Hewlett Packard Enterprise

BCNET – Future Aruba Networks Innovations
What's New With Aruba Wireless?

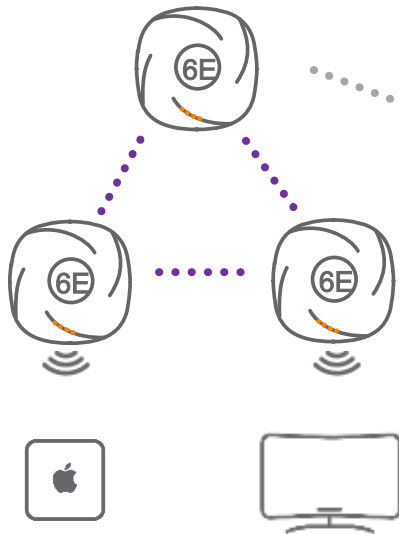Andrew Chappelle, SE
April 25, 2023

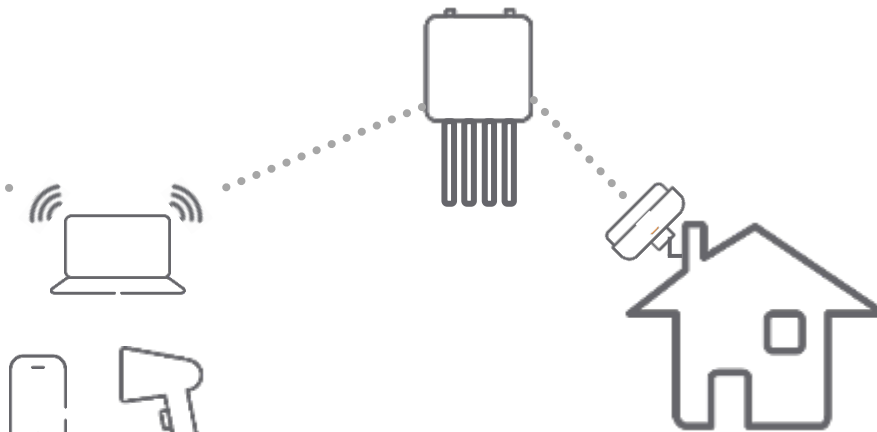# WiFi 6E–6GHz

Device Classes in 6 GHz

Low Power Indoor (LPI) AP
- Fixed indoor only
- Up to 63X lower energy
- No antenna connectors
- No weatherproofing
- Wired power

Standard Power (SP) AP
- Fixed indoor / outdoor
- Controlled by AFC database
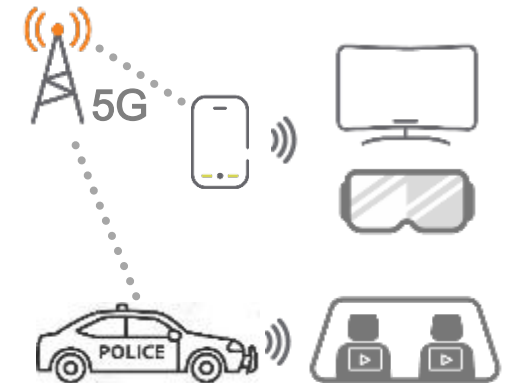- Automated geolocation
- Pointing angle restriction

Very Low Power (VLP) AP
- Mobile indoor / outdoor
- 160X lower energy

~2 Gbps throughput with sub-ms latency at 3m

Mobile Client
- Indoor / outdoor
- 4X less power than connected AP

Fixed CPE
- To run at full power, must behave like an AFC-controlled device

How a National AFC Deployment Works

- Collection of APs under local or remote management and control
- SP access points must be capable of determining their location
- SP access points must request a list of available channels from an AFC Operator every 24 hours
- Channel availability requests include AP geolocation (with uncertainty estimate), FCCID, and AP serial number
- AP or network controller chooses operating channel(s)

