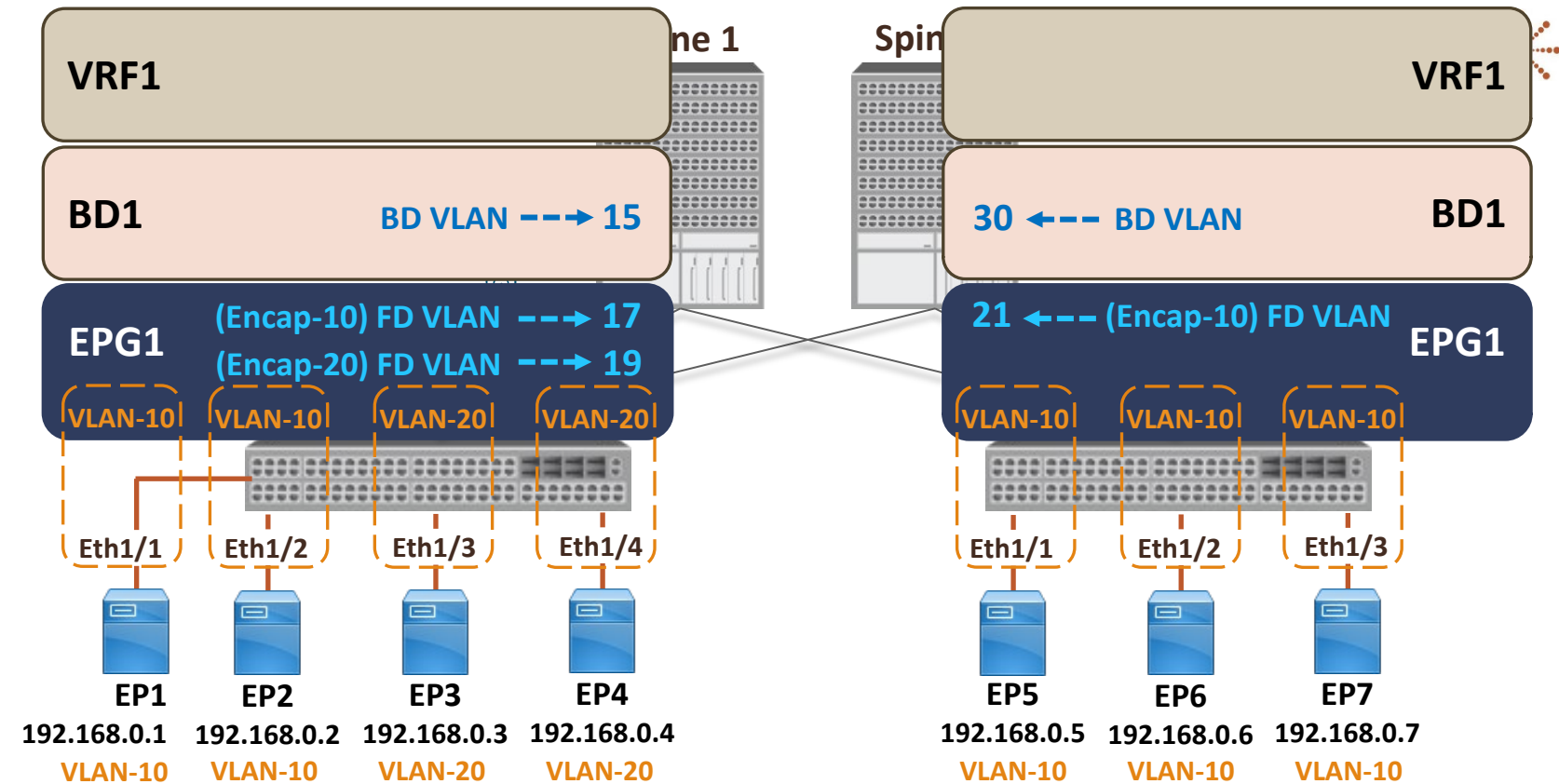# ACI VLAN Types

- **Access Encap VLAN**
  - ✓ VLAN ID for external devices.
  - ✓ VLAN ID is a user-configurable value (VLAN pools, static binding, L3Outs).
  - ✓ Used to classify traffic from the endpoints into EPGs.
  - ✓ Represented as `vlan-id` or `encap-id` in the show commands.

