

# Open Wireless Cloud Controller

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Wi-Fi Management Platform For Enterprise, SMB & MDU Markets



# Indio Networks

**Established : 2005**

Indio Networks provides a complete range of wireless networking solutions for managing public and enterprise networks, Wi-Fi hotspots and IOT deployments.



Among the top 3 hotspot companies in the world



25000+ venues



16+ years of industry leadership



Presence in 45+ Countries



Offices in USA, UAE and India



Resellers in 20+ countries



Full range of Wi-Fi Products



Multiple awards and recognitions



24x7 customer support

# Product Portfolio



**Enterprise Grade APs**



**Home Routers-4G/5G**



**Indio Connect**

For Mobile Network Operators



**Network Controllers**



**IoT Gateways**



**Managed L2+ Switches**



**Indio Cloud**

For Managed Service Providers

# Market Presence



# Industry Associations







# Customers



Hospitality

Education

Healthcare

Telecom

Corporates

Satcom

Public WiFi



University of Delhi

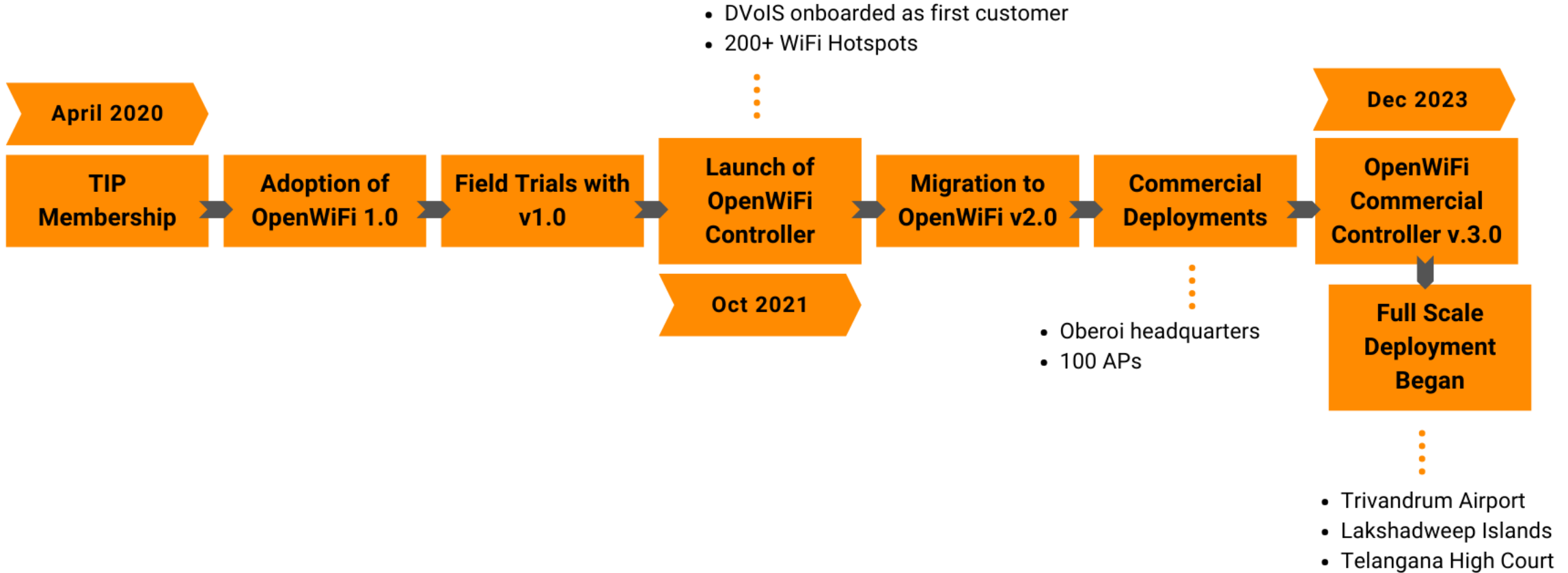


AIIMS





# Indio's OpenWiFi History





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# WIFI SOLUTION FOR ENTERPRISE

