

掃描QR Code
填問券
拿贈品



邁向AI世代的校園網路： RUCKUS Wi-Fi 7與數位韌性新思維

Calvin Su
Technical Consultant

未來就在你眼前



AR / VR 的需求

- 720P 每秒 7~8 mbps

AR/VR -> 28 ~ 32 mbps

AR/VR -> 56 ~ 64 mbps

- 1080P 每秒 10~11mbps

AR/VR -> 40 ~ 44 mbps

AR/VR -> 80 ~ 88 mbps

- 4K 每秒 25mbps

AR/VR -> 100 mbps

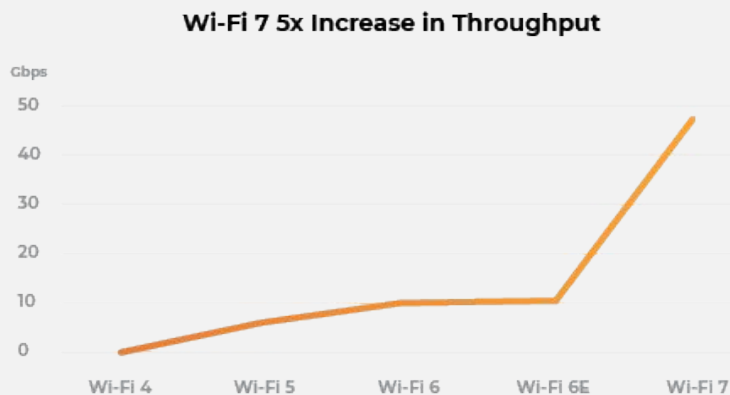
AR/VR -> 200 mbps



Wi-Fi 7：如何達成無線數位韌性

Extremely High Throughput

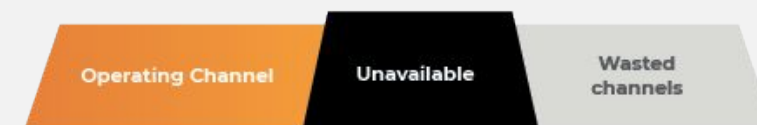
- 4K QAM
- 16 spatial streams
- 320 MHz wide channels



Punctured Transmission

- Increased channel availability
- Better throughput
- Lower latency

Without Preamble Puncturing

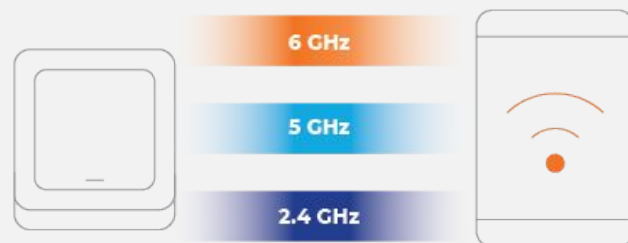


With Preamble Puncturing



Multi-Link Operation

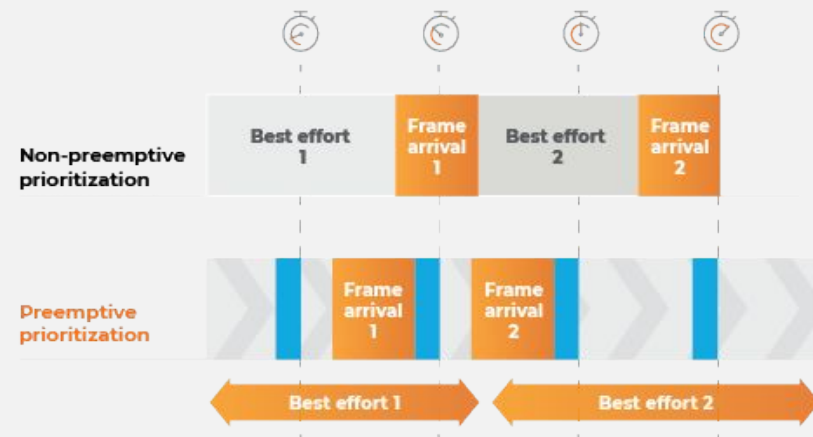
- Link redundancy (resilience)
- Link aggregation (throughput)
- Link selection (latency)



MLO (Multi-Link Operation)

Enhanced Quality of Service

- Deterministic Low Latency



Major Wi-Fi 7 Enhancements : MLO

Mu

Open 系統上有 1 個介面：

```
名稱          : Wi-Fi 2
描述          : MediaTek Wi-Fi 7 MT7925 160MHz PCIe Adapter
GUID          : b996ba27-3b71-4dab-8686-a1b8f2cbfa5f
實體位址      : 58:e4:03:c2:9a:33
介面類型      : 主介面
狀態          : 連線
SSID          : RKS-NexG
MLD AP BSSID  : cc:1b:5a:b1:b2:50
  LinkID: 1, 本機 : 58:e4:03:c2:9a:34, AP: cc:1b:5a:b1:b2:50, RSSI: -40, 通道 : 104, 頻帶 : 5 GHz, BW: 40
  LinkID: 2, 本機 : 58:e4:03:c2:9a:34, AP: cc:1b:5a:b1:b2:50, RSSI: -46, 通道 : 53, 頻帶 : 6 GHz, BW: 160
網路類型      : 基礎結構
無線電波類型  : 802.11be
驗證          : WPA3-個人 (H2E)
加密方式      : CCMP
連線模式      : 自動連線
接收速率 (Mbps) : 2882.4
傳輸速率 (Mbps) : 2882.4
訊號          : 94%
設定檔        : RKS-NexG
已設定 QoS MSCS : 0
已設定 QoS 對應 : 0
原則允許的 QoS 對應 : 0

主控網路狀態  : 無法使用
```