GPS

ULS

License Updates

FS Operators

AFC Operators

Network Controller (Physical/Virtual)
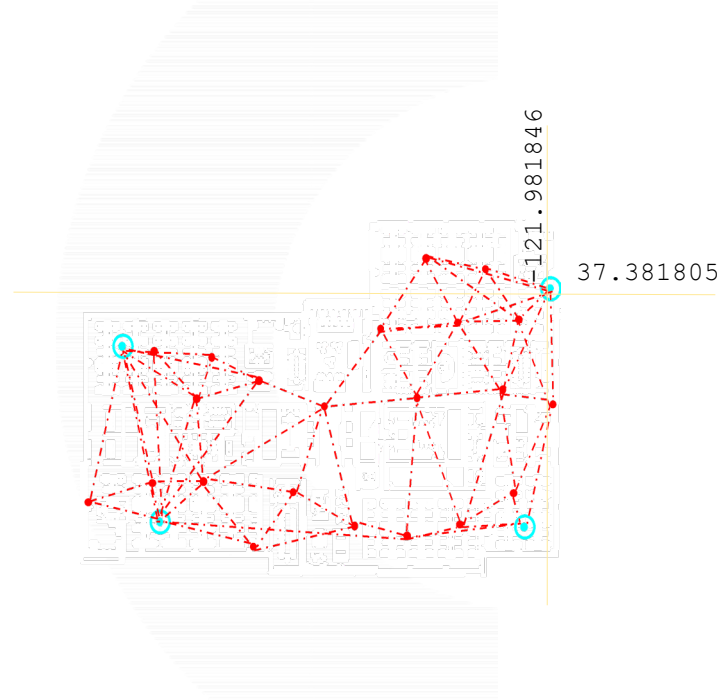
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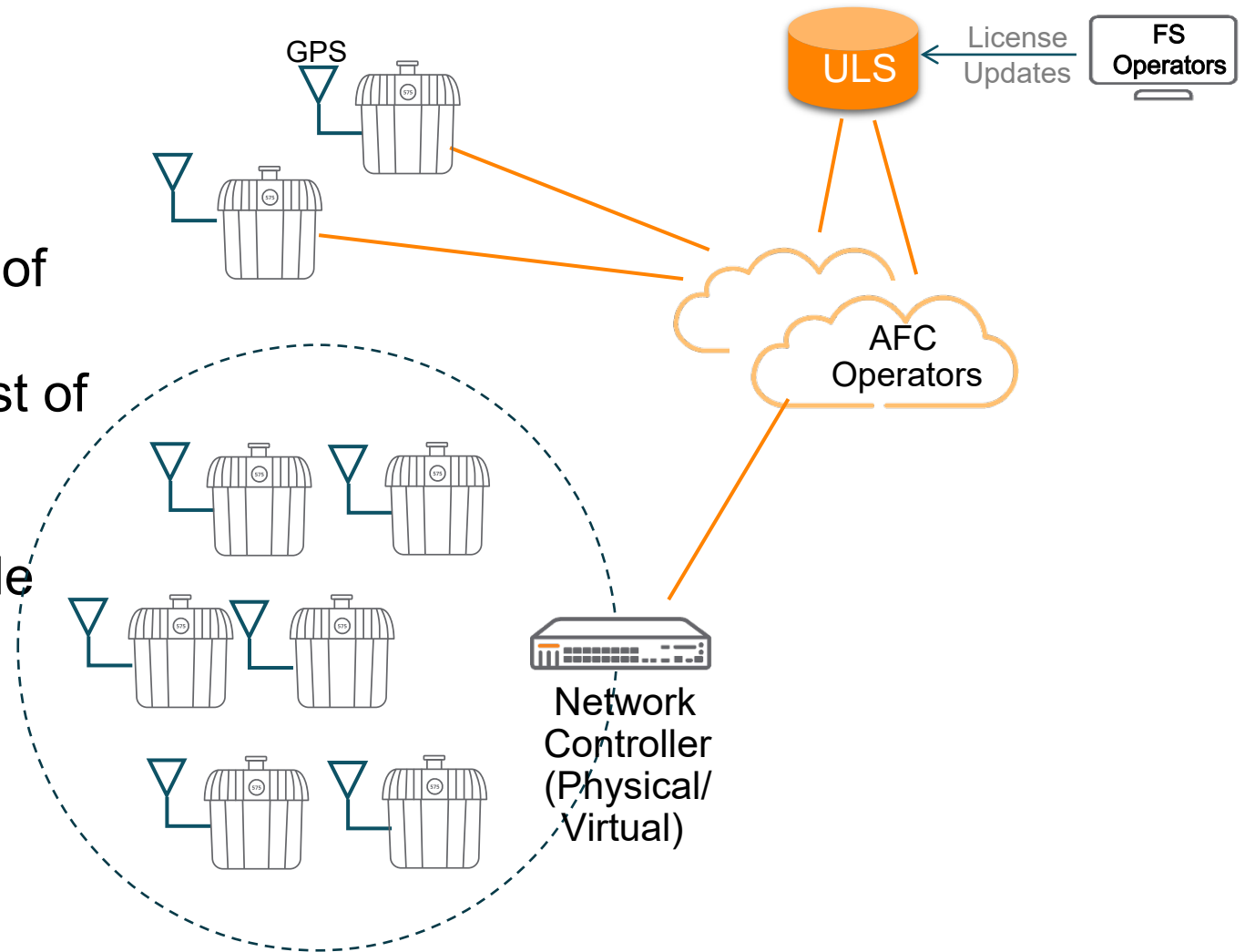
Location Services

