CCNP Enterprise Certification

ENSDWI : 300-415

Certification

- Value of the Cisco Certification Brand
- Evolution of Cisco Certifications
- Preparing for the CCNP Enterprise exams
- CCNP Enterprise Core Blueprint
- Sample exam questions

Certified employees are valued assets

99%

of organizations use certifications to make hiring decisions

Increased performance of certified employees

+59%

higher quality of service

+42%

better selection of technology solutions

+41%

more efficient operations

Today’s certification portfolio

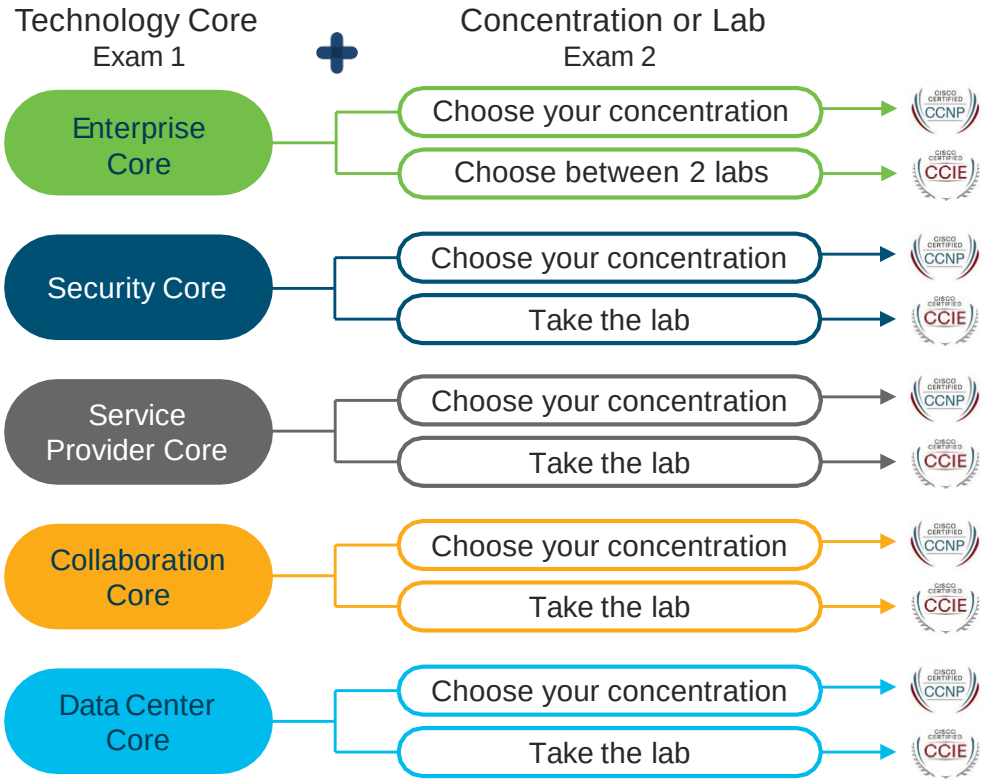
	Entry	Associate	Professional	Expert
Architect				CCAr Architect
Cloud		CCNA Cloud	CCNP Cloud	
Collaboration		CCNA Collaboration	CCNP Collaboration	CCIE Collaboration
Cybersecurity Operations		CCNA CyberOps		
Data Center		CCNA Data Center	CCNP Data Center	CCIE Data Center
Design	CCENT	CCDA	CCDP	CCDE
Industrial / IoT		CCNA Industrial		
Routing & Switching	CCENT	CCNA Routing & Switching	CCNP Routing & Switching	CCIE Routing & Switching
Security	CCENT	CCNA Security	CCNP Security	CCIE Security
Service Provider		CCNA SP	CCNP SP	CCIE SP
Wireless	CCENT	CCNA Wireless	CCNP Wireless	CCIE Wireless
Other Certifications	Certified Technician			
Technical Specialists	Collaboration Operating System Software	Data Center Security	Internet of Things Service Provider	Network Programmability
Digital Transformation Specialists	Business Architecture	Customer Success		
AppDynamics	ACIP			

Tomorrow's certification portfolio

How our program is evolving

Single Exam

Network foundation exam. Covers Key components like IP fundamentals, Network access, IP Connectivity, Automation, Security.



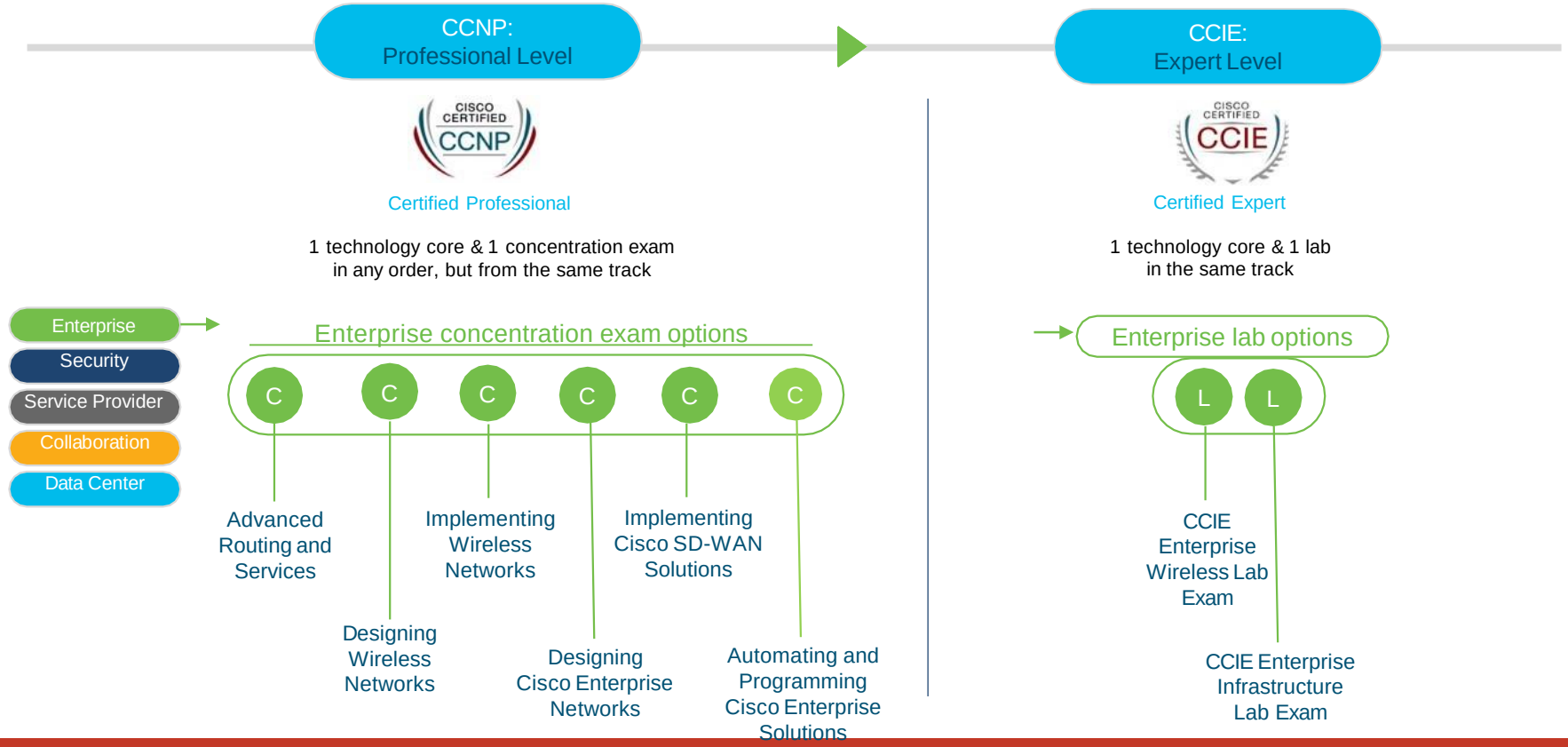
Concentration Exam

Choose one concentration exam in your technology. Concentration covers products, solutions, and/or roles.

