

RUCKUS[®]
COMMSCOPE

RUCKUS智慧聯網，守護校園安全無所遁形

尤勒行 Ray Yu

技術顧問 Technical Consultant



TM
IN

校園安全問題無所不在

校園內全面禁菸



違者最高罰 1 萬元

衛福部國民健康署 提醒您

83 頁

校安意外 學生自殺、自傷攀升

教育部：校園安全問題無所不在 學生自殺、自傷、霸凌、性騷擾等事件頻傳



現在孩子 不懂互動、不會求救...

家長問：孩子不聽話怎麼辦？老師問：學生不交作業怎麼辦？

教育部：校園安全問題無所不在 學生自殺、自傷、霸凌、性騷擾等事件頻傳

教育部
1953
反霸凌專線

陪你勇敢
不再旁觀



教育部 關心您
Ministry of Education

叫天天不應 叫地地不靈



校園安全交給RUCKUS 來守護



Video Solution

ID	Device	Type	Time	Camera
1718	Multipurpose Sensor	contact	3/15/2022, 14:54:32	10.0.0.205
1715	Multipurpose Sensor	contact	3/15/2022, 14:54:25	10.0.0.205
1712	Multipurpose Sensor	contact	3/15/2022, 14:54:11	10.0.0.205
1709	Multipurpose Sensor	contact	3/15/2022, 14:53:56	10.0.0.205
1666	Multipurpose Sensor	contact	3/15/2022, 10:40:07	10.0.0.205
1663	Multipurpose Sensor	contact	3/15/2022, 10:40:01	10.0.0.205
1660	Multipurpose Sensor	contact	3/15/2022, 09:55:02	10.0.0.205
1657	Multipurpose Sensor	contact	3/15/2022, 09:54:57	10.0.0.205
1652	Multipurpose Sensor	contact	3/15/2022, 09:42:53	10.0.0.205

Configuration Management

System



Add Video Camera to System

Create a New Camera and save to the Insights Database

New Camera

IP Address: 10.0.0.205

Manufacturer: NONE

Model: UND950W

Serial Number: 210235TB31F197000147

IP Address: 10.0.0.205

Realm: RUCKUS Insights | Site ID: RUCKUS-BR | Country: BR

Building: 1 | Floor: 1 | Location: RUCKUS-BR-LAB



Enter the Details of the Camera & Location above and Click **SAVE** to commit.

SAVE

Search....

COMMSCOPE®
RUCKUS
IOT



▶ Playback Video

■ End Playback Video

領先業界的 RUCKUS AP 技術

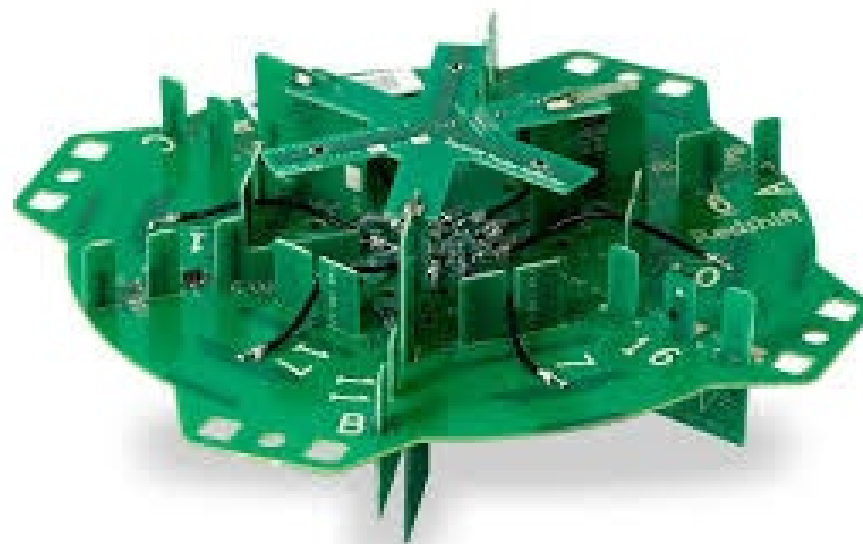


內建 IoT Gateway

RUCKUS天線

2 x 2 AP = 12 x 天線 / 4 x 2 = 18 / 4 x 4 = 21

BeamFlex+ = 高覆蓋 / 高承載 / 高迴避

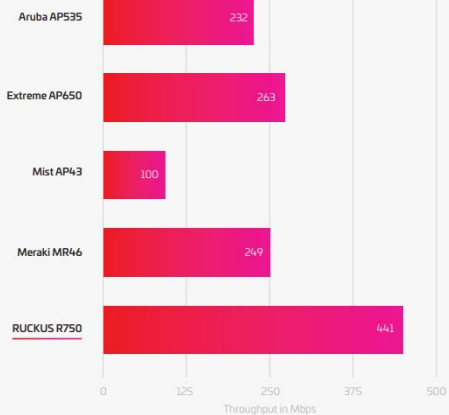


RUCKUS Wi-Fi APs outperformed everyone!

Highest network throughput

Network throughput

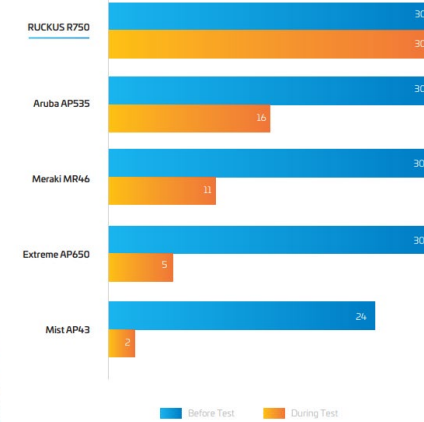
Throughput is a measure of the aggregate data traffic flowing between the AP and all of the clients in the network. A higher number is better, as it indicates that the AP can accommodate more users, devices and applications.



100% stall-free videos

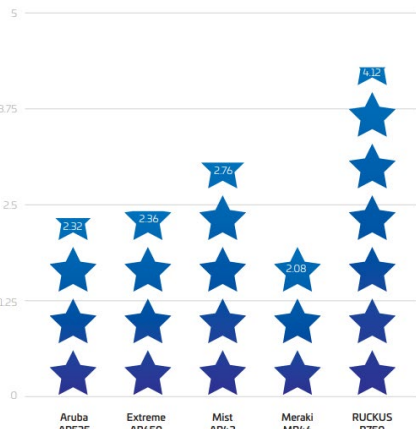
Stall-free streaming video

Streaming video and other video formats are common in work and school environments. When videos stall, it creates a poor user experience and may result in extra IT work. The score indicates the number of videos, out of 30, that were delivered without stalling.



