Troubleshoot OMP Best Path Selection Peculiarities and Typical Confusions

Contents

Introduction

This document describes how to troubleshoot the OMP best-path selection and operation between the OMP, egress policy, and send-path-limit feature.

Prerequisites

Requirements

Cisco recommends that you have knowledge of the Cisco Software Defined Wide Area Network (SDWAN) solution.

Components Used

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, ensure that you understand the potential impact of any command.

Background Information

For the purpose of this demonstration, the lab was set up with three vSmart controllers and three Cisco IOS® XE routers with sites IDs 243, 244, and 245 advertising the same 172.16.1.0/24 prefix. There are also some other routers connected to the overlay (for example, with site-id 204). The last octet of any router system-ip is equal to site-id in this example (10.10.10.<site-id>). vSmarts are having system-ip 10.10.10.228, .229, and .230. In this example, each router has two transports (WAN interfaces) available hence two Transport Locators (TLOCs) with colors private1 and biz-internet. On private1, the circuit router has an IP address assigned in the form of 192.168.9.x and on biz-internet it has 192.168.10.x where x is a site-id.

Scenarios were tested with vSmarts running software versions 20.4.1 and 20.6.1.

Best Path Selection, Egress Policy and Send-Path Limit Order of Operations

First of all, demonstrate the best path selection, egress policy, and **send-path-limit** order of operations. Routers with site-id 247 must receive prefix from routers with site-id 244 or 245, but not from 243.

Here is the policy to achieve this for reference:

```
policy
lists
  site-list site_247
   site-id 247
  !
  site-list sites_244_245
   site-id 244
   site-id 245
  !
  prefix-list ENK_PL
   ip-prefix 172.16.1.0/24
  !
!
control-policy send_2_247
  sequence 10
   match route
    prefix-list ENK_PL
    site-list   sites_244_245
   !
   action accept
   !
  !
  sequence 20
   match route
    prefix-list ENK_PL
   !
   action reject
   !
  !
  default-action accept
!
!
apply-policy
site-list site_247
  control-policy send_2_247 out
!
!
```

When you take a look a vSmart2, it has connectivity to two other vSmarts (site-id 1) and edge routers with site-id 243, 244, and 247. Site 245 is connected to some other vSmart controller and vSmart2 receives its prefix from them indirectly via other vSmart(s).

```
vsmart2# show omp peers
R -> routes received
I -> routes installed
S -> routes sent
```

```
                      DOMAIN    OVERLAY   SITE
PEER            TYPE  ID        ID        ID       STATE   UPTIME          R/I/S
-------------------------------------------------------------------------------------
10.10.10.204    vedge 1         1         204      up      2:20:18:10      14/0/7
10.10.10.228    vsmart 1        1         1        up      2:20:18:06      247/0/9
10.10.10.230    vsmart 1        1         1        up      2:20:17:07      256/0/15
10.10.10.243    vedge 1         1         243      up      2:20:18:10      8/0/7
10.10.10.244    vedge 1         1         244      up      0:13:24:59      10/0/6
10.10.10.247    vedge 1         1         247      up      2:20:18:10      0/0/8
```

In the OMP table, you can notice that route is being received from two other vSmart controllers and also directly from sites 243 and 244:

```
vsmart2# show omp routes 172.16.1.0/24
Code:
C   -> chosen
I   -> installed
Red -> redistributed
Rej -> rejected
L   -> looped
R   -> resolved
S   -> stale
Ext -> extranet
Inv -> invalid
Stg -> staged
IA  -> On-demand inactive
U   -> TLOC unresolved

                                      PATH                  ATTRIBUTE
VPN    PREFIX              FROM PEER      ID     LABEL    STATUS    TYPE       TLOC IP          COLOR
-------------------------------------------------------------------------------------------------------
1      172.16.1.0/24       10.10.10.228   409    1001     C,R       installed  10.10.10.243     publi
                           10.10.10.230   7187   1002     C,R       installed  10.10.10.244     biz-i
                           10.10.10.243   69     1001     C,R       installed  10.10.10.243     publi
                           10.10.10.243   81     1001     C,R       installed  10.10.10.243     priva
                           10.10.10.244   68     1002     C,R       installed  10.10.10.244     biz-i
                           10.10.10.244   81     1002     C,R       installed  10.10.10.244     priva
```

send-path-limit - in this demonstration is set to 1:

```
vsmart2# show running-config omp
omp
no shutdown
send-path-limit   1
no graceful-restart
!
```

Note: From all equal-cost multi-paths for given prefix selected as best-paths and accepted by outbound (egress) policy, not more than the number of paths specified in send-path-limit advertised.

