



## 警示

1. 实验报告如有雷同，雷同各方当次实验成绩均以 0 分计。
2. 当次小组成员成绩只计学号、姓名登录在下表中的。
3. 在规定时间内未上交实验报告的，不得以其他方式补交，当次成绩按 0 分计。
4. 实验报告文件以 PDF 格式提交。

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## 【实验题目】静态路由实验

【实验目的】掌握静态路由的配置和使用方法，熟悉交换机端口镜像的方法以及如何用于监视端口。

## 【实验内容】

- (1) 阅读教材 P190-192 关于端口镜像的内容
- (2) 阅读教材 P233 实例 7-1
- (3) 阅读教材 P29，熟悉 Packet Tracer 使用实例
- (4) 完成教材 P273 习题 15

## 【实验记录】

根据要求，本次实验完成习题 15。

(1) 我们在进行此处链路连接的时候，已经将路由器 1、路由器 2、交换机划分到 192.168.6.0/24 的子网当中。

路由器 1:

```
Ruijie(config)#show ip route

Codes: C - connected, S - static, R - RIP, B - BGP
        O - OSPF, IA - OSPF inter area
        N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
        E1 - OSPF external type 1, E2 - OSPF external type 2
        i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
        ia - IS-IS inter area, * - candidate default

Gateway of last resort is no set
C    192.168.1.0/24 is directly connected, GigabitEthernet 0/1
C    192.168.1.1/32 is local host.
C    192.168.2.0/24 is directly connected, Serial 2/0
C    192.168.2.1/32 is local host.
S    192.168.3.0/24 [1/0] via 192.168.2.2
        [1/0] via 192.168.6.2
C    192.168.6.0/24 is directly connected, GigabitEthernet 0/0
C    192.168.6.1/32 is local host.
```

路由器 2:



```
RouteB(config)#show ip route

Codes: C - connected, S - static, R - RIP, B - BGP
        O - OSPF, IA - OSPF inter area
        N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
        E1 - OSPF external type 1, E2 - OSPF external type 2
        i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
        ia - IS-IS inter area, * - candidate default

Gateway of last resort is no set
S    192.168.1.0/24 [1/0] via 192.168.2.1
      [1/0] via 192.168.6.1
C    192.168.2.0/24 is directly connected, Serial 2/0
C    192.168.2.2/32 is local host.
C    192.168.3.0/24 is directly connected, GigabitEthernet 0/1
C    192.168.3.2/32 is local host.
C    192.168.6.0/24 is directly connected, GigabitEthernet 0/0
C    192.168.6.2/32 is local host.
```

(2) PC1 ping PC2 交换机的 MAC 地址表

Vlan	MAC Address	Type	Interface
1	0088.9900.1450	DYNAMIC	GigabitEthernet 0/24
1	5869.6c27.b819	DYNAMIC	GigabitEthernet 0/3
1	5869.6c27.bad1	DYNAMIC	GigabitEthernet 0/1

19-S5750-1#

(3) mac 表

```
19-S5750-1#clear mac-address-table dynamic
19-S5750-1#show mac
Vlan          MAC Address          Type          Interface
-----
19-S5750-1#show mac
Vlan          MAC Address          Type          Interface
-----
1             0088.9900.1450       DYNAMIC       GigabitEthernet 0/24
1             5869.6c27.b819       DYNAMIC       GigabitEthernet 0/3
1             5869.6c27.bad1       DYNAMIC       GigabitEthernet 0/1
19-S5750-1#
```

抓包结果:

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	Ruijie15:57:1e	LLDP_Multicast	LLDP	246	TTL = 121 SysName = 19-S5750-1 SysDesc = Ruijie Layer 3 FULL Gigabit Intelligent Switch(S5750-28GT-L) By Ruiji...
2	11.880303	192.168.3.22	192.168.1.11	ICMP	74	Echo (ping) request id=0x0001, seq=121/30976, ttl=127 (no response found!)
3	12.368341	fe80::e890:548c:ea3...	ff02::1:3	LLMNR	84	Standard query 0xa8aa A wpad
4	12.368396	169.254.240.88	224.0.0.252	LLMNR	64	Standard query 0xa8aa A wpad
5	12.568482	169.254.240.88	169.254.255.255	NBNS	92	Name query NB wPAD<00>
6	13.318262	169.254.240.88	169.254.255.255	NBNS	92	Name query NB wPAD<00>
7	14.068149	169.254.240.88	169.254.255.255	NBNS	92	Name query NB wPAD<00>
8	29.999547	Ruijie15:57:1e	LLDP_Multicast	LLDP	246	TTL = 121 SysName = 19-S5750-1 SysDesc = Ruijie Layer 3 FULL Gigabit Intelligent Switch(S5750-28GT-L) By Ruiji...
9	37.032451	169.254.240.88	169.254.255.255	NBNS	92	Name query NB STU09<1C>
10	37.782162	169.254.240.88	169.254.255.255	NBNS	92	Name query NB STU09<1C>
11	38.532155	169.254.240.88	169.254.255.255	NBNS	92	Name query NB STU09<1C>
12	59.999288	Ruijie15:57:1e	LLDP_Multicast	LLDP	246	TTL = 121 SysName = 19-S5750-1 SysDesc = Ruijie Layer 3 FULL Gigabit Intelligent Switch(S5750-28GT-L) By Ruiji...
13	61.487603	fe80::e890:548c:ea3...	ff02::1:3	LLMNR	84	Standard query 0xe5f2 A wpad
14	61.487655	169.254.240.88	224.0.0.252	LLMNR	64	Standard query 0xe5f2 A wpad
15	61.687671	169.254.240.88	169.254.255.255	NBNS	92	Name query NB wPAD<00>
16	62.437540	169.254.240.88	169.254.255.255	NBNS	92	Name query NB wPAD<00>
17	63.187416	169.254.240.88	169.254.255.255	NBNS	92	Name query NB wPAD<00>
18	65.084329	169.254.240.88	169.254.255.255	NBNS	92	Name query NB STU09<1C>
19	65.834284	169.254.240.88	169.254.255.255	NBNS	92	Name query NB STU09<1C>
20	66.584339	169.254.240.88	169.254.255.255	NBNS	92	Name query NB STU09<1C>

此处 PC3 处捕获到一个 echo 请求包，数据包是用来进行 ping 请求，没有 response 包返回。

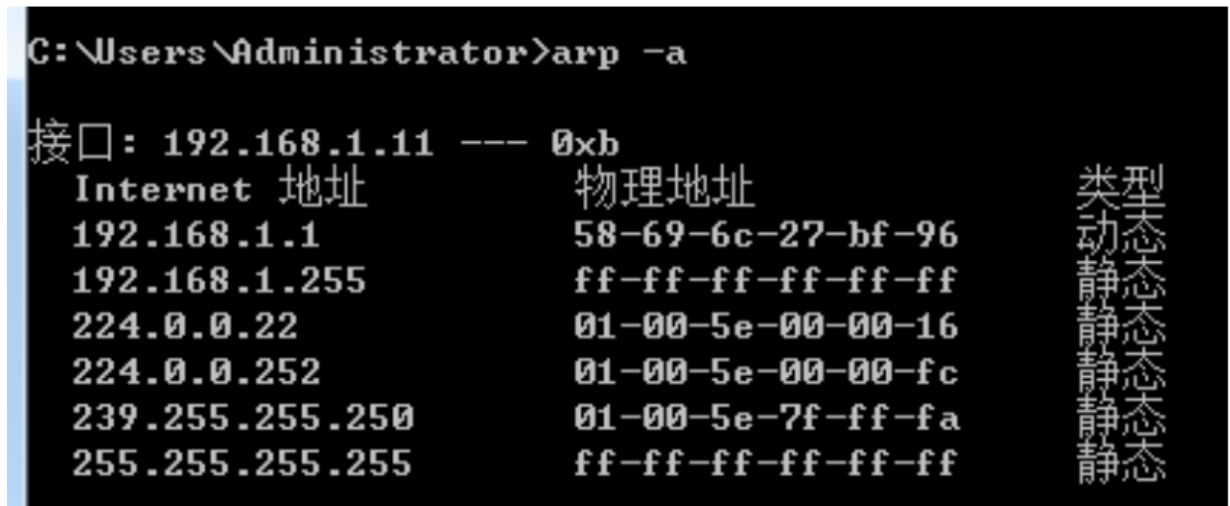
(4)



