

# vPC Object Tracking

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## Introduction

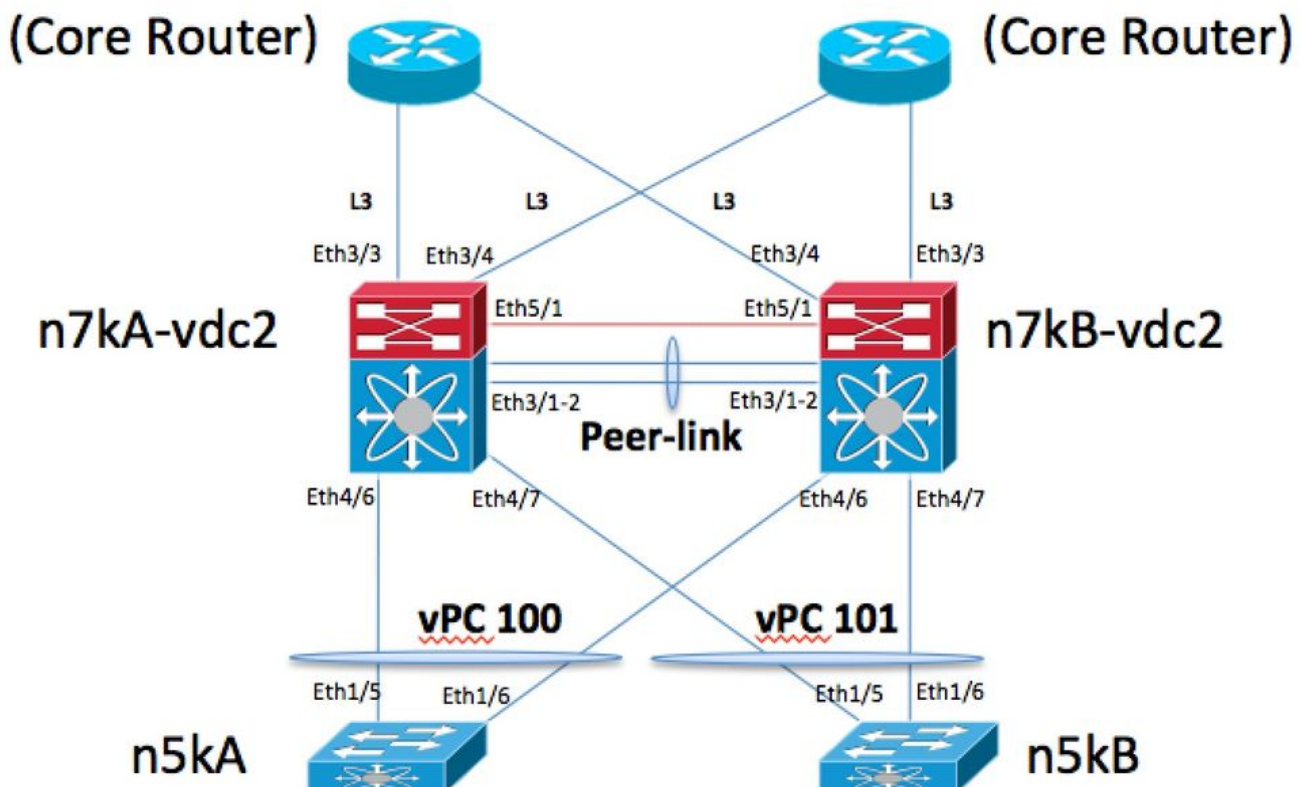
This document describes vPC Object Tracking, why it is used, and how it works.

## vPC Object Tracking

### Network Diagram

Here is the network diagram used for this demonstration:

# vPC Object Tracking Topology



The vPC peer link is Port-channel 1. Ethernet 5/1 is the vPC peer-keepalive link. There are two core routers which are connected via L3 /30 links e3/3 and e3/4 on each N7K box. N5KA and N5KB are simulating L2 switches vPC connected on vPC 100 and vPC 101. N7KA is the vPC primary device.

