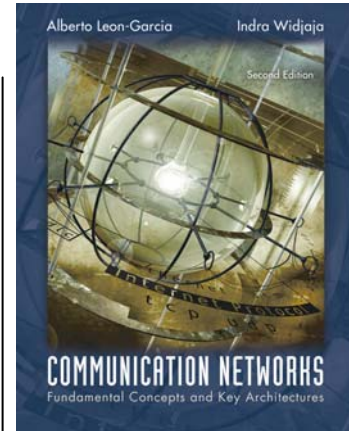
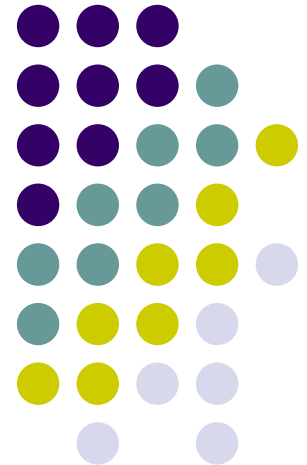


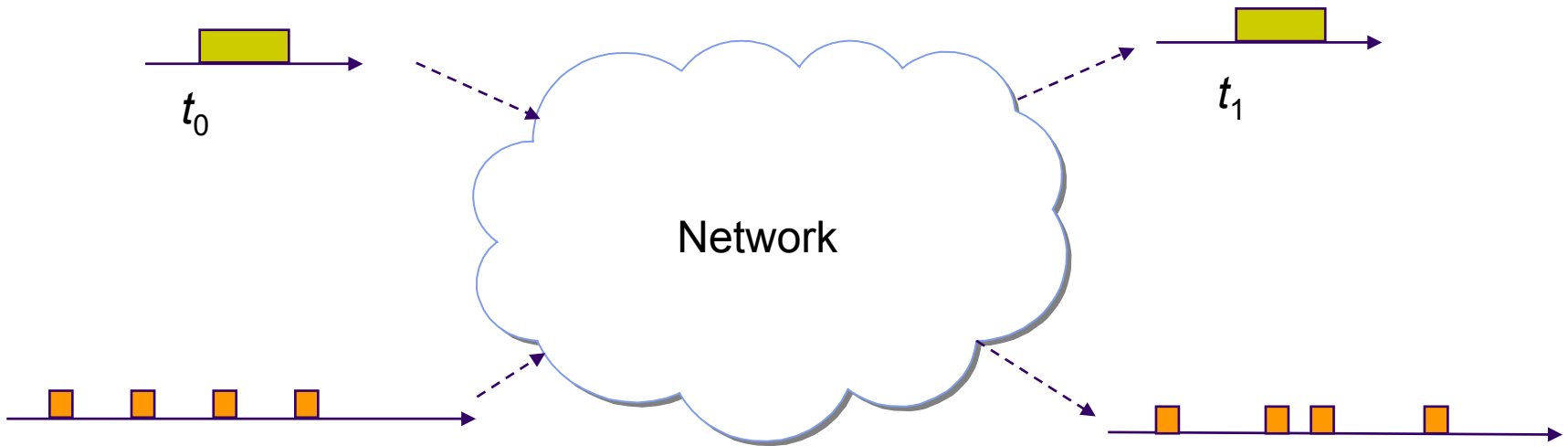
Chapter 7

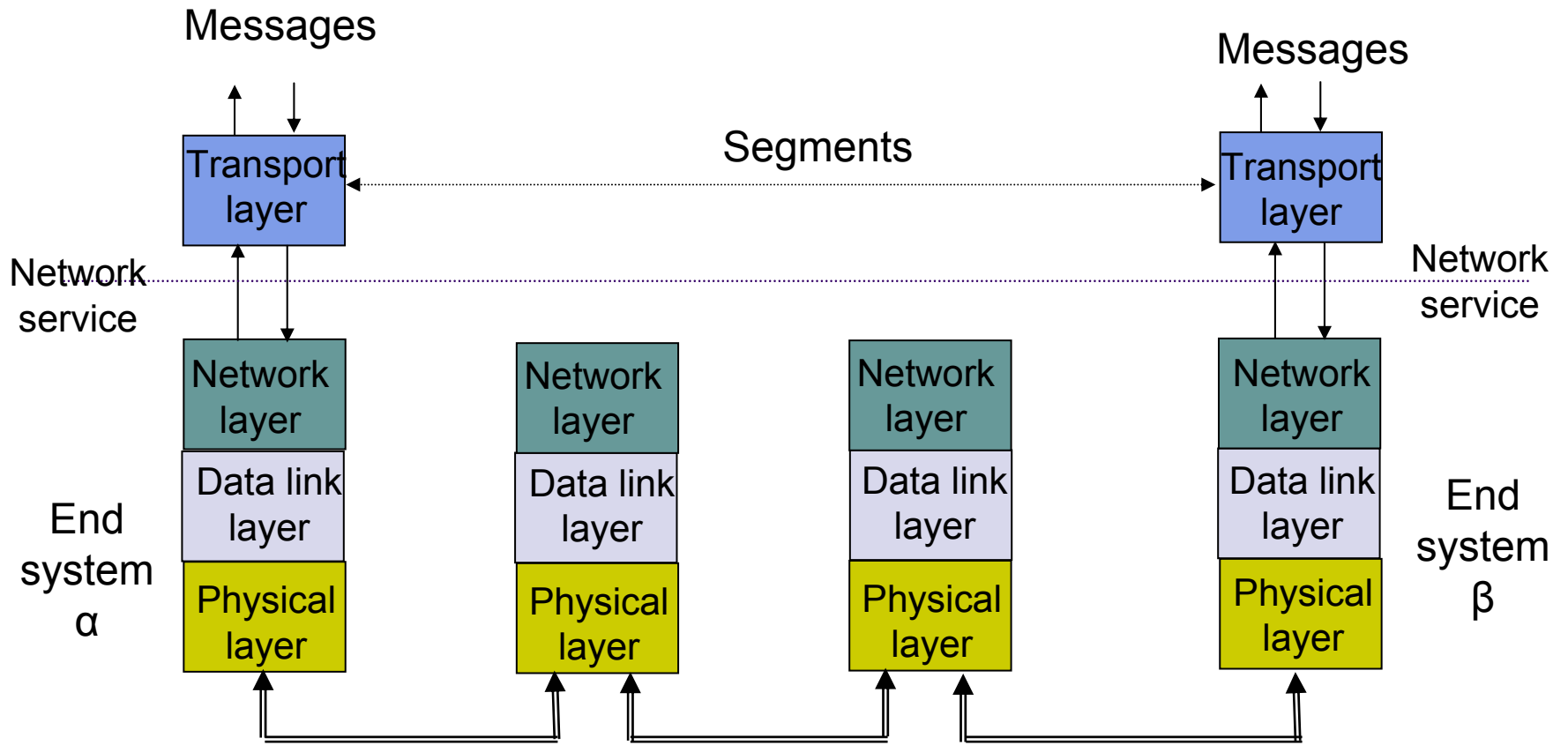
Packet-Switching Networks

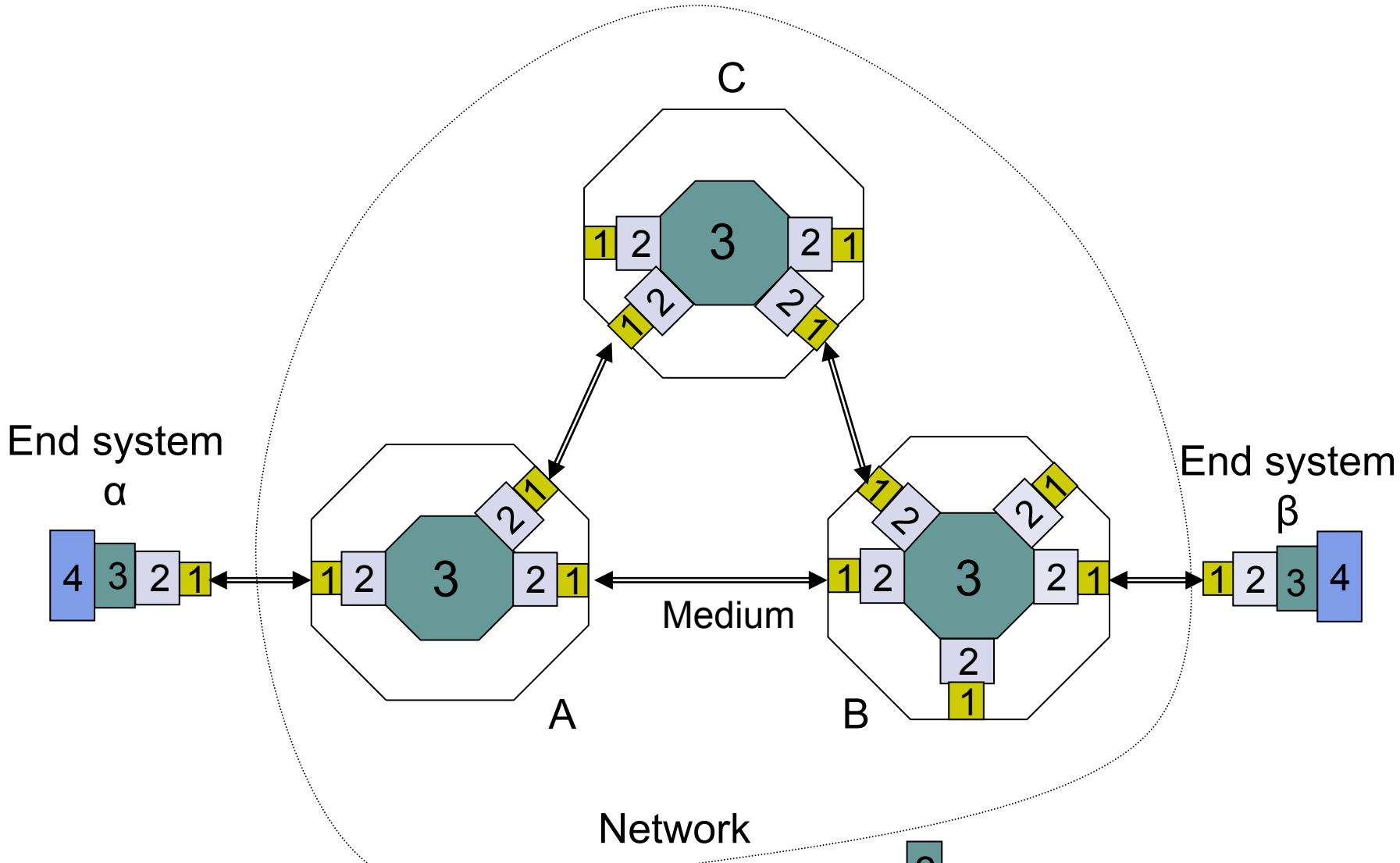


Chapter Figures

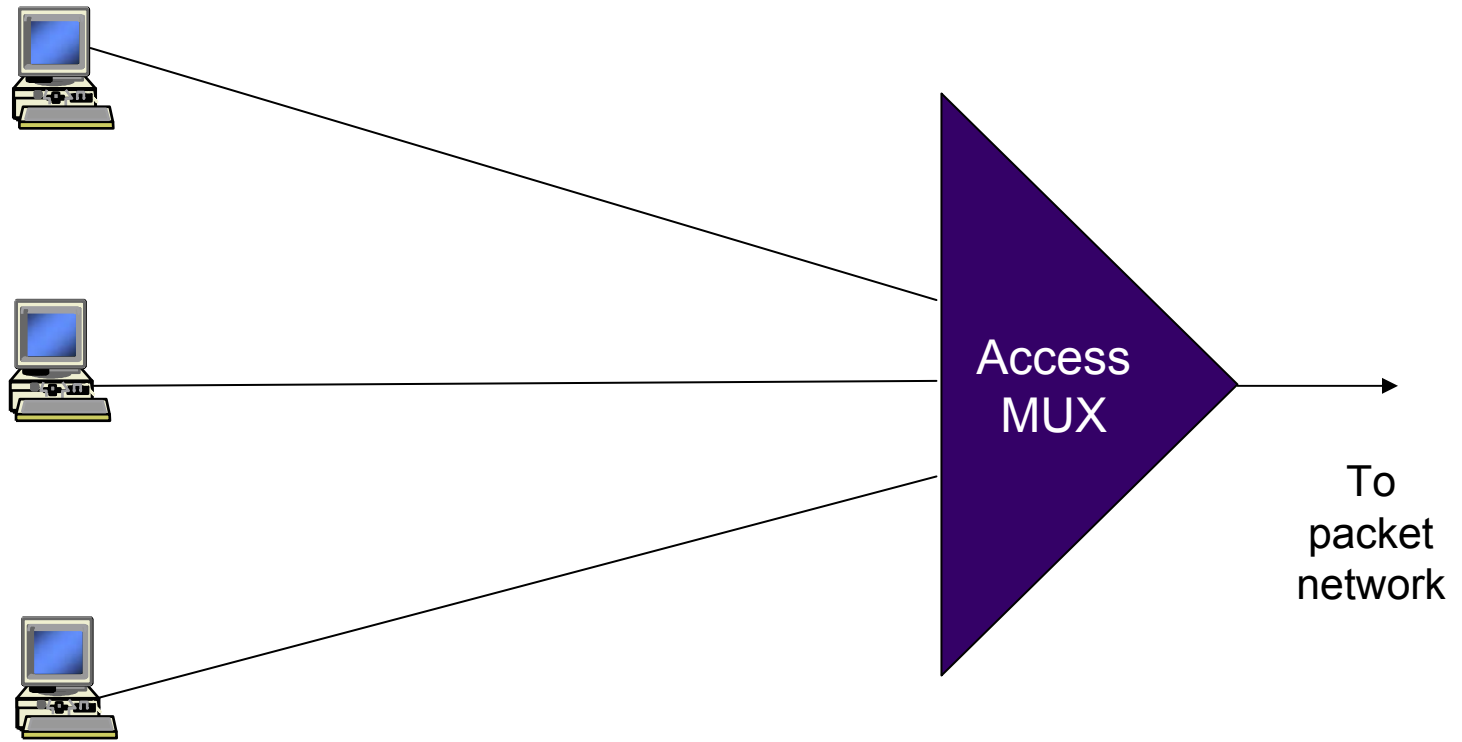


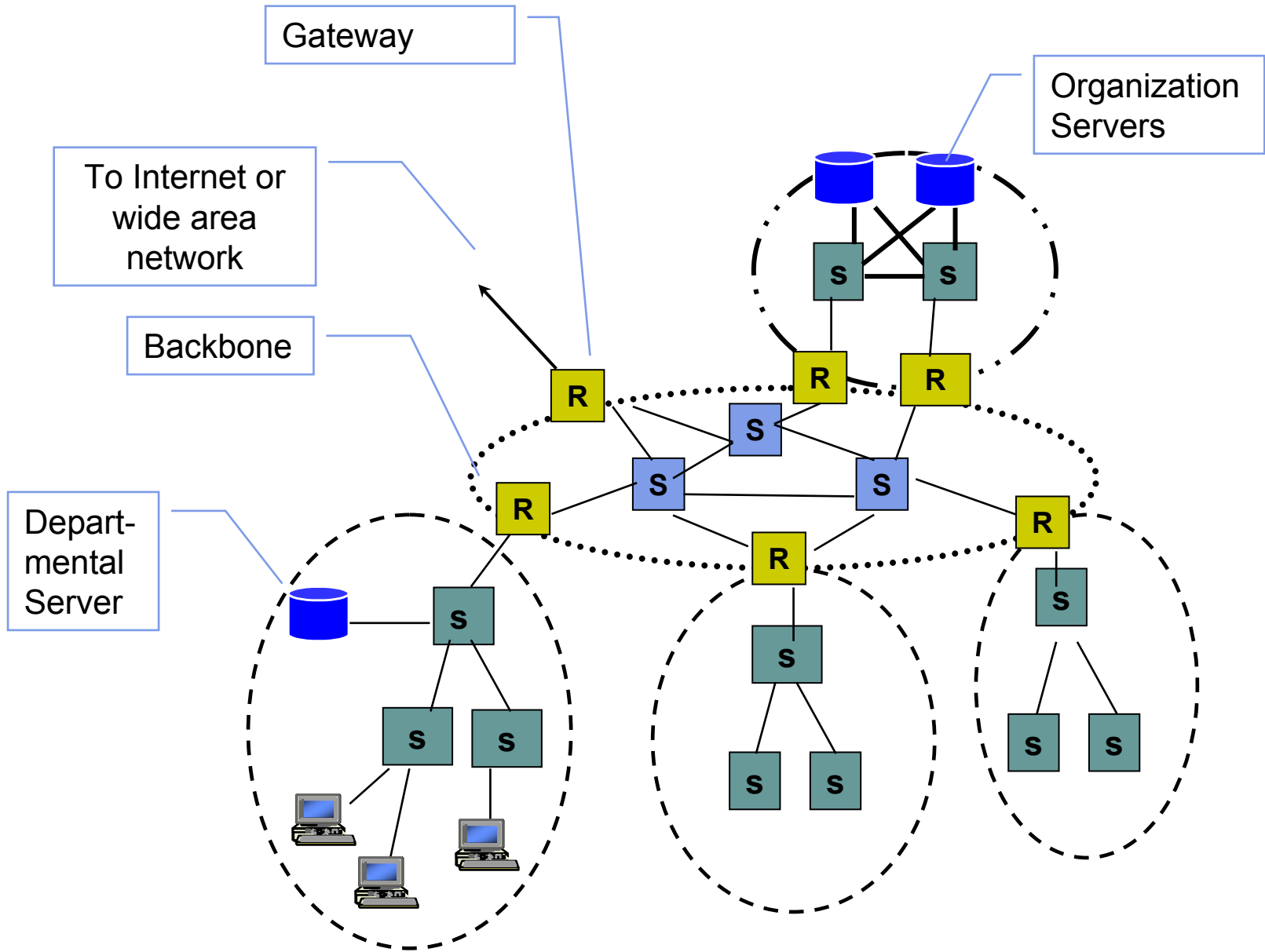


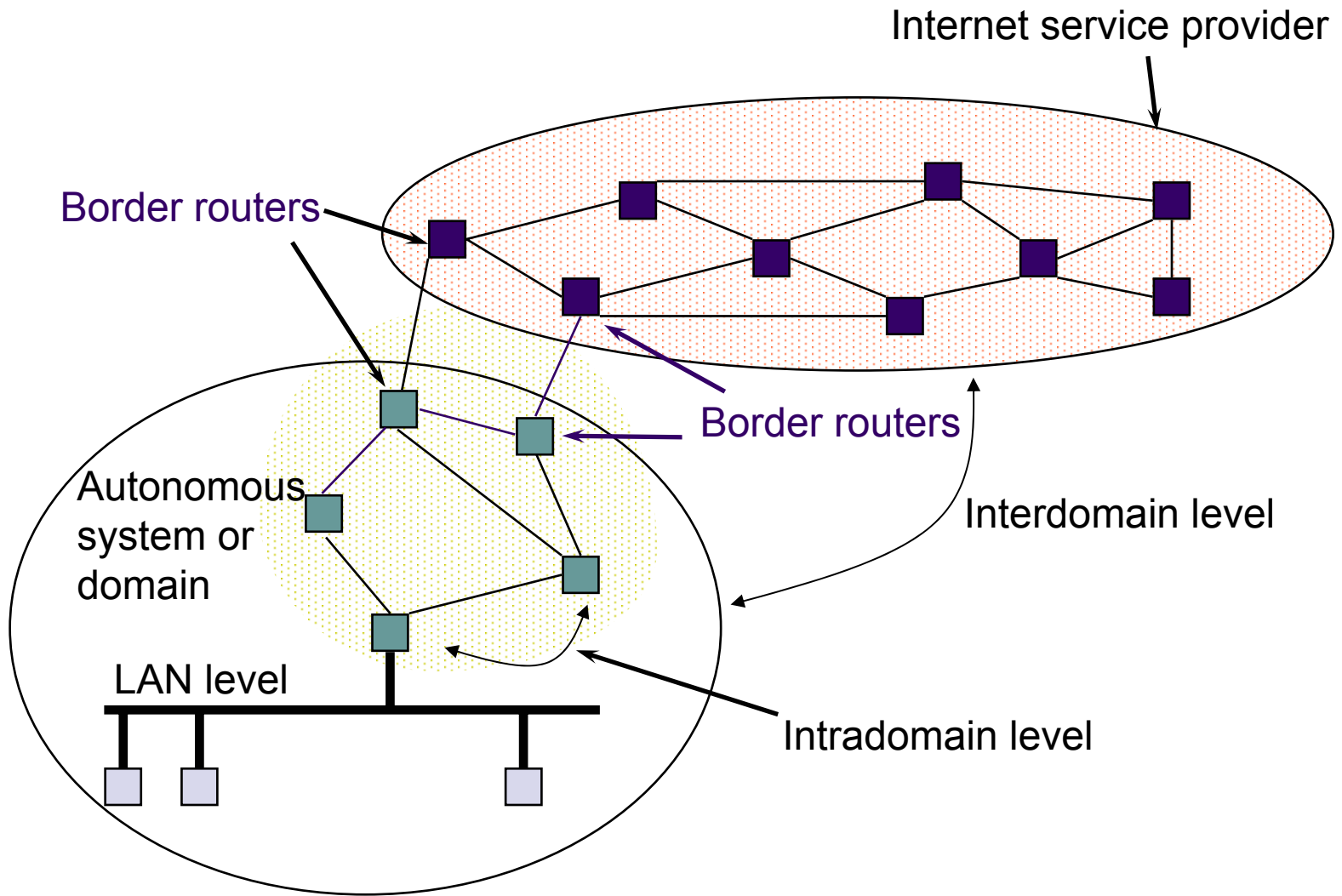


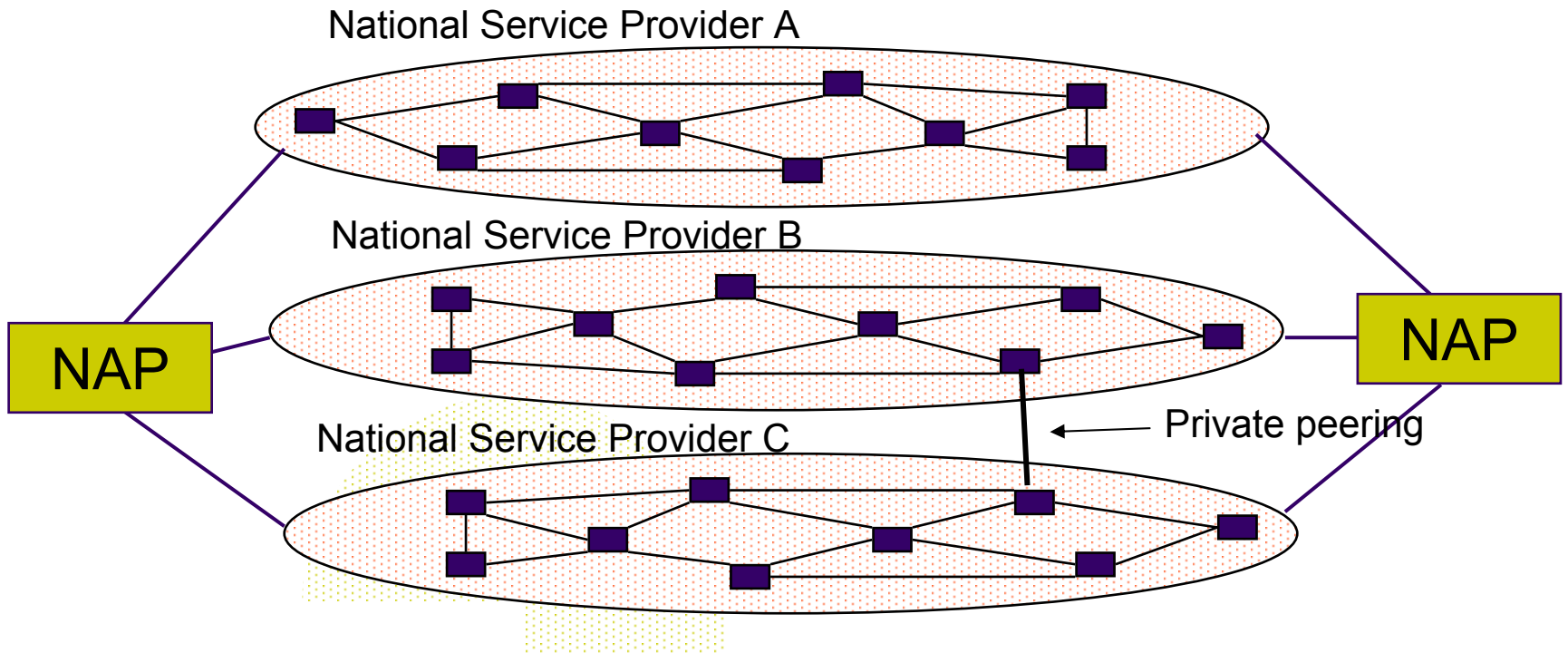


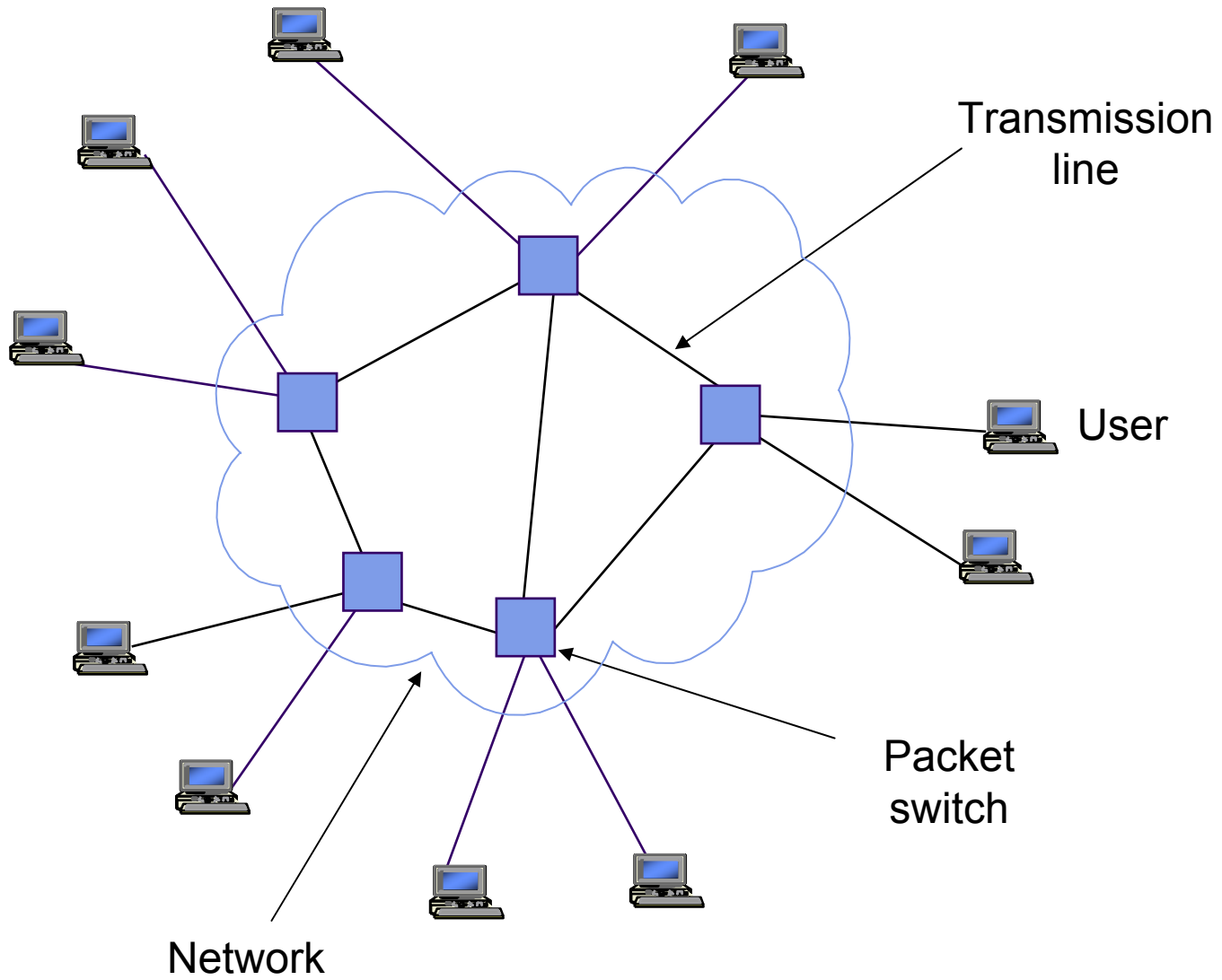
- 1 Physical layer entity
- 2 Data link layer entity
- 3 Network layer entity
- 3 Network layer entity
- 4 Transport layer entity

