

1×10^6 bytes

- 1000
- 5000
- 10000
- 20000

1 packet is lost

1 byte is lost w/ prob. p

1. What's the probability of losing a packet? P

$q = 1 - p$ (prob. of 1 byte succ.)

n : size of packet

Prob. of packet successful

$$\rightarrow (1-p)^n$$

$$p = 10^{-6}$$

Prob. of packet lost:

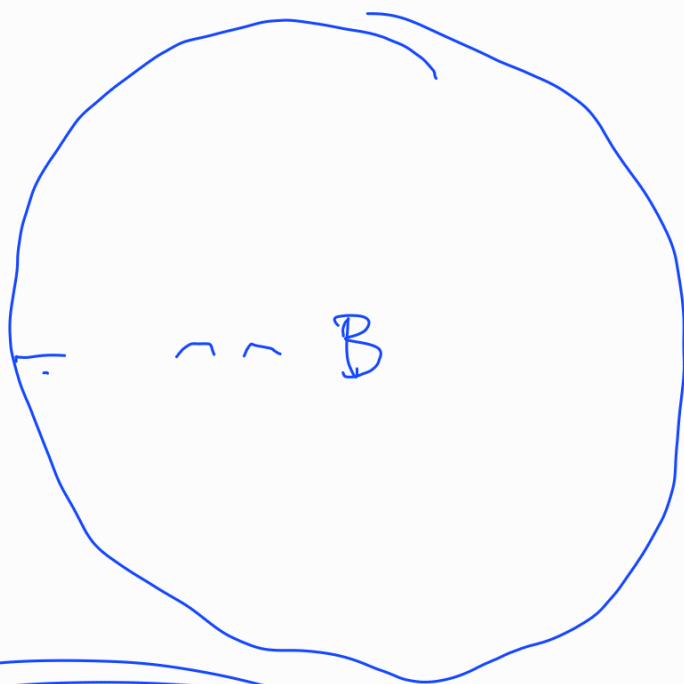
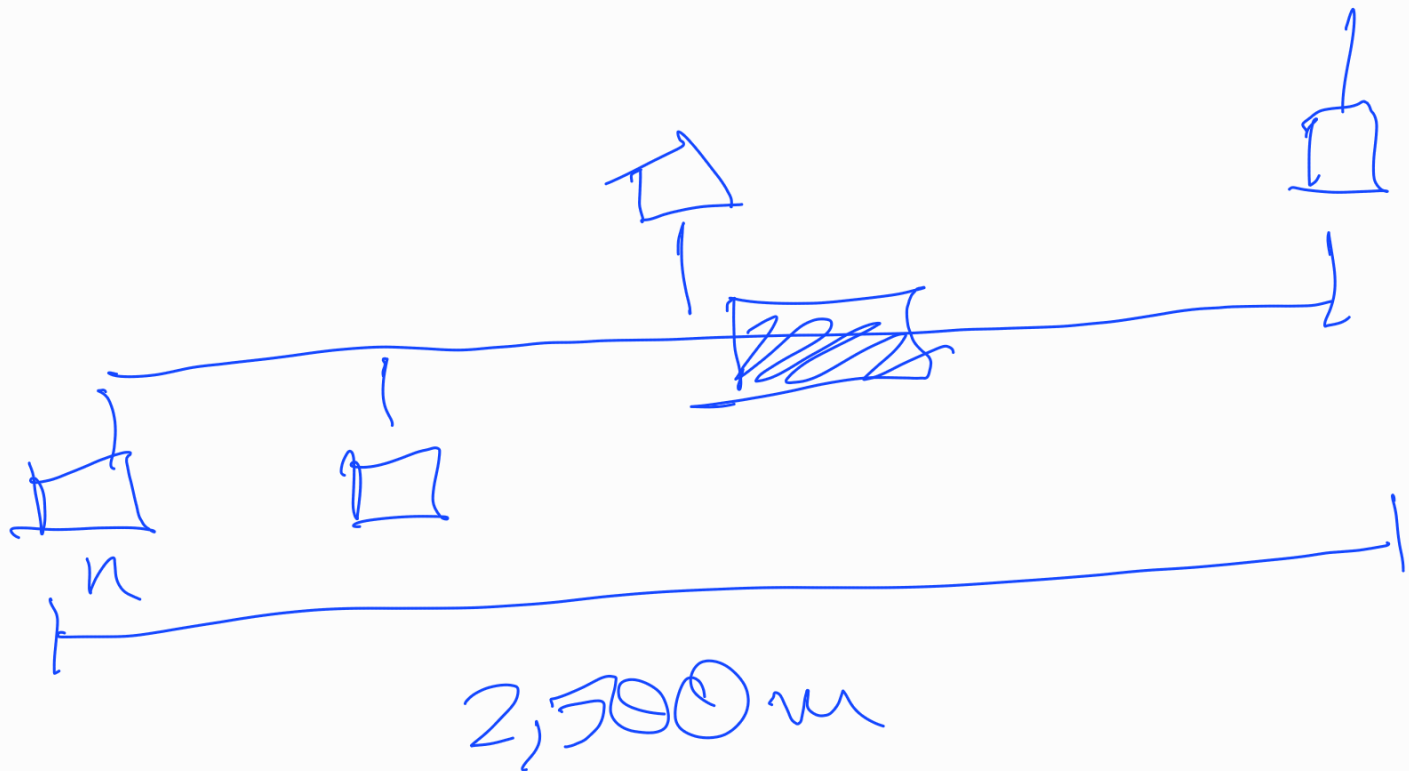
$$\times \binom{n}{1} p^1 (1-p)^{n-1} \rightarrow 1 \text{ byte is lost}$$

