

CMPT-641
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201509162

EVALUATION OF MANET ROUTING PROTOCOLS : AODV, DSR AND DSDV

INTRODUCTION

MANETs are
decentralized.

Can be host or
router.

Random in fashion

ROUTING PROTOCOLS

1

AODV: Ad Hoc On-Demand Distance Vector

2

DSR: Dynamic Source Routing

3

DSDV: Destination Sequenced Distance Vector

A diagram illustrating the components of TCP traffic. On the left, a large dark blue circle with a white border contains the text "TCP TRAFFIC". To the right of this circle, two orange rectangular boxes are positioned side-by-side. Each box has a white border and contains the text "TCP Reno" and "TCP Tahoe" respectively. The boxes are slightly offset from each other, with the "TCP Tahoe" box being slightly higher and to the right.

TCP
TRAFFIC

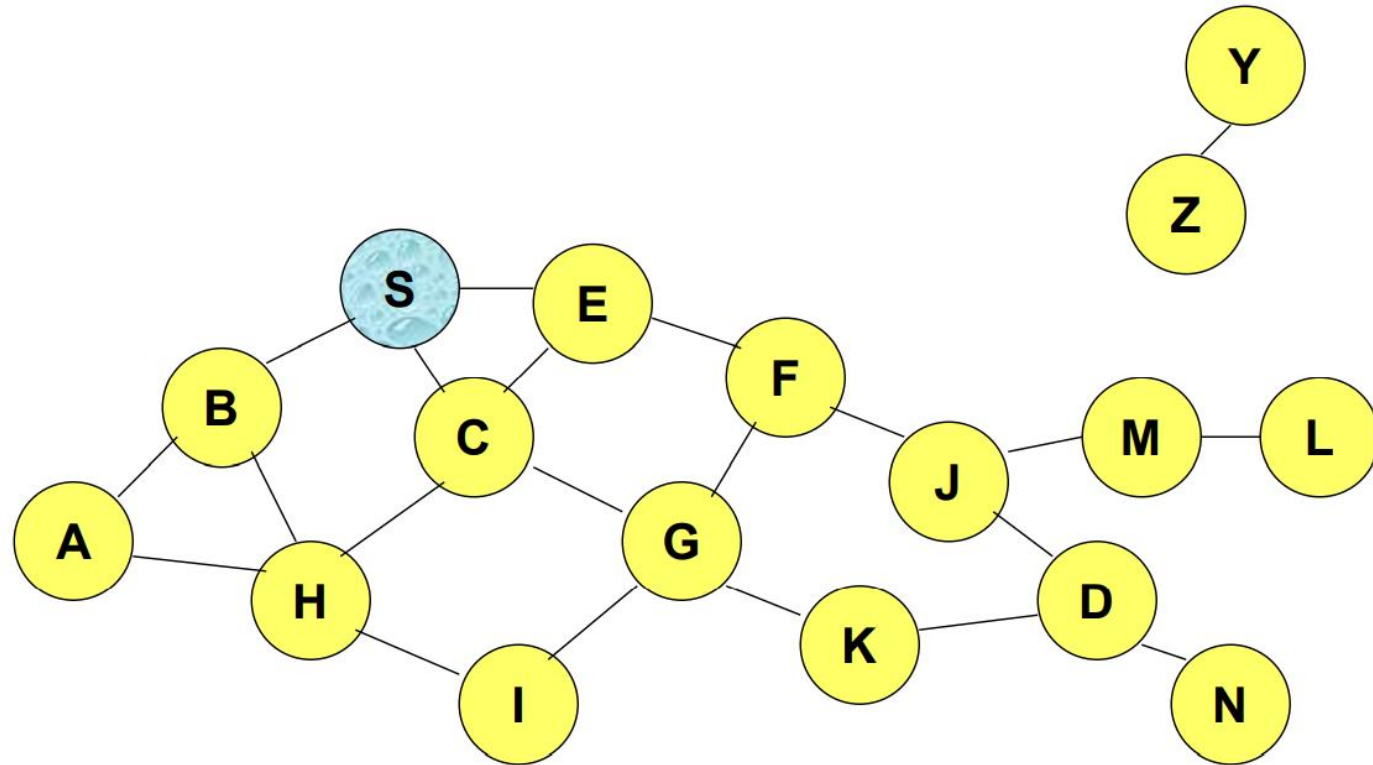
TCP
Reno

TCP
Tahoe

PROTOCOL PROPERTIES

Property	AODV	DSR	DSDV
Loop free	Yes	Yes	Yes
Multicast routes	No	Yes	No
Distributed	Yes	Yes	Yes
Unidirectional link	No	Yes	No
Multicast	Yes	No	No
Routes maintained	Route table	Route cache	Route table
Reactive	Yes	Yes	No

