Adaptive DRX Scheme to Improve Energy Efficiency in LTE Networks with Bounded Delay

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Abstract:

The Discontinuous Reception (DRX) mechanism is commonly employed in current LTE networks to improve energy efficiency of user equipment (UE). DRX allows UEs to monitor the physical downlink control channel (PDCCH) discontinuously when there is no downlink traffic for them, thus reducing their energy consumption. However, DRX power savings are achieved at the expense of some increase in packet delay since downlink traffic transmission must be deferred until the UEs resume listening to the PDCCH. In this paper, we present a promising mechanism that reduces energy consumption of UEs using DRX while simultaneously maintaining average packet delay around a desired target. Furthermore, our proposal is able to achieve significant power savings without neither increasing signaling overhead nor requiring any changes to deployed wireless protocols.

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