EVALUATION OF MANET ROUTING PROTOCOLS : AODV, DSR AND DSDV

CMPT-641

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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

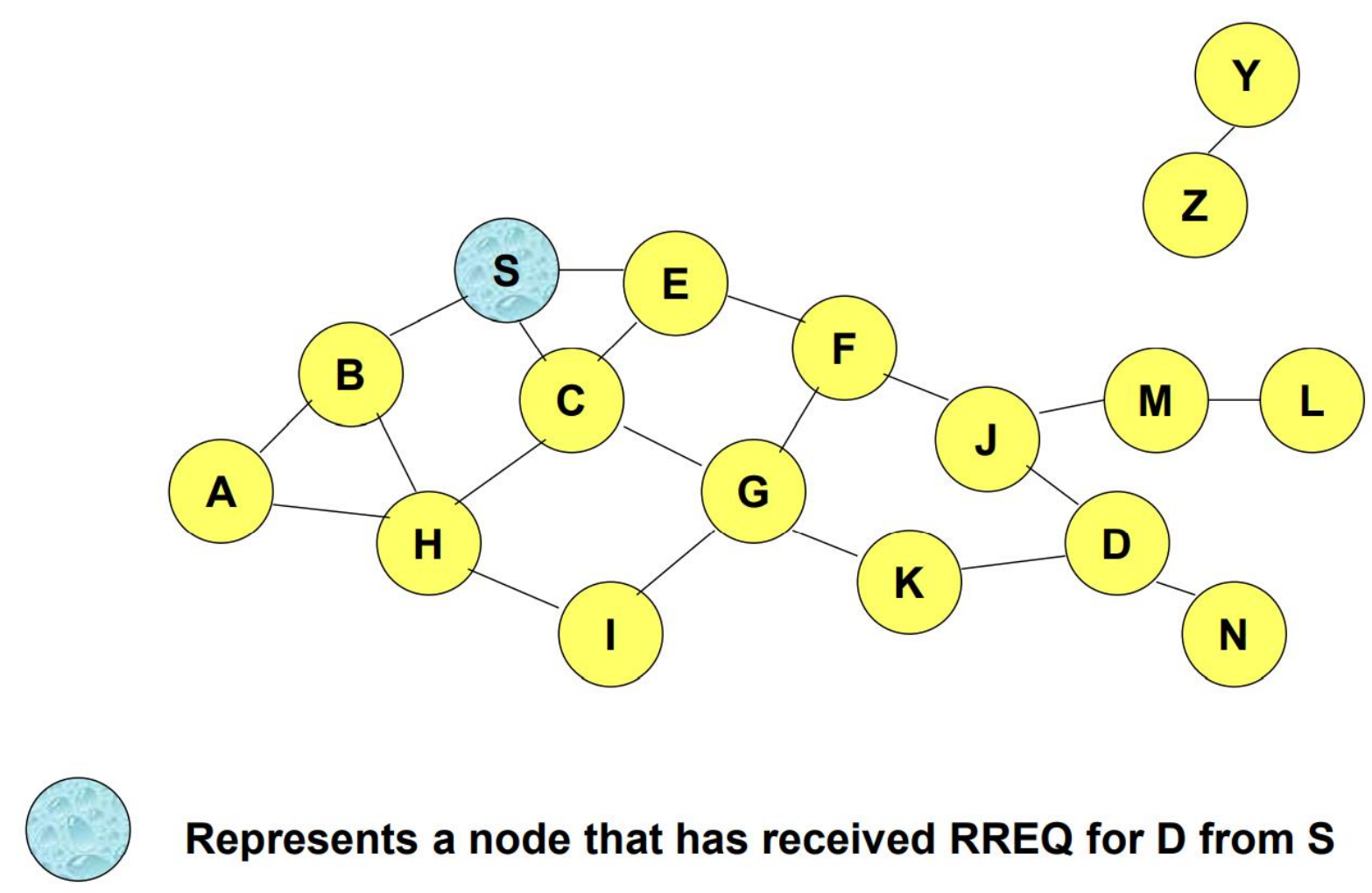
TCP TRAFFIC

- 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



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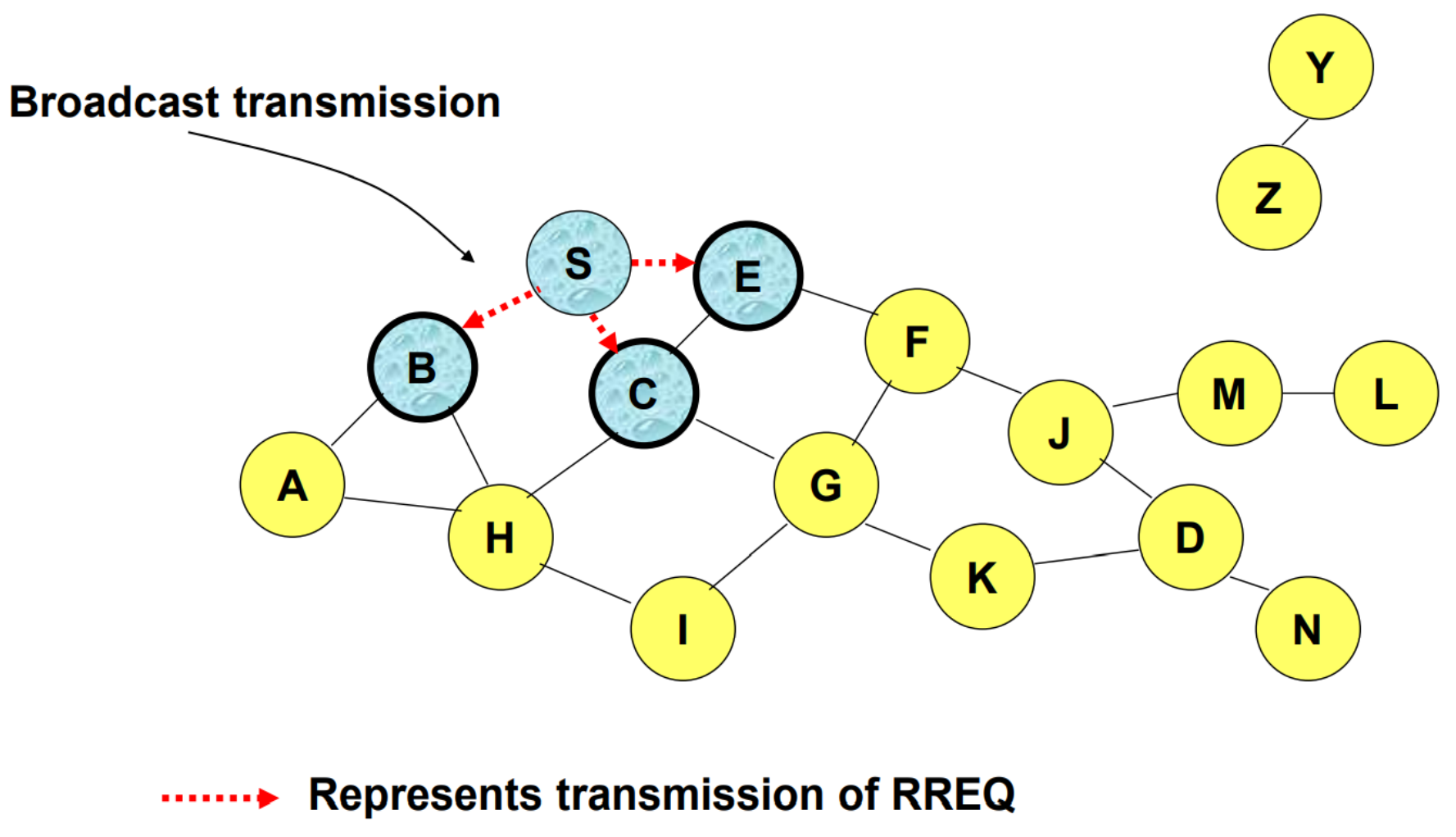

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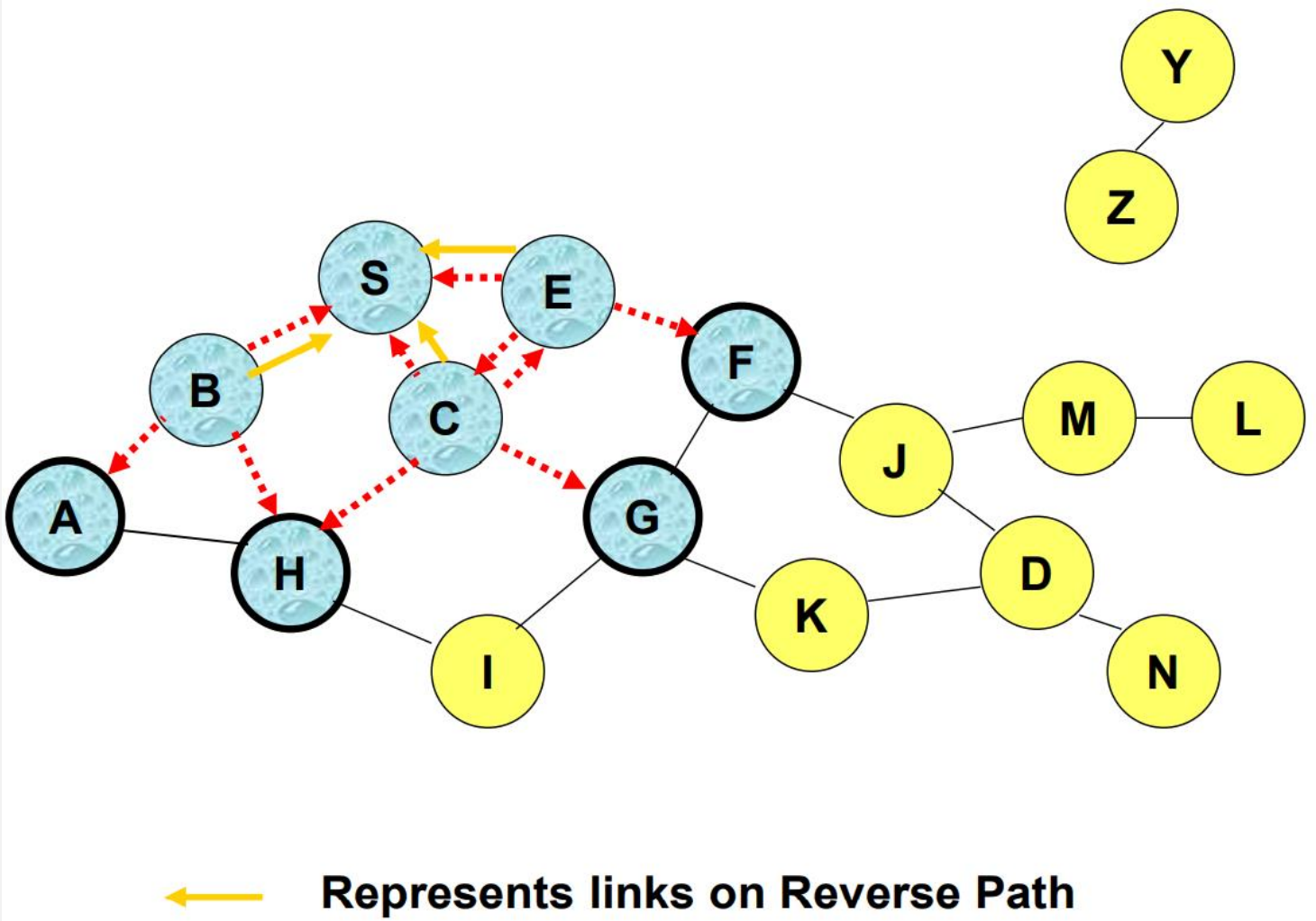

