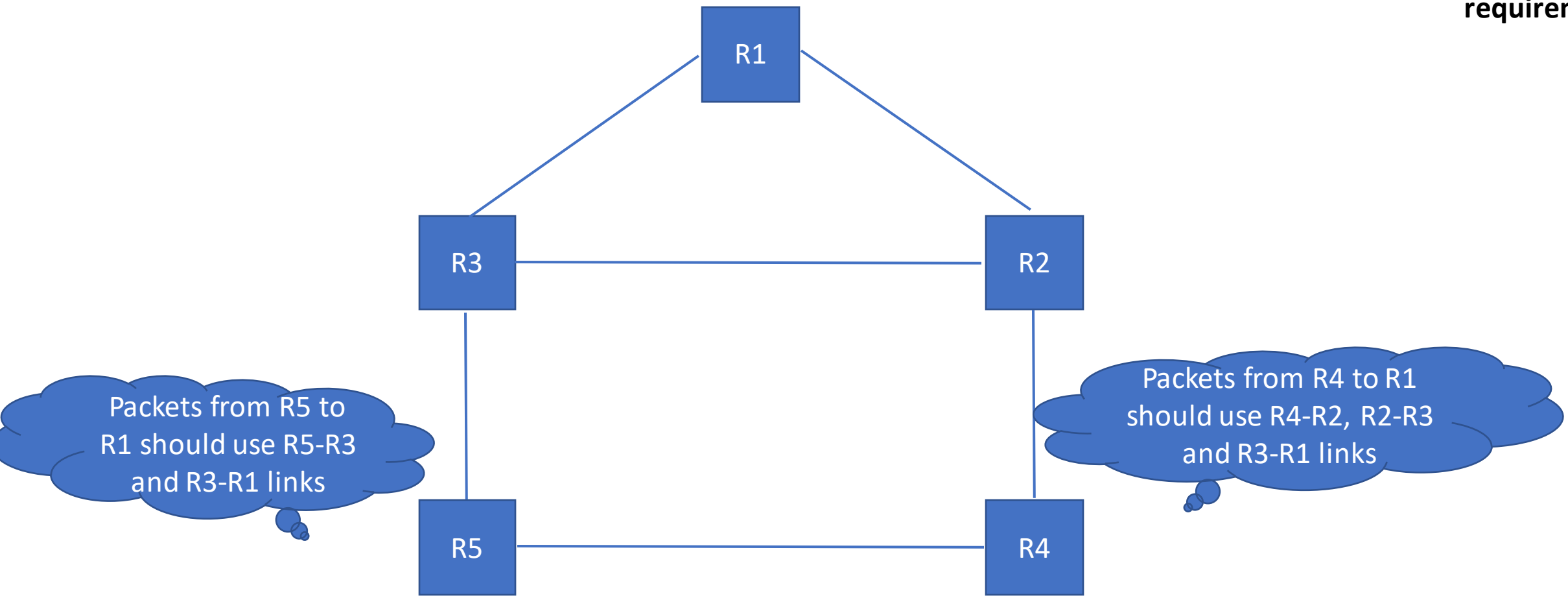
LINFO1341

TP – Building a network

https://beta.computer-networking.info/syllabus/default/exercises/network.html

