S7503 switch OSPF neighbor cannot be set up normally

Switches 孟普 2020-10-15 Published

Network Topology

NULL

Problem Description

When the switch S7503E establishes OSPF neighbor with the MSR router, it is found that the neighbor state is down. After ping, and the neighbor will become “Full” after ping

Process Analysis

First check the configuration and connectivity

interface GigabitEthernet1/0/1
port link-mode route
ip address X.X.9.62 255.255.255.192
ospf cost 100
ospf timer hello 10
ospf network-type nbma
ospf dr-priority 255
ospf bfd enable
bfd detect-multiplier 3
bfd authentication-mode md5 1 cipher
[S75]ping X.X.9.23
Ping X.X.923 (X.X.9.23): 56 data bytes, press CTRL+C to break
56 bytes from X.X.9.23: icmp_seq=0 ttl=255 time=11.768 ms
56 bytes from X.X.9.23: icmp_seq=1 ttl=255 time=6.344 ms
56 bytes from X.X.9.23: icmp_seq=2 ttl=255 time=6.244 ms
56 bytes from X.X.9.23: icmp_seq=3 ttl=255 time=6.304 ms
56 bytes from X.X.9.23: icmp_seq=4 ttl=255 time=6.356 ms

After ping, and the neighbor will become “Full” after ping

[S75]dis%Jun 9 16:23:25:934 2002 SZ04-NOCC-S75 OSPF/5/OSPF_NBR_CHG: OSPF 1 Neighbor X.X.923(GigabitEthernet1/0/1) changed from LOADING to FULL.
%Jun 9 16:23:25:953 2002 SZ04-NOCC-S75 BFD/5/BFD_CHANGE_FSM: Sess[X.X.962/X.X.9.23, LD/RD:4123/32835, Interface:GE1/0/1, SessType:Ctrl, LinkType:INET], Ver:1, Sta: DOWN->UP, Diag: 0 (No Diagnostic)
ARP is learning normally now
[S75]dis arp | inc 10.4.9

X.X.9.18	XX-XX-XX --	GE1/0/1	998 D
X.X.9.19	XX-XX-XX --	GE1/0/1	1135 D
X.X.9.21	XX-XX-XX --	GE1/0/1	148 D
X.X.9.22	XX-XX-XX --	GE1/0/1	852 D
X.X.9.23	XX-XX-XX --	GE1/0/1	1182 D

However, ARP cannot be normally learned when OSPF neighbor is DOWN. At this time, we check ARP learning through debug ARP and find that there is no ARP interaction process.

Solution

After careful check of configuration, it was confirmed that the device was configured with ARP source suppression function. After the configuration of this function, a source IP can only send 10 ARPs by default within 5 seconds, while the 10.4.x network segment has more than 10 neighbors, so the first few ARPs of each detection were sent.
Via PING, ARP messages are not sent together with the above source-suppressed messages, so they can be sent normally. Once ARP is learned, NBMA-type OSPF neighbors can be established immediately.
The problem was solved after the source suppression threshold was enlarged.