Voice MOS

Voice mean opinion score (MOS) is a commonly used measure of user-perceived voice quality during a PSTN or VoIP call. The higher the score, the higher the call quality. A high-performing network prioritizes voice traffic over other data traffic to ensure good call quality.

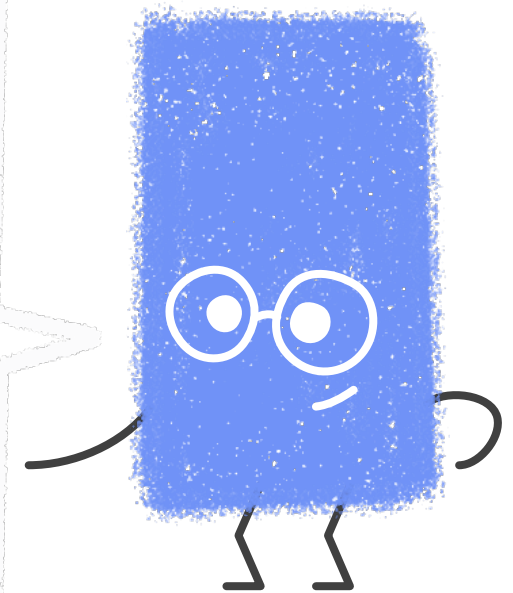


Highest voice MOS

AP 規格 / 廠牌 / 型號 - 整理表

規格	2X2:2	2x2:2 / 4x4:4	4x4:4	4x4:4 / 8x8:8
Aruba	AP-505	AP-515	AP-535	
Cisco	Catalyst 9105		Catalyst 9120	Catalyst 9130
Ruckus	R350/R550	R650	R750	

By 某國立大學測試報告



測試結果



測試 - 5GHz First

測試 - 5GHz BBB

測試 - 2.4GHz BBB

低密度

廠牌	型號	百分比
Ruckus	R350	100%
友商*	型號*	100%
友商*	型號*	78%

廠牌	型號	百分比
Ruckus	R350	100%
友商*	型號*	100%
友商*	型號*	78%

廠牌	型號	乘載量
Ruckus	R350	13台
友商*	型號*	11台
友商*	型號*	10台

中密度

廠牌	型號	百分比
Ruckus	R650	100%
友商*	型號*	78%
友商*	型號*	72%

廠牌	型號	百分比
Ruckus	R650	100%
友商*	型號*	78%
友商*	型號*	72%

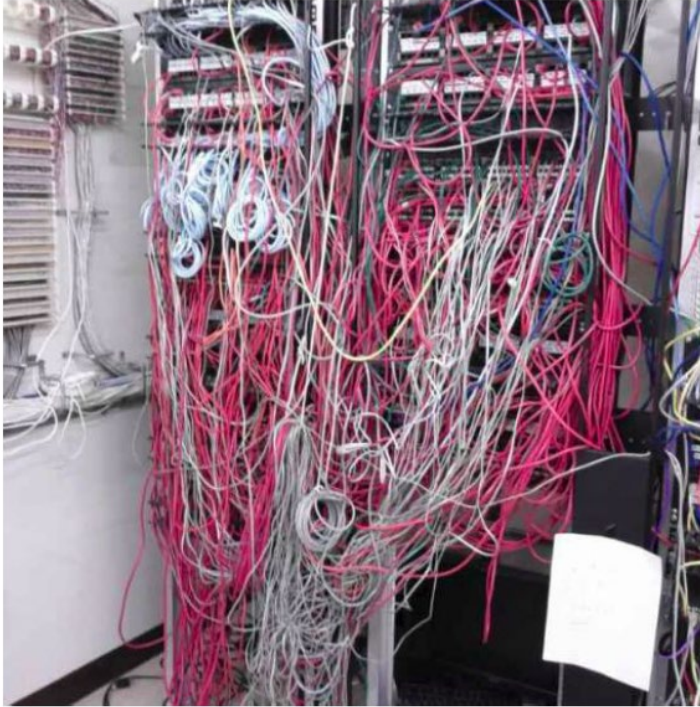
廠牌	型號	乘載量
Ruckus	R650	13台
友商*	型號*	13台
友商*	型號*	4台

高密度

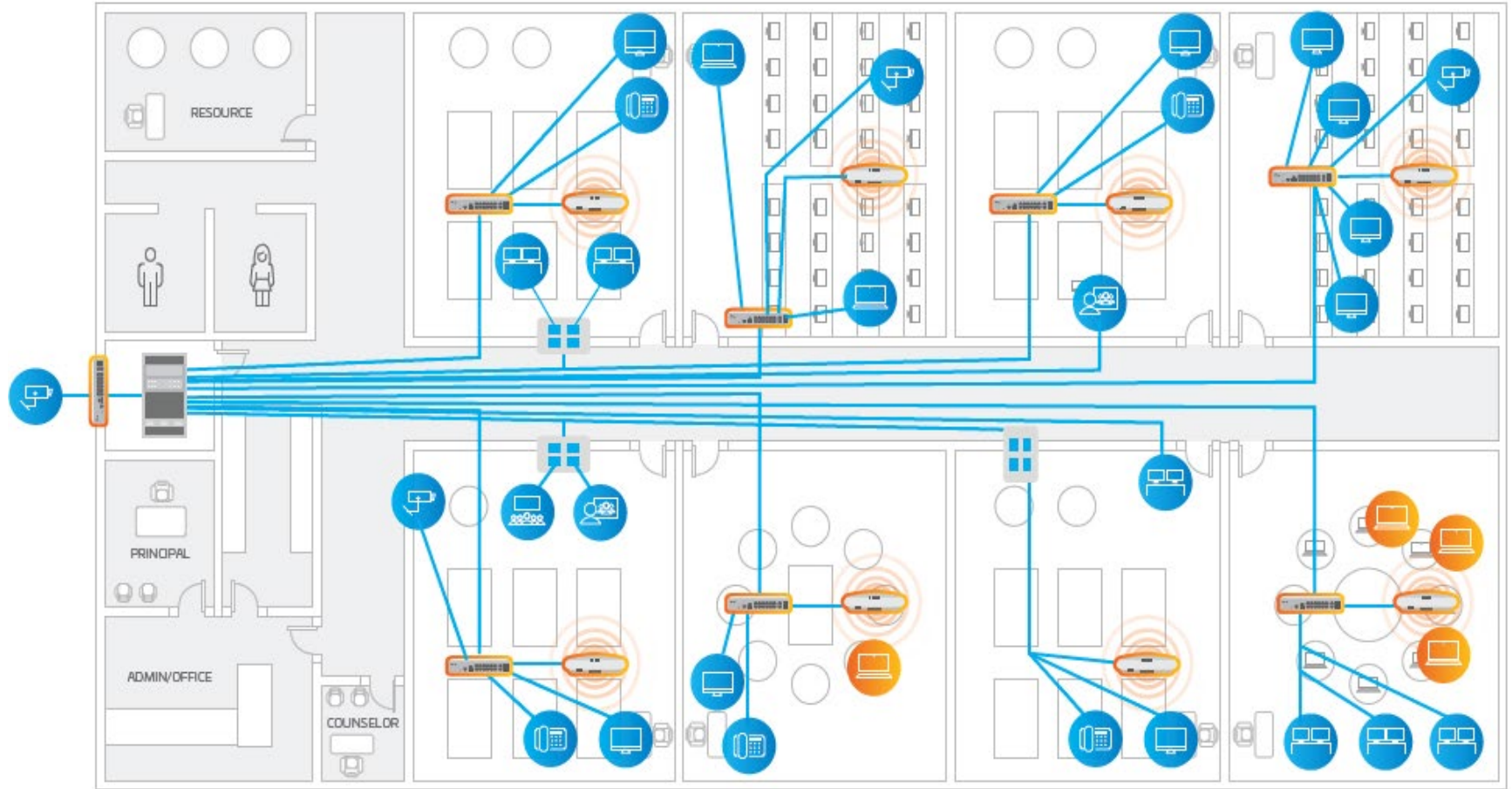
廠牌	型號	百分比
Ruckus	R750	100%
友商*	型號*	89%
友商*	型號*	67%

