Rastreamento de objetos do vPC
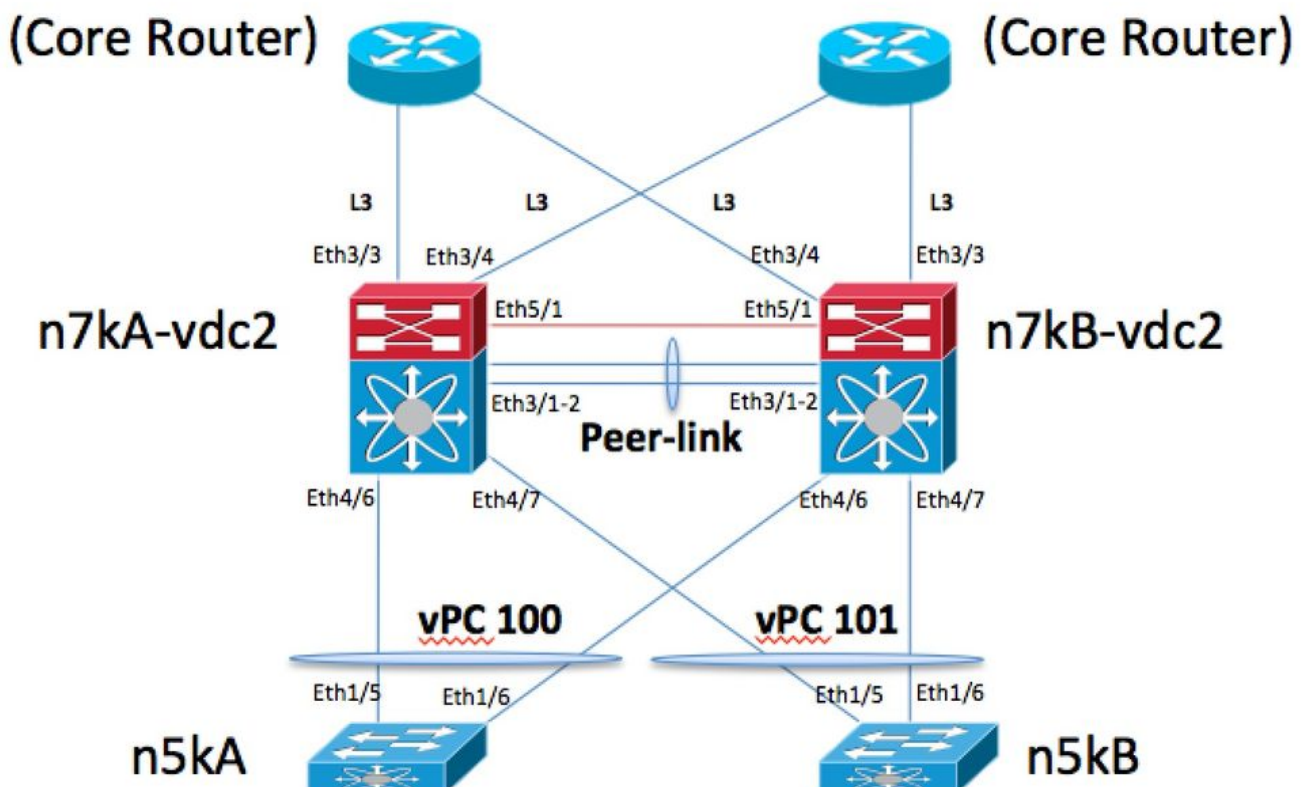
Contents

Introduction

Este documento descreve o vPC Object Tracking, por que ele é usado e como ele funciona.

Rastreamento de objetos do vPC

Diagrama de Rede

Este é o diagrama de rede usado para esta demonstração:

O link do peer do vPC é Port-channel 1. A Ethernet 5/1 é o link peer-keepalive do vPC. Há dois roteadores centrais conectados através de links L3 /30 e3/3 e e3/4 em cada caixa N7K. O N5KA e o N5KB estão simulando os switches L2 vPC conectados no vPC 100 e vPC 101. N7KA é o dispositivo principal do vPC.

Comandos show da linha de base

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


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-channel1 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#
```

O vPC Object Tracking é usado em um cenário como este. Você tem um módulo M132 usado para o link par do vPC, assim como uplinks L3 para o núcleo. No caso de você perder o módulo M132 devido a uma falha de hardware, você perderá o link par do vPC e os uplinks L3. Se isso acontecesse na caixa secundária do vPC (N7KB), isso não seria um problema, pois o peer primário operacional assumiria a suspensão dos canais de porta do vPC e das interfaces de Vlan no secundário operacional. O problema ocorre no caso de uma falha de hardware no dispositivo primário operacional (N7KA). Se você não usasse rastreamento de objetos, suspenderia todos os canais de porta do vPC em N7KB, assim como as interfaces de Vlan. O link de peer também estaria inoperante. Nesse cenário, você não teria uma maneira de rotear o tráfego Core para nossas vlans vPC.

O Rastreamento de Objeto contorna isso, derrubando o vPC no primário operacional, para que não cheguemos a esse cenário em que desativamos as Interfaces de Vlan e os canais de porta vPC na caixa que tem os uplinks restantes para o núcleo.

Aqui você vê as mensagens de keepalive de peer do vPC usando o analisador de eventos:

```
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#
```

Agora você simula a falha do módulo 3 no N7KA através da desligamento do módulo:

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

Agora você está nesse estado. N7KA é o peer primário do vPC, mas para de enviar mensagens de keepalive de peer do vPC para N7KB para que o N7KB não seja suspenso. O N7KB é o único sistema que possui uplinks.

Note: e3/4 em N7KB conecta-se a outro VDC em N7KA e é por isso que também caiu. O ponto é que você rastreou as interfaces em N7KB e nenhuma em N7KA, então ele para de enviar mensagens para N7KB no link peer keepalive.

Saída do analisador de ética do N7KA:

(Observe que depois que o syslog TRACK_INTFS_DOWN não mais enviamos peer keeplives para N7KB, somente os recebemos de N7KB, que é 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
```
Saída do Analisador Ético de 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-channel1 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#
```
 Agora você pode restaurar a configuração:


```
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:
 vPCM                    102

Track 2
  Interface port-channel1 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#
```
 Detalhes sobre a falha de peer-keepalive do vPC:

Execute novamente o teste para ver o que acontece com o link peer-keepalive.

Envie os keepliaves de forma bidirecional - atualmente tudo está ativo e operacional:

```
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
```
Agora, desligue novamente o módulo 3 da M132 no N7KA:

```
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)
```

Agora você vê que apenas N7KB (1.1.1.2) está enviando mensagens de keepalive para 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
```

Aqui você vê o estado no N7KB mostrando que o peer keepalive falhou:

```
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#
```
Agora você começa a receber mensagens de peer-keepalive do N7KA novamente após um breve

período (90 segundos):

```
<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
```

Em seguida, você vê o estado mais recente do N7KB (mostrando o peer está vivo):

```
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#
```