



Catalyst 9000 Switching Family

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Today's Agenda

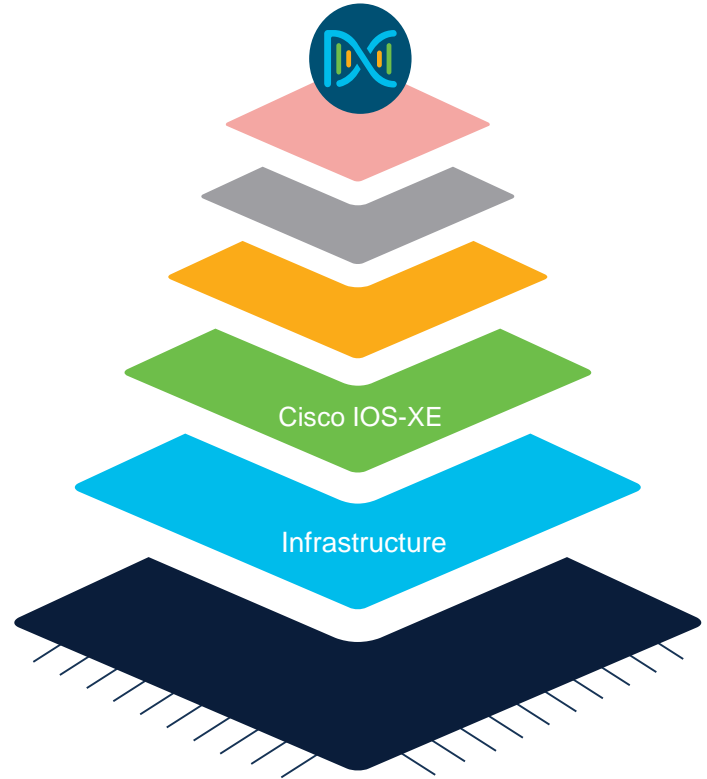
Catalyst 9000 Family

Catalyst 9000 in network design

Cisco PoE Innovations

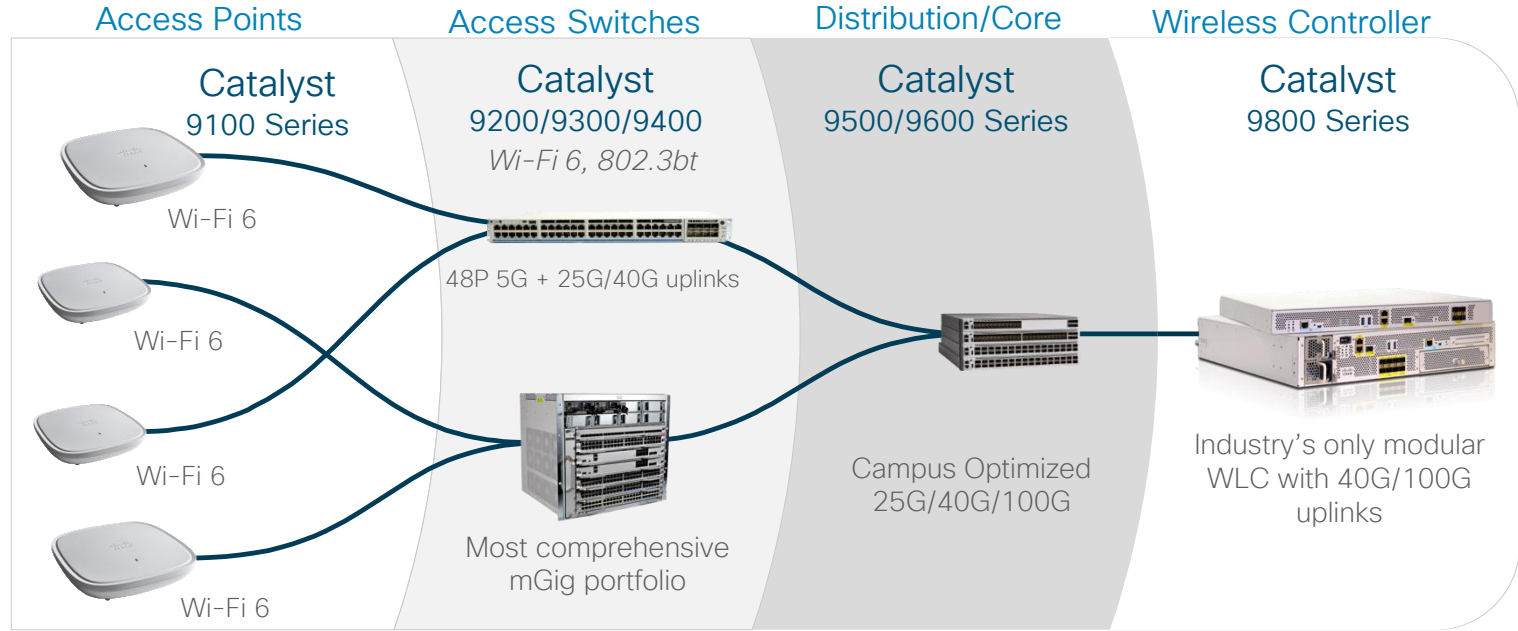
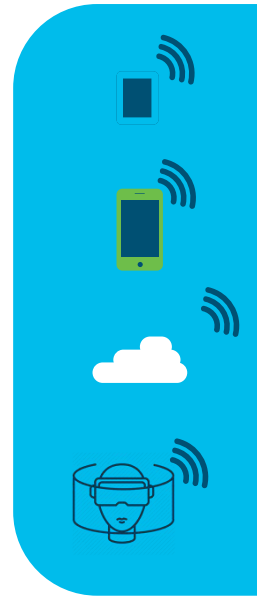
Security features

What is new in IOS-XE



Cisco Catalyst Access Network

Best Access Experience for IT and IoT



← Fully Integrated End to End →

Built for intent-based networking



Automation



Security



Analytics

Catalyst Switching - Fully Refreshed Portfolio



- NEW '48x1G Fiber LC'
- NEW '1G on 48YL LC'
- NEW '48xmGig LC'

NEW '9300H' with 90W

NEW '48x1G 90W LC'

NEW '9200 w/ 32 VN'

NEW '9300L, -S, -B'

NEW '9200 mGig'

NEW '9300L mGig'

NEW '9200L mGig'

Cisco Catalyst 9400 Series

Cisco Catalyst 9500 Series

Cisco Catalyst 9600 Series

Catalyst 9000 Switching Platform

Cisco Catalyst 9200 Series

Cisco Catalyst 9300 Series



Cisco Catalyst 2960-X/XR

Cisco Catalyst 3650/3850

Cisco Catalyst 4500E Series

Cisco Catalyst 3850F/4500-X

Cisco Catalyst 6840-X/6880-X

Cisco Catalyst 6500-E/6807-XL

Access switching

Core switching

Common UADP ASIC, IOS-XE operating system and licensing

Cisco Catalyst 9200

Catalyst 9200 Series switching 1G Model SKUs

Catalyst 9200 Series switching SKUs

9200 (Modular Uplinks and Fans)

Data



24X1G Ports

48X1G Ports

POE+



24X1G Ports

48X1G Ports

4 x 1G and 4 x 10G Uplinks

9200L (Fixed Uplinks and Fans)

Data



24X1G Ports

48X1G Ports

POE+



24X1G Ports

48X1G Ports

4 x 1G and 4 x 10G Uplinks

Modular Power Supplies available on all the SKUs

Catalyst 9200 Series switching Multigigabit Model

9200 (Modular Uplinks and Fans)

POE+



8xmGig Ports

New

POE+



8xmGig Ports

New

Modular 4x1G, 4x10G, 2x40G, 2x25G Uplinks

9200L (Fixed Uplinks and Fans)

POE+



8xmGig Ports

New

POE+



12xmGig Ports

8xmGig Ports

New

Fixed 4x10G, 2x25G Uplinks

All models support Full PoE+

Modular Power Supplies available on all the SKUs

Modular uplink options on Catalyst 9200 Series switches



- 4 x 1 Gig
- SFP Transceivers
- Supported on all modular SKUs



- 2 x 25 Gig
- SFP/SFP+ Transceivers
- 1/10/25G speed support
- Supported on all mGig SKUs only

