HPE aruba networking

At a glance

HPE Aruba Networking ClientMatch

Patented Wi-Fi client optimization improves connectivity and roaming

HPE

Ensuring that all wireless network clients receive appropriate levels of service is a major challenge, especially when phones, tablets, and other mobile devices choose which available SSIDs to connect to regardless of network health. This can have a significant impact on the performance of the client as well as the overall health of the network. Issues can stem from clients that connect with weak signals, connect to an oversubscribed access point (AP), and from clients that stubbornly remain connected to a single AP even when it roams to an area with APs that offer better connectivity (for example, sticky client issues).

Key features

— Resolves sticky client issues and improves performance of mobile Wi-Fi clients

— Continuously optimizes client connections so overall network performance remains consistent

— Backwards-compatible for 802.11a/b/g/n/ac clients

A better way to optimize client performance

To solve these problems, HPE Aruba Networking enhances traditional radio and roaming techniques (that is, band steering and 802.11k/v/r) with HPE Aruba Networking ClientMatch technology. This patented RF optimization technology on HPE Aruba Networking APs, significantly boosts client performance and enables a predictable, consistent connectivity experience across the entire wireless LAN (WLAN). ClientMatch continuously monitors the health of all clients connected to each AP and intelligently groups clients to APs optimized to carry their traffic—no specialized client software required (Figure 1). As a result, the impact clients have on the performance of overall WLAN is dramatically reduced.

Characteristics used to improve the quality of the network include: supported Wi-Fi standards (Wi-Fi 7, Wi-Fi 6E, Wi-Fi 6, Wi-Fi 5), MU-MIMO capabilities, available radios, rate vs. range and other system-level attributes.

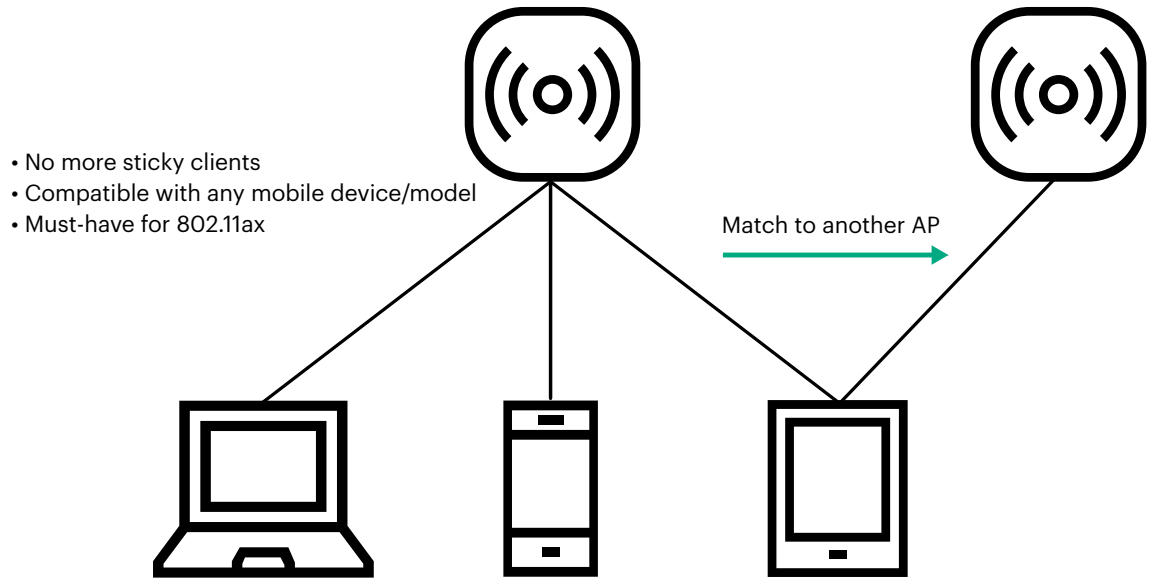

Figure 1. ClientMatch technology eliminates sticky client problems for any mobile device

Wi-Fi 6 (802.11ax) and MU-MIMO awareness

The Wi-Fi 6 standard delivered enhanced performance, speed, and efficiency with features such as OFDMA, 1024-QAM, and bidirectional MU-MIMO. But these capabilities cannot be fully realized if clients that are not Wi-Fi 6 enabled (for example, an 802.11n sensor or 802.11ac printer) share the same AP as Wi-Fi 6 clients. To address this, HPE Aruba Networking ClientMatch has been enhanced with Wi-Fi 6 awareness, which allows Wi-Fi 6 clients to be grouped together to take full advantage of Wi-Fi 6 specific multiuser features. Likewise, this technology also enhances the experience of MU-MIMO capable Wi-Fi 5 clients by also grouping them together to realize enhanced benefits.

