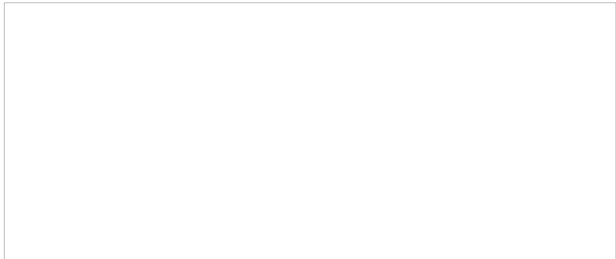


# 某局点 S7503E OSPF路由引入失败

OSPF 刘雨 2020-04-13 发表

## 组网及说明

现场一台S7503E设备，上行配置OSPF 2，下行配置OSPF 1，组网简化图如下：



## 问题描述

现场在S7503E上正常和上下行设备建立了OSPF 1和OSPF 2，邻居建立正常，之后配置将OSPF 1的路由引入到OSPF 2 中：

```
#
ospf 1
area 0.0.0.0
network 10.203.2.12 0.0.0.3
network 10.203.2.25 0.0.0.0
#
ospf 2
import-route ospf 1
area 0.0.0.0
network 10.203.2.29 0.0.0.0
network 10.203.10.0 0.0.0.255
#
```

设备间邻居建立正常，但查看OSPF路由，在OSPF 2中没有看到OSPF 1中的路由，现场认为路由引入失败：

```
[R3_1_26U_SW_S7503E_01]dis ospf rou
      OSPF Process 1 with Router ID 10.203.2.25
        Routing Table
        Topology base (MTID 0)
Routing for network
Destination    Cost    Type    NextHop    AdvRouter    Area
10.203.4.0/24  4       Stub    10.203.2.13 10.203.14.254 0.0.0.0
10.203.5.0/24  4       Stub    10.203.2.13 10.203.14.254 0.0.0.0
10.203.6.0/24  4       Stub    10.203.2.13 10.203.14.254 0.0.0.0
10.203.6.1/32  3       Stub    10.203.2.13 10.203.6.1    0.0.0.0
10.203.6.2/32  3       Stub    10.203.2.13 10.203.6.2    0.0.0.0
10.203.6.3/32  2       Stub    10.203.2.13 10.203.3.3    0.0.0.0
10.203.6.4/32  1       Stub    10.203.2.13 10.203.2.5    0.0.0.0
10.203.6.5/32  3       Stub    10.203.2.13 10.203.2.9    0.0.0.0
10.203.9.0/24  2       Stub    10.203.2.26 10.203.9.254  0.0.0.0
10.203.11.0/24 3       Stub    10.203.2.13 10.203.3.3    0.0.0.0
10.203.1.1/32  3       Stub    10.203.2.13 10.203.6.1    0.0.0.0
10.203.1.2/32  3       Stub    10.203.2.13 10.203.6.2    0.0.0.0
10.203.1.3/32  2       Stub    10.203.2.13 10.203.3.3    0.0.0.0
10.203.2.0/30  3       Transit 10.203.2.13 10.203.14.254 0.0.0.0
10.203.2.4/30  2       Transit 10.203.2.13 10.203.2.5    0.0.0.0
10.203.2.8/30  3       Transit 10.203.2.13 10.203.3.3    0.0.0.0
10.203.2.12/30 1       Transit 0.0.0.0     10.203.2.5    0.0.0.0
10.203.2.16/30 3       Transit 10.203.2.13 10.203.6.1    0.0.0.0
10.203.2.20/30 3       Transit 10.203.2.13 10.203.6.2    0.0.0.0
10.203.2.24/30 1       Transit 0.0.0.0     10.203.9.254  0.0.0.0
Total nets: 20
Intra area: 20 Inter area: 0 ASE: 0 NSSA: 0
```

OSPF Process 2 with Router ID 10.203.2.25

Routing Table

Topology base (MTID 0)

Routing for network

| Destination    | Cost | Type    | NextHop | AdvRouter    | Area    |
|----------------|------|---------|---------|--------------|---------|
| 10.203.10.0/24 | 1    | Transit | 0.0.0.0 | 10.203.11.1  | 0.0.0.0 |
| 10.203.2.28/30 | 1    | Transit | 0.0.0.0 | 10.203.9.254 | 0.0.0.0 |