RUCKUS Wi-Fi 7 MLO: 儘管有干擾，吞吐量仍然穩定

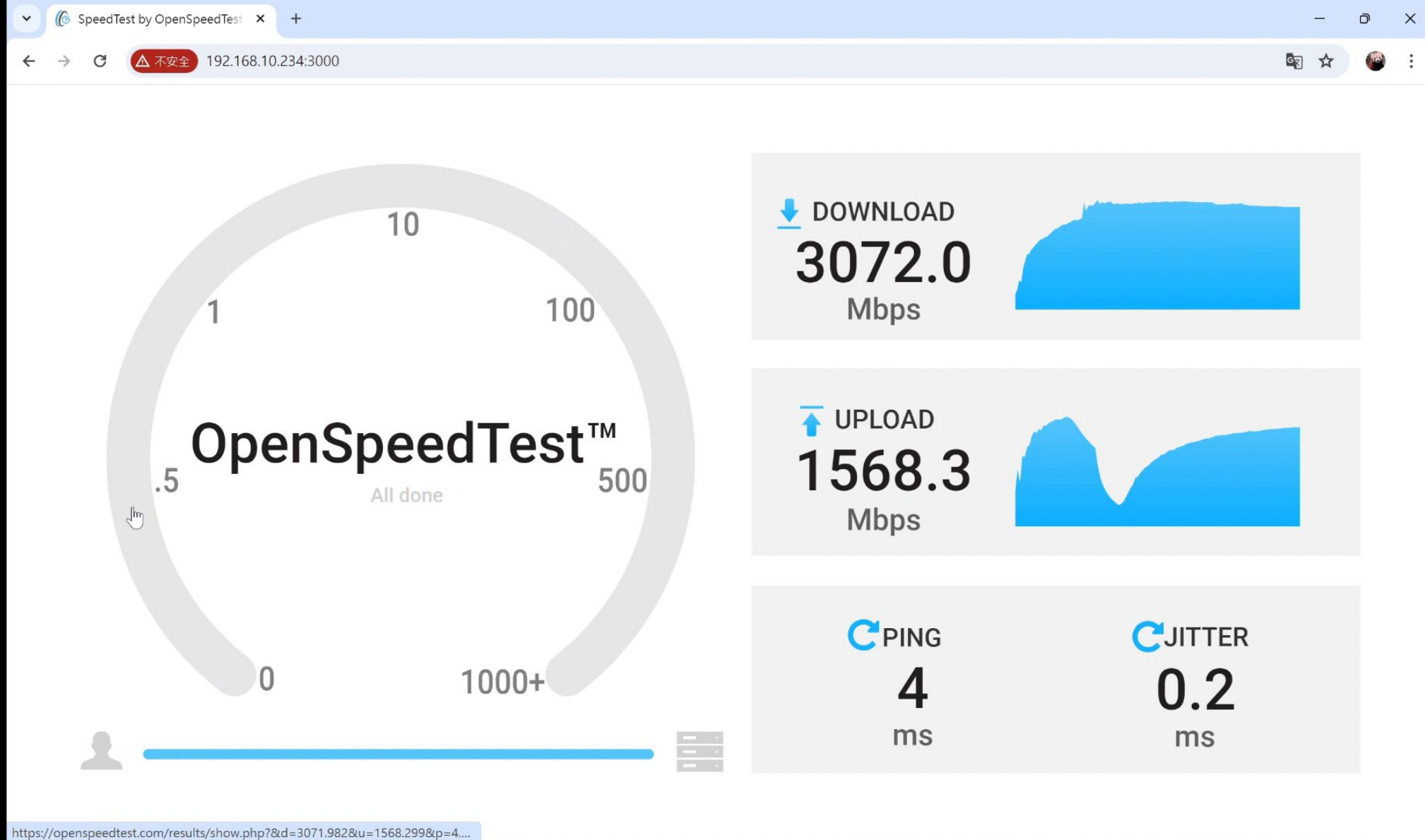


Without MLO



MLO

R770 OpenSpeedTest



RUCKUS 解决方案– All You Need For Hospitality Network



Specialized Services and Software

Security & Policy



Cloudpath Enrollment System

Analytics and Assurance



RUCKUS AI

Control & Management

Physical Appliance



SmartZone

Virtual Appliance



SmartZone

Cloud-managed



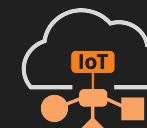
RUCKUS One

Controller-less



RUCKUS Unleashed

IoT



RUCKUS IoT

Network Infrastructure

Unified Access Points



Access Switching



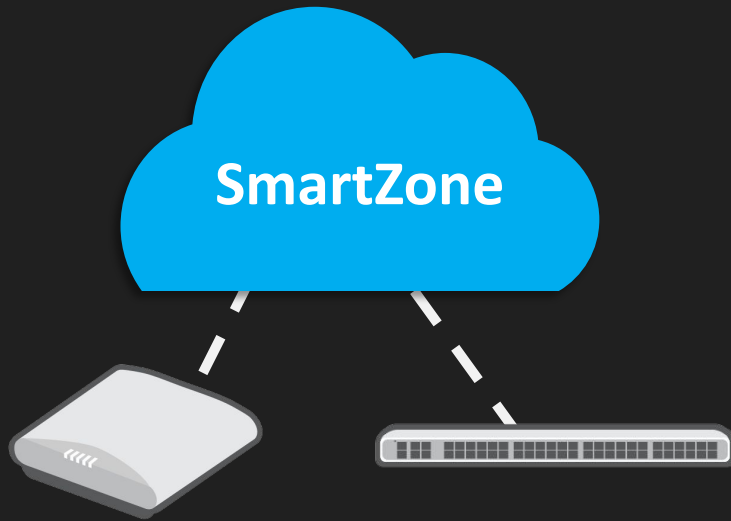
Core Switching



WAN / Services Gateway



單一介面集中有線/無線管理



Dashboard

System

Access Points

Switches

Wireless LANs

Clients

Applications

Services & Profiles

Report

Troubleshooting

Administration

Events & Alarms

Diagnostics

System Info

Hardware: ICX7150-18P

Switches (3185) 3073 Online 2472 Flagged 112 Offline

System: Anitha_ICX

+ [X] More

[Refresh] [Back] [Release] [More] [Delete] [More]

D System 647/116

- D** Arris-Ruckus 1 1
- I** SG org-ICX 1 1
- +** SG ICX Siml
- +** D ICX-Density
- +** D ICX-Scale 20
- I** SG Router 9
- +** SG Switch 5
- SG** Anitha_ICX 2 1
- +** SG Default Group
- SG** RUC-IX 53 37
- +** SG Kolly_ICX 8 7
- SG** L3-Team 10 3
- +** SG SUN-ICX 71 61
- I** SG Sang 230
- +** SG IN_ICX