Lab

Choose one, 8hr lab focusing on full lifecycle. Lab exam covers design, deploy, automate, operate, and optimize.

Cisco Enterprise certification track



CCNP R&S, Wireless,CCDP - Today vs 2.0

Today → **February 24, 2020**

- 300-101 ROUTE
- 300-115 SWITCH
- 300-135 TSHOOT
- 300-320 ARCH
- 300-360 WIDESIGN
- 300-365 WIDEPLOY
- 300-370 WITSHOOT
- 300-375 WISECURE

- 300-401 Enterprise Core → Mandatory
- Choose 1:
  - 300-410 Advanced Routing
  - 300-415 SD-WAN
  - 300-420 Enterprise Design
  - 300-425 Wireless Design
  - 300-430 Wireless Implement

We redesigned CCNP to meet your needs

Summary

- Five technology tracks: Enterprise, Service Provider, Data Center, Collaboration, Security
- Two exams and you're certified, one core and one concentration exam
- Choose the concentration exam based on your interests and needs
- No prerequisites for either exam
- Core exams also apply to CCIE and cover implementation of key technologies
- New continuing education options meet recertification requirements

Guiding Principles

We provide recognition as you learn

For	You get	Which looks like
Passing any written, proctored exam	Cisco Certified Specialist	
Passing the CCNA exam	Cisco Certified Network Associate	
Passing one core exam and one concentration exam in the same technology	Cisco Certified Network Professional	
Passing one core exam and the corresponding lab in the same technology	Cisco Certified Internetwork Expert	

Personalized credential dashboard

Certifications

Enterprise

Badges

Enterprise Design

SD- WAN

Advanced Routing

Enterprise Automation

Skills

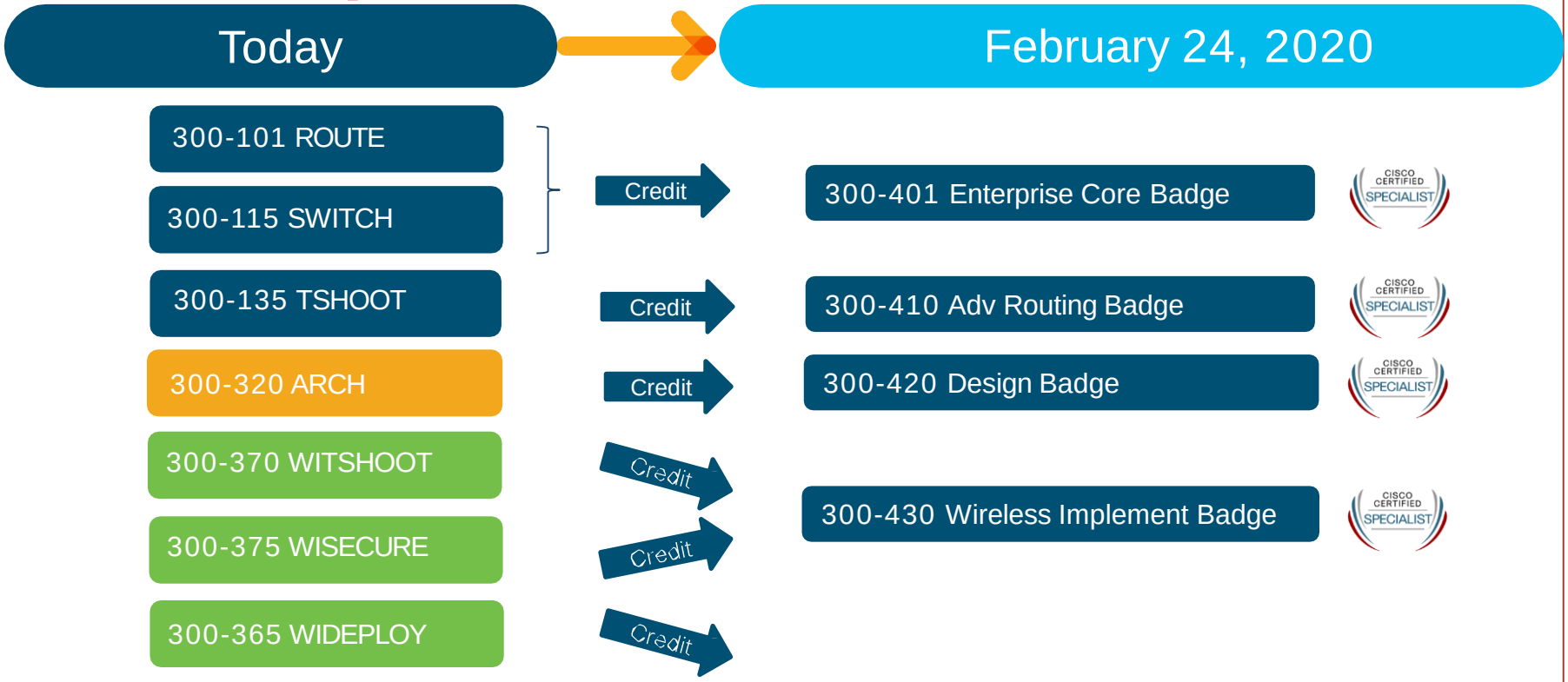
BGP | Device Security | Diagnostics | EIGRP

Fundamental Routing Concepts | Encryption

LAN Switching | IPv4 and IPv6 Addressing

Layer 2 Multicast | Network Services | Network Security

CCNP Enterprise (in-flight migration)



CCNP Enterprise (current certification holders)

Today		February 24, 2020		
CCNP RS	Earn	CISCO CERTIFIED CCNP Enterprise	+ 300-401 Enterprise Core Badge 300-410 Adv Routing Badge	CISCO CERTIFIED SPECIALIST
CCNP Wireless	Earn	CISCO CERTIFIED CCNP Enterprise	+ 300-401 Enterprise Core Badge 300-425 Wireless Design Badge 300-430 Wireless Implement Badge	CISCO CERTIFIED SPECIALIST
CCDP	Earn	CISCO CERTIFIED CCNP Enterprise	+ 300-401 Enterprise Core Badge 300-420 Enterprise Design Badge	CISCO CERTIFIED SPECIALIST

1.0 Architecture	20%
2.0 Controller Deployment	15%
3.0 Router Deployment	20%
4.0 Policies	20%
5.0 Security and Quality of Service	15%
6.0 Management and Operations	10%

https://learningnetwork.cisco.com/s/ensdwi-exam-topics

Describe Cisco SD-WAN Architecture and Components

1.1 Describe Cisco SD-WAN Architecture and Components

- 1.1.a Orchestration plane (vBond, NAT)
- 1.1.b Management plane (vManage)
- 1.1.c Control plane (vSmart, OMP)
- 1.1.d Data plane (vEdge)
- 1.1.d [i] TLOC
- 1.1.d (ii) IPsec
- 1.1.d (iii) vRoute
- 1.1.d (iv) BFD