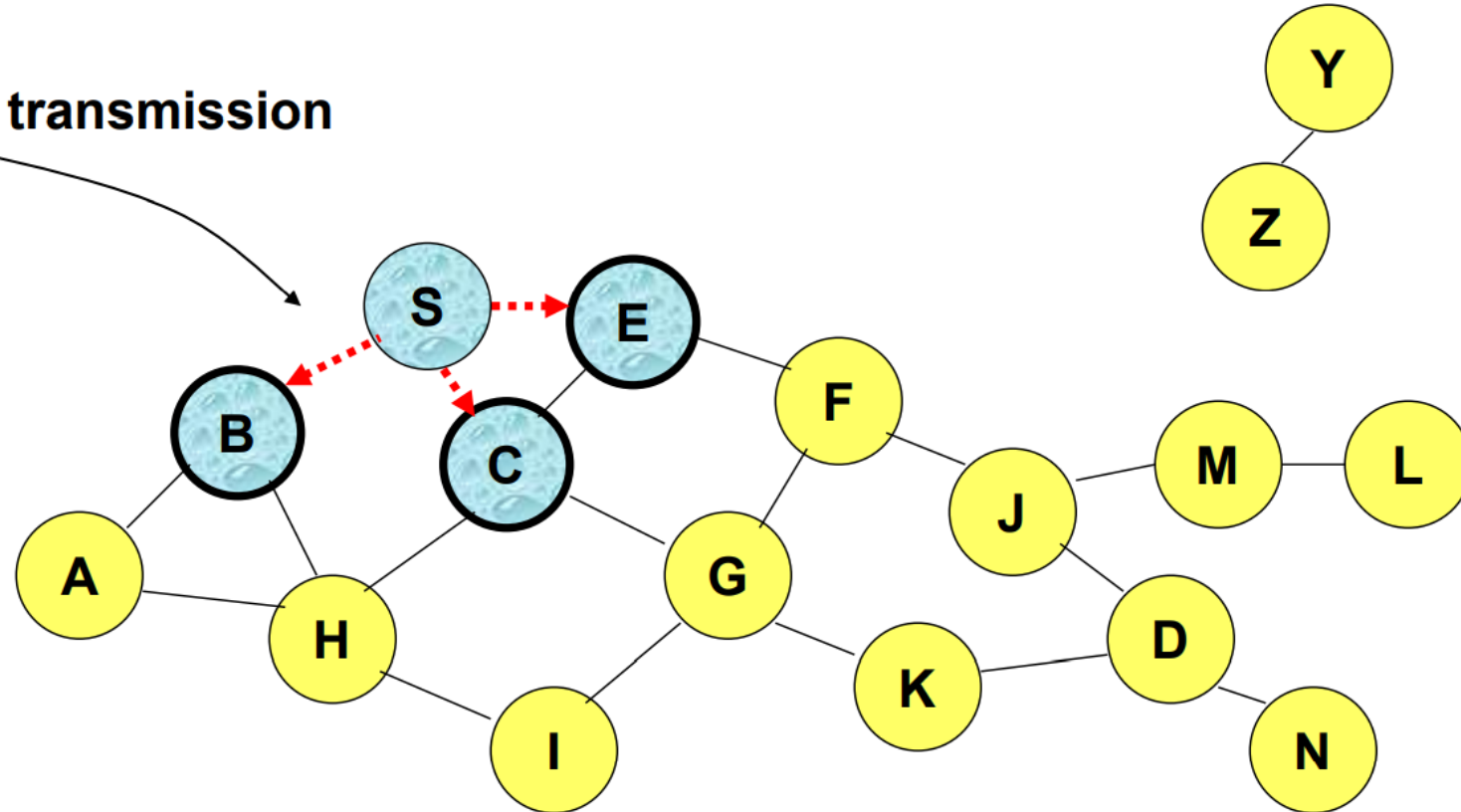
AODV: AD HOC ON-DEMAND DISTANCE VECTOR



Represents a node that has received RREQ for D from S

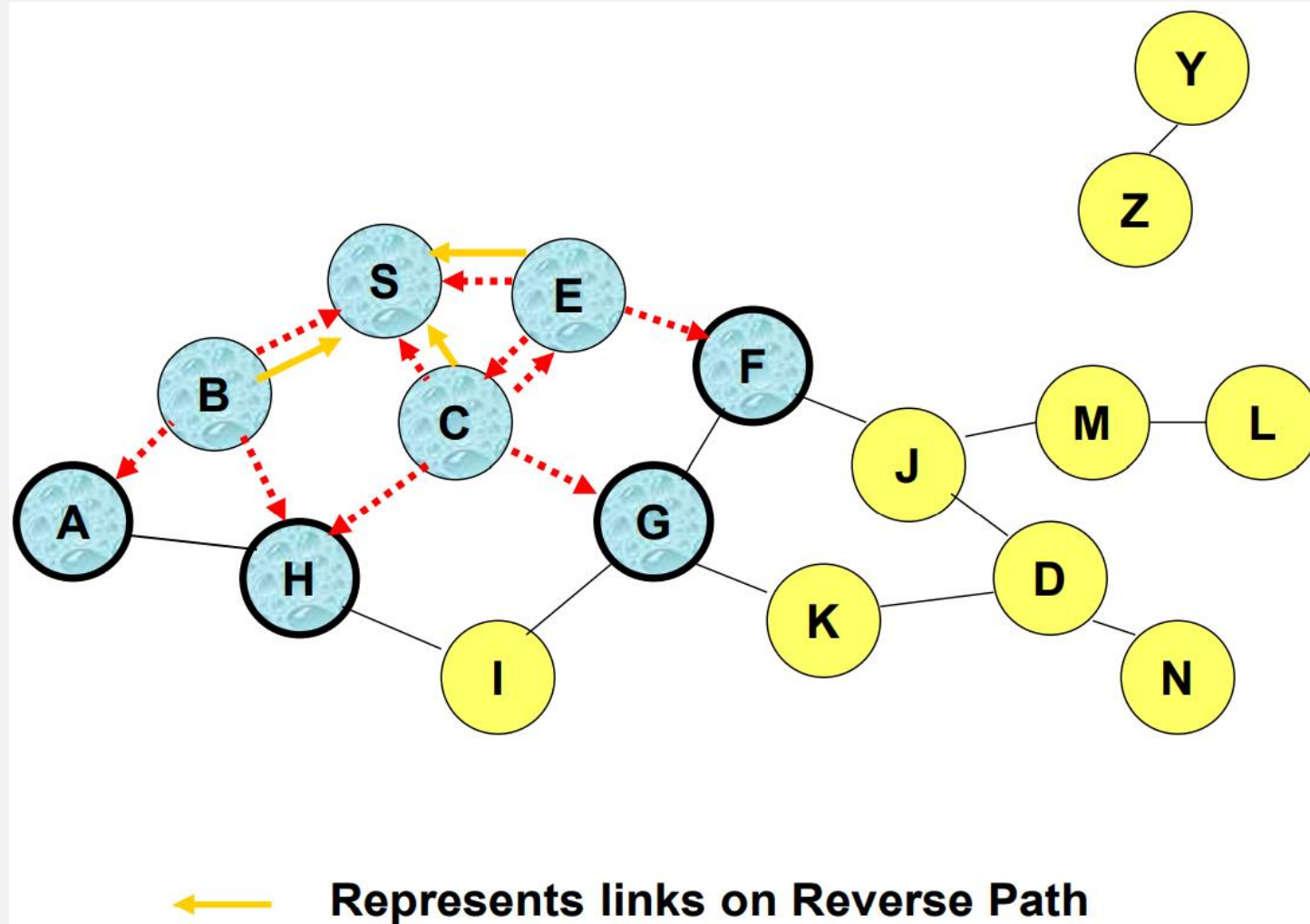
AODV: AD HOC ON-DEMAND DISTANCE VECTOR

Broadcast transmission

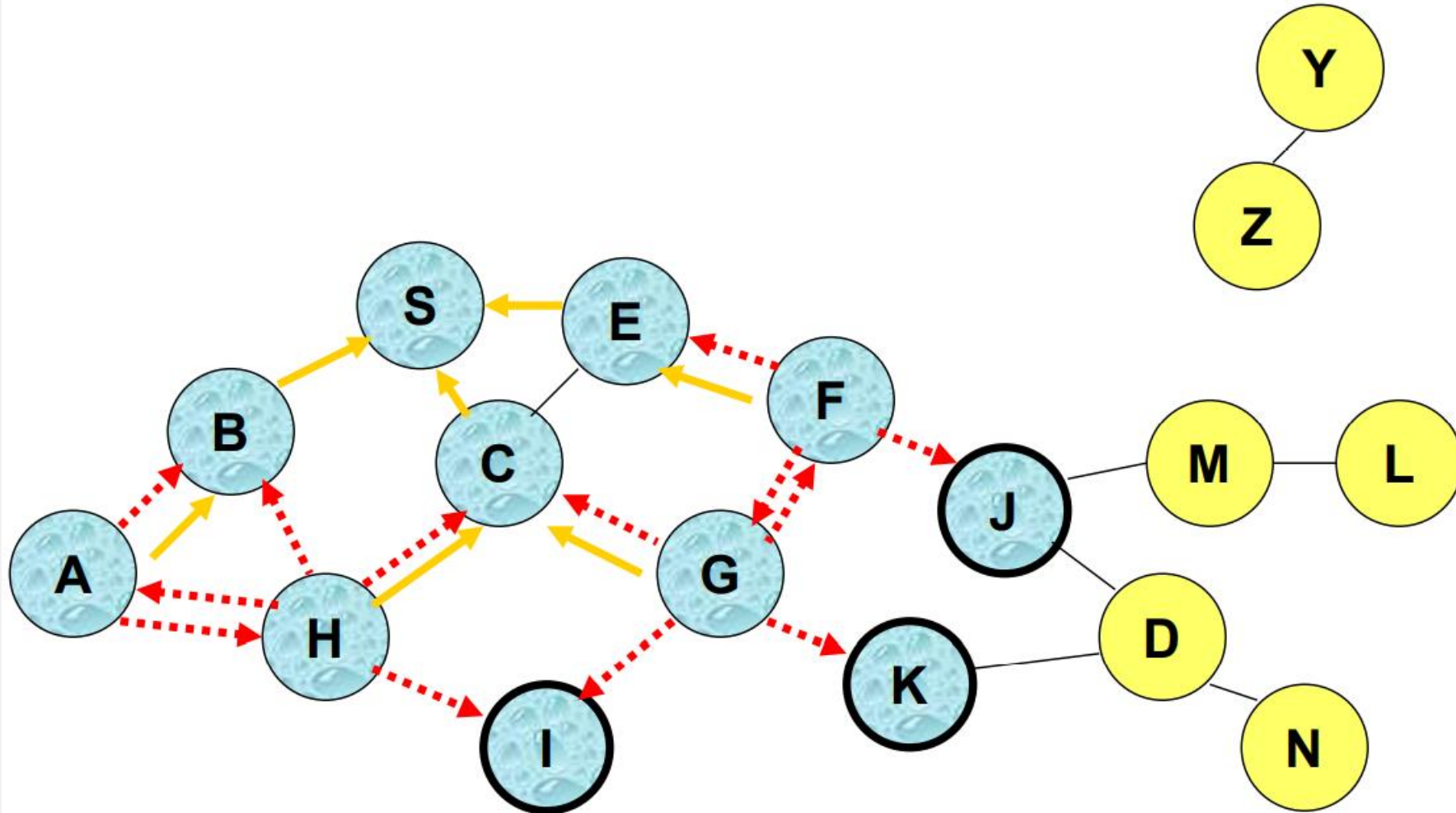


.....> Represents transmission of RREQ

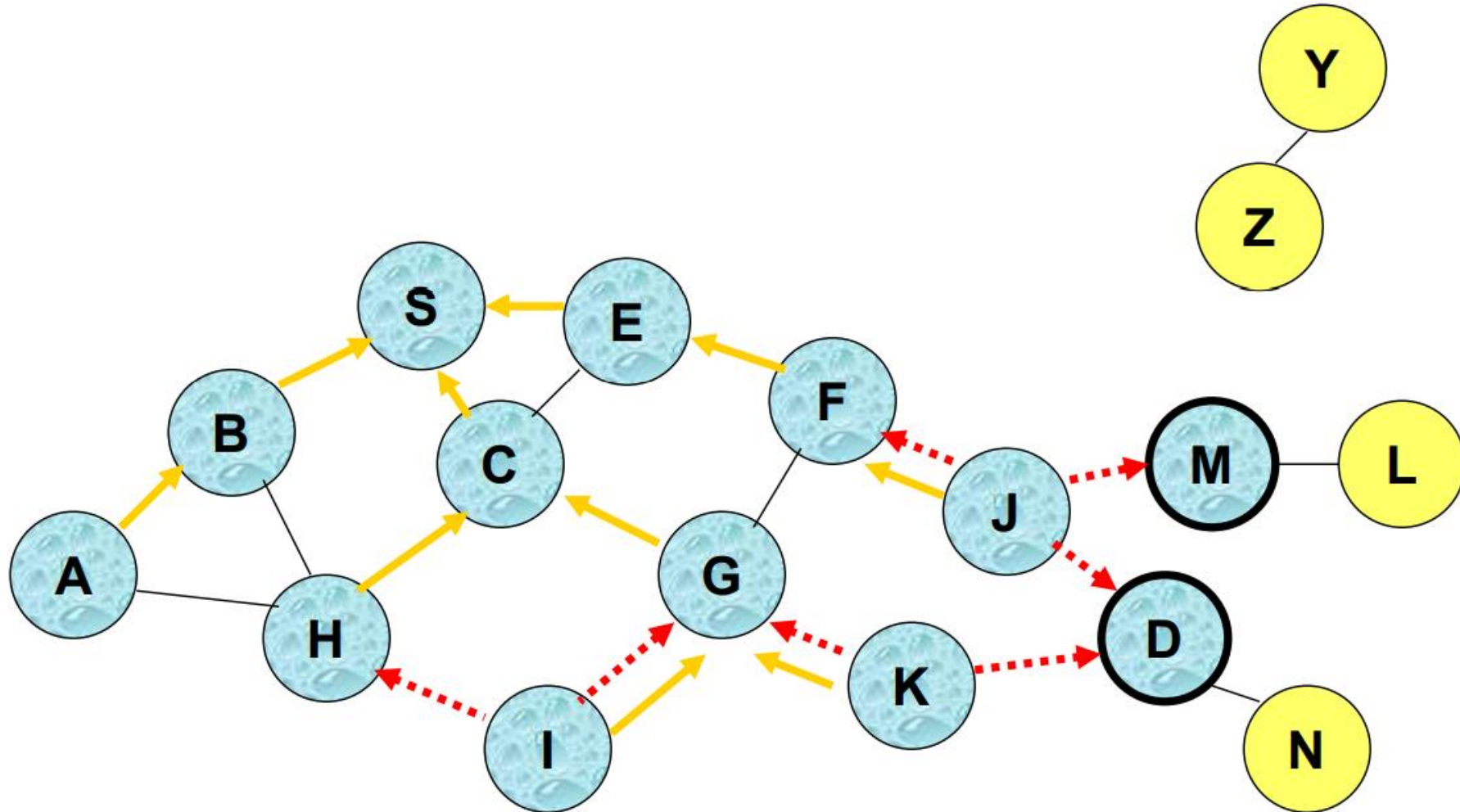
AODV: AD HOC ON-DEMAND DISTANCE VECTOR



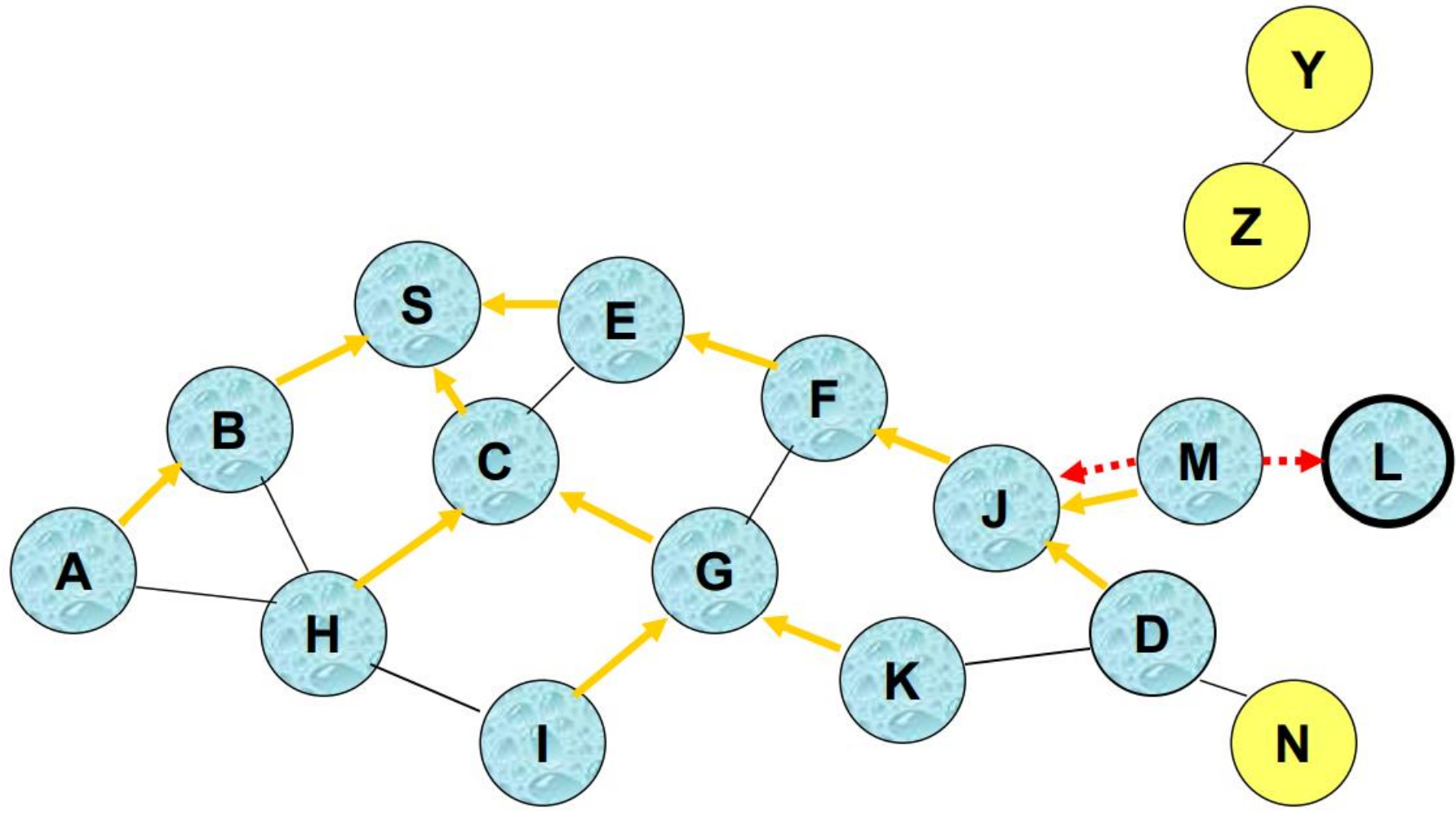
AODV: AD HOC ON-DEMAND DISTANCE VECTOR



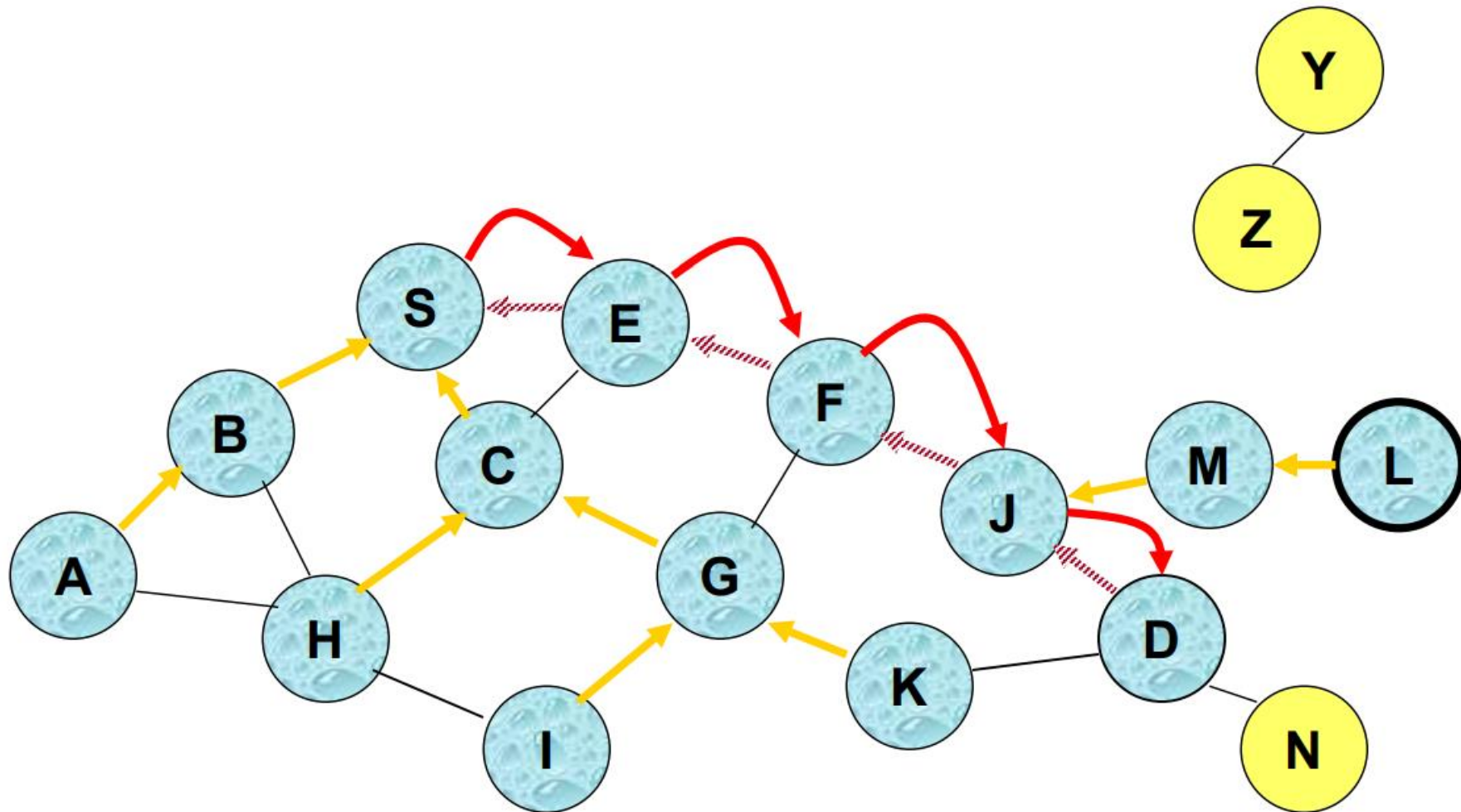
