2017

4IPNET WI-FI SOLUTION

For authorized partners only

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COMPANY PROFILE

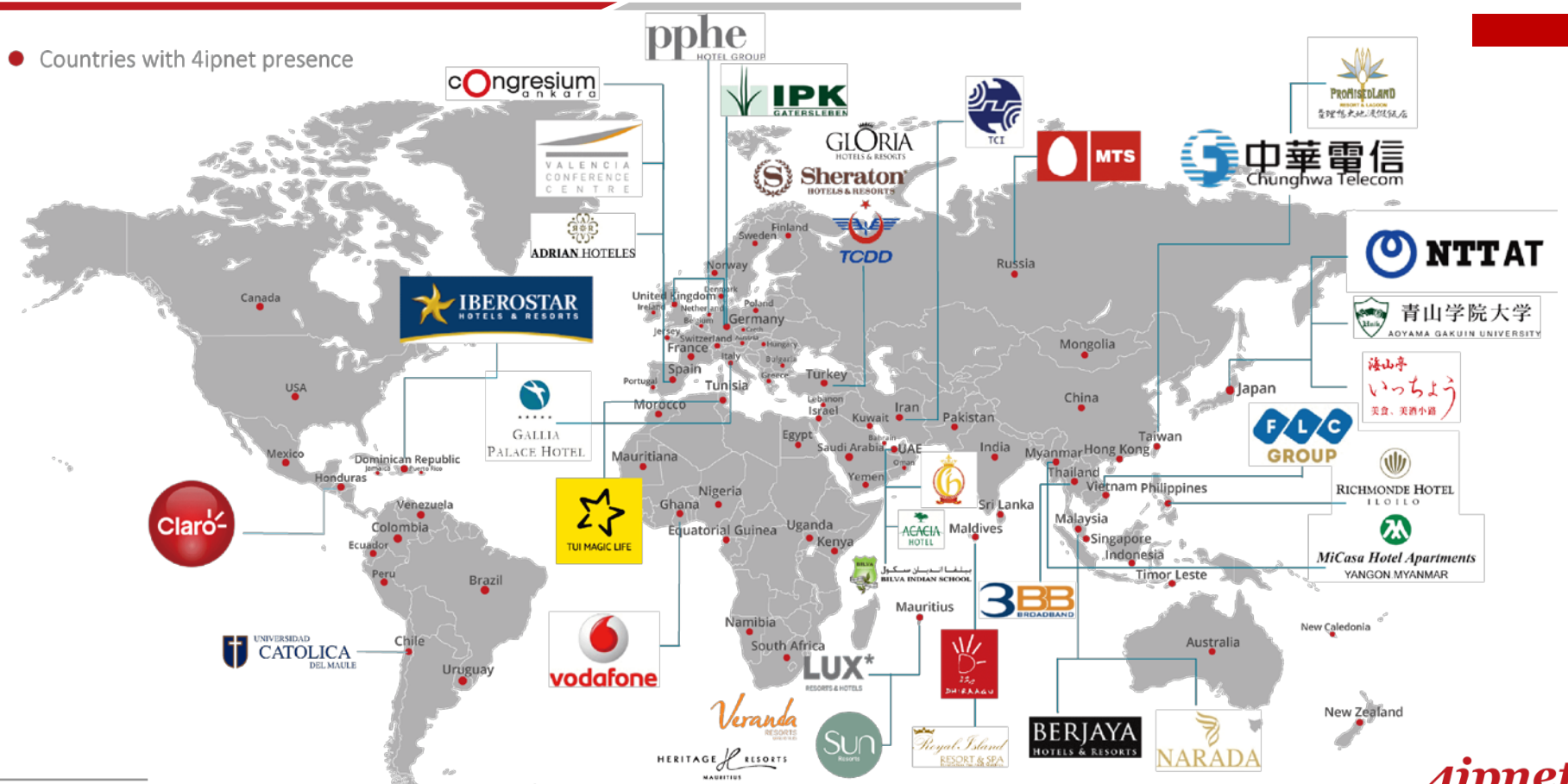
Founded	- 2002
Location	- Taipei, Taiwan
Core Business	- Management Platform for Wireless Network Infrastructure - Network User Authentication & Network Access Control - Value-added Guest Wi-Fi & Hotspot Applications - Network & User Data Collection and Analytics
Primary Products	- Indoor & Outdoor Wi-Fi Access Points - Wireless LAN Controller - Network Access Control Gateway (Hotspot Gateway) - Wireless Hotspot Router



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PARTNERS & CUSTOMERS

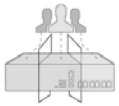
- Countries with 4ipnet presence



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KEY SOLUTION FEATURES

 Wi-Fi Management & Optimization	▸ Centralized AP Management	▸ Intelligent Performance Optimization	▸ Enterprise-grade Wireless Security
 Complete User Management	▸ Comprehensive Authentication Mechanisms	▸ Role-based User Policies by Schedule & Location	▸ Detailed User Monitoring Logs & Reports
 Guest Wi-Fi & Customer Insights	▸ Social Media Login with Customer Insights	▸ Customizable Captive Portals & Data Collection	▸ Seamless Integration with Hotel PMS
 Hotspot Billing & Wi-Fi Monetization	▸ On-demand Accounts with Billing Plans	▸ Location-based Advertising & Tiered Wi-Fi Service	▸ Integration with Ticket Printer & Payment/SMS Gateways
 Flexible Deployment Architectures	▸ Integrated Wi-Fi Controller & Access Gateway Functionality	▸ Flexible L2/L3 Deployment with Tunneling	▸ Service Zones with Tiered Administrator Privileges

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① Solution Overview & Deployment

② Guest Wi-Fi & User Access Control

③ Enterprise Security, Reliability, & Mobility

④ Partnerships & Integrations

⑤ Product Overview

⑥ Success Cases

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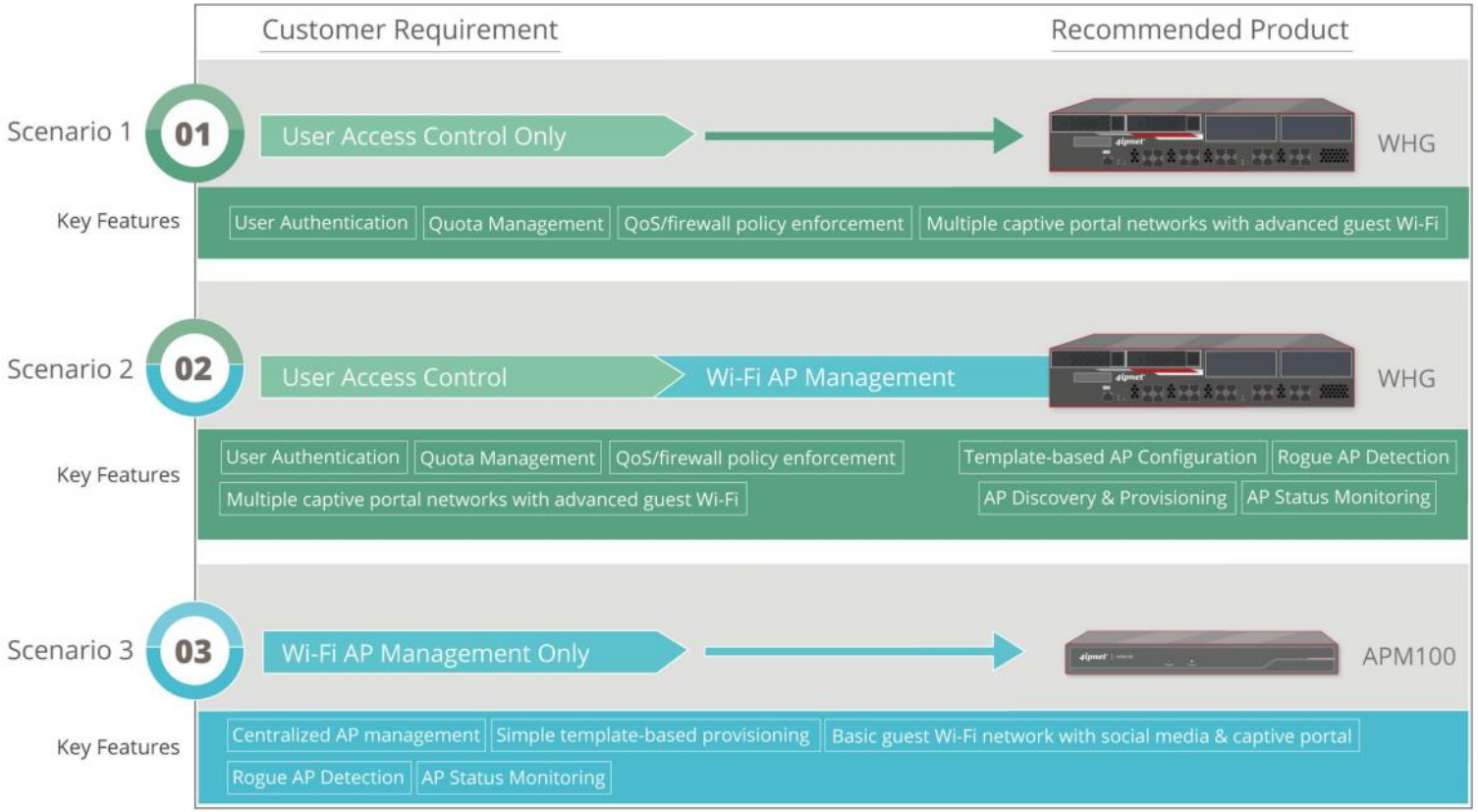
WHEN TO USE WHG



