

Analysis and Research of Security Mechanism in IEEE 802.16j

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Abstract

IEEE 802.16j mobile multi-hop relay (MMR) network provides an attractive solution for the coverage extension and throughput enhancement of IEEE 802.16e network. Although the IEEE standard 802.16j has not been published yet, the seventh version of 802.16j Draft Standard (802.16j D7) has been released in 2008. Security is a very important issue in wireless network. In this paper, the security architecture is described in IEEE 802.16j standard. The security mechanism of IEEE 802.16j under different mode (centralized security control and distributed security control) is analyzed. In particular, the privacy key management protocol and the relay multicast re-keying algorithm defined in IEEE 802.16j are discussed in detail. Finally, the numerical results of the relay multicast re-keying algorithm under Linux system verify the impact of the algorithm on key updating communication costs.

Key words: IEEE 802.16j; security; key management; algorithm; simulation