Source	Destination	Protocol	Length	Info
fe80::e890:548c:ea3...	ff02::1:2	DHCPv6	147	Solicit XID: 0xd1e943 CID: 000100012238e5f344334c0ece16
169.254.240.88	169.255.255.255	BROWSER	248	Domain/workgroup Announcement WORKGROUP, NT Workstation, Domain Enum
169.254.240.88	239.255.255.250	SSDP	175	M-SEARCH * HTTP/1.1
RuijieNe_15:57:1e	LLDP_Multicast	LLDP	246	TTL = 121 SysName = 19-S5750-1 SysDesc = Ruijie Layer 3 FULL Gigabit Intelligent Switch(S5750-28GT-L) By Ruijie
169.254.240.88	239.255.255.250	SSDP	175	M-SEARCH * HTTP/1.1
169.254.240.88	239.255.255.250	SSDP	175	M-SEARCH * HTTP/1.1
169.254.240.88	239.255.255.250	SSDP	175	M-SEARCH * HTTP/1.1
0.0.0.0	255.255.255.255	DHCP	342	DHCP Discover - Transaction ID 0x14d03cda
fe80::e890:548c:ea3...	ff02::1:2	DHCPv6	147	Solicit XID: 0xd1e943 CID: 000100012238e5f344334c0ece16
169.254.240.88	239.255.255.250	SSDP	175	M-SEARCH * HTTP/1.1
169.254.240.88	239.255.255.250	SSDP	175	M-SEARCH * HTTP/1.1

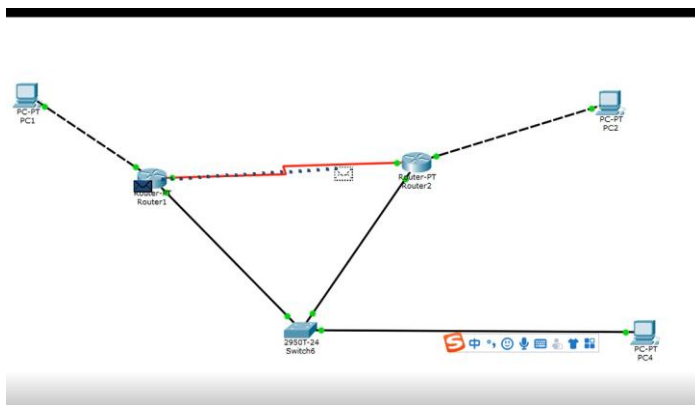
可以看到，我们并没有抓到 ARP 包和 Echo 包，因为此处我们并没有进行端口镜像（我们的镜像转发端口为 2 号端口），数据包则直接通过交换机的 1, 3 端口进行转发。

ARP 缓冲区：



此处可以看到交换机内传输路径已知，并且相应的 IP 与物理地址进行了映射，所以无法捕获到 Echo 请求包。

（5）具体实验需要参照我们小组制作的视频。不过遗憾的是，packet tractor 无法配置镜像端口，所以我们镜像端口在这里无法实现。



（6）

Source	Destination	Protocol	Length	Info
fe80::e890:548c:ea3...	ff02::1:2	DHCPv6	147	Solicit XID: 0x3aa6d CID: 000100012238e5f344334c0ece16
192.168.1.11	192.168.3.22	ICMP	74	Echo (ping) request id=0x0001, seq=30/7680, ttl=127 (reply in 3)
192.168.3.22	192.168.1.11	ICMP	74	Echo (ping) reply id=0x0001, seq=30/7680, ttl=127 (request in 2)
192.168.1.11	192.168.3.22	ICMP	74	Echo (ping) request id=0x0001, seq=31/7936, ttl=127 (reply in 5)
192.168.3.22	192.168.1.11	ICMP	74	Echo (ping) reply id=0x0001, seq=31/7936, ttl=127 (request in 4)
192.168.1.11	192.168.3.22	ICMP	74	Echo (ping) request id=0x0001, seq=32/8192, ttl=127 (reply in 7)
192.168.3.22	192.168.1.11	ICMP	74	Echo (ping) reply id=0x0001, seq=32/8192, ttl=127 (request in 6)
192.168.1.11	192.168.3.22	ICMP	74	Echo (ping) request id=0x0001, seq=33/8448, ttl=127 (reply in 9)
192.168.3.22	192.168.1.11	ICMP	74	Echo (ping) reply id=0x0001, seq=33/8448, ttl=127 (request in 8)
RuijieNe_15:57:1e	LLDP_Multicast	LLDP	244	TTL = 121 SysName = 19-S5750-1 SysDesc = Ruijie Layer 3 FULL Gigabit Intelligent Switch(S5750-28GT-L) B
169.254.240.88	239.255.255.250	SSDP	175	M-SEARCH * HTTP/1.1
169.254.240.88	239.255.255.250	SSDP	175	M-SEARCH * HTTP/1.1
169.254.240.88	239.255.255.250	SSDP	175	M-SEARCH * HTTP/1.1