Routing for ASEs

| Destination      | Cost | Type  | Tag  | NextHop     | AdvRouter    |
|------------------|------|-------|------|-------------|--------------|
| 0.0.0.0/0        | 1    | Type2 | 1    | 10.203.2.30 | 10.203.9.254 |
| 192.100.100.5/32 | 1    | Type2 | 5000 | 10.203.10.1 | 10.203.11.1  |
| 192.100.100.8/32 | 1    | Type2 | 0    | 10.203.10.1 | 10.203.11.1  |

Total nets: 5

Intra area: 2 Inter area: 0 ASE: 3 NSSA: 0

## 过程分析

(1) 在设备上查看OSPF LSDB, 发现在OSPF 2中, 有相应的来自OSPF 1的ASE路由信息:

[R3\_1\_26U\_SW\_S7503E\_01]dis ospf lsdb

OSPF Process 1 with Router ID 10.203.2.25

Link State Database

Area: 0.0.0.0

| Type    | LinkState ID  | AdvRouter     | Age  | Len | Sequence | Metric |
|---------|---------------|---------------|------|-----|----------|--------|
| Router  | 10.203.2.9    | 10.203.2.9    | 836  | 48  | 80000468 | 0      |
| Router  | 10.203.2.5    | 10.203.2.5    | 1376 | 60  | 800002BE | 0      |
| Router  | 10.203.2.25   | 10.203.2.25   | 1375 | 48  | 8000001A | 0      |
| Router  | 10.203.3.3    | 10.203.3.3    | 1222 | 120 | 80000532 | 0      |
| Router  | 10.203.6.2    | 10.203.6.2    | 96   | 60  | 80000339 | 0      |
| Router  | 10.203.6.1    | 10.203.6.1    | 1032 | 60  | 8000033F | 0      |
| Router  | 10.203.14.254 | 10.203.14.254 | 1088 | 72  | 80000213 | 0      |
| Router  | 10.203.9.254  | 10.203.9.254  | 1383 | 48  | 80000011 | 0      |
| Network | 10.203.2.13   | 10.203.2.5    | 1372 | 32  | 800001A5 | 0      |
| Network | 10.203.2.10   | 10.203.3.3    | 104  | 32  | 800000E2 | 0      |
| Network | 10.203.2.5    | 10.203.2.5    | 854  | 32  | 8000029C | 0      |
| Network | 10.203.2.1    | 10.203.14.254 | 962  | 32  | 80000208 | 0      |
| Network | 10.203.2.26   | 10.203.9.254  | 1369 | 32  | 80000008 | 0      |
| Network | 10.203.2.21   | 10.203.6.2    | 96   | 32  | 80000330 | 0      |
| Network | 10.203.2.17   | 10.203.6.1    | 556  | 32  | 8000010E | 0      |

OSPF Process 2 with Router ID 10.203.2.25

Link State Database

Area: 0.0.0.0

| Type    | LinkState ID | AdvRouter    | Age  | Len | Sequence | Metric |
|---------|--------------|--------------|------|-----|----------|--------|
| Router  | 10.203.11.1  | 10.203.11.1  | 1375 | 36  | 800002B3 | 0      |
| Router  | 10.203.2.25  | 10.203.2.25  | 483  | 48  | 80000015 | 0      |
| Router  | 10.203.9.254 | 10.203.9.254 | 1377 | 36  | 80000016 | 0      |
| Network | 10.203.2.30  | 10.203.9.254 | 1369 | 32  | 8000000A | 0      |
| Network | 10.203.10.1  | 10.203.11.1  | 1367 | 32  | 80000013 | 0      |

