

Use of the OSPF-MANET Interface in Single-Hop Broadcast Networks (draft-retana-ospf-manet-single-hop-00)

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What is this draft about?

- Abstract: “describes the use of the OSPF-MANET interface [rfc5820] in single-hop broadcast networks.”
- **Extensions to OSPF to Support Mobile Ad Hoc Networking [rfc5820]**
 - Experimental / March 2010

The OSPF-MANET interface uses the point-to-multipoint adjacency model over a broadcast media to allow the following:

- all router-to-router connections are treated as if they were point-to-point links
 - Link metric can be set on a per-neighbor basis
 - Broadcast and multicast can be accomplished through the Layer 2 broadcast capabilities of the media
- **Single-Hop Broadcast Networks**

The interfaces considered in this document have the following characteristics:

 - direct connectivity between all the nodes
 - different link metrics may exist per-neighbor
 - it has broadcast/multicast capabilities

MANET Interface Considerations

- The operation of the MANET interface doesn't change. However, some of the proposed enhancements are not needed:
 - Incremental Hellos and Overlapping Relays are not required due to the connectivity model.
 - If Overlapping Relays are used, then the A-bit SHOULD NOT be set by any of the nodes: the result is an empty set of Active Overlapping Relays.
 - Smart Peering can be used to reduce the burden of requiring a full mesh of adjacencies.
 - ...a new adjacency is not required if reachability to the node is already available through the existing SPT.

Use of Router Priority

- For its use with the MANET interface, the Router Priority is defined as:
Router Priority
An 8-bit unsigned integer. Used to determine the precedence of which router(s) to establish a FULL adjacency with during the Smart Peering selection process. When more than one router attached to a network is present, the one with the highest Router Priority takes precedence. If there is still a tie, the router with the highest Router ID takes precedence.
- The heuristic for the smart peering state machine is described as:
 - If the number of existing adjacencies is < the maximum configured value, then
 - Determine if the neighbor has the highest (Router Priority, Router ID) combination

To avoid churn in the selection and establishment of the adjacencies, every router SHOULD wait Wait Time [[RFC2328](#)] before running the Smart Peering state machine.

It is RECOMMENDED that the maximum number of adjacencies be configured to at least 2.

Unsynchronized Adjacencies

- An unsynchronized adjacency [[RFC5820](#)] is one for which the database synchronization is postponed, but that is announced as FULL because SPT reachability can be proven.
- A single-hop broadcast network has a connectivity model in which all the nodes are directly connected to each other. This connectivity results in a simplified reachability check through the SPT: the adjacency to a specific peer **MUST** be advertized as FULL by at least one Smart Peer.

Summary

- The OSPF-MANET interface model can be applied to single-hop broadcast networks.
 - Incremental Hellos and Overlapping Relays are not needed.
 - Smart Peering can be used to reduce the need for a full mesh of adjacencies.
 - Use Router Priority to deterministically select the Smart Peers.
 - No additional signaling is needed for Unsynchronized Adjacencies.

Next Steps

- Adopt this draft as a WG Document
 - Updates rfc5820
 - Category: Experimental