ACI Anywhere

Building the Future of Networking

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CISCO *Live!*

#CiscoLive

CISCO

Steps for filling in session IDs

- Once you have entered your Session ID on the Title Slide:
  - Copy the Session ID
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  - Ensure Slide number and Footer checkboxes are marked
  - Click "Apply to All"

Agenda

- Industry Trends

- ACI Anywhere

- What's New

- Cloud ACI, Use Cases

- Cloud ACI Licensing Made Simple

- Benefits

Applications are evolving

Operations are getting more distributed

Multicloud governance & management is new reality

Enterprise adoption of Multicloud

92%

Have workloads installed in hybrid cloud

50%

Production applications on public cloud

36%

Cloud-native applications

Top Priorities

Compliance and regulatory mandates

Consistency in operations and tools

Automation for efficiency and speedy delivery

End user behavior driving change

Application simplicity

Technology has enhanced how we shop, bank, and vacation - all from our phones or laptops.

IT Ops Complexity

Data Centers have to deliver with no room for error or downtime to support these innovations.

Cloud Advantage

Cloud is and has always been about innovation, disruption and competitive pressure.

Multicloud Hurdles

Security, compliance, migration, cost control, performance, lock-in, skills gaps….

Apps on-premise & cloud

New generation of cloud, container, virtual workloads move around fast and go where the resources reside

Wide Attack Surface

Compromised security posture due to inconsistent policies and not enough resources to focus on malware and breaches

"I need 80 VMs on prem, but with on-demand DR in the cloud... By tomorrow ! Oh, and by the way, can you make sure we lock it down on cloud as much as we do on prem ?"

Application Developer

"Are you kidding me ! I have not even seen your applications, how can I write the correct policy, how about security, compliance?"
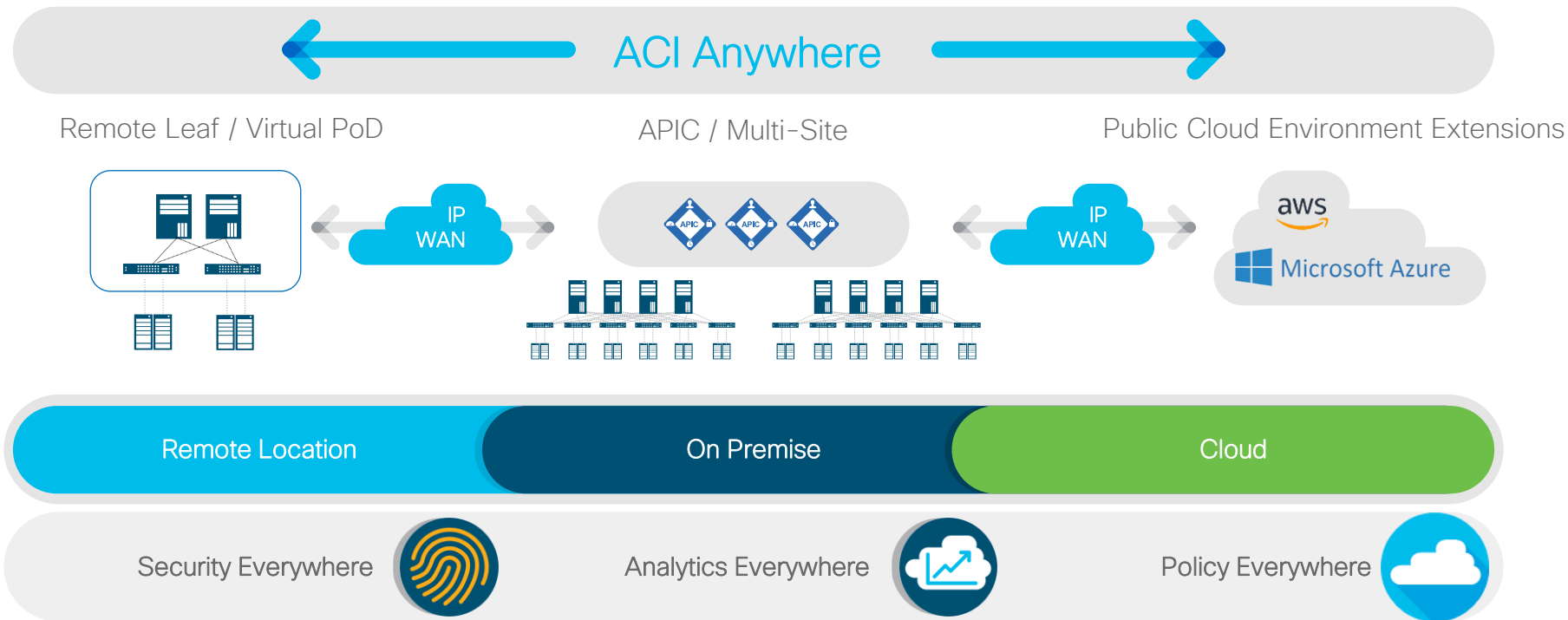
Network Admin

o How will we be profitable?

o I have board meeting coming up

o How do we improve customer satisfaction scores?

o Competition is stronger than ever

o I am expanding operations globally

ACI Anywhere

Cisco ACI Anywhere
Any Workload, Any Location, Any Cloud

ACI Anywhere

Remote Leaf / Virtual PoD   APIC / Multi-Site   Public Cloud Environment Extensions

IP WAN

APIC

IP WAN

aws

Microsoft Azure

Remote Location	On Premise	Cloud

Security Everywhere   Analytics Everywhere   Policy Everywhere

Universal simplified management

Cisco Application Centric Infrastructure (ACI) 5.0

Service provider — Industry

Multicloud — Feature

Ease of use

Security

Automation

Extensibility and future proofing

ACI solution for service providers

Key challenges:

Automation of policy across data center and transport network

Scalability of network resources

Solutions:

