



# Transforming Server Virtualization with Cisco VN-Link

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# Agenda

- Trends with Server Virtualization
- Cisco VN-Link Introduction
- Cisco Nexus 1000V
  - Overview & Architecture
  - Deployment Scenarios

# Expanding Role of Server Virtualization

**Server Consolidation And Virtualization Are #1 & #2 Spending Priorities**

**Source: Goldman Sachs CIO Survey**

**10% of server workloads virtualized in 2008; forecast to be 50%-60% in next 5 years**

**Source: Industry analyst reports**

**Increasing Use of VMotion and DRS resulting in Multiplicative Increase in Complexity**

**Source: Cisco**

**Desktop Virtualization Gaining Traction as Tool to Address Desktop Manageability, Security and Cost**

**Source: Goldman Sachs IT Spending Survey**

# Networking Challenges to Scaling VM Deployments



## Security and Policy Enforcement

Applied at physical server—poor granularity

Security and policy doesn't follow VM



## Operation and Management

Lack of VM connection visibility

Inability to troubleshoot and audit



## Organizational Structure

Blurs boundaries between roles

Creates loss of productivity & compliance challenges

# Introducing Cisco Virtual Network Link

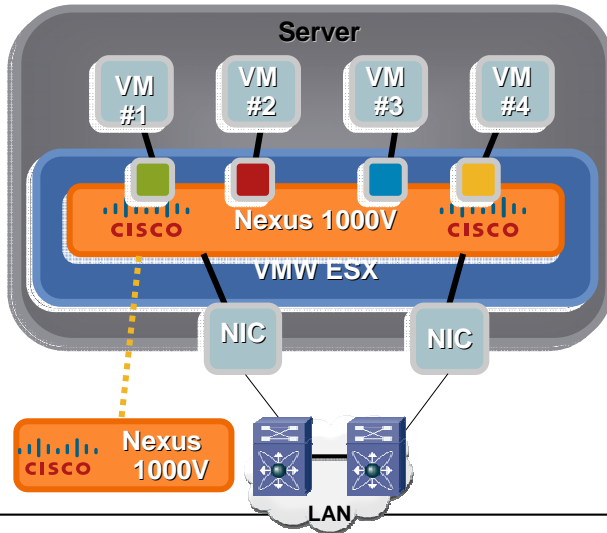
## Virtualizing the Network Domain

Policy Based VM Connectivity

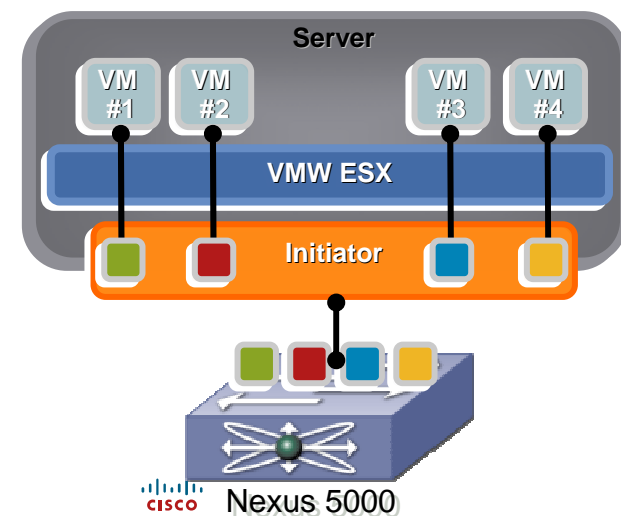
Mobility of Network & Security Properties

