



## FEX Active/Active Fabric vPC

« FEX Active/Active Host vPC | Enhanced vPC (EvPC) »

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### FEX Active/Active Fabric vPC

#### Note:

For information connecting to the KVM see [Managing UCS C-Series Server Using CIMC](#)

#### Objective

- Configure connectivity between the Nexus 5Ks and the single attached UCS C series server via a vPC from the 5Ks to the FEXes.

#### Task

- The UCS C server is pre-configured to use an LACP based NIC Team, and with the IP address 10.0.0.20X/24, where X is the server number (i.e. C200-1 is 10.0.0.201).
  - The GUI of the UCS C server can be accessed through the CIMC KVM and Windows RDP via the links on the jumpbox desktop link to "Z:\UCS C Servers". Both the CIMC and Windows credentials are cisco/cisco.
- Configure your 5Ks to communicate with the server as follows:
  - Configure the 5Ks in vPC domain 5.
  - Use the mgmt0 port as the vPC Peer Keepalive link.
  - Configure the links between the 5Ks as Port-Channel 5, and use this as the vPC Peer Link.
  - Configure the links from both 5Ks to the first 2K as Port-Channel 101 and FEX number 101.
  - Configure the link from the FEX to the server as an access port in VLAN 10.
- When complete verify that the MAC address of the server's physical interface is being learned on both 5Ks via the same server facing interface of the FEX.

#### Configuration [Click to collapse](#)

```
N5K1:
feature lacp
feature vpc
feature fex
!
vlan 10
!
vpc domain 5
  peer-keepalive destination 192.168.0.52
!
interface port-channel5
  switchport mode trunk
  spanning-tree port type network
  speed 10000
  vpc peer-link
!
interface port-channel101
  switchport mode fex-fabric
  fex associate 101
  vpc 101
!
interface Ethernet1/21
  switchport mode fex-fabric
  fex associate 101
  channel-group 101
!
interface Ethernet1/22
  switchport mode fex-fabric
  fex associate 101
  channel-group 101
!
interface Ethernet101/1/1
  switchport access vlan 10
```

```
N5K2:
feature lacp
feature vpc
feature fex
!
vlan 10
!
vpc domain 5
  peer-keepalive destination 192.168.0.51
!
interface port-channel5
  switchport mode trunk
  spanning-tree port type network
  speed 10000
  vpc peer-link
!
interface port-channel101
  switchport mode fex-fabric
  fex associate 101
  vpc 101
!
interface Ethernet1/21
  switchport mode fex-fabric
  fex associate 101
  channel-group 101
!
interface Ethernet1/22
  switchport mode fex-fabric
```

```

fex associate 101
channel-group 101
!
interface Ethernet101/1/1
switchport access vlan 10

```

## Verification

Fabric Extender (FEX) and vPC topologies come in three forms. The first is a Host vPC, which has two FEXes connected straight-through to two parent switches, the FEXes dual homed to the server, and the vPC configured from the FEXes southbound to the server.

The second is a Fabric vPC, which has a single FEX dual homed to two parent switches, the FEX single homed to the server, and the vPC configured from the FEXes northbound to the parent switches.

The third is an Enhanced vPC (EvPC), which has two FEXes dual homed to two parent switches, the FEXes dual homed to the server, and the vPC configured from the FEXes both northbound to the parent switches and southbound to the server.

This example uses the Fabric vPC to achieve redundancy to a single attached server. This design is commonly used when an end host cannot be dual homed to multiple upstream switches due to limitations of the host, for example servers with a single out-of-band management port such as an ILO/IPMI interface. While this design does not protect against the failure of the FEX or its southbound link to the server, it does protect against the failure of an upstream parent switch or the links from the FEX northbound to the parents.

