

萬物AI時代，您準備好了嗎??

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# RUCKUS R770

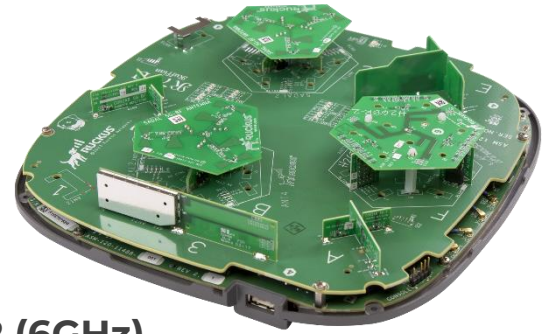
高密度乘載能力三頻 Wi-Fi 7 室內型無線  
基地台搭載10Gbps上行網路介面



2023年10月10日 全球發佈

## 核心技術

- **三頻運作 (2+5+6): 2x2 (2.4GHz) + 4x4 (5GHz) + 2x2 (6GHz)**
  - 三頻皆支援 Wi-Fi 7
  - 理論最大資料傳輸能力: **12.218 Gbps**
- **雙頻運作 (2+5): 2x2 (2.4GHz) + 4x4 (5GHz)**
  - 雙頻皆支援 Wi-Fi 7
  - 理論最大資料傳輸能力: **6.454 Gbps**
- **6GHz 頻段:** LPI, SP and AFC; GPS 室內定位, 802.11mc
- **RUCKUS 優勢:** Tx BeamFlex 在所有的頻段都支援; PD-MRC; Smart Mesh
- **乙太網路埠:** 1x 100M/1G/2.5G/5G/10Gbps PoE-In 埠 及 1x 10M/100M/1Gbps 埠
- **供電支援:** PoE-in (802.3bt) 或 48V 外接 DC 電源供應器
- **IoT:** 內建 IoT Radio: BLE / Zigbee / Matter / Thread; 具備 USB 2.0 提供外接IoT擴充支援
- **資安保護:** TPM 2.0; Secure Boot; DPSK3; FIPS 140-3
- **運作環境:** 運作溫度 -10 – 50 C
- **控制管理:** RUCKUS SmartZone 7.0; RUCKUS One; RUCKUS Unleashed



# RUCKUS AP Family



	Good	Better	Best				
Indoor	 <p><b>R350</b> Wi-Fi 6 2x2:2</p> <p>IoT Ready</p> <p>1.8 Gbps</p>	 <p><b>R550</b> Wi-Fi 6 2x2:2</p> <p>IoT Onboard</p> <p>1.8 Gbps</p>	 <p><b>R650</b> Wi-Fi 6 4x4:4/2x2:2</p> <p>IoT Onboard</p> <p>2.5 Gbps</p>	 <p><b>R750</b> Wi-Fi 6 4x4:4   2.5GbE</p> <p>IoT Onboard</p> <p>3.5 Gbps</p>	 <p><b>R850</b> Wi-Fi 6 8x8:8   5GbE</p> <p>IoT Onboard</p> <p>5.9 Gbps</p>	 <p>Tri-Band 6GHz</p> <p><b>R760</b> Wi-Fi 6E 4x4:4   10GbE</p> <p>IoT Onboard</p> <p>8.35 Gbps</p>	 <p>Tri-Band 6GHz</p> <p><b>R770</b> Wi-Fi 7   10GbE 2X2/4x4/2x2</p> <p>IoT Onboard</p> <p>12.22 Gbps</p> <p><b>NEW</b></p>
Outdoor	 <p><b>T350/350se</b> Wi-Fi 6 2x2:2</p> <p>IoT Onboard</p>			 <p><b>T750/T750se</b> Wi-Fi 6 4x4:4   2.5GbE</p> <p>IoT Onboard</p>			
Specialty	 <p><b>H350</b> Wi-Fi 6 2x2:2, 2 Port Switch</p> <p>IoT Onboard</p>	 <p><b>H550</b> Wi-Fi 6 2x2:2, 4 Port Switch</p> <p>IoT Onboard Dual Concurrent</p>					