Non-Disruptive Operational Model

### Cisco Nexus 1000V (Software Based)



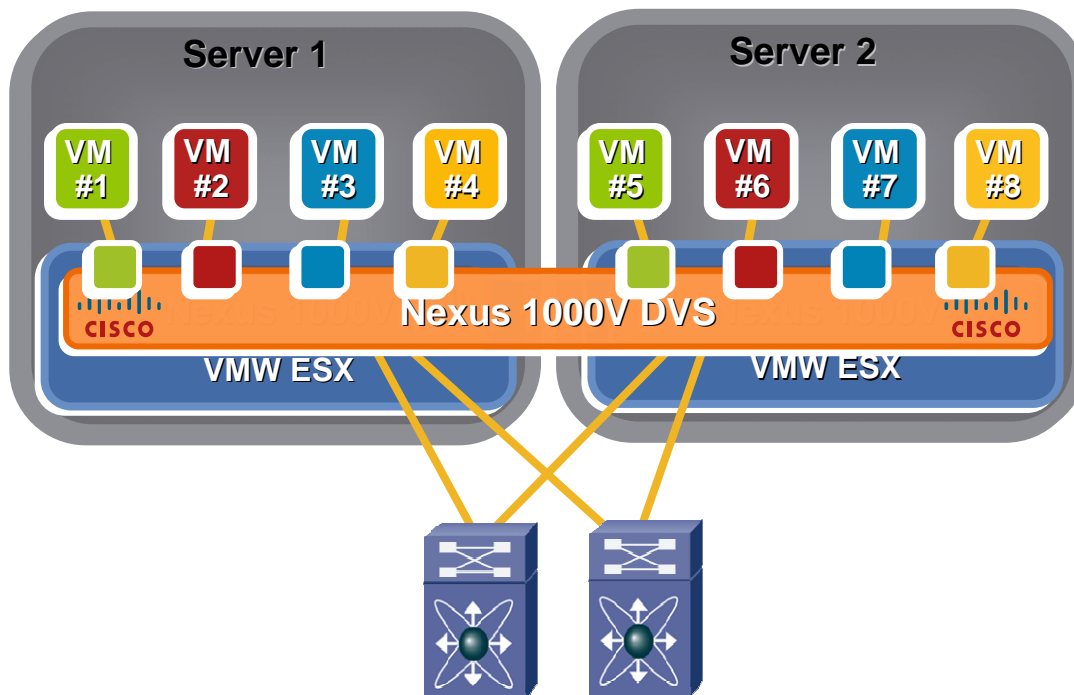
### Nexus 5000 with VN-Link (Hardware Based)



Two Complimentary Models to Address Evolving Customer Requirements

# Cisco Nexus 1000V

## Industry First 3<sup>rd</sup> Party Distributed Virtual Switch



- **Nexus 1000V provides enhanced VM switching for VMware ESX**
- **Features Cisco VN-Link:**
  - Policy Based VM Connectivity
  - Mobility of Network & Security Properties
  - Non-Disruptive Operational Model
- **Ensures proper visibility & connectivity during VMotion**

