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Distributed LMA

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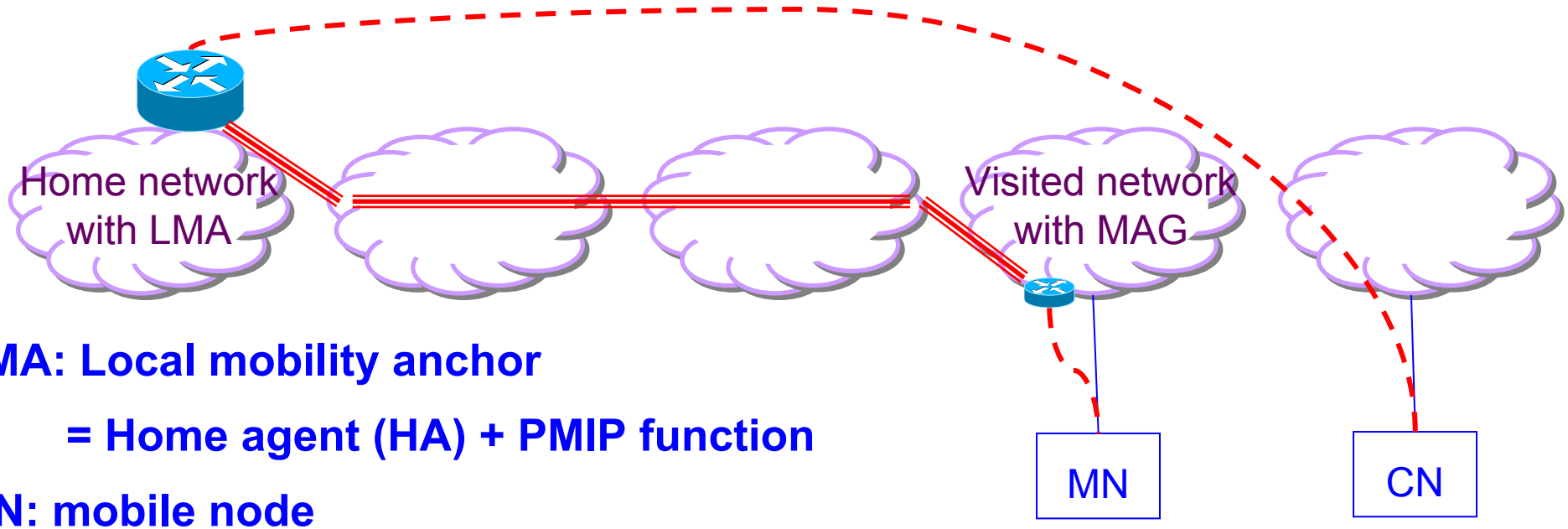
Background: Proxy mobile IP (PMIP) with triangle routing problem

- Packets between MN and CN need to tunnel between MAG and LMA, even when MN is far from home network but is close to CN



