Intent-based Networks drive IT and OT expansion
Powered by 802.3bt 90W UPOE+
Evolution of PoE

IEEE standardization expands the PoE ecosystem

- IEEE 802.3bt complements Cisco UPOE® by adding 4 new classes of devices
- Safety measures ensure up to 90W of power is safely delivered
New PoE architectures are emerging with 90W

Catalyst 9400 and 9300 Series

IEEE 802.3bt compliant platforms
Catalyst 9400 and 9300 Series*

1. USB-C power (laptop charging + data)
2. UPOE Pass-through (for extended reach 60W)
3. Daisy-chaining (Cost saving with 90W)
Worker mobility with 90W UPOE+ USB-C Dongle

Before

TODAY

USB-C is the new standard for Power and up to 5G of Data
Most Name brands support USB-C and more supporting everyday

Mobility without the need to carry custom power bricks

Flexibility of BYOD & Cost savings with Single cable for Power & Data
New 90W use cases revolutionizing workspaces

**BEFORE**

Today: Workspace powered by UPOE+ 90W

- Automated height adjustable desk
- PoE powered desktop switch
- All-in-one computers / Displays
- Daisy-chained PoE Lights
- IP phones
- Ethernet to USB-C for laptops/Tablets/Phones

Lower CAPEX by eliminating AC cabling to every desk. **Flexibility** in workspace design independent of AC outlets.
90W expands existing PoE landscape across verticals

**Hospitality**
- Lights
- Access points
- IP phones
- Smart mirrors
- Motorized Blinds
- HVACs
- Minibars
- PoE TVs

**Healthcare**
- Emergency signs
- Paging systems
- Bio medical devices
- Patient room control
- Patient vitals display
- Daisy-chained lights
- Patient smart card readers

**Retail**
- Surveillance cameras
- Price tag readers
- Checkout registers
- Emergency alert systems
- BLE Access points
- UHD 4K product displays
- People counting sensors

**Existing POE devices**

**90W enabled devices**

**Up to 50% Cost Savings**

**1.5X power + Reliability**

**20% Increase in Sales**
Catalyst 9000 provides high uptime for critical IoT applications

- Primary power grid
- Backup DC power
- AC PSU
- DC PSU
- Cisco DNA Center™
- Network Power Health
- Telemetry
- Open APIs
- Intelligent Building Management Systems
- N+1/N+N Redundant power supplies
- Power available from AC + DC sources
- Perpetual PoE available through upgrades
- Critical devices stay up during power cuts
- Fast PoE restores power within a minute
- Warning and status signs
- Emergency pathway lighting
- Surveillance systems
- Hospital ER and OT lighting
- Security control center (Reliable Data + Power)
Fragmented IoT networks converge with Cisco’s Intent-based networks and Catalyst 9000

- Trust centric onboarding
- Network wide segmentation
- Threat centric monitoring
- Automated policies

Managed by OT team
Managed by IT team

Secured by ONE Team

Consistent Enterprise wide security policy and management for IT and IoT
Cisco Catalyst 9000 augments Cisco’s leadership in IoT
IBN expands IoT endpoints with Security, Visibility, Scale and Cloud tethering

Connect
• Extended connectivity with SD-Access Extended node solutions
• CoAP to access lights and other sensors for lighting control

Classify
• Device classification and profiling with ISE
• Emerging standards support for access control (e.g. Manufacturers Usage Description [MUD])

Policy
• Secure Virtual networks and segmentation of IoT from IT with SD-Access
• Scalable group-based policies

Integrate
• "Thing" connectivity management with Cloud IOT services
• Container-hosted Cloud-tethered apps on open Cisco IOS XE Software

Cisco and partner cloud services for control

New
802.3bt
Type 4
90W
UPOE®+
Cisco UPOE®+(low voltage)

End-to-end solution managed by central IT team that lowers TCO
The growing security challenge with an expanding IoT eco-system

**IoT Device Security Compliance**  
Authentication of IoT nodes and end-to-end policy enforcement

**Minimal IoT End-point Security**  
Segmentation through SD-Access assures critical network is protected from security breaches

**Continuous Malware Monitoring**  
ETA Monitors, Detects, Quarantines and generates incident response in real time

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**Cisco DNA Center™**
- Segmentation
- SD-Access fabric