AODV: AD HOC ON-DEMAND DISTANCE VECTOR



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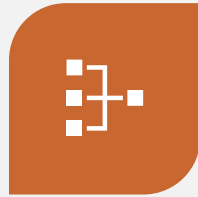
AODV: AD HOC ON-DEMAND DISTANCE VECTOR



AODV: AD HOC ON-DEMAND DISTANCE VECTOR



ROUTES DO NOT
NEED TO BE
INCLUDED IN PACKET
HEADERS.



NODES MAINTAIN
ROUTING TABLES
CONTAINING ACTIVE
ROUTES.



ONE NEXT-HOP PER
DESTINATION AT
EACH NODE.



SEQUENCE NUMBERS
AVOIDS OLD/BROKEN
ROUTES.

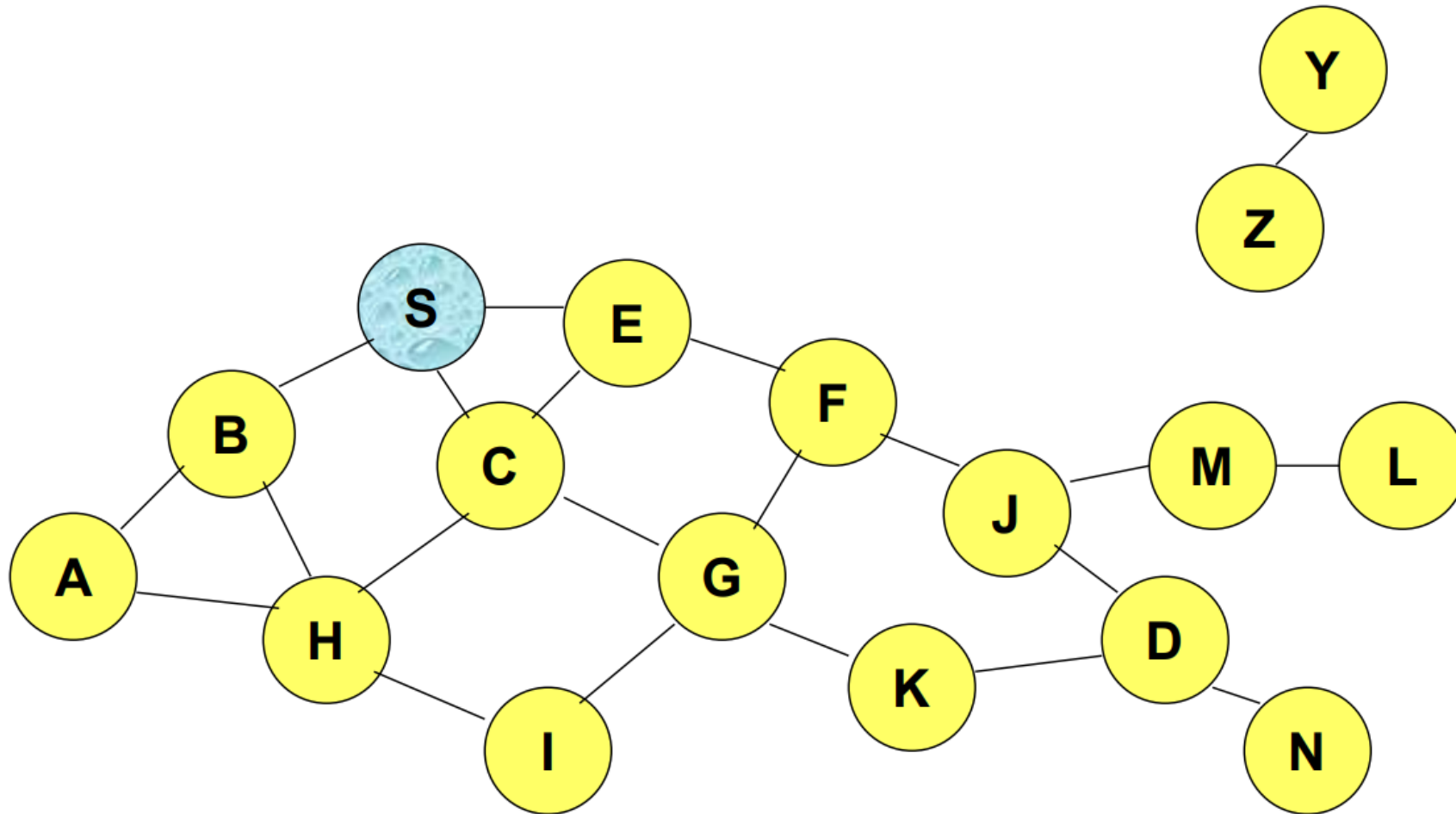


SEQUENCE NUMBERS
PREVENT ROUTING
LOOPS.



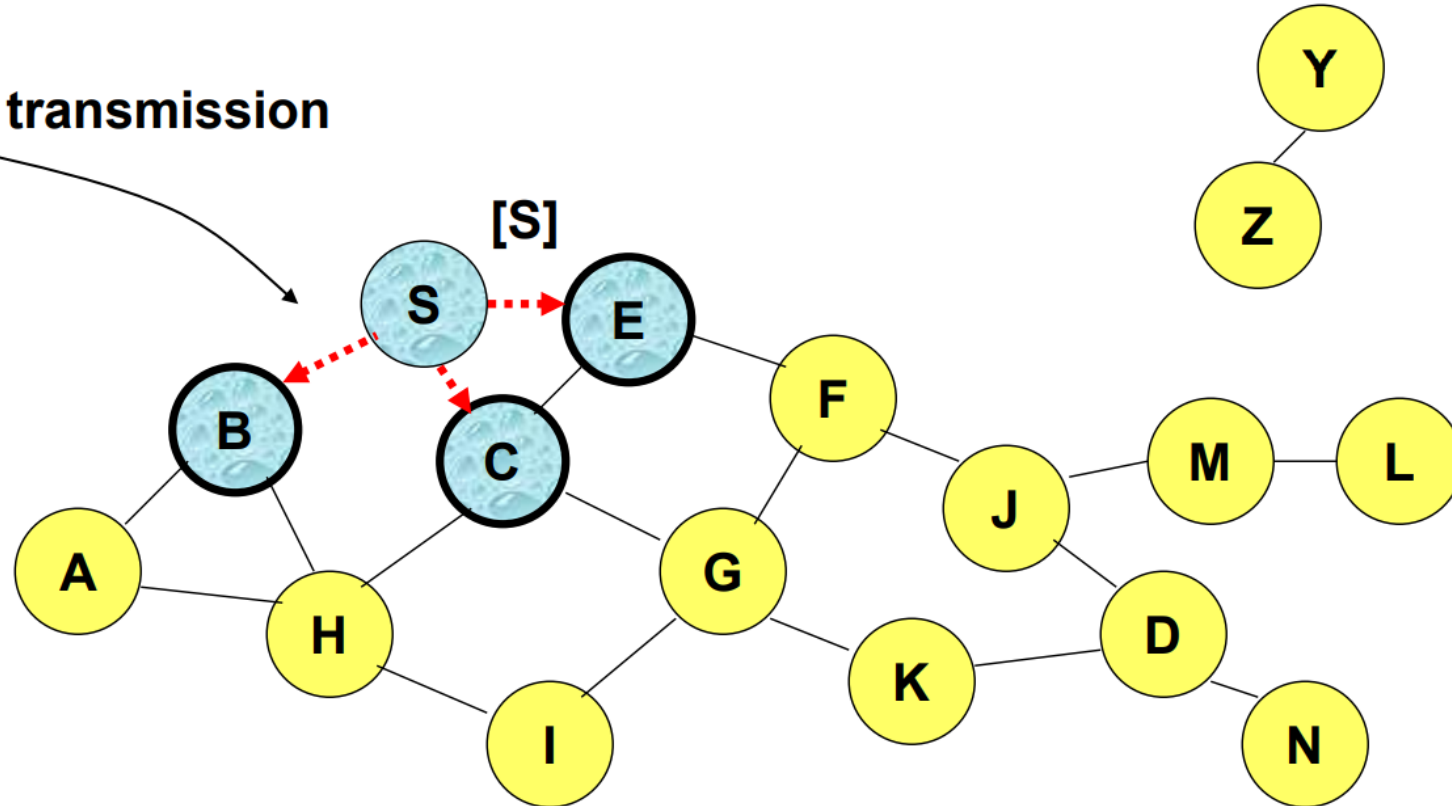
UNUSED ROUTES
EXPIRE.