可以看到，此次实验成功抓到了 Echo 的请求还有响应包。这是因为我们配置路由器 1 的路由表时，



# 计算机网络实验报告

设定了数据包通过交换机发送到路由器 2。此时可以发现 ping 指令发送的数据四次都通过交换机进行转发，包中出现四次 request 和 reply 指令的 Echo 包。

```
19-S5750-1(config)#show mac
Vlan          MAC Address          Type          Interface
-----
1             5869.6c27.b819       DYNAMIC      GigabitEthernet 0/3
1             5869.6c27.bad1       DYNAMIC      GigabitEthernet 0/1
19-S5750-1(config)#
19-S5750-1(config)#
```

此时进行了端口镜像，所以交换机中 24 号端口用于镜像数据包发送目的端口，所以在 MAC 地址表中 24 号端口并未出现

(7) 本题动态模拟在我们的实验视频中展现。

(8)

```
Ping -r 6 -l 200 192.168.3.22
```

Source	Destination	Protocol	Length	Info
RuijieNe 15:57:1e	LLDP_Multicast	LLDP	244	TTL = 121 SysName = 19-S5750-1 SysDesc = Ruijie Layer 3 FULL Gigabit Intelligent Switch(S5750)
192.168.1.11	192.168.3.22	ICMP	270	Echo (ping) request id=0x0001, seq=54/13824, ttl=127 (reply in 3)
192.168.3.22	192.168.1.11	ICMP	242	Echo (ping) reply id=0x0001, seq=54/13824, ttl=127 (request in 2)
192.168.1.11	192.168.3.22	ICMP	270	Echo (ping) request id=0x0001, seq=55/14080, ttl=127 (reply in 5)
192.168.3.22	192.168.1.11	ICMP	242	Echo (ping) reply id=0x0001, seq=55/14080, ttl=127 (request in 4)
192.168.1.11	192.168.3.22	ICMP	270	Echo (ping) request id=0x0001, seq=56/14336, ttl=127 (reply in 7)
192.168.3.22	192.168.1.11	ICMP	242	Echo (ping) reply id=0x0001, seq=56/14336, ttl=127 (request in 6)
192.168.1.11	192.168.3.22	ICMP	270	Echo (ping) request id=0x0001, seq=57/14592, ttl=127 (reply in 9)
192.168.3.22	192.168.1.11	ICMP	242	Echo (ping) reply id=0x0001, seq=57/14592, ttl=127 (request in 8)

我们捕获到了 Echo 请求包和响应包，未能捕获到 Timestamp 包。

```
Ping -s 4 -l 200 192.168.3.22
```

Source	Destination	Protocol	Length	Info
192.168.1.11	192.168.3.22	ICMP	282	Echo (ping) request id=0x0001, seq=58/14848, ttl=127 (reply in 2)
192.168.3.22	192.168.1.11	ICMP	242	Echo (ping) reply id=0x0001, seq=58/14848, ttl=127 (request in 1)
192.168.1.11	192.168.3.22	ICMP	282	Echo (ping) request id=0x0001, seq=59/15104, ttl=127 (reply in 4)
192.168.3.22	192.168.1.11	ICMP	242	Echo (ping) reply id=0x0001, seq=59/15104, ttl=127 (request in 3)
192.168.1.11	192.168.3.22	ICMP	282	Echo (ping) request id=0x0001, seq=60/15360, ttl=127 (reply in 6)
192.168.3.22	192.168.1.11	ICMP	242	Echo (ping) reply id=0x0001, seq=60/15360, ttl=127 (request in 5)
fe80::e890:548c:ea3...	ff02::1:3	LLMNR	84	Standard query 0x307f A wpad
169.254.240.88	224.0.0.252	LLMNR	64	Standard query 0x307f A wpad
169.254.240.88	169.254.255.255	NBNS	92	Name query NB WPAD<00>
192.168.1.11	192.168.3.22	ICMP	282	Echo (ping) request id=0x0001, seq=61/15616, ttl=127 (reply in 11)
192.168.3.22	192.168.1.11	ICMP	242	Echo (ping) reply id=0x0001, seq=61/15616, ttl=127 (request in 10)
169.254.240.88	169.254.255.255	NBNS	92	Name query NB WPAD<00>
169.254.240.88	169.254.255.255	NBNS	92	Name query NB WPAD<00>

