Network management for the hybrid workplace and smart buildings

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The speaker …

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- Technical Solutions Architect
- Based in the UK, is a member of the EMEAR SP Specialists team, focusing on *SP as an Enterprise*.
- More than 20 years of experience in Global Service Provider Networks and Solutions. Holds the CCIE #23113 certification
- **Topics of Expertise:** Enterprise Networking**:** SD- WAN, SDA, Intent Based Networking, Digital Network Architecture. EN Routing, Switching and Wireless.

Agenda

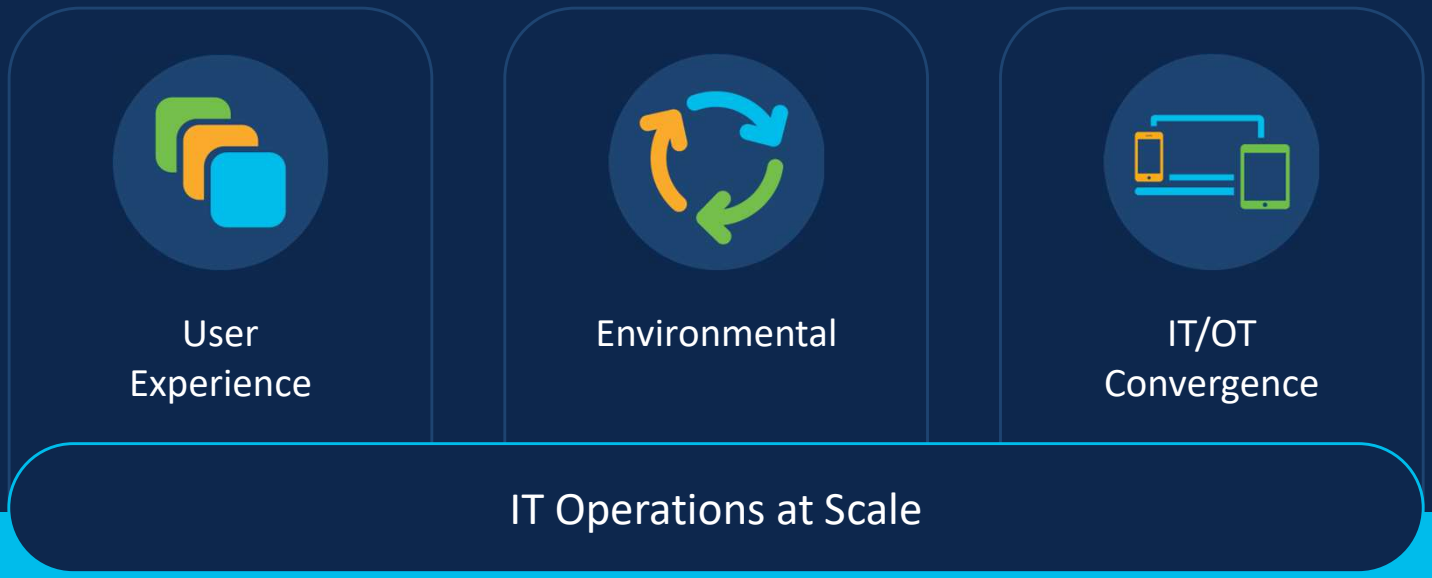
1. New trends
2. Wi-Fi 6E and connectivity
3. Smart buildings and Workspaces
4. Intent Based Networking
5. Integrated visibility and management

These trends have implications for your network

Future of work is hybrid	Wireless everywhere | Consistent experience | Intelligent buildings
Future of apps is distributed	Internet is the new core | SASE model for access | End-to-end visibility
Future of security is borderless	Zero trust | Cloud-based security | Segmentation
Future of operations is AIOps	ML/AI-driven observability and automation | Integration with IT, SecOps, DevOps