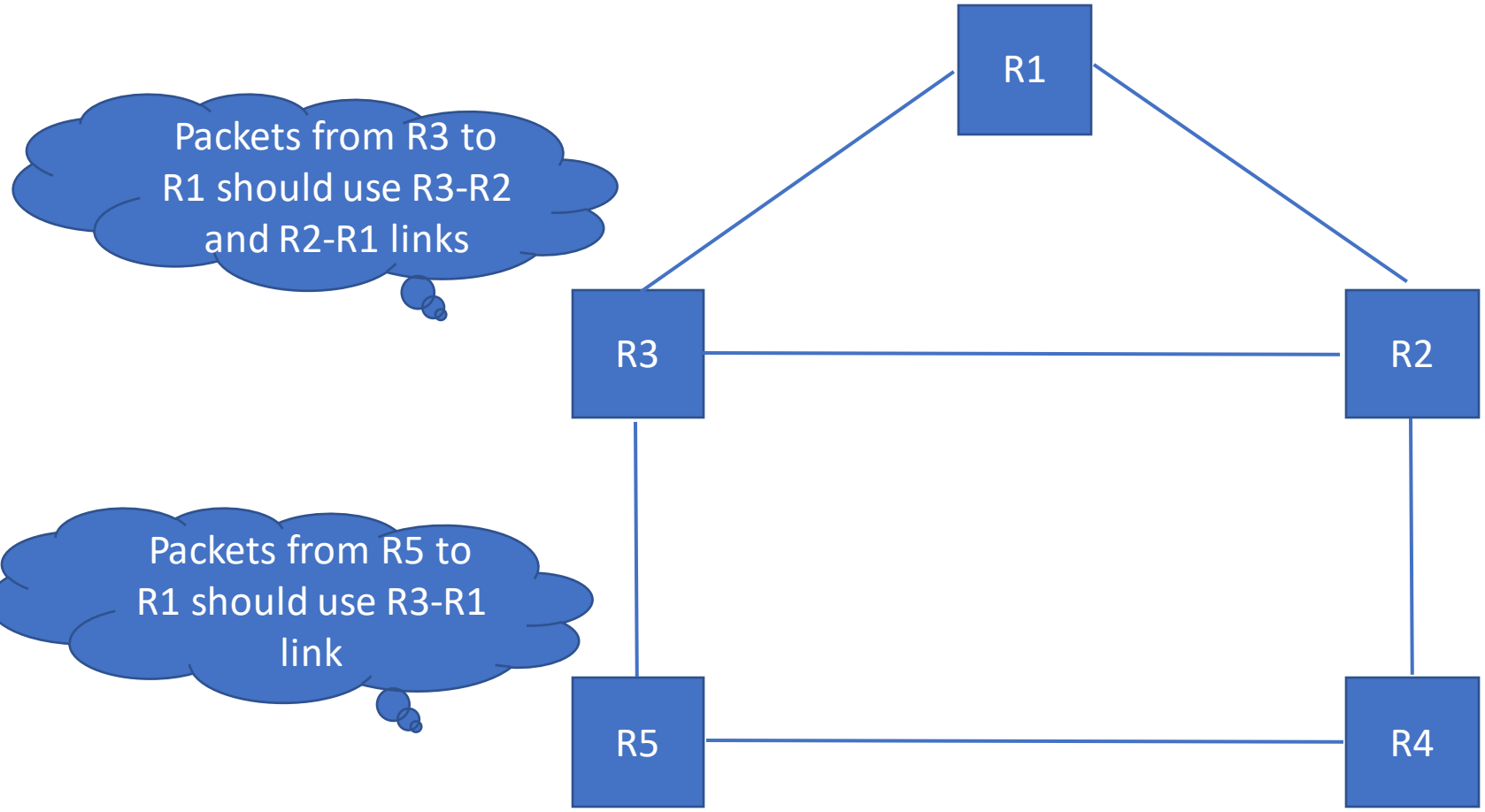
Open question 7: Configuring link metrics

Weights on the links to meet the requirements?