# Open Technology Stack



An Initiative of Telecom Infra Project (TIP)




Open source cloud SDK and Enterprise grade Access Point Firmware



Community developed, disaggregated WiFi software system



Freedom from vendor lock-in on both hardware and cloud controller

 **Wi-Fi Commercial use cases**




**Service Providers & Enterprises**

 **Indio's WiOS Cloud Controller**




**Wi-Fi OEM's**

 **Cloud Controller SDK**



**Open-source Community**

 **Access Point Firmware**

 **Whitebox Access Point (OpenWi-Fi compliant)**



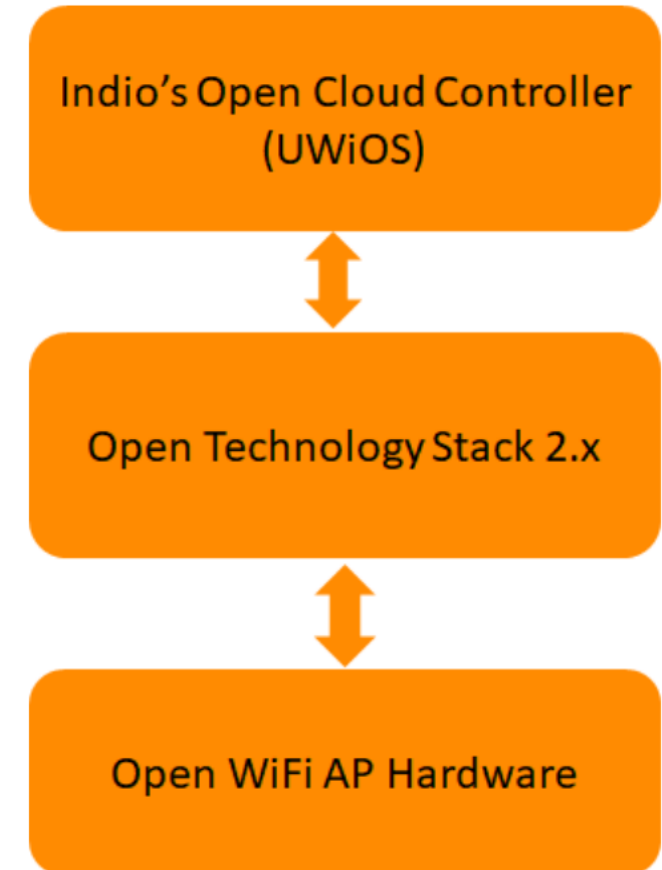
**ODMs**





# UWiOS - Open Cloud Controller

- UWiOS is an open wireless cloud controller for Enterprise, SMB and MDU deployments
- Built on open technology stack - OpenWiFi cloud SDK and OpenWiFi AP NOS
  - OpenWiFi 2.x Stack is chosen over 1.x to build and deliver solution on low cost, low compute AP hardware
- WiFi service providers get option to choose any AP hardware from list of supported ODMs
  - No hardware vendor lock-in
- Built to support WiFi6 and WiFi6E multiradio APs
  - Backward compatibility to support WiFi4 & WiFi5 APs
- Deploy on private or hyperscalers, public Cloud -AWS, Azure, DO or On-premise data-centers
- SaaS or Licensed platform option for WiFi service providers and enterprises