New



- 4 x 10 Gig
- SFP/SFP + Transceivers
- Supported on all modular SKUs



- 2 x 40 Gig
- QSFP Transceivers
- Supported on all mGig SKUs only

New

All modular uplink modules are Field Replaceable Units
Modular uplinks supported on Catalyst 9200 Series modular SKUs

Cisco Catalyst 9200 Series

Next generation of entry-level access switches for intent-based networking



Security

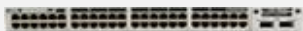


Resiliency



Application experience

Fixed Uplinks



48 ports Full POE+/Data, 1G/10G Uplink



48 ports Full POE+, 12xmGig, 10G Uplink

48 ports Full POE+, 8xmGig, 25G Uplink



24 ports Full POE+/Data, 1G/10G Uplink



24 ports Full POE+, 8xmGig, 10G Uplink

24 ports Full POE+, 8xmGig, 25G Uplink

Modular Uplinks

NEW

Recommended for small scale SDA deployments



48 ports Full POE+/Data
48 port Full POE+ with 32 VN**



48 ports Full POE+, 8xmGig



24 ports Full POE+/Data
24 ports Full PoE+ with 32 VN**



24 ports Full POE+, 8xmGig

Modular fans

FRU Fan



Higher Efficiency AC FRU Power Supplies

FRU PSU



125W



600W



1000W

Modular uplinks

FRU Uplinks*



4x 1G



4x 10G



2x 25G



2x 40G

NEW

NEW

Cisco Catalyst 9200 Series highlights

UADP 2.0 mini

Cisco IOS XE Software

Limited-scale SD-Access

MACsec-128 link encryption

Trustworthy solutions

Perpetual/Fast PoE

Programmability

Cold patching

Full Flexible NetFlow streaming telemetry

Cisco Catalyst 9300

Cisco Catalyst 9300 Series

New generation of fixed access

Modular uplinks (C9300 SKUs)

Copper



48 ports
Cisco UPOE 5G



48 ports Cisco UPOE
12P Multigigabit + 36P 2.5G



24 ports Cisco
UPOE Multigigabit



48/24 ports
Cisco UPOE 1G



48/24 ports
PoE+ 1G



48/24 ports
data 1G



48/24 ports
Deep Buffer/High Scale



48/24 ports
UPOE+ 1G



48/24 ports UPOE
UL1069 1G

Fiber SFP



48/24 ports SFP 1G

Fixed uplinks (C9300L SKUs)



48p UPOE
12mG+36 1G

2x40G UL



25p UPOE
8mG+16 1G



48p UPOE
12mG+36 1G

4x10G UL



25p UPOE
8mG+16 1G



48/24 ports PoE+ 1G

4x10G UL



48/24 ports data 1G



48/24 ports PoE+ 1G

4x1G UL



48/24 ports data 1G

Stack kit



Modular uplinks



8x 10G



2x 40G



4x Multigigabit



4x 1G



2x 25G

Modular fans



AC and DC power supplies



315W AC



715W AC/DC



1100W AC

Platinum
rated

Cisco Catalyst 9300 Series leadership

UADP 2.0 (XL)

Cisco IOS XE Software

SD-Access

x86 CPU and containers

Application hosting

Encrypted Traffic Analytics

MACsec-256 link encryption

Trustworthy solutions

Cisco StackWise-480*/320

Cisco StackPower*

IEEE1588 and AVB

NBAR2

Perpetual/Fast PoE

IEEE 802.3bt Type3 & 4 compliant**

Model-driven programmability

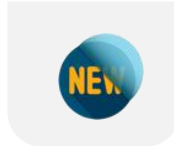
Hot patching/GIR

Full Flexible NetFlow
streaming telemetry

* Modular uplink SKUs only
** UPOE+ Models

Cisco Catalyst 9300 Increased Scale Platform

Fixed access optimized for Media Distribution and IP Storage Networks



2x Buffers

Expanded Packet Buffers

2-4x Scale

Increased Network Scale



C9300-48UB: 48 Port 1G switch with UPOE



C9300-24UXB: 24 Port Multigigabit switch with UPOE



C9300-24UB: 24 Port 1G switch with UPOE

Cisco Catalyst 9000 leadership
UADP 2.0 XL
Cisco IOS® XE Software
Cisco SD-Access
x86 CPU and containers
Encrypted Traffic Analytics (ETA)
AES-256/MACsec-256
Trustworthy systems
Cisco StackWise-480
IEEE1588 and AVB*
NBAR2
Perpetual/Fast PoE
Model-driven programmability
Patching/GIR
Streaming telemetry

Modular fans Modular uplinks Higher-efficiency AC and DC power supplies New Platinum rated



8x 10G



2x 40G



4x Multigigabit



4x 1G



2x 25G



315W AC



715W AC/DC



1100W AC

StackWise-480

Stackpower

Catalyst 9300-B Lookup Tables

Forwarding resources

	Cisco® Catalyst® 9300-B Series Advantage	Cisco® Catalyst® 9300-B Series Essentials
MAC addresses	64,000	32,000
Host/Direct routes	48,000	24,000
IGMP groups	16,000	8000
LPM/Indirect routes	64,000	8000
Multicast routes	16,000	8000
SGTs	8000	8000

Feature resources

	Cisco® Catalyst® 9300-B Series Advantage	Cisco® Catalyst® 9300-B Series Essentials
Security ACL entries	18,000	5000
<ul style="list-style-type: none">• PACL• VACL• RACL		
QoS ACL entries	18,000	5000

NetFlow

NetFlow entries: 64,000 / 128,000 per UADP 2.0 / 2.0 XL ASIC

Higher Scale with Advantage License



Cisco Catalyst 9300 Series

1G Fiber models - Expanding to FTTD and 1G fiber aggregation applications

24-port - C9300-24S



48-port - C9300-48S



- 24 and 48 port SFP SKUs
- Transition Catalyst 3850 1G SFP to Catalyst 9300 1G SFP
- Wire-speed, non-blocking performance
- Seamlessly integrates with Cisco Catalyst 9300 Series copper
 - Supports same optics
 - Common stacking - StackWise-480
 - Common power stacking - StackPower
 - Common uplink modules
 - Common power supplies, fans, cables

Modular fans

Modular uplinks

Higher-efficiency AC and DC power supplies



8x 10G



2x 40G



4x Multigigabit



4x 1G



2x 25G



315W AC



715W AC/DC



1100W AC

Platinum rated

Fiber to the desktop

1G fiber aggregation

Collapsed access



Cisco Catalyst 9300 Series Switches

Introducing 90W UPOE+ Models

24-port 1G Copper: C9300-24H



48-port 1G Copper: C9300-48H



- 24- and 48-port Copper SKUs
- Wire-speed, non-blocking performance
- Seamlessly integrates with Cisco Catalyst 9300 Series copper
 - Supports same optics
 - Common stacking - StackWise®-480
 - Common power stacking - StackPower
 - Common uplink modules
 - Common power supplies, fans, cables

Modular fans

Modular uplinks

Higher-efficiency AC and DC power supplies

Platinum rated



8x 10G

2x 40G

4x Multigigabit

4x 1G

2x 25G

315W AC

715W AC/DC

1100W AC

PoE/PoE+/UPOE/UPOE+
2880W max power budget:

- 32x 90W ports
- 48x 60W ports

Cisco Catalyst 9300L Series – Fixed uplinks



mGig



UPOE



40G Ready

Multigigabit + 4x10G Uplink



48 Port UPOE
(12 MGig + 36 1G)

Multigigabit + 2x40G Uplink



Multigigabit + 4x10G uplink



24 Port UPOE
(8 MGig + 16 1G)

Multigigabit + 2x40G Uplink



48-Port 1G + 4x10G Uplink



48 Port PoE+/Data

48-Port 1G + 4x1G Uplink



24-Port 1G + 4x10G Uplink



24 Port PoE+/Data

24-Port 1G + 4x1G Uplink



Modular fans



Modular uplinks



Higher-efficiency AC and DC power supplies



315W AC



715W AC/DC



1100W AC

Platinum rated

Cisco Catalyst 9000 leadership

UADP 2.0

Cisco IOS® XE Software

SD-Access

x86 CPU and containers

Encrypted Traffic Analytics (ETA)

