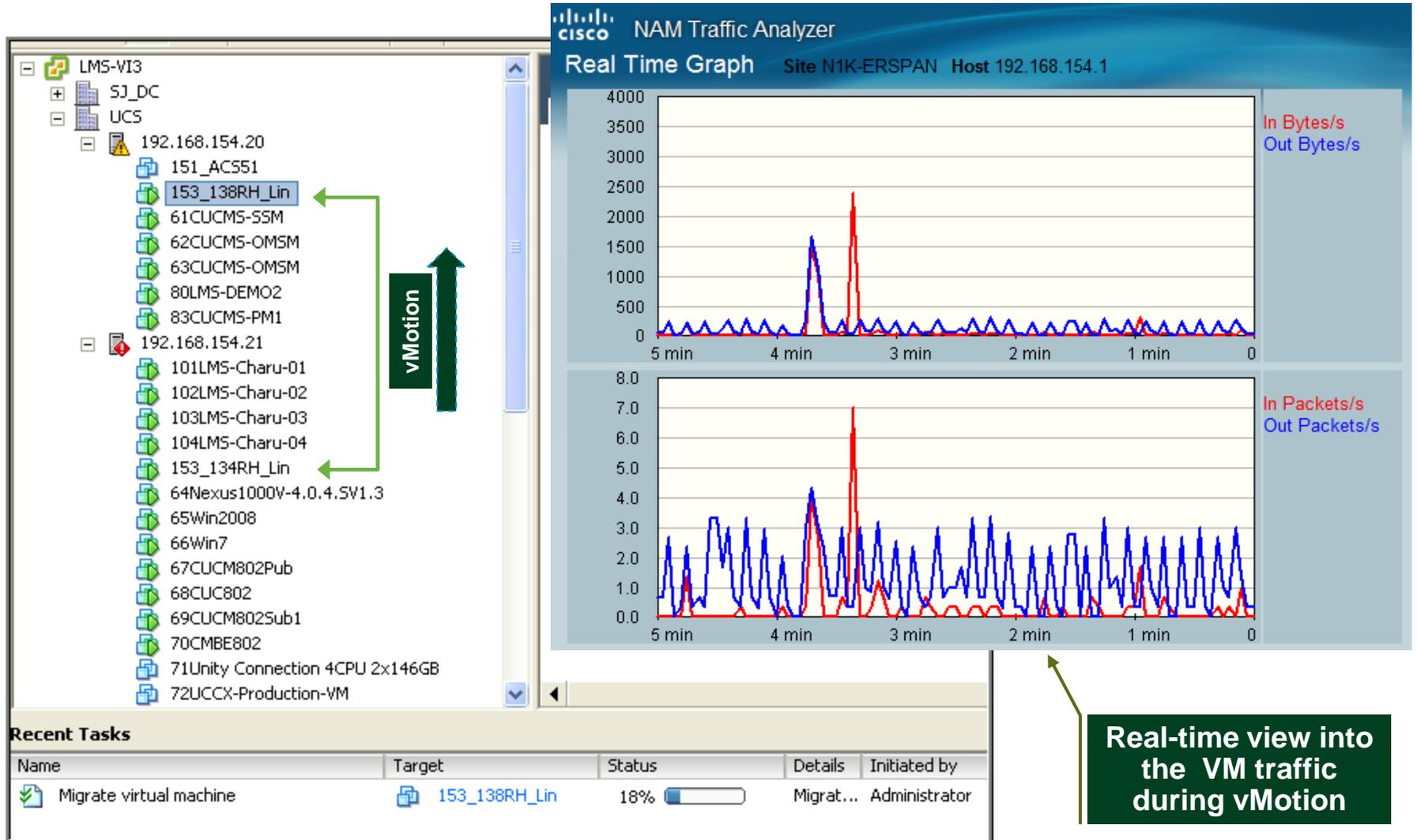
Host Conversations

# Traffic Analysis: Hosts and Conversations

## Assess Network Resource Usage by VM or Host



# Monitor VM While being Migrated



Real-time view into the VM traffic during vMotion

# Validate QoS Profile

Class Maps

```
vsm-n1k# sh runn
version 4.0(4)SV1(3)
username admin password 5 $1$aRODmpXn$qKTOE/C6VMocT7rGuP3510 role network-admin
ntp server 171.68.10.80
ip domain-lookup
ip host vsm-n1k 192.168.154.64
kernel core target 0.0.0.0
kernel core limit 1
system default switchport
class-map type qos match-any RTP
  match ip rtp 8198
class-map type qos match-any SCCP
  description match on SCCP traffic
  match dscp 26
class-map type qos match-any Voice
  match dscp 46
policy-map type qos RTP
  class RTP
    set dscp 46
    police cir percent 15 bc 200 ms conform transmit violation
policy-map type qos Voice
  class Voice
    police cir percent 10 bc 200 ms conform transmit violation
  class SCCP
    set dscp 46
    police cir 8000 bps bc 200 ms conform transmit violation
vsm 3
```

