Cisco Refresh

Cisco 8000 Update

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The Future of the Internet

New Normals

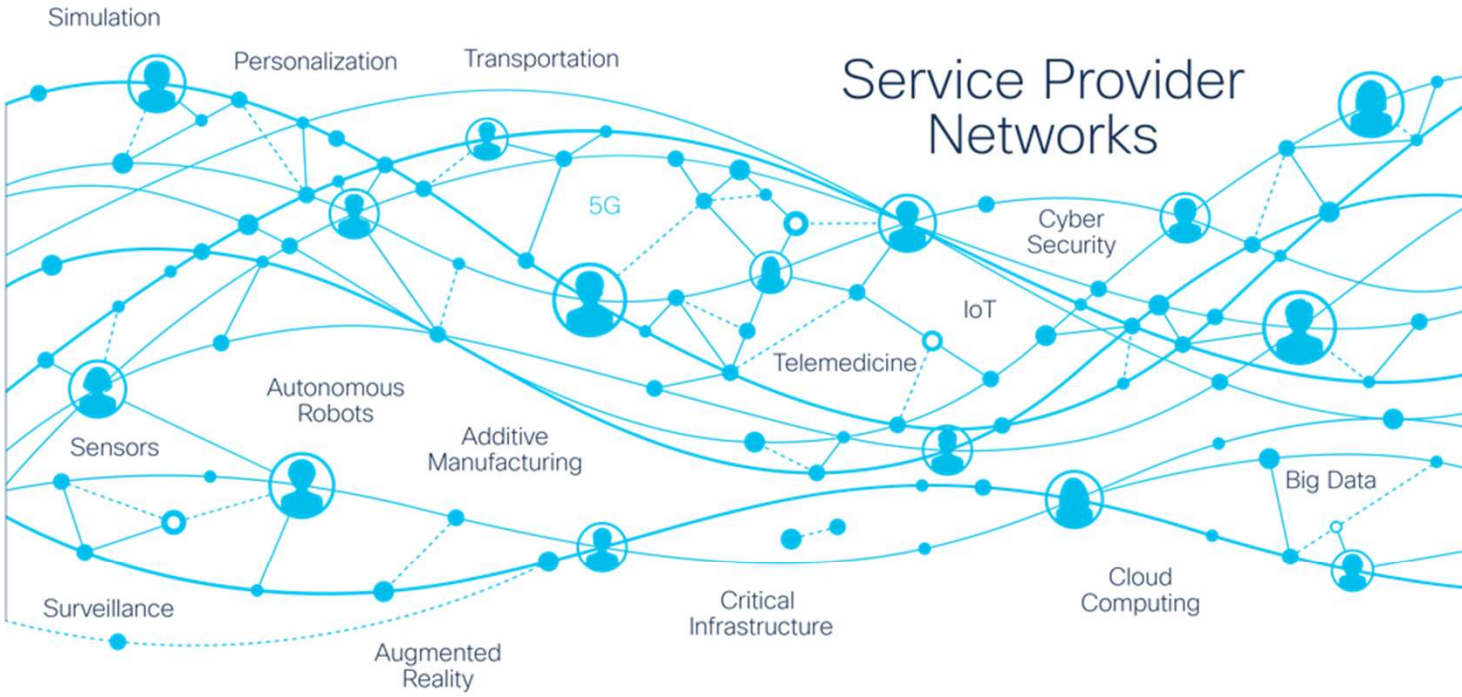
For the way we Work, Live, Play, and Learn

New Participants

Many remain unconnected and emerging IoT

New Potentials

The foundation of economies, governments, and societies



Market Dynamics

Explosive Internet Growth

2018 Cisco VNI

Economic Challenges for SPs

IHS Markit Report

0.5%

Flat Revenue Growth
(2017 – 2022 CAGR: 0.5%)

