



# **SNS COLLEGE OF TECHNOLOGY**

**Coimbatore-35**  
**An Autonomous Institution**



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Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

## **DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING**

**19EC402- WIRELESS ADHOC AND SENSOR NETWORKS**  
IV ECE / VII SEMESTER

**UNIT 3 – ROUTING PROTOCOLS**

**TOPIC 3 – TABLE DRIVEN ROUTING PROTOCOLS**

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## TABLE-DRIVEN ROUTING PROTOCOL



- These protocols are called table-driven because each node is required to maintain one or more tables containing routing information on every other node in the network.
- They are **proactive** in nature so that the routing information is always consistent and up to date.
- The protocols respond to changes in network topology by propagating the updates throughout the network so that every node has a consistent view of the network.



## TABLE-DRIVEN ROUTING PROTOCOL



The table driven routing protocols are categorized as follows:

- Destination - sequenced distance vector routing
- Destination sequenced distance vector routing (DSDV) is a table driven routing protocol for MANET based on Bellman-Ford algorithm.
- DSDV was developed by **C. Perkins and P. Bhagwat in 1994**. The main contribution of the algorithm was that the algorithm works correctly, even in the presence of the loops in the routing table.
- As we know, each mobile node maintains a routing table with a route to every possible destination in the network and the number of hops to the destination.



# TABLE-DRIVEN ROUTING PROTOCOL



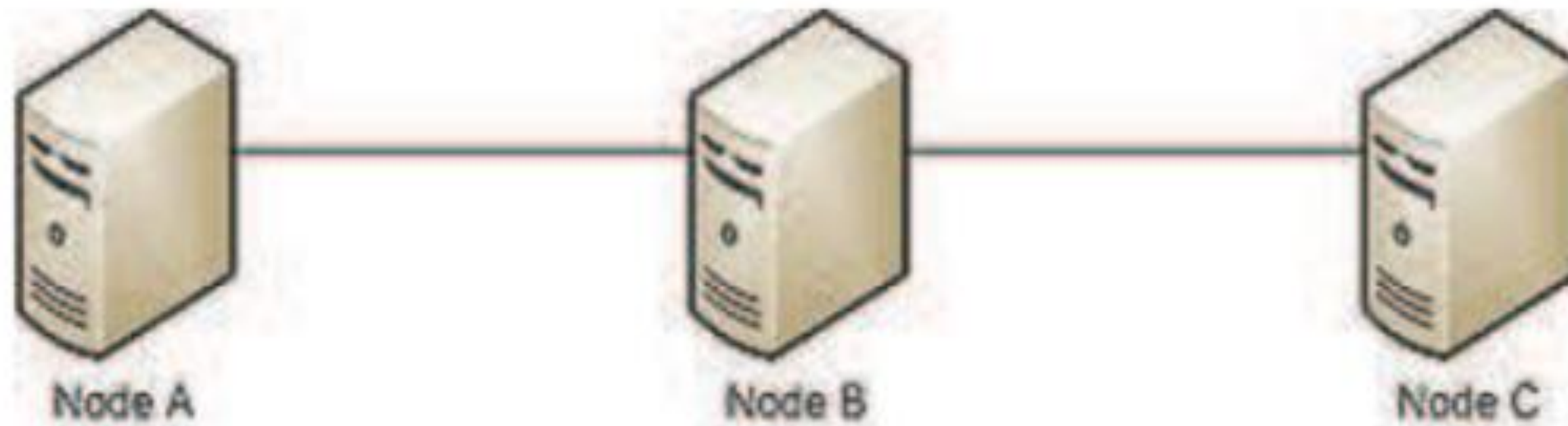
## **A new route broadcast contains:**

- The destination address.
- The number of hops required to reach the destination.
- The sequence number of the information received about the destination and a new sequence number unique to the broadcast.

If there multiple routes are available for the same destination, the route with the most recent sequence number is used. If two updates have the same sequence number, the route with smaller metric is used to optimize the routing.



# TABLE-DRIVEN ROUTING PROTOCOL





# TABLE-DRIVEN ROUTING PROTOCOL



Destination	Next Hop	No. of Hops	Sequence no.	Install time
A	A	0	A46	001000
B	B	1	B36	001200
C	B	2	C28	001500

Basically the table stores description of all possible paths reachable by node A, along with the hop, number of hops, sequence number and install time.



## TABLE-DRIVEN ROUTING PROTOCOL



### Advantages

- Destination sequenced distance vector routing was one of the early algorithms available. It is suitable for creating ad-hoc networks with small no. of nodes.

### Disadvantage

- Destination sequenced distance vector routing requires a regular update of its routing tables, which uses more battery power and a small amount of bandwidth even when the network is idle.
- This algorithm is not suitable for highly dynamic networks.