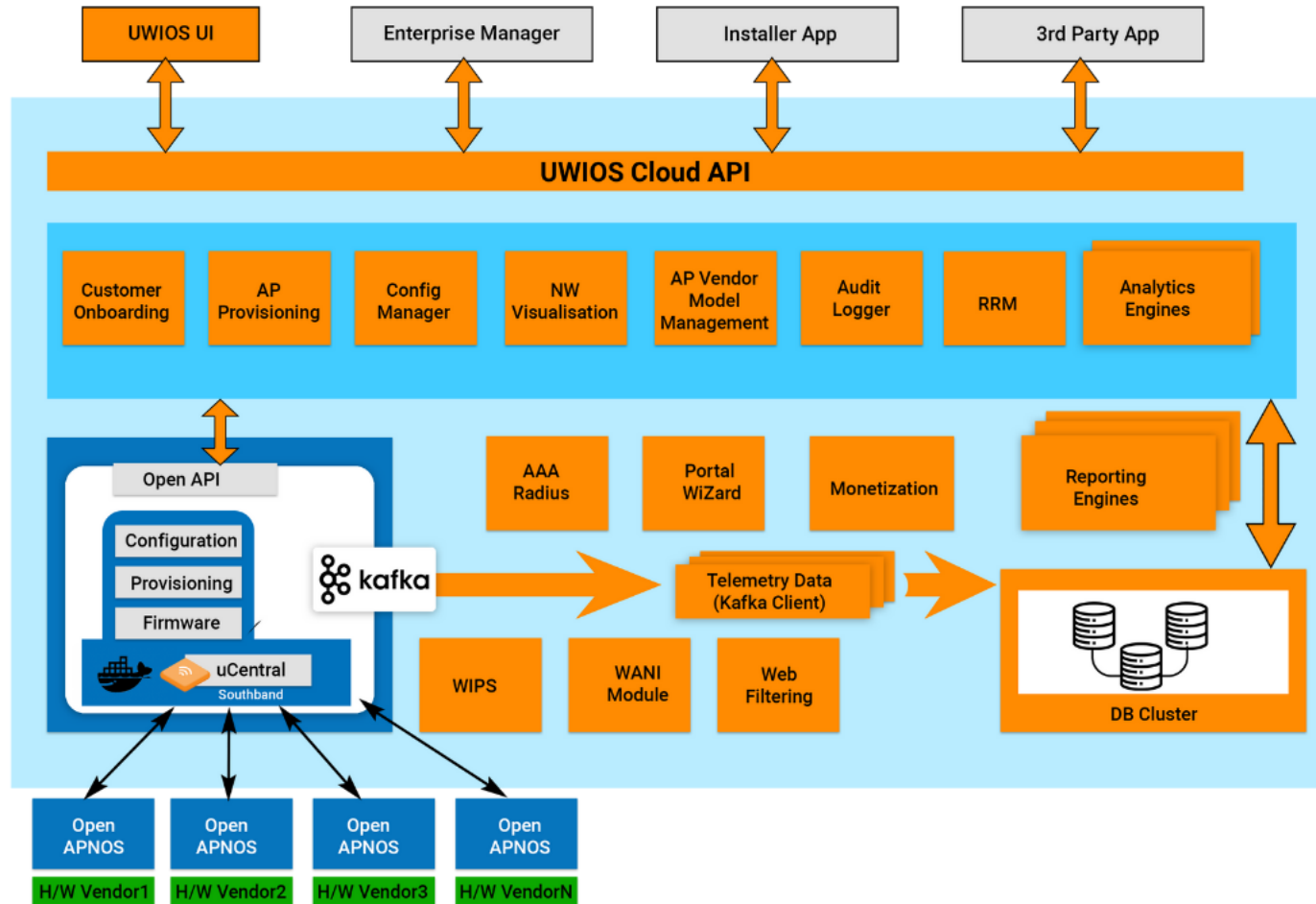
# UWiOS Stack



<p style="writing-mode: vertical-rl; transform: rotate(180deg);">CLOUD CONTROLLER</p>	<p><b>Operation Management</b></p> <ul style="list-style-type: none"> <li>• Customers</li> <li>• AP vendors</li> <li>• AP models</li> <li>• System admins</li> <li>• Inventory</li> <li>• Network troubleshooting</li> </ul>	<p><b>Wireless Controller</b></p> <ul style="list-style-type: none"> <li>• Advance RRM</li> <li>• Dynamic Control (Channel and Power)</li> <li>• Roaming</li> <li>• Steering (Client, Band)</li> <li>• Meshing</li> <li>• Application Fingerprinting</li> <li>• Policy-Airtime, speed etc.</li> </ul>	<p><b>Config Management</b></p> <ul style="list-style-type: none"> <li>• Venues</li> <li>• Device Profiles</li> <li>• AAA Profiles</li> <li>• WIPS</li> <li>• SON</li> <li>• Captive portal</li> </ul>	<p><b>Network Visualizer</b></p> <ul style="list-style-type: none"> <li>• Dashboard view</li> <li>• Network insight – Venue, AP, Client</li> </ul>	<p><b>Analytics &amp; Reports</b></p> <ul style="list-style-type: none"> <li>• Network &amp; AP outage report</li> <li>• Data usage</li> </ul> <p><b>Troubleshooting</b></p> <ul style="list-style-type: none"> <li>• Syslog</li> <li>• Health Checks</li> <li>• Remote Shell</li> <li>• Remote Capture</li> </ul>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">CLOUD NATIVE DEPLOYMENT USING DOCKER (AWS, AZURE, ALI, DIGITAL OCEAN OR BARE METAL H/W)</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">OPENWIFI MIDDLEWARE</p>	<p><b>Cloud SDK</b></p> <ul style="list-style-type: none"> <li>• Zero Touch Provisioning</li> <li>• Firmware Management</li> <li>• Northbound API</li> <li>• Messaging Bus</li> <li>• Configuration Control</li> <li>• Location Services</li> <li>• Remote Debugging</li> </ul>	<p><b>AP NOS</b></p> <ul style="list-style-type: none"> <li>• Controller Discovery</li> <li>• Wireless