UNIFIED
Experiences

AI 驅動校園無線新紀元

– Wi-Fi 7 × AIOps

打造智慧校園與極致無線體驗

Ricky Wang 王瑞吉

Jan. 2026

- Wi-Fi 7：下一代無線標準如何重新定義校園網路
- Cisco Wi-Fi 7 解決方案 – 智能化、彈性與安全性
- AIOps：AI 驅動的網路營運自動化與智慧洞察
- Wi-Fi 7 × 校園 AI 應用場景與管理效益

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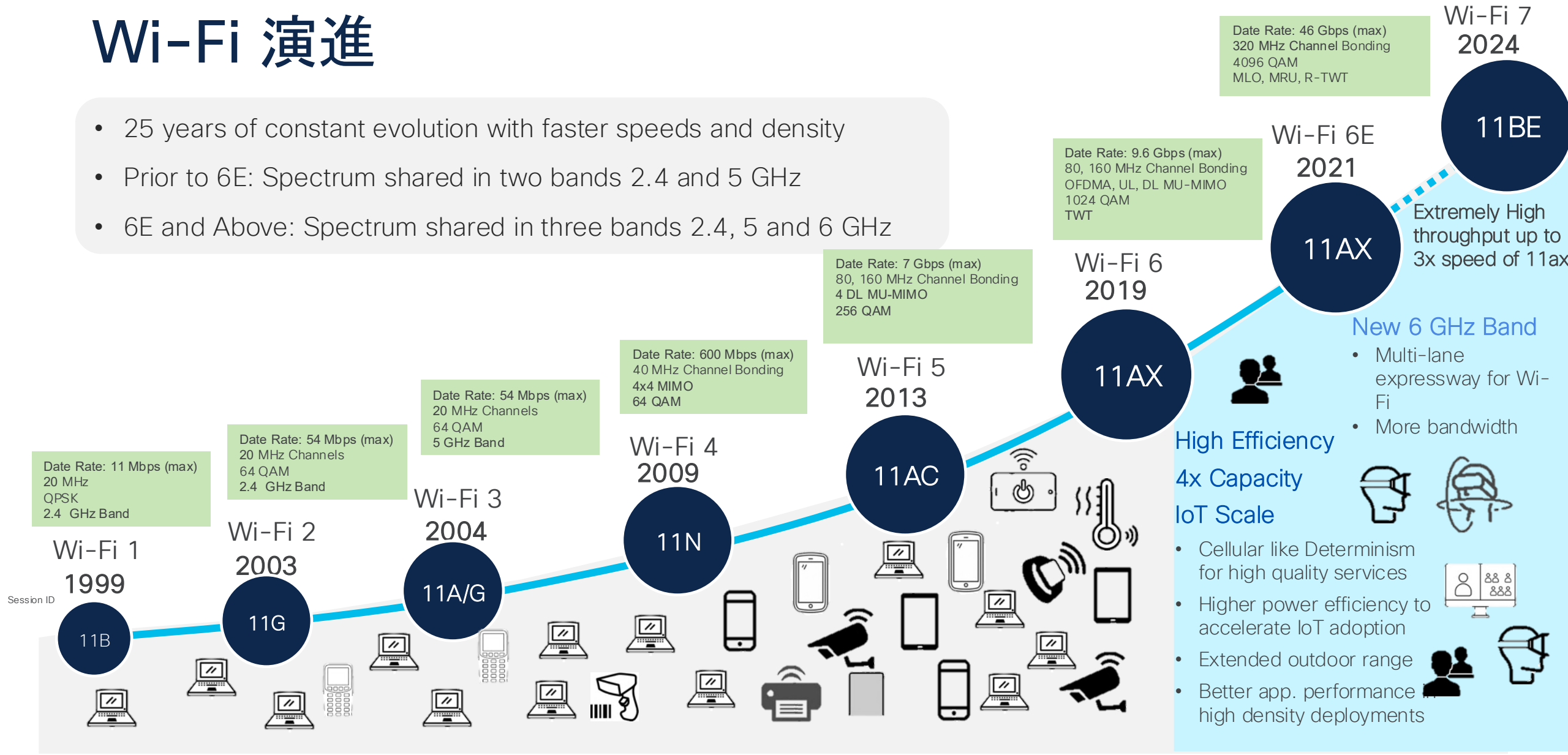
Wi-Fi 演進

- 25 years of constant evolution with faster speeds and density
- Prior to 6E: Spectrum shared in two bands 2.4 and 5 GHz
- 6E and Above: Spectrum shared in three bands 2.4, 5 and 6 GHz



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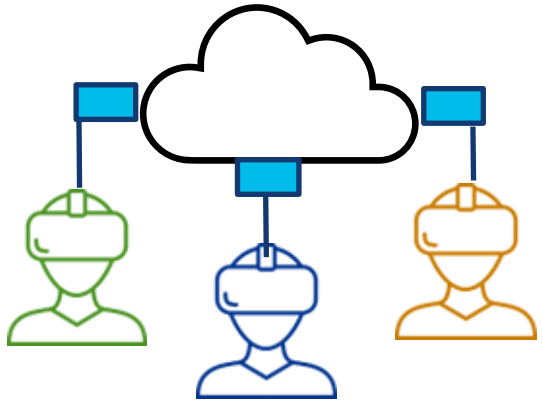
6GHz 與 Wi-Fi 7 共同開啟新應用場景

High Definition Video Streaming



Multi-user AR/VR/XR

Emergency Preparedness Communication Services

Industrial IoT

Hybrid Work

Immersive Gaming & Entertainment

Automotive

Immersive Learning

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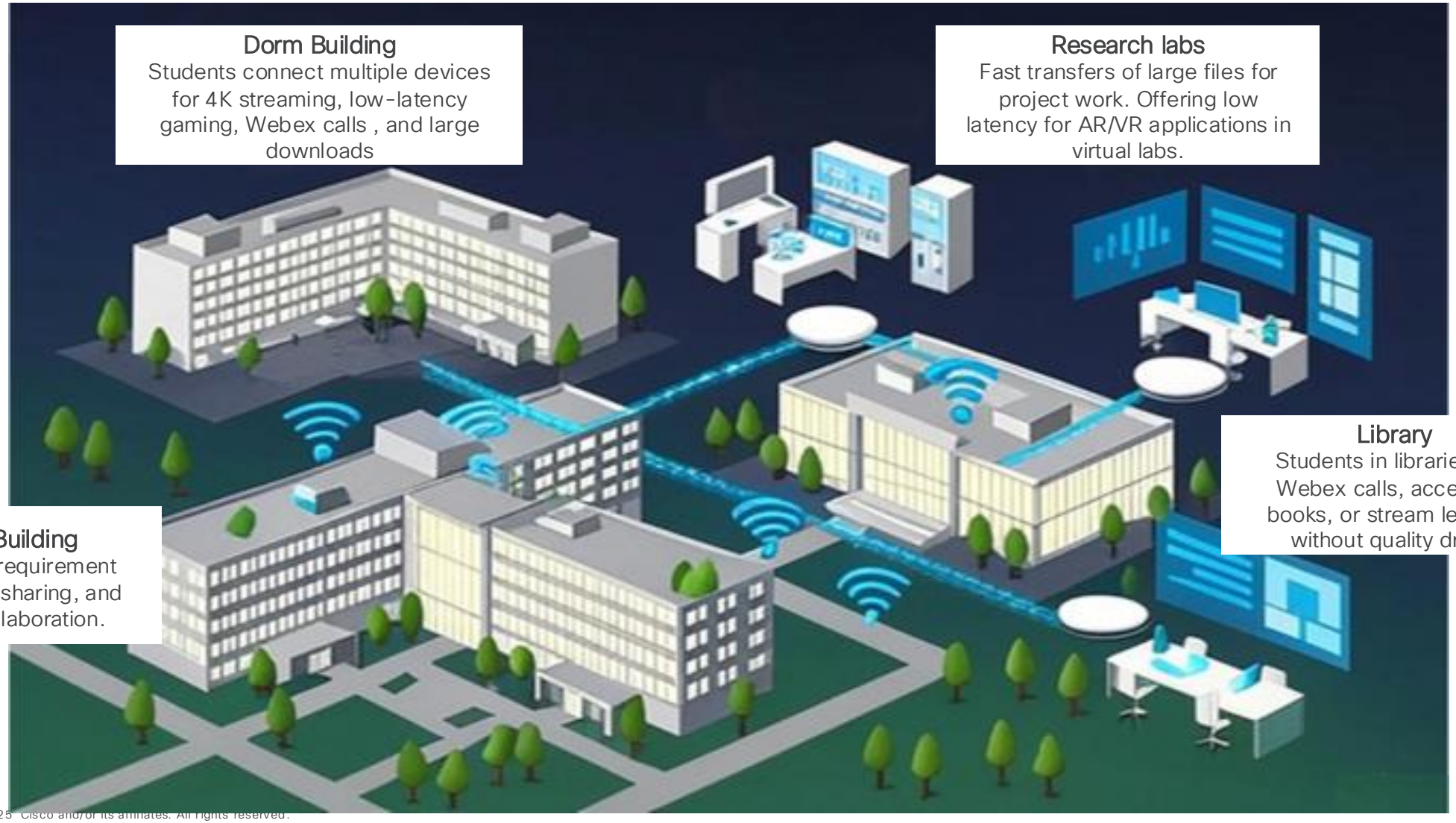
為什麼選擇高效能Wi-Fi



Dorm Building
Students connect multiple devices for 4K streaming, low-latency gaming, Webex calls , and large downloads

Research labs
Fast transfers of large files for project work. Offering low latency for AR/VR applications in virtual labs.

