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## Research on Cross-Layer Design in MANETs (Mobile Ad-hoc Networks)

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**Abstract:** Cross-layer design in Mobile Ad-hoc Networks (MANETs) refers to the intercommunication and exchange of information across different protocol layers to improve overall network performance. In a typical networking protocol stack, each layer operates independently, but in MANETs, the traditional layer-by-layer communication model is often not enough due to the dynamic nature of wireless communication, limited resources, and fluctuating network conditions. Therefore, cross-layer design has become a vital research area to optimize the efficiency and performance of MANETs..

**Keywords:** MANET(Mobile Ad-hoc network), Layers, Protocol Stack, Dynamic Topology, Cross-layer design

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