

# Configuration de l'inondation VXLAN et en savoir plus sur Nexus 7K

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## Introduction

Ce document décrit la configuration de Virtual Extensible LAN (VXLAN) Flood and Learn sur les commutateurs de la gamme Nexus 7000.

## Conditions préalables

### Conditions requises

Cisco vous recommande de prendre connaissance des rubriques suivantes :

- Concepts de routage multidiffusion, comme le point RP (rendezvous point) et la multidiffusion multiplateformes (Platform Independent Multicast ou PIM).
- Concepts VXLAN

**Note:** Ce document suppose que le routage IP et le routage multidiffusion ont été établis avant la configuration du VXLAN.

### Components Used

Les informations contenues dans ce document sont basées sur les versions de matériel et de logiciel suivantes :

- N77-C7710

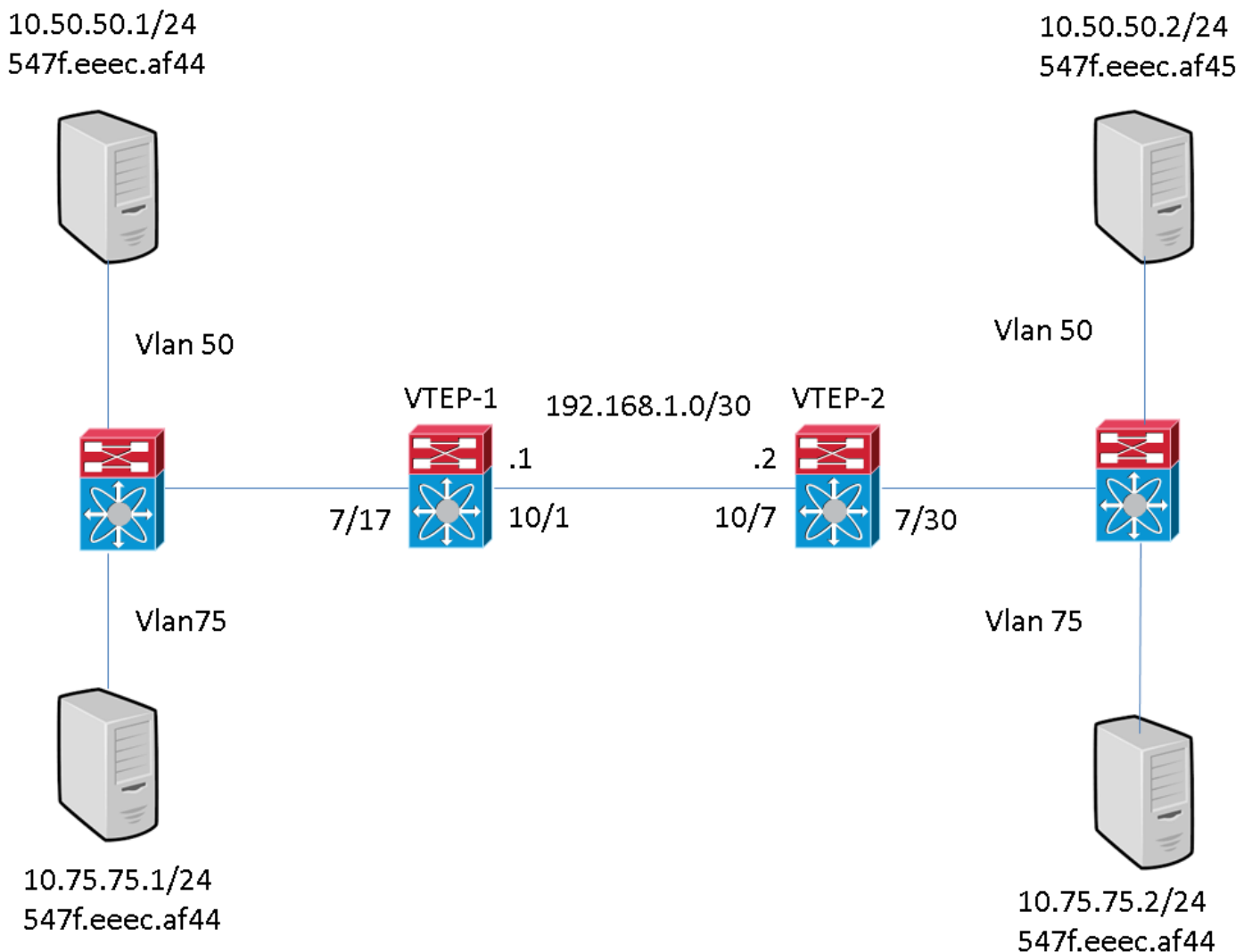
- N77-F348XP-23
- N77-F324FQ-25

**Note:** N77K exécute le logiciel version 7.2(0)D1(1).

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

## Configuration

### Diagramme du réseau



### Configurations

Ces configurations sont particulières à la section du VXLAN. Ces configurations supposent une accessibilité totale à toutes les interfaces de la couche 3 du réseau, quel que soit le protocole de routage utilisé. Le routage statique est utilisé dans cet exemple. Il suppose également que le routage de multidiffusion a été établi sur ces mêmes interfaces L3.

#### VTEP-1

```

feature pim
system bridge-domain 50,75
feature nv overlay
feature interface-vlan feature vni vni 5000
vni 7500 ip route 10.10.10.2/32 Ethernet10/1 192.168.1.2 ip pim rp-address 192.168.1.1 group-
list 224.0.0.0/4 bridge-domain 50
bridge-domain 75 encapsulation profile vni VSI_50_TO_5000 dot1q 50 vni 5000
encapsulation profile vni VSI_75_TO_7500
    dot1q 75 vni 7500 bridge-domain 50 member vni 5000
bridge-domain 75
    member vni 7500 interface nve1 no shutdown source-interface loopback10 member vni 5000 mcast-
group 225.1.1.1