LMA: Local mobility anchor

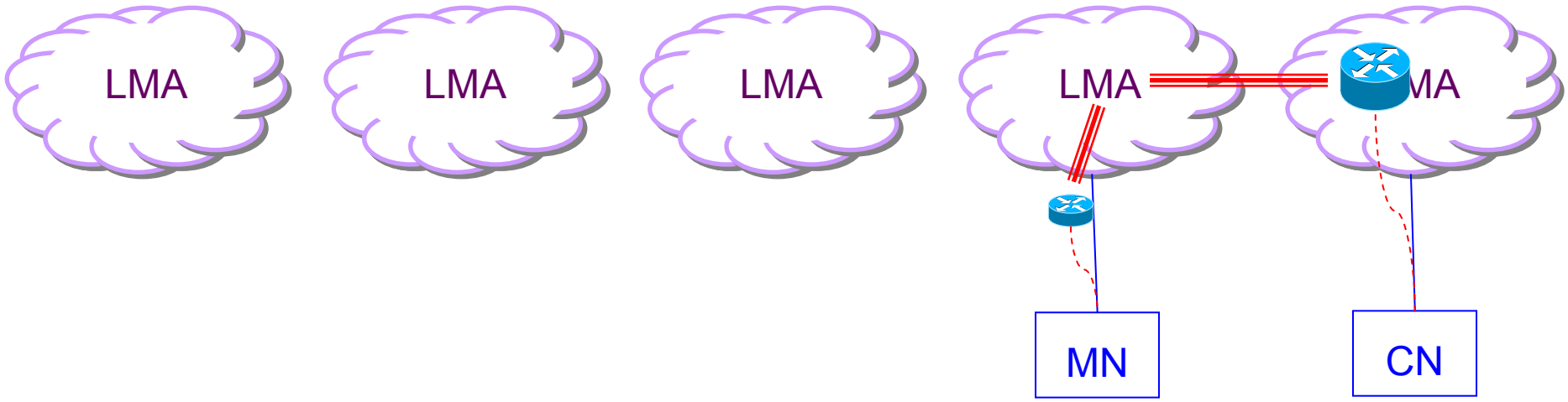
= Home agent (HA) + PMIP function

MN: mobile node

CN: correspondent node

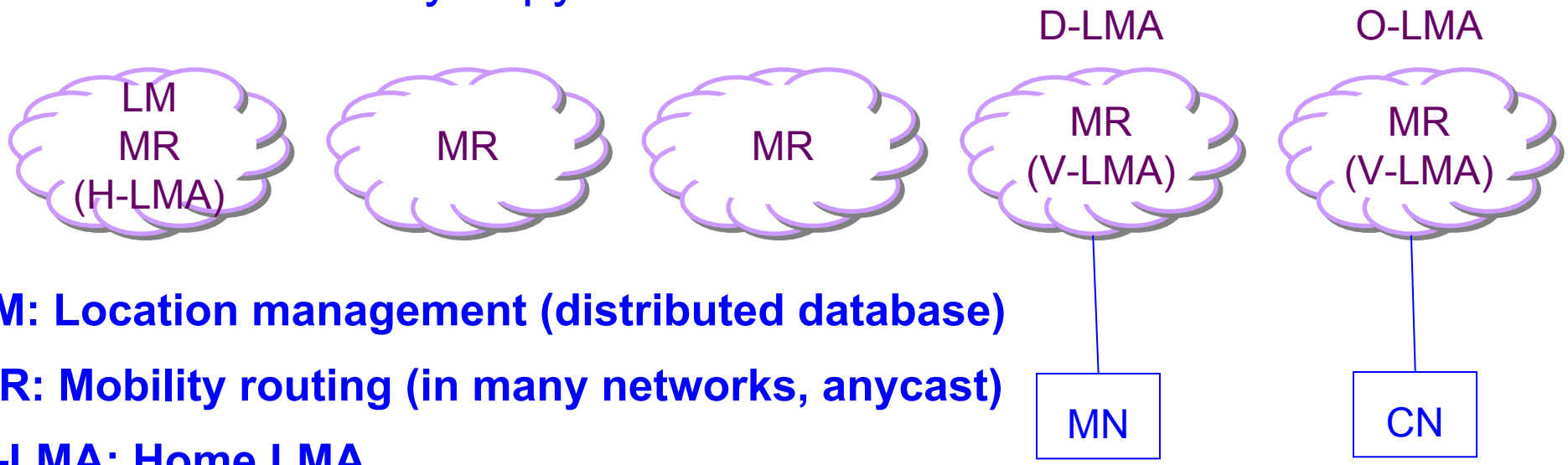
Background: Copy LMA in many networks

- Solves triangle routing problem by using the LMA closest to MN.
- Yet, synchronizing the location information among the LMA's in real time is a challenge.



Distributed LMA

- LMA functions: mobility routing + location management + HoA allocation. Only copy the MR function in different networks.



LM: Location management (distributed database)

MR: Mobility routing (in many networks, anycast)