**Cisco ISE**
- 2M end-points supported

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**Built-in Catalyst 9000 security**
- 802.1x authentication
- LLDP / DHCP device identification
- Radius proxy
- Manufacturer Usage Description
- MACsec AES 256-bit
- Full Flexible NetFlow
- SGACL scale

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**Employee network / Data Center**
- Execs
- Finance
- Biometrics
- Confidential data
- Financial data
- Secured locations
- Research
- Engineering
- Databases
- Customer Support
- Doctors
- Cisco Stealth watch

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**Cisco ISE**
- 2M end-points supported
- Biometrics
- ETA Monitors, Detects, Quarantines and generates incident response in real time

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**Cisco DNA Center™**
- Segmentation
- SD-Access fabric

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**IoT Ecosystem**
- 90W
- 802.1x authentication
- LLDP / DHCP device identification
- Radius proxy
- Manufacturer Usage Description
- MACsec AES 256-bit
- Full Flexible NetFlow
- SGACL scale
Catalyst 9000 with Cisco ISE enables a Trust-Centric ecosystem

IT Ecosystem

More Users
More Medical Devices
More IT Devices

Cisco DNAC + ISE
Policy

3rd Party Profiler
Vulnerability

Environmental Sensor Hubs

IoT Ecosystem

Badge Readers
Cameras
Large PoE Displays
PoE Thin-clients
HVAC VAV’s

Enforcement in the network

CloudPost

Catalyst 9K w/ MUD

pxGrid 2.0
DHCP
LLDP
802.1x

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Financial Services Case Study

“90W enables... the office of the future by letting me daisy-chain... light fixtures from each port... flexibility for our office while saving money ... We’ve seen a 60% cost savings ...”
Eric Madeson SVP Head of Infrastructure

Challenge

- NYC is setting the standard for greener, more energy conscious buildings across the U.S. with a city-wide goal of 80% carbon emission reduction by 2050.
- Flexibility needed as office space expands
- Cut construction cost
- Reduce power usage
- No room for security breaches

Solution

- Cisco Catalyst 9400 with UPOE+

Result

- Cutting power costs by 2/3rds
- Reduced construction cost by half
- Able to take advantage of local electric rebates from ComEd
- Able to daisy-chain lighting giving 3x light fixtures per port
- Combined IT and OT systems into one platform
- Strong security posture on all the elements of the network
Manufacturing Case Study

“90W offers flexibility for our office and 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

Challenge

• Flexibility in placement both in office and manufacturing floor
• Needed to reduce complexity
• Cut construction cost
• Reduce power usage
• No downtime

Solution

• Cisco Catalyst 9400 with UPOE+

Result

• Cutting power costs by 2/3rds
• Able to quickly build out their new space, without the cost electrician or a permit to install or change
• Reduced office construction cost by more half
• Able to daisy-chain lighting giving 3x light fixtures per port reducing complexity
• Combined IT and OT systems into one platform
• Able to deploy larger monitors
• PoE power LED lighting alone will more than pay for the upgrade
Hospitality Case Study

“Once we had everything on a single network then we can do wonders with it. We are making the system intuitive and smart… the sky is the limit to where you can take this infrastructure… Network infrastructure should be taken seriously… as the fourth utility”
Farukh Aslam, President, Sinclair Holdings, LLC

Challenge

• Historic building retrofit
• Create best experience for clients
• Cut construction cost
• Reduce energy usage
• Take advantage of new PoE based
• Must be plug and play

Solution

• Cisco Catalyst 9400 with UPOE+

Result

• UPOE+ allowed combined management of IT and OT from energy monitoring, to room automation to building management.
• Created an enhanced user experience with an intuitive, user friendly room controls
• Cutting power costs by more than 2/3rds
• Reduced retrofit construction cost by more than half with daisy-chain lighting, screens, shades and environmental controls
• Able to take advantage of local Texas PACE incentive program
## Catalyst 9000 PoE feature matrix

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<th>Feature</th>
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<th>C9200</th>
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### Flexibility / Density

- Max Power Draw
- Standards Compliance
- High Availability
- Power negotiation

2^90W road map
3^Dual Supervisors needed
Cisco is building new 90W use cases with the ecosystem