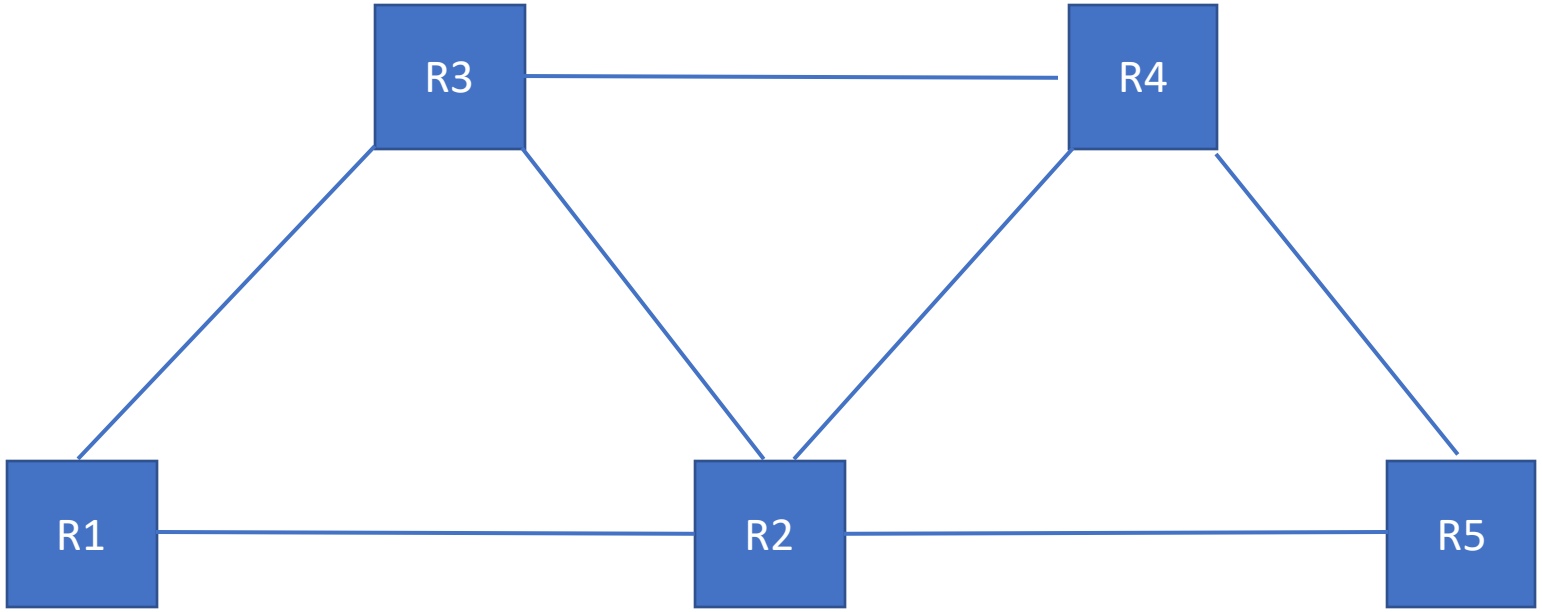
Open question 6: Configuring link metrics

Weights on the links to