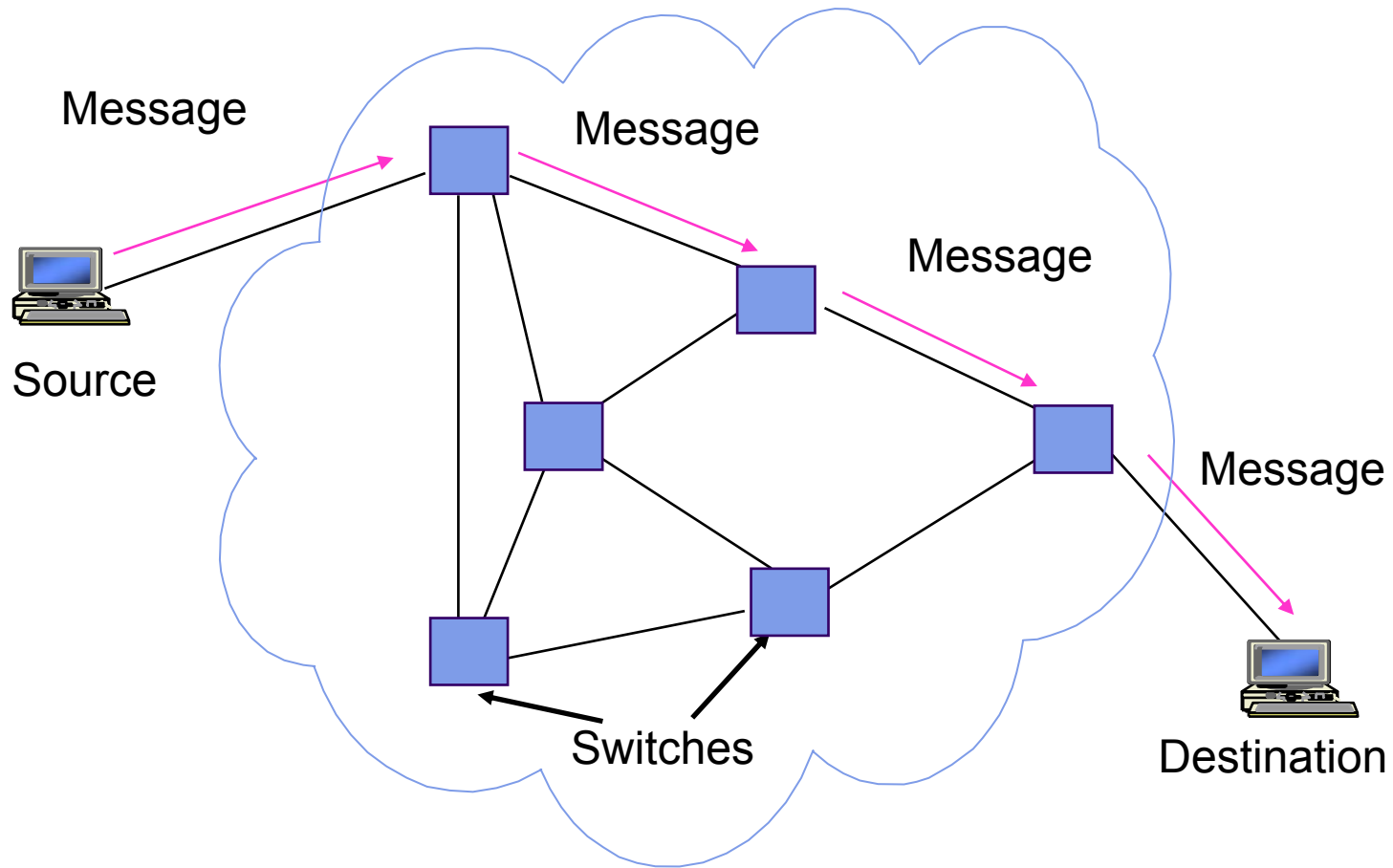


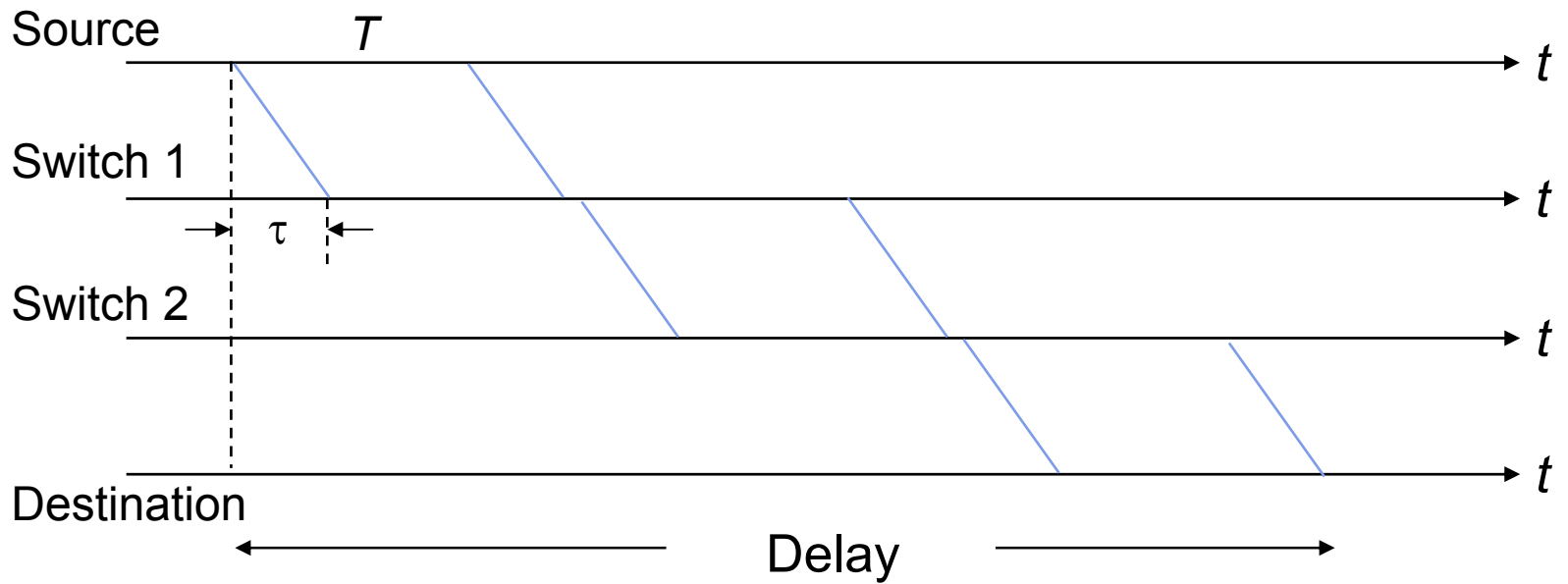




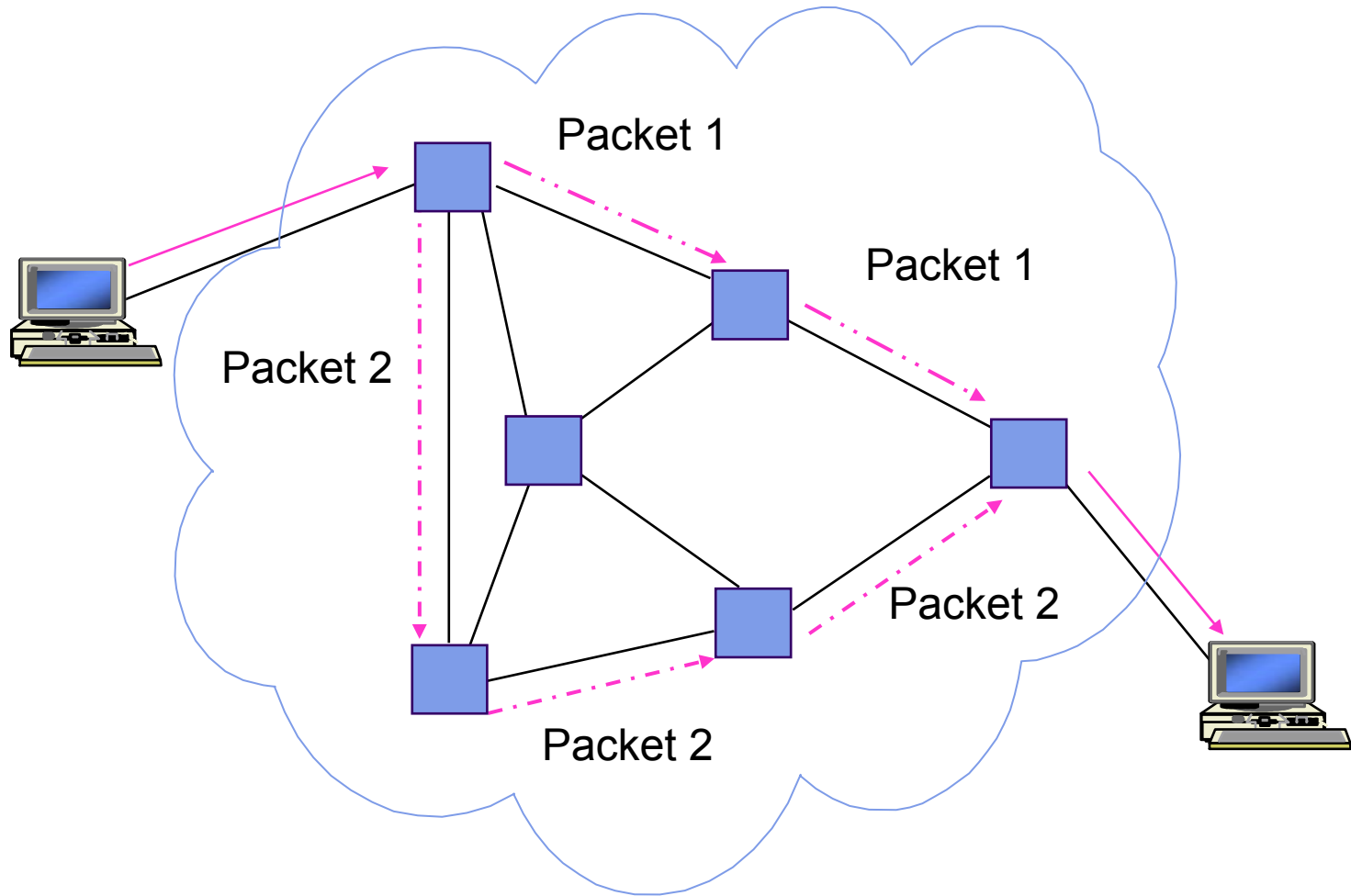


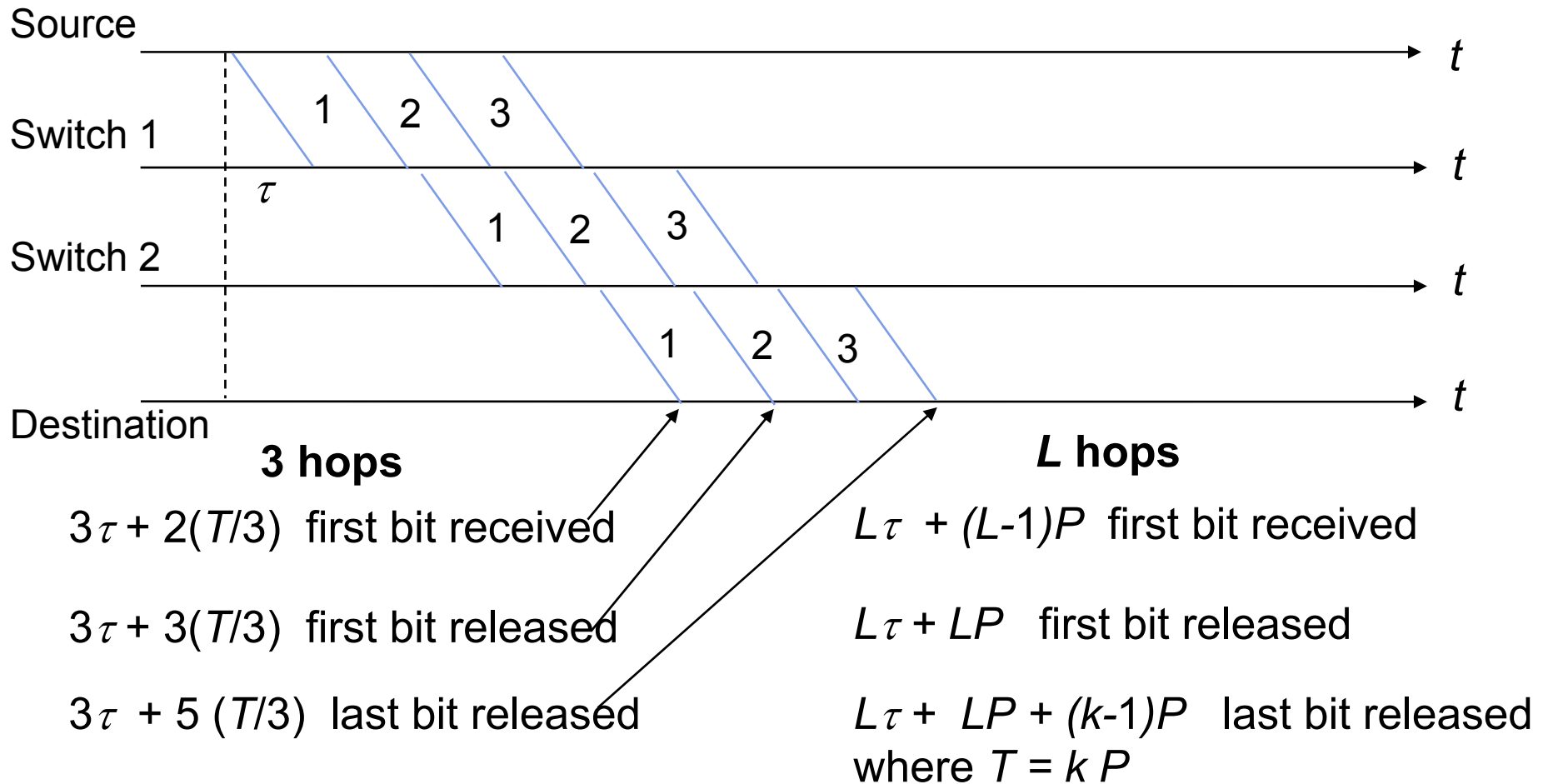




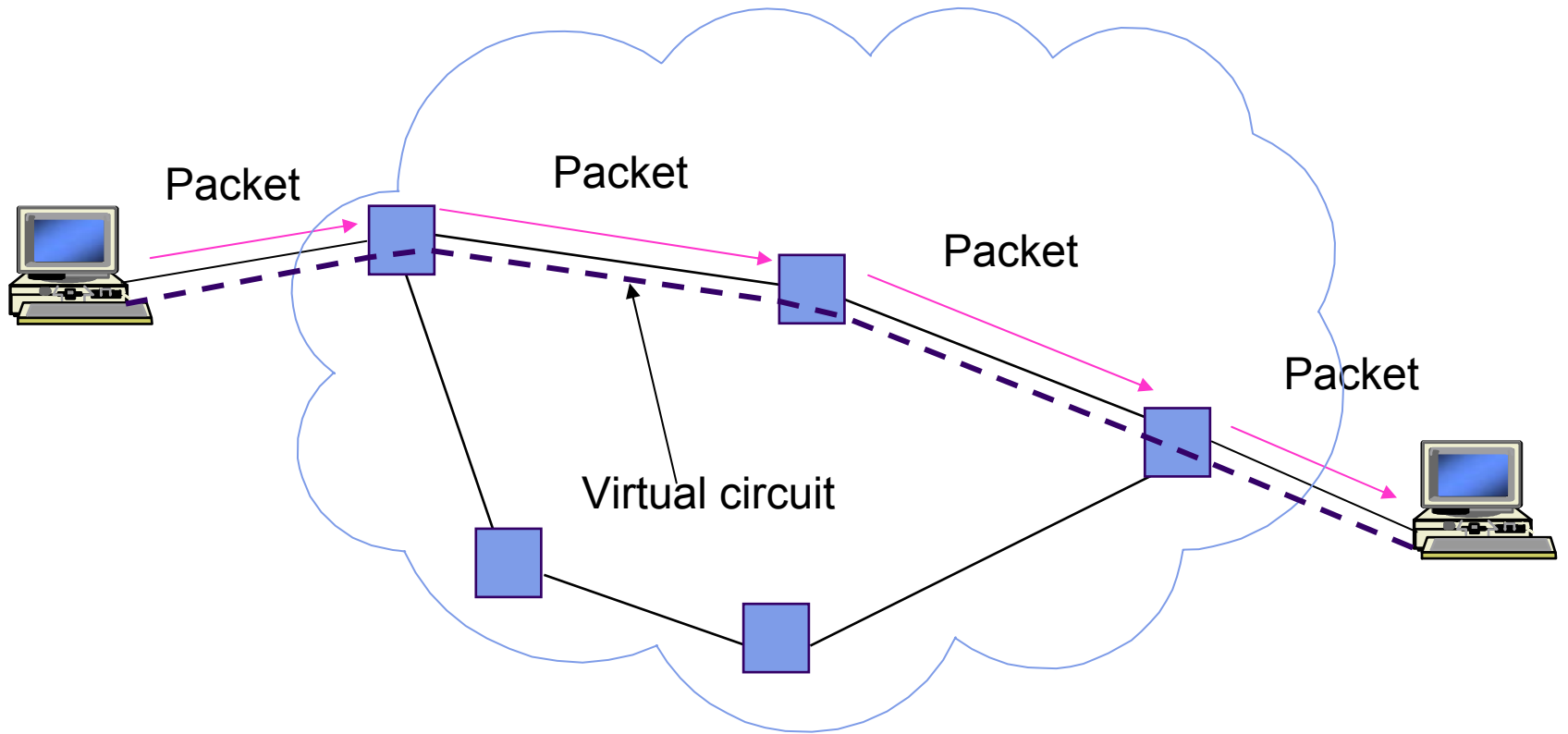


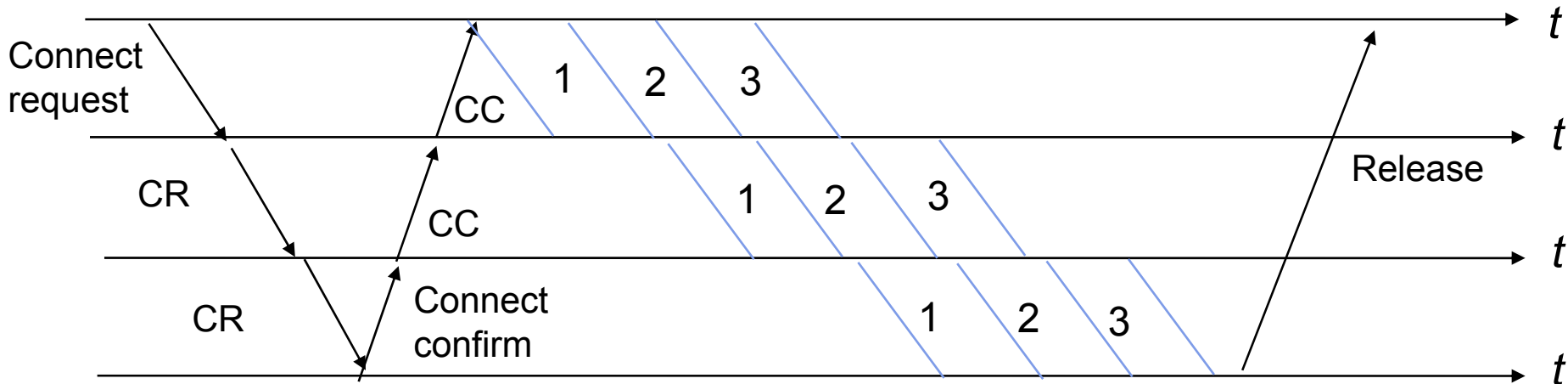
$$\text{Minimum delay} = 3\tau + 3T$$

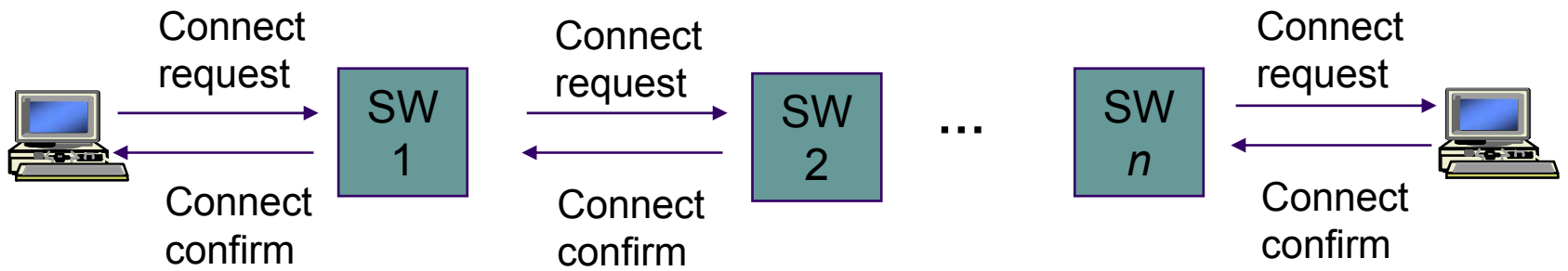




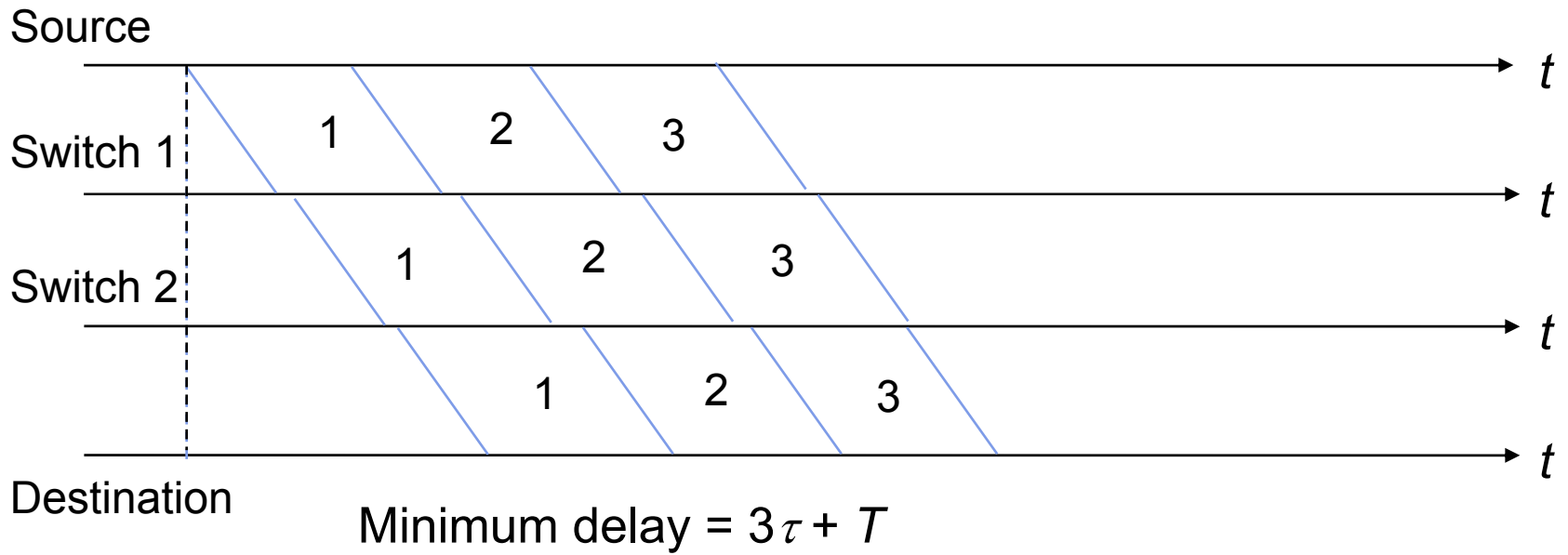
Destination address	Output port
0785	7
1345	12
1566	6
2458	12

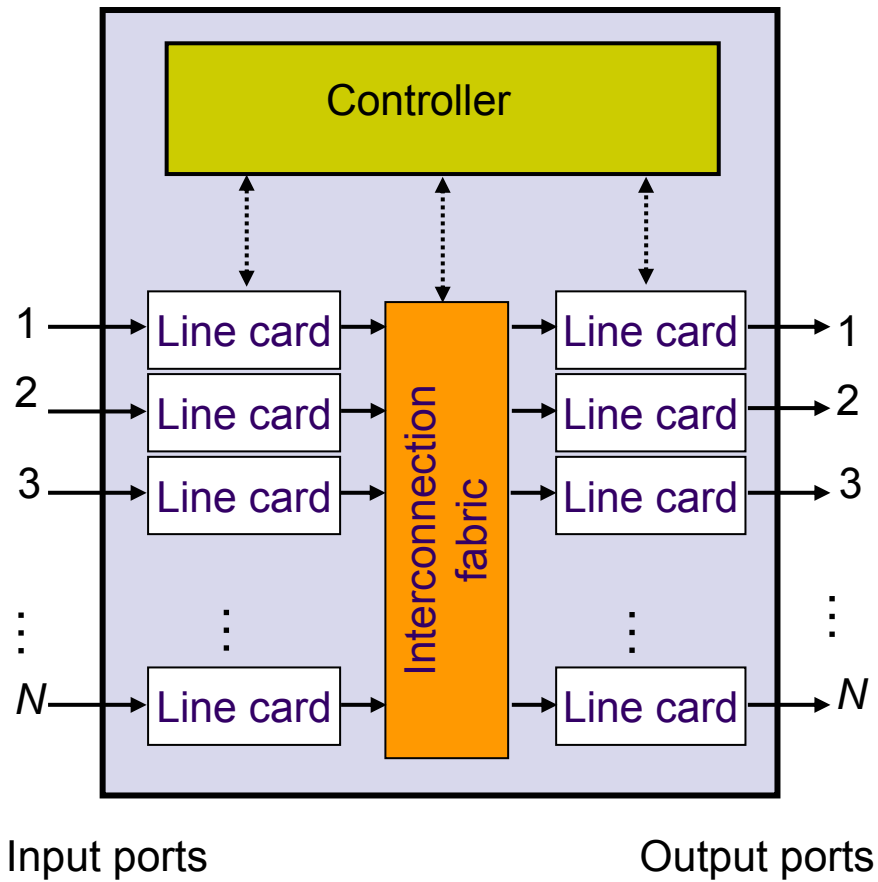




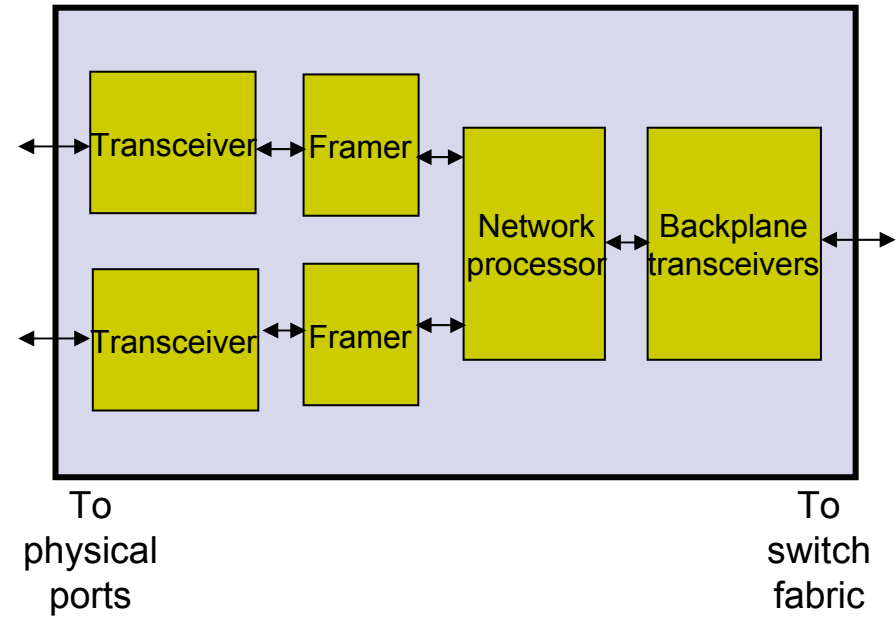


	Input VCI	Output port	Output VCI
	12	13	44
→ Entry for packets with VCI 15	15	15	23
	27	13	16
	58	7	34



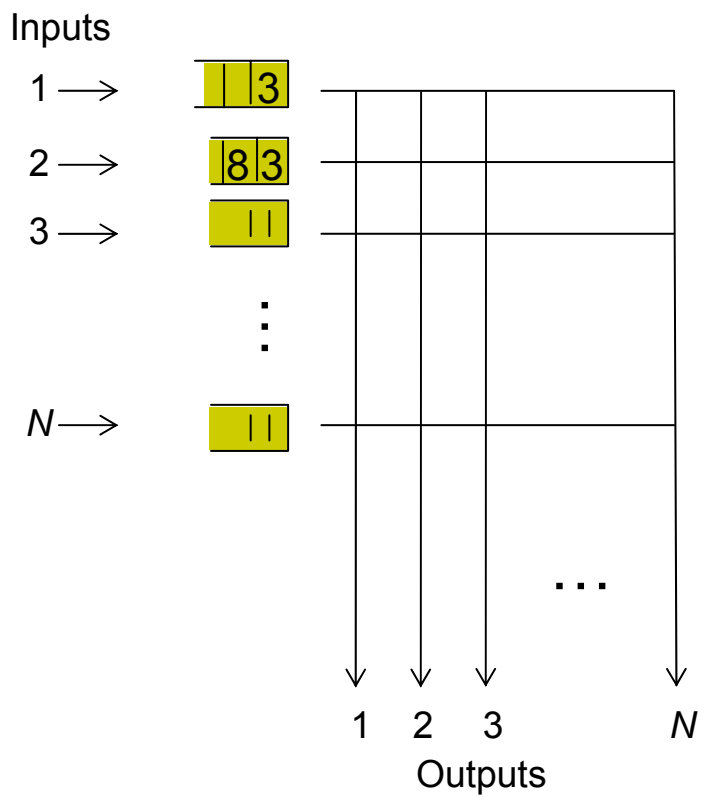


(a)

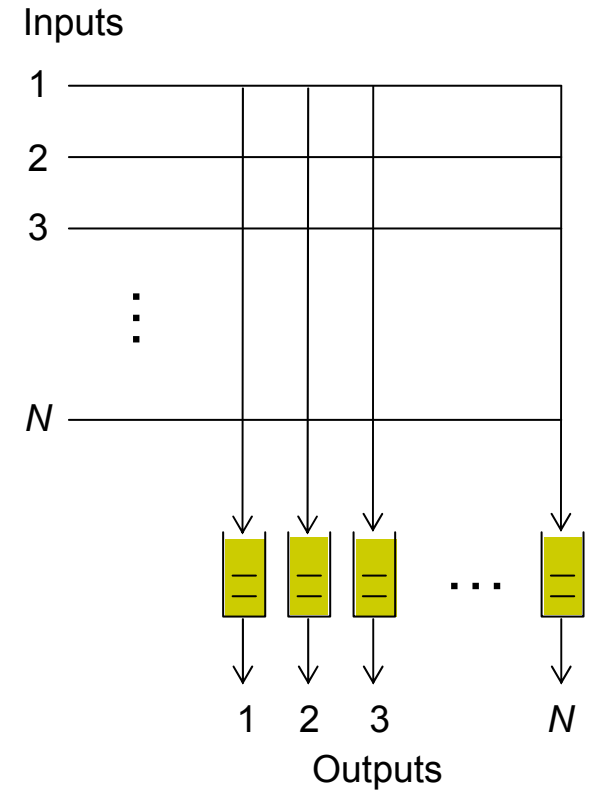


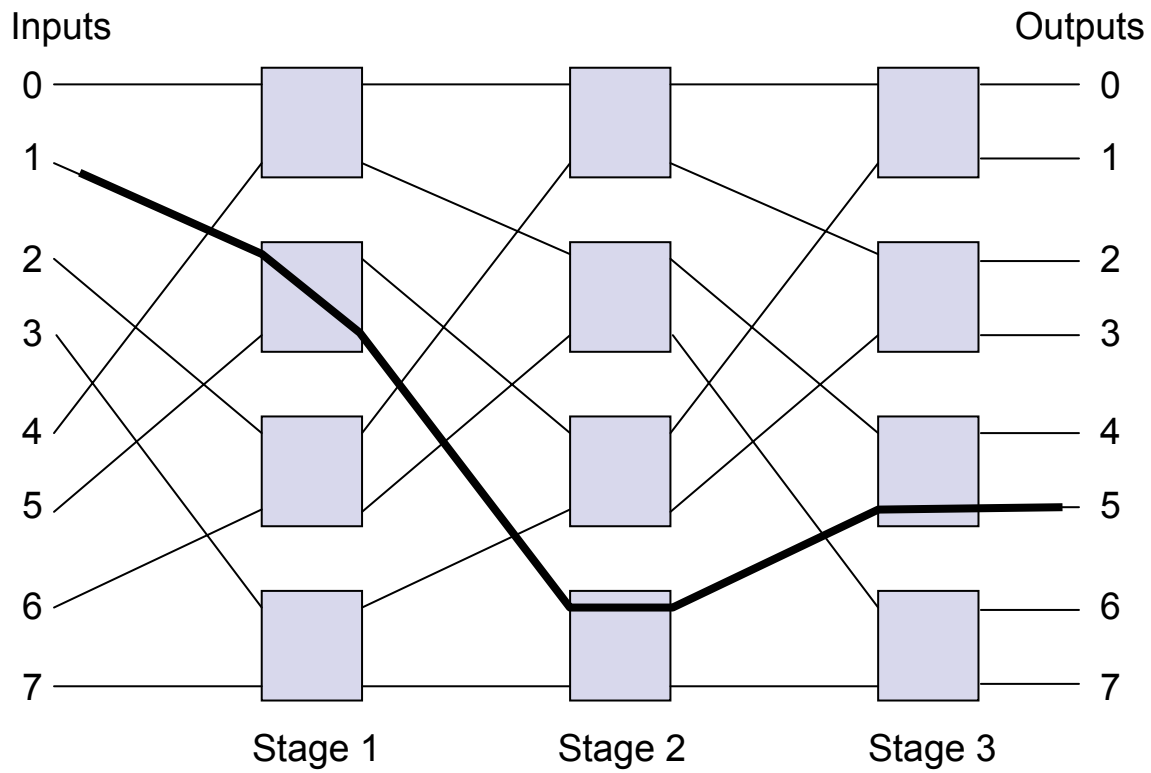
(b)