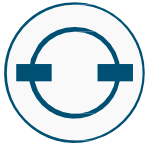
SDWAN Component

vEdge – vEdge Router

cEdge – ISR/ASR Router

i.e. an SDWAN router

vSmart - controller



vBond - orchestrator

vManage – Management Application

Cisco SD-WAN Solution Overview

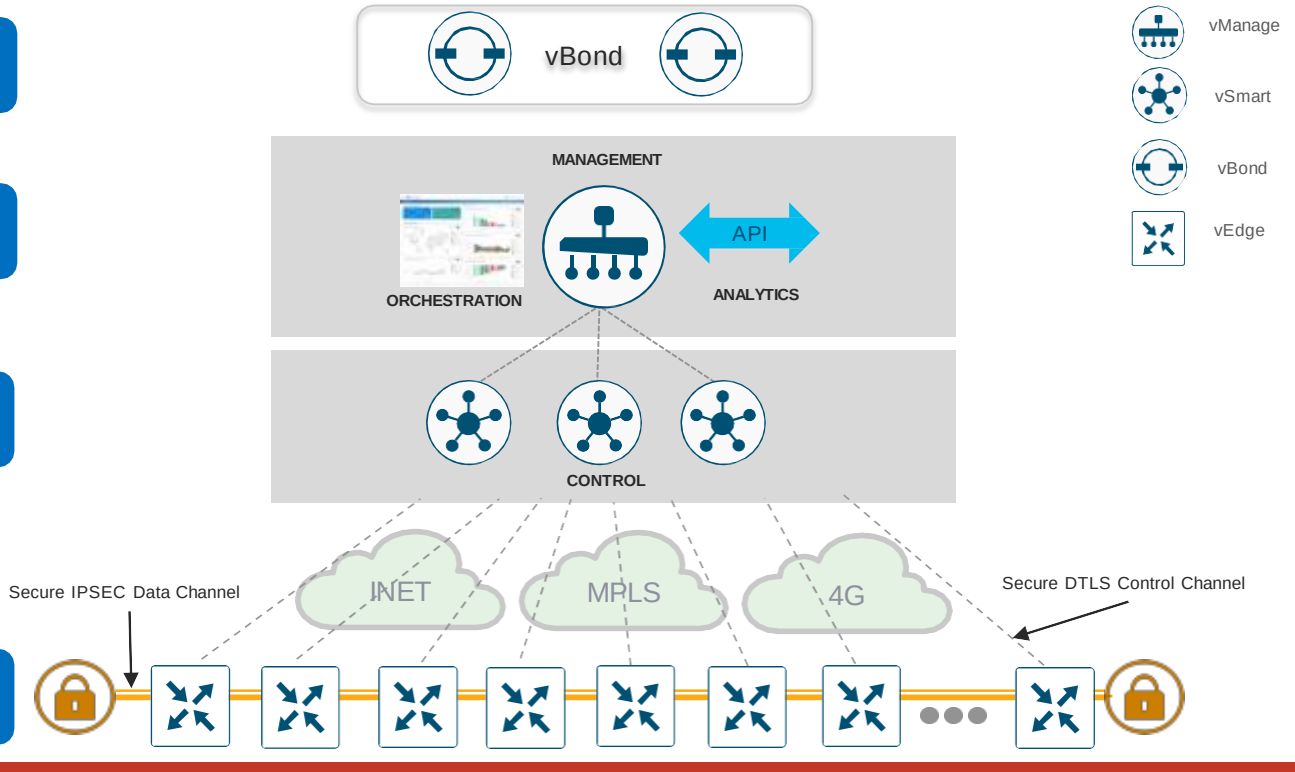
Applying SDN Principles To The Wide Area Network

Orchestration Plane

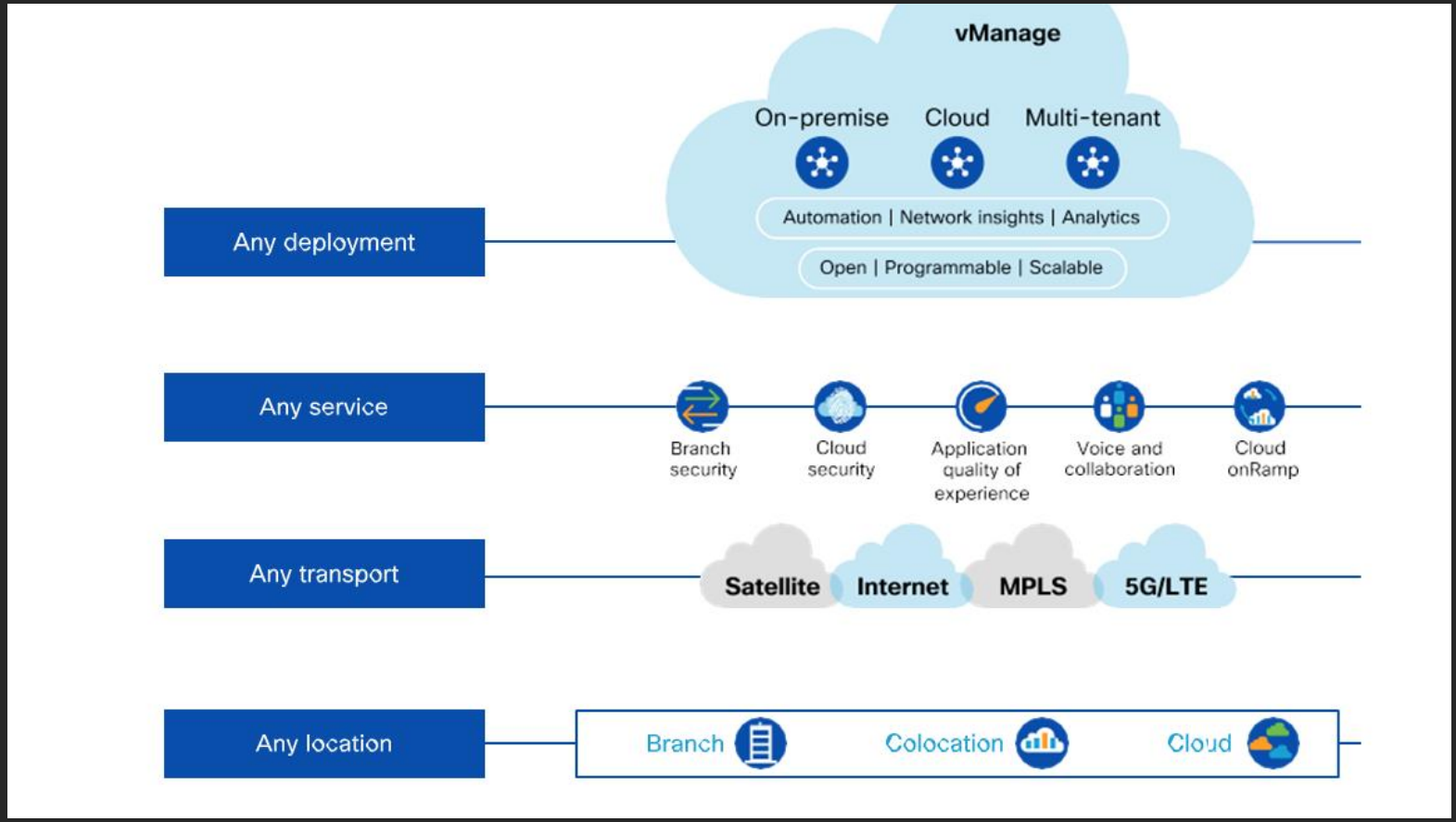
Management Plane
(Multi-tenant or Dedicated)

