Undetectable by collision avoidance systems

Undetectable by the flight crew

Database Scope and ADS-B Data Concept

Undetectable by air traffic control

Federal Aviation Administration

Database Scope Overview

- Purpose
- Data Sources
- Deliverables
- Data Model

Purpose

- To track the approval status of operators and airframes operating in RVSM airspace.
- To detect airframes that are operating in designated RVSM airspace without RVSM authorization.
- To identify aircraft operating in RVSM Airspace that have been successfully height monitored.
- To determine that aircraft performs within required height monitoring specifications and identify any declining ASE performance.

Data Sources

Internal FAA

- National Aircraft Registration Information System (NARIS)
  - Registration Database Download
- FAAMIS
  - PTRS Download
- WEBOPSS
  - Designator Download
- ETMS Flight Plan
- Measurement Data – GMS, HMU, AGHME, ADS-B
- MSAT-B

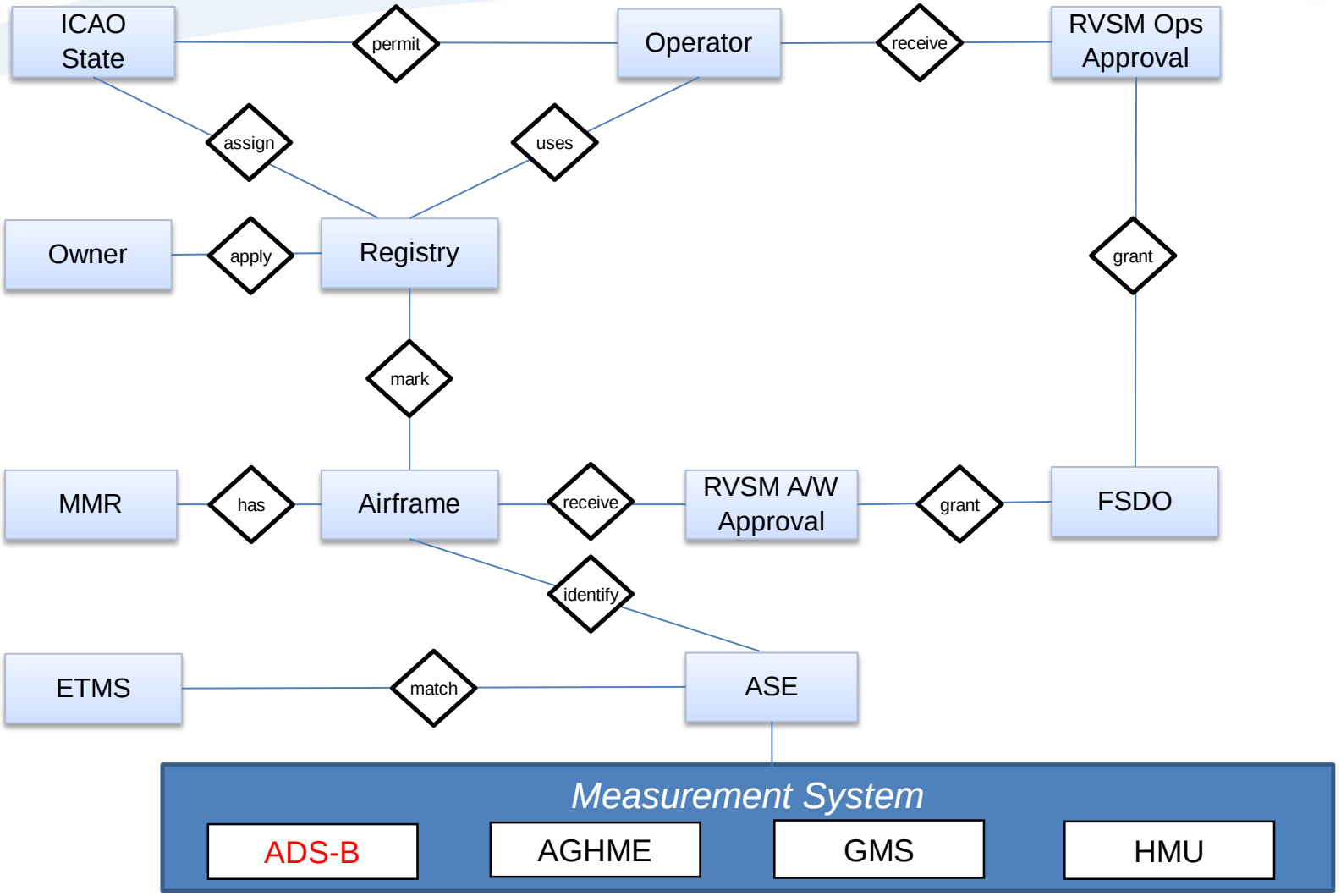
External

- Other RMA Approvals
- Other RMA Monitoring
- Production/Fleet Lists

Deliverables

- Monitoring Status Snapshots
  - US Commercial and Private
  - Canada
  - Mexico
  - PARMO
- KSN Approvals Snapshot
- KSN Monitoring Data
  - GMS
  - AGHME
  - ADS-B
- Bulletin
- Flight Plan Check
- ASE Stability Charts
- ASER Reports

Data Model



FAA

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ADS-B Concept

- Current Database Numbers
- ADS-B Projections
- ADS-B Proposed Rule
- Effects on Database

By the Numbers

- As of October 1, 2017
  - Total Number of US Registered Aircraft: **314,473**
  - Total Number of RVSM Capable Aircraft Types (Make Model Series) tracked: **1,185**
  - Total US RVSM Capable Aircraft: **31,659**
  - Total US RVSM Fully Approved Aircraft: **20,792**
  - Count of AGHME sites: **6**
  - Total number of AGHME ASE Measurements processed: **11,654,195**

ADS-B Projections

- According to the proposed rule by the FAA requesting the elimination of the expense of RVSM application processing:
  - The average equipage rate of ADS-B Out in RVSM airspace is projected to be 83% in 2018, 95% in 2019, and 100% on January 1, 2020. [1]

[1] Use of Automatic Dependent Surveillance-Broadcast (ADS-B) Out in Support of Reduced Vertical Separation Minimum (RVSM) Operations, https://www.federalregister.gov/documents/2017/08/07/2017-16197/use-of-automatic-dependent-surveillance-broadcast-ads-b-out-in-support-of-reduced-vertical

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ADS-B Proposed Rule

- Aircraft under Appendix G
  - **Section 3** – Keep LOA and monitored in accordance with the MMR every 2-Years or 1,000 hours whichever is longer
    - Operating Overseas
    - Foreign Operators
  - **Section 9** – No LOA to operate in US with a strict 2 year monitoring period
    - New aircraft manufactured RVSM compliant and ADS-B Out equipped
    - All flights are Domestic
    - ASE remains compliant with no measured ASE below -200 and above 200

Comparison of Data Volume

- AGHME ASE accumulated over 4479 days on 35,518 Airframes
  - 11,654,195
- ADS-B ASE accumulated over 1470 days on 4058 Airframes
  - 6,277,211

Effect on Database

- Redesign current database
  - Data Volume and Velocity Increase
    - Capacity and Storage will need to be increased
    - Greater need for automation
  - Additional Capabilities Required
    - Needs ability to distinguish if an airframe is operated by a New Operator versus one that is flown by Multiple operators
    - Needs the ability to catalog Aircraft operating under Appendix G Section 3 from those operating under Section 9

Summary

- Challenges
- Merging disparate databases
- Integrating new processes and methods
- Identifying new data sources
- Keeping pace with increasing data volume