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IETF 105 HotRFC: Trustworthy Multipurpose Remote ID

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Extending Locator/Identifier split &
strong authentication techniques to
identify physically nearby objects

Unmanned Aircraft System (UAS) Remote ID



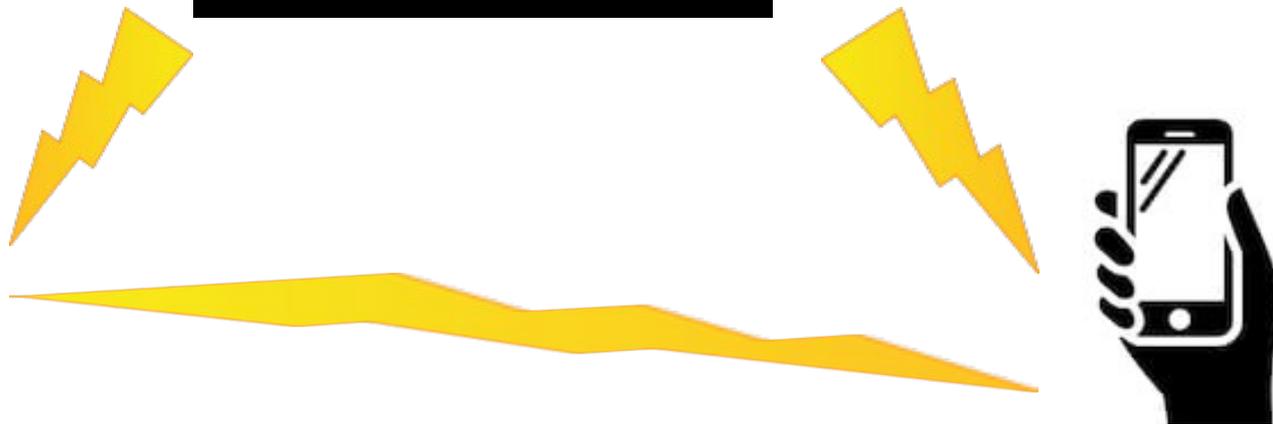
- Need means to identify nearby observed Unmanned Aircraft (UA)
- Complicated by small size, hi speed, remote operation, autonomy...
- Urgent: US FAA Notice of Proposed Rule Making this September
- Competing approaches from PHY on up, none entirely satisfactory
- ASTM WK65041 draft: Open Drone ID messages / multi transports
 - Broadcast: Bluetooth 4 / 5 & WiFi beacons direct to local observer phone
 - Network: from UAS (e.g. via LTE) or proxy (e.g. operator phone) to Internet
- Aviators familiar w/radio comms, not networking; IETF could help
 - strengthen authentication, balance operator privacy w/genuine Need To Know
 - generalize to support V2X, self-separation, collision avoidance...
 - what else?
- UA physical location -> UA ID ~ host logical location (IP) -> host ID

Value of HITs as UA Remote ID

- Provides Trustworthy Identity to pair with physical and logical location data
- HITs are valid IPv6 addresses and can be used directly over broadcast media (e.g. BT)
 - ↪ With provable ownership (use HI for sig)
- Full mobility and multihome support
- HIP-based IPsec between observer and UAS
- Secure registration protocol for Identity bootstrap
 - ↪ First-come, first-own for ID

IETF work needed

- Hierarchical HITs
- Expanded registration process
 - ↪ Federated Registration Authorities
 - ↪ HIT meta-data update/retrieval based on authorization
- New crypto support
 - ↪ e.g. EDDSA, KMAC, cSHAKE
- HIs in CBOR Concise Identities
- HIP as an OAUTH method
- More TBD



IETF 105 side meeting: Trustworthy Multipurpose Remote ID

Monday 18:00 – 19:00 room C2

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