meet the requirements?



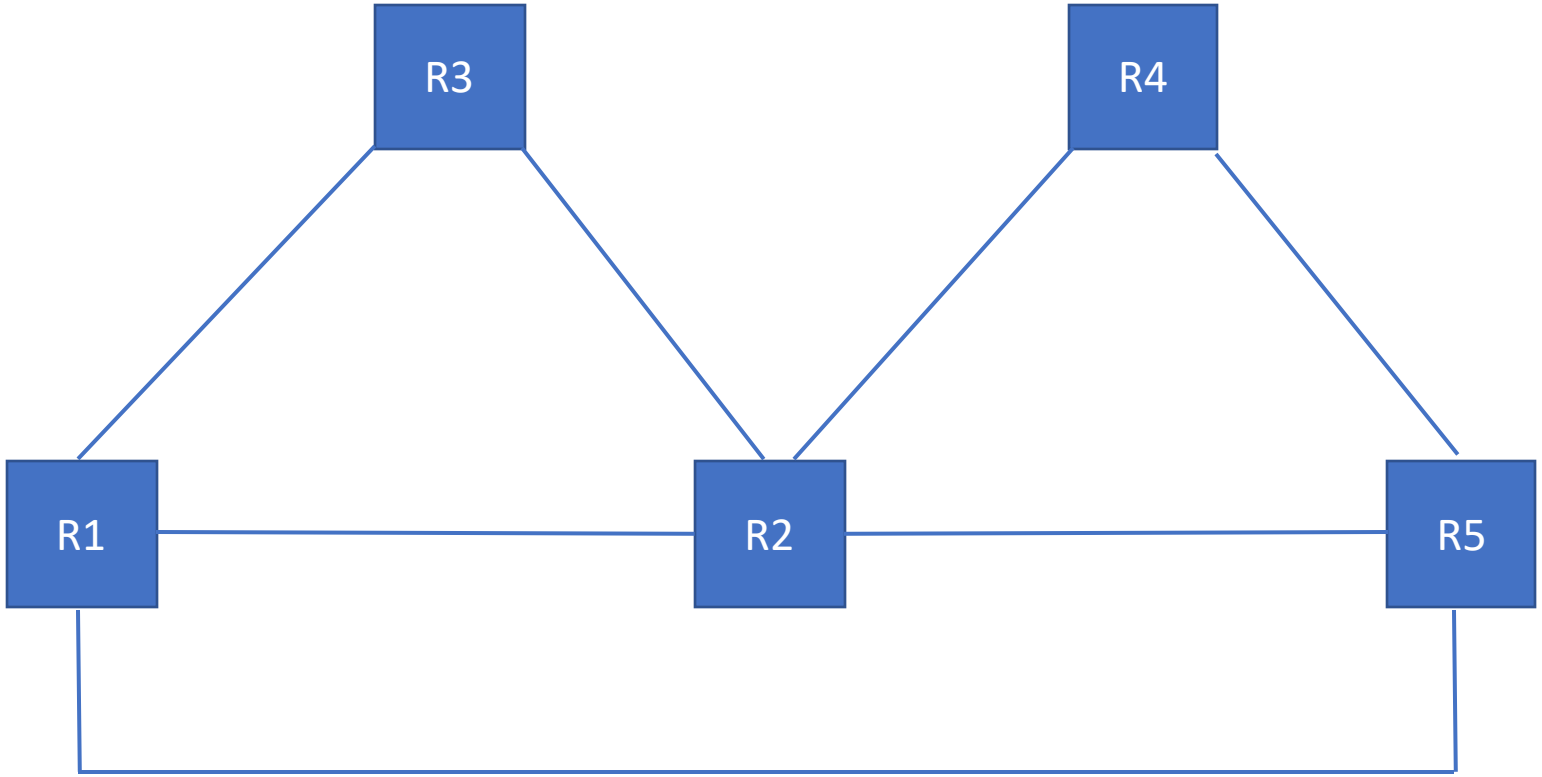
Open question 10: Configuring link metrics

