

A Distributed Data Caching Framework for Mobile Ad Hoc Networks

The improvement and integration of miscellaneous electronic products and communication technology promote the usage of portable devices. People could travel around for work and conferences by using wired or wireless communication to receive information and data immediately. Mobile ad hoc networks (MANETs) enable all mobile nodes to communicate each other without base stations or access points, and the transfer of data packets is completed through the relay among all mobile nodes (MNs). However, a MANET is a self-organizing and adaptive wireless network formed by the dynamic gathering of MNs, and the topology of a MANET frequently changes. To cope with the intrinsic properties of MANETs, a distributed data caching framework is proposed in this paper. With the aid of the framework, the repetition of data and data path occurring in a MANET could be cached in some special mobile nodes. Routes and time span to access data are therefore shortened, and the data reusable rate is enhanced to reduce the use of bandwidth and the power consumption of battery.