## Baseline Show Commands

N7KA:

```
N7KA-vdc2# show run vpc
```

```
!Command: show running-config vpc
!Time: Thu Sep 26 19:51:57 2013
```

```
version 6.1(4)
feature vpc
```

```
vpc domain 102
  peer-keepalive destination 1.1.1.2 source 1.1.1.1 vrf vpc-keepalive
  peer-gateway
  track 1
  auto-recovery
```

```
interface port-channel1
  vpc peer-link
```

```
interface port-channel100
  vpc 100
```

```
interface port-channel101
  vpc 101
```

```
N7KA-vdc2# show run track
```

```
!Command: show running-config track
!Time: Thu Sep 26 19:51:59 2013
```

```
version 6.1(4)
track 1 list boolean or
  object 2
  object 3
  object 4
track 2 interface port-channel1 line-protocol
track 3 interface Ethernet3/3 line-protocol
track 4 interface Ethernet3/4 line-protocol
```

```
N7KA-vdc2# show vpc brief
```

Legend:

(\*) - local vPC is down, forwarding via vPC peer-link

```
vPC domain id          : 102
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 : 2
Track object           : 1
Peer Gateway           : Enabled
```

```
Peer gateway excluded VLANs      : -
Dual-active excluded VLANs       : -
Graceful Consistency Check       : Enabled
Auto-recovery status             : Enabled (timeout = 240 seconds)
```

vPC Peer-link status

```
-----
id   Port   Status Active vlans
--   -
1    Po1    up     1
```

vPC status

```
-----
id   Port   Status Consistency Reason      Active vlans
--   -
100  Po100  up     success    success                1
101  Po101  up     success    success                1
```

N7KA-vdc2# show track

Track 1

```
List Boolean or
Boolean or is UP
2 changes, last change 23:24:08
Track List Members:
object 4 UP
object 3 UP
object 2 UP
Tracked by:
vPCM          102
```

Track 2

```
Interface port-channell1 Line Protocol
Line Protocol is UP
1 changes, last change 23:26:59
Tracked by:
Track List 1
```

Track 3

```
Interface Ethernet3/3 Line Protocol
Line Protocol is UP
3 changes, last change 23:26:50
Tracked by:
Track List 1
```

Track 4

```
Interface Ethernet3/4 Line Protocol
Line Protocol is UP
3 changes, last change 23:26:48
Tracked by:
Track List 1
```

N7KA-vdc2#

**N7KB:**

N7KB-vdc2# show run vpc

```
!Command: show running-config vpc
!Time: Thu Sep 26 19:53:17 2013
```

```
version 6.1(4)
feature vpc
```

```
vpc domain 102
  peer-keepalive destination 1.1.1.1 source 1.1.1.2 vrf vpc-keepalive
  peer-gateway
  track 1
  auto-recovery
```

```
interface port-channel1
  vpc peer-link
```

```
interface port-channel100
  vpc 100
```

```
interface port-channel101
  vpc 101
```

```
N7KB-vdc2# show run track
```

```
!Command: show running-config track
!Time: Thu Sep 26 19:53:20 2013
```

```
version 6.1(4)
track 1 list boolean or
  object 2
  object 3
  object 4
track 2 interface port-channel1 line-protocol
track 3 interface Ethernet3/3 line-protocol
track 4 interface Ethernet3/4 line-protocol
```

```
N7KB-vdc2# show vpc brief
```

```
Legend:
```

```
(*) - local vPC is down, forwarding via vPC peer-link
```

```
vPC domain id           : 102
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 : 2
Track object             : 1
Peer Gateway             : Enabled
Peer gateway excluded VLANs : -
Dual-active excluded VLANs : -
Graceful Consistency Check : Enabled
Auto-recovery status     : Enabled (timeout = 240 seconds)
```

```
vPC Peer-link status
```

```
-----
id   Port   Status Active vlans
--   -
1    Po1    up      1
-----
```

```
vPC status
```

```
-----
id   Port   Status Consistency Reason           Active vlans
--   -
100  Po100  up      success    success                       1
101  Po101  up      success    success                       1
-----
```

```
N7KB-vdc2# show track
```

Track 1

```
List Boolean or
Boolean or is UP
2 changes, last change 23:25:51
Track List Members:
object 4 UP
object 3 UP
object 2 UP
Tracked by:
vPCM 102
```

Track 2

```
Interface port-channell1 Line Protocol
Line Protocol is UP
1 changes, last change 23:29:09
Tracked by:
Track List 1
```

Track 3

```
Interface Ethernet3/3 Line Protocol
Line Protocol is UP
3 changes, last change 23:28:55
Tracked by:
Track List 1
```

Track 4

```
Interface Ethernet3/4 Line Protocol
Line Protocol is UP
3 changes, last change 23:28:56
Tracked by:
Track List 1
```

N7KB-vdc2#

vPC Object Tracking is used in a scenario such as this. You have one M132 module used for the vPC peer link as well as the L3 uplinks to the core. In the event where you are to lose the M132 module due to a HW failure you would lose the vPC peer-link as well as the L3 uplinks. If this were to happen on the vPC secondary box (N7KB) this would not be a problem as the operational primary peer would take over suspending the vPC port-channels and Vlan interfaces on the operational secondary. The problem is in the case of a HW failure on the operational primary device (N7KA). If you did not use object tracking we would suspend all of the vPC port-channels on N7KB as well as the Vlan interfaces. The peer link would also be down. You would not have a way to route the Core traffic into our vPC vlans in this scenario.