- Centralized AP management controller for 4ipnet APs
- User authentication gateway for wired and wireless networks (in any existing network)
- Guest authentication system with social media, e-mail, SMS, and on-demand accounts
- User quota management system for public venues by volume, duration, or time
- Role-based user policy enforcer (e.g. bandwidth, firewall, routing) for campuses and enterprises
- User authentication database with the WHG's built-in account database
- Hotel Wi-Fi gateway to integrate directly with PMS systems such as Opera

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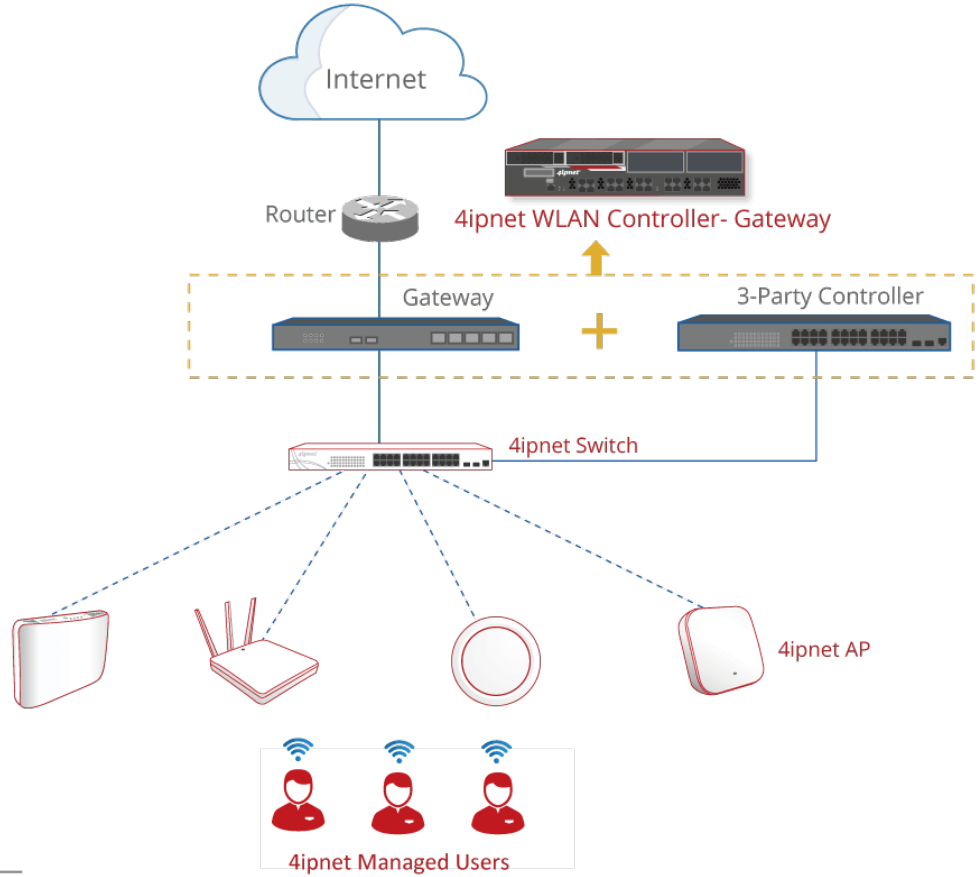
MULTIPLE DEPLOYMENT SCENARIOS



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4IPNET VS. TRADITIONAL WLAN CONTROLLERS



4ipnet WHG Controller-Gateway Features

User Authentication	AP Load Balancing
User Bandwidth Control & QoS	AP Status Monitoring
User Access Control & Traffic Logging	AP Discovery & Provisioning
NAT / Routing	Rogue AP Detection
Integration with PMS system	AP Configuration

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WHG VS. APM COMPARISON

	Complete AP Management	Customizable Captive Portals	Advanced Guest Wi-Fi	Advanced User Access Control
Advanced Access Control Gateway with Built-in AP Management  WHG			Social Media Login Ticket Printing SMS API E-mail OTP	Enterprise User Authentication Role-based User Access Control User Quota Management Virtual Network Segmentation SMS & Payment Gateway Support Hotel PMS Integration DHCP/NAT/VPN/DNS/Proxy
Simple AP Management Controller  APM			Social Media Login E-mail	

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WHG SERVICE ZONES

- Service Zones create virtualized controllers with independent network configurations, authentication settings, Wi-Fi login pages, etc.
- Application: Location-based advertising for Wi-Fi monetization
- Application: Simple ad-hoc networks for temporary events



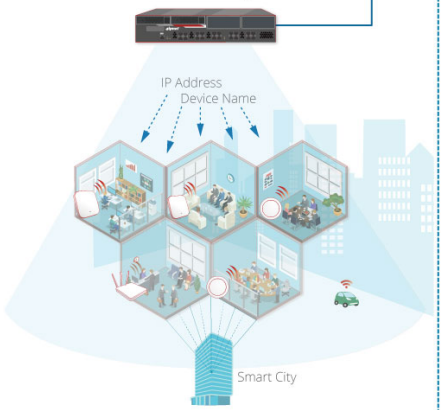
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4IPNET AP MANAGEMENT

WHG/APM100 -series AP management

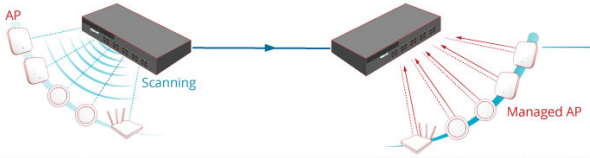
AP Provisioning

- Robust AP Management

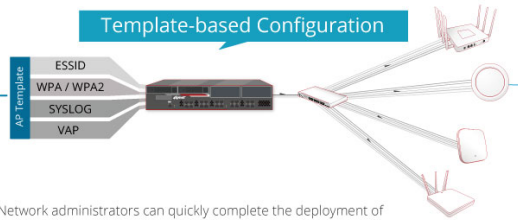


AP Discovery

- Centralized AP discovery
- After discovery, APs can be centrally managed

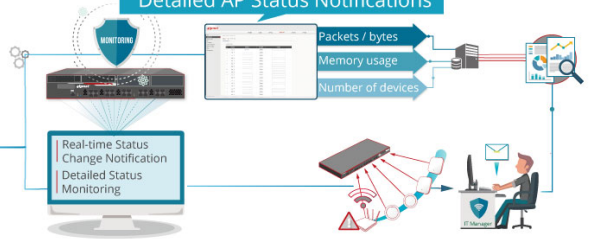


Template-based Configuration

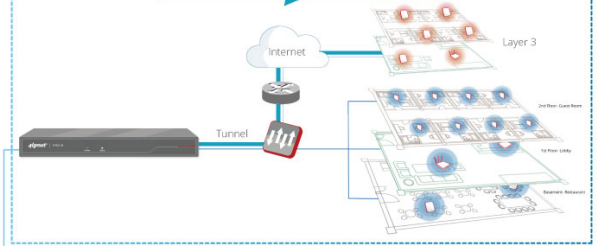


- Network administrators can quickly complete the deployment of hundreds of access points.