Simplify operations | Reduce costs | Secure the network

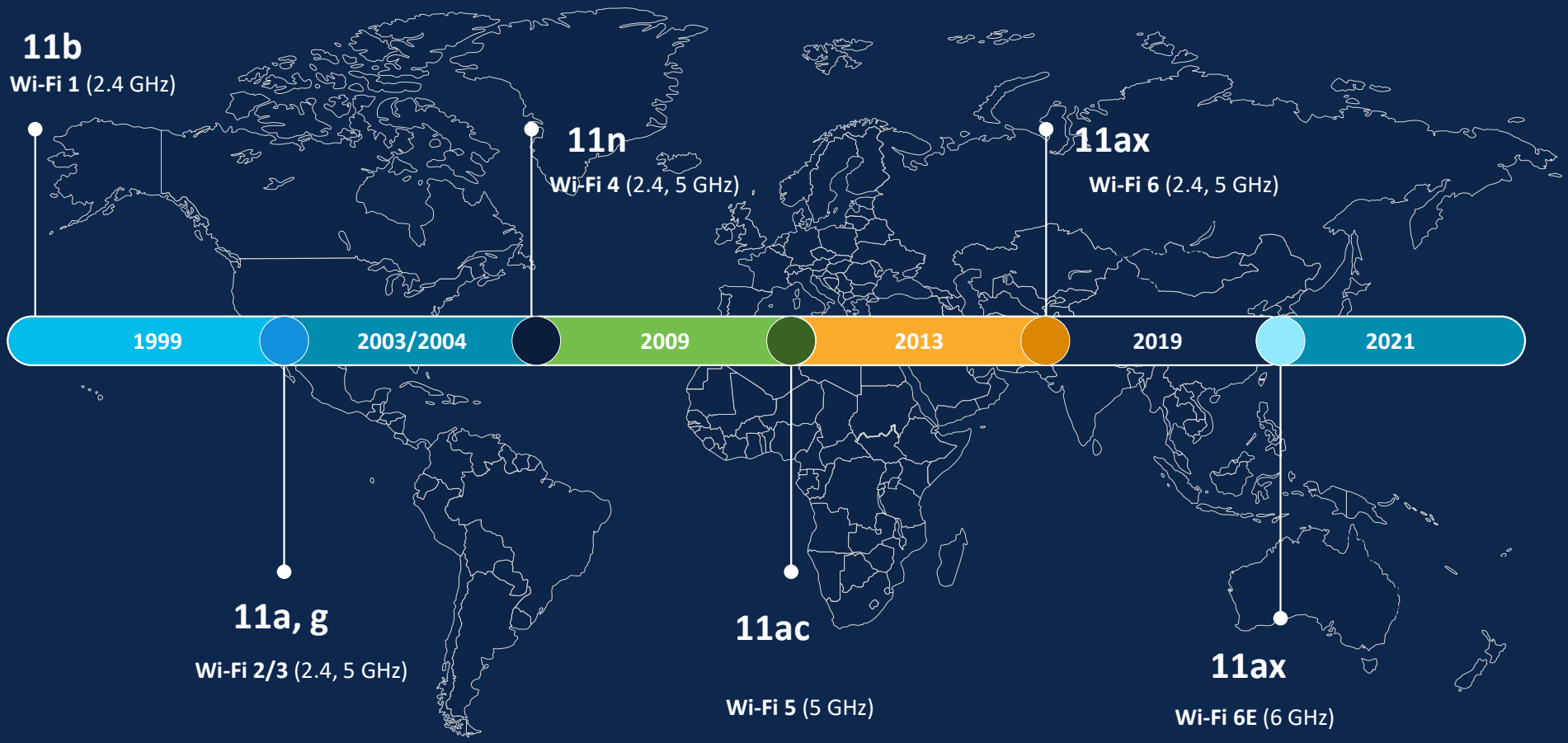
Businesses must overcome technology boundaries



How to make hybrid work…work?

2 Wi-Fi 6E and connectivity

What is Wi-Fi 6E?



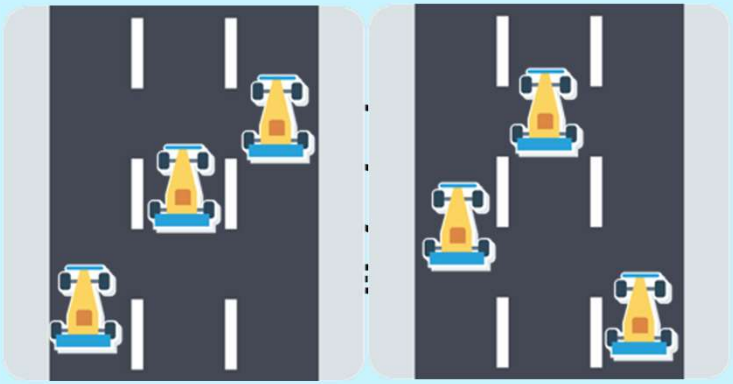
Wi-Fi 6E: Enabling new mobile experiences today

Extended spectrum | Realized capacity | Improved experience

6 GHz solves the “Wi-Fi traffic jam”

2.4 and 5 GHz are congested, and must support old clients

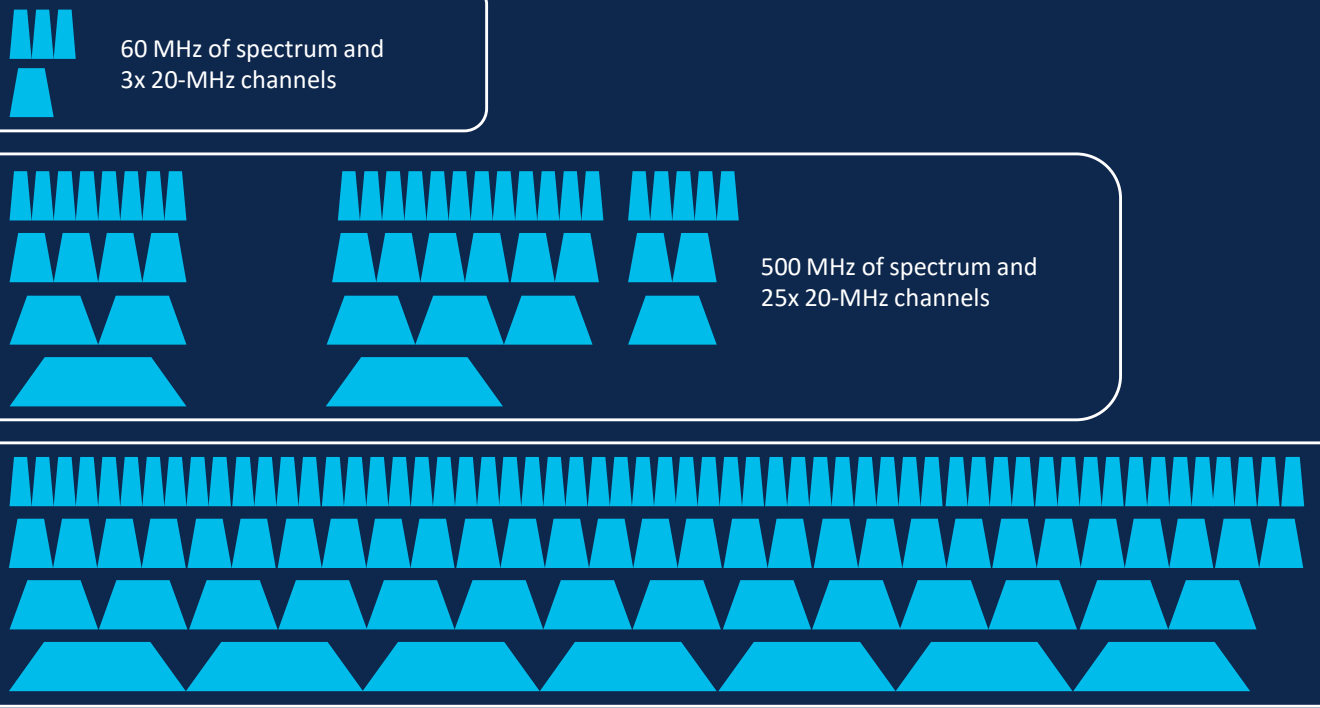
6 GHz is twice as wide as 5 GHz and only allows new, fast clients