Enable new 5G/Telco DC with ACI and SR-MPLS integration

Extend Policy orchestration from datacenter to transport network
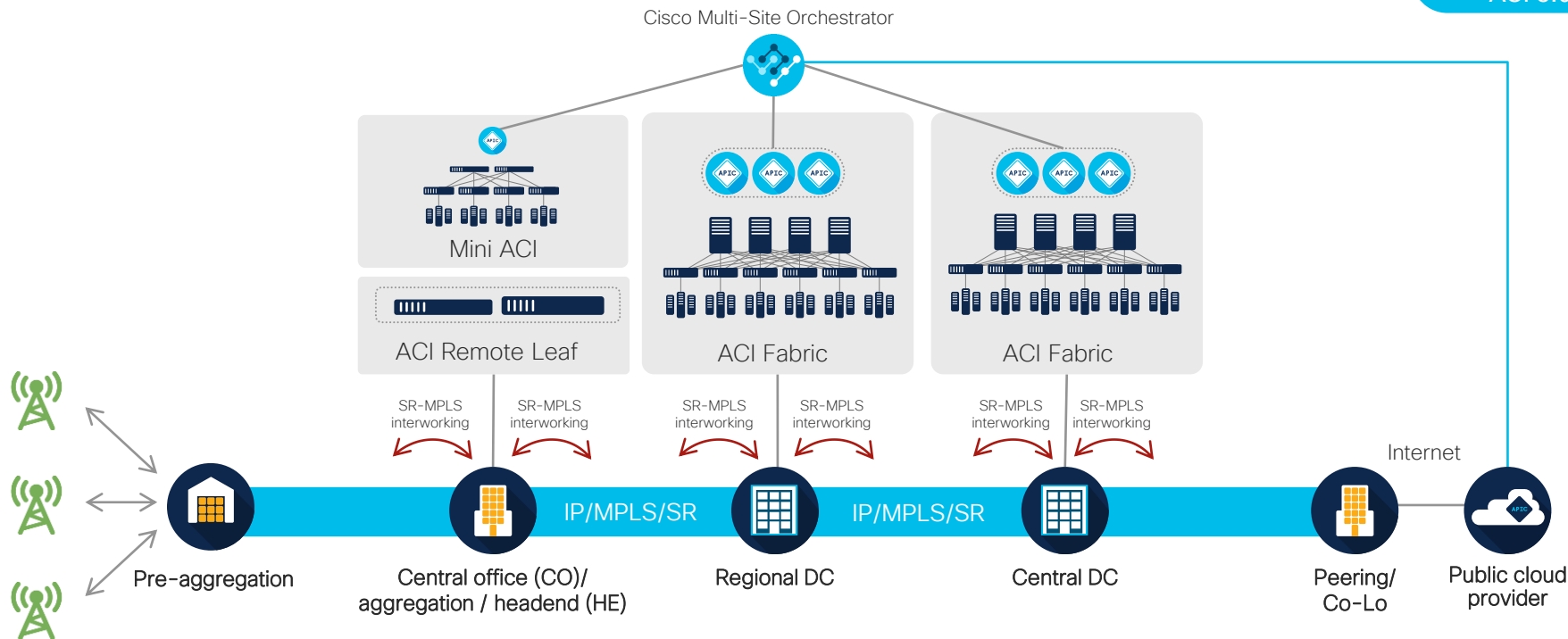
Scalable Distributed DC

Benefits: Automate   Secure   Investment Protection   Visibility and scale
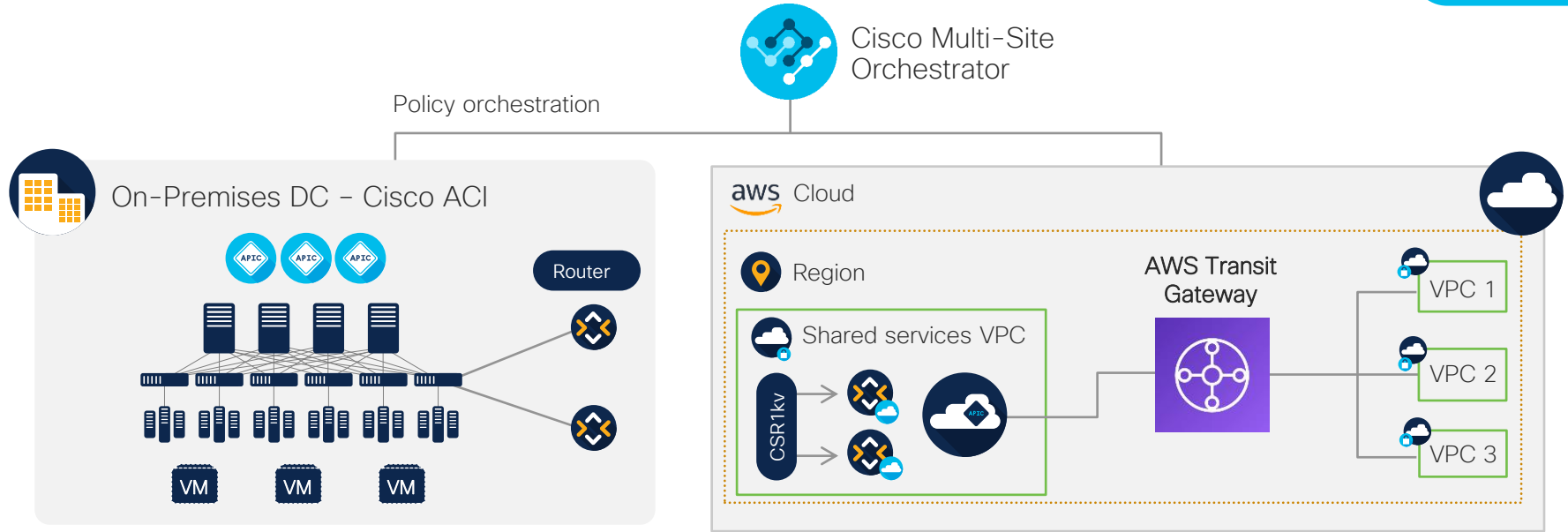
ACI service provider SR-MPLS solution

Building consistent end to end policy across DC and SP transport networks

Cloud ACI–transit GW automation (AWS)

Cisco Multi-Site Orchestrator

Policy orchestration

On-Premises DC – Cisco ACI

APIC APIC APIC

Router

VM VM VM

aws Cloud

Region

Shared services VPC

CSR1kv

APIC

AWS Transit Gateway

VPC 1

VPC 2

VPC 3

Benefits:

- End-to-end automation of both network and policy
- Network isolation
- Policy segmentation
- Enhanced performance

