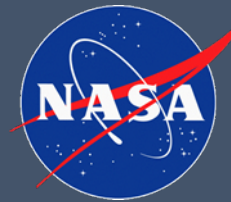


An aerial view of a city, likely New York City, with the Empire State Building prominent in the center. The sky is filled with various aircraft, including a large white fighter jet, a smaller white jet, a propeller plane, a drone, and a helicopter. The scene is overlaid with a network of white lines, suggesting a flight path or data network. The overall color palette is a mix of blue, orange, and purple, indicating a sunset or sunrise.

# EXPLORE FLIGHT

WE'RE WITH YOU WHEN YOU FLY

Dr. Parimal Kopardekar  
Director, NASA Aeronautics Research Institute



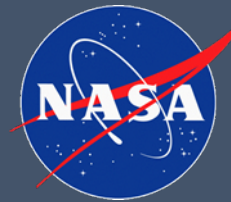
# Upper E Traffic Management (ETM) Concept

- **Why is ETM needed?**

- New entrants to Upper E airspace are emerging
- Demand for airspace access is projected to increase
- A diverse set of vehicle and operation types are expected
- In the US, ATC services are limited or not provided in Upper E, which will impact the ability for industry to scale

- **The solution**

- Leveraging the distributed, service-based architecture developed through NASA's revolutionary UAS Traffic Management (UTM) concept, ETM will enable a safe, scalable, and efficient approach to air traffic management in Upper E airspace.



