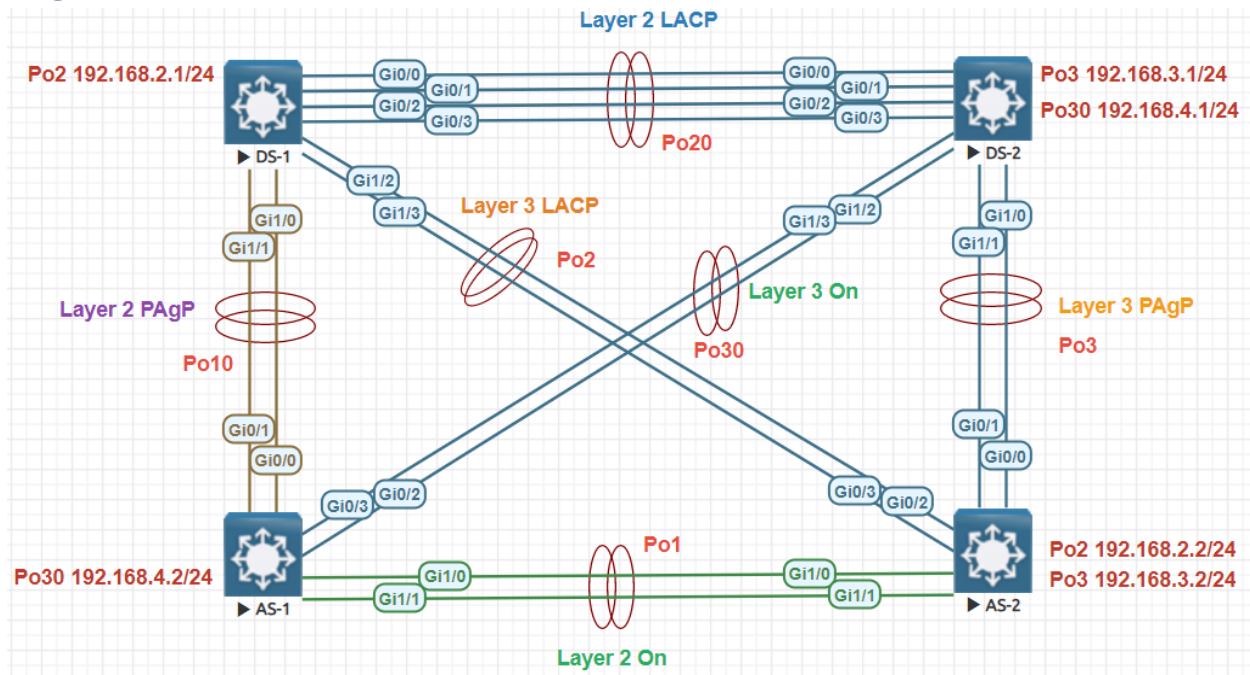


PagP Lab:



Switch Images	vios_l2-adventerprise9-m.ssa.high_iron_20190423
Switches Participated PAgP	DS-1 , DS-2, AS-1 and AS-2
Layer 2 PAgP	DS-1 and AS-1
Layer 3 PAgP	DS-2 and AS-2
Layer 2 PAgP DS-1 Ports	G1/0 and G1/1
Layer 2 PAgP AS-1 Ports	G0/0 and G0/1
Layer 3 PAgP DS-2 Ports	G1/0 and G1/1
Layer 3 PAgP AS-2 Ports	G0/0 and G0/1
Layer 2 PAgP Port Channel	Po10
Layer 3 PAgP Port Channel	Po3
Layer 2 PAgP DS-1 Mode	Desirable
Layer 2 PAgP AS-1 Mode	Auto
Layer 3 PAgP DS-2 Mode	Desirable
Layer 3 PAgP AS-2 Mode	Desirable
Layer 3 PAgP DS-2 IP Address	192.168.3.1
Layer 3 PAgP AS-2 IP Address	192.168.3.2