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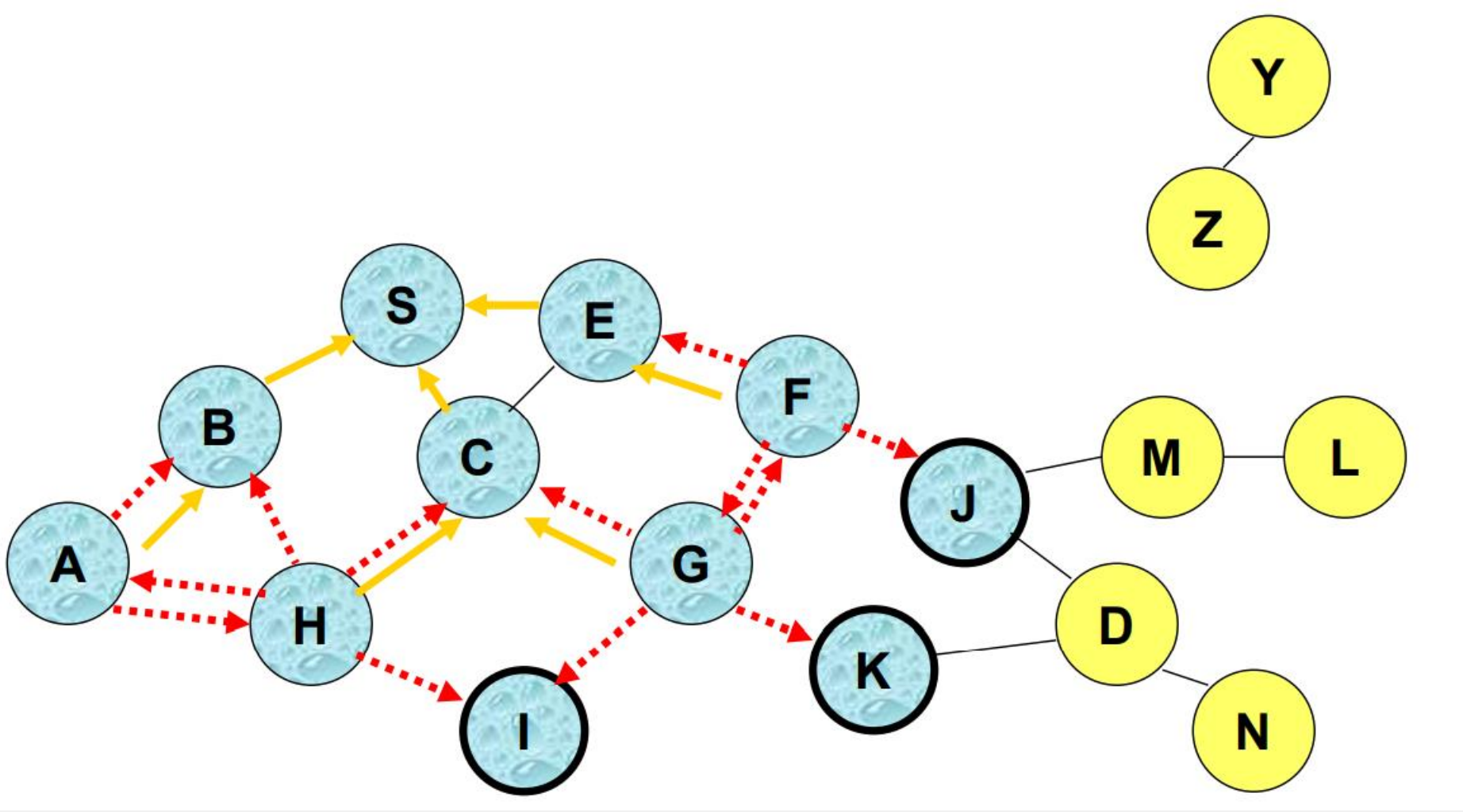

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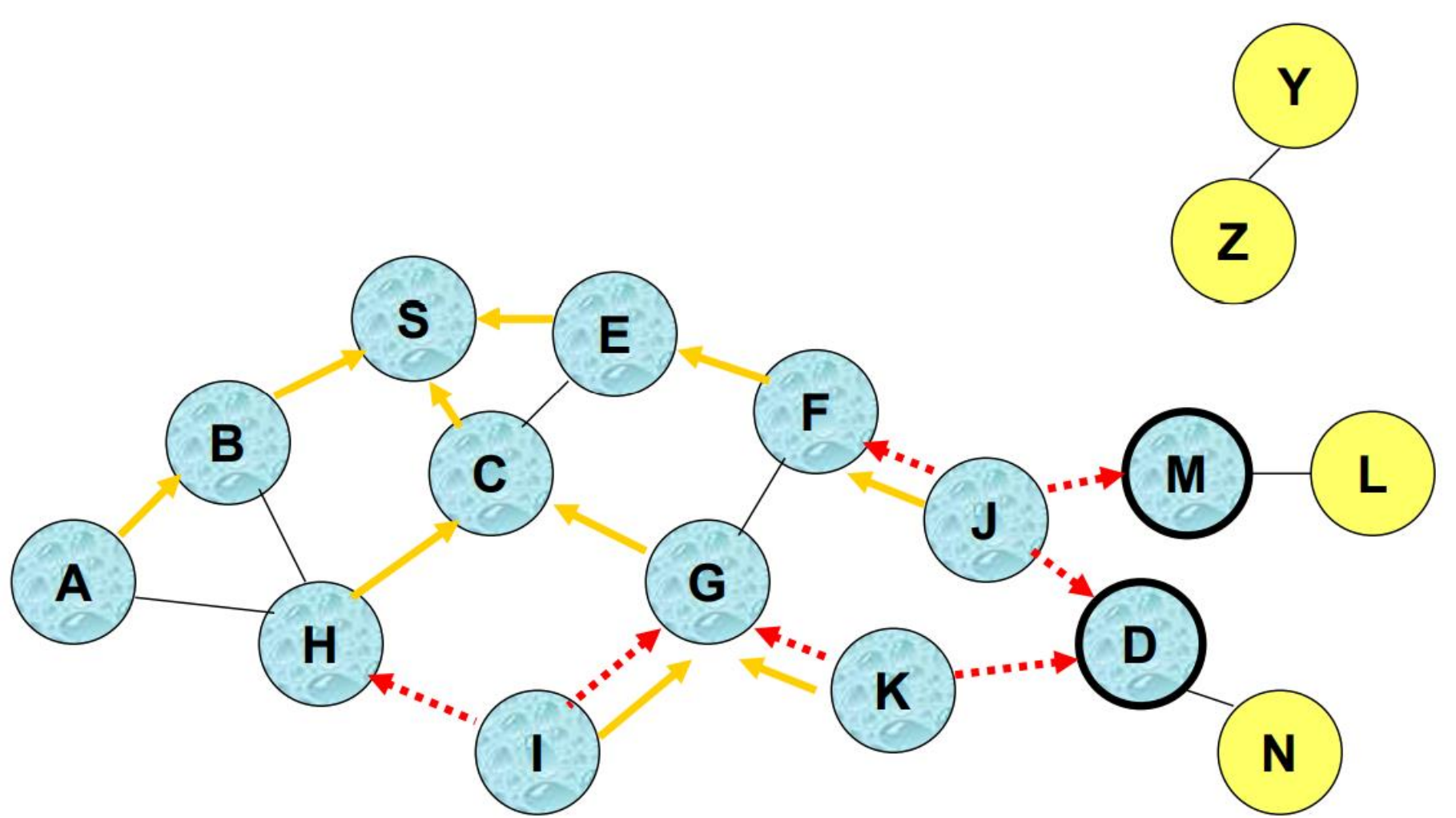

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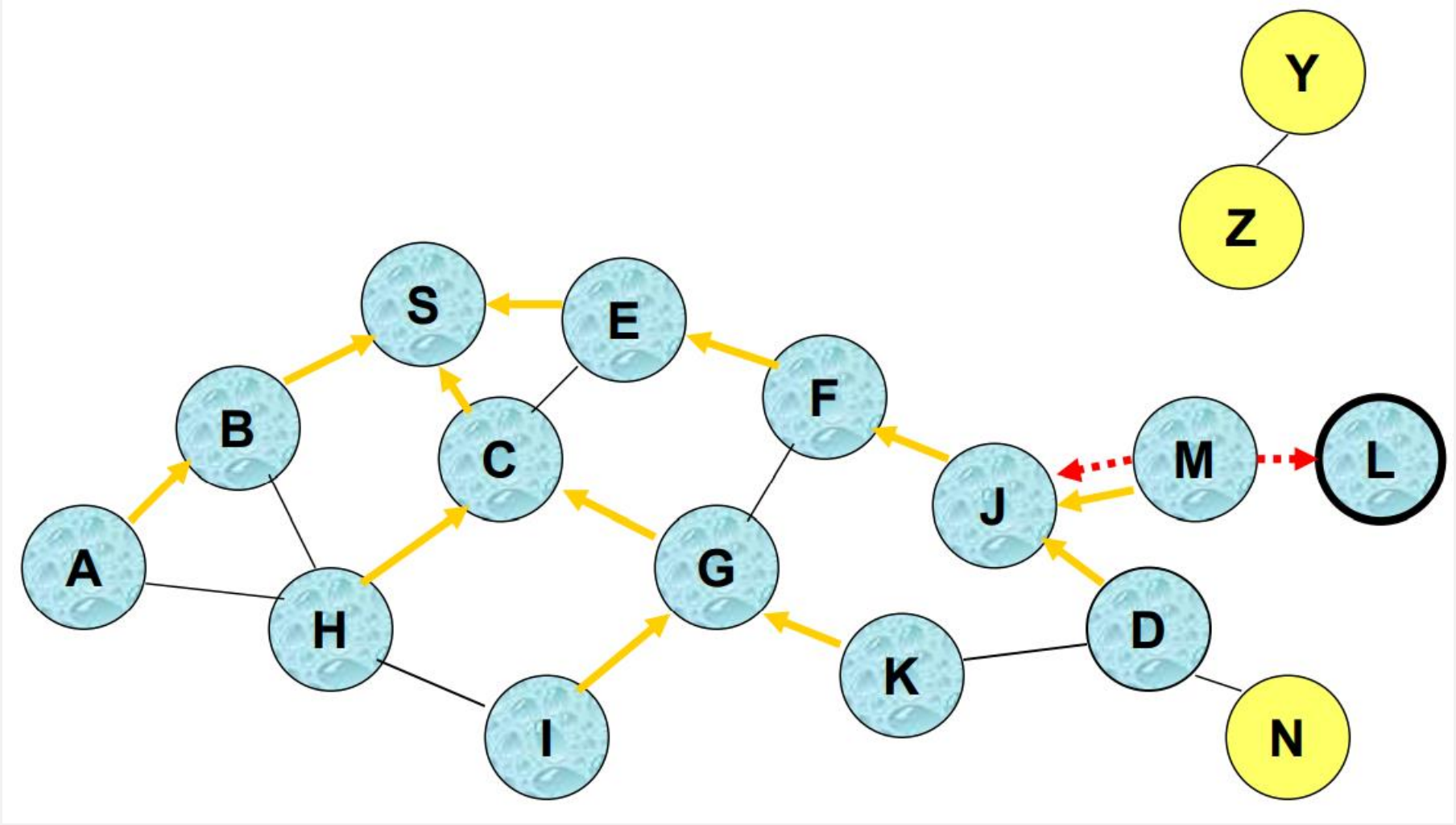