11X

$1 of CapEx in 2020 has to do 11X the work it did in 2012

5X

Today, operators spend $5 of OpEx for each $1 of CapEx

SPs Want More for Less

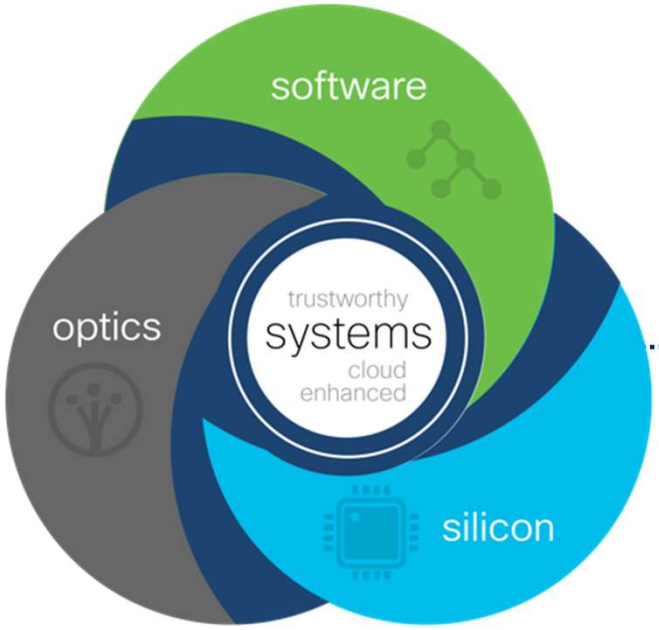
Reduce Costs (CapEx, OpEx) and Latency. Increase Capacity.

Create New Revenue. Improve Experiences and Time to Service

Increase Trust and Security

HOWEVER, BUDGETS REMAIN FLAT

Redefining the Economics of the Internet



Innovation across multiple dimensions can shift the paradigm.

New Possible Network Architectures

Converged

Cloud Enhanced

Fabric Based

Delivering Unprecedented

Cost & Power Efficiency

Prioritized Operations

Augmented Intelligence

Cisco Silicon ONE

One Architecture. Unmatched Capabilities

Programmability, Performance, Flexibility, and Efficiency

Higher bandwidth

Industry leading bandwidth scale

Better Performance

Leading packet processing performance

Lower Power

Routing features, scale, and performance at optimum power efficiency

Larger Scale

Ready for massive internet scale

RTC Programmable

Fully programmable for faster feature delivery and future-ready deployments

Deeper buffers

Switching devices with fully shared on-die buffers and routing devices with seamless extension to large buffers

Cisco Silicon One Family

Cisco 8000

Key Features

- 10.8 up to 260Tbps
- Fixed, Modular and Centralized
- 400GbE Optimized
- IP+ Optical capable
- Digital Coherent Optics support

Target Use Cases

- Core LSR
- Cloud Aggregation
- DC ToR/ Leaf
- SP Aggregation
- Peering

Value Propositions

- Unprecedented scale & performance
- Platform Security
- Programmability
- New silicon architecture
- P4 programmable

Cisco 8000 Customer Traction

Use Case	Key Customer Wins
Web & Cloud	Microsoft, FACEBOOK, Meta
Core	WebSprix, colt, T··, PACKETFABRIC, Telia Carrier
Peering	FACEBOOK, Meta, franceIX www.franceix.net
Aggregation	colt

Customers
> 50+

Systems
12,000+

100GE Ports
400,000+

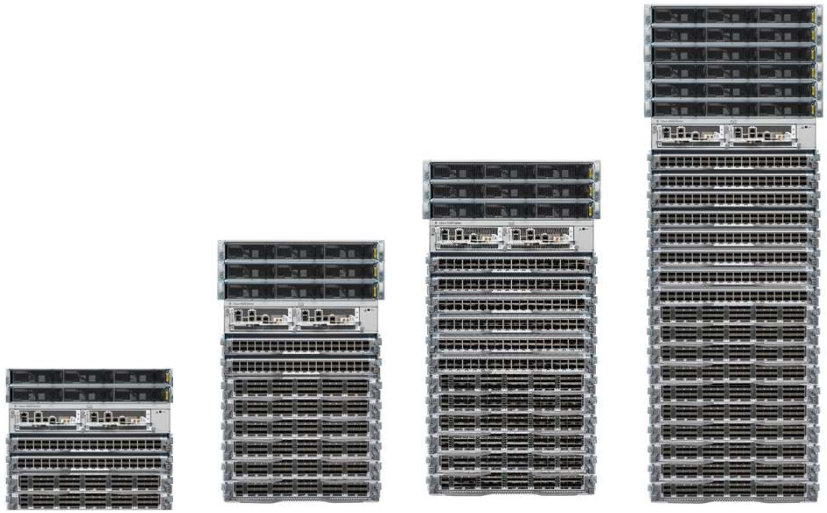
400GE Ports
400,000+

Cisco 8000 Modular Portfolio

Modular Systems Portfolio

- Clean Sheet
- Versatile
- Multiple Line card options
- Rapid portfolio adoption

