

# Airspace Technology Demonstration 2 (ATD-2)

Fuser Why Everyone Should Have One

May 22, 2019



- One stop shopping for all your flight data needs



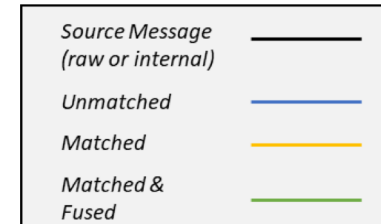
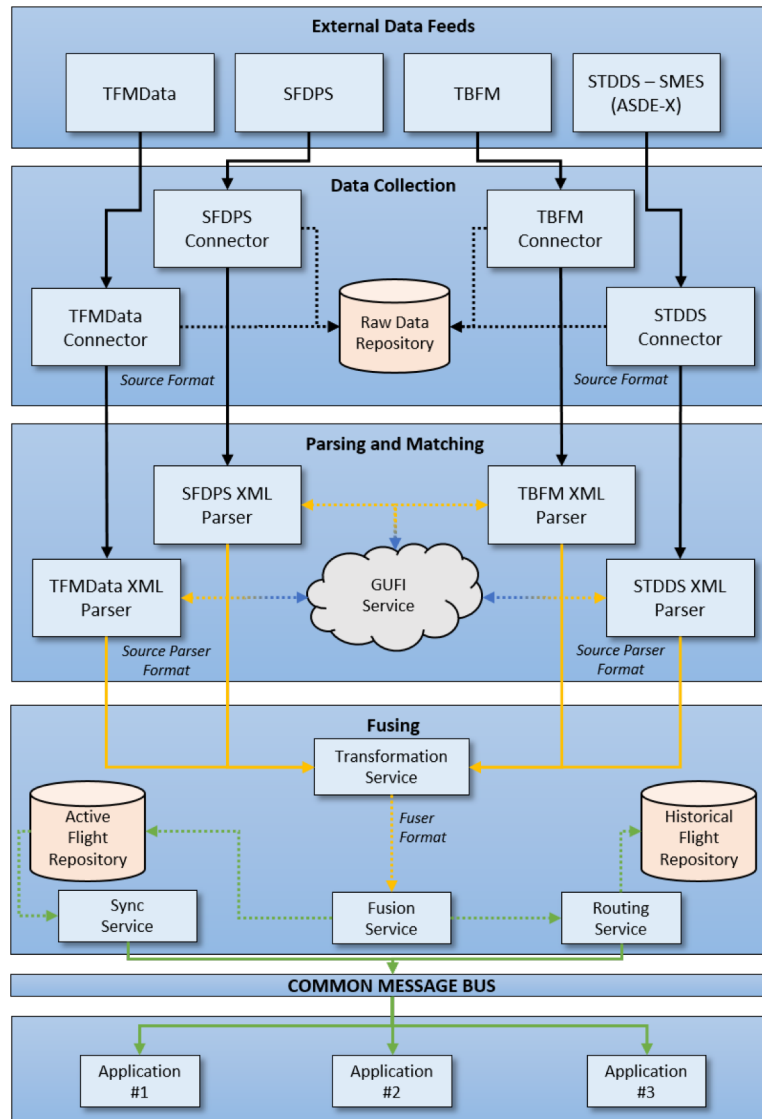
- Problem
  - With the great new FAA SWIM feeds, your organization feels they are drowning in data that they do not understand.
  - You need to make **actionable, operational information** out of this data!
- Solution
  - To accomplish this, you need a framework that can mediate between disparate sources of data, pulling in the **right data, at the right time**.
  - Need information on which data source is best to use for a specific need.
  - Access to the information in common well defined data model



- No desire to spend hours and days troubleshooting an issue
  - Less time troubleshooting = more time to create new capabilities
- More data is not a linear problem. As you get more data feeds the possible issues become exponential
- Tired of seeing same issues manifest on various efforts and phases
  - Redundant effort
  - Inconsistent behavior
  - Inconsistent definitions
- Needed a system where the data is exposed at all critical phases
  - What we received
  - What we parsed
  - How we matched/correlated
  - How we fused



- Fuser is a system composed of multiple components providing
  - Parsers for various data sources
  - Matching Services
  - Fusion Services
    - Transformation
    - Filtering
    - Updating
    - Mediation
  - Database Loading
- Common well defined schema





