

Ad hoc networks are dynamic networks with no pre-existing structure or centralized administration, where all the devices participate equally in the routing of packets. The lack of established structure complicates the efficiency of routing in such networks, and makes many address allocation methods unsuitable. The thesis proposes a new routing and addressing protocol SARP, which works as a distance-vector routing protocol, but optimizes the sizes of the routing tables on the individual nodes by automatically approximating the routes into groups where possible. Most importantly, SARP does not require any pre-established network structure nor unique router identifiers, and works only by exchanging the entries in routing tables. We show that SARP is a scalable routing protocol on networks where the addresses can be grouped well. Additionally, we show that SARP can, to some extent, use the reduced information for successful address assignment. However, a fully working address assignment in general settings will require further research in methods to globally detect address collisions without unique router identification.