DSR: DYNAMIC SOURCE ROUTING



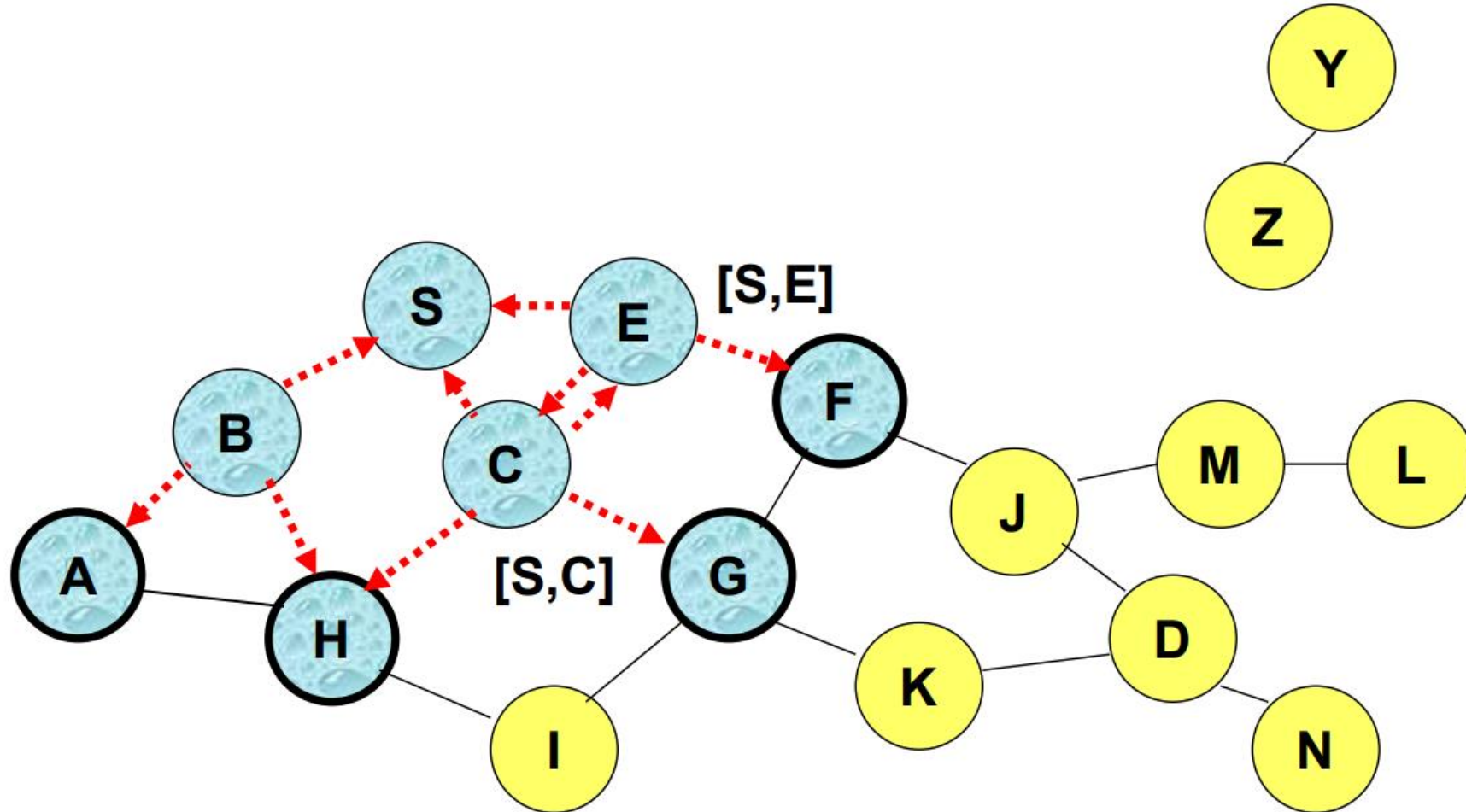
DSR: DYNAMIC SOURCE ROUTING

Broadcast transmission

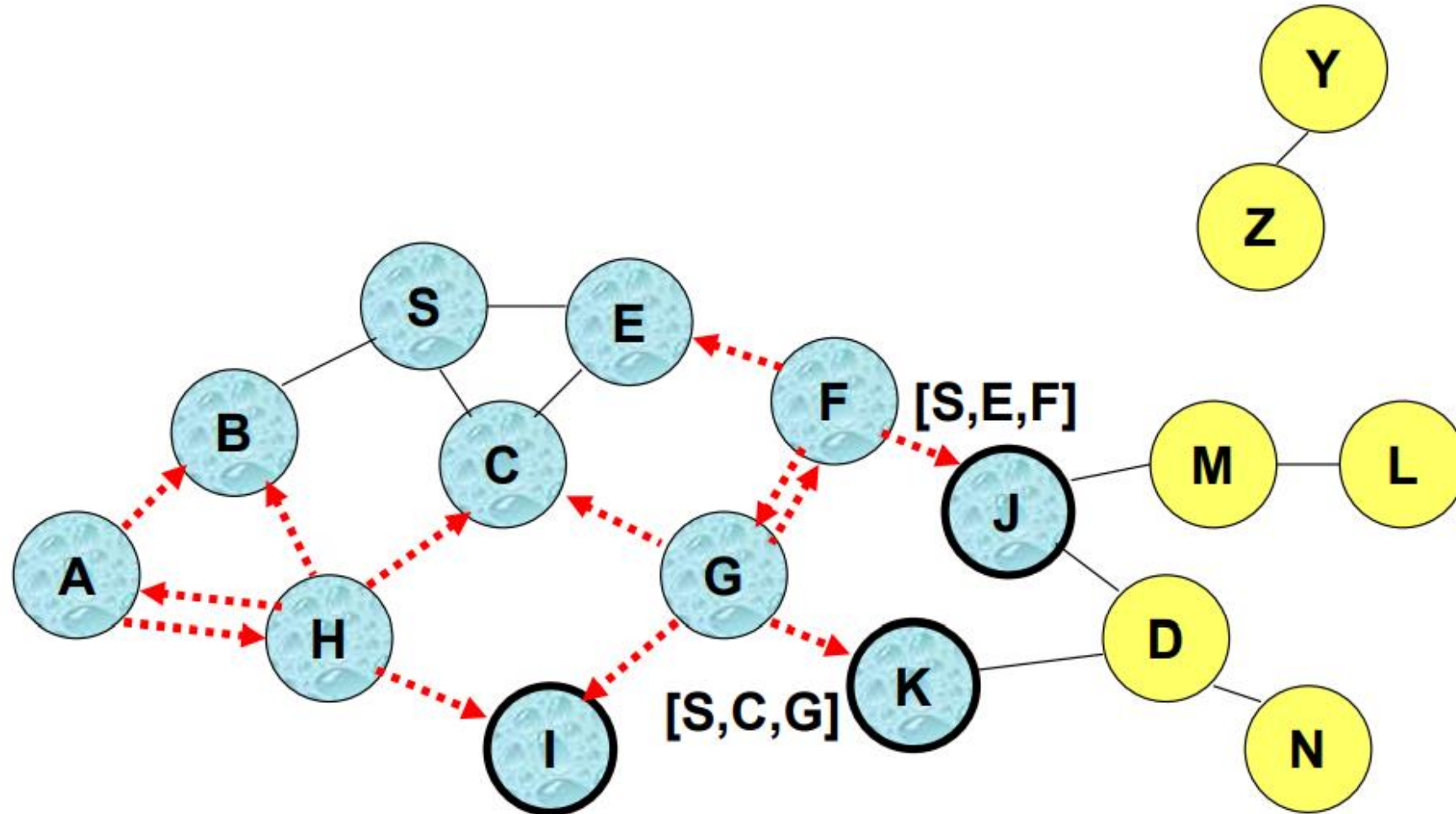


.....> Represents transmission of RREQ

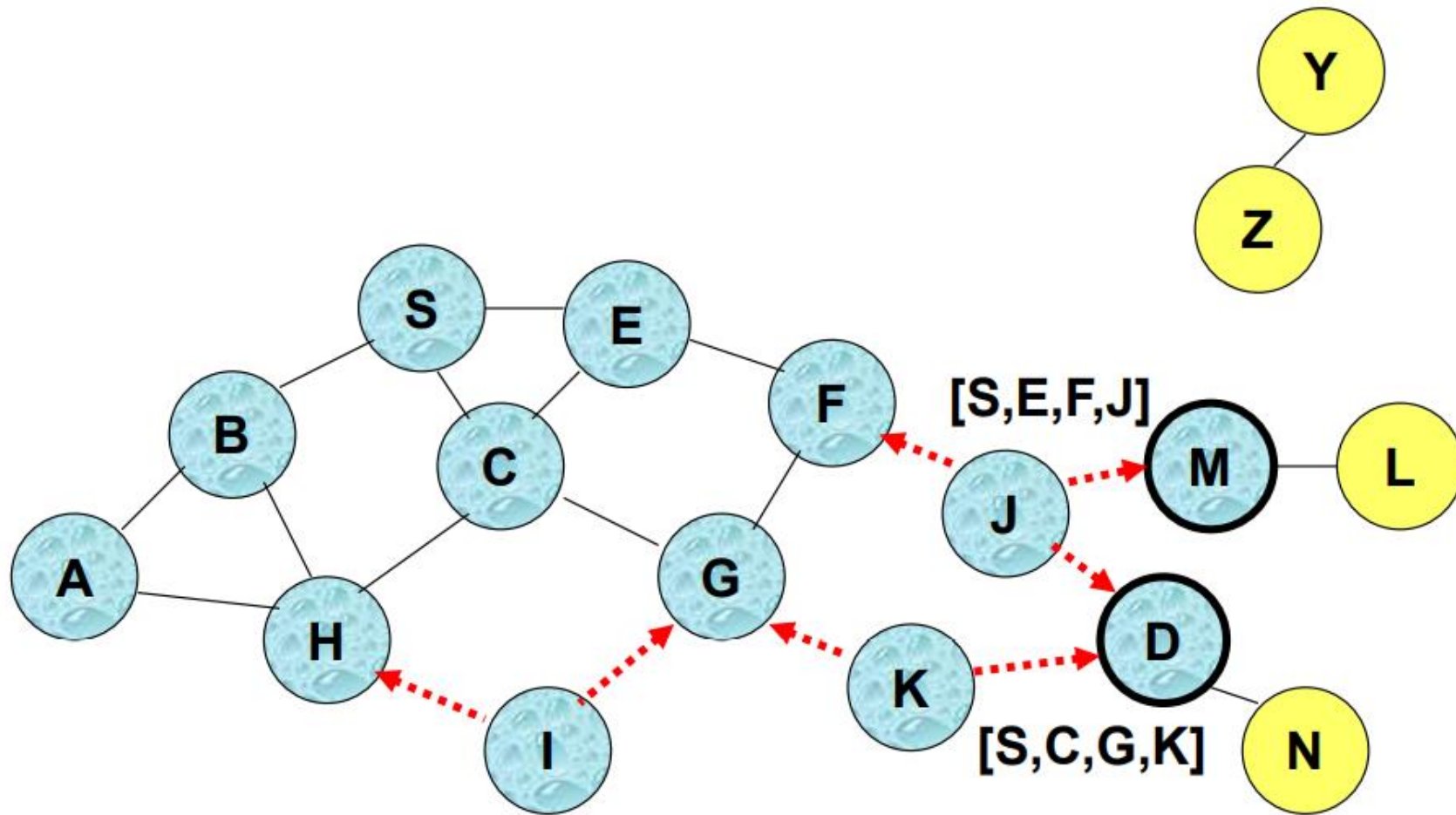