AES-256/MACsec-256

Trustworthy systems

Cisco StackWise-320

IEEE1588 and AVB*

NBAR2

Perpetual/Fast PoE

Model-driven programmability

Patching/GIR

Streaming telemetry

Catalyst 9300 Stacking Support

Modular Uplink
C9300 (non -B) SKUs

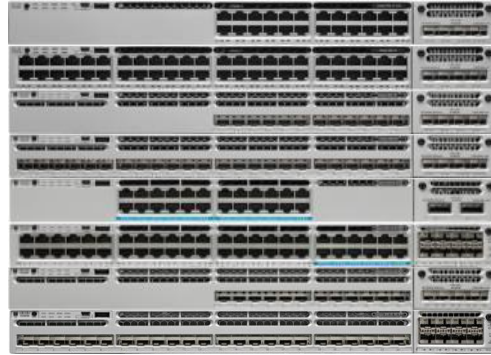
Combination
Support
on Roadmap

Increased Scale
C9300-B SKUs
(today)

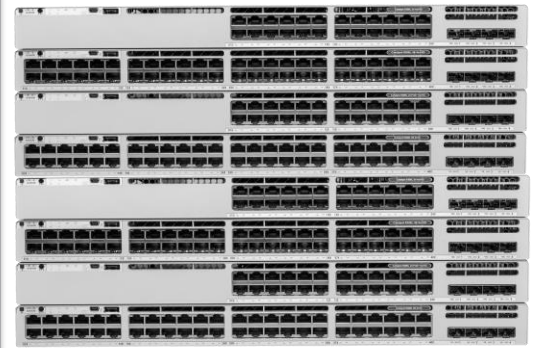
Fixed Uplink
C9300L SKUs



8 switches



8 switches



8 switches

Stacking supported among C9300 SKUs

Stacking supported among C9300-B SKUs

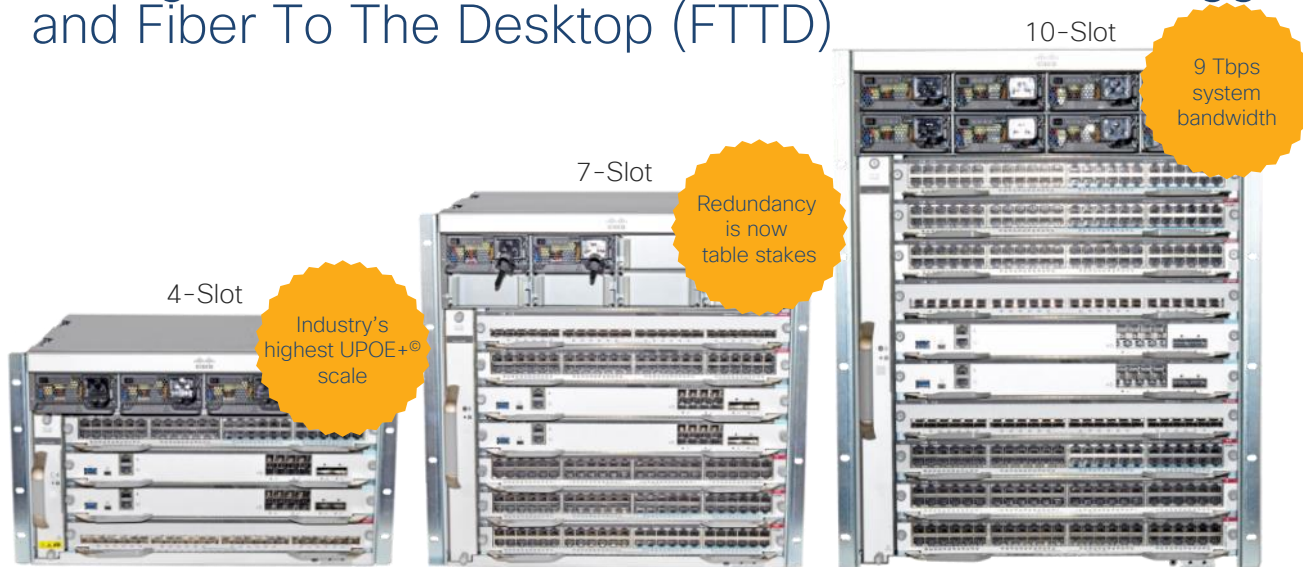
Stacking supported among C9300L SKUs only

Mixed stacking is not supported between C9300 and C9300L SKUs

Cisco Catalyst 9400

Cisco Catalyst 9400 Series

New generation of modular access for access, aggregation, and Fiber To The Desktop (FTTD)



Catalyst 9400 1G UPOE+ 90W line card

Supervisor

- Sup-1XL-Y: Adds 25G Uplinks
- Sup-1XL: Up to 240G per slot
- Sup-1: 80G per slot

Access line cards

- 24x Multigigabit +
- 24x Cisco UPOE
- 48x Cisco UPOE+
- 48x Cisco UPOE
- 48x PoE+, 48x data