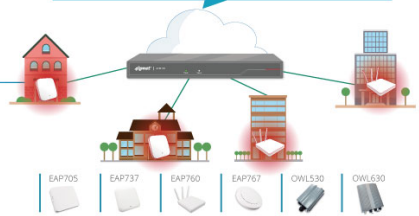
Detailed AP Status Notifications



Flexible L2/L3 AP Management



Multiple-site Management & Reporting



WLAN AP Groups



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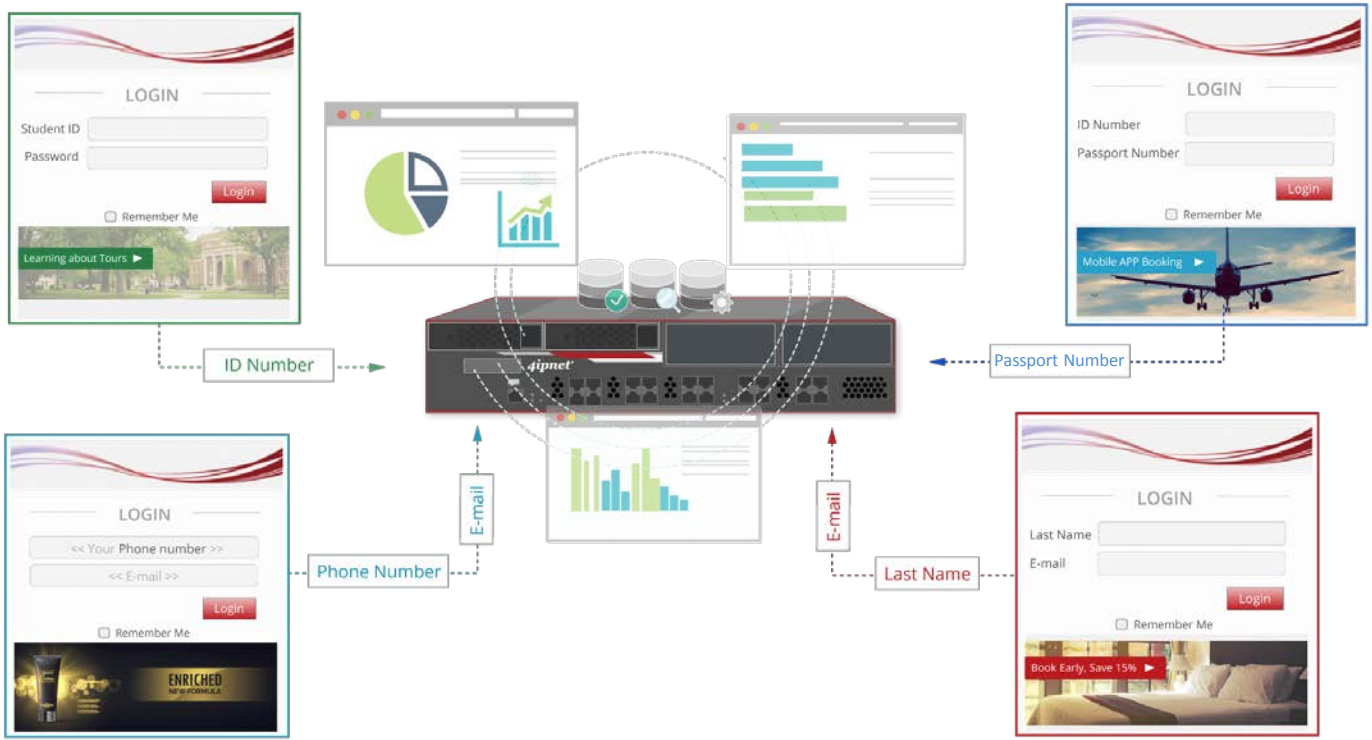
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CUSTOMIZED CAPTIVE PORTAL

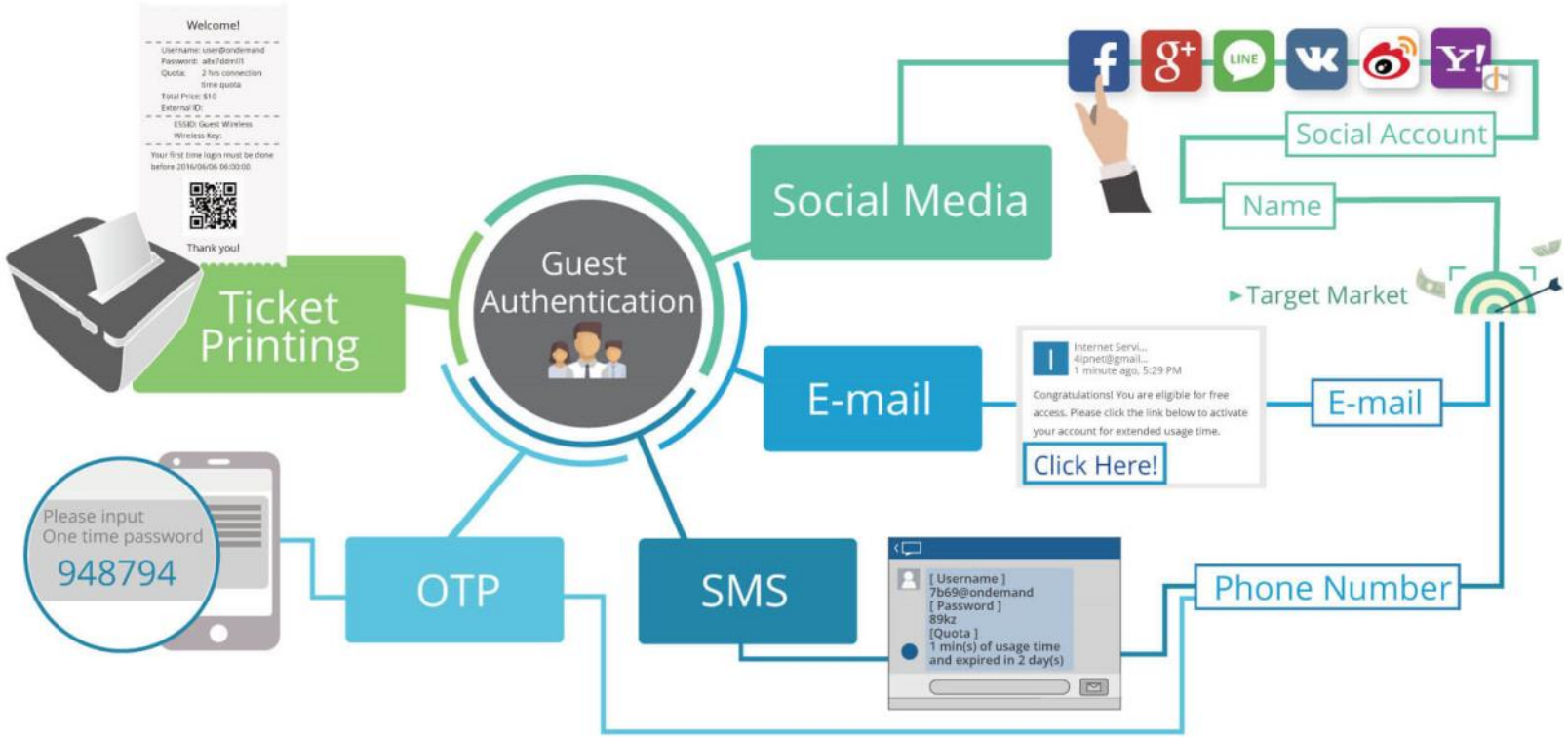
- Customizable Wi-Fi login pages with user-defined fields allow network operators to collect user information for marketing and security purposes