Switch Name	Switch Group	MAC Address	Model	IP Address	Status	Up Time	Firmware
minion	Anitha_ICX	60:9C:9F:BC:B4:EC	ICX7150-18P	10.176.187.208	Online	3 days, 19:30:51	SPR08
spatha_stack	Anitha_ICX	CC:4E:24:5D:29:F8	ICX7430	10.176.187.205	Online	61 days, 19:20:21	SPR08
spatha_stack (Member)	N/A	N/A	ICX7450-18P	N/A	N/A	N/A	N/A
spatha_stack (Member)	N/A	N/A	ICX7450-48P	N/A	N/A	N/A	N/A
spatha_stack (Standby)	N/A	N/A	ILX7450-24G	N/A	N/A	N/A	N/A
spatha_stack (Active)	N/A	N/A	ILX7450-24G	N/A	N/A	N/A	N/A
cloud-switch	Anitha_ICX	CC:4F:24:0F:16:0F	ICX7250	10.176.187.210	Online	2 days, 21:12:19	SPR08
cloud-switch ()	N/A	N/A	ILX7250-24P	N/A	N/A	N/A	N/A
cloud-switch ()	N/A	N/A	ICX7250-24	N/A	N/A	N/A	N/A
ICX7250-48 Router	Anitha_ICX	78:A6:E1:01:FC:9C	ICX7250-48	10.176.187.235	Online	20:09:22	SPR08
ICX7250-48P Router	Anitha_ICX	CC:4E:24:34:2B:00	ICX7250-48P	10.176.187.201	Online	1 day, 22:04:07	SPR08
SSH-HIGH-CPU-TEST-RUNNING	Anitha_ICX	D4:01:9E:14:30:39	ICX6950-18P	10.176.187.215	Online	12 days, 12:05:29	TN40
minion3	Anitha_ICX	60:9C:9F:F4:F4:D4	ICX7150-24	10.176.155.13	Offline	4:11:28	SPR08
minion4	Anitha_ICX	60:9C:9F:F4:FE:B4	ICX7150-24	10.176.155.14	Online	2 days, 16:38:05	SPR08
minionprod	Anitha_ICX	78:A6:E1:06:01:55	ILX7150-48	10.176.187.234	Online	1 day, 11:20:12	SPR08
ICX7250-48P Router	Anitha_ICX	D4:01:9F:17:BA:57	ICX7250-48P	10.176.187.212	Online	45 days, 21:24:47	TN40

校園面臨的挑戰

缺乏整體網路的可視性



IT常被瑣碎的網路申告
弄得焦頭爛額



無法分類該優先處理的
事件導致用戶體驗下降



AI能夠做什麼？



RUCKUS AI 帶來的好處

幫助 IT 分類各種事件

消除IT知識孤島

長期可見性和監控

服務保證

快速定位並解決網路與終端問題

減少服務中斷事件數量

產業專屬報告

商業智慧

提升規劃與預測能力

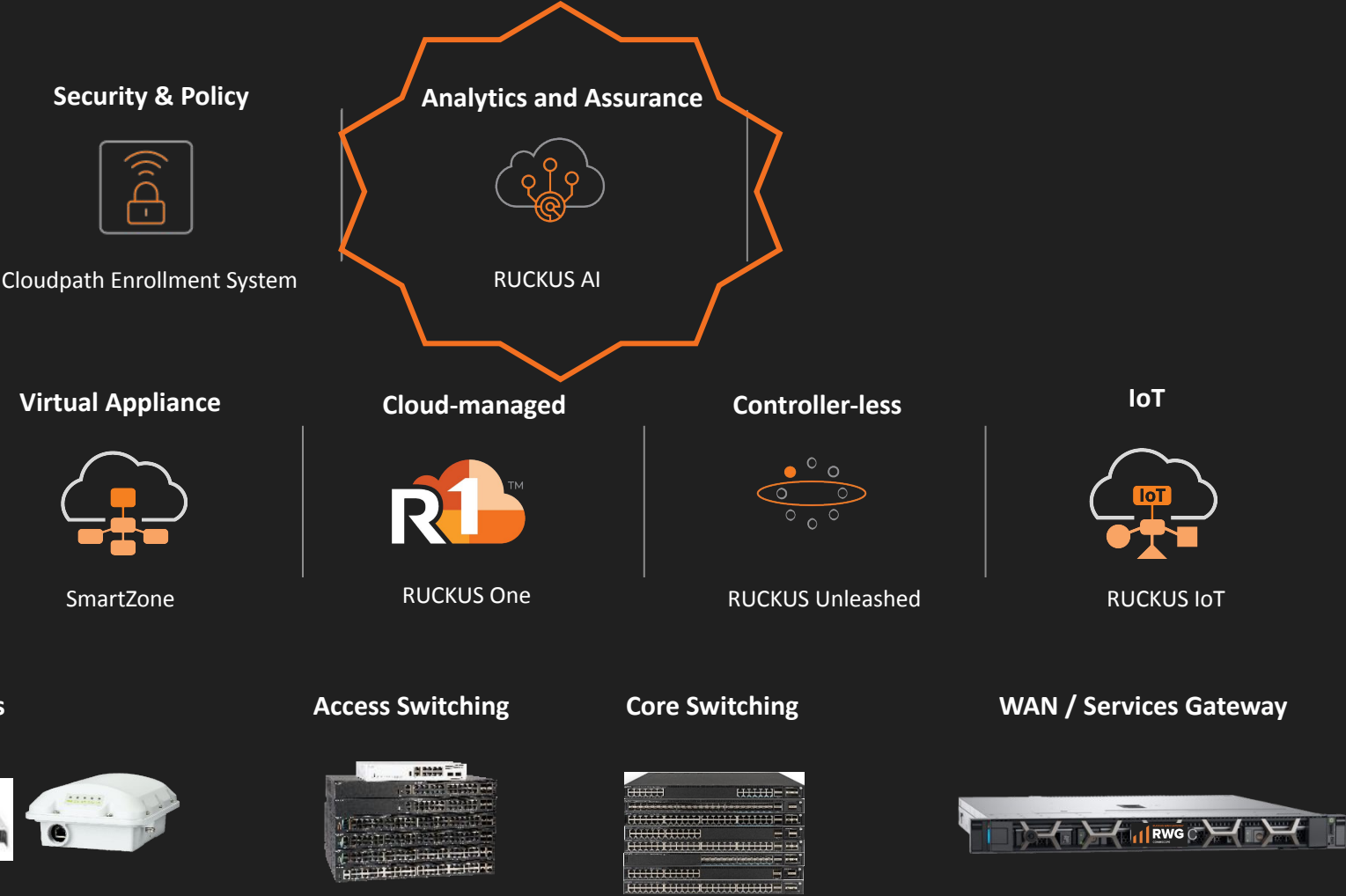
RUCKUS Solution – All You Need For Hospitality Network



