Cisco ClientLink 4.0

Optimize Your Mixed-Client Wi-Fi Network

All kinds of mobile device types now connect to your wireless LAN. Smartphones, laptops, tablets, and other devices might use a mix of new and old Wi-Fi technologies – 802.11ac, 802.11n, and 802.11a connections – for access. To keep the older and slower clients from impeding the performance of newer and faster 802.11ac Wave 1 and 2 connections, there is Cisco® ClientLink.

ClientLink is a beamforming capability built into Cisco Aironet® wireless LAN access points. When the access point (AP) concentrates signals toward the receiving client, that client is better able to "hear" the AP's transmission, so throughput is greater. ClientLink also enhances performance in the uplink (client-to-AP) direction, so that the AP can also better hear the client communications. The result is improved performance in both directions.

By comparison, many competing 802.11ac-capable APs offer uplink-only enhancements, from client to access point. Many 802.11ac-capable AP suppliers also base their downlink enhancements on the optional transmit beamforming (TxBF) feature in 802.11ac, which requires TxCBF support in the client device to operate. Cisco ClientLink technology is unique in offering both uplink and downlink performance improvements, and it doesn't require any special capabilities in the client device to work.

ClientLink works with all client technologies. It makes sure each client type always operates at the best possible rate, as determined by the 802.11 access technology supported, network conditions, and the distance of the client from the Wi-Fi AP. ClientLink helps maintain maximum client rates even at cell boundaries, when clients are farthest away from the AP.

How to Get the Most from 802.11ac

The 802.11ac standard inherently provides performance increases compared with earlier 802.11 technology versions. But because 802.11-based equipment is backward-compatible with older versions of the standard, it pays to run a mixed-client network to get the most out of your device investments. At the same time, however, your older clients can delay communications for the faster 802.11ac clients, hindering 802.11ac performance benefits.

Cisco ClientLink overcomes this issue for more reliable mobile experiences. In Aironet 802.11ac APs, ClientLink uses four transmit antennas to focus transmissions in the direction of the Wi-Fi client, surpassing the industry norm. This support improves downlink signal-to-noise ratio (for better client "hearing") and boosts the data rate over range so you can reduce coverage holes and enhance overall system performance. Table 1 illustrates the Cisco performance advantages of using ClientLink technology.
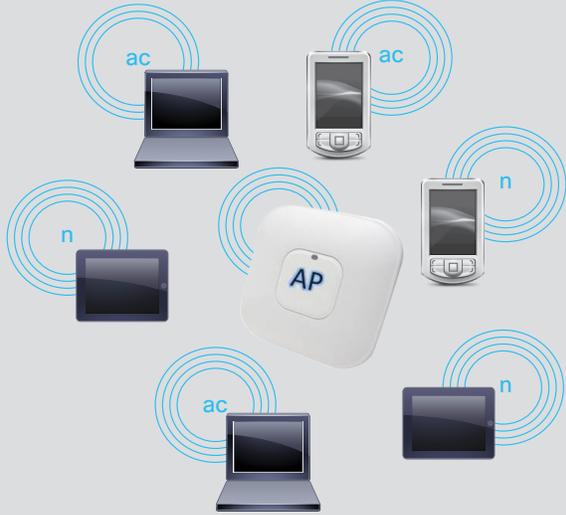
Benefits

- Boost overall throughput in mixed-client wireless networks.

- Allow all 5-GHz client devices – 802.11ac/n/a – to transmit at the highest possible rate.

- Keep older clients from hindering the performance of newer ones.

- Get the most out of 802.11ac with beamforming that supports multiple spatial streams and MU-MIMO for parallel transmission from one access point to multiple clients.

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Table 1. The Cisco ClientLink Advantage

	Competitors	Cisco
Transmit beamforming type supported	Standard 802.11ac TxBF only	Standard 802.11ac TxBF and client-independent Cisco ClientLink
No. of transmitters to improve reliability of downlink traffic	Varies by competitor	Up to 4, depending on model
No. of receivers to improve reliability of uplink traffic	Varies by competitor	Up to 4, depending on model
Client types supported	802.11ac	802.11g, 802.11a, 802.11n, 802.11ac Wave 1 and Wave 2
No. of clients supported by radio	Varies by competitor	Up to 128 for ClientLink
Optimum wireless network	802.11ac clients only	A mixture of legacy and 802.11ac clients

You get beamforming enhancements across your entire client population of new and old devices: Cisco ClientLink beamforming works with all client types, and IEEE-standard transmit beamforming (TxBF) is also built into all Cisco Wi-Fi-Certified 802.11ac access points to benefit the 802.11ac clients that support it.

ClientLink also works with multiuser multiple input, multiple output (MU-MIMO), part of the 802.11ac standard that enables concurrent transmissions between an AP and multiple 802.11ac client devices that also support MU-MIMO. As a result, Cisco ClientLink can now also provide performance boosts across a mixture of 802.11ac, 802.11 n, and 802.11a clients to further benefit your entire wireless network.

The wireless difference is in the implementation details. Turn to Cisco ClientLink-enhanced APs to get best performance from all Wi-Fi clients on your network.

Next Steps

For more information, contact your Cisco sales representative or visit www.cisco.com/go/clientlink.