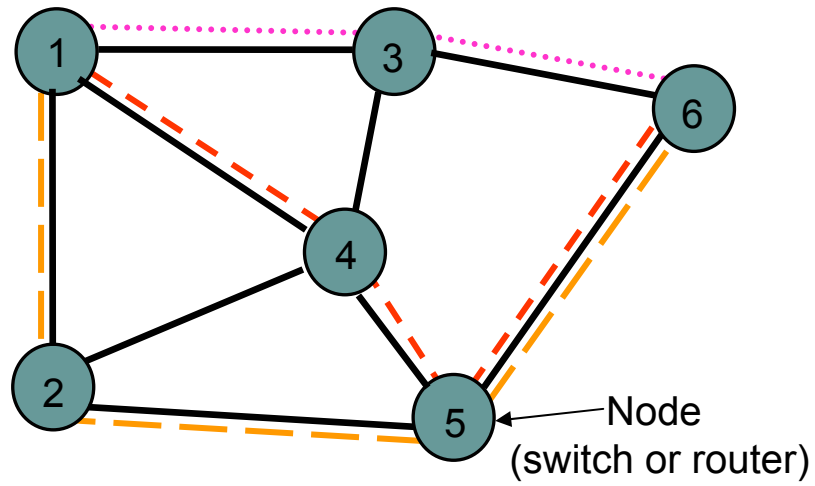
(a) Input buffering

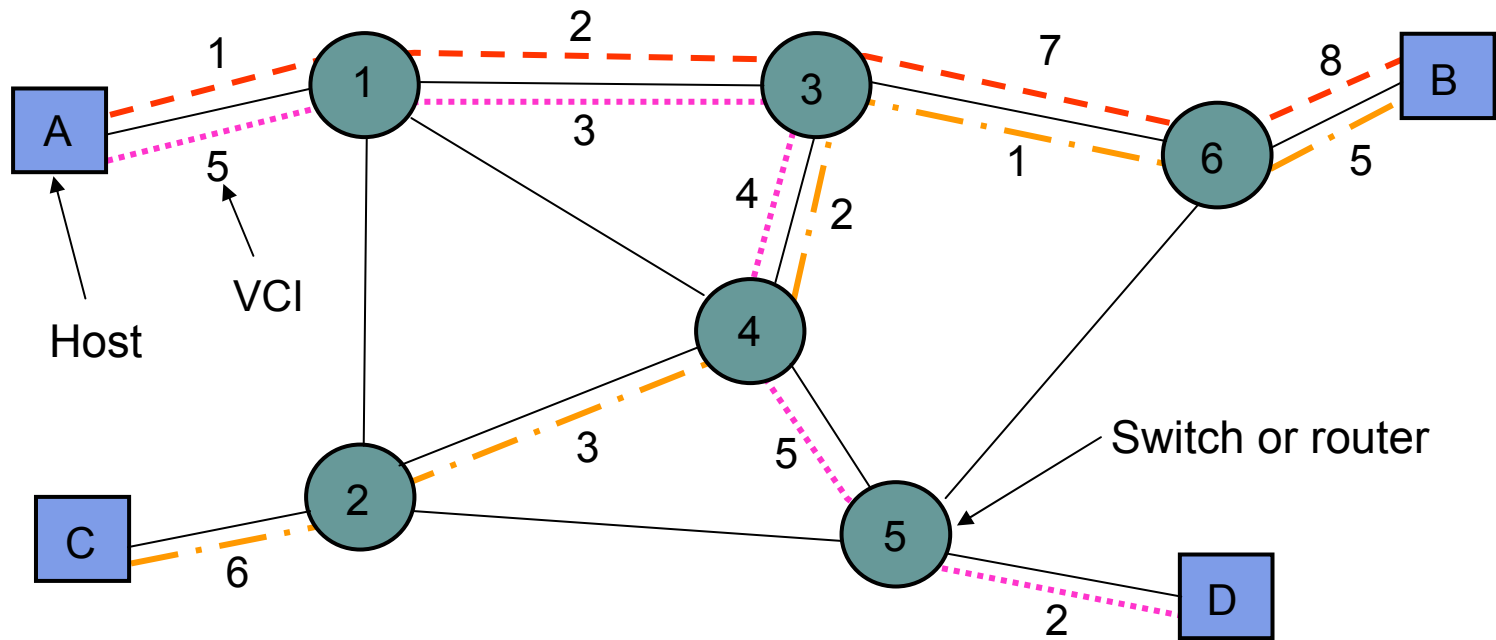


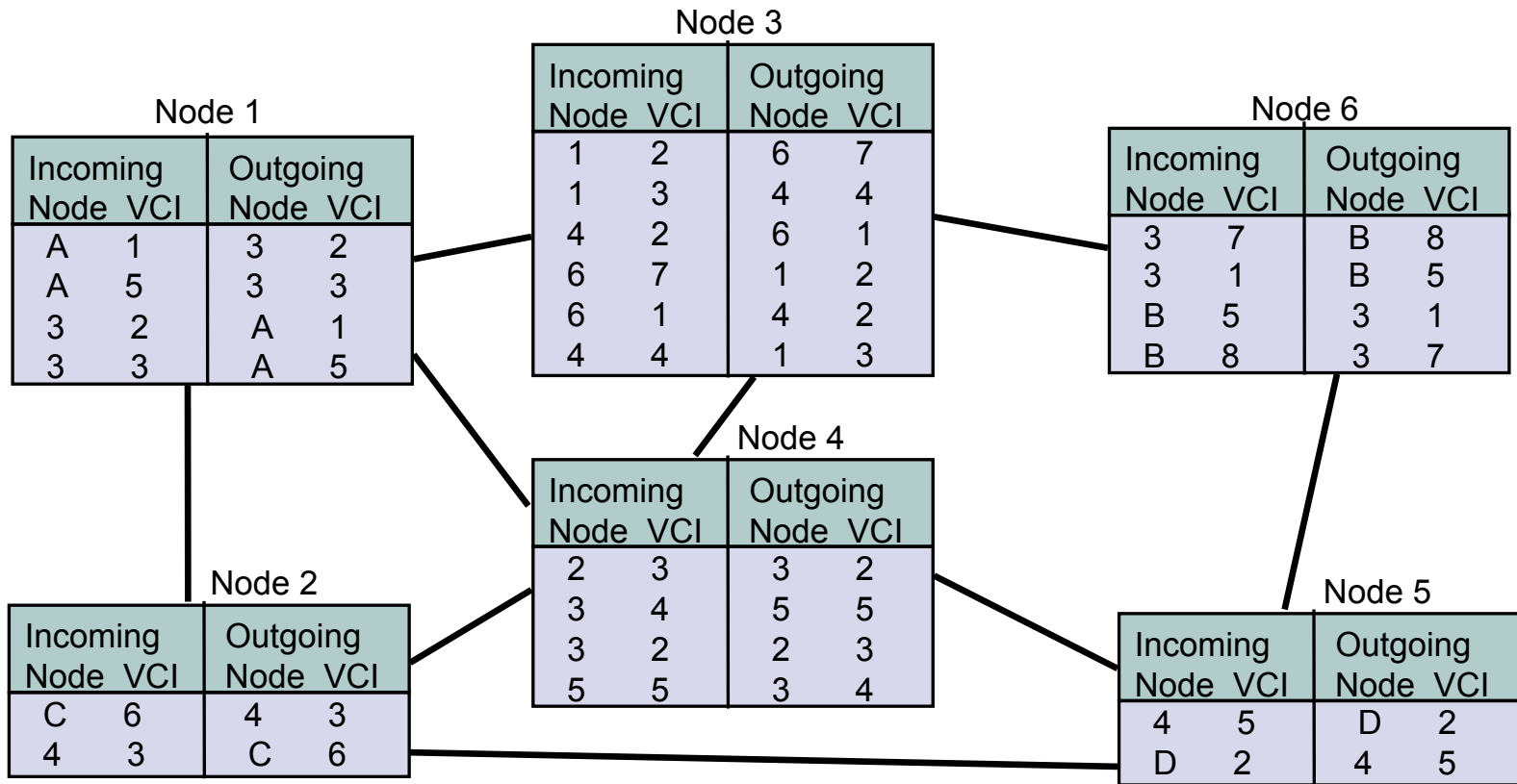
(b) Output buffering

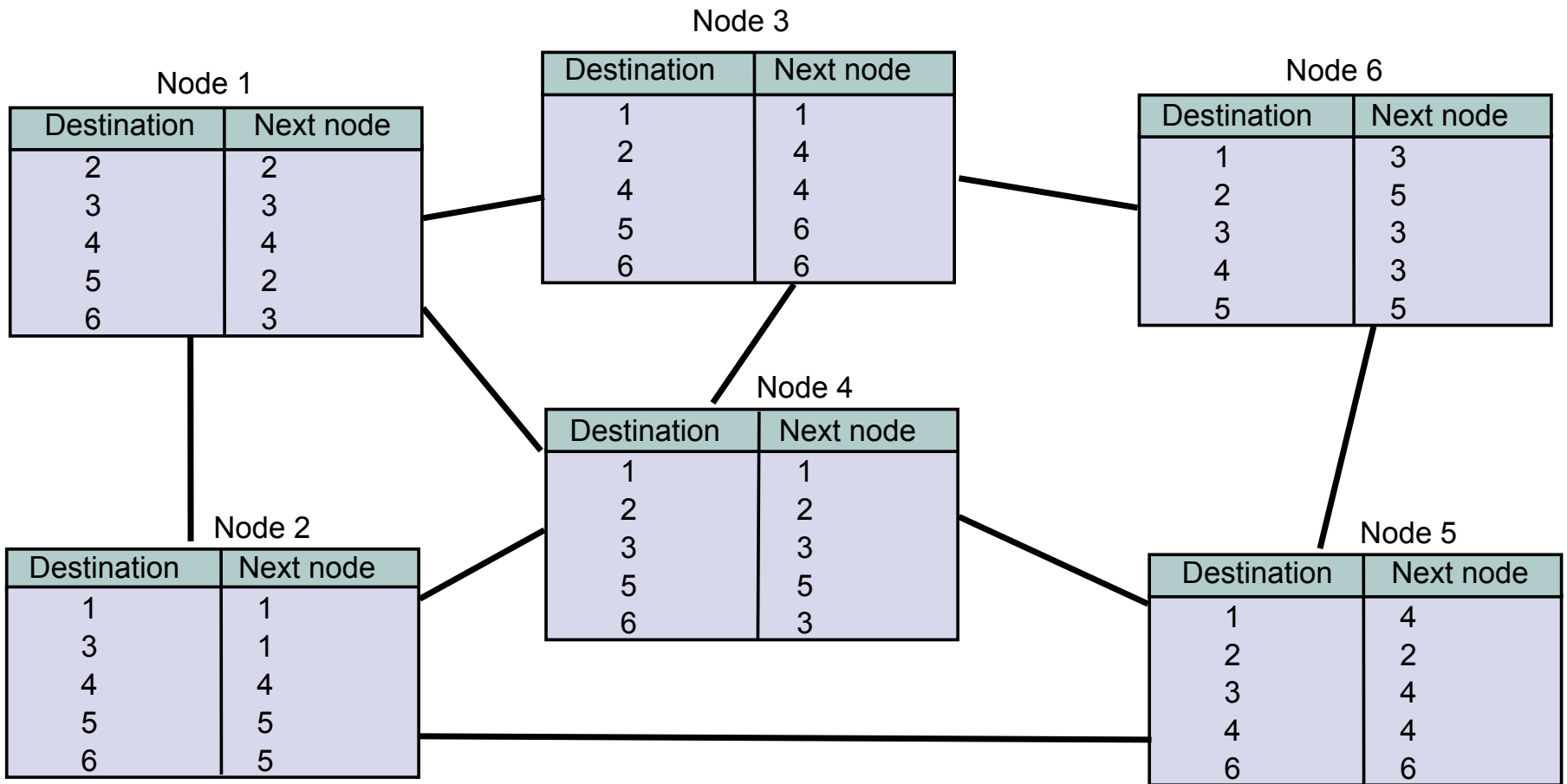




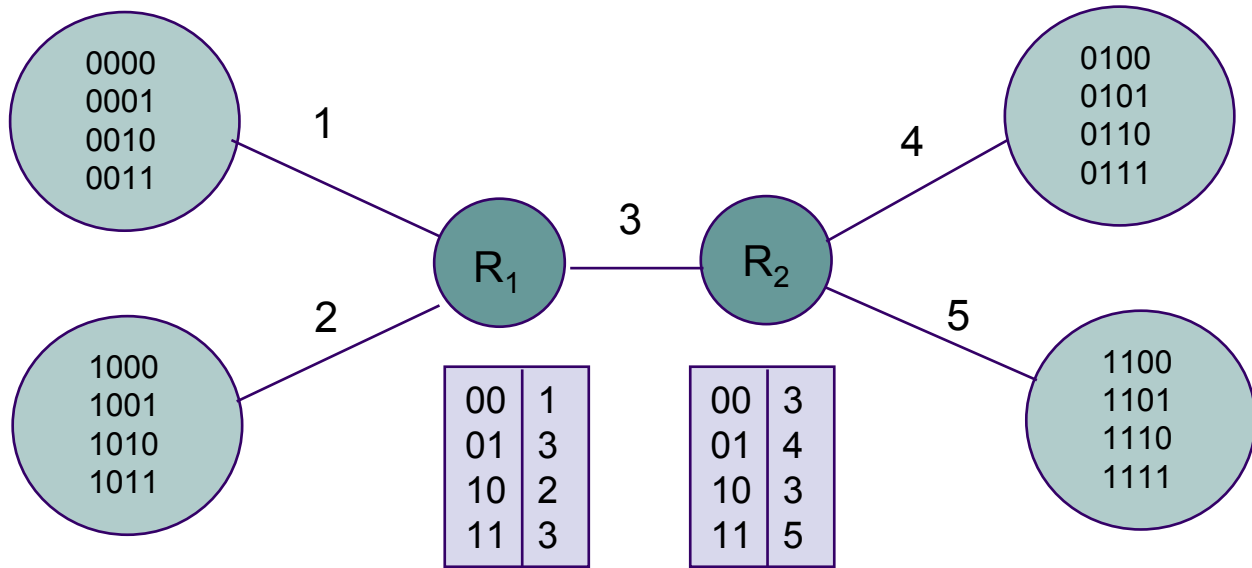




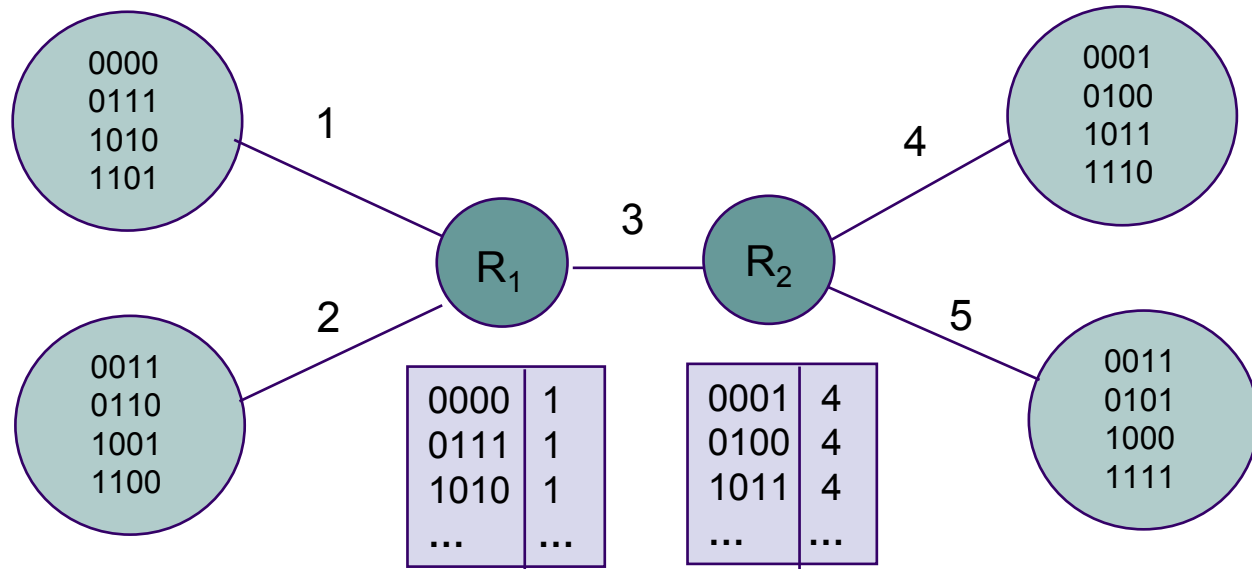




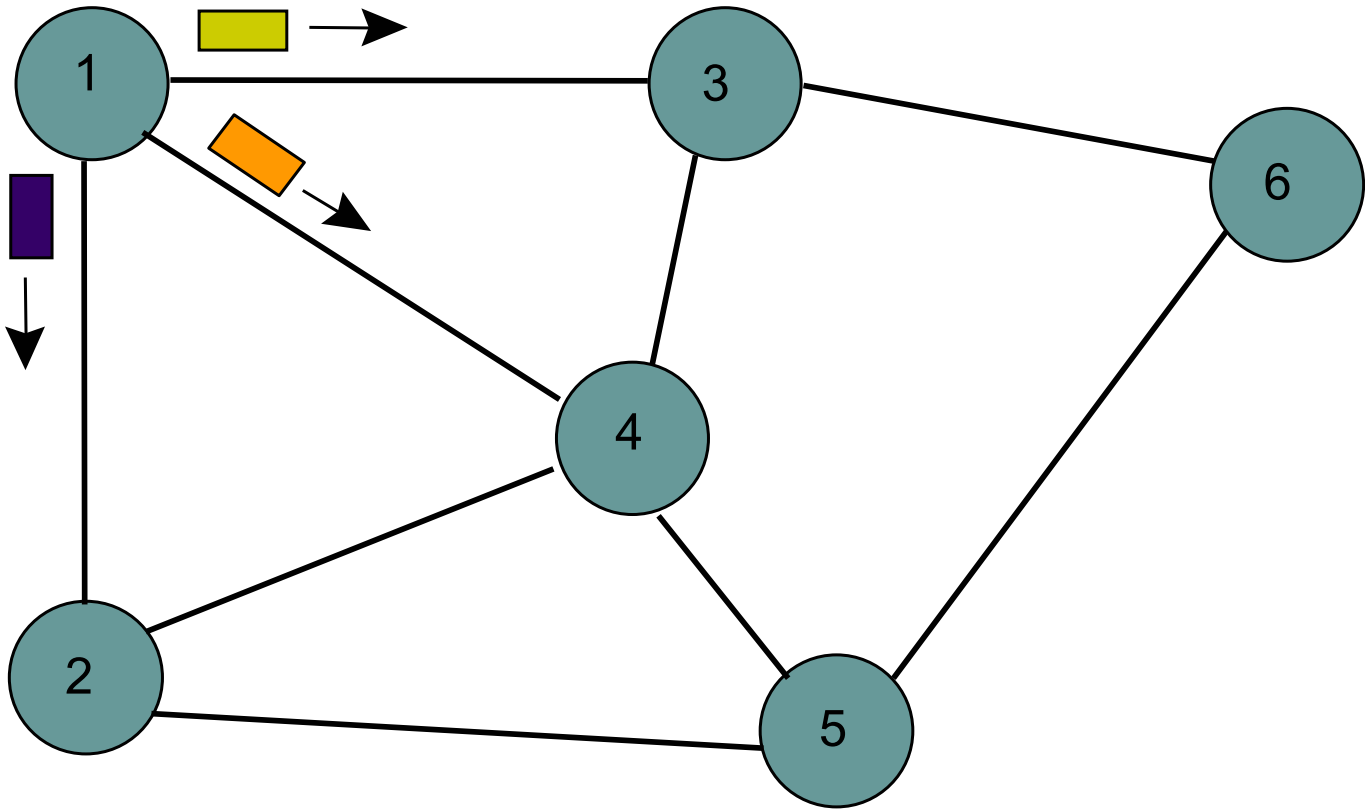
(a)



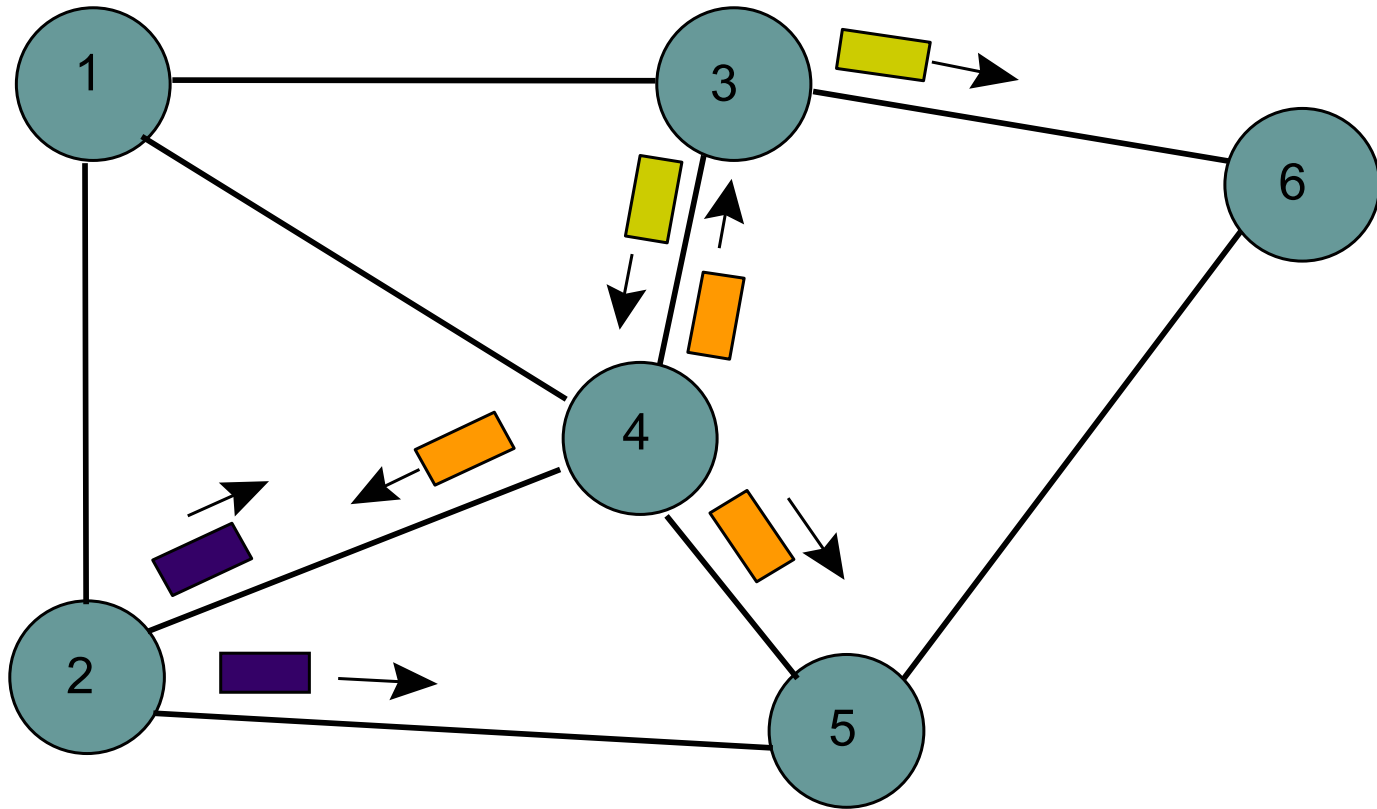
(b)



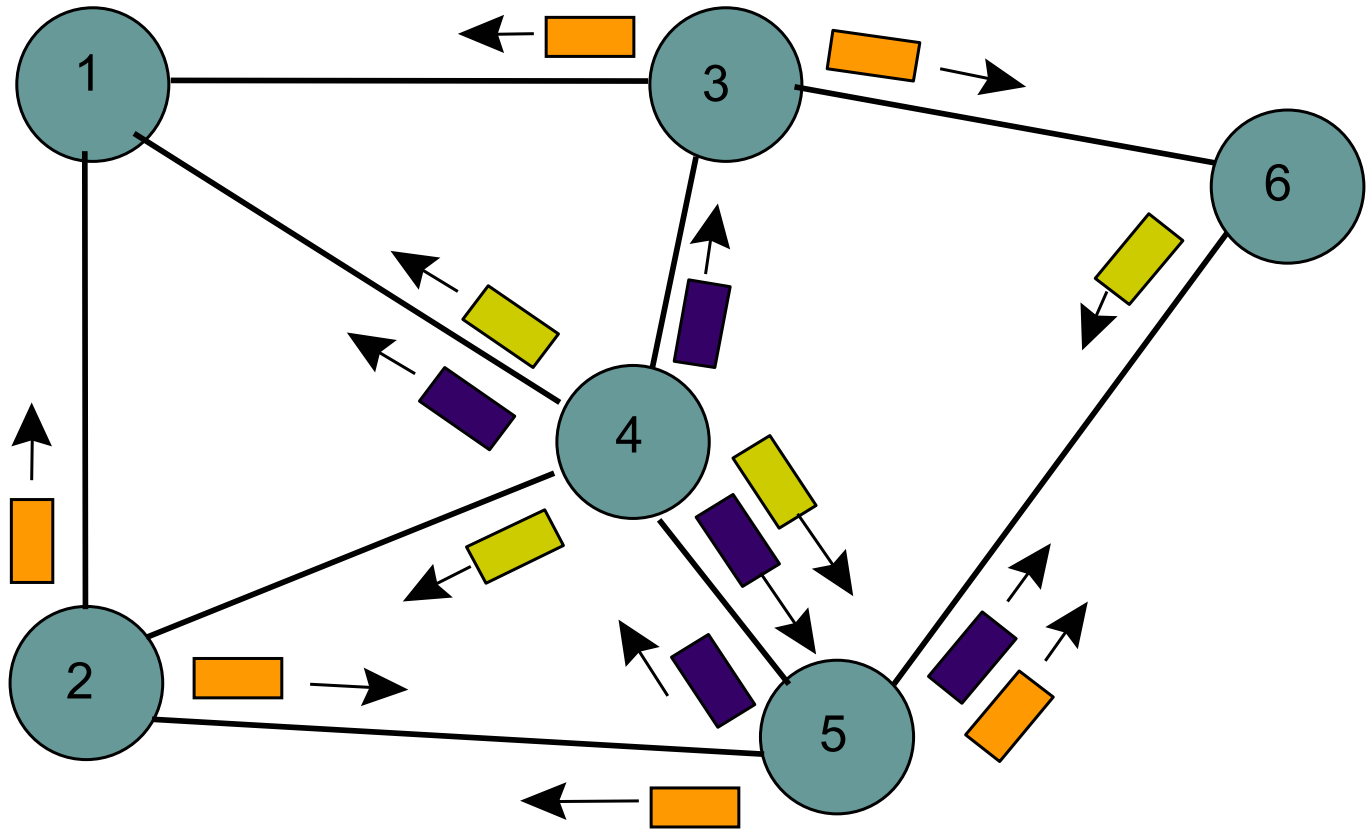
(a)

