Radio to Router Interface Framework and Requirements

Bow-Nan Cheng, Leonid Veytser, David Ward
Proxied by Joe Macker
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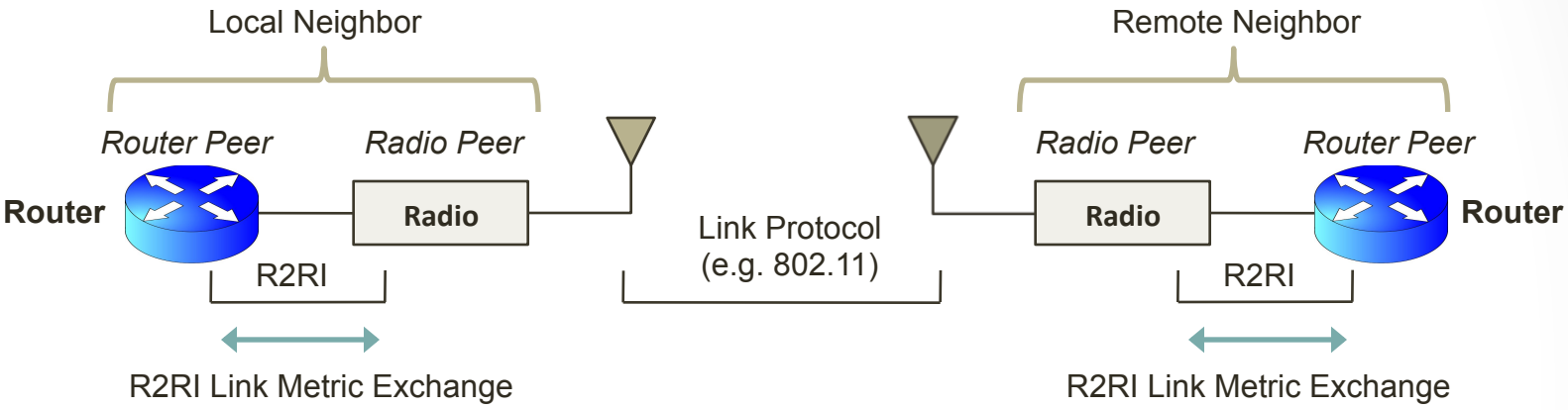
Document Goal

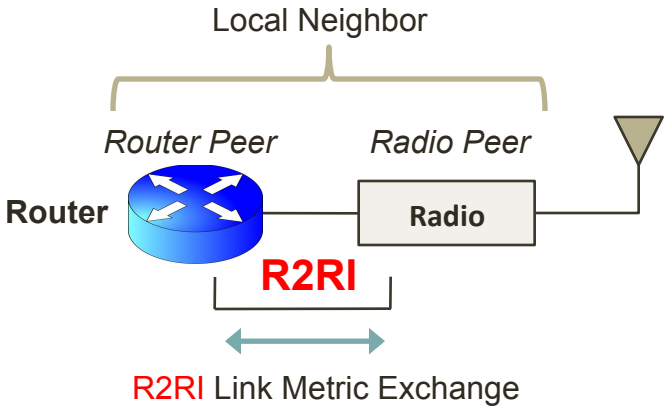
- **Purpose**: To provide a framework to help evaluate radio-to-router interface (R2RI) protocols in MANET environments
- **Why?**
  - Enables heterogeneous networking
  - Exposes radio layer information to the router to provide more effective routing in MANET
  - Confusion on what R2RI protocols should and should not do
  - Many R2RI protocols currently being vetted through IETF: RFC4938/5578, R2CP, DLEP, Modemlpa
- **Document Content:**
  - R2RI Framework Description/Definitions
  - Assumptions
  - Requirements
  - Additional Considerations

R2RI Framework Description



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?

- Bow-Nan Cheng (bcheng@ll.mit.edu)
- Leonid Veytser (veytser@ll.mit.edu)
- David Ward (david.ward@ll.mit.edu)