



# Cloud Services Router (CSR 1000V) Technical Deep Dive & Key Use Cases

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[www.cisco.com/go/cloudrouter](http://www.cisco.com/go/cloudrouter)

# Cisco ONE/N1K Public Webinars, 1H 2013

Date/Time	Topic
Thur, Feb 21st at 0900 PST	Cisco Open Network Environment (Cisco ONE) – Next Phase of Network Programmability and SDN
Thur, Feb 28th at 0900 PST	Cisco One Platform Kit (onePK): Technical Deep Dive and key use cases
Wed, Mar 6th at 0900 PST	Nexus 1000V for Hyper-V with Microsoft SCVMM integration
Wed, Mar 13th at 0900 PST	Cisco ONE Controller: Technical Deep Dive and key use cases
Wed, Mar 20th at 0900 PST	5000 Seat VDI Reference Architecture: Cisco UCS & Nexus 1000V, Citrix XenDesktop, and EMC VNX
Wed, Mar 27th at 0900 PST	Nexus 1000V v2.2 for vSphere: More scale, Multicast-less VXLAN, and VXLAN Gateway
Wed, April 3rd at 0900 PST	Cloud Services Router (CSR 1000V) is now GA! → technical deep dive and key use cases
Wed, April 10th at 0900 PST	Cloud Security with ASA 1000V and Virtual Security Gateway v2.1 (VSG)
Wed, April 17th at 0900 PST	Secure Hybrid Cloud solution with Nexus 1000V InterCloud & VNMC InterCloud
Wed, April 24th at 0900 PST	Nexus 1100 for Cloud Network Services: New Services & Ecosystem
Wed, May 1st at 0900 PST	Cloud Networking Services: vNAM and vWAAS
Wed, May 8th at 0900 PST	Virtualized Multiservice Data Center (VMDC) solution with Cloud Networking Services
Wed, May 15th at 0900 PST	Nexus 1000V for KVM (with OpenStack and VXLAN)

***Register and view recordings/presentations here:***

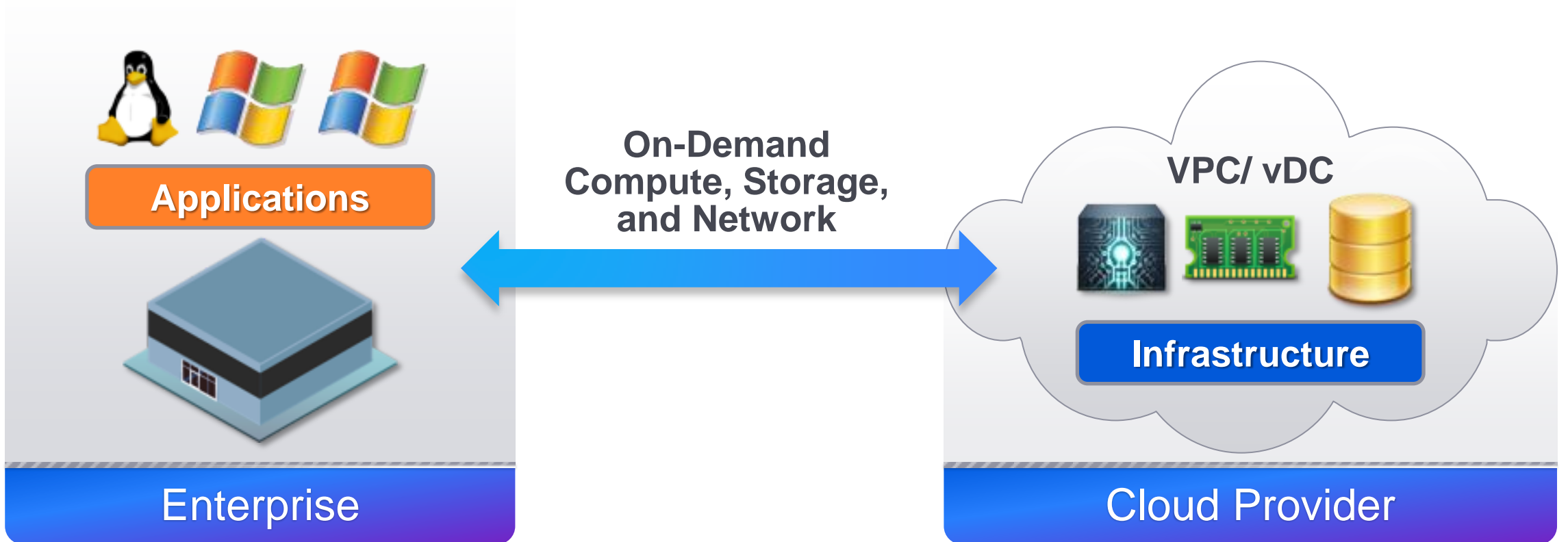
***[www.cisco.com/go/1000vcommunity](http://www.cisco.com/go/1000vcommunity)***

# Agenda

- Cloud IaaS Networking Challenges
- What is the CSR 1000V?
- Where is the CSR 1000V deployed?
- CSR 1000V Management and Licensing
- Available for Download and Purchase
- Cisco Virtualized Networking and Security Products
- Q&A as we go (expert panelists are standing by)

# Infrastructure as a Service (IaaS)

Changing the Cost Economics and Business Responsiveness of IT



**Pay-For-Use Pricing, Rapid Provisioning, Elastic Scalability**

# Cloud Networking Challenges

## Lack of Enterprise Network Services Creates Barriers to Adoption

### Enterprise

#### Security

- Inconsistent VPN/ Firewall Policies
- Limited Connection Reliability
- Error-prone Topology Changes

#### Integration

- Incompatible IP Addressing
- Incomplete Network Services
- Different Management Tools

#### User Experience

- Indirect Traffic Path through DC
- No Traffic Optimization and QoS
- Limited End-to-End SLAs