member vni 7500 mcast-group 227.1.1.1

```

```

interface Bdi50
    no shutdown
    ip address 10.50.50.50/24

```

```

interface Bdi75
    no shutdown
    ip address 10.75.75.75/24 interface Ethernet7/17
no switchport no shutdown service instance 1 vni no shutdown encapsulation profile
VSI_50_TO_5000 default
    service instance 2 vni
        no shutdown
        encapsulation profile VSI_75_TO_7500 default interface Ethernet10/1
no switchport ip address 192.168.1.1/30 ip pim sparse-mode no shutdown interface loopback10 ip
address 10.10.10.1/32 ip pim sparse-mode

```

Il est important de noter que l'interface interne sur le terminal VTEP (Vxlan Tunnel endpoint) est configurée en tant que port de couche 3 (pas de port de commutation). Cependant, aucune adresse IP ne lui est attribuée. Il est également important de noter que la valeur BD définie sur le VTEP ne doit pas correspondre à l'ID de VLAN utilisé pour envoyer le trafic vers ce périphérique. Cependant, le mappage dot1q à VNI(Vxlan Network Identifier) défini dans le profil d'encapsulation, appelé sous l'instance de service sur l'interface interne, doit correspondre à l'ID de VLAN.

## VTEP-2

```

feature pim
system bridge-domain 50,75
feature nv overlay
feature interface-vlan feature vni vni 5000
vni 7500 ip route 10.10.10.1/32 Ethernet10/7 192.168.1.1 ip pim rp-address 192.168.1.1 group-
list 224.0.0.0/4 bridge-domain 50
bridge-domain 75 encapsulation profile vni VSI_50_TO_5000 dot1q 50 vni 5000
encapsulation profile vni VSI_75_TO_7500
    dot1q 75 vni 7500 bridge-domain 50 member vni 5000
bridge-domain 75
    member vni 7500 interface nve1 no shutdown source-interface loopback10 member vni 5000 mcast-
group 225.1.1.1
member vni 7500 mcast-group 227.1.1.1

```

```

interface Bdi50
    no shutdown
    ip address 10.50.50.51/24

```

```

interface Bdi75
    no shutdown
    ip address 10.75.75.76/24 interface Ethernet7/30
no switchport no shutdown service instance 1 vni no shutdown encapsulation profile

