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geographic map-based mobility models
1.3.3. Group-based mobility1.3.3.1. Reference point group mobility model; 1.3.3.2. Virtual track mobility model; 1.3.3.3. Limitations of group-based mobility model; 1.3.4. Prediction-based mobility models; 1.3.4.1. Gauss-Markov based mobility model; 1.3.4.2. Markov-History based mobility model; 1.3.4.3. Discussion of prediction-based mobility models; 1.3.5. Software-tools-based mobility models; 1.3.5.1. SUMO framework; 1.3.5.2. VanetMobiSim framework; 1.3.5.3. MOVE framework; 1.3.5.4. Discussion of software-tools-based mobility models; 1.4. VANET challenges and issues; 1.4.1. VANET routing 1.4.2. Vehicular network scalability1.4.3. Computational complexity in VANET networking; 1.4.4. Routing robustness and self-organization in vehicular networks; 1.4.5. Vehicular network security; 1.5. Bibliography; 2: Routing for Vehicular Ad Hoc Networks; 2.1. Basic concepts; 2.1.1. Single-hop versus multi-hop beaconing in VANETs; 2.1.1.1. Single-hop beaconing; 2.1.1.2. Multi-hop beaconing; 2.1.2. Routing classification of VANETs; 2.1.2.1. Topology-based routing; 2.1.2.1.1. Proactive routing; 2.1.2.1.2. Reactive routing; 2.1.2.1.3. Hybrid routing; 2.1.2.2. Geography-based routing
2.1.2.3. Cluster-based routing2.2. Quality-of-service of VANET routing; 2.2.1. Quality-of-service definition; 2.2.2. Quality-of-service criteria; 2.2.2.1. Average end-to-end delay (measured in milliseconds); 2.2.2.2. Average jitter (measured in milliseconds); 2.2.2.3. Average available bandwidth (measured in KB/s); 2.2.2.4. Packet delivery ratio; 2.2.2.5. Normalized overhead load; 2.3. VANET routing standards; 2.3.1. Dedicated short range communication; 2.3.2. Standards for wireless access in vehicular environments (WAVE); 2.3.3. VANET standards related to routing layers
2.3.3.1. Controller area network (ISO 11898)

Sommario/riassunto

Vehicular Ad-Hoc Networks (VANETs) play a key role to develop Intelligent Transportation Systems (ITS) aiming to achieve road safety and to guaranty needs of drivers and passengers, in addition to improve the transportation productivity. One of the most important challenges of this kind of networks is the data routing between VANET nodes which should be routed with high level of Quality of Service (QoS) to ensure receiving messages in the time. Then, the driver can take the appropriate decision to improve the road safety. In the literature, there are several routing protocols for VANETs which