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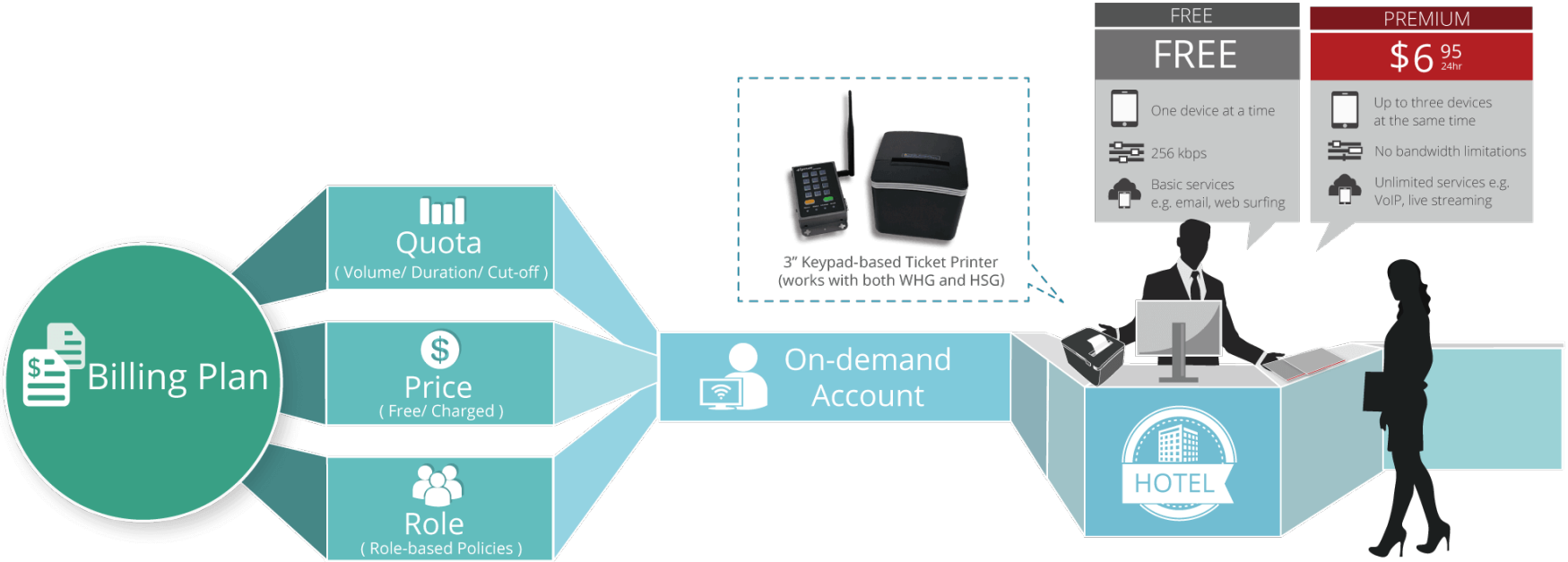
GUEST AUTHENTICATION METHODS



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ON-DEMAND ACCOUNTS WITH BILLING

- On-demand accounts provide an easy account generation and billing platform for guests, with the ability to separate service into multiple tiers
- Application: Free vs. Premium Wi-Fi service in hotels

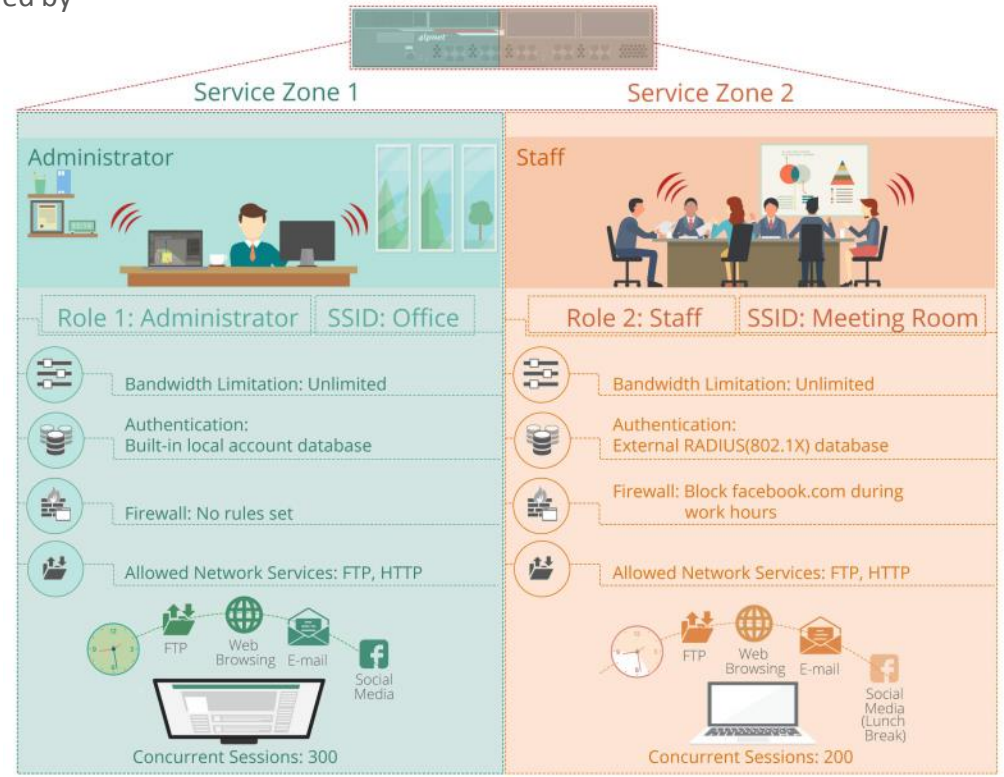


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USER POLICIES ENFORCEMENT

- User policies applied after authentication are determined by the user's
  - » Service Zone (Location)
  - » User Group (Role)
  - » Schedule (Time)



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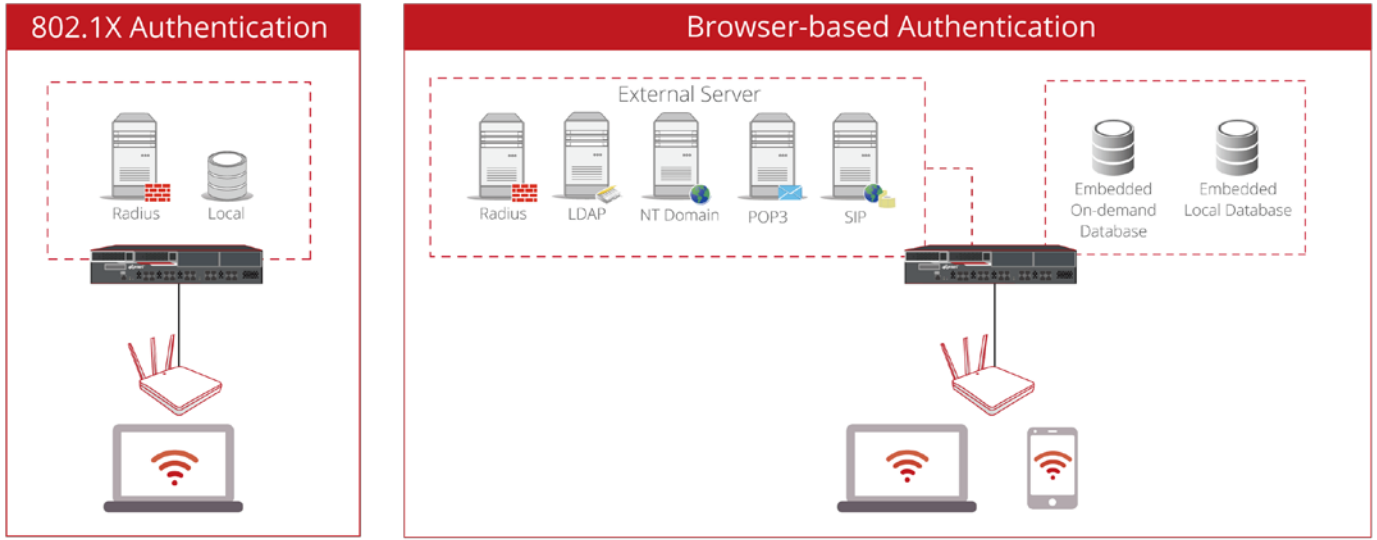
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ENTERPRISE USER AUTHENTICATION