Core line cards

- 24x 10G SFP+
- 48x 1G SFP
- 24x 1G SFP

Power supply

- 3200W AC
- 3200W DC
- 2100W AC

Cisco Catalyst 9400 Series leadership

UADP 2.0

Open Cisco IOS XE

SD-Access

x86 CPU and containers

Encrypted Traffic Analytics

MACsec-256 link encryption

Trustworthy solutions

Cisco StackWise Virtual

ISSU

NBAR2

Model-driven programmability

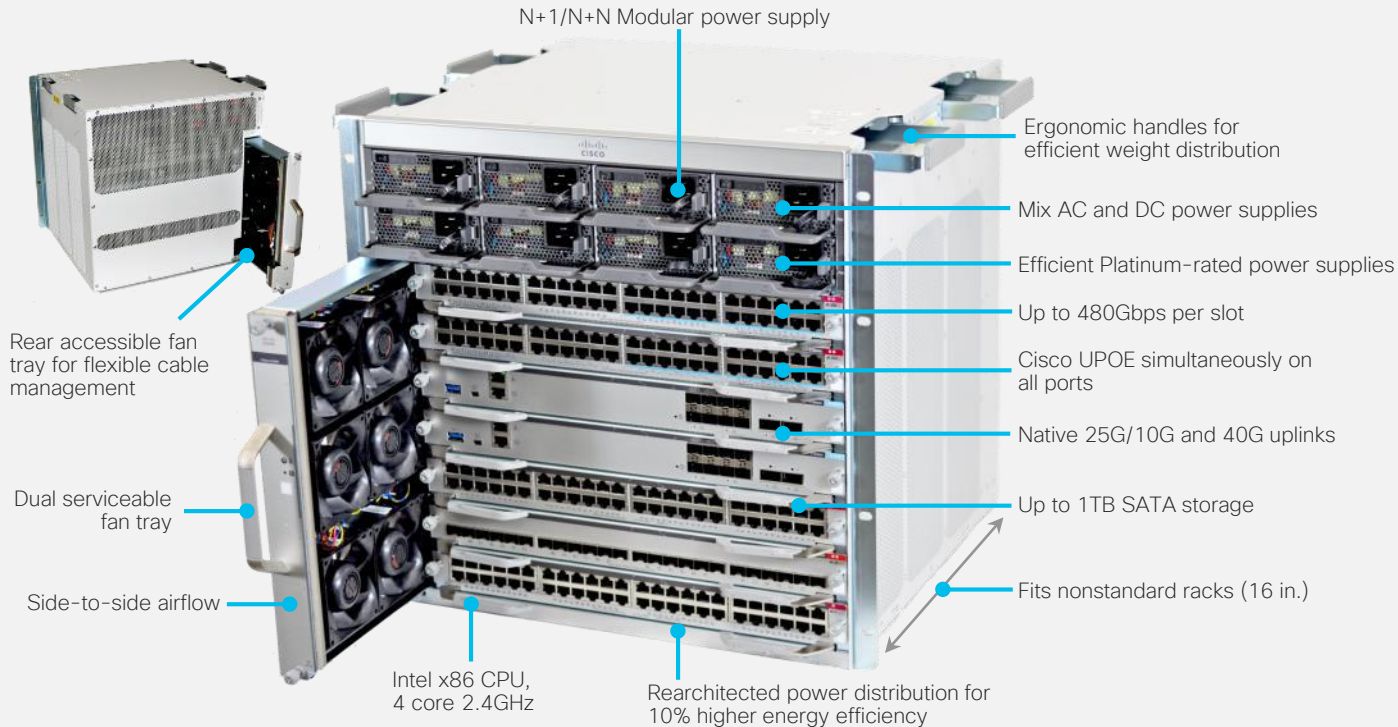
Patching and GIR

Streaming telemetry

NEW Densest 90W 1G (260 Ports)

Cisco Catalyst 9400 Series

Innovations and benefits



Extending Catalyst 4500E Series leadership in modular access

- 4x throughput
- 3x client scale
- 2x wireless scale
- 4x power scale
- 3x buffering
- 10x bandwidth
- 4x memory and flash
- Lower power
- Better acoustics
- Higher MTBF
- MPLS VPN

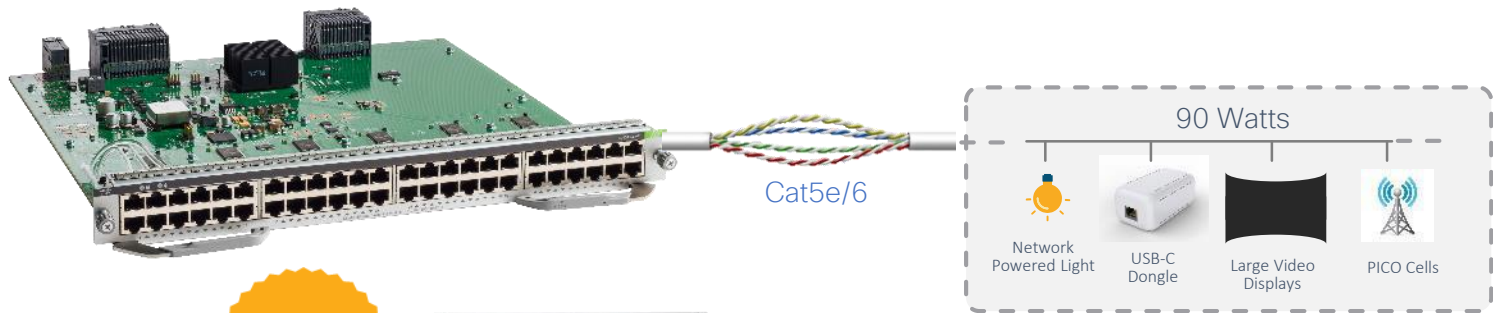
While preserving ...

- HA architecture
- Investment protection story



Catalyst 9400 90W UPOE+ line card

Highest UPOE+ scale to power latest intelligent devices



Industry's
highest PoE
scale



Catalyst 9400

- Up to 260* x 90W concurrent power
- IEEE 802.3bt standards compliant
- Perpetual PoE with dual supervisors
- 48 x 1G Ports per line card
- Up to 8 x 3200W AC/DC PSU





Investment Protection with 90W UPOE+

Modular Access Value Proposition

Highly Resilient, Flexible and Future-proof network architectures



Catalyst 9400

 <p>Full Redundancy Highest MTBF</p>	<p>Resiliency</p>  <p>ISSU & SVL Zero downtime</p>	 <p>Uplink HA No b/w impact</p>
 <p>Versatile 10G Aggregation, FIAB & Collapsed</p>	<p>Flexibility</p>  <p>Any Closet Space, Noise, Power</p>	 <p>Transition Native 40G, 25G & 10G on Sup</p>
 <p>15-20 Years Modular Lifecycle</p>	 <p>480G/slot No forklift upgrade</p>	 <p>IEEE 802.3bt 90W Highest Power delivery</p>

Cisco Catalyst 9500/9600

Cisco Catalyst 9500 Series

New generation of purpose-built fixed core/aggregation switches

Standard switches (UADP 2.0)

40G/10G SKUs

9500-16X
9500-40X
9500-24C
9500-12C



Cisco Catalyst 9500 Series

High Performance switches (UADP 3.0)

100G/40G SKUs



C9500-32C: 32x 100G



C9500-32QC: 32x 40G/16x 100G

25G/10G SKUs



C9500-48Y4C: 48x 10/25G + 4x 40/100G



C9500-24Y4C: 24x 10/25G + 4x 40/100G



240GB, 480GB,
960GB SSD storage



650W AC



930W DC



1600W AC/DC

Catalyst 9500 Series high performance switches (UADP 3.0)

Throughput (3.2 Tbps)

Performance: 3x UADP 2.0

Scale: 3x UADP2.0

1G, 10G, 25G, 40G, 100G

Pluggable SSD storage for app hosting – 1 TB

Customizable templates

Breakout support (4X 10G, 4X 25G) on C9500-32C

Cisco StackWise Virtual

Cisco Catalyst 9500 Series high performance switches

Security

Resiliency

Performance and scale

Cisco Catalyst 9600 Series

New generation of purpose-built modular core/aggregation switches



Security



Resiliency



Lowest TCO



Powered by UADP 3.0

6-slot (8RU) chassis:
25.6 Tbps
Supervisor-1:
2.4 Tbps per slot

Fiber line cards

- 48p x 25G/10G/1G
- 48p x 1G
- 24p x 40G/12p x 100G

Copper line cards

- 48p x mGig (Non-PoE)



Dual Serviceable Fan Tray



2000W AC and DC Power Supplies



240 GB, 480 GB, 960 GB SSD storage

Extending Cisco Catalyst 6000 Series leadership in modular core

- 7.5x throughput per slot
- 3x port density (40G)
- 4x CPU
- No oversubscription

Cisco Catalyst 9000 leadership

UADP 3.0

Cisco IOS XE Software

SD-Access

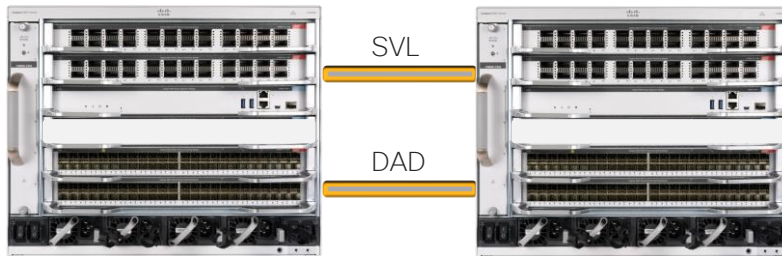
x86 CPU and containers

MACsec-256 on all ports/speed at line rate

Cisco StackWise Virtual

Model-driven programmability and streaming telemetry

C9600 - StackWise Virtual



StackWise Virtual is supported with IOS-XE 16.12.1 or later

- SVL: StackWise Virtual Link
 - Same speed ports (10G or higher)
 - Up to 8 ports
- DAD: Dual Active Detection
 - Fast Hello
 - Directly connected
 - Up to 4 links
 - Enhanced PAgP
 - EtherChannel with PAgP
 - Up to 4 port-channels
- IOS-XE 16.12.x: 2nd Supervisor is not supported in the chassis and will be powered off if inserted in SVL Mode

- A Distribution layer technology allowing stacking of 2 switches
- Supports flexible distances with support of all supported cables and optics
- SVL and DAD links are supported on any ports with 10G or higher speed, including QSA
- DAD support with 1G or higher speed from IOS-XE 16.12.2/17.1

