

Routing Algorithm

Routing :- is the process of forwarding of a packet in a N/W so that it reaches its destination. This algo used to make routing decision for a particular packet based on the current info. is known as Routing algo.

Classification of Routing algo.

Adaptive (Dynamic)

The decision is made a fresh for each packet depending on current condition & topology of the N/W

Non adaptive (static)

once a path to the destination is selected all packet for the destination are sent on this route.

Routing algo

① Flooding :- is the algo. for distributing packet to every connected N/W

one major problem of this algo is that flooding generate large no. of duplicate packets on the N/W
 Some method to solve this problem

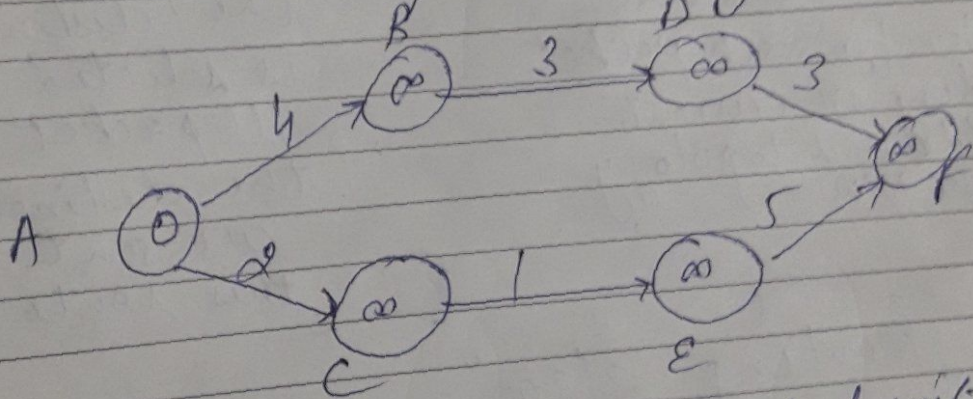
- ① Sequence No.
- ② Hop Count.

Advantages :- ① Simple to Implement
 ② High reliable.

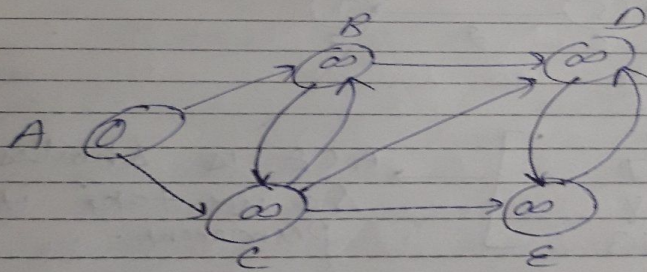
Disadvantage :- require large bandwidth.

②

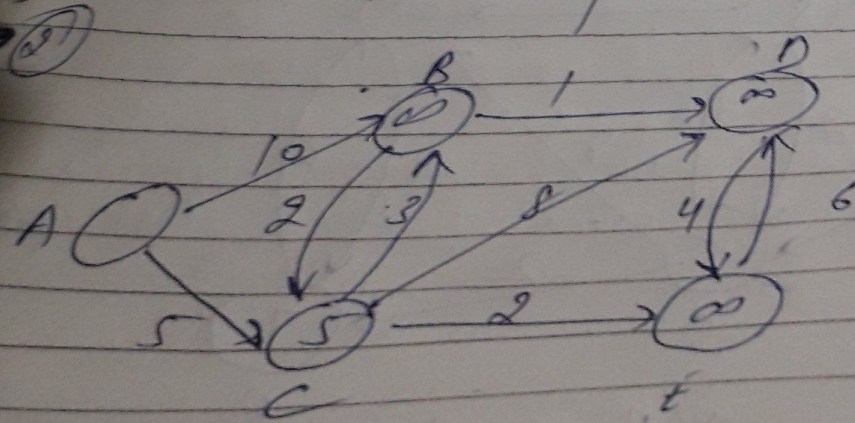
Shortest path Routing



- ① initially all nodes are marked with infinity.
- ② source node are marked as permanent.