Control Plane
(Containers or VMs)

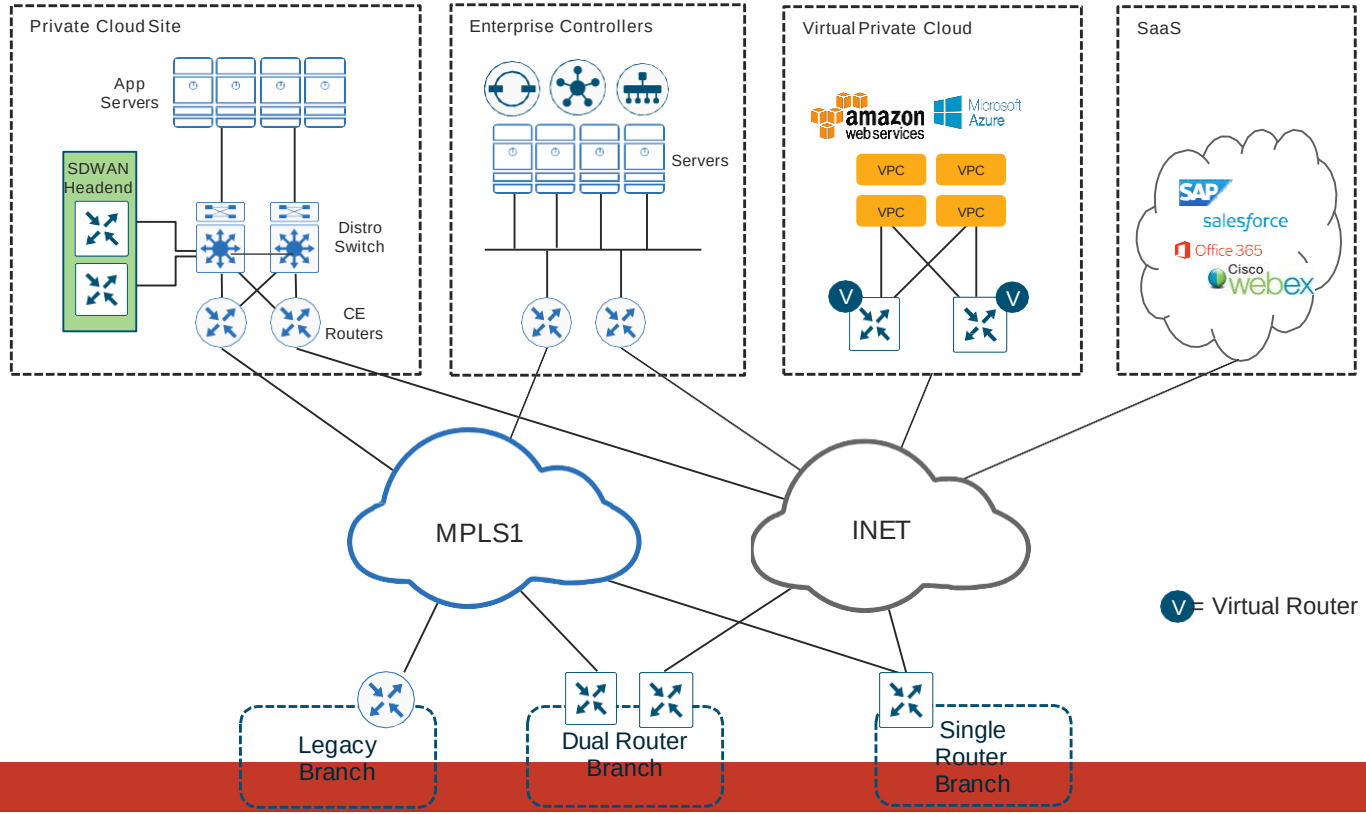
Data Plane
(Physical or Virtual)



Cisco SD-WAN Cloud-Scale Architecture



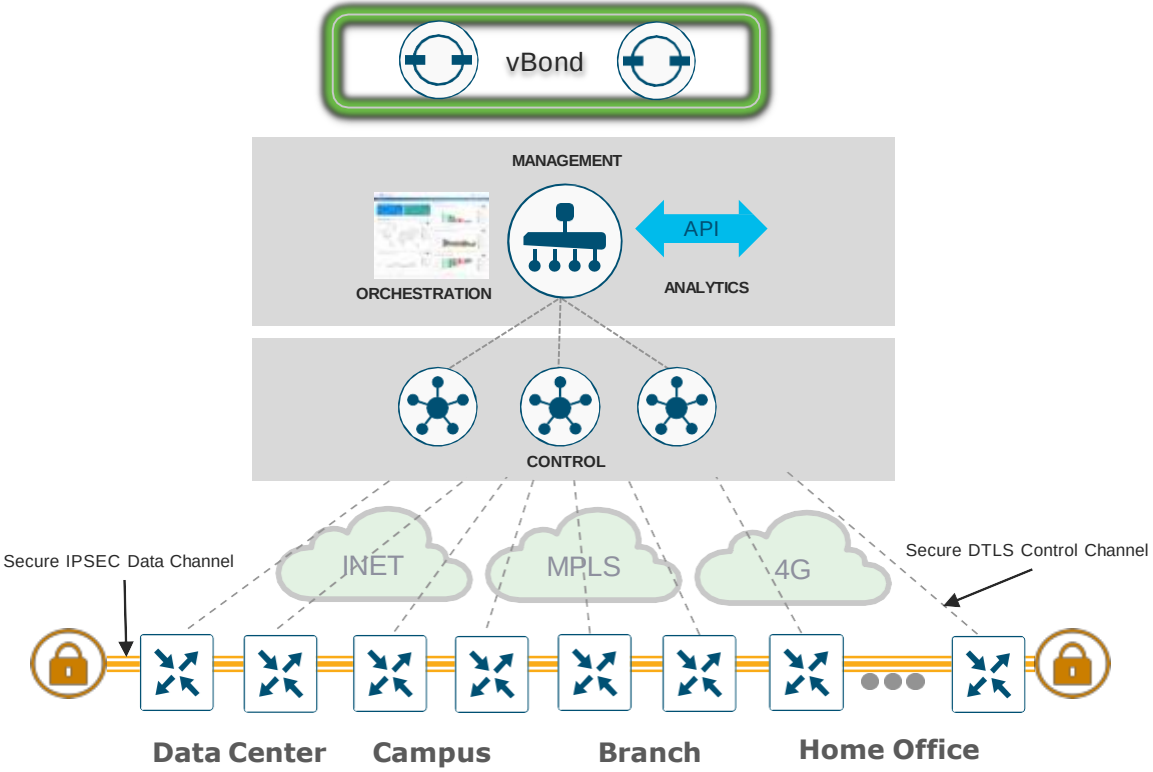
Typical SDWAN Deployment Architecture



- 1.1.a Orchestration plane (vBond, NAT)
- 1.1.b Management plane (vManage)
- 1.1.c Control plane (vSmart, OMP)