廠牌	型號	百分比
Ruckus	R750	100%
友商*	型號*	89%
友商*	型號*	67%

廠牌	型號	乘載量
Ruckus	R750	10台
友商*	型號*	6台
友商*	型號*	10台



Traditional Cable System



網路為所有應用的基礎，但網路整理呢？

現今網路環境

City of Phoenix
Little Canyon Park

Data
(Wi-Fi)

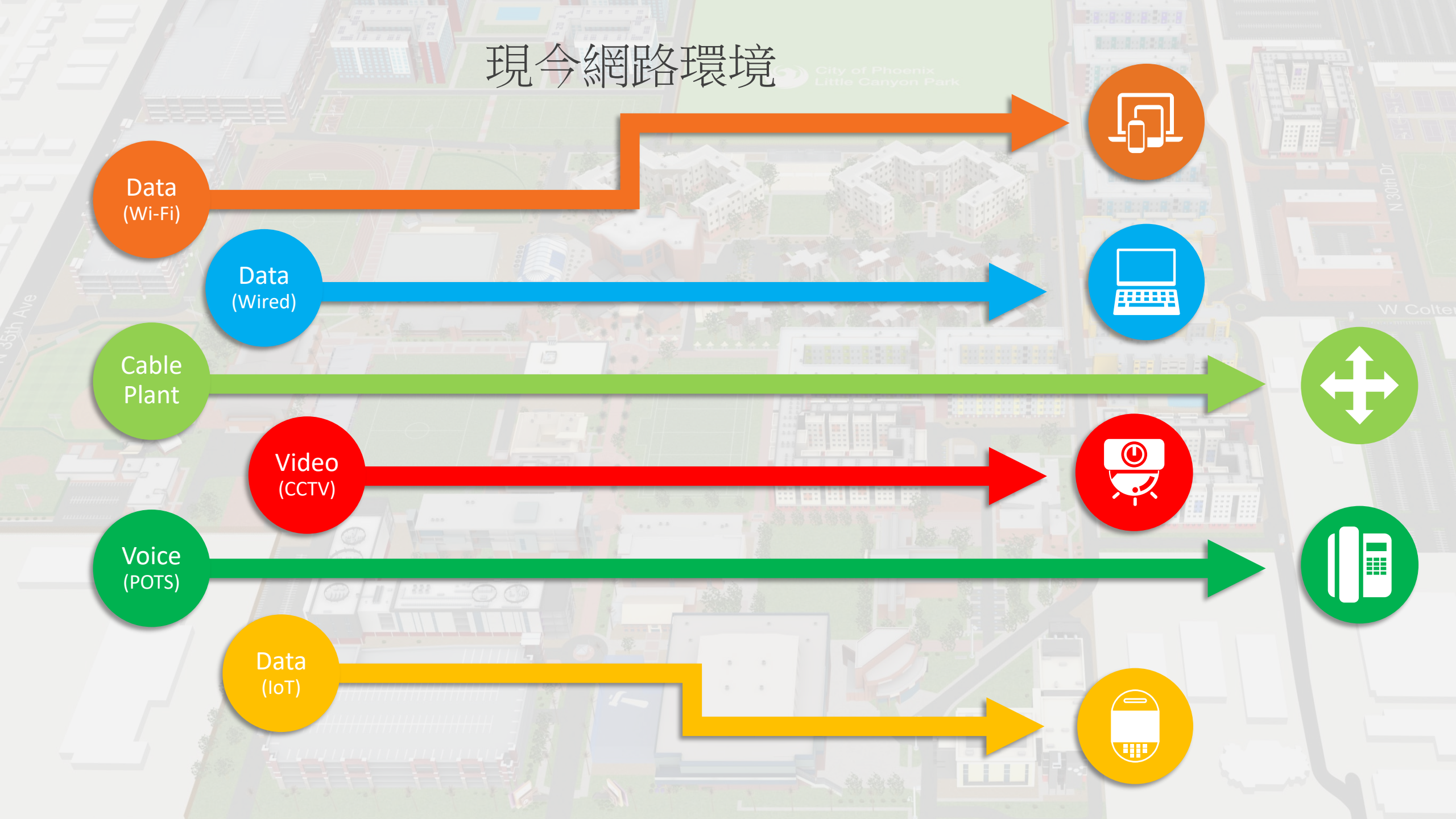
Data
(Wired)