## PROACTIVE PROTOCOL

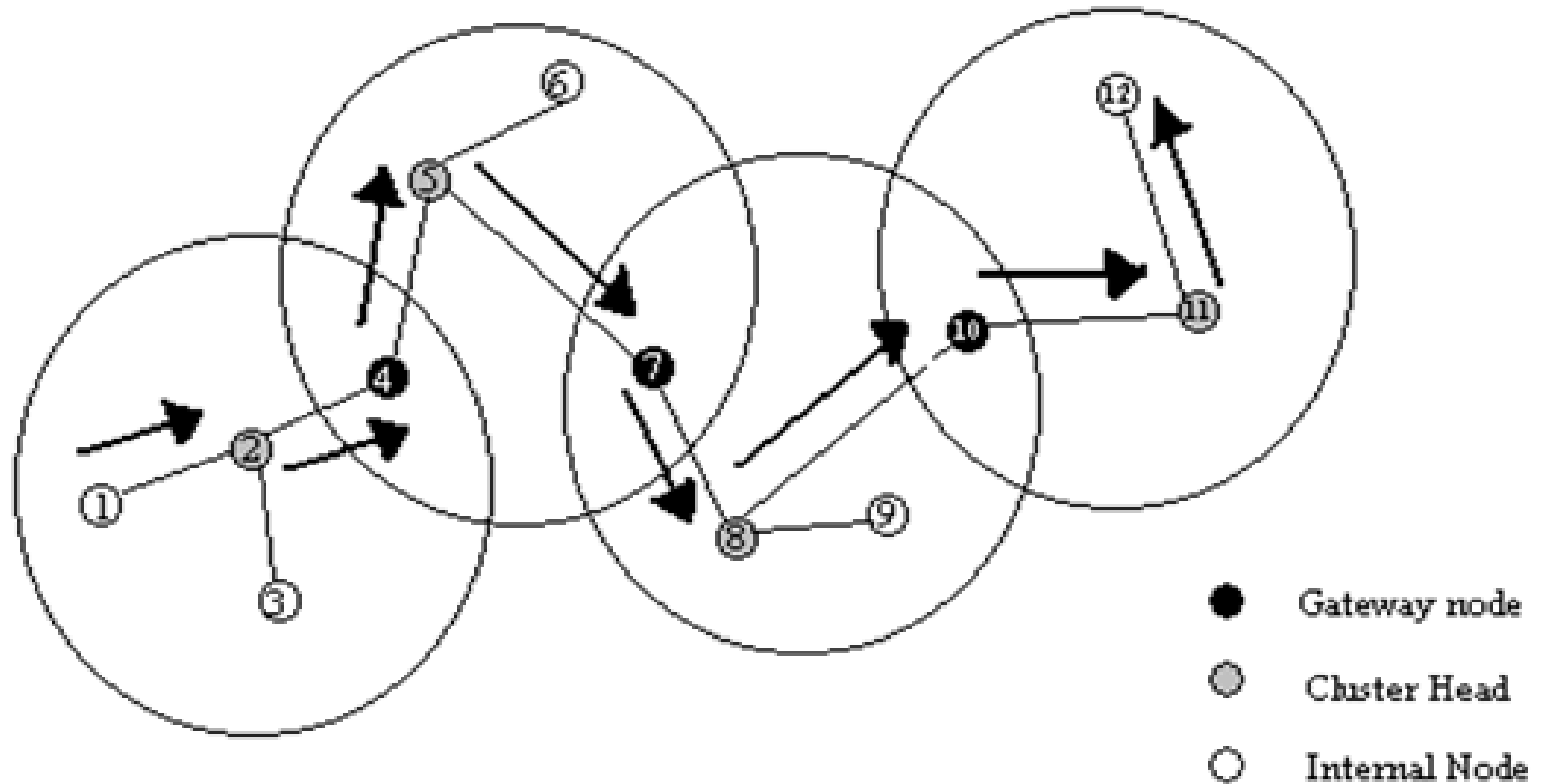


- Proactive protocols attempt to evaluate continuously the routes within the network. It means proactive protocol continuously maintain the routing information, so that when a packet needs to be forwarded, the path is known already and can be immediately used. The family of distance vector protocols is an example of proactive scheme.
- The advantage of the proactive schemes is that whenever a route is needed, there is negligible delay in determining the route.
- Unfortunately, it is a big overhead to maintain routing tables in the MANET environment. Therefore, this type of protocol has following common disadvantages:
  - Requires more amounts of data for maintaining routing information.
  - Low reaction on re-structuring network and failures of individual nodes.





# CLUSTER HEAD GATEWAY SWITCH ROUTING





**THANK YOU**