DS-1 Basic Configuration

```
Switch(config)#hostname DS-1
DS-1(config)#spanning-tree mode rapid-pvst
DS-1(config)#line con 0
DS-1(config-line)#exec-timeout 0 0
DS-1(config-line)#logging synchronous
DS-1(config-line)#exit
DS-1(config)#interface range g2/0-3
DS-1(config-if-range)#shutdown
DS-1(config-if-range)#exit
```

DS-2 Basic Configuration

```
Switch(config)#hostname DS-2
DS-2(config)#spanning-tree mode rapid-pvst
DS-2(config)#line con 0
DS-2(config-line)#exec-timeout 0 0
DS-2(config-line)#logging synchronous
DS-2(config-line)#exit
DS-2(config)#interface range g1/2-3, g2/0-3
DS-2(config-if-range)#shutdown
DS-2(config-if-range)#exit
```

AS-1 Basic Configuration

```
Switch(config)#hostname AS-1
AS-1(config)#spanning-tree mode rapid-pvst
AS-1(config)#line con 0
AS-1(config-line)#exec-timeout 0 0
AS-1(config-line)#logging synchronous
AS-1(config-line)#exit
AS-1(config)#interface range g0/2-3, g1/2-3
AS-1(config-if-range)#shutdown
```

AS-2 Basic Configuration

```
Switch(config)#hostname AS-2
AS-2(config)#spanning-tree mode rapid-pvst
AS-2(config)#line con 0
AS-2(config-line)#exec-timeout 0 0
AS-2(config-line)#logging synchronous
AS-2(config-line)#exit
AS-2(config)#interface range g1/2-3
AS-2(config-if-range)#shutdown
AS-2(config-if-range)#exit
```

DS-1 Layer 2 PAgP Configuration

```
DS-1(config)#interface range g1/0-1
DS-1(config-if-range)#switchport trunk encapsulation dot1q
DS-1(config-if-range)#switchport mode trunk
DS-1(config-if-range)#shutdown
DS-1(config-if-range)#channel-protocol pagp
DS-1(config-if-range)#channel-group 10 mode desirable
DS-1(config-if-range)#no shutdown
```

AS-1 Layer 2 PAgP Configuration

```
AS-1(config)#interface range g0/0-1
AS-1(config-if-range)#switchport trunk encapsulation dot1q
AS-1(config-if-range)#switchport mode trunk
AS-1(config-if-range)#shutdown
AS-1(config-if-range)#channel-protocol pagp
AS-1(config-if-range)#channel-group 10 mode auto
AS-1(config-if-range)#no shutdown
```

```
DS-1#show etherchannel summary
```

```
Flags: D - down          P - bundled in port-channel
       I - stand-alone  s - suspended
       H - Hot-standby (LACP only)
       R - Layer3       S - Layer2
       U - in use       N - not in use, no aggregation
       f - failed to allocate aggregator

       M - not in use, minimum links not met
       m - not in use, port not aggregated due to minimum links not met
       u - unsuitable for bundling
       w - waiting to be aggregated
       d - default port

       A - formed by Auto LAG
```

```
Number of channel-groups in use: 3
```

```
Number of aggregators: 3
```

Group	Port-channel	Protocol	Ports		
2	Po2(RU)	LACP	Gi1/2(P)	Gi1/3(P)	
10	Po10(SU)	PAgP	Gi1/0(P)	Gi1/1(P)	
20	Po20(SU)	LACP	Gi0/0(P)	Gi0/1(P)	Gi0/2(P)
			Gi0/3(P)		

```
AS-1#show etherchannel summary
```

```
Flags: D - down          P - bundled in port-channel
       I - stand-alone  s - suspended
       H - Hot-standby (LACP only)
       R - Layer3        S - Layer2
       U - in use        N - not in use, no aggregation
       f - failed to allocate aggregator

       M - not in use, minimum links not met
       m - not in use, port not aggregated due to minimum links not met
       u - unsuitable for bundling
       w - waiting to be aggregated
       d - default port

       A - formed by Auto LAG
```

```
Number of channel-groups in use: 1
Number of aggregators:          1
```