This results in faster speeds, lower latency, and better overall experience

6 GHz is the biggest Wi-Fi spectrum expansion ever

Band	Channels	Bandwidth	
2.4 GHz	3	20 MHz	60 MHz of spectrum and 3x 20-MHz channels
	1	40 MHz	
5 GHz	12	40 MHz	500 MHz of spectrum and 25x 20-MHz channels
	6	80 MHz	
	2	160 MHz	
6 GHz	59	20 MHz	1200 MHz of spectrum and 59x 20-MHz channels in US 500 MHz of spectrum in EU
	29	40 MHz	
	14	80 MHz	
	7	160 MHz	



Wi-Fi 6E Benefits

- Capacity
- Reliability
- Security

Catalyst Wi-Fi 6/6E access points
Purpose-built for immersive experiences

Catalyst 9136 Series

Industry-leading Wi-Fi 6E AP, built to take advantage of 6GHz band expansion with 16 Spatial Streams (4x4+8x8+4x4) tri-band radio architecture and full stack DNA Software.

Catalyst® 9105 Series

Most versatile AP for teleworkers, office, branch, dorm room, etc.

Bluetooth

Wi Fi 6 CERTIFIED

Powered by Cisco® RF ASIC

Catalyst 9120 Series

Designed for mission-critical deployments with dual 5-GHz and integrated IoT radio

Catalyst 9115 Series

Ideal for small to medium-sized deployments with dual radio architecture

Catalyst 9124

Powered by Cisco RF ASIC

Custom designed for delivering best-in-class connectivity in outdoor and challenging environments

Powered by Cisco RF ASIC

Catalyst 9130 Series

Industry-leading Wi-Fi 6 AP with 8x8, tri-radio architecture and full iCap. Industry's only 8x8 AP with external antennas, new High gain Ultra High Density with C9104 antenna

