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Shared Situational Awareness to Meet Future Airspace Security Mission Needs

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Future Airspace Security Needs

Current Environment

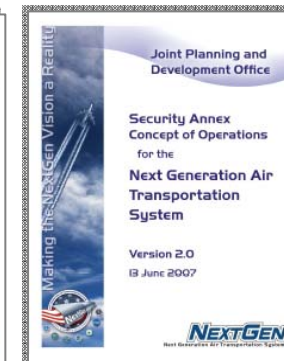
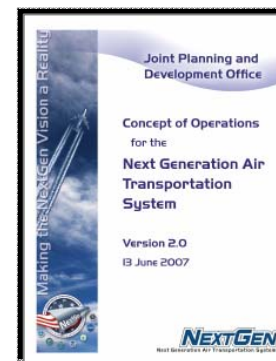
- Shared Situational Awareness primarily through voice (Domestic Events Network)
- Primarily manual/ eyes on glass detection of threats
- Limited Common Operating Pictures
- One-size-fits- all approach to security risk management

Challenges

- Increasing traffic volumes and diversity
- Increased “non-scheduled” operations
 - UAS
 - Very Light Jets
 - Air taxi

Responses

- National Strategy for Aviation Security and supporting plans
- Agency-initiated actions and collaborations
- **NextGen transformations**





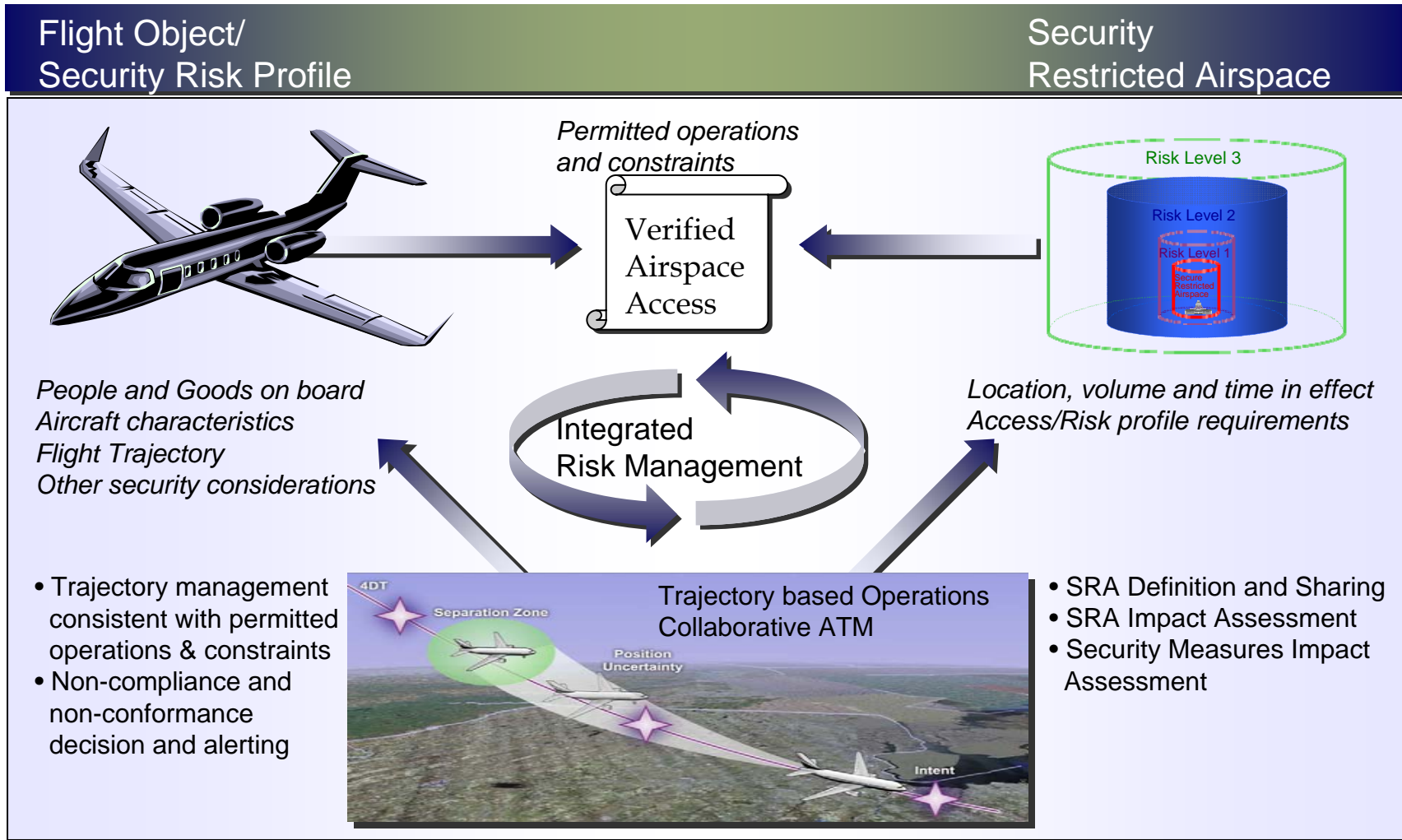
NextGen Layered, Adaptive Security Framework



