The Aviation Safety program has been put in charge of addressing the JPDO concerns that current V&V
techniques are not sufficient to verify and validate NextGen. This is reflected in the VVFCS element under the
SSAT project in the Aviation Safety program.

VVFCS has four major themes:

- Argument-based safety assurance, which aims at unifying and formalizing how V&V results for ground and
  airborne software systems are folded into a safety argument for certification.

- Distributed Systems, which aims at developing guidance on the V&V of distributed applications, e.g.,
  communication topologies, mixed-criticality architectures, and fault tolerance schemes.

- Authority and Autonomy, which explores the modeling and analysis of authority problems in the NAS when
  viewed as a distributed system within which automation and humans interact.

- Software-intensive systems, which focuses on early, formal methods for the V&V of software systems.

This year, VVFCS is interested in technologies that can be transitioned (meaning that tools are made available) to
industry in the following areas:

- Run-time monitoring.

- Safety case.

- Static analysis.
• Code libraries implementing fundamental technologies that can be used in formal method research, such as:

  ◦ Memory and time efficient decision procedures.

  ◦ Memory and time efficient abstractions for static analysis.