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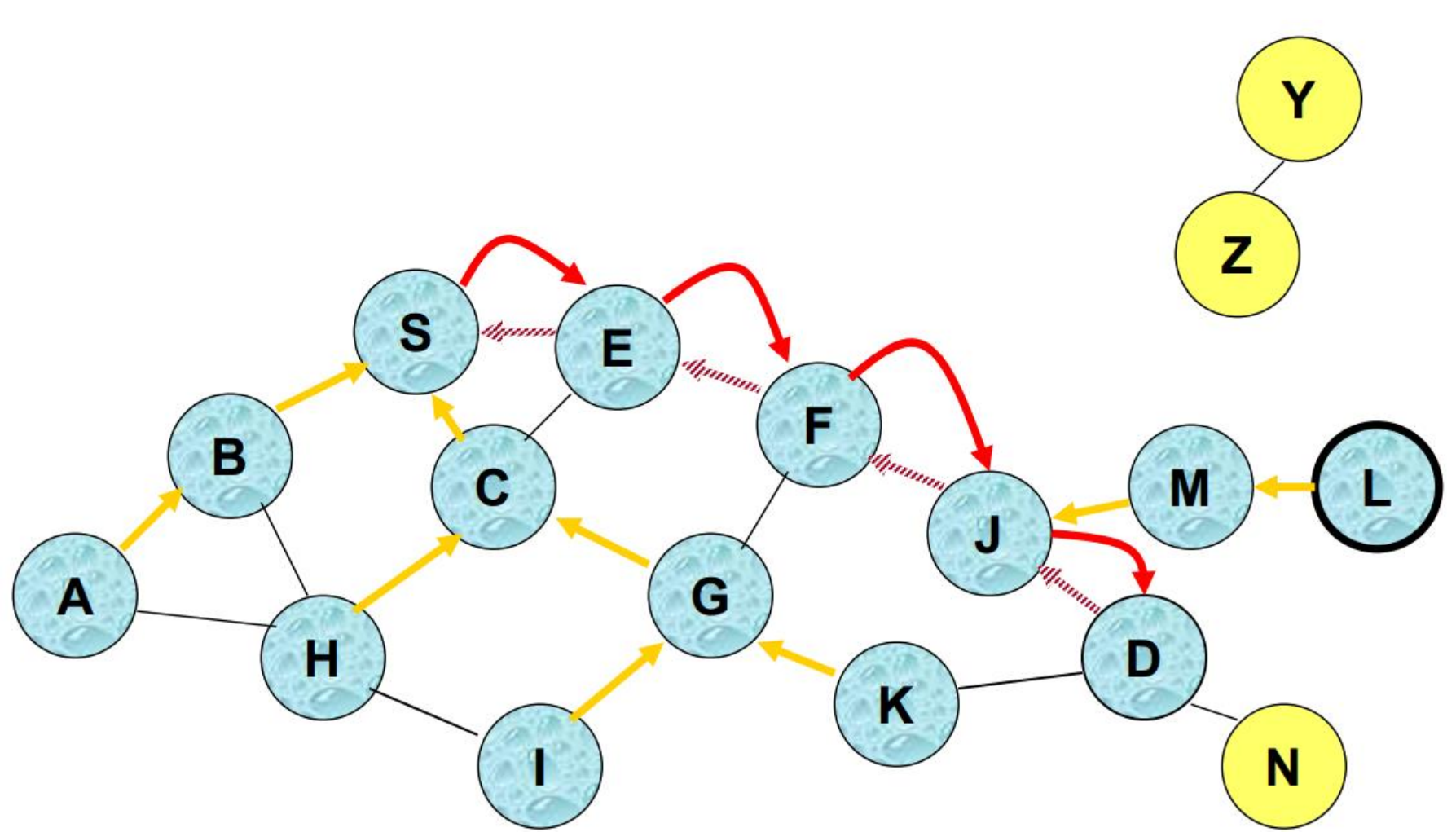
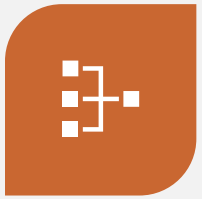


AODV: AD HOC ON-DEMAND DISTANCE VECTOR

ROUTES DO NOT NEED TO BE INCLUDED IN PACKET HEADERS.



NODES MAINTAIN ROUTING TABLES CONTAINING ACTIVE ROUTES.

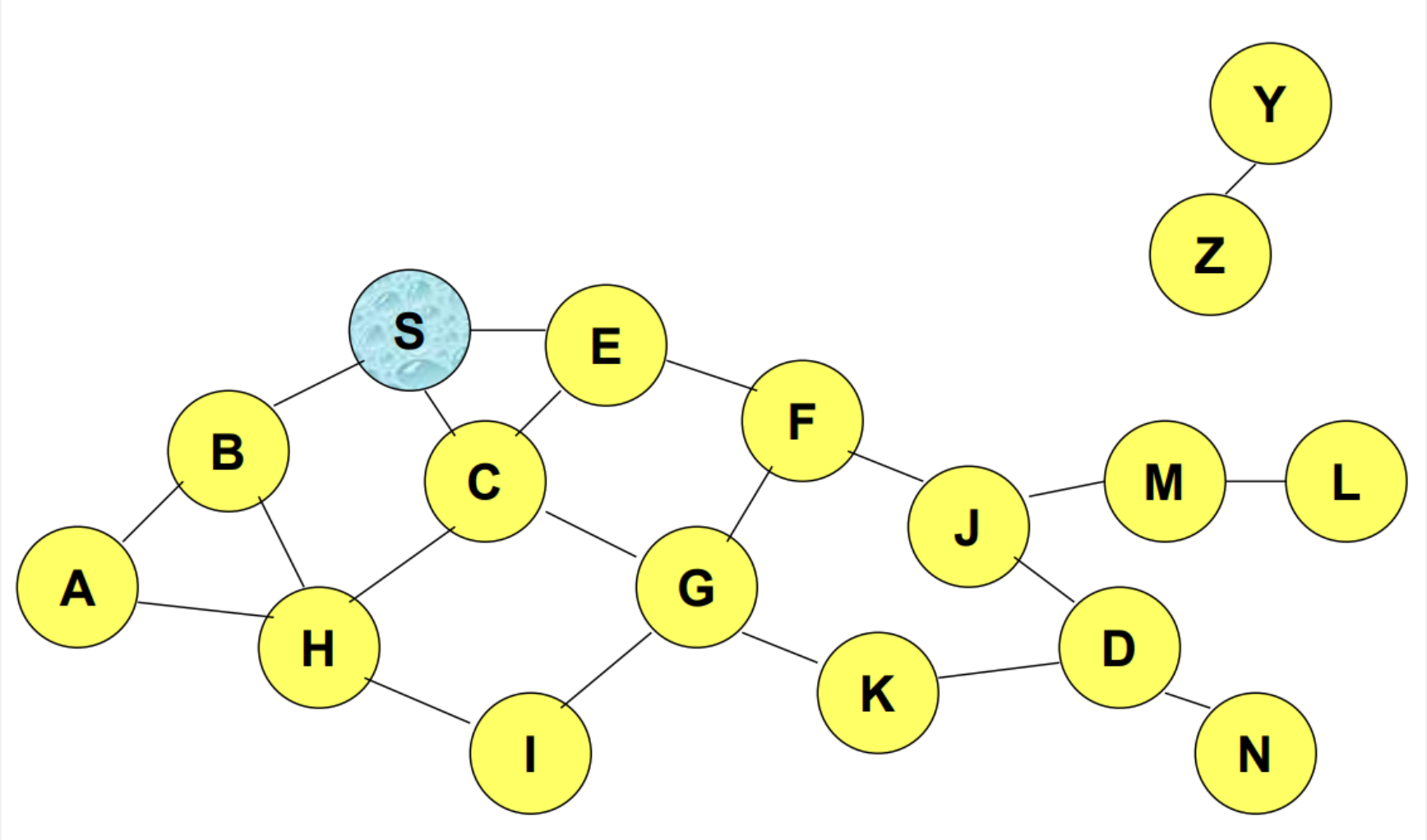
ONE NEXT-HOP PER DESTINATION AT EACH NODE.

SEQUENCE NUMBERS AVOIDS OLD/BROKEN ROUTES.

SEQUENCE NUMBERS PREVENT ROUTING LOOPS.

UNUSED ROUTES EXPIRE.

DSR: DYNAMIC SOURCE ROUTING



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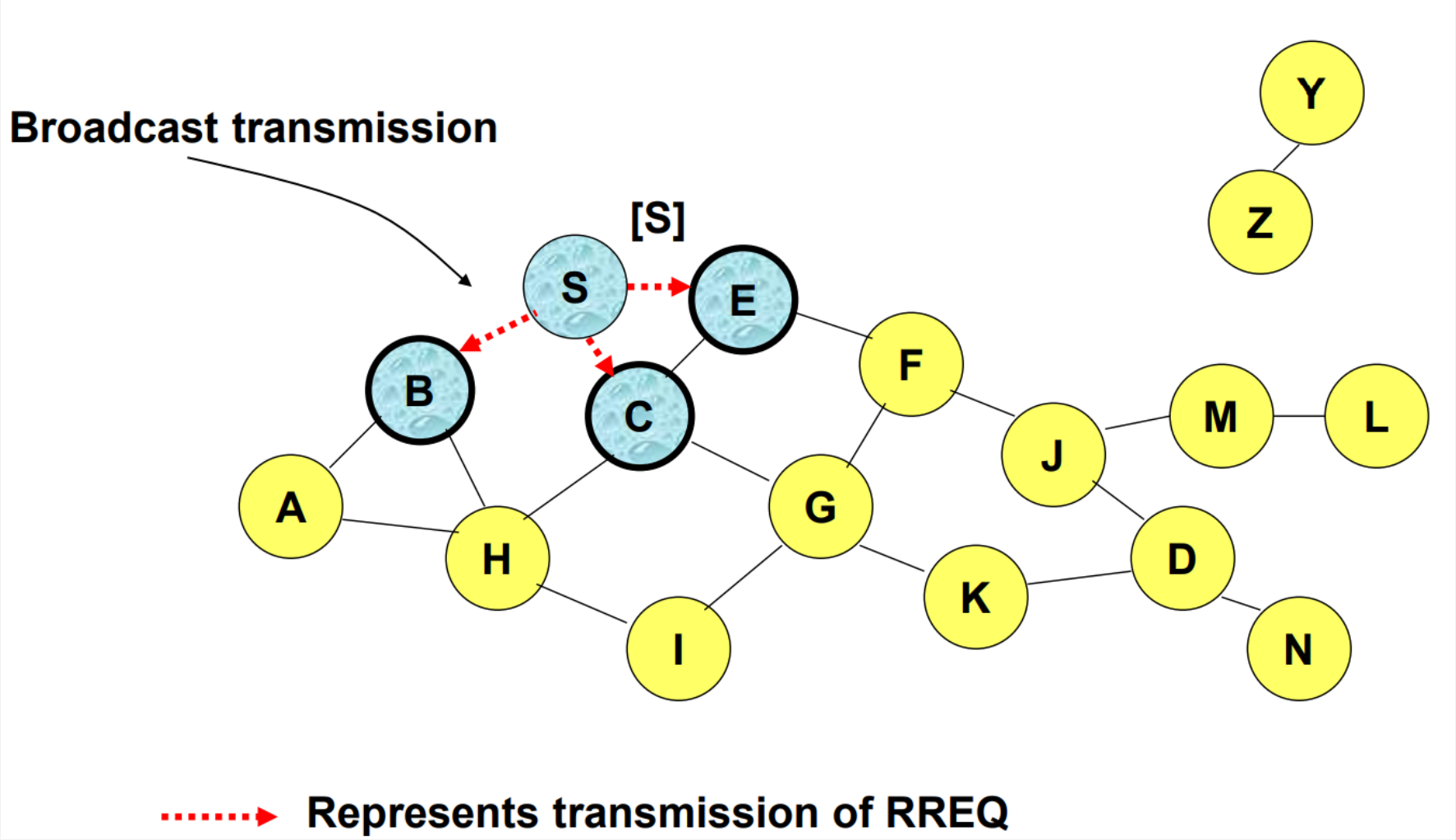

