



Citrix NetScaler 1000V



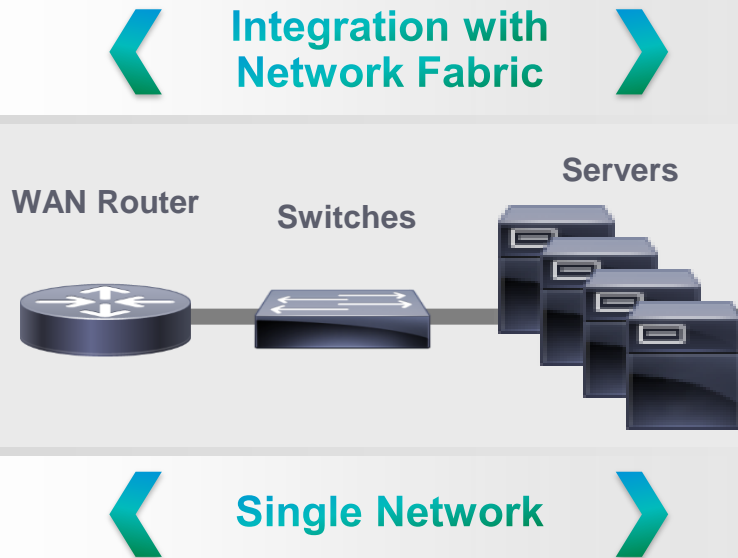
Gunnar Anderson (Cisco) and Steve Barnes (Citrix)

Agenda

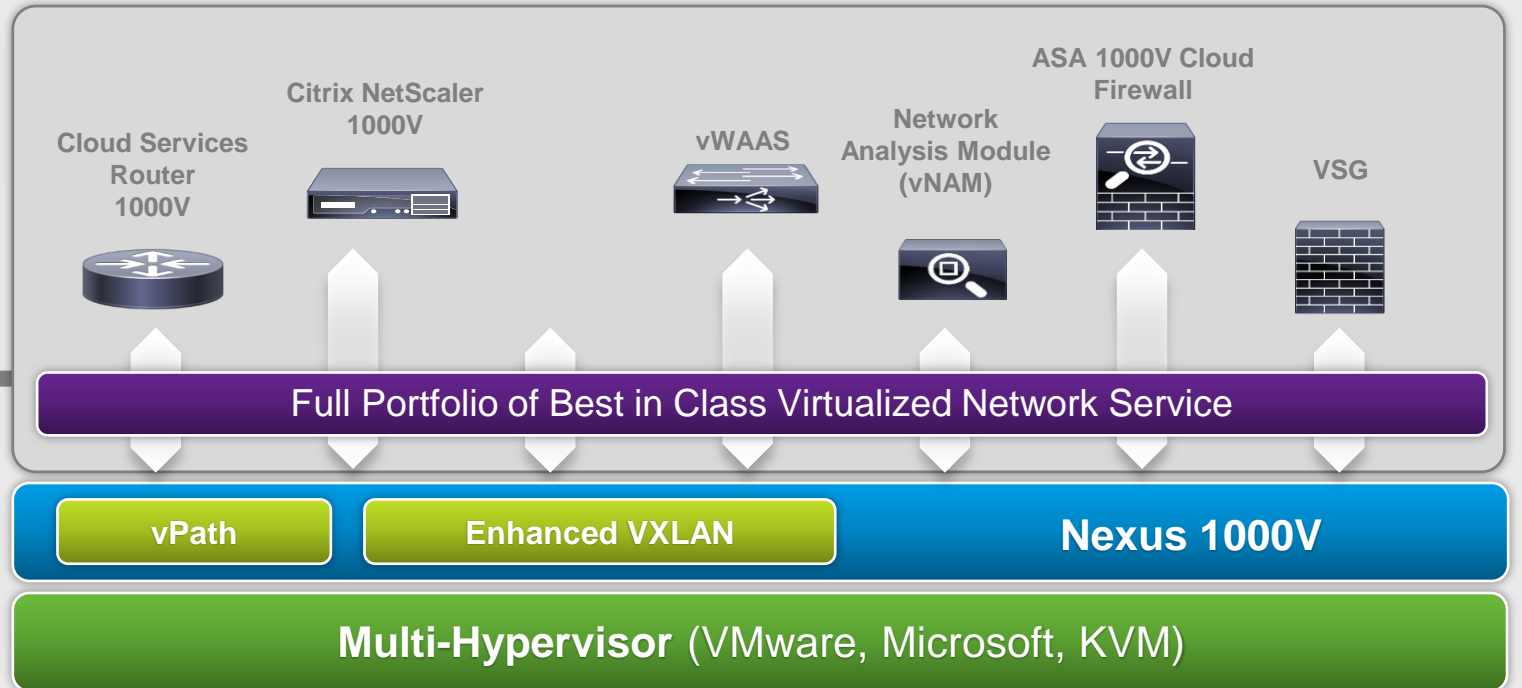
- Intro
- NetScaler 1000V
- Why vPath?
- Technical Deep Dive w/ live demo
- Q&A as we go

Cisco Virtual Networking and Cloud Network Services

PHYSICAL INFRASTRUCTURE



CLOUD NETWORK SERVICES

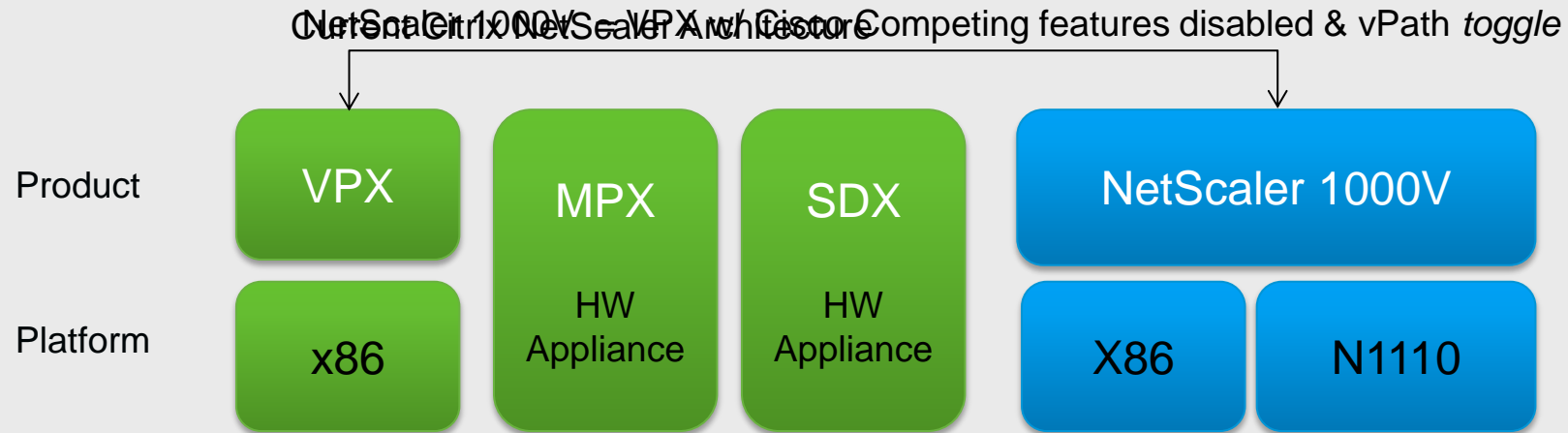


Nexus 1000V	VSG	ASA 1000V	vWAAS	CSR 1000V (Cloud Router)	Ecosystem Services
<ul style="list-style-type: none"> Distributed switch NX-OS consistency 	<ul style="list-style-type: none"> VM-level controls Zone-based FW 	<ul style="list-style-type: none"> Edge firewall, VPN Protocol Inspection 	<ul style="list-style-type: none"> WAN optimization Application traffic 	<ul style="list-style-type: none"> WAN L3 gateway Routing and VPN 	<ul style="list-style-type: none"> Citrix NetScaler 1000V

