

DSR Extensions for Network Coding Capability
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Abstract

This document describes how DSR [[1](#)] can be extended for the support of network coding capability in the MANET. Because the network coding capability increases the wireless network capacity, in this draft, we describe how we can extend DSR for the support of the network coding capability.

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1. Requirements notation

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [\[RFC2119\]](#).

2. Introduction

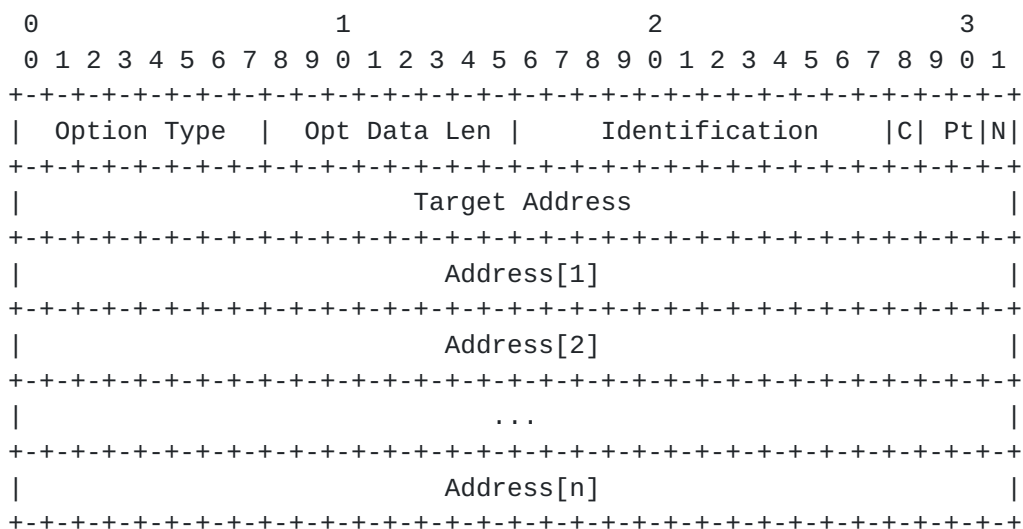
The mobile ad hoc network (MANET) is composed of a number of mobile nodes which can communicate with each other through multiple wireless links without the help of a wired infrastructure. Because a wireless link is more restricted in its capacity than a wired link, the efficient utilization of wireless links is one of the important issues in wireless networks, especially in the MANET.

The network coding is one of the mechanisms that can increase wireless network capacity [\[1\]](#). In this draft, we describe how the DSR Options header has to be extended to support the network coding capability.

3. Extensions on DSR Options Header

3.1 Extensions on DSR Route Request Option

The Route Request option in the DSR Options header is extended as follows:



IP fields: the same as described in [2]

Route Request fields: the same as described in [3] except for the
N bit

N

The Network Coding bit to indicate whether a MANET node can be involved in the network coding activities or not. If N bit is 1, the nodes belonging to the source-to-destination route have to turn on the network coding capability. The default value of the N bit is 0.

4. Other Considerations

TBD.

References

- [1] M. Tarique, K. E. Tepe, S. Abidi and S. Erfani, "Survey of Multipath Routing Protocols for Mobile Ad Hoc Networks," Journal of Network and Computer Applications, November 2009.
- [2] D. Johnson, Y. Hu and D. Maltz, "The Dynamic Source Routing Protocol," [RFC 4728](#), February 2007.
- [3] S. Ahn, "DSR Extensions for Multipath Routing," IETF [draft-ahn-manet-multipath-dsr-00.txt](#), December 2015.

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