AS External Database

| Type     | LinkState ID | AdvRouter   | Age | Len | Sequence | Metric |
|----------|--------------|-------------|-----|-----|----------|--------|
| External | 10.203.6.5   | 10.203.2.25 | 485 | 36  | 80000005 | 1      |
| External | 10.203.6.4   | 10.203.2.25 | 485 | 36  | 80000005 | 1      |
| External | 10.203.6.1   | 10.203.2.25 | 485 | 36  | 80000005 | 1      |
| External | 10.203.6.0   | 10.203.2.25 | 485 | 36  | 80000005 | 1      |
| External | 10.203.6.3   | 10.203.2.25 | 485 | 36  | 80000005 | 1      |
| External | 10.203.6.2   | 10.203.2.25 | 485 | 36  | 80000005 | 1      |
| External | 10.203.4.0   | 10.203.2.25 | 485 | 36  | 80000005 | 1      |
| External | 10.203.5.0   | 10.203.2.25 | 485 | 36  | 80000005 | 1      |
| External | 10.203.2.20  | 10.203.2.25 | 485 | 36  | 80000005 | 1      |
| External | 10.203.2.16  | 10.203.2.25 | 485 | 36  | 80000005 | 1      |
| External | 10.203.2.8   | 10.203.2.25 | 485 | 36  | 80000005 | 1      |
| External | 10.203.2.4   | 10.203.2.25 | 485 | 36  | 80000005 | 1      |
| External | 10.203.2.0   | 10.203.2.25 | 485 | 36  | 80000005 | 1      |
| External | 10.203.1.1   | 10.203.2.25 | 485 | 36  | 80000005 | 1      |
| External | 10.203.1.3   | 10.203.2.25 | 485 | 36  | 80000005 | 1      |

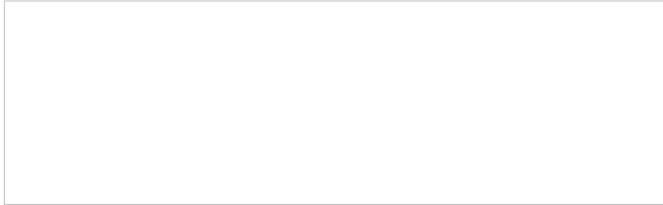
```

External 10.203.1.2    10.203.2.25    485 36  80000005 1
External 10.203.11.0   10.203.2.25    483 36  80000005 1
External 10.203.9.0    10.203.2.25    483 36  80000005 1
External 0.0.0.0       10.203.9.254   1477 36  80000006 1
External 192.100.100.8 10.203.11.1     1091 36  80000036 1
External 192.100.100.5 10.203.11.1     579 36  80000036 1
External 10.203.10.0   10.203.11.1    119 36  80000295 1 5

```

怀疑其实路由已经成功引入了，只是由于路由优选没有加到本台设备的OSPF 2路由表中。

(2) 在模拟器上设计了类似的实验，组网图如下：



(3) 跟现场的配置一样，建立OSPF邻居，将OSPF 1的路由引入到OSPF 2中，同时在SW2上引入直连路由2.2.2.2：

E#

ospf 1

area 0.0.0.0

network 10.0.0.0 0.0.0.255

#

ospf 2

import-route ospf 1

area 0.0.0.0

network 20.0.0.0 0.0.0.255

#

在SW1上查看路由信息如下：

[SW1]dis ospf routing

OSPF Process 1 with Router ID 20.0.0.1

Routing Table

Topology base (MTID 0)

Routing for network

| Destination | Cost | Type    | NextHop | AdvRouter | Area    |
|-------------|------|---------|---------|-----------|---------|
| 10.0.0.0/24 | 1    | Transit | 0.0.0.0 | 20.0.0.1  | 0.0.0.0 |

Routing for ASEs

| Destination | Cost | Type  | Tag | NextHop  | AdvRouter |
|-------------|------|-------|-----|----------|-----------|
| 2.2.2.2/32  | 1    | Type2 | 1   | 10.0.0.2 | 2.2.2.2   |

Total nets: 2

Intra area: 1 Inter area: 0 ASE: 1 NSSA: 0

OSPF Process 2 with Router ID 20.0.0.1

Routing Table

Topology base (MTID 0)

Routing for network

| Destination | Cost | Type    | NextHop | AdvRouter | Area    |
|-------------|------|---------|---------|-----------|---------|
| 20.0.0.0/24 | 1    | Transit | 0.0.0.0 | 20.0.0.2  | 0.0.0.0 |

