

Issues in NEMO RO for ITS (Intelligent Transportation Systems)

Ref: Mobile Network Prefix Provisioning
(draft-jhlee-mext-mnpp-00)

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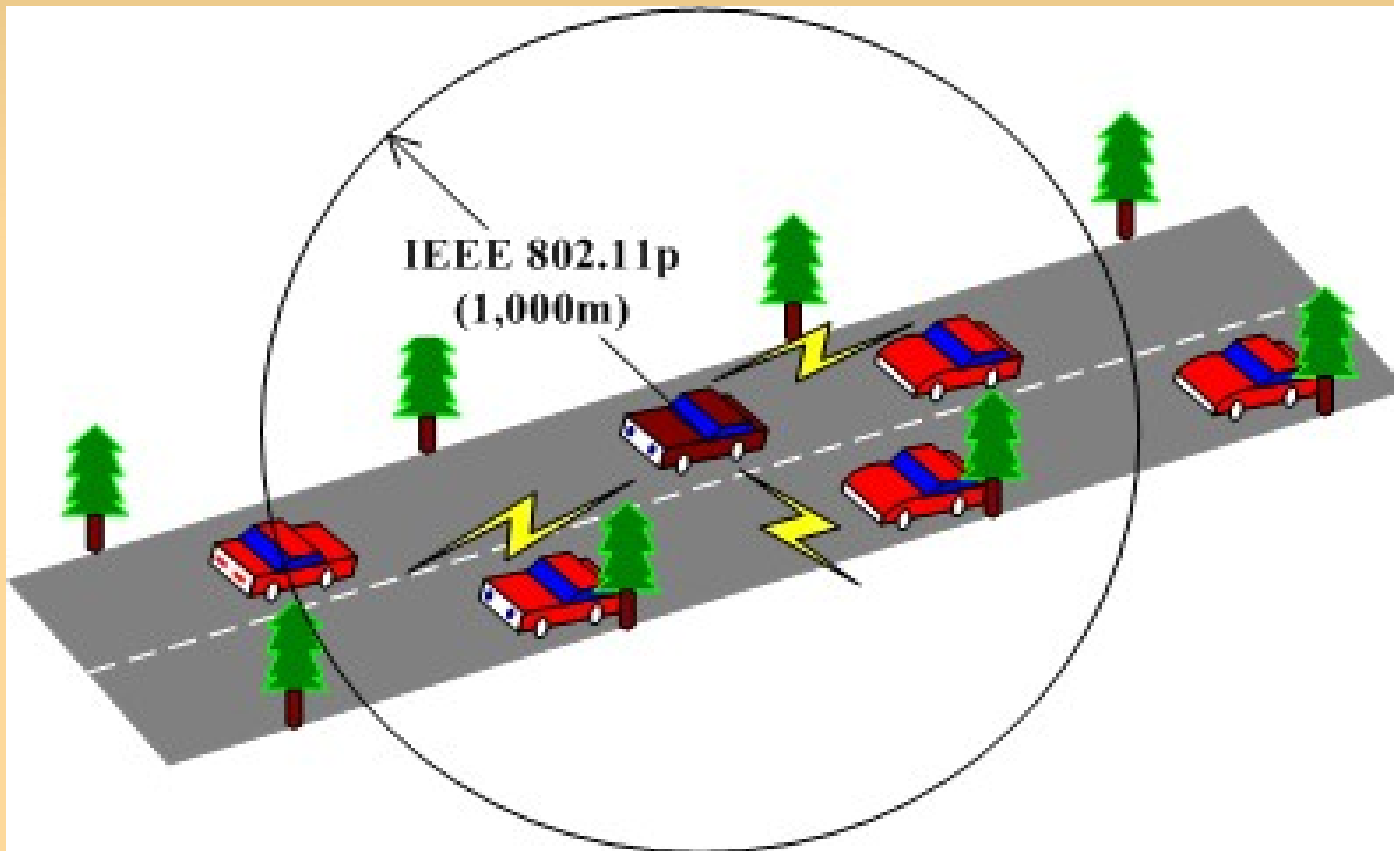
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Motivation: NEMO in ITS

- Vehicles which form their individual in-vehicle networks require to communicate with other vehicles or roadside infrastructures
 - IP based data communication
 - Seamless handover
 - not Host Mobility, Network Mobility required!
- NEMO Basic Support has been adopted for ITS

Motivation: One-hop comm.

