

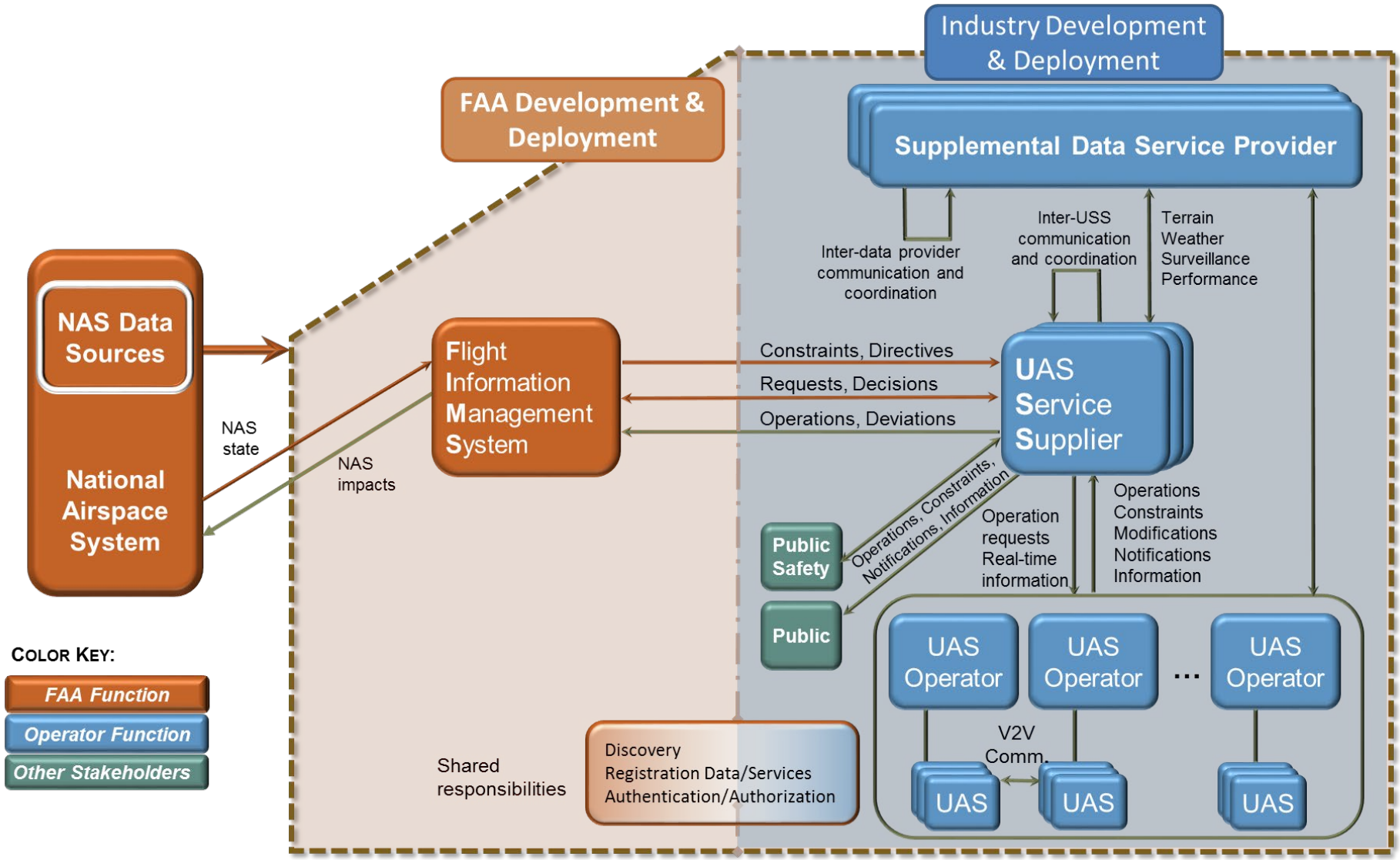


*Community Integration Working Group
SDSP Lessons Learned from UTM CONOPS*

December 3, 2020



UTM Service-Based Architecture



COLOR KEY:

- FAA Function
- Operator Function
- Other Stakeholders

Flight Information Management System

- Enables airspace controls
- Facilitates requests
- Supports response in emergencies impacting NAS

UAS Service Supplier

- Federated Structure
- Cloud-based automated system
- Supports UAS with services (e.g. separation, weather, flight planning, contingency management,, etc.)

Supplemental Data Service Provider

- Supplies supplemental data to USS and/or UAS Operator to support operations

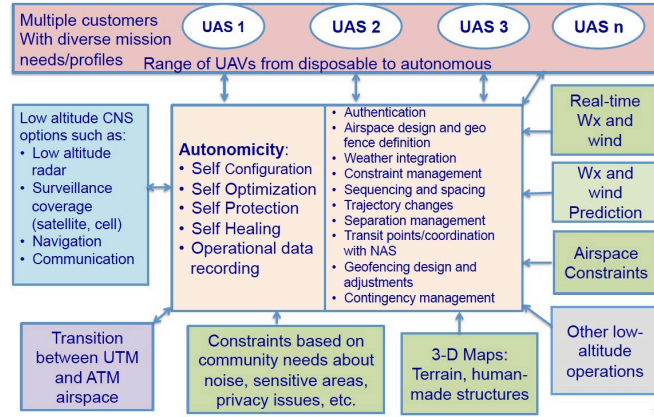
UAS / UAS Operator

- Individual Operator
- Fleet Management₂
- On-board capabilities to



UTM Architecture Progression

UTM Workshop (NASA/TM—2014—218299)