### Cloud Provider

#### Tenant Scalability

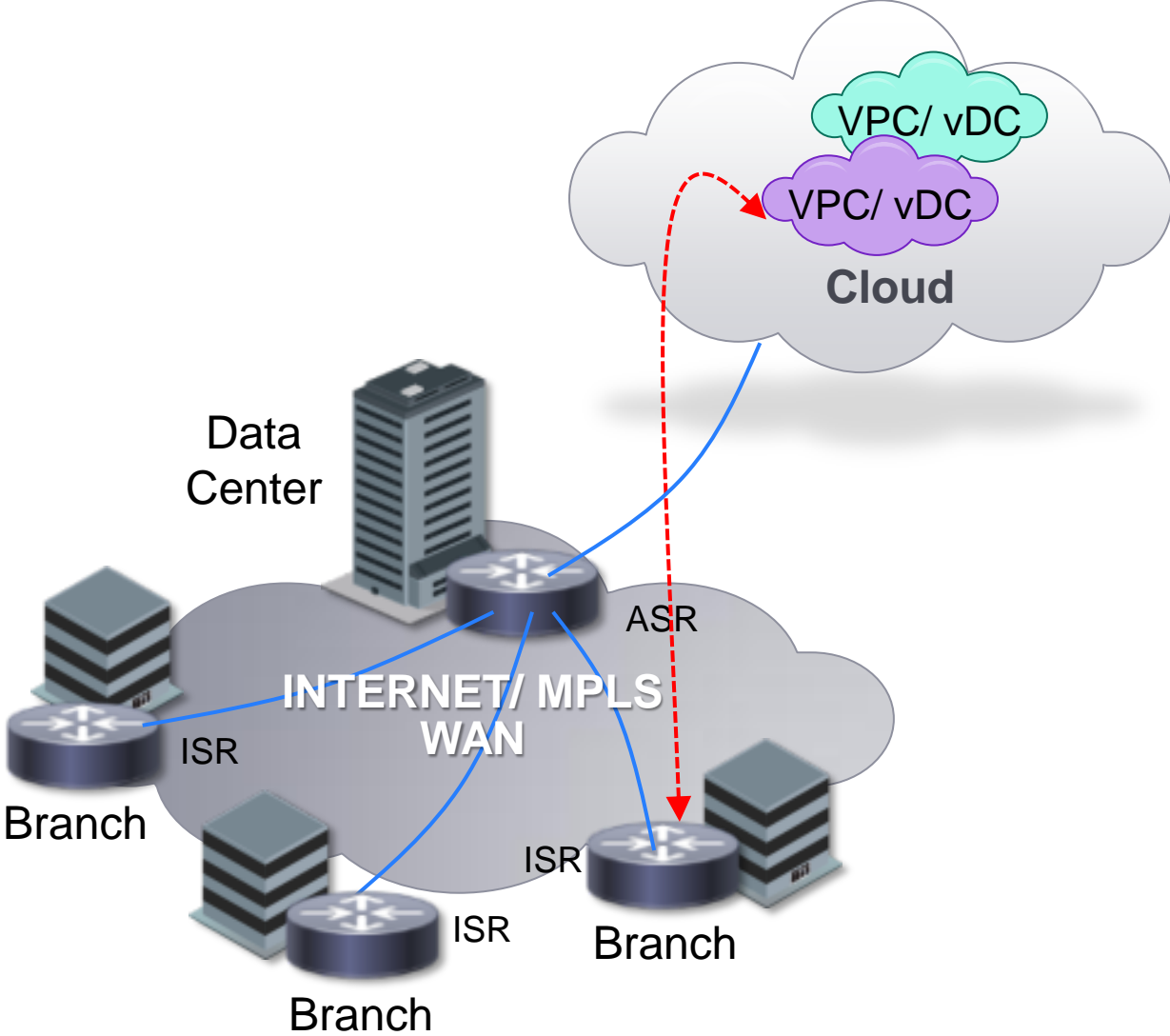
- VLAN-dependent Tenant Scale
- Limited Number of VLANs
- No WAN Extensibility

#### Enterprise Services

- Lack of Enterprise-class VPNs
- No Traffic Optimization and QoS
- Limited Performance SLAs

