Adaptive Client Load-Based EDCA

Feature History for Adaptive Client Load-Based EDCA

This table provides release and related information for the features explained in this module.

These features are available in all the releases subsequent to the one they were introduced in, unless noted otherwise.

Table 1: Feature History for Adaptive Client Load-Based EDCA

Release	Feature	Feature Information
Cisco IOS XE Bengaluru 17.5.1	Adaptive Client Load-Based EDCA	This Adaptive Client Load-Based EDCA feature dynamically changes Enhanced Distributed Channel Access (EDCA) parameters of clients based on the active client and load that significantly reduce collisions.

Information About Adaptive Client Load-Based EDCA

The static EDCA configuration is good for small number of clients. In an enterprise multiclient deployment scenario, access points (APs) experience excessive collisions as the number of clients increases resulting in significant performance degradation. To overcome such a scenario, the Adaptive Client Load-Based EDCA feature has been introduced.

This feature dynamically changes EDCA parameters of clients based on the active client and load that significantly reduce collisions.

Feature Scenario

Run-time EDCA configuration based on active clients and load.

Use Case

In a dense multiclient deployment scenario, when a customer was testing 40 iPads in a class room or auditorium setup, he observed that the channel utilization was 60 to 70 percent. The overall AP throughput was less because of air collusion and RTS retries.

After the adaptive client load-based EDCA feature was enabled, the overall throughput increased by 15 to 20 percent and collision decreased by 30 to 40 percent.

Restrictions for Adaptive Client Load-Based EDCA

• You must disable the 802.11b network if you want to access the 802.11a network.

Configuration Workflow

Configuring Adaptive Client Load-Based EDCA (GUI)

Procedure

Step 1 Choose **Configuration > Radio Configurations > Parameters** to configure global parameters for 802.11a/n/ac (5-GHz) and 802.11b/g/n (2.4-GHz) radios.

Step 2 In the **EDCA Parameters** section, from the **EDCA Profile** drop-down list, choose an EDCA profile.

Step 3 Click the **Client Load Based Configuration** toggle button to enable or disable. It is enabled by default.

Step 4 For 802.11a/n/ac (5-GHz) radios, in the **DFS (802.11h)** section, enter the local power constraint. You cannot configure power constraint if the **DPTC Support** check box in **Configuration > Radio Configurations > Network** is checked. The valid range for power constraint is between 0 dBm and 30 dBm.

Step 5 From the **Channel Switch Announcement Mode** drop-down list, choose either the **Loud** or **Quiet** mode.

Step 6 Click the **Smart DFS** toggle button to enable or disable. It is enabled by default.

Step 7 In the **11ax Parameters** section, enable or disable the following, using the corresponding toggle button:

• **Target Wakeup Time**

• **Target Wakeup Time Broadcast**

• **Multiple Bssid**

Step 8 Enable BSS color globally for the 5-GHz and 2.4-GHz radios by checking the **BSS Color** check box.

Step 9   Click **Apply**.

Configuring Adaptive Client Load-Based EDCA (CLI)

Procedure

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 2	**ap dot11** {**24ghz** | **5ghz** } **edca-parameters client-load-based** **Example:** `Device(config)# ap dot11 24ghz edca-parameters client-load-based`	Enables client load-based EDCA configuration for 802.11 radios. Use the **no** form of this command to disable the configuration. **Note** To enable the configuration on an 802.11a radio, you must disable the 802.11b network.
Step 3	**end** **Example:** `Device(config)# end`	Returns to privileged EXEC mode.

Verifying Adaptive Client Load-Based EDCA Configuration

To verify whether the Adaptive Client Load-Based EDCA feature is enabled on an 802.11a or an 802.11b radio, use the following command:

```
Device# show ap dot11 24ghz network
Device# show ap dot11 5ghz network
EDCA profile type check                    : default-wmm
Client Load Based EDCA Config         : Enabled
```

To verify whether the Adaptive Client Load-Based EDCA feature is enabled on APs, use the following command:

```
Device# show capwap client config

Client Load Based EDCA    : Enabled
```

To view the Adaptive EDCA parameters running on the driver, use the following command:

```
Device# show controllers dot11Radio 0/1

EDCA Config:
====================
L:Local C:Cell A:Adaptive EDCA params
```

```
AC Type CwMin CwMax Aifs Txop ACM
AC_BE L 4 6 3 0 0
AC_BK L 4 10 7 0 0
AC_VI L 3 4 1 94 0
AC_VO L 2 3 1 47 0
AC_BE C 4 10 3 0 0
AC_BK C 4 10 7 0 0
AC_VI C 3 4 2 94 0
AC_VO C 2 3 2 47 0
AC_BE A 4 10 7 0 0
AC_BK A 4 10 3 0 0
AC_VI A 3 4 2 94 0
AC_VO A 2 3 2 47 0
```