Object Tracking gets around this by bringing down vPC on the operational primary so that we don't get into this scenario where we bring down the Vlan Interfaces and vPC port-channels on the box that has the remaining uplinks to the core.

Here you see the vPC peer keepalive messages using ethanalyzer:

```
N7KA# ethanalyzer local interface inband capture-filter "host 1.1.1.1 and host 1.1.1.2" limit-
captured-frames 4
Capturing on inband
2013-09-26 20:01:09.629309 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 D
estination port: 3200
2013-09-26 20:01:09.954909 1.1.1.1 -> 1.1.1.2 UDP Source port: 3200 D
estination port: 3200
2013-09-26 20:01:10.639097 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 D
estination port: 3200
2013-09-26 20:01:10.954944 1.1.1.1 -> 1.1.1.2 UDP Source port: 3200 D
estination port: 3200
```

4 packets captured  
N7KA#

N7KB# ethanalyzer local interface inband capture-filter "host 1.1.1.1 and host 1.1.1.2" limit-captured-frames 4

Capturing on inband

2013-09-26 20:00:22.606593 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 D  
destination port: 3200

2013-09-26 20:00:22.922517 1.1.1.1 -> 1.1.1.2 UDP Source port: 3200 D  
destination port: 3200

2013-09-26 20:00:23.616427 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 D  
destination port: 3200

2013-09-26 20:00:23.922557 1.1.1.1 -> 1.1.1.2 UDP Source port: 3200 D  
destination port: 3200

4 packets captured

N7KB#

Now you simulate module 3 failure on N7KA via powering off the module:

N7KA# conf t

Enter configuration commands, one per line. End with CNTL/Z.

N7KA(config)# poweroff mod 3

N7KA(config)# end

N7KA#

2013 Sep 26 20:03:25 N7KA %PLATFORM-2-PFM\_MODULE\_POWER\_OFF: Manual power-off of Module 3 from Command Line Interface

Logs:

N7KA:

2013 Sep 26 20:03:28 N7KA-vdc2 %ETHPORT-5-IF\_DOWN\_INITIALIZING: Interface port-channel1 is down (Initializing) 2013 Sep 26 20:03:28 N7KA-vdc2 %ETHPORT-5-IF\_DOWN\_MODULE\_REMOVED: Interface Ethernet3/3 is down (module removed) 2013 Sep 26 20:03:28 N7KA-vdc2 %ETHPORT-5-IF\_DOWN\_MODULE\_REMOVED: Interface Ethernet3/4 is down (module removed)

2013 Sep 26 20:03:28 N7KA-vdc2 %VPC-2-TRACK\_INTFS\_DOWN: In domain 102, vPC tracked interfaces down, suspending all vPCs and keep-alive

2013 Sep 26 20:03:28 N7KA-vdc2 %ETHPORT-5-IF\_DOWN\_NONE: Interface port-channel101 is down (None)

2013 Sep 26 20:03:28 N7KA-vdc2 %ETHPORT-5-IF\_DOWN\_NONE: Interface port-channel100 is down (None)

2013 Sep 26 20:03:28 N7KA-vdc2 %ETH\_PORT\_CHANNEL-5-PORT\_DOWN: port-channel101: Ethernet4/7 is down 2013 Sep 26 20:03:28 N7KA-vdc2 %ETH\_PORT\_CHANNEL-5-PORT\_DOWN: port-channel100: Ethernet4/6 is down

2013 Sep 26 20:03:28 N7KA-vdc2 %ETH\_PORT\_CHANNEL-5-FOP\_CHANGED: port-channel101: first operational port changed from Ethernet4/7 to none 2013 Sep 26 20:03:28 N7KA-vdc2

%ETH\_PORT\_CHANNEL-5-FOP\_CHANGED: port-channel100: first operational port changed from Ethernet4/6 to none