How clients can impact the WLAN

Client behavior plays a significant role in WLAN performance. Factors include:

Client-based decision-making

Clients typically control connectivity decisions such as which AP to associate to, data rates, and roaming. Because they lack a system-level view, clients in a crowded environment may still connect to a congested 2.4 GHz band even when a cleaner 5 GHz band (or 6 GHz band) is available—significantly impacting client and overall performance.

Unpredictable performance

Poor client performance directly impacts user experience, and can lead to rising support costs. IT will often allocate resources to manage help desk tickets and troubleshoot the network for slow Wi-Fi performance or connections.

Client diversity

With the growing number and type of mobile and IoT clients accessing bandwidth-intensive applications, airtime is becoming increasingly valuable. The sheer number and diversity of clients impacts performance because slow clients (like traffic on a highway) impede all other clients. To illustrate this, if Client 1, an 802.11g tablet capable of 54 Mbps is accessing Dropbox on AP 1, then Client 2, a Wi-Fi 6 laptop capable of 3.5 Gbps must wait in queue before communicating with the same AP 1.

Sticky client issues and poor roaming algorithms

Once attached to an AP, clients tend to stay attached—even when users roam away from the AP. This sticky client issue will degrade the performance for every connected client, not only because signals tend to weaken as users move away from an AP, but speeds downgrade to a slower rate.

Clients connect to APs based on signal, not load

In addition to sticky client issues, devices typically connect to the strongest AP they hear—even if the AP is oversubscribed (for example, in a busy lobby, auditorium, lecture hall, and so on), creating an imbalance in network utilization.

How is ClientMatch different?

What makes HPE Aruba Networking ClientMatch different is that it uses a system-level view of the entire network to continuously monitor the health of all associated clients. By dynamically gathering client information (for example, signal strength and channel utilization) from each AP, without any client-based software to install or maintain, it's easy to implement at scale. This client data is then aggregated and shared among all APs to coordinate and make real-time decisions as conditions change. For instance, ClientMatch will identify when a client is connected to an oversubscribed AP and when there's a less congested AP with a stronger signal only 15 feet away. It will then dynamically move clients appropriately.

Enhanced capabilities

Video and voice-awareness

HPE Aruba Networking ClientMatch includes built-in awareness of active video and voice sessions. This means that clients engaged in a virtual meeting will remain connected to minimize disruption to a user's experience.

Band steering

Dual-band capable clients will be moved away from a 2.4 GHz radio to an available 5 GHz or 6 GHz radio that has good-to-excellent signal strength in order to improve the number of available channels, signal-to-noise ratio (SNR), and client throughput (for example, enabling the use of wider channels).

Client steering

Client and AP performance are continuously monitored to ensure the best possible client experience. Clients are moved away from suboptimal APs during connection attempts and when a client's health degrades. For example, a client that connects to an AP with a weak signal will be moved to a more suitable AP, and a client that remains connected to an AP as it roams away (sticky client problem) will also be moved to a better performing AP it is closer to.

Dynamic load balancing

This allows for the distributing a subset of clients automatically across available APs and channels to maximize client performance in highest density use cases—while ensuring APs and channels are not oversubscribed.

Full interoperability with standards-based clients

HPE Aruba Networking ClientMatch technology uses industry standards such as 802.11k and 802.11v for its monitoring and control functions which ensures support for all client devices without additional software.

Backwards compatibility for investment protection

HPE Aruba Networking ClientMatch operates on all HPE Aruba Networking 802.11n, 802.11ac (Wave 1/Wave 2), Wi-Fi 6, Wi-Fi 6E, and Wi-Fi 7 access points to maximize network performance for all clients, new and existing.

Learn more at

HPE Aruba Networking Central ordering guide

HPE Aruba Networking AirMatch technology brief

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