Configurations                             <ul style="list-style-type: none"> <li>• Multiple SSID</li> <li>• Advance security- WPA/WPA2/WPA3, Enterprise mode</li> </ul> </li> </ul>	<p><b>AP NOS</b></p> <ul style="list-style-type: none"> <li>• Health check reporting</li> <li>• QoS</li> <li>• Airtime Fairness</li> <li>• Rate-limiting</li> <li>• DFS and TPC</li> <li>• 11 k/v/r/w</li> <li>• Meshing</li> </ul>	<p><b>AP NOS</b></p> <ul style="list-style-type: none"> <li>• IPv4 , IPv6 Ready</li> <li>• Data tunnels- GRE, L2TP</li> </ul>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">HARDWARE BASED ON DIFFERENT PLATFORMS FROM QUALCOMM, MEDIATEK ETC</p>	
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">HARDWARE VENDORS</p>						<p style="writing-mode: vertical-rl; transform: rotate(180deg);">HARDWARE BASED ON DIFFERENT PLATFORMS FROM QUALCOMM, MEDIATEK ETC</p>



# UWiOS Architecture



- Multi-tenant Cloud Platform
- API Driven Architecture
- Massively Scalable Controller



# UWiOS Built-In Services

## Wireless Controller

AP Provisioning, Local Breakout for Enterprise, WiFi Configuration, ACL, Firmware Upgrade, RRM, Meshing

## Captive Portal Engine

Captive portal wizard, Customized landing page, APIs, Multiple Authentication Support-Clickthrough, OTP, Social Login, Username/Password, Voucher, Data capture etc, Selfcare Subscriber portal

## AAA

RADIUS server, Authentication APIs to support captive portal and 802.1x authentication

## Charging

Payment gateways, Charging Plans, SMS Gateway Integration Vouchers

## Content Filtering

URL Filtering, Blacklisting, White-listing, Keyword based filtering, Network based policy

## Monetization

Survey, Reviews, Image and Video Advertisements on the Portal, Push Notifications

## Enterprise Management

User management and licensing, Profile, Policies, Roaming, Admin Hierarchy, Enterprise Customer Dashboard, User Quota Management