2013 Sep 26 20:03:28 N7KA-vdc2 %ETH\_PORT\_CHANNEL-5-PORT\_DOWN: port-channel1: Ethernet3/1 is down

2013 Sep 26 20:03:28 N7KA-vdc2 %ETH\_PORT\_CHANNEL-5-PORT\_DOWN: port-channel1: Ethernet3/2 is down

2013 Sep 26 20:03:28 N7KA-vdc2 %ETH\_PORT\_CHANNEL-5-FOP\_CHANGED: port-channel1: first operational port changed from Ethernet3/1 to none 2013 Sep 26 20:03:28 N7KA-vdc2 %ETHPORT-5-

IF\_DOWN\_PORT\_CHANNEL\_MEMBERS\_DOWN: Interface port-channel1 is down (No operational members)

N7KB: 2013 Sep 26 20:02:39 N7KB-vdc2 %ETH\_PORT\_CHANNEL-5-FOP\_CHANGED: port-channel1: first operational port changed from Ethernet3/1 to none 2013 Sep 26 20:02:40 N7KB-vdc2

%ETH\_PORT\_CHANNEL-5-PORT\_DOWN: port-channel1: Ethernet3/2 is down 2013 Sep 26 20:02:40 N7KB-vdc2

%ETHPORT-5-IF\_DOWN\_LINK\_FAILURE: Interface Ethernet3/2 is down (Link failure)

2013 Sep 26 20:02:45 N7KB-vdc2 %VPC-2-PEER\_KEEP\_ALIVE\_RECV\_FAIL: In domain 102, VPC peer keep-alive receive has failed

2013 Sep 26 20:02:45 N7KB-vdc2 %ETHPORT-5-IF\_DOWN\_PORT\_CHANNEL\_MEMBERS\_DOWN: Interface port-channel1 is down (No operational members)

2013 Sep 26 20:02:45 N7KB-vdc2 %ETH\_PORT\_CHANNEL-5-PORT\_DOWN: port-channel1: Ethernet3/1 is down

2013 Sep 26 20:02:45 N7KB-vdc2 %ETHPORT-5-IF\_DOWN\_LINK\_FAILURE: Interface Ethernet3/1 is down

(Link failure) 2013 Sep 26 20:02:45 N7KB-vdc2 %ETHPORT-5-IF\_DOWN\_PORT\_CHANNEL\_MEMBERS\_DOWN:

Interface port-channell1 is down (No operational members)

Now you are left in the this state. N7KA is the vPC Primary peer, but it stops sending vPC peer keepalive messages to N7KB so that N7KB does not go suspended. N7KB is the only system that has uplinks up.

**Note:** e3/4 on N7KB connects to another VDC on N7KA which is why it also went down. The point is that you have tracked interfaces up on N7KB and none on N7KA so it stops sending messages to N7KB on the peer-keepalive link.

### Ethalyzer output from N7KA:

(Notice after the TRACK\_INTFS\_DOWN syslog we no longer send peer-keepalives to N7KB, we only receive them from N7KB who is 1.1.1.2)

```
2013-09-26 20:03:23.684887      1.1.1.1 -> 1.1.1.2      UDP Source port: 3200 Destination port: 3200
2013-09-26 20:03:23.685766      1.1.1.2 -> 1.1.1.1      UDP Source port: 3200 Destination port: 3200
2013-09-26 20:03:24.684863 1.1.1.1 -> 1.1.1.2 UDP Source port: 3200 Destination port: 3200 2013-09-26 20:03:24.685580 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port: 3200 2013 Sep 26 20:03:25 N7KA-vdc2 %$ VDC-2 %$ %PLATFORM-2-PFM_MODULE_POWER_OFF: Manual power-off of Module 3 from Command Line Interface 2013 Sep 26 20:03:25 N7KA %$ VDC-1 %$ %PLATFORM-2-PFM_MODULE_POWER_OFF: Manual power-off of Module 3 from Command Line Interface 2013-09-26 20:03:25.684869 1.1.1.1 -> 1.1.1.2 UDP Source port: 3200 Destination port: 3200 2013-09-26 20:03:25.685771 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port: 3200
2013-09-26 20:03:26.684835 1.1.1.1 -> 1.1.1.2 UDP Source port: 3200 Destination port: 3200 2013-09-26 20:03:26.685716 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port: 3200
2013-09-26 20:03:27.690661 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port: 3200 2013-09-26 20:03:27.691367 1.1.1.1 -> 1.1.1.2 UDP Source port: 3200 Destination port: 3200 2013 Sep 26 20:03:28 N7KA-vdc2 %$ VDC-2 %$ %PLATFORM-2-MOD_PWRDN: Module 3 powered down (Serial number JAF1703ALTD) 2013 Sep 26 20:03:28 N7KA %$ VDC-1 %$ %PLATFORM-2-MOD_PWRDN: Module 3 powered down (Serial number JAF1703ALTD) 2013 Sep 26 20:03:28 N7KA-vdc2 %$ VDC-2 %$ %VPC-2-TRACK_INTFS_DOWN: In domain 102, vPC tracked interfaces down, suspending all vPCs and keep-alive 2013-09-26 20:03:28.700594 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port: 3200 2013-09-26 20:03:29.700538 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port: 3200 2013-09-26 20:03:30.700603 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port: 3200 2013-09-26 20:03:31.710665 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port: 3200 2013-09-26 20:03:32.720601 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port: 3200 2013-09-26 20:03:33.715295 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port: 3200 2013-09-26 20:03:34.713112 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port: 3200 2013-09-26 20:03:35.713177 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port: 3200
```