Industry’s best and broadest Wi-Fi 6E and Wi-Fi 6 portfolio

6E

CW9162

CW9164

CW9166

9136

6


9105I/W


9115

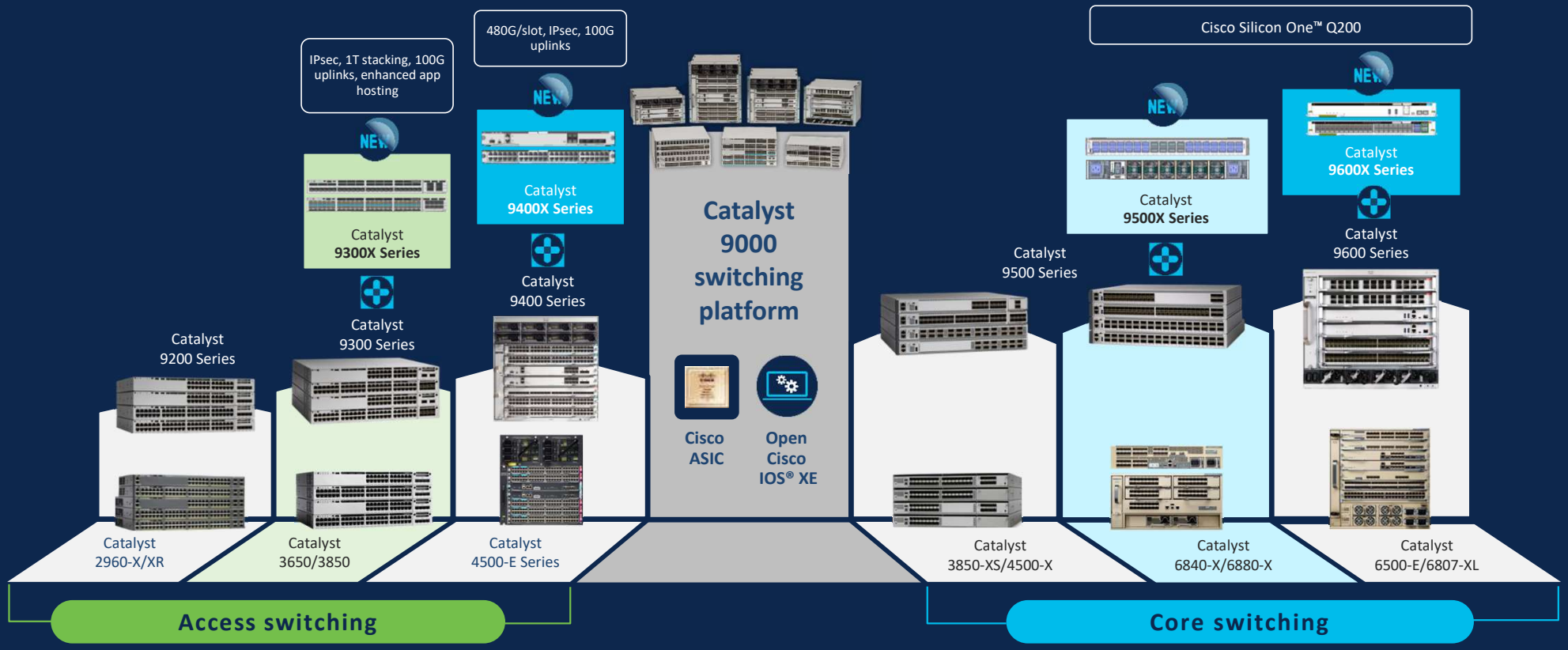

9120


9130


9124

Catalyst 9000X – Expanding industry leadership

Adding the "X factor" to the industry's leading switching family



The new hybrid work experience powered by 6E

Always-on, secure, digital collaboration spaces

Dynamic workplaces that wirelessly support any workstyle

Novel guest experiences and use of common spaces

Smart spaces powered by environmental sensors and location intelligence

3 Smart buildings and Workspaces

Returning to the office

68% **of employees do not feel completely safe working in their employer's buildings** and 23% said they'd quit their job than return to a facility that did not implement necessary safety measures (Honeywell, Jan 2021)

85% **of employees would like to know the air quality in the building they work in, even after the pandemic ends.(Cohesion Nov 2021)**

96% **of employees indicate they need intelligent workplace technology** to improve work environments (Dimension Research, 2020)

23% **of employees have access to meeting rooms when they need them.** Meanwhile, meeting room utilization is only around 30%. (HOK's Consulting group)

Catalyst 9136I - three built-in environmental sensors with full Cisco DNA Spaces integration

Air quality

The built-in Gas Sensor Module will enable the reading of Total Volatile Organic Compound (TVOC) concentration and Indoor Air Quality (IAQ) rating.

Humidity

The built-in module is a fully calibrated sensor with the ability to measure the relative humidity in the air.

Temperature

The built-in module can also capture the temperature to provide a reading of the environment remotely.

Note: The temperature generated by the AP will be considered during temperature and IAQ readings.

Environmental sensor use cases

Real Time Data

- See real time the data coming from the Access Point
- Remove the need to run new cables or create an overlay of dedicated sensors

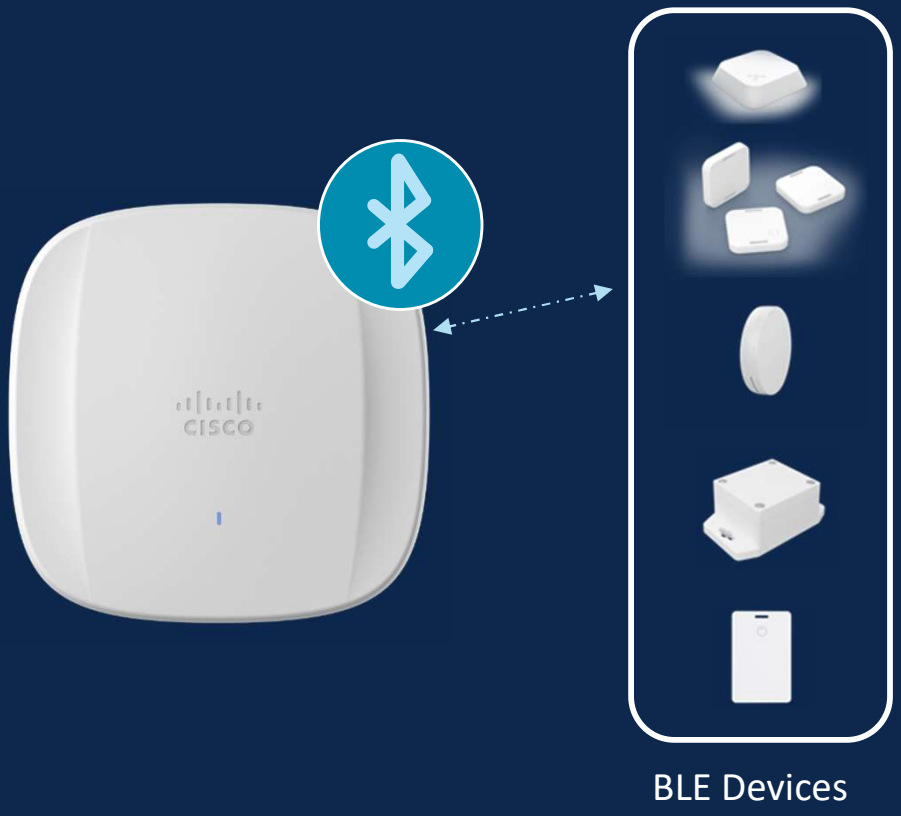
Understanding the physical environment

- Give customers with an additional avenue to get actionable data
- Augment the customers network by giving the additional environmental data