Library
Students in libraries join Webex calls, access e-books, or stream lectures without quality drops

Lecture Building
High-density requirement for streaming, sharing, and real-time collaboration.

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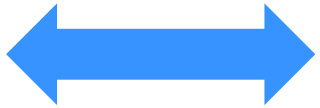
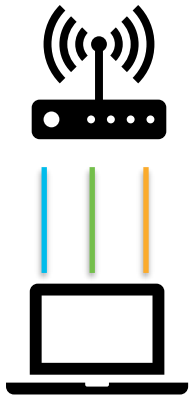
什麼是 Wi-Fi 7 (IEEE 802.11be)?



320 MHz in 6 GHz

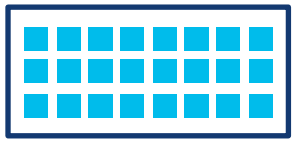
4K QAM



MLO

Enhanced Security

Multi-RU



Compressed Block Ack
(512 MPDUs)

Preamble puncturing
Min ch. width of 80

Triggered UL Access Optimization

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期待帶來的效益

Higher Data Rates

Lower Latency

Higher Spectrum Efficiency

Higher Power Efficiency

Improved Interference Mitigation

Higher Capacity

- Maximum Theoretical ~46Gbps
- 320MHz channels
  - Non-adjacent channels
- 4096 QAM
- 8x8 MU-MIMO
- Multi-RU Puncturing
- Multi-Link Operation
- Deterministic Low-Latency

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Cisco Wi-Fi 7 解決方案

硬體 Ready!

AIOps Ready!

雲地 Ready!

體驗 Ready!

CISCO SPACES

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適用於各種場景的 Wi-Fi 7

入門、進階、頂級AP Ready!
室內、室外型 AP Ready!
專用三頻掃描Radio Ready!
NCC認證 Ready!

硬體 Ready!

CW9172H

6 Spatial Streams
2.5 Gig
Hospitality

CW9174E

8/10 Spatial Streams
5 Gig
External antennas
New

CW9176D1

12 Spatial Streams
10 Gig
Integrated Directional
UWB

CW9179F

16 Spatial Streams
10 Gig
LPV/Stadium

CW9171I

4 Spatial Streams
2.5 Gig
Omnidirectional
New

CW9172I

6 Spatial Streams
2.5 Gig
Omnidirectional

CW9174I

8/10 Spatial Streams
5 Gig
Omnidirectional
New

CW9176I

12 Spatial Streams
10 Gig
Omnidirectional
UWB

CW9178I

16 Spatial Streams
10 Gig
Omnidirectional
UWB

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思科Wi-Fi 7雲、地管理皆可!

透過SD-Access達到零信任微分段

雲地 Ready!

Up to 200 APs Branch	EWC on Cisco® Catalyst® 9100	9800-L On-premises	aws 9800-CL for public cloud	ENCS KVM ESXi 9800-CL for private cloud
200 to 3000 APs Campus	CW9800M On-premises	9800-40 On-premises	aws 9800-CL for public cloud	ENCS KVM ESXi 9800-CL for private cloud
3000 to 6000 APs Large campus	CW9800H1/H2 On-premises	9800-80 On-premises	KVM ESXi 9800-CL for private cloud	

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WI-FI 7 The Network for Smart Spaces

體驗 Ready!

Auto Placement of APs on map

for IT teams

Place Sensors on a map

for IT teams

Detect & Locate Clients & Devices

for IT/OT Teams

Asset Tracking

for Operations

Digital Signage Experience

for Students & Facilities Teams

Occupancy Analytics

for Real-Estate & Facilities

Indoor Wayfinding

for Students & WPR

WiFi Onboarding & Contextual Notifications

for Visitors & Loyalty

APIs

To extend to Education

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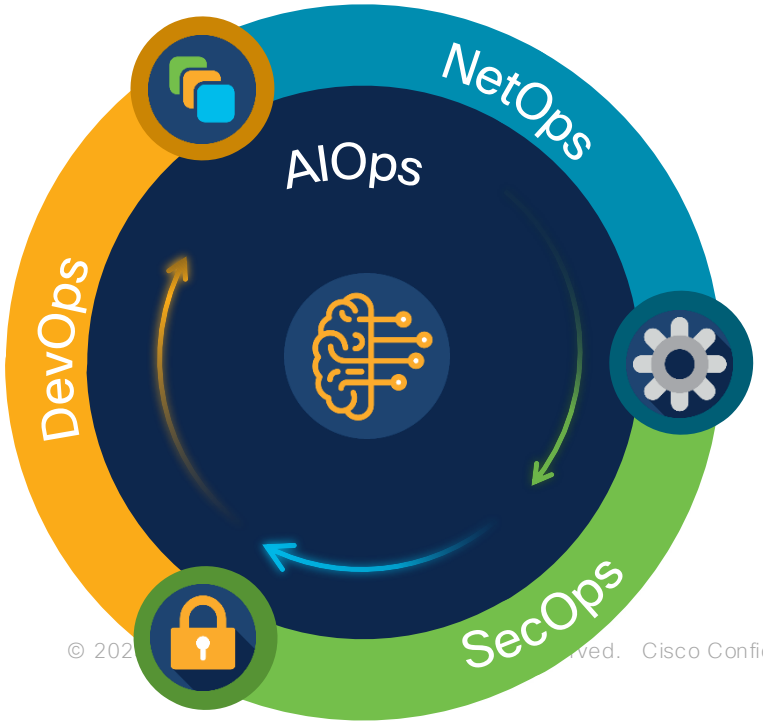
搭配Catalyst Center達到優異的AIOps能力!

AIOps Ready!

Catalyst Center



AIOps 能力

AI Network Analytics

- Trends and Insights
- Network Heatmap
- Peer Comparison
- Baselines
- AI-Enhanced RRM

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用 Cisco AIOps 更聰明

Cisco AIOps: AI-Driven Issue Detection and Insights

Intelligent Issue Detection & Analysis

AI-Driven Baselining
Define Normal for a Given Network

AI-Driven Anomaly Detection
Find + Root Cause Complex Issues

Trends and Insights

AI-Driven Proactive Insights
Patterns and Systemic Deviations

AI- Enhanced Radio Resource Management

AI-Enhanced RRM
Optimize Wireless Configurations

Comparative Analytics

AI-Driven Peer Comparison
Compare with Peers

AI-Driven Network Comparison
Compare Across Buildings/ Endpoints/ APs

AI-Driven Site Comparison
Compare Across Sites

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智慧問題偵測與分析

AI-Driven Baselining

Pain Points

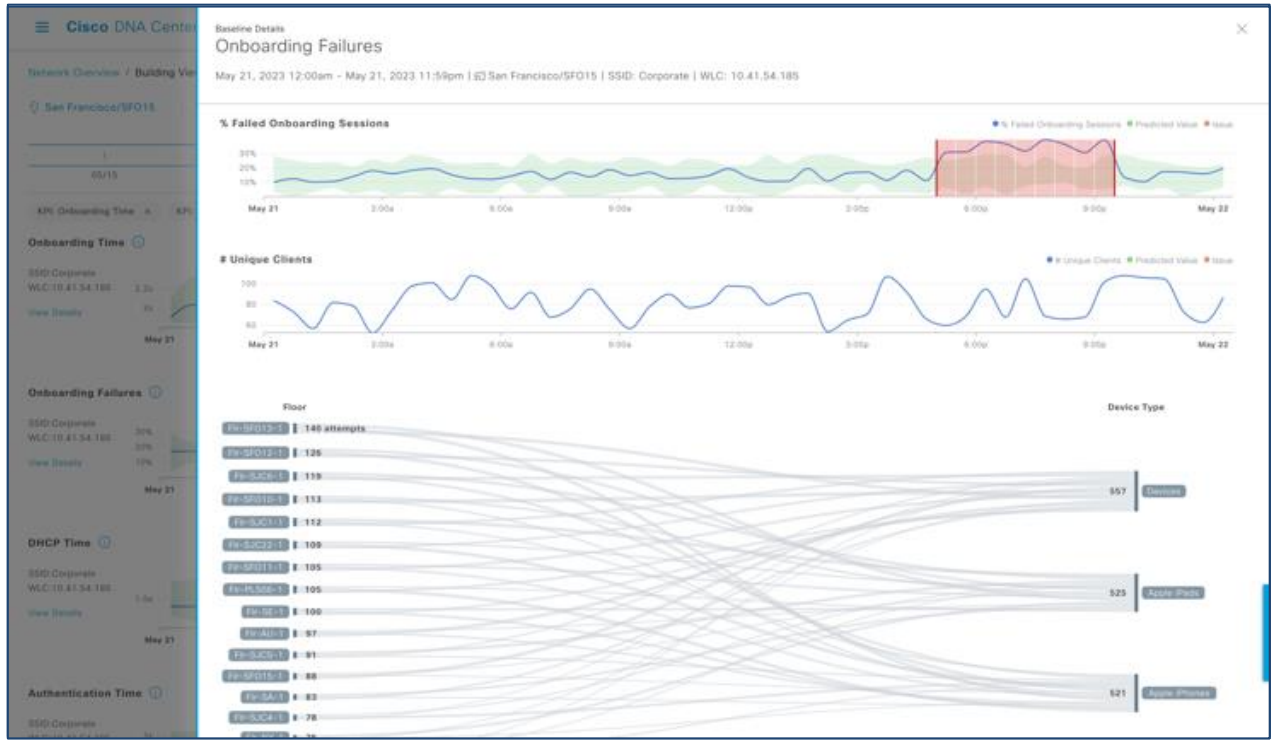
Wireless networks are dynamic and issues triggered with a static min/max threshold may result in false positives.