H-LMA: Home LMA

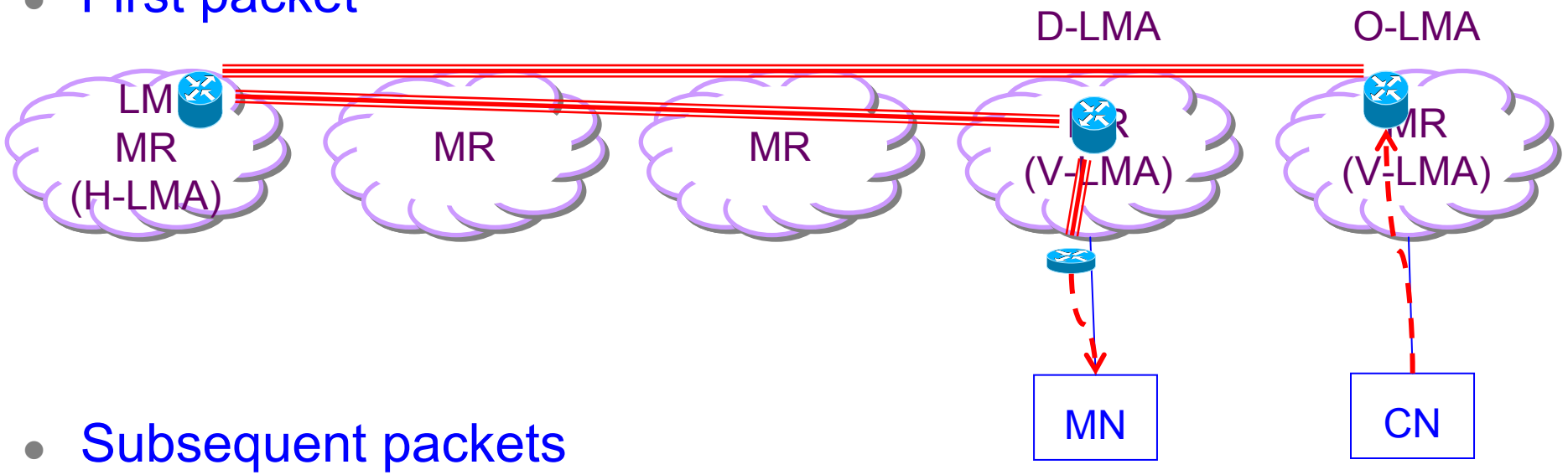
V-LMA: Visited LMA

O-LMA: Originating LMA

D-LMA: Destination LMA

Receiving packets

- First packet



- Subsequent packets

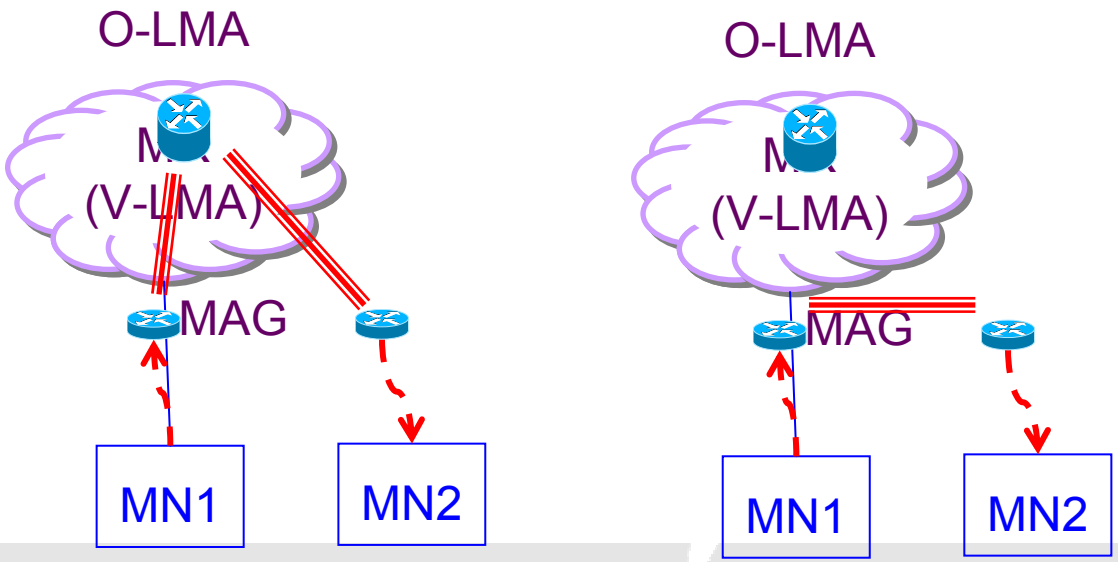
Sending packets

- to another MN

- to fixed node

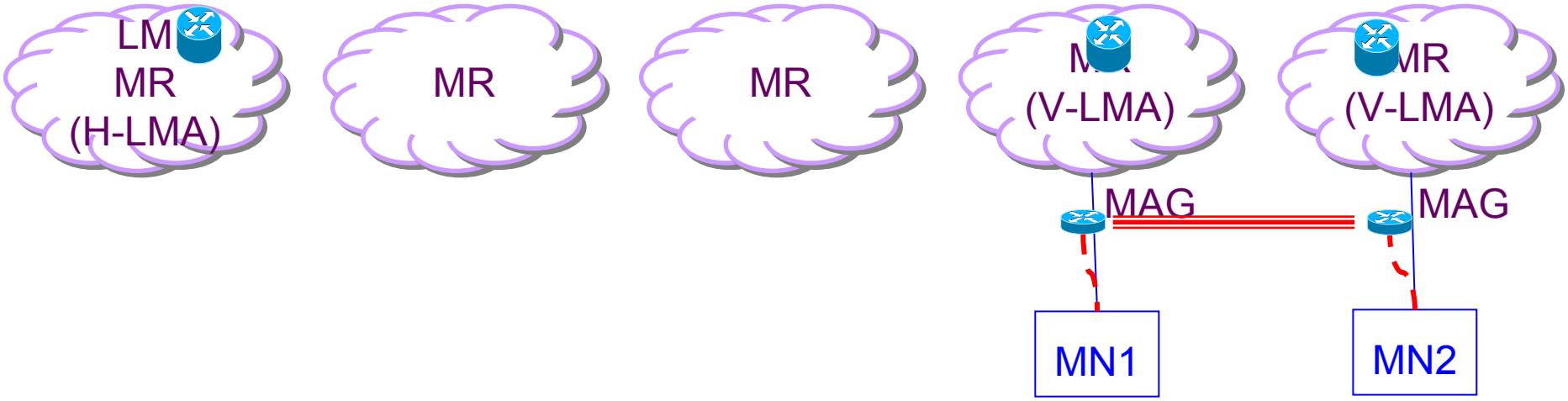
Optimization: local routing

- Whenever a node is the end of an incoming tunnel segment and the beginning of