### Ethalyzer output from N7KB:

```
2013-09-26 20:02:36.651007      1.1.1.1 -> 1.1.1.2      UDP Source port: 3200 Destination port: 3200
2013-09-26 20:02:36.651534      1.1.1.2 -> 1.1.1.1      UDP Source port: 3200 Destination port: 3200

2013-09-26 20:02:37.651053      1.1.1.1 -> 1.1.1.2      UDP Source port: 3200 Destination port: 3200
2013-09-26 20:02:37.651644      1.1.1.2 -> 1.1.1.1      UDP Source port: 3200 Destination port: 3200

2013-09-26 20:02:38.650967      1.1.1.1 -> 1.1.1.2      UDP Source port: 3200 Destination port: 3200
2013-09-26 20:02:38.651579      1.1.1.2 -> 1.1.1.1      UDP Source port: 3200 Destination port: 3200

2013-09-26 20:02:39.656523      1.1.1.2 -> 1.1.1.1      UDP Source port: 3200 Destination port:
```

3200  
2013-09-26 20:02:39.657500 1.1.1.1 -> 1.1.1.2 UDP Source port: 3200 Destination port:  
3200

(Here we stop receiving keepalive messages from N7KA or 1.1.1.1):

2013-09-26 20:02:40.666531 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port:  
3200  
2013-09-26 20:02:41.666442 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port:  
3200  
2013-09-26 20:02:42.666479 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port:  
3200  
2013-09-26 20:02:43.676461 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port:  
3200  
2013-09-26 20:02:44.686478 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port:  
3200

2013 Sep 26 20:02:45 N7KB-vdc2 %\$ VDC-2 %\$ %VPC-2-PEER\_KEEP\_ALIVE\_RECV\_FAIL: In domain 102, VPC  
peer keep-alive receive has failed

2013-09-26 20:02:45.681050 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port:  
3200  
2013-09-26 20:02:46.678911 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port:  
3200  
2013-09-26 20:02:47.678918 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port:  
3200  
2013-09-26 20:02:48.678961 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port:  
3200

## N7KA:

N7KA-vdc2# sh vpc brief

Legend:

(\*) - local vPC is down, forwarding via vPC peer-link

```
vPC domain id           : 102
Peer status             : peer link is down
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 : 2
Track object            : 1
Peer Gateway            : Enabled
Peer gateway excluded VLANs : -
Dual-active excluded VLANs : -
Graceful Consistency Check : Enabled
Auto-recovery status    : Enabled (timeout = 240 seconds)
```

vPC Peer-link status

```
-----
id  Port  Status Active vlans
--  ---  -----
1   Po1   down   -
```

vPC status

```
-----
id  Port  Status Consistency Reason           Active vlans
--  ---  -----
100 Po100 down   success  success                       -
101 Po101 down   success  success                       -
```



N7KA-vdc2# show track

Track 1

List Boolean or  
Boolean or is DOWN  
3 changes, last change 00:20:50

Track List Members:

object 4 DOWN  
object 3 DOWN  
object 2 DOWN

Tracked by:

vPCM 102

Track 2

Interface port-channell1 Line Protocol  
Line Protocol is DOWN  
2 changes, last change 00:20:50

Tracked by:

Track List 1

Track 3

Interface Ethernet3/3 Line Protocol  
Line Protocol is DOWN  
4 changes, last change 00:20:50

Tracked by:

Track List 1

Track 4

Interface Ethernet3/4 Line Protocol  
Line Protocol is DOWN  
4 changes, last change 00:20:50

Tracked by:

Track List 1

N7KA-vdc2#

**N7KB:**

N7KB-vdc2# sh vpc brief

Legend:

(\*) - local vPC is down, forwarding via vPC peer-link

```
vPC domain id           : 102
Peer status              : peer link is down
vPC keep-alive status   : peer is alive
Configuration consistency status : success
Per-vlan consistency status : success
Type-2 consistency status : success
vPC role                 : secondary, operational primary
Number of vPCs configured : 2
Track object            : 1
Peer Gateway            : Enabled
Peer gateway excluded VLANs : -
Dual-active excluded VLANs : -
Graceful Consistency Check : Enabled
Auto-recovery status    : Enabled (timeout = 240 seconds)
```

vPC Peer-link status

```
-----
id  Port  Status Active vlans
--  ---  -----
1   Po1   down   -
```

vPC status

-----

id	Port	Status	Consistency	Reason	Active vlans
100	Po100	up	success	success	1
101	Po101	up	success	success	1

N7KB-vdc2# sh track

Track 1

```
List Boolean or
Boolean or is UP
2 changes, last change 23:57:10
Track List Members:
object 4 DOWN
object 3 UP
object 2 DOWN
Tracked by:
vPCM 102
```

Track 2

```
Interface port-channell1 Line Protocol
Line Protocol is DOWN
2 changes, last change 00:22:04
Tracked by:
Track List 1
```

Track 3

```
Interface Ethernet3/3 Line Protocol
Line Protocol is UP
3 changes, last change 1d00h
Tracked by:
Track List 1
```

Track 4

```
Interface Ethernet3/4 Line Protocol
Line Protocol is DOWN
4 changes, last change 00:22:04
Tracked by:
Track List 1
```

N7KB-vdc2#

### Now you can restore the setup:

N7KA# conf t

Enter configuration commands, one per line. End with CNTL/Z.

N7KA(config)# no poweroff mod 3

N7KA(config)# end

N7KA#

2013 Sep 26 20:26:53 N7KA %PLATFORM-2-PFM\_MODULE\_POWER\_ON: Manual power-on of Module 3 from Command Line Interface

2013 Sep 26 20:26:56 N7KA %PLATFORM-2-MOD\_DETECT: Module 3 detected (Serial number JAF1703ALTD) Module-Type 10 Gbps Ethernet XL Module Model N7K-M132XP-12L

2013 Sep 26 20:26:56 N7KA %PLATFORM-2-MOD\_PWRUP: Module 3 powered up (Serial number JAF1703ALTD)

2013 Sep 26 20:26:56 N7KA %PLATFORM-5-MOD\_STATUS: Module 3 current-status is MOD\_STATUS\_POWERED\_UP

N7KA:

N7KA-vdc2# sh vpc brief

Legend:

(\*) - local vPC is down, forwarding via vPC peer-link

vPC domain id : 102

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, operational secondary  
Number of vPCs configured : 2  
Track object : 1  
Peer Gateway : Enabled  
Peer gateway excluded VLANs : -  
Dual-active excluded VLANs : -  
Graceful Consistency Check : Enabled  
Auto-recovery status : Enabled (timeout = 240 seconds)

vPC Peer-link status

```
-----  
id  Port  Status Active vlans  
--  ----  -  
1   Po1   up     1
```

vPC status

```
-----  
id  Port  Status Consistency Reason Active vlans  
--  ----  -  
100 Po100 up success success 1  
101 Po101 up success success 1
```

N7KA-vdc2# sh track

Track 1

List Boolean or  
Boolean or is UP  
4 changes, last change 00:01:44  
Track List Members:  
object 4 UP  
object 3 UP  
object 2 UP  
Tracked by:  
vPCM 102

Track 2

Interface port-channell1 Line Protocol  
Line Protocol is UP  
3 changes, last change 00:01:40  
Tracked by:  
Track List 1

Track 3

Interface Ethernet3/3 Line Protocol  
Line Protocol is UP  
5 changes, last change 00:01:43  
Tracked by:  
Track List 1

Track 4

Interface Ethernet3/4 Line Protocol  
Line Protocol is UP  
5 changes, last change 00:01:44  
Tracked by:  
Track List 1

N7KA-vdc2#

**N7KB:**

N7KB-vdc2# sh vpc brief

Legend:

(\*) - local vPC is down, forwarding via vPC peer-link

vPC domain id : 102  
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, operational primary  
Number of vPCs configured : 2  
Track object : 1  
Peer Gateway : Enabled  
Peer gateway excluded VLANs : -  
Dual-active excluded VLANs : -  
Graceful Consistency Check : Enabled  
Auto-recovery status : Enabled (timeout = 240 seconds)

vPC Peer-link status

```
-----  
id   Port   Status Active vlans  
--   ----   -  
1    Po1    up     1
```

vPC status

```
-----  
id   Port   Status Consistency Reason      Active vlans  
--   ----   -  
100  Po100  up     success  success      1  
101  Po101  up     success  success      1
```

N7KB-vdc2# sh track

Track 1

List Boolean or  
Boolean or is UP  
2 changes, last change 1d00h

Track List Members:

object 4 UP  
object 3 UP  
object 2 UP

Tracked by:

vPCM 102

Track 2

Interface port-channell1 Line Protocol  
Line Protocol is UP  
3 changes, last change 00:02:07

Tracked by:

Track List 1

Track 3

Interface Ethernet3/3 Line Protocol  
Line Protocol is UP  
3 changes, last change 1d00h

Tracked by:

Track List 1

Track 4

Interface Ethernet3/4 Line Protocol  
Line Protocol is UP  
5 changes, last change 00:02:09

Tracked by:

N7KB-vdc2#

Details on vPC Peer-keepalive failure:

Re-run the test in order to see what happens with the peer-keepalive link.

Send the keepalives bi-directionally - currently everything is up and operational:

```

2013-09-26 20:32:12.532319      1.1.1.1 -> 1.1.1.2      UDP Source port: 3200  Destination port:
3200
2013-09-26 20:32:12.533083      1.1.1.2 -> 1.1.1.1      UDP Source port: 3200  Destination port:
3200
2013-09-26 20:32:13.532485 1.1.1.1 -> 1.1.1.2 UDP Source port: 3200 Destination port: 3200 2013-
09-26 20:32:13.533147 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port: 3200

```

Now shutdown the M132 module 3 on N7KA again:

```

2013 Sep 26 20:32:14 N7KA %$ VDC-1 %$ %PLATFORM-2-PFM_MODULE_POWER_OFF: Manual power-off of
Module 3 from Command Line Interface
2013 Sep 26 20:32:14 N7KA-vdc3 %$ VDC-3 %$ %PLATFORM-2-PFM_MODULE_POWER_OFF: Manual power-off of
Module 3 from Command Line Interface
2013 Sep 26 20:32:14 N7KA-vdc2 %$ VDC-2 %$ %PLATFORM-2-PFM_MODULE_POWER_OFF: Manual power-off of
Module 3 from Command Line Interface

```

```

2013-09-26 20:32:14.532364      1.1.1.1 -> 1.1.1.2      UDP Source port: 3200  Destination port:
3200
2013-09-26 20:32:14.533217      1.1.1.2 -> 1.1.1.1      UDP Source port: 3200  Destination port:
3200

2013-09-26 20:32:15.532453      1.1.1.1 -> 1.1.1.2      UDP Source port: 3200  Destination port:
3200
2013-09-26 20:32:15.533158      1.1.1.2 -> 1.1.1.1      UDP Source port: 3200  Destination port:
3200

2013-09-26 20:32:16.532452      1.1.1.1 -> 1.1.1.2      UDP Source port: 3200  Destination port:
3200
2013-09-26 20:32:16.536224      1.1.1.2 -> 1.1.1.1      UDP Source port: 3200  Destination port:
3200

```

```

2013 Sep 26 20:32:17 N7KA %$ VDC-1 %$ %PLATFORM-2-MOD_PWRDN: Module 3 powered down (Serial
number JAF1703ALTD)
2013 Sep 26 20:32:17 N7KA-vdc3 %$ VDC-3 %$ %PLATFORM-2-MOD_PWRDN: Module 3 powered down (Serial
number JAF1703ALTD)
2013 Sep 26 20:32:16 N7KA-vdc2 %$ VDC-2 %$ %VPC-2-TRACK_INTFS_DOWN: In domain 102, vPC tracked
interfaces down, suspending all vPCs and keep-alive
2013 Sep 26 20:32:17 N7KA-vdc2 %$ VDC-2 %$ %PLATFORM-2-MOD_PWRDN: Module 3 powered down (Serial
number JAF1703ALTD)