*Enabling Acceleration of Server Virtualization Benefits*

# Cisco Nexus 1000V

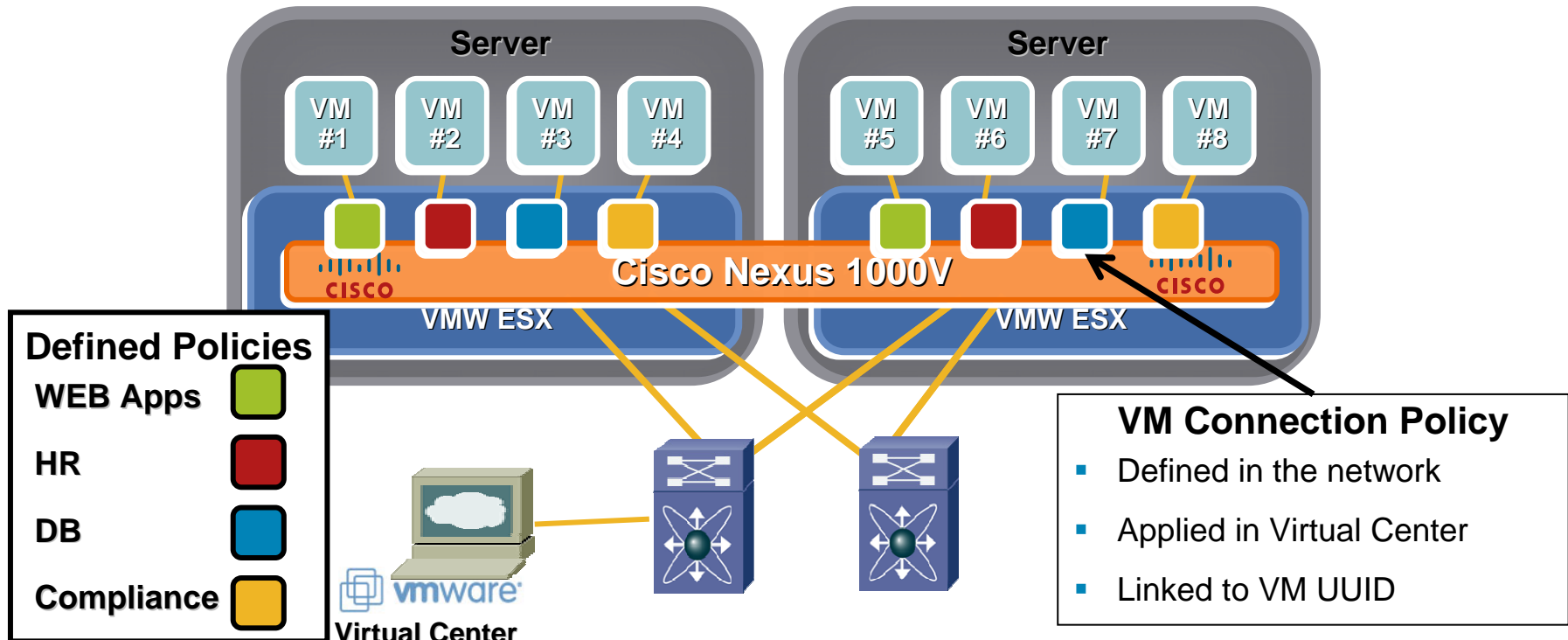
## Faster VM Deployment

### VN-Link: Virtualizing the Network Domain

Policy Based VM Connectivity

Mobility of Network & Security Properties

Non-Disruptive Operational Model



# Cisco Nexus 1000V

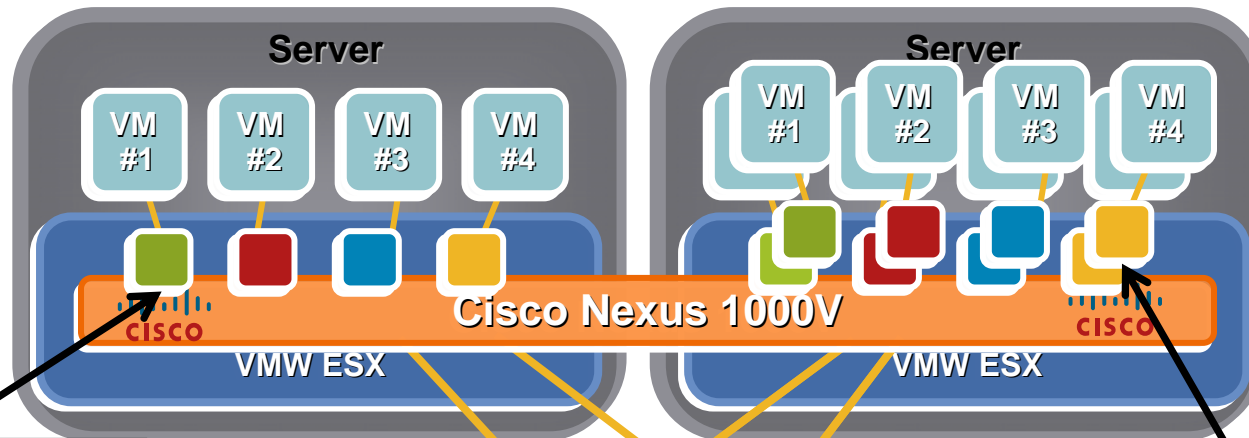
## Richer Network Services

### VN-Link: Virtualizing the Network Domain

Policy Based VM Connectivity

Mobility of Network & Security Properties

Non-Disruptive Operational Model



#### VMs Need To Move

- VMotion