Leverage Applications

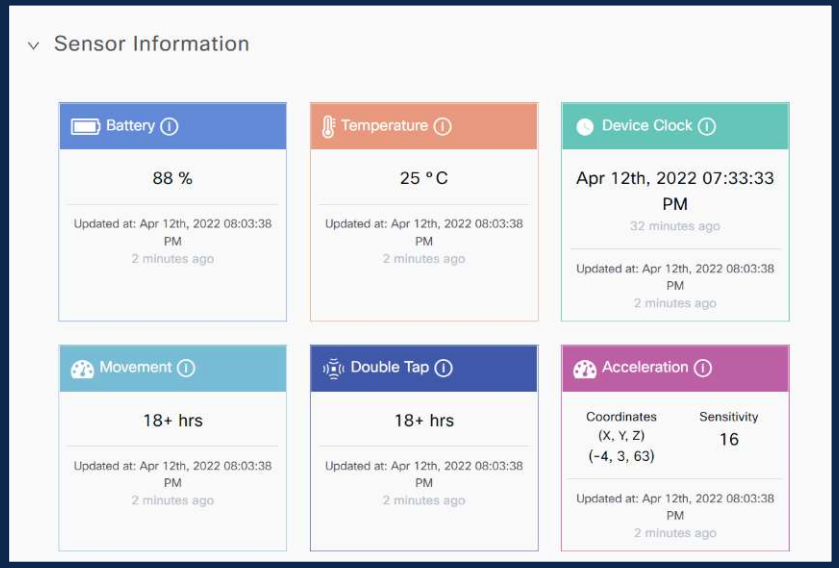
- Leverage information In applications like Cisco Smart Workspaces
- Integrate with HVAC systems and other BMS to feed critical inputs
- Integrate with other applications by using the Firehose API

Catalyst 9136I has a built-in IoT Radio which integrates with DNA Spaces starting



BLE Devices

IoT BLE Device Sensor Telemetry



IoT Radio use cases

Asset Tracking

- Deploy BLE sensors to track real time location of high value devices at an increased accuracy
- Leverage one simple platform to understand how assets are being used and where processes could be more efficient

Environmental Monitoring

- Real-time monitoring from different IoT devices that measure environmental factors such as humidity, CO2 levels, air quality, temperature, etc.
- Create alerts and reports based on the data recorded from the sensors

Workspace Optimization

- Gain insight on workspaces from BLE devices to enhance visitor and employee experience for venues and workplaces
- Transform workspaces to increase efficiency and utilization