- **Platform Independent (PI-VLAN)**
  - ✓ Internal VLANs on the leaf switches.
  - ✓ VLAN IDs are automatically assigned.
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  - ✓ Used for leaf internal representation of an EPG (*FD VLAN*) & BD (*BD VLAN*).
  - ✓ Represented as `vlan id` (without a hyphen) in the show commands.

VRF1   ne 1   Spin   VRF1

BD1   BD VLAN ---> 15   30 <--- BD VLAN   BD1

EPG1   (Encap-10) FD VLAN ---> 17   21 <--- (Encap-10) FD VLAN   EPG1

(Encap-20) FD VLAN ---> 19

VLAN-10 | VLAN-10 | VLAN-20 | VLAN-20   VLAN-10 | VLAN-10 | VLAN-10

Eth1/1 | Eth1/2 | Eth1/3 | Eth1/4   Eth1/1 | Eth1/2 | Eth1/3

EP1 | EP2 | EP3 | EP4   EP5 | EP6 | EP7

192.168.0.1 | 192.168.0.2 | 192.168.0.3 | 192.168.0.4   192.168.0.5 | 192.168.0.6 | 192.168.0.7

VLAN-10 | VLAN-10 | VLAN-20 | VLAN-20   VLAN-10 | VLAN-10 | VLAN-10

```
Leaf1# show endpoint ip 192.168.0.1
17                        vlan-10        0000.0000.1111    L         eth1/1
Tenant1:VRF1              vlan-10        192.168.0.1       L         eth1/1
```

```
leaf1# show vlan id 15 extended
VLAN Name                                Encap             Ports
---- -------------------------------     --------------    -----------------------
15   Tenant1:BD1                         vxlan-16744333    Eth1/1, Eth1/2, Eth1/3,
                                                           Eth1/4
```

```
leaf1# show vlan id 17 extended
VLAN Name                                Encap             Ports
---- -------------------------------     --------------    -----------------------
17   Tenant1:App-X:EPG1                  vlan-10           Eth1/1, Eth1/2
```
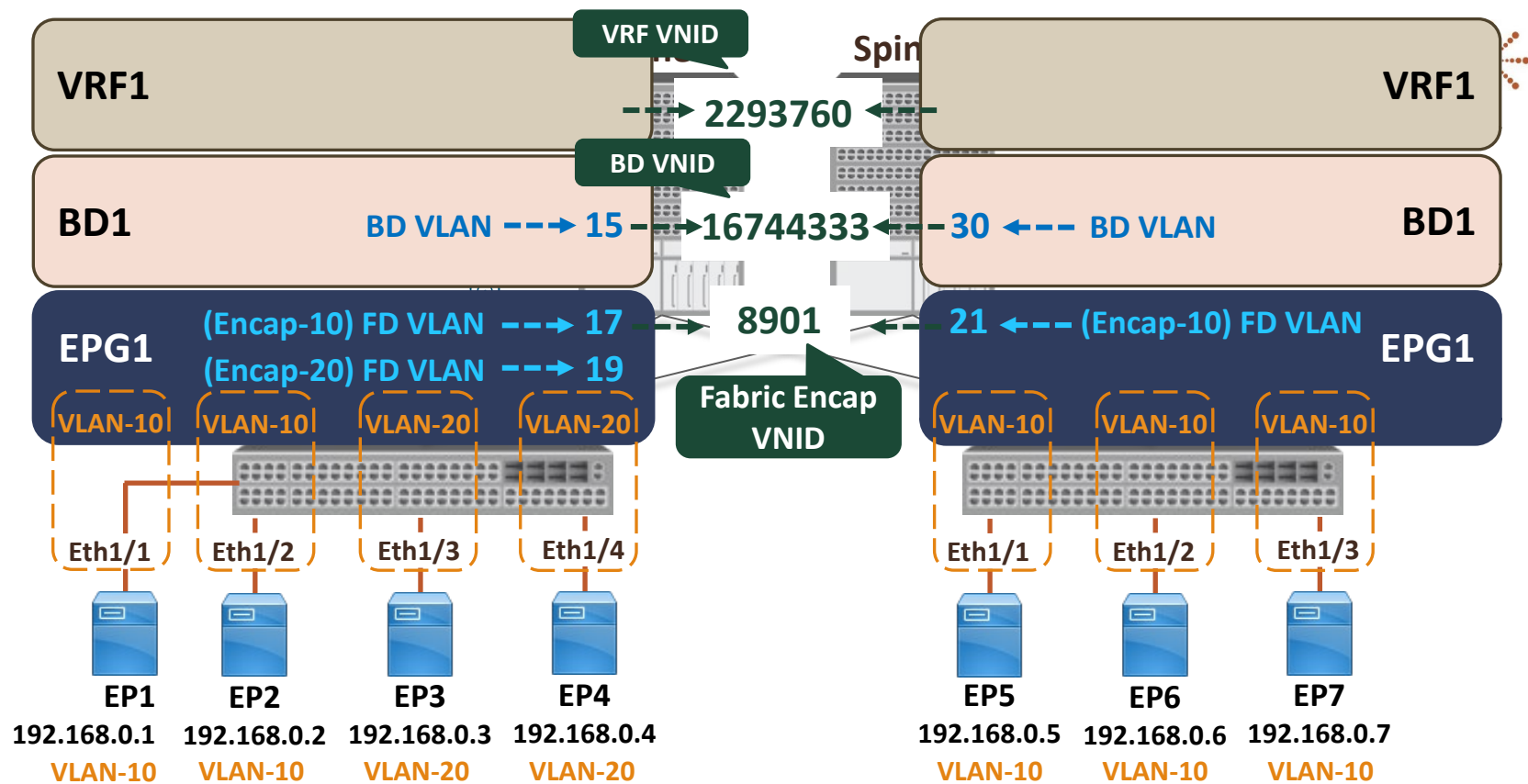
ACI VLAN Types