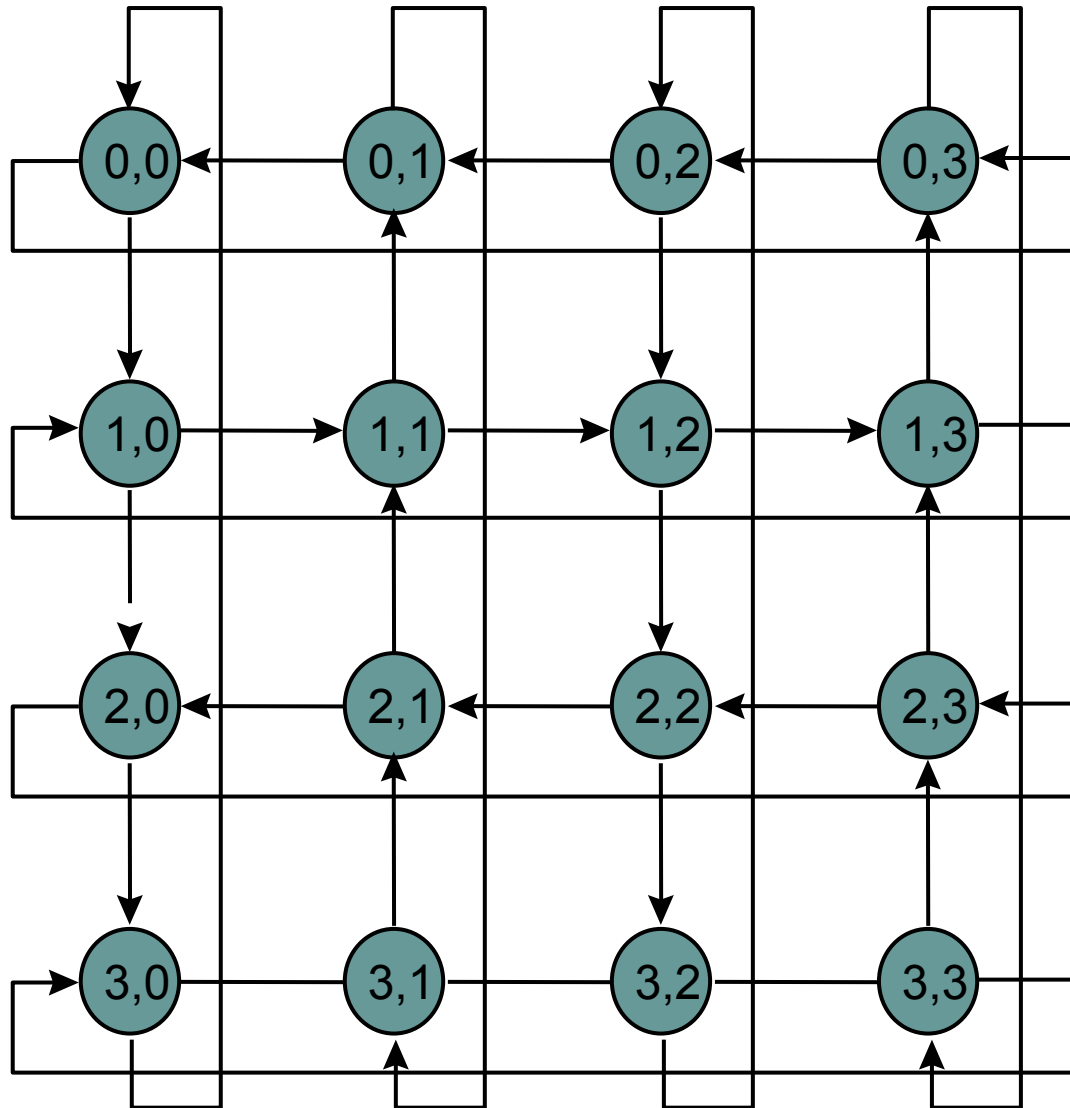


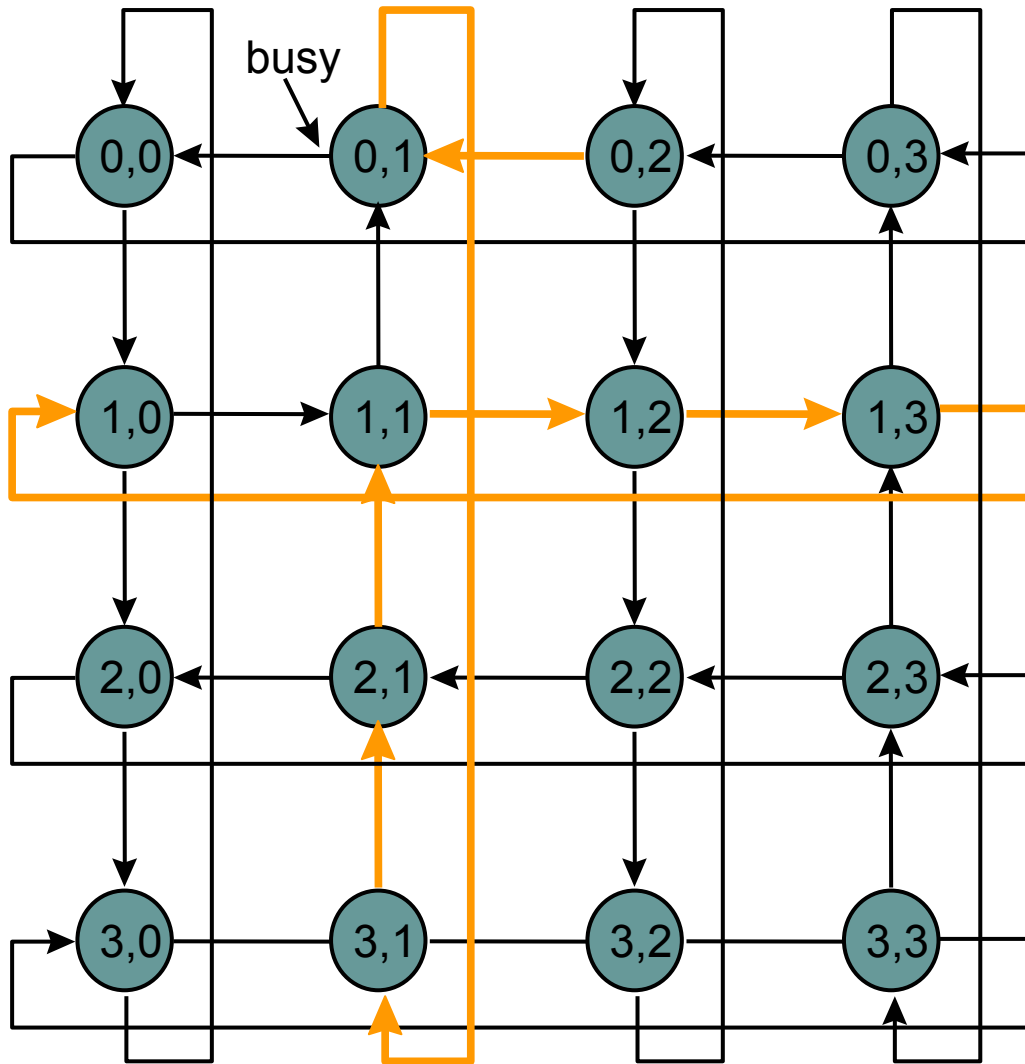
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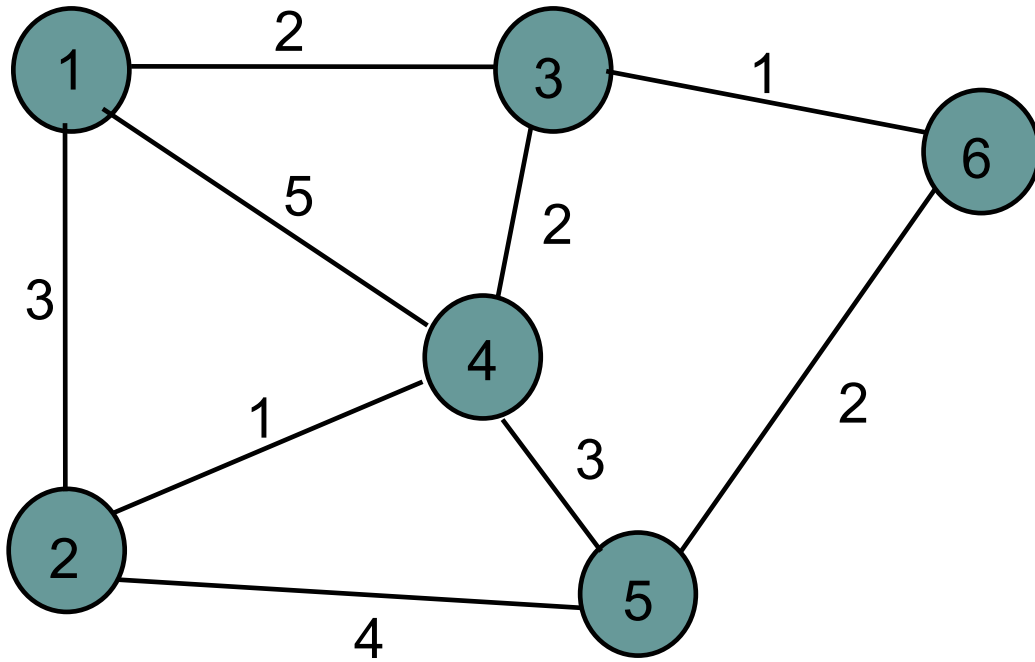


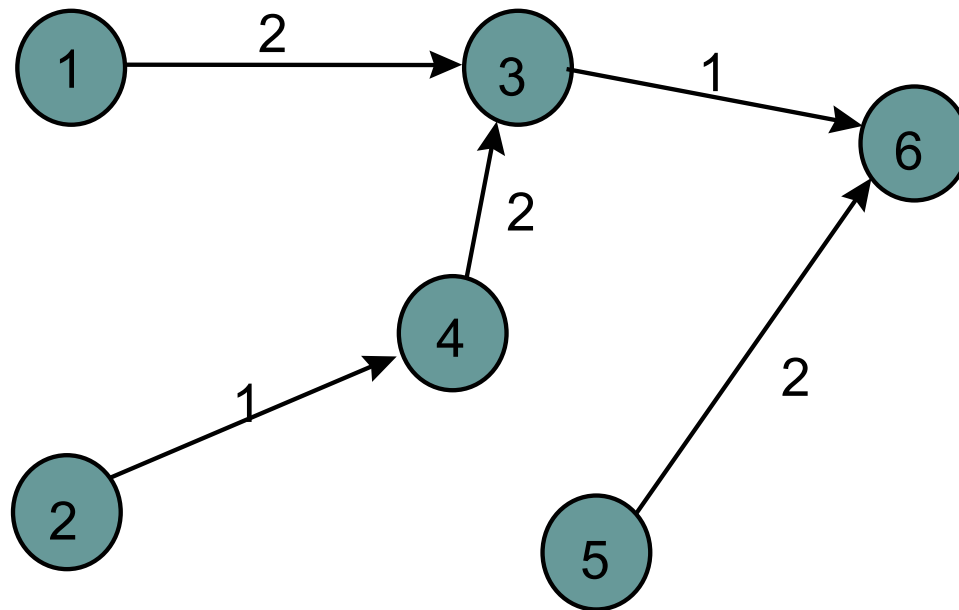
(c)

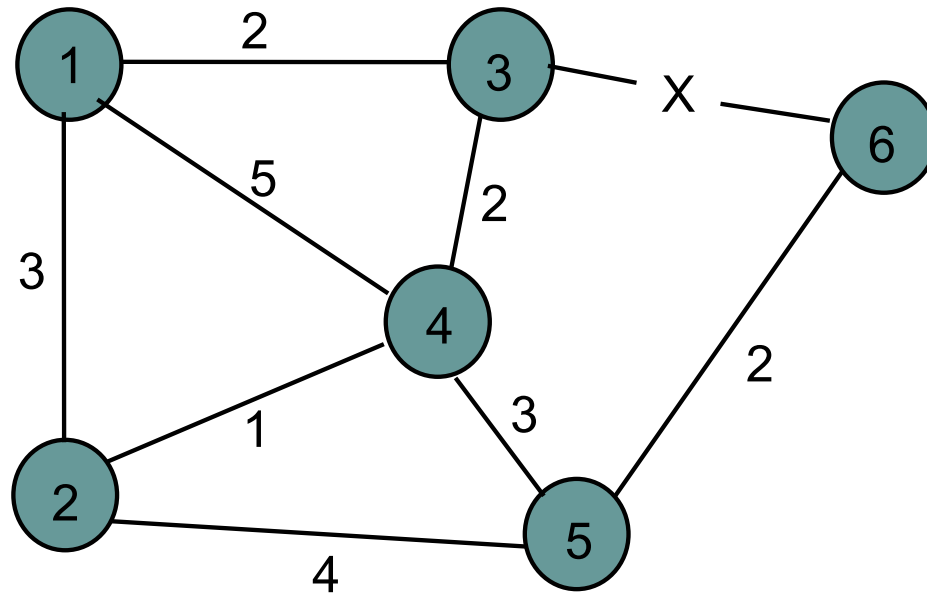


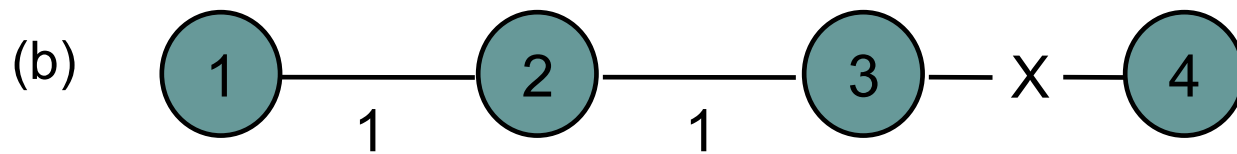
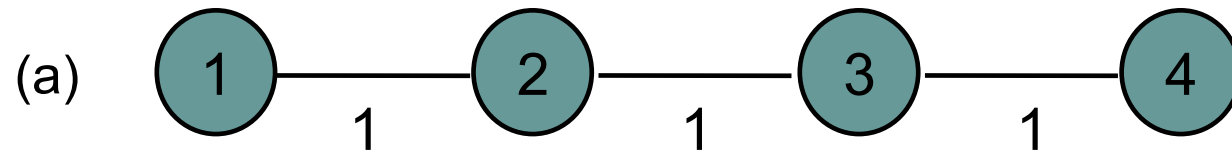