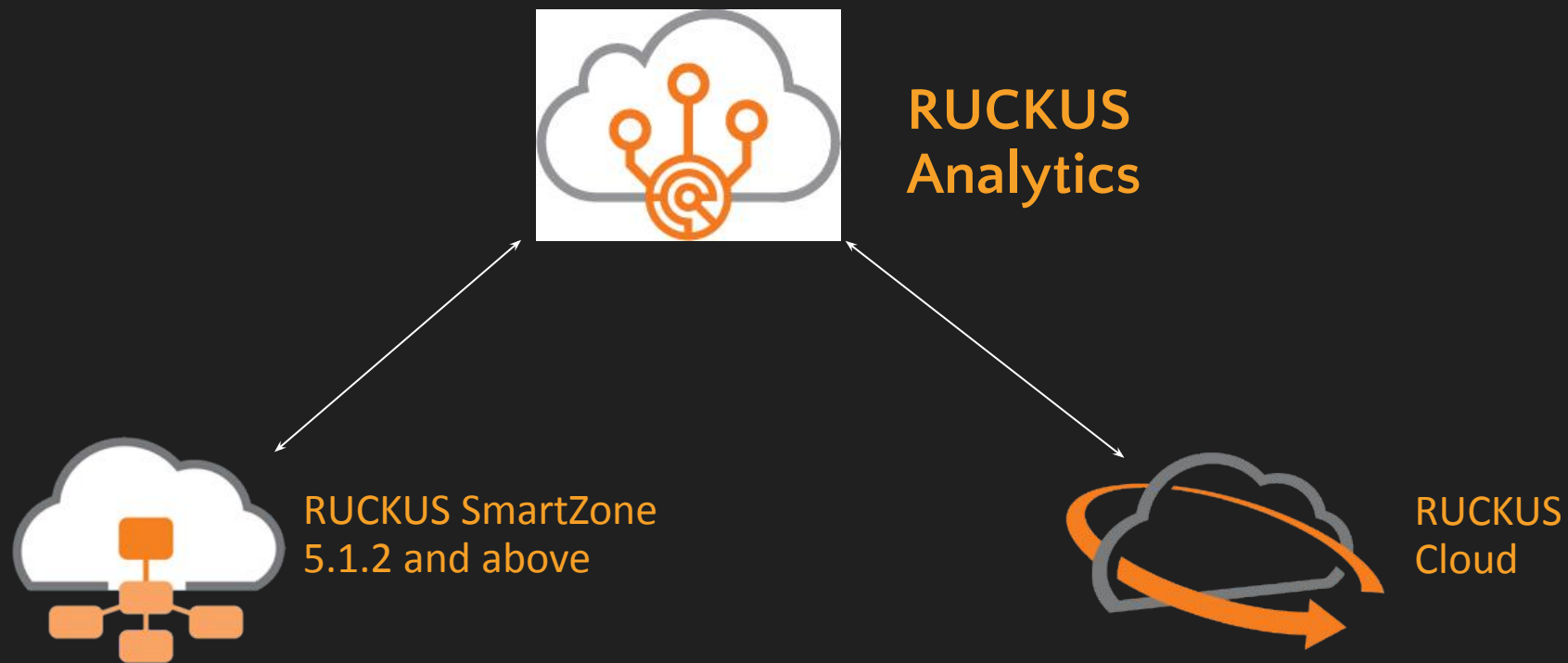
Specialized Services and Software

Control & Management

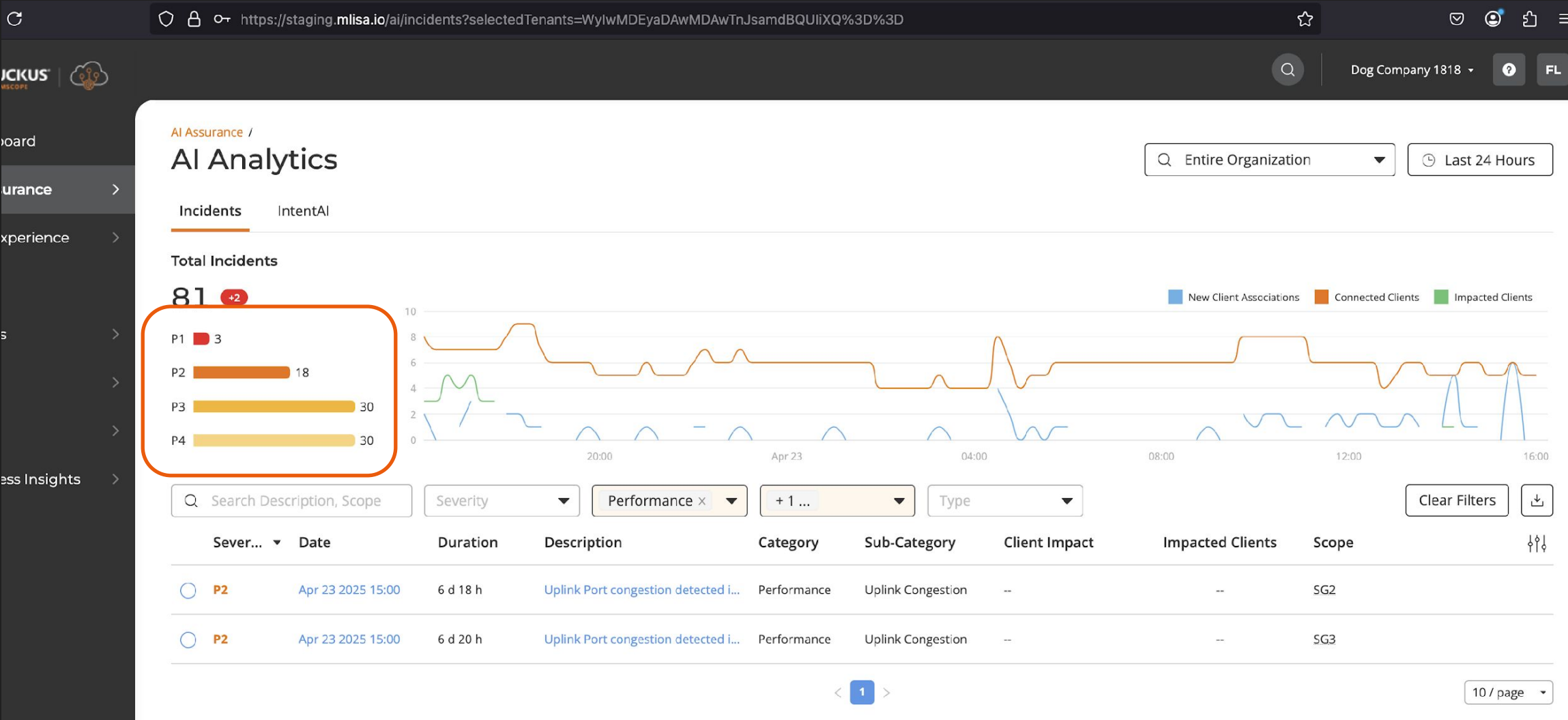
Network Infrastructure



Ruckus 落地或雲端控制器皆適用雲端服務



事件分類



AI Assurance /

AI Analytics

Incidents IntentAI

Search Entire Organization

Last 24 Hours

Total Incidents

81 +2

P1 3

P2 18

P3 30

P4 30

Search Description, Scope

Severity

Performance x

+ 1 ...

Type

Clear Filters

Download

Sever...	Date	Duration	Description	Category	Sub-Category	Client Impact	Impacted Clients	Scope
P2	Apr 23 2025 15:00	6 d 18 h	Uplink Port congestion detected i...	Performance	Uplink Congestion	--	--	SG2
P2	Apr 23 2025 15:00	6 d 20 h	Uplink Port congestion detected i...	Performance	Uplink Congestion	--	--	SG3

< 1 >

10 / page

AI Assurance /

AI Analytics

Incidents IntentAI