# ABI RESEARCH 評選為 Leader / Innovator / Implementer



ABI RESEARCH COMPETITIVE RANKING  
**WLAN FOR CAMPUS AREA NETWORKS**



**LEADER**  
ABiresearch

**TOP INNOVATOR**  
ABiresearch

**TOP IMPLEMENTER**  
ABiresearch

**OVERALL: 78.6 | INNOVATION: 75.4 | IMPLEMENTATION: 81.7 | RANK: 4**

ABiresearch. 35

# Wi-Fi Alliance 計畫 – Only RUCKUS



Wi-Fi Alliance® introduces Wi-Fi CERTIFIED 7™

Companies including **Broadcom**, **CommScope RUCKUS Networks**, **Intel**, **MaxLinear**, **MediaTek**, and **Qualcomm** form the test bed for certification and are among the first Wi-Fi CERTIFIED 7 devices.

throughput, deterministic latency, and greater reliability for critical traffic. New use cases – including multi-user AR/VR/XR, immersive 3-D training, electronic gaming, hybrid work, industrial

## CERTIFIED

IoT, and automotive – will advance as a result of the latest Wi-Fi generation. Wi-Fi CERTIFIED 7 represents the culmination of extensive collaboration and innovation within Wi-Fi Alliance®, facilitating worldwide product interoperability and a robust, sophisticated device ecosystem.

<https://www.wi-fi.org/news-events/newsroom/wi-fi-alliance-introduces-wi-fi-certified-7>