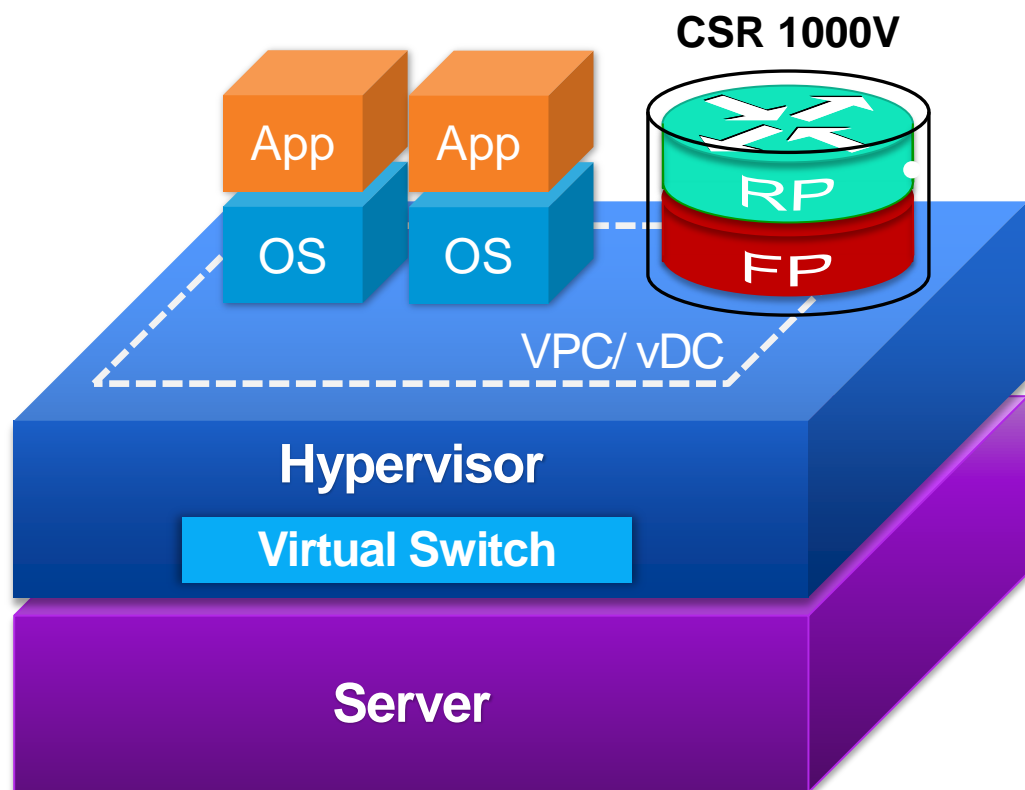
#### Tenant Manageability

- Limited Bandwidth Elasticity
- Limited Programmability
- Inefficient Licensing



# Cisco Cloud Services Router (CSR) 1000V

## Cisco IOS Software in Virtual Form-Factor



### IOS XE Cloud Edition

- Selected Features of IOS XE primarily for Cloud Use Cases

### Infrastructure Agnostic

- Server, Switch, Multi-Hypervisor (*ESXi, KVM, Xen, AMI\**)

### Single-tenant WAN Gateway

- Small Footprint (*reducing from 4 vCPU to 1*), Low Performance Term and Usage\*-based Licenses

- Elastic Capacity (*10 Mbps to 1 Gbps\* Throughput, 2 to 8 GB RAM*)

### Programmability

- RESTful APIs (*leverages OnePK*) for Automated Management

\* 2H CY 2013

Enterprise-class Networking with Rapid Deployment and Flexibility

# Cisco Cloud Services Router (CSR) 1000V

## Extending Enterprise WAN to Cloud

### Enterprise

#### Security

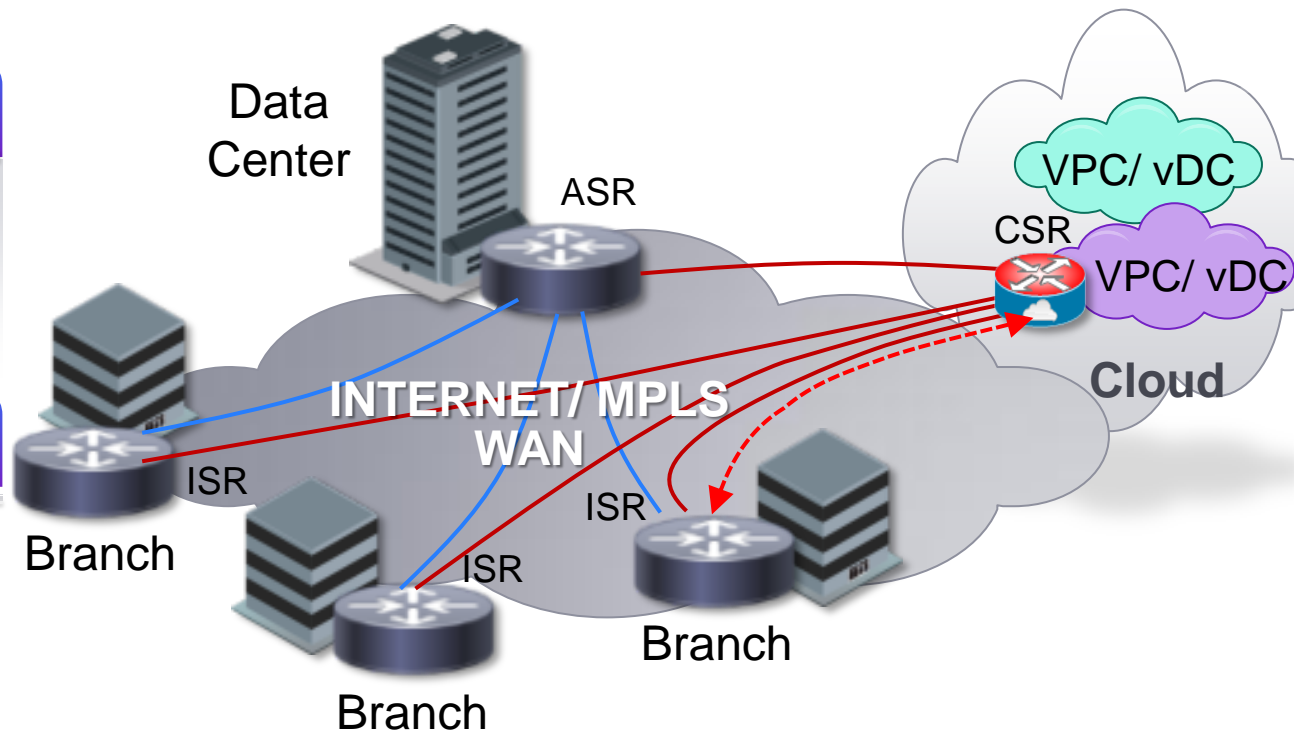
IPSec VPN, L2TP  
Route-based VPNs (DMVPN, ..)  
Firewall, ACL, AAA

#### Integration

NAT, LISP, OTV  
HSRP, QoS, AVC  
IOS-XE CLI, Cisco Prime

#### User Experience

Routing (BGP, EIGRP, Multicast, ..)  
AppNav, WCCP, QoS, AVC  
IP SLA, NetFlow, SNMP



### Cloud Provider

#### Tenant Scalability

802.1Q VLAN, VXLAN\*  
Routing (BGP, GRE, VRF-Lite)  
MPLS (MPLS VPN, VRF)