Feature Capability

Identifying client onboarding KPIs that deviate from the norm, and provides unique view to RCA the issues.

Customer Benefits

Users receive accurate alerts for significant deviations in onboarding issues, and providing a triaging view.



Intuitive View to Pinpoint the Source of Failure

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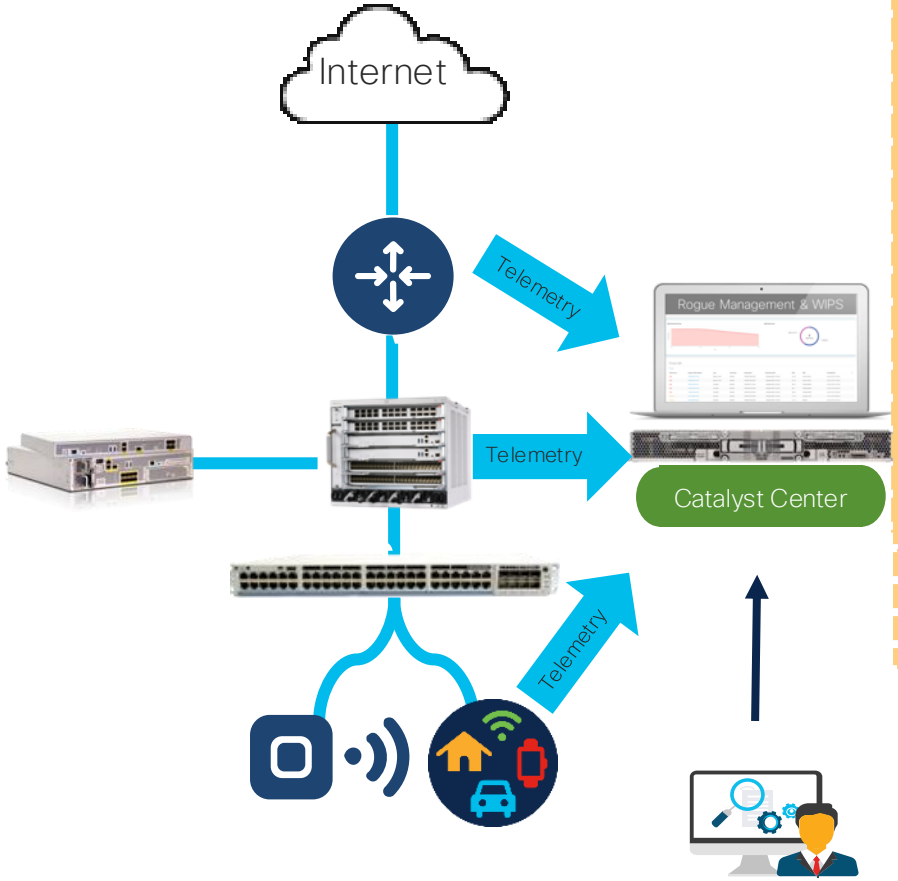
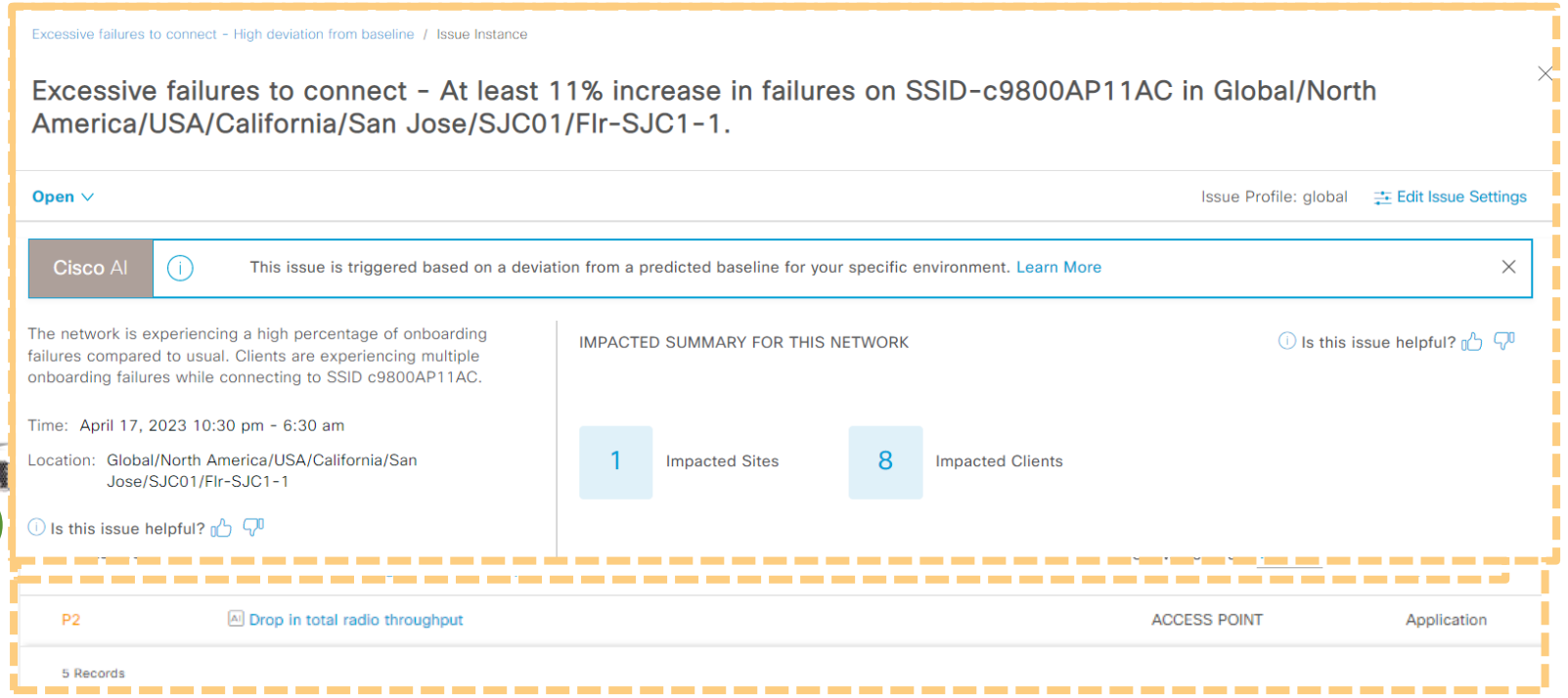
智慧問題偵測與分析

AI-Driven Anomaly Detection/Guided Remediation





1

AI-Driven Issues

AI-Driven Issues mean that our AI/ML algorithm has detected a deviation from the norm and suspects that there is a potential anomaly in the network.

2

Excessive Failures

If there are multiple Excessive Failures to Connect – High Deviation from baseline issue types, you see them listed, potentially representing different locations, client counts, or event times.