1. Proven successful partnership between Cisco and Citrix for Xen Desktop
2. Sales and Executive alignment between Cisco and Citrix
3. Citrix is a leader in the virtual ADC market
 - First to market with Virtual ADC – 2009
 - Citrix ranked #1 in the virtual Load Balancing Market



Cisco & Citrix Product Break-out



- Cisco Competing features that have been disabled:
 - Citrix® Branch Repeater® (now Cloud Bridge),
 - NetScaler CloudConnectors™,
 - Citrix Access Gateway™ EE SSL VPN (now NetScaler Gateway),
- Throughputs: 10M, 200M, 500M, 1G, 2G, 3G & 4G (w/ and w/o Clustering)
- Ability to enable/disable (toggle) vPath; disabling vPath allows you to load balance physical servers
- 141x SKUs NOW orderable on Cisco's Global Price List (GPL); includes ALL upgrade SKUs

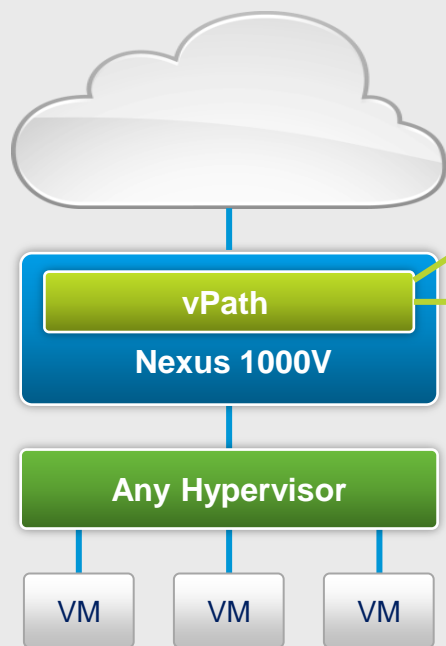


NetScaler 1000V and Cloud Services Portfolio

Citrix NetScaler
1000V on ESXi OR
Nexus 1100 Series



- Citrix Best-in-Class virtual application delivery controller (vADC)
- Sold and supported **exclusively** by Cisco
- Tightly integrated via vPath (policy based traffic steering)
- Integrated with Nexus 1100 Series Cloud Services Platform (CSP)
- Part of Cisco Validated Design – VMDC Virtual Services Architecture (VSA) 1.0 Release (or Citrix VPX)



Cisco Cloud Services Platform (CSP)

NetScaler 1000V



NEW

1110-X
10G enabled
SSL FRU
(Q2CY14)

Nexus 1100 Series Cloud Services Platform

NetScaler 1000V Editions

Standard Edition

Comprehensive L4-7 load balancing and optimizes expensive server and network resources to reduce cost

Enterprise Edition

Web application delivery solution providing **advanced traffic management** and powerful **application acceleration**

Platinum Edition

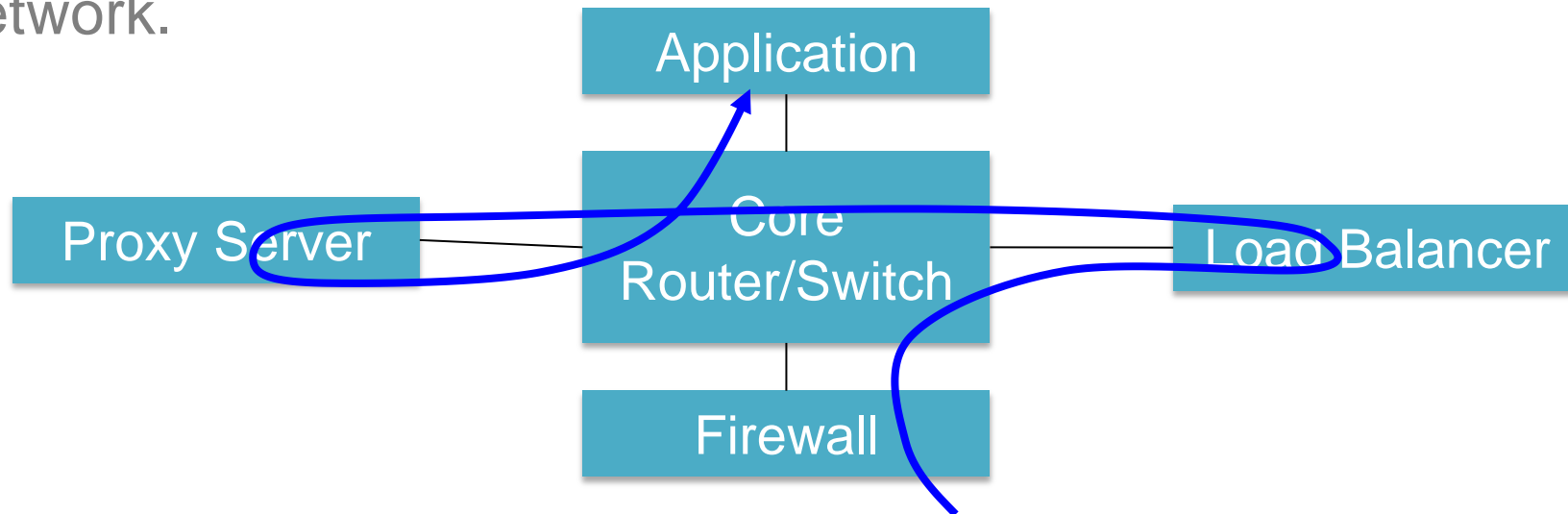
Web application delivery solution designed to deliver mission-critical applications with **web application firewall** security, fastest performance, and lowest cost