# Deployment Scenarios (Commercial Deployments)



600 + Multivendor AP (HFCL, Edgecore, Indio) deployed with Indio's UWiOS



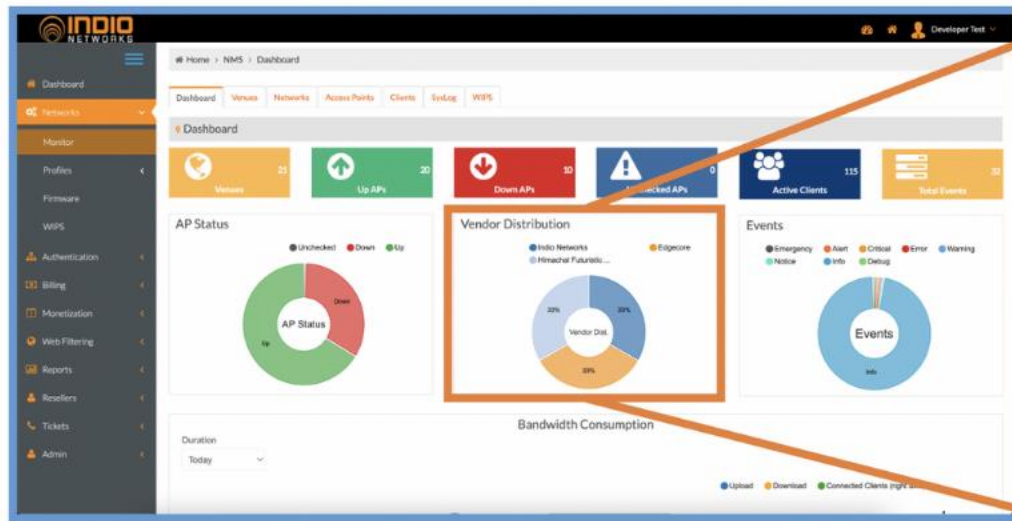
100 + Indio Wifi 5 AP already deployed on sites



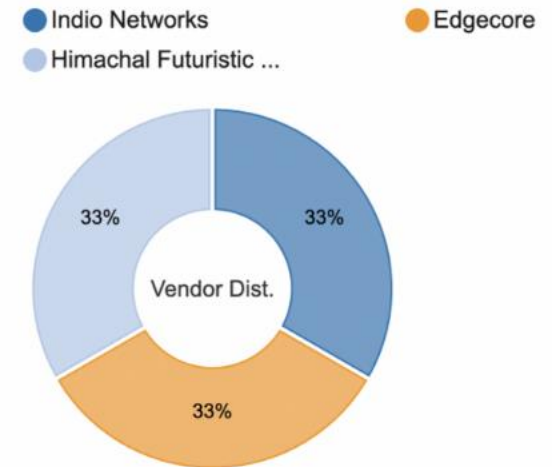
10+ Indio AP deployed with Public Gateways (hosted by third party) for POC/testing