```

```
VSI_50_TO_5000 default
  service instance 2 vni
    no shutdown
    encapsulation profile VSI_75_TO_7500 default interface Ethernet10/7
no switchport ip address 192.168.1.2/30 ip pim sparse-mode no shutdown interface loopback10 ip
address 10.10.10.2/32 ip pim sparse-mode
```

Il est important de noter que l'interface interne du VTEP est configurée comme port de couche 3 (pas de port de commutation). Cependant, aucune adresse IP ne lui est attribuée. Il est également important de noter que la valeur BD définie sur le VTEP ne doit pas correspondre à l'ID de VLAN utilisé pour envoyer le trafic vers ce périphérique. Cependant, le mappage dot1q à VNI défini dans le profil d'encapsulation, appelé sous l'instance de service sur l'interface interne, doit correspondre à l'ID de VLAN.

## Vérification

Utilisez cette section pour confirmer que votre configuration fonctionne correctement.

### Exemples de rapports

Ces rapports sont en régime permanent. Les pairs du VTEP se sont découverts l'un l'autre et le trafic est passé entre les deux en encapsulation et en désencapsulation.

#### VTEP-1

```
VTEP-1# show nve vni
```

```
Codes: CP - Control Plane      DP - Data Plane
       UC - Unconfigured       SA - Suppress ARP
```

Interface	VNI	Multicast-group	State	Mode	Type	[BD/VRF]	Flags
nve1	5000	225.1.1.1	Up	DP	L2	[50]	
nve1	7500	227.1.1.1	Up	DP	L2	[75]	

```
VTEP-1# show running-config interface nve 1
```

```
interface nve1
  no shutdown
  source-interface loopback10
  member vni 5000 mcast-group 225.1.1.1
  member vni 7500 mcast-group 227.1.1.1
```

```
VTEP-1# show service instance vni detail
```

```
VSI: VSI-Ethernet7/17.1
If-index: 0x35310001
Admin Status: Up
Oper Status: Up
Auto-configuration Mode: No
encapsulation profile vni VSI_50_TO_5000
  dot1q 50 vni 5000
Dot1q  VNI    BD
-----
50     5000   50
```

```
VSI: VSI-Ethernet7/17.2
If-index: 0x35310002
```

```

Admin Status: Up
Oper Status: Up
Auto-configuration Mode: No
encapsulation profile vni TEST
  dot1q 100 vni 7500
Dot1q  VNI      BD
-----
100    7500     75

```

```
VTEP-1# show bridge-domain
```

```

Bridge-domain 50 (2 ports in all)
Name:: Bridge-Domain50
  Administrative State: UP           Operational State: UP
  VSI-Eth7/17.1
  vni5000
  nve1

```

```

Bridge-domain 75 (2 ports in all)
Name:: Bridge-Domain75
  Administrative State: UP           Operational State: UP
  VSI-Eth7/17.2
  vni7500
  nve1

```

```

VTEP-1# show mac address-table dynamic
Note: MAC table entries displayed are getting read from software.
Use the 'hardware-age' keyword to get information related to 'Age'

```

Legend:

\* - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC  
age - seconds since last seen, + - primary entry using vPC Peer-Link, E -