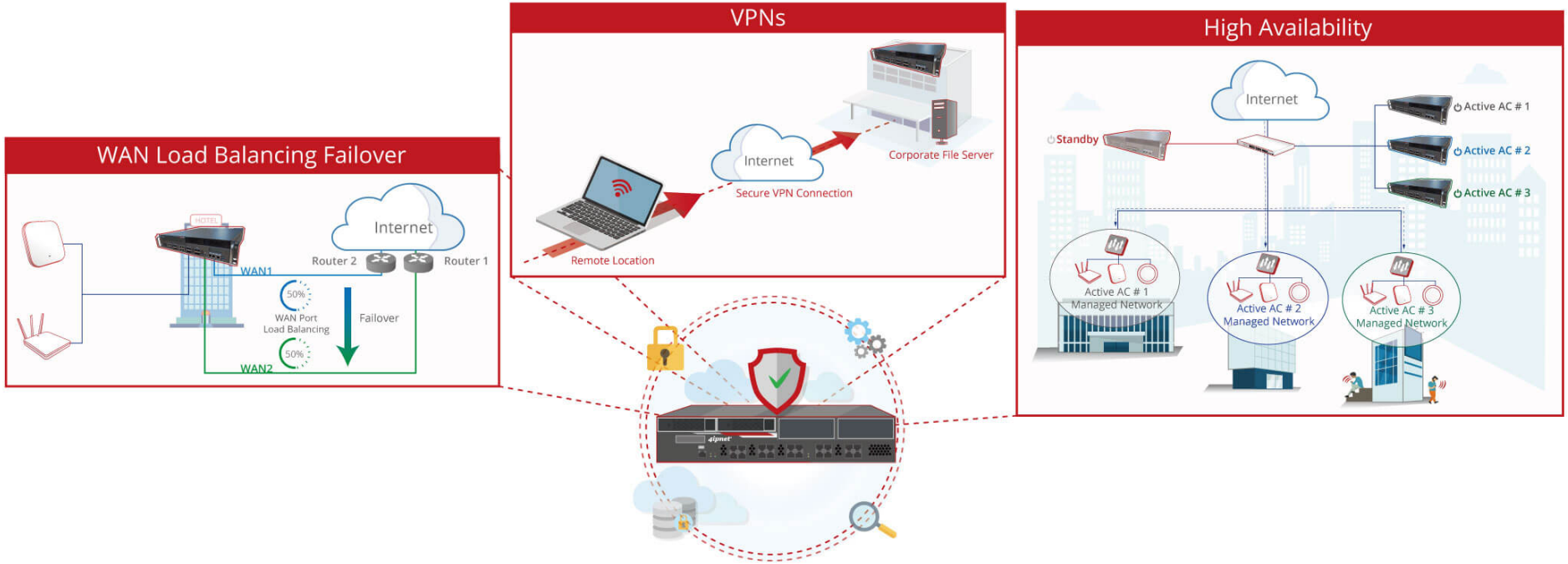
- 4ipnet solution supports various methods for Wi-Fi user authentication and can simultaneously enable multiple authentication databases in the same deployment



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DEPLOYMENT SECURITY & RELIABILITY

- 4ipnet's solution supports security and reliability features such as VPN, WAN load balancing, WAN failover, and HA.

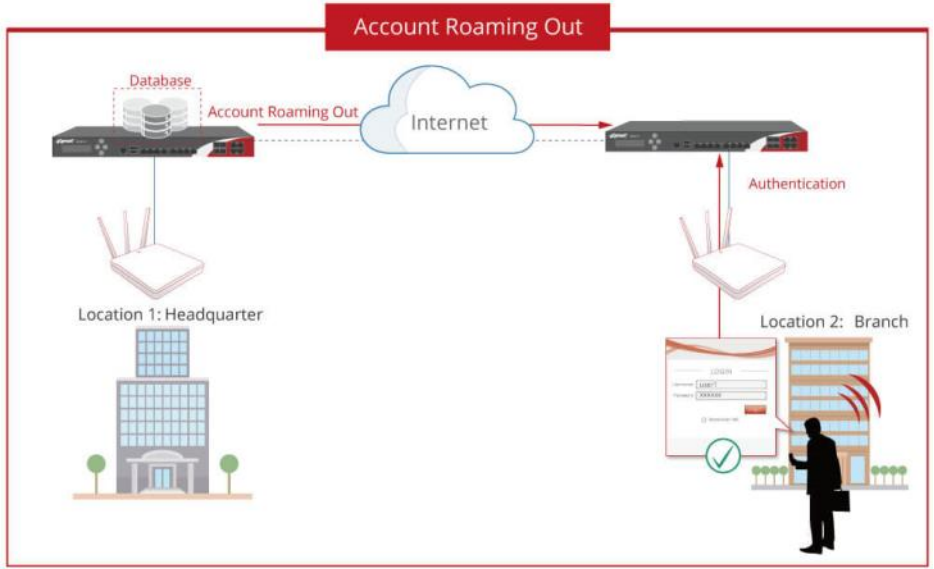


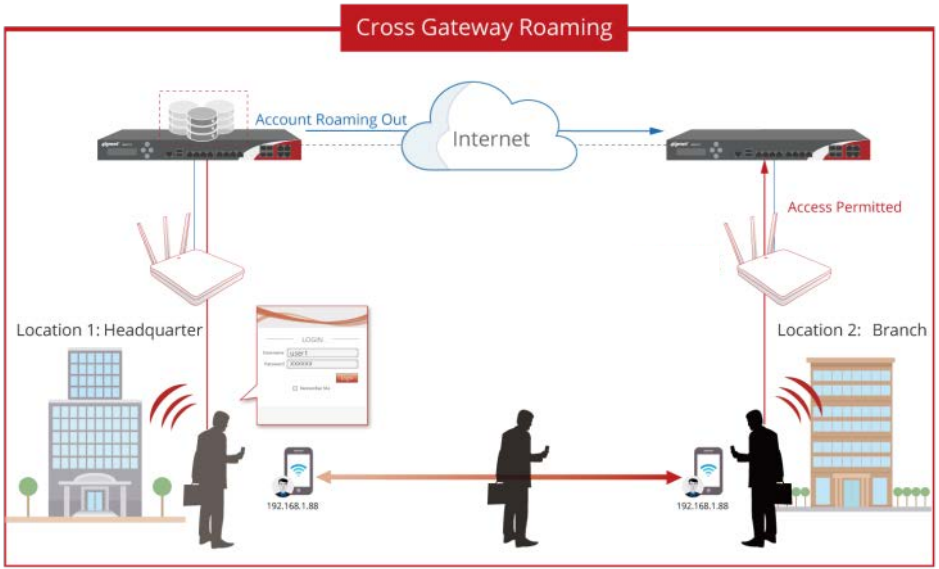
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USER MOBILITY

- Mobility features such as account roaming out allows users to have a universal account ID and password without registering again in other linked locations, centralizing the account database with uninterrupted wireless connectivity.
- Cross-gateway roaming enables users to easily roam across layer 2 and layer 3 architectures without having to re-authenticate or manually change IP address