Net-Enabled Operations With Shared Situational Awareness

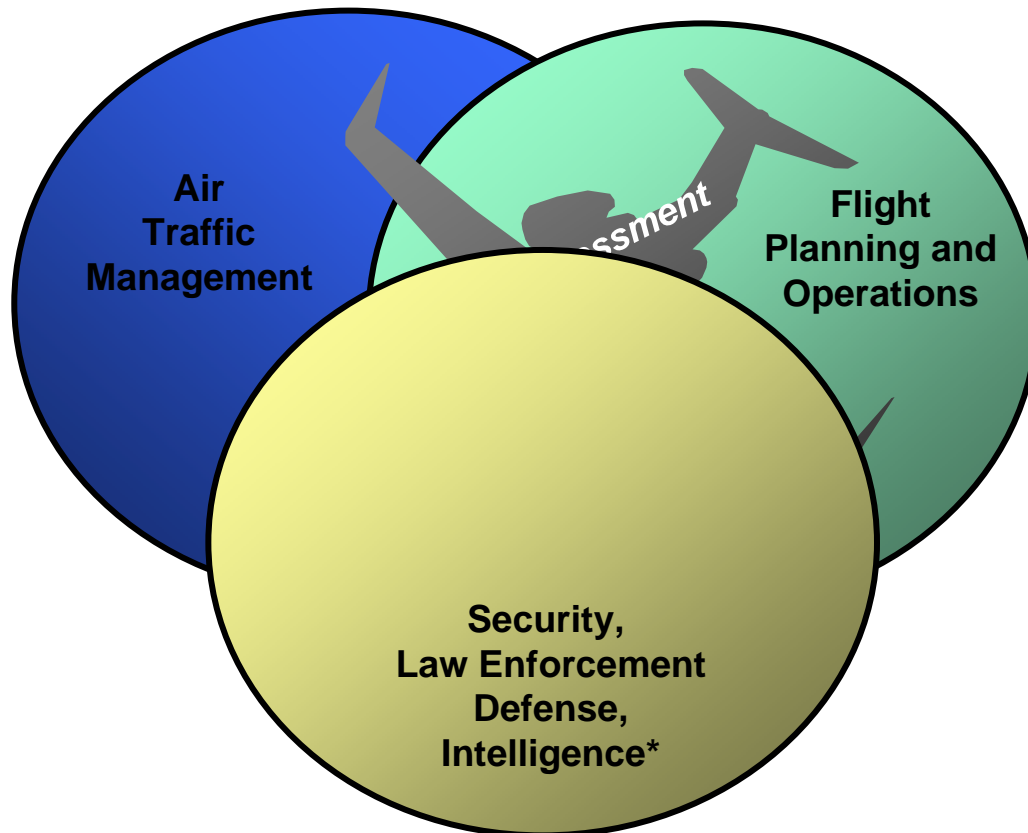


Secure Airspace Concept





Perspectives on Airspace Security Information Sharing



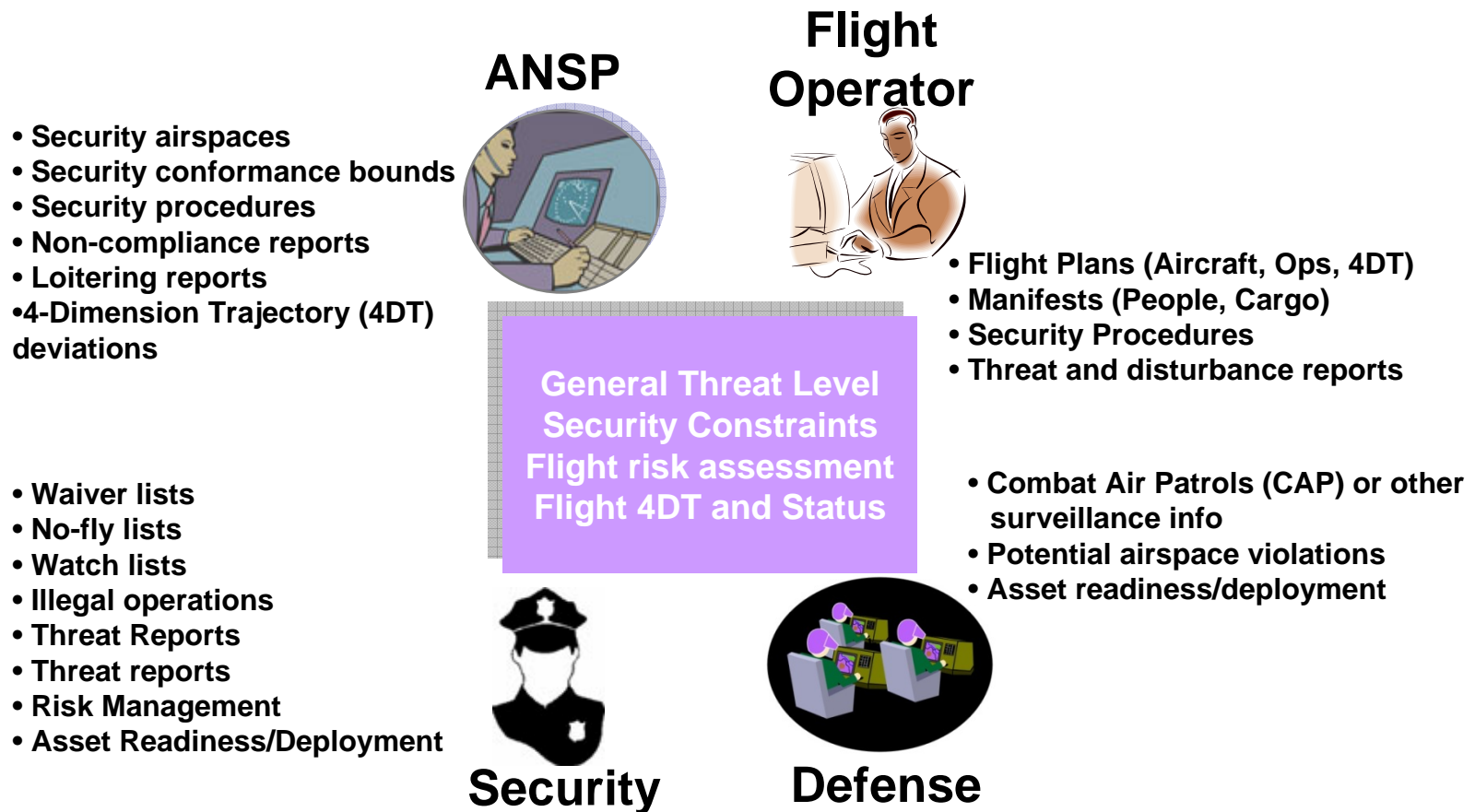
Information Sharing is Impacted by:

- ***Mission Scope***
- ***Business Proprietary Information***
- ***Classified Information***
- ***Privacy Information***
- ***Information Integrity and Decision Accountability***

*These functions are combined for simplicity of the figure; they are all distinct mission areas



Shared Situational Awareness: Nominal Prevention and Monitoring





Shared Situational Awareness: Threat Detection and Response

ANSP



- Likely location/trajectory
- Communication attempts
- Operational procedures
- Operational contingencies

Security



- Manifest checks
- Screening anomalies
- Threat correlation
- Intelligence follow-up
- Heighted security measures

Threat(s):
Lost Communications
Person of Interest/No Fly
Disturbance
Hijack
4DT Deviation
ATC non-compliance

Status:
Aircraft/Flight Identification
Location and Vector

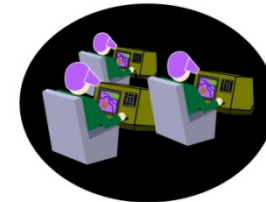
Source(s):
Intel/Reporting Agency
Surveillance (many sources)
Flight dispatch
ATC
Crew (voice, datalink)
Aircraft status/maneuver downlink
Other aircraft crew reports
Federal Air Marshal (FAM) reports

