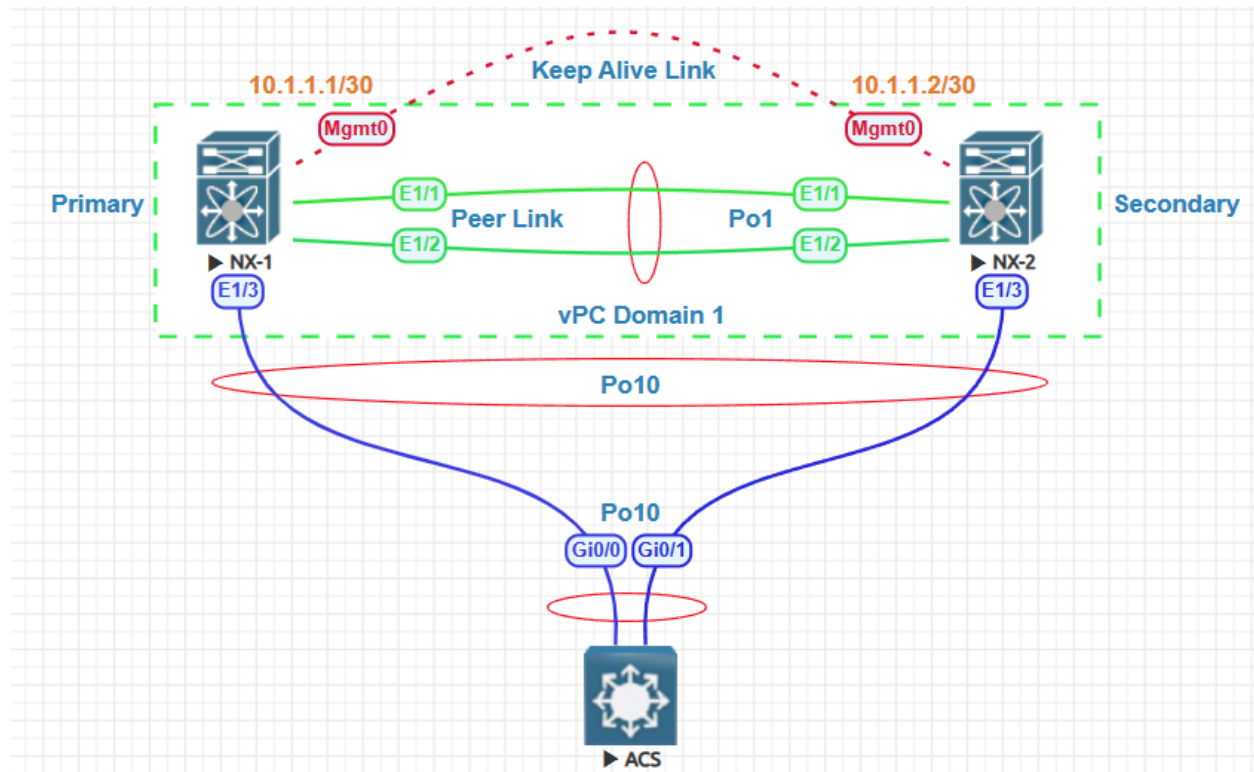


## vPC Peer-Switch Lab:



NX-1 Role	Primary
NX-2 Role	Secondary
NX-1 Priority	20
NX-2 Priority	30
Peer Links	E1/1 and E1/2
Keep Alive Link	Mgmt0
NX-1 Mgmt0 IP Address	10.1.1.1/30
NX-2 Mgmt0 IP Address	10.1.1.2/30
vPC Domain	1
Peer Link Portchannel	1
Member Portchannel	10
Member Ports	E1/3
Member Ports vPC	10
ACS Switch Ports	G0/0 and G0/1
ACS Switch Images	viosl2-adventerprisek9-m.ssa.high_iron_20190423
Nexus Images Version	9300v 9.3.6
Nexus EVE-NG Image	nxosv9k-9.3.6

## STP BPDU Processing without vPC Peer-Switch:

BPDU is processed only by primary peer device while secondary peer not sending BPDU.

```
NX-1# show spanning-tree interface port-channel 10 detail
```

```
Port 4105 (port-channel10, vPC) of VLAN0001 is designated forwarding
Port path cost 1, Port priority 128, Port Identifier 128.4105
Designated root has priority 1, address 5001.0000.1b08
Designated bridge has priority 1, address 5001.0000.1b08
Designated port id is 128.4105, designated path cost 0
Timers: message age 0, forward delay 0, hold 0
Number of transitions to forwarding state: 2
Link type is point-to-point by default, Peer is STP
BPDU: sent 2728, received 252
```

```
NX-2# show spanning-tree interface port-channel 10
```

Vlan	Role	Sts	Cost	Prio.Nbr	Type
VLAN0001	Desg	FWD	1	128.4105	(vPC) P2p Peer(STP)

```
NX-2# show spanning-tree interface port-channel 10 detail
```

```
Port 4105 (port-channel10, vPC) of VLAN0001 is designated forwarding
Port path cost 1, Port priority 128, Port Identifier 128.4105
Designated root has priority 1, address 5001.0000.1b08
Designated bridge has priority 1, address 5001.0000.1b08
Designated port id is 128.4105, designated path cost 0
Timers: message age 0, forward delay 0, hold 0
Number of transitions to forwarding state: 0
Link type is point-to-point by default, Peer is STP
BPDU: sent 0, received 0
```

Only primary peer device is the root bridge also local MAC Address.

```
NX-1# show spanning-tree vlan 1
```

```
VLAN0001
```

```
Spanning tree enabled protocol rstp
```

```
Root ID    Priority    1
           Address    5001.0000.1b08
```

```
This bridge is the root
```

```
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
```

```
Bridge ID  Priority    1 (priority 0 sys-id-ext 1)
```

```
Address    5001.0000.1b08
```

```
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
```

