SMF Multi-Interface Operation

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SMF Multi-Interface Operation

- Issues discovered recently with multi-interface testing.
  - SMF works but inefficiently in certain configurations
  - These configurations are not uncommon
  - Solutions may impact multiple drafts
    - SMF
    - SMF-MIB
    - OLSRv2?
  - Solutions proposed would not impact packetbb or NHDP
Single Interface Example: 1
Single Interface Example: 1
Single Interface Example: 1
Dual Interface Example: 2
Dual Interface Example: 2
Dual Interface Example: 2

The same minor inefficiencies in forwarding is produced by all provided sample algorithms.
Dual Interface Example: 3
Dual Interface Example: 3
Dual Interface Example: 3

Redundant broadcasts on blue interface from all nodes.

The same inefficiencies in forwarding is produced by all provided sample algorithms. Inefficiencies are not insignificant.
Dual Interface Example: 4
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Dual Interface Example: 4

Redundant broadcasts on blue interface from all nodes.
ECDS Solution/Issues

• Solution:
  – Forwarding election could done on a per interface basis (not node.)
  – Interface on which the packet was received needs to be taken into consideration.

• Issue:
  – NHDP does not natively provide one to two hop interface connectivity information required by this modification.
  – NHDP does not provide 2 hop nodal identification.
S-MPR Solution/Issues

• Solution:
  – MPR election could specify which one hop neighbor interfaces should forward.

• Issue:
  – NHDP does not natively provide one to two hop interface connectivity information required to elect interfaces (not nodes) for forwarding.
Way forward?

• Continue with current SMF draft
  – Plus:
    • Draft is experimental
    • Algorithms work just inefficient
    • Algorithms are optional and more can be developed
    • Provides time to develop better multi-interface algorithms
  – Minus:
    • May produce draft which misses some subtle issue
Way forward?

- “Fix” the algorithms in appendix now
  - Plus:
    - Produce “better” draft
  - Minus
    - Complicated
    - Most likely won't get it right on the first try
    - Requires at least 2 more TLV definitions
    - Delayed publish date