#### Enterprise Services

DMVPN, EasyVPN, FlexVPN  
Firewall, NAT, WCCP, QoS, AVC  
IP SLA, NetFlow, SNMP

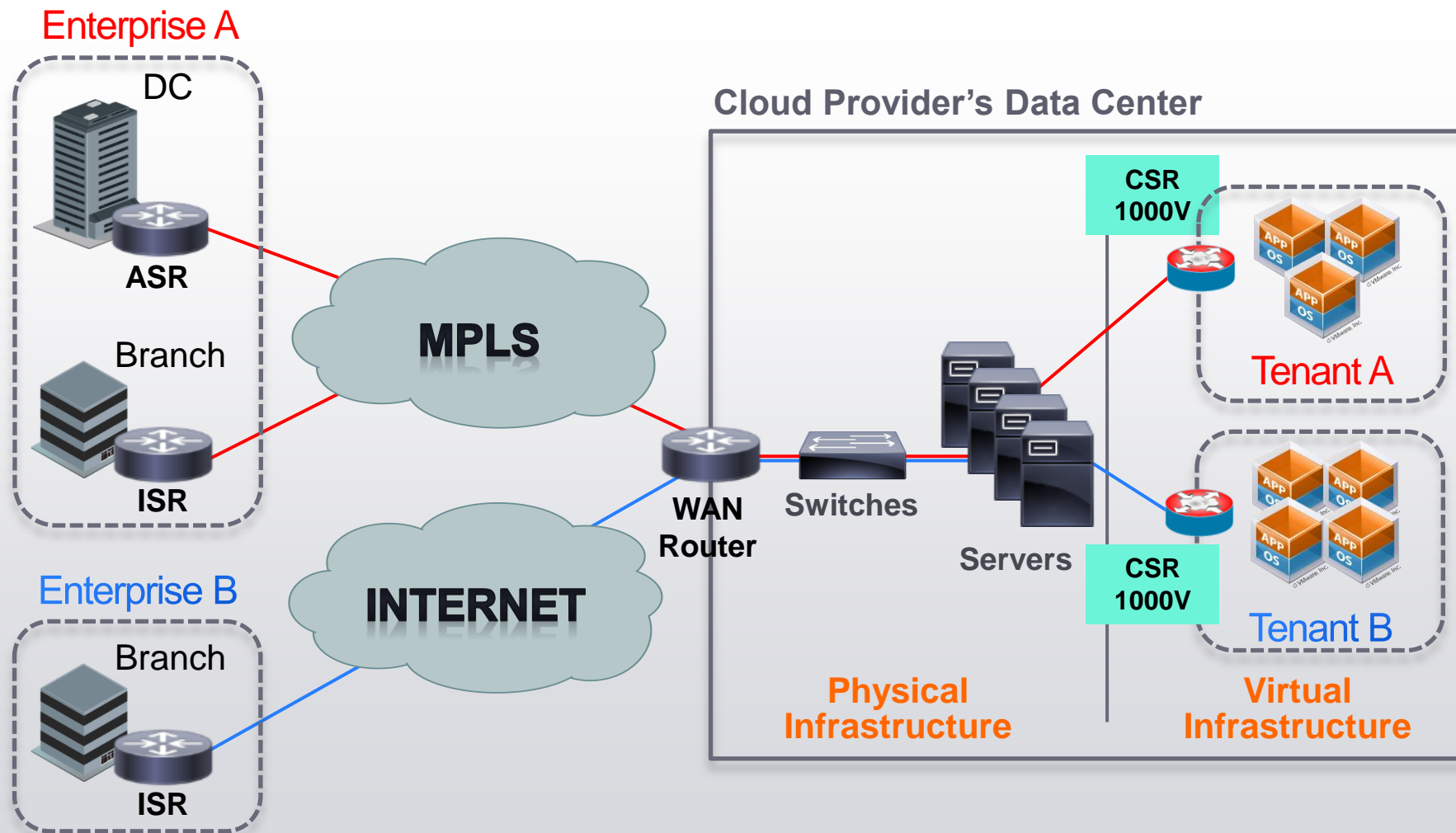
#### Tenant Manageability

10 Mbps to 1 Gbps\*  
RESTful APIs  
Term and Usage\* Licensing

\* 2H CY 2013

# Single-Tenant WAN Gateway in Shared Multi-tenant Clouds

Can be deployed by Enterprises or Cloud Providers



## Enterprise Use Cases

- Network Services - VPN Gateway, Control Point
- Hybrid Cloud Connectivity – L2/ L3 Extensions

## Cloud Provider Use Cases

- MPLS WAN Extension – vCE, vPE
- Network Services - VPN Gateway, Control Point
- Hybrid Cloud Connectivity – L2/ L3 Extensions



# CSR 1000V Management

## Familiar Management Tools and API Support

	Enterprise - Self-Managed	Cloud Provider - Automated
CSR 1000V	<ul style="list-style-type: none"><li>• Cisco Prime Infrastructure</li><li>• Cisco IOS CLI and SNMP</li><li>• Third Party Network Management</li></ul>	CSR 1000V RESTful API <sup>1</sup>
Hypervisor <sup>2</sup>	VMware vCenter Server	VMware vSphere Management API
Multi-Tenant Environment <sup>2, 3</sup>	<ul style="list-style-type: none"><li>• Cisco VNMC and NSM</li><li>• VMware vCloud Director</li></ul>	<ul style="list-style-type: none"><li>• Cisco NSM API</li><li>• VMware vCloud API</li></ul>