New Approach to Indoor Location Services

APs self-locate and broadcast accurate indoor location to client devices
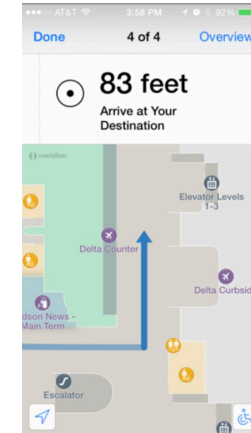

ACCURATE

APs use built-in GPS, fine time measurement and intelligent software to anchor reference points

AUTOMATED

APs continuously auto-locate themselves using universal coordinates that are compatible across apps

OPEN

Open Locate initiative allows APs to share location data with any wireless device over the air

Open Locate: Self-locating Access Points
Overview

- Technological advances in Aruba Access Points
  - All AP-6xx (6E) Access Points have an integrated GPS receiver
  - All AP-5xx and later Access Points support 802.11mc fine-time measurement (FTM)
    – Next generation of that (802.11az) coming with Wi-Fi 7
- Premise: some (or all) Access Points will have accurate absolute location info ("anchor" APs)
  - Ideally using the built-in GPS receiver, but coordinates could be entered manually as well
  - Even indoors GPS can still work quite well, given that APs are **stationary** and can take lots of **time** to get a lock
- We then rely on FTM to enable other APs to self-locate as well
  - As long as these APs can "see" multiple other APs that already have location info
- This then creates an absolute reference location framework
  - Aruba devices will advertise their calculated position in beacons over Wi-Fi and Bluetooth. Working with mobile OS vendors to ingest into location SDKs.
  - Client devices can use FTM as well or rely on RSSI, AoA, etc.
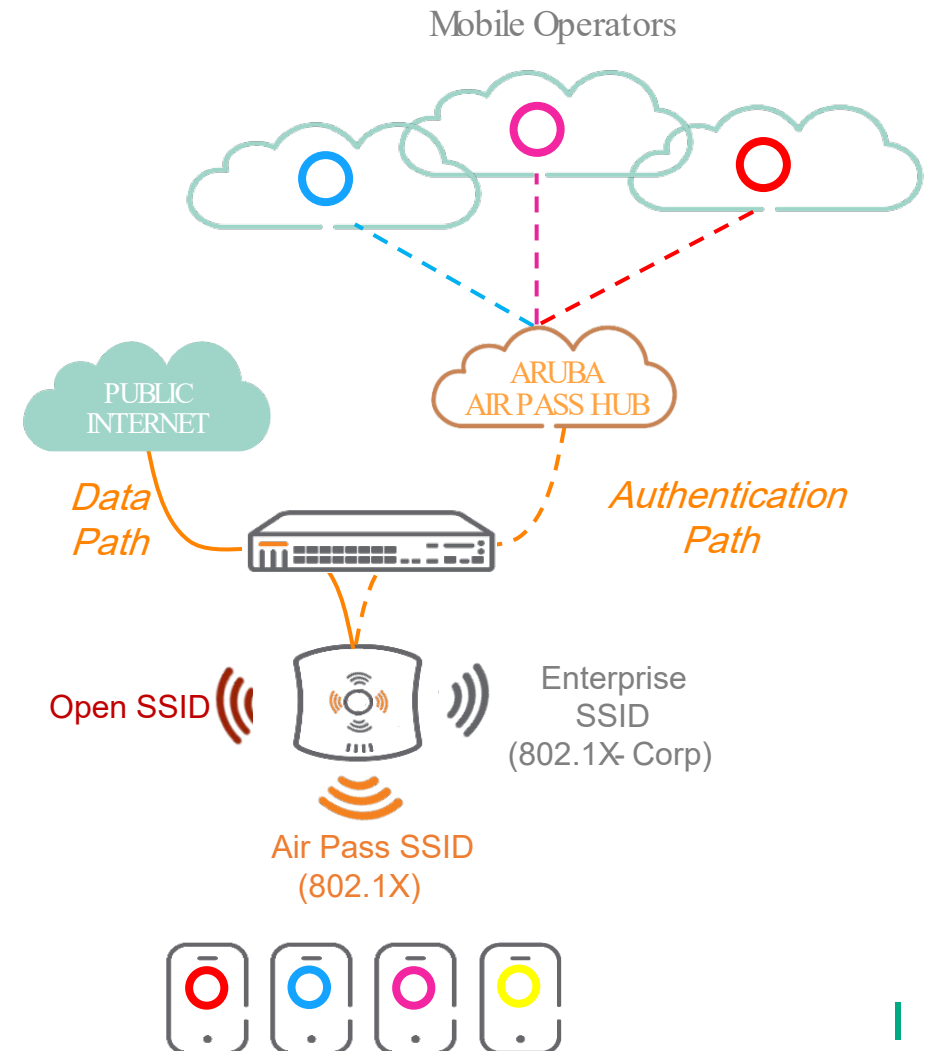 - We recently obtained Wi-Fi Location certification on multiple platforms

GNSS

FTM

GNSS Anchor AP

Aruba Locate Service Beacon IE

Aruba IE

Aruba IE

FTM
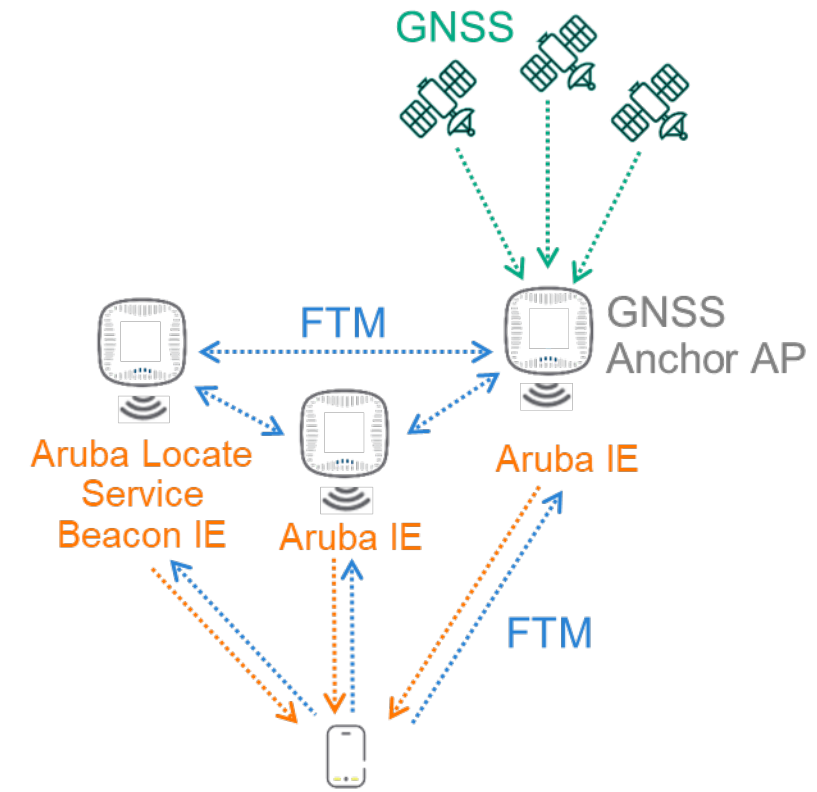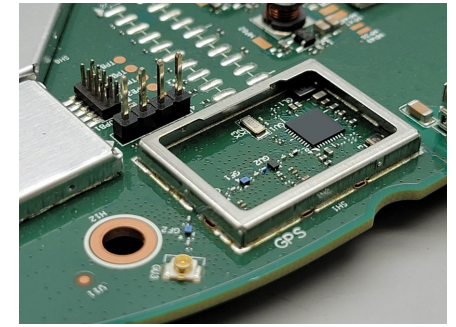
Client can use basic Aruba IE + RSSI for coarse geolocation.