Search Entire Organization

Last 24 Hours

Total Incidents

81 +2

P1 3

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Search Description, Scope

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P2	Apr 23 2025 15:00	6 d 20 h	Uplink Port congestion detected i...	Performance	Uplink Congestion	--	--	SG3

< 1 >

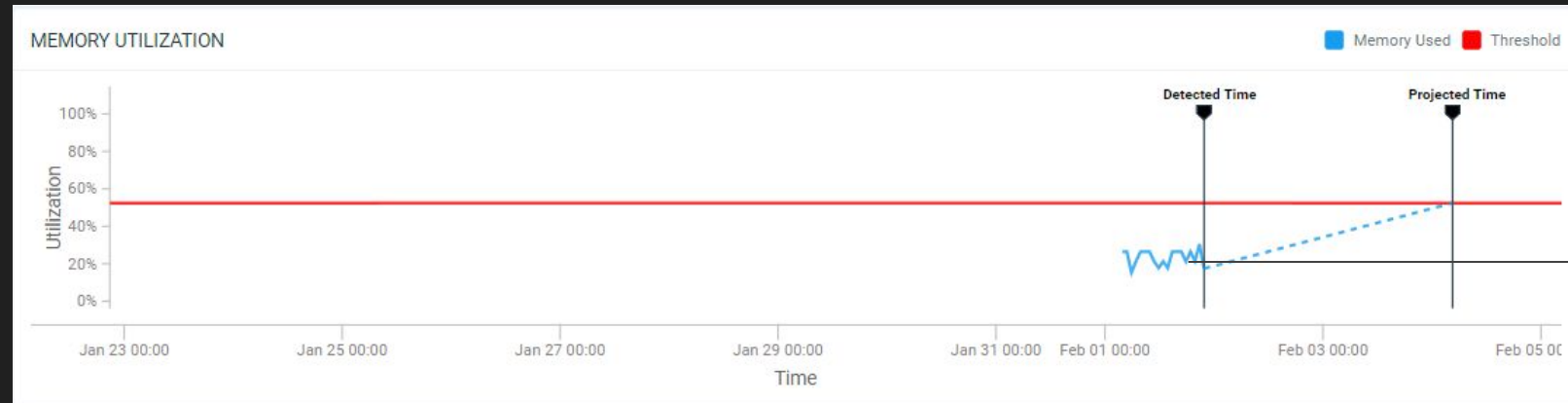
10 / page

P1 - 交換器記憶體高使用率洞察

Incidents > Incident Details

 Incident Details P1 | High memory utilization detected in Switch: D52_RACK_ICX755048ZP_Standalone (28:B3:71:29:8C:B6)

P1 事件，識別出高記憶體使用率，IT 可以採取行動



偵測到異常的記憶體使用率。預計達到 50% 閾值記憶體的時間

INCIDENT INFO

Incident Category	Performance
Incident Sub-Category	Memory
Type	Switch
Scope	D52_RACK_ICX755048ZP_Standalone (28:B3:71:29:8C:B6)
Duration	1h
Event Start Time	Feb 01 2021 21:00
Event End Time	Feb 01 2021 22:00