Cable
Plant

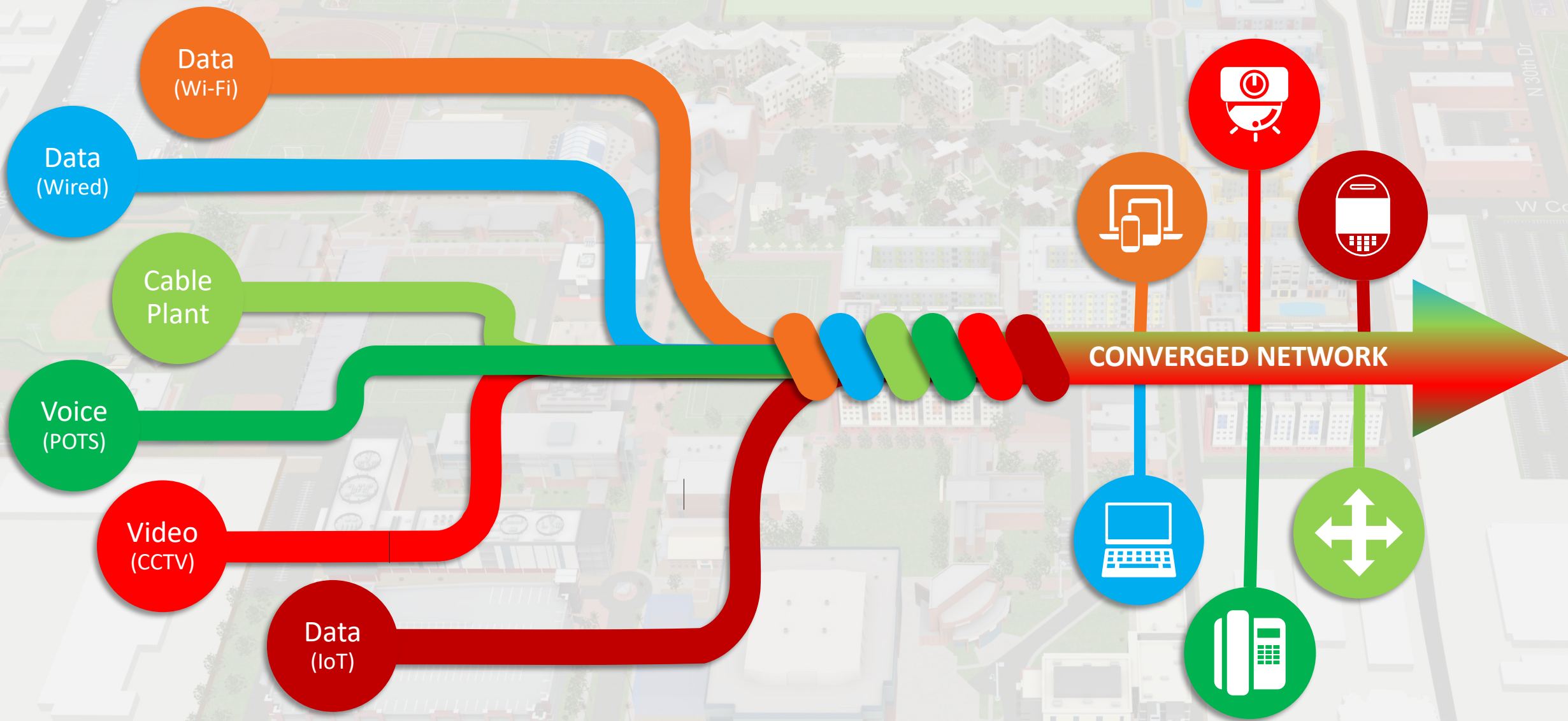
Video
(CCTV)

Voice
(POTS)

Data
(IoT)