Cellular-WiFi integration

ARUBA AIR PASS EXTENDS CELLULAR EXPERIENCE WITH WI-FI

- Automatic Wi-Fi discovery and authentication

- Always-on Wi-Fi Calling and text messaging

- Eliminates onboarding friction for guests

- Simplifies enterprise BYOD support

- Improves business and security analytics

- Secure, always-encrypted network access

- Compatible with existing infrastructure

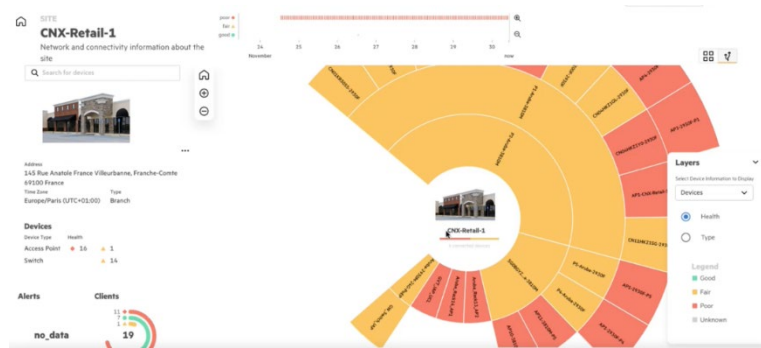- Supports MEC and local breakout architecture

- 5G ready

Mobile Operators
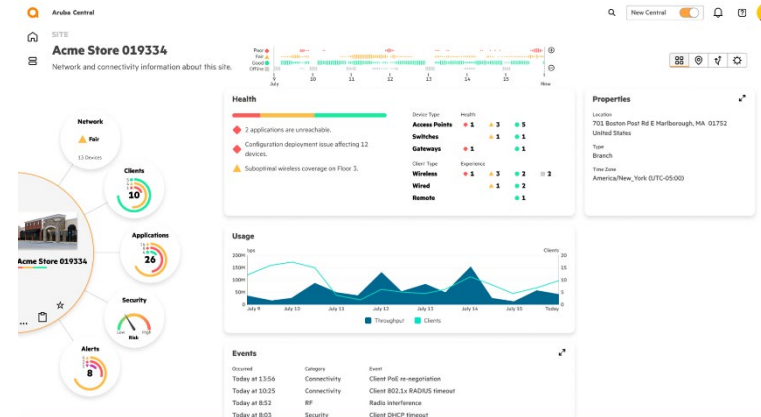
PUBLIC INTERNET

ARUBA AIR PASS HUB

Data Path

Authentication Path

Open SSID

Enterprise SSID (802.1X- Corp)

Air Pass SSID (802.1X)

What's Next?CNX

Coming Soon, Aruba Central Evolved - CNX

Topology View

Site View

Client View

Thank you