Authentication and Key Agreement based on Anonymous Identity for Peer-to-Peer Cloud Java

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Abstract: *Vehicular Ad Hoc Networks (VANETs) are a dynamic subclass of Mobile Ad Hoc Networks (MANETs) enabling real-time vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) communication. Ensuring security and efficiency in broadcast communication for real-time applications is a significant challenge. This paper presents a dual-layer solution that includes (i) an optimized relay vehicle selection algorithm for efficient broadcast delivery and (ii) an anonymous authentication and key agreement scheme in peer-to-peer (P2P) cloud systems for data confidentiality and integrity. The proposed architecture improves packet delivery ratio, minimizes latency, and fortifies VANET communication against security threats such as message tampering, impersonation, and replay attacks. Simulation results confirm improved efficiency and security with minimal overhead.*

Keywords: VANETs, Secure Broadcast, Relay Selection, Authentication, Key Agreement, P2P Cloud, Real-Time Communication.