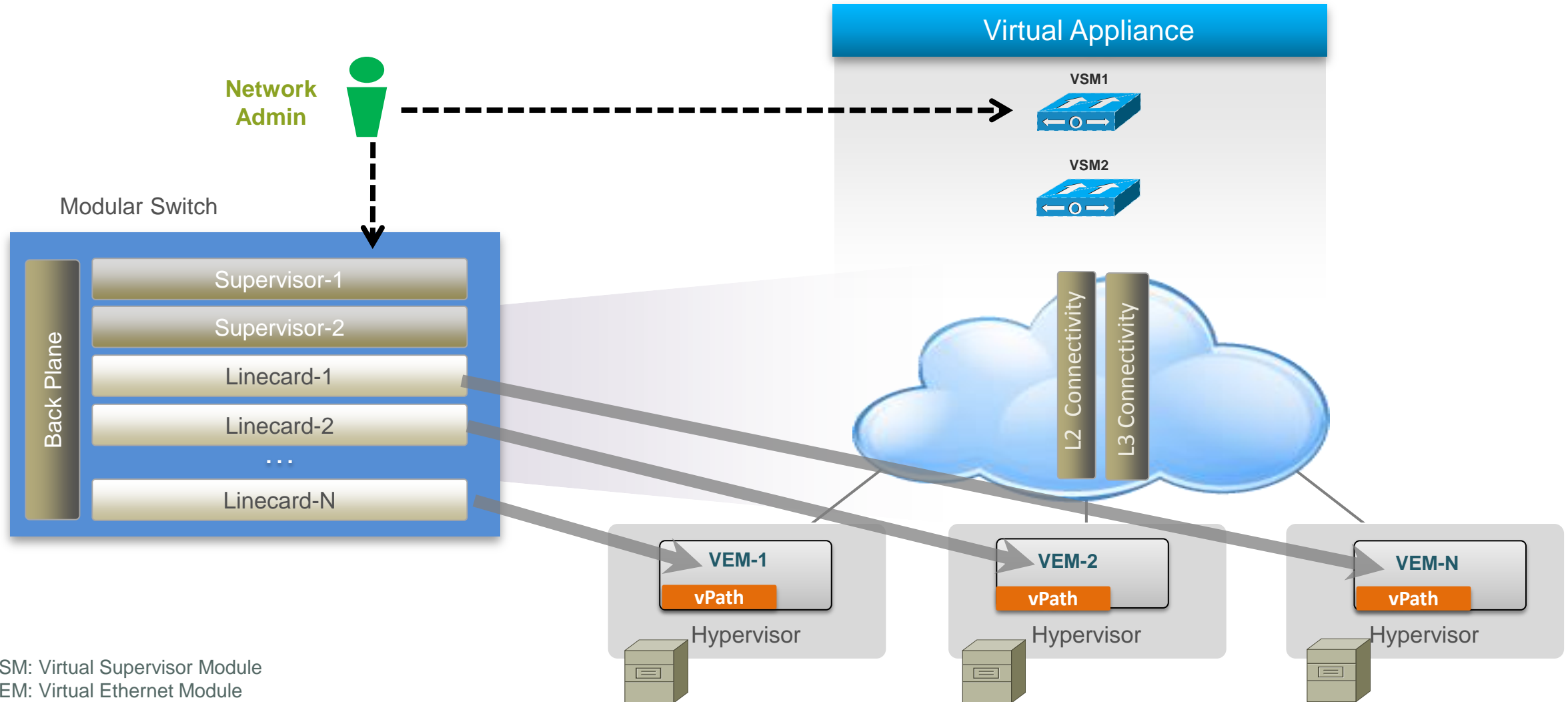
Why vPath

Application Requirements for Network Services

- Current generation network capabilities are driven by physical network topology. Example, If the firewall is plugged into the Internet connection and then the load balancer into firewall, the path of traffic must always flow in that order.
- Application driven requirements that change the relationship (load balancing, then firewall) cannot be supported without physically changing the layout of the network.



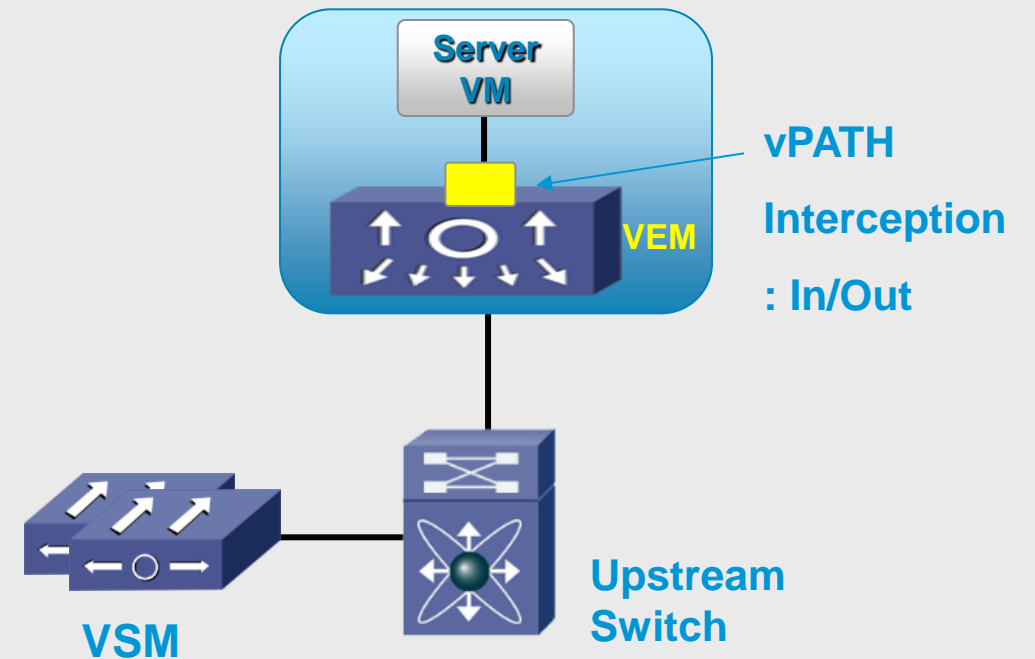
Nexus 1000V Architecture with vPath



VSM: Virtual Supervisor Module
VEM: Virtual Ethernet Module

vPath Services enabled per VNIC

- vPath enables service insertion based on policies created for Application VM's
- vPATH Interception is configured on Server VM's Port Profile in both directions to redirect packets to a Service Node
- Server traffic is intercepted by vPATH interception in VEM and redirected to a Virtual Service Node
- Both ingress and egress traffic for a VM is intercepted by vPath