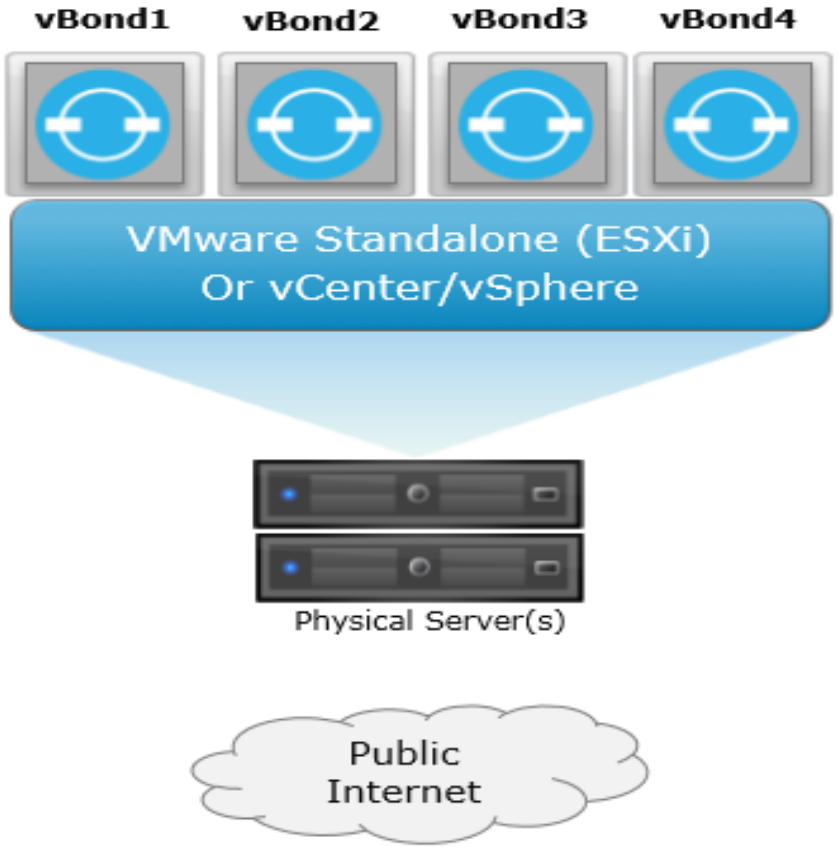
Orchestration Plane

vBond Orchestrator



Main Characteristics

- Orchestrates control and management plane
- First point of authentication
- Distributes list of vSmarts/ vManage to all vEdge routers
- Facilitates NAT traversal
- Requires public IP Address [could sit behind 1:1 NAT]
- Highly resilient
- Multitenant or single tenant

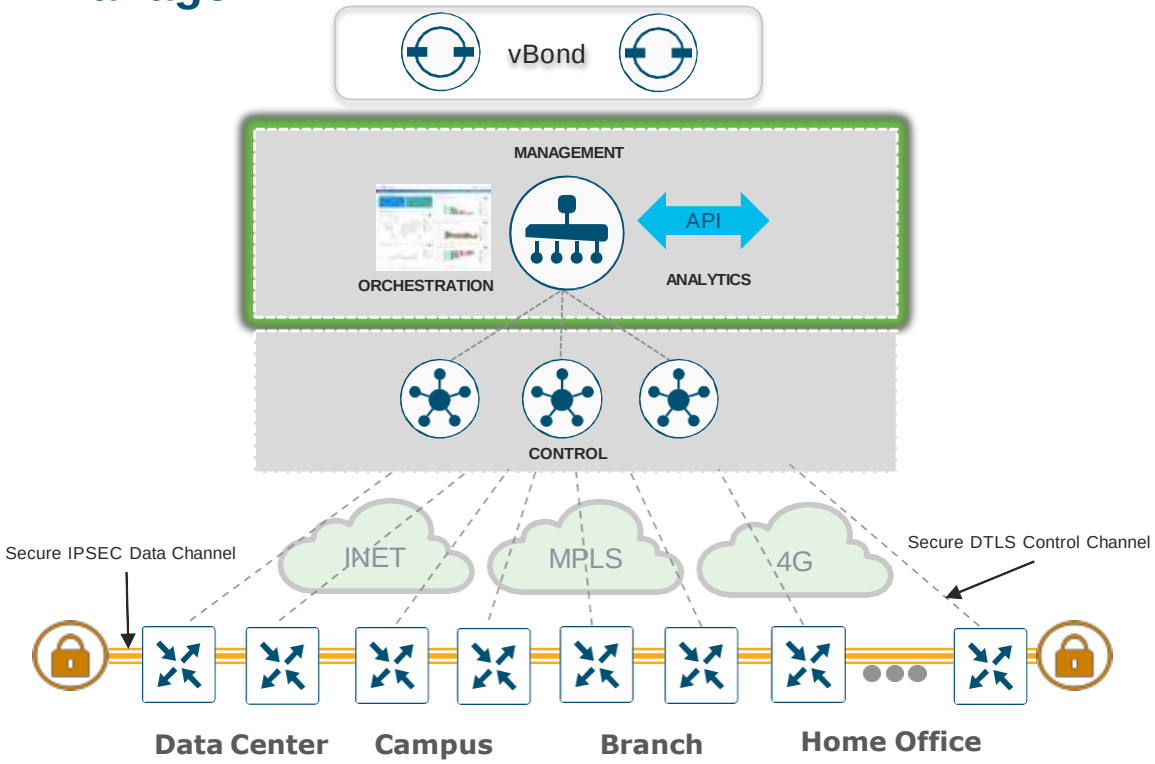


vBond
Agent Process Local to vEdge
or
Virtual Machine Appliance
(x86 scale out)

