Token bucket [Sta07]

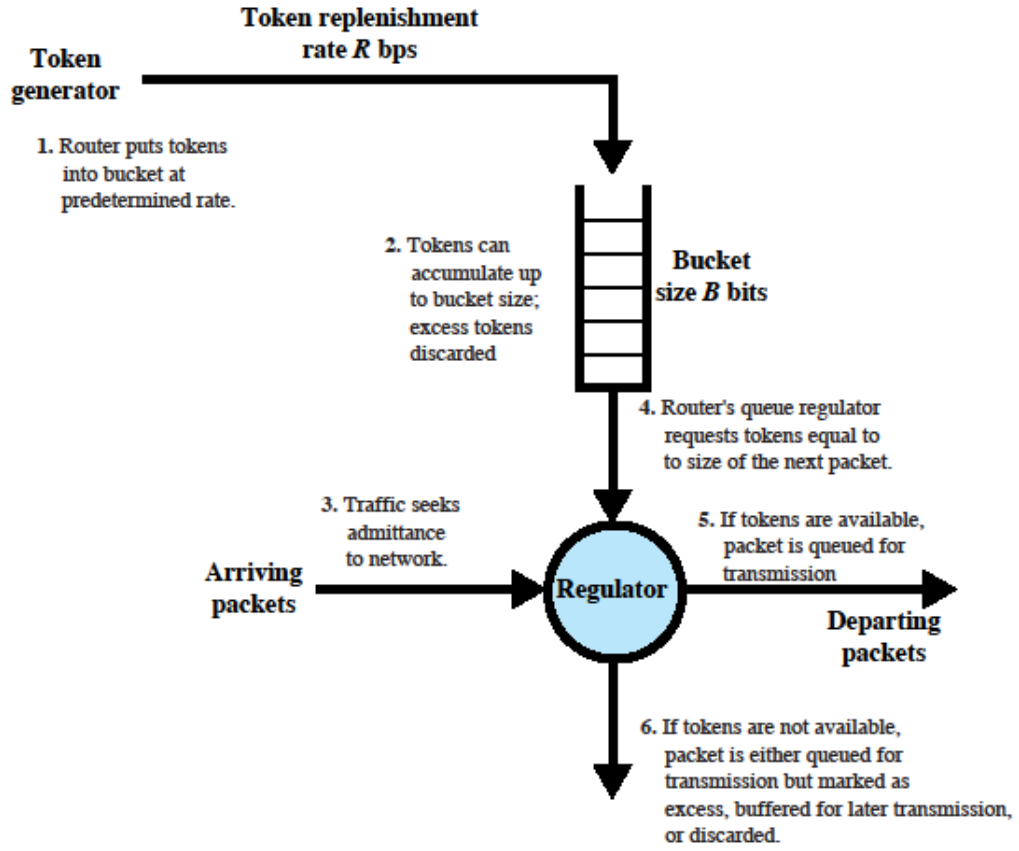

Figure 19.11 Token Bucket Scheme

Token bucket

- The token generator creates tokens with a rate R
- R = the continually sustainable data rate: it can be sustained a relatively long time for that flow.
- If tokens are not consumed, they are stored in the bucket up to the bucket capacity of B bits.
- B is the burstiness: the amount of data that can be generated in excess for a short period of time
- An IP packet is queued for later transmission only if the amount of tokens in the bucket is greater or equal than the packet size; in this case from the bucket there are removed the tokens corresponding to the packet size.
- If there are not enough tokens in the bucket, the packet is subject to a policing action: the packet can be either discarded, delayed, degraded to “best effort”, or marked as excess, in order to be discarded later, if necessary.
- In this way it is guaranteed that, during any period of time T, the maximum amount of data that can be transmitted by that flow cannot exceed the value $R \cdot T+B$.