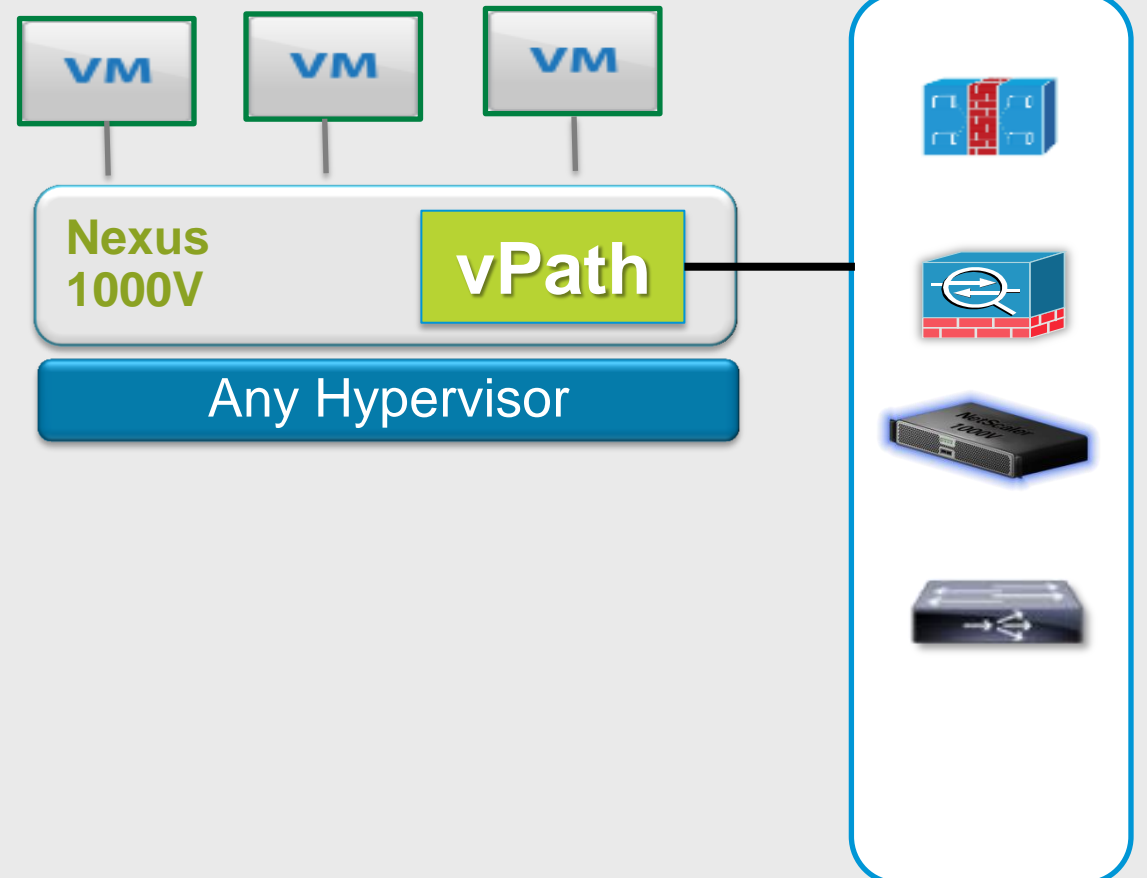


vPATH

Policy Based Service Enablement

vPath is Nexus 1000V dataplane component:

1. Distributed Service insertion architecture, with Intelligent traffic intercept and redirection mechanism
2. Topology agnostic service insertion model
3. Service Chaining across multiple virtual services
4. Performance acceleration with vPath e.g. VSG flow offload
5. Efficient and Scalable Architecture
6. VM Policy mobility with VM mobility



Best In Class Virtual Service Insertion Architecture

vPath Benefits

Without vPath

- Complex deployment- per host service nodes
- Service chaining is static
- No Fast path acceleration
- Services tightly coupled with network topology

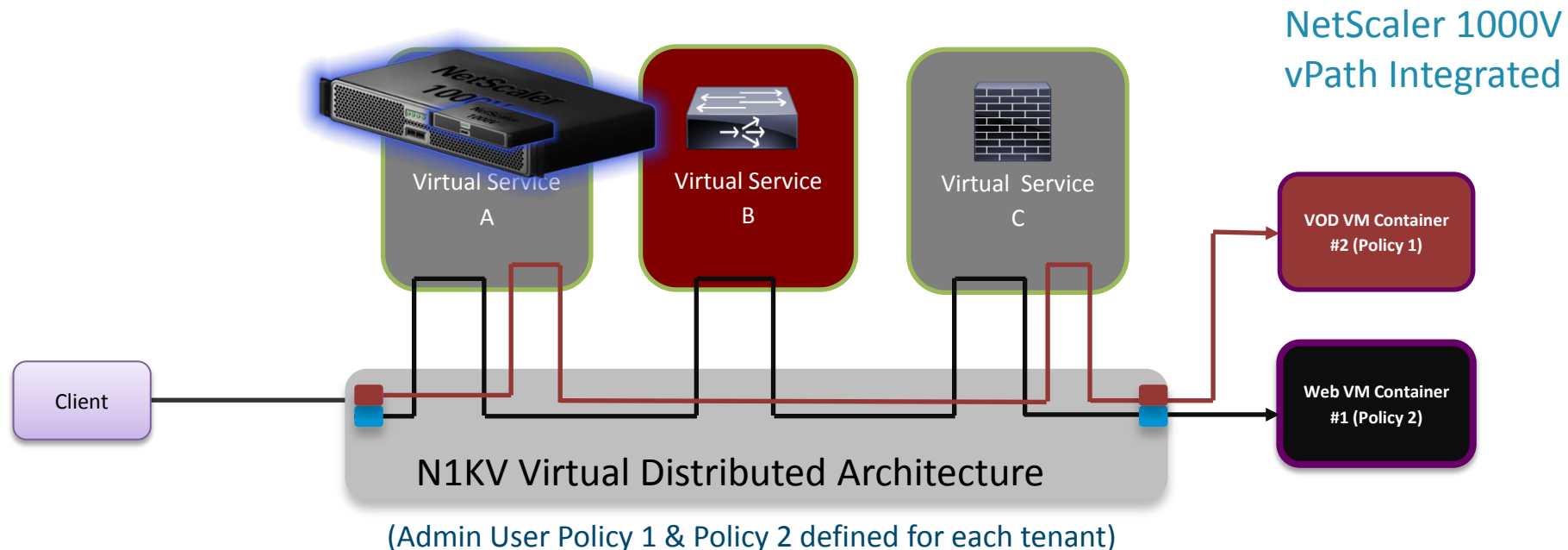
With vPath

- Distributed policy-driven Service Insertion & chaining
- Non-disruptive operations
- Fast-Path acceleration
- Decouple services from network topology

Evolve the Network for the next wave of application requirements

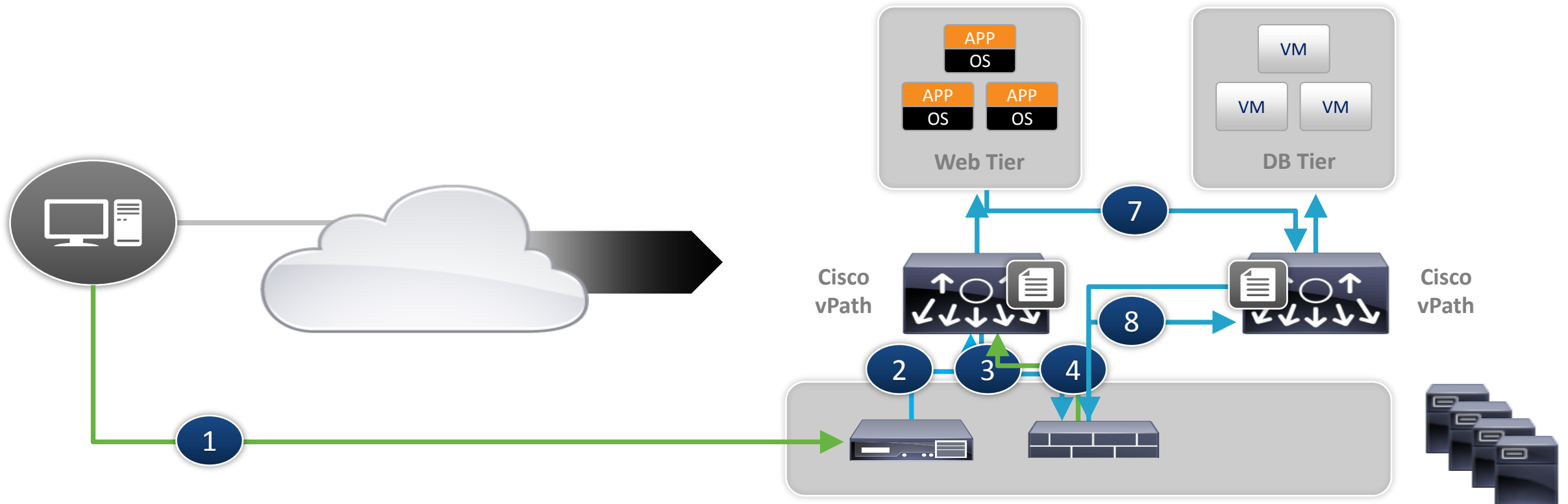
vPath Service Chaining Benefits

- You define which L4-7 Virtual Services through policy, NOT network topology
- Transparent Services Insertion for vPath capable Virtual Services
- Dynamic Service chains enabled per VM/Application/Tenant



