

CS305 A2 Report

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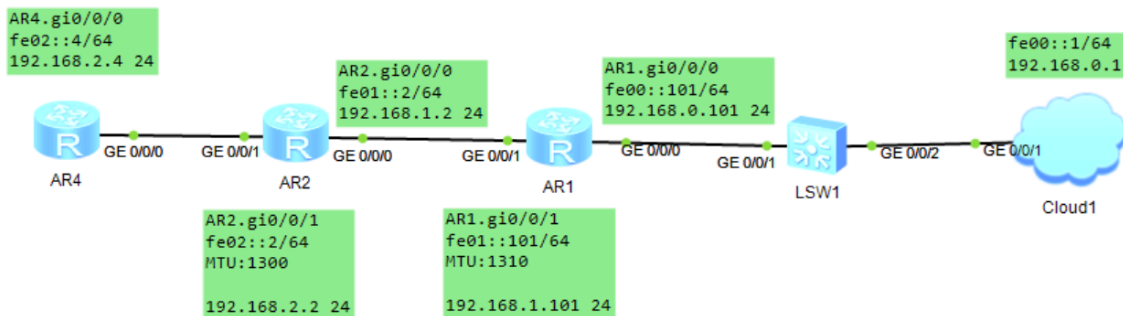
Topology

ipv4与ipv6拓扑如下，且mtu设计一样

AR1 GE0/0/1: mtu=1310

AR2 GE0/0/1: mtu=1300

探测出mtu的结果期望是1300



IPv4

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python 12210360.py 192.168.2.4 --source 192.168.0.1
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D:\code\pycharm\Network>python 12210360.py 192.168.2.4 --source 192.168.0.1
type 0. Received normal response for MTU=910. Increasing MTU.
Fragmentation needed for MTU=1355. Decreasing MTU.
type 0. Received normal response for MTU=1132. Increasing MTU.
type 0. Received normal response for MTU=1243. Increasing MTU.
Fragmentation needed for MTU=1298. Decreasing MTU.
type 0. Received normal response for MTU=1270. Increasing MTU.
Fragmentation needed for MTU=1283. Decreasing MTU.
Fragmentation needed for MTU=1276. Decreasing MTU.
type 0. Received normal response for MTU=1272. Increasing MTU.
Fragmentation needed for MTU=1273. Decreasing MTU.
Finished probing the maximum MTU.
The Path MTU to 192.168.2.4 is 1300 bytes.
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5928	1995.672000	HuaweiTechno_4e:02:: Spanning-tree-(for...	119 MST. Root = 32768/0/4c:1f:cc:4e:02:3e Cost = 0 Port = 0x8002
3969	1995.625000	192.168.0.1 192.168.2.4 ICMP	952 Echo (ping) request id=0x0000, seq=0/0, ttl=64 (reply in 3971)
3970	1995.641000	fe00::1 240e:97c:2f:2::5c TCP	86 [TCP Retransmission] 59535 → 443 [SYN] Seq=0 Win=64800 Len=0 MSS=1440 WS=256 SACK_PERM
3971	1995.672000	192.168.0.1 192.168.0.1 ICMP	952 Echo (ping) reply id=0x0000, seq=0/0, ttl=253 (request in 3969)
3972	1995.672000	192.168.0.1 192.168.2.4 ICMP	1397 Echo (ping) request id=0x0000, seq=0/0, ttl=64 (no response found!)
3973	1995.703000	192.168.0.101 192.168.0.1 ICMP	70 Destination unreachable (Fragmentation needed)
3974	1995.719000	192.168.0.1 192.168.2.4 ICMP	1175 Echo (ping) request id=0x0000, seq=0/0, ttl=64 (reply in 3975)
3975	1995.750000	192.168.2.4 192.168.0.1 ICMP	1175 Echo (ping) reply id=0x0000, seq=0/0, ttl=253 (request in 3974)
3976	1995.750000	192.168.0.1 192.168.2.4 ICMP	1286 Echo (ping) request id=0x0000, seq=0/0, ttl=64 (reply in 3977)
3977	1995.797000	192.168.2.4 192.168.0.1 ICMP	1286 Echo (ping) reply id=0x0000, seq=0/0, ttl=253 (request in 3976)
3978	1995.797000	192.168.0.1 192.168.2.4 ICMP	1342 Echo (ping) request id=0x0000, seq=0/0, ttl=64 (no response found!)
3979	1995.844000	192.168.0.101 192.168.0.1 ICMP	70 Destination unreachable (Fragmentation needed)
3980	1995.844000	192.168.0.1 192.168.2.4 ICMP	1314 Echo (ping) request id=0x0000, seq=0/0, ttl=64 (no response found!)
3981	1995.953000	HuaweiTechno_4e:02:: Spanning-tree-(for...	119 MST. Root = 32768/0/4c:1f:cc:4e:02:3e Cost = 0 Port = 0x8002
3982	1997.844000	192.168.0.1 192.168.2.4 ICMP	1300 Echo (ping) request id=0x0000, seq=0/0, ttl=64 (reply in 3983)
3983	1997.891000	192.168.2.4 192.168.0.1 ICMP	1300 Echo (ping) reply id=0x0000, seq=0/0, ttl=253 (request in 3982)
3984	1997.891000	192.168.0.1 192.168.2.4 ICMP	1307 Echo (ping) request id=0x0000, seq=0/0, ttl=64 (no response found!)
3985	1999.094000	HuaweiTechno_4e:02:: Spanning-tree-(for...	119 MST. Root = 32768/0/4c:1f:cc:4e:02:3e Cost = 0 Port = 0x8002
3986	1999.906000	192.168.0.1 192.168.2.4 ICMP	1303 Echo (ping) request id=0x0000, seq=0/0, ttl=64 (reply in 3987)
3987	1999.922000	192.168.2.4 192.168.0.1 ICMP	1303 Echo (ping) reply id=0x0000, seq=0/0, ttl=253 (request in 3986)
3988	1999.922000	192.168.0.1 192.168.2.4 ICMP	1305 Echo (ping) request id=0x0000, seq=0/0, ttl=64 (no response found!)