	8804	8808	8812	8818
Rack Units	10 RU	16 RU	21 RU	33 RU
Slots	4	8	12	18
Total Throughput	57.6 Tbps	115 Tbps	172 Tbps	259.2 Tbps
Typical Power	4.2 KW	9.3 KW	16.3 KW	22 KW



8804 (10 RU) 8808 (16 RU) 8812 (21 RU) 8818 (33 RU)

*Q100

36 x 400GbE
8800-LC-36FH

48x 100GbE (MACsec)
8800-LC-48H

8808-FC 8812-FC 8818-FC

*Q200

34 x 100GbE+
14 x 400GbE

36 x 400GbE
88-LC0-36FH

36 x 400GbE (MACsec)
88-LC0-36FH-M

8804-FC0 8808-FC0 8818-FC0

IN PRODUCTION

88-LC0-36FH & 88-LC0-36FH-M

Overview:

- 14.4 T Line cards with 400GbE ports
- Q200 based line cards with HBM
- Use Cases: Core, Peering, Secure connectivity
- 36x 400GbE QSFP56-DD
- 88-LC0-36FH-M
  - Supports MACsec on all 36ports 400GbE
- Full 4x breakout on all ports
  - 400GbE → 2x 100GbE, 4x 100GbE, and 4x 10/25GbE
  - 100GbE → 4x 10/25GbE
- Support for ZR and ZR+ transceivers

Quick Facts

Capacity	14.4T Full Duplex
NPU	3x Q200 (HBM)
Port Configuration	36x 400GbE
Power	Typical : 88-LC0-36FH 685 W 88-LC0-36FH-M 1285 W
FCS SW Release	IOS XR 7.3.15
Hardware capabilities	MACsec, Class C timing, 400GE ZR/ZRP

88-LC0-34H14FH

Overview:

- Flexible 9T Combo line card with 100GbE and 400GbE ports
- Q200 based line card with HBM
- Use Cases: Core, Peering, Leaf/Spine
- 34x 100GbE QSFP28 + 14x 400GbE QSFP56-DD
- MACsec support only on top row of 16x QSFP28
- Full 4x breakout on all ports
  - 400GbE → 2x 100GbE, 4x 100GbE, and 4x 10/25GbE
  - 100GbE → 4x 10/25 GbE
- Support for ZR and ZR+

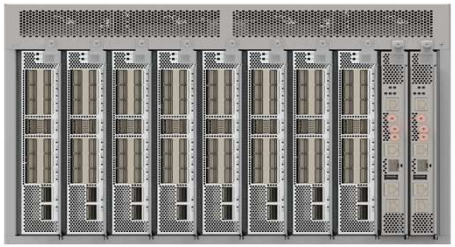
Quick Facts

Capacity	9T Full Duplex
NPU	2 x Q200 (HBM)
Port Configuration	34x100GbE + 14x400GbE
Power	Typical : 600 W
FCS SW Release	IOS XR 7.3.3 & IOS XR 7.5.1
Hardware capabilities	MACsec, Class C Timing, 400GE ZR/ZRP

Cisco 8608

Overview

- Centralized 7RU Platform, 600mm depth, PSI, 4 PSU, 8 fan trays
- Use Case: IP Fabric, Core, Peering, SP Aggregation
- Redundant Active/Standby RPs & Switch Cards
- 3x MPAs :1.6T per slot
  - 14x 100G + 2x 400G or 16x 100G
  - 4x 400G
  - 24x 10/25/50G
- 3.2 KW AC/DC/ HV PSU
- ZR / ZRP support on all 400G ports
- FCS Target : XR 7.8.1