- Due to the increased range, one-hop communication between vehicles is required



Problem: MNP discovery for RO

- NEMO Basic Support
 - Each vehicle is allocated a Mobile Network Prefix (MNP)
 - Vehicles reachable through the wireless link don't know the MNP of other vehicles
 - Packets have to be transmitted through HAs of both vehicles though they are directly reachable

Proposal: MNPP

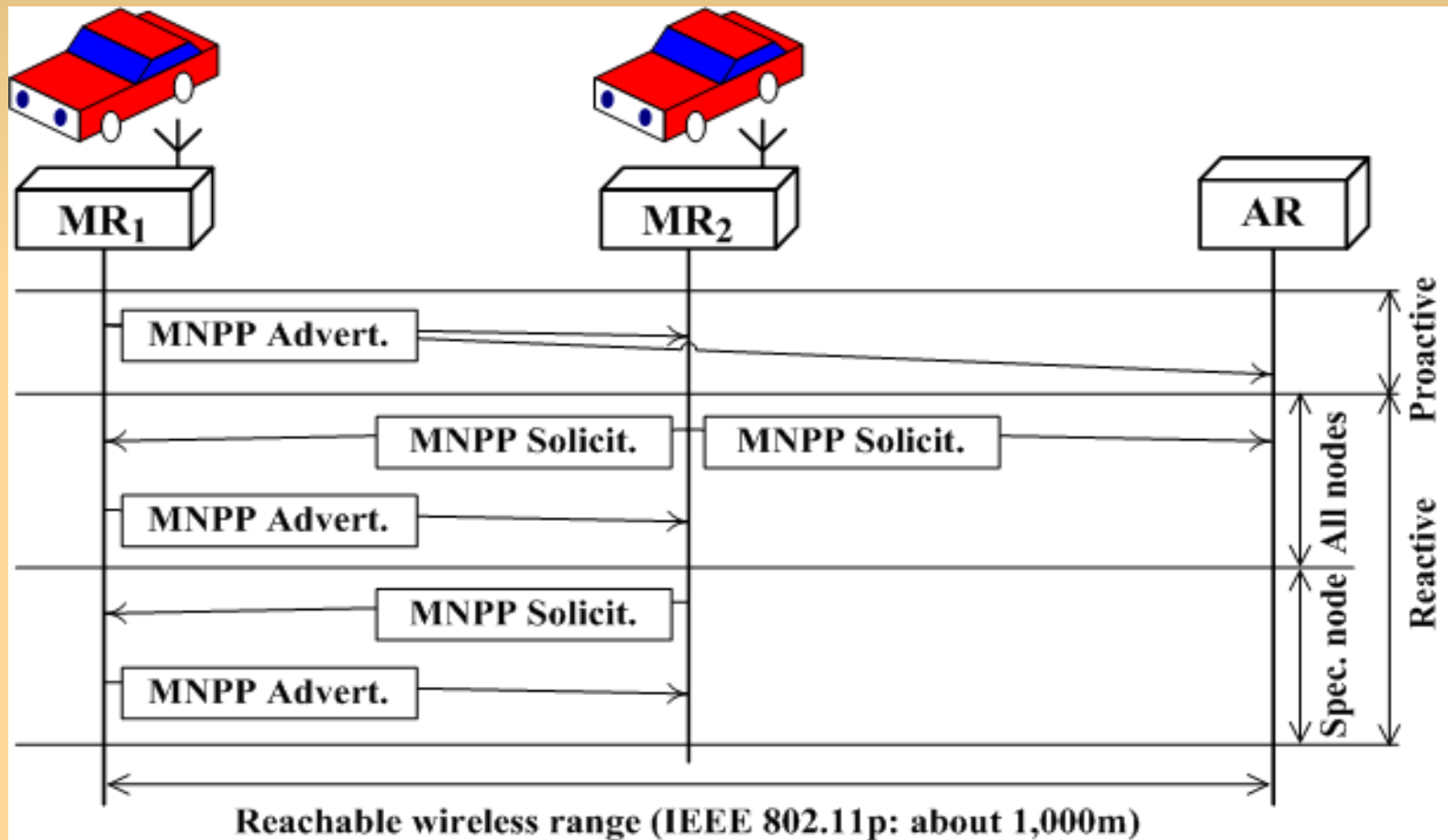
- Mobile Network Prefix Provisioning (MNPP)
 - Advertise MNP assigned to a vehicle to neighbor vehicles in a reachable wireless communication range
 - Thus, Mobile Network Nodes (MNNs) establish direct communication between them

