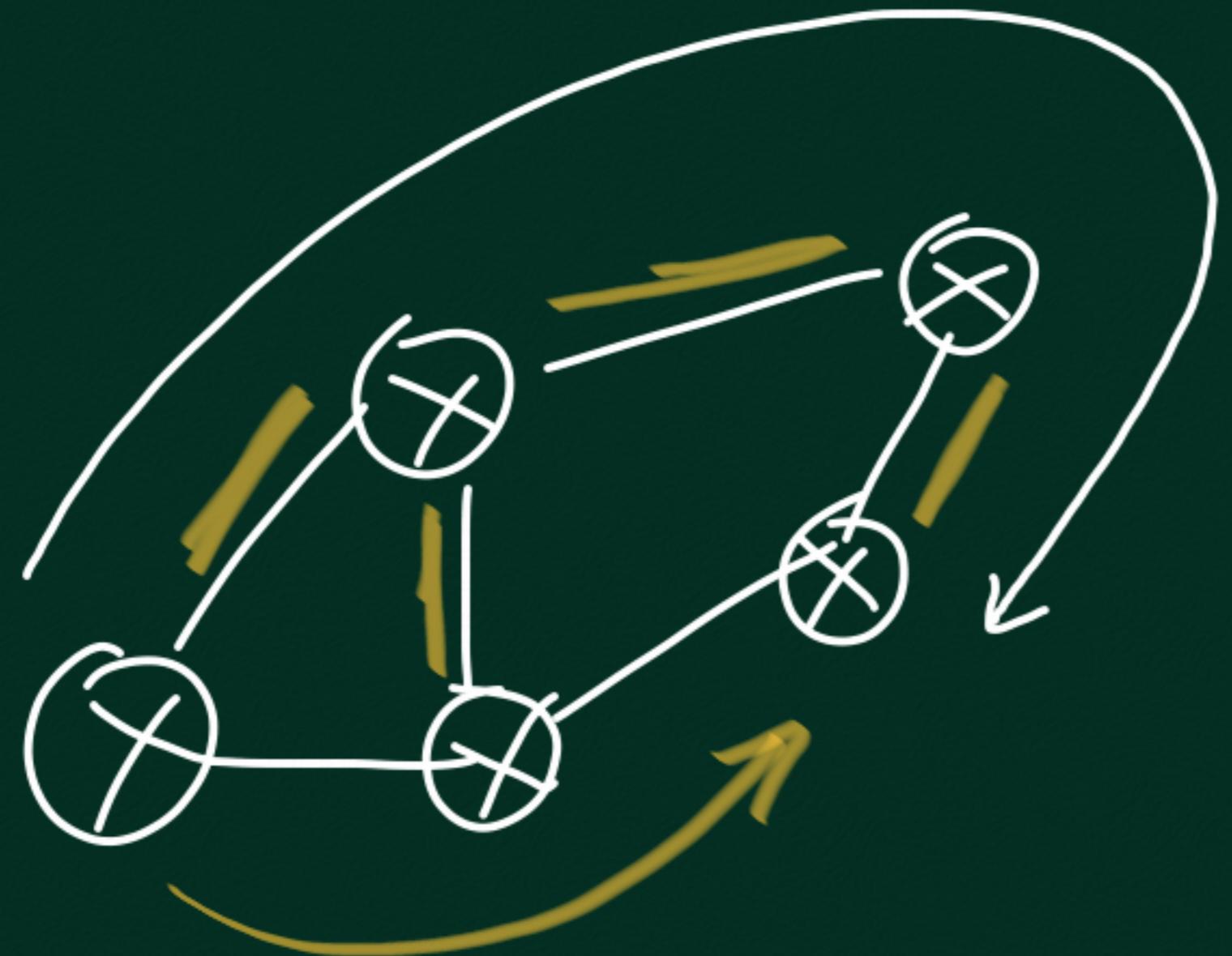


INTRA-DOMAIN ROUTING (INTERIOR GATEWAY PROTOCOL (IGP))



TYPICALLY

SHORTEST PATH ROUTING

BELLMAN-FORD, DIJKSTRA

# DISTANCE-VECTOR $\rightarrow$ BELLMAN-FORD

At C (Init)

