High Availability

High Availability Active and Standby

The Cisco Embedded Wireless Controller on Catalyst Access Points (EWC), is supported on the Cisco Catalyst 9100 series APs. The active AP election process determines which of the Cisco Catalyst 9100 series APs is elected to run the EWC controller function. Once the active AP is elected and other subordinate EWC-capable Cisco Catalyst 9100 series APs join the active AP, it selects a standby AP and redundancy is formed.

This High Availability (HA) architecture is based on the Cisco Catalyst 9800 HA architecture, with a few additions:

HA pairing is different in EWC. For the initial bring-up, the EWC active AP waits until all the APs join the controller. The active AP then selects the designated standby AP (either by auto-selection or configuration), and communicates the role and the HA parameters (local/peer IP, keepalive interval, priority) to the selected AP, through a CAPWAP control message.

Note After a power outage, the standby AP does not come up in the EWC HA pair. The standby AP tries to come up but fails. Then another EWC capable AP is selected as standby, which fails to come up. To avoid this situation, ensure that the APs have the same IP version to be elected as a HA pair.

Note With FIPS and HA configuration, to choose a preferred standby EWC, after running the command, switch off the current standby AP and wait for the chosen preferred AP to become the standby AP. Then switch on the old standby AP.

The selected standby AP starts and dynamically configures the HA parameters without manual intervention.

Monitoring Redundancy between Active and Standby Access Points

To view the redundancy between active AP and standby APs, follow the steps given below:

Procedure

Step 1 Open the Cisco Embedded Wireless Controller for Catalyst Access Points GUI.

Step 2 Choose **Monitoring** > **General** > **System**.

Step 3 Click the **Redundancy** tab.

In the **General** tab, you can view the current state, peer state, redundancy modes, and the chassis details of the active and standyby APs.

Active Access Point election Process

The EWC election process is used to choose the AP on which the controller is started. Virtual Router Redundancy Protocol (VRRP) is used to elect the active AP. The logic used to elect the EWC active AP and standby AP is described in the following sections.

Selecting the Active EWC Access Point

The following points are used to compare and select an Active EWC AP:

- If you have configured an AP to be a preferred controller, it takes the highest precedence.
- The AP type is compared next. The APs with higher model numbers have higher values. The AP having the highest value becomes the active AP.
- If the APs have the same AP type, the client load (number of associated clients) is compared, and the AP with the smallestclient load is selected.
- If all the methods mentioned above fail (all are equal among the APs), then the AP with the lowest MAC address becomes the active AP.

Selecting the Standby EWC Access Points

The standby EWC AP is not selected using VRRP. The following is the selection process for the standby EWC AP, on day-1:

- After the active EWC AP is selected, the active AP waits for the external APs to join, to begin the standby AP selection.
- Once the external APs join, the active AP assigns a priority to all the joined APs. The AP with the highest priority is selected as the standby AP. If multiple APs match the same highest priority, the AP with the lowest MAC address gets selected. Only EWC-capable APs with an EWC image installed are considered for the selection process.
- Priority is calculated based on the following parameters:
  - Explicit user configuration to choose a particular AP as the next preferred controller (highest priority)
  - AP type

- AP join time

Note There is no concept of standby on day 0. On day 0, you there is only one active EWC AP. If the active EWC AP goes down for some reason, the VRRP election takes place again, to elect a new active EWC AP.

Note If a controller is running on an AP, this AP will have a higher priority compared to the other APs not running as the controller. For example, if you bring-up a Cisco Catalyst 9115AX Series AP, since there are no other APs to choose from, this AP become the active AP and starts the controller. Later, if you bring-up a Cisco Catalyst 9117AX Series AP on this network, although the Cisco Catalyst 9117AX Series AP has a higher model number, it does not become the controller, since you already have a controller running in the network. Election will take place only if you bring-up two APs at the same time.

Selecting the Preferred Controller

To select the preferred controller and to make it the controller, follow the steps given below:

Before you begin

The active EWC AP and standby EWC APs are selected by the process described in the earlier topics. For some reason, if you want to select another AP as the standby, you can select any EWC-capable AP as a preferred controller, from the GUI.

Note When you select another AP that is not the current standby AP to be the preferred controller, the current standby AP goes down and the new EWC AP you have selected becomes the standby EWC AP.

Procedure

Step 1 Open the Cisco Embedded Wireless Controller for Catalyst Access Points GUI.

Step 2 Choose **Configuration** > **Wireless** > **Access Points**.

Step 3 Click the AP that you want to make as the preferred controller.
The **Edit AP** window is displayed.

Step 4 Click the **Advanced** tab.

Step 5 In the **Embedded Wireless Controller** section, check the **Preferred Controller** check box.

Step 6 Click **Update & Apply to Device**.

What to do next

Return to the **Advanced** tab, and click **Make Controller**. Then click **Update & Apply to Device**.

Note A warning message is displayed mentioning that this operation will disrupt the network, as the controller will reset.