我们捕获到了 Echo 请求包和响应包，未能捕获到 Timestamp 包。

(9)

①删除路由器 1 上的静态路由



```
10-RSR20-1(config)#no ip route 192.168.3.0 255.255.255.0 192.168.2.2
10-RSR20-1(config)#no ip route 192.168.3.0 255.255.255.0 192.168.6.2
10-RSR20-1(config)#show ip route
```

Codes: C - connected, S - static, R - RIP, B - BGP  
O - OSPF, IA - OSPF inter area  
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2  
E1 - OSPF external type 1, E2 - OSPF external type 2  
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2  
ia - IS-IS inter area, \* - candidate default

```
Gateway of last resort is no set
C 192.168.1.0/24 is directly connected, GigabitEthernet 0/1
C 192.168.1.1/32 is local host.
C 192.168.2.0/24 is directly connected, Serial 2/0
C 192.168.2.1/32 is local host.
C 192.168.6.0/24 is directly connected, GigabitEthernet 0/0
C 192.168.6.1/32 is local host.
10-RSR20-1(config)#
```

增加默认路由指向路由器 1 的端口

```
10-RSR20-1(config)#ip route 0.0.0.0 0.0.0.0 192.168.6.2
10-RSR20-1(config)#show ip route
```

Codes: C - connected, S - static, R - RIP, B - BGP  
O - OSPF, IA - OSPF inter area  
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2  
E1 - OSPF external type 1, E2 - OSPF external type 2  
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2  
ia - IS-IS inter area, \* - candidate default

```
Gateway of last resort is 192.168.6.2 to network 0.0.0.0
S* 0.0.0.0/0 [1/0] via 192.168.6.2
C 192.168.1.0/24 is directly connected, GigabitEthernet 0/1
C 192.168.1.1/32 is local host.
C 192.168.2.0/24 is directly connected, Serial 2/0
C 192.168.2.1/32 is local host.
C 192.168.6.0/24 is directly connected, GigabitEthernet 0/0
C 192.168.6.1/32 is local host.
```

PC1 ping PC2

```
C:\Users\Administrator>ping 192.168.3.22

正在 Ping 192.168.3.22 具有 32 字节的数据:
来自 192.168.3.22 的回复: 字节=32 时间<1ms TTL=126
来自 192.168.3.22 的回复: 字节=32 时间<1ms TTL=126
来自 192.168.3.22 的回复: 字节=32 时间<1ms TTL=126
来自 192.168.3.22 的回复: 字节=32 时间<1ms TTL=126
```

```
192.168.3.22 的 Ping 统计信息:
    数据包: 已发送 = 4, 已接收 = 4, 丢失 = 0 (0% 丢失),
    往返行程的估计时间<以毫秒为单位>:
        最短 = 0ms, 最长 = 0ms, 平均 = 0ms
```

捕捉到的数据包

Source	Destination	Protocol	Length	Info
RuijieNe_15:55:54	LLDP_Multicast	LLDP	244	TTL = 121 SysName = 10-S5750-1 SysDesc = Ruijie Layer 3 FULL Gigabit Intelligent Switch(S5750-28GT-L) By Ruijie
192.168.1.11	192.168.3.22	ICMP	74	Echo (ping) request id=0x0001, seq=11/2816, ttl=127 (reply in 3)
192.168.3.22	192.168.1.11	ICMP	74	Echo (ping) reply id=0x0001, seq=11/2816, ttl=127 (request in 2)
192.168.1.11	192.168.3.22	ICMP	74	Echo (ping) request id=0x0001, seq=12/3072, ttl=127 (reply in 5)
192.168.3.22	192.168.1.11	ICMP	74	Echo (ping) reply id=0x0001, seq=12/3072, ttl=127 (request in 4)
192.168.1.11	192.168.3.22	ICMP	74	Echo (ping) request id=0x0001, seq=13/3328, ttl=127 (reply in 7)
192.168.3.22	192.168.1.11	ICMP	74	Echo (ping) reply id=0x0001, seq=13/3328, ttl=127 (request in 6)
192.168.1.11	192.168.3.22	ICMP	74	Echo (ping) request id=0x0001, seq=14/3584, ttl=127 (reply in 9)
192.168.3.22	192.168.1.11	ICMP	74	Echo (ping) reply id=0x0001, seq=14/3584, ttl=127 (request in 8)