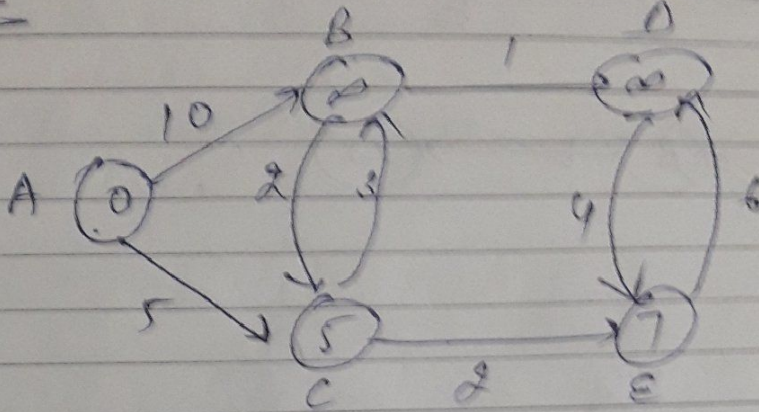
① A is our starting node. Source Node are marked as permanent.



Step 2

B & C are adjoining nodes. A.C. is shortest so we take it permanent.

Step 3

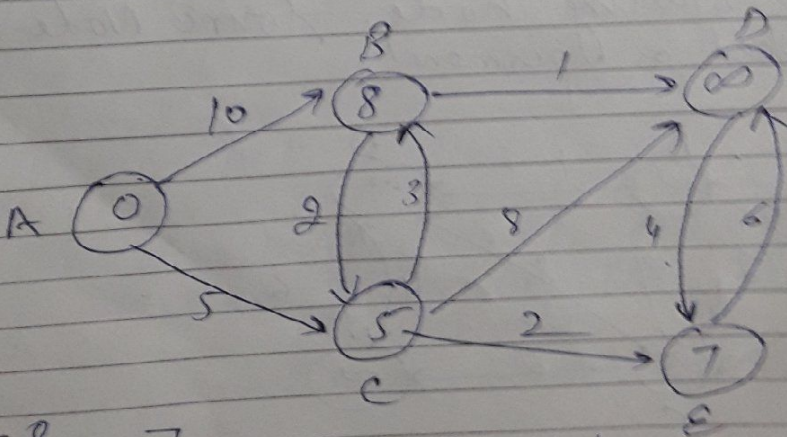


~~B, D, E~~

- AB = 10
- ACE = 7
- ACE = 8
- ACD = 13

ACE is shortest so we take it permanent.

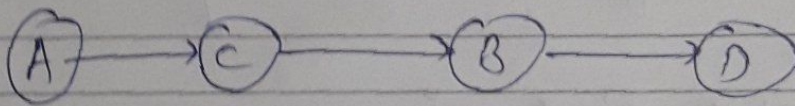
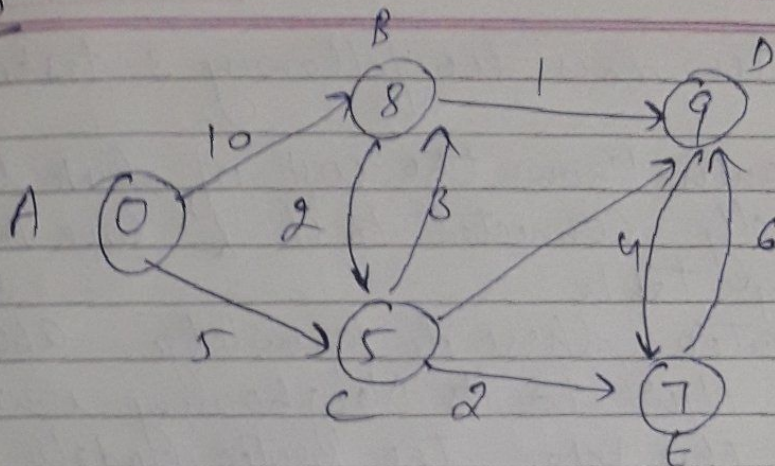
Step 4



- ACB = 8
- ACED = 13
- ACD = 13

ACB is minimum so it is permanent

Steps



Distance Vector Routing

In this algo. Each router maintain a routing table that contain the best known route to each destination.

These table are updated dynamically by exchanging this information with all the neighbouring routers.

The Entry has two parts.

- ① The preferred outgoing line for a router
- ② Cost of path to the destination.

The distance vector routing algo passes complete routing table to the adjoining routing routers.

Each router does the following 3 tasks.

- ① Each router know the cost of link that are directly connected to it & save info to routing table -
- ② Each router share its knowledge about entire N/W to its Neighbouring routers
- ③ Based on this info. the router update its own table.

"Link State Routing"

Distance vector routing was replaced by link state routing. This routing is widely used in N/W.

- ① Each router should detect its Neighbours & obtain their N/W address.
- ② Each router should Measure the delay or cost of each of its Neighbour.
- ③ A packet is constructed containing the N/W address & delay or cost of all Neighbours
- ④ This packet is send to all other routers using any static Routing algo.
- ⑤ The shortest path to every other router is computed by using the shortest path algo.