You can check which prefix is advertised to which peer. The route originated by site 243 has the lowest originator system-ip in the OMP route list. Because **send-path-limit** is set to 1, out of two available paths via TLOC private1 and biz-internet, the only route advertised to the routers with site-id 204 and 244 as well as to two other vSmart controllers (10.10.10.228, .230) is from the biz-internet TLOC because it has a highest private IP address (address assigned to the interface):

```
vsmart2# show omp tlocs ip 10.10.10.243 received | b PUBLIC

ADDRESS                                                          PSEUDO                 PUBLIC
FAMILY   TLOC IP      COLOR        ENCAP  FROM PEER     STATUS  KEY   PUBLIC IP        PORT    PRIVATE
-------------------------------------------------------------------------------------------------------
ipv4     10.10.10.243 biz-internet ipsec  10.10.10.228  C,R     1     192.168.10.243   12346   192.168.
                                          10.10.10.230  C,R     1     192.168.10.243   12346   192.168.
                                          10.10.10.243  C,I,R   1     192.168.10.243   12346   192.168.
         10.10.10.243 private1     ipsec  10.10.10.228  C,R     1     192.168.9.243    12346   192.168.
                                          10.10.10.230  C,R     1     192.168.9.243    12346   192.168.
                                          10.10.10.243  C,I,R   1     192.168.9.243    12346   192.168.
```

Site id 243 gets the next route from the list (from site 244) and it is also via biz-internet color because it has the highest TLOC private IP address. Site 243 does not get its own route because of the split-horizon rule though it has the lowest system-IP. Site 247 gets the route from site 244 as well because of the egress policy.

```
vsmart2# show omp routes 172.16.1.0/24 detail | nomore | exclude not\ set | b ADVERTISED | include peer
peer    10.10.10.204
     originator       10.10.10.243
     tloc             10.10.10.243, biz-internet, ipsec
peer    10.10.10.228
     originator       10.10.10.243
     tloc             10.10.10.243, biz-internet, ipsec
peer    10.10.10.230
     originator       10.10.10.243
     tloc             10.10.10.243, biz-internet, ipsec
peer    10.10.10.243
     originator       10.10.10.244
     tloc             10.10.10.244, biz-internet, ipsec
peer    10.10.10.244
     originator       10.10.10.243
     tloc             10.10.10.243, biz-internet, ipsec
peer    10.10.10.247
     originator       10.10.10.244
     tloc             10.10.10.244, biz-internet, ipsec
```

vSmart Best Path Selection: Edge Router Sourced Routes vs Routes Received via Other vSmarts Case 1

In order to continue this demonstration, increase **send-path-limit** and set it to 16, enable **debug omp policy prefix 172.16.1.0/24 level high,** and observe the results. Now, vSmart2 also receives a route from site-id 245 via vSmart1 with system-ip 10.10.10.228 and vSmart3 with 10.10.10.230).

```
vsmart2# show omp routes 172.16.1.0/24
Code:
C   -> chosen
I   -> installed
Red -> redistributed
Rej -> rejected
L   -> looped
R   -> resolved
S   -> stale
Ext -> extranet
Inv -> invalid
Stg -> staged
IA  -> On-demand inactive
U   -> TLOC unresolved

                                        PATH                    ATTRIBUTE
VPN    PREFIX              FROM PEER    ID     LABEL    STATUS   TYPE       TLOC IP          COLOR
-------------------------------------------------------------------------------------------------
1      172.16.1.0/24       10.10.10.228 10146  1001     C,R      installed  10.10.10.243     publi
                           10.10.10.228 10448  1001     C,R      installed  10.10.10.243     priva
                           10.10.10.228 10449  1002     C,R      installed  10.10.10.245     biz-i
                           10.10.10.228 10450  1002     C,R      installed  10.10.10.245     priva
                           10.10.10.230 10252  1002     C,R      installed  10.10.10.244     biz-i
                           10.10.10.230 10577  1002     C,R      installed  10.10.10.244     priva
                           10.10.10.230 10578  1002     C,R      installed  10.10.10.245     biz-i
                           10.10.10.230 10579  1002     C,R      installed  10.10.10.245     priva
                           10.10.10.243 69     1001     C,R      installed  10.10.10.243     publi
                           10.10.10.243 81     1001     C,R      installed  10.10.10.243     priva
                           10.10.10.244 68     1002     C,R      installed  10.10.10.244     biz-i
                           10.10.10.244 81     1002     C,R      installed  10.10.10.244     priva
```

