Abstract-wcnc

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In this work, we propose the Collection Tree Protocol - Extend (CTP-Extend) as an extension of the Collection Tree Protocol (CTP), which allows unicast routes from sink to sensor nodes, we do this by exploring the main features provided by the CTP. The fundamental purpose this technique is enable communication both ways (sink-to-nodes and node-to-sink) commonly used in Wireless Sensor Network (WSN). To accomplish this task uses the control plane packets routed through the tree CTP reverse to install policies in the data of the flow level, thus allows unicast route to sink from the sensors. This build enables transport layer in protocol stack of the WSN. CTP-Extend requires low storage states and very low additional overhead in packets. We use TinyOS operating system and its tools in the experiments, as the transport protocol implemented an Automatic Repeat-reQuest (ARQ)-like together with CTP-Extend and order of comparison, we used the protocolAd hoc On Demand Distance Vector (AODV). The results suggest that our approach achieves transmission rates similar to AODV, while drastically minimizes the quantity of stored states and the recovery time of the routes when failures happen in the network, thus being efficient. Also, scalability and stress tests were conducted, CTP-Extend was submitted high and low loads in the network as well as nodes in different amounts, proved to be 100% reliable delivering packets when a route exists and robust operate in different topologies.