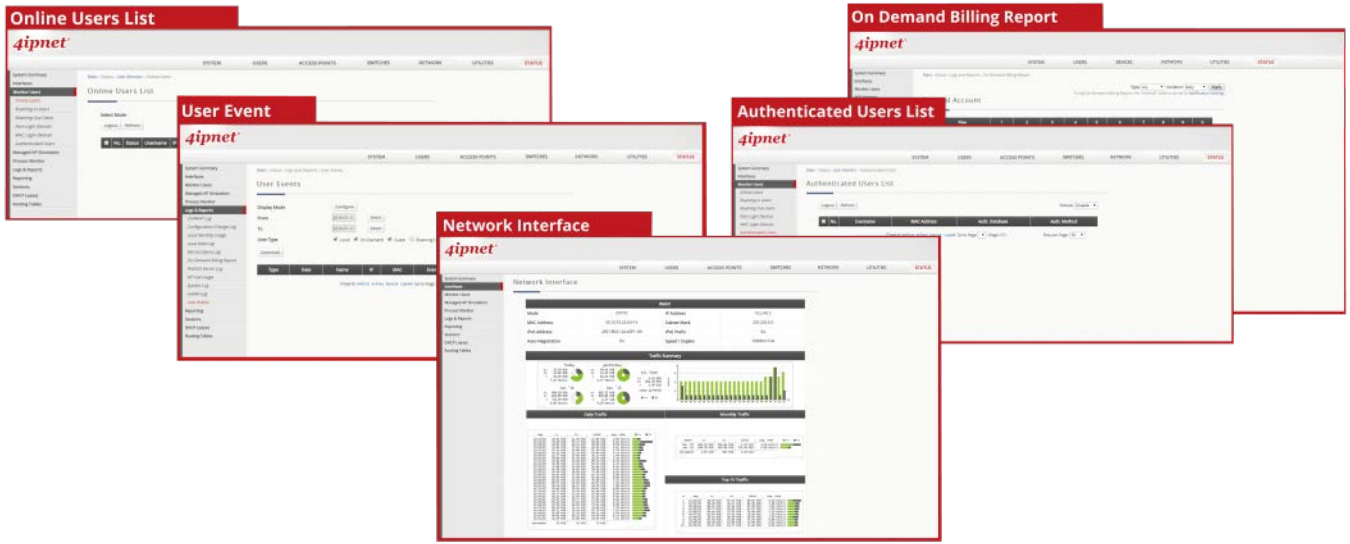


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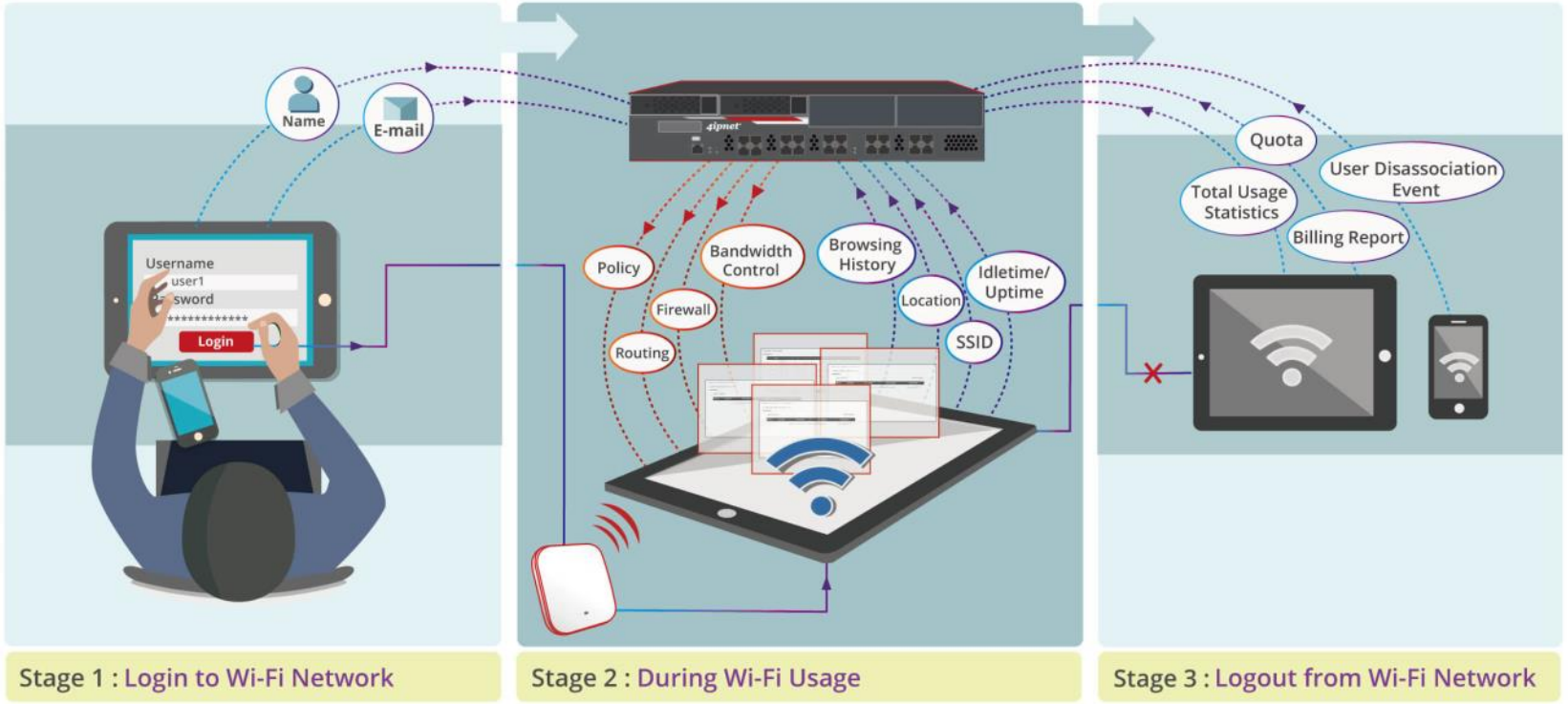
USER LOGS & ACTIVITY TRACING

- Detailed user events and traffic logs help network administrators monitor user activity and troubleshoot network issues
  - » Logs and reports are exportable to external SYSLOG/FTP servers
- Example: Universities need to be able to identify users who are violating network policies (e.g. download illegal music/movies)
  - » NAT log : help trace the public IP/port to private IP/port conversion
  - » User event log : search by IP address for user to find when the user authenticated and from which AP
  - » Example logs & reports: User browsing history, User event log, NAT log, On-demand billing report, regular system report to IT manager, etc.



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COMPLETE USER MANAGEMENT



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4IPNET PARTNERSHIPS & INTEGRATIONS



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WLAN GATEWAY-CONTROLLER

	WHG201	WHG321	WHG325	WHG425	WHG525	WHG711	WHG802
							
Managed APs	10	40	80	150	300	500	1200
Local Accounts	2000	10000	10000	10000	10000	30000	30000
On-Demand Accounts	2000	10000	10000	10000	10000	30000	30000
Recommended Concurrent Users	60	100	200	400	800	2000	5000
Form Factor	7.5" Desktop	13" Desktop	19" Rack-mount (1U)	19" Rack-mount (1U)	19" Rack-mount (1U)	19" Rack-mount (1U)	19" Rack-mount (2U)
WAN Ports	(1 or 2)*1 x GbE	2 x GbE	2 x GbE	2 x GbE	2 x GbE	2 x GbE 2 x 1G SFP	2 x GbE 2 x 10G SFP 2 x 1G SFP
LAN Ports	(4 or 3)*1 x GbE	2 x GbE	2 x GbE	4 x GbE	4 x GbE	10 x GbE 2 x 1G SFP	6 x GbE 2 x 10G SFP 6 x 1G SFP
High Availability	No	Yes	Yes	Yes	Yes	Yes	Yes
Power	DC Input: 12V / 1A	DC Input: 12V / 2A	Input: 100-240 VAC	Input: 100-240 VAC	Input: 100-240 VAC	Input: 100-240 VAC	Input: 100-240 VAC
LED Indicator	Power, Status	Power, Status	Power, Status	Power, Status, HDD	Power, Status, HDD	Power, HDD	Power, Status, HDD
Buttons	Power, Reset	Reset	Reset	Reset	Reset	Reset	N/A
LCD Display	No	No	Yes	Yes	Yes	Yes	Yes
Operating Temperature	0°C (32°F) ~ 40°C (104°F)	0°C (32°F) ~ 45°C (113°F)	0°C (32°F) ~ 50°C (122°F)	0°C (32°F) ~ 40°C (104°F)	0°C (32°F) ~ 40°C (104°F)	0°C (32°F) ~ 40°C (104°F)	0°C (32°F) ~ 40°C (104°F)
Operating Humidity	5% ~ 95%non-condensing	5% ~ 95%non-condensing	5% ~ 95%non-condensing	10% to 90%non-condensing	10% to 90%non-condensing	5% ~ 95%non-condensing	5% ~ 95%non-condensing
Dimensions (W x D x H; cm)	19.0 x 13.3 x 3.3	33.0 x 18.0 x 4.5	43.0 x 28.0 x 4.4	43.0 x 26.0 x 4.4	43.0 x 26.0 x 4.4	42.6 x 45.0 x 4.4	43.0 x 45.0 x 8.8
Weight	0.82 kg	1.81 kg	5.99 kg	5.00 kg	5.00 kg	8.00 kg	19.00 kg

*1: Ethernet port allocation option for various deployment scenarios

Note: Capacity limits may vary depending on configuration parameters

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WI-FI ACCESS POINTS

	EAP702	EAP705	EAP737	EAP767	OWL300	OWL530	OWL630
							
Deployment	Indoor	Indoor	Indoor	Indoor	Outdoor	Outdoor	Outdoor
Wireless Standard	802.11 a/b/g/n/ac	802.11 a/b/g/n/ac	802.11 a/b/g/n/ac, wave2	802.11 a/b/g/n/ac	802.11a/b/g/n/ac, wave2	802.11 a/b/g/n	802.11 a/b/g/n/ac
MIMO	2 X 2: 2	2 X 2: 2	2 X 2: 2 (MU-MIMO)	3 X 3: 3	2 x 2 : 2 (MU-MIMO)	2 X 2: 2	3 X 3: 3
PoE Specification	802.3af	802.3af	802.3at	802.3at	802.3at	802.3af	802.3at
Maximum # of ESSID	16	16	32	32	32	16	32
Uplink Ports	1 x GbE (PoE)	1 x GbE (PoE)	1 x GbE (PoE)	1 x GbE (PoE)	1 x GbE (PoE)	1 x GbE (PoE)	1 x GbE (PoE)
LAN Ports	1 x GbE	2 x GbE	1 x GbE	-	1 x GbE (802.3af downlink PoE)	-	1 x GbE (802.3af downlink PoE)
Output Power*[1]	2.4 GHz: Up to 10 dBm 5 GHz: Up to 10 dBm	2.4 GHz: Up to 19 dBm 5 GHz: Up to 21 dBm	2.4 GHz: Up to 24 dBm 5 GHz: Up to 23 dBm	2.4 GHz: Up to 25 dBm 5 GHz: Up to 25 dBm	2.4 GHz: Up to 20 dBm 5 GHz: Up to 20 dBm	2.4 GHz: Up to 27 dBm 5 GHz: Up to 25 dBm	2.4 GHz: Up to 28 dBm 5 GHz: Up to 28 dBm
IP Rating	-	-	-	-	IP56	IP68	IP68
Mounting	In-Wall	Wall Plate	Wall / Ceiling Mount	Wall / Ceiling Mount	Pole Mount	Pole Mount	Pole mount
Antenna Gain	2.4 GHz: 2 dBi 5 GHz: 3.5 dBi	2.4 GHz: 2 dBi 5 GHz: 2 dBi	2.4 GHz: 3 dBi 5 GHz: 3 dBi	2.4 GHz: 3 dBi 5GHz: 5 dBi	2.4 GHz: 5 dBi 5GHz: 5 dBi	Optional Antennas	Optional Antennas
Dimensions (W x D x H; cm)	US: 11.5 X 7.0 X 4.0 EU: 8.5 x 8.5 x 4.0	12.0 X 7.0 X 2.6	16 X 16 X 3.8	18.0 X 18.0 X 4.4	25.5 x 12.0 x 4.5	18.2 X 11 .1 X 4.5	25.0 X 20.0 X 7.4
Weight	0.12 kg	0.12 kg	0.55 kg	0.61 kg	0.6kg	0.90 kg	2.80 kg