DSR: DYNAMIC SOURCE ROUTING



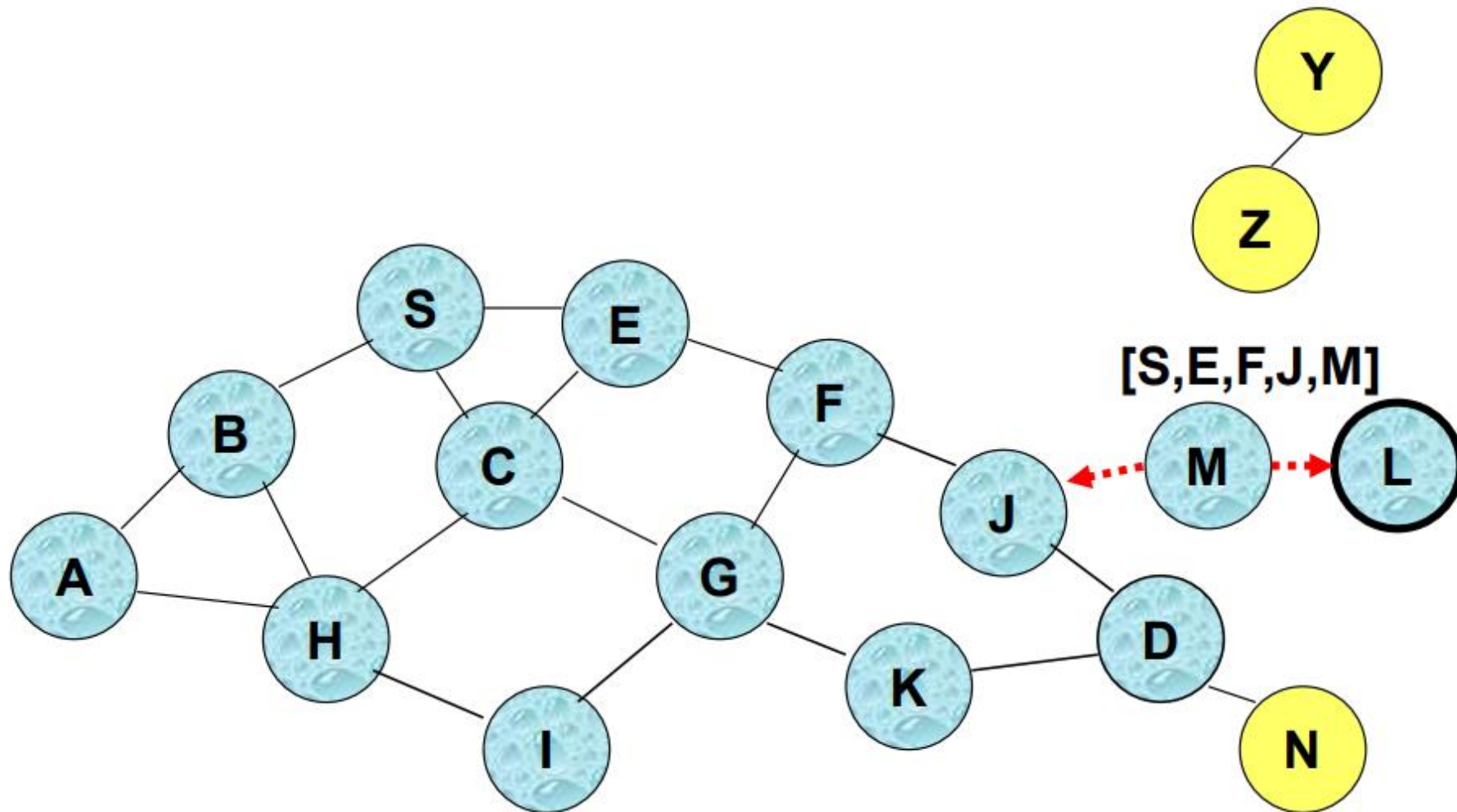
DSR: DYNAMIC SOURCE ROUTING



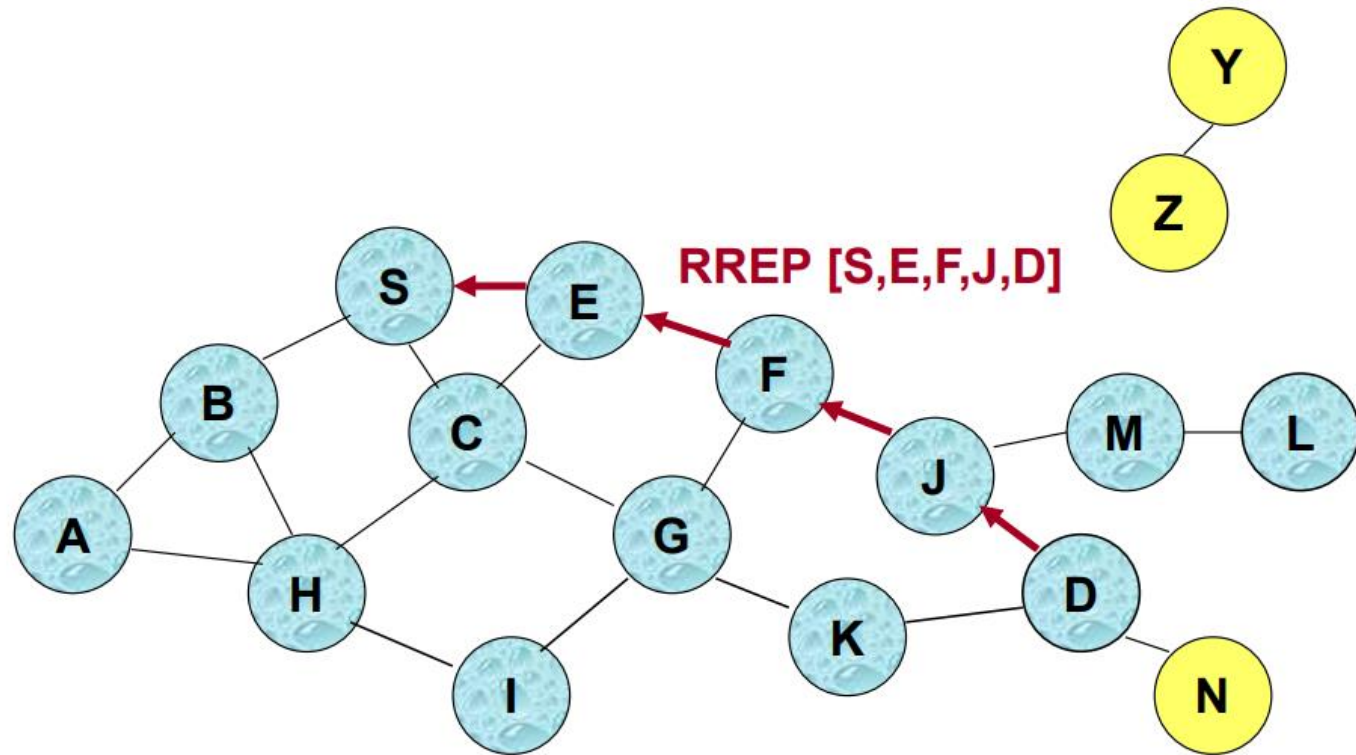
DSR: DYNAMIC SOURCE ROUTING



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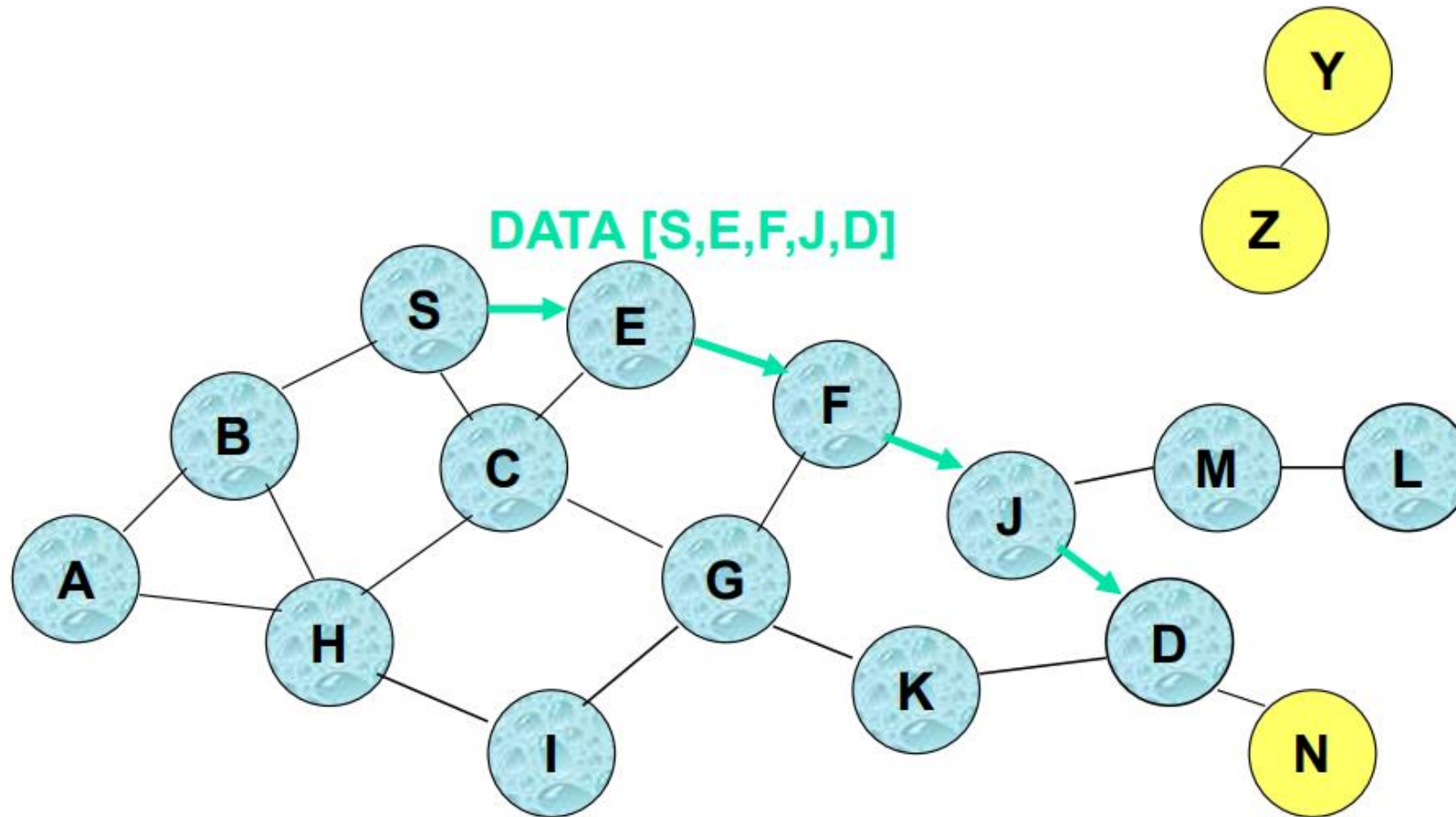