DEST	COST	NEXT
C	0	-
A	1	A
B	1	B
D	1	D

$(G, \infty)$



~~F~~ FAILS

PKT: D  $\rightarrow$  G

20

DISTANCE-VECTOR

MIN. COST KNOWN TO  
Various Destinations

At A:

DEST	COST	NEXT-HOP
A	0	-
B	2	C
C	1	C
E	1	E
F	1	F
D	2	C
G	$\infty$	F

D.V. Exchanged Periodically with neighbours

After few iterations, tables converge

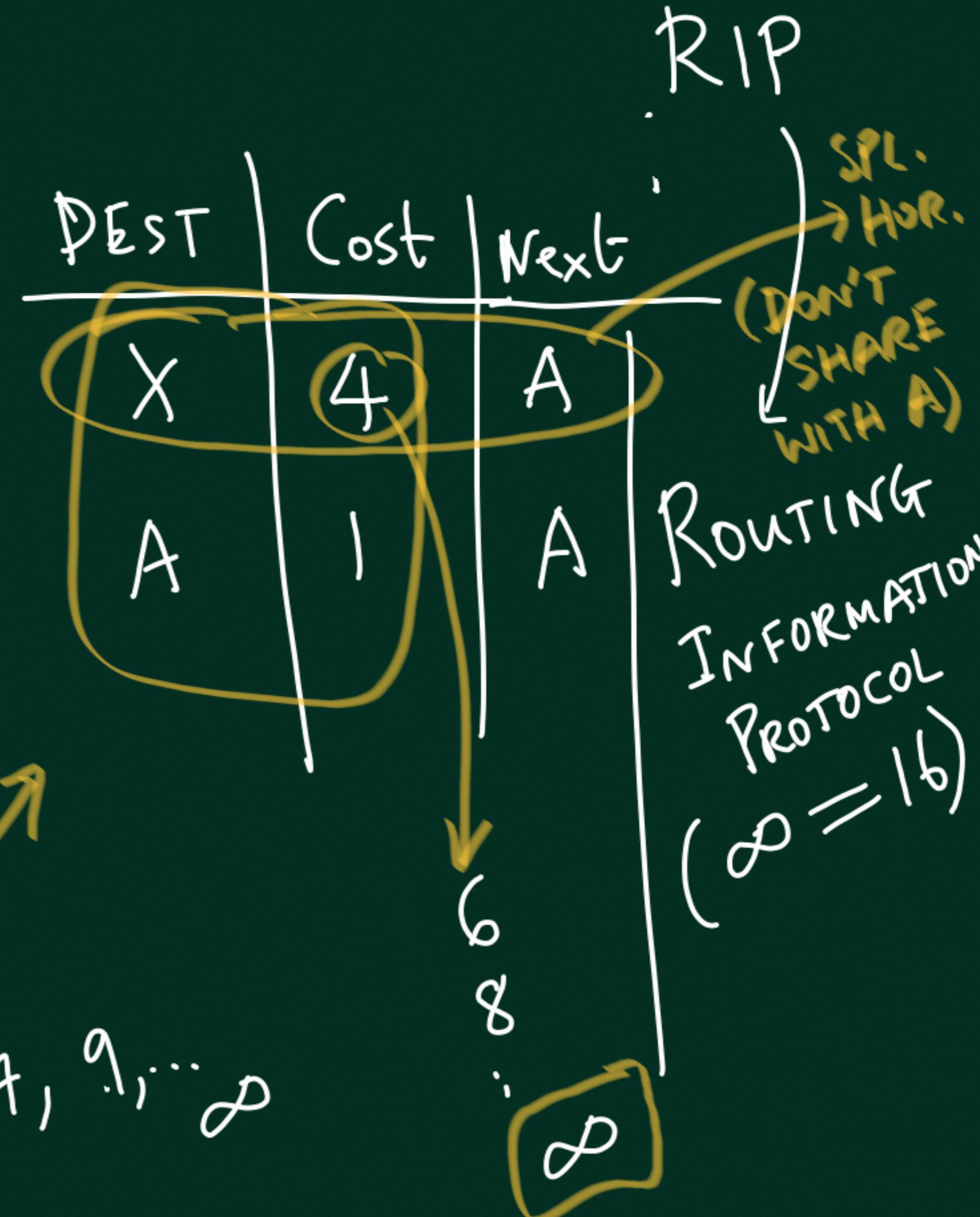
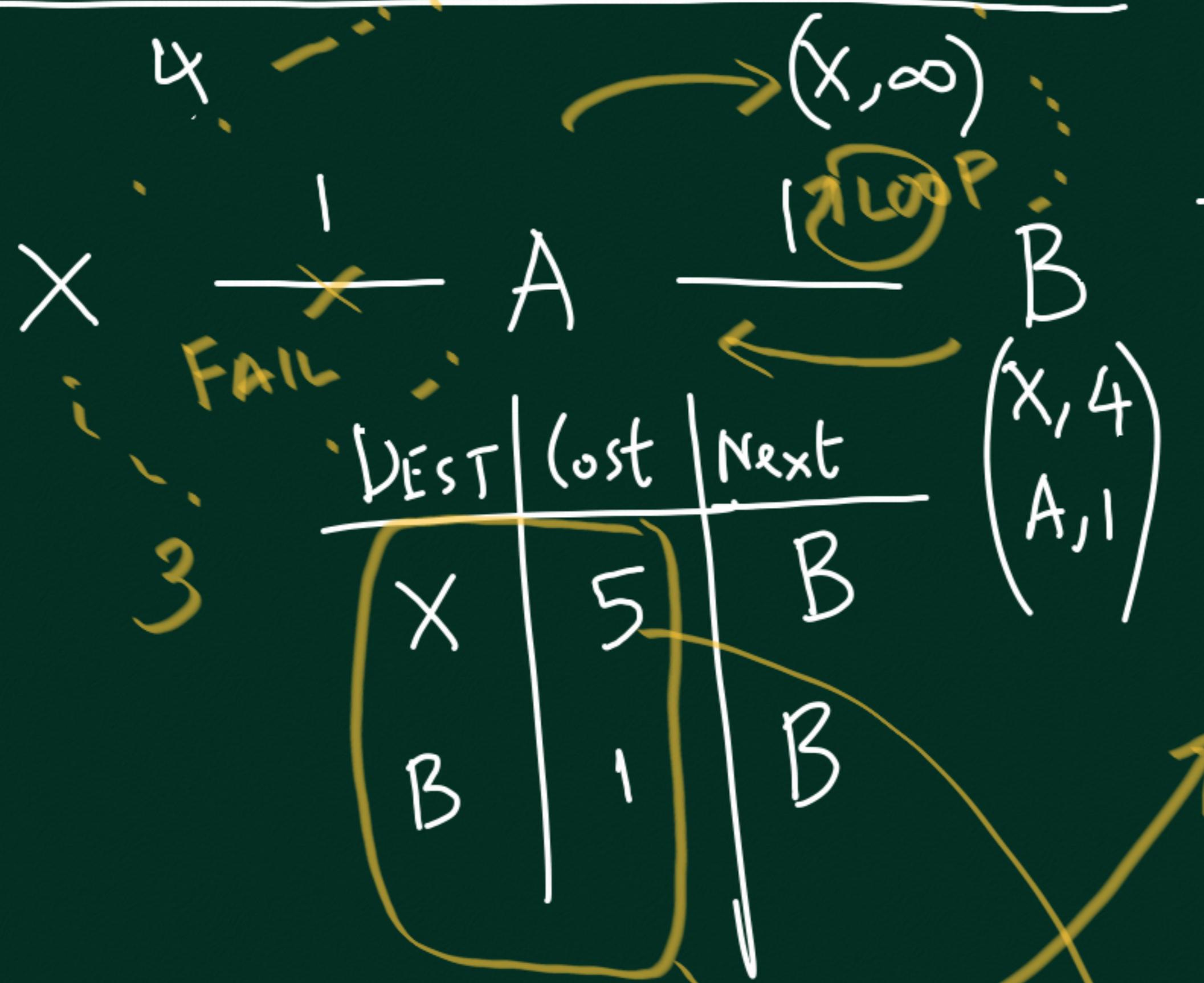
---