But vSmart2 advertises only routes from site 244, and not from 245, to site 247 now. This is a typical source of confusion because routes received directly from edge routers are preferred over routes received via vSmarts and not advertised to an Edge router and not sent to an Edge router, but only in case if vSmart found an OMP routing table entry for the same prefix from any other vSmart that Edge router is already connected to:

```
vsmart2# show omp routes 172.16.1.0/24 detail | nomore | exclude not\ set | b ADVERTISED | include peer
peer    10.10.10.204
     originator       10.10.10.244
     originator       10.10.10.244
     originator       10.10.10.243
     originator       10.10.10.243
peer    10.10.10.228
     originator       10.10.10.244
     originator       10.10.10.244
     originator       10.10.10.243
     originator       10.10.10.243
peer    10.10.10.230
     originator       10.10.10.244
     originator       10.10.10.244
     originator       10.10.10.243
     originator       10.10.10.243
peer    10.10.10.243
     originator       10.10.10.244
     originator       10.10.10.244
peer    10.10.10.244
     originator       10.10.10.243
```

```
     originator       10.10.10.243
peer    10.10.10.247
     originator       10.10.10.244
     originator       10.10.10.244
```

This is also confirmed from debug logs stored in **/var/log/tmplog/vdebug** where the reason for suppression is seen as **vSmart Connectivity.**

```
Oct  9 14:29:01 vsmart2 OMPD[1120]: omp_rib_out_process_entry[3792]: Peer: 10.10.10.247 NLRI: 1: 172.16
Oct  9 14:29:01 vsmart2 OMPD[1120]: omp_rib_out_process_entry[3792]: Peer: 10.10.10.247 NLRI: 1: 172.16
Oct  9 14:29:01 vsmart2 OMPD[1120]: omp_rib_out_process_entry[3792]: Peer: 10.10.10.247 NLRI: 1: 172.16
Oct  9 14:29:01 vsmart2 OMPD[1120]: omp_rib_out_process_entry[3792]: Peer: 10.10.10.247 NLRI: 1: 172.16
Oct  9 14:29:01 vsmart2 OMPD[1120]: omp_rib_out_process_entry[3792]: Peer: 10.10.10.247 NLRI: 1: 172.16
Oct  9 14:29:01 vsmart2 OMPD[1120]: omp_rib_out_process_entry[3792]: Peer: 10.10.10.247 NLRI: 1: 172.16
Oct  9 14:29:01 vsmart2 OMPD[1120]: omp_rib_out_process_entry[3792]: Peer: 10.10.10.247 NLRI: 1: 172.16
Oct  9 14:29:01 vsmart2 OMPD[1120]: omp_rib_out_process_entry[3792]: Peer: 10.10.10.247 NLRI: 1: 172.16
```

At the same time, keep in mind that site 247 receives both routes finally anyway, because by default it is connected to two vSmart controllers (**max-control-connections 2**) and vSmart3 advertises both routes to it because originators are directly connected to it:

```
Site-247#show sdwan omp routes 172.16.1.0/24 | begin PATH
                                            PATH                      ATTRIBUTE
VPN    PREFIX              FROM PEER        ID     LABEL    STATUS    TYPE       TLOC IP          COLOR
--------------------------------------------------------------------------------------------------------
1      172.16.1.0/24       10.10.10.229     13     1002     C,I,R     installed  10.10.10.244     biz-i
                           10.10.10.229     14     1002     C,I,R     installed  10.10.10.244     priva
                           10.10.10.230     13     1002     C,R       installed  10.10.10.244     biz-i
                           10.10.10.230     14     1002     C,R       installed  10.10.10.244     priva
                           10.10.10.230     61     1002     C,I,R     installed  10.10.10.245     biz-i
                           10.10.10.230     62     1002     C,I,R     installed  10.10.10.245     priva
```

```
vsmart3# show omp routes 172.16.1.0/24 detail | nomore | exclude not\ set | b ADVERTISED |  include pee
peer    10.10.10.247
     originator       10.10.10.244
     originator       10.10.10.244
     originator       10.10.10.245
     originator       10.10.10.245
```

A summarization of the best path selection and order of operations in included in this table.