$$P_i = 1 - (1-p)^n$$

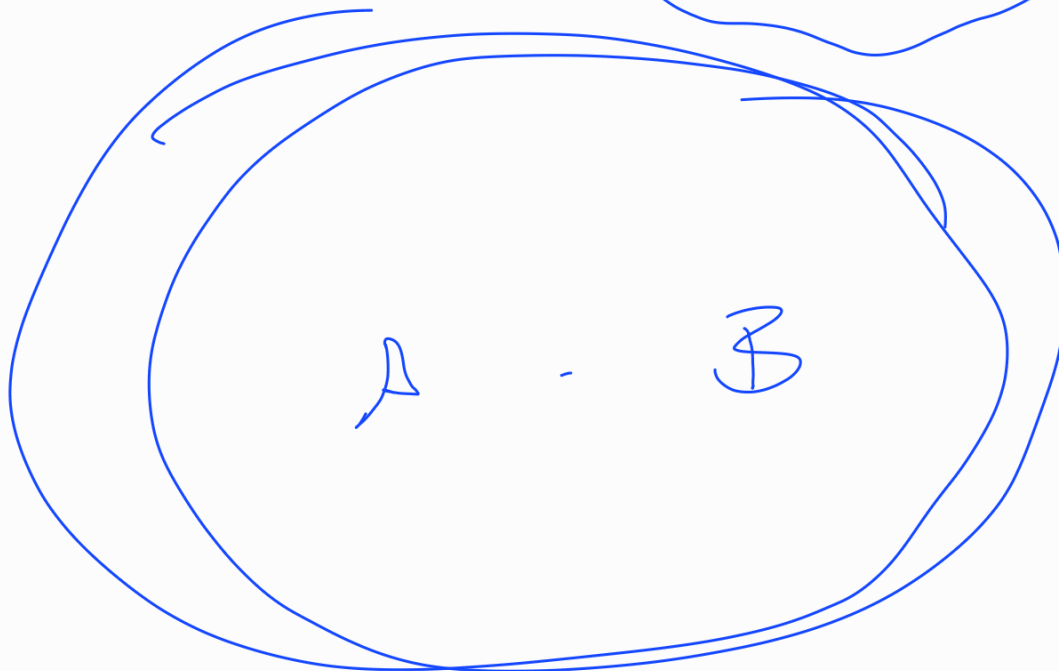
$$= \sum_{i=1}^n \binom{n}{i} p^i (1-p)^{n-i}$$

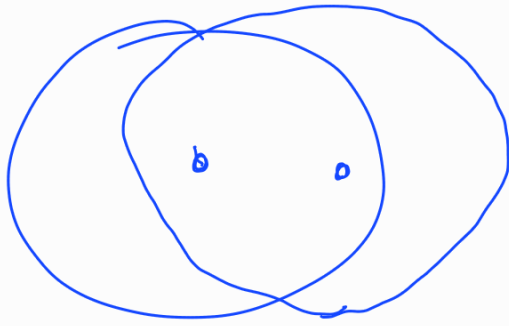
10^6 bytes.