Want paths
*** R1->R2->R4**
*** R3->R2->R5->R4**
Link metrics to have this?



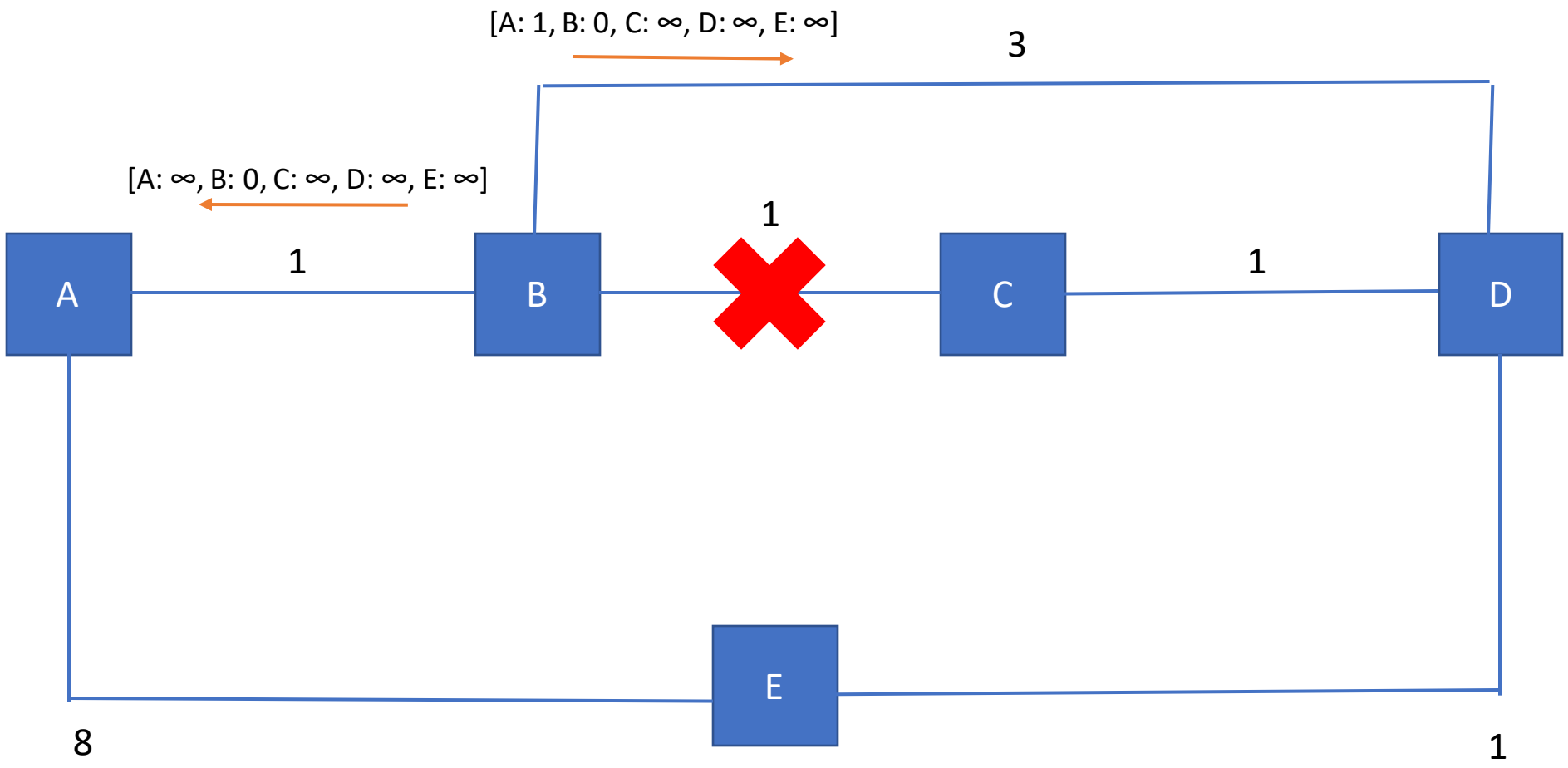
Open question 11: Configuring link metrics

