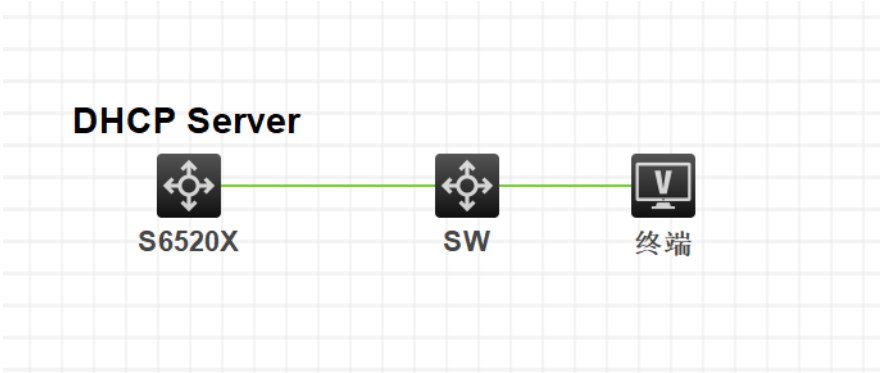
H3C S6520X-24ST-SI 交换机做服务器，终端DHCP地址获取慢

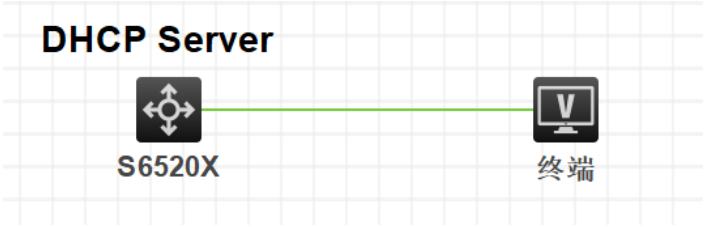
DHCP/DHCP Relay　马帅宇　2021-10-18 发表

组网及说明

初始组网：



变更后组网：



问题描述

终端设备通过初始组网图向DHCP服务器请求地址，获取速度较慢。后客户变更组网，终端直连DHCP服务器，现象依旧。

过程分析

第一步：故障时在连接PC的端口上进行抓包以及debug分析。

抓包截图如下，可以看出终端设备向dhcp服务器发送了许多DHCP Discover报文，但交换机未应答。

264…	310.675721	0.0.0.0	255.255.255.255	DHCP	309	DHCP Discover - Transaction ID 0x96e10a06
264…	310.676000	0.0.0.0	255.255.255.255	DHCP	309	DHCP Discover - Transaction ID 0x96e10a06
267…	313.669001	0.0.0.0	255.255.255.255	DHCP	590	DHCP Discover - Transaction ID 0x96e10a06
267…	313.669160	0.0.0.0	255.255.255.255	DHCP	590	DHCP Discover - Transaction ID 0x96e10a06
268…	315.668966	0.0.0.0	255.255.255.255	DHCP	590	DHCP Discover - Transaction ID 0x96e10a06
268…	315.669092	0.0.0.0	255.255.255.255	DHCP	590	DHCP Discover - Transaction ID 0x96e10a06
269…	316.668904	0.0.0.0	255.255.255.255	DHCP	590	DHCP Discover - Transaction ID 0x96e10a06
269…	316.669102	0.0.0.0	255.255.255.255	DHCP	590	DHCP Discover - Transaction ID 0x96e10a06
270…	317.668836	0.0.0.0	255.255.255.255	DHCP	590	DHCP Discover - Transaction ID 0x96e10a06
270…	317.668953	0.0.0.0	255.255.255.255	DHCP	590	DHCP Discover - Transaction ID 0x96e10a06
285…	338.670828	0.0.0.0	255.255.255.255	DHCP	309	DHCP Discover - Transaction ID 0x89c1999c
285…	338.670990	0.0.0.0	255.255.255.255	DHCP	309	DHCP Discover - Transaction ID 0x89c1999c

从debug信息看，设备收到如下discover报文时，有时会不回复offer报文，从报文方面来看，未见明显异常。

*Sep 30 15:10:52:411 2021 core-1F DHCPS/7/PACKET: From 0.0.0.0 port 68, interface Vlan-interface4