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VRF VNID

VRF1 — 2293760 — VRF1

BD VNID

BD1 — BD VLAN --> 15 --> 16744333 <-- 30 <-- BD VLAN — BD1

EPG1 (Encap-10) FD VLAN --> 17 --> 8901 <-- 21 <-- (Encap-10) FD VLAN — EPG1
(Encap-20) FD VLAN --> 19

Fabric Encap VNID

Spine

VLAN-10 | VLAN-10 | VLAN-20 | VLAN-20   VLAN-10 | VLAN-10 | VLAN-10

Eth1/1 | Eth1/2 | Eth1/3 | Eth1/4   Eth1/1 | Eth1/2 | Eth1/3

EP1 | EP2 | EP3 | EP4   EP5 | EP6 | EP7
192.168.0.1 | 192.168.0.2 | 192.168.0.3 | 192.168.0.4   192.168.0.5 | 192.168.0.6 | 192.168.0.7
VLAN-10 | VLAN-10 | VLAN-20 | VLAN-20   VLAN-10 | VLAN-10 | VLAN-10

```
Leaf1# show system internal epm endpoint ip 192.168.0.1
MAC : 0000.0000.1111 ::: Num IPs : 1
IP# 0 : 192.168.0.1 ::: IP# 0 flags :  ::: l3-sw-hit: No
Vlan id : 17 ::: Vlan vnid : 8901 ::: VRF name : Tenant1:VRF1
BD vnid : 16744333 ::: VRF vnid : 2293760
Interface : Ethernet1/1
Flags : 0x80004c04 ::: sclass : 49153 ::: Ref count : 5
```

EPG pcTag for policy deployment

```
leaf1# show system internal epm vlan 17
```

VLAN ID	Type	Access Encap (Type Value)	Fabric Encap	H/W id	BD VLAN	Endpoint Count
17	FD vlan	802.1Q 10	8901	165	15	2

ACI VLAN Scope

- ACI VLAN scope is considered when applying the same access encap VLAN to more than one EPG on the same Leaf.

- We have two VLAN scope options configured under the "**L2 Interface policy**".

- Apply the port Local scope on the interfaces where the same access encap VLAN is used for different EPGs.