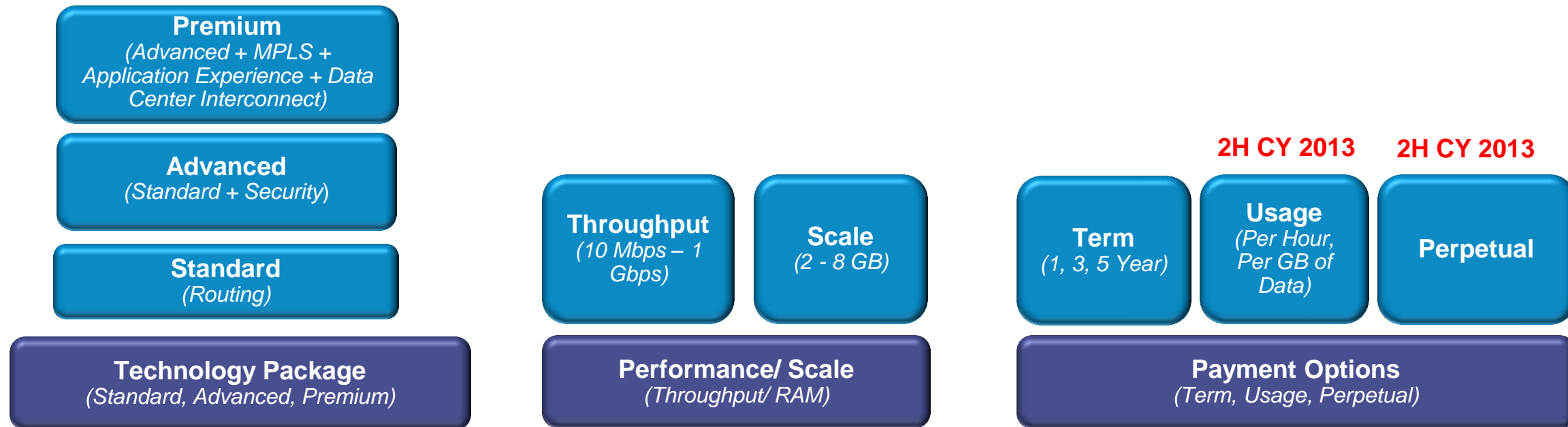
### Notes:

<sup>1</sup>*RESTful APIs for automated deployment (VM creation, license activation) and config (IOS features)*

<sup>2</sup>*Additional hypervisor options (KVM, XenServer, Hyper-V) will be available in the future*

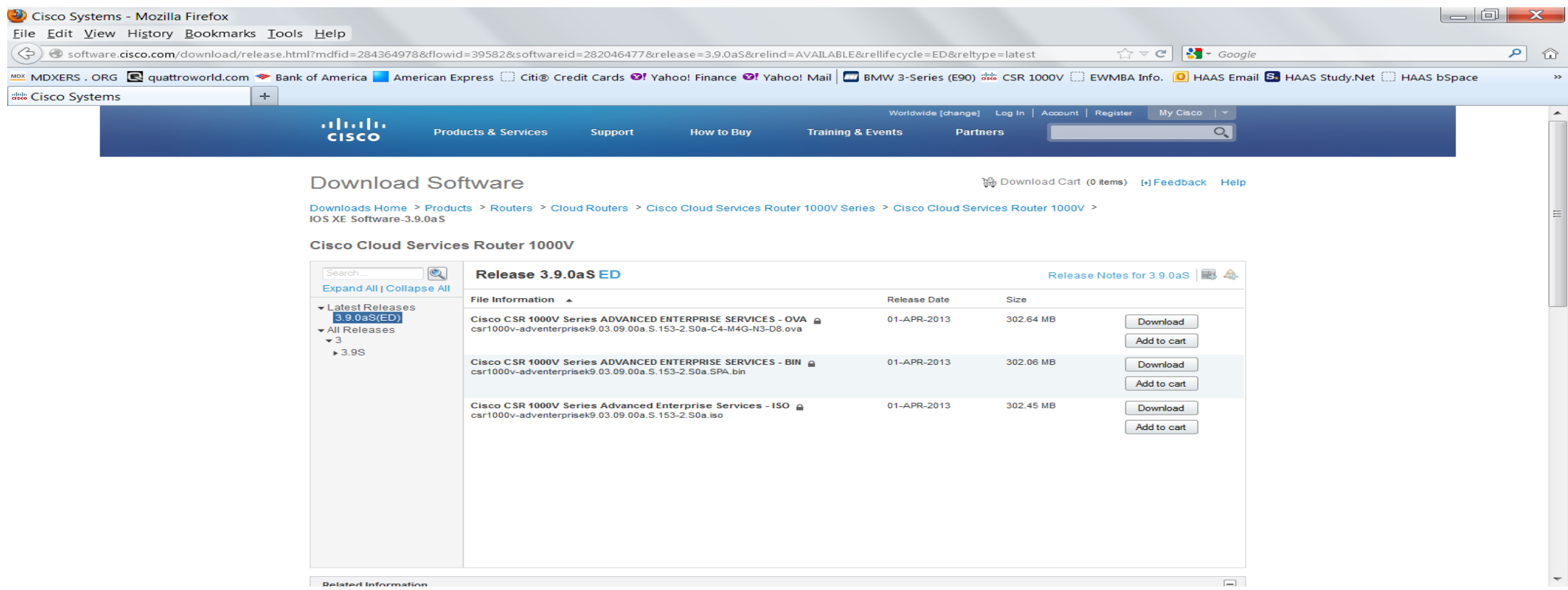
<sup>3</sup>*Multi-tenant management options (including Cisco management stack) available in phases*

# CSR 1000V Licensing Structure



# IOS-XE Release 3.9 of CSR 1000V is available on cisco.com

[www.cisco.com](http://www.cisco.com)



- OVA:** Initial deployment. Preferred method
- BIN:** Upgrade only
- ISO:** Initial deployment