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ACCESS POINT CONTROLLER & WIRELESS HOTSPOT GATEWAY

APM100



Number of Managed APs	Up to 100
Form Factor	Desktop
Dimensions	19.0 cm x 13.3 cm x 3.3 cm
Weight	0.82 kg (1.81 lbs)
Power	DC Input: 12V / 1A (Power adapter included)
Network Interface	5 x 10/100/1000Base-T Ethernet, Auto-MDIX, RJ-45
USB	USB 3.0 (16GB disk included)
Buttons	Power, Reset/Restart
LED	Power, Status
Certifications	CE, FCC
Operating Temperature	0 to 40°C (32 to 104°F)
Operating Humidity	5% to 95% Non-condensing

HSG326



Wireless Standard	802.11a/b/g/n/ac ; Wave 1 Concurrent Dual-band 2.4 & 5 GHz
MIMO	2 x 2 : 2
Physical Data Rate	Up to 1.2 Gbps
ESSIDS	Up to 4 ESSIDs
Ports	USB: 1 x USB 2.0 Charging Port
Mounting	Wall Mount / Desktop
Authentication Types	802.1X / UAM (browser-based) / IP or MAC-based
Authentication Servers	Local / On-Demand / Guest / RADIUS
Social Media Login	Facebook / Google+ / Line / Open ID
Dimensions	10.7 cm (L) x 12.1 cm (W) x 2.1cm (H)
Operating Temperature	0°C (32°F) to 45°C (113°F)
Operating Humidity	0% to 80% non-condensing

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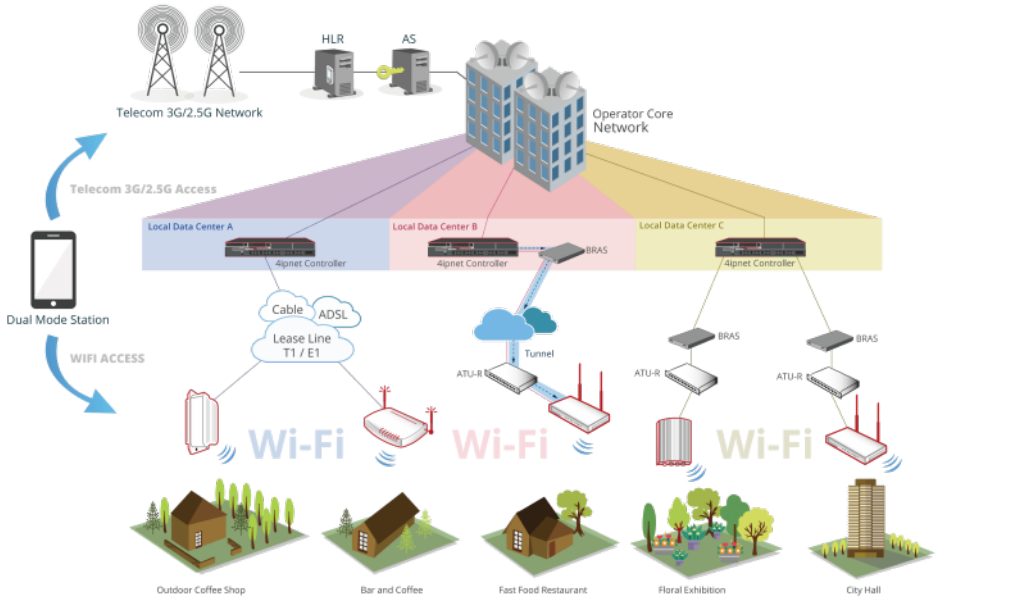
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CHT AAA GATEWAY/POLICY ENFORCEMENT

- Over a hundred of 4ipnet's high-end WHG Controllers were deployed for managing the Wi-Fi offload traffic of **50,000+ hotspots** across Taiwan.



50,000+ hotspots deployed

4000 ~ 5000 concurrent users per gateway

20 million EAP-SIM transitions per day

- Project Customer:
  - Telecom, Taiwan
- Products Deployed:
  - WHG711
  - WHG801
- Location Deployed:
  - MRT Stations
  - McDonalds
  - Coffee Shops
  - Government Buildings
  - Convenience Stores
  - Telephone Booths
- Key Applications:
  - 802.1X (EAP-SIM) and browser-based (UAM) user authentication
  - Role-based user policy enforcement
  - DNS proxy server
  - DHCP/User/System log server
  - Interworking with operator's core network equipment

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HOTEL GUEST ACCESS & PMS INTEGRATION

- Adrián Hoteles owns three outstanding luxury hotels - **Jardines de Nivaria, Roca Nivaria, and Colón Guanahaní**- in Costa Adeje Tenerife. Through the deployment of 4ipnet's solution, high quality Wi-Fi service has been made available to numerous concurrent users across all three hotels in over 700 guest rooms, common areas and facilities. In addition, the **integration of PMS and WHG Controller** allows for automatic account creation using guest information as well as consolidated room bills.



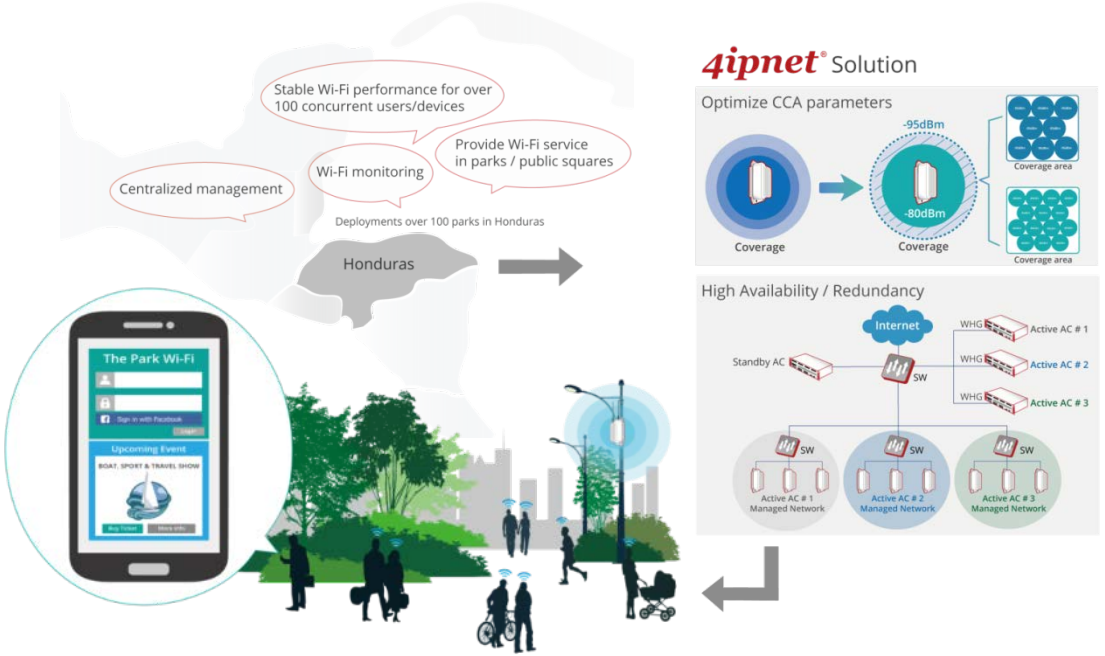
"With 4ipnet, we have achieved a hundred percent coverage in both common areas and all rooms across the three hotel chains. We ended up not only with a new Wi-Fi installation, but more importantly a new success story."
- said Héctor González, head of the hotels' IT department.