Flight Operator



- Ops Normal confirmation
- Equipment/maintenance
- Records
- Fuel Endurance
- Operational contingencies

Defense



- Defense Asset Readiness/
deployment
- Threat location/trajectory
- Intercept mission planning

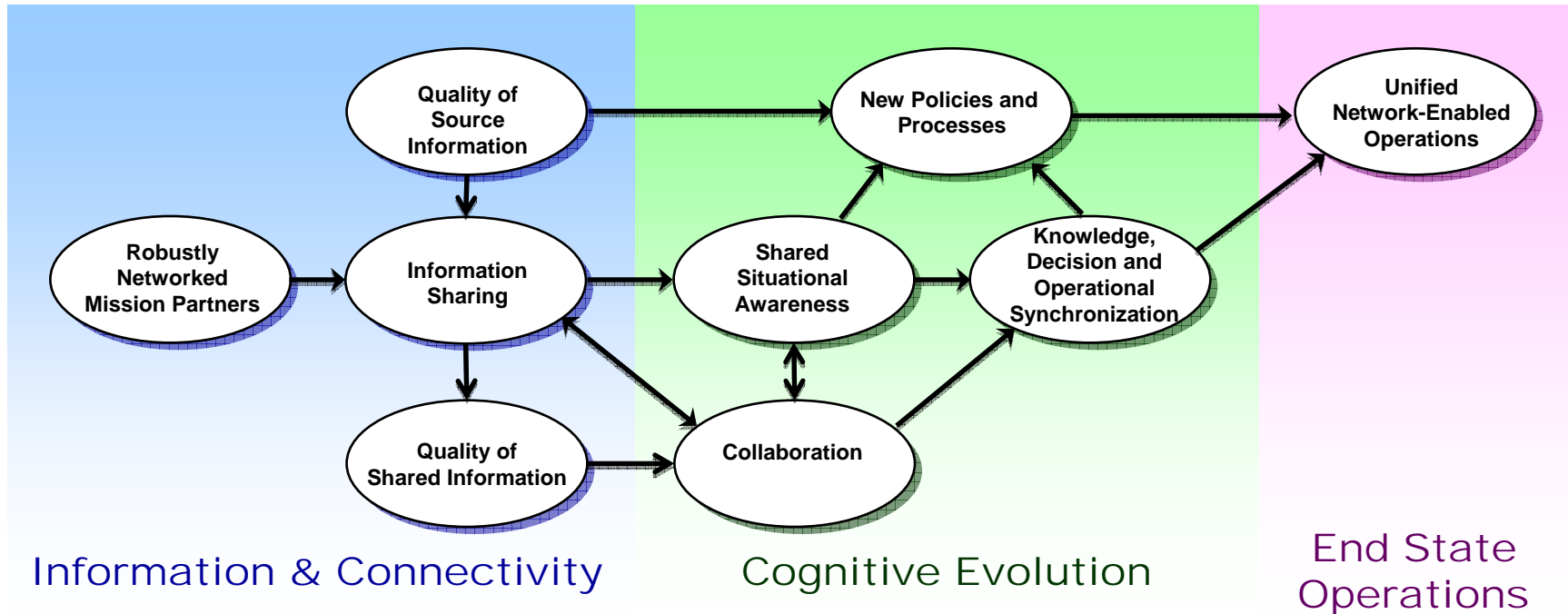


Conclusions

- **Opportunities**
 - Technology advances provide information-rich environment to support risk-informed security decision-making
 - Trend towards “responsibility to share” encourages information sharing that leads to shared situational awareness
- **Challenges**
 - Interpreting multiple sources of (possibly conflicting) information
 - Ensuring information is shared only with authorized users
 - Determining automation and human roles
- **Mechanisms**
 - Communities of Interest
 - National Strategy for Aviation Security Actions
 - Demonstrations (e.g., Net-Enabled Operations NEO demo)
 - Operational Experiments
 - JPDO/NextGen Working Groups
 - Security WG “Secure Airspace” Standing Committee study teams



Transforming Aviation Security Through Network-Enabled Operations



Based on: Office of Force Transformation, "The Implementation of Network-Centric Warfare," www.oft.osd.mil, 2005

Shared Situational Awareness is a core component of unified airspace security operations