# CSR 1000V Term Offering – March 2013 – 50 Mbps

License SKU	Term (Years)	Description <sup>1</sup>	Minimum Hardware <sup>4</sup>	Hypervisor
L-CSR-50M-PRM-1Y=	1	1-year license for 50 Mbps Max throughput <sup>2</sup> , <b>Premium</b> package, excludes SASU <sup>3</sup>	4 GB RAM 4 virtual CPU	VMware vSphere 5
L-CSR-50M-PRM-3Y=	3	3-year license for 50 Mbps Max throughput <sup>2</sup> , <b>Premium</b> package, excludes SASU <sup>3</sup>	4 GB RAM 4 virtual CPU	VMware vSphere 5
L-CSR-50M-PRM-5Y=	5	5-year license for 50 Mbps Max throughput <sup>2</sup> , <b>Premium</b> package, excludes SASU <sup>3</sup>	4 GB RAM 4 virtual CPU	VMware vSphere 5
L-CSR-50M-ADV-1Y=	1	1-year license for 50 Mbps Max throughput <sup>2</sup> , <b>Advanced</b> package, excludes SASU <sup>3</sup>	4 GB RAM, 4-virtual CPU	VMware vSphere 5
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L-CSR-50M-STD-1Y=	1	1-year license for 50 Mbps Max throughput <sup>2</sup> , <b>Standard</b> package, excludes SASU <sup>3</sup>	4 GB RAM, 4-virtual CPU	VMware vSphere 5
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*Similar Set of SKUs for 25 Mbps and 10 Mbps*

*100 Mbps and 250 Mbps Standard available upon request*

<sup>1</sup>Software (IOS XE for CSR) available for download from cisco.com with free two-month evaluation license

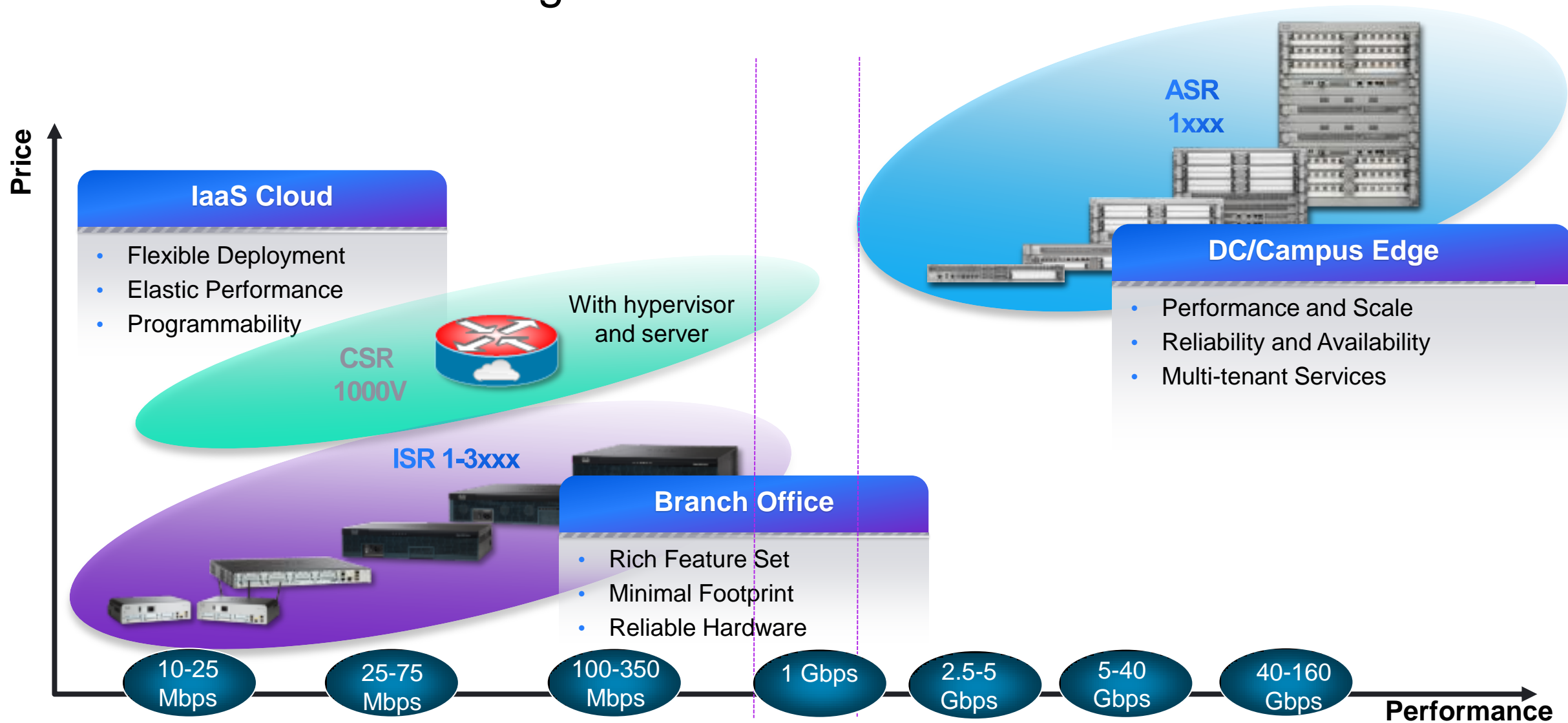
<sup>2</sup>Max Throughput is the license-limited throughput, i.e. CSR throughput cannot exceed this limit

<sup>3</sup>Software Updates and Support (SASU) sold separately and is 20% of product list price

