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Broadcasting via self-organization of nodes in MANET

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Designing routing algorithms for networks built on top of mobile devices carried by people in crowd, it is very important to take into account high dynamics of nodes connectivity state. Algorithms should adapt to a continuously changing environment making fast decisions about current position and role of a concrete node in the global broadcast scheme of the network.

The proposed broadcasting approach is based on an idea of nodes self-organization in a hypercube topology of links between them. It is shown how a hypercube vertex can be assigned to a MANET node on the basis of 1-hop or 2-hops neighbour information. Once the node becomes a part of hypercube topology, broadcast routing decisions can be made very efficiently.

The hypercube based broadcasting method is compared to a similar approach that uses a mesh topology.