Cisco DNA Spaces

Safety and Security

- Occupancy monitoring
- Contactless communications

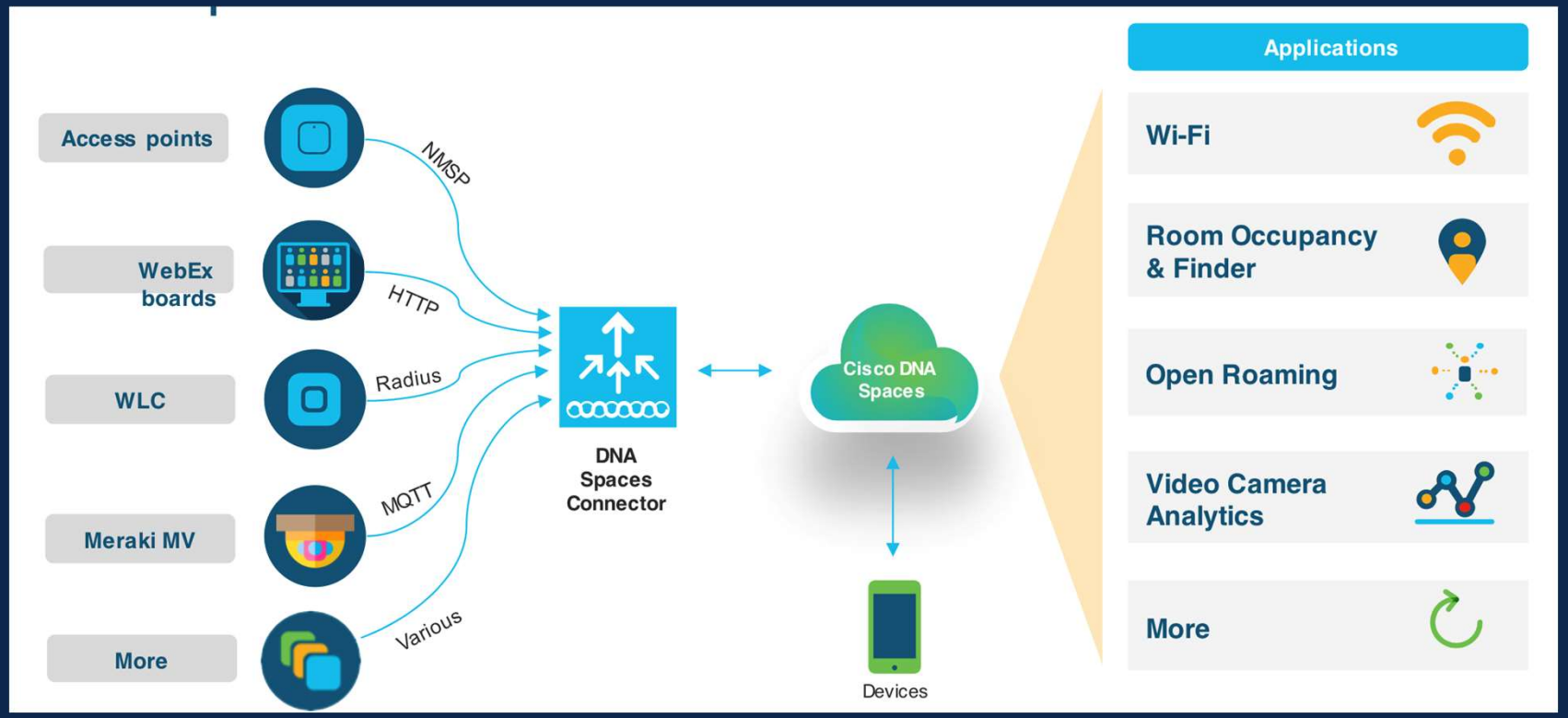
Automation and Optimization

- Environmental monitoring
- Asset tracking

User Experience

- Wayfinding
- Space utilization

Cisco DNA Spaces



Major smart building use cases

Delivering healthy and sustainable use cases

Building foundation and compliance

- Fourth utility

Safety and security

- Trusted workplace

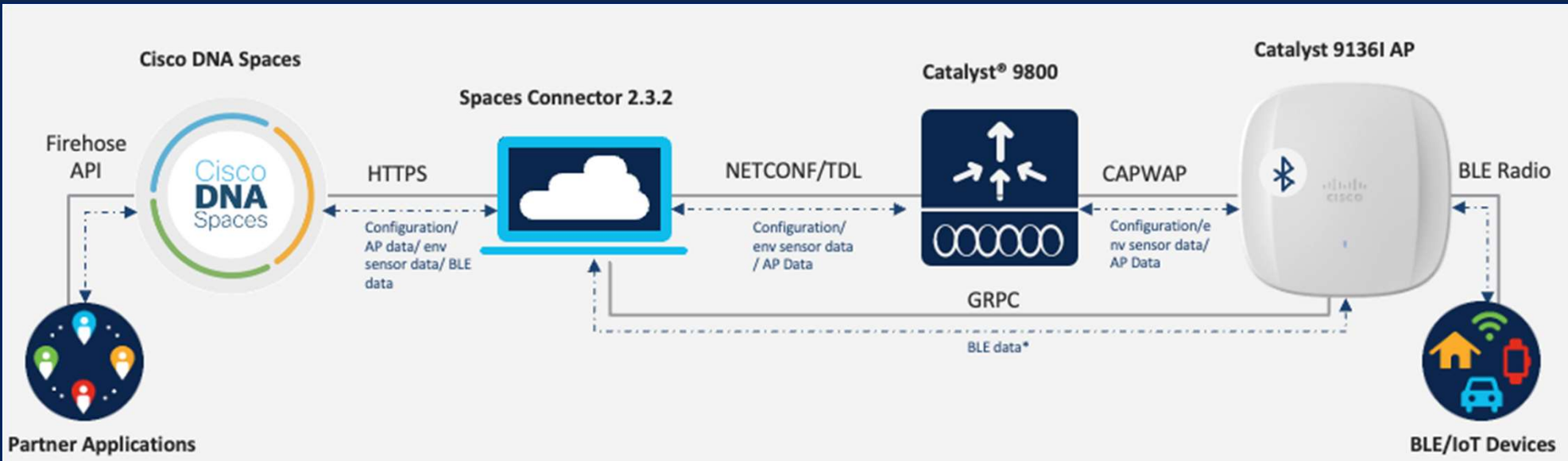
Automation and optimization

- Asset tracking
- Environmental monitoring
- Energy savings

User experience

- Meeting room experience
- Hot desking
- Space utilization

Topology of the Catalyst 9136I's IoT Radio with Cisco DNA Spaces



(*) BLE Floor Beacon data is sent to the DNA Spaces Connector, then sends to the data to DNAS Cloud via the HTTPs tunnel where is shown in the Dashboard

Supports all AP modes: Local, FlexConnect, Fabric, monitor, sniffer

How does Cat 9136 works with DNA Spaces Today?

Environmental Sensor	Environmental Sensor Telemetry	IoT Services	Firehose API
• Configure the environmental sensors (Turn on/off)	• View the environmental sensor telemetry in the IoT Services dashboard	• Configure the 9136 as a BLE Gateway in Scan or Transmit Mode* • View IoT device telemetry and configure IoT devices	• Get the environmental sensor and IoT device telemetry in the Firehose API • Use the data coming from the Firehose API for other applications

***Starting 17.9.1, the AP will be able go into scan and transmit mode at the same time.**

Cisco Smart Workspaces

A highly differentiated offering from Cisco DNA Spaces that seamlessly combines the power of Cisco network infrastructure to **create safer, smarter workspaces**.

Use cases

Hybrid Worker

Safety: Real-time Occupancy & Air Quality

Productivity: Visualize Meeting Room & Desk Availability

Experience: Contextual Awareness

Facilities Teams

Understand Space Utilization

Real Time Occupancy and Capacity Management

Monitoring and Alerts

Interactive Rich Maps

That provide contextual awareness, safety, indoor navigation, room finding and more.

Building the Rich Maps

How can we transform flat floor plans into dynamic, interactive & highly intuitive, rich maps?