How many packets are expected
to be lost?



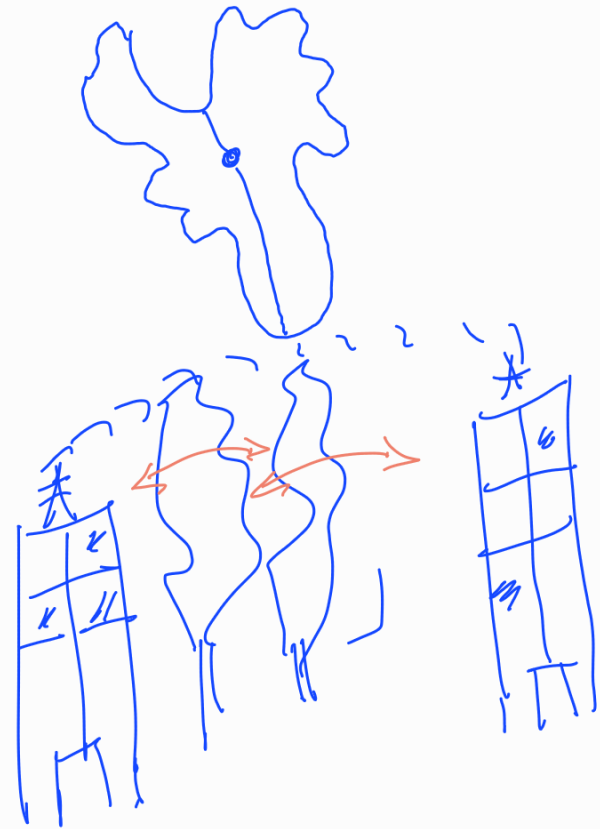
200m
later



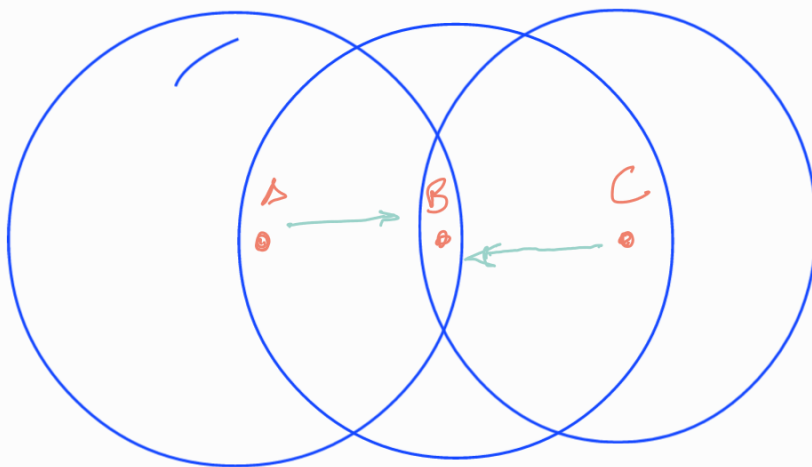
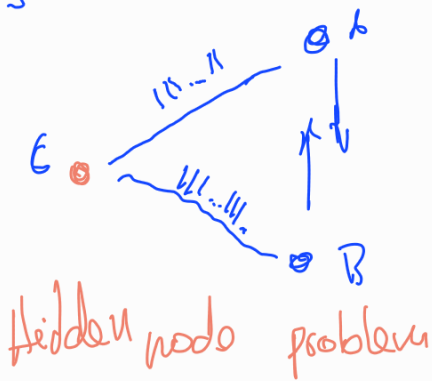


SNR

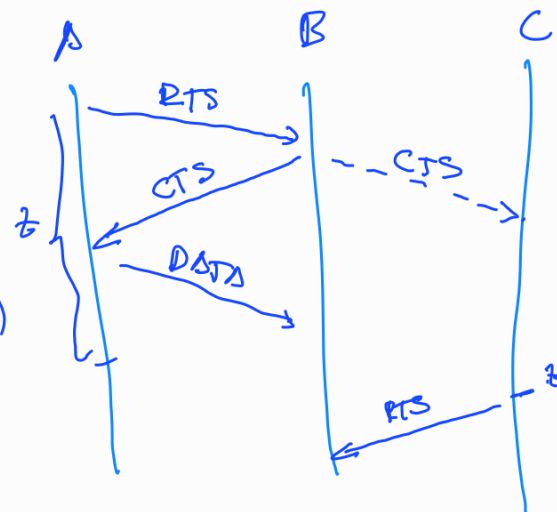
noise: walls
windows
interference (2.4 GHz, 5 GHz)
wind
sun
wifi
microwaves
cordless phone
:



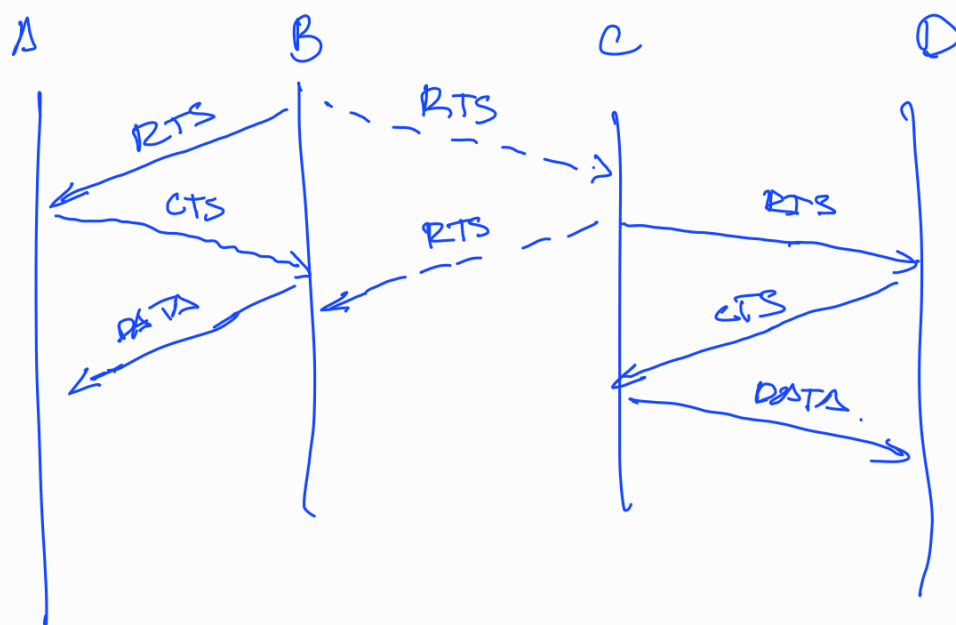
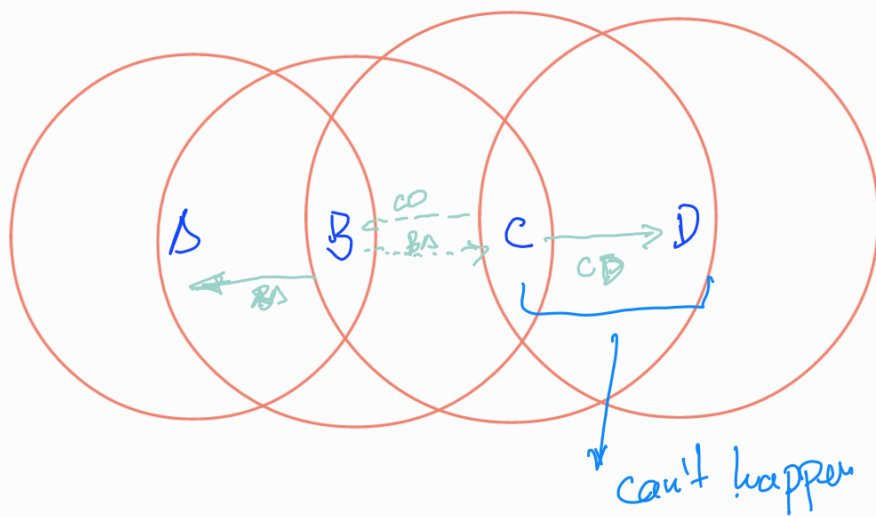
Jamming



RTS
CTS. | time that medium (+)
is going to be busy



Exposed node problem.



wifi:
CSMA/CA
ethernet:
CSMA/CD