- DRS
- SW Upgrade/Patch
- Hardware Failure



Virtual Center

#### VN-Link Property Mobility

- VMotion for the network
- Ensures VM security
- Maintains connection state

# Cisco Nexus 1000V

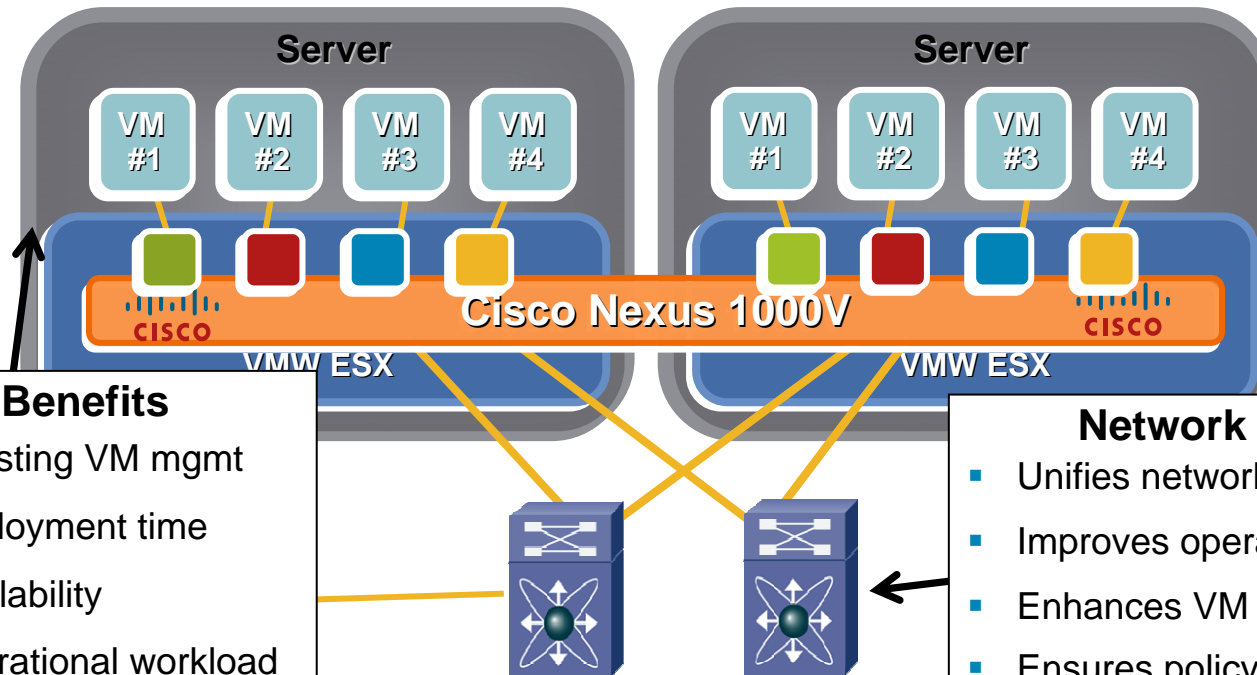
*Increase Operational Efficiency*

## VN-Link: Virtualizing the Network Domain

Policy Based VM Connectivity

Mobility of Network & Security Properties

Non-Disruptive Operational Model



### Server Benefits

- Maintains existing VM mgmt
- Reduces deployment time
- Improves scalability
- Reduces operational workload
- Enables VM-level visibility