1. Prefer non-stale route over stale route
2. Route resolvability Next-hop TLOC is Reachable (data plane BFD session is here)

3. Prefer highest route preference
4. Prefer highest TLOC preference
5. Prefer best origin code (Connected, Static, eBGP, EIGRP Internal, OSPF Intra, OSPF Inter, OSPF External, EIGRP External iBGP, Unknown/Unset)
6. Route Source Preference. On vSmart: prefer Edge router-sourced route over vSmart-sourced route
7. Prefer OMP route with lowest origin metric
8. Prefer route received from lowest System-IP
9. Prefer route from highest Private TLOC IP-address originated from the same site-id
10. outbound control policy
11. **send-path-limit**

vSmart Best Path Selection: Edge Router Sourced Routes vs Routes Received via Other vSmarts Case 2

This behavior can be seen in double-failure scenarios with controllers affinity configuration and outbound (egress) policy configuration that discriminates some routes from some sources over others based on some criteria as we do with policy in the previous scenarios. For the purpose of demonstration in this section, you need to increase route scale compared to the previous scenarios, so more sites with different site-ids are used. Consider typical deployment with three vSmart controllers and three geographical regions just like in the demonstration in the previous section. With help of affinity, each vSmart is assigned to the corresponding group 1, 2, or 3. **max-control-connections** is set to the default value of 2. vSmarts 1 and 2 are preferred for routers from region A. In region B vSmart 2 and 3 are preferred. For a region, C vSmart 3 and 1 are preferred.

Here is an example of configuration to assign vSmart controller to Group 1:

```
system
 controller-group-id 1
!
```

And also, an example of a configuration for the router from region A that prefers controllers from Groups 1 and 2. Controllers from Group 3 are used as a last resort to connect if none of the controllers from Groups 1 and 2 are available because **max-control-connections** is set to 2 by default:

```
system
 controller-group-list 1 2 3
!
```

The same result can be achieved with the other configuration:

```
vpn 0
 interface ge0/0
  tunnel-interface
   exclude-controller-group-list 3
  !
 !
!
```

max-control-connections is also set to a default value of 2 in this demonstration. **send-path-limit** set to value 16 on all routers and controllers.

Each region has 2 routers now originating prefix 10.0.0.0/8. Each of those routers has five transports (WAN interfaces) with TLOC colors from private1 to private5. cEdges originating this prefix are assigned to the regions as shown in this table. It also describes new system-ip addressing.

hostname / system-ip		vSmart1	vSmart2	vSmart3
		169.254.206.4	169.254.206.5	169.254.206.6
cEdge1	169.254.206.11	Region A	Region A	
cEdge2	169.254.206.12	Region A	Region A	
cEdge3	169.254.206.13		Region B	Region B
cEdge4	169.254.206.14		Region B	Region B
cEdge5	169.254.206.15	Region C		Region C
cEdge6	169.254.206.16	Region C		Region C