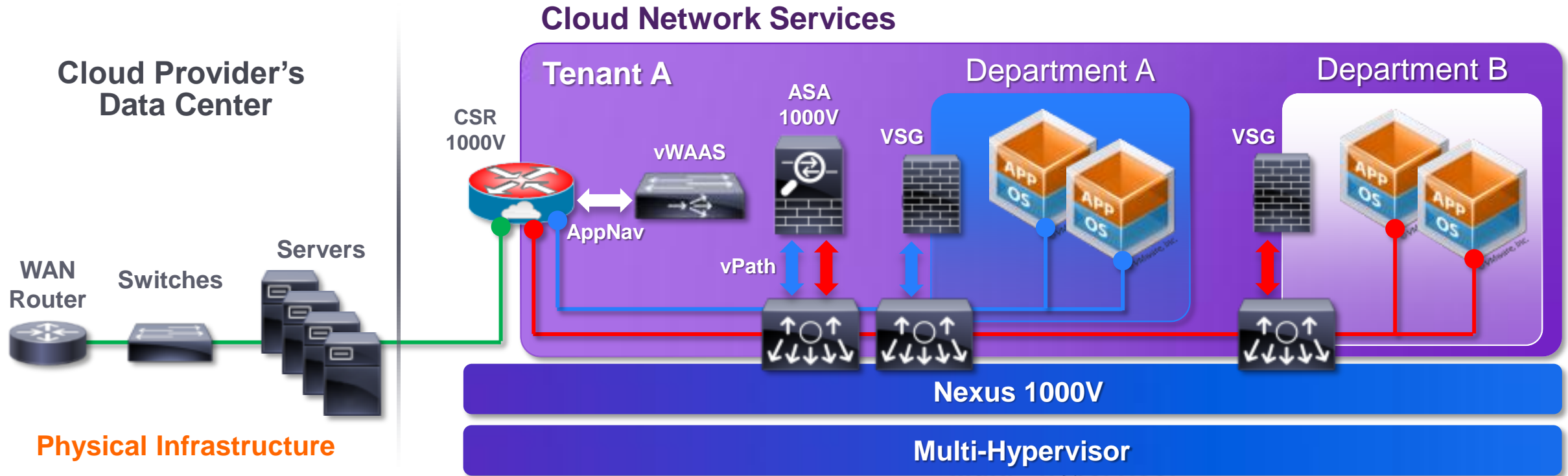
<sup>4</sup>Minimum Physical CPU Requirements: Intel Nehalem processor family or higher