Upgrades

Upgrade multi-pod deployments in parallel

New upgrade status indicator

New pre-validation checks for upgrades

+

ACI 5.0 UI/UX GUI

+

New Day 0 wizard for UI

Prescriptive guided way to complete Day 0 Configuration for SNMP/Syslog policy

| Powerful upgrade insights | Advanced UI | Accelerate productivity |

Security

Access

Two factor authentication with Duo for Cisco APIC, cAPIC

Multi-tenancy

App Center

RBAC

Duo authentication

Role based access control

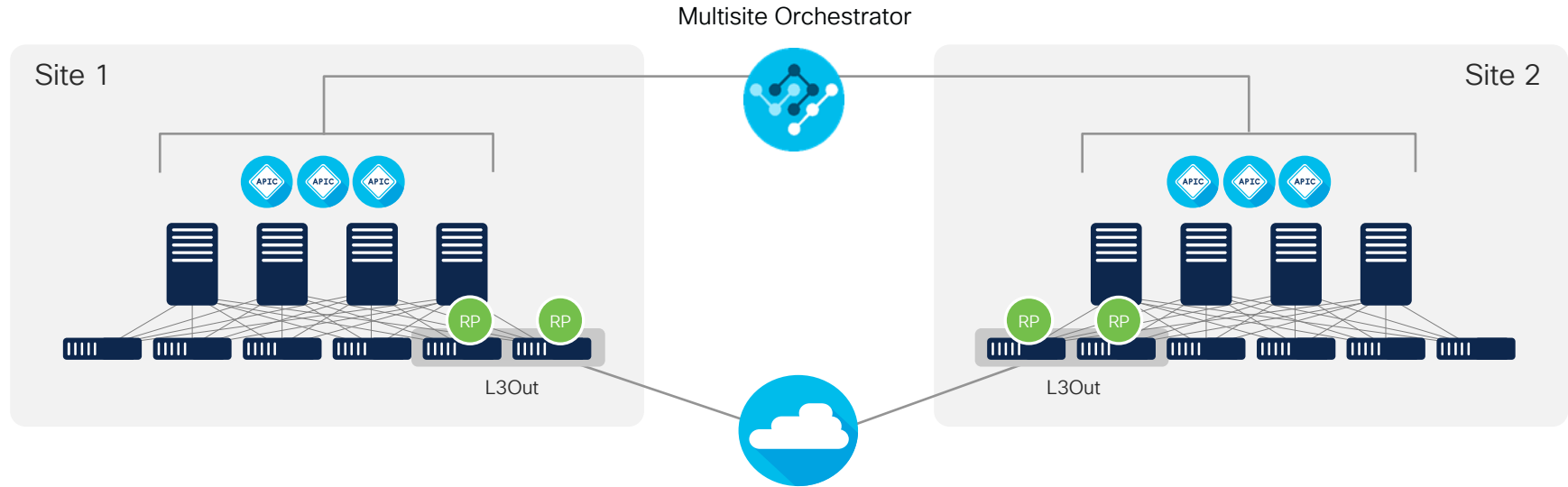Isolate switch to tenant

App center integration

Increased role access for tenants | **Improved ACI controller security** | **Improved security policy for ACI Applications**

Multicast Fabric Rendezvous Point (RP) support with ACI Multi-Site

Multisite Orchestrator

Site 1

Site 2

APIC · APIC · APIC

APIC · APIC · APIC

RP · RP

RP · RP

L3Out
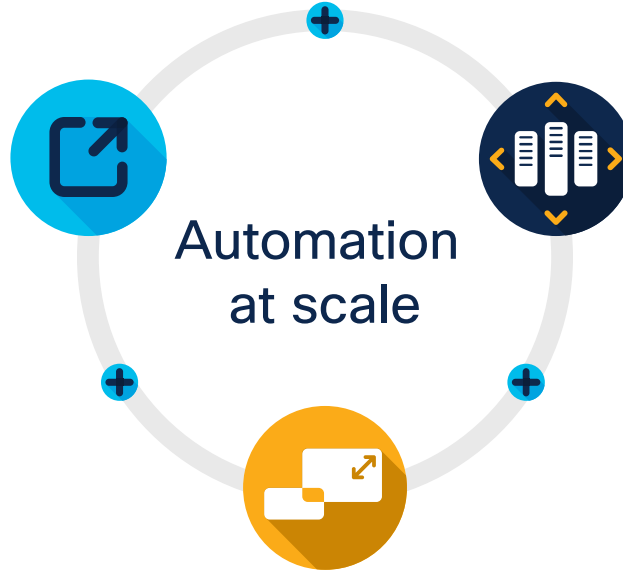
L3Out

Multicast with Multi-site benefits:

Fabric Coordinated Automation

Flexible deployment options

VMM scale

Scale to support
15 Virtual DataCenters in
VMware vCenter integration

Breakout scale

34 port breakout support on
the N9K-C9336-FX2 switch

**Automation
at scale**

Dataplane improvements

For OpenStack support 120 compute
nodes running OpFlex agents

| Increased scale for VMware VM environments | Increased port density | Enhanced and scaled OpenStack integration |

Microservice deployments

Infrastructure improvements

For Kubernetes, support a mix of bare-metal servers and VMs

For Kubernetes, expose policy metrics to Prometheus (Day 2 Operations)

ACI support for additional platforms

ACI Neutron Plugin support for Bare-metal Servers with OpenStack

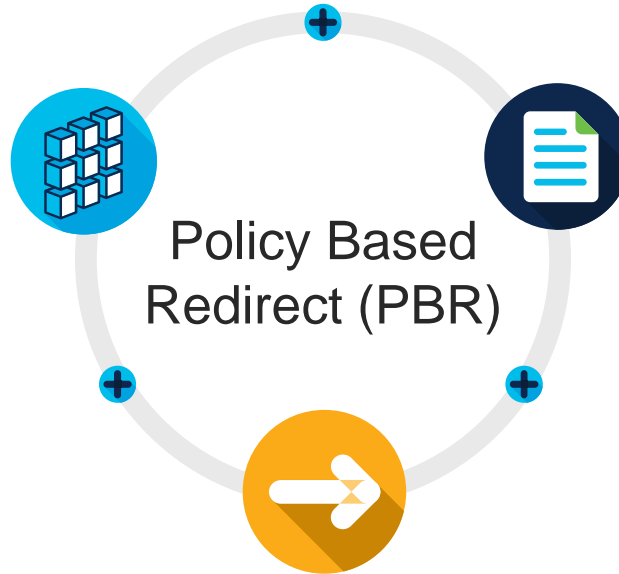Support for ACI-CNI with OpenShift 4.3 on OpenStack and AWS

Support Docker Enterprise Release 3.0

| Increased extensibility with Bare-Metal servers | Increased capabilities, visibility and policy for bare-metal servers | Increased support |

L1/L2 service devices

Support L1/L2 devices in cluster mode

Source MAC rewrite

Option to rewrite the source MAC in PBR policy

Policy Based Redirect (PBR)

Unidirectional PBR

L3Out can be any leg of service node that has the other leg in BD with PBR

April 2020
ACI 5.0

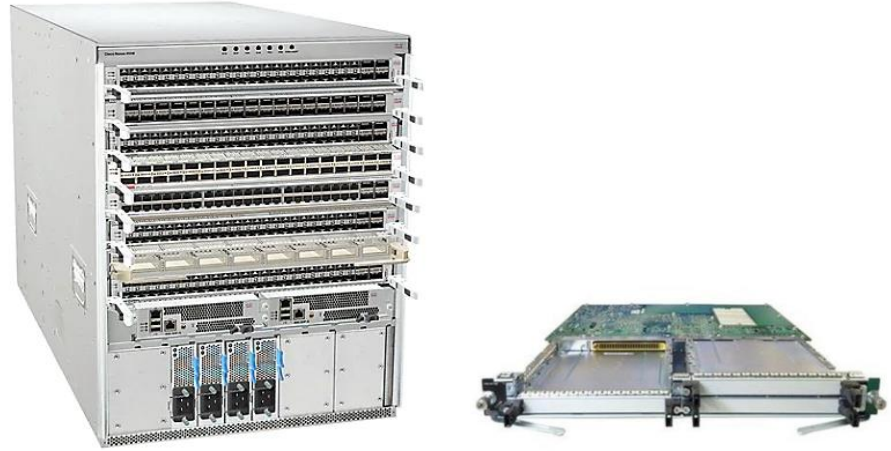Improved scalability for additional service devices