EVPN entry

(T) - True, (F) - False, ~~~ - use 'hardware-age' keyword to retrieve

age info

VLAN/BD	MAC Address	Type	age	Secure NTFY Ports/SWID.	SSID.LIID	-----+-----
nve1/10.10.10.2	* 50 547f.eeec.af44	dynamic	~~~	F F	VSI-Eth7/17.1	* 50 547f.eeec.af45 dynamic
~~~ F F	nve1/10.10.10.2	* 75 547f.eeec.af44	dynamic	~~~	F F	VSI-Eth7/17.2 * 75 547f.eeec.af45
dynamic	~~~ F F	nve1/10.10.10.2	VTEP-1# show ip mroute detail	IP Multicast Routing Table for VRF "default" Total number of routes: 7 Total number of (*,G) routes: 2 Total number of (S,G) routes: 4 Total number of (*,G-prefix) routes: 1 (*, 225.1.1.1/32), uptime: 19:51:28, nve(1) ip(0) pim(1) Data Created: No VXLAN Flags VXLAN Encap Stats: 0/0 [Packets/Bytes], 0.000 bps Incoming interface: Ethernet10/1, RPF nbr: 1.1.1.1 Outgoing interface list: (count: 2) Ethernet10/1, uptime: 19:51:09, pim, (RPF) nve1, uptime: 19:51:28, nve (10.10.10.1/32, 225.1.1.1/32), uptime: 19:51:28, nve(0) mrib(0) ip(0) pim(1) Data Created: No Received Register stop VXLAN Flags VXLAN Encap Stats: 19/2274 [Packets/Bytes], 0.000 bps Incoming interface: loopback10, RPF nbr: 10.10.10.1, internal Outgoing interface list: (count: 1) Ethernet10/1, uptime: 19:51:09, pim (10.10.10.2/32, 225.1.1.1/32), uptime: 18:10:06, pim(1) mrib(1) ip(0) Data Created: Yes VXLAN Flags VXLAN Decap Stats: 9/846 [Packets/Bytes], 0.000 bps Incoming interface: Ethernet10/1, RPF nbr: 1.1.1.2, internal Outgoing interface list: (count: 2) Ethernet10/1, uptime: 01:00:32, pim, (RPF) nve1, uptime: 18:10:06, mrib (*, 227.1.1.1/32), uptime: 12:52:13, nve(1) ip(0) pim(1) Data Created: No VXLAN Flags VXLAN Encap Stats: 0/0 [Packets/Bytes], 0.000 bps Incoming interface: Ethernet10/1, RPF nbr: 1.1.1.1 Outgoing interface list: (count: 2) Ethernet10/1, uptime: 12:51:52, pim, (RPF) nve1, uptime: 12:52:13, nve (10.10.10.1/32, 227.1.1.1/32), uptime: 12:52:13, nve(0) mrib(0) ip(0) pim(1) Data Created: No Received Register stop VXLAN Flags VXLAN Encap Stats: 300/39850 [Packets/Bytes], 0.000 bps Incoming interface: loopback10, RPF nbr: 10.10.10.1, internal Outgoing interface list: (count: 1) Ethernet10/1, uptime: 12:51:52, pim (10.10.10.2/32, 227.1.1.1/32), uptime: 12:51:34, pim(1) mrib(1) ip(0) Data Created: Yes VXLAN Flags VXLAN Decap Stats: 22/1928 [Packets/Bytes], 0.000 bps Incoming interface: Ethernet10/1, RPF nbr: 1.1.1.2, internal Outgoing interface list: (count: 2) Ethernet10/1, uptime: 00:52:14, pim, (RPF) nve1, uptime: 12:51:34, mrib (*, 232.0.0.0/8), uptime: 20:56:33, pim(0) ip(0) Data Created: No Stats: 0/0 [Packets/Bytes], 0.000 bps Incoming interface: Null, RPF nbr: 0.0.0.0 Outgoing interface list: (count: 0) VTEP-1# show ip arp Flags:		

```

* - Adjacencies learnt on non-active FHRP router + - Adjacencies synced via CFSOE # -
Adjacencies Throttled for Glean D - Static Adjacencies attached to down interface IP ARP Table
for context default Total number of entries: 4 Address Age MAC Address Interface 10.50.50.1
00:11:32 547f.eeec.af44 Bdi50
10.50.50.2 00:11:14 547f.eeec.af44 Bdi50 10.75.75.1 00:10:45 547f.eeec.af44 Bdi75 10.75.75.2
00:15:04 547f.eeec.af45 Bdi75 192.168.1.2 00:05:39 547f.eeec.af43 Ethernet10/1 VTEP-1# show ip
route IP Route Table for VRF "default" '*' denotes best ucast next-hop '**' denotes best mcast
next-hop '[x/y]' denotes [preference/metric] '%<string>' in via output denotes VRF <string>
192.168.1.0/30, ubest/mbest: 1/0, attached *via 1.1.1.1, Eth10/1, [0/0], 20:25:13, direct
192.168.1.1/32, ubest/mbest: 1/0, attached *via 1.1.1.1, Eth10/1, [0/0], 20:25:13, local
10.10.10.1/32, ubest/mbest: 2/0, attached *via 10.10.10.1, Lo10, [0/0], 20:25:45, local *via
10.10.10.1, Lo10, [0/0], 20:25:45, direct 10.10.10.2/32, ubest/mbest: 1/0 *via 1.1.1.2, Eth10/1,
[1/0], 20:23:42, static 50.50.50.0/24, ubest/mbest: 1/0, attached *via 50.50.50.50, Bdi50,
[0/0], 01:18:47, direct 50.50.50.50/32, ubest/mbest: 1/0, attached *via 50.50.50.50, Bdi50,
[0/0], 01:18:47, local 75.75.75.0/24, ubest/mbest: 1/0, attached *via 75.75.75.75, Bdi75, [0/0],
01:10:05, direct 75.75.75.75/32, ubest/mbest: 1/0, attached *via 75.75.75.75, Bdi75, [0/0],
01:10:05, local

```

**Note:** Toutes ces sorties ont été rassemblées avec un maillage complet du trafic circulant entre tous les hôtes de la topologie.

## VTEP-2

