

# vPC-Objektverfolgung

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## Einführung

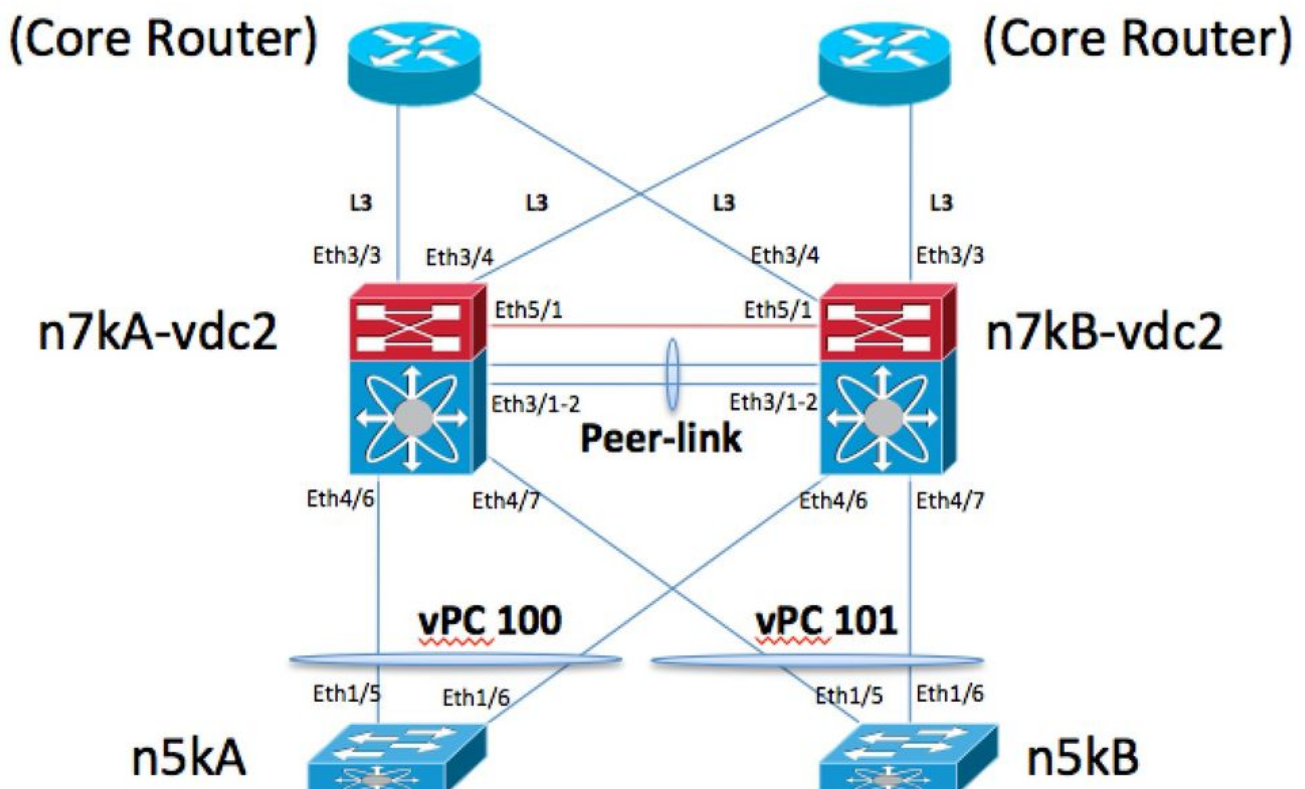
In diesem Dokument werden die vPC-Objektverfolgung, ihre Verwendung und ihre Funktionsweise beschrieben.

## vPC-Objektverfolgung

### Netzwerkdiagramm

Das für diese Demonstration verwendete Netzwerkdiagramm ist wie folgt:

## vPC Object Tracking Topology



Die vPC-Peer-Verbindung ist Port-Channel 1. Ethernet 5/1 ist die vPC Peer-Keepalive-Verbindung. Es gibt zwei Core-Router, die über L3/30-Verbindungen e3/3 und e3/4 an jedem N7K-Gerät angeschlossen sind. N5KA und N5KB simulieren L2-Switches vPC, die auf vPC 100 und vPC 101 angeschlossen sind. N7KA ist das primäre vPC-Gerät.