Additional support for devices that require source MAC based forwarding

Enhancing existing unidirectional PBR capabilities

Futureproof hardware
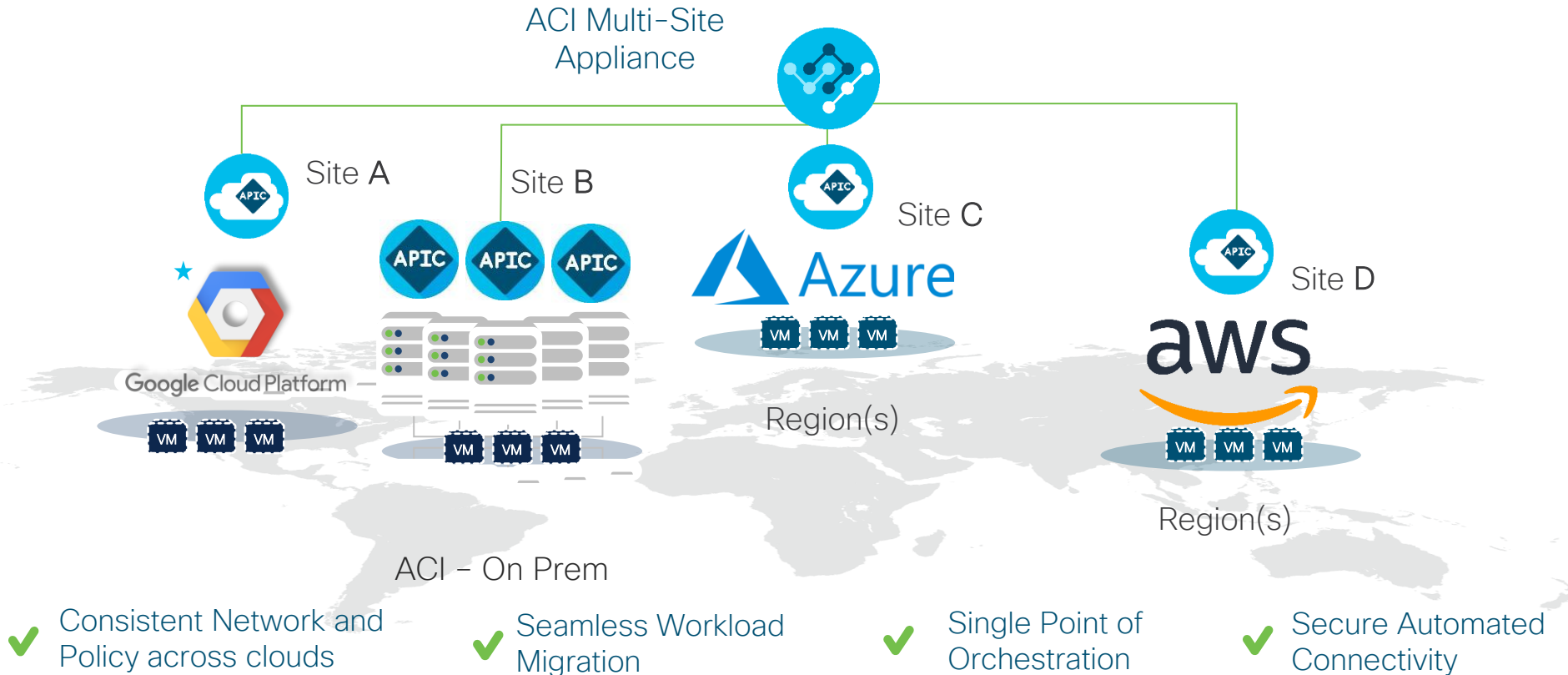
ACI supporting 400G Fabric Module on Nexus 9508

ACI futureproofed to support 400G line cards

ACI is 400G Ready when you are

What's New
Cloud ACI

ACI Extensions To Multi-Cloud

ACI Multi-Site Appliance

Site A

Site B

Site C

Site D

Google Cloud Platform

Azure

Region(s)

aws

Region(s)