5 Indio Wifi 6 AP currently getting deployed at sites in Gurgaon, Bangalore, Middle East



## Vendor Distribution







# UWiOS Managed Indio's WiFi APs



**UM-225AX**

**UM-325AX**

**UM-310AX**

## Indoor Access Points



**UM-510AX**

**UM-525AX**

## Outdoor Access Points



# Indio's Offerings

## 1 UWiOS Platform as Commercial Layer

Offered on both SaaS or licensing model



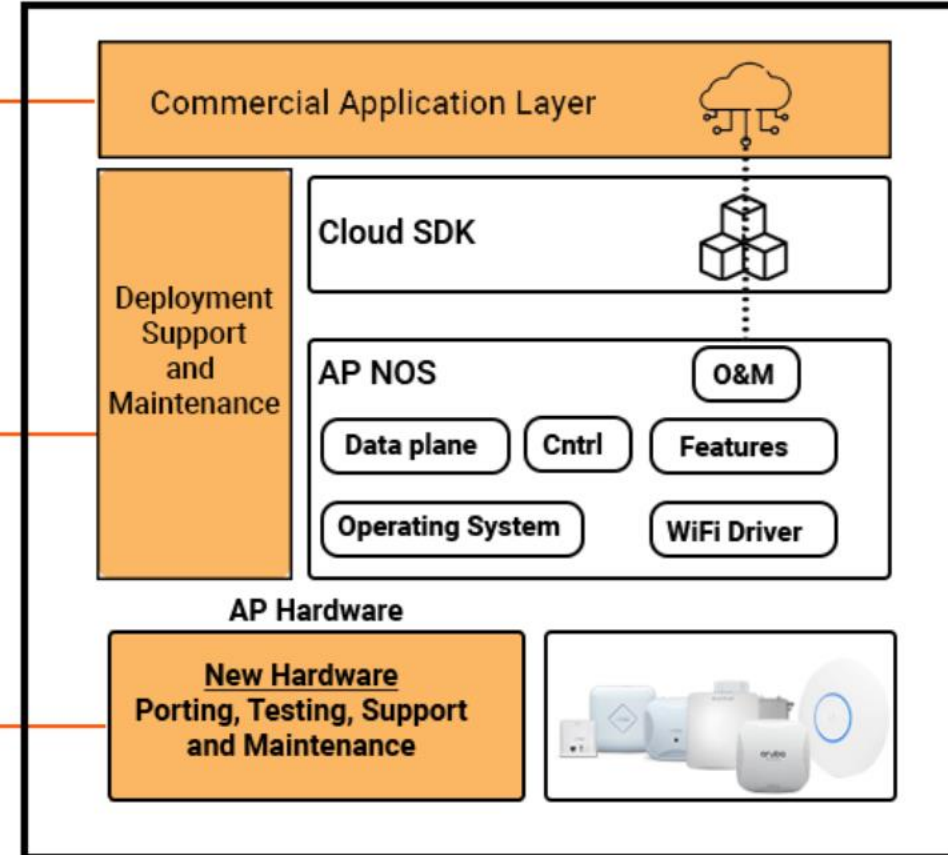
## 2 DevOps

Indio deploys and support your openwifi cloud infra and offer training on transition

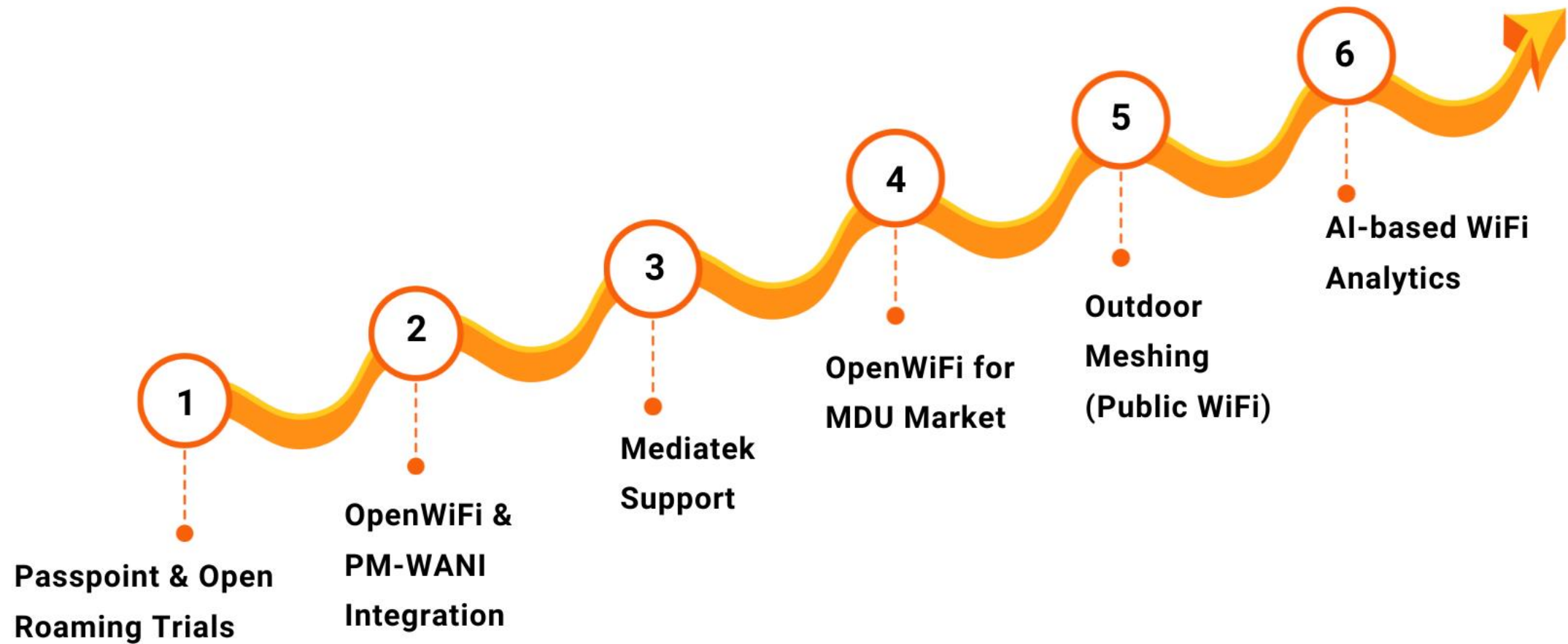


## 3 Bring Your Own ODM/Hardware

Indio offers firmware APNOS development and TIP certification support as a service. No lock-in, customer owns the code/binary.