- Project Customer:
  - Adrián Hoteles, Spain
- Products Deployed:
  - WHG525
  - WHG711 x 2
  - EAP701 x 711
  - EAP767 x 38
  - WTG
- Key Applications:
  - Social media login
  - PMS integration
  - Tiered user accounts (Guests/VIP Guest/Employee)
  - Bandwidth control

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HIGH-DENSITY OUTDOOR WI-FI ACCESS

- Outdoor networking equipment has to endure harsher weather conditions and is much more difficult to deploy than indoor ones. 4ipnet's solution can address these difficulties by offering access points that are specially designed for outdoor use. The 4ipnet outdoor APs can **be flexibly coupled with antennas of varying gains** depending on the required coverage and configurable parameters and thresholds help to optimize Wi-Fi performance.

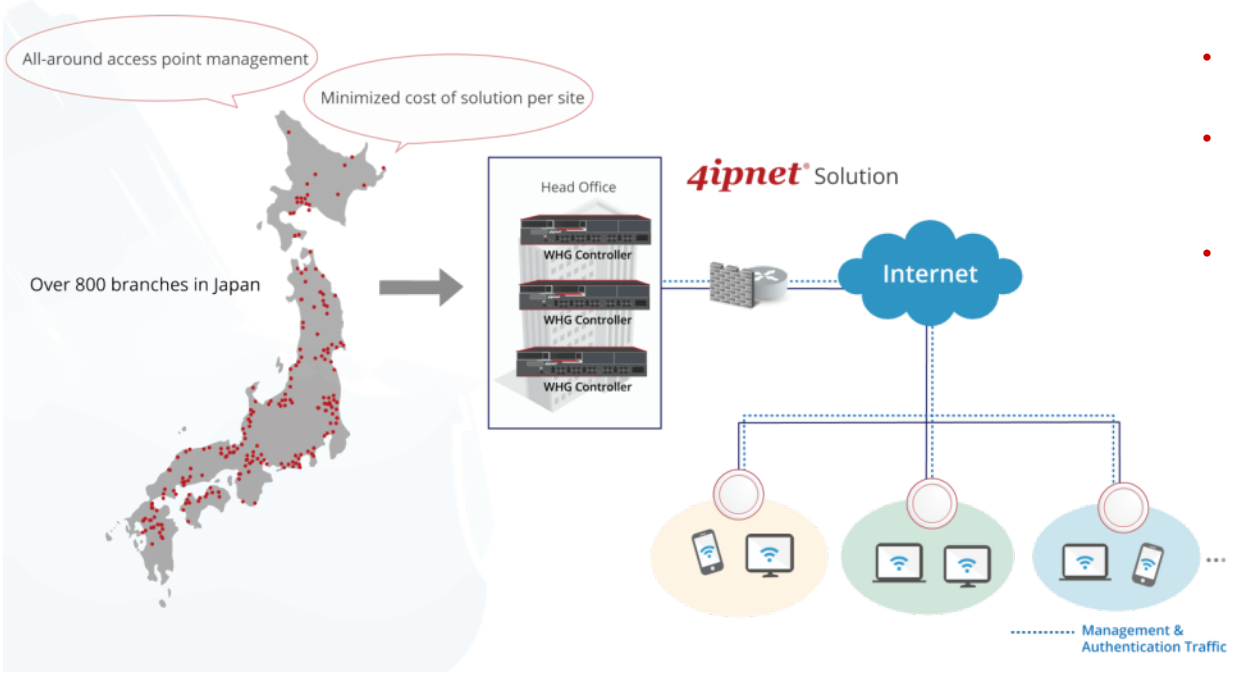


- Project Customer:
  - Public park Wi-Fi, Honduras
- Products Deployed:
  - WHG801 x 2
  - OWL530 x 100
- Key Applications:
  - 2+1 High Availability
  - Enterprise-grade user authentication
  - Centralized AP management
  - Customize Captive Portal & Data collection
  - Detailed user monitoring logs & report
  - Optimized CCA parameters for outdoor application

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MULTI-SITE AP MANAGEMENT

- Three WHG Controllers were deployed at the headquarter with **2+1 high availability, and 2800 APs were deployed at over 800 branches** to provide Wi-Fi service for internal employees only. The administrators are able to centrally and remotely manage APs from the data center.

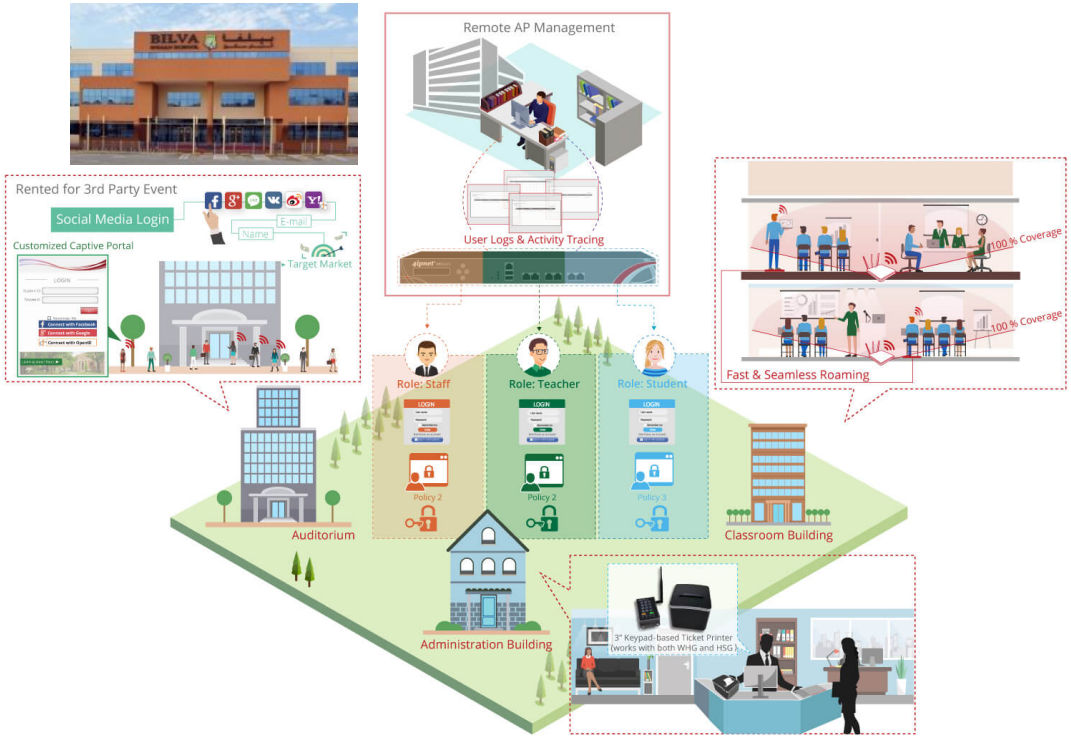


- Project Customer:
  - Automotive Parts Retailer, Japan
- Products Deployed:
  - WHG801 x 3
  - EAP320 x 2800
- Key Applications:
  - Centralized & remote AP management
  - AP Grouping with Load Balancing
  - WPA2-Enterprise authentication
  - Map view of managed APs
  - Rogue AP detection

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SMART WI-FI SOLUTION FOR CAMPUS

- 4ipnet's solution allows network administrators to provide teachers and students on campus with different levels of access by **creating multiple user roles, each with its own predefined set of policies and schedules**. As a result, the campus is able to provide a secure and reliable Wi-Fi service for **over 1,000 active concurrent users**.



- Project Customer:
  - Bilva Indian School, Dubai
- Products Deployed:
  - WHG525
  - EAP760 X 60
  - WTG2
- Key Features Used:
  - Centralized & remote AP management
  - Multiple virtual networks
  - Social media login
  - Schedule & role-based user access control
  - Fast and Seamless roaming
  - Captive Portal customization
  - Detailed logs and reports

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4ipnet®

Q & A

THANK YOU

- With 4ipnet's managed Wi-Fi solutions, hotels, schools as well as enterprises can gain a competitive advantage by deploying stable, mobile, and manageable Wi-Fi.

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sales@4ipnet.com

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