### Network Benefits

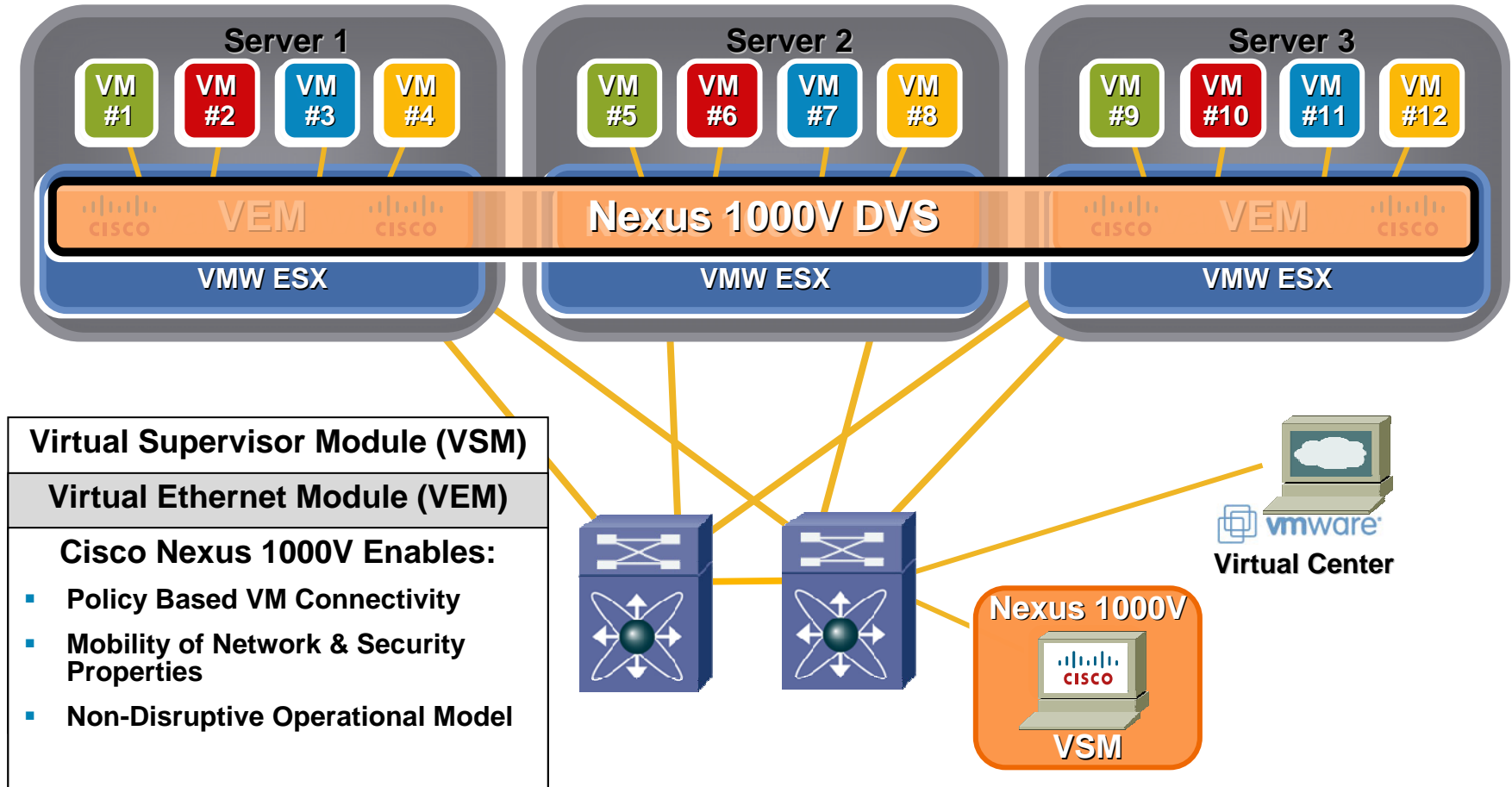
- Unifies network mgmt & ops
- Improves operational security
- Enhances VM network features
- Ensures policy persistence
- Enables VM-level visibility

# Increase Operational Efficiency

*What stays the same? What gets better?*

Task	Virtualization or Server Admin	Network Admin
vSwitch Config	Automated	Same as physical network
Port Group Config	Automated	Policy Based
Port Group Assignment	Unchanged (Virtual Center based)	-
Add new ESX host	Automated (assign NIC & go)	Unchanged
NIC Teaming Config	Automated	EtherChannel Optimized
VM Creation	Unchanged	Policy Based
Security	Policy Based	ACL, PVLAN, IP Redirect, Port Security, TrustSec
Visibility	VM Specific	VM Specific
Management Tools	Unchanged (Virtual Center)	Cisco CLI, XMP API, SNMP, DCNM

# Cisco Nexus 1000V Architecture



- |   |
|---|
| <b>Virtual Supervisor Module (VSM)</b>  |
| <b>Virtual Ethernet Module (VEM)</b>  |
| <b>Cisco Nexus 1000V Enables:</b>   |
| <ul style="list-style-type: none"> <li>▪ Policy Based VM Connectivity</li> <li>▪ Mobility of Network &amp; Security Properties</li> <li>▪ Non-Disruptive Operational Model</li> </ul> |