With a Fabric vPC, both vPC Peers are paired to the single downstream FEX, as seen below.

```

N5K1# show fex
FEX          FEX          FEX          FEX          Fex
Number      Description  State        Model         Serial
-----
101         FEX0101         Online      N2K-C2232PP-10GE  SSI15030C1R
---         ---         ---         ---         ---
           Discovered  N2K-C2232PP-10GE  SSI16330GT8

N5K2# show fex
FEX          FEX          FEX          FEX          Fex
Number      Description  State        Model         Serial
-----
101         FEX0101         Online      N2K-C2232PP-10GE  SSI15030C1R
---         ---         ---         ---         ---
           Discovered  N2K-C2232PP-10GE  SSI16330GT8

```

The links from the vPC Peers southbound to the FEX are the member ports of the vPC.

```

N5K1# show vpc
Legend:
(*) - local vPC is down, forwarding via vPC peer-link

vPC domain id          : 5
Peer status             : peer adjacency formed ok
vPC keep-alive status  : peer is alive
Configuration consistency status : success
Per-vlan consistency status : success
Type-2 consistency status : success
vPC role                : secondary
Number of vPCs configured : 33
Peer Gateway           : Disabled
Dual-active excluded VLANs : -
Graceful Consistency Check : Enabled
Operational Layer3 Peer-router : Disabled
Auto-recovery status   : Enabled (timeout = 240 seconds)

vPC Peer-link status
-----
id  Port  Status Active vlans
--  ---  ---
1   Po5   up    1,10

vPC status
-----
id  Port  Status Consistency Reason      Active vlans
--  ---  ---
101 Po101 up    success success                      -
102400 Eth101/1/1 up    success success                      10

N5K2# show vpc
Legend:
(*) - local vPC is down, forwarding via vPC peer-link

vPC domain id          : 5
Peer status             : peer adjacency formed ok
vPC keep-alive status  : peer is alive
Configuration consistency status : success
Per-vlan consistency status : success
Type-2 consistency status : success
vPC role                : primary
Number of vPCs configured : 33
Peer Gateway           : Disabled
Dual-active excluded VLANs : -
Graceful Consistency Check : Enabled
Operational Layer3 Peer-router : Disabled
Auto-recovery status   : Enabled (timeout = 240 seconds)

vPC Peer-link status
-----
id  Port  Status Active vlans
--  ---  ---
1   Po5   up    1,10

vPC status
-----
id  Port  Status Consistency Reason      Active vlans
--  ---  ---
101 Po101 up    success success                      https://t.me/learningnets
102400 Eth101/1/1 up    success success                      10

```

Since the vPC Peers do not share the same management plane or control plane, they each have separate configurations that reference the same downstream interface. Note that the configuration of this server facing interface must be 100% identical on the vPC Peers in order to avoid forwarding problems in the data plane.

```
N5K1# show run int e101/1/1

!Command: show running-config interface Ethernet101/1/1
!Time: Thu Jan 19 01:06:53 2017

version 7.3(0)N1(1)

interface Ethernet101/1/1
  switchport access vlan 10

N5K2# show run int e101/1/1

!Command: show running-config interface Ethernet101/1/1
!Time: Thu Jan 19 01:07:01 2017

version 7.3(0)N1(1)

interface Ethernet101/1/1
  switchport access vlan 10
```

The final result of this configuration is that both upstream parent switches should be learning the same end host MAC address via the same link to the server through the FEXes.

```
N5K1# show mac address-table vlan 10
Legend:
  * - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC
  age - seconds since last seen,+ - primary entry using vPC Peer-Link
VLAN  MAC Address      Type    age    Secure NTFY  Ports/SWID.SSID.LID
-----+-----+-----+-----+-----+-----
* 10   00de.fb12.1a01    static  0      F    F    Po5
* 10   d48c.b5bd.460e    dynamic 0      F    F    Eth101/1/1

N5K2# show mac address-table vlan 10
Legend:
  * - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC
  age - seconds since last seen,+ - primary entry using vPC Peer-Link
VLAN  MAC Address      Type    age    Secure NTFY  Ports/SWID.SSID.LID
-----+-----+-----+-----+-----+-----
* 10   00de.fb12.1a7c    static  0      F    F    Po5
* 10   d48c.b5bd.460e    dynamic 1250   F    F    Eth101/1/1
```



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