Services Chaining with vPath

Intelligent Policy-based Traffic Steering Through Multiple Network Services

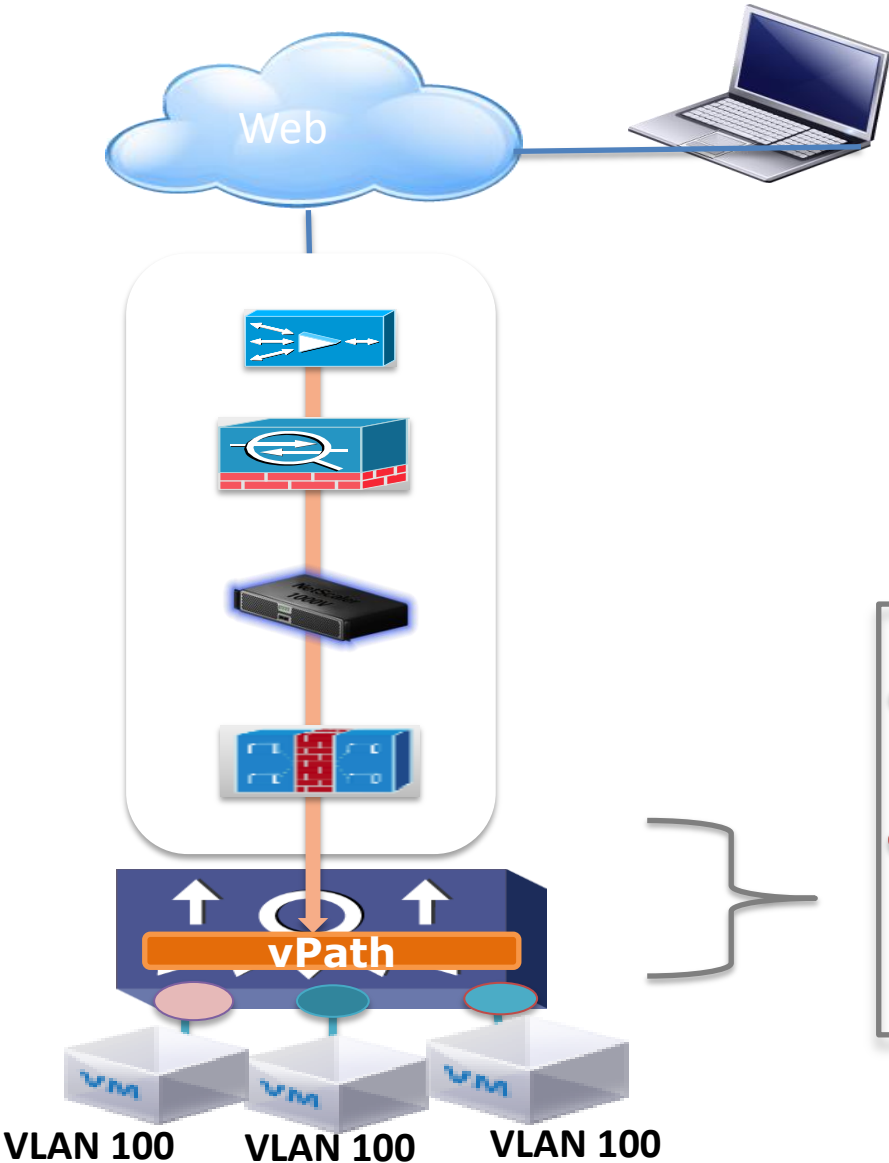


8

Client Initiates Flow to Web Server (VIP as Server IP)

Client > LB-VIP > Cisco vPath switch (3) > Cisco vPath switch (4) > Web Tier server > Cisco vPath switch (6) > DB Tier server > Cisco vPath switch (7) > Cisco vPath switch (8) > Cisco vPath switch (9)

Enterprise: Multi-Tier Applications



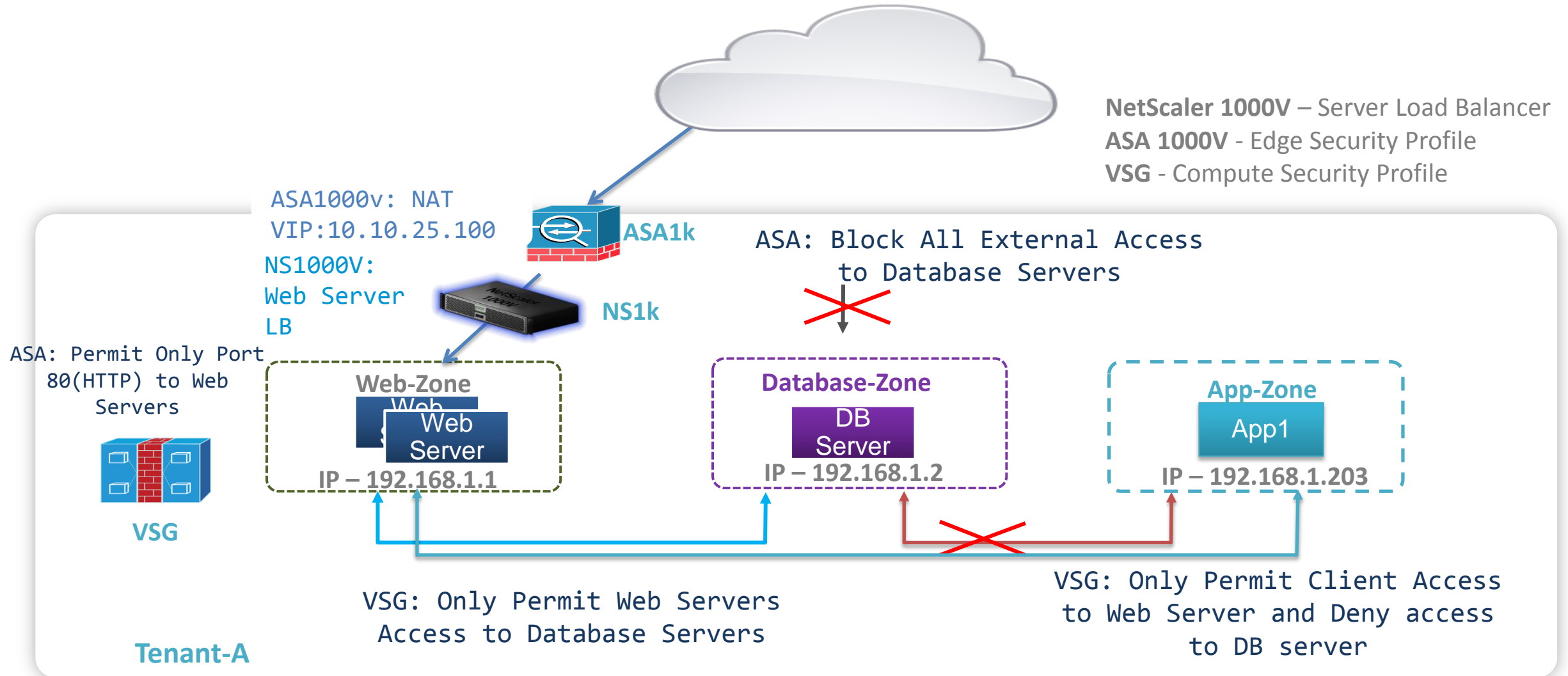
- Intelligent service chaining
- Flat network: application workloads are on VLAN 100, still each have different set of services enabled
- Service chain stays attached to VM on VM mobility