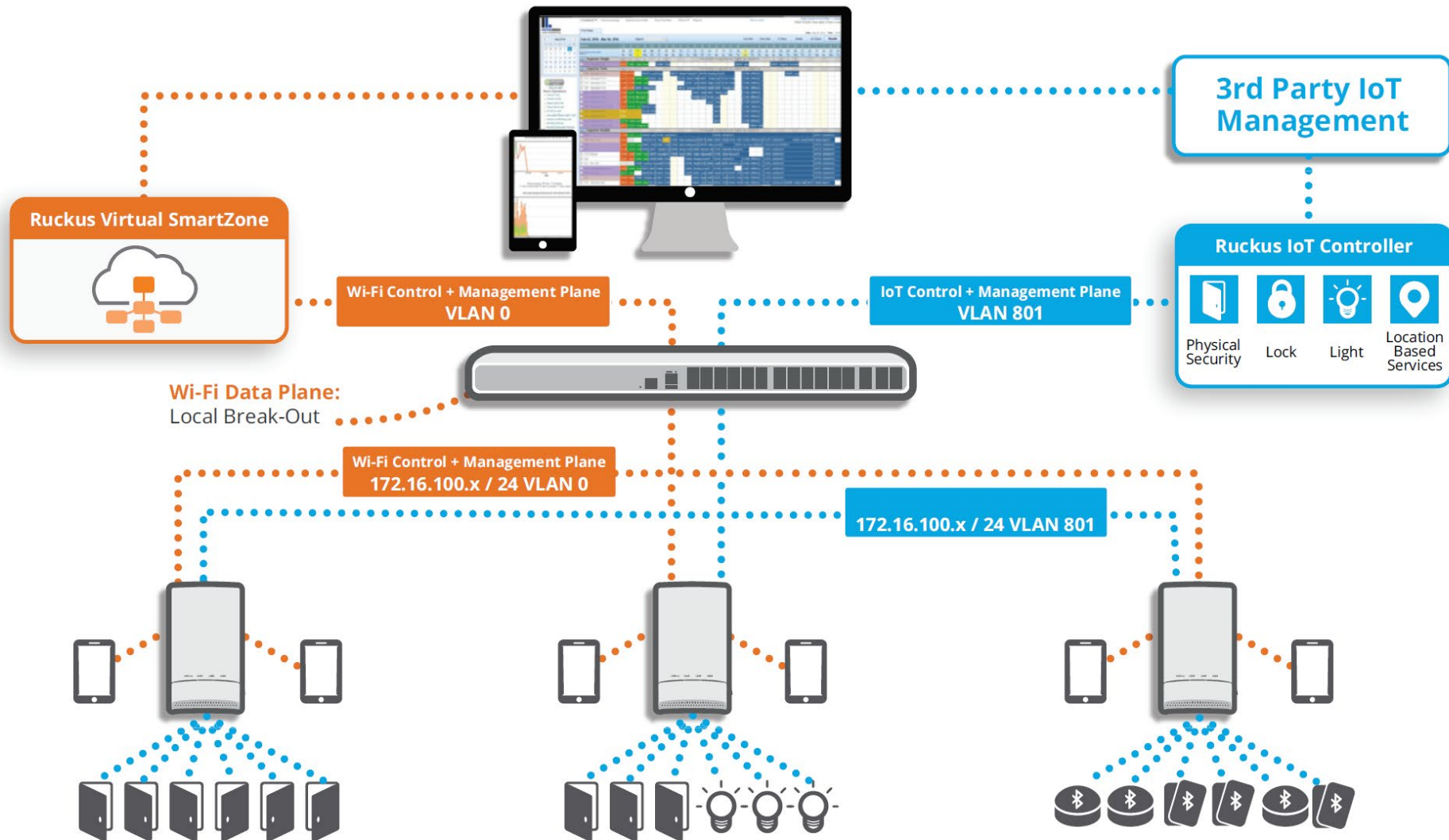


RUCKUS讓您所有設備只要一條



Ruckus IoT Solution deployment

- Wi-Fi
- IoT



RUCKUS 結合 AXIS 智慧攝影機

網路攝影機

- > 多種高解析度影像攝影機系列產品
- > 可融合於環境的隱密設計
- > 強韌型攝影機
- > 公共監看螢幕可用於嚇阻，或和員工休息室、食堂等其他地點輕易分享影像
- > 360 度攝影機可提供全區概覽
- > 攝影機可即時串流學校活動或課堂

網路喇叭

使用喇叭發出清晰的即時音訊或預先錄製訊息，和學生、員工及禁止進入的訪客溝通

I/O 模組

- > 來自管制區和緊急按鈕的警報輸入，可用於觸發警示、錄影或發出聲音訊息
- > 控制其他設備以打開燈光、鎖住門戶或打開大門以增進效率

數據分析

可減少不良行為

- > AXIS 周界防護者：偵測侵入學校周界的人員和車輛並做出反應

門禁監控

- > 輕易管理場所進出
- > 透過比較即時影像和持卡人照片驗證門戶進出
- > 結合門禁監控日誌與影像以調查事件
- > 門戶開啟時間太長或強制開啟時接獲警報



安迅士獨特的尋光者技術

即使在複雜的照明條件下，也能提供出色的影像表現

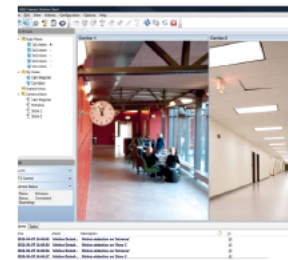
- > 高感光度能提供出色的畫質與降噪能力
- > 在 0.5 lux 以上的環境能拍攝彩色影像
- > 在 0.08 lux 以上的環境能拍攝黑白影像



主動式防破壞警報

新世代智慧影像

- > 自動偵測試圖破壞正常操作的行為，包括改變方向、阻擋、遮蓋，並警示使用者
- > 當攝影機失焦或故障時傳送警報
- > 攝影機被移出原本設定角度的警報功能選擇



安迅士的長廊格式

提供您正確視角

- > 適合用於需要垂直視野的場景
- > 使用 9:16 的畫面比例以最大化畫質
- > 避免浪費頻寬與儲存空間
- > 適合玄關與走廊使用



HDTV 網路攝影機

所有細節都至關重要

- > 更高解析度、更多細節、更清楚辨識
- > 相同數量的攝影機，更廣的涵蓋範圍
- > 16:9 畫面比例能讓監控更有效率、有更多的操作空間



避免破壞與竄改

周全防護

- > 更強大、更具保護性的金屬外殼
- > 弧形外殼能防止攝影機視野遭到遮蔽
- > 內嵌式安裝



壓縮儲存空間

更多影像內容，更少儲存空間

安迅士的 Zipstream 智能影像壓縮技術平均能降低 50% 或以上的儲存空間。

RUCKUS X AXIS 應用

- 煙霧偵測器**
 ->香菸、電子菸或火災煙霧偵測
- 告警**
 ->透過IoT Controller 即時發送
- 影像事件紀錄**
 ->針對偵測Sensor搜尋，並結合時間點播放影像

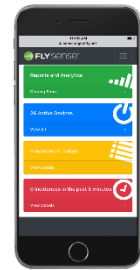
The screenshot displays the COMMSCOPE Ruckus IoT Video interface. At the top, it shows the COMMSCOPE logo and 'Ruckus IoT Video' with version 5.0.2. The interface is divided into several sections:

- IOT Events:** A list of sensors with toggle switches: Vape Detector, Door Sensor, Motion, Flood sensor, Smoke Detector, and Glass sensor.
- System Alarms:** A row of icons representing various system alerts.
- Event Query:** A search bar with a dropdown menu showing '84 "BDDOOR01" 02:42:16 2020-05-...'. Below it are fields for Event ID, Select Type, Select Location, and Select Device.
- Event Playback:** A central video player showing a hallway scene with people. Below the video are 'PLAY VIDEO' and 'END PLAYBACK' buttons.
- Database Report:** A table listing events with columns for L#, Event, Time, Device, and Camera. The table contains 15 rows of data.
- Event Summary:** A section providing details for a specific event: Location: Office, Event Type: Open/Closed, Device Name: BDDOOR01, Camera Name: Office-Door, Event time: 03:42:16 Mon May 18 2020, Comment: Office BDDOOR01 Event from the IOT controller, Preview: 5000ms, Alarm, and Event Counter: 84.

Vaping Detection and IP Video Indexing on CommScope's RUCKUS WLAN Infrastructure



FlySense Sensor



FlySense App



Axis Communications products



IoT Solutions



COMMSCOPE RUCKUS IoT Insights

User administrator 17:06:05 Europe/London

OPERATION

- Dashboard
- Devices
- Event Log
- Floorplan

SERVICES

- Service Panel

ADMIN

- System Log
- Configuration

IoT Insights

version 2.0.0.100

Developed by RUCKUS IoT Solutions Engineering

Video Service

Search....