C9600 has feature parity with C6500E/6800



	16.11.1	16.12.1	17.1.1
MPLS	<ul style="list-style-type: none"> MPLS VPN MPLS LDP BGP auto discovery for MPLS EOMPLS VPLS 6P, 6VPE 	<ul style="list-style-type: none"> L2VPN PW redundancy MPLSoGRE, VPLSoGRE MPLS Subif Support MVPNv6 BGP PE-CE support 	<ul style="list-style-type: none"> Extranet mVPN VPLS L2 Snooping
Multicast	<ul style="list-style-type: none"> Multicast VRF Lite Snooping: IGMP v1,v2,v3, PIM, MLDv1, MLDv2 Multicast Routing Explicit Host tracking 	<ul style="list-style-type: none"> Pim BiDir MVPNv6 IPv6 snooping 	<ul style="list-style-type: none"> LFA FRR OSPF IPFRR
HA	<ul style="list-style-type: none"> In chassis HA 	<ul style="list-style-type: none"> SVL on 9600 ISSU MPLS SVL Support 	<ul style="list-style-type: none"> Quad Sup RPR mode
QoS	<ul style="list-style-type: none"> AutoQoS Hierarchical QoS Classification, Marking: COS< DSCP, IPP IPv6 QoS 	<ul style="list-style-type: none"> Stackwise Virtual QoS 	<ul style="list-style-type: none"> Classify QinQ, Marking QinQ SGT aware QoS
Policy	<ul style="list-style-type: none"> FnF IPv4, IPv6 ACLs, RAcls, PACls PBR ACL Hitless upgrade 	<ul style="list-style-type: none"> FnF ISSU Support VRF Aware PBR 	<ul style="list-style-type: none"> Multicast netflow MPLS Netflow

Cisco Catalyst 9000 Licensing

Catalyst 9000 switches – Advantage vs. Essentials

Catalyst 9200, 9300, 9400, 9500, 9600 Series switches

Advantage

Cisco DNA Advantage (includes Cisco DNA Essentials)

3, 5, 7-Year terms

Advanced automation

- SD-Access
- Application policy
- Encrypted Traffic Analytics*
- Cisco DNA Service for Bonjour*
- Third-party app hosting*

Assurance and analytics

- Global insights, trends
- Compliance, custom reports
- Switch 360 and Wired Client 360
- SD-Access and switch insights
- Application health, Application 360, performance (loss, latency, jitter)

Element management

- Patch lifecycle management

Telemetry and visibility

- ERSpan
- AVC (NBAR2)
- Wireshark*

Essentials

Cisco DNA Essentials

3, 5, 7-Year terms

Basic automation

- Plug-and Play (PnP) application
- LAN automation
- Embedded Event Manager

Basic assurance

- Health dashboards – network, client, application
- Basic switch and wired client health monitoring

Element management

- Software image management
- Discovery, inventory, topology

Telemetry

- Full Flexible NetFlow

Network Advantage (includes Network Essentials)

Perpetual

Enhanced security controls

- MACsec-256*

Full routing functionality

- BGP*, HSRP, OSPF, ISIS

High availability and resiliency

- NSF*, GIR*, StackWise Virtual**, ISSU**/eFSU*, Patching (CLI)

Optimize bandwidth utilization with multicast

- MSDP*, mVPN*, AutoRP, PIM-BIDIR*

IoT and mobility

- CoAP*, AVB*, PTP*

Flexible network segmentation

- VRF, VXLAN, LISP, SGT, MPLS*

Network Essentials

Perpetual

Essential switch capabilities

Layer 2, routed access (RIP, EIGRP Stub, OSPF [1000 routes], PBR, PIM Stub Multicast [1000 routes] PVLAN, VRRP, PBR, Cisco Discovery Protocol, QoS, FHS, 802.1X, MACsec-128, CoPP, SXP, IP SLA Responder SSO), StackWise-xxx

DevOps integration

- NETCONF, RESTCONF, gRPC
- YANG data model
- Guest Shell (on-box Python)
- PnP Agent, zero-touch provisioning

Telemetry and visibility

- Model-driven Telemetry
- Sampled NetFlow
- SPAN, RSPAN

- Cisco Catalyst 9000 switching hardware **includes** the **Perpetual Network Stack – Network Essentials or Network Advantage**.

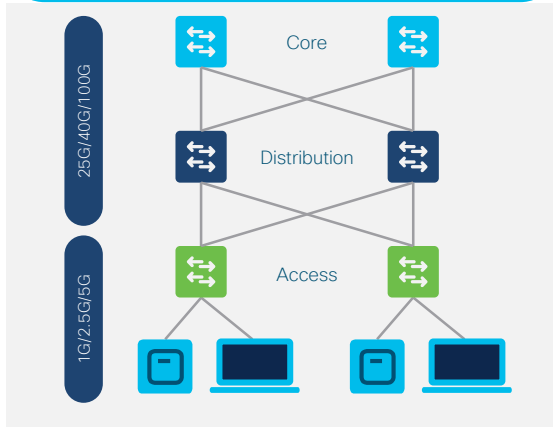
- Cisco Catalyst 9600 Series offers only the Cisco DNA Advantage license.

- **It is mandatory to attach a Cisco DNA license** when ordering Cisco Catalyst 9000 switches. Cisco DNA license **includes switch and Cisco DNA Center features**.

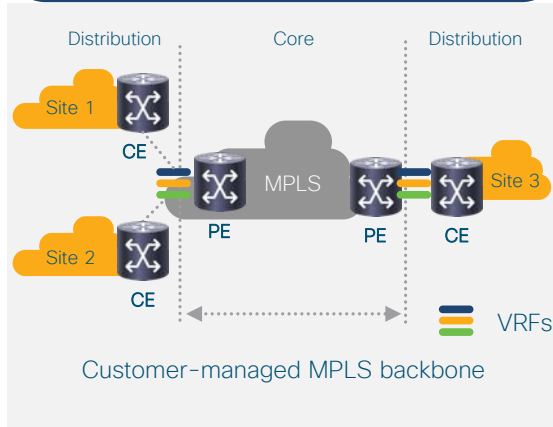
Cisco Catalyst 9000 in Network design

Cisco Catalyst 9000 – Flexible deployments

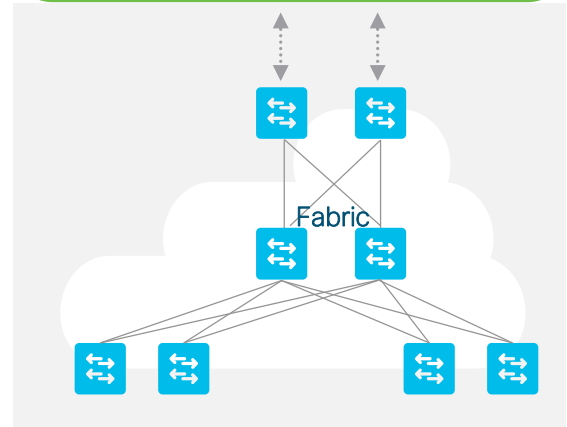
Multi-tier deployments



Layer 3 Core + MPLS PE



Fabrics: SDA + EVPN-VXLAN



Cisco turn-key Solutions



- SD-Access
- Cisco DNA Assurance
- Cisco DNA Service for Bonjour
- Cisco DNA Application Visibility Service
- Encrypted Traffic Analytics
- DNAC Cloud



Do-It-Yourself (DIY) Solutions

- EVPN-VXLAN
- MPLS/VPLS
- Traditional 2/3-tier topologies
- Application Hosting
- Programmability – YANG models with Netconf, Restconf, GNMI APIs

