Hewlett Packard Enterprise

HPE aruba networking

AOS-CX 10.13 Update: Diagnostics – MAC moves CLI Command

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Agenda

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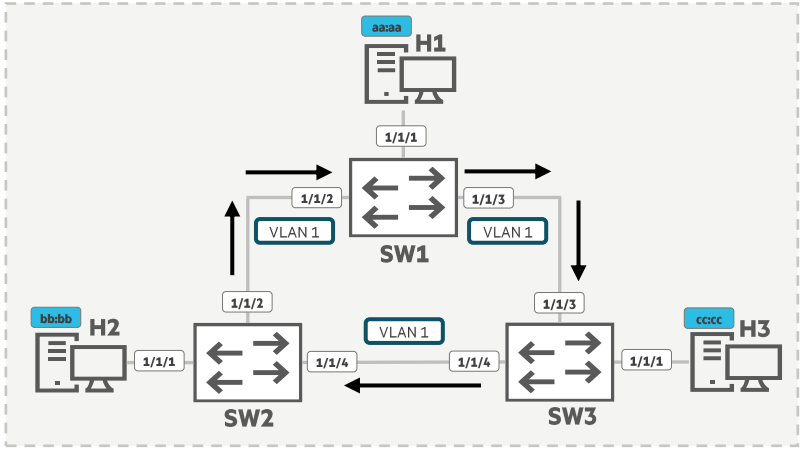
2	Use Cases
3	Configuration
4	Demo

Overview

Overview

- Consensus from customer feedback was that we needed to provide more visibility into MAC addresses moving across switch ports
- Customers use rate of change in MAC move counts to identify loops in the network
- Prior commands required low level bash access and ovs-appctl commands to diagnose issues related to MAC moves

Sample Three Switch Topology



- Platform Support
  - All platforms except for the OVA

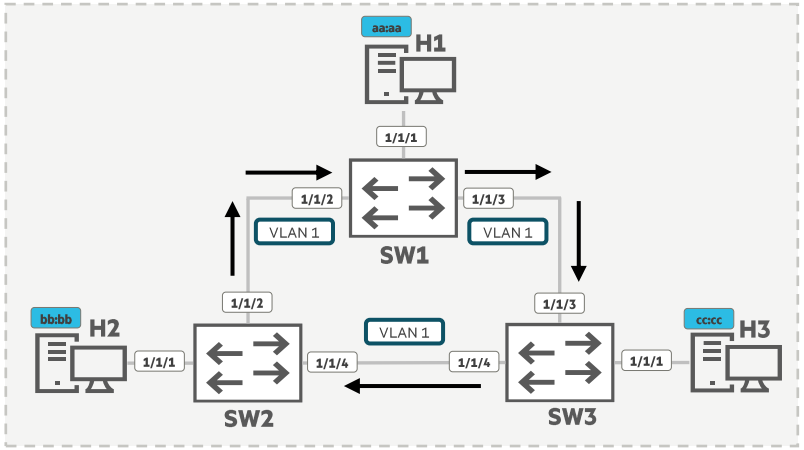
Feature	4100i	6000	6100	6200	6300	6400	8100	8320	8325	8360	8400	9300	10000	OVA
MAC moves CLI command **(New to 10.13.0005)**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No

Use Cases

Traditional Switched Topology

- In looped topology below
  - Absence of spanning tree blocking any ports
  - MAC addresses for H1, H2 and H3 all may appear on different switch ports at different times
  - Lacking any timestamps, it is only known that the MAC address was learned but not when it was learned, and which ports in the case where the MAC address has changed ports

Sample Three Switch Topology



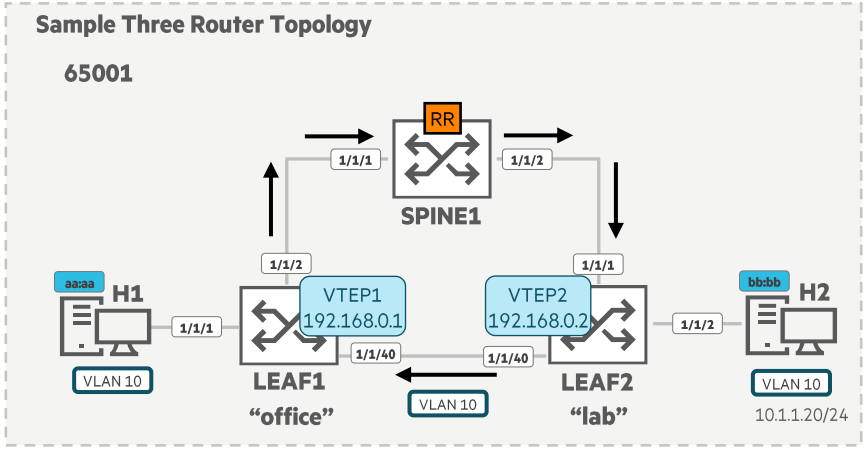
10.13 Release

```
SW2# show mac-address-table mac-move
Number of MAC Move addresses : 1

MAC Address          VLAN     Current Port              Previous Port             Count      Last Move Timestamp
-----------------------------------------------------------------------------------------------------------------------
00:00:00:00:bb:bb    10       port:1/1/1                port:1/1/4                  10        Tue Sep 26 13:32:00 2023
```

Use Cases

EVPN-VXLAN Routed Topology 1

- MAC address moves may occur whenever EVPN-VXLAN associations change
- For example, H1 connects to Leaf1 in an office environment but then moves to Leaf2 when cabled in a different location, i.e., office versus lab
  - This MAC move will not be detected because EVPN will first delete MAC aa:aa if it is found connected to a local port on leaf2
- In the example below, however, there is also a physical loop present between Leaf1 and Leaf2 1/1/40 ports and that will be detected by the feature