- Each EPG should be associated with a separate VLAN pool, domain, and bridge domain.
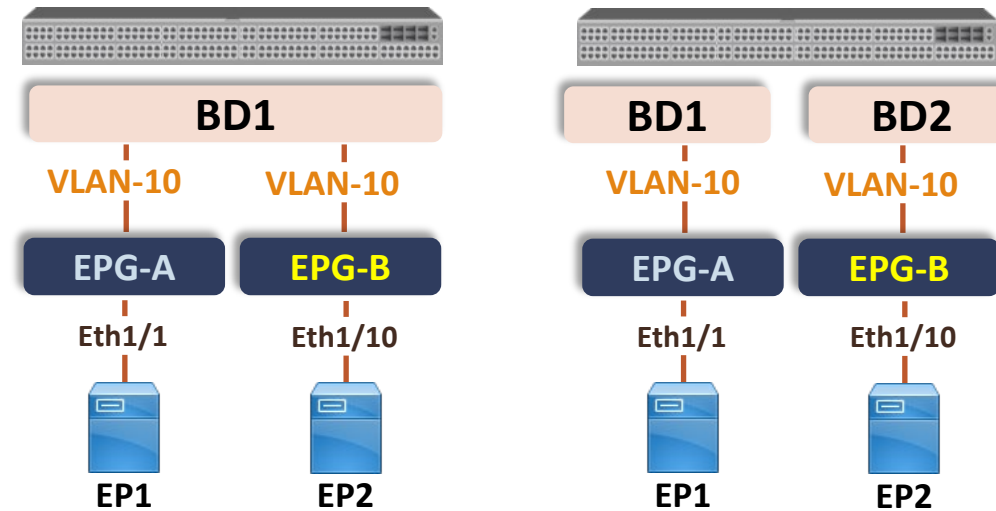
Fault Code: F0467

Description: Fault delegate: Configuration failed for uni/tn-Tenant1/ap-App-X/epg-EPG-B node 101 eth1/10 due to Encap Already Used in Another EPG,Invalid Path Configuration, debug message: encap-already-in-use: Encap is already in use by Tenant1:App-X:EPG-A;invalid-path: Either the EpG is not associated with a domain or the domain does not have this interface assigned to it

