

# Crowd Sourced RemoteID

draft-moskowitz-drip-crowd-sourced-rid-03.txt

IETF 107 DRIP wg

Mar 25, 2020

Robert Moskowitz



# Agenda

- FAA NPRM RemoteID proposed rules
- What is Crowd Sourced RemoteID
- How it works
- Added features
- Work to do

# FAA NPRM RemoteID Proposed Rules

- In the Dec 29, 2019 Notice of Proposed Rule Making the FAA has defined
  - Standard Remote ID
    - Both Network and Broadcast RemoteID
  - Limited Remote ID
    - Network RemoteID only
- What happened to prior inclusion of
  - Broadcast RemoteID only?

# FAA NPRM RemoteID Proposed Rules

- Broadcast only RemoteID UAs are not
  - Visible to UA Traffic Management (UTM)
  - FAA cannot fulfill goal to manage the National Air Space (NAS)
- Broadcast RemoteID is
  - Easier to support in UAs than N-RID
  - Immediately visible to observers

# Crowd Sourced RemoteID

- Inspired by Apple's "Find My" application
  - Presented at IACR RWC2020, Jan 9, 2020
  - No, I haven't found slides or a recording, yet.
- Any smart device with Bluetooth/WiFi radios
  - Can receive Broadcast-RemoteID messages
    - That is the design of B-RID!
  - Can forward them into the UTM ecosystem
    - We just need to add a little trust in

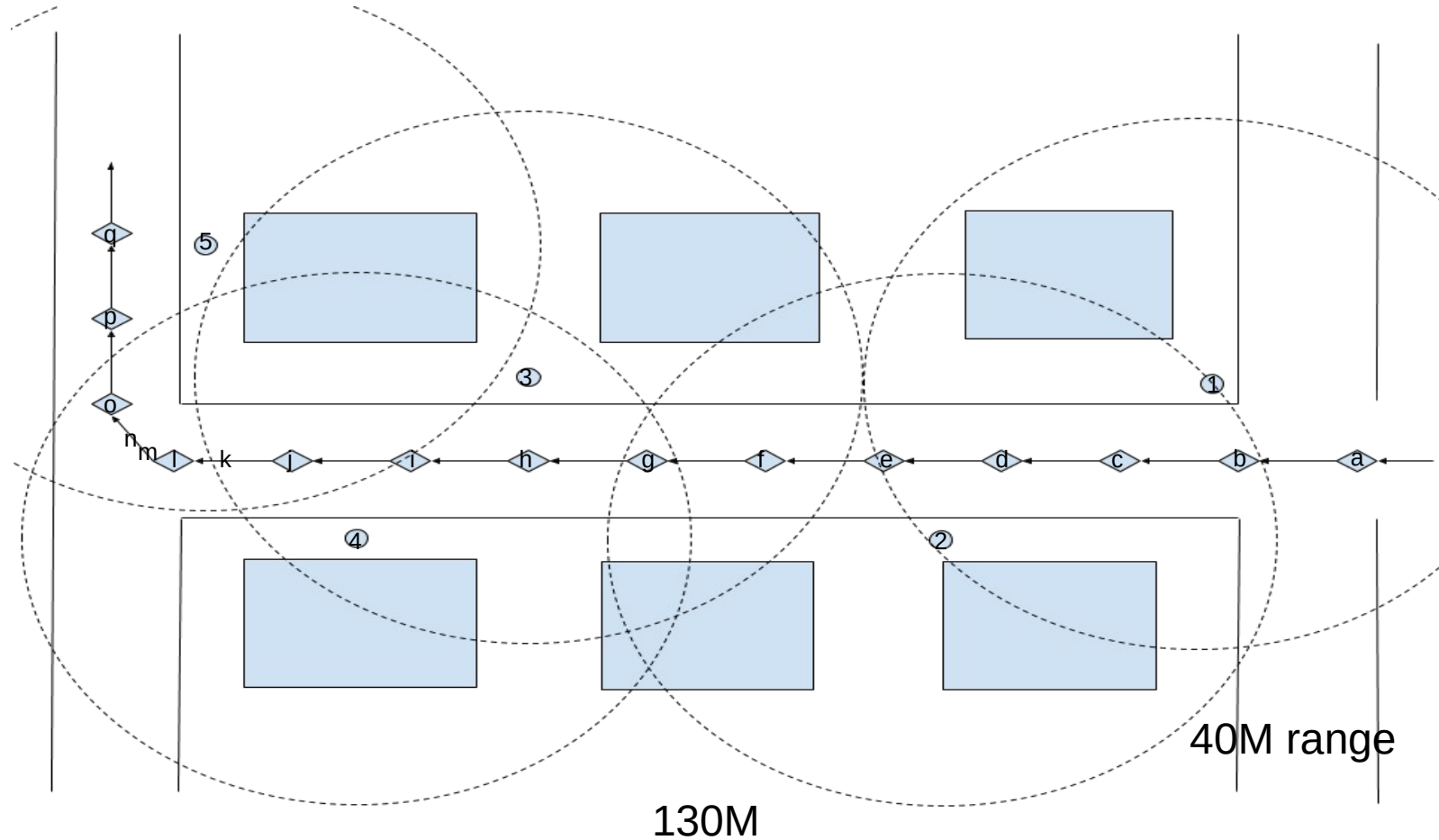
# Crowd Sourced RemoteID

- Finders may be
  - Mobile
    - People devices, vehicle devices
  - Fixed location at
    - Airports, Public buildings, stadiums, public gatherings
- SPDP Trust model
  - Up to individual SPDPs
  - Should use EdDSA keys for Identities

# Crowd Sourced RemoteID

- Finders register to a SDSP
  - ID and trusted communications method
- Finders forward received B-RID msg to SDSP
  - Add Finder time, GPS, B-RID MAC and radio type
  - If too many Finders at a location
    - SDSP can instruct some to be ‘quiet’
- SDSP can use information for multilateration
  - Where really is the UA?

# Crowd Sourced RemoteID





# Crowd Sourced RemoteID

## Added features

- Finders provide their GPS even if no UA
  - SDSP maintains full coverage map
  - SDSP can instruct Finder to go quiet if crowded loc
    - Or start sending if in uncrowded area
- Finder passive Observation option
  - Finders with LIDAR or Cameras detect UA
    - Information on non-broadcasting UA forwarded to SPDP
  - More research needed

# Crowd Sourced RemoteID

## Work to do

- Real message format
  - Recommend CBOR
    - Be kind to Finders providing from their bandwidth
- Best practices for SDSPs
  - Finder Identity recommendation (HHITs!)
  - CS-RID protocol
    - ?

# Crowd Sourced RemoteID

Hum to adopt as a workgroup item.

QUESTIONS?