Want paths
*** R1->R5->R4**
*** R3->R2->R4**
Link metrics to have this?



Discussion question 5: Distance vector

Split horizon, periodic update: what happens after B-C link failure?



Discussion question 5: Distance vector

Split horizon, periodic update: what happens after B-C link failure?

A's Routing Table
A: 0 [Local]
B: 1 [via B]
C: 2 [via B]
D: 3 [via B]
E: 4 [via B]

B's Routing Table
A: 1 [via A]
B: 0 [Local]
C: 1 [via C]
D: 2 [via C]
E: 3 [via C]

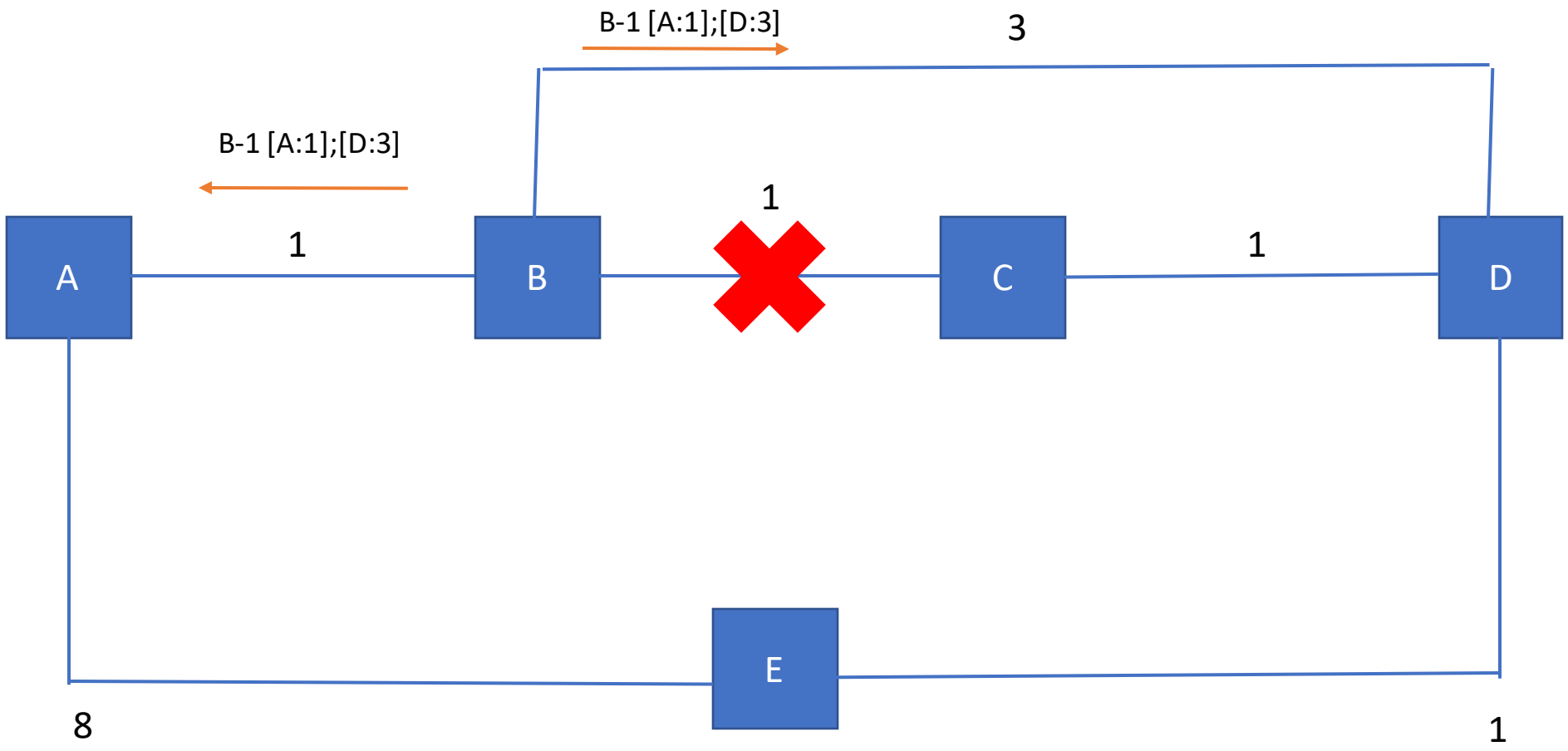
C's Routing Table
A: 2 [via B]
B: 1 [via B]
C: 0 [Local]
D: 1 [via D]
E: 2 [via D]

D's Routing Table
A: 3 [via C]
B: 2 [via C]
C: 1 [via C]
D: 0 [Local]
E: 1 [via E]

E's Routing Table
A: 4 [via D]
B: 3 [via D]
C: 2 [via D]
D: 1 [via D]
E: 0 [Local]

Discussion question 6: Link-state

What happens after B-C link failure? B&C, E, A



Discussion question 6: Link-state

What happens after B-C link failure?

A's view

Links	LSPs
A->B, B->A: 1	A-0 [B:1];[E:8]
B->C, C->B: 1	B-0 [A:1];[C:1];[D:3]
C->D, D->C: 1	C-0 [B:1];[D:1]
D->E, E->D: 1	D-0 [B:3];[C:1];[E:1]
B->D, D->B: 3	E-0 [A:8];[D:1]
A->E, E->A: 8	

B's view

Links	LSPs
A->B, B->A: 1	A-0 [B:1];[E:8]
B->C, C->B: 1	B-0 [A:1];[C:1];[D:3]
C->D, D->C: 1	C-0 [B:1];[D:1]
D->E, E->D: 1	D-0 [B:3];[C:1];[E:1]
B->D, D->B: 3	E-0 [A:8];[D:1]
A->E, E->A: 8	

C's view

Links	LSPs
A->B, B->A: 1	A-0 [B:1];[E:8]
B->C, C->B: 1	B-0 [A:1];[C:1];[D:3]
C->D, D->C: 1	C-0 [B:1];[D:1]
D->E, E->D: 1	D-0 [B:3];[C:1];[E:1]
B->D, D->B: 3	E-0 [A:8];[D:1]
A->E, E->A: 8	

D's view

Links	LSPs
A->B, B->A: 1	A-0 [B:1];[E:8]
B->C, C->B: 1	B-0 [A:1];[C:1];[D:3]
C->D, D->C: 1	C-0 [B:1];[D:1]
D->E, E->D: 1	D-0 [B:3];[C:1];[E:1]
B->D, D->B: 3	E-0 [A:8];[D:1]
A->E, E->A: 8	