## ②删除路由器 2 上的静态路由

```
10-RSR20-2(config)#no ip route 192.168.1.0 255.255.255.0 192.168.2.1
10-RSR20-2(config)#no ip route 192.168.1.0 255.255.255.0 192.168.6.1
10-RSR20-2(config)#show ip route
```

```
Codes: C - connected, S - static, R - RIP, B - BGP
        O - OSPF, IA - OSPF inter area
        N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
        E1 - OSPF external type 1, E2 - OSPF external type 2
        i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
        ia - IS-IS inter area, * - candidate default
```

```
Gateway of last resort is no set
C    192.168.2.0/24 is directly connected, Serial 2/0
C    192.168.2.2/32 is local host.
C    192.168.3.0/24 is directly connected, GigabitEthernet 0/1
C    192.168.3.2/32 is local host.
C    192.168.6.0/24 is directly connected, GigabitEthernet 0/0
C    192.168.6.2/32 is local host.
```

## 增加默认路由指向路由器 2 的端口

```
-----
10-RSR20-2(config)#ip route 0.0.0.0 0.0.0.0 192.168.6.1
10-RSR20-2(config)#show ip route

Codes: C - connected, S - static, R - RIP, B - BGP
        O - OSPF, IA - OSPF inter area
        N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
        E1 - OSPF external type 1, E2 - OSPF external type 2
        i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
        ia - IS-IS inter area, * - candidate default

Gateway of last resort is 192.168.6.1 to network 0.0.0.0
S*   0.0.0.0/0 [1/0] via 192.168.6.1
C    192.168.2.0/24 is directly connected, Serial 2/0
C    192.168.2.2/32 is local host.
C    192.168.3.0/24 is directly connected, GigabitEthernet 0/1
C    192.168.3.2/32 is local host.
C    192.168.6.0/24 is directly connected, GigabitEthernet 0/0
C    192.168.6.2/32 is local host.
```

## PC1 ping PC2



```
C:\Users\Administrator>ping 192.168.3.22

正在 Ping 192.168.3.22 具有 32 字节的数据:
来自 192.168.3.22 的回复: 字节=32 时间=8ms TTL=126
来自 192.168.3.22 的回复: 字节=32 时间<1ms TTL=126
来自 192.168.3.22 的回复: 字节=32 时间<1ms TTL=126
来自 192.168.3.22 的回复: 字节=32 时间<1ms TTL=126

192.168.3.22 的 Ping 统计信息:
    数据包: 已发送 = 4, 已接收 = 4, 丢失 = 0 (0% 丢失),
往返行程的估计时间<以毫秒为单位>:
    最短 = 0ms, 最长 = 8ms, 平均 = 2ms
```