# 萬物AI時代即將來臨



# 萬物聯網可以做什麼??

## One RUCKUS Network

### BUILDING MANAGEMENT

Energy Management

Fire, Flood, Gas Monitoring

Building Occupancy  
Monitoring

### SAFETY AND SECURITY

Video Surveillance

Access Control, Exit points

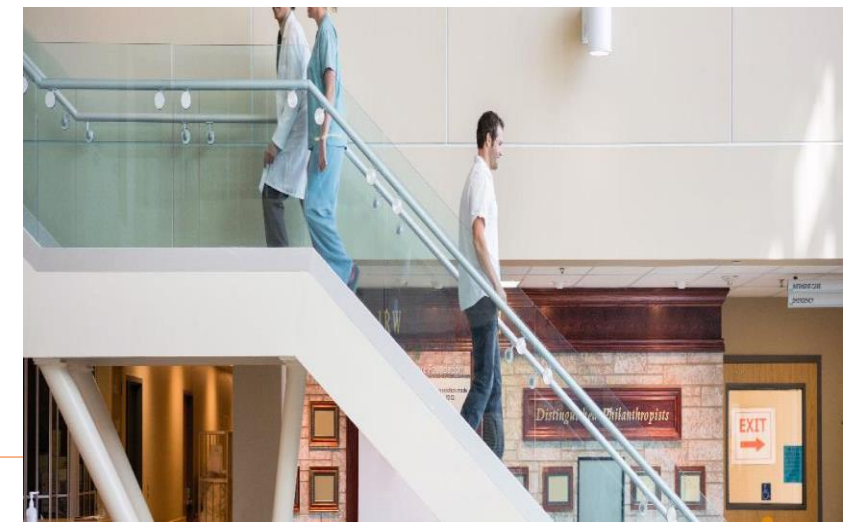
Panic / Safety Alert

### LOCATION BASED SERVICES

Health Check

Footfall Analytics

People, Asset Tracking,  
Wayfinding





# 萬物聯網需多台設備 多方Solution 整合





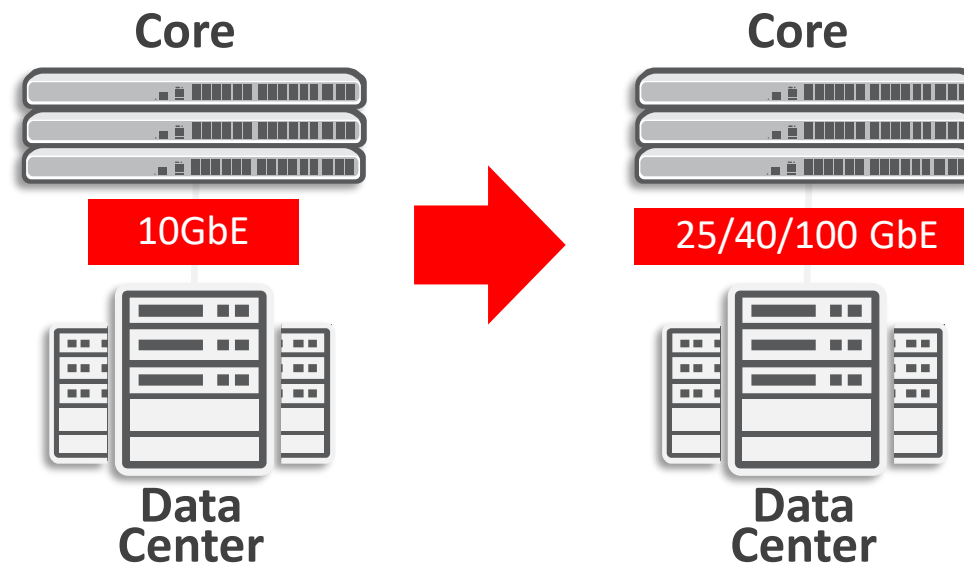
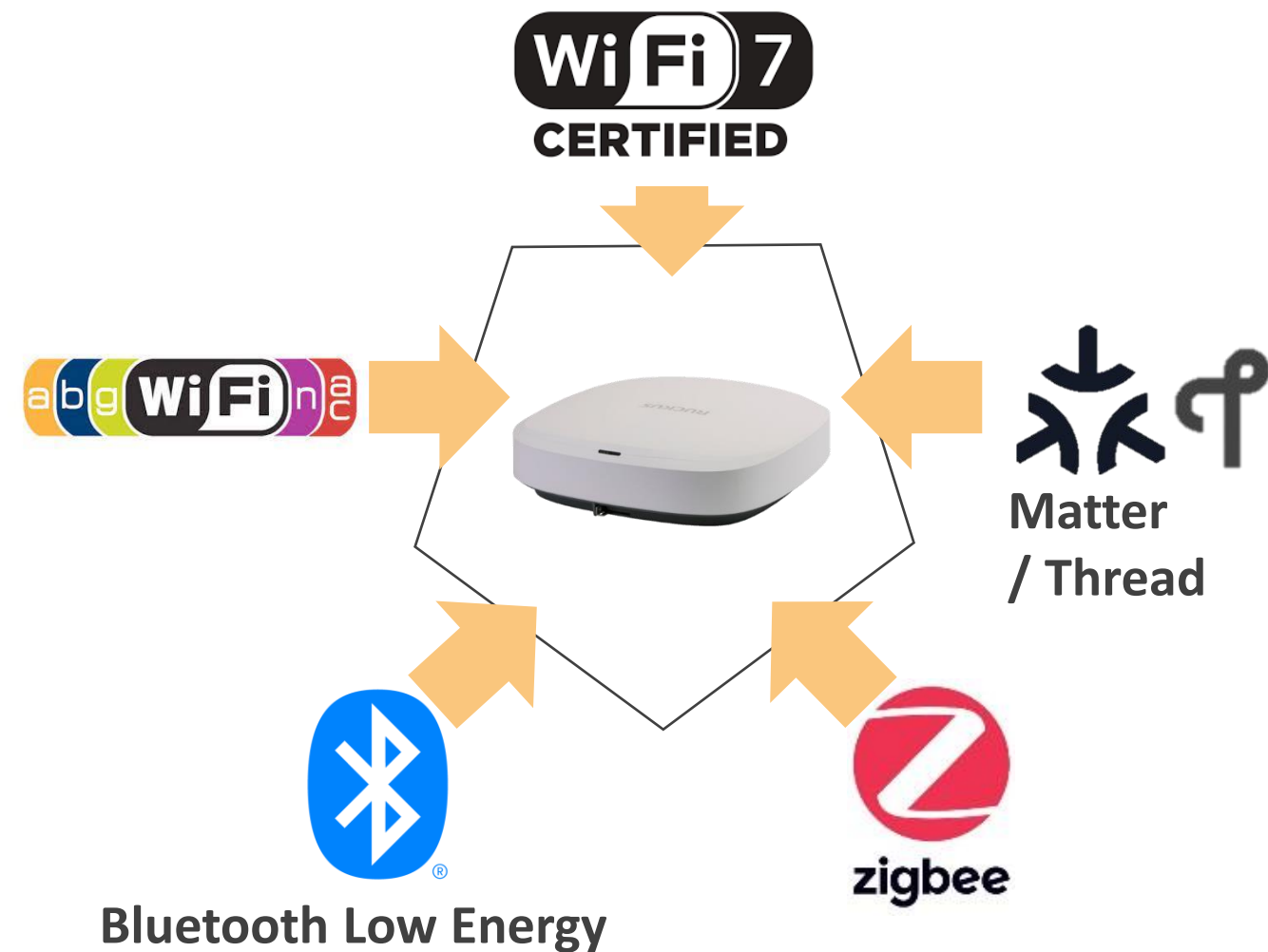
# RUCKUS AP一台搞定