10.13 Release

```
LEAF2# show mac-address-table mac-move
Number of MAC Move addresses : 1

MAC Address          VLAN     Current Port              Previous Port             Count      Last Move Timestamp
-------------------------------------------------------------------------------------------------------------------
00:00:00:00:bb:bb    10       port:1/1/40               tunnel:vxlan1(192.168.0.1) 5          Tue Sep 26 13:32:00 2023
```

Configuration

Configuration

- No configuration is required for the MAC move diagnostics feature
- It has been added to the existing **show mac-address-table** CLI command
  - This command displays the MAC entries in the table that have moved at least one time
  - Display may be filtered based on a specific VLAN or MAC address
  - Not included in support-files copy output
  - Note : If MAC addresses are deleted, mac-move data is deleted as well
    - EVPN / port-security mac moves will not be detected by this feature as a result as the move is performed by deletion of the MAC address from the old port and installation of the MAC address on the new port

Pre 10.13 Release

```
switch# show mac-address-table
  address   Show a specific MAC address
  count     Show the number of MAC addresses
  detail    Show detailed MAC address entry information
  dynamic   Show learned MAC addresses
  interface Show MAC addresses for a specific interface
  lockout   Show MAC lockout address information
  port      Show MAC addresses for a specific port
  static    Show static MAC address information
  unsorted  Show entries unsorted for faster initial output
  vlan      Show MAC addresses for specific VLANs
  <cr>
```

10.13 Release

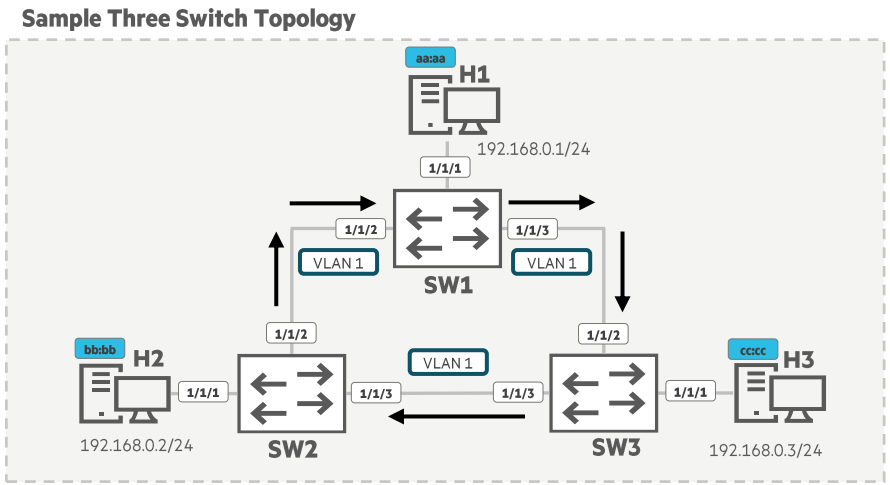
```
switch# show mac-address-table
  address   Show a specific MAC address
  count     Show the number of MAC addresses
  detail    Show detailed MAC address entry information
  dynamic   Show learned MAC addresses
  interface Show MAC addresses for a specific interface
  lockout   Show MAC lockout address information
  mac-move  Show MAC address move information
  port      Show MAC addresses for a specific port
  static    Show static MAC address information
  unsorted  Show entries unsorted for faster initial output
  vlan      Show MAC addresses for specific VLANs
  <cr>
```

```
switch# show mac-address-table mac-move
  address   Show move information for a specific MAC address
  vlan      Show move information for specific VLANs
  <cr>

switch# show mac-address-table mac-move address 00:00:00:00:00:05 vlan 1
  <cr>

switch# show mac-address-table mac-move vlan 1-2
  <cr>
```

Demo

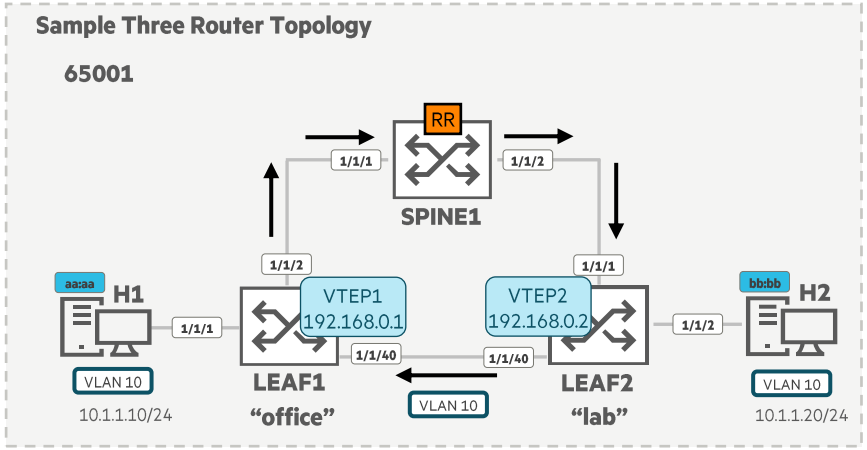
Feature Demo 1

- Looped topology, spanning tree disabled
- Ping from H2 to H3
- Show mac moves across ports



Feature Demo 2

- EVPN-VXLAN routed topology
- Ping from H1 to H2
- Enable physical loop port 1/1/40 between Leaf1 and Leaf2
- Show EVPN mac moves across VXLAN tunnels and physical ports



Thank you

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