Total nets: 1

Intra area: 1 Inter area: 0 ASE: 0 NSSA: 0 1

[SW1]dis ip routing-table

Destinations : 17 Routes : 17

| Destination/Mask | Proto  | Pre | Cost | NextHop   | Interface |
|------------------|--------|-----|------|-----------|-----------|
| 0.0.0.0/32       | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |
| 2.2.2.2/32       | O_ASE2 | 150 | 1    | 10.0.0.2  | Vlan10    |
| 10.0.0.0/24      | Direct | 0   | 0    | 10.0.0.1  | Vlan10    |
| 10.0.0.0/32      | Direct | 0   | 0    | 10.0.0.1  | Vlan10    |
| 10.0.0.1/32      | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |
| 10.0.0.255/32    | Direct | 0   | 0    | 10.0.0.1  | Vlan10    |
| 20.0.0.0/24      | Direct | 0   | 0    | 20.0.0.1  | Vlan20    |
| 20.0.0.0/32      | Direct | 0   | 0    | 20.0.0.1  | Vlan20    |
| 20.0.0.1/32      | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |
| 20.0.0.255/32    | Direct | 0   | 0    | 20.0.0.1  | Vlan20    |

```

127.0.0.0/8    Direct 0 0    127.0.0.1    InLoop0
127.0.0.0/32   Direct 0 0    127.0.0.1    InLoop0
127.0.0.1/32   Direct 0 0    127.0.0.1    InLoop0
127.255.255.255/32 Direct 0 0    127.0.0.1    InLoop0
224.0.0.0/4    Direct 0 0    0.0.0.0      NULL0
224.0.0.0/24   Direct 0 0    0.0.0.0      NULL0
255.255.255.255/32 Direct 0 0    127.0.0.1    InLoop0

```

[SW1]dis ospf lsdb

OSPF Process 1 with Router ID 20.0.0.1

Link State Database

Area: 0.0.0.0

| Type    | LinkState ID | AdvRouter | Age  | Len | Sequence | Metric |
|---------|--------------|-----------|------|-----|----------|--------|
| Router  | 2.2.2.2      | 2.2.2.2   | 14   | 36  | 80000005 | 0      |
| Router  | 20.0.0.1     | 20.0.0.1  | 1689 | 36  | 80000003 | 0      |
| Network | 10.0.0.1     | 20.0.0.1  | 1688 | 32  | 80000002 | 0      |

AS External Database

| Type     | LinkState ID | AdvRouter | Age | Len | Sequence | Metric |
|----------|--------------|-----------|-----|-----|----------|--------|
| External | 10.0.0.0     | 2.2.2.2   | 52  | 36  | 80000002 | 1      |
| External | 2.2.2.2      | 2.2.2.2   | 52  | 36  | 80000002 | 1      |

OSPF Process 2 with Router ID 20.0.0.1

Link State Database

Area: 0.0.0.0

| Type    | LinkState ID | AdvRouter | Age  | Len | Sequence | Metric |
|---------|--------------|-----------|------|-----|----------|--------|
| Router  | 20.0.0.2     | 20.0.0.2  | 18   | 36  | 80000005 | 0      |
| Router  | 20.0.0.1     | 20.0.0.1  | 1692 | 36  | 80000003 | 0      |
| Network | 20.0.0.2     | 20.0.0.2  | 18   | 32  | 80000002 | 0      |

AS External Database

| Type     | LinkState ID | AdvRouter | Age  | Len | Sequence | Metric |
|----------|--------------|-----------|------|-----|----------|--------|
| External | 2.2.2.2      | 20.0.0.1  | 1688 | 36  | 80000001 | 1      |

在模拟器上的实验现象与现场一致，此时在SW3上查看路由表：

[SW3]dis ip routing-table

Destinations : 13 Routes : 13

| Destination/Mask   | Proto  | Pre | Cost | NextHop   | Interface |
|--------------------|--------|-----|------|-----------|-----------|
| 0.0.0.0/32         | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |
| 2.2.2.2/32         | O_ASE2 | 150 | 1    | 20.0.0.1  | Vlan20    |
| 20.0.0.0/24        | Direct | 0   | 0    | 20.0.0.2  | Vlan20    |
| 20.0.0.0/32        | Direct | 0   | 0    | 20.0.0.2  | Vlan20    |
| 20.0.0.2/32        | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |
| 20.0.0.255/32      | Direct | 0   | 0    | 20.0.0.2  | Vlan20    |
| 127.0.0.0/8        | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |
| 127.0.0.0/32       | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |
| 127.0.0.1/32       | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |
| 127.255.255.255/32 | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |
| 224.0.0.0/4        | Direct | 0   | 0    | 0.0.0.0   | NULL0     |
| 224.0.0.0/24       | Direct | 0   | 0    | 0.0.0.0   | NULL0     |
| 255.255.255.255/32 | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |

[SW3]dis ospf routing

OSPF Process 2 with Router ID 20.0.0.2

Routing Table

Topology base (MTID 0)