# 萬物AI時代來臨 會改變什麼

## 終端的連接

## Server 端的運算



# 全新世代規格交換器

## Advanced Functionality

- Uplink Port 25GE SFP28
- VXLAN

## Next Generation SPEC

- More MGig Port
- POE : 802.3bt , 90W
- **MADE IN TAIWAN**

## High Value Features Included

- Stacking 12 x
- 3 Years TAC Support





# ICX8200 SKUs – Phase 1






No.	Model	Phase	User Port	Stacking	POE	Existing Model
1	ICX8200-24	1	RJ45 24-port 10/100/1000Mbps	SFP28 4-port 1/10/25G	None	ICX7150-24
2	ICX8200-48	1	RJ45 48-port 10/100/1000Mbps	SFP28 4-port 1/10/25G	None	ICX7150-48
3	ICX8200-24P	1	RJ45 24-port 10/100/1000Mbps	SFP28 4-port 1/10/25G	IEEE 802.3af/at <b>370W</b>	ICX7150-24P
4	ICX8200-48P	1	RJ45 48-port 10/100/1000Mbps	SFP28 4-port 1/10/25G	IEEE 802.3af/at <b>370W</b>	ICX7150-48P
5	ICX8200-48PF	1	RJ45 48-port 10/100/1000Mbps	SFP28 4-port 1/10/25G	IEEE 802.3af/at <b>740W</b>	ICX7150-48PF
6	ICX8200-48PF2	1	RJ45 48-port 10/100/1000Mbps	SFP28 4-port 1/10/25G	IEEE 802.3af/at <b>1440W</b>	None
7	ICX8200-C08PF	1	RJ45 8-port 10/100/1000Mbps	SFP+ 2-port 1/10G	IEEE 802.3af/at <b>124W</b>	ICX7150-C12P



# ICX 8200 Phase 2: MultiGigabit Access

Part Number, Description	Port Config	
<b>ICX8200-24ZP</b> 24 Port Multigigabit Ethernet PoE	24 10/100/1000/2.5 802.3bt Class 8 PoE, 740W budget 4 1/10/25GbE SFP28	
<b>ICX8200-48ZP2-E</b> 48 Port Multigigabit PoE Dual FRU PSU & Fan (with 1 PSU & Fan)	32 10/100/1000 802.3at Class 4, 16 10/100/1000/2.5 802.3bt Class 8 PoE, 740W budget 4 1/10/25G SFP28	
<b>ICX8200-48ZP2-E2</b> 48 Port Multigigabit PoE Dual FRU PSU & Fan (with 2 PSU & Fan)	32 10/100/1000 802.3at Class 4, 16 10/100/1000/2.5 802.3bt Class 8 PoE, 1480W budget 4 1/10/25G SFP28	
<b>ICX8200-C08ZP</b> 8 Port Compact Multigigabit PoE	4 10/100/1000/2.5 802.3bt Class 8, 4 1/2.5/5/10 802.3bt Class 8 PoE, 240W budget 2 1/10/25GbE SFP28	

# ICX 8200 Phase 2: Fiber Access

Part Number, Description	Port Config	
<b>ICX8200-24F</b> 24 Port 1GE Fiber	24x 1G SFP 4x 1/10/25GbE SFP28	
<b>ICX8200-48F</b> 48 Port 1GE Fiber	48x 1G SFP 4x 1/10/25GbE SFP28	
<b>ICX8200-24FX</b> 24 Port 10GE Fiber	16x 1/10G SFP+ 8x 1/10/25GbE SFP28	