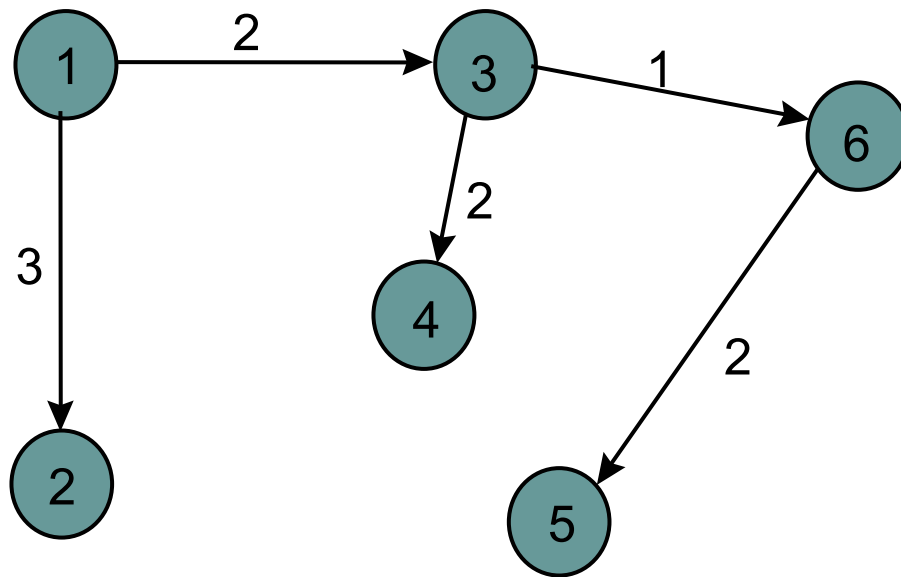


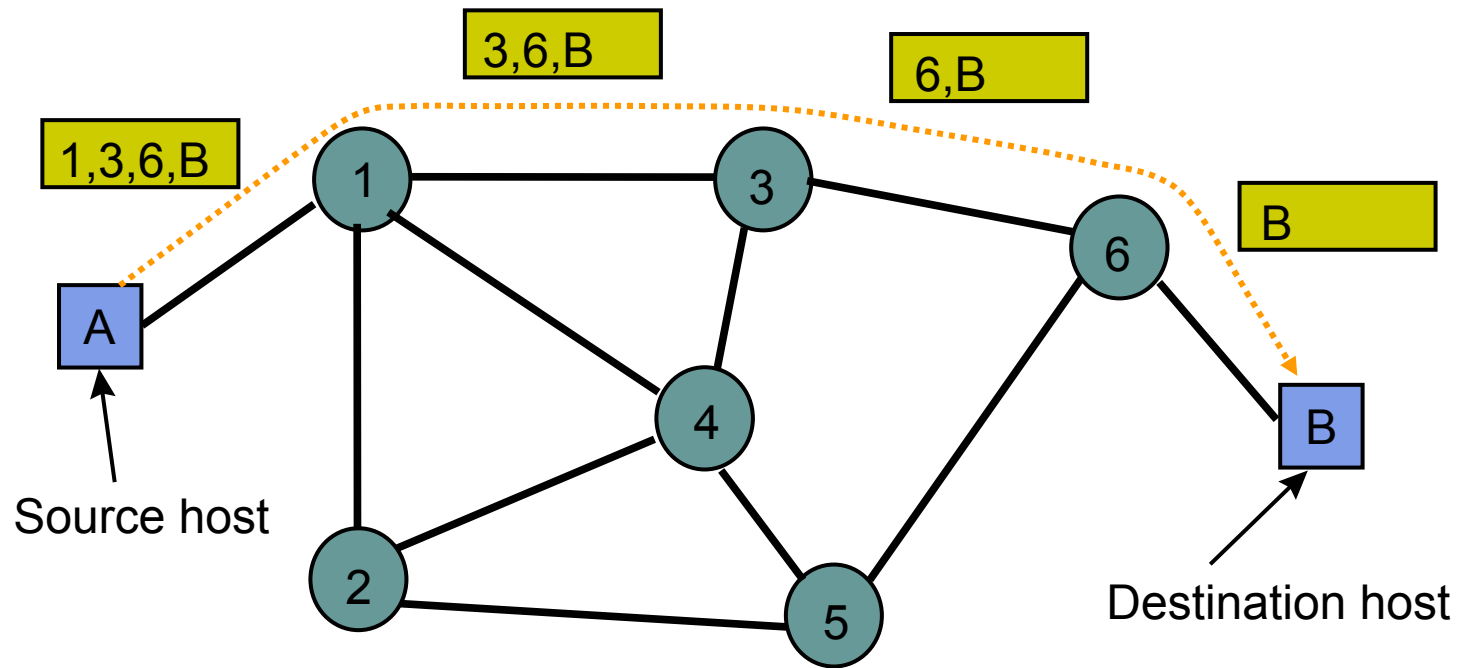


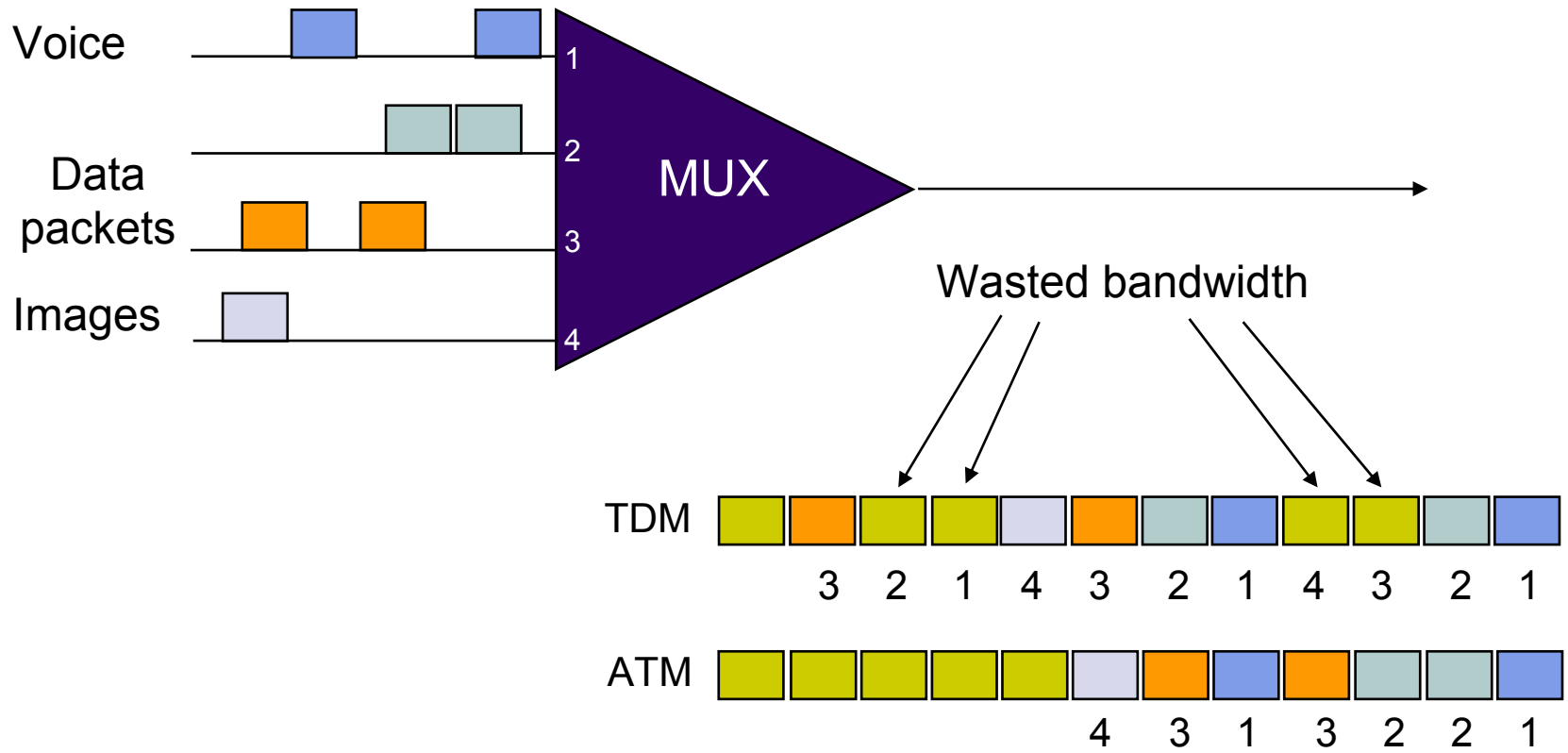


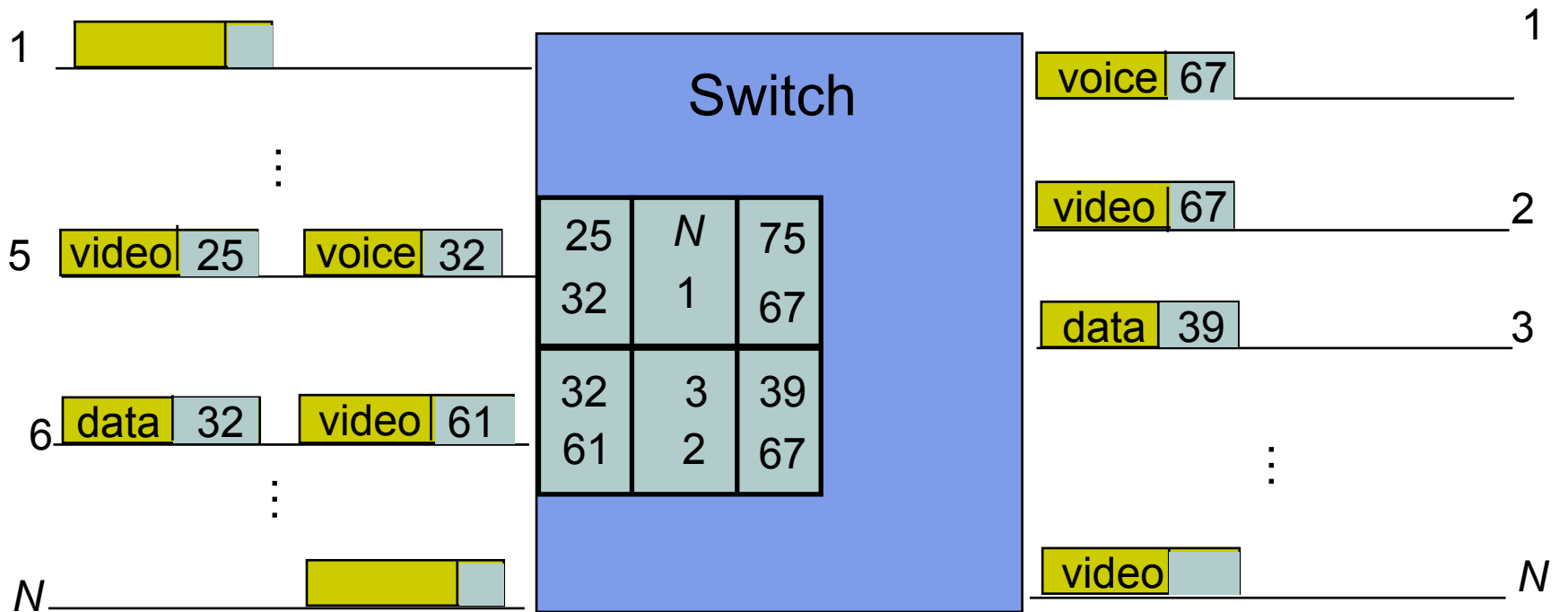


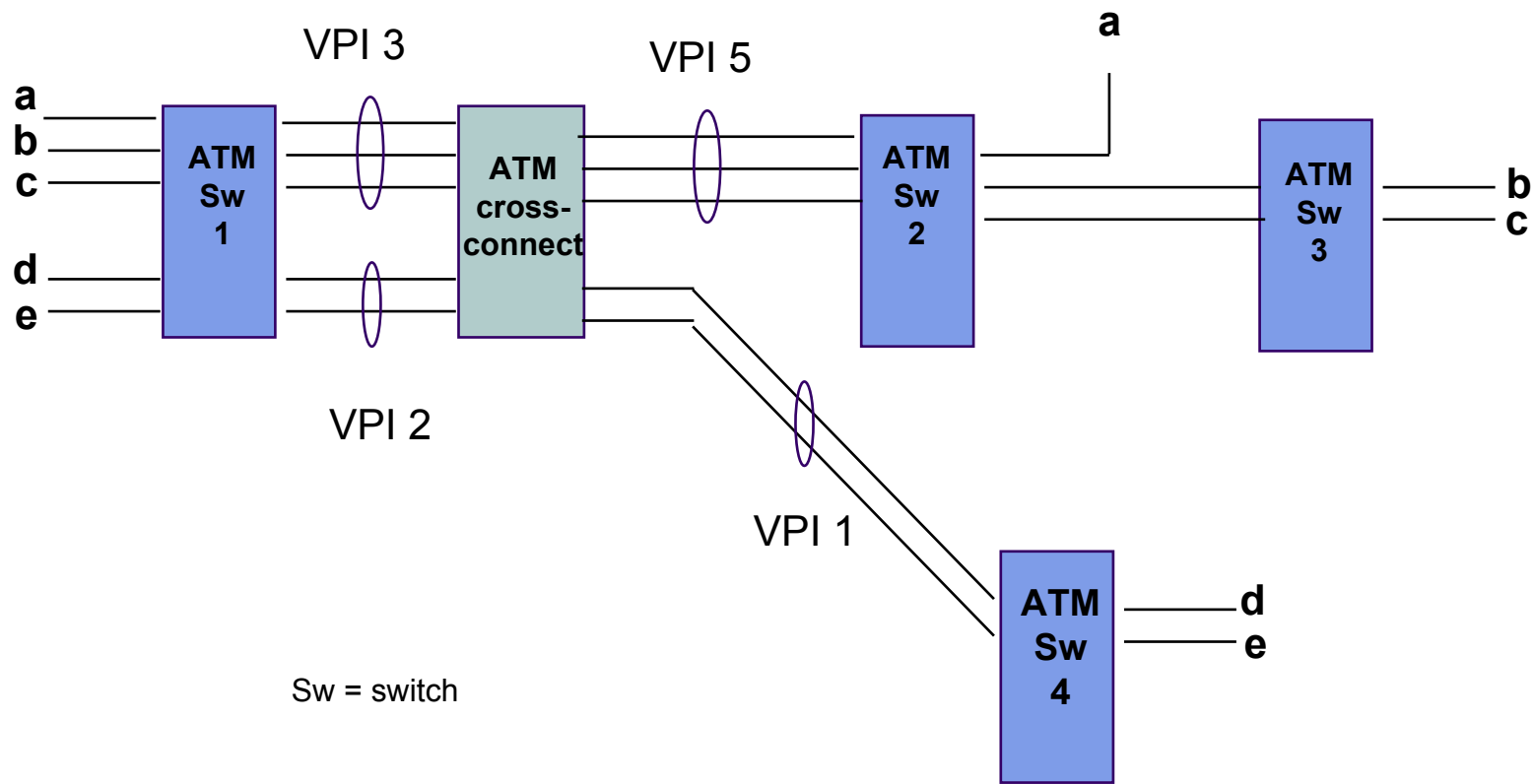


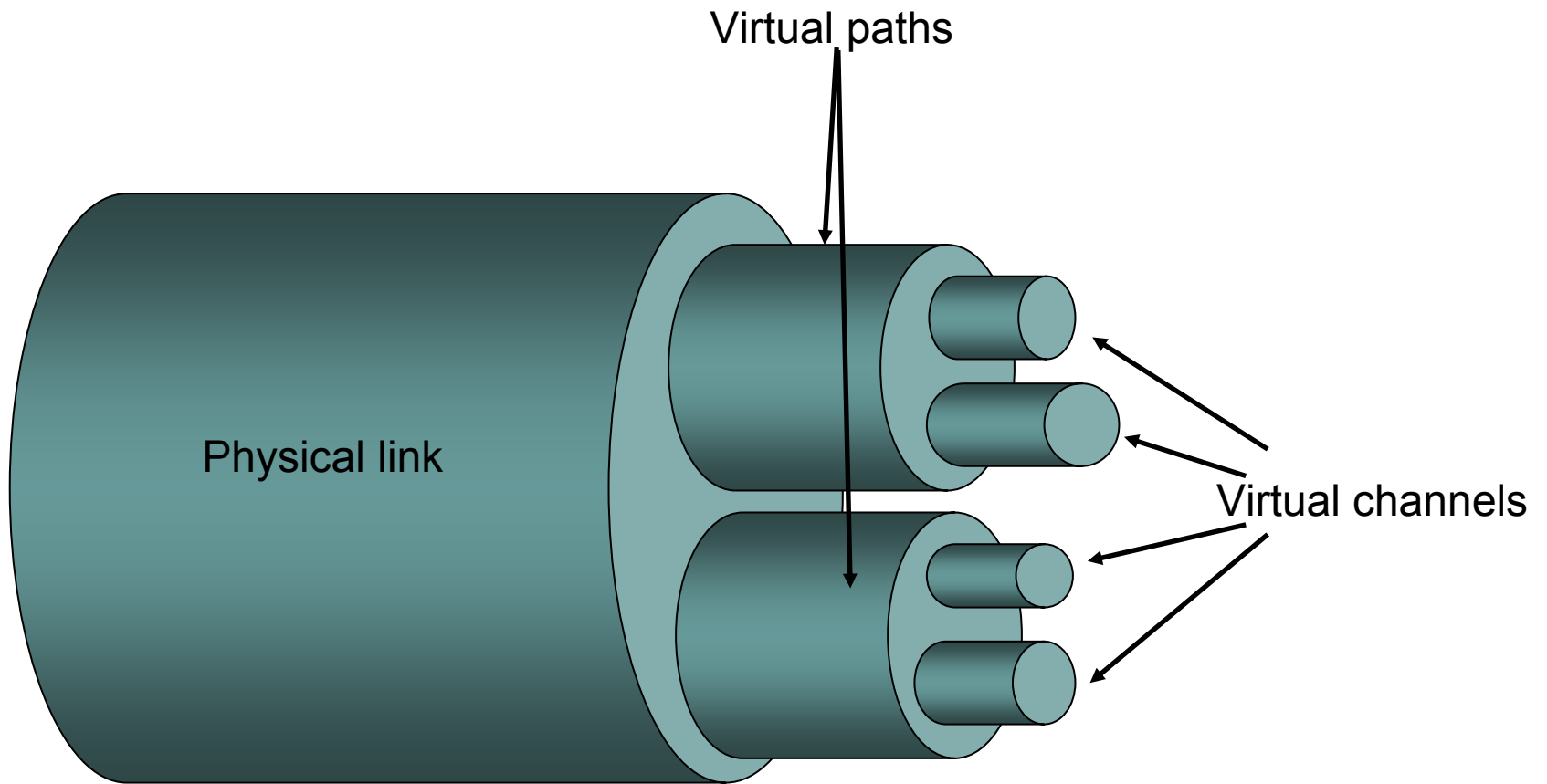


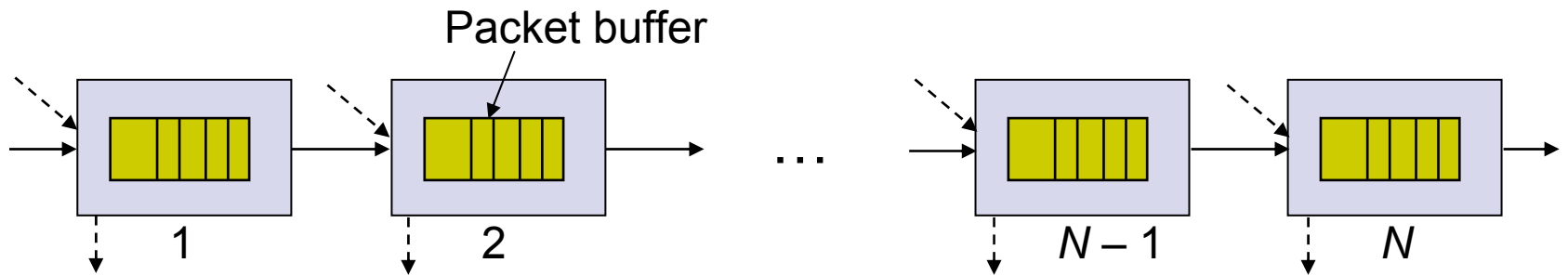




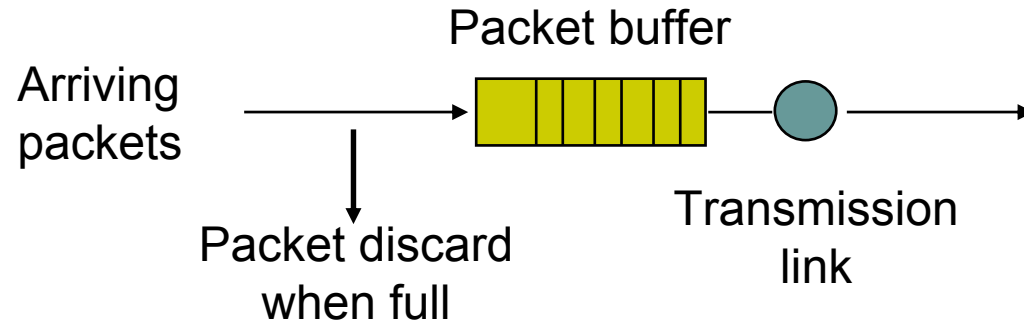




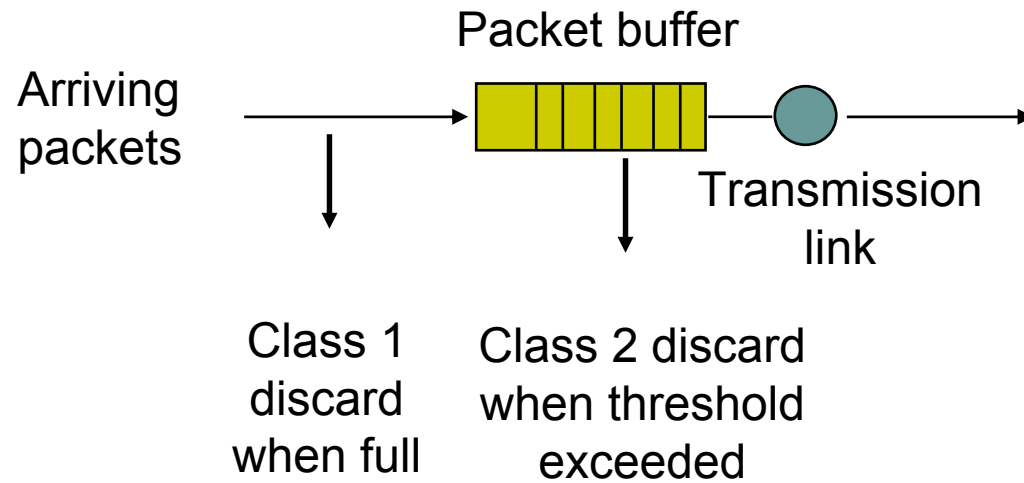


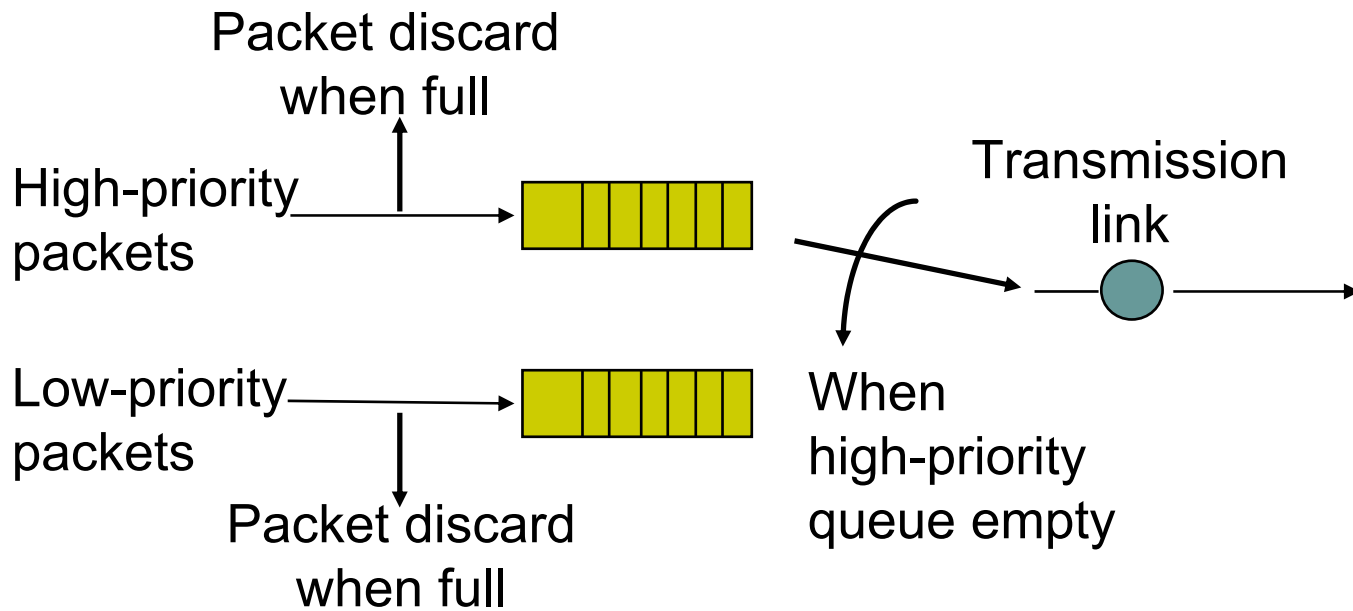