Mapping Engine

Intelligently deconstructs facility maps and extracts data such as meeting rooms, desks, and amenities using AI/ ML and transforms them into interactive, rich maps.

Network Map

Network maps are infrastructure centric and static. Not usable for business outcomes

Facility Map

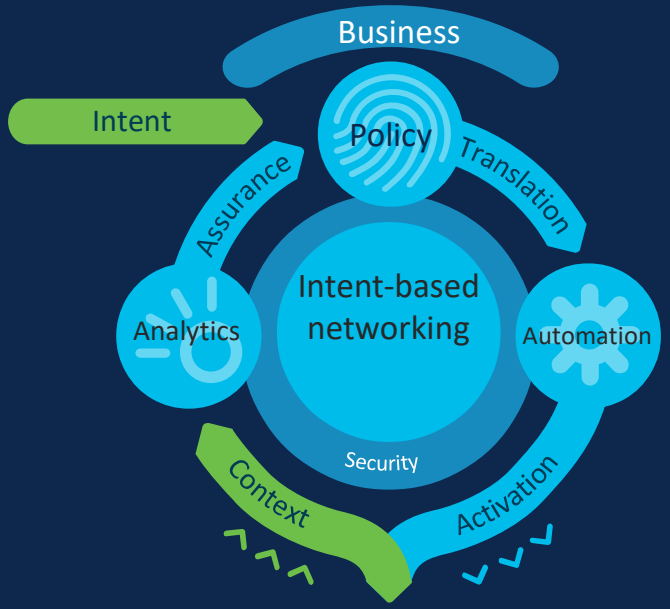
Facilities Maps are built for building management and not suitable for consumer experiences.

Cisco DNA Spaces

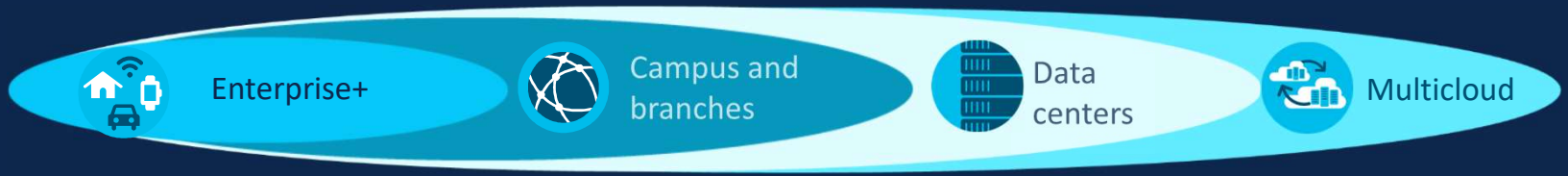
4 Intent Based Networking

Intent-based networking

IT success requires automating the operation and management of your network.



- Comprehensive automation
- Analytics and assurance
- Consistent security



Users and things ⟷ Applications and services

ThousandEyes is now embedded in the Cisco Catalyst 9300 and 9400 Series Switches

Visibility from switch to SaaS and everything in between, included with your Cisco DNA Advantage license

Extended end-to-end visibility
See service delivery from the campus user environment to external networks and apps

Faster time to value
Cisco® ThousandEyes vantage points are now embedded, delivering immediate visibility with zero deployment.

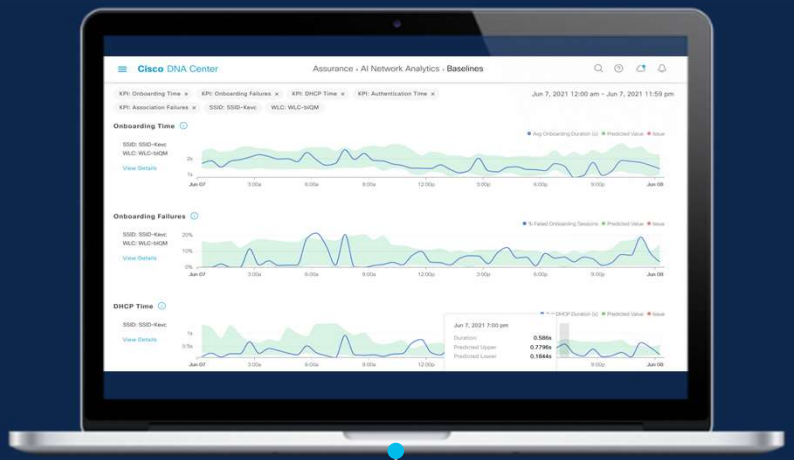
Ability to leverage existing switches
ThousandEyes is included with all Cisco DNA Advantage and Premier licenses

Included with all Cisco DNA Advantage licenses for Catalyst® 9300 and 9400 Series Switches

Cisco DNA Center is a foundational platform technology

Command and control center for Cisco Catalyst

Cisco DNA Center



Physical and virtual infrastructure

Cisco and third party

NetOps

Automation and workflows simplify building and maintaining large scale networks. AI/MR streamlines and simplifies complex tasks

AIOps

AI/ML and insights to ensure the health, performance and reliability of applications and infrastructures

SecOps

AI/ML and DPI Identify and classify endpoints, enforce security policies and mitigate threats for a complete workplace zero trust solution