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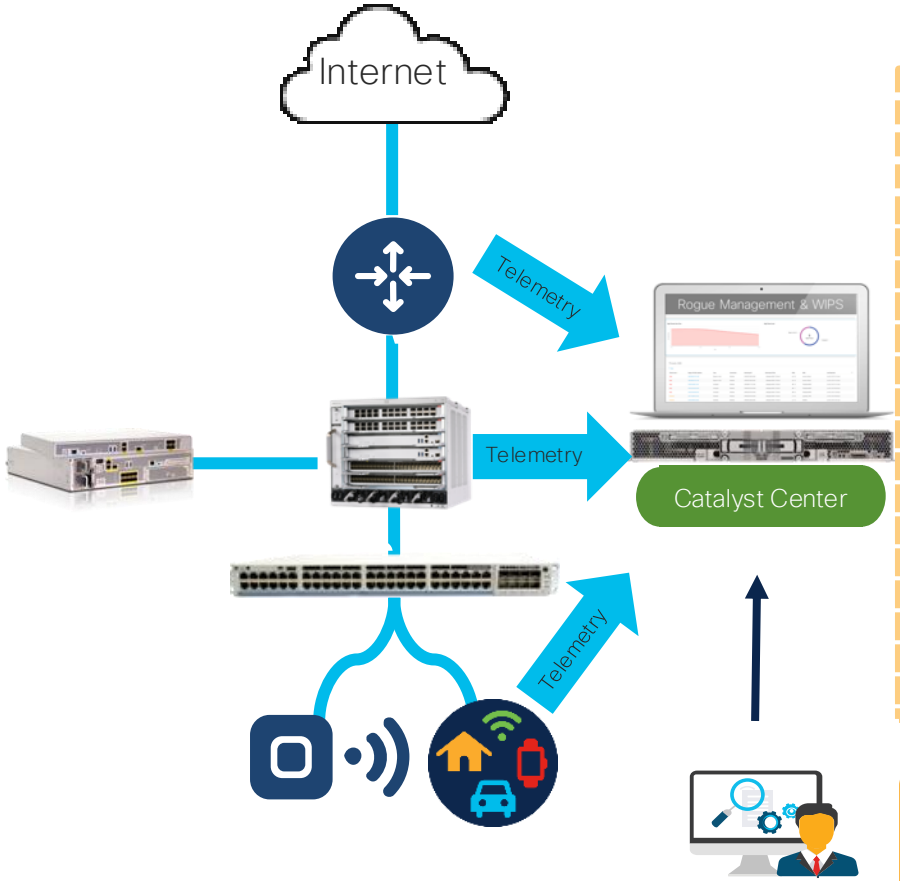
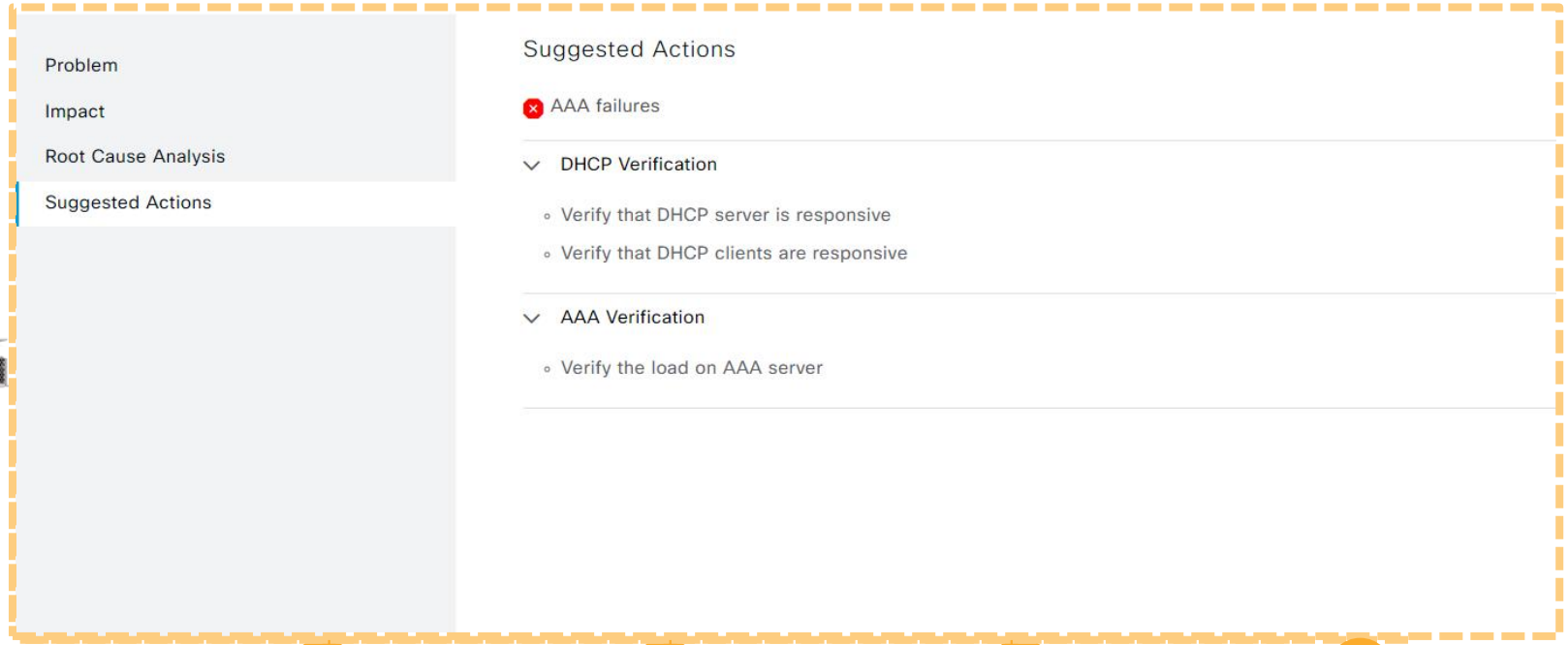
智慧問題偵測與分析

AI-Driven Anomaly Detection/Guided Remediation





3

Problem Details
Dynamic Baseline uses AI and a predictive algorithm to predict what you should expect as your % of error throughput at different times of day.

4

Impact
This tab provides more information about the specific clients that are impacted by the issue.

5

Root Cause Analysis
Provides potential root cause analysis on basis of AI/ML base lines charts

6

Suggested actions
Provides guided remediation steps on actions to be taken

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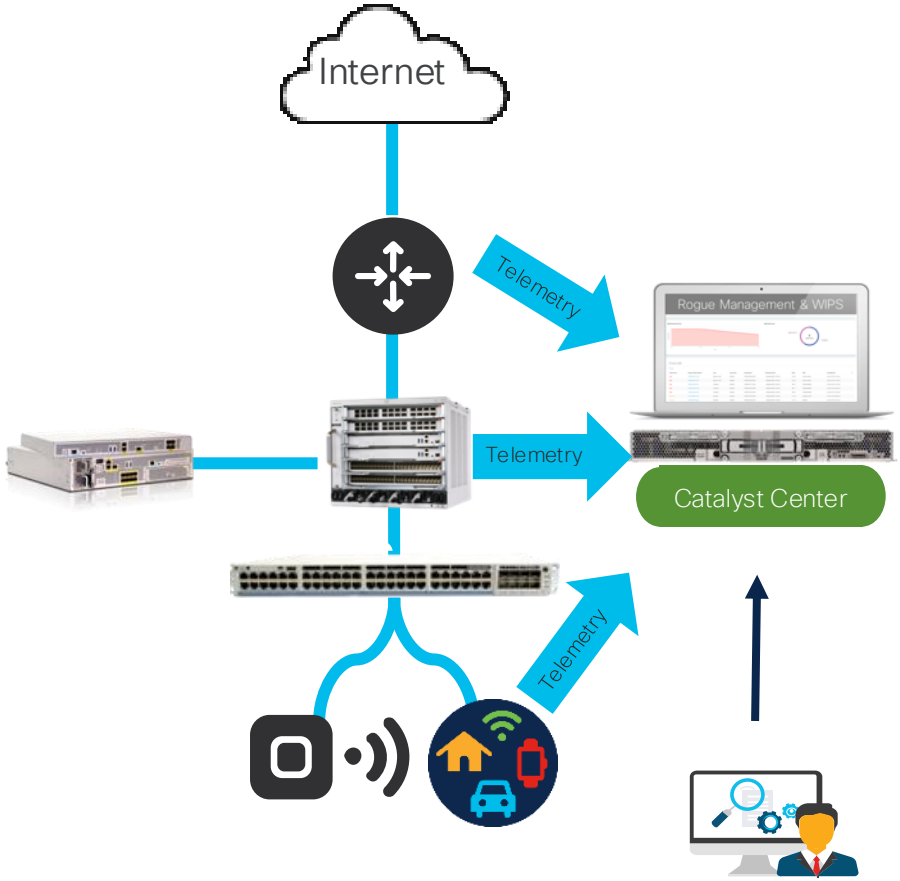
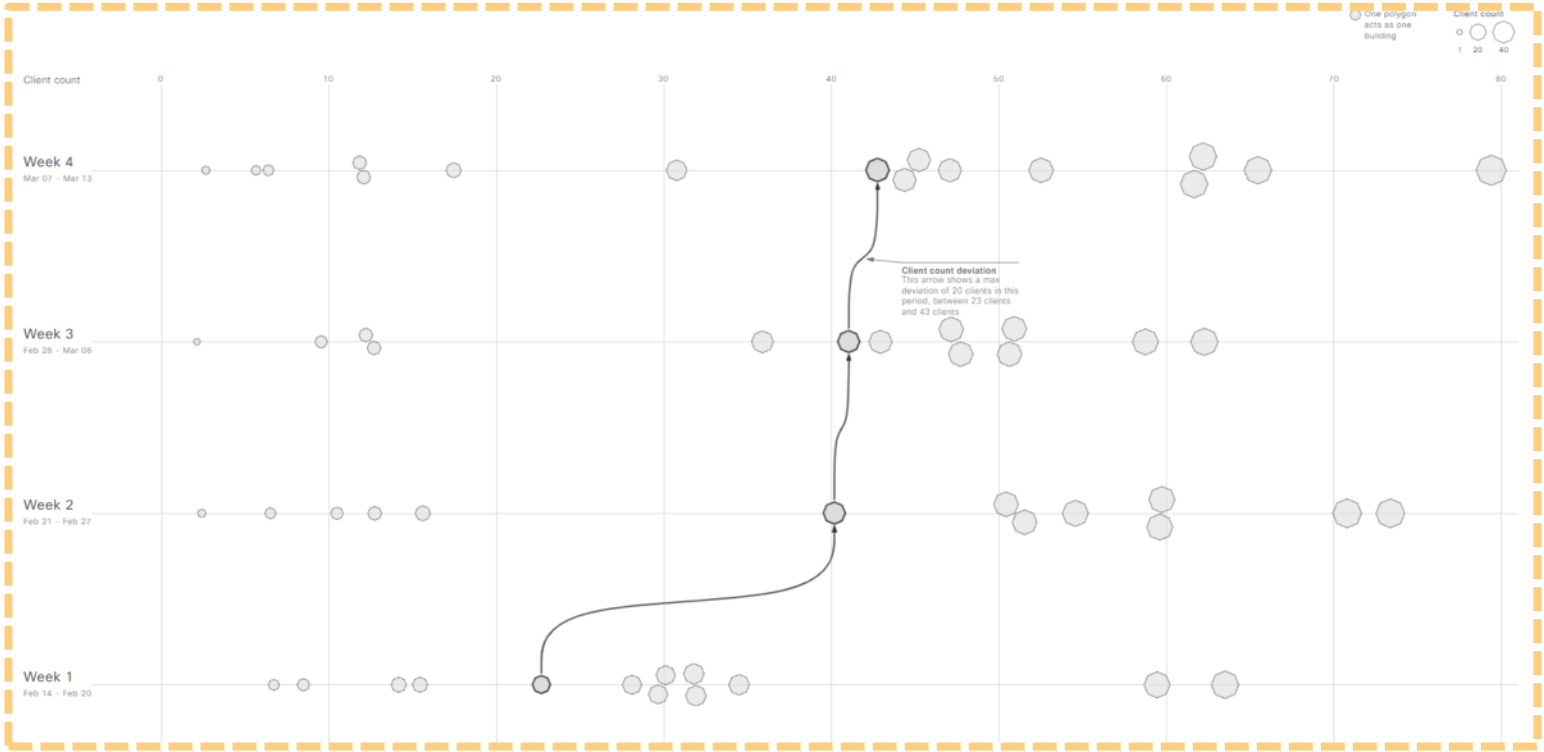
趨勢與洞見