```
VTEP-2# show nve vni
```

```
Codes: CP - Control Plane          DP - Data Plane
       UC - Unconfigured          SA - Suppress ARP
```

Interface	VNI	Multicast-group	State	Mode	Type	[BD/VRF]	Flags
nve1	5000	225.1.1.1	Up	DP	L2	[50]	
nve1	7500	227.1.1.1	Up	DP	L2	[75]	

```
VTEP-2# show running-config interface nve 1
```

```
interface nve1
  no shutdown
  source-interface loopback10
  member vni 5000 mcast-group 225.1.1.1
  member vni 7500 mcast-group 227.1.1.1
```

```
VTEP-2# show service instance vni detail
```

```
VSI: VSI-Ethernet7/30.1
If-index: 0x3531d001
Admin Status: Up
Oper Status: Up
Auto-configuration Mode: No
encapsulation profile vni VSI_50_TO_5000
  dot1q 50 vni 5000
Dot1q  VNI      BD
-----
50      5000     50
```

```
VSI: VSI-Ethernet7/30.2
If-index: 0x3531d002
Admin Status: Up
Oper Status: Up
Auto-configuration Mode: No
encapsulation profile vni TEST
  dot1q 100 vni 7500
```

```

Dot1q  VNI    BD
-----
100    7500   75

```

VTEP-2# show bridge-domain

Bridge-domain 50 (2 ports in all)

Name:: Bridge-Domain50

```

Administrative State: UP           Operational State: UP
      vni5000
      VSI-Eth7/30.1
      nve1

```

Bridge-domain 75 (2 ports in all)

Name:: Bridge-Domain75

```

Administrative State: UP           Operational State: UP
      vni7500
      VSI-Eth7/30.2
      nve1

```

VTEP-2# show mac address-table dynamic

Note: MAC table entries displayed are getting read from software.  
Use the 'hardware-age' keyword to get information related to 'Age'

Legend:

\* - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC  
age - seconds since last seen, + - primary entry using vPC Peer-Link, E -  
EVPN entry  
(T) - True, (F) - False , ~~~ - use 'hardware-age' keyword to retrieve

age info

