Radio to Router Interface Framework and Requirements

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Document Goal

• **Purpose**: To provide a framework to help evaluate radio-to-router interface (R2RI) protocols in MANET environments

• **Why?**
  • Enables heterogeneous networking
  • Exposes radio layer information to the router to provide more effective routing in MANET
  • Confusion on what R2RI protocols should and should not do
  • Many R2RI protocols currently being vetted through IETF: RFC4938/5578, R2CP, DLEP, ModemIpa

• **Document Content:**
  • R2RI Framework Description/Definitions
  • Assumptions
  • Requirements
  • Additional Considerations
The radio-to-router interface (R2RI) framework sets up the description, assumptions, requirements, and features to evaluate R2RI protocols. R2RI protocols comprised of a set of messages, message exchanges, and actions dedicated to passing layer 2 radio information obtained by the radio to the router and passing layer 3 network information about traffic flows and requests to the radio. The goal of the R2RI is to provide a common and extendable framework to share key information between the radio and router to enable effective multi-hop routing and flow control in a heterogeneous wireless network.
R2RI Framework Description

• Key Concepts
  – Local radio and router are connected by a high data rate/wired medium
  – R2RI communication is only between local radio and local router → No over the air communications
  – R2RI allows radio and router to share information
  – R2RI should provide flow control between radio and router
Summary

- Separating radio and router functionality enables heterogeneous networking.
- Defining a common radio-to-router interface to share radio metrics with network layer routing is important to take advantage of link quality in routing.
- There are several R2RI protocols currently being vetted through the IETF to evaluate the suitability of these protocols and drive standardization; it is important to establish a framework of requirements and assumptions.
- The goal of the document is to provide a framework to evaluate R2RI protocols and identify issues and potential workarounds.
Questions/Comments?

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