DSR: DYNAMIC SOURCE ROUTING

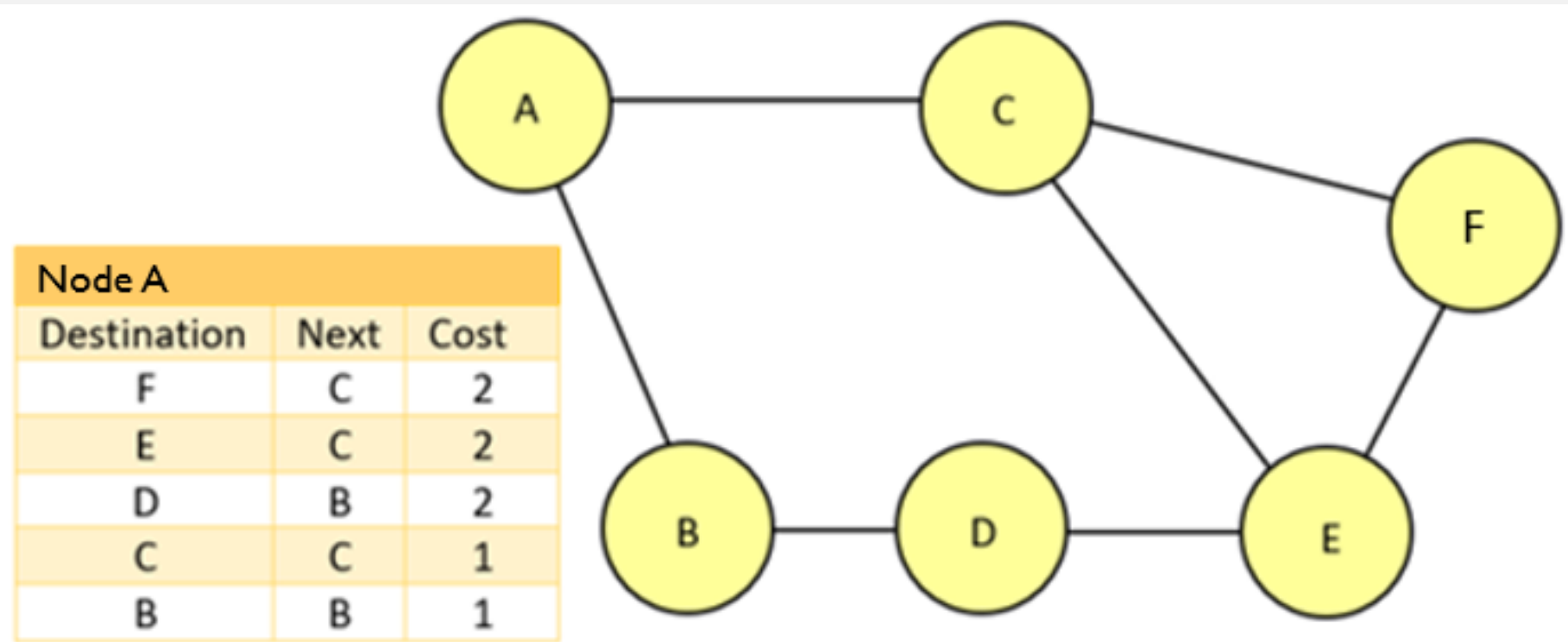


← Represents RREP control message

DSR: DYNAMIC SOURCE ROUTING

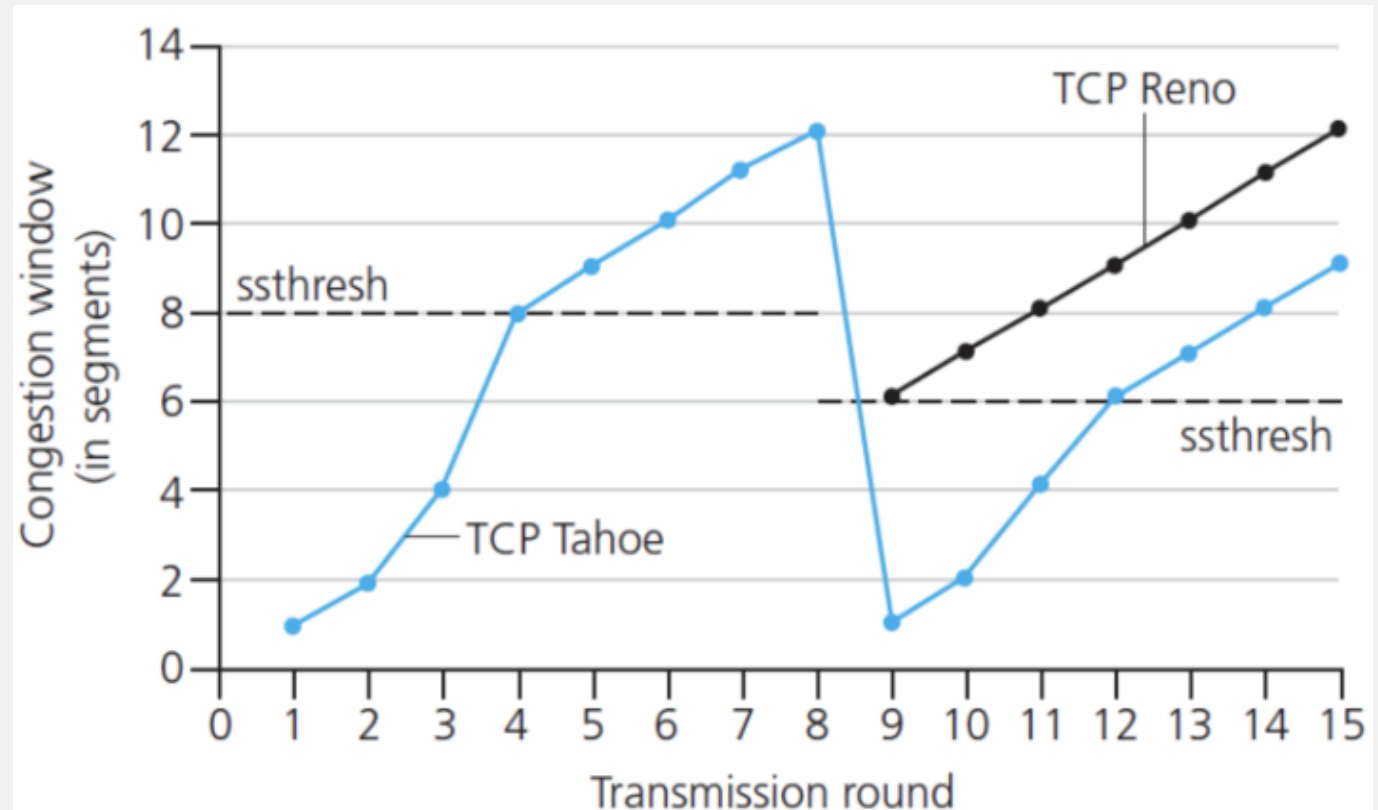


DSDV: DESTINATION SEQUENCED DISTANCE VECTOR

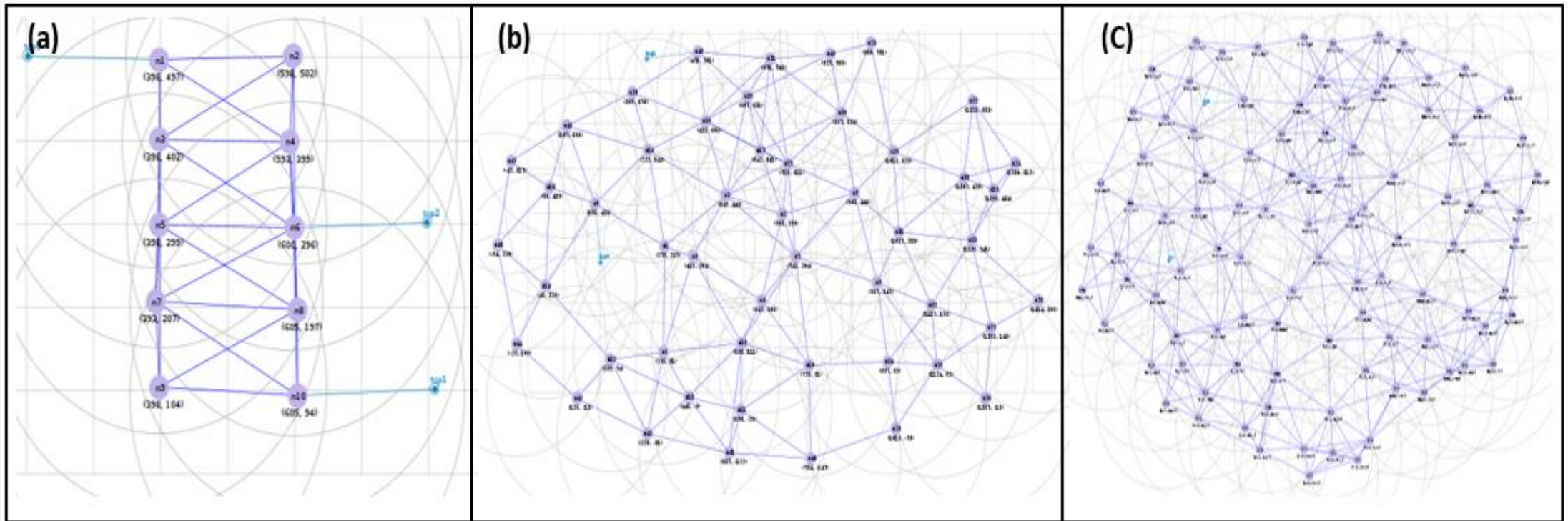


TCP TRAFFIC PROPERTIES

Property	TCP Tahoe	TCP Reno
Slow start	Yes	Yes
Congestion avoidance	Yes	Yes
Fast retransmit	Yes	Yes
Fast recovery	No	Yes