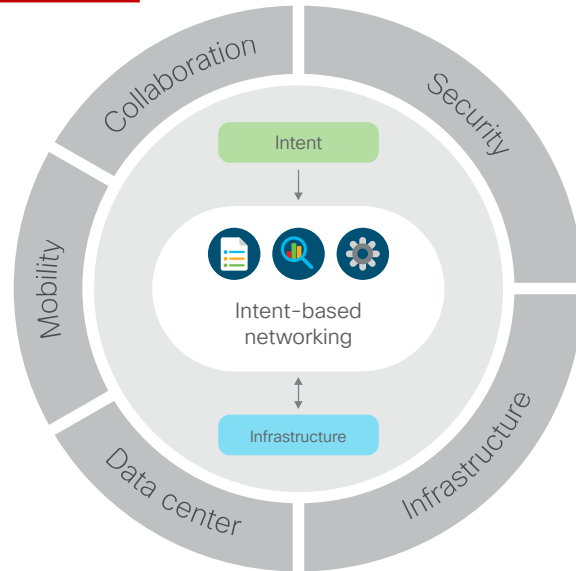
One platform. Any place. Any speed (1G to 100G)

Catalyst 9000 –

Key building block for switched enterprise fabric

Cisco SD-Access

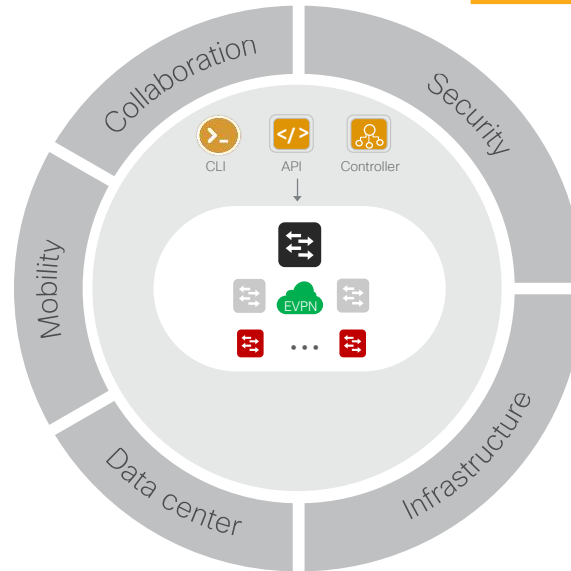
Fully Automated



- Prescriptive design
- Workflow automated design
- Wired/wireless integration
- Segmentation/microsegmentation
- Multidomain API based controller integration

BGP EVPN

DIY



- Flexible design
- CLI/Template based design
- Wireless OTT
- Segmentation
- Multidomain Fabric (Catalyst, Nexus, ...)

Cisco PoE Innovations

(UPOE+, IEEE 802.3bt)



Catalyst 90W UPOE+

The Industry's Highest UPOE+ scale to power latest intelligent devices

Expanded Portfolio

C9400-LC-48UX

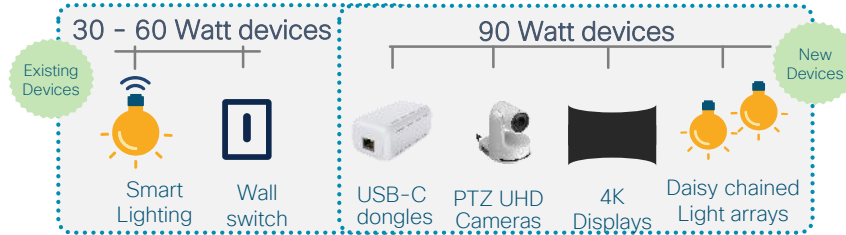


Catalyst 9400



Catalyst 9300

Investment Protection with 90W UPOE+



Catalyst 9400

- Up to 260* x 90W concurrent power
- PoE HA with dual supervisors on C9400
- 48 x 1G Ports per line card
- Up to 8 x 3200W AC/DC PSU

Industry's highest PoE scale

Catalyst 9300

- Perpetual PoE on C9300 standalone or Stack
- 48/24 x 1G ports per 1RU
- Dual Power and Stackpower support

*10-slot chassis w/o power redundancy. Subject to available PoE power budget in chassis

Customer Success

"90W enables... office of the future by letting me daisy-chain... light fixtures ... flexibility ...while saving money ...We've seen a 60% cost savings ..."

- Eric Madeson, SVP Head of Infrastructure

"90W offers flexibility for our ...manufacturing space without having to rely on electricians every time ... I can power my lights, put in new digital displays...anything needed."

- Ron Grohman, Sr. Network Engineer

"We are making the system intuitive and smart... the sky is the limit ... Network infrastructure should be taken seriously... as the fourth utility"

- Farukh Aslam, President, Sinclair Holdings, LLC

Industry's first Enterprise Modular and Stackable switches with 90W UPOE+

Cisco innovations in Power over Ethernet (PoE) deliver a robust low-voltage infrastructure

2-event classification

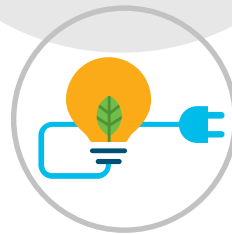
- Fast power negotiation without Link Layer Discovery Protocol (LLDP)
- Physical layer negotiation < 1s

Perpetual PoE*

- Uninterrupted PoE power during control plane reboot

Fast PoE*

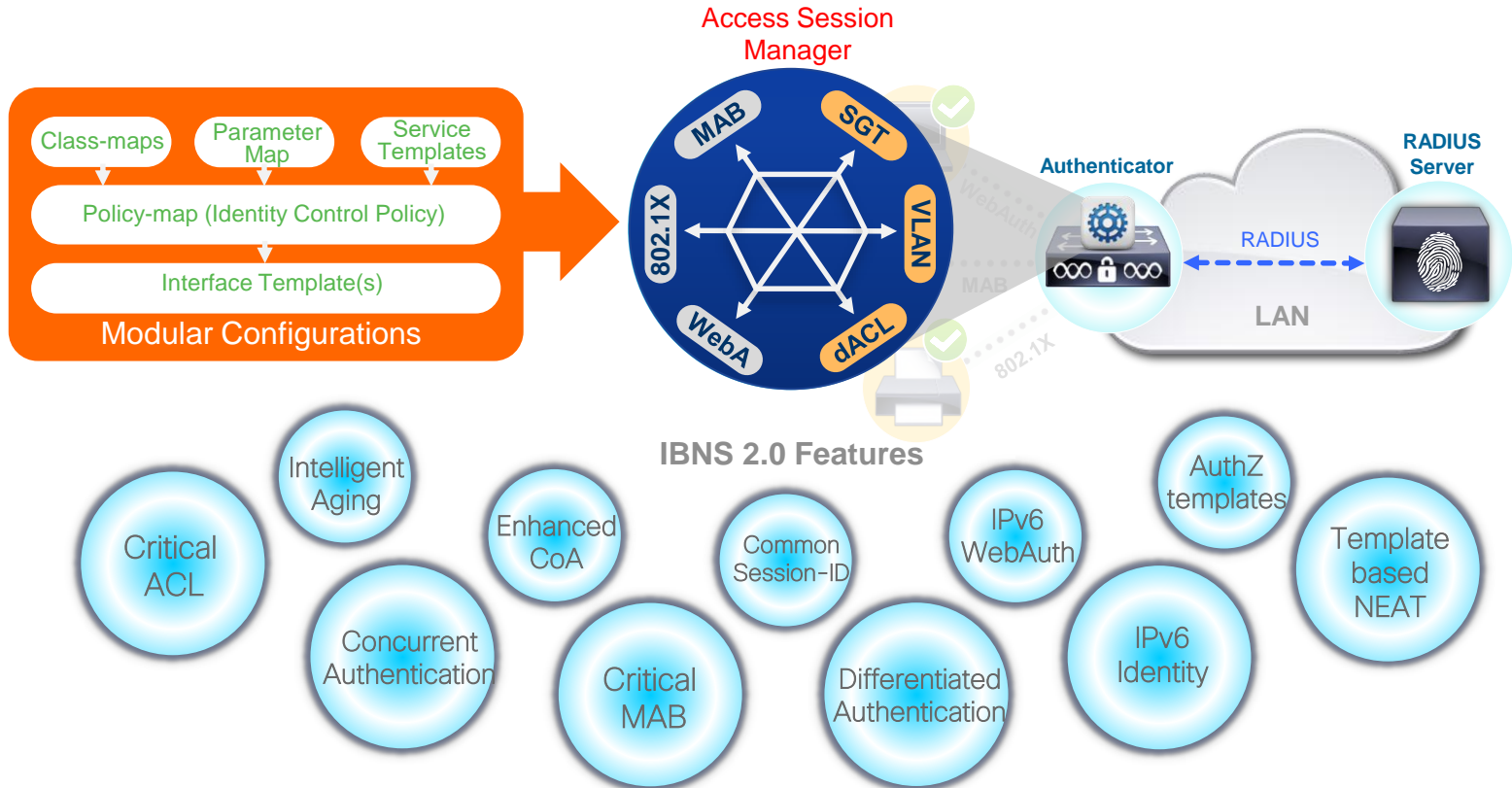
- Bypasses Cisco IOS® control plane boot
- Restores power to PD within 30 seconds of power resumption