● WAN Optimization + Edge Firewall + NAT + Load Balancer + Web Application Firewall + Zone based Firewall

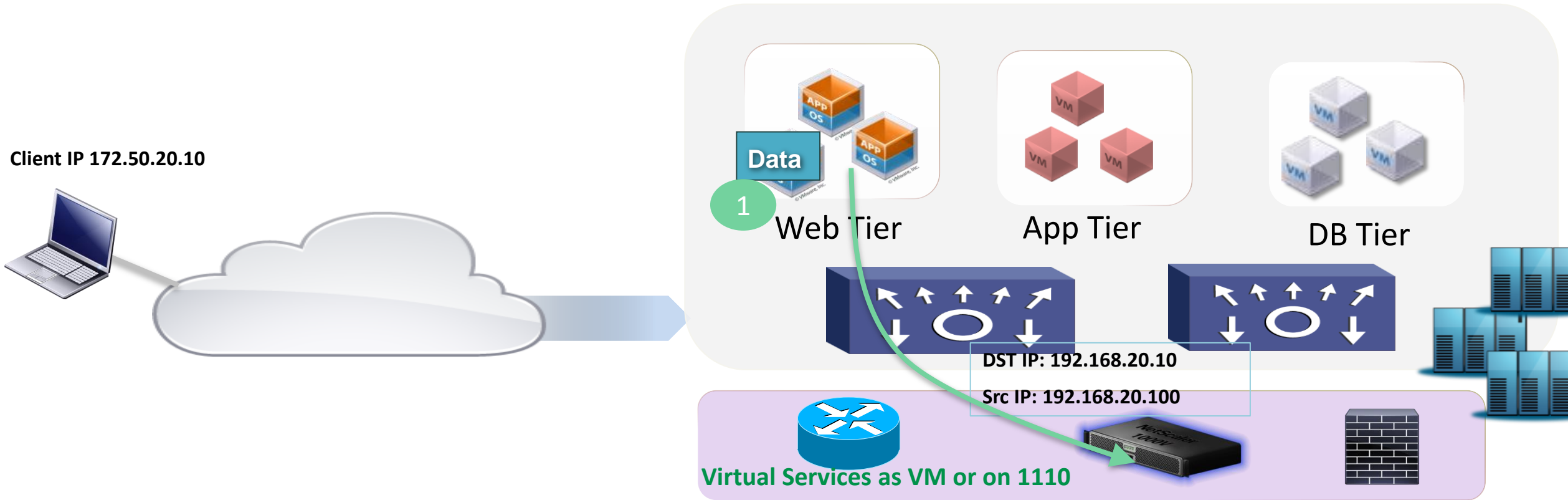
● Load Balancer + Zone based Firewall

● VSG Zone based Firewall

3-Tier Server zone



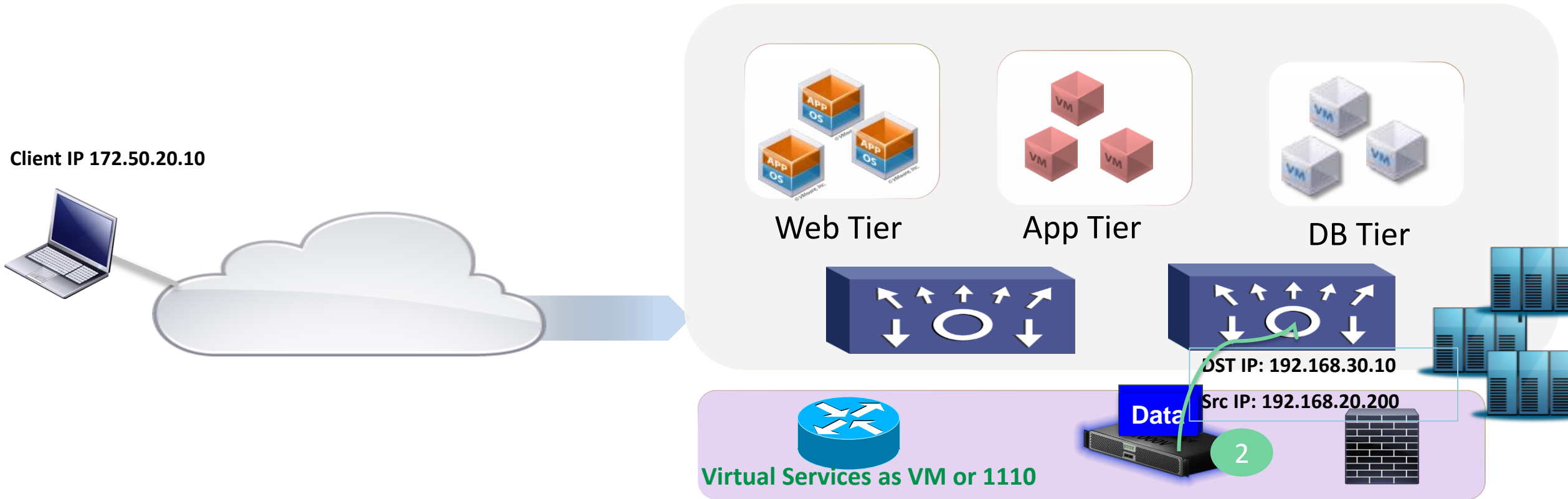
NetScaler 1000V without vPath East-West / Distributed Services



1

Web Server initiates connection to App Server with LB service enabled, so Destination is VIP

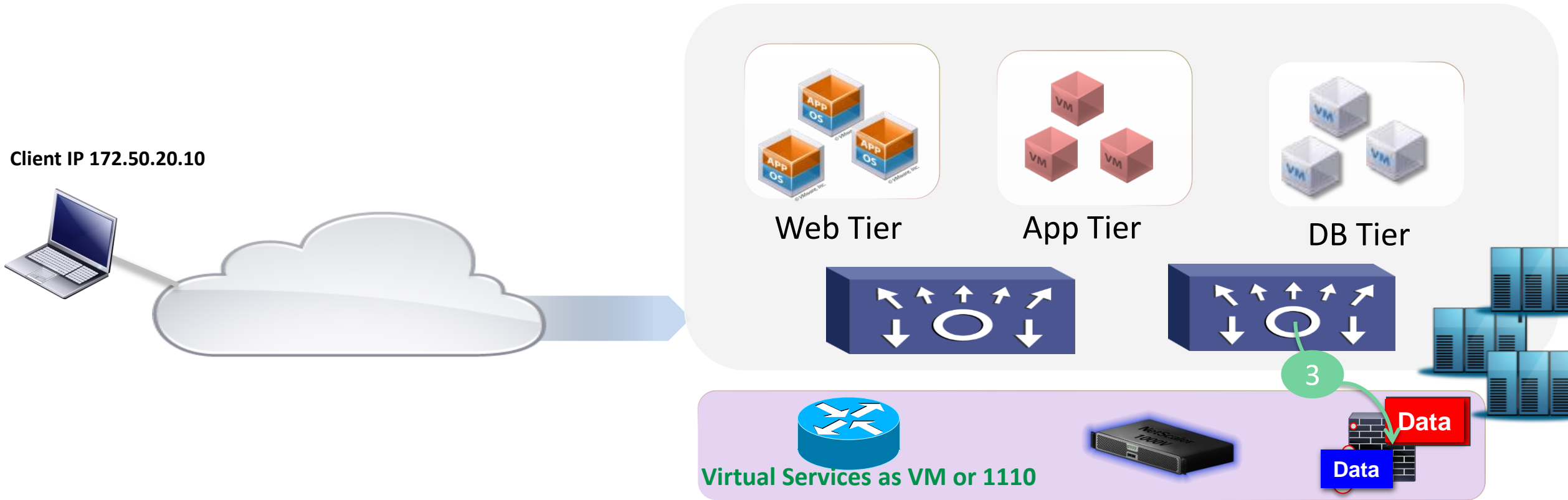
NetScaler 1000V without vPath East-West / Distributed Services