Group	Port-channel	Protocol	Ports
10	Po10(SU)	PAgP	Gi0/0(P) Gi0/1(P)

```
DS-1#show etherchannel 10 detail
```

```
Group state = L2
Ports: 2    Maxports = 4
Port-channels: 1 Max Port-channels = 1
Protocol:   PAgP
Minimum Links: 0

                Ports in the group:
                -----
Port: Gi1/0
-----
Port state      = Up Mstr In-Bndl
Channel group   = 10                Mode = Desirable-Sl    Gcchange = 0
Port-channel    = Po10              GC   = 0x000A0001     Pseudo port-channel = Po10
Port index      = 0                 Load = 0x00          Protocol = PAgP

Flags: S - Device is sending Slow hello.  C - Device is in Consistent state.
       A - Device is in Auto mode.         P - Device learns on physical port.
       d - PAgP is down.

Timers: H - Hello timer is running.       Q - Quit timer is running.
        S - Switching timer is running.    I - Interface timer is running.

Local information:

Port   Flags State  Timers  Hello  Partner  PAgP   Learning  Group
Gi1/0  SC   U6/S7  H       30s   1        128    Any       16

Partner's information:

--More-- █ Partner          Partner          Partner          Partner Group
```

DS-2 Layer 3 PAgP Configuration

```
DS-2(config)#interface Port-channel3
DS-2(config-if)#no switchport
DS-2(config-if)#ip address 192.168.3.1 255.255.255.0
DS-2(config-if)#exit
DS-2(config)#interface range g1/0-1
DS-2(config-if-range)#no switchport
DS-2(config-if-range)#channel-protocol pagp
DS-2(config-if-range)#channel-group 3 mode desirable
DS-2(config-if-range)#exit
```

AS-2 Layer 3 PAgP Configuration

```
AS-2(config)#interface Port-channel3
AS-2(config-if)#no switchport
AS-2(config-if)#ip address 192.168.3.2 255.255.255.0
AS-2(config-if)#exit
AS-2(config)#interface range g0/0-1
AS-2(config-if-range)#no switchport
AS-2(config-if-range)#channel-protocol pagp
AS-2(config-if-range)#channel-group 3 mode desirable
AS-2(config-if-range)#exit
```

DS-2#show etherchannel summary

```
Flags: D - down          P - bundled in port-channel
       I - stand-alone  s - suspended
       H - Hot-standby (LACP only)
       R - Layer3      S - Layer2
       U - in use      N - not in use, no aggregation
       f - failed to allocate aggregator

       M - not in use, minimum links not met
       m - not in use, port not aggregated due to minimum links not met
       u - unsuitable for bundling
       w - waiting to be aggregated
       d - default port

       A - formed by Auto LAG
```

```
Number of channel-groups in use: 2
Number of aggregators:          2
```

Group	Port-channel	Protocol	Ports		
3	Po3(RU)	PAgP	Gi1/0(P)	Gi1/1(P)	
20	Po20(SU)	LACP	Gi0/0(P)	Gi0/1(P)	Gi0/2(P)
			Gi0/3(P)		

```

AS-2#show etherchannel summary
Flags: D - down          P - bundled in port-channel
       I - stand-alone  s - suspended
       H - Hot-standby (LACP only)
       R - Layer3       S - Layer2
       U - in use       N - not in use, no aggregation
       f - failed to allocate aggregator

       M - not in use, minimum links not met
       m - not in use, port not aggregated due to minimum links not met
       u - unsuitable for bundling
       w - waiting to be aggregated
       d - default port

       A - formed by Auto LAG

```

```

Number of channel-groups in use: 2
Number of aggregators:          2

```

Group	Port-channel	Protocol	Ports
2	Po2(RU)	LACP	Gi0/2(P) Gi0/3(P)
3	Po3(RU)	PAGP	Gi0/0(P) Gi0/1(P)

```

AS-2#ping 192.168.3.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.3.1, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 11/17/27 ms
AS-2#

```

```

DS-2#ping 192.168.3.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.3.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 10/16/24 ms
DS-2#

```