Policy Maps

```
interface Vethernet4
  inherit port-profile v133
  service-policy type qos input Voice
  description 153_134RH_Lin, Network Adapter 1
  vmware dvport 704
```

```
interface Vethernet16
  inherit port-profile v137
  service-policy type qos input RTP
  description 153_138RH_Lin, Network Adapter 1
  vmware dvport 1000
```

**Apply the QoS policy to interface on Vethernet4 and Vethernet16**

# Validate QoS Profile

Class Maps

Policy Maps

```
vsm-n1k# sh runn
version 4.0(4)SV1(3)
username admin password 5 $1$aRODmpXn$qr
k-admin
ntp server 171.68.10.80
ip domain-lookup
ip host vsm-n1k 192.168.154.64
kernel core target 0.0.0.0
kernel core limit 1
system default switchport
class-map type qos match-any RTP
  match ip rtp 8198
class-map type qos match-any SCCP
  description match on SCCP traffic
  match dscp 26
class-map type qos match-any Voice
  match dscp 46
policy-map type qos RTP
  class RTP
    set dscp 46
    police cir percent 15 bc 200 ms conform transmit vi
policy-map type qos Voice
  class Voice
    police cir percent 10 bc 200 ms conform transmit vi
  class SCCP
    set dscp 46
    police cir 8000 bps bc 200 ms conform transmit viol
vsm 3
```

**Apply the QoS policy to interface on Vethernet4 and Vethernet16**

DSCP Group: DSCP 46

23:08

**Validate QoS Policy**



```
interface Vethernet4
  inherit port-profile v133
  service-policy type qos input Voice
  description 153_134RH_Lin, Network Adapter 1
  vmware dvport 704
```

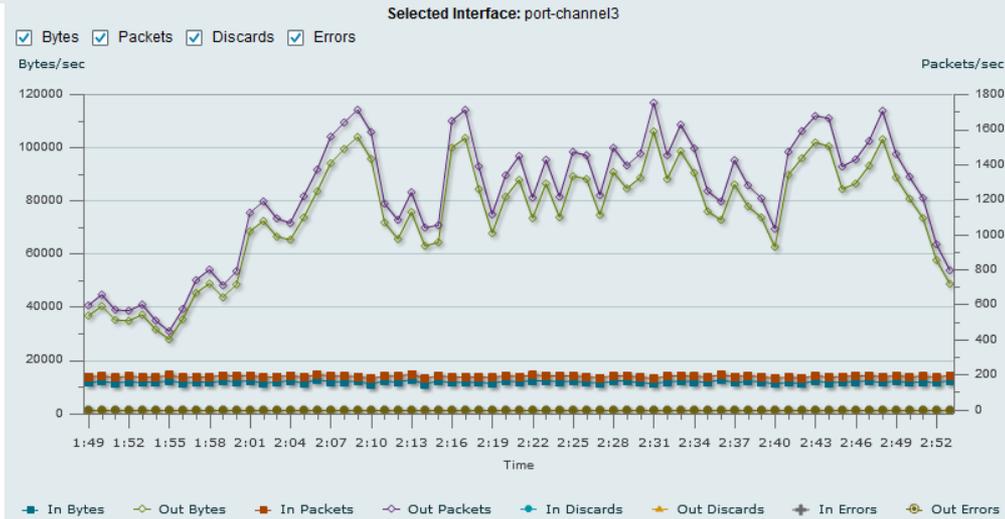
```
interface Vethernet16
  inherit port-profile v137
  service-policy type qos input RTP
  description 153_138RH_Lin, Network Adapter 1
  vmware dvport 1000
```

# Interface Monitoring

Interfaces Statistics

Filter

Interface	In % Utilization	Out % Utilization	In Packets/s	Out Packets/s	In Bytes/s	Out Bytes/s	In Non-Unicas	Out Non-Unicast	In Discards/s	Out Discards/s
Vethernet16	0	0	4,295.15	0.11	283,736.22	10.14	0.00	0.11	0	0
Ethernet4/2	0	0	1,412.16	4.72	85,597.59	1,238.02	1.65	0.02	0.13	0
port-channel2	0	0	1,412.15	4.73	85,597.19	1,238.45	1.64	0.02	0.13	0
Ethernet3/2	0	0	1,227.22	188.72	74,142.62	12,131.28	1.52	0.02	0	0
port-channel1	0	0	1,227.21	188.72	74,142.49	12,131.64	1.52	0.02	0	0
Vethernet4	0	0	479.77	0.19	76,942.69	18.86	0	0.11	0	0
Ethernet5/2	0	0	190.93	1,226.46	11,961.08	74,595.41	1.52	0.02	0	0
port-channel3	0	0	190.93	1,226.44	11,959.96	74,593.44	1.52	0.02	0	0
mgmt0	0	0	5.47	2.22	0	442.07	0	0	0	0
Vethernet17	0	0	0.50	1.80	189.53	577.32	0.01	1.30	0	0



- View traffic statistics on all interfaces of the managed device
- Drill-down into an interface to analyze data trends and patterns

# Summary

## Cisco NAM

- **Enables** quick access to critical network information
- **Simplifies** manageability
- **Delivers** a common instrumentation across Cisco solution architectures
- **Preserves** investment into existing management assets