Catalyst 9000 Security (few selected features only)

Identity Based Networking Services 2.0

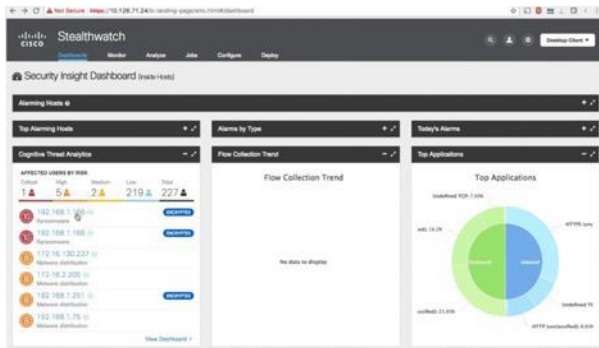
Any Authentication with Any Authorisation on Any media



Secure infrastructure

Security

Secure transport



Trustworthy Solutions

Encrypted Traffic Analytics*

MACsec 256

Two Way Trust

Hardware Authenticity

Run-time Defense

Malware Detection

Traffic Analytics

Compliance

Wire-tapping

Man-in-the-Middle

Impersonation

*Not supported C9600/C9500-High performance

End-to-end segmentation and policy
Pervasive security across Catalyst 9000

Cisco Catalyst 9000 Series Switches

Trustworthy solutions

Design/
develop

Plan/
order

Source

Make

Quality

Delivery

Service/end
of life (EOL)

Physical security practices + Security technology innovations + Logical security processes

**PnP SUDI
support**
Two-way trust

Secure boot
Boot sequence
check

Image signing
Authentic OS

**Integrity
verification**
Malware protection

**Hardware
authenticity**
Genuine hardware

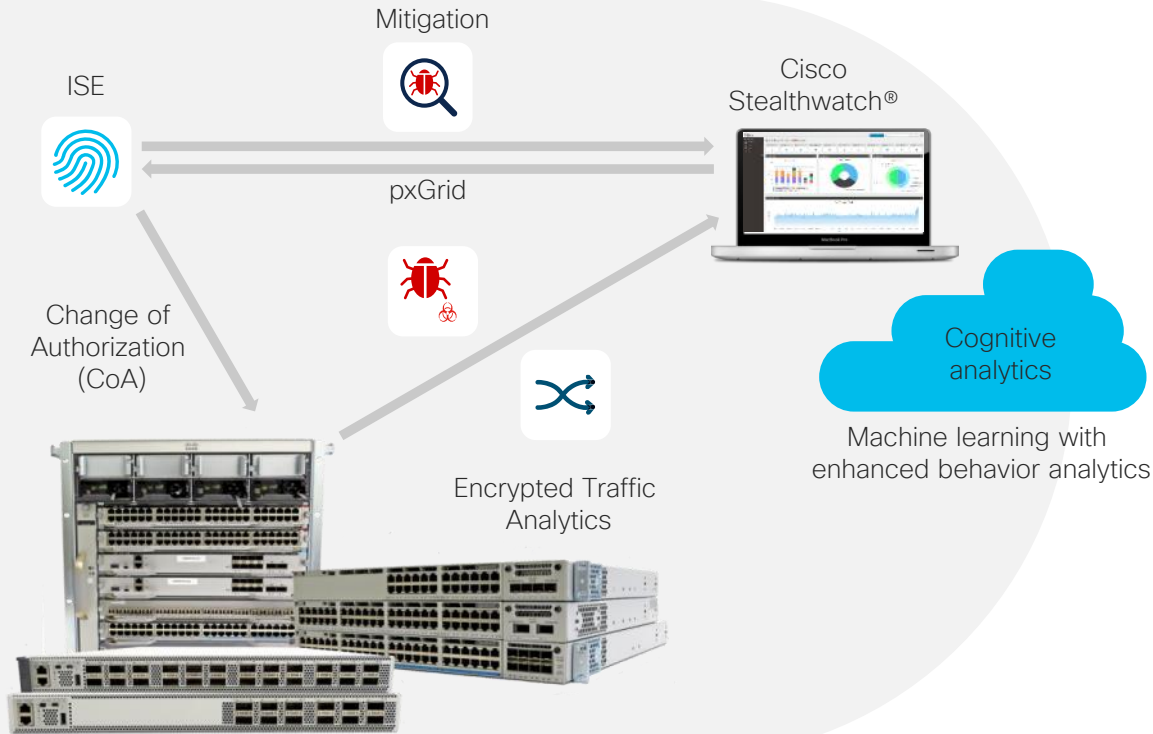
**Runtime
defenses**
64-bit ASLR



Cisco trustworthy solutions use industry best practices to help ensure full development lifecycle integrity and end-to-end security

Cisco Catalyst 9000 switches enable Encrypted Traffic Analytics (ETA)