## 捕捉到的数据包





1 0.000000	RuijieNe_15:55:54	LLDP_Multicast	LLDP	244 TTL = 121 SysName = 10-55750-1 SysDesc = Ruijie Layer 3 FULL Gigabit Intelligent Switch(S5750-28GT-L) By -
2 0.583171	192.168.1.11	192.168.3.22	ICMP	74 Echo (ping) request id=0x0001, seq=7/1792, ttl=127 (reply in 3)
3 0.583567	192.168.3.22	192.168.1.11	ICMP	74 Echo (ping) reply id=0x0001, seq=7/1792, ttl=127 (request in 2)
4 1.583691	192.168.1.11	192.168.3.22	ICMP	74 Echo (ping) request id=0x0001, seq=8/2048, ttl=127 (reply in 5)
5 1.586069	192.168.3.22	192.168.1.11	ICMP	74 Echo (ping) reply id=0x0001, seq=8/2048, ttl=127 (request in 4)
6 2.587805	192.168.1.11	192.168.3.22	ICMP	74 Echo (ping) request id=0x0001, seq=9/2304, ttl=127 (reply in 7)
7 2.587813	192.168.3.22	192.168.1.11	ICMP	74 Echo (ping) reply id=0x0001, seq=9/2304, ttl=127 (request in 6)
8 2.966291	0.0.0.0	255.255.255.255	DHCP	342 DHCP Discover - Transaction ID 0x32beb006
9 3.587637	192.168.1.11	192.168.3.22	ICMP	74 Echo (ping) request id=0x0001, seq=10/2560, ttl=127 (reply in 10)
10 3.590283	192.168.3.22	192.168.1.11	ICMP	74 Echo (ping) reply id=0x0001, seq=10/2560, ttl=127 (request in 9)
11 5.240467	169.254.120.178	239.255.255.250	SSDP	175 M-SEARCH * HTTP/1.1
12 6.973460	0.0.0.0	255.255.255.255	DHCP	342 DHCP Discover - Transaction ID 0x32beb006
13 8.245386	169.254.120.178	239.255.255.250	SSDP	175 M-SEARCH * HTTP/1.1
14 11.254366	169.254.120.178	239.255.255.250	SSDP	175 M-SEARCH * HTTP/1.1
15 14.268001	169.254.120.178	239.255.255.250	SSDP	175 M-SEARCH * HTTP/1.1
16 15.994743	0.0.0.0	255.255.255.255	DHCP	342 DHCP Discover - Transaction ID 0x32beb006
17 17.273689	169.254.120.178	239.255.255.250	SSDP	175 M-SEARCH * HTTP/1.1

10) PC1 ping 一个拓扑结

构外的 ip 地址

```
C:\Users\Administrator>ping 192.168.7.22

正在 Ping 192.168.7.22 具有 32 字节的数据:
来自 192.168.6.2 的回复: 无法访问目标网。
来自 192.168.6.2 的回复: 无法访问目标网。
来自 192.168.6.2 的回复: 无法访问目标网。
来自 192.168.6.2 的回复: 无法访问目标网。

192.168.7.22 的 Ping 统计信息:
    数据包: 已发送 = 4, 已接收 = 4, 丢失 = 0 (0% 丢失),
```

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	169.254.120.178	239.255.255.250	SSDP	175	M-SEARCH * HTTP/1.1
2	3.013288	169.254.120.178	239.255.255.250	SSDP	175	M-SEARCH * HTTP/1.1
3	4.267471	192.168.1.11	192.168.7.22	ICMP	74	Echo (ping) request id=0x0001, seq=19/4864, ttl=127 (no response found!)
4	4.267471	192.168.6.2	192.168.1.11	ICMP	70	Destination unreachable (Network unreachable)
5	5.267641	192.168.1.11	192.168.7.22	ICMP	74	Echo (ping) request id=0x0001, seq=20/5120, ttl=127 (no response found!)
6	5.267981	192.168.6.2	192.168.1.11	ICMP	70	Destination unreachable (Network unreachable)
7	6.025105	169.254.120.178	239.255.255.250	SSDP	175	M-SEARCH * HTTP/1.1
8	6.269531	192.168.1.11	192.168.7.22	ICMP	74	Echo (ping) request id=0x0001, seq=21/5376, ttl=127 (no response found!)
9	6.269532	192.168.6.2	192.168.1.11	ICMP	70	Destination unreachable (Network unreachable)
10	7.269821	192.168.1.11	192.168.7.22	ICMP	74	Echo (ping) request id=0x0001, seq=22/5632, ttl=127 (no response found!)
11	7.269821	192.168.6.2	192.168.1.11	ICMP	70	Destination unreachable (Network unreachable)
12	10.833745	RuijieNe_15:55:54	LLDP_Multicast	LLDP	244	TTL = 121 SysName = 10-55750-1 SysDesc = Ruijie Layer 3 FULL Gigabit Intelligent Switch(S5750-28GT-L) By Ruijie

分析：我们用 PC1 ping 拓扑图外的一个 IP，我们的这个数据包通过默认路由发送给路由器 2，然后在路由器 2 中未找到目的 IP 的下一跳位置，从而返回一个响应消息给 PC1。