AI-Driven Proactive Insights





1

Insights Summary
Significant changes in daily or weekly trends are presented with help of Machine Learning data

2

Trend Deviations
This insight is triggered based on a systematic deviation over a period of time

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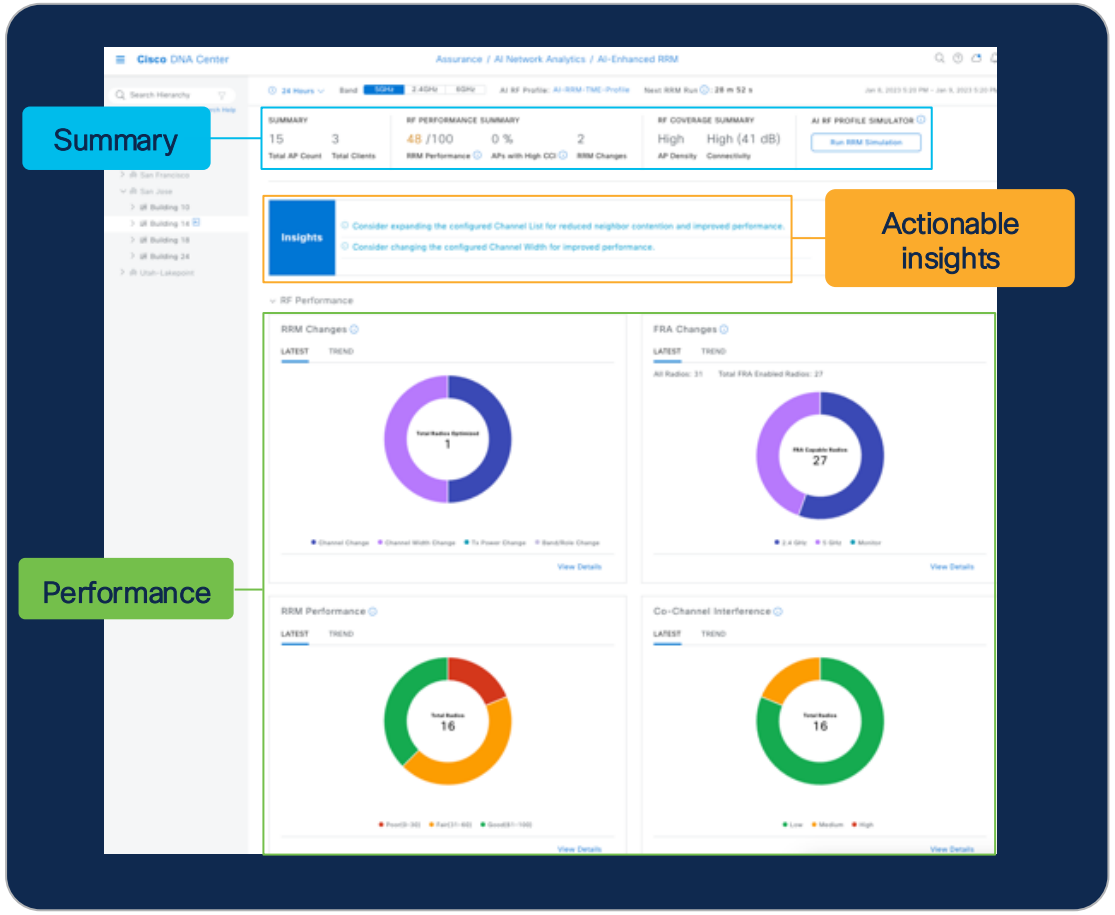
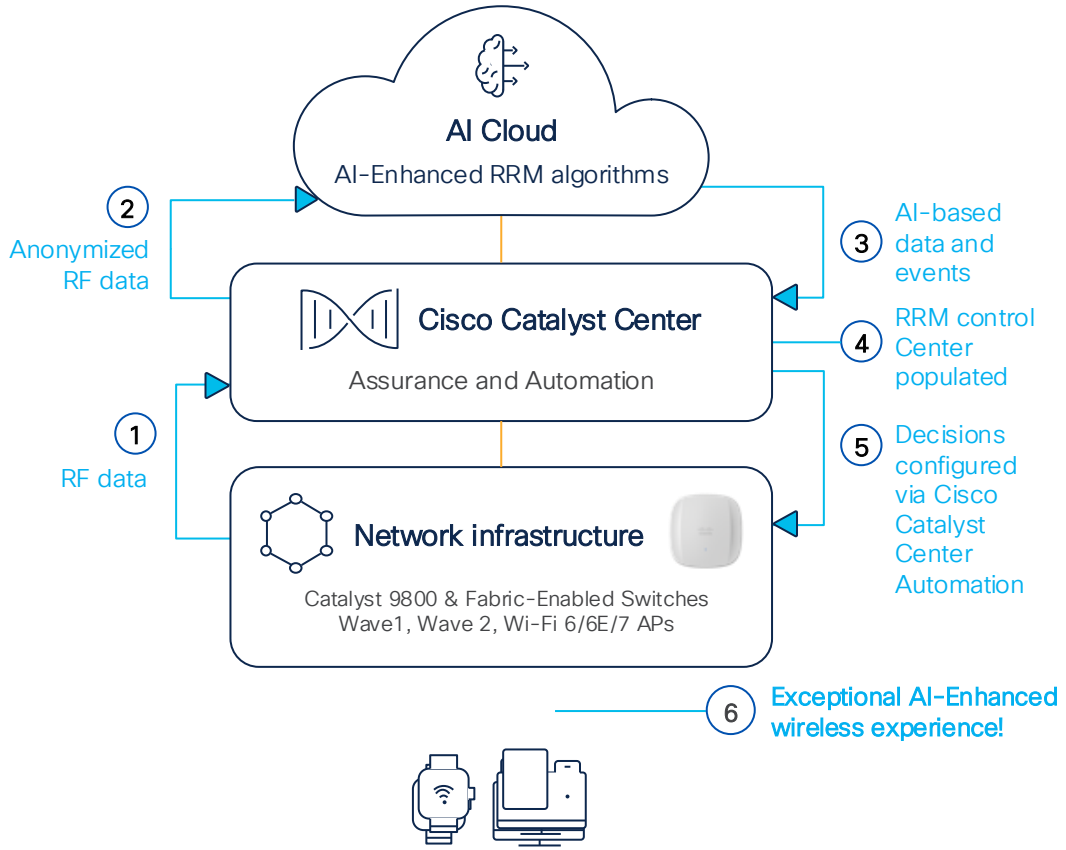
AI-RRM – AI 驅動的射頻優化