範圍、持續時間、事件、開始和結束時間。

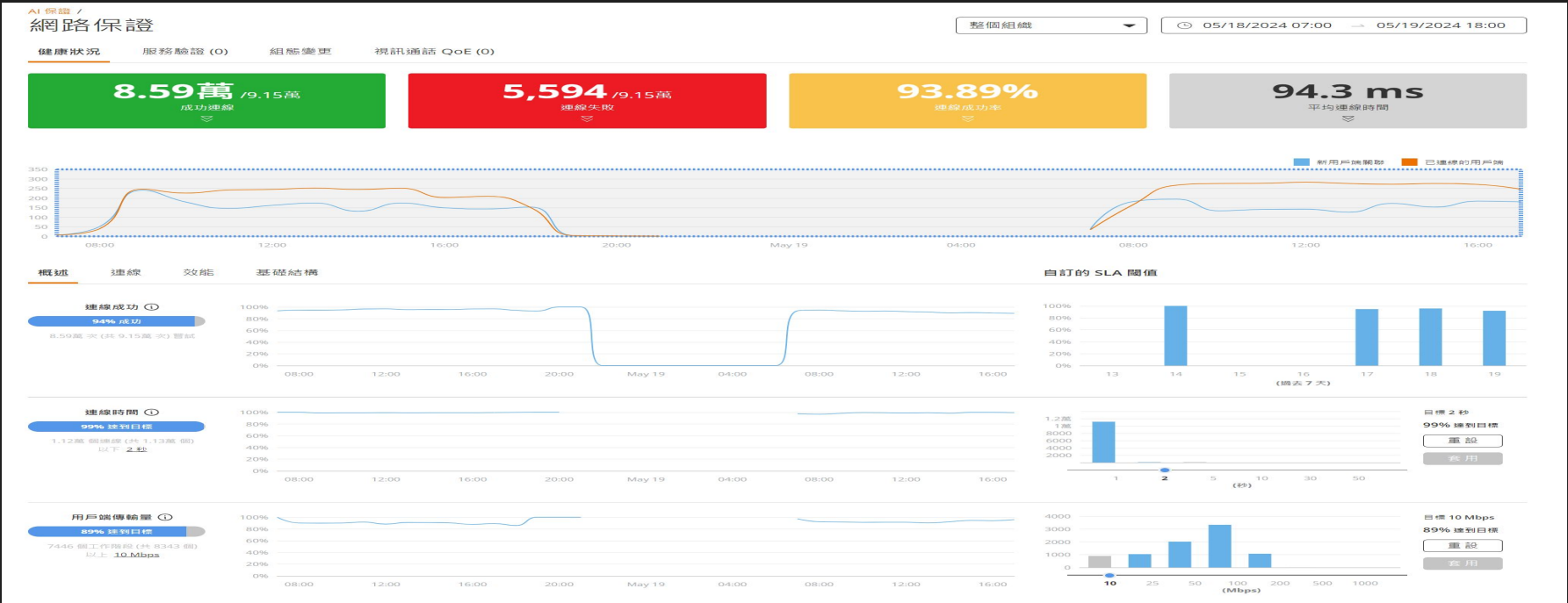
Start Time: 偵測到的事件

End Time: 記憶體將超過 90% 閾值

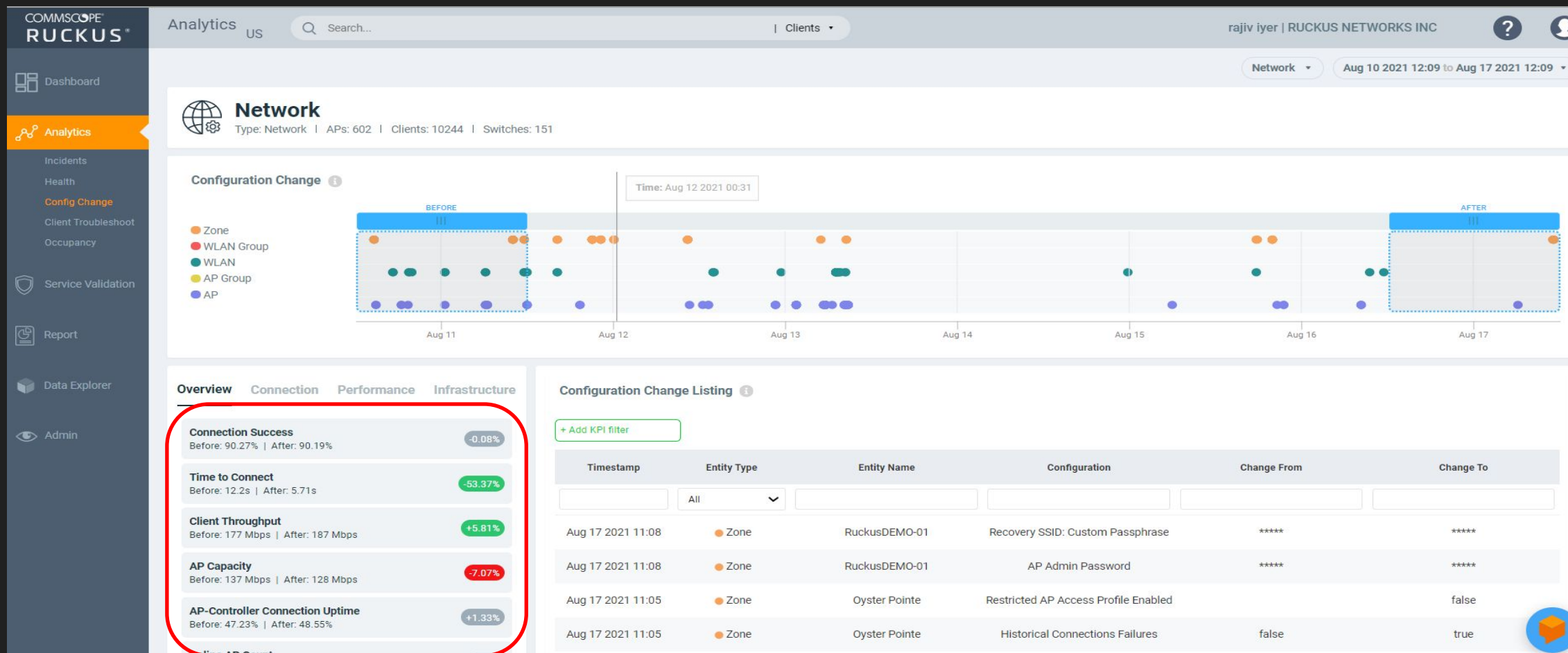
持續監控確保網路正常運行



AI-Driven Wi-Fi 網路會持續監控網路健康狀況，可以更快地識別和解決問題。確保服務等級協定 (SLA) 的遵守，並提供有關網路使用方式的寶貴建議，以進行網路優化。隨著 Wi-Fi 7 功能的增強，AI-Driven 的網路健康監控變得更加重要，以確保無虞的網路基礎設施和最好的用戶體驗。