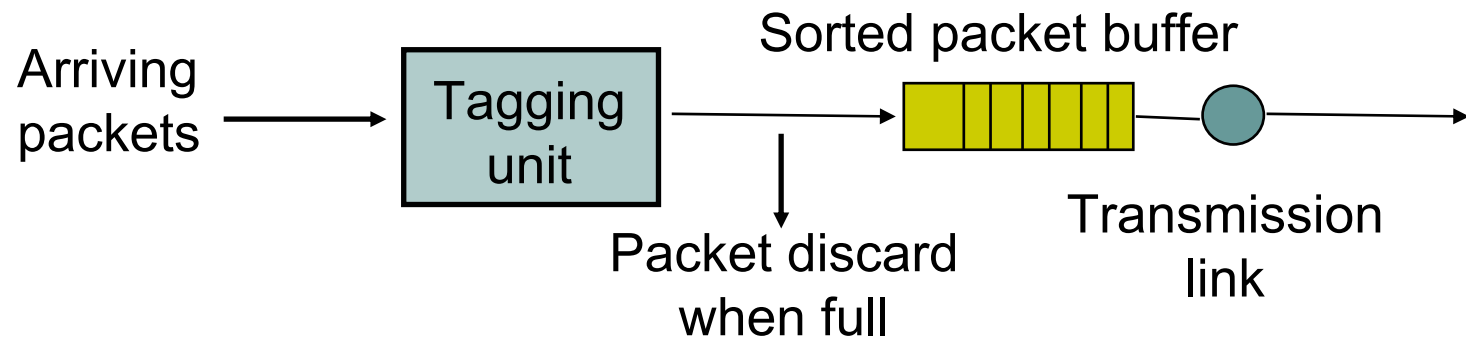
(a)

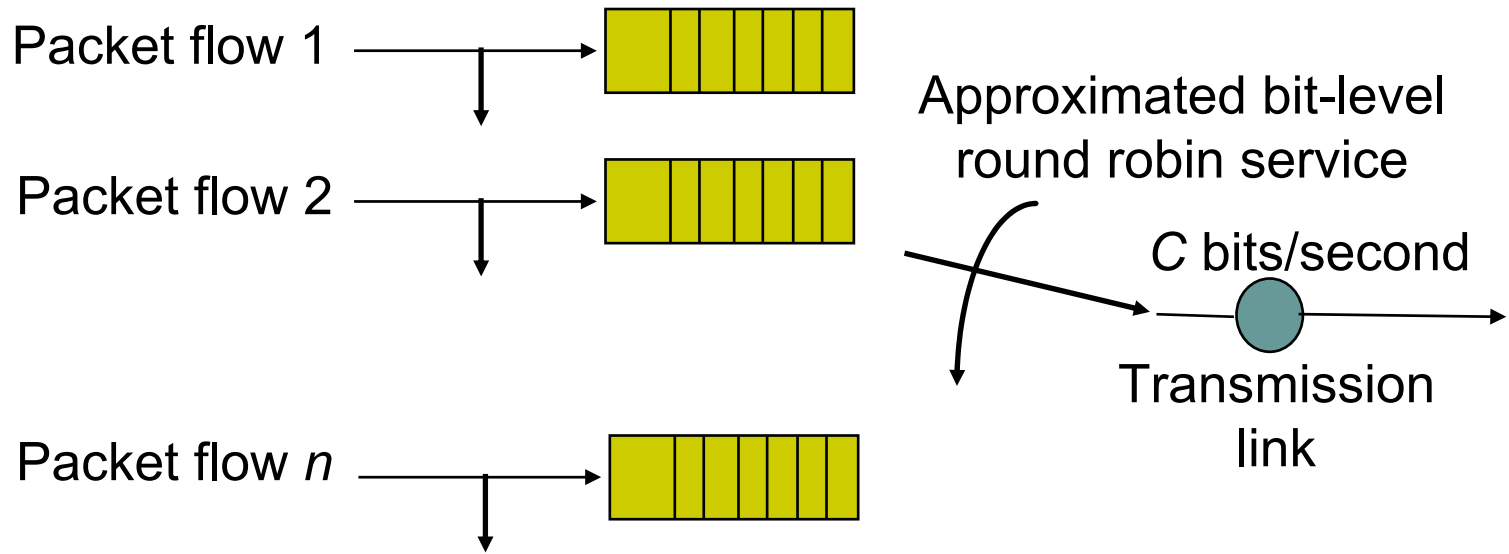


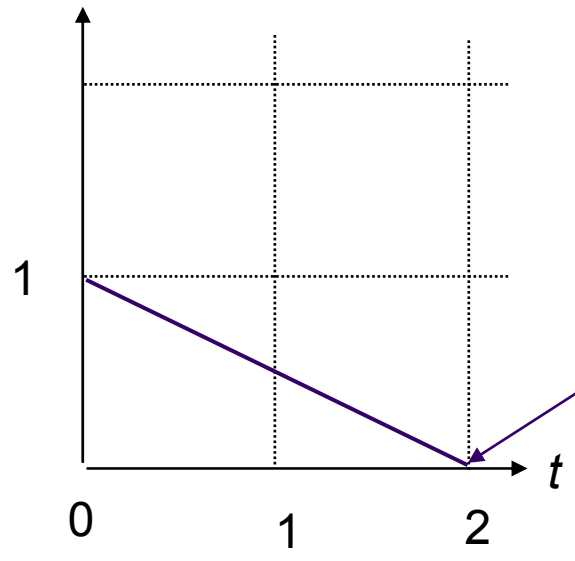
(b)





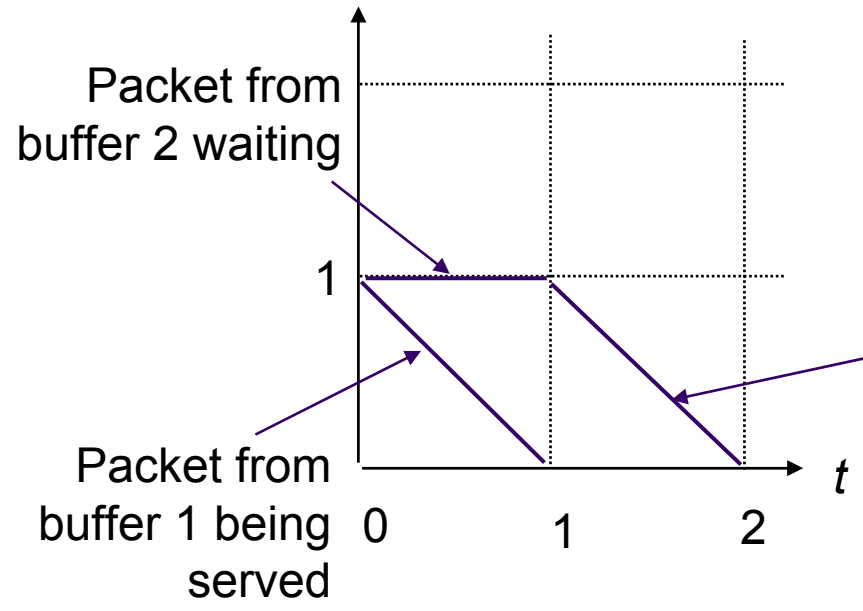






Fluid-flow system:
both packets served
at rate $1/2$

Both packets
complete service
at $t = 2$

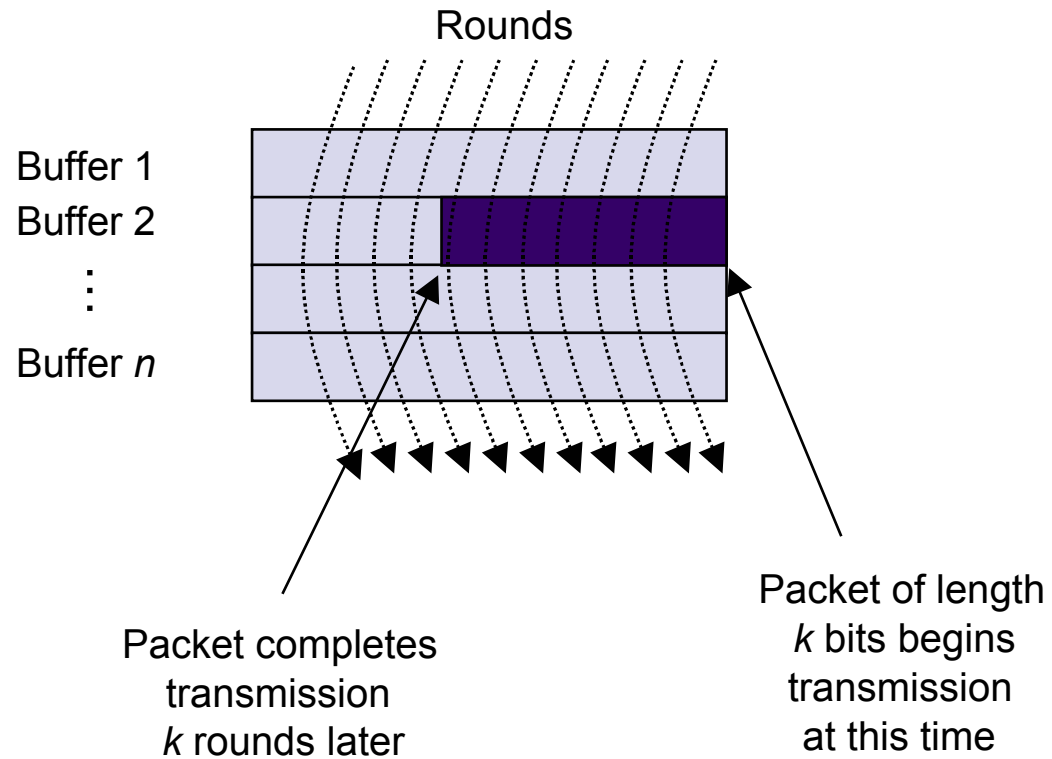


Packet-by-packet system:
buffer 1 served first at rate 1;
then buffer 2 served at rate 1.

