CNS for UTM—What are some of the initial challenges we face?

Presentation to ICNS

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UAS Operating Environment—What are we really talking about?
UAS operations must integrate with manned aviation...
As density & risk increase, so does the need for structure & control.

Low Density & Low Risk
- Limited Regulation
- Limited Enforcement

High Density & High Risk
- Structured Access (ex. Lanes)
- Mandated Rules (ex. speed limits)
- Vehicle Standards (ex. tail lights)
- Centralized Control (traffic lights)
- Enforcement (ex. traffic cameras, polices)
UTM is evolving globally... CNS solutions for UTM should too...

- Today
  - Approval & Notification
  - Airspace Management
  - In Flight Support
  - Flight Monitoring
  - No road-blocks

- Mid-Term
  - UTM in urban areas
  - Expanded Operations
  - Validate Safety cases
  - Develop Standards
  - Require an incremental, pragmatic and feasible functional approach

- End-State
  - Very high density UAS management
  - R&D Needed

THALES
Addressing the need for CNS for UTM

Communications
- Redundant, reliable Command and Control Links
- Platform – Platform / Ground - Platform

Navigation
- Centralized, authoritative data sources
- Must maintain airspace organization

Surveillance
- Further segmentation of UAS platforms
- Ground based sensors (where needed, but not everywhere)

Common design standards for cyber protection & interoperability
NUSTAR