TOPOLOGY SCENARIOS



EVALUATION METRICS



AVERAGE
THROUGHPUT



INSTANTANEOUS
THROUGHPUT



NODAL RESIDUAL
ENERGY



PACKETS DELIVERY
RATIO

SPECIFICATIONS

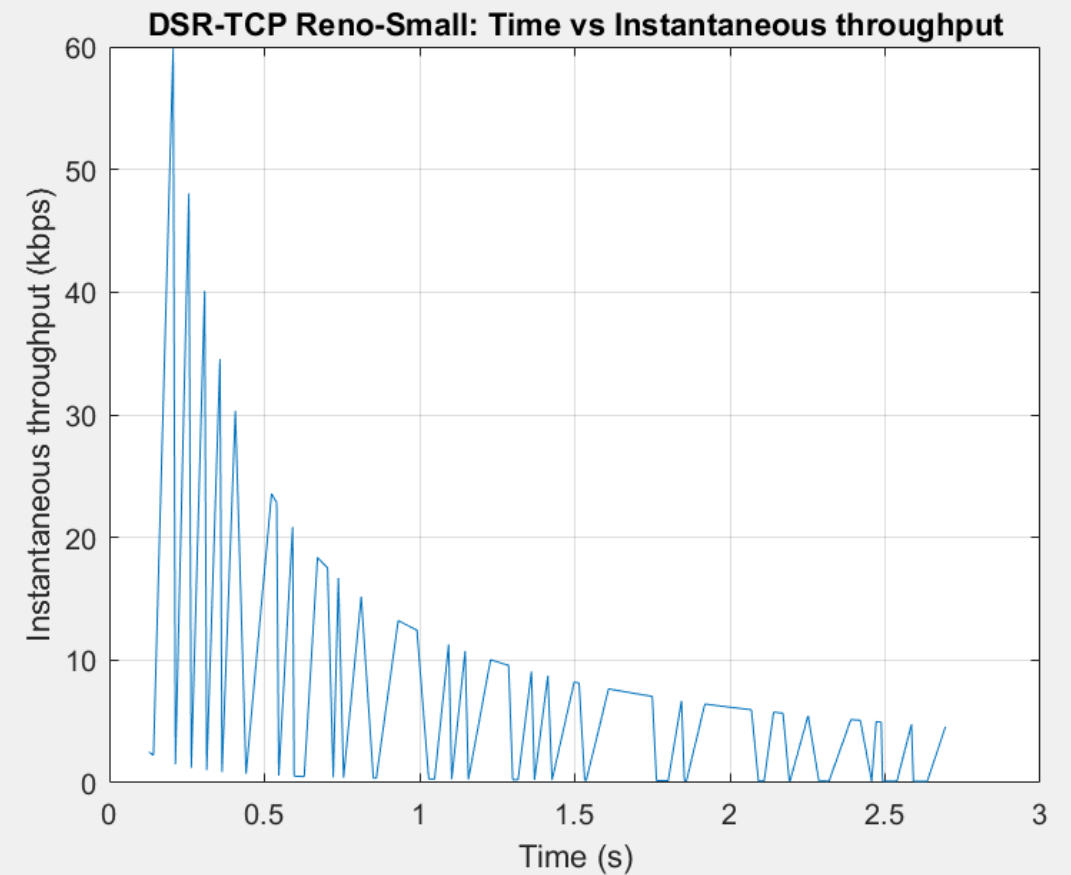
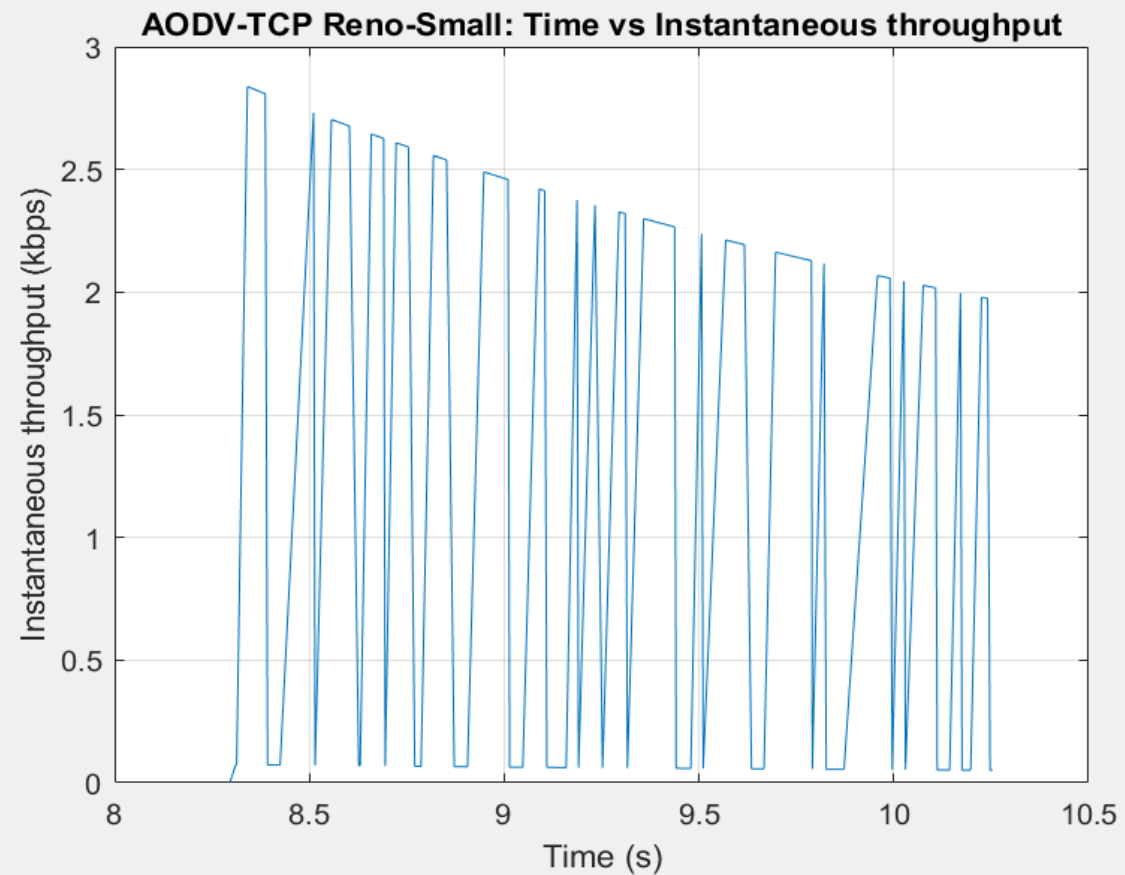
Data size: 1500bytes

Duration: 0 to 10

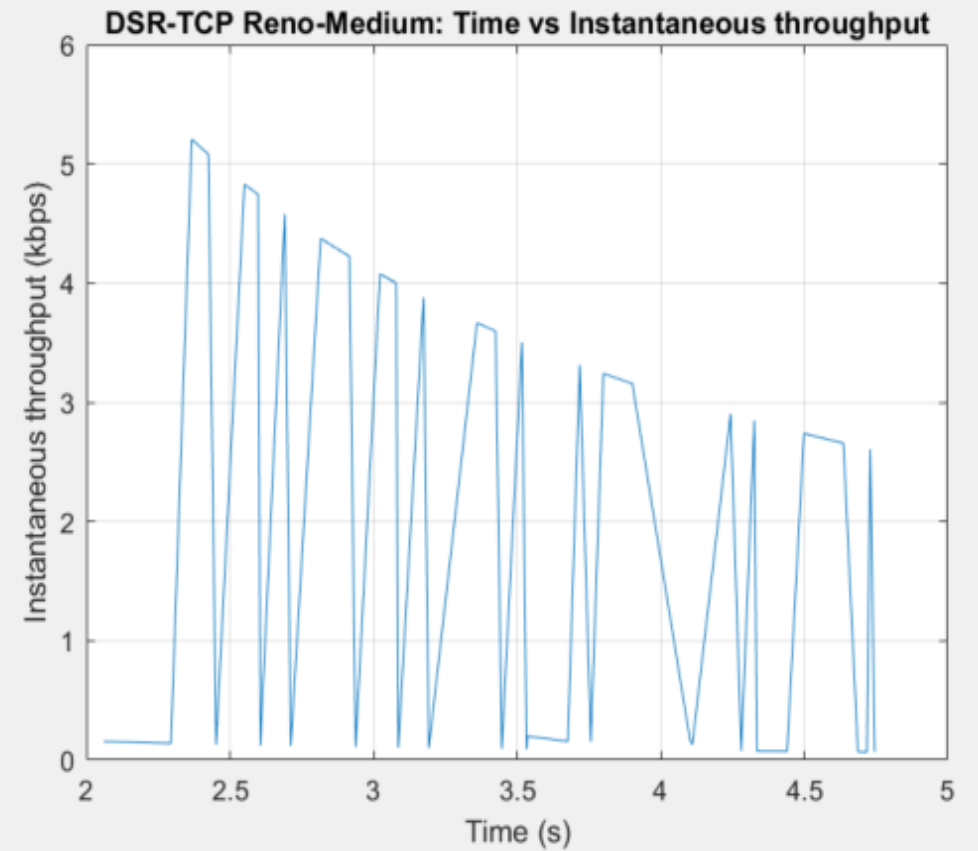
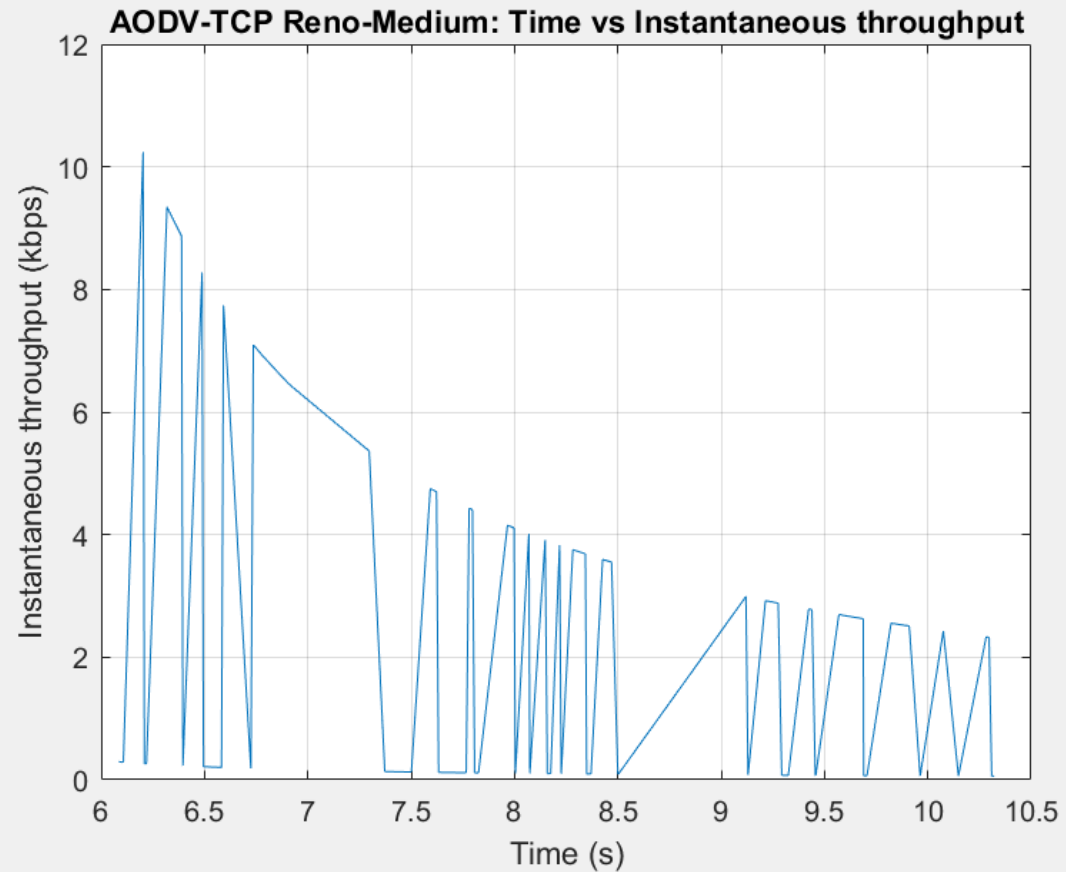
Source to destination speed:
10m/s