ACI – On Prem

✓ Consistent Network and Policy across clouds

✓ Seamless Workload Migration

✓ Single Point of Orchestration

✓ Secure Automated Connectivity

★ Future

ACI Cloud Only, Cloud First

Multi-site

Site 1

Site 2

Site 3

aws

Azure

aws

Region: us-east-1

Region: UK South

Region: ap-northeast-1
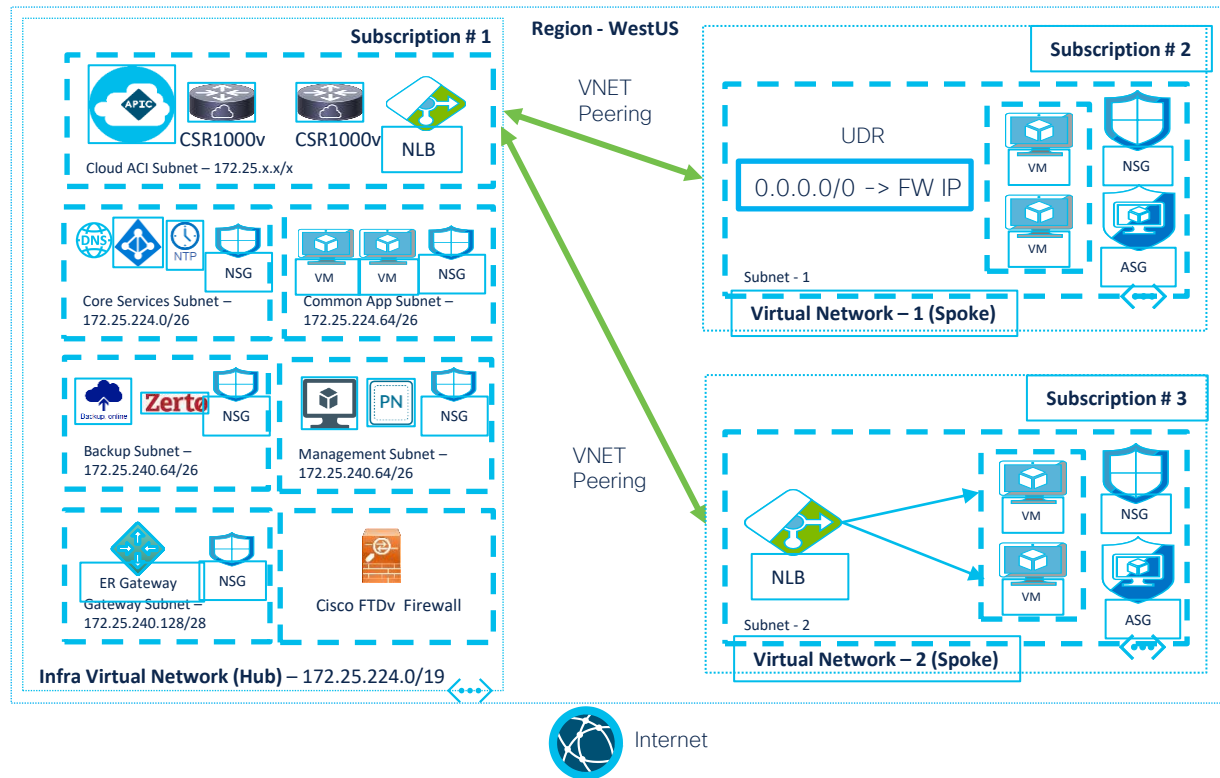
ACI 4.2
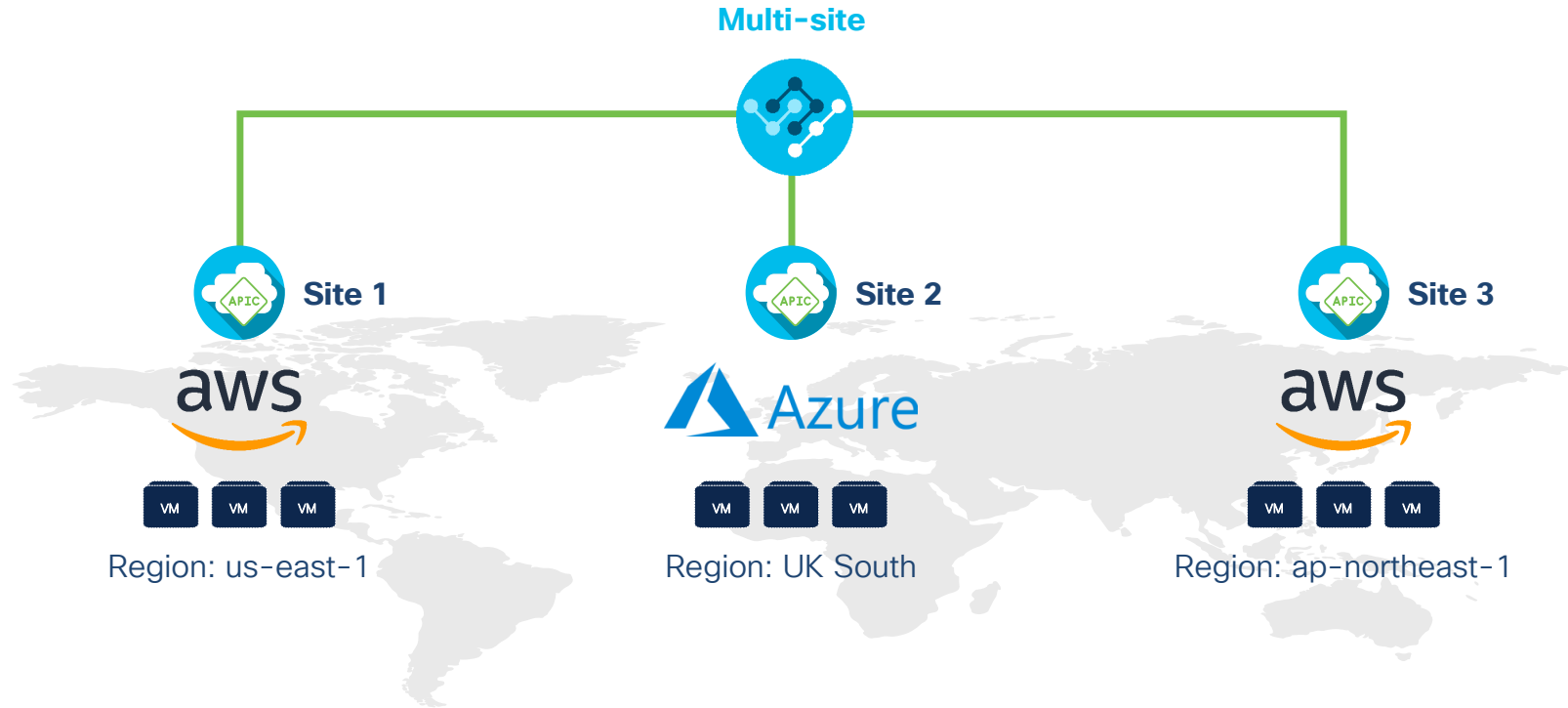
Multi-Cloud with AWS and Azure Cloud Sites supported w/o ACI Fabric on-Prem
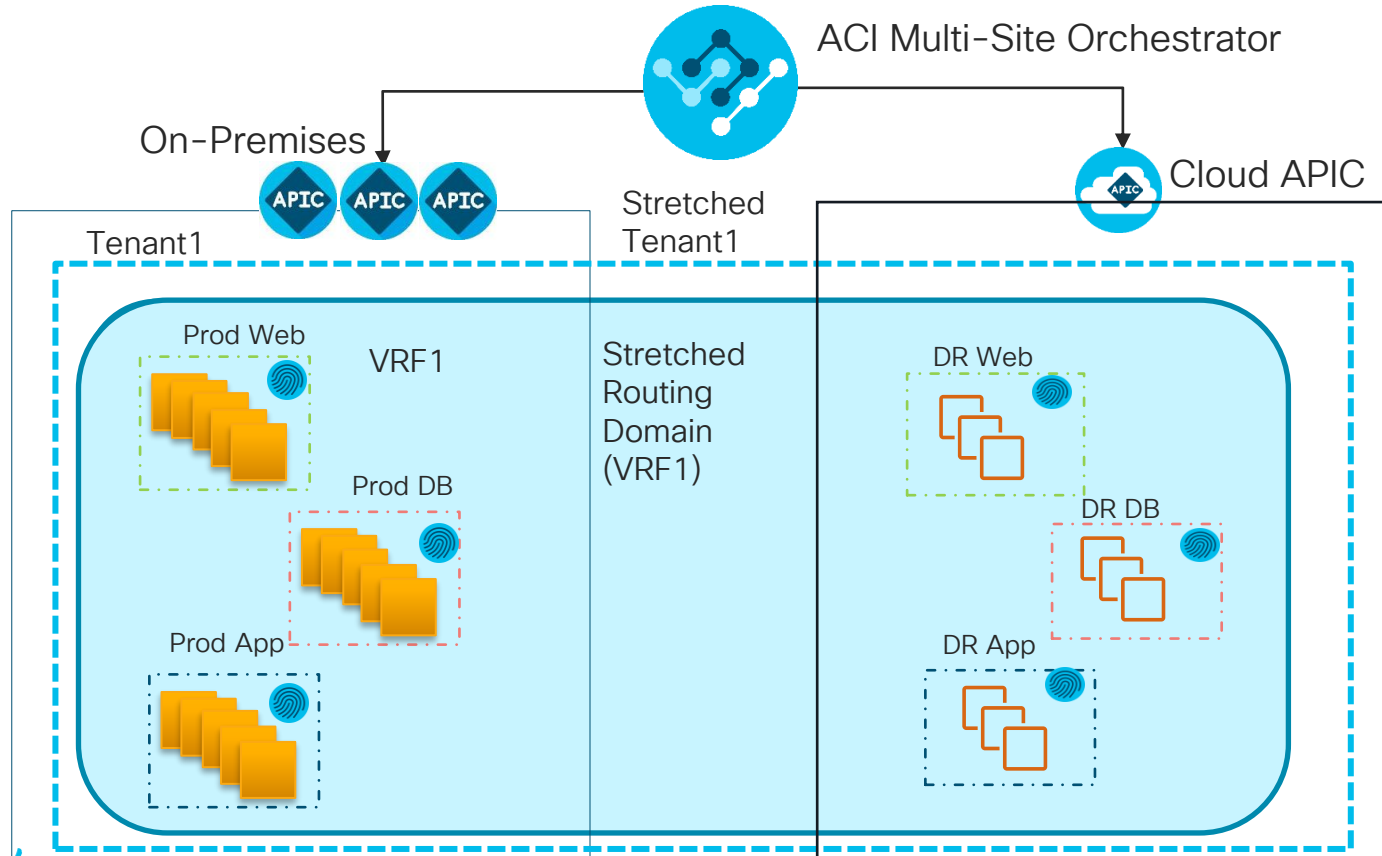With Out-of-Band MSO
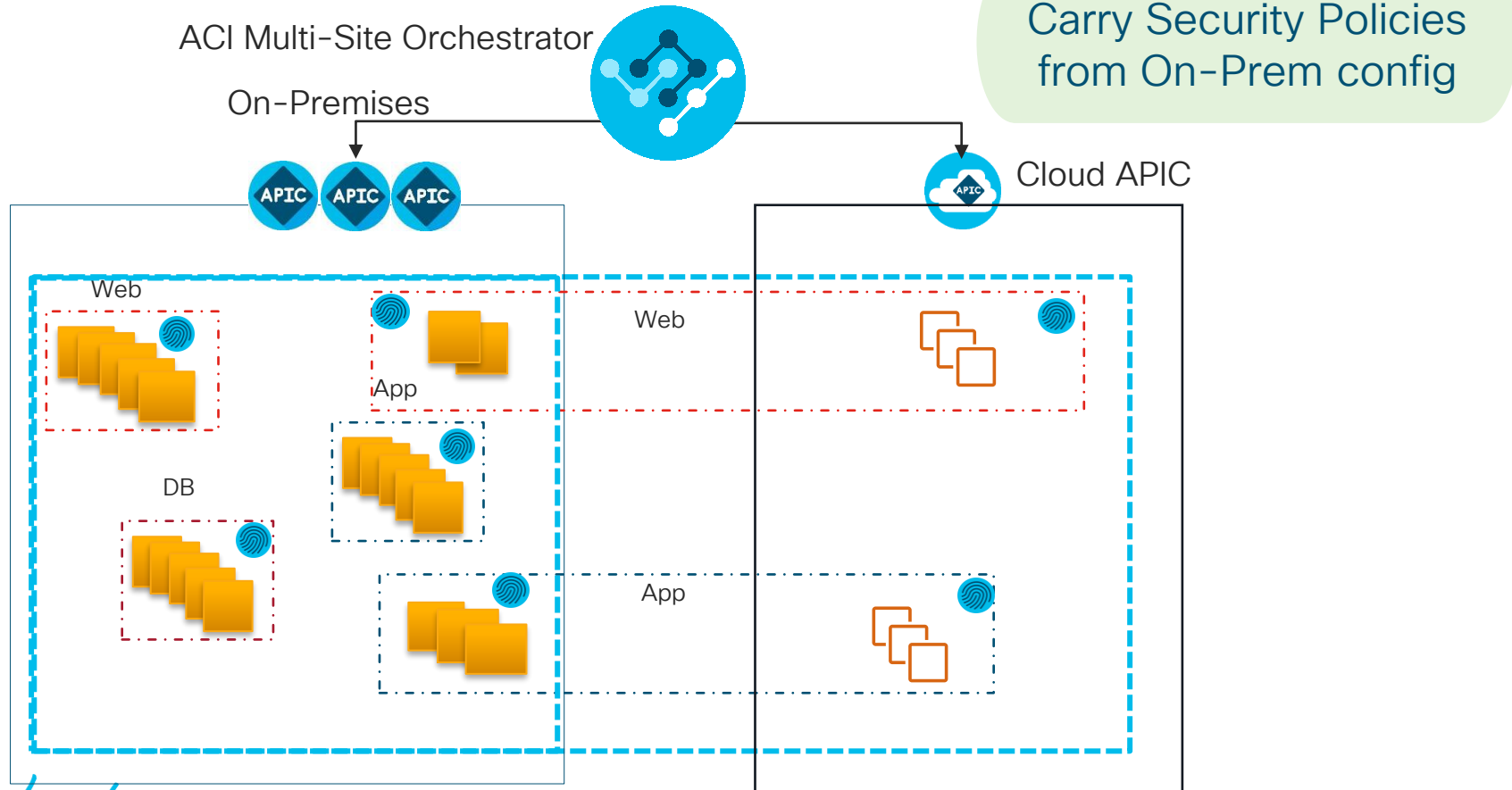
Cloud ACI Azure Enhancements