- Internet reachable IP address
- Network Orchestration
- Secure Bring-up

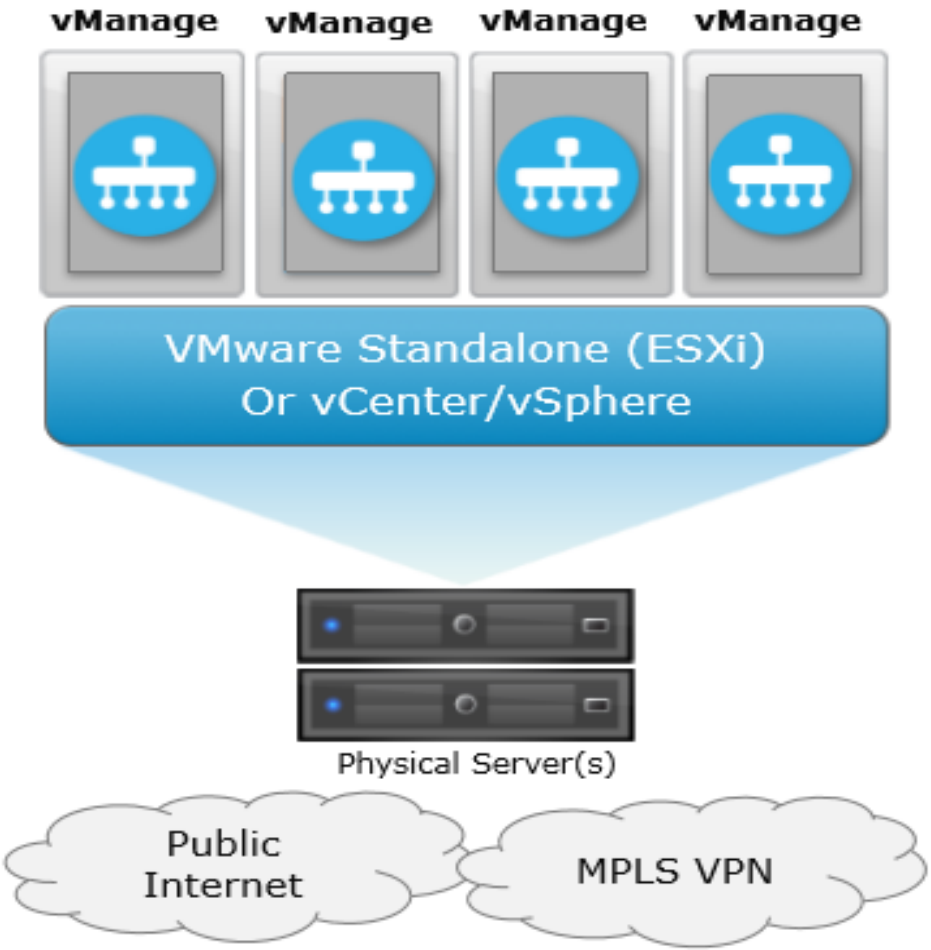
Management Plane

vManage



Main Characteristics

- Single pane of glass for Day0, Day1 and Day2 operations
- Centralized provisioning
- Multitenant or single tenant
- Policies and Templates
- Troubleshooting and Monitoring
- Software upgrades
- GUI with RBAC
- Programmatic interfaces (REST, NETCONF)
- Highly resilient

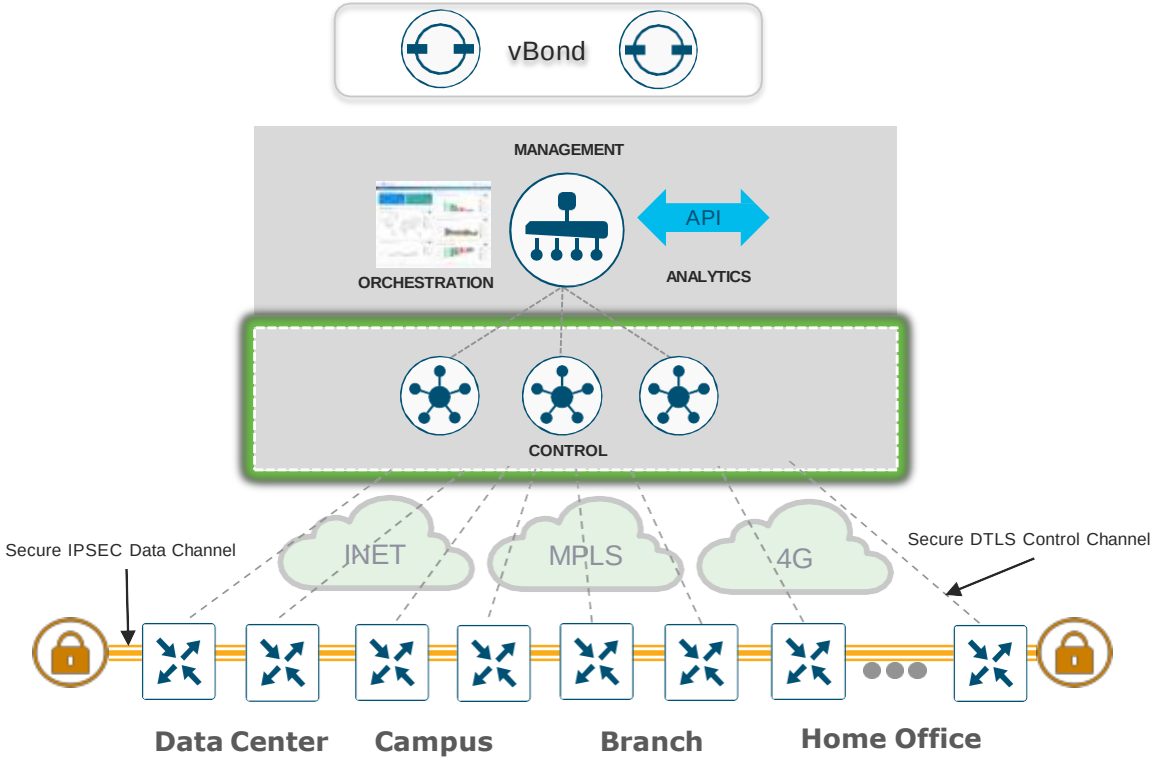


vManage
Virtual Machine Appliance
(x86 scale out)

- Centralized Management
- Rest API
- Configuration
- Monitoring
- Management

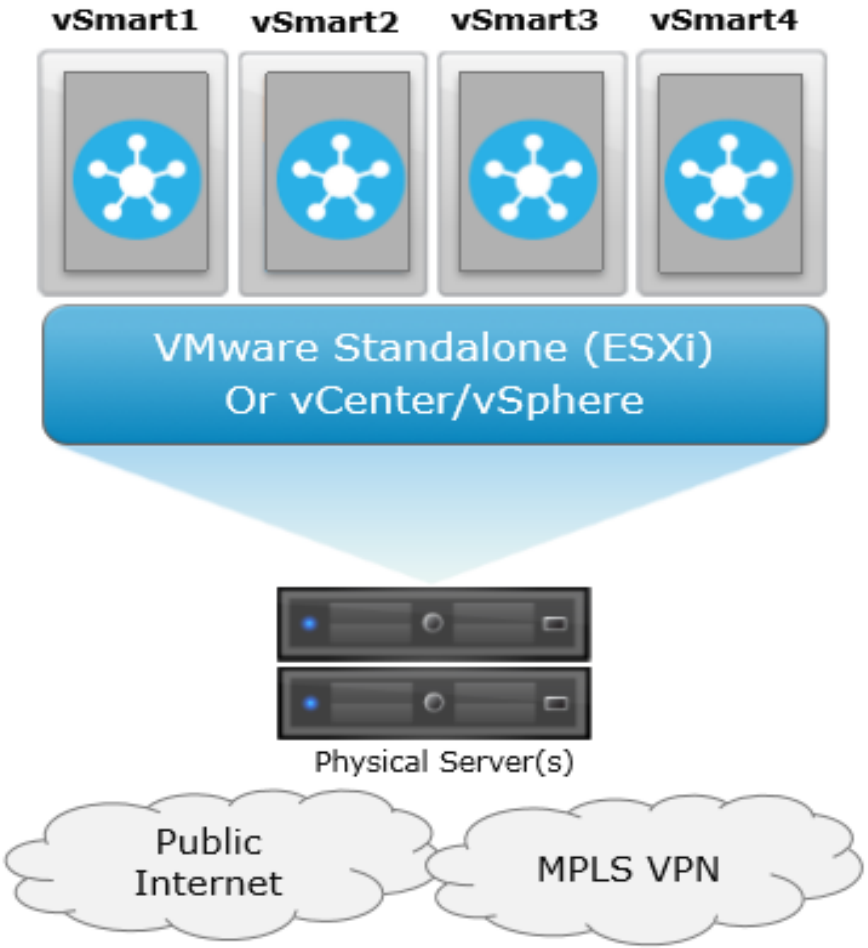
Control Plane

vSmart Controller



Main Characteristics

- Facilitates fabric discovery
- Disseminates control plane information between vEdges
- Distributes data plane and app-aware routing policies to the vEdge routers
- Implements control plane policies
- Dramatically reduces control plane complexity
- Highly resilient