# Technical Roadmap



# OpenWiFi for MDU



## Feature Support:



Mediatek Routers  
Support



Multi PSK



Multi-Tenancy



Dynamic VLANs



Fast Roaming



Channel  
Optimization



Subscriber  
Management



Micro-Billing



Per User QoS



Subscriber Self  
Provisioning





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# INDIO'S OPENWIFI DEPLOYMENT





# OpenWiFi Project- Trivandrum Airport

- Trivandrum International Airport: A Gateway to Thiruvananthapuram, Kerala, India.
- Vital link connecting people to Kerala's cultural and natural attractions.
- Handles **4-5 million passengers** annually, including global tourists.
- Indio Networks **revamped WiFi** at Trivandrum International Airport.
- The project is the **world's first OpenWiFi** deployment at an **airport**.





# Indio's OpenWiFi Solution

We provided an end-to-end solution, leveraging cutting-edge technology to address the complex requirements of the airport.

- » Deployed 100 OpenWiFi WiFi 6 access points
- » Customized captive portal/hotspot
- » Fast roaming
- » Setup bandwidth rules, access policies and web filtering
- » Compliance policies like IPDR/NAT logs were set
- » SMS/OTP based Two-factor authentication
- » QoS
- » Advanced telemetry







## OpenWiFi Project- Lakshadweep

- Surge in tourism development signals an exciting phase for Lakshadweep's travel landscape.
- Underscores the crucial importance of **seamless internet connectivity** in the region.
- Indio installed **outdoor OpenWiFi access points** to offer seamless public WiFi access.
- The **uninterrupted WiFi experience** enhanced overall travel experience for millions of tourists.





# Indio's OpenWiFi Solution

Indio played a pivotal role in implementing and managing public WiFi network.

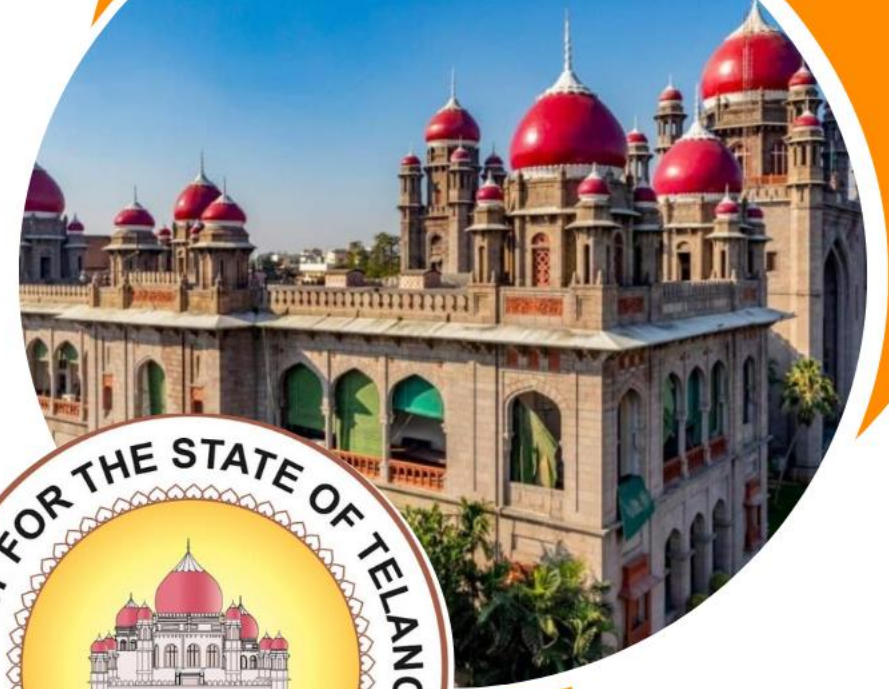
- Outdoor access point deployment
- Branded login experience
- Remote monitoring
- Transmit power control
- Auto-channel selection
- IPDR/NAT logs
- Automated reporting