Quick Facts

Capacity	12.8T
NPU	Q200 (Gibraltar HBM)
Port Configuration	128 x 100G, 32 x 400G , 192 x 10G/25G (With MPAs)
Power	Typical: ~1.6KW
Temperature Support (at 1500m)	0-40°C 0-35°C
FCS SW Release	IOS XR 7.8.1
Hardware capabilities	Class C Timing, PSI Support, MACSEC

Cisco 8000 Fixed Portfolio

Cisco 8200 Fixed Routers

Routing



	8201	8202	8201-32FH
FCS	Shipping	Shipping	Shipping
Rack Units	1 RU	2 RU	1 RU
Ports	24 QSFP56-DD 400 GbE + 12 QSFP28 100 GbE	12 QSFP56-DD 400 GbE + 60 QSFP28 100 GbE	32 QSFP56-DD 400 GbE
Total Throughput	10.8 Tbps		12.8 Tbps
NPU	Q100		Q200
Memory	HBM	HBM	HBM
Typical Power	415 W	750 W	288W

Cisco 8100 Fixed Routers

Web Scale Switching



	8101-32H	8102-64H	8101-32FH
FCS	Q4 2021	Q3 2021	Q3 2021
Rack Units	1 RU	2 RU	1 RU
Ports	32 QSFP28 100 GbE	64 QSFP28 100 GbE	32 QSFP56-DD 400 GbE
Total Throughput	3.2 Tbps	6.4 Tbps	12.8 Tbps
NPU	Q202L	Q201L	Q200L
Memory	No HBM	No HBM	No HBM
Typical Power	172 W	256 W	288 W

Fixed System Roadmap (Service Provider)

12x400 GE + 60x100 GE

8202

32 x 100GbE

8101-32H w/ XR

24 x 100GbE + 8 x 400GbE with HBM

8201-24H8FH

24x400 GE + 12x100 GE

8201

32 x 400GbE with HBM

8201-32FH

32 x 400GbE with HBM & MACsec

8202-32FH-M

In production

1H CY 2022

*** Target**

Fixed System Roadmap (Data Center)

64 x 100 GbE

8102-64H-O

32 x 400 GbE

8101-32FH

64 x 100GbE

8102-64H w/ XR

32 x 100GbE

8101-32H w/ XR

32 x 100GbE

8101-32H-O

In production | Q4 CY2021 | 1H CY 2022

*** Target**

8201-32FH & 8101-32FH

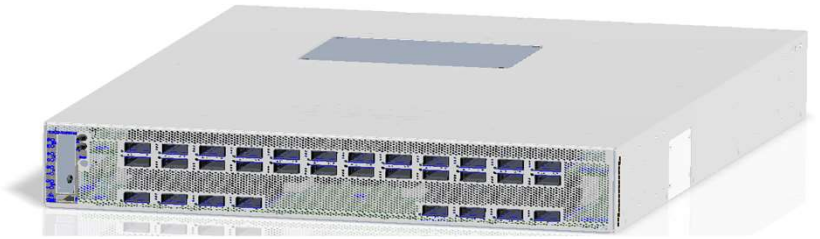
Overview:

- Compact 1RU, 600mm depth, PSI/PSE (Port Side Intake / Exhaust), 2 PSU, 6 fan trays
- Use Cases:
  - **8201-32FH:** IP Fabric, Distributed Core, Peering, SP Aggregation
  - **8101-32FH:** DC ToR, Leaf & Spine
  - Supports XR and 3rd party (e.g. SONiC)
- Will support 1.4KW AC, 2KW AC/DC & 2KW HV PSU
- Platform will also support ZR on all ports and ZRP in top row ports
- Ports can also work in 40G/100G or can be broken out into 4x10/25G or 4x100G

Quick Facts

Capacity	12.8T
NPU	Q200 :8201-32FH : w/HBM Q200L: 8101-32FH: w/o HBM
Port Configuration	32x 400G
Power	Typical: 288W
Temperature Support (at 1500m)	0-40°C 0-35°C
FCS SW Release	8201-32FH: IOS XR 7.3.15 8101-32FH : IOS XR 7.3.2
Hardware capabilities	Class C Timing, PSI Support, PSE Support (35C Ambient)