ID	Device	Type	Time	Camera
1085439	LoRa-Desk01	occupancy	07/02/2022, 17:05:57	F44-Office
1085438	RKSUK01-Office-PIR01	motion	07/02/2022, 17:05:56	F44-Office
1085436	PIR02	motion	07/02/2022, 17:05:50	F44-Lab
1085435	zwavepir01	motion	07/02/2022, 17:05:48	F44-Office
1085432	RKSUK01-Office-PIR01	motion	07/02/2022, 17:05:40	F44-Office
1085431	DOOR04	contact	07/02/2022, 17:05:39	F44-Office
1085430	zwavepir01	motion	07/02/2022, 17:05:17	F44-Office
1085429	PIR02	motion	07/02/2022, 17:05:17	F44-Lab
1085428	RKSUK01-BLE-Door01	contact	07/02/2022, 17:05:16	F44-Office
1085424	CICTHERMO01	motion	07/02/2022, 17:05:15	Hall_Cam
1085423	PIR02	motion	07/02/2022, 17:05:15	F44-Lab
1085421	CICTHERMO01	motion	07/02/2022, 17:05:01	Hall_Cam
1085419	PIRTEST02	motion	07/02/2022, 17:04:50	F44-Office
1085418	zwavepir01	motion	07/02/2022, 17:04:47	F44-Office
1085416	PIR02	motion	07/02/2022, 17:04:30	F44-Lab
1085415	PIR02	motion	07/02/2022, 17:04:28	F44-Lab
1085414	RKSUK01-Office-PIR01	motion	07/02/2022, 17:04:25	F44-Office
1085413	RKSUK01-BLE-Door01	contact	07/02/2022, 17:04:16	F44-Office
1085409	CICTHERMO01	motion	07/02/2022, 17:04:14	Hall_Cam
1085407	zwavepir01	motion	07/02/2022, 17:04:14	F44-Office

Location: RKSUK01 : Office

Event ID:	1085439	Event Time:	07/02/2022, 17:05:57
Camera:	F44-Office	Preview:	5 Seconds
Device:	LoRa-Desk01	Type:	occupancy
value:	occupied		

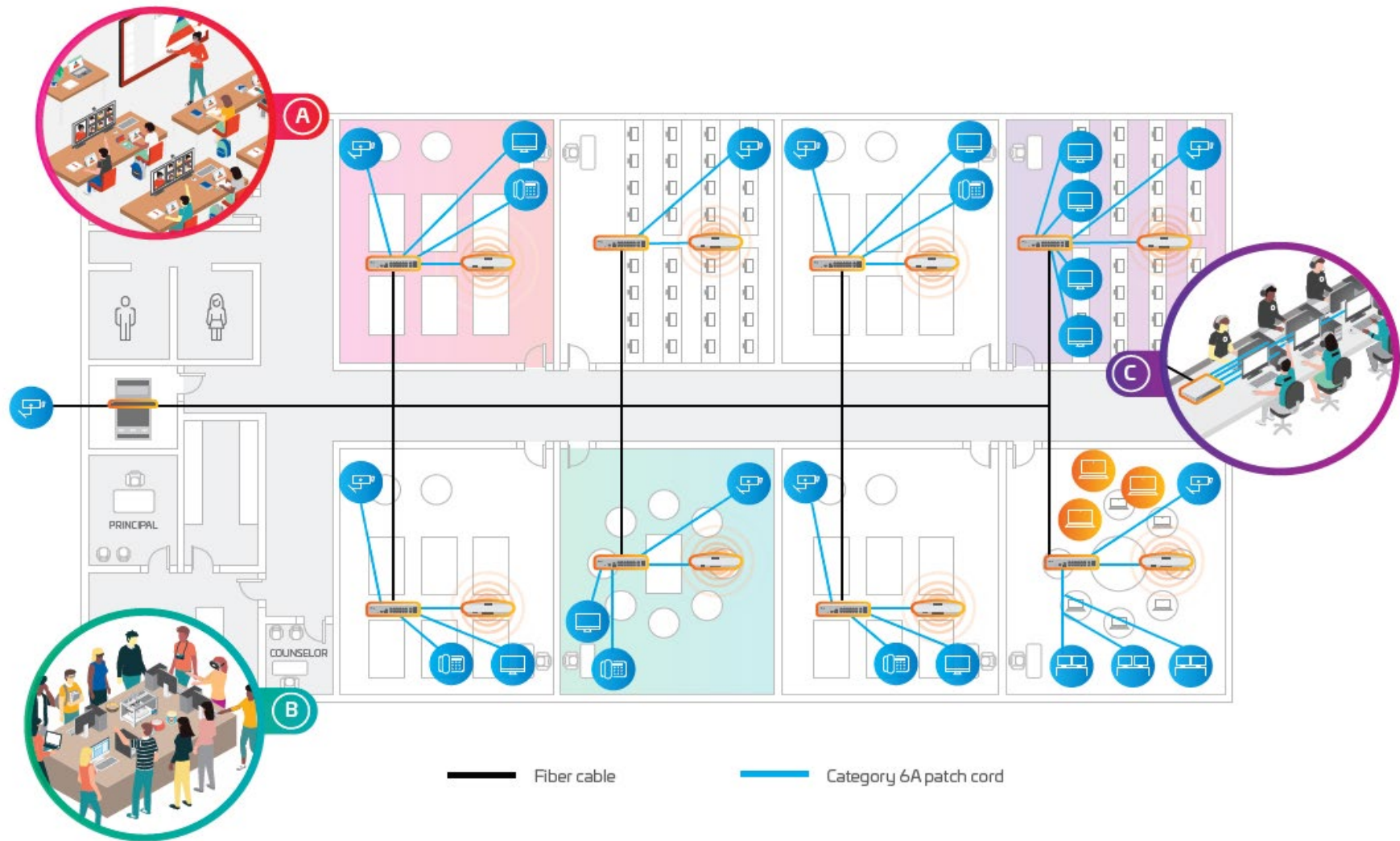
Comment: Office LoRa-Desk01 Event from Insights2.0 Service