Routing for network

| Destination | Cost | Type    | NextHop | AdvRouter | Area    |
|-------------|------|---------|---------|-----------|---------|
| 20.0.0.0/24 | 1    | Transit | 0.0.0.0 | 20.0.0.2  | 0.0.0.0 |

Routing for ASEs

| Destination | Cost | Type  | Tag | NextHop  | AdvRouter |
|-------------|------|-------|-----|----------|-----------|
| 2.2.2.2/32  | 1    | Type2 | 1   | 20.0.0.1 | 20.0.0.1  |

Total nets: 2

Intra area: 1 Inter area: 0 ASE: 1 NSSA: 0

SW3上已经有了OSPF 1中的路由，说明路由已经成功引入了。

(4) 在现场的上行设备区查看路由表，OSPF 1中的路由已经加入了路由表中。

## 解决方法

该问题为正常现象，OSPF 1的LSA已经引到了OSPF 2中，OSPF 2的对端设备也能学习到引入的路由

, 引入的路由可以在本设备的LSDB中看到。

附：相关思考：

在SW3上虽然学到了2.2.2.2的路由，但从SW3 ping 2.2.2.2是ping不通的，因为只有去的路由没有回程的路由，此时需要在SW2上写一条回程的静态路由即可。

[SW3]ping 2.2.2.2

Ping 2.2.2.2 (2.2.2.2): 56 data bytes, press CTRL\_C to break

Request time out

Request time out

Request time out

Request time out

Request time out

--- Ping statistics for 2.2.2.2 ---

5 packet(s) transmitted, 0 packet(s) received, 100.0% packet loss

[H3C]%Mar 5 15:46:00:790 2020 H3C PING/6/PING\_STATISTICS: Ping statistics for 2.2.2.2: 5 packet(s) transmitted, 0 packet(s) received, 100.0% packet loss.

20.0.0.0/24     Static 60 0     10.0.0.1     Vlan10---SW2上加的静态

那回程路由是否可以直接通过将OSPF 2 的路由也引入到OSPF 1中来实现呢？

经过试验发现是不可以的，在SW1上配置OSPF 1 中也引入OSPF 2中的路由：

#

ospf 1

import-route ospf 2

area 0.0.0.0

network 10.0.0.0 0.0.0.255

#

查看路由表相关信息如下：

[SW1]dis ospf routing

OSPF Process 1 with Router ID 20.0.0.1

Routing Table

Topology base (MTID 0)

Routing for network

| Destination | Cost | Type    | NextHop | AdvRouter | Area    |
|-------------|------|---------|---------|-----------|---------|
| 10.0.0.0/24 | 1    | Transit | 0.0.0.0 | 20.0.0.1  | 0.0.0.0 |

Routing for ASEs

| Destination | Cost | Type  | Tag | NextHop  | AdvRouter |
|-------------|------|-------|-----|----------|-----------|
| 2.2.2.2/32  | 1    | Type2 | 1   | 10.0.0.2 | 10.0.0.2  |

Total nets: 2

Intra area: 1 Inter area: 0 ASE: 1 NSSA: 0

OSPF Process 2 with Router ID 20.0.0.1

Routing Table

Topology base (MTID 0)

Routing for network

| Destination | Cost | Type    | NextHop | AdvRouter | Area    |
|-------------|------|---------|---------|-----------|---------|
| 20.0.0.0/24 | 1    | Transit | 0.0.0.0 | 20.0.0.2  | 0.0.0.0 |

Total nets: 1

Intra area: 1 Inter area: 0 ASE: 0 NSSA: 0

[SW1]dis ospf lsdb

OSPF Process 1 with Router ID 20.0.0.1

Link State Database

Area: 0.0.0.0

| Type    | LinkState ID | AdvRouter | Age  | Len | Sequence | Metric |
|---------|--------------|-----------|------|-----|----------|--------|
| Router  | 10.0.0.2     | 10.0.0.2  | 220  | 36  | 80000003 | 0      |
| Router  | 2.2.2.2      | 2.2.2.2   | 1636 | 36  | 80000005 | 0      |
| Router  | 20.0.0.1     | 20.0.0.1  | 42   | 36  | 8000000B | 0      |
| Network | 10.0.0.1     | 20.0.0.1  | 219  | 32  | 80000001 | 0      |

