

vPC Primary and Secondary Roles:

Although both vPC switches appear as a single switch to a downstream device, among themselves two vPC switches have clearly defined vPC roles vPC Primary and vPC Secondary. vPC roles are non-preemptive, which means a device can be configured as vPC primary but operate as vPC secondary peer device. When the original primary device fails, the secondary vPC device becomes the new primary device. When the system recovers itself, the previously primary device is now the secondary device and vice versa. So, a device may be operationally primary, but secondary from a configuration perspective.

You can also use role priority in vPC domain mode command to influence vPC Election process. The range of values is from 1 to 65536, and the default value is 32768. A lower value means that this switch has a better chance to be the primary vPC.

The vPC role swapping is done based on the role priority value of the device under the vPC domain. A vPC peer device with lower role priority is selected as the primary vPC device when the vPC role preempt command is executed.

By default, only the primary switch responds to control plane traffic. For example, when traffic such as an ARP request is sent to the domain and processes Bridge Protocol Data Units (BPDUs) the primary switch responds.

Now, it's clear that vPC has two states Primary and Secondary however, in actual vPC works both active/active states. vPC role comes into picture when vPC peer link goes down, then Peer Keepalive informs the vPC Secondary to shut down or suspend the member ports so that Split Brain Scenario can be avoided.

- 1- The first checked parameter between two devices during vPC primary election process is vPC Primary Sticky Bit. If vPC peer device wins this comparison, it becomes vPC primary regardless of configured vPC role priority value or system MAC addresses both peers have.
- 2- If both vPC peer switches have the same Sticky Bit value, the election process proceeds to the next step to compare the user-defined vPC role priority.
- 3- If both vPC roles are configured to the same value, the election process proceeds to compare the system MAC addresses.

vPC Primary & Secondary Analogy:

Imagine you have two friends named **Ali** and **Khan**, and they're in charge of a special project together. They're like a team, and they work together to make sure everything runs smoothly.

Primary Friend (Ali):

In this team, **Ali** is the primary friend. This means that when important decisions need to be made or when the team has to follow a certain plan, **Ali** is the one who takes the lead. If something happens to **Khan**, **Ali** steps in to keep things going.

Secondary Friend (Khan):

Khan is the secondary friend in the team. While **Ali** is leading, **Khan** is still actively involved and helps out. If **Ali** can't be there for some reason, **Khan** takes over and makes sure the project continues without any interruptions.

Now, apply this analogy to Cisco vPC:

vPC Primary Switch:

This is like the "**Ali**". The vPC primary switch is the one that takes the lead in managing the connection and making important decisions about how data flows between devices. It's the main switch that handles most of the coordination.

vPC Secondary Switch:

This is like the "**Khan**". The vPC secondary switch is there to support the primary switch. It actively participates in the network setup, but it follows the lead of the primary switch. If the primary switch has a problem, the secondary switch steps in to make sure things keep running smoothly.

So, in the world of Cisco vPC, the primary switch is like the main leader, and the secondary switch is like the backup supporter. They work together to ensure that devices stay connected, data flows properly, and if something happens to the primary switch, the secondary switch takes over to prevent any disruptions.