# LaTeX 第 1 周作业

04000000 某某某

2020 年 4 月 11 日

## 1 TCP 中关于 RTT 时间的计算，为什么“仅为传输一次的报文段”测量 RTT？

如果一个发生重传的分组实际上并没有丢失，则 RTT 的计算将发生错误。假设发射方在 $t_0$ 时刻发送一个分组，$t_1$ 时尚未收到 ACK 即判定超时，重发该分组；而该分组并未丢失，在 $t_2$ 时其对应的 ACK1 到达发送方；$t_3$ 时重发分组的 ACK2 到达发送方（$t_3 > t_2 > t_1 > t_0$）。然而，系统已经判断超时丢包，会认为 ACK1 是重发分组的 ACK，从而得到 $\mathrm{RTT} = t_2 - t_1$，但 RTT 的真实值应为 $t_2 - t_0$ 或 $t_3 - t_1$，从而发生错误。

## 2 Suppose Host A sends two TCP segments back to back to Host B over a TCP connection. The first segment has sequence number 90; the second has sequence number 110.

**(a) How much data is in the first segment?**

$110 - 90 = 20$ bytes.

**(b) Suppose that the first segment is lost but the second segment arrives at B. In the acknowledgment that Host B sends to Host A, what will be the acknowledgment number?**

The acknowledgment number that Host B puts in its segment is the sequence number it expects to receive from Host A. Since Host B is still waiting for the first segment, the acknowledge number will be 90.