Packet from buffer 2
being served

Packet from
buffer 1 being
served

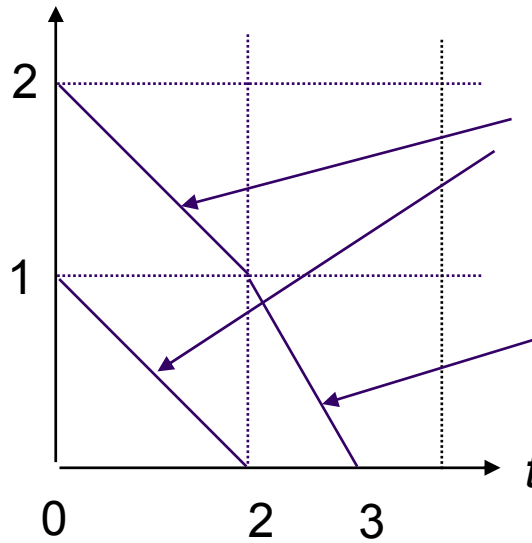
Number of rounds = Number of bit transmission opportunities



Buffer 1
at $t=0$

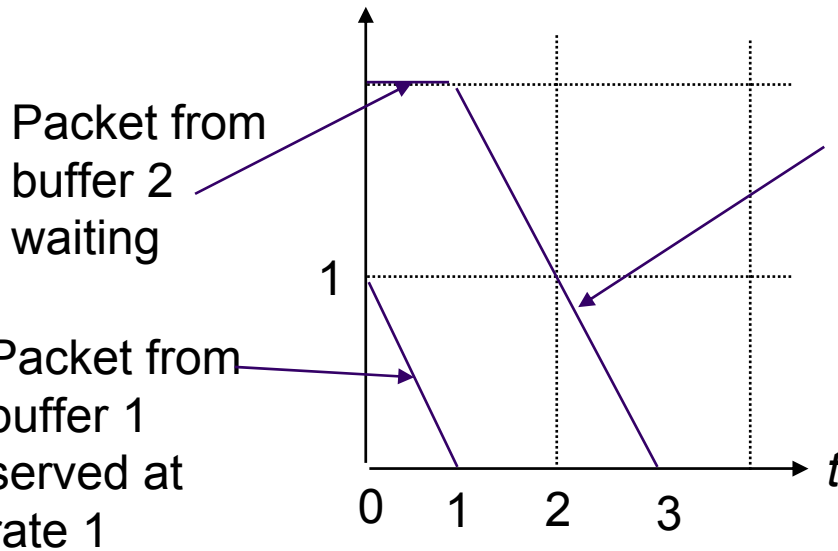


Buffer 2
at $t=0$



Fluid-flow system:
both packets served
at rate $1/2$

Packet from buffer 2
served at rate 1



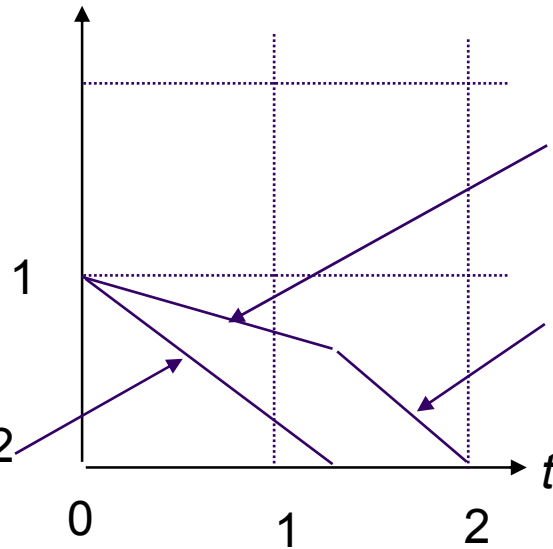
Packet from
buffer 2
waiting

Packet from
buffer 1
served at
rate 1

Packet-by-packet
fair queueing:
buffer 2 served at rate 1

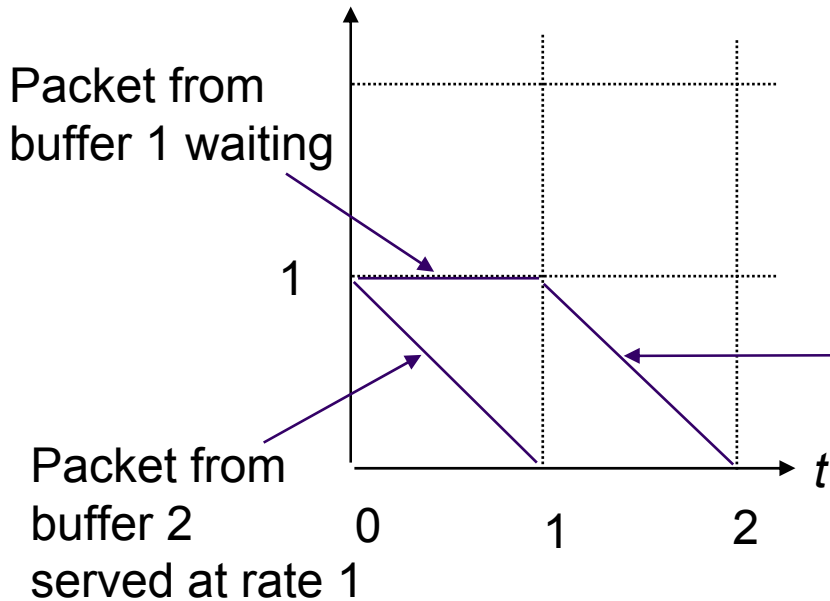


Packet from buffer 2 served at rate $3/4$



Fluid-flow system:
packet from buffer 1 served at rate $1/4$;

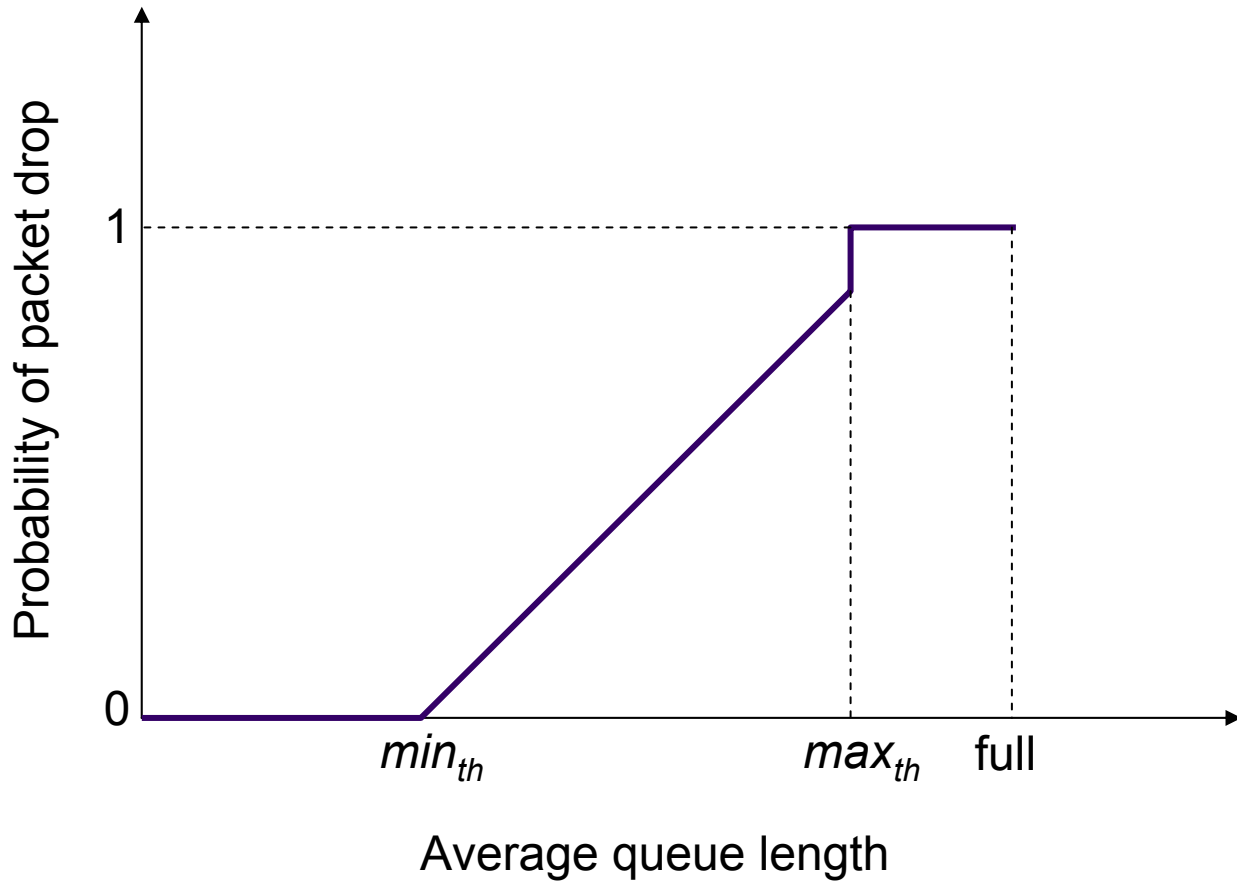
Packet from buffer 1 served at rate 1

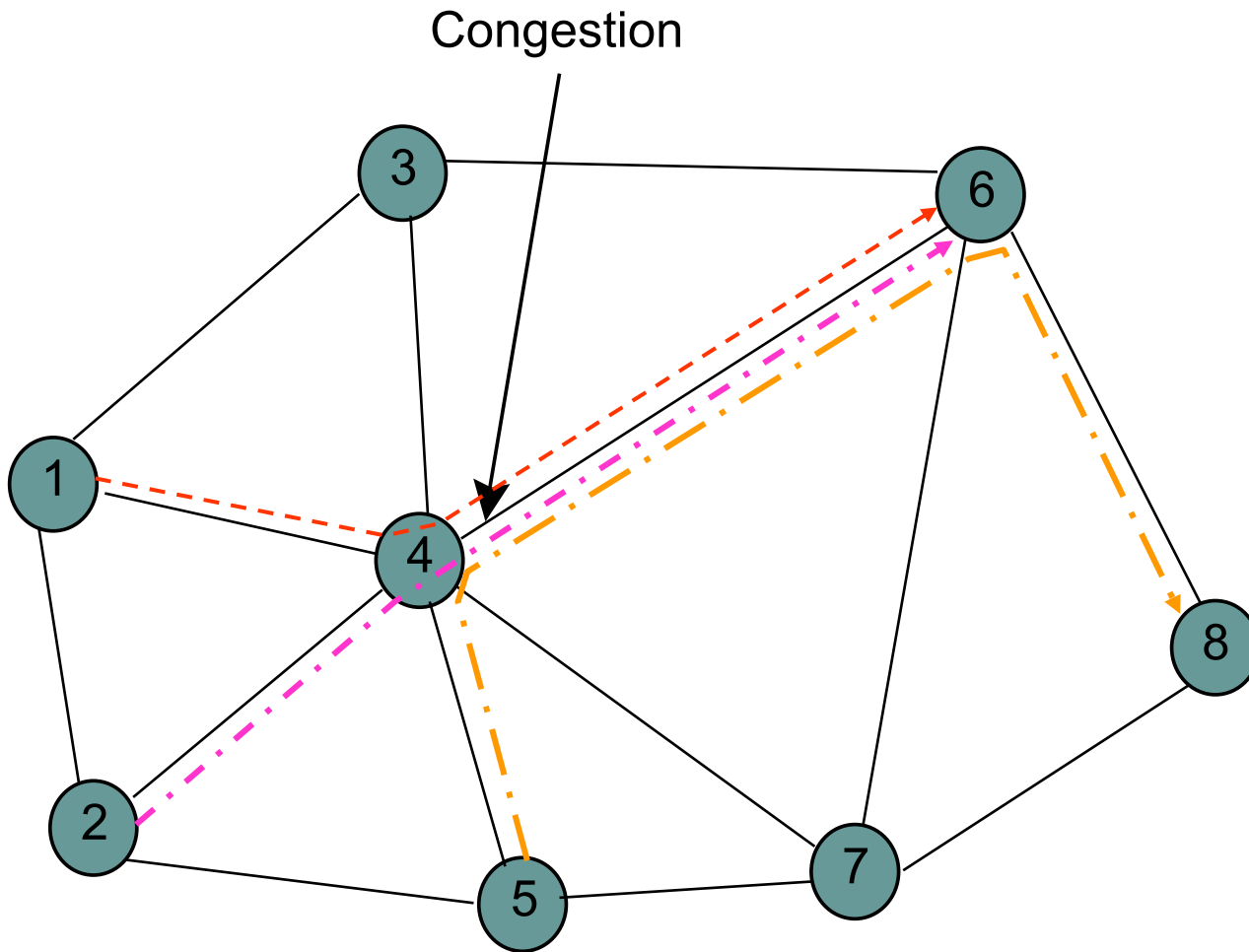


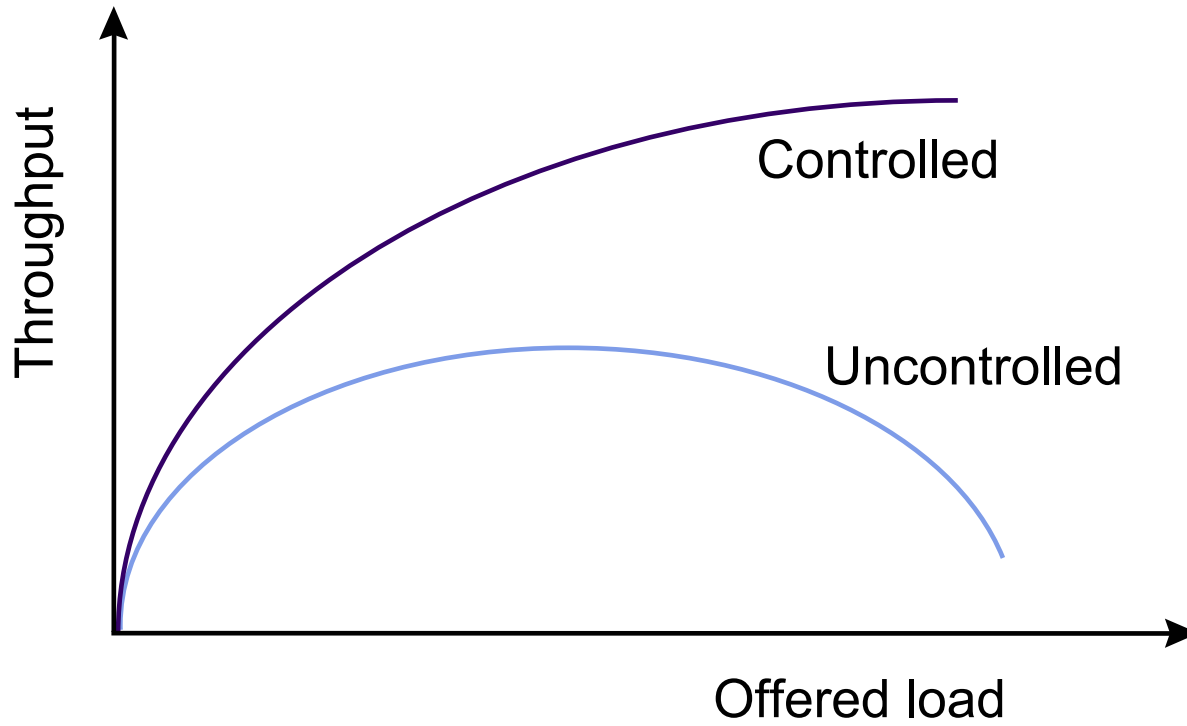
Packet from buffer 1 waiting

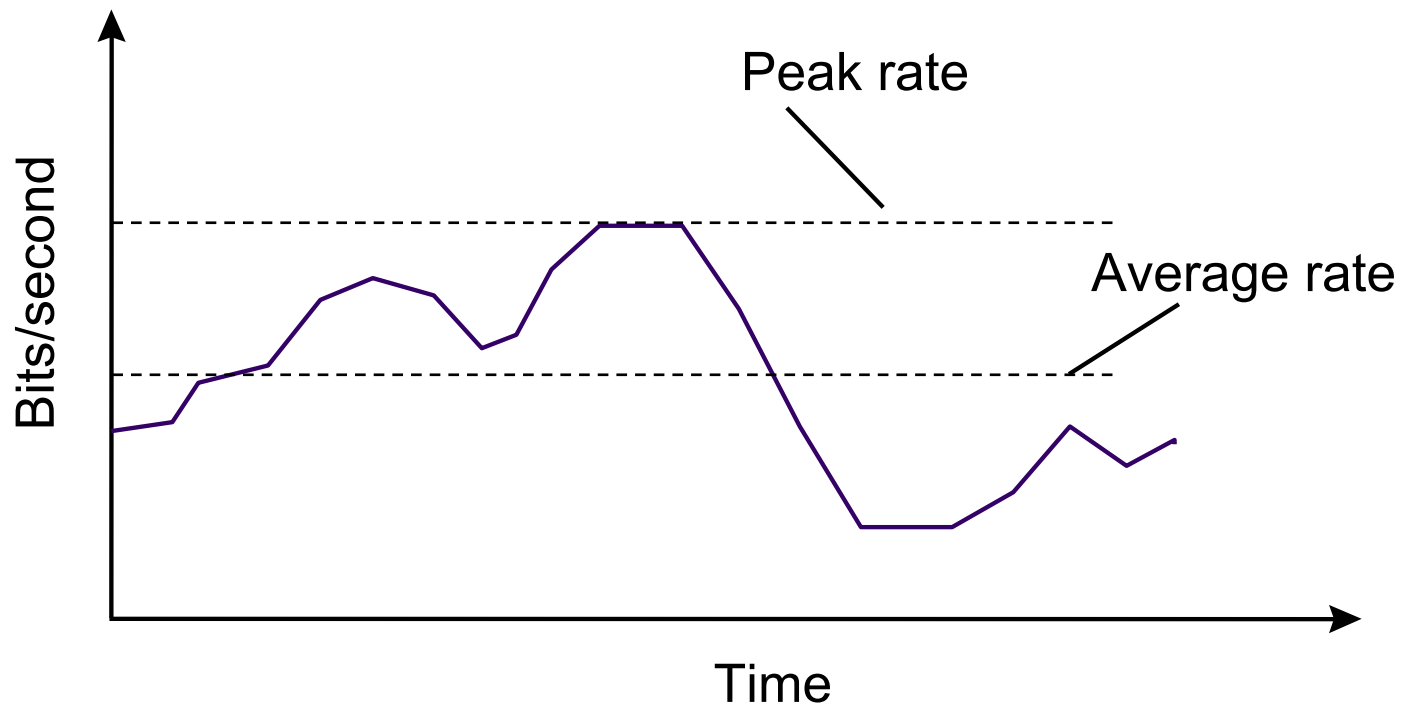
Packet-by-packet weighted fair queueing:
buffer 2 served first at rate 1;
then buffer 1 served at rate 1