監控網路設定異動風險



涵蓋連線、效能與基礎架構類別的 KPIs

用戶端故障排除 – 圖形化連線偵錯



00:CD:FE:A4:8E:6F (iPhone, Unknown)

Type: Client | IP Address: 10.32.190.185 (3) | OS Type: iOS (2) | Username: rkaliaperumal (2) | SSID: area52

HEALTH SUMMARY

7h 49m

Total Connected Time

82.68%

Good Connection

16.85%

Average Connection

0.16%

Poor Connection

Connection Events

55

Success

17

Failure

13

Success events, failure events,
slow connection events,
disconnect events

Click on any failure events
to view the VCD

Connection Event Details

DETAILS

Roaming
ghp
Cor
Net

AP MAC	F8:E7:1E:22:AD:B0
AP Name	Cube 287 East#13
SSID	area52
Radio	5 GHz
Failure Type	EAP Failure
Reason	STA Disassoc

802.11 Authentication Request	
802.11 Authentication Response	
802.11 Reassociation Response	
802.11 Reassociation Request	
EAP Request	
802.11 Disassociation (Disassociation_STA)	



History

- Jan 24 2020 02:15:38 Client disconnected @ Cube 262 East#14 ...
- Jan 24 2020 02:15:45 Client associated (802.11) @ Cube 262 Ea...
- Jan 24 2020 02:15:58 Client disconnected @ Cube 262 East#14 ...
- Jan 24 2020 02:20:33 Client associated (802.11) @ Cube 262 Ea...
- Jan 24 2020 02:20:42 Client disconnected @ Cube 262 East#14 ...
- Jan 24 2020 02:28:17 Client associated (802.11) @ Cube 262 Ea...
- Jan 24 2020 02:28:27 Client disconnected @ Cube 262 East#14 ...
- Jan 24 2020 02:28:59 Client associated (802.11) @ Cube 262 Ea...
- Jan 24 2020 02:29:11 Client disconnected @ Cube 262 East#14 ...
- Jan 24 2020 02:29:25 Client associated (802.11) @ Cube 262 Ea...
- Jan 24 2020 02:29:35 Client disconnected @ Cube 262 East#14 ...
- Jan 24 2020 02:32:31 Client associated (802.11) @ Cube 262 Ea...
- Jan 24 2020 03:46:52 **EAP Failure: STA Disassoc @ Cube 287 E...**
- Jan 24 2020 03:47:04 Client roamed @ Cube 287 East#13 (F8:E...
- Jan 24 2020 04:24:17 DHCP Failure: Timeout Expired @ Cube 16...
- Jan 24 2020 04:27:09 Client associated (802.11) @ Cube 287 Ea...
- Jan 24 2020 07:04:00 DHCP Failure: Timeout Expired @ Cube 16...
- Jan 24 2020 07:05:05 Client associated (802.11) @ Cube 166 Ea...
- Jan 24 2020 07:05:21 EAP Failure: STA Disassoc @ Cube 262 Ea...
- Jan 24 2020 07:05:22 Client roamed @ Cube 262 East#14 (74:3...
- Jan 24 2020 07:05:22 Client disconnected @ Cube 262 East#14 ...
- Jan 24 2020 07:06:06 Client associated (802.11) @ Cube 166 Ea...
- Jan 24 2020 07:06:36 Client disconnected @ Cube 166 East #9 (...)
- Jan 24 2020 07:06:39 Client associated (802.11) @ Cube 166 Ea...

射頻通道管理非常複雜

Comparative Channel schema

6 GHz Band – Total Spectrum 1200 MHz



5 GHz Band – Total Spectrum 500 MHz (180 MHz without DFS)



2.4 GHz Band – Total Spectrum 80 MHz



From: [litepoint.com](https://www.litepoint.com). Comparison of WiFi spectrum between 6GHz, 5GHz and 2.4GHz

AI-Driven Cloud RRM delivers:



增加AP 容
量

更好的用戶
端傳輸體驗

較低的Airtime
利用率

更高的可
靠性

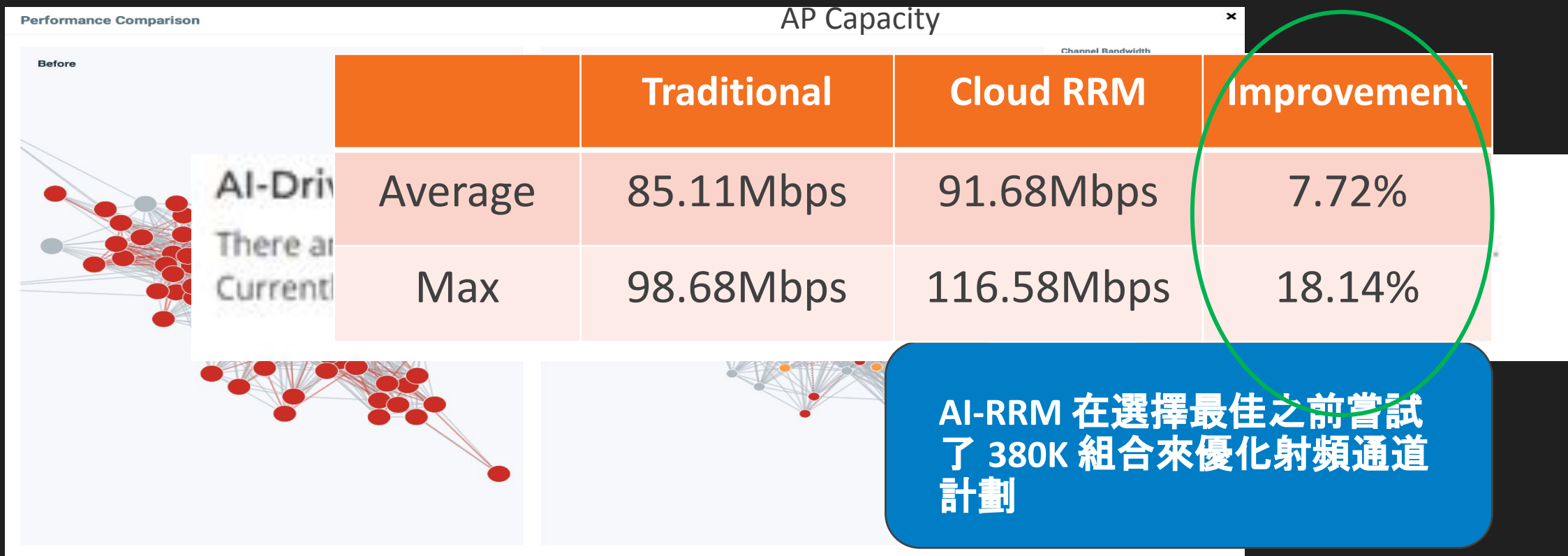
讓AP在最大能
力運作

Proactive, 網路效能最佳化

Biggest 自 BeamFlex 以來無線
電管理的進步！

更智慧的網路管理

- AI 驅動的無線資源管理 (RRM) 會即時分析所有 Wi-Fi 頻段 (2.4 GHz、5 GHz 和 6 GHz) 的數據，並自動調整以獲得最佳效能。這種基於雲端的系統簡化了維護工作並最大程度地減少了人為錯誤，從而實現更快、更可靠且覆蓋範圍更廣的 Wi-Fi 7 網路。



EcoFlexAI : 節能

- ESG – Green networking
- EcoFlexAI 節能和永續發展的一步 (Sustainability)
- **Energy Efficiency:**
 - 根據網路流量動態調整用電量，顯著降低低活動時段的能耗
- **Cost Savings:** 透過減少網路設備的能耗來降低營運費用

Benefits

Projected power consumption

9014 kWh/month

-20% vs normal mode

Projected monetary benefits

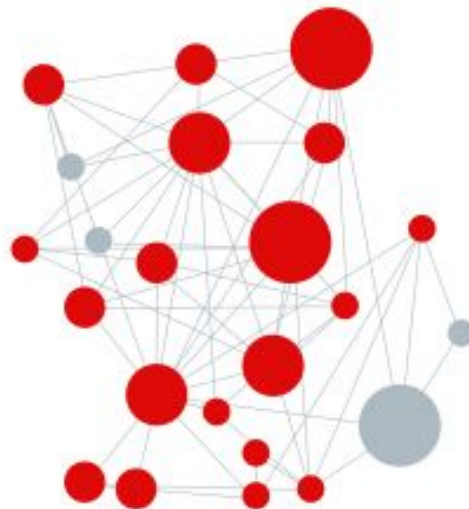
\$250/month

-20% vs normal mode

Key Performance Indications

Before

As of May 20 2024 14:45



Recommended

As of after Activation

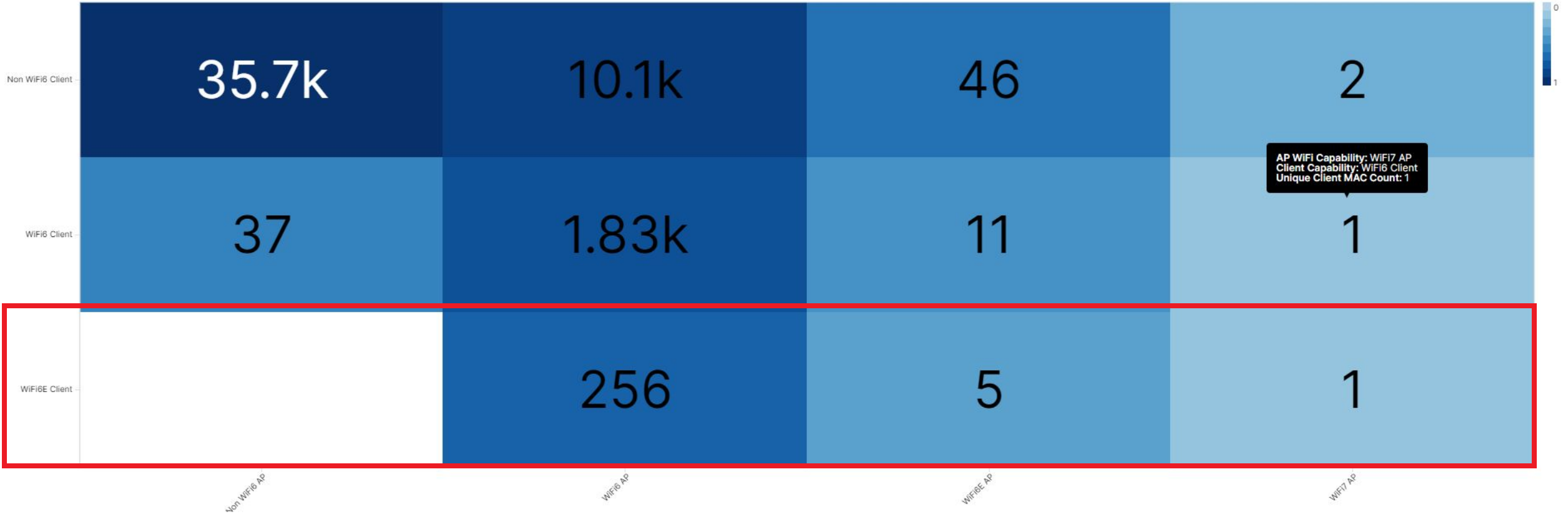


客製化報表協助做出正確的決策



Client distribution vs AP Wi-Fi capability ☆

11 rows 00:00:01.09 .JSON .CSV



RUCKUS 有線無線商機無限

Hardware



Wi-Fi 7& ICX

BeamFlex+ | ChannelFly

WiFi 7

Auth

Forwarding

AI-Driven Software

RUCKUS Intelligent Net



(training in the cloud)

AI-driven RRM

Intent AI

ESG AI

Assurance AI

AI Driven 數位韌性

Thank you



掃描QR Code
填問券
拿贈品

