Wireless Sensor Network Energy Efficient and QoS-Aware MAC Protocols: A Survey

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Abstract : Wireless Sensor Networks (WSNs) is an aggregation of several tiny, low-cost sensor nodes, spatially distributed to monitor physical or environmental status. WSN is constantly changing because of the rapid technological advancements in sensor elements such as radio, battery and operating systems. The Medium Access Control (MAC) protocols remain very vital in the WSN because of its role in coordinating communication amongst the sensors. Other than battery consumption, packet collision, network lifetime and latency are factors that largely depend on WSN MAC protocol and these factors have been widely treated in recent days. In this paper, we survey some latest proposed WSN Contention-based, Scheduling-based and Hybrid MAC protocols while presenting an examination, correlation of advantages and limitations of each protocol. Concentration is directed towards investigating the treatment of Quality of Service (QoS) performance metrics within these particular protocols. The result shows that majority of the protocols leaned towards energy conservation. We, therefore, believe that other performance metrics of guaranteed QoS such as latency, throughput, packet loss, network and bandwidth availability may play a critical role in the design of future MAC protocols for WSNs.

Keywords : WSN, QoS, energy consumption, MAC protocol
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