AS External Database

| Type     | LinkState ID | AdvRouter | Age  | Len | Sequence | Metric |
|----------|--------------|-----------|------|-----|----------|--------|
| External | 10.0.0.0     | 10.0.0.2  | 260  | 36  | 80000001 | 1      |
| External | 10.0.0.0     | 2.2.2.2   | 1674 | 36  | 80000002 | 1      |
| External | 2.2.2.2      | 10.0.0.2  | 195  | 36  | 80000001 | 1      |

OSPF Process 2 with Router ID 20.0.0.1

Link State Database

Area: 0.0.0.0

| Type    | LinkState ID | AdvRouter | Age  | Len | Sequence | Metric |
|---------|--------------|-----------|------|-----|----------|--------|
| Router  | 20.0.0.2     | 20.0.0.2  | 1640 | 36  | 80000005 | 0      |
| Router  | 20.0.0.1     | 20.0.0.1  | 1611 | 36  | 80000004 | 0      |
| Network | 20.0.0.2     | 20.0.0.2  | 1640 | 32  | 80000002 | 0      |

AS External Database

| Type     | LinkState ID | AdvRouter | Age | Len | Sequence | Metric |
|----------|--------------|-----------|-----|-----|----------|--------|
| External | 2.2.2.2      | 20.0.0.1  | 194 | 36  | 80000001 | 1      |

[SW1]dis ip routing-table

Destinations : 17 Routes : 17

| Destination/Mask   | Proto  | Pre | Cost | NextHop   | Interface |
|--------------------|--------|-----|------|-----------|-----------|
| 0.0.0.0/32         | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |
| 2.2.2.2/32         | O_ASE2 | 150 | 1    | 10.0.0.2  | Vlan10    |
| 10.0.0.0/24        | Direct | 0   | 0    | 10.0.0.1  | Vlan10    |
| 10.0.0.0/32        | Direct | 0   | 0    | 10.0.0.1  | Vlan10    |
| 10.0.0.1/32        | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |
| 10.0.0.255/32      | Direct | 0   | 0    | 10.0.0.1  | Vlan10    |
| 20.0.0.0/24        | Direct | 0   | 0    | 20.0.0.1  | Vlan20    |
| 20.0.0.0/32        | Direct | 0   | 0    | 20.0.0.1  | Vlan20    |
| 20.0.0.1/32        | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |
| 20.0.0.255/32      | Direct | 0   | 0    | 20.0.0.1  | Vlan20    |
| 127.0.0.0/8        | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |
| 127.0.0.0/32       | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |
| 127.0.0.1/32       | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |
| 127.255.255.255/32 | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |
| 224.0.0.0/4        | Direct | 0   | 0    | 0.0.0.0   | NULL0     |
| 224.0.0.0/24       | Direct | 0   | 0    | 0.0.0.0   | NULL0     |
| 255.255.255.255/32 | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |

[SW2]dis ip routing-table

Destinations : 13 Routes : 13

| Destination/Mask   | Proto  | Pre | Cost | NextHop   | Interface |
|--------------------|--------|-----|------|-----------|-----------|
| 0.0.0.0/32         | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |
| 2.2.2.2/32         | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |
| 10.0.0.0/24        | Direct | 0   | 0    | 10.0.0.2  | Vlan10    |
| 10.0.0.0/32        | Direct | 0   | 0    | 10.0.0.2  | Vlan10    |
| 10.0.0.2/32        | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |
| 10.0.0.255/32      | Direct | 0   | 0    | 10.0.0.2  | Vlan10    |
| 127.0.0.0/8        | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |
| 127.0.0.0/32       | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |
| 127.0.0.1/32       | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |
| 127.255.255.255/32 | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |
| 224.0.0.0/4        | Direct | 0   | 0    | 0.0.0.0   | NULL0     |
| 224.0.0.0/24       | Direct | 0   | 0    | 0.0.0.0   | NULL0     |
| 255.255.255.255/32 | Direct | 0   | 0    | 127.0.0.1 | InLoop0   |

---SW2中并没有到20网段的路由，在OSPF 1的lsa中也没有发布20网段的路由，同样OSPF 2的lsa中也没有10网段的路由

查看之前的案例，有“当一个路由协议A引入另一个路由协议B的路由，则只会引入路由协议B在本地路由表生效的路由，而非引入路由协议B中的所有路由”这样的说明，由于10网段和20网段的路由在SW1上均直连，由于OSPF路由，因此在本地路由表中只有2.2.2.2的路由作为OSPF路由生效了，也就只有这条路由被引入了。