Such configuration and scale mean that each vSmart controller receives 20 paths from directly connected routers (4 router x 5 TLOCs) and in addition also 20 paths from each vSmart. In total, it gives 60 paths for the given prefix 10.0.0.0/8 in the OMP table of each vSmart controller in normal conditions. Some unimportant columns were removed from show omp route 10.0.0.0/8 vSmart1 output for brevity.

```
FROM PEER        STATUS  TLOC IP          COLOR      PREFERENCE
-----------------------------------------------------------------
 169.254.206.5    C,R     169.254.206.11   private1   -
 169.254.206.5    C,R     169.254.206.11   private2   -
 169.254.206.5    C,R     169.254.206.11   private3   -
 169.254.206.5    C,R     169.254.206.11   private4   -
 169.254.206.5    C,R     169.254.206.11   private5   -
 169.254.206.5    C,R     169.254.206.12   private1   -
 169.254.206.5    C,R     169.254.206.12   private2   -
 169.254.206.5    C,R     169.254.206.12   private3   -
 169.254.206.5    C,R     169.254.206.12   private4   -
 169.254.206.5    C,R     169.254.206.12   private5   -
 169.254.206.5    C,R     169.254.206.13   private1   -
 169.254.206.5    C,R     169.254.206.13   private2   -
 169.254.206.5    C,R     169.254.206.13   private3   -
 169.254.206.5    C,R     169.254.206.13   private4   -
 169.254.206.5    C,R     169.254.206.13   private5   -
 169.254.206.5    C,R     169.254.206.14   private1   -
 169.254.206.5    C,R     169.254.206.14   private2   -
 169.254.206.5    C,R     169.254.206.14   private3   -
 169.254.206.5    C,R     169.254.206.14   private4   -
 169.254.206.5    C,R     169.254.206.14   private5   -
 169.254.206.6    C,R     169.254.206.13   private1   -
 169.254.206.6    C,R     169.254.206.13   private2   -
 169.254.206.6    C,R     169.254.206.13   private3   -
 169.254.206.6    C,R     169.254.206.13   private4   -
 169.254.206.6    C,R     169.254.206.13   private5   -
 169.254.206.6    C,R     169.254.206.14   private1   -
 169.254.206.6    C,R     169.254.206.14   private2   -
 169.254.206.6    C,R     169.254.206.14   private3   -
 169.254.206.6    C,R     169.254.206.14   private4   -
 169.254.206.6    C,R     169.254.206.14   private5   -
 169.254.206.6    C,R     169.254.206.15   private1   -
 169.254.206.6    C,R     169.254.206.15   private2   -
 169.254.206.6    C,R     169.254.206.15   private3   -
 169.254.206.6    C,R     169.254.206.15   private4   -
 169.254.206.6    C,R     169.254.206.15   private5   -
 169.254.206.6    C,R     169.254.206.16   private1   -
 169.254.206.6    C,R     169.254.206.16   private2   -
 169.254.206.6    C,R     169.254.206.16   private3   -
 169.254.206.6    C,R     169.254.206.16   private4   -
 169.254.206.6    C,R     169.254.206.16   private5   -
 169.254.206.11   C,R     169.254.206.11   private1   -
 169.254.206.11   C,R     169.254.206.11   private2   -
 169.254.206.11   C,R     169.254.206.11   private3   -
 169.254.206.11   C,R     169.254.206.11   private4   -
 169.254.206.11   C,R     169.254.206.11   private5   -
 169.254.206.12   C,R     169.254.206.12   private1   -
 169.254.206.12   C,R     169.254.206.12   private2   -
 169.254.206.12   C,R     169.254.206.12   private3   -
 169.254.206.12   C,R     169.254.206.12   private4   -
 169.254.206.12   C,R     169.254.206.12   private5   -
 169.254.206.15   C,R     169.254.206.15   private1   -
 169.254.206.15   C,R     169.254.206.15   private2   -
 169.254.206.15   C,R     169.254.206.15   private3   -
 169.254.206.15   C,R     169.254.206.15   private4   -
 169.254.206.15   C,R     169.254.206.15   private5   -
 169.254.206.16   C,R     169.254.206.16   private1   -
 169.254.206.16   C,R     169.254.206.16   private2   -
 169.254.206.16   C,R     169.254.206.16   private3   -
 169.254.206.16   C,R     169.254.206.16   private4   -
 169.254.206.16   C,R     169.254.206.16   private5   -
```

Now let us discuss a failure scenario. Some spoke routers with site-id 20 that belong to Region A cannot connect to both controllers, for whatever reason, and are connected to only one controller vSmart3 which is the last resort vSmart for this region.

```
Site-20# show omp peers
R -> routes received
I -> routes installed
S -> routes sent

                        DOMAIN    OVERLAY   SITE
PEER             TYPE   ID        ID        ID        STATE    UPTIME           R/I/S
-------------------------------------------------------------------------------------
169.254.206.6    vsmart 1         1         1         up       0:00:26:31       10/4/0
```