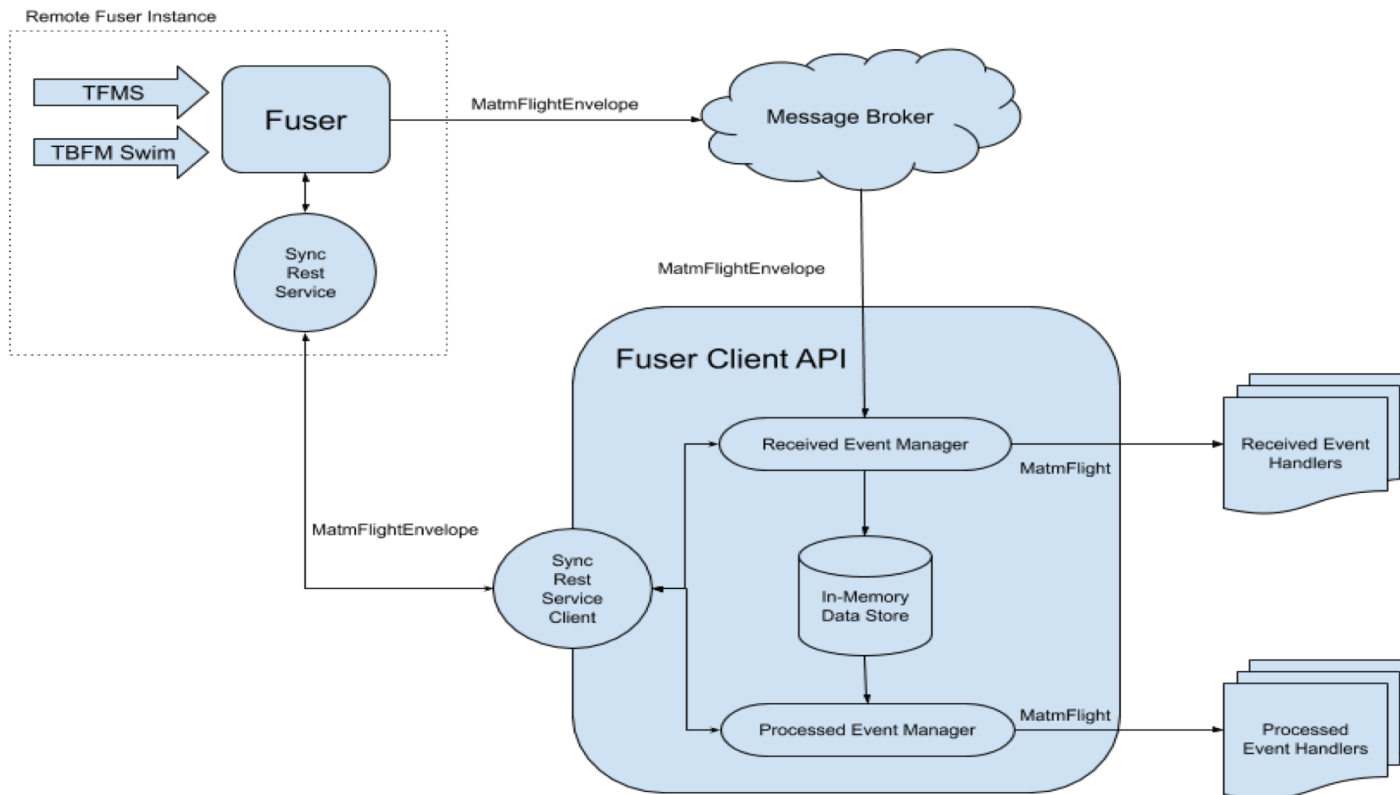
- Java
- Apache Camel
- Spring Framework
- Apache CXF
  - Web services used for reconstitution
- Redis
  - Used for recovery
- ActiveMQ
  - Pub/Sub messaging
- Postgresql
  - Optional database loading
- Dropwizard
  - Metrics



- Flight Management
  - Fusion
  - Flight Removal
- Data Distribution
- Built in performance monitoring
- Built in recovery solution
- Reconstitution available for Fuser clients
- Pluggable
  - Pluggable architecture for new data feeds



- Quickly develop Fuser driven applications
- Handles connecting and managing the connection
- Creates an in memory repository
- Support for event listeners





- Fuser Overview
- Component Descriptions
- Fuser Data Dictionary
  - Complete list of fields found in the Fuser
  - Field description
    - Most fields were meant to be self documenting
- SWIM data to Fuser Mappings
  - Likely more valuable than the data dictionary itself
- References to other SWIM related documentation
- [https://aviationsystems.arc.nasa.gov/atd2-industry-days/fuser/ATD-2-Industry-Day-Documentation-Outline\\_81565170.html](https://aviationsystems.arc.nasa.gov/atd2-industry-days/fuser/ATD-2-Industry-Day-Documentation-Outline_81565170.html)



- Fuser currently running in the cloud
- Cloud Benefits
  - Reduce Cost by reducing ..
    - Development time
    - Operating cost
    - Maintenance
    - Enhancements
- Delta volunteered to be our first pilot user
- Willing to engage with others that want to **partner**