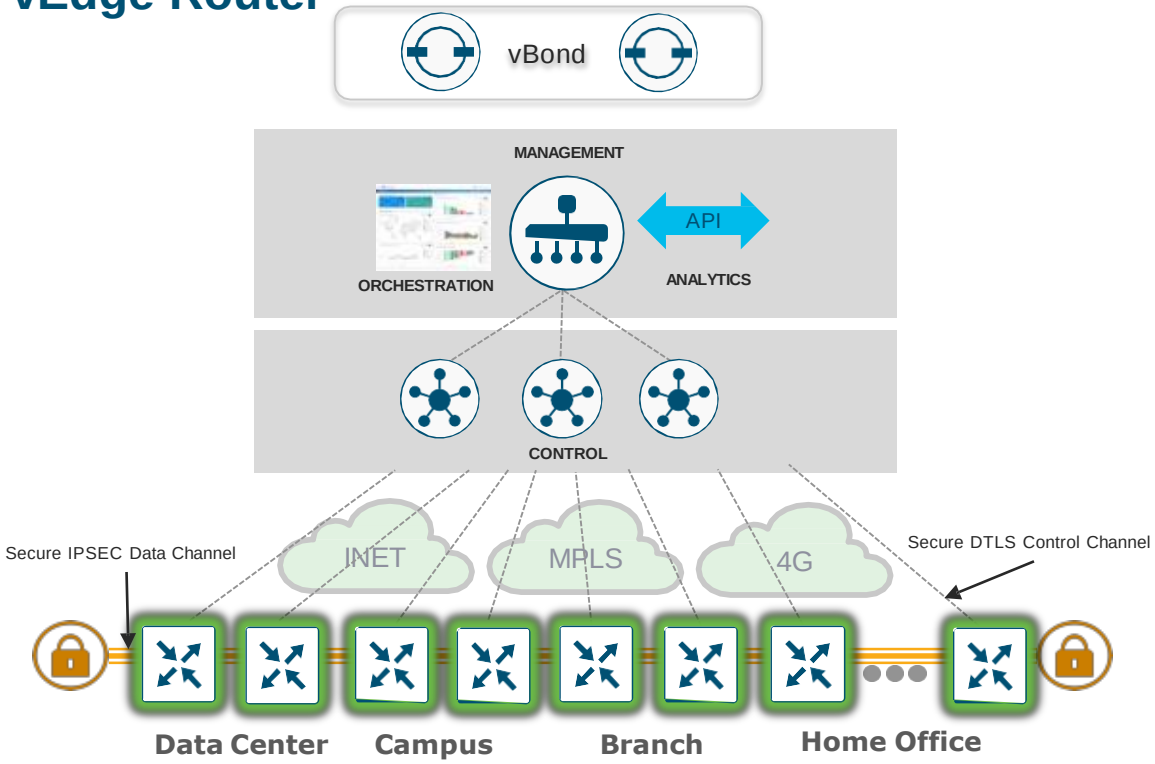
vSmart

Virtual Machine Appliance
(x86 scale out)

- Routing Information
- Encryption Key Propagation
- Central VPN Policy Management
- Service Chaining
- Traffic Engineering

Data Plane

vEdge Router



Main Characteristics

- WAN edge router
- Provides secure data plane with remote vEdge routers
- Establishes secure control plane with vSmart controllers (OMP)
- Implements data plane and application aware routing policies
- Exports performance statistics
- Leverages traditional routing protocols like OSPF, BGP and VRRP
- Support Zero Touch Deployment
- Physical or Virtual form factor (100Mb, 1Gb, 10Gb, 20Gb+)