# OpenWiFi Project- Telangana State High Court

- High court to provide **WiFi service** for all advocates, litigants, and media persons
- Stakeholders visiting the court will also have access to WiFi service
- Indio will provide **OpenWiFi** indoor and outdoor access points







# Indio's OpenWiFi Solution

- Customized captive portal/hotspot
- Fast roaming
- Setup bandwidth rules, access policies and web filtering
- Compliance policies like IPDR/NAT logs were set
- SMS/OTP based Two-factor authentication
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- Advanced telemetry





# Customer Benefits



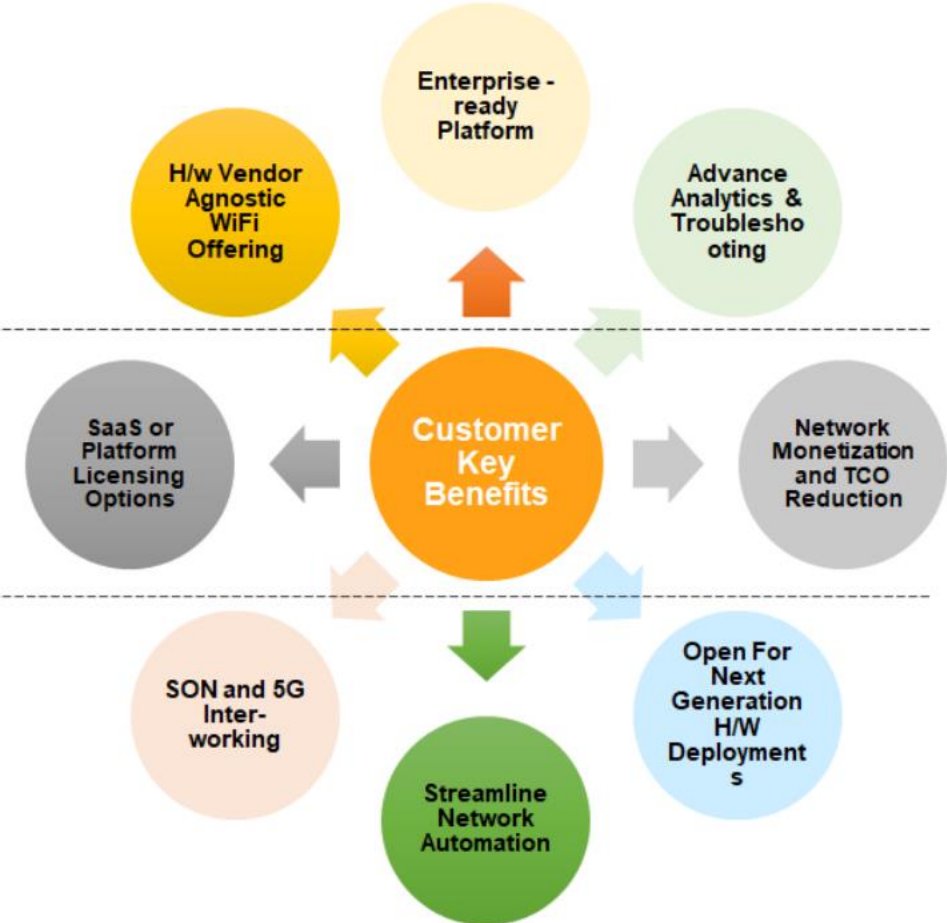
## Freedom from vendor lock-in

- Choose your own cloud, migrate to any compliant cloud platform, no impact on deployed APs
- Choose your own open WiFi compliant AP, no dependency on cloud platform vendor

### 1. Multi vendor deployments

### 2. Lower TCO

### 3. Future Ready



# Thank You

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