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MANET Routing Protocol Applicability Statement

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Abstract

This memo puts forth a set of questions regarding Mobile Ad hoc Network (MANET) routing protocol functionality and applicability. Authors of MANET routing protocol draft submissions are requested to include these questions (and corresponding answers) in a section in their submissions. The intent of this 'Applicability Section' is to aid readers unfamiliar with the details of each protocol's design in understanding the protocol's basic characteristics, functioning and mechanisms, as well as to provide a general description of the networking context for which the protocol was designed, and in which it is expected to perform well.

1. Introduction

The set of applications for which the use of MANET technology is envisioned is diverse, ranging from small, energy-constrained nearly static networks to large-scale, mobile, highly-dynamic networks. The combinations of network size, topology composition and dynamics, bandwidth and energy availability, physical and link-layer technologies, intended application usages, etc. are many, and it

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seems unlikely that a single protocol will function superiorly over this wide range of networking contexts. Thus a given protocol is likely to be well-suited for operation in those networks whose characteristics match well with the combination of mechanisms employed by the protocol.

This document poses questions to the designers of MANET routing protocols, the answers to which will hopefully:

- (1) aid developers and users in understanding the basic mechanisms employed by a protocol and
- (2) help users make better selections of which protocol to consider using by matching its mechanisms with the characteristics of their networking context and application.

2. Applicability Section Framework

This section is intended to form the basis of a mandatory "Applicability Section" to be included in each draft/RFC of the proposed MANET control protocols.

2.1 Networking Context

Please describe the intended "networking context" for the protocol; i.e., the type of networking environment for which the protocol is best suited. This description can be as vague or specific as is known to the authors.

2.2 Protocol Characteristics and Mechanisms

The following questions identify protocol characteristics that may affect a protocol's suitability for various networking environments and applications.

- * Does the protocol provide support for unidirectional links? (if so, how?)
- * Does the protocol require the use of tunneling? (if so, how?)
- * Does the protocol require using some form of source routing? (if so, how?)

* Does the protocol require the use of periodic messaging? (if so, how?)

* Does the protocol require the use of reliable or sequenced packet delivery? (if so, how?)

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* Does the protocol provide support for routing through a multi-technology routing fabric? (if so, how?)

* Does the protocol provide support for multiple hosts per router? (if so, how?)

* Does the protocol support the IP addressing architecture? (if so, how?)

* Does the protocol require link or neighbor status sensing (if so, how?)

* Does the protocol have dependence on a central entity? (if so, how?)

* Does the protocol function reactively? (if so, how?)

* Does the protocol function proactively? (if so, how?)

* Does the protocol provide loop-free routing? (if so, how?)

* Does the protocol provide for sleep period operation? (if so, how?)

* Does the protocol provide some form of security? (if so, how?)

* Does the protocol provide support for utilizing multi-channel, link-layer technologies? (if so, how?)

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