Rapidly mitigate malware and vulnerabilities in encrypted traffic



Threat Grid Talos



cognitive.cisco.com

Analytics indicating malware in encrypted traffic at 99%+ efficacy



Mitigation using ISE and network

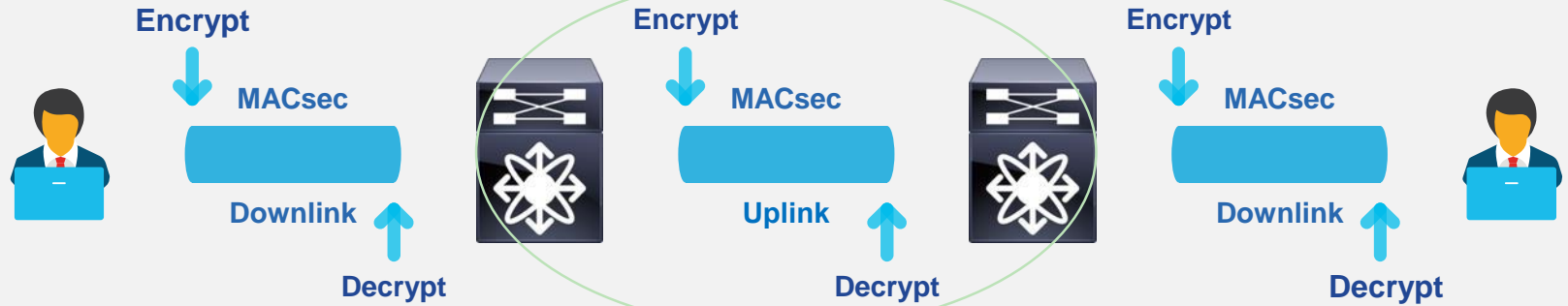


ERSPAN to send traffic for deeper analysis

Not available on Catalyst 9200 Series switches

MACsec-256 link encryption

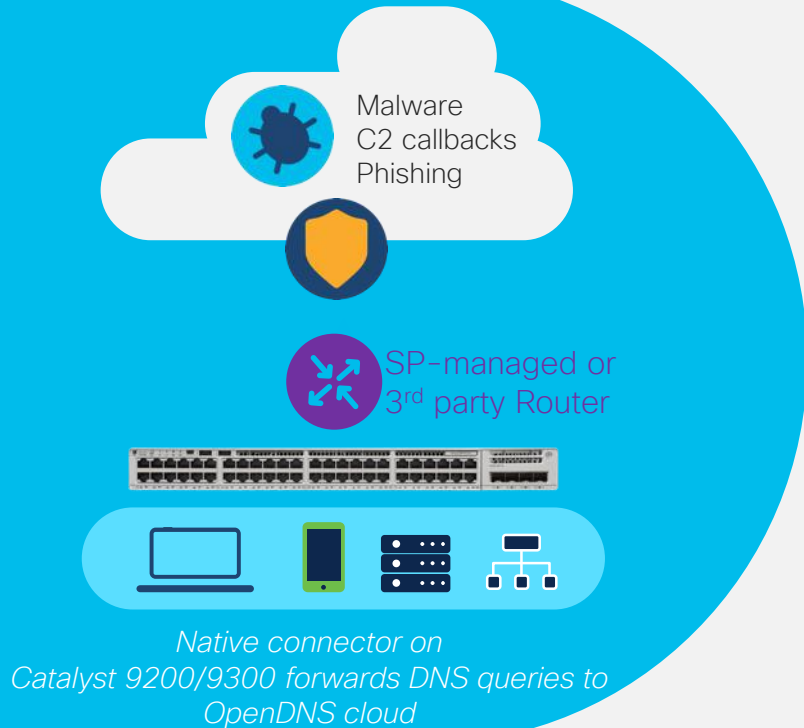
Hop-by-hop encryption via 802.1AE



- Packets are encrypted on egress, decrypted on ingress
- Offers line-rate encryption on all ports and speeds
- Transparent to all upper-layer protocols
- Supports switch-to-switch and switch-to-host MACsec
- 256-bit MACsec capable between switches (requires Network Advantage license, not available on Catalyst 9200 – 128-bit only)
- Manual or 802.1X modes supported

Cisco Umbrella Native Connector Integration

Available on Cisco Catalyst 9200 and 9300 Switches*



- Built into the foundation of the internet
- Content filtering for guests and corporate users
- Prevents malware from infecting your branch office network
- Reduce backhaul by splitting off traffic for internal or trusted resource
- Encrypted DNS to secure connection
- Enterprise-wide deployment in minutes

What is new in IOS-XE

IOS-XE 16.12.1 Key Features

Enhanced Security Controls

- Object Group ACL – C9300, C9400, C9500, C9600
- MACsec- MKA High-Availability- C9300, C9400, C9500, C9600
- Secure SVL support with SESA MACsec 128 – C9500, C9600
- CoA support on VRF for IPv4 and IPv6 – All

Flexible Network Segmentation

- L3VPN over GRE – C9300, C9400, C9500, C9600
- VPLSoGRE – C9300, C9400, C9500, C9600
- EoMPLS over GRE – C9300, C9400, C9500, C9600
- BGP-EVPN RT ASN rewrite
- EVPN VXLAN MAC Aliasing for Distributed Anycast Gateway

High Availability

- SVL – C9600
- ISSU on SVL – C9600
- Extended FSU- C9300 (Controlled Availability)
- SVL on QSA- C9500 High Performance, C9600

Platform / Infra

- Native Docker support for application hosting – C9300
- PM Bidir- C9300, C9400, C9500, C9600
- Sub-interface Support – C9300, C9500
- Support 802.3bt Type 3- C9300
- Support 802.3bt Type 4- C9400
- Flexlink+ – C9300, C9400, C9500, C9600
- Guestshell – C9200

IOS-XE 17.1 Key Features

Platform/ Infra

mGig Line Card - 9600
Per port MTU support - 9300/9400/9500/9600
Sub-interface - BGP/Netflow/Syslog

High Availability

Quad Sup Support(RPR) - 9600 SVL
xFSU Standalone/Stacking- 9300

Routing/ MPLS

Inter AS Option-A - 9300/9400/9500/9600
Extranet mVPN- 9300/9400/9500/9600
MACSEC over EoMPLS - 9300/9400/9500/9600
VPLS - Protocol mode CLI & Fat Pseudowire - 9300/9400/9500/9600
NAT - 9400
VRF aware PBR - 9600

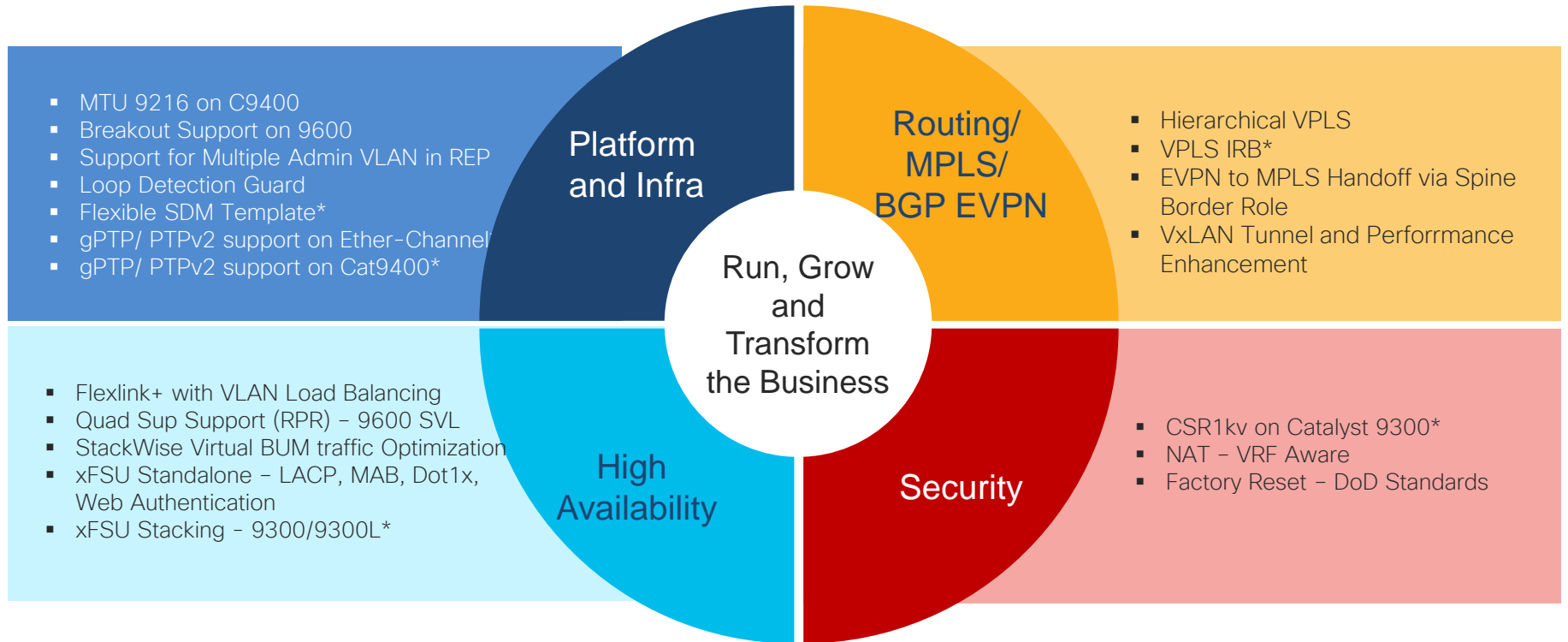
Security/ App Hosting

Umbrella Integration - 9300
ERSPAN to v6 Destination - 9300/9400/9500/9600

EVPN

VXLAN aware Flexible Netflow - 9300/9400/9500/9600
EVPN to MPLS handoff in Border Spine role - 9300/9400/9500/9600
BGP-EVPN with VXLAN to VRF-lite handoff in Border Spine role - 9300/9400/9500/9600
BGP-EVPN - Tenant Routed Multicast - 9300/9400/9500/9600

IOS-XE 17.2.1 Key Feature Summary





CISCO

TOMORROW starts here.