Abstract

This document defines a routing algorithm module for GORF, the Generic Opportunistic Routing Framework, as defined in draft-lindgren-dtnrg-gorf-00. This module specifies the Epidemic Routing algorithm for that framework.

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1. Introduction

This document provides a specification of a routing module algorithm defining the Epidemic Routing algorithm for the GORF opportunistic routing framework. Epidemic Routing was first introduced in [vahdat_00], and many variations on it have since been proposed and used in various research work.

The basic idea behind Epidemic Routing is to model the dissemination of messages as an epidemic spread of a virus where a node "infects" all other nodes it meets with a message. The infected nodes can then further infect the nodes they meet in turn, spreading the message throughout the network.

In this document, we define the basic version of epidemic routing. When nodes meet, they exchange lists of bundles available, and try to (given enough time and bandwidth) transfer bundles between the nodes so that both nodes have all bundles.
2. Routing Algorithm Module

2.1. Routing Algorithm Identifier

The Routing Algorithm Identifier for Epidemic Routing is 0x0001.

2.2. Routing metric format definition

Format definition:

| Length: | 0 |

In Epidemic Routing, no routing state is kept, so therefore the routing metric to be maintained is an empty string of length zero.

2.3. Node characteristics format definition

Format definition:

| Length: | 0 |

2.4. GORF API Function Definitions

2.4.1. updateState

Do nothing.

2.4.2. encounterNode

Do nothing.

2.4.3. generateOffer

Return a list of all bundles stored. If any bundle has the peering node as destination, those bundles should be listed at the head of the list.
2.4.4. generateResponse

Return the same list of bundles as was given as input. If any bundle has this node as destination, those bundles should be listed at the head of the list.

2.4.5. bundleSent()

Do nothing.

2.4.6. dropAdvice

Input:

- n: number of bundles to drop

Return a list of the first n bundles in the internal bundle queue.

2.4.7. getMetricFormat()

Return "0".

2.4.8. getNodeCharacteristics()

Return "0".

2.4.9. getNodeCharFormat()

Return "0".

2.4.10. newBundleArrived()

Return the full list of currently connected peers (so that a BundleOffer for this bundle is sent to all connected nodes).

2.4.11. nodeDisconnected()

Do nothing.

2.4.12. ackReceived()

Do nothing.

2.4.13. getInformationExchangeTimer()

Return 0.
3. Security Considerations
4. References

4.1. Normative References


4.2. Informative References


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