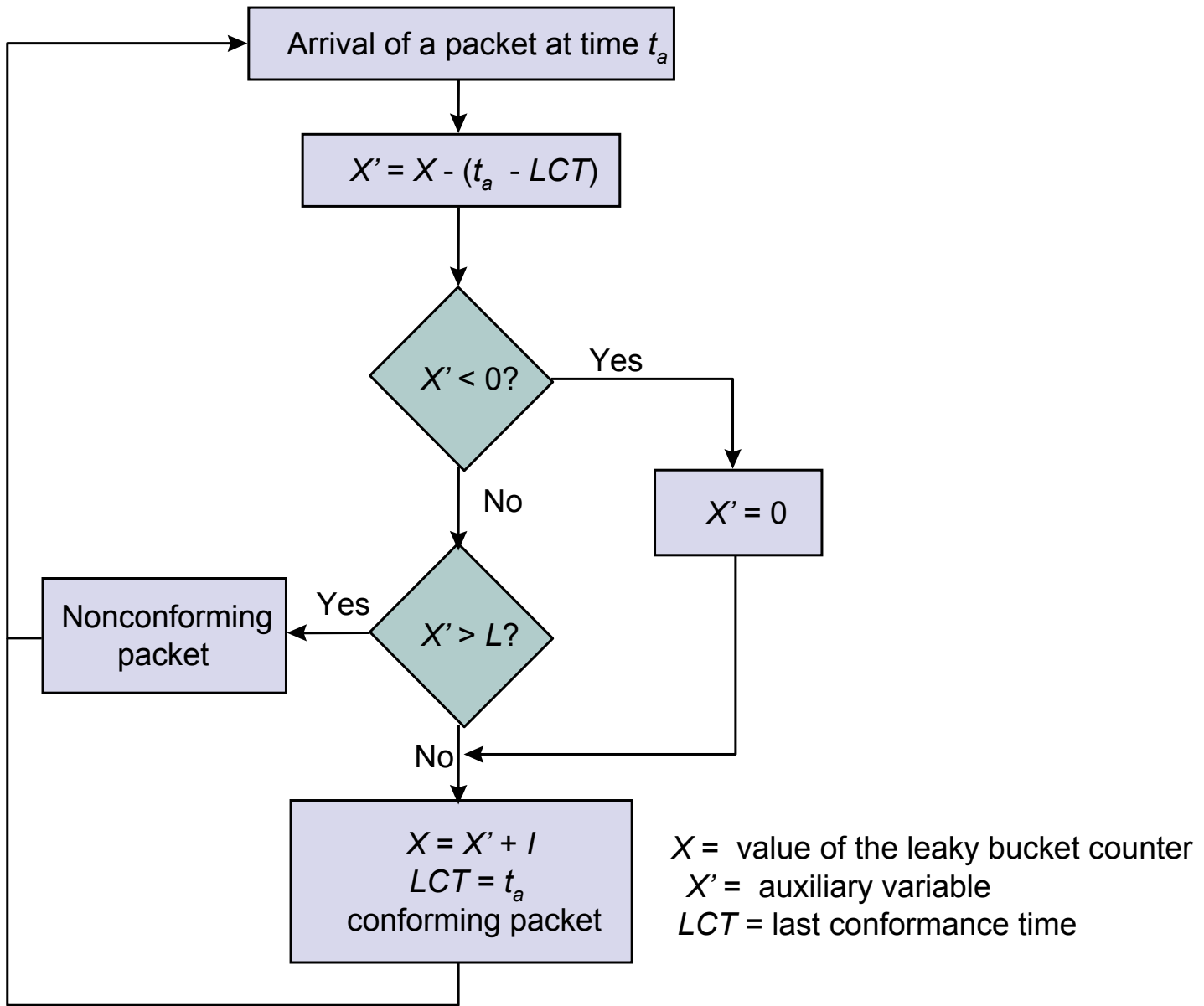
Packet from buffer 1 served at rate 1

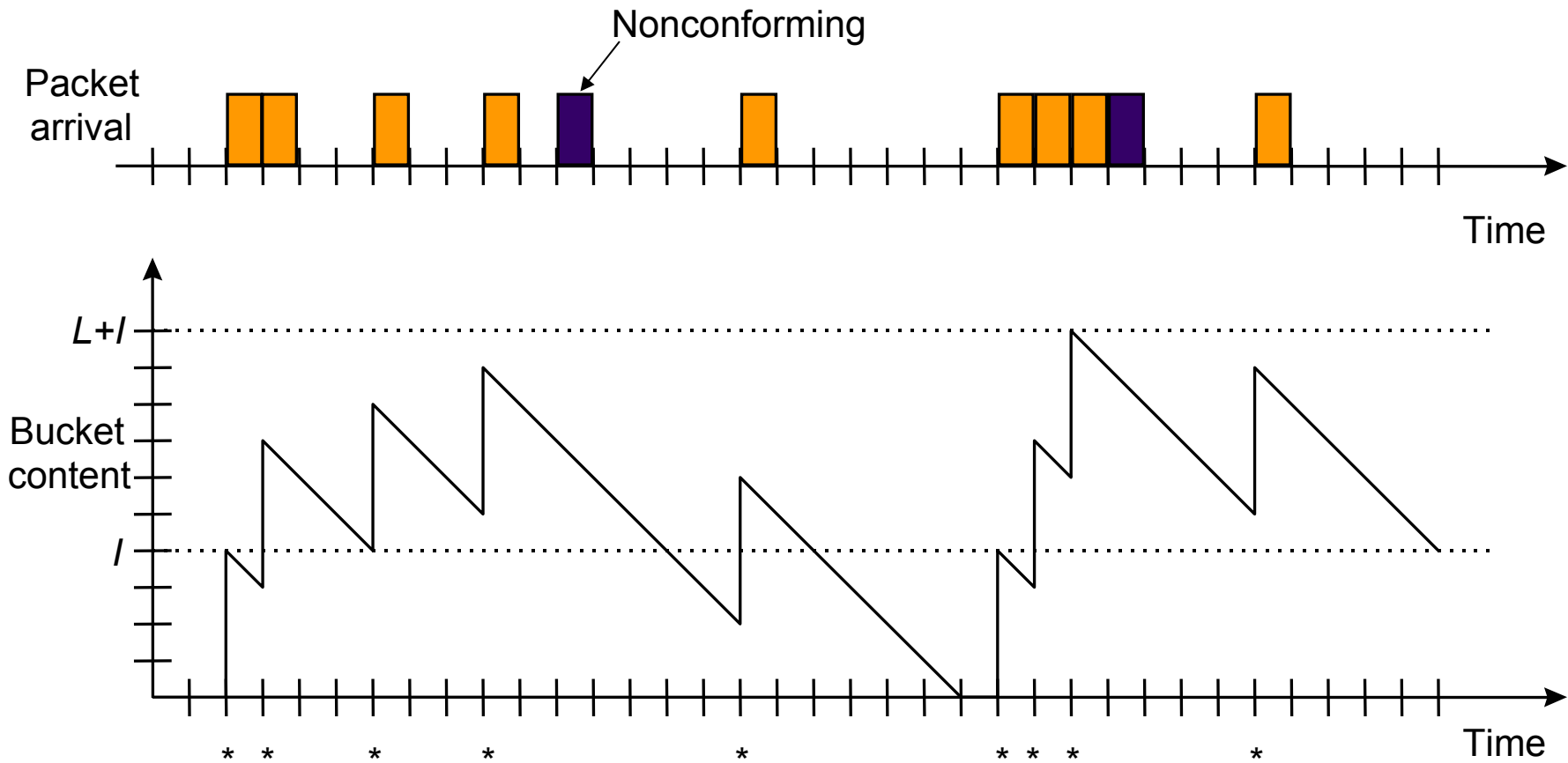


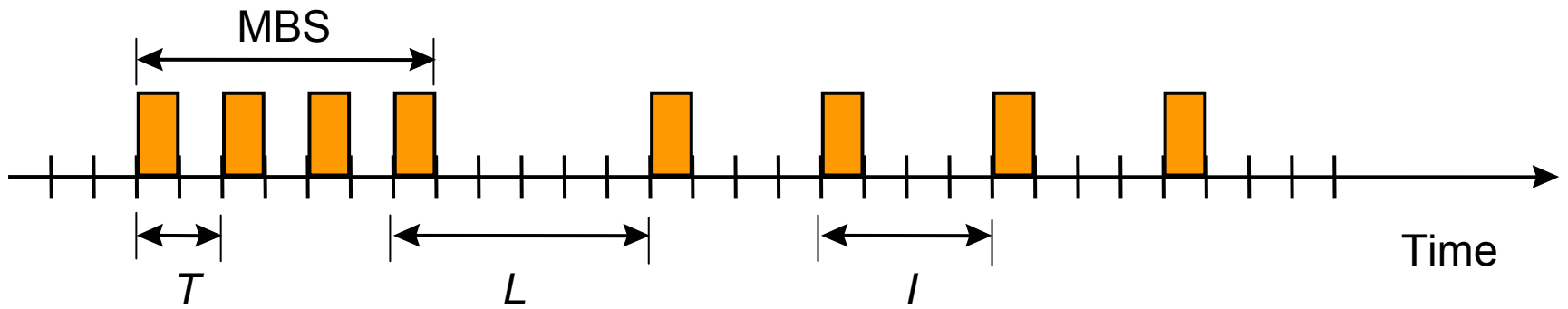


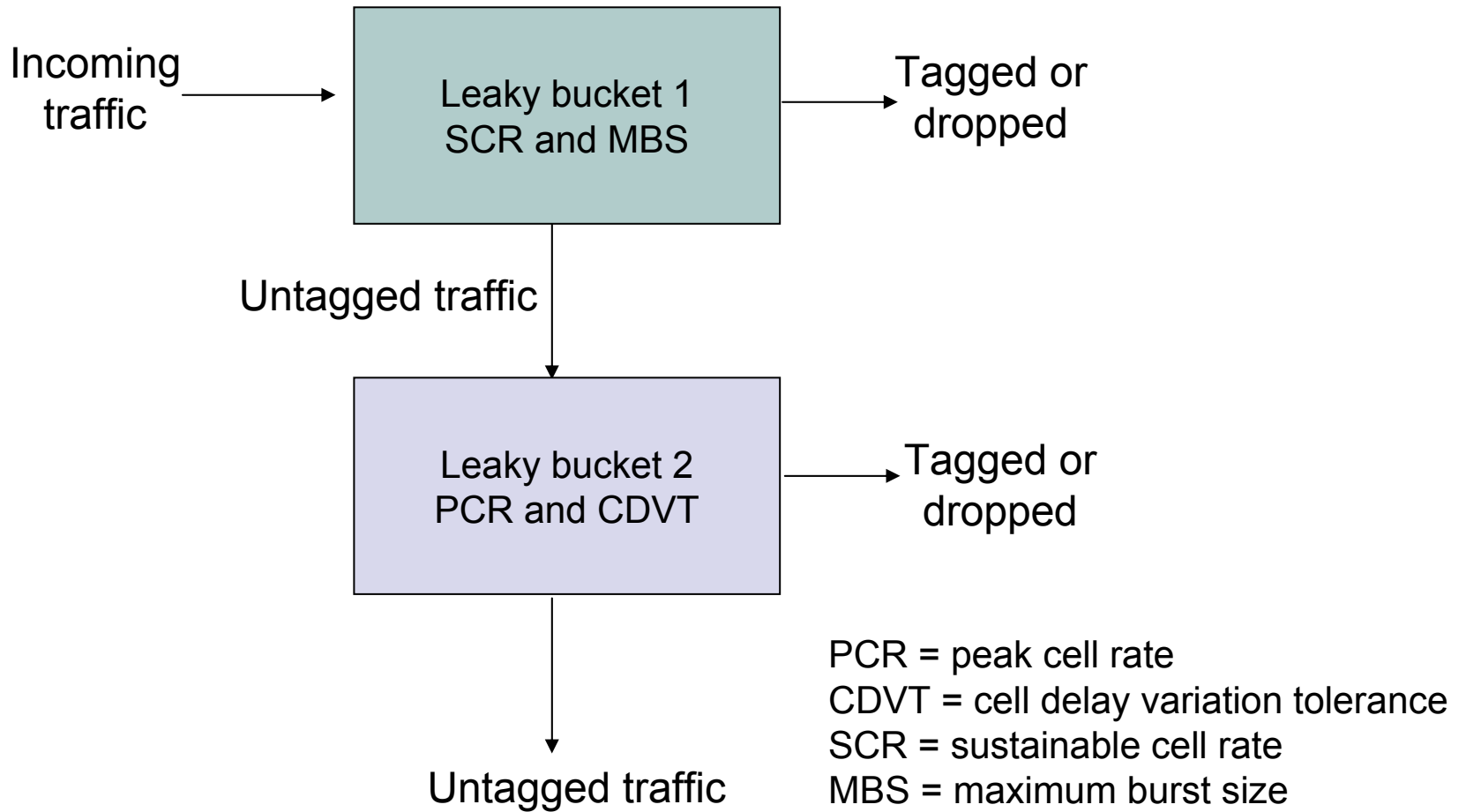


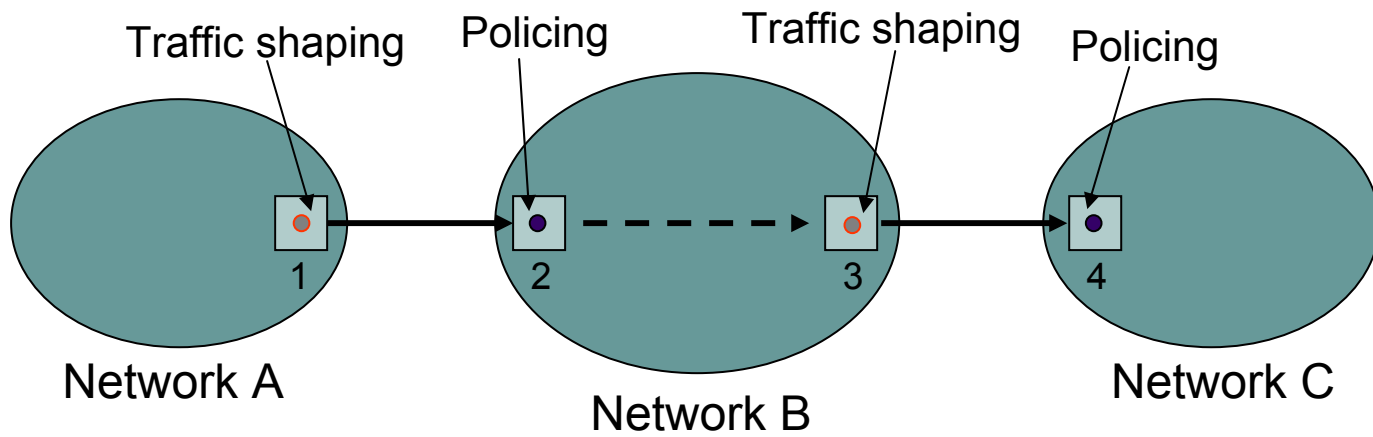


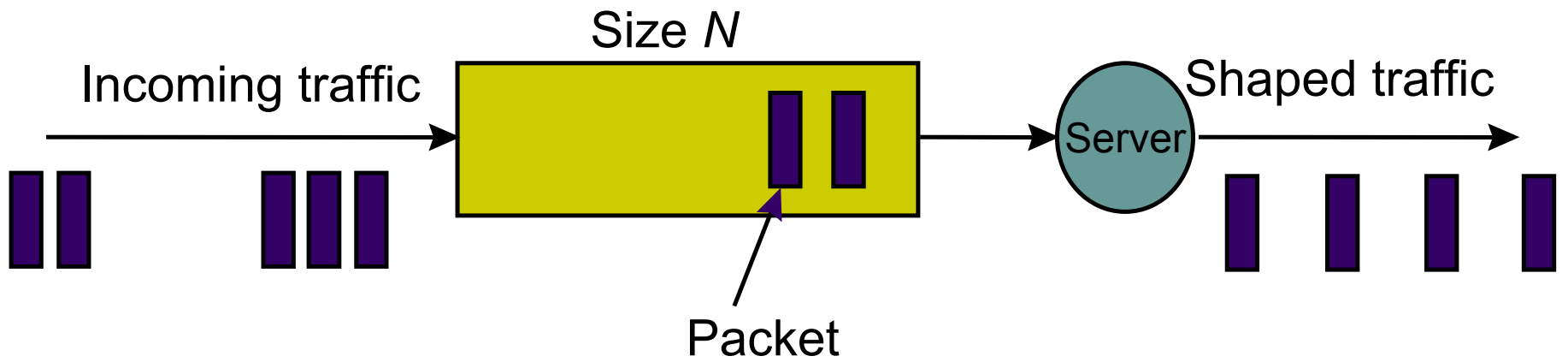


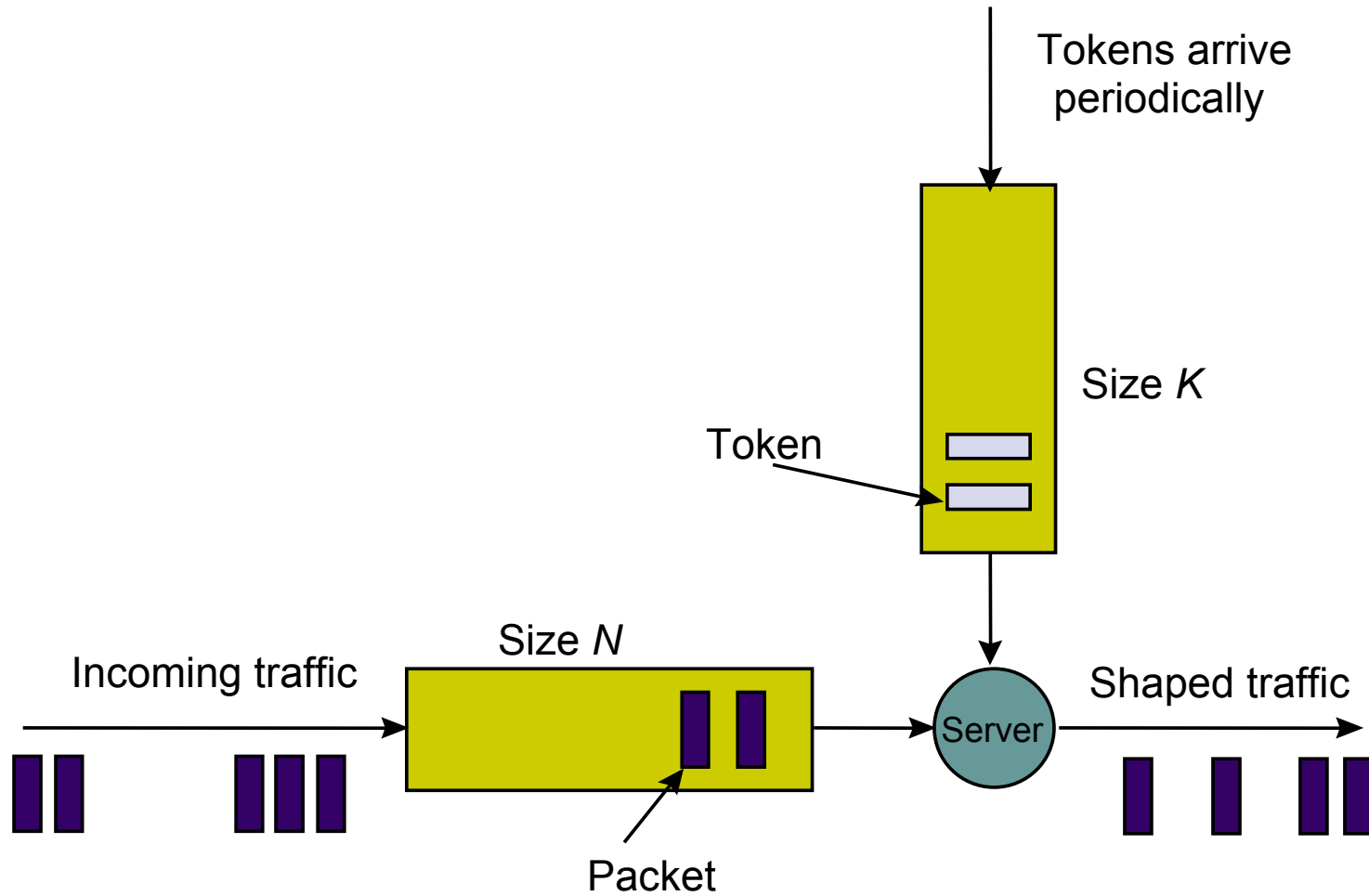


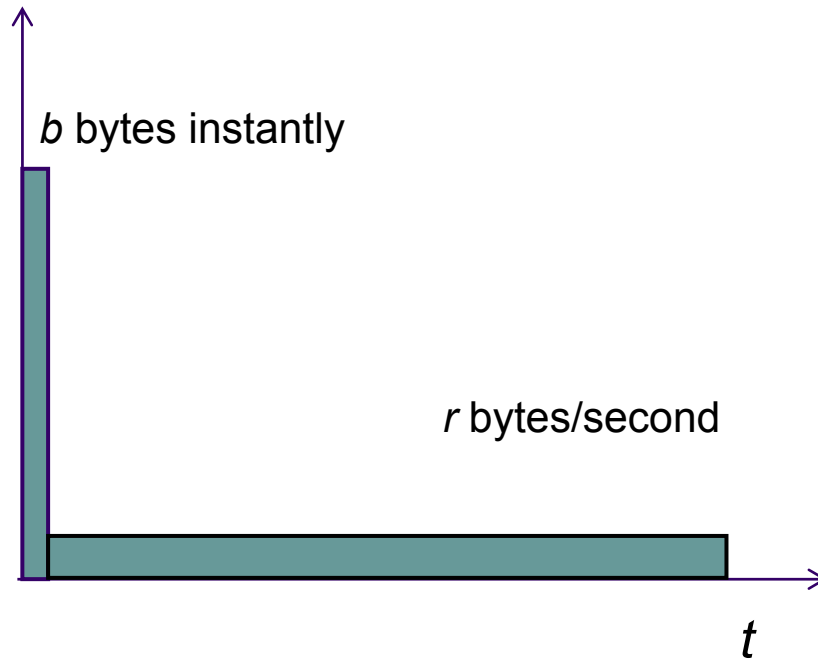


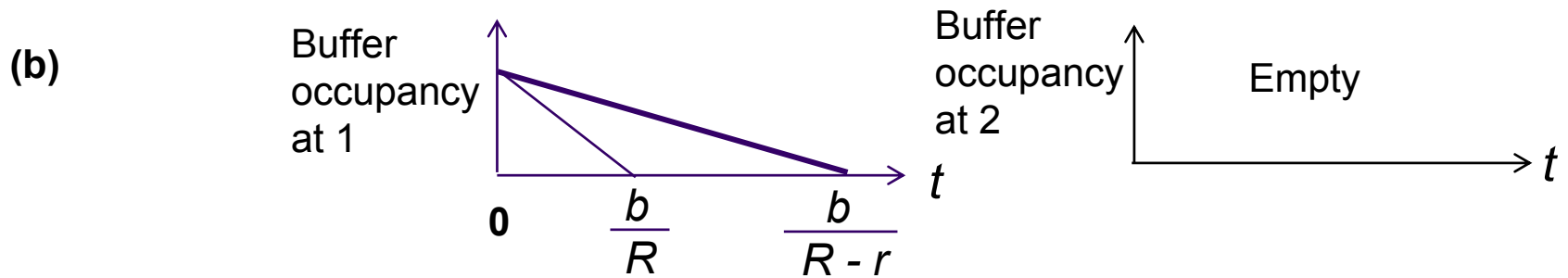
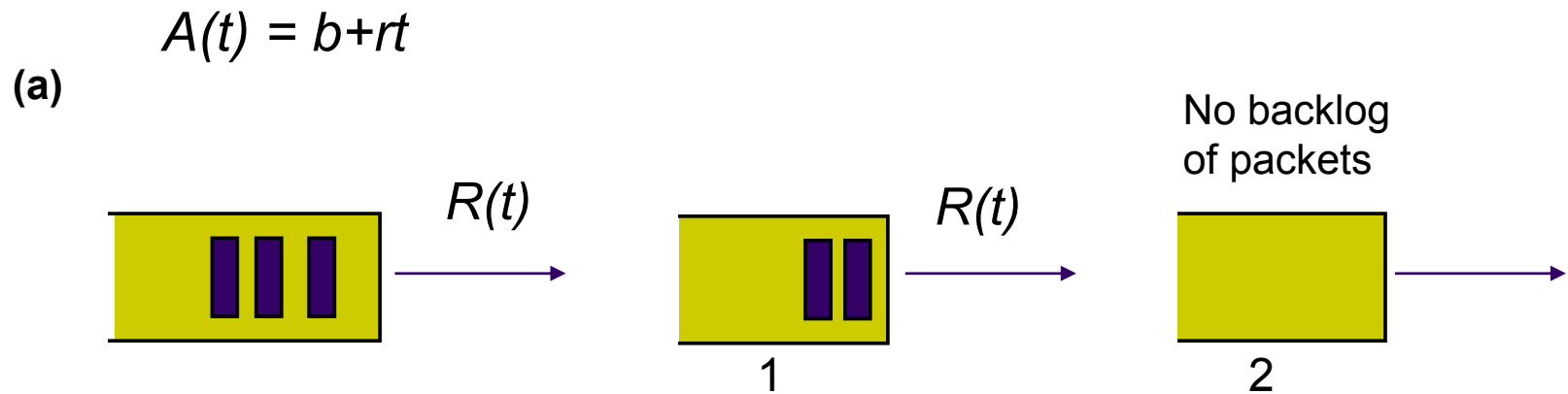


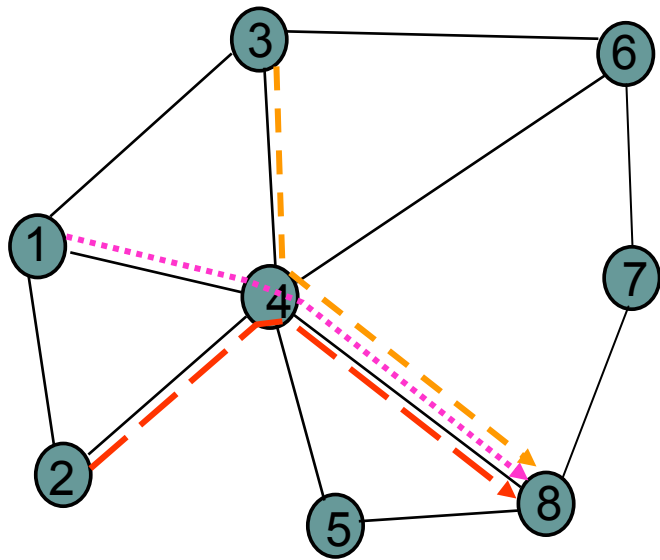




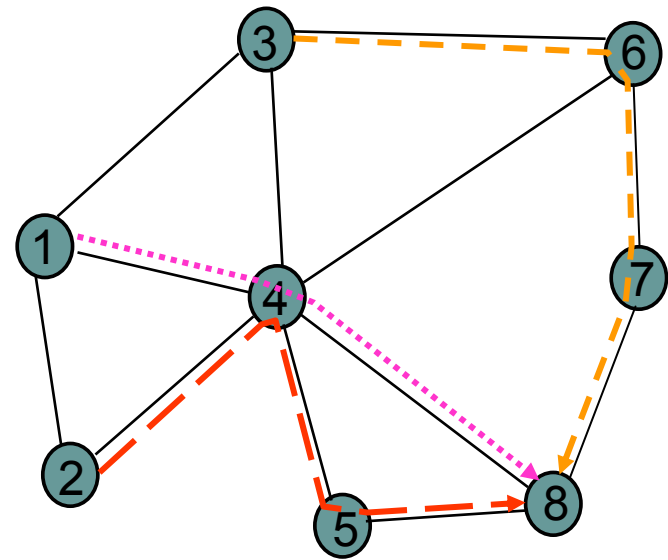








(a)



(b)