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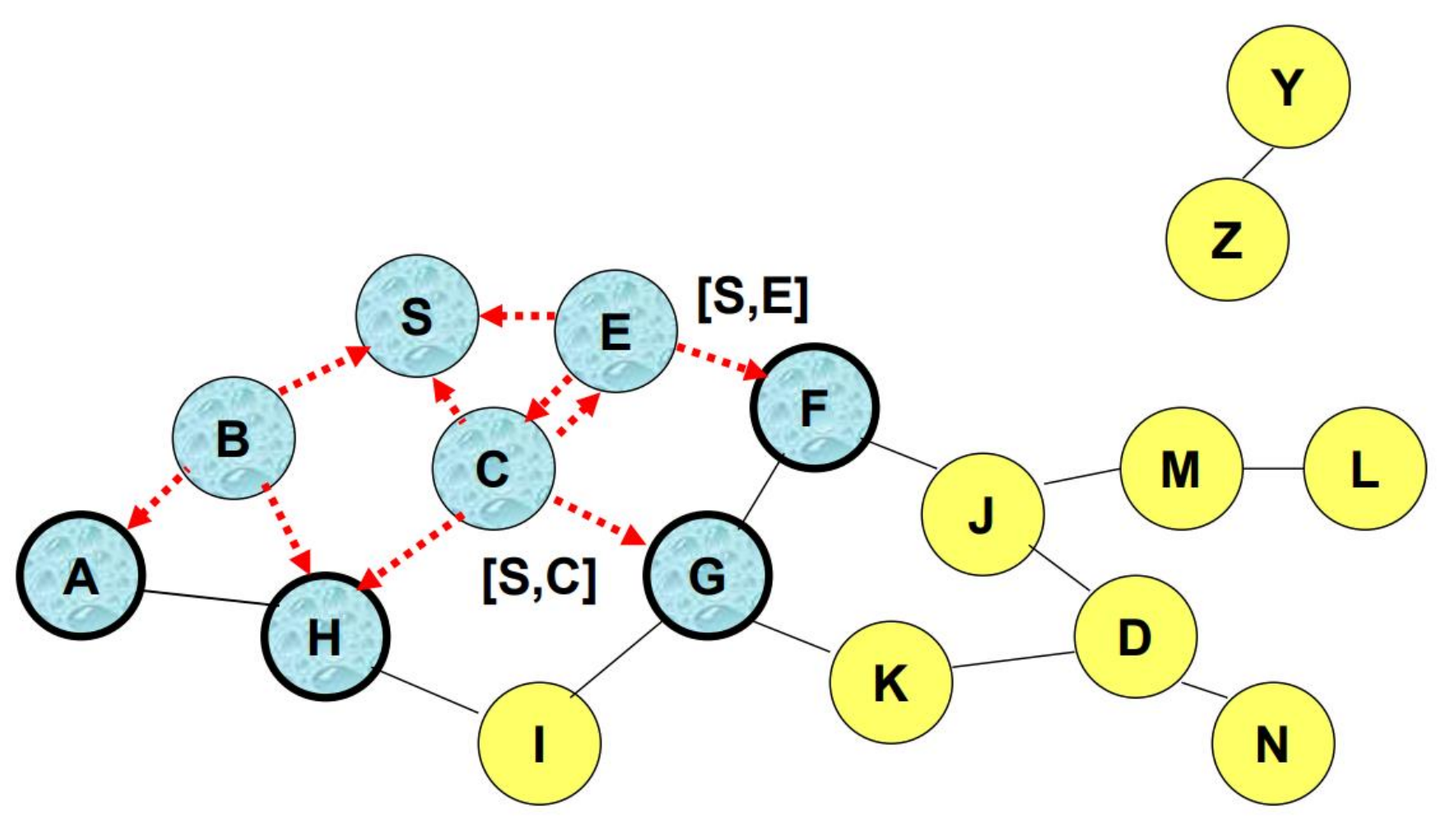

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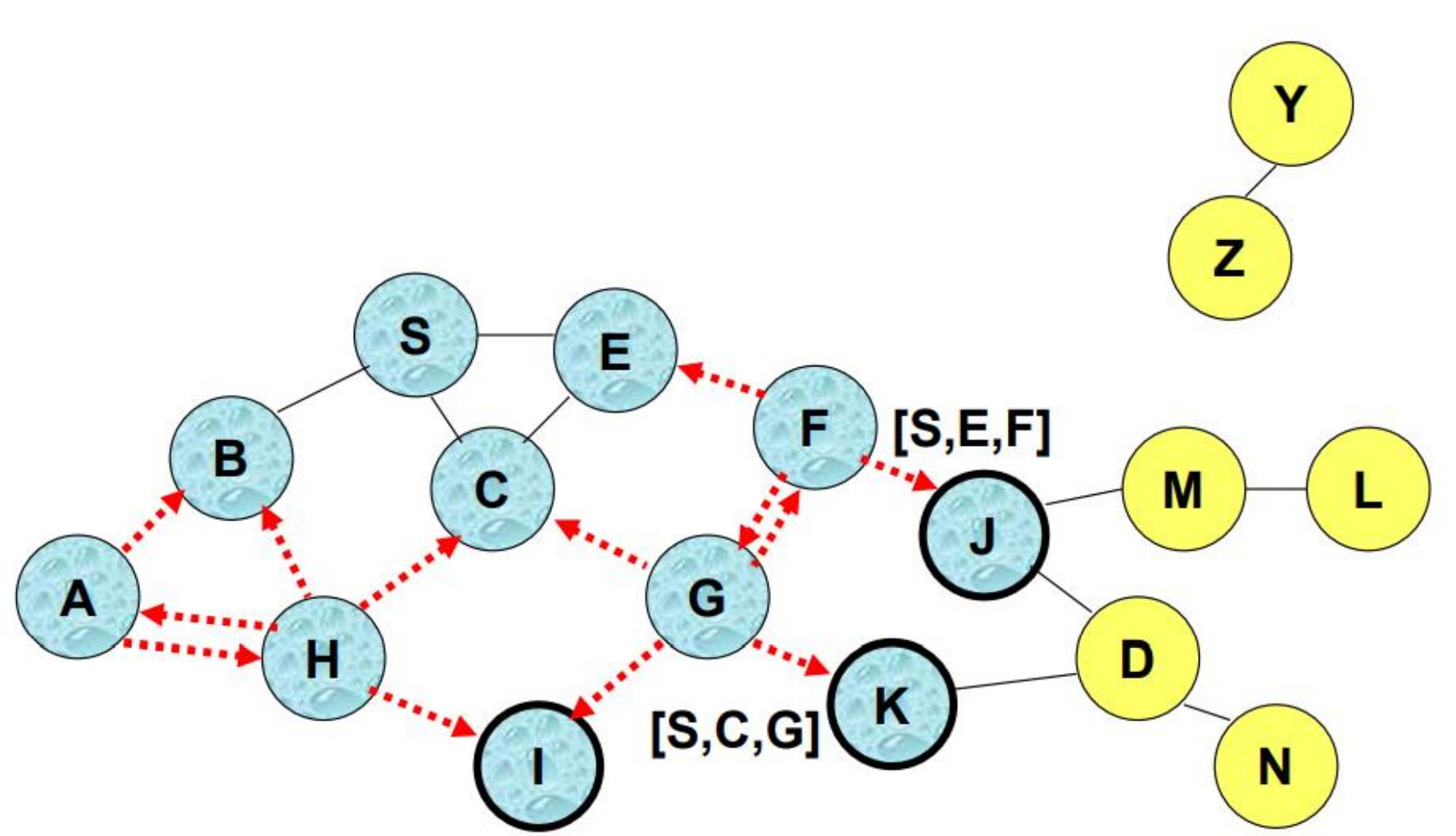

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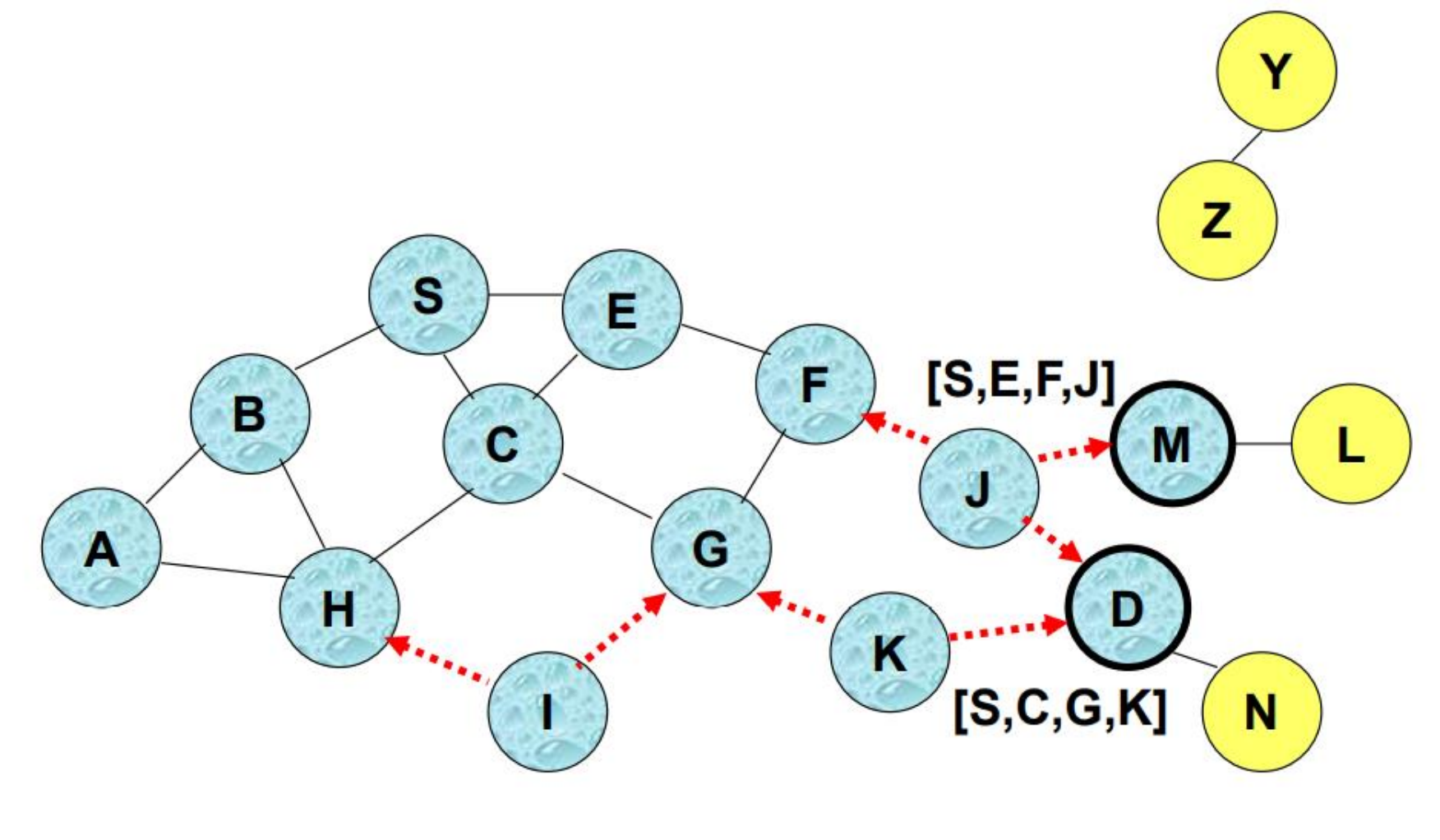