2014

FUNCTION IDENTIFICATION

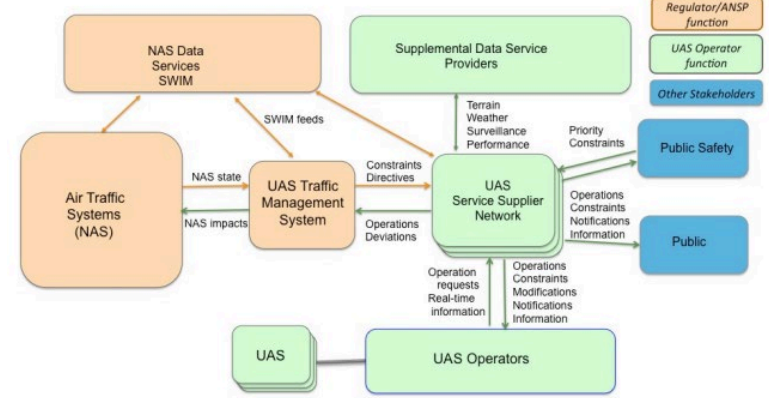
FUNCTION DECOMPOSITION

2015

2016

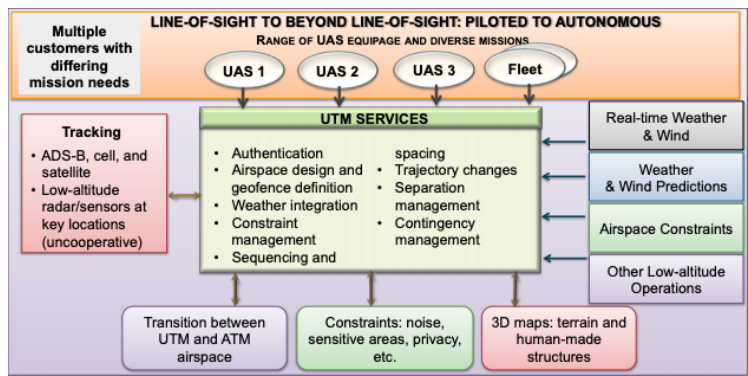
ACTOR DECOMPOSITION

NASA UTM CONOPS

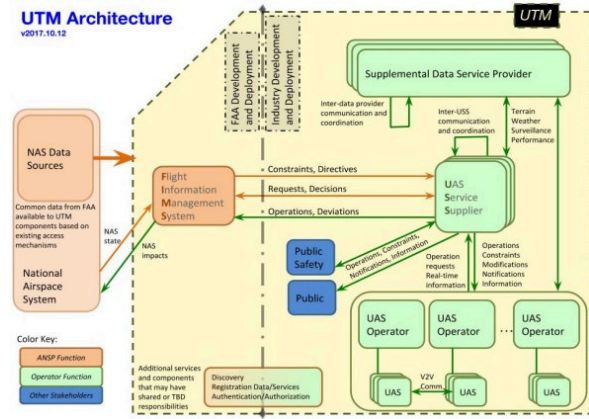


2017+

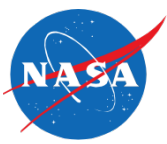
SERVICE DECOMPOSITION



UTM Convention



FAA UTM CONOPS v1.0



Perspectives on Services from CONOPS

Not all services should be treated the same (and are often viewed differently)

ANSP

- Services that support ANSP functions vs operator functions
- ANSP responsibilities vs operator responsibilities

Regulator

- May be necessary to classify services to support oversight
 - E.g. Service required by regulation, service that is an acceptable means of compliance, service that only add value to operator
- Services that require "approval" and oversight need to clearly establish relationship between UAS operator and service provider
- Many SDSPs probably will fall in a category that don't need "approval and oversight", but the function or scale of the service may require it.
- UAS Operator responsibilities vs Service Provider Responsibilities

UAS Operator

- UAS Operator uses services to comply with business needs, mission requirements, and/or safety requirements
- USS services provide connectivity with FIMS, and interoperability with USS Network
- SDSP services typically are services that don't connect to USS Network and FIMS
 - SDSP services can be provided to an operator by a USS

Service Provider

- Business models vary based on type of service offered (i.e. not every service provider wants to be a USS)
- Business models may support other entities besides UAS Operator (i.e. Remote ID for Law enforcement)
- Some companies may provide a full suite of capabilities as a SDSP, USS, and UAS Operator



Concluding Thoughts on SDSPs in UTM

- Industry has shown interest in establishing standards in SDSP services that support operational requirements
 - Surveillance and Weather Services in ASTM
 - Standards initial focus on interfaces and basic functionality
- Several services are being developed outside of standards (i.e. flight planning) and many of which are not intended to meet USS network and FIMS requirements
- To date, service providers have not actively been seeking “approval” from the FAA
- UTM architecture was intended to be flexible with respect to SDSP rather than requiring all USS and/or UAS Operators to connect to them