- VNET Peering
- Remove 32 character Tenant limit
- Custom Naming support
- Inter-VPC NLB services
- Security Rule Programming
  - NSG Rule at vNIC
- Infra VNET support with
  - UDR CIDR
  - Subnets
    - Gateway
    - Shared Services
    - Backup Subnets
    - Management Subnets
- Third Party Firewall

Cloud ACI Use Cases

Active-Disaster Recovery Data Center

ACI Multi-Site Orchestrator

On-Premises

APIC APIC APIC

Cloud APIC

Tenant1

Stretched Tenant1

VRF1

Stretched Routing Domain (VRF1)

Prod Web

Prod DB

Prod App

DR Web

DR DB

DR App

Cloud Burst

ACI Multi-Site Orchestrator

On-Premises

Cloud APIC

Carry Security Policies from On-Prem config

Web

App

DB

Web

App

Shared Services On Premises

ACI Multi-Site Orchestrator

On-Premises

Cloud APIC

Shared Services

DNS Service | Active Directory

Active Directory

Policy

172.16.0.0
172.16.1.0
172.16.2.0

Route Table

Policy

172.16.0.0
172.16.1.0
172.16.2.0

Route Table

Application 1

Application 2

Application 3
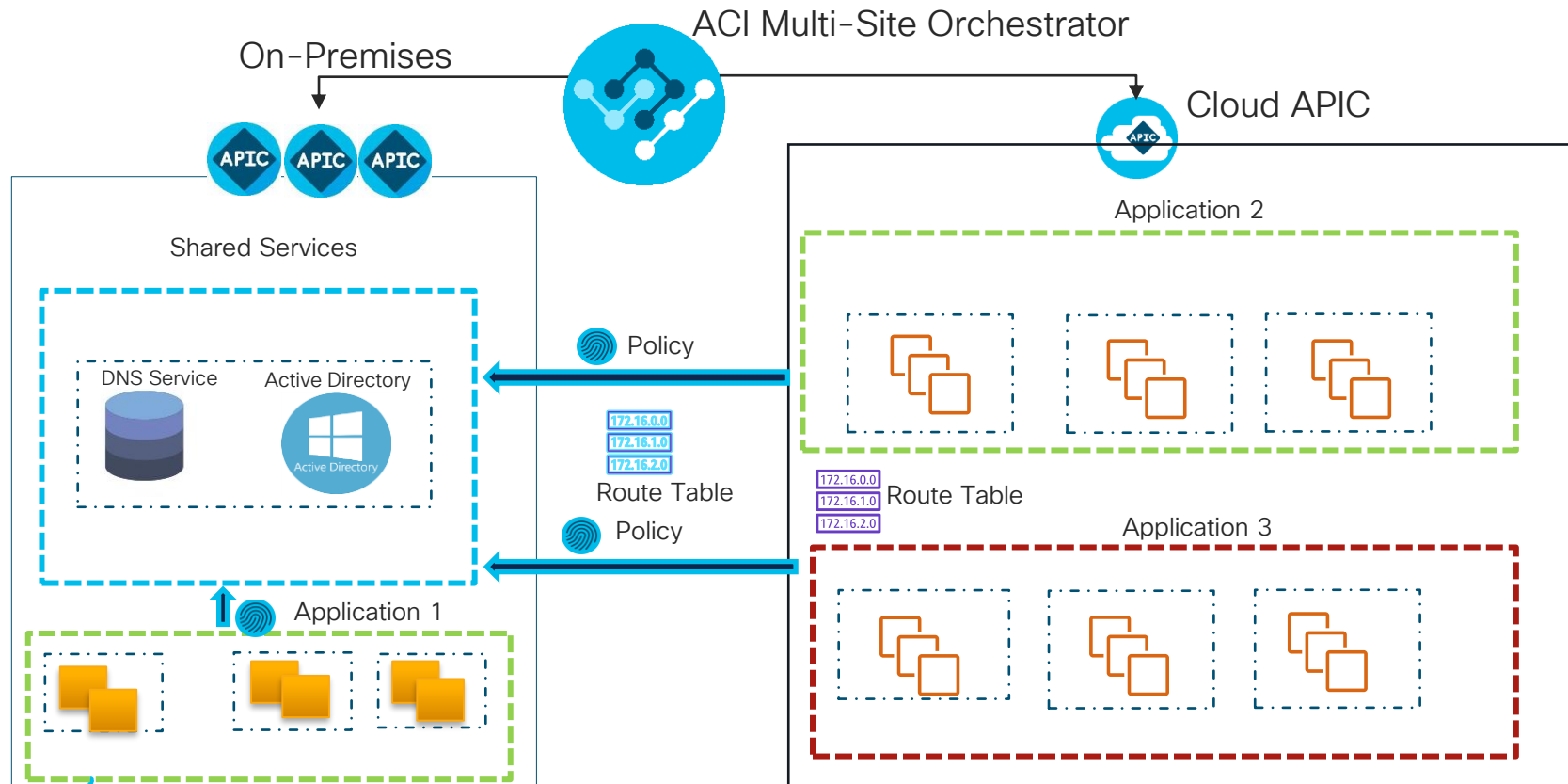
Enforce Corporate Internet Access Policy On Prem

ACI Multi-Site Orchestrator

On-Premises

Configure policies to access Internet via Firewall On-Premises

APIC APIC APIC

CSR CSR

Internet

Policy Policy
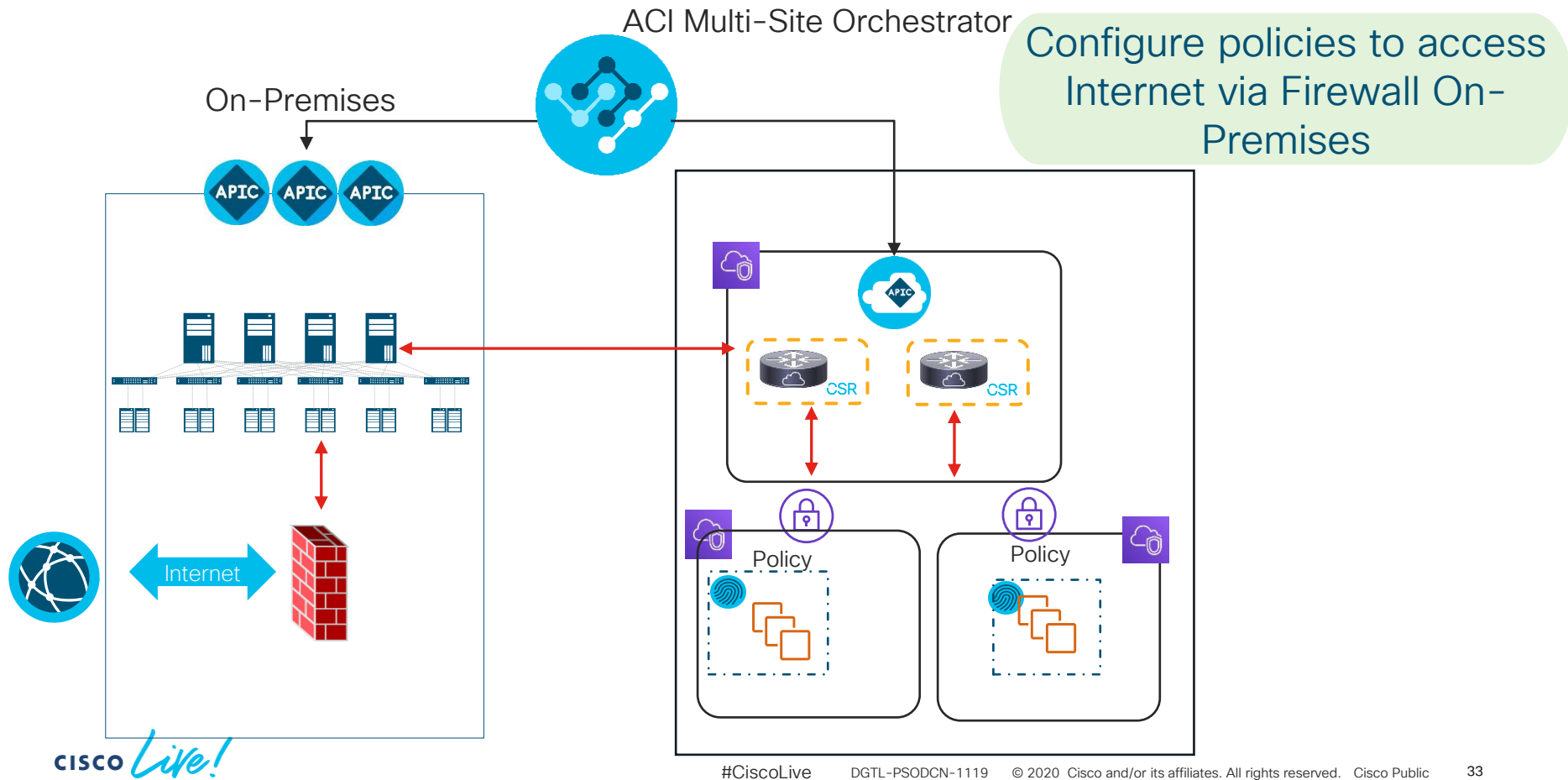
Access Cloud Native Services

