vPCオブジェクトトラッキング

内容

概要
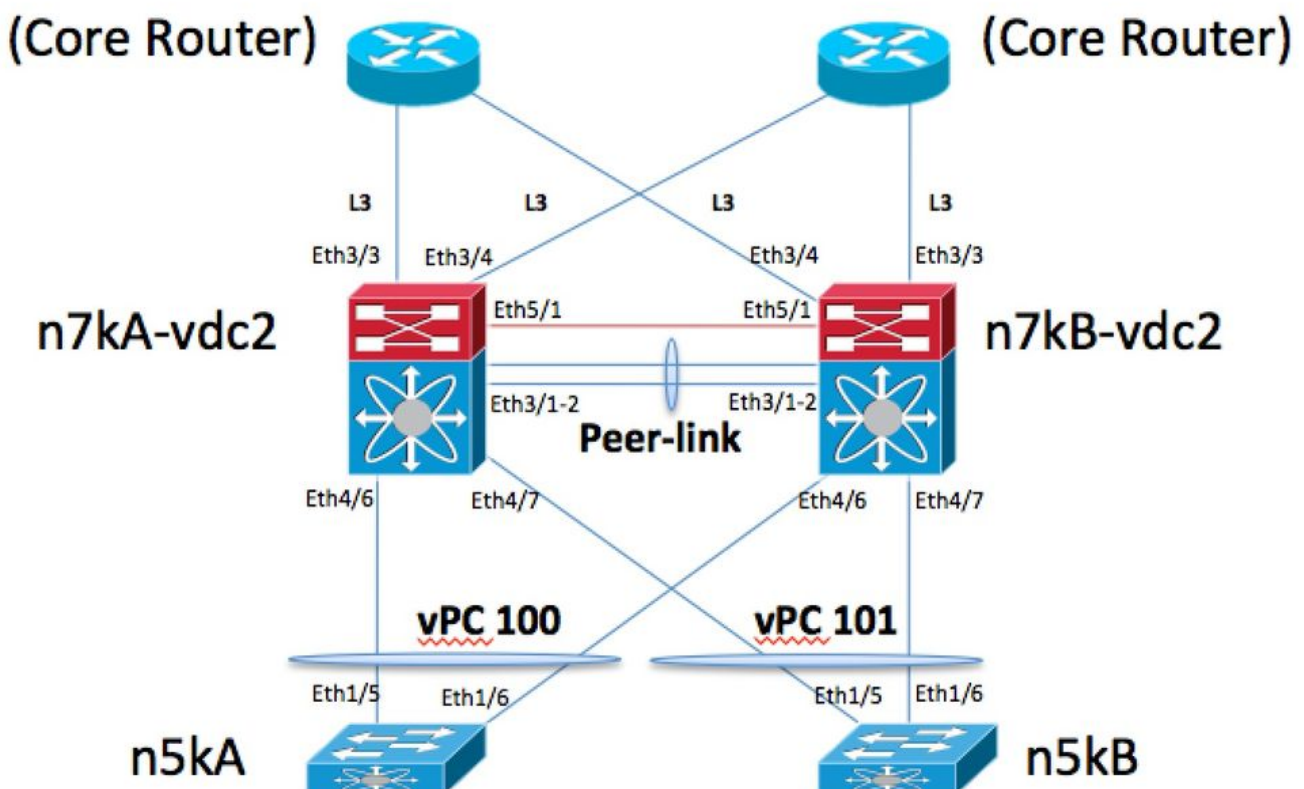
このドキュメントでは、vPCオブジェクトトラッキング、使用する理由、および動作について説明します。

vPCオブジェクトトラッキング

ネットワーク図

このデモンストレーションで使用するネットワークダイアグラムを次に示します。

vPCピアリンクはポートチャネル1です。イーサネット5/1はvPCピアキープアライブリンクです。 各N7Kボックスには、L3 /30リンクe3/3およびe3/4を介して接続された2つのコアルータがあります。 N5KAとN5KBは、vPC 100とvPC 101に接続されたL2スイッチvPCをシミュレートしています。N7KAはvPCプライマリデバイスです。

ベースライン表示コマンド

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#
```

vPCオブジェクトトラッキングは、このようなシナリオで使用されます。 vPCピアリンクおよびコアへのL3アップリンクに使用される1つのM132モジュールがあります。 ハードウェア障害によりM132モジュールが失われる場合、vPCピアリンクとL3アップリンクが失われます。 vPCのセカンダリボックス(N7KB)で発生した場合は、動作中のプライマリピアが動作中のセカンダリでvPCのポートチャネルとVlanインターフェイスの中断を引き継ぐため、これは問題になりません。 この問題は、動作中のプライマリデバイス(N7KA)でハードウェア障害が発生した場合に発生します。オブジェクトトラッキングを使用しなかった場合は、N7KBおよびVlanインターフェイス上のすべてのvPCポートチャネルが中断されます。 ピアリンクもダウンしています。 このシナリオでは、コアトラフィックをvPC VLANにルーティングする方法はありません。

オブジェクトトラッキングは、運用プライマリでvPCをダウンさせることで回避されるため、コアに残りのアップリンクがあるボックスでVlanインターフェイスとvPCポートチャネルをダウンさせるシナリオでは説明しません。

次に、ethanalyzerを使用したvPCピアキープアライブメッセージを示します。

```
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#
```

次に、モジュールの電源をオフにして、N7KAのモジュール3障害をシミュレートします。

```
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)
```

これで、この状態のままになります。 N7KAはvPCプライマリピアですが、N7KBが一時停止しないように、vPCピアキープアライブメッセージのN7KBへの送信を停止します。 N7KBは、アップリンクがアップしている唯一のシステムです。

注：N7KB上のe3/4は、N7KA上の別のVDCに接続しているため、これもダウンしています。 ポイントは、N7KB上でインターフェイスを追跡し、N7KA上でインターフェイスを追跡しないことです。これにより、ピアキープアライブリンク上でN7KBへのメッセージの送信が停止されます。

N7KAからのEthanalyzer出力：

(TRACK_INTFS_DOWN syslogの後、ピアキープアライブをN7KBに送信しなくなり、1.1.1.2のN7KBからしか受信できないことに注意してください)

```
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
```
N7KBからのEthanalyzer出力：

```
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#
```
 これで、設定を復元できます。

```
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#
```

vPCピアキープアライブ障害の詳細：

ピアキープアライブリンクで何が起こるか確認するために、テストを再実行します。

keepliavesを双方向で送信します。現在、すべてがアップ状態で動作しています。

```
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
```

N7KAでM132モジュール3を再度シャットダウンします。

```
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)
```

N7KB(1.1.1.2)だけがキープアライブメッセージをN7KA(1.1.1.1)に送信していることがわかります。

```
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
```

N7KBの状態は、ピアキープアライブが失敗したことを示しています。

```
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#
```
次に、N7KAからピアキープアライブメッセージの受信を短時間（90秒）後に再開します。

```
<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
```

次に、N7KBの最新の状態 (ピアがアクティブであることを示す) が表示されます。

```
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#
```