```

Now you see that only N7KB (1.1.1.2) is sending the keepalive messages to N7KA (1.1.1.1):

```

2013-09-26 20:32:17.549161      1.1.1.2 -> 1.1.1.1      UDP Source port: 3200  Destination port:
3200
2013-09-26 20:32:18.549352      1.1.1.2 -> 1.1.1.1      UDP Source port: 3200  Destination port:
3200
2013-09-26 20:32:19.549294      1.1.1.2 -> 1.1.1.1      UDP Source port: 3200  Destination port:
3200
2013-09-26 20:32:20.549358      1.1.1.2 -> 1.1.1.1      UDP Source port: 3200  Destination port:
3200
2013-09-26 20:32:21.549303      1.1.1.2 -> 1.1.1.1      UDP Source port: 3200  Destination port:
3200
2013-09-26 20:32:22.549991      1.1.1.2 -> 1.1.1.1      UDP Source port: 3200  Destination port:
3200

```

Here you see the state on N7KB showing the peer keepalive has failed:

```
N7KB-vdc2# sh vpc brief
```

Legend:

(\*) - local vPC is down, forwarding via vPC peer-link

```
vPC domain id           : 102
Peer status              : peer link is down
vPC keep-alive status   : peer is not reachable through peer-keepalive
Configuration consistency status : success
Per-vlan consistency status : success
Type-2 consistency status : success
vPC role                 : secondary, operational primary
Number of vPCs configured : 2
Track object             : 1
Peer Gateway             : Enabled
Peer gateway excluded VLANs : -
Dual-active excluded VLANs : -
Graceful Consistency Check : Enabled
Auto-recovery status     : Enabled (timeout = 240 seconds)
```

vPC Peer-link status

```
-----
id  Port  Status Active vlans
--  ---  -----
1   Po1   down   -
```

vPC status

```
-----
id  Port  Status Consistency Reason           Active vlans
--  ---  -----
100 Po100 up      success  success                       1
101 Po101 up      success  success                       1
```

```
N7KB-vdc2#
```

Now you start to receive peer-keepalive messages from N7KA again after a brief period (90 seconds):

<snip>

```
2013-09-26 20:33:42.630255 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port:
3200
2013-09-26 20:33:43.630199 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port:
3200
2013-09-26 20:33:44.630263 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port:
3200
2013-09-26 20:33:45.640201 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port:
3200
2013-09-26 20:33:46.650262 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port:
3200
2013-09-26 20:33:47.652445 1.1.1.1 -> 1.1.1.2 UDP Source port: 3200 Destination port:
3200
2013-09-26 20:33:47.660318 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port:
3200
2013-09-26 20:33:48.652768 1.1.1.2 -> 1.1.1.1 UDP Source port: 3200 Destination port:
3200
2013-09-26 20:33:48.653347 1.1.1.1 -> 1.1.1.2 UDP Source port: 3200 Destination port:
3200
2013-09-26 20:33:49.652409 1.1.1.1 -> 1.1.1.2 UDP Source port: 3200 Destination port:
3200
```

```

2013-09-26 20:33:49.652705      1.1.1.2 -> 1.1.1.1      UDP Source port: 3200  Destination port:
3200
2013-09-26 20:33:50.652423      1.1.1.1 -> 1.1.1.2      UDP Source port: 3200  Destination port:
3200
2013-09-26 20:33:50.652773      1.1.1.2 -> 1.1.1.1      UDP Source port: 3200  Destination port:
3200
2013-09-26 20:33:51.652401      1.1.1.1 -> 1.1.1.2      UDP Source port: 3200  Destination port:
3200
2013-09-26 20:33:51.652839      1.1.1.2 -> 1.1.1.1      UDP Source port: 3200  Destination port:
3200

```

Then you see the latest state on N7KB (showing peer is alive):

```
N7KB-vdc2# sh vpc brief
```

Legend:

```
(*) - local vPC is down, forwarding via vPC peer-link
```

```

vPC domain id           : 102
Peer status              : peer link is down
vPC keep-alive status   : peer is alive
Configuration consistency status : success
Per-vlan consistency status : success
Type-2 consistency status : success
vPC role                 : secondary, operational primary
Number of vPCs configured : 2
Track object             : 1
Peer Gateway             : Enabled
Peer gateway excluded VLANs : -
Dual-active excluded VLANs : -
Graceful Consistency Check : Enabled
Auto-recovery status     : Enabled (timeout = 240 seconds)

```

vPC Peer-link status

```

-----
id   Port   Status Active vlans
--   -
1    Po1    down   -

```

vPC status

```

-----
id   Port   Status Consistency Reason           Active vlans
--   -
100  Po100  up     success  success                       1
101  Po101  up     success  success                       1

```

```
N7KB-vdc2#
```