# CSR 1000V Complements the ISR G2 and ASR 1000

## End-to-End IOS Networking



# Cisco Virtual Networking and Cloud Network Services



Physical Infrastructure

## CSR 1000V

- WAN Gateway
- IOS Networking

## vWAAS

- WAN Optimization
- Application Traffic

## ASA 1000V

- Edge Firewall
- Protocol Inspection

## VSG

- Zone-based Firewall
- VM-level Control

## Nexus 1000V

- Distributed Switch
- NX-OS Consistency

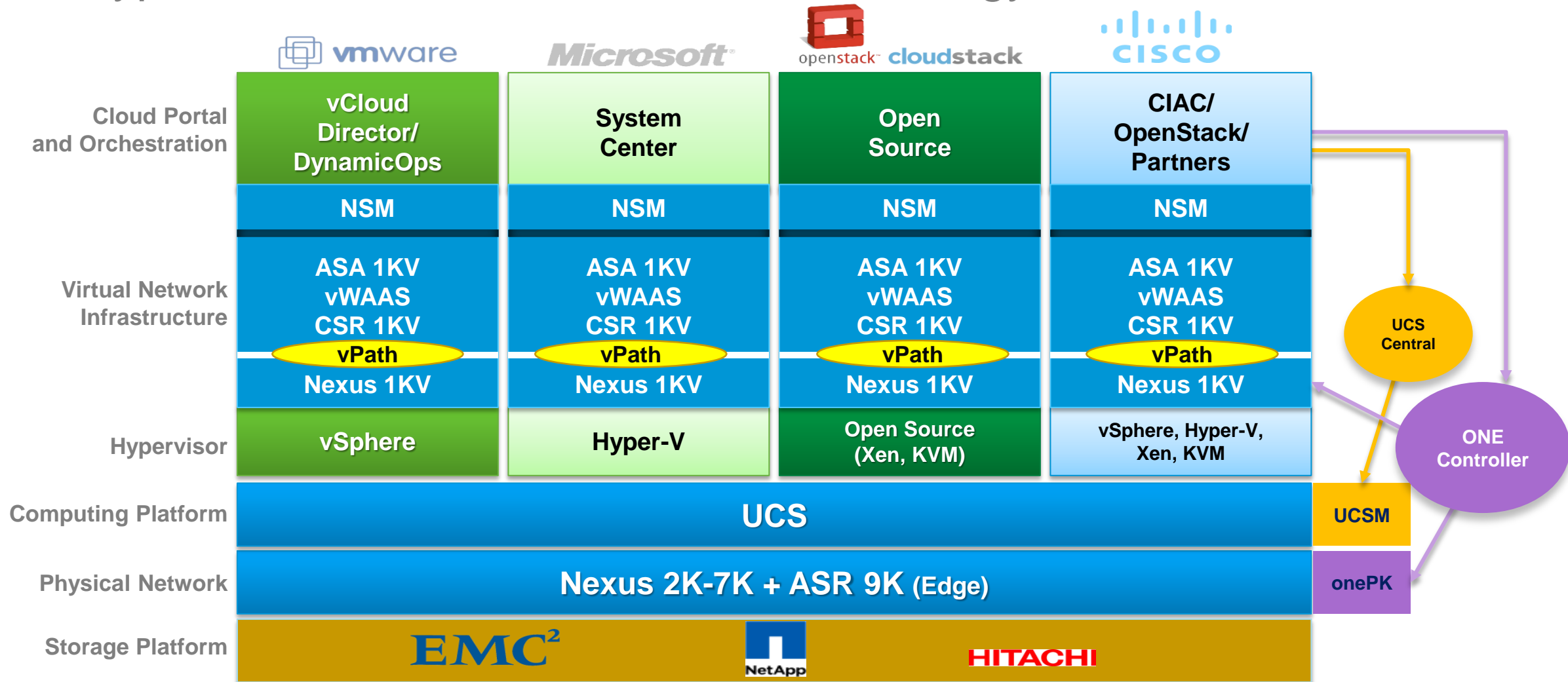
## Ecosystem Services

- Citrix NetScaler VPX ADC
- Imperva Web App. Firewall



# Cisco ONE - Cloud Technology Stacks

## Multi-Hypervisor and Multi-Orchestration Strategy

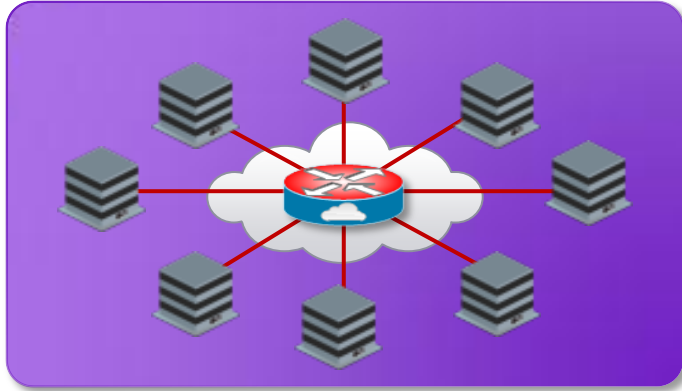


Solutions: Vblock, FlexPOD, VMDC, VDI, HCS, Cross-DC Mobility

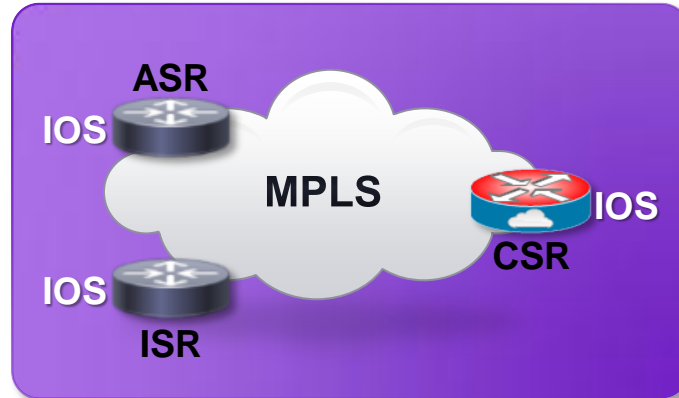
# CSR 1000V Benefits

## Reducing Barriers to IaaS Adoption

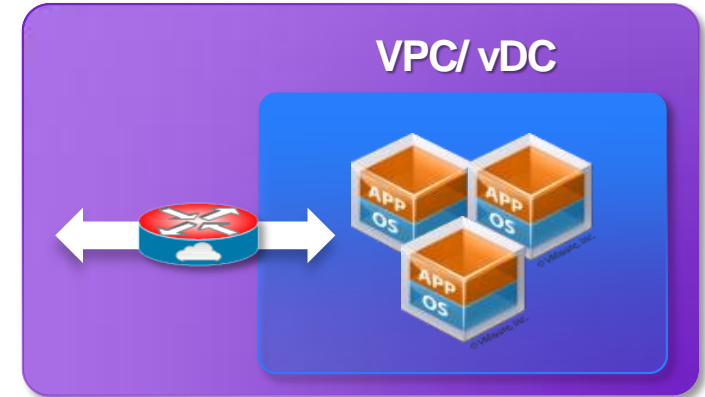
### Any-to-Any Connectivity



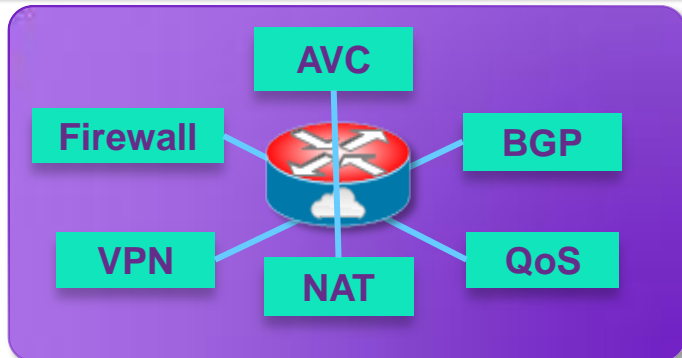
### Network Consistency



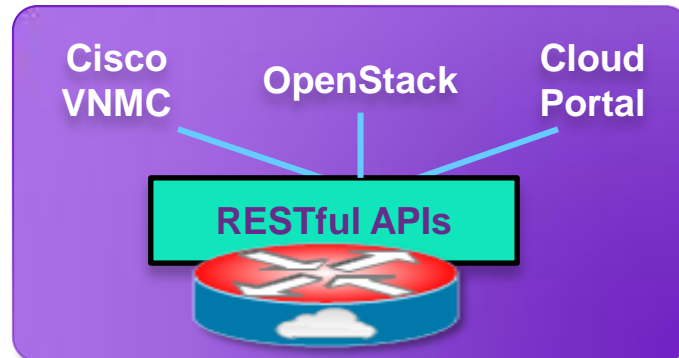
### Traffic Redirection/ Control



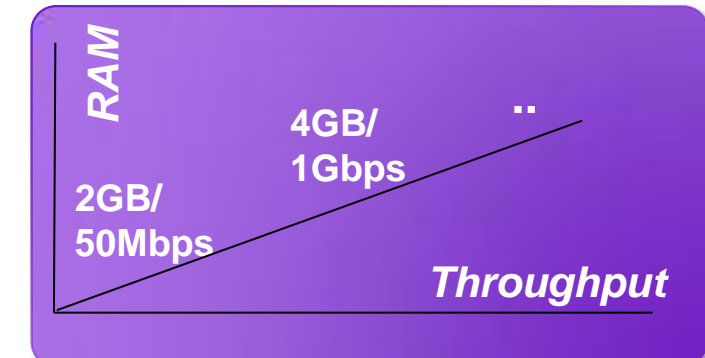
### Integrated Services



### Programmability



### Licensing Elasticity





# CSR 1000V Availability

- For questions and ordering information, contact your local Cisco sales representative
- For information on CSR 1000V, visit <http://www.cisco.com/go/cloudrouter/>

Thank you.