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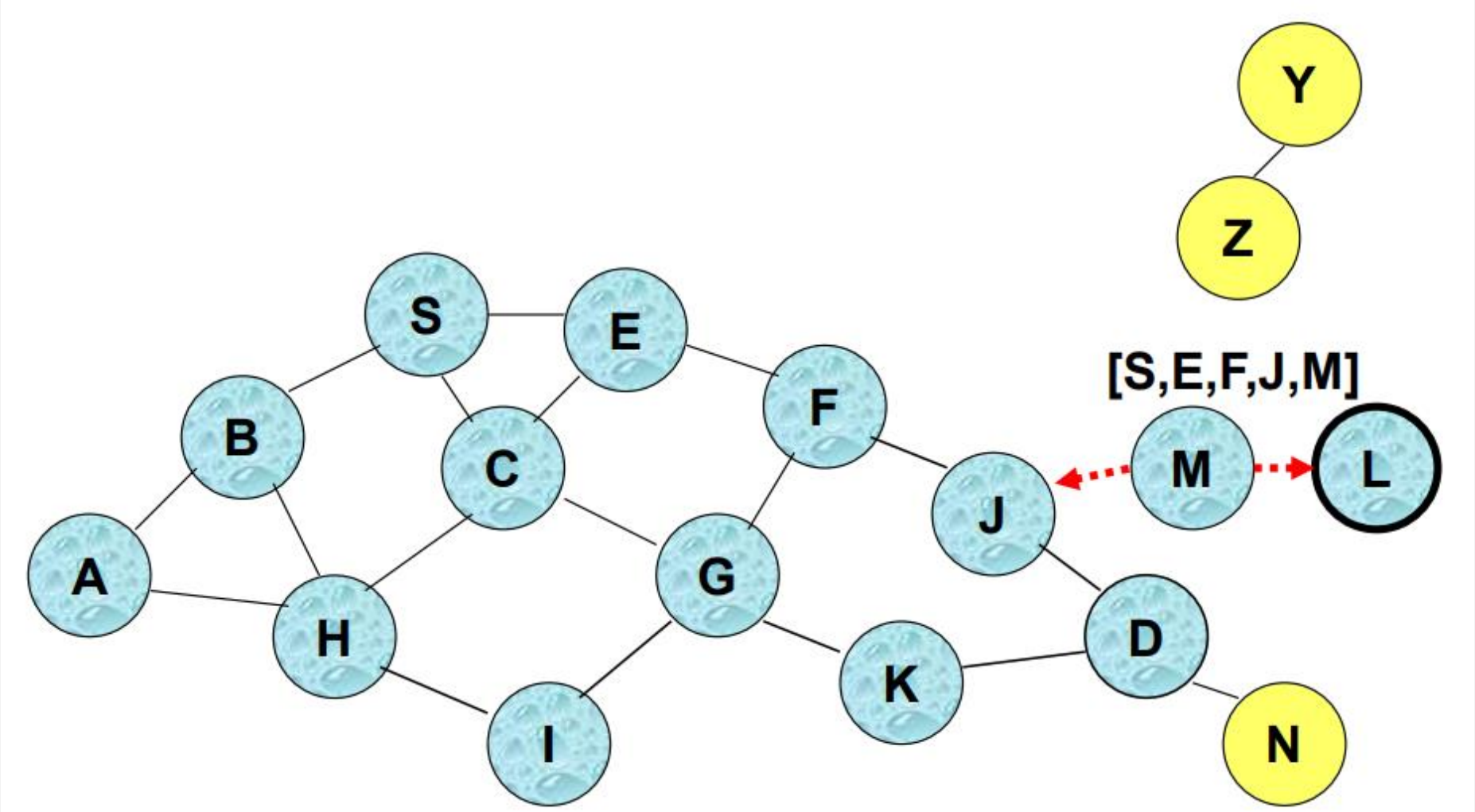

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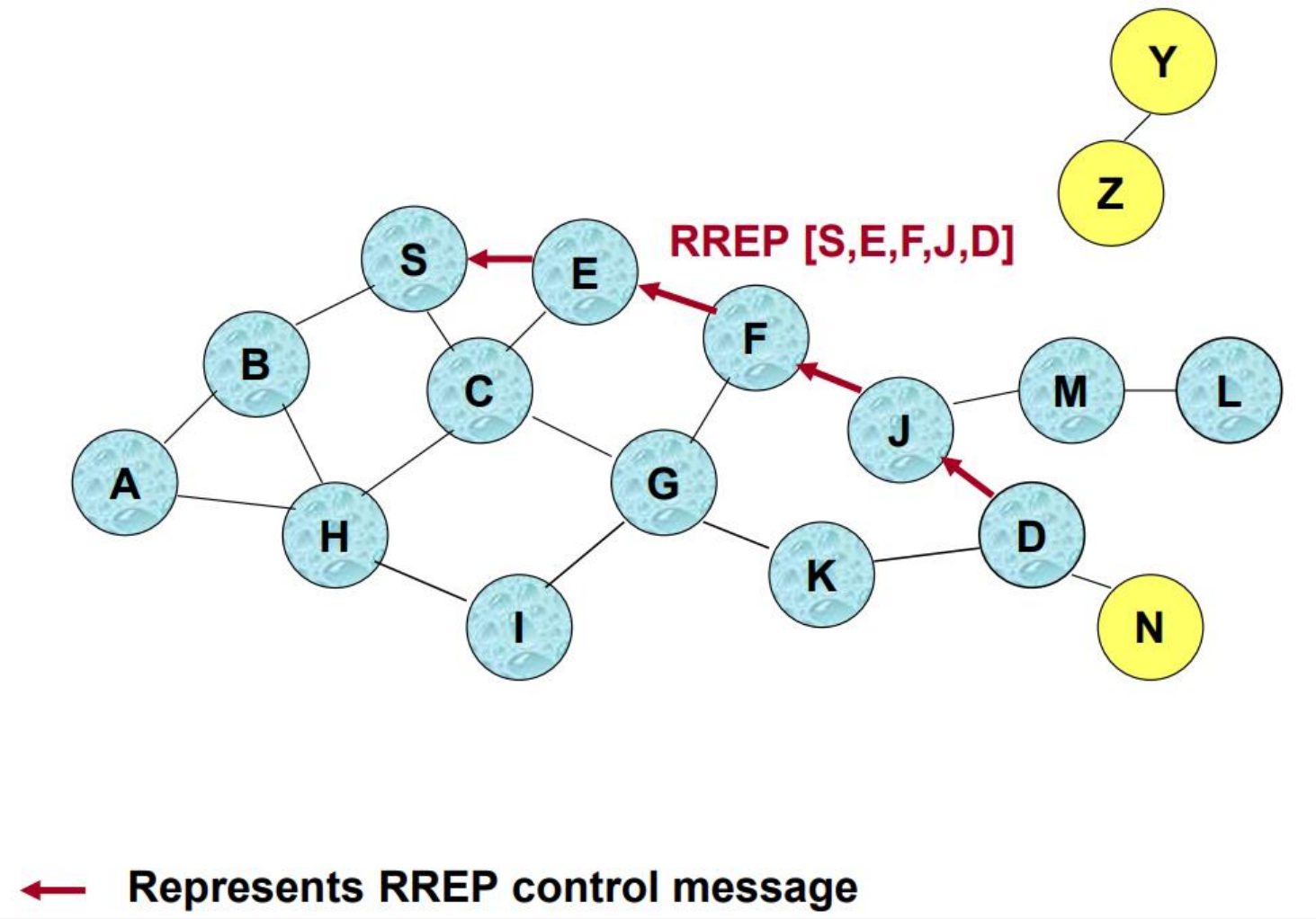