## Baseline-Show-Befehle

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-channel1 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

```

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-Objektverfolgung wird in einem Szenario wie diesem verwendet. Es wird ein M132-Modul für die vPC-Peer-Verbindung sowie die L3-Uplinks zum Core verwendet. Wenn Sie aufgrund eines HW-Fehlers das M132-Modul verlieren, gehen sowohl die vPC-Peer-Verbindung als auch die L3-Uplinks verloren. Wenn dies auf der sekundären vPC-Box (N7KB) der Fall wäre, wäre dies kein Problem, da der primäre betriebliche Peer die vPC-Port-Channels und VLAN-Schnittstellen auf der sekundären betrieblichen Ebene außer Kraft setzen würde. Das Problem besteht im Fall eines Hardware-Ausfalls auf dem operativen primären Gerät (N7KA). Wenn Sie die Objektverfolgung nicht verwenden, werden alle vPC-Port-Channels auf N7KB sowie die VLAN-Schnittstellen außer Kraft gesetzt. Die Peer-Verbindung ist ebenfalls inaktiv. In diesem Szenario wäre es nicht möglich, den Core-Datenverkehr in unsere vPC-VLANs zu leiten.

Die Objektverfolgung umgeht dies, indem sie vPC auf den betriebsbereiten primären Switch herunterfährt, sodass wir nicht in dieses Szenario gelangen, in dem die VLAN-Schnittstellen und vPC-Port-Channels auf dem Gerät heruntergefahren werden, das die verbleibenden Uplinks zum Kern hat.

Hier sehen Sie die vPC-Peer-Keepalive-Nachrichten mit Ethalyzer:

```
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
estination port: 3200
2013-09-26 20:00:22.922517      1.1.1.1 -> 1.1.1.2      UDP Source port: 3200  D
estination port: 3200
2013-09-26 20:00:23.616427      1.1.1.2 -> 1.1.1.1      UDP Source port: 3200  D
estination port: 3200
2013-09-26 20:00:23.922557      1.1.1.1 -> 1.1.1.2      UDP Source port: 3200  D
estination port: 3200
4 packets captured
N7KB#
```

**Jetzt simulieren Sie den Ausfall von Modul 3 auf N7KA, indem Sie das Modul ausschalten:**

```
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
```

## Protokolle:

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-channel1 is down (No operational members)
```

Jetzt befinden Sie sich in diesem Zustand. N7KA ist der primäre vPC-Peer, aber es beendet das Senden von vPC-Peer-Keepalive-Nachrichten an N7KB, sodass N7KB nicht ausgesetzt wird. N7KB ist das einzige System mit Uplinks.

**Hinweis:** e3/4 auf N7KB stellt eine Verbindung zu einem anderen VDC auf N7KA her, weshalb auch dieser ausfiel. Der Punkt ist, dass Sie die Schnittstellen in N7KB und in N7KA nachverfolgt haben, sodass das Senden von Nachrichten an N7KB auf dem Peer-Keepalive-Link gestoppt wird.

### Ethanalyzer-Ausgabe von N7KA:

(Nach dem Syslog TRACK\_INTFS\_DOWN senden wir keine Peer-Keepalive-Nachrichten mehr an N7KB, sondern nur noch von N7KB, das 1.1.1.2 ist.)

```
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
```

### Ethanalyzer-Ausgabe von 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-channel1 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#

**Jetzt können Sie das Setup wiederherstellen:**

```
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-channel1 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:

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:  
Track List 1

N7KB-vdc2#

**Details zum vPC-Peer-Keepalive-Ausfall:**

Führen Sie den Test erneut aus, um zu sehen, was mit der Peer-Keepalive-Verbindung geschieht.

Senden Sie die Keeplives bidirektional - derzeit ist alles in Betrieb:

```
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
```

**Fahren Sie jetzt das M132-Modul 3 auf N7KA erneut herunter:**

```
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)

```

Nun sehen Sie, dass nur N7KB (1.1.1.2) die Keepalive-Nachrichten an N7KA (1.1.1.1) sendet:

```

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

```

Hier sehen Sie den Status auf N7KB, der anzeigt, dass die Peer-Keepalive-Funktion fehlgeschlagen ist:

```
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#

Nach kurzer Zeit (90 Sekunden) erhalten Sie jetzt wieder Peer-Keepalive-Nachrichten vom N7KA:

<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
```

Dann sehen Sie den aktuellen Status auf N7KB (zeigt Peer ist aktiv):

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#