Drone Remote Identification Protocol (DRIP)
2020 OCT 28 update on
draft-ietf-drip-arch-04 (work in progress) & -reqs-05 (done?)

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DRIP Scope
http://users.owt.com/lazrchet/humor/msjoke2.htm

˝ A helicopter was flying around above Seattle when an electrical malfunction disabled all of the aircraft's electronic navigation and communications equipment. Due to fog and haze, the pilot could not determine the helicopter's position and course to steer to the airport.

˝ The pilot saw a tall building, flew toward it, circled, drew a handwritten sign, and held it in the helicopter's window. The pilot's sign said "WHERE AM I?" in large letters.

˝ People in the tall building quickly responded to the aircraft, drew a large sign, and held it in a building window. Their sign said "YOU ARE IN A HELICOPTER."

˝ The pilot smiled, waved, looked at his map, determined the course to steer to SEATAC airport, and landed safely.

˝ After they were on the ground, the co-pilot asked the pilot how the "YOU ARE IN A HELICOPTER" sign helped determine their position.

˝ The pilot responded "I knew that had to be the MICROSOFT building because, similar to their help-lines, they gave me a technically correct but completely useless answer."

➤ AFAIK, all the UAS RID current and proposed regulations, technical standards and "solutions", other than DRIP, provide a *nominally correct answer*. DRIP provides a *trustworthy and **immediately useful** answer* (because identification is not an end in itself but a means).

changes to -arch yielding -04

✓Made Section 7 "EASA implications" an appendix
✓Added key leakage to Security Considerations
✓Expanded CS-RID discussion
✓Private info registries MAY support RFC 7033 WebFinger
✓HIP RVS proxy MUST enforce AAA policy on O2P flow initiation
˅ technically & w/regard to external SDOs & regulators:
  ✓explained why IP encapsulation of Broadcast RID is not an option over Bluetooth 4 etc. but may be in the future over LDACS etc.
  ✓explained why ADS-B is not an option for the low-flying small UAS for which UAS RID & DRIP are intended (thanks Stephan W!)

points not yet [fully] addressed in -arch-04
to be addressed ASAP in -05

from reviews by
˝ Med
˝ Bob
˝ Amelia (plus subsequent list thread)
˝ Daniel

changes to -reqs yielding -05
since September interim per apparent WG consensus

- Made all changes listed on my slides in previous interim
- Massively restructured sections 1 (intro inc. concerns & constraints) & 3 (problem space)
- Added "defines terminology" to abstract (but not title)
- Normalized citations of terminology sources
- Cited ICAO Circular 328 for terminology
- Cited SESAR Joint Undertaking architectural principles for U-space
- Replaced "potential follow-on goals" w/ "timely trustworthy ID data is prerequisite to ID-oriented networking"
- Inserted ASCII art of general scenario, Network & Broadcast RID data flows
- Clarified at which layers DRIP applies therein
- Listed performance & reliability under QoS
- Cited ASTM specific performance requirements
- Expanded regulatory "requirement could be met"; moved it out of definitions section
- Clarified ID-2 vs ID-3
- Clarified ID-4 scope; gave examples of deregistration causes & times
- Clarified DRIP will address multiple related registries TBD by regulators; deferred registry information model; specified only registry functions & information linkage by UAS ID
- Clarified private registry access should be restricted by role of party submitting query
- Expanded Security Considerations w/inferred sub-requirements & meeting them w/o Internet to Observer
- Added minor clarifications & more UAS context
- Checked spelling, punctuation, grammar, etc.

non-changes to -reqs

″ Due to lack of WG consensus
- o Rename document to something other than Requirements
- o Remove definitions of terms unused in –reqs but likely to be used in other DRIP docs
- o Delete or weaken any privacy requirements

″ Due to lack of editor knowing how to satisfy reviewer concern
- o Clarify DRIP scope
- o Clarify GEN-10 requirement for multicast
- o Redefine AAA (Googling any 3 of the 7 terms in the broad definition returned from 472k hits on {"attestation","access control","audit"} to 53.8M on {"accounting","attribution","audit"})
- o Define authentication or other AAA elements
- o Define "RID service"

″ Due to editor reluctance
- o Define "data dictionary", "establish communications", "instant", "secure", "ultimate"
- o Justify UAS RID decisions made or specify performance parameter values chosen external to IETF (ASTM, EASA, FAA)
- o Remove facilitating V2X & its applications inc. DAA & C2 from DRIP scope
- o Remove description of DSS & UTM insofar as they are context for RID

″ Due to time (since Bob M's OCT 26 review of -05)
- ″ minor clarifications, editorial corrections, consistency suggestions & ASCII art additions

DRIP numbered requirements changes

˝ **GEN-1 – GEN-5, GEN-7 – GEN-9, GEN-11:** none

˝ **GEN-06 Finger:** "E2E" -> "end to end"

˝ **GEN-10 Multicast:** "designated ~~sensitive~~ airspace volumes"

˝ **ID-1 – ID-3, ID-5 – ID-6:** none

˝ **ID-4 Uniqueness:**

The DRIP identifier MUST be unique within the global UAS RID identifier space from when it is first registered therein until it is explicitly de-registered therefrom (due to e.g. expiration after a specified lifetime such as the FAA's proposed 6 months RID data retention period, revocation by the registry, or surrender by the operator).

˝ **PRIV-1 – PRIV-5:** none

˝ **REG-1 Public Lookup & REG-2 Private Lookup:** "identity or role"

˝ **REG-3:** "U-space / UTM"

˝ **REG-4:** none