ACI Multi-Site Orchestrator

On-Premises

Access native services on AWS via Policies

Region 1

AWS Internet Gateway

CSR1000v

VGW

AZ-1

AZ-2

Service Graph Policy

Application Load Balancer

Infra VPC

User VPC

Amazon S3
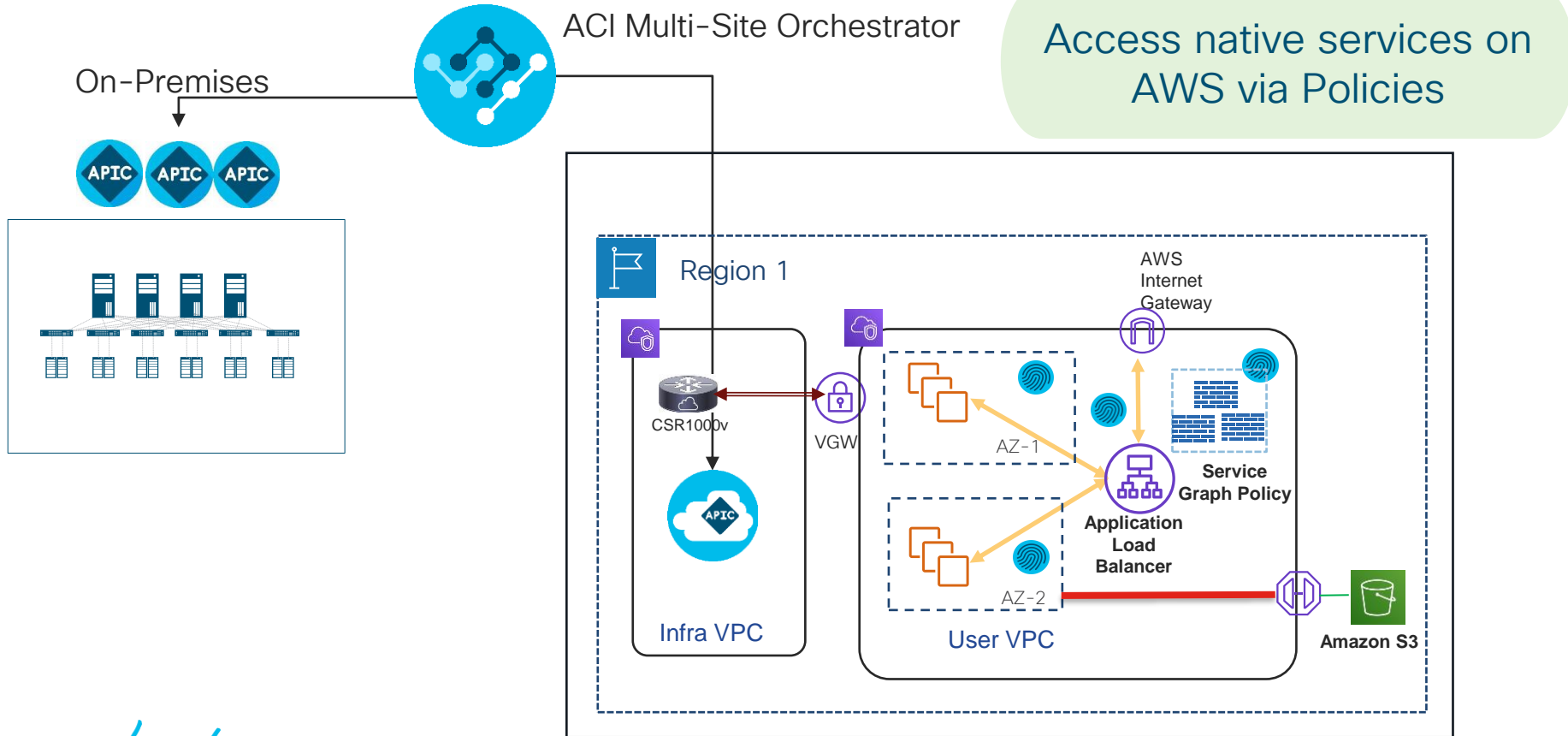
Cloud ACI Licensing

ACI Software Licensing For Cloud Extensions

On Premise + Cloud Extensions

Add Ons

ACI Premier
Network Assurance Engine
Network Insights

ACI Advantage
ACI Multi Site
Remote Leaf
VPN Fabric

ACI Essentials
ACI Base
ACI Multi-Pod
Telemetry
Layer 3 Routing
Fabric Management
PTP
Network Services

Nexus 9K ACI or NX-OS
(switch SW included in NX-OS)

Phase one

Single Policy
Domain In Cloud

One cAPIC

One or More Regions

Scope:
Single Policy Domain in Cloud

Essentials Cloud

Multiple Policy
Domains in Cloud

Multiple cAPIC

Scope:
Multiple Policy
Domains In Cloud

Essentials Cloud

Advantage Cloud

Multiple Policy
Domains in Cloud
+ Day 2 Operations

**Advanced Operations
and Analytics**

Advantage Cloud

Premier Cloud *

Cloud ACI Extension Licensing Model

Unit of Licensing in Public Cloud

Per VM Instance on cloud

Charge Model

Bring Your Own License

cAPIC from CCW
CSR1kv from CCW

Term (BYOL)

Subscription Only

1, 3, 5 Years

Benefits

Cisco Cloud ACI Solution Capabilities

Consistent operations, visibility and control for next generation applications

Common policy abstraction, governance and compliance

Hybrid workload migration

Resource Elasticity

Business continuity and disaster recovery

Thank you