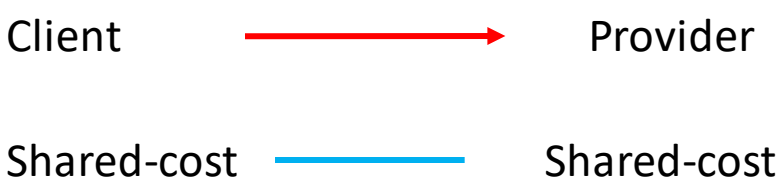
E's view

Links	LSPs
A->B, B->A: 1	A-0 [B:1];[E:8]
B->C, C->B: 1	B-0 [A:1];[C:1];[D:3]
C->D, D->C: 1	C-0 [B:1];[D:1]
D->E, E->D: 1	D-0 [B:3];[C:1];[E:1]
B->D, D->B: 3	E-0 [A:8];[D:1]
A->E, E->A: 8	

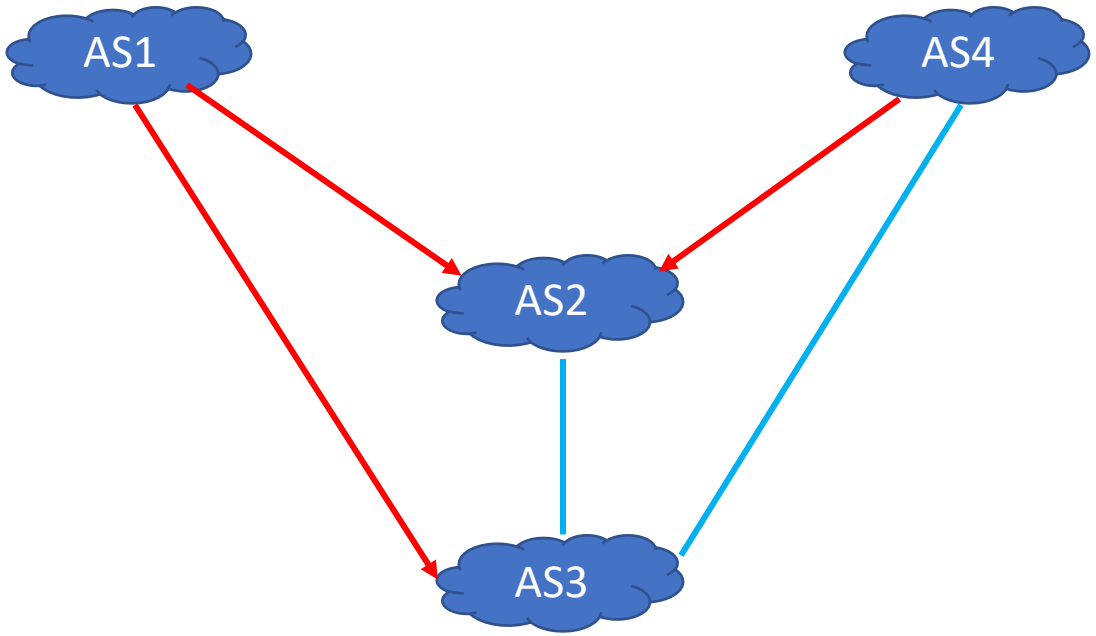
Interdomain routing with BGP

Small Recap

- How many routes do an AS advertise to a given prefix?
  - One route only, the preferred route
- As a provider, what routes do I advertise to my clients?
  - All (preferred) routes to ourselves, clients, shared-cost or providers
- As a client, what routes do I advertise to my providers?
  - Only the (preferred) route to ourselves and our clients
- What routes do I advertise over a shared-cost?
  - The (preferred) routes to ourselves and our clients