Branch virtualization

ENCS 5100

- Up to 250Mbps

ENCS 5400

- 250Mbps – 2GB

SD-WAN

vEdge 100

- 100 Mbps
- 4G LTE & Wireless

vEdge 1000

- Up to 1 Gbps
- Fixed

- 10 Gbps
- Modular

vEdge 2000

- ISR1100-4G

- ISR1100-6G

vEdge Next Generation – ISR Platform

Branch Services

ISR 1000

- 200 Mbps
- Next-gen connectivity
- Performance flexibility

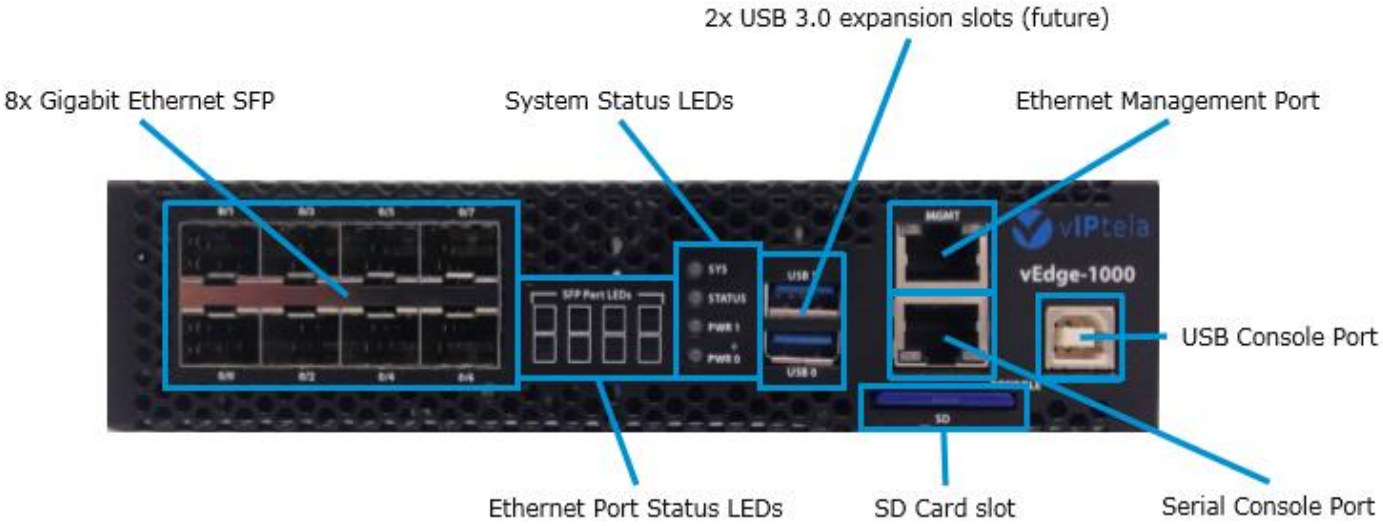
ISR 4000

- Up to 2 Gbps
- Modular
- Integrated service containers
- Compute with UCS E

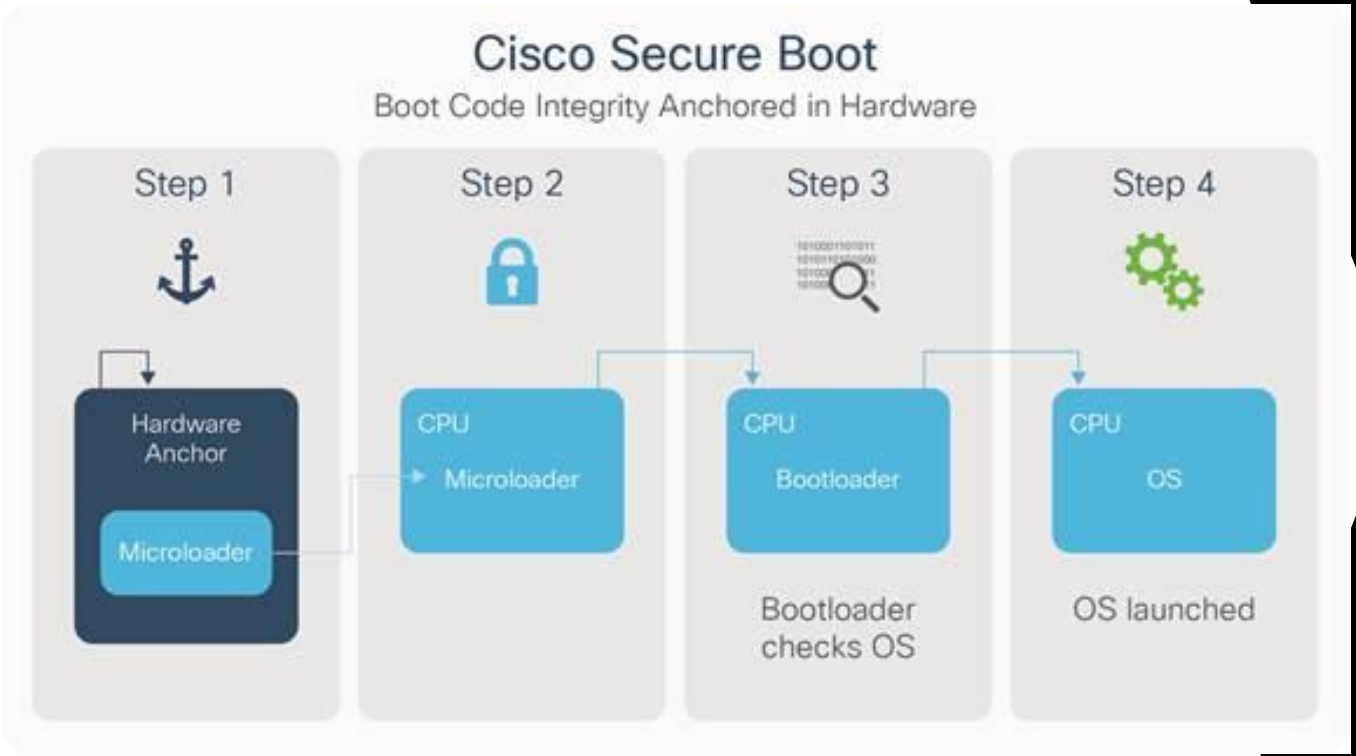
ASR 1000

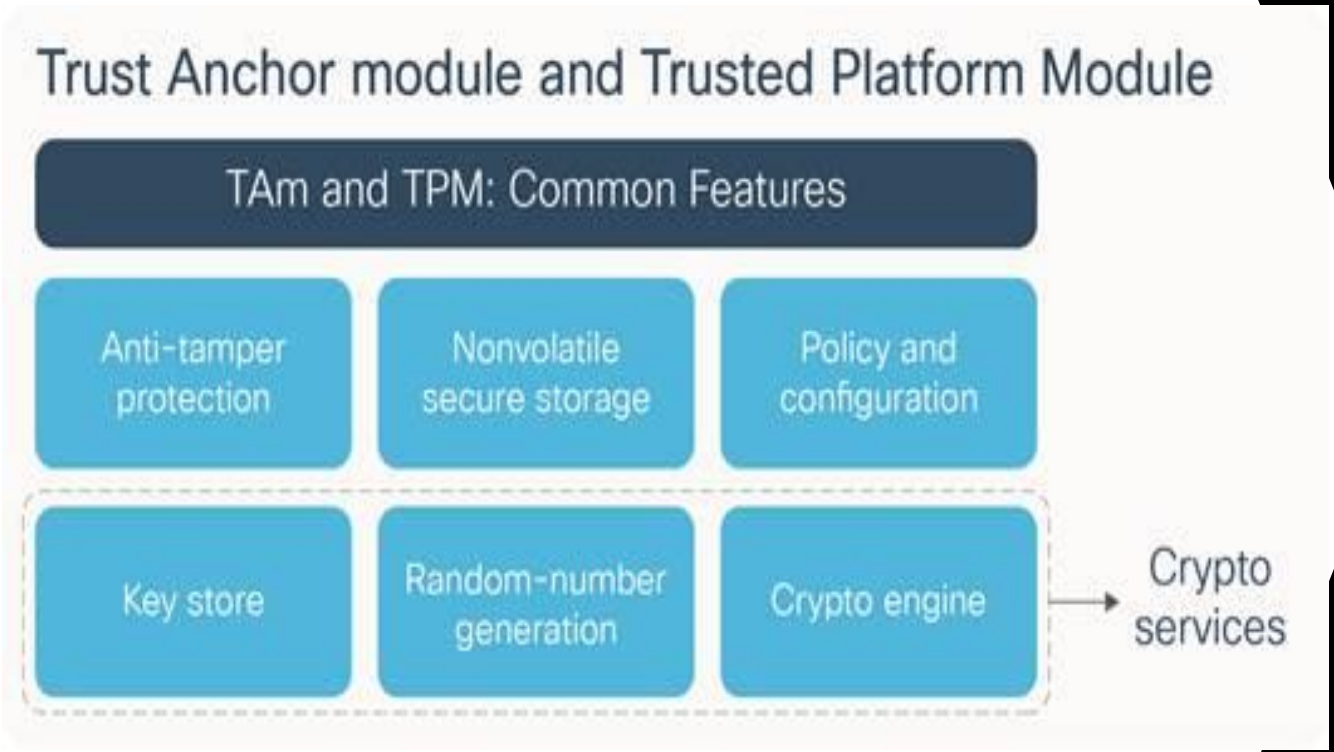
- 2.5-200Gbps
- High-performance service w/hardware assist
- Hardware & software redundancy

vEdge-1000 Hardware



- 1RU, standard rack mountable
- 8x GE SFP (10/100/1000)
- 1 Gbps capacity (incl. encryption)
- TPM chip for anti-counterfeit & secure authentication
- 3G/4G via USB (or) Ethernet
- Encryption, QoS
- Dual Power supplies (external PS)
- Low power consumption


Cisco Secure Boot
Boot Code Integrity Anchored in Hardware
Step 1
Step 2
Step 3
Step 4
Hardware Anchor
Microloader
CPU
Microloader
CPU
Bootloader
CPU
OS
Bootloader checks OS
OS launched


Trust Anchor module and Trusted Platform Module
TAm and TPM: Common Features
Anti-tamper protection
Nonvolatile secure storage
Policy and configuration
Key store
Random-number generation
Crypto engine
Crypto services

vEdge Features

- 1.1.d Data plane (vEdge)
- 1.1.d [i] TLOC
- 1.1.d (ii) IPsec
- 1.1.d (iii) vRoute
- 1.1.d (iv) BFD