# Upper E Traffic Management (ETM) Concept

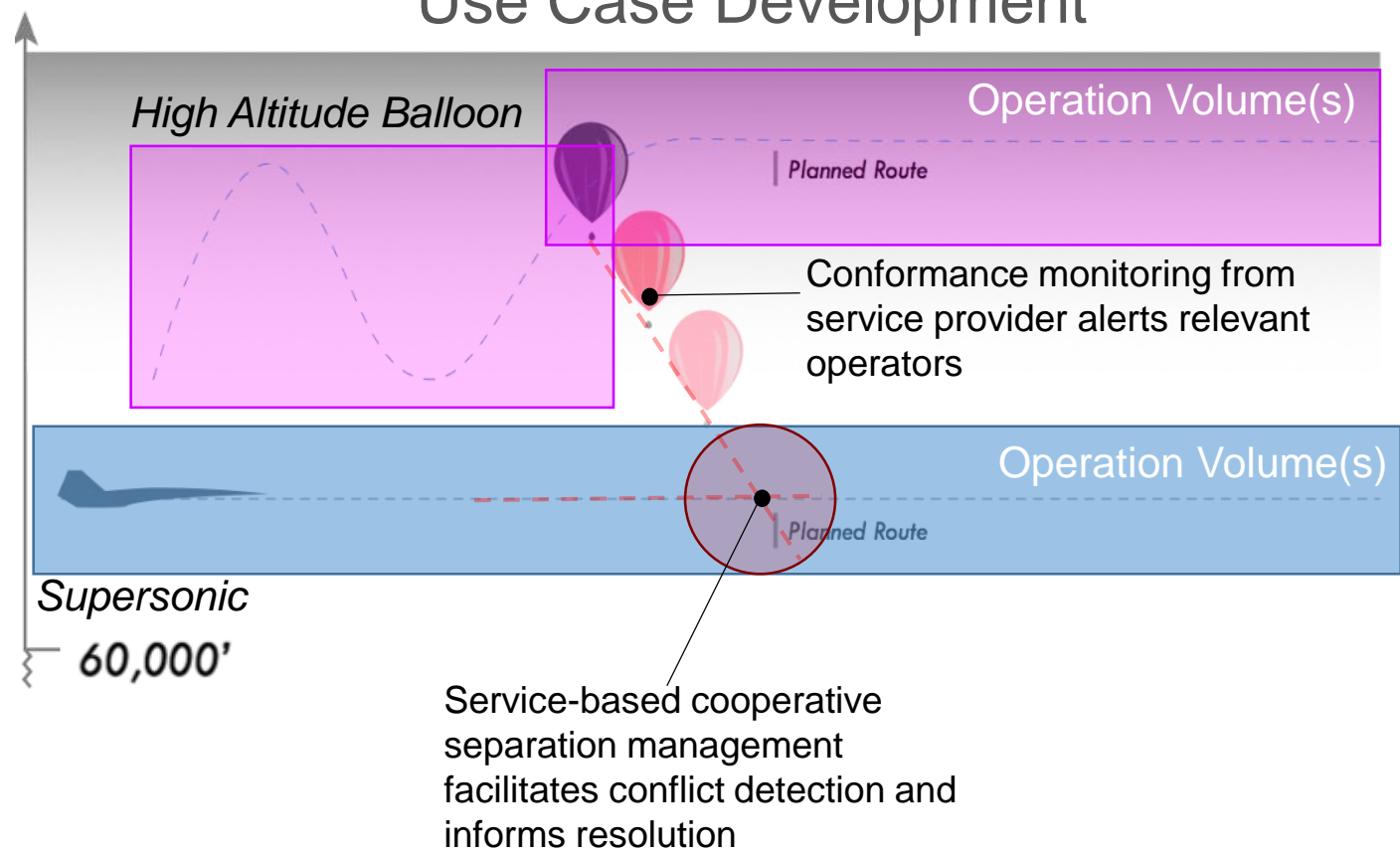
- **Fundamentals of Concept**

- Digital
- Interoperable
- Cooperative for planning and execution including separation
- Intent sharing
- Service oriented architecture
- Possible third-party services
- Manage by exception paradigm

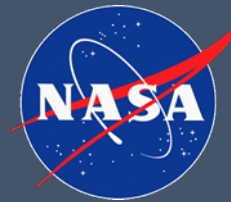
- **Approach:** Concept development, feasibility simulations and demonstrations, off-nominal conditions assessments, and recommendations for requirements

# Progress

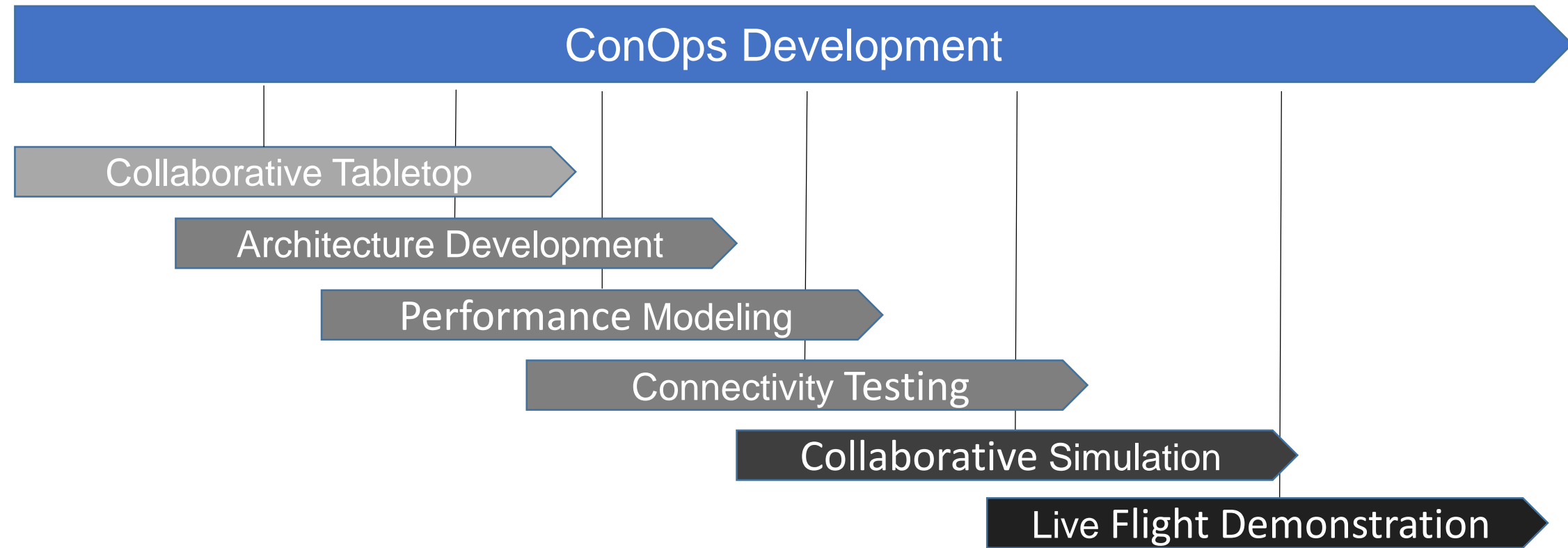
## Use Case Development



- ETM Concept of Operations document in development with Industry and FAA
- Collaborative stakeholder meeting held at NASA Ames Research Center in April 2019
- Architecture and information exchange discussions ongoing
- Tabletop exercise planned for December 2019



# Next Steps



NASA will be working closely with Industry, the FAA, and other federal agencies to define the ETM concept and bring it to reality