Now Supports Assurance-Only Networks

Instantaneous visibility



Trend-Based optimizations



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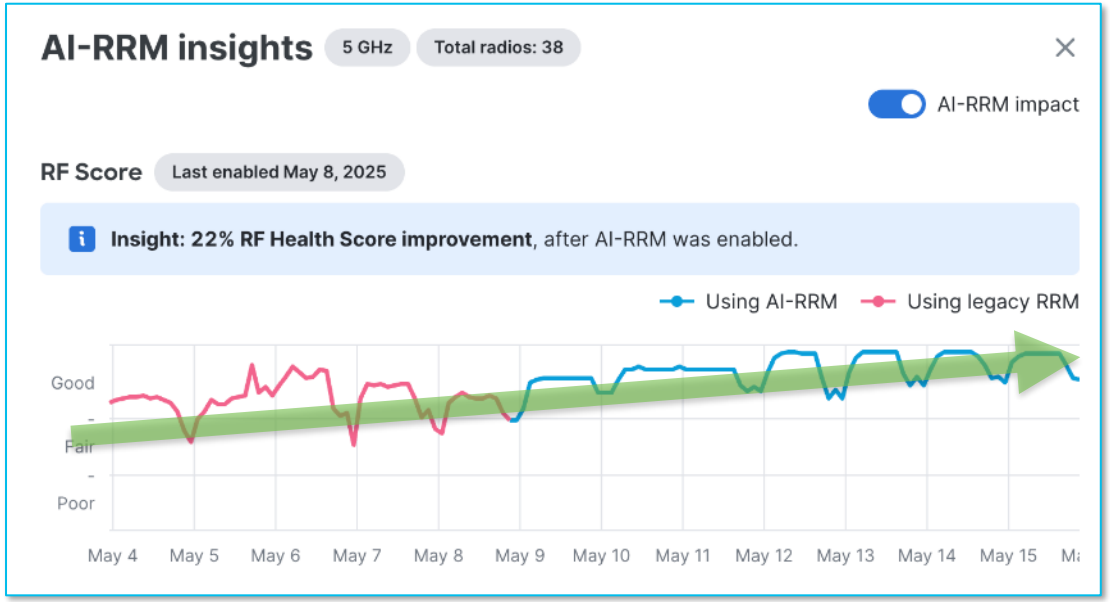
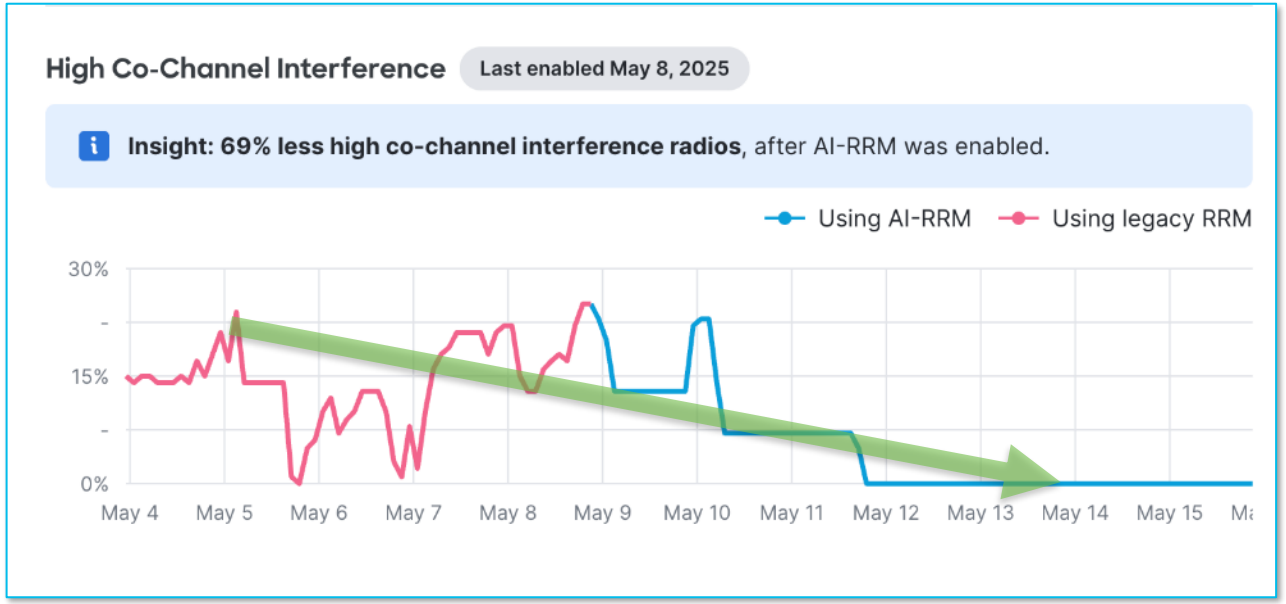
AI-RRM：前後-可衡量的 AI 優勢

Typical Network examples with medium network density – (AP Density of 9)

22% RF health score improvements



69% less High Co-Channel Interference



Red Before AI-RRM gets enabled, using legacy RRM (autoRF)

Blue After customer enabled AI-RRM

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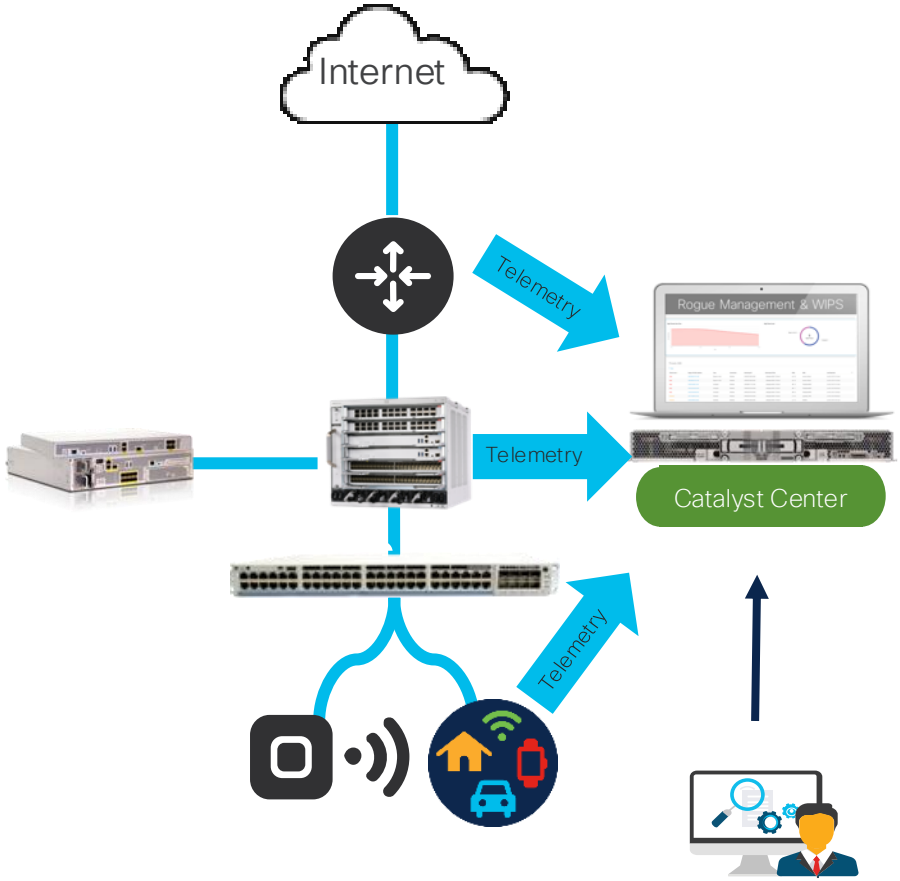
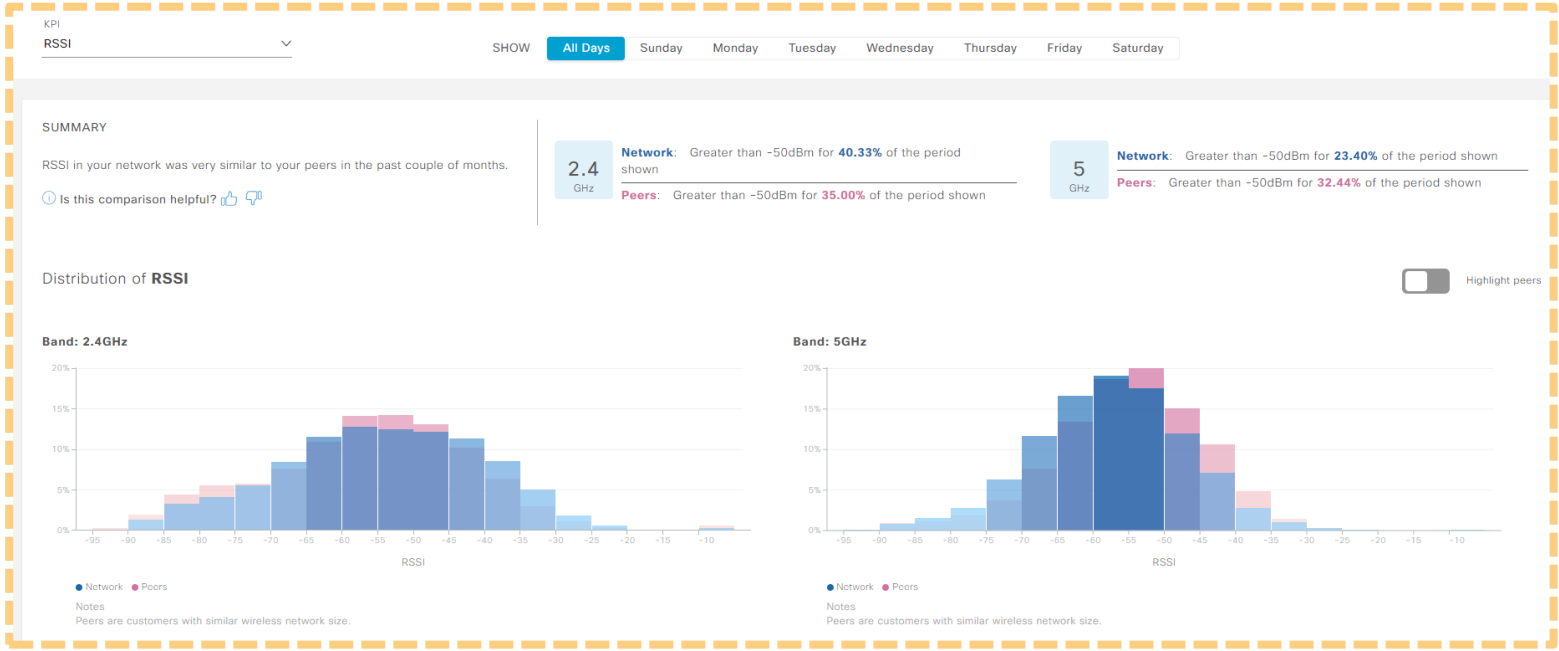
比較分析
AI-Driven Peer Comparison





Peer Comparison
Compare how your network is performing in comparison to your peer networks for a selected Key Performance Indicators (KPI)

