# Centrality-Based Network Coding Node Selection Mechanism for Improving Network Throughput

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*Abstract*— **The problem of minimizing the number of coding nodes is caused by network coding overhead and is proved to be NP-hard. To resolve this issue, this paper proposes Centrality-based Network Coding Node Selection (CNCNS) that is the heuristic and distributed mechanism to minimize the number of network coding (NC) nodes without compromising the achievable network throughput. CNCNS iteratively analyses the node centrality and selects NC node in the specific area. Since CNCNS operates with distributed manner, it can dynamically adapt the network status with approximately minimizing network coding nodes. Especially, CNCNS adjusts the network performance of network throughput and reliability using control indicator. Simulation results show that the well selected network coding nodes can improve the network throughput and almost close to throughput performance of conventional RLNC.**

***Keywords***— **Network coding, Throughput, Centrality, Degree, Weight**

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