If no control-policy is configured, this can lead to suboptimal routing for Site-20 from Region A because as per the best-path selection algorithm, vSmart3 advertises routes received from Edge routers first. They are more preferred than routes native to region A received via vSmart controllers vSmart1 and vSmart2:

```
vsmart3# show omp routes 10.0.0.0/8 advertised detail | nomore | b ADVERTISED | i originator\|peer\|\ t
peer    192.168.206.20
     originator       169.254.206.14
     tloc             169.254.206.14, private2, ipsec
     originator       169.254.206.14
     tloc             169.254.206.14, private1, ipsec
     originator       169.254.206.14
     tloc             169.254.206.14, private3, ipsec
     originator       169.254.206.14
     tloc             169.254.206.14, private4, ipsec
     originator       169.254.206.14
     tloc             169.254.206.14, private5, ipsec
     originator       169.254.206.15
     tloc             169.254.206.15, private5, ipsec
     originator       169.254.206.15
     tloc             169.254.206.15, private2, ipsec
     originator       169.254.206.15
     tloc             169.254.206.15, private1, ipsec
     originator       169.254.206.15
     tloc             169.254.206.15, private3, ipsec
     originator       169.254.206.15
     tloc             169.254.206.15, private4, ipsec
     originator       169.254.206.13
     tloc             169.254.206.13, private5, ipsec
     originator       169.254.206.13
     tloc             169.254.206.13, private4, ipsec
     originator       169.254.206.13
     tloc             169.254.206.13, private3, ipsec
     originator       169.254.206.13
     tloc             169.254.206.13, private1, ipsec
     originator       169.254.206.13
     tloc             169.254.206.13, private2, ipsec
     originator       169.254.206.16
     tloc             169.254.206.16, private1, ipsec
```

In order to avoid suboptimal routing, vSmart must allow spokes to receive routes from the routers in the same region only. Here is an example of a control policy to achieve this result:

```
policy
 lists
  site-list hubs_A
   site-id 11
   site-id 12
  !
  site-list hubs_B
   site-id 13
   site-id 14
  !
  site-list hubs_C
   site-id 15
   site-id 16
  !
  site-list spokes_A
   site-id 20
  !
  site-list spokes_B
   site-id 21
  !
  site-list spokes_C
   site-id 10
  !
 !
 control-policy region_A
  sequence 10
   match route
    site-list hubs_A
   !
   action accept
   !
  !
  sequence 20
   match route
   !
   action reject
   !
  !
  default-action accept
 !
 control-policy region_B
  sequence 10
   match route
    site-list hubs_B
   !
   action accept
   !
  !
  sequence 20
   match route
   !
   action reject
   !
  !
  default-action accept
 !
 control-policy region_C
```

```
  sequence 10
   match route
    site-list hubs_C
   !
   action accept
   !
  !
  sequence 20
   match route
   !
   action reject
   !
  !
  default-action accept
 !
!
apply-policy
 site-list spokes_A
  control-policy region_A out
 !
 site-list spokes_B
  control-policy region_B out
 !
 site-list spokes_C
  control-policy region_C out
 !
!
```

But from the previous scenario, you know that Edge-sourced routes are preferred over routes received via vSmart controllers. Does it mean that Site-20 in current conditions cannot receive any routes?

Here is yet another important concept that is being missed frequently. Routes from cEdge1 and cEdge2 (system-ip 169.254.206.11 and 169.254.206.12) are though kept in vSmart3 OMP table even if they are less preferred and still marked as C (“chosen”). All steps in the best-path selection algorithm starting from step 8 (including) considered tie-breakers and routes are not removed from the OMP table, but sorted according to the described preference for the purpose of consequent processing by egress control policies and **send-path-limit** limitation.

Because vSmart3 cannot find an OMP routing table entry for the refix 10.0.0.0/8 from other vSmart that Edge router is already connected to (Site-20 connected to vSmart3 only), it advertises routes from site 11 and site 12 (cEdge1 and cEdge2 correspondingly) to the site 20 router:

```
vsmart3# show omp routes 10.0.0.0/8 advertised detail | nomore | b ADVERTISED | i originator\|peer\|\ t
peer    192.168.206.20
     originator       169.254.206.11
     tloc             169.254.206.11, private1, ipsec
     originator       169.254.206.11
     tloc             169.254.206.11, private2, ipsec
     originator       169.254.206.11
     tloc             169.254.206.11, private3, ipsec
     originator       169.254.206.11
     tloc             169.254.206.11, private4, ipsec
     originator       169.254.206.11
     tloc             169.254.206.11, private5, ipsec
     originator       169.254.206.12
     tloc             169.254.206.12, private1, ipsec
     originator       169.254.206.12
```

```
tloc              169.254.206.12, private2, ipsec
originator        169.254.206.12
tloc              169.254.206.12, private3, ipsec
originator        169.254.206.12
tloc              169.254.206.12, private4, ipsec
originator        169.254.206.12
tloc              169.254.206.12, private5, ipsec
```

Related Information

- **OMP Documentation**
- **Troubleshoot OMP Route Instability in Failover Scenario**
- **Technical Support & Documentation - Cisco Systems**