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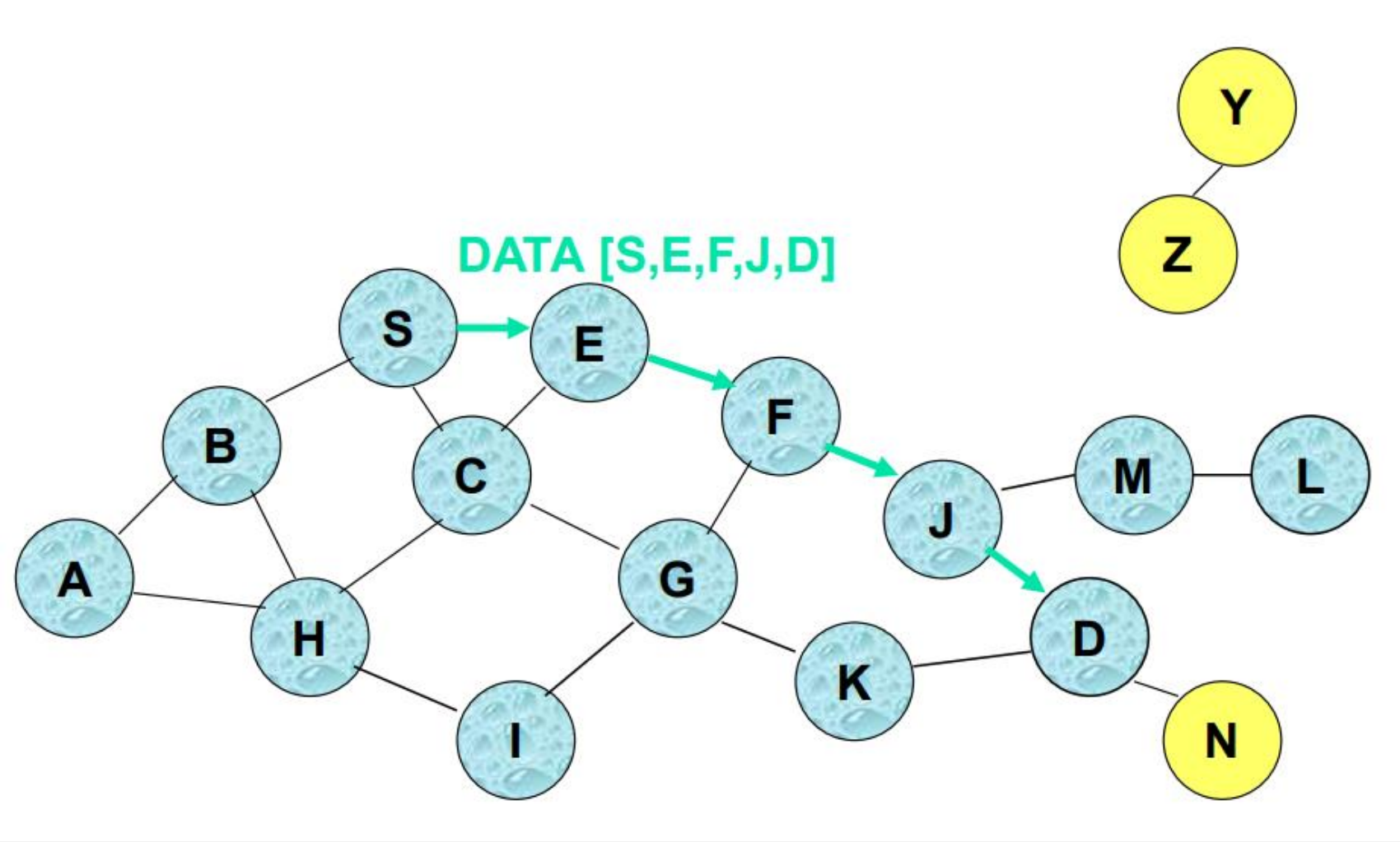
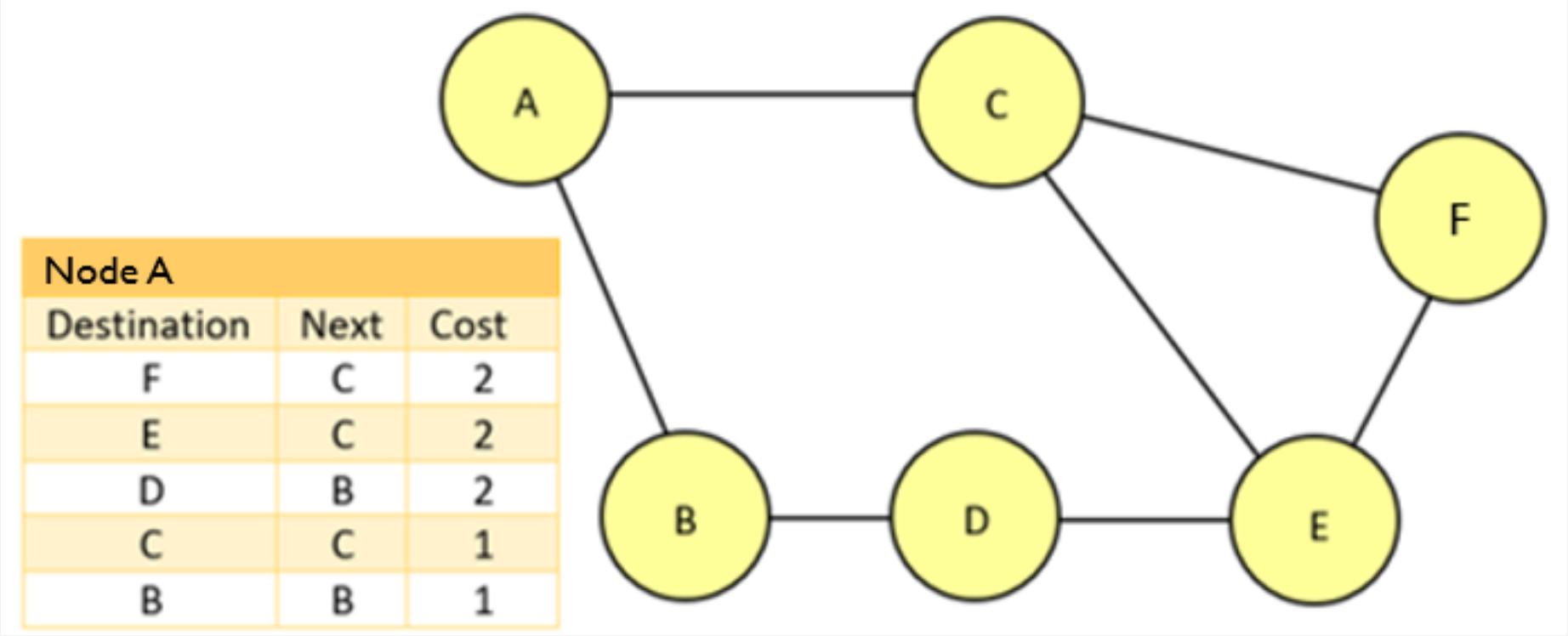


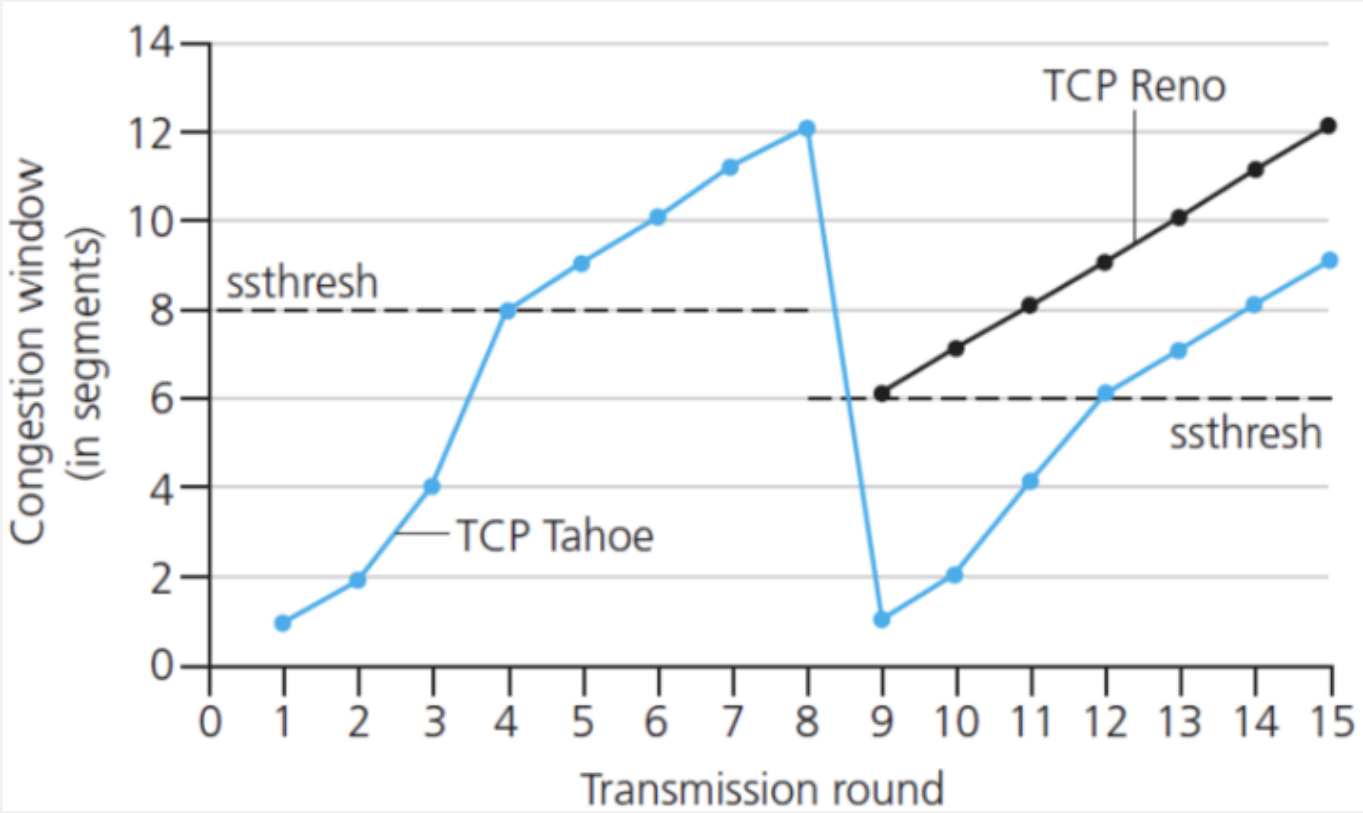
DSDV: DESTINATION SEQUENCED DISTANCE VECTOR



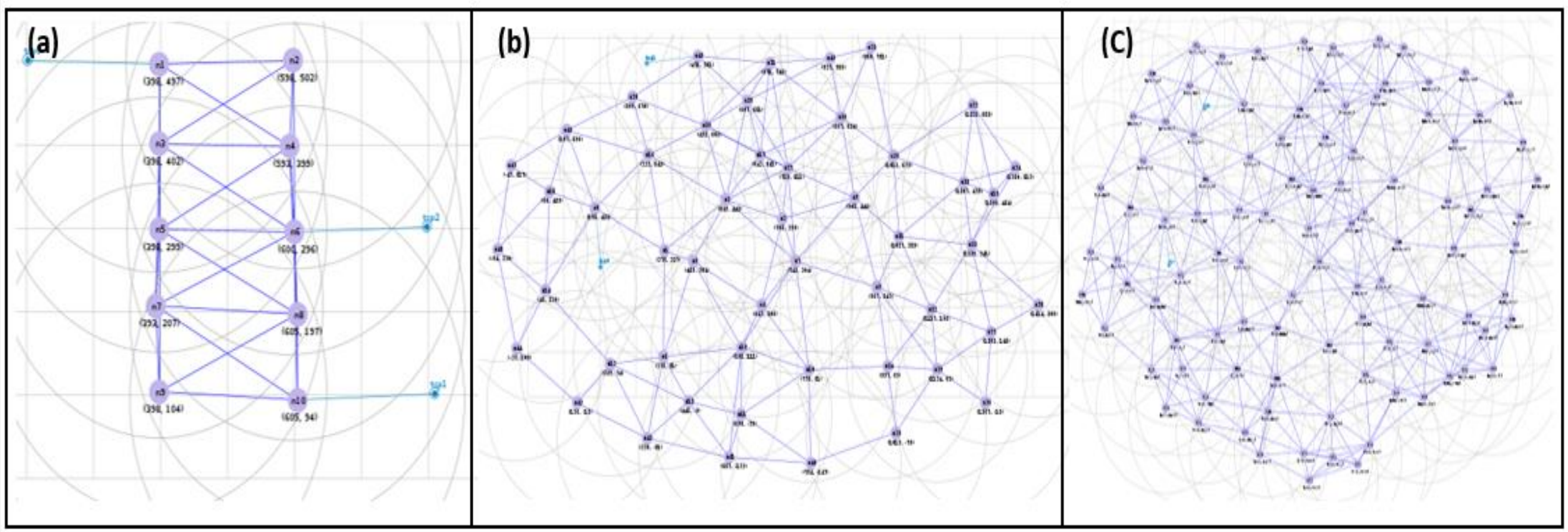
Node A		
Destination	Next	Cost
F	C	2
E	C	2
D	B	2
C	C	1
B	B	1