PF5

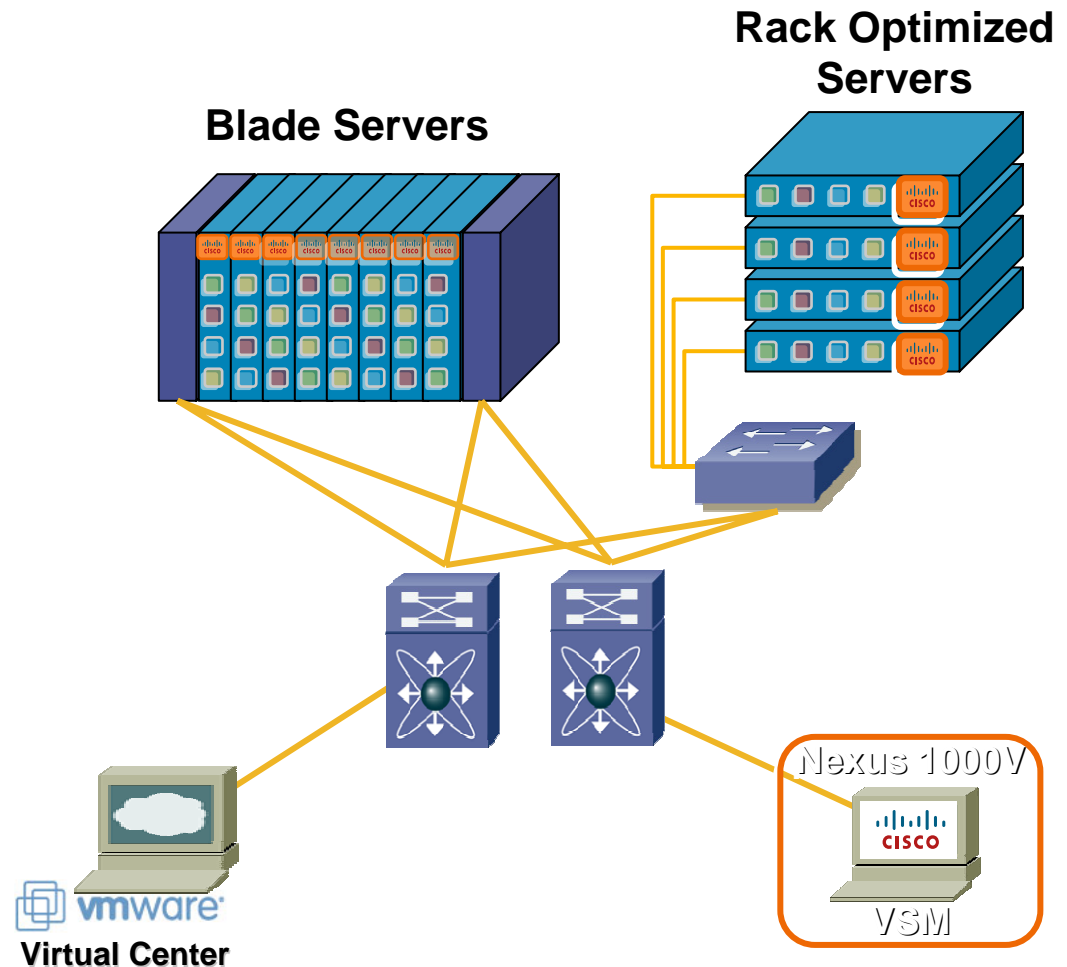
Animate to show vmotion as last step

Paul Fazzino, 8/22/2008

# Nexus 1000V Deployment Scenarios

*Pick your flavor*

1. Works with all types of servers (rack optimized, blade servers, etc)
2. Works with any type of upstream switch (Blade, Top or Rack, Modular)
3. Works at any speed (1G or 10G)
4. Nexus 1000V VSM can be deployed as a VM or a physical appliance



# Accelerate Server Virtualization

Enable, Simplify, Scale



## Security and Policy Enforcement

**Enable** VM-level security and policy

**Scale** the use of VMotion and DRS



## Operation and Management

**Simplify** management and troubleshooting with VM-level visibility

**Scale** with automated server & network provisioning



## Organizational Structure

**Enable** flexible collaboration with individual team autonomy

**Simplify** and maintain existing VM mgmt model

