

### 6.1.8.1 Blockchains transaction rate Example 1

Q: block 10 min

size 1 MB

transaction 250 bytes

(a) How many transactions can fit  
in a block? (TPB)

(b) Compute Transaction per Second  
(TPS)

Solution (a) ① Transactions Per Block (TPB)

$$\begin{aligned} \text{TPB} &= \frac{\text{Block Size}}{\text{Average Transaction Size}} \\ &= \frac{1 \text{ MB}}{250 \text{ bytes}} \\ &= \frac{1 \times 10^6}{250} \\ &= 4000 \text{ transactions/block} \end{aligned}$$

$$\begin{aligned} \text{(b) ① TPS} &= \frac{\text{TPB}}{\text{time (seconds)}} \\ &= \frac{4000}{10 \times 60} \\ &= 6.6667 \text{ TPS} \end{aligned}$$

② The block chain would process roughly  
6-7 transactions per second.