

Lab06

Nan Zhou
Z5111593

Exercise1

Q1. Because the n7 to n3 using a route to transfer packets which must go through n1-n2 connection. And n1 – n2 connection has low speed. As a result, it becomes a new bottleneck and decrease the whole tcp 1 speed.

Q2. Because tcp has a slow start mechanism and during start time it can not have a full throughout.

Q3. Because tcp is a fair protocol. It will try to let every connection share the same speed. In this graph, n1 – n2, n2- n4, n4 – n6 and n1 – n6 are 2.5Mbps. Several connection share the same bandwidth. As a result, no maximum throughput can reach 1.5 Mbps

Exercise2

Q1. The packet of 2000 caused fragmentation because MTU is 1500 in most conditions. Both host and routers has fragmented the original datagram. There will be 2 fragments been created when data size is specified as 2000.

Q2. Yes, the reply from destination will get fragmented as well. The only feature who decide it is MTU but not source of packet.

Q3.

ID	length	flag	Offset
31355	1500	More segment	0
31355	1500	More Segment	1480
31355	568	None	2960

Q4. No. Since fragments are small enough to transfer. Each packet should be 1500 or smaller.

Q5. The whole packet can not be resumed if one fragment lost. That may lead to package loss or retransmit, depend on transport layer in use.

Exercise 3.

Q1. Node 0 goes to nodes 5 by route: 0 -> 1 -> 4 -> 5. Node 2 goes to node 5 by route: 2 -> 3 -> 5. It does not change over time.

Q2. At 1.0 sec. Connection between node 1 and node 4 is disable until 1.2 sec. During this time, route between node 0 and node 5 changed into 0 -> 1 -> 2 -> 3 ->5.

Q3. At the very beginning, quick communication happened between routers. In time interval 1.0 sec ~ 1.2 sec, the connection between node 1 and node 4 dropped. Then communication between routers happened again and result in a route change.

Q4. In the first 0.5 sec, no route constructed. Some quick communication happened between routers. A router constructed at 0.5 sec, which is 0 -> 1 -> 2 -> 3 -> 5. Because it apply a algo to calculate cost of each possible routers. Then it choose the router with minimum cost.

Q5. In the first 0.5 sec. Some quick communication happened among routers. Around 0.5 sec, we can see a route 0-> 1-> 4 -> 5 has been constructed. After that, routes 2 ->1 -> 4 -> 5 and route 2 -> 3 -> 5 have been constructed. The line I uncomment make it can go multiple path. And result in a congestion in routers.