路径上最小mtu是1300

IPv6

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python 12210360.py fe02::4 --ipv6 --source fe00::1
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```
D:\code\pycharm\Network>python 12210360.py fe02::4 --ipv6 --source fe00::1
MTU 1249 合适, 收到正常响应
MTU 1374 太大, 收到 Packet Too Big 响应
MTU 1311 太大, 收到 Packet Too Big 响应
MTU 1280 合适, 收到正常响应
MTU 1295 合适, 收到正常响应
MTU 1303 太大, 收到 Packet Too Big 响应
MTU 1299 合适, 收到正常响应
MTU 1301 太大, 收到 Packet Too Big 响应
Finished probing the maximum MTU. Max MTU is 1300.
The Path MTU to fe02::4 is 1300 bytes.
```

935	238.756995	fe00::1	fe02::4	ICMPv6	1263 Echo (ping) request id=0x0000, seq=0, hop limit=64 (reply in 936)
936	238.801110	fe02::4	fe00::1	ICMPv6	1263 Echo (ping) reply id=0x0000, seq=0, hop limit=62 (request in 935)
937	238.801126	fe02::4	fe00::1	ICMPv6	1263 Echo (ping) reply id=0x0000, seq=0, hop limit=62
938	238.801182	fe00::1	fe02::4	ICMPv6	1294 Parameter Problem (unrecognized Next Header type encountered)
939	238.801205	fe00::1	fe02::4	ICMPv6	1294 Parameter Problem (unrecognized Next Header type encountered)
940	238.803179	fe00::1	fe02::4	ICMPv6	1388 Echo (ping) request id=0x0000, seq=0, hop limit=64 (no response found!)
941	238.844079	fe01::101	fe00::1	ICMPv6	1294 Packet Too Big
942	238.844097	fe01::101	fe00::1	ICMPv6	1294 Packet Too Big
943	238.846488	fe00::1	fe02::4	ICMPv6	1325 Echo (ping) request id=0x0000, seq=0, hop limit=64 (no response found!)
944	238.885913	fe01::101	fe00::1	ICMPv6	1294 Packet Too Big
945	238.885932	fe01::101	fe00::1	ICMPv6	1294 Packet Too Big
946	238.888274	fe00::1	fe02::4	ICMPv6	1294 Echo (ping) request id=0x0000, seq=0, hop limit=64 (reply in 947)
947	238.948916	fe02::4	fe00::1	ICMPv6	1294 Echo (ping) reply id=0x0000, seq=0, hop limit=62 (request in 946)
948	238.948931	fe02::4	fe00::1	ICMPv6	1294 Echo (ping) reply id=0x0000, seq=0, hop limit=62
949	238.948967	fe00::1	fe02::4	ICMPv6	1294 Parameter Problem (unrecognized Next Header type encountered)
950	238.948975	fe00::1	fe02::4	ICMPv6	1294 Parameter Problem (unrecognized Next Header type encountered)
951	238.950831	fe00::1	fe02::4	ICMPv6	1309 Echo (ping) request id=0x0000, seq=0, hop limit=64 (reply in 952)
952	239.014220	fe02::4	fe00::1	ICMPv6	1309 Echo (ping) reply id=0x0000, seq=0, hop limit=62 (request in 951)
953	239.014239	fe02::4	fe00::1	ICMPv6	1309 Echo (ping) reply id=0x0000, seq=0, hop limit=62
954	239.014275	fe00::1	fe02::4	ICMPv6	1294 Parameter Problem (unrecognized Next Header type encountered)
955	239.014282	fe00::1	fe02::4	ICMPv6	1294 Parameter Problem (unrecognized Next Header type encountered)
956	239.016538	fe00::1	fe02::4	ICMPv6	1317 Echo (ping) request id=0x0000, seq=0, hop limit=64 (no response found!)
957	239.057774	fe02::2	fe00::1	ICMPv6	1294 Packet Too Big
958	239.057789	fe02::2	fe00::1	ICMPv6	1294 Packet Too Big
959	239.059875	fe00::1	fe02::4	ICMPv6	1313 Echo (ping) request id=0x0000, seq=0, hop limit=64 (reply in 960)
960	239.121012	fe02::4	fe00::1	ICMPv6	1313 Echo (ping) reply id=0x0000, seq=0, hop limit=62 (request in 959)
961	239.121048	fe02::4	fe00::1	ICMPv6	1313 Echo (ping) reply id=0x0000, seq=0, hop limit=62
962	239.121084	fe00::1	fe02::4	ICMPv6	1294 Parameter Problem (unrecognized Next Header type encountered)
963	239.121100	fe00::1	fe02::4	ICMPv6	1294 Parameter Problem (unrecognized Next Header type encountered)
964	239.123021	fe00::1	fe02::4	ICMPv6	1315 Echo (ping) request id=0x0000, seq=0, hop limit=64 (no response found!)
965	239.164068	fe02::2	fe00::1	ICMPv6	1294 Packet Too Big
966	239.164085	fe02::2	fe00::1	ICMPv6	1294 Packet Too Big