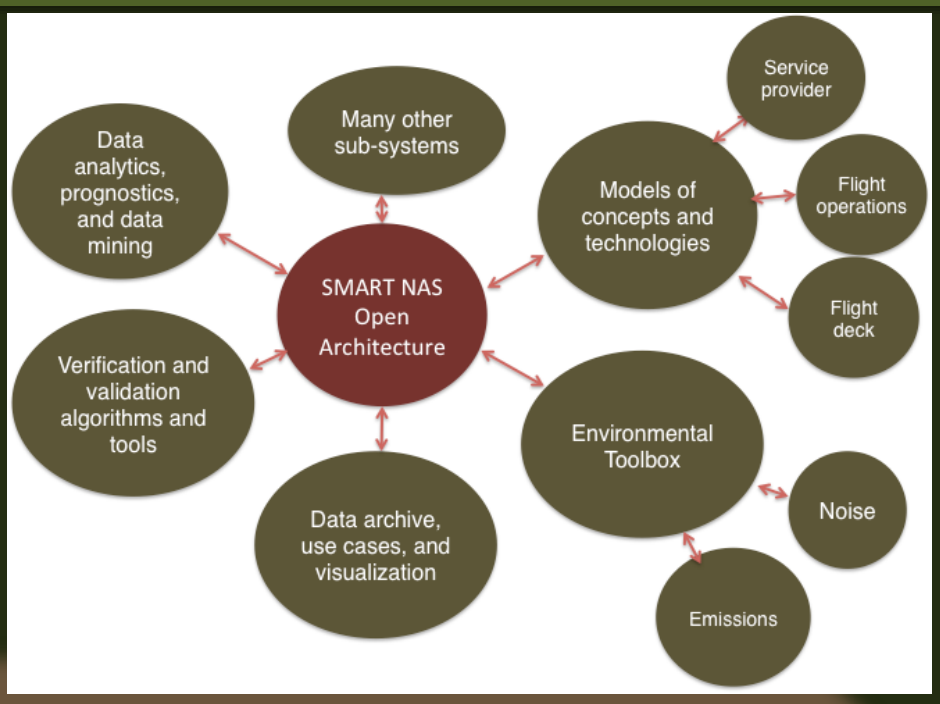
for the National Airspace (SMART NAS)

National Aeronautics and Space Administration

Goal

Develop a simulation and modeling capability that includes:

- Assessment of multiple parallel universes
- Accepts data feeds
- Allows for live/virtual/constructive distribute environment
- Enables integrated examinations of concepts, algorithms, technologies and National Airspace System (NAS) architectures



Attributes

- An architecture supporting NAS-wide simulation that is scalable to NextGen-predicted traffic levels and extensible to new ATM concepts
- An infrastructure to accommodate a wide breadth of research concepts
- An architecture that supports simulated as well as live assets interchangeably
- Enables easy integration of new algorithms
- Provides an accessible and comprehensive data archive
- Implements the test bed with an “open source” concept
- Facilitates early adoption of the test by all Air Traffic Management (ATM) community

Approach

- Develop open architecture (ongoing)
- Conduct benefits assessment and cost estimation to develop test bed utilizing the most cost effective and low risk resources
- Follow well-defined NASA system engineering processes to implement the core test bed infrastructure
- Integrate existing ATM and simulation components in the SMART NAS core infrastructure
- Conduct early prototype integration efforts to assess identified gaps and provide usable technologies
- Build SMART NAS distribution capabilities upon existing Live, Virtual, Constructive (LVC) technologies
- Perform Verification and Validation (V&V) of SMART NAS technologies
- Allow easy access to all stakeholders

Assumptions

- Prototype development and integration of simulation technologies concurrent with the SMART NAS design and architecture phase so as to refine SMART NAS requirement
- Leverage test bed simulation components from existing technologies, which will be integrated, and supported by technology “owners”
- Simulation components will be leveraged from existing technologies
- Integration of existing technologies, led by SMART NAS team, but supported by technology “owners”
- External partners will utilize LVC) distribution technologies