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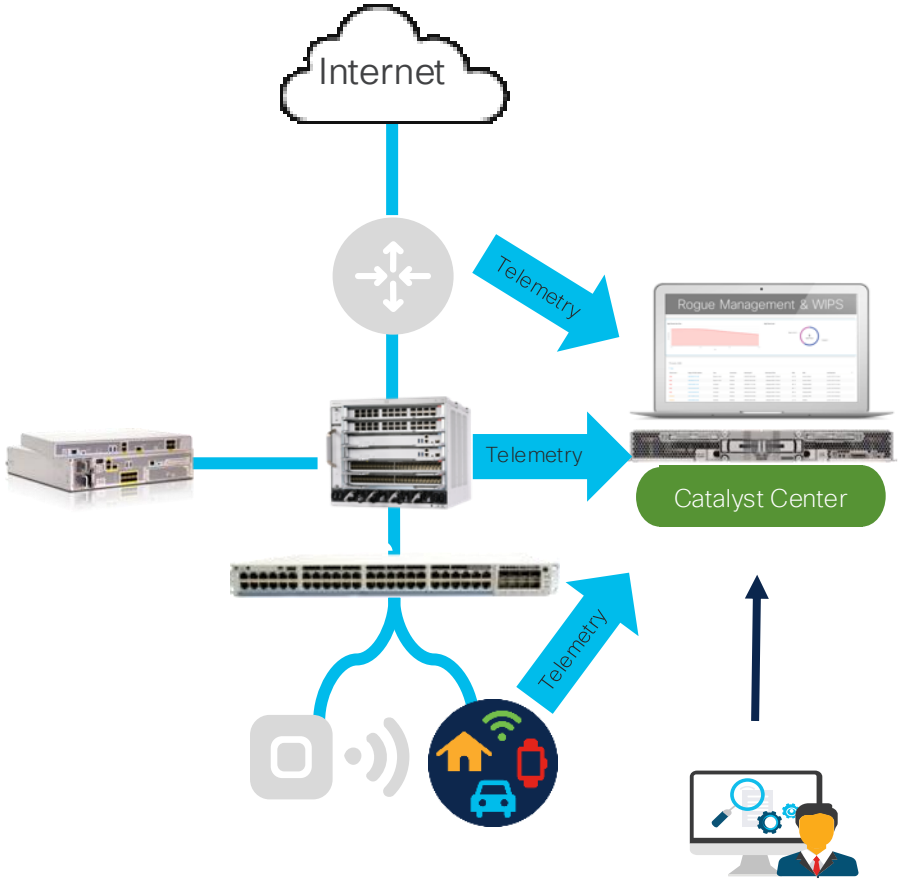
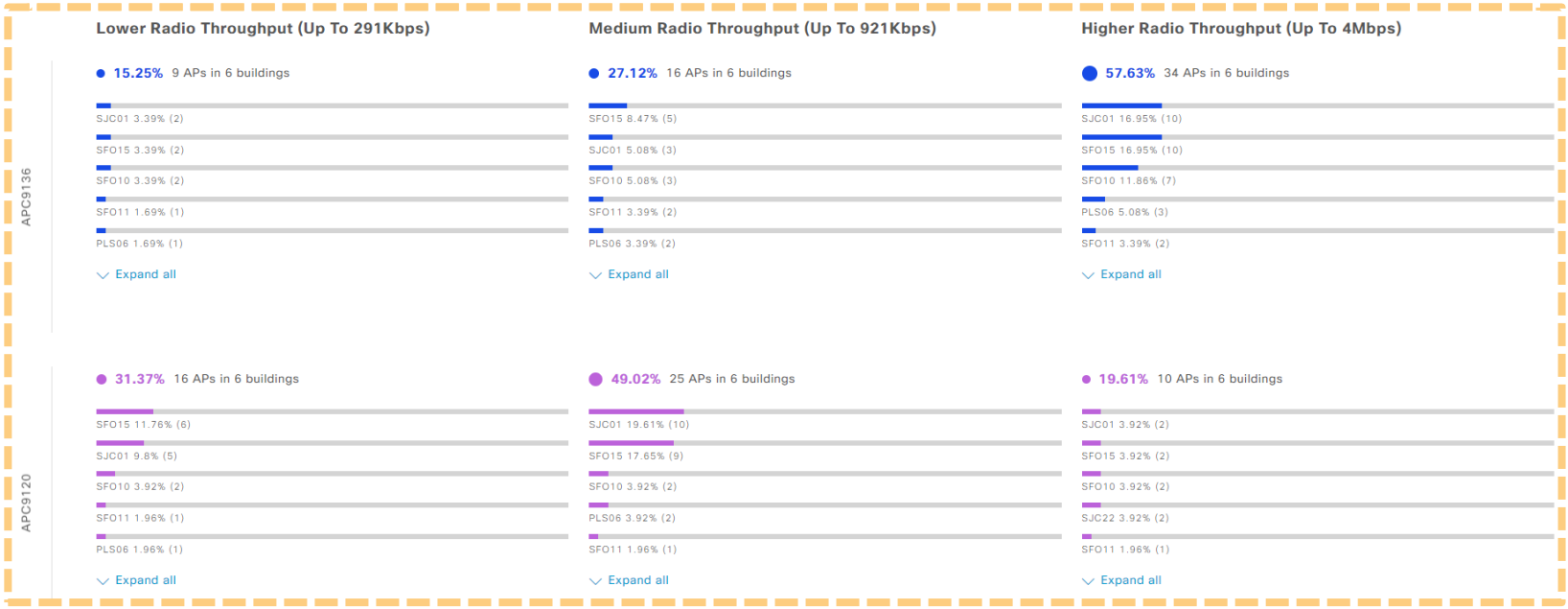
比較分析

AI-Driven Network Comparison





1

Network Comparison
Compare performance improvement opportunities for objects in your network

2

Client Experience KPIs
This view shows radio throughput comparisons between 2 models of APs

3

AP Performance Advisories
Shows average throughput for AP models across buildings

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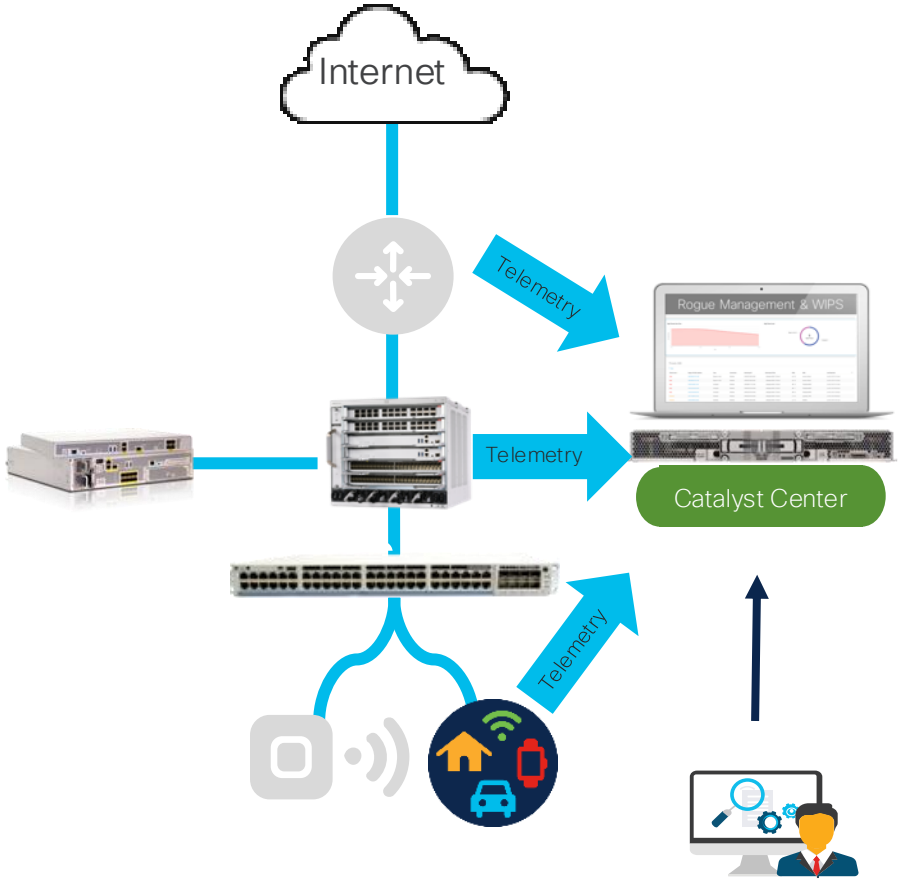
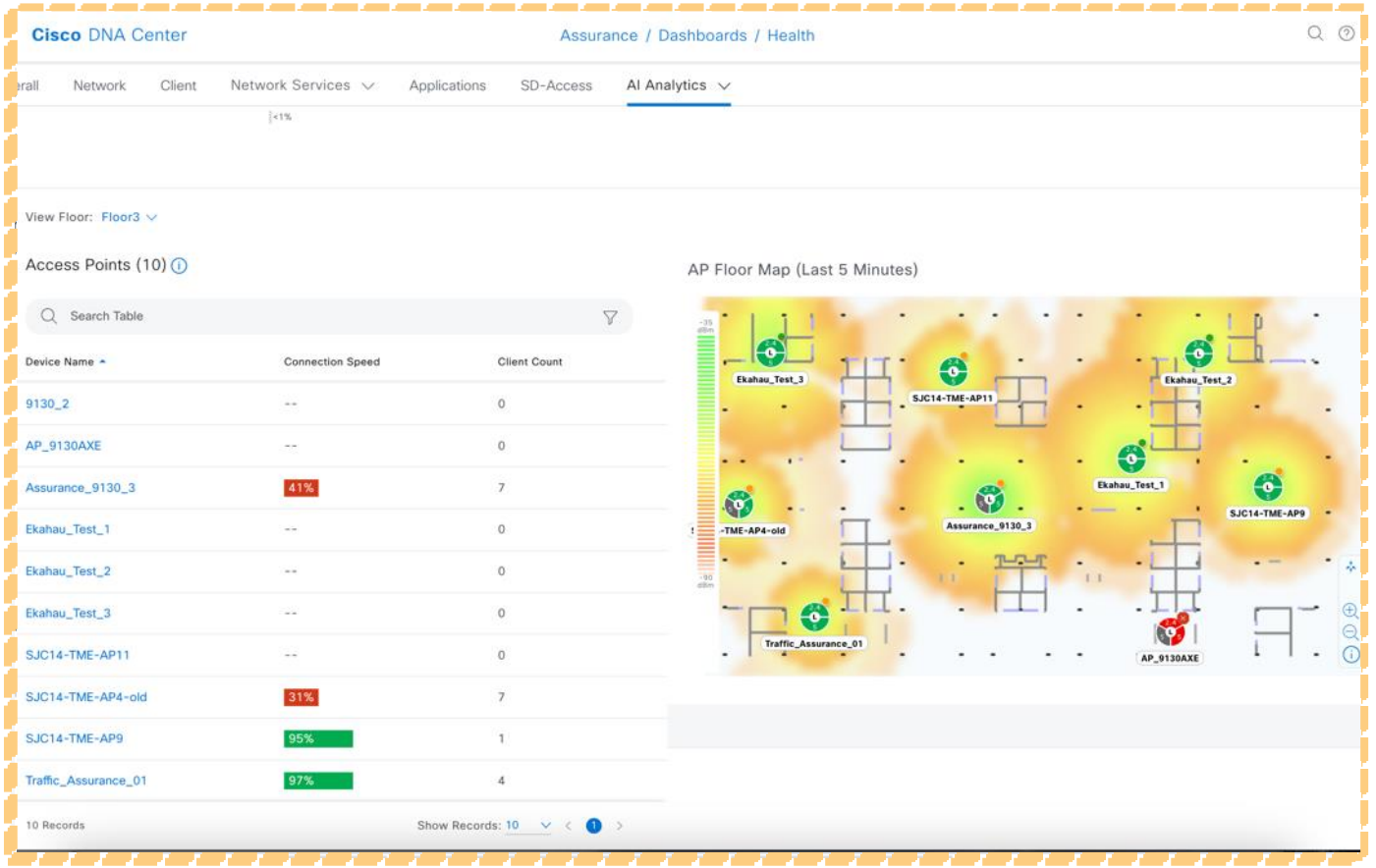
比較分析