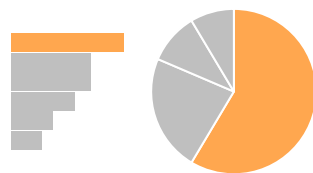
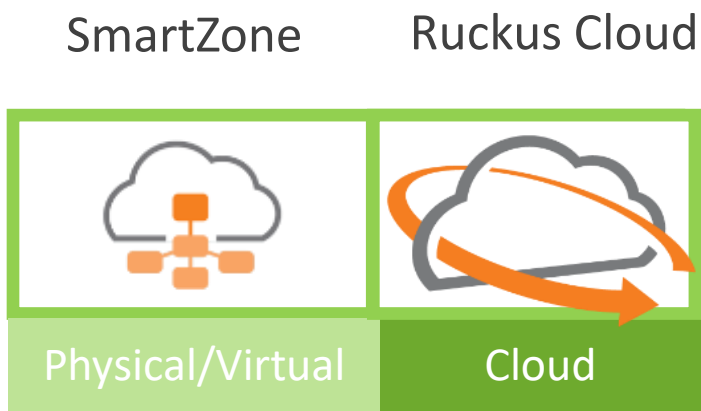
# RUCKUS All in One Managed

SmartZone Network Controller



*One network element: A SmartZone network controller*

# 彈性佈建控制器 - 管理有線無線



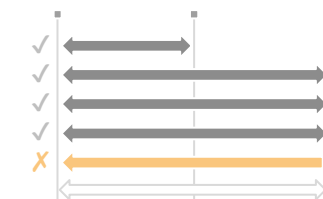
## 創新儀表板

快速存取網路狀態，聚焦重點跟解析問題



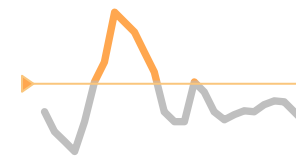
## 地圖整合

可以快速看到大樓及樓層的基地台狀態及所在位置



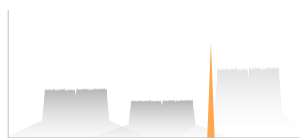
## 連線故障分析

找出連線流程中遇到的問題及中斷癥結



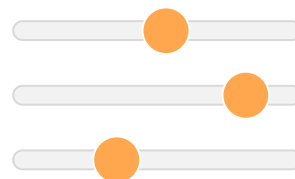
## 基地台健康

標誌基地台，可以簡單地找到效能相對不佳的基地台



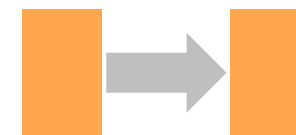
## 頻譜分析

使用基地台作為訊號干擾問題分析及問題排除



## 應用程式控管

針對應用程式下達禁止、限制或重新配置應用程式優先級別來控制使用量



## 有線無線功能設定

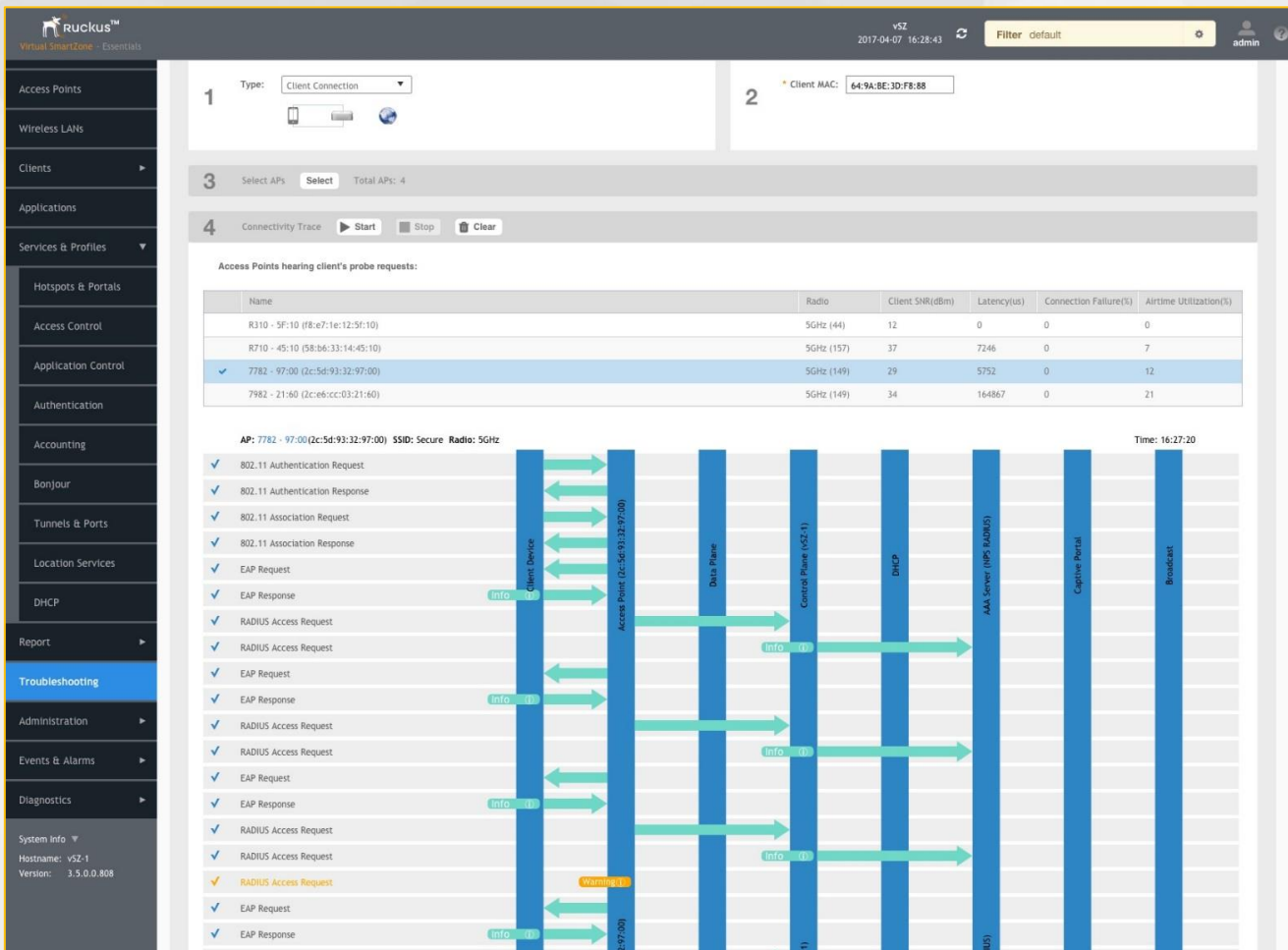
透過SZ無論有線無線設備皆可統一控管及配置



## 連線裝置追蹤

無論有線無線使用者，只要連線SZ皆可將連線軌跡呈現





Visual Connection Diagnostics for remote troubleshooting

## 1. IT ships pre-provisioned AP to employee

- SmartZone controller address
- Dual SSID
- Split tunnel configuration
- QoS settings for voice

## 2. Employee connects AP to home router and powers up

- AP connects to pre-provisioned SmartZone controller

## 3. IT approves AP and moves to appropriate Zone

- This can be automated using SmartZone REST API or by using Ruckus Network Director

## 4. Employee connects devices to the AP using appropriate SSID

- Corporate SSID for encrypted tunneled traffic. No VPN required on client.
- Home SSID for other devices

任何節點 立即找到問題點->減輕管理者負擔

# RUCKUS AI for Network Efficiency

Surface issues before  
they blow up



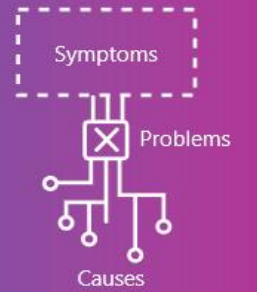
ML-driven incident and  
anomaly detection

Address the most  
urgent issues first



AI-driven prioritization

Fix them fast



ML-driven root cause  
and recommendations

Compare network KPIs  
before and after a  
change to analyze the  
impact



Config change analysis

Let the system make  
recommendations on  
changes to improve  
network performance



AI-recommendations

Let Cloud RRM  
drive down  
interference and  
maximize capacity  
every day.