```

VLAN/BD  MAC Address      Type      age      Secure NTFY Ports/SWID.SSID.LIID -----+-----
-----+-----+-----+-----+-----+----- * 50 547f.eeec.af44 dynamic ~~~ F F
nve1/10.10.10.1 * 50 547f.eeec.af45 dynamic ~~~ F F VSI-Eth7/30.1 * 75 547f.eeec.af45 dynamic
~~~ F F VSI-Eth7/30.2 * 75 547f.eeec.af48 dynamic ~~~ F F nve1/10.10.10.1 VTEP-2# show ip mroute
detail IP Multicast Routing Table for VRF "default" Total number of routes: 5 Total number of
(*,G) routes: 2 Total number of (S,G) routes: 2 Total number of (*,G-prefix) routes: 1 (*,
225.1.1.1/32), uptime: 19:56:19, nve(1) ip(0) pim(0) Data Created: No VXLAN Flags VXLAN Encap
Stats: 8/748 [Packets/Bytes], 0.000 bps Incoming interface: Ethernet10/7, RPF nbr: 1.1.1.1
Outgoing interface list: (count: 1) nve1, uptime: 19:56:19, nve (10.10.10.2/32, 225.1.1.1/32),
uptime: 19:56:19, nve(0) mrib(0) pim(1) ip(0) Data Created: No Received Register stop VXLAN
Flags VXLAN Encap Stats: 9/834 [Packets/Bytes], 0.000 bps Incoming interface: loopback10, RPF
nbr: 10.10.10.2 Outgoing interface list: (count: 1) Ethernet10/7, uptime: 18:15:17, pim (*,
227.1.1.1/32), uptime: 12:57:03, nve(1) ip(0) pim(0) Data Created: No VXLAN Flags VXLAN Encap
Stats: 10/864 [Packets/Bytes], 0.000 bps Incoming interface: Ethernet10/7, RPF nbr: 1.1.1.1
Outgoing interface list: (count: 1) nve1, uptime: 12:57:03, nve (10.10.10.2/32, 227.1.1.1/32),
uptime: 12:57:03, nve(0) mrib(0) ip(0) pim(1) Data Created: No Received Register stop VXLAN
Flags VXLAN Encap Stats: 30/2648 [Packets/Bytes], 0.000 bps Incoming interface: loopback10, RPF
nbr: 10.10.10.2 Outgoing interface list: (count: 1) Ethernet10/7, uptime: 12:56:45, pim (*,
232.0.0.0/8), uptime: 18:20:36, pim(0) ip(0) Data Created: No Stats: 0/0 [Packets/Bytes], 0.000
bps Incoming interface: Null, RPF nbr: 0.0.0.0 Outgoing interface list: (count: 0) VTEP-2# show
ip arp Flags: * - Adjacencies learnt on non-active FHRP router + - Adjacencies synced via CFSOE
# - Adjacencies Throttled for Glean D - Static Adjacencies attached to down interface IP ARP
Table for context default Total number of entries: 4 Address Age MAC Address Interface
10.50.50.1 00:11:30 547f.eeec.af44 Bdi50 10.50.50.2 00:17:07 547f.eeec.af45 Bdi50
10.75.75.1 00:04:14 547f.eeec.af45 Bdi75 10.75.75.2 00:03:24 547f.eeec.af45 Bdi75 192.168.1.1
00:10:52 547f.eeec.af48 Ethernet10/7 VTEP-2# show ip route IP Route Table for VRF "default" '*'
denotes best ucast next-hop '**' denotes best mcast next-hop '[x/y]' denotes [preference/metric]
'%<string>' in via output denotes VRF <string> 192.168.1.0/30, ubest/mbest: 1/0, attached *via
1.1.1.2, Eth10/7, [0/0], 20:30:24, direct 192.168.1.2/32, ubest/mbest: 1/0, attached *via
1.1.1.2, Eth10/7, [0/0], 20:30:24, local 10.10.10.1/32, ubest/mbest: 1/0 *via 1.1.1.1, Eth10/7,
[1/0], 20:29:48, static 10.10.10.2/32, ubest/mbest: 2/0, attached *via 10.10.10.2, Lo10, [0/0],
20:29:39, local *via 10.10.10.2, Lo10, [0/0], 20:29:39, direct 50.50.50.0/24, ubest/mbest: 1/0,
attached *via 50.50.50.51, Bdi50, [0/0], 01:22:50, direct 50.50.50.51/32, ubest/mbest: 1/0,
attached *via 50.50.50.51, Bdi50, [0/0], 01:22:50, local 75.75.75.0/24, ubest/mbest: 1/0,

```

attached \*via 75.75.75.76, Bdi75, [0/0], 01:14:50, direct 75.75.75.76/32, ubest/mbest: 1/0,  
attached \*via 75.75.75.76, Bdi75, [0/0], 01:14:50, local

**Note:** Toutes ces sorties ont été rassemblées avec un maillage complet du trafic circulant entre tous les hôtes de la topologie.

## Dépannage

Il n'existe actuellement aucune information de dépannage spécifique pour cette configuration.