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

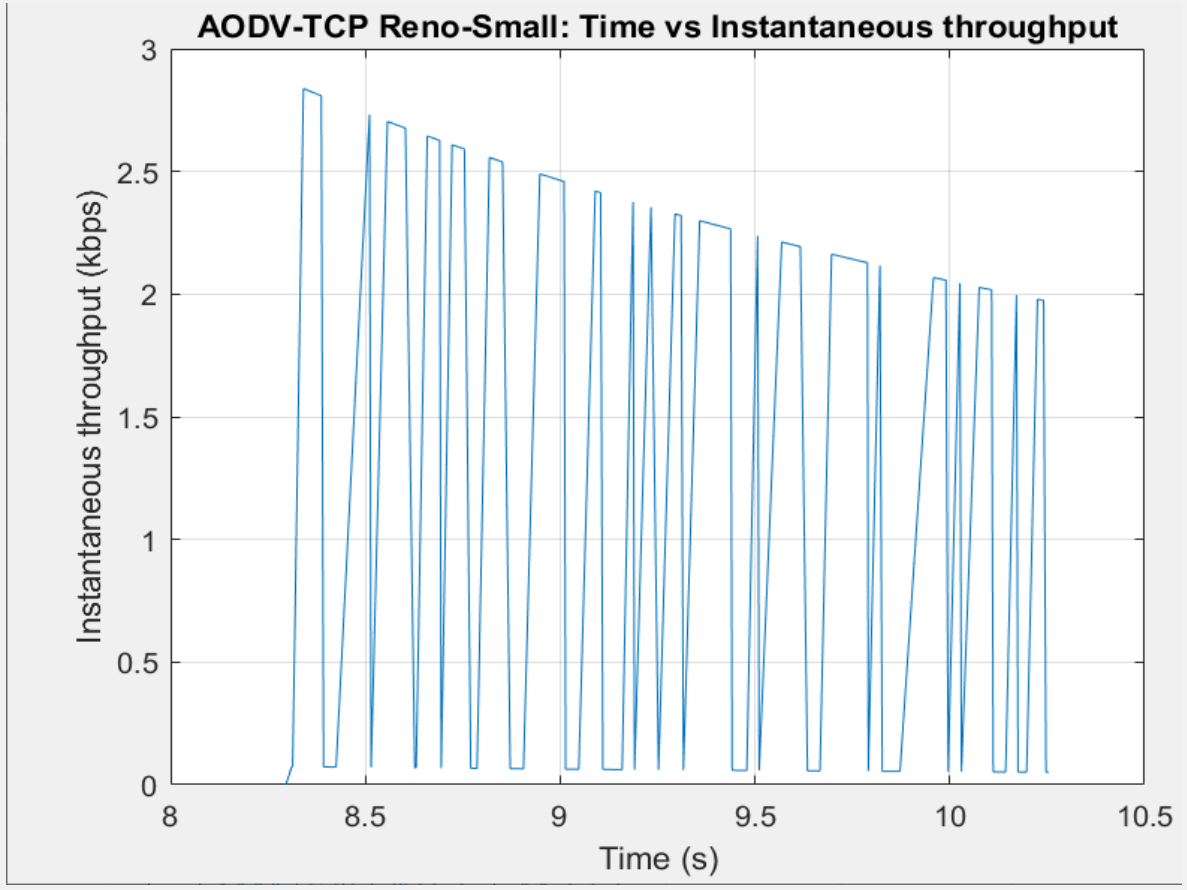
NODAL RESIDUAL ENERGY

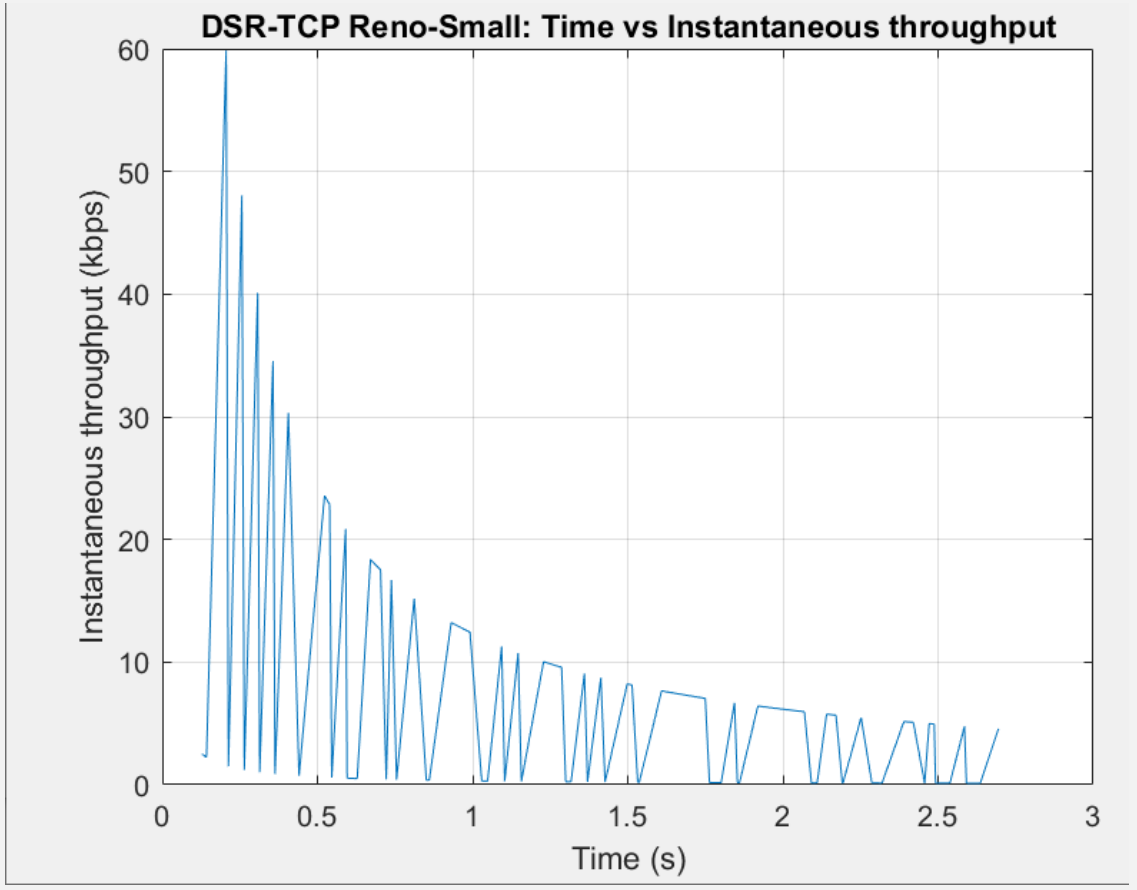
PACKETS DELIVERY RATIO

SPECIFICATIONS

- Data size: 1500byes
- Duration: 0 to 10
- Source to destination speed: 10m/s
- Randomly moving nodes

INITIAL RESULTS





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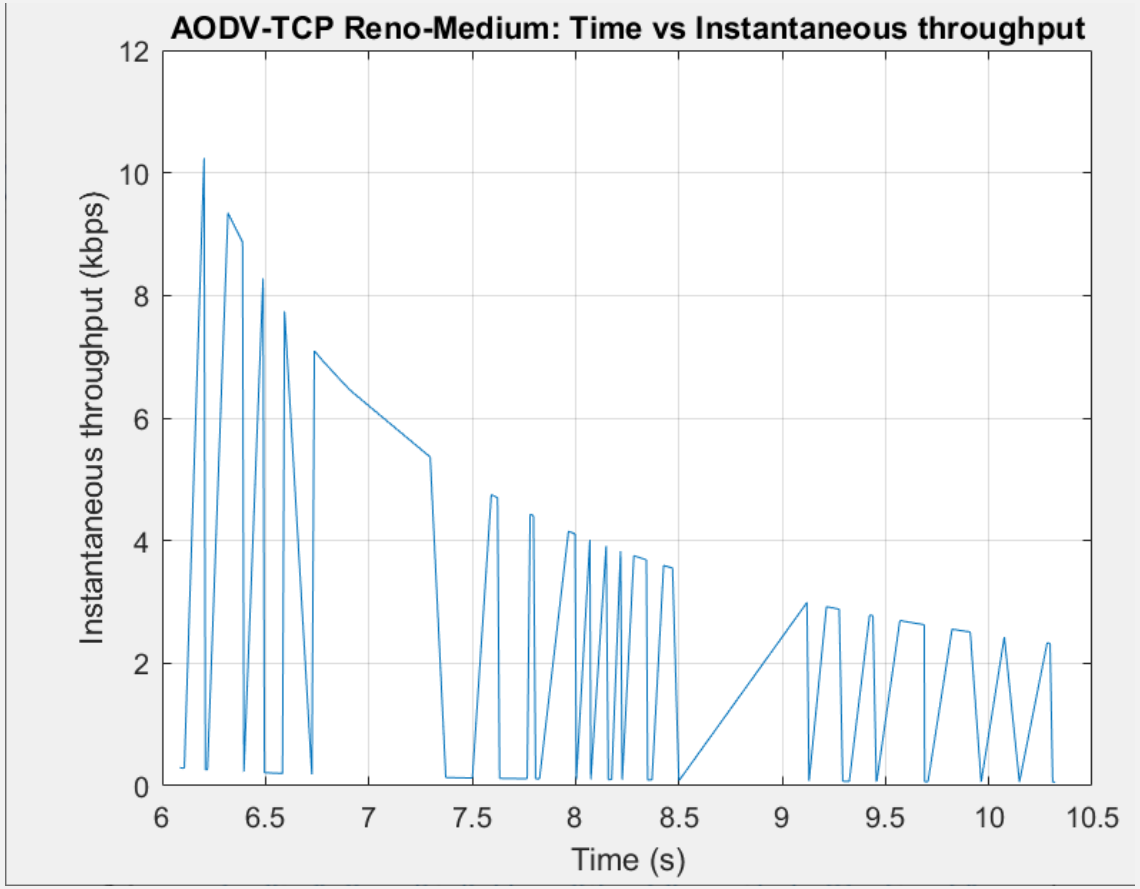