Randomly moving nodes

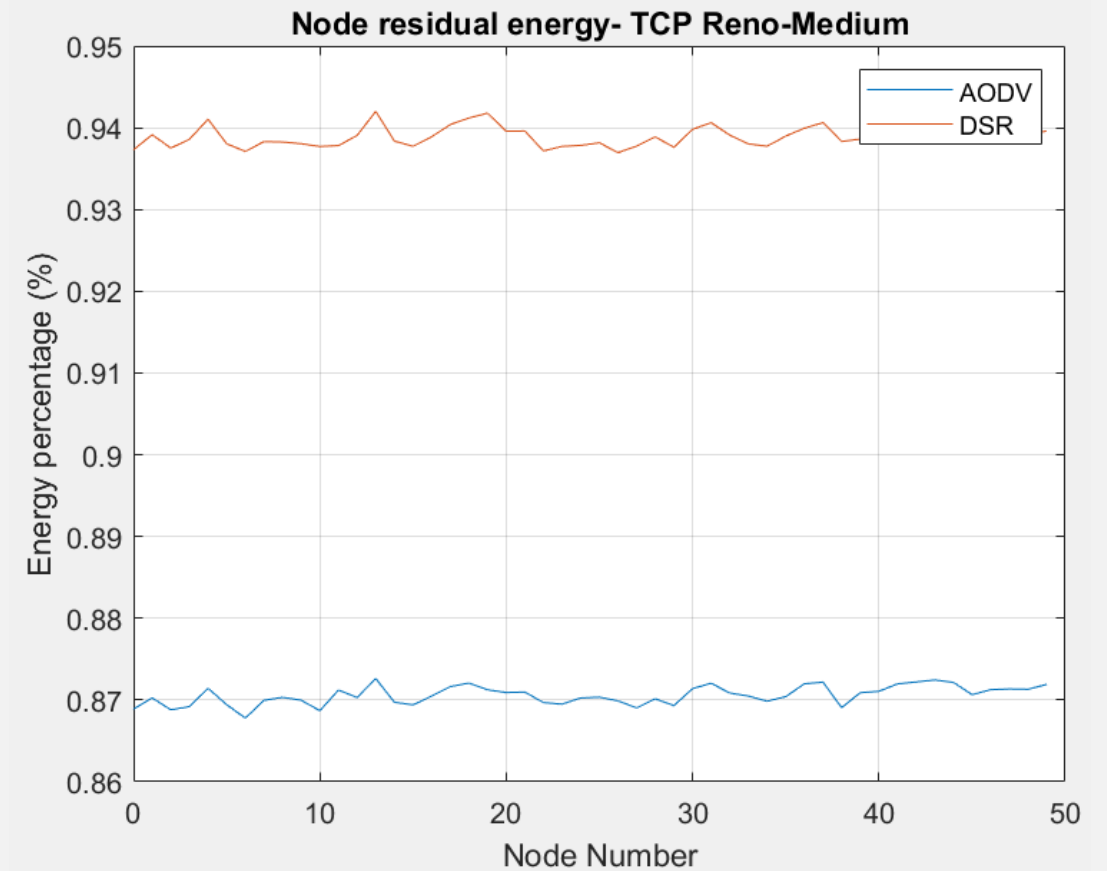
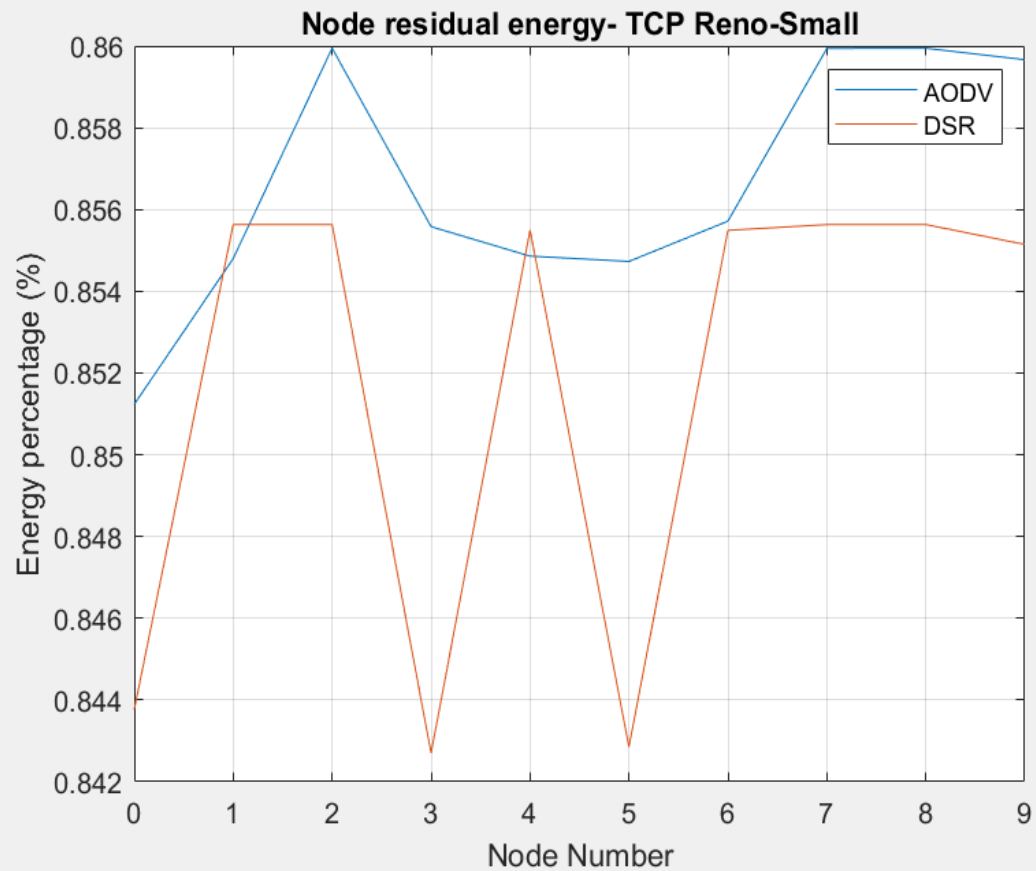
INITIAL RESULTS



INITIAL RESULTS

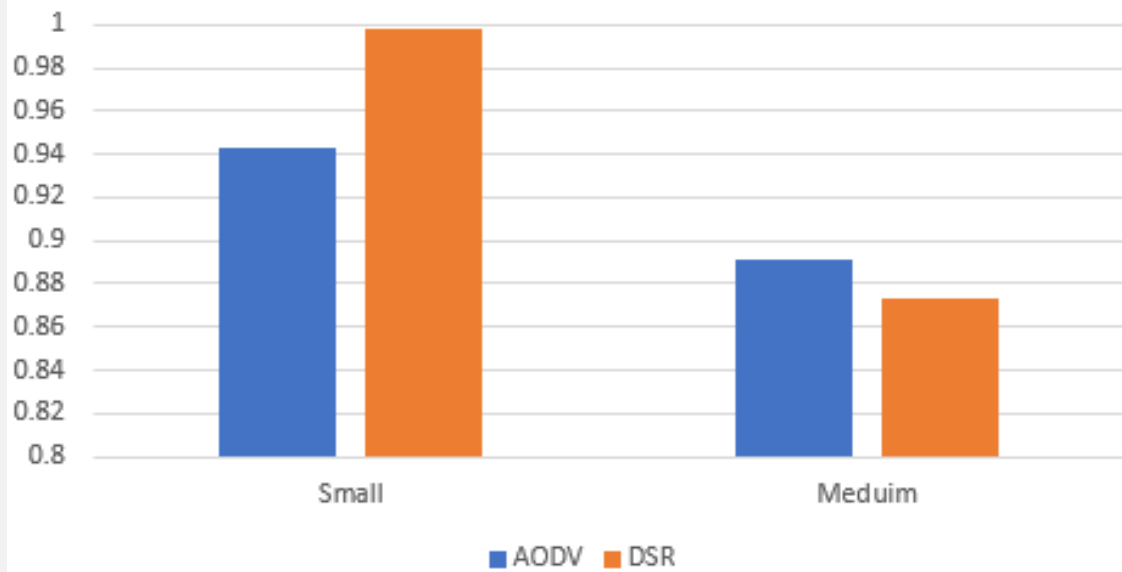


INITIAL RESULTS

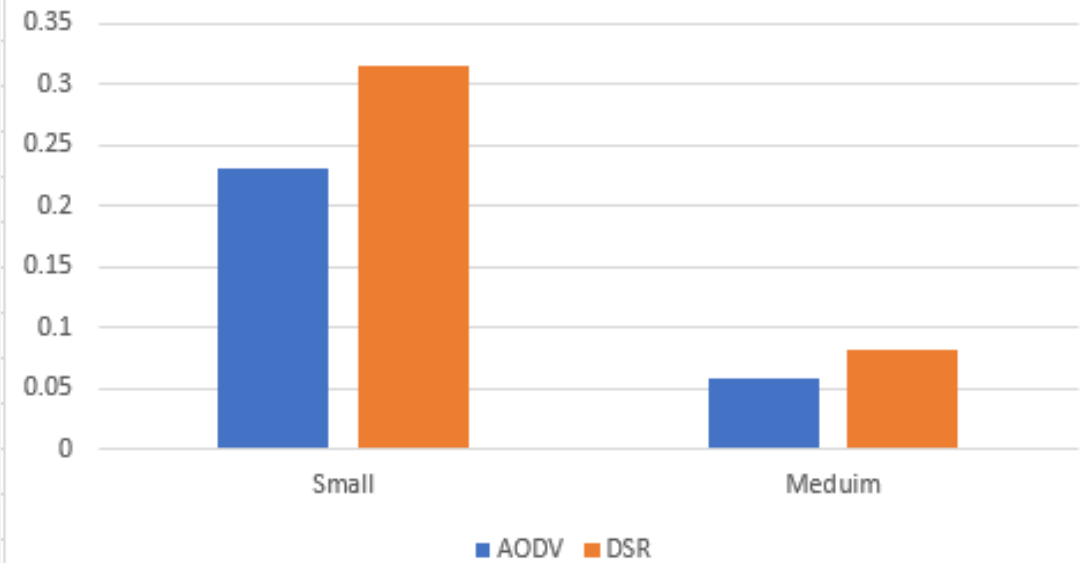


INITIAL RESULTS

Packet Delivery Ratio



Average throughput (kbps)



OVERALL



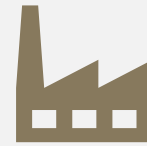
MANETs were introduced and defined.



An explanation of AODV, DSR, and DSDV.



Evaluation rubric was placed.



Initial results were produced.