**Fabric > Access Policies > Policies > Interface > L2 Interface**

VLAN Scope: | Global scope | Port Local scope
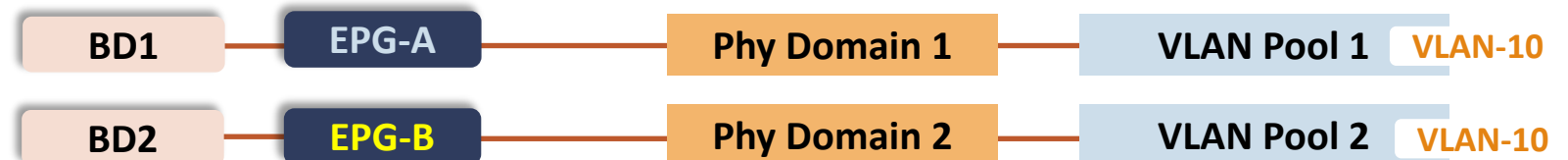
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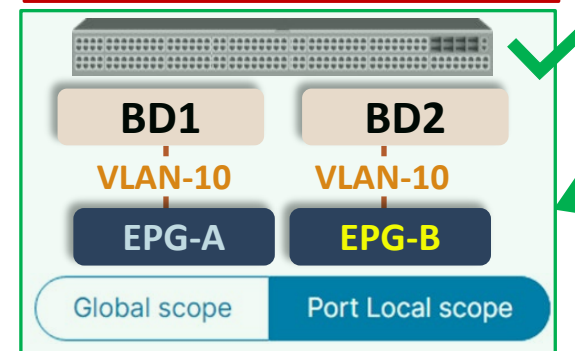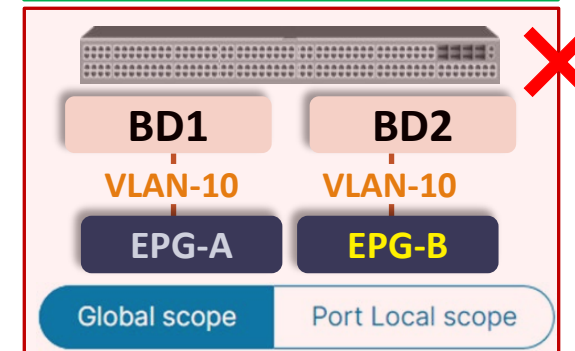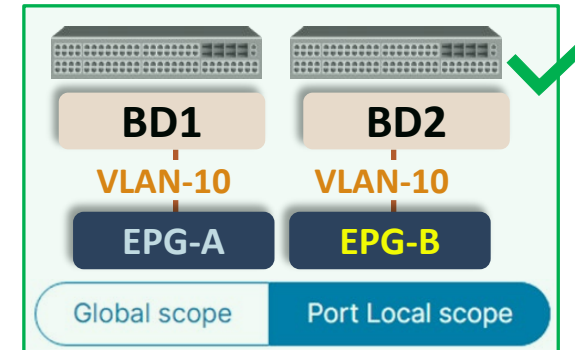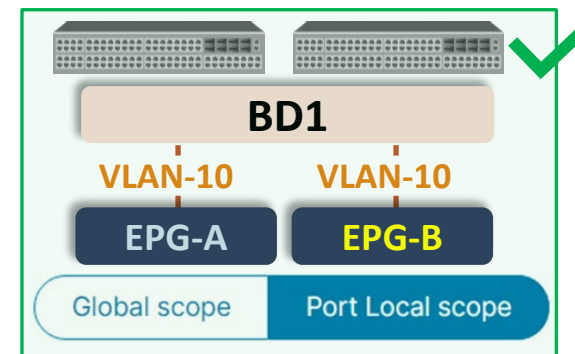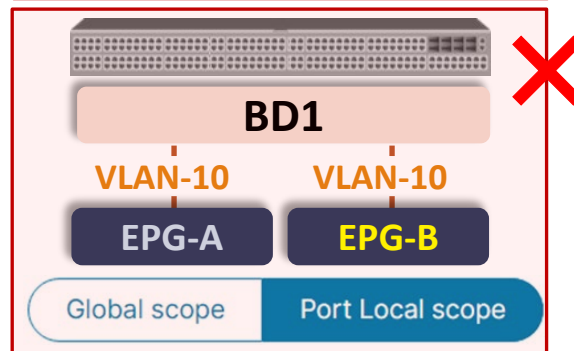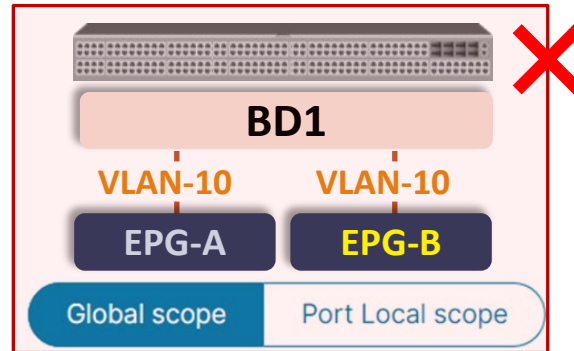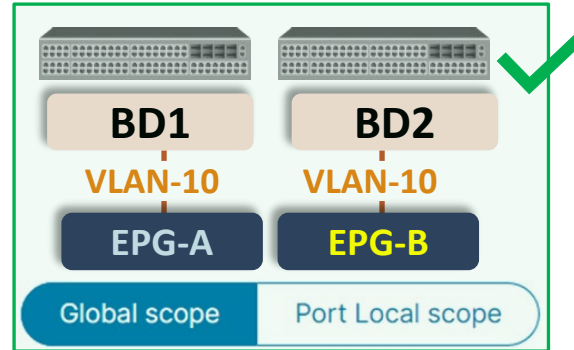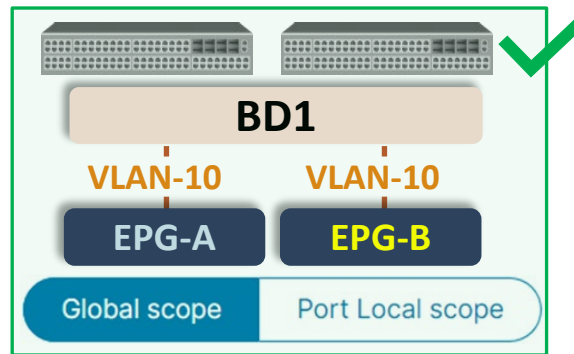
Separate VLAN Pools Domains & BDs

Thanks for watching!

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