MOTIVATION

• Many UAS will operate at lower altitude (Class G, below 2000 feet)
• There is urgent need for a system for civilian low-altitude airspace and UAS operations
• Stakeholders want to work with NASA to enable safe operations

CONCEPT OVERVIEW

• UTM System will provide following services:
  - Airspace design and geo-fencing
  - Weather integration
  - Congestion management
  - Separation management
  - Contingency management

PARTNERSHIPS

• UAS manufacturers
• Online retailers
• Communication/navigation/surveillance providers
• System integrators
• Emerging UAS operators
• Cargo operators
• FAA, NOAA, DoD
• UAS test sites

NEXT STEPS

• Obtain authorization to proceed with further development of UTM
• Refine UTM design, architecture, and use cases
• Explore partnership arrangements to engage traditional and non-traditional partners
• Define a spiral development process to do rapid prototyping and early fielding with regular updates

LINE-OF-SIGHT TO BEYOND LINE-OF-SIGHT

Unmanned Aerial System Traffic Management (UTM)

AUTONOMY

• Self-configuration
• Self-optimization
• Self-protection
• Self-healing

Appropriate operational data recording

AUTHENTICATION

• Authentication
• Airspace design and geo-force definition
• Weather integration
• Constraint management
• Splitting of airspace
• System and safety validation
• Continuity management
• Organizational and mission services

Transition between UTM and Air Traffic Management airspace

Constraints based on community needs, noise, sensitive areas, privacy, etc.

3D maps, terrain and human-made structures

Real-time Weather & Wind

Weather & Wind Predictions

Airspace Constraints

Other low-altitude operations

Near-term goal: enable low-altitude operations within 5 years

Long-term goal: accommodate increased demand 10-15 years

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