On Failure F tells A immediately

Ex  $F \times G$   $(G, \infty)$

A updates table, fwd $s (G, \infty)$  to  
neighbours

# COUNT-TO-INFINITY PROBLEM



SPLIT-HORIZON

DON'T SHARE D.V. ENTRY

WITH A NEIGHBOUR, IF THAT NEIGHBOUR  
IS NEXT HOP TO CONCERNED DESTINATION

Ex: B does not send  $(X, 2)$  to A

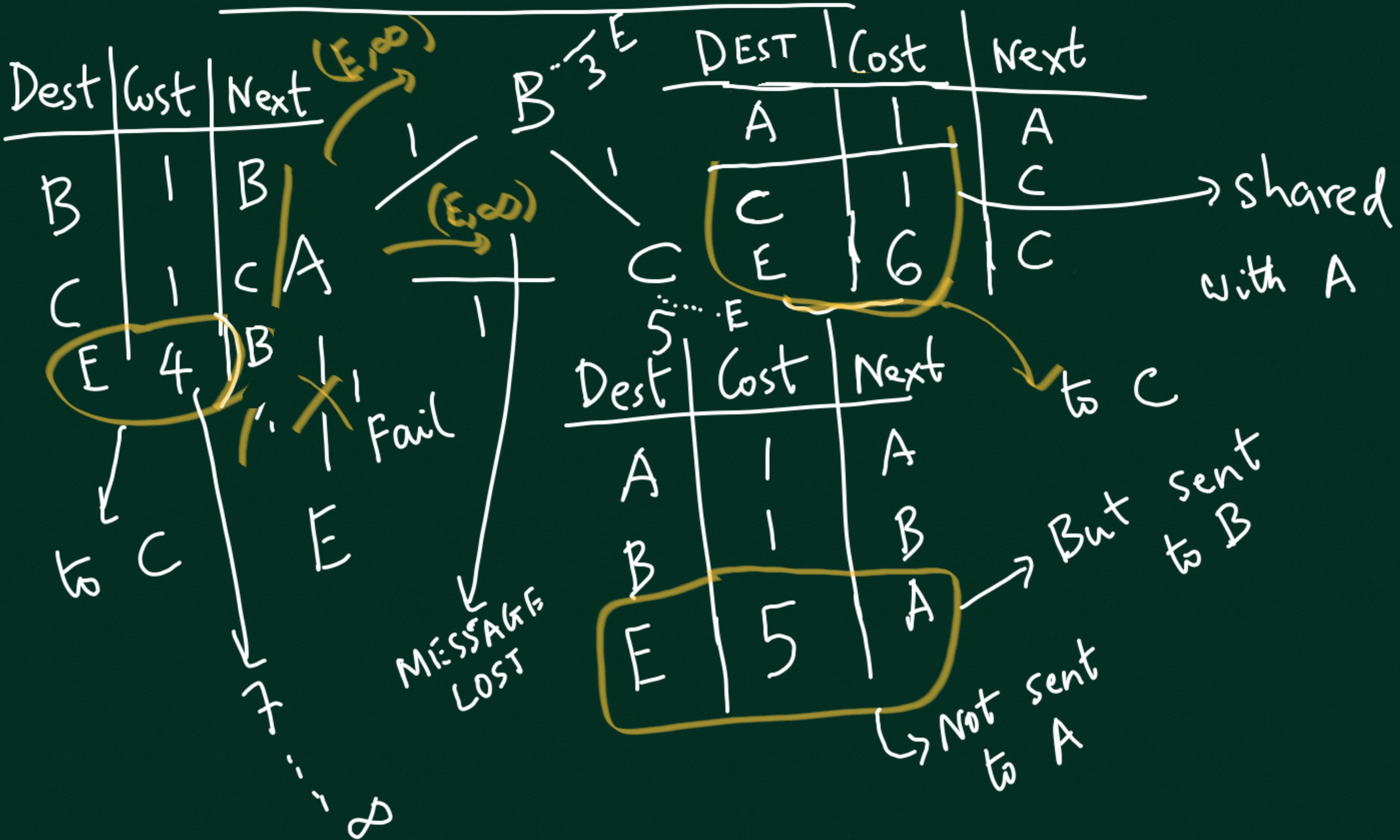
Since A is NEXT FOR X

Poison REVERSE: TELL NEXT HOP Neighbour, my

dist. (cost) to dest. is  $\infty$

Ex: B tells A :  $(X, \infty)$  instead  
of  $(X, 2)$

# FAILURE OF SPLIT HORIZON



## Adv. OF D.V.

- VERY SIMPLE

## DISADV

- COUNT TO INFINITY  
    ↳ LOOPS

} Use if network is  
small,  
low link / node  
failure rate

LINK STATE ROUTING (OSPF, ISIS) → DIJKSTRA