Proposal: MNPP

- MNPP extends the prefix discovery of NDP
 - MNPP Solicitation message:
 - Similarly to RS message, used to receive MNPP Advertisement messages quickly
 - MNPP Advertisement message:
 - Similarly to RA message, it is generated periodically, or in response to MNPP Solicitation message
 - MNP (being used in the in-vehicle network) is included

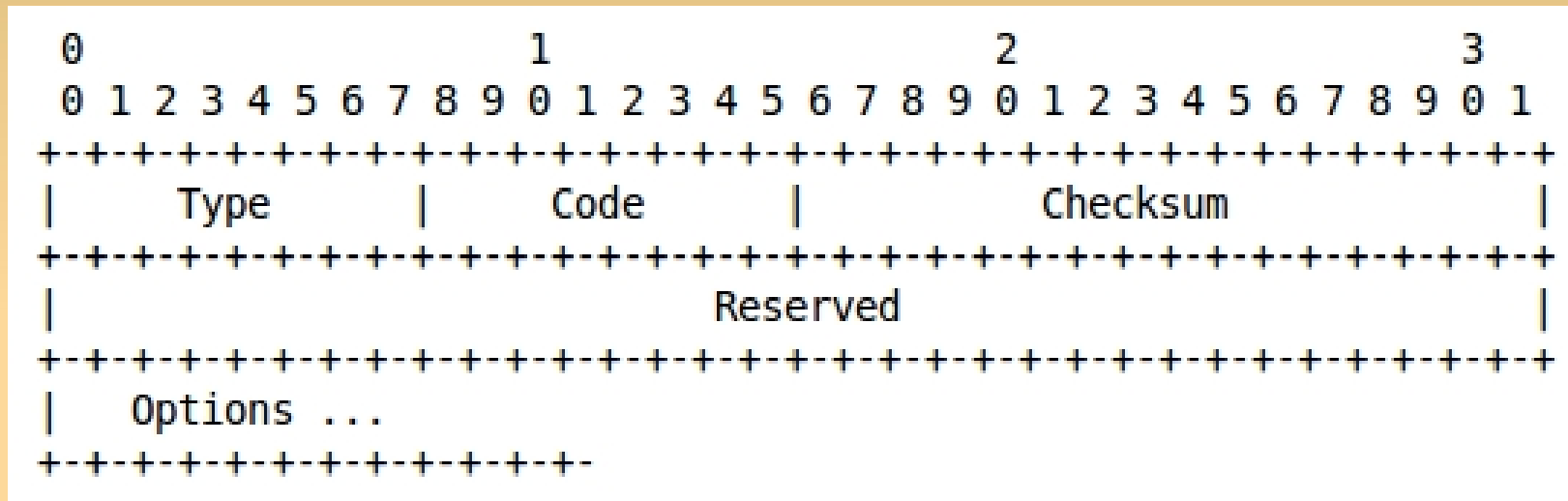
Proposal: MNPP

- Message Flow



Proposal: RA/RS message format

- MNPP Solicitation and Advertisement



- Possible option for MNPP Solicitation
 - Source link-layer address
- Possible option for MNPP Advertisement
 - Source link-layer address, In-vehicle MTU, MNP

Next Step

- Applicable scenarios
 - Infrastructure-based scenario
 - Infrastructure-less scenario
- Security considerations
 - SEND should be extended to protect the MNPP messages

Comments?