

Proposed Charter Text

MANET session, IETF 120

The MANET working group is responsible for the standardization, maintenance, and extension of routing protocol functionality that enables the exchange of IP packets over wireless media, among network nodes that operate in a dynamic environment, both with respect to movement of nodes relative to each other and with respect to wireless propagation conditions. The 'maintenance and extension' part of the WG's remit applies in particular to the standards track routing protocols developed in this group (OLSRv2, [RFC 7181] and supporting specifications) and in the Babel WG (Babel [RFC 8966]), as well as the protocol for exchange for link-related information between a router and its attached modem(s), DLEP ([RFC 8175] and extensions).

Approaches are intended to be relatively lightweight in nature, suitable for multiple hardware and wireless environments, and address scenarios where MANETs are deployed at the edges of an IP infrastructure. Hybrid mesh infrastructures (mixtures of fixed and mobile routers) should also be supported by MANET specifications and management features. As far as routing is concerned, Babel and OLSRv2 meet this requirement.

When routing devices rely on modems to effect communications over wireless links, they will benefit from timely and accurate knowledge of the characteristics of the link (speed, state, etc.) when making routing decisions. In mobile or other environments where these characteristics change frequently, manual configurations or the inference of state through routing or transport protocols does not allow the router to make the best decisions. The WG is responsible for the maintenance and extension of the dynamic link exchange protocol (DLEP) between the router and the modem.

Early in the history of the WG, both pro-active and reactive ad hoc routing solutions were pursued. This resulted in four RFCs with status Experimental, two of those specifying protocols of the pro-active variety and two specifying reactive protocols. Only one of the pro-active protocols was successfully developed into a Standards Track specification (i.e., OLSRv2). The main advantage of reactive solutions is low protocol overhead. The WG will revisit earlier work on AODVv2, aiming to progress it to a Standards Track specification.

Traditional multicast routing solutions (e.g., PIM SM) tend to perform poorly in mobile ad hoc network environments, due to high churn of maintaining group membership state in the nodes in frequently changing network topologies. In recent years, solutions for efficiently handling multicast forwarding below the IP layer have gained ground. However, these solutions only apply to homogeneous link layer / physical layer technologies. The WG will explore multicast routing solutions in support of heterogeneous wireless technology configurations and federated mobile ad hoc networks.

The MANET WG will coordinate with other Working Groups, such as the PIM and ROLL WGs for multicast support, as well as the Routing Area WG (RTGWG) and LSR WG on the general use of DLEP, as well as the IPPM WG on topics related to traffic classification.

Work Items

- Multicast solutions for mobile ad hoc networks based on heterogeneous wireless technologies
- Exploring feasibility of Standards Track reactive routing solution based on AODVv2
- Progressing DAT-metric specification (RFC 7779, Experimental) to Standards Track
- Babel extensions
- OLSRv2 extensions
- DLEP extensions
- DLEP corrections & clarifications document