the outgoing tunnel segment for the same packet, the node knows optimization is possible.
- The node simply informs the start of the incoming tunnel segment to tunnel future packets to the end of the outgoing tunnel segment.
- Example:



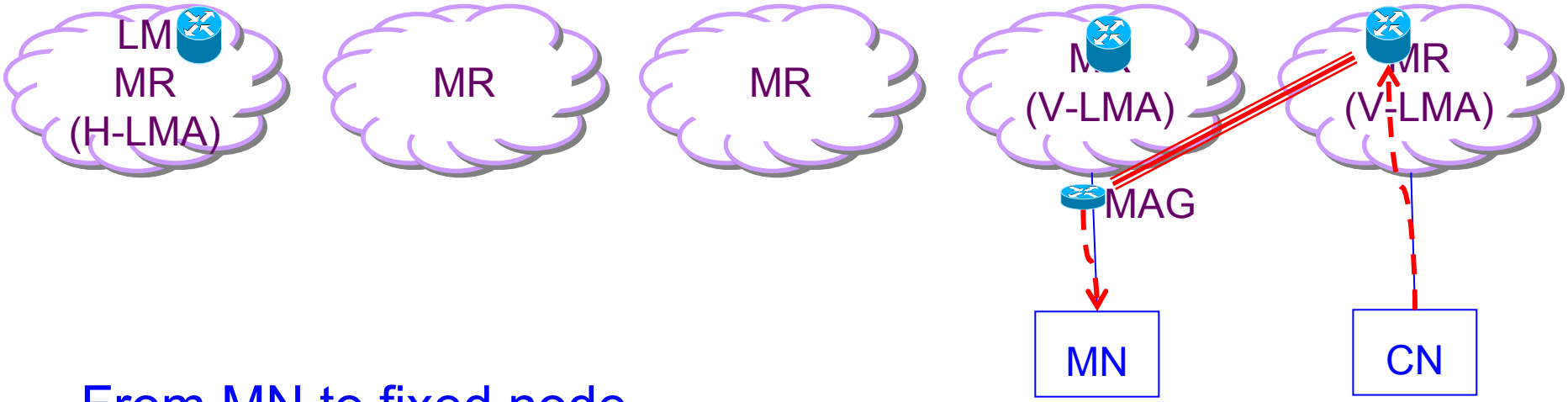
Route Optimization

- From MN to MN



Route Optimization

- From fixed node to MN



- From MN to fixed node

Packet flow with MN in visited network