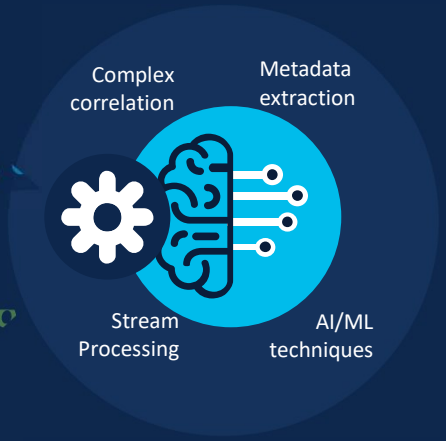
DevOps

Mature APIs, SDKs, and closed-loop integrations, untangle the complexities of interconnecting third party systems

Cisco DNA Assurance

From network data to business insights

Network telemetry and contextual data | Complex event processing | Correlated insights | Suggested remediation



Visibility:
Personalized baselining

Insight:
Intelligent analysis

Action:
Accelerated remediation

Everything as a sensor

Over 150 Actionable insights

Client | Applications | Wireless | Switching | Routing

Cisco DNA Automation

Delivers essential capabilities to automate network deployment and management





Visibility

Discovery, inventory, single pane of glass

Intent

Policies, configurations

Deploy

Provision, plug-and-play

Manage

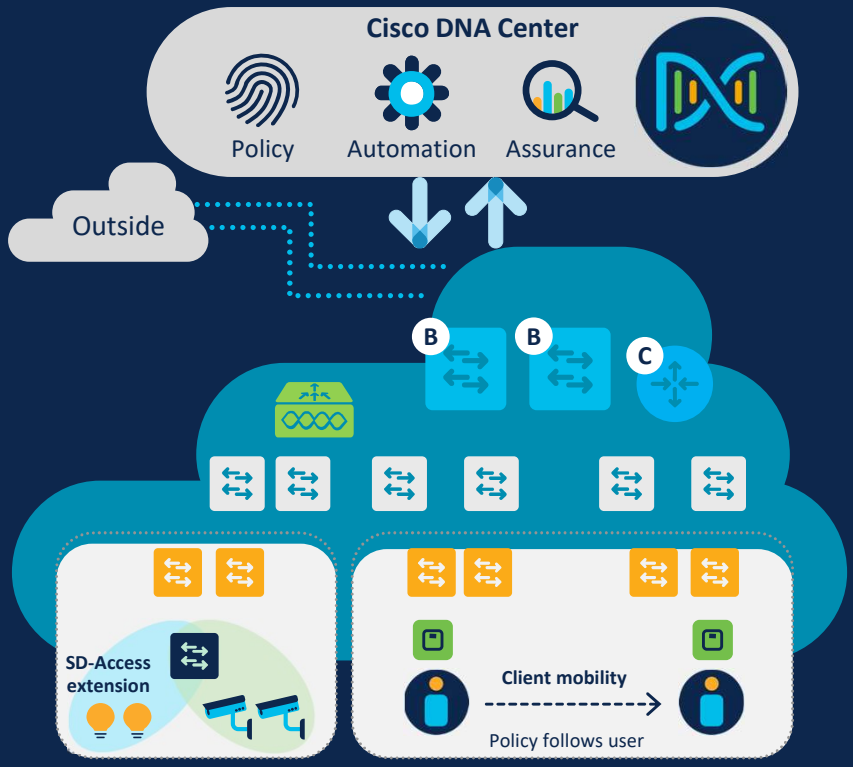
Software image management, changes, compliance

Extend

Assurance, security, third-party applications

Cisco Software-Defined Access (SD-Access)

The foundation for Cisco's intent-based network



Deep visibility

Identify and group endpoints. Map their interactions and define access policies

Group-based policy and segmentation

Enforce group-based access policies and secure network through segmentation

Policy consistency throughout

Use Cisco's multidomain architecture for consistent access and security policies throughout the enterprise

5 Integrated visibility and management

One Product – Two personas

DNA **Persona**
C9800 & DNAC Stack

Meraki **Persona**
MR Dashboard Stack

Cisco Wi-Fi 6E Portfolio

Common Platforms will have Catalyst PIDs

One Product – Two Personas

CW9162

- 2x2 + 2x2 + 2x2
- 2.5 Gbps mGig
- Power Options: PoE, DC Power
- Scanning Radio
- IoT ready + Bluetooth 5.x
- Standard Bracket

CW9164

- 2x2, 4x4, 4x4
- 2.5 Gbps mGig
- Power Options: PoE, DC Power
- Scanning Radio
- IoT Ready + Bluetooth 5.x
- Standard Bracket

CW9166

- 4x4 + 4x4, 4x4 (XOR 5/6)
- 5 Gbps mGig
- Power Options: PoE, DC Power
- IoT ready + Bluetooth 5.x
- Scanning Radio
- Environmental Sensor
- Common XOR Architecture
- Standard Bracket

Common HW

The below MR and C series APs are not convertible

MR57

- 4x4 + 4x4, 4x4 (XOR 5/6)
- Dual 5 Gbps mGig with failover
- Power Options: PoE, DC Power
- IoT ready + Bluetooth 5.x
- Scanning Radio
- XOR Architecture (High/Low band)
- Standard Bracket

C9136

- 4x4 + 8x8 + 4x4 or 4x4+4x4+4x4+4x4
- Dual 5 Gbps mGig with failover
- Power Options: PoE, DC Power
- IoT ready + Bluetooth 5.x
- Scanning Radio
- Environmental Sensor
- XOR Architecture (macro/meso)
- Standard Bracket

The future of work is hybrid

…it's here today

And it's powered by the network


CISCO