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IETF 106 HotRFC: Trustworthy Multipurpose Remote ID

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Progress and Next Steps to add
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 December
- 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

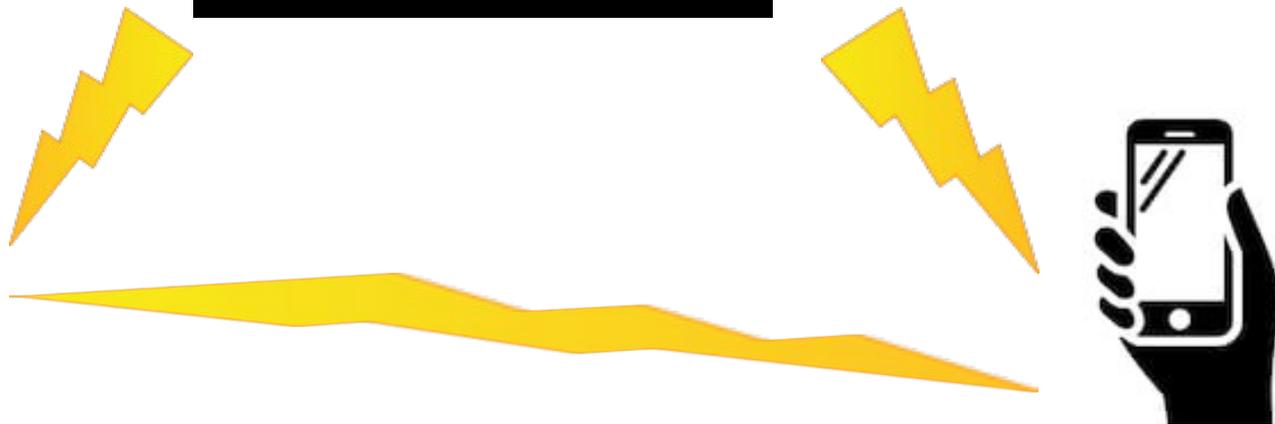
- Provides Trustworthy Identity to pair with physical and logical location data
- HITs are valid IPv6 addresses and can be used directly over broadcast media (e.g. BT)
 - ⋈ With provable ownership (use HI for sig)
- Full mobility and multihome support
- Secure registration protocol for Identity bootstrap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

IETF work status

- UAS use case draft
- Hierarchical HITs draft
- Expanded registration process draft
 - ↪ Federated Registration Authorities
 - ↪ HIT meta-data update/retrieval based on authorization
- New crypto support draft
 - ↪ e.g. EDDSA, KMAC, cSHAKE, Keyak
- HI-signed Broadcast Authentication Messages draft
 - ↪ Compatible with ASTM Standard
- Hackathon on above items

IETF work needed

- Progress drafts
- More testing
- Liaison with ASTM
- HIs in CBOR Concise Identities
- HIP as an OAUTH method
- More TBD



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IETF 106 BOF: Trustworthy Multipurpose Remote ID

Tuesday 10:00 – 12:00 room VIP A

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