Interface	Role	Sts	Cost	Prio.Nbr	Type
Po1	Desg	FWD	3	128.4096	(vPC peer-link) Network P2p
Po10	Desg	FWD	1	128.4105	(vPC) P2p Peer(STP)
Eth1/4	Desg	FWD	4	128.4	P2p
Eth1/5	Desg	FWD	4	128.5	P2p
Eth1/6	Desg	FWD	4	128.6	P2p
Eth1/7	Desg	FWD	4	128.7	P2p

Secondary peer device is the root port also local MAC Address.

```
NX-2# show spanning-tree vlan 1
```

```
VLAN0001
```

```
Spanning tree enabled protocol rstp
```

```
Root ID    Priority    1  
Address    5001.0000.1b08  
Cost       3  
Port       4096 (port-channel1)  
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
```

```
Bridge ID  Priority    1 (priority 0 sys-id-ext 1)  
Address    5002.0000.1b08  
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
```

Interface	Role	Sts	Cost	Prio.Nbr	Type
Po1	Root	FWD	3	128.4096	(vPC peer-link) Network P2p
Po10	Desg	FWD	1	128.4105	(vPC) P2p Peer(STP)
Eth1/4	Desg	FWD	4	128.4	P2p
Eth1/5	Desg	FWD	4	128.5	P2p
Eth1/6	Desg	FWD	4	128.6	P2p
Eth1/7	Desg	FWD	4	128.7	P2p

## STP BPDU processing behavior with vPC Peer-Switch:

Let's enable vpc peer-switch on both devices.

NX-1(config)# vpc domain 1
NX-1(config-vpc-domain)# peer-switch
NX-1(config-vpc-domain)# end
NX-2(config)# vpc domain 1
NX-2(config-vpc-domain)# peer-switch
NX-2(config-vpc-domain)# end

Now, primary peer device is the root bridge also the MAC Address is changed.

NX-1# show spanning-tree vlan 1

```
VLAN0001
Spanning tree enabled protocol rstp
Root ID    Priority    1
           Address    0023.04ee.be01
           This bridge is the root
           Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID  Priority    1          (priority 0 sys-id-ext 1)
           Address    0023.04ee.be01
           Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
```

Interface	Role	Sts	Cost	Prio.Nbr	Type
Po1	Desg	FWD	3	128.4096	(vPC peer-link) Network P2p
Po10	Desg	FWD	1	128.4105	(vPC) P2p Peer(STP)
Eth1/4	Desg	FWD	4	128.4	P2p
Eth1/5	Desg	FWD	4	128.5	P2p

Now, secondary peer device is the root bridge as well also the MAC Address is changed.

NX-2# show spanning-tree vlan 1

```
VLAN0001
Spanning tree enabled protocol rstp
Root ID    Priority    1
           Address    0023.04ee.be01
           This bridge is the root
           Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID  Priority    1          (priority 0 sys-id-ext 1)
           Address    0023.04ee.be01
           Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
```

Interface	Role	Sts	Cost	Prio.Nbr	Type
Po1	Root	FWD	3	128.4096	(vPC peer-link) Network P2p
Po10	Desg	FWD	1	128.4105	(vPC) P2p Peer(STP)
Eth1/4	Desg	FWD	4	128.4	P2p
Eth1/5	Desg	FWD	4	128.5	P2p

Now, both peer device is sending BPDU.

```
NX-1# show spanning-tree interface port-channel 10 detail
```

```
Port 4105 (port-channel10, vPC) of VLAN0001 is designated forwarding
Port path cost 1, Port priority 128, Port Identifier 128.4105
Designated root has priority 1, address 0023.04ee.be01
Designated bridge has priority 1, address 5001.0000.1b08
Designated port id is 128.4105, designated path cost 0
Timers: message age 0, forward delay 0, hold 0
Number of transitions to forwarding state: 2
Link type is point-to-point by default, Peer is STP
BPDU: sent 2909, received 252
```

```
NX-2# show spanning-tree interface port-channel 10 detail
```

```
Port 4105 (port-channel10, vPC) of VLAN0001 is designated forwarding
Port path cost 1, Port priority 128, Port Identifier 128.4105
Designated root has priority 1, address 0023.04ee.be01
Designated bridge has priority 1, address 5001.0000.1b08
Designated port id is 128.4105, designated path cost 0
Timers: message age 0, forward delay 0, hold 0
Number of transitions to forwarding state: 0
Link type is point-to-point by default, Peer is STP
BPDU: sent 48, received 0
```

Spanning-tree summary show vpc peer-switch feature is enabled.

```
NX-2# show spanning-tree summary
```

```
Switch is in rapid-pvst mode
Root bridge for: VLAN0001
L2 Gateway STP is disabled
Port Type Default is disable
Edge Port [PortFast] BPDU Guard Default is disabled
Edge Port [PortFast] BPDU Filter Default is disabled
Bridge Assurance is enabled
Loopguard Default is disabled
Pathcost method used is short
VPC peer-switch is enabled (operational)
STP-Lite is disabled
```

```
NX-1# show spanning-tree summary
```

```
Switch is in rapid-pvst mode
Root bridge for: VLAN0001
L2 Gateway STP is disabled
Port Type Default is disable
Edge Port [PortFast] BPDU Guard Default is disabled
Edge Port [PortFast] BPDU Filter Default is disabled
Bridge Assurance is enabled
Loopguard Default is disabled
Pathcost method used is short
VPC peer-switch is enabled (operational)
STP-Lite is disabled
```