AI-Driven Site Comparison





1

Global View
Global view of per-site Wireless experience via SLAs

2

Building view
Building view of KPI trendline and Impact Analysis

3

Floor view
Floor view device level KPIs with heat map

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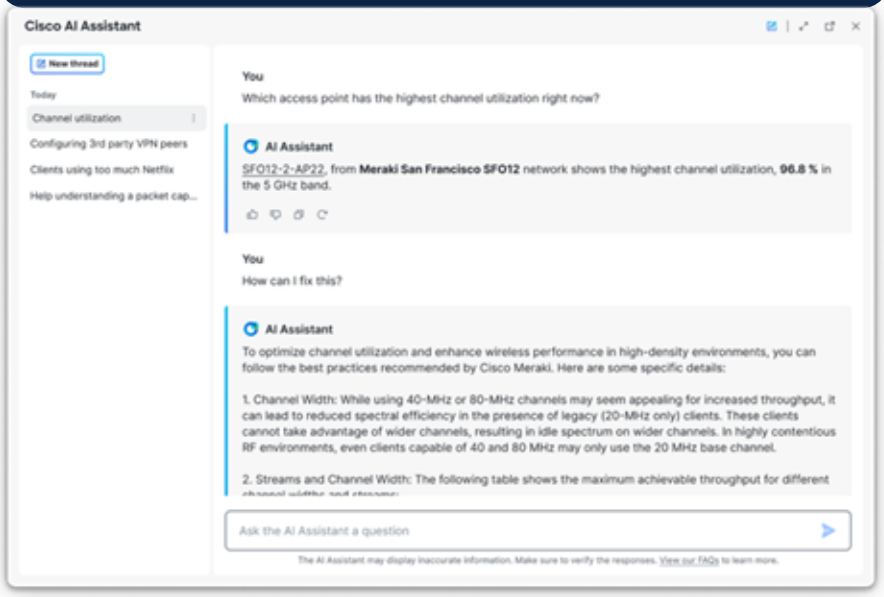
Cisco 網路的 AI 助理

Accelerate Network management practice with Conversational Interface

AI Assistant

GenAI-based, Conversational Interface



- **Client Troubleshooting** — Client Troubleshooting using unique partnership with Apple, Intel, Samsung
- **Infrastructure Troubleshooting** — AI-Driven RCA, End-to-End Network Correlation orchestrated through conversational interface
- **Network Automation** — Conduct Network Change Management by conversation
- **Documentation, Best Practice, Tips** — AI Generated, Summarization of Cisco Document Libraries and CX Best Practices

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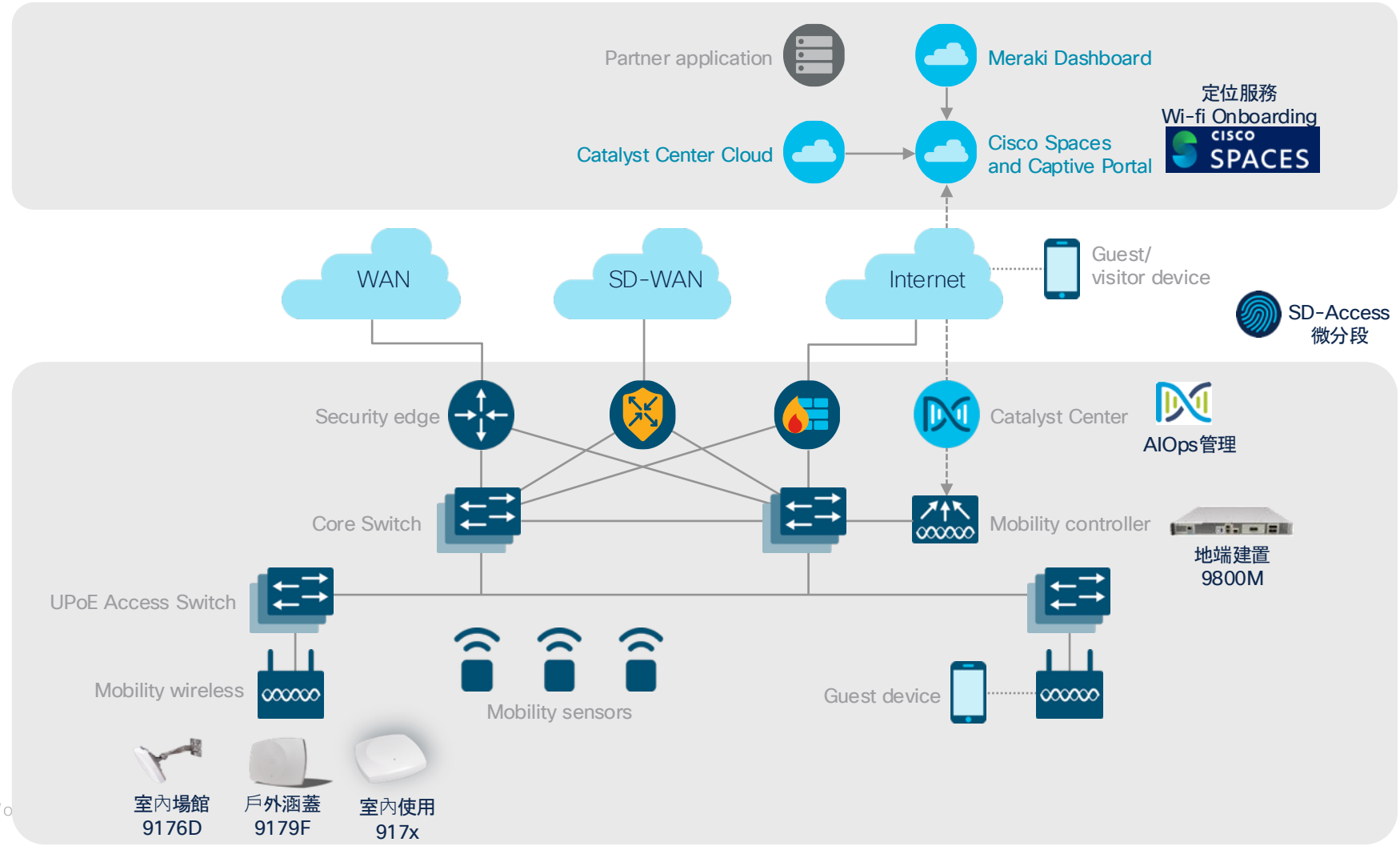
Wi-Fi 7校園建置方案

硬體 Ready! 雲地 Ready! AIOps Ready! 體驗 Ready! CX Ready!



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Wi-Fi 7 × 校園 AI 應用場景與管理效益

高效能

- 在有大量裝置的教室、宿舍與大型場域（如體育館、跨校活動）中，Wi-Fi 7 提供更穩定、可預測的連線品質。

更安全

- 強化的安全機制以及微分段的零信任的導入，讓安全性更加的提升。

好管理

- 透過智能分析與引導式處理，IT 團隊可更加靈活管理，提升網路 SLA 與服務品質。

多應用

- 智慧教室與虛實整合學習 (AR/VR 即時串流課程、互動教學工具。
- 校園導航、資產追蹤、與定位豐富應用。

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