

1 Token bucket

1. Calculate the token bucket parameters rate r and bucket depth b for a flow with the following traffic requirements: the maximum rate is $R = 20$ Mbps, the maximum rate can only be used up to 4 seconds, and in the first 10 seconds up to 140 Mb can be transmitted.
2. Router X wants the traffic of this flow to experience a delay of at most 1 second. In this case, what is the minimum rate r_a that X needs to allocate to the flow?
3. Given the requirement of part 2, what is the minimum buffer size that router X should assign for the above flow?