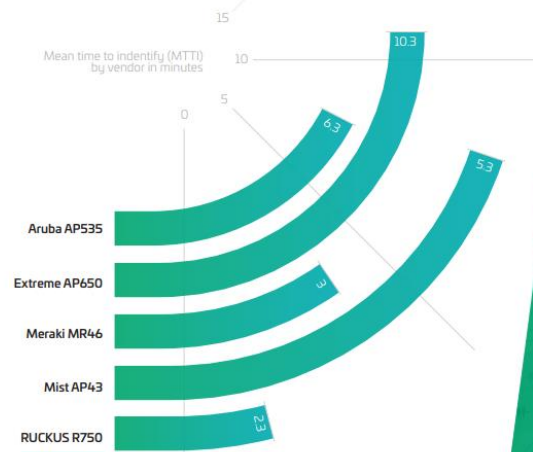


AI-Driven Cloud RRM

## Lowest MTTI

(Mean Time to Identification)

### Troubleshooting with network analytics tools



### Mean time to identify

Mean time to identify (MTTI) is the time a network administrator needs to determine the root cause of a network issue or incident. A shorter average MTTI reduces the troubleshooting burden on IT while improving user experience by allowing IT to more effectively limit incident duration and impact.

- **67%** Reduction in mean time to resolution
- **40%** Reduction in time prioritizing & triaging
- **20%** Fewer helpdesk tickets
- **60%** Savings of SME IT time
- **50%** Reduction in new IT hire training
- **80%** Reduction in customer churn



# AI-driven Incident Detection, Prioritization, and Resolution



Incident Details P1 | High AP-Controller connection failures in AP Group: Jeanne-Lajoie Secondaire

1



2

**INSIGHTS**

**ROOT CAUSE ANALYSIS**

System has detected high number of AP-controller connection failures. This can occur due to following reasons:

1. Intermittent or permanent loss of connectivity between AP and controller. Losing consecutive heartbeat/keepalive messages from the AP will result in AP-controller connection failures.
2. Improperly configured Firewall or NAT device or a network switch can cause the AP-controller communication failure.
3. Lack of reachability from AP to controller over a WAN connection or cloud would cause APs to disconnect from controller.
4. In rare cases, AP certificate is invalid which forces controller to deny the incoming connection from the AP.

**RECOMMENDED ACTION**

To remediate the problems identified above, follow the corresponding recommended actions:

1. Test network connection between AP and controller.
2. Ensure that there is clear communication on all required ports.
3. Test WAN connection health to ensure there is a route from AP to the controller and there is no or acceptable packet loss.
4. Ensure that AP certificate is valid. Work with Ruckus customer support to identify and resolve this condition.

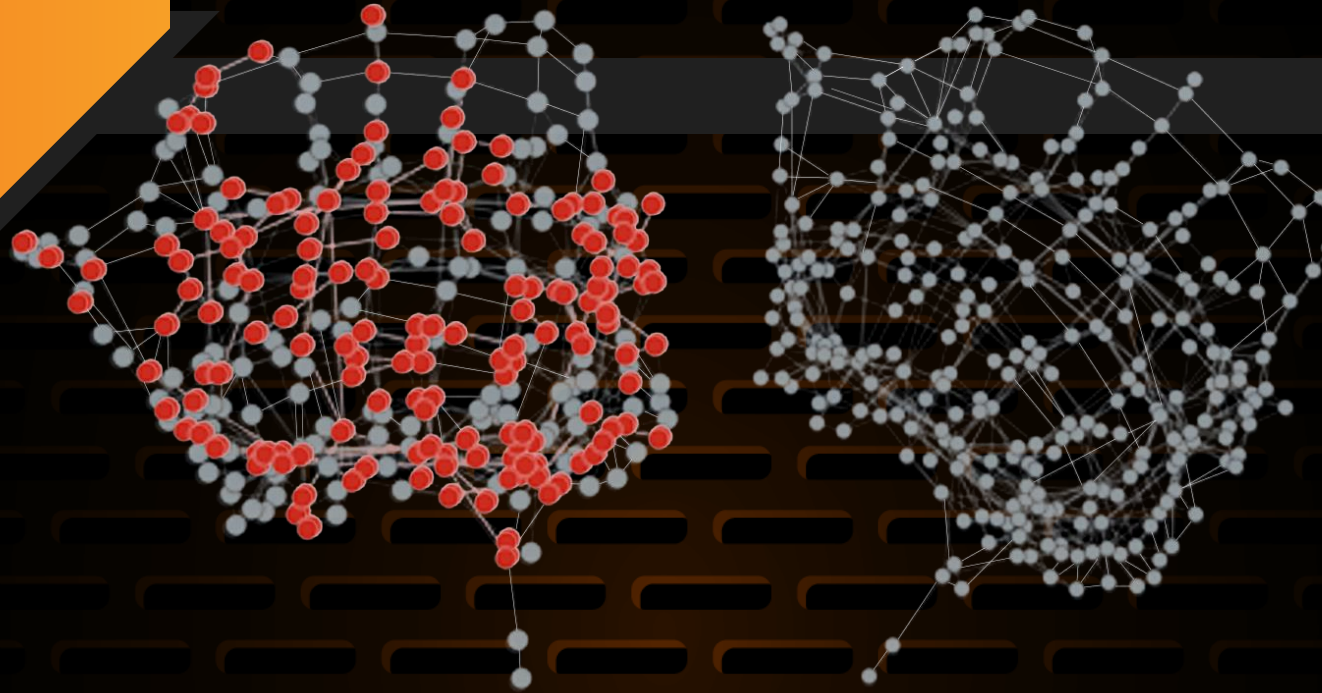
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**INCIDENT INFO**

