# MANET WG meeting, IETF65
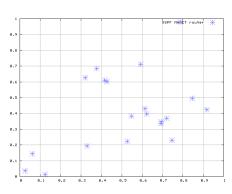
## OSPF MANET update

### March 21, 2006

### Tom Henderson

{thomas.r.henderson@boeing.com}

1

# Basic design considerations



- OSPF MANET is specified for OSPFv3 (IPv6) only
- Assumes omni-directional broadcast-capable radios

- Flooding relay efficiency
  - Minimize unnecessary relays
  - Flooding retransmissions occur along OSPF adjacencies
- Adjacency pruning
  - Adjacencies are bidirectional in OSPF, and contribute synchronization overhead
  - This is "control plane" topology control
- Topology advertisement
  - "Routable neighbors" include non-adjacent neighbors and may be advertised in LSAs
  - This is "data plane" topology control

2

# Status as of IETF-64

- Two approaches under consideration
  - MANET Designated Routers (MDR) originally proposed by R. Ogier
    - Flooding via CDS, adjacency pruning, advertised topology reduction, and other optimizations
  - Overlapping Relays and Smart Peering (OR/SP) by Cisco team
    - Flooding via MPRs and backups (ORs), adjacency pruning via SP, and other optimizations
  - WG agreed to open up discussion (ospf-manet mailing list) and consider more analysis and simulation

3

# Progress since IETF-64

- New drafts:
  - draft-ogier-manet-ospf-mdr-ext-00.txt
    - adaptation of MPR-CDS algorithm to select MDRs
  - draft-ogier-manet-ospf-extension-07.txt
    - advertisement of Dependent Neighbors in Hellos, simplifications of parent and adjacency selections, multiple interface support
  - draft-ogier-manet-ospf-mdr-position-00.txt
    - position draft arguing for MDR-based solution
  - draft-baccelli-ospf-mpr-ext-01.txt
    - MPR-based approach for flooding and adjacency reduction
- New technical report:
  - Analysis of OSPF MANET IETF-64 Scenarios; Boeing Technical Report
    - http://hipserver.mct.phantomworks.org/ietf/ospf/

4

# Progress since IETF-64

- Revised evaluation software (simulation and implementation-- quagga based):
  - Feb 6, 2006:
    - Incorporation of Cisco Smart Peering code
    - Several bug fixes and optimizations
  - Feb 25, 2006:
    - Support for heterogeneous mobility and radio range
    - New statistic for measuring flooding path length
    - OR/SP optimization for processing floods along non-adjacent paths
- Available at http://hipserver.mct.phantomworks.org/ietf/ospf/

5

# Recent consensus forming

Single consensus draft based on draft-ogier-manet-ospf-extension-07.txt containing:
- MDR/BMDR Selection
- MDR Flooding including LS Ack handling.
- Adjacency reduction based on MDR sub-graph
- All routable neighbors (2-Way) Neighbors Advertised in Router LSAs
- Link Local Signaling
  - will be eventually go from experimental to standards track including both OSPFv2 and OSPFv3
- Draft on Database Synchronization Optimization (OSPF WG General)
  - New draft generally applicable to OSPF.
- Link Local Signaling
  - Advance from experimental to standards track.

People agreeing:
- R. Ogier, A. Lindem, A. Roy, P. Spagnolo, T. Henderson, J. Macker

Futures:
- Differential Hellos
- Partial Topology LSA

6

# Questions?

- More discussion at OSPF WG meeting, Thursday 0900-1130

7