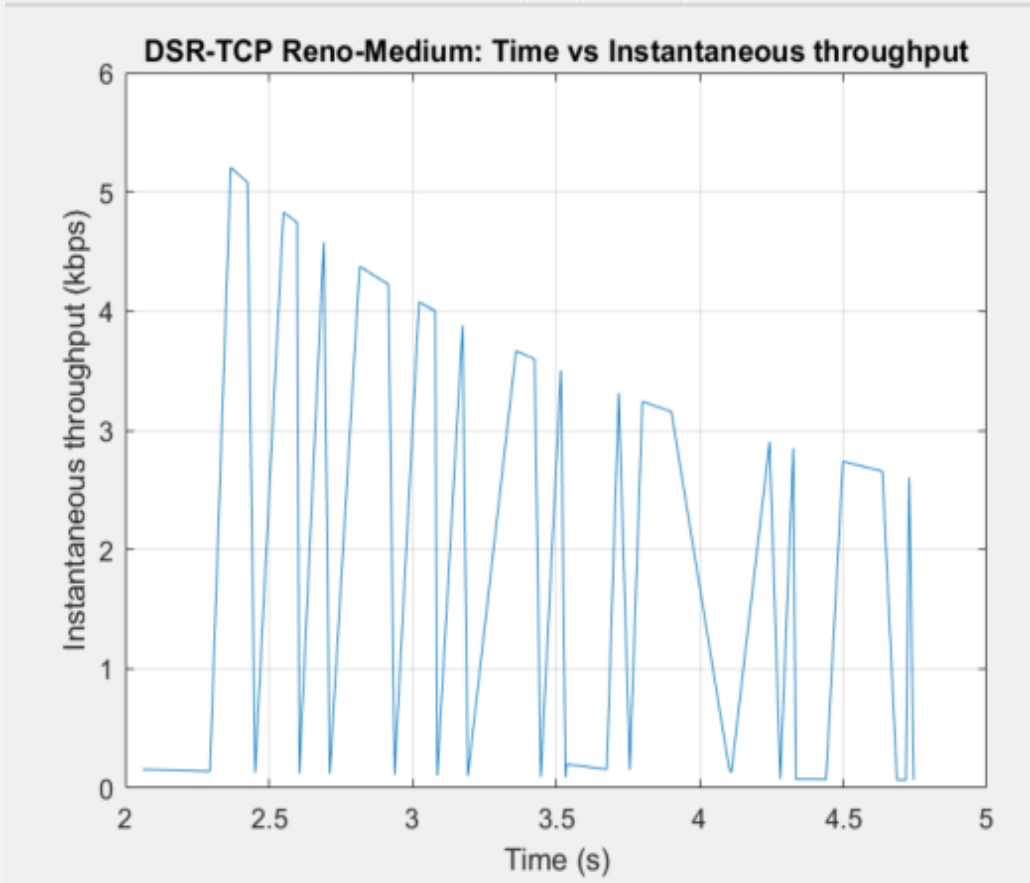

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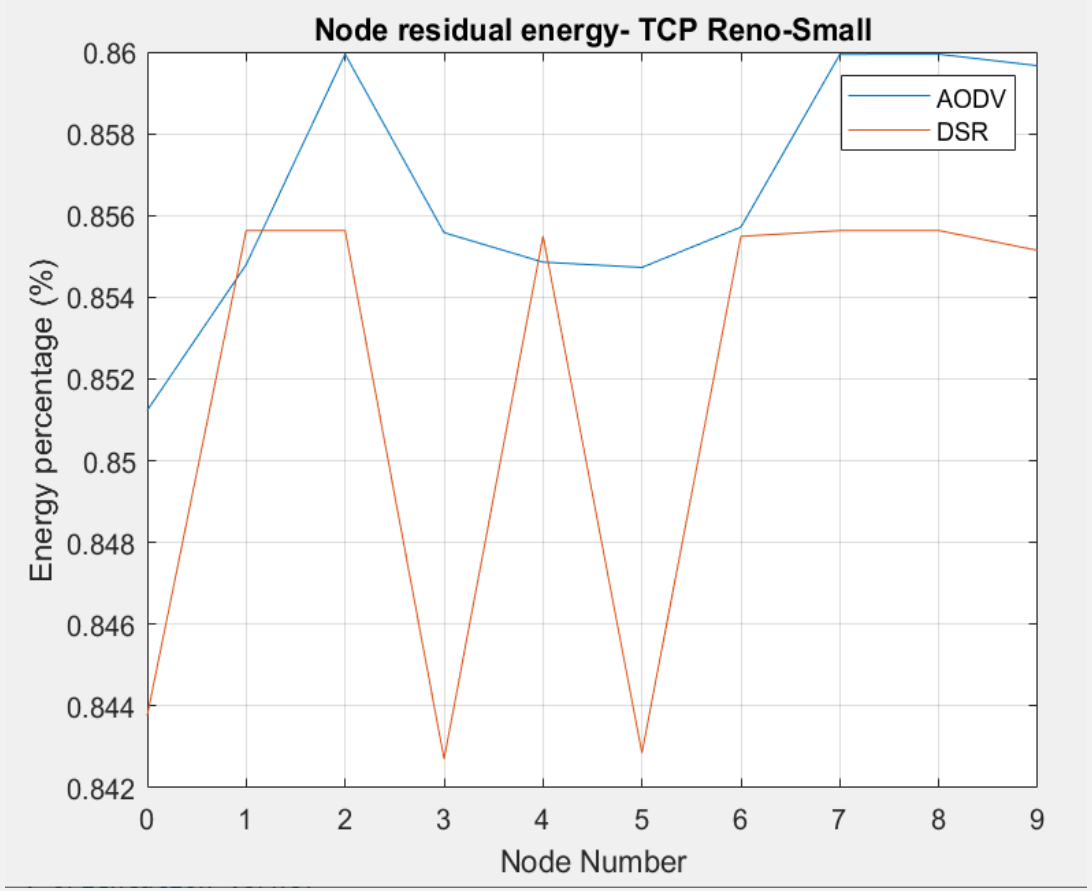

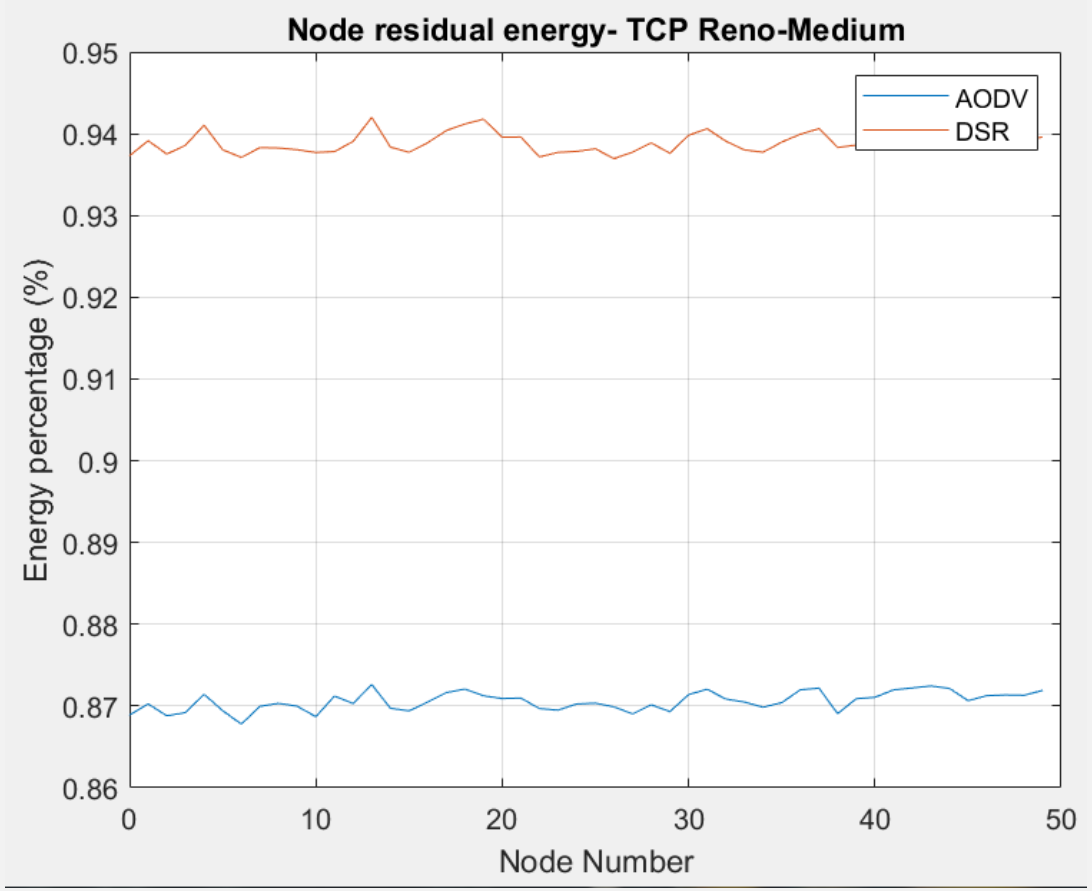

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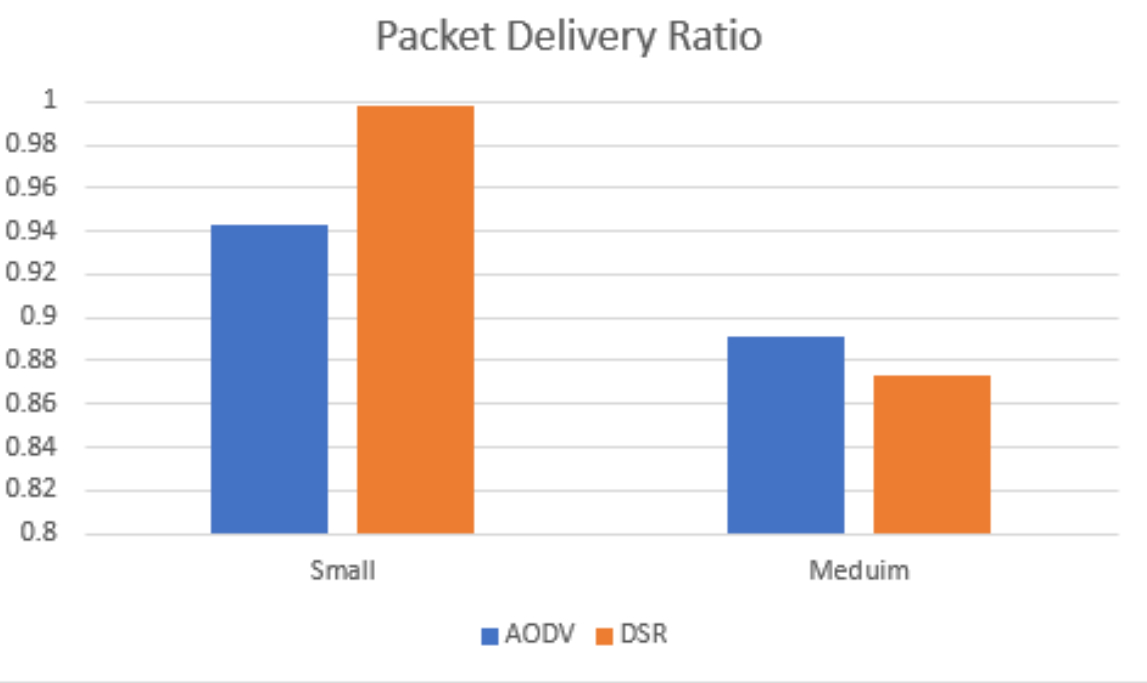

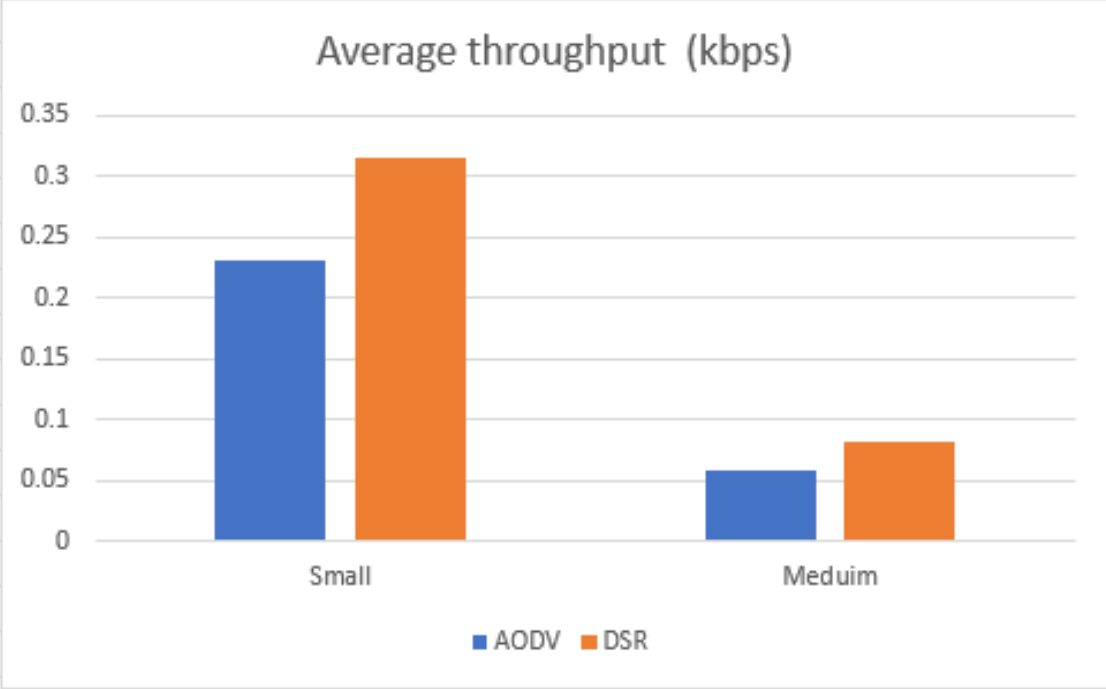

OVERALL

MANETs were introduced and defined.

An explanation of AODV, DSR, and DSDV.

Evaluation rubric was placed.

Initial results were produced.