F44-Office

1X

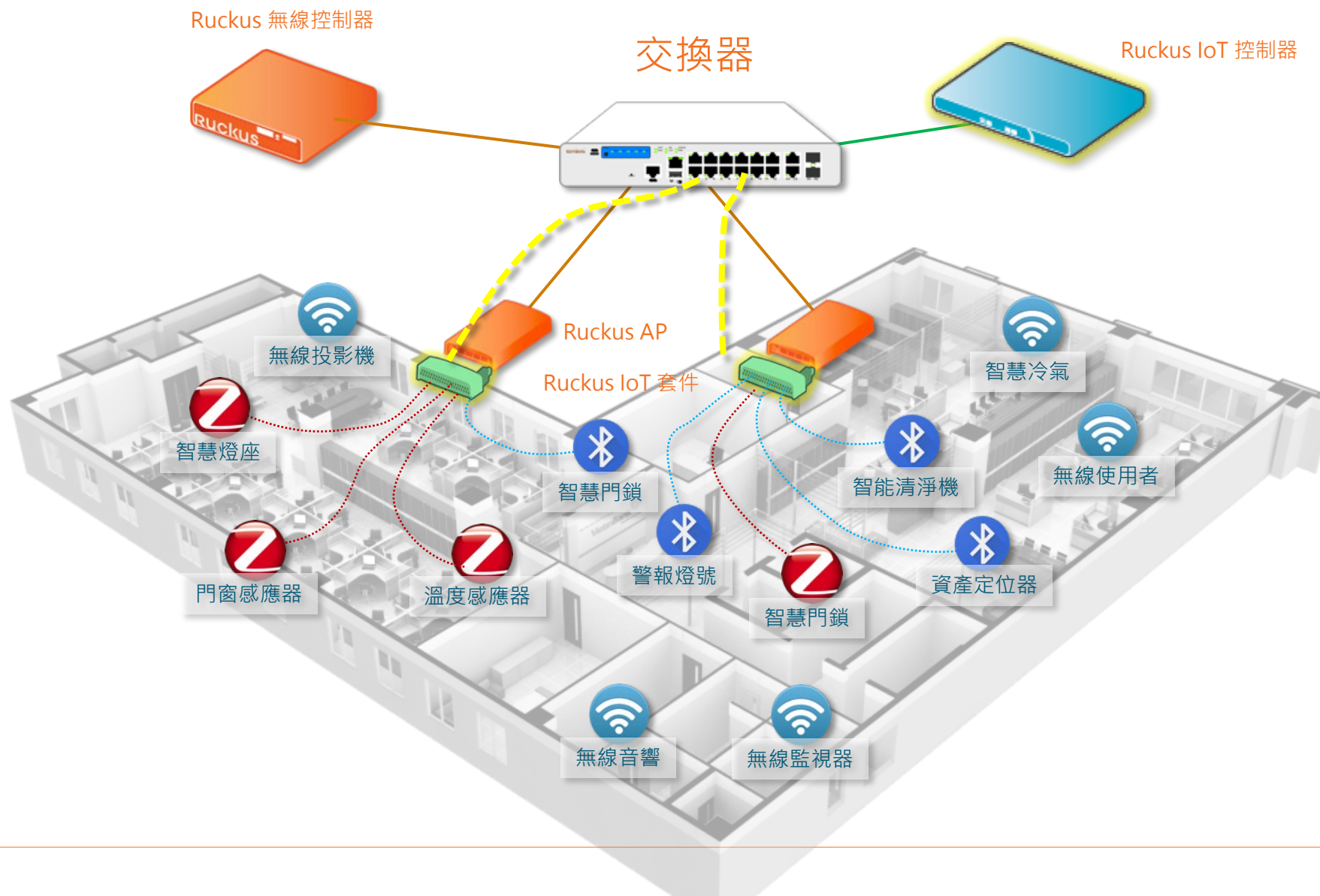
▶ Playback Video

■ End Playback Video



透過RUCKUS IoT Solution，網路乾淨整齊

全新契機來臨，但是交換器準備好了嗎



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**

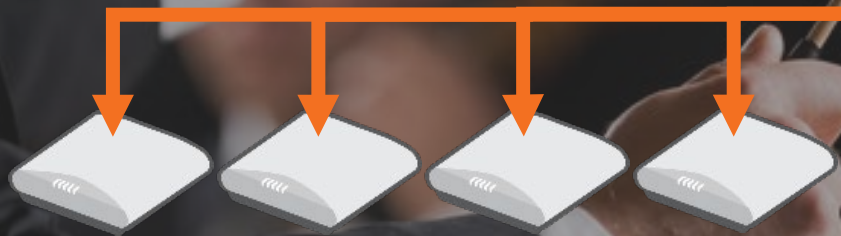
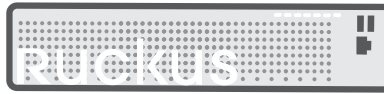
High Value Features Included