AP Impact Count	36 of 36 APs (100%)	<a href="#">view details</a>
Incident Category	Infrastructure	
Incident Sub-Category	Service Availability	
Type	AP Group	
Scope	Jeanne-Lajoie Secondaire	
Duration	23h 54m	
Event Start Time	Jun 21 2022 08:39	
Event End Time	Jun 22 2022 08:33	



# AI-Driven Cloud RRM



Channel

Channel  
Width

Transmit  
Power

Greater AP  
Capacity

Higher client  
throughput

Lower Airtime  
Utilization

Higher  
Reliability

Operate APs at  
**MAX** capability

**Proactive**, Network  
Performance Optimization

**Biggest** advancement in Radio  
Management since BeamFlex<sup>®</sup>  
technology!

# RUCKUS AI: 18% Boost in Wi-Fi Capacity

Avg 5 GHz Capacity: 70.06 Mbps



114.44 Mbps

95.37 Mbps

76.29 Mbps

57.22 Mbps

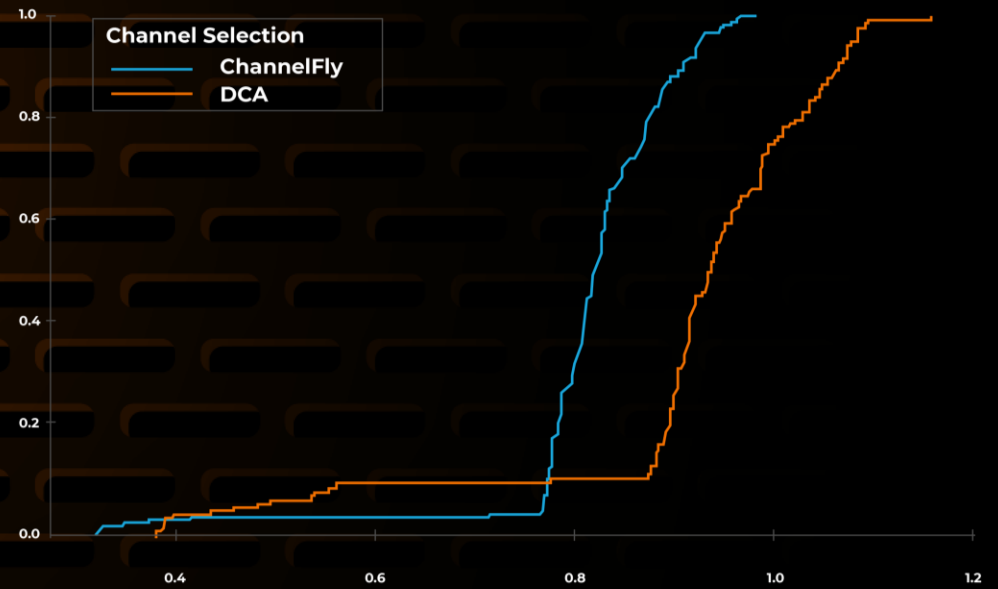
38.15 Mbps

19.07 Mbps

Wi-Fi AP Capacity

	Traditional	Cloud RRM	Improvement
Average	85.11Mbps	91.68Mbps	7.72%
Max	98.68Mbps	116.58Mbps	18.14%

ECDF of AP Capacity





真的需要Wi-Fi 7 嗎 ??? 還是Wi-Fi 6 即可 ???

# 未來5年使用趨勢??



# 案例分享





**PURPOSE-DRIVEN**  
ENTERPRISE NETWORKS