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With the NAM 5.0 Software release, Cisco's solution is taking big strides in both sophistication and maturity, adding substantial monitoring and troubleshooting features to its existing strengths in application-aware network performance analysis

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**Jim Frey**

**Enterprise Management  
Associates, Inc.**

# For More Information

## Product Details:

- Cisco Prime NAM on Nexus 1010:  
<http://www.cisco.com/go/1000nam>
- Cisco NAM Product Family:  
<http://www.cisco.com/go/nam>

Questions: [nam-info@cisco.com](mailto:nam-info@cisco.com)



# Resources



# CCO Links

## Software, Documentation & Screenscasts

Product	CCO Links
Nexus 1000V (v1.5.1) <a href="http://www.cisco.com/go/1000v">www.cisco.com/go/1000v</a>	<ul style="list-style-type: none"><li>• <a href="#">SW Download</a></li><li>• <a href="#">Documentation</a></li><li>• <a href="#">Screenscasts</a></li></ul>
Nexus 1010 & 1010-X (v1.4) <a href="http://www.cisco.com/go/1010">www.cisco.com/go/1010</a>	<ul style="list-style-type: none"><li>• <a href="#">SW Download</a></li><li>• <a href="#">Documentation</a></li></ul>
Virtual Security Gateway (v 1.3.1) <a href="http://www.cisco.com/go/vsg">www.cisco.com/go/vsg</a>	<ul style="list-style-type: none"><li>• <a href="#">SW Download</a></li><li>• <a href="#">Documentation</a></li><li>• <a href="#">Screenscasts</a></li></ul>
Virtual Network Management Center (v1.3.1a) <a href="http://www.cisco.com/go/vnmc">www.cisco.com/go/vnmc</a>	<ul style="list-style-type: none"><li>• <a href="#">SW Download</a></li><li>• <a href="#">Documentation</a></li><li>• <a href="#">Screenscasts</a></li></ul>
Data Center Network Manager <a href="http://www.cisco.com/go/dcnm">www.cisco.com/go/dcnm</a>	<ul style="list-style-type: none"><li>• <a href="#">SW Download</a></li><li>• <a href="#">Documentation</a></li></ul>
Network Analysis Module <a href="http://www.cisco.com/go/nam">www.cisco.com/go/nam</a> (on Nexus 1010) <a href="http://www.cisco.com/go/1000nam">www.cisco.com/go/1000nam</a> (entire product family)	<ul style="list-style-type: none"><li>• <a href="#">SW Download</a></li><li>• <a href="#">Documentation</a></li></ul>

# Cisco Cloud Lab

## Hands On Training & Demos

- Hands on labs available for Nexus 1000V and VSG in Cloud Lab
- <https://cloudlab.cisco.com>
- Open to all Cisco employees
- Customers/Partners require sponsorship from account team for access via CCO LoginID
- Extended duration lab licenses for 1000V and VSG are available upon request



### Welcome to Cisco CloudLab

Please select one of the available labs, by clicking on its name. Hover over the lab name content.

#### Available labs:

- Cisco Nexus 1000V - Basic Introduction (N1K-000111)
- Cisco Nexus 1000V - Installation (N1K-000211)
- Cisco Nexus 1000V - Upgrade to 1.4 (N1K-000310)
- Cisco Virtual Security Gateway (VSG) - Introduction (VSG-000110)
- Cisco Nexus 7000 - Introduction to NX-OS (N7K-000110)
- Cisco Overlay Transport Virtualization (OTV) (N7K-000210)
- Demo: Cisco Nexus 1000V (Pre-Configured) (N1K-100111)
- Demo: Cisco Virtual Security Gateway (VSG)(Pre-Configured) (VSG-100110)

VXLAN Basic Introduction too

# Nexus 1000V Public Links

- N1K Download and 60-day Eval: [www.cisco.com/go/1000vdownload](http://www.cisco.com/go/1000vdownload)
- N1K Product Page: [www.cisco.com/go/1000v](http://www.cisco.com/go/1000v)
- N1K Community: [www.cisco.com/go/1000vcommunity](http://www.cisco.com/go/1000vcommunity)
- N1K Twitter [www.twitter.com/official\\_1000V](http://www.twitter.com/official_1000V)
- N1K Webinars: [www.cisco.com/go/1000vcommunity](http://www.cisco.com/go/1000vcommunity)
- N1K Case Studies: [www.tinyurl.com/n1k-casestudy](http://www.tinyurl.com/n1k-casestudy)
- N1K Whitepapers [www.tinyurl.com/n1k-whitepaper](http://www.tinyurl.com/n1k-whitepaper)
- N1K Deployment Guide: [www.tinyurl.com/N1k-Deploy-Guide](http://www.tinyurl.com/N1k-Deploy-Guide)
- VXI Reference Implementation: [www.tinyurl.com/vxiconfigguide](http://www.tinyurl.com/vxiconfigguide)
- N1K on UCS Best Practices: [www.tinyurl.com/N1k-On-UCS-Deploy-Guide](http://www.tinyurl.com/N1k-On-UCS-Deploy-Guide)

Thank you.

