

# Comparative Study on Cooperative Communications in the Upper Layers at Ad Hoc Network

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**Abstract**— In this study, we compare the cooperative MAC protocols, the routing protocols and the transport protocols, all of which support cooperative communications. Numerical comparisons of three cooperative MAC protocols with reactive helper node selection mechanisms are presented. Research trends, as well as the advantages and disadvantages of related research, on cross-layer cooperative MAC protocols, cooperative routing, and transport protocols are described.

**Keyword**—Ad hoc, cooperative, cross-layer, helper node, MAC



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