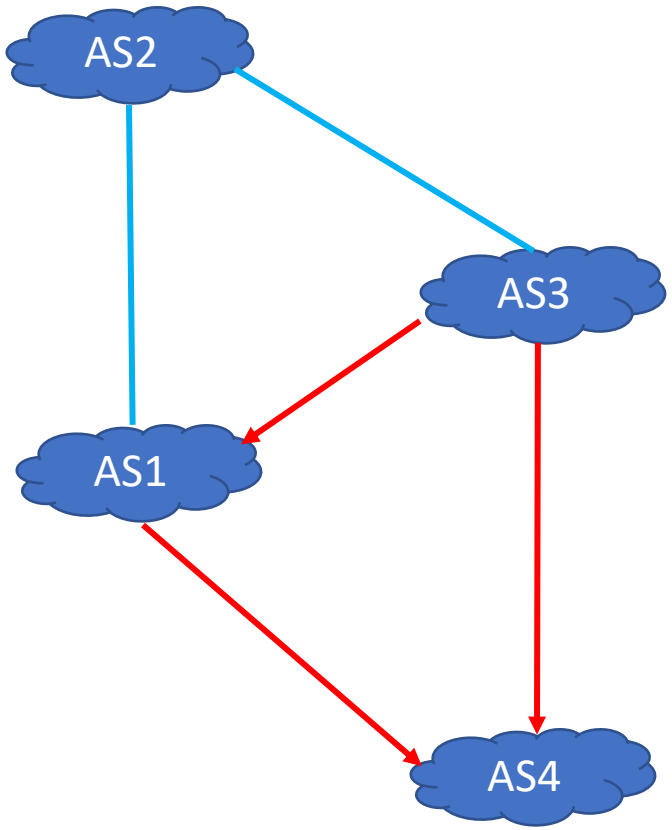
Open Question 1



What are the paths?

- From AS1 to AS4
- From AS4 to AS2
- From AS4 to AS1

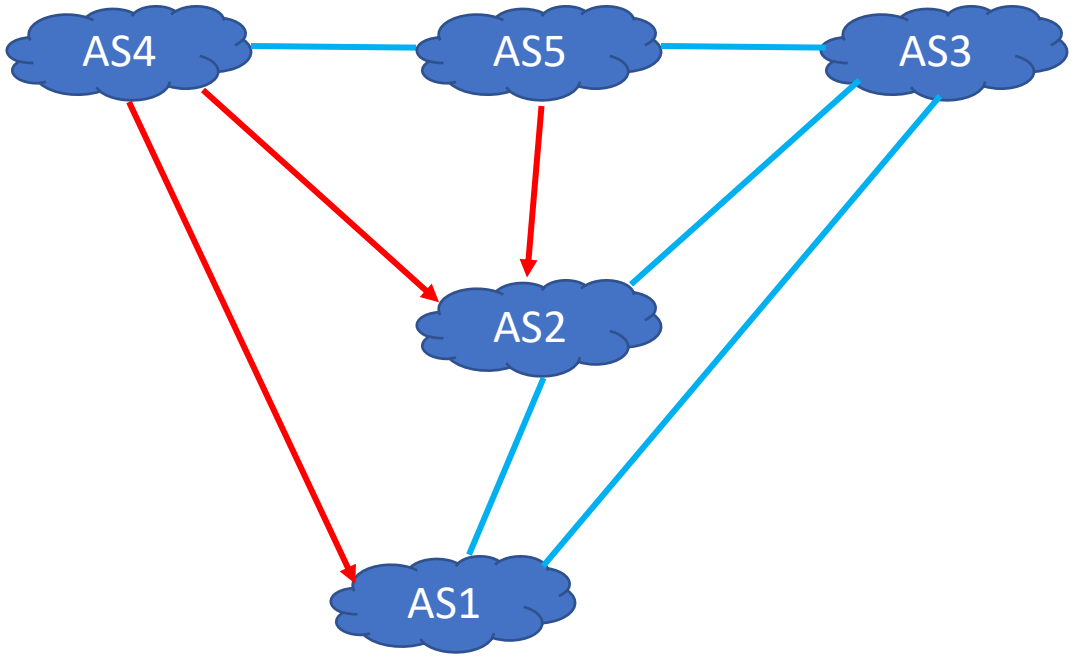
Open Question 2



AS1 advertises prefix 2001:db8:1::/48
AS2 advertises prefix 2001:db8:2::/48
…

Routing tables?
Are all ASes capable of reaching the other ones?

Open Question 3



AS1 advertises prefix 2001:db8:1::/48
AS2 advertises prefix 2001:db8:2::/48
…

Routing tables?
Are all ASes capable of reaching the other ones?
If you need to add only one peering link, what should it be?