- Stacking 12 x
- 3 Years TAC Support



RUCKUS All in One Managed

SmartZone Network Controller



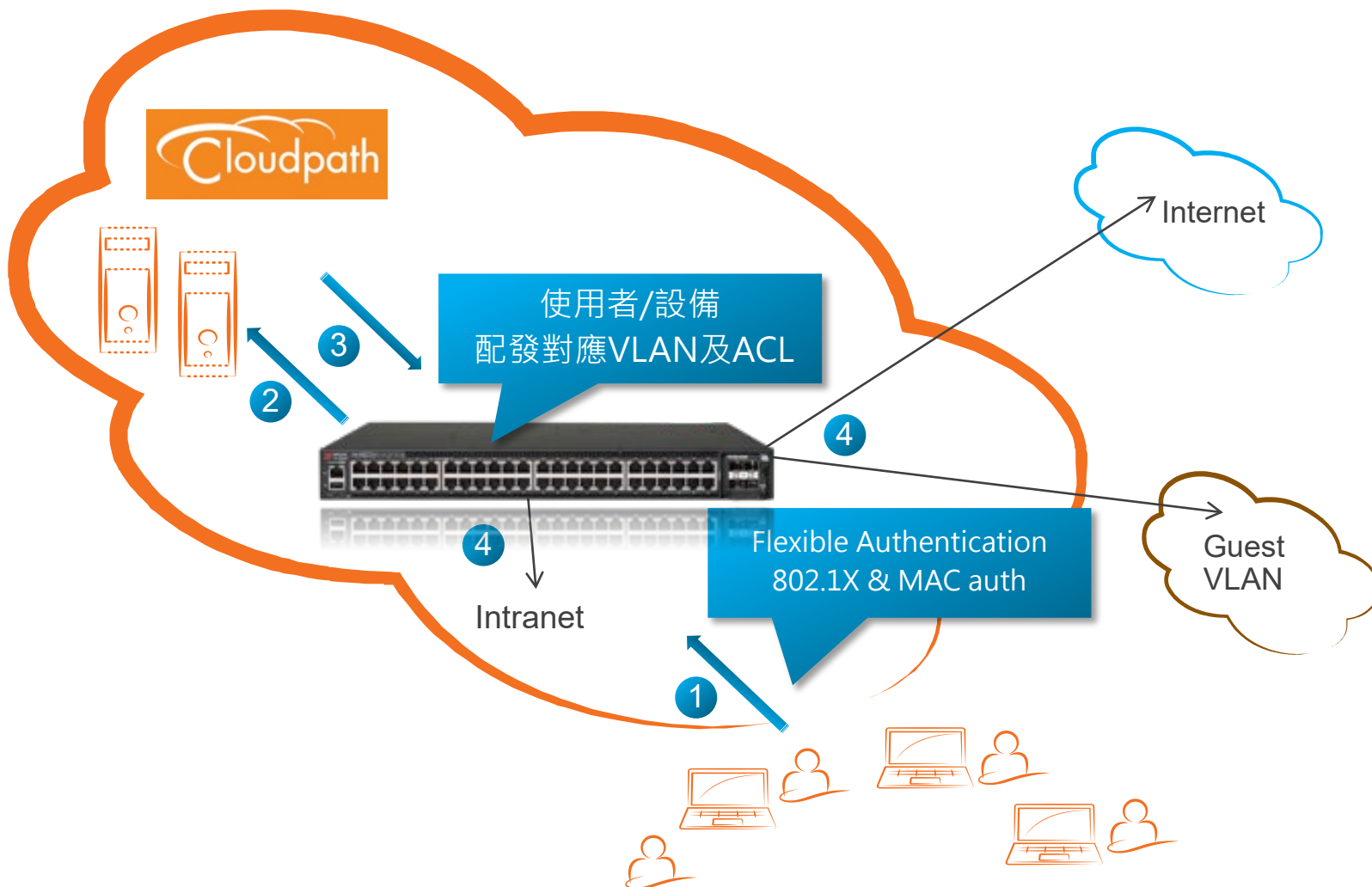
Access Points



Switches

One network element: A SmartZone network controller

集中認證，一致安全政策管理




支援功能:

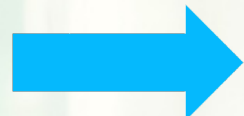
- 802.1X 認證
- MAC 認證
- Web 網頁認證
- 提供多重認證機制 (802.1X, MAC auth)
- 隔離未通過認證設備
- CoA (Change of Authorization)

使用者自註冊


Internal Users—BYOD Devices



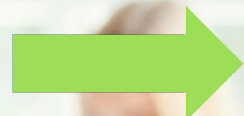
- Employees
- Contractors



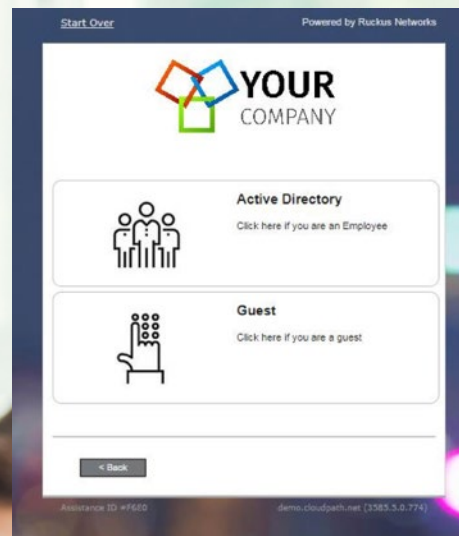
Visitors—Guest Devices



- Partners
- Customers
- Suppliers
- Any visitor



 **Day 1**
Self-service portal



 **Day 2+**
Connect automatically

自動化的IoT Solution：守護校園安全無所遁形

Motion

Smart
Locks

LED
Lights

CCTV
Cameras



UNIVERSITY



PURPOSE-DRIVEN
ENTERPRISE NETWORKS

RUCKUS Networks

Purpose-driven enterprise networks



www.commscope.com/ruckus

ACCESS POINTS

SWITCHES

IoT NETWORKING

ANALYTICS & ASSURANCE

CONTROL & MANAGEMENT

SECURE NETWORK ACCESS

Portfolio at a glance



Cloud Services
& Software

Security & Policy



Cloudpath Enrollment System

Network Reporting



SCI

Analytics and Assurance



RUCKUS Analytics

Location



SPoT

Control and
& Management

Physical Appliance



SmartZone
ZoneDirector

Virtual Appliance



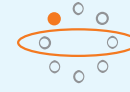
SmartZone

Cloud-managed



RUCKUS Cloud

Controller-less



RUCKUS Unleashed

IoT



RUCKUS IoT

Switches

Access



ICX 7150

Aggregation



ICX 8200



ICX 7550



ICX 7650

Core



ICX 7850

Access
Points

Outdoor



T Series

Indoor












R Series

Specialty



H series

Professional & Education Services | Premium Support

	Good	Better			Best		
Indoor	 <p>R350 Wi-Fi 6 CERT 2x2:2</p> <p>IoT Ready</p>	 <p>R550 Wi-Fi 6 CERT 2x2:2</p> <p>IoT Onboard</p>	<p>Tri-radio 6GHz</p>  <p>R560 Wi-Fi 6E CERT 2x2:2 5GbE</p> <p>IoT Onboard</p>	 <p>R650 Wi-Fi 6 CERT 4x4:4/2x2:2</p> <p>IoT Onboard</p>	 <p>R750 Wi-Fi 6 CERT 4x4:4 2.5GbE</p> <p>IoT Onboard</p>	 <p>R850 Wi-Fi 6 CERT 8x8:8 5GbE</p> <p>IoT Onboard</p>	<p>Tri-radio 6GHz</p>  <p>R760 Wi-Fi 6E CERT 4x4:4 10GbE</p> <p>IoT Onboard</p>
Outdoor	 <p>T350/350se Wi-Fi 6 CERT 2x2:2</p> <p>IoT Onboard</p>				 <p>T750/T750se Wi-Fi 6 CERT 4x4:4 2.5GbE</p> <p>IoT Onboard</p>		
Specialty	 <p>H350 Wi-Fi 6 CERT 2x2:2, 2 Port Switch</p> <p>IoT Onboard</p>	 <p>H550 Wi-Fi 6 CERT 2x2:2, 4 Port Switch</p> <p>IoT Onboard Dual Concurrent</p>					

Fixed Switches Everywhere

ICX 7150

Entry-level Access



ICX 8200

Entry-level+ Access



ICX 7550

Access-Aggregation



ICX 7650

Premium Access-Aggregation



ICX 7850

Aggregation-Core
Data Center



SIMPLE
FLEXIBLE
SCALABLE

- Purchase only what you need, when you need it
- Expand as needed
- Power and features of a chassis with the flexibility, simplicity and cost efficiency of stackables

“The emergence of high-density fixed form factor switches can reduce or eliminate the need for costlier, oversized chassis-based switches. The move toward FFF switches will help network managers deliver higher-performance networks and reduce footprint, power, cooling and TCO.”

Andrew Lerner, Gartner