

ABSTRACT

Wireless mesh network (WMN) is technology ad hoc based on mesh topology the IEEE 802.16(d) mesh network employs a Time-Division-Multiple-Access (TDMA) based MAC-layer protocol to manage network bandwidth. In an IEEE 802.16(d) mesh network, link bandwidth is partitioned into mesh frames, each of which comprises a control and a data sub-frame. The control sub-frame is divided into transmission opportunities (TxOpps), while the data sub-frame is divided into mini-slot

To schedule data transmission, the IEEE 802.16(d) mesh network defines two scheduling modes to allocate mini-slots. One is the centralized scheduling (CS) mode and the other is the distributed scheduling (DS) mode. In data coordinated distributed scheduling is allowed to allocate a “continuous” mini-slot allocation, so it can decrease performance. Therefore, to increase performance data coordinated distributed scheduling, we proposed multi-grant schema that can satisfy a bandwidth request with multiple separated mini-slot allocation during three wayhandshake with mechanism allocates mini-slot: The bandwidth need of this request IE has been fulfilled.

The result is multi-grant schema better than basic schema. In mesh network, number of node effectively is 15 when use modulation and coding schema (AMC). Multi-grant schema increase performance throughput, Fairness index throughput, ABSR with value 31,95%, 19.83197%, 58.57%, and all data sent to the destination node . In WMN, the effectively threshold is 19dB with 64QAM (2/3) and node effectively is 20. Multi-grant schema increase performance throughput, Fairness index, ABSR with value 1,36%, 1.078%, 0%, and all data sent to the destination node.

Key words: *WMN, data coordinate distributed scheduling, basic schema, multi-grant schema, throughput, ABSR, fairness index.*