Message type: REQUEST (1)

Hardware type: 1, Hardware address length: 6

Hops: 0, Transaction ID: 2001877267

Seconds: 8, Broadcast flag: 0

Client IP address: 0.0.0.0 Your IP address: 0.0.0.0

Server IP address: 0.0.0.0 Relay agent IP address: 0.0.0.0

Client hardware address: 0c38-3e19-a2b0

Server host name: not configured

Boot file name: not configured

DHCP message type: DHCPDISCOVER (1)

第二步：查看设备的logbuffer，从logbuff中看到设备有收到比较频繁的TC消息，收到TC后会删除mac地址表项，报文上送时会检查有没有mac地址，如果没有就被丢掉了，故让客户把连接终端的端口配置成边缘端口进行测试。

%Sep 29 22:41:04:772 2021 core-1F STP/6/STP_NOTIFIED_TC: Instance 0's port Ten-GigabitEthernet1/0/4 was notified a topology change.

%Sep 29 22:41:46:801 2021 core-1F STP/6/STP_NOTIFIED_TC: Instance 0's port Ten-GigabitEthernet1/0/4 was notified a topology change.

从平台的debugging信息中搜收和发，数量是一致的，说明平台收到的报文基本都回复了，大部分都是回复offer和ack，有时会回复icmp echo。

Search "DHCPS/7/EVENT: R" (1490 hits in 1 file)

Line 38: *Sep 30 15:10:05:496 2021 core-1F DHCPS/7/EVENT: Receive a DHCPINFORM message from Vlan-interface5.

Line 62: *Sep 30 15:10:05:497 2021 core-1F DHCPS/7/EVENT: Receive a DHCPINFORM message from Vlan-interface5.

Line 86: *Sep 30 15:10:08:487 2021 core-1F DHCPS/7/EVENT: Receive a DHCPINFORM message from Vlan-interface5.

Line 99: *Sep 30 15:10:08:488 2021 core-1F DHCPS/7/EVENT: Receive a DHCPINFORM message from Vlan-interface5.

… …

Search "DHCPS/7/EVENT: S" (1490 hits in 1 file).

Line 520: *Sep 30 15:10:43:389 2021 core-1F DHCPS/7/EVENT: Sent DHCPACK to 192.168.2.90.

Line 544: *Sep 30 15:10:43:390 2021 core-1F DHCPS/7/EVENT: Sent DHCPACK to 192.168.2.90.

Line 568: *Sep 30 15:10:43:554 2021 core-1F DHCPS/7/EVENT: Sent DHCPACK to 192.168.51.79.

Line 592: *Sep 30 15:10:43:555 2021 core-1F DHCPS/7/EVENT: Sent DHCPACK to 192.168.51.79.

Line 620: *Sep 30 15:10:44:414 2021 core-1F DHCPS/7/EVENT: Send an ICMP echo request to 192.168.4.60.

Line 637: *Sep 30 15:10:44:988 2021 core-1F DHCPS/7/EVENT: Send a DHCPOFFER message on Vlan-interface4.

Line 665: *Sep 30 15:10:48:412 2021 core-1F DHCPS/7/EVENT: Send an ICMP echo request to 192.168.4.60.

Line 694: *Sep 30 15:10:48:767 2021 core-1F DHCPS/7/EVENT: Sent DHCPACK to 192.168.3.36.

第三步：配置完成边缘端口后，仍有故障现象。经远程排查，发现核心下连的AC会反弹报文给交换机，导致交换机MAC地址漂移，进而导致终端获取地址慢的问题。

解决方法

注：知了社区有报文回弹导致MAC地址漂移问题案例，链接为：https://zhiliao.h3c.com/theme/details/66426

1. 将AC侧的DHCP Snooping功能关闭
2. 升级AC版本

第四步：对接线侧进行分析后发现AC 开启了dhcp snooping的功能，R5441P02版本以前不支持AC与交换机上同时开启dhcp snooping功能，原因为交换机1口收到dhcp discovery转发到2口给ac，此时ac会把这个报文复制一份从有线口原路发回去，从而导致交换机的mac地址学习出现错误引起mac漂移。

附件下载：某局点s6250x-si交换机做dhcp服务器终端获取ip地址慢问题案例.pdf