2

VIP selects App Server for the destination; sends packet with destination IP of App Server , and Source IP of SNIP

NetScaler 1000V without vPath East-West / Distributed Services

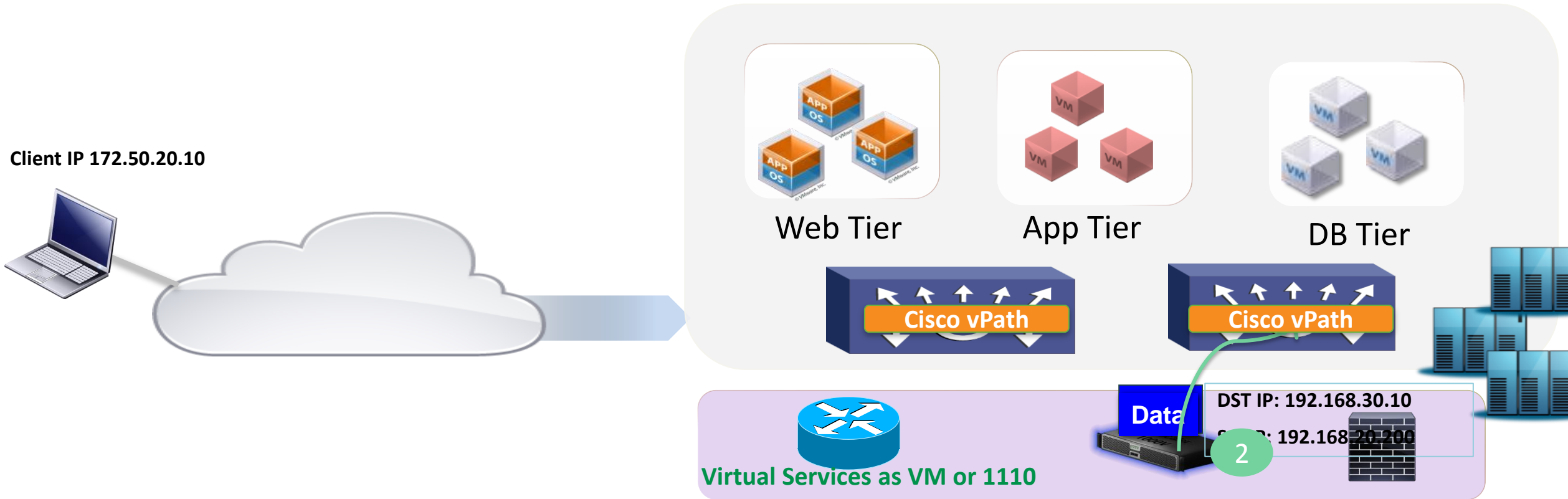


3

Distributed Firewall policy for App Server receives packet, but lacks visibility of Source information for policy evaluation. Policy fails !

Firewall needs to know Source/Client IP for policy evaluation

NetScaler 1000V with vPath East-West / Distributed Services

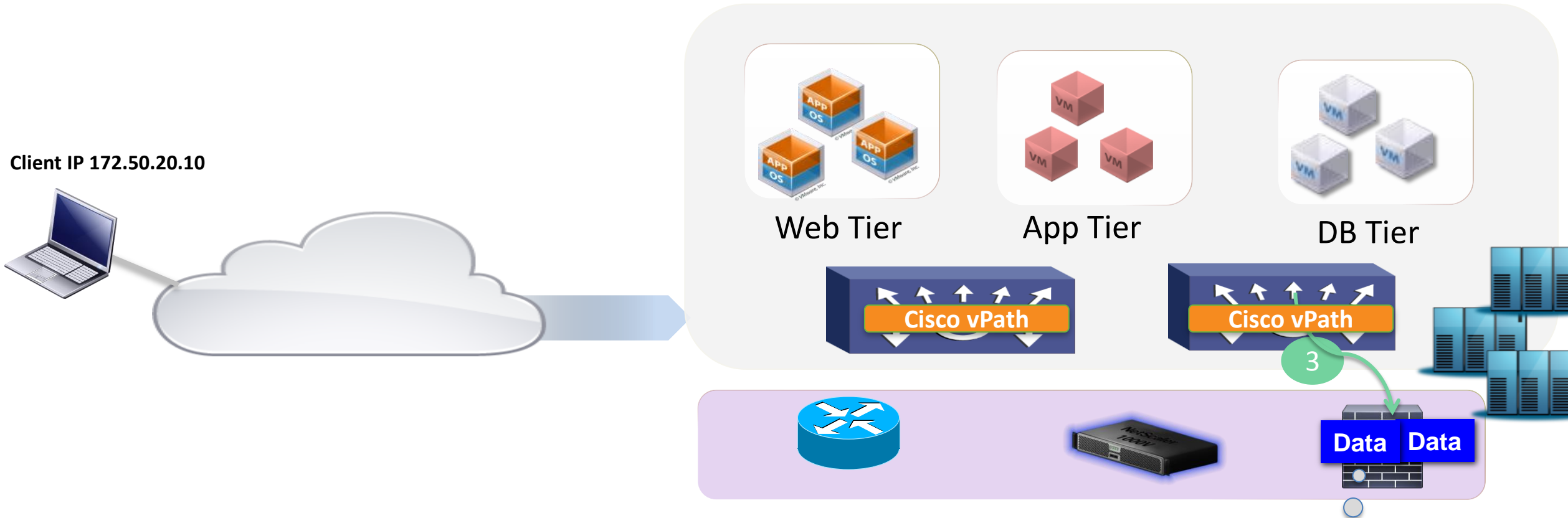


2

VIP selects App Server for the destination; sends packet with destination IP of App Server, and Source IP of Client