8202-32FH-M



Overview:

- 2RU, 600mm depth, PSI (port side intake), 2 PSU, 4 fan trays, MACSec
- Use Cases: Cloud/ WAN Edge, DCI, ToR, Peering, SP Aggregation
- Supports XR & open software (e.g., SONiC)
- Will support 2KW & 3KW AC/DC/HV PSU
- Platform will also support ZR on all ports and ZRP in top row ports
- Ports can also work in 40G/100G or can be broken out into 4x10/25G or 4x100G
- FCS Target : Apr 2022, XR 7.5.2

Quick Facts

Capacity	12.8T
NPU	Q200 (w/HBM)
Port Configuration	32x 400G
Power	Typical: ~600W
Temperature Support (at 1500m)	0-40°C 0-35°C
FCS SW Release	IOS XR 7.5.2
Hardware capabilities	Class C Timing, MACSec, PSI Support

8201-24H8FH

Overview:

- Compact 1RU, 600mm depth, PSI/PSE, 2 PSU, 6 fan trays
- Use Cases: IP Fabric, Distributed Core, Peering, SP Aggregation
- Supports XR & open software (e.g., SONiC)
- Will support 1.4KW AC , 2KW AC/DC & 2KW HV PSU
- Platform will also support ZR / ZRP on all 8 400G ports
- Can be used as 32 x 100G, also supports breakouts to 10G, 25G & 100G
- FCS Target: Apr 2022

Quick Facts

Capacity	5.6T
NPU	Q200 (w/HBM)
Port Configuration	24 x 100G + 8 x 400G
Power	Typical: ~288W
Temperature Support (at 1500m)	0-40°C 0-35°C
FCS SW Release	IOS XR 7.3.3
Hardware capabilities	Class C Timing, PSI Support, PSE Support

Cisco 8000 Series

Industry Leadership with Cloud Scale Networking

INDUSTRY LEADERSHIP

CONTINUED INNOVATION

INVESTMENT PROTECTION

2H 2019	1H 2020	2H 2020	1H 2021	2H 2021	1H 2022	Future
8201 8812 Chassis Q100 48H Line Card	8808 Chassis Q100 36FH LC 8202	8818 Chassis	Q200 Based 8201-32FH 36FH (M) Line Card	Q200 Based 8101-32FH / 64H 8804 Chassis Combo Line Card	Q200 Based 8101-32H 24H8FH 32FH-M	800G / 1.6T Fixed / Modular Portfolio

Software IOS XR

Cisco IOS XR 7

Redefining software for better operations

Simple

- Optimized to reduce memory, downloads, and boot times
- Streamlined protocols with SR/EVPN
- Secure zero-touch rollout

Modern

- Open APIs
- Customizable software images
- Cloud-enhanced

Trustworthy

- Assess hardware and software authenticity at boot and runtime
- Immutable record of all software and hardware changes
- Real-time visibility of trust posture

50% Less
Memory Footprint

50% Faster
Boot Times

40% Smaller
Image Sizes

40% Faster
Download

SONiC on Cisco 8000

SONiC Silicon One

- One Silicon, One Software, Multiple Use cases
- Cisco 8000 series for end-to-end positioning
- 400G DC Fabrics, DCI, Peering, Core & more

SONiC Ecosystem

- XR stack to complement SONiC
- Value added open-source ecosystem
- Full stack support model

SONiC Availability

- Limited Availability on 8201
- 8101-32H: Q1 CY2021
- 8102-64H: Q1 CY2021
- 8201-32FH (HBM): Q1 CY2021
- 8808: Q1 CY2021

The Cisco Difference

Breadth of portfolio
1G to 100G and now 400G

Unmatched SW and HW Platform
IOS XR 7, Trusted SW & HW

Technical expertise & Industry thought leadership
Switch, Router, Optics, Silicon photonics and leadership with SR, EVPN, etc. technologies

End-to-End Architecture
Fabric Architectures, FTTH, 5G, Cable rPHY, TDM2IP

World class service
Renown Cisco TAC experience

Innovative Business Model
Subscription based SIA, RTU Licenses

The bridge to possible