NetScaler 1000V with vPath

Enabling East-West flow usecase for SLB



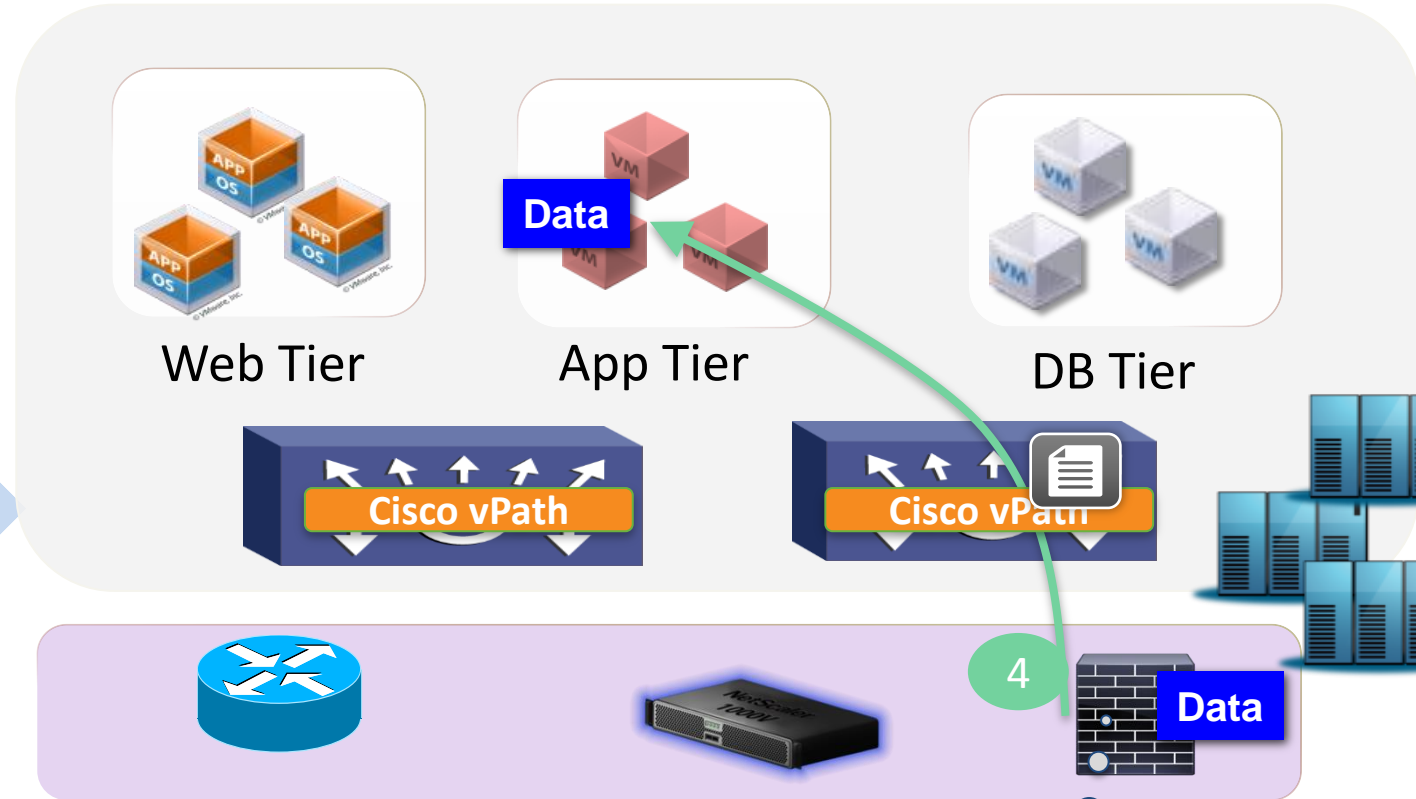
3 Distributed Firewall enabled for App Server receives packet, and has full visibility of Source information for policy evaluation

Firewall has visibility of Source and destination for Policy evaluation

NetScaler 1000V with vPath

- East-West Services and Application Servers ready to deliver best in class services 😊

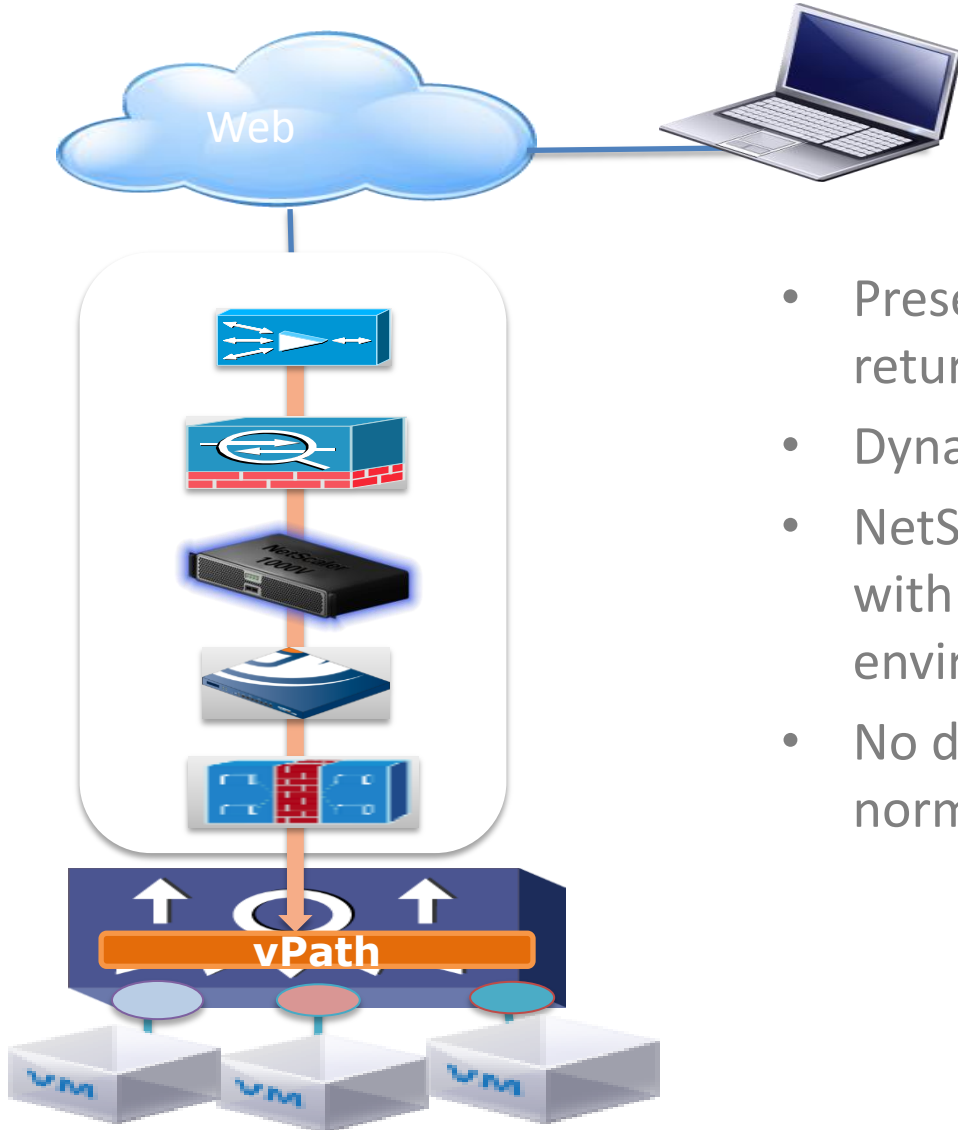
Client IP 172.50.20.10



4 Packet is forward to App Server on Policy evaluation

Firewall has visibility of Source and destination for Policy evaluation

Key takeaway for NetScaler 1000V with vPath



- Preserve Client IP; No Source NAT or PBR required to send server return traffic to NetScaler1000V
- Dynamic SLB (NS1000V) deployments in Multi-Tenant environment
- NetScaler 1000V gets rich benefits of intelligent service chaining with no worrying about VLAN stitching in dynamic virtual environments
- No disruption to east-west / distributed services, that would normally happen with source NAT

Resources

- Nexus 1000V & Virtual Services: <http://www.cisco.com/go/1000v>
- Labs: <https://dcloud.cisco.com> for NetScaler 1000V and <https://cloudlab.cisco.com> for N1KV and VSG
- vPath Ecosystem, Release 2.5 (includes N1KV, VSG, ASA1KV, vWAAS, Prime NSC, and NS1000V)
http://www.cisco.com/cisco/web/docs/solutions/n1kv/vpath-ecosys/2_5/index.html
- Nexus 1000V & Virtual Services Community w/ Q&A, webinars, etc (Public Forum)
<http://www.cisco.com/go/1000vcommunity>