



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

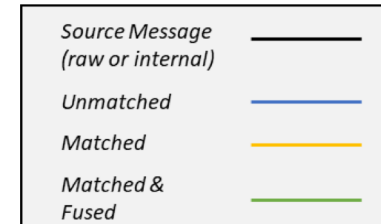
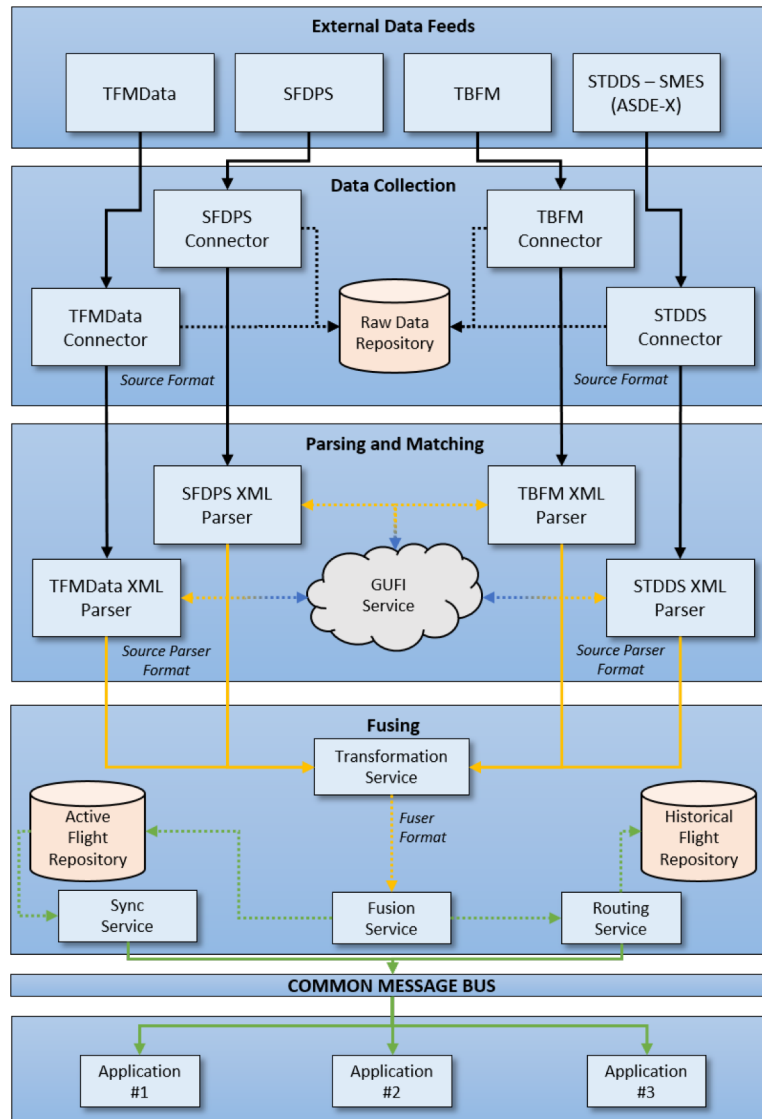


- No desire to spend hours and days troubleshooting an issue
 - Less time troubleshooting = more time to create new capabilities
- More data is not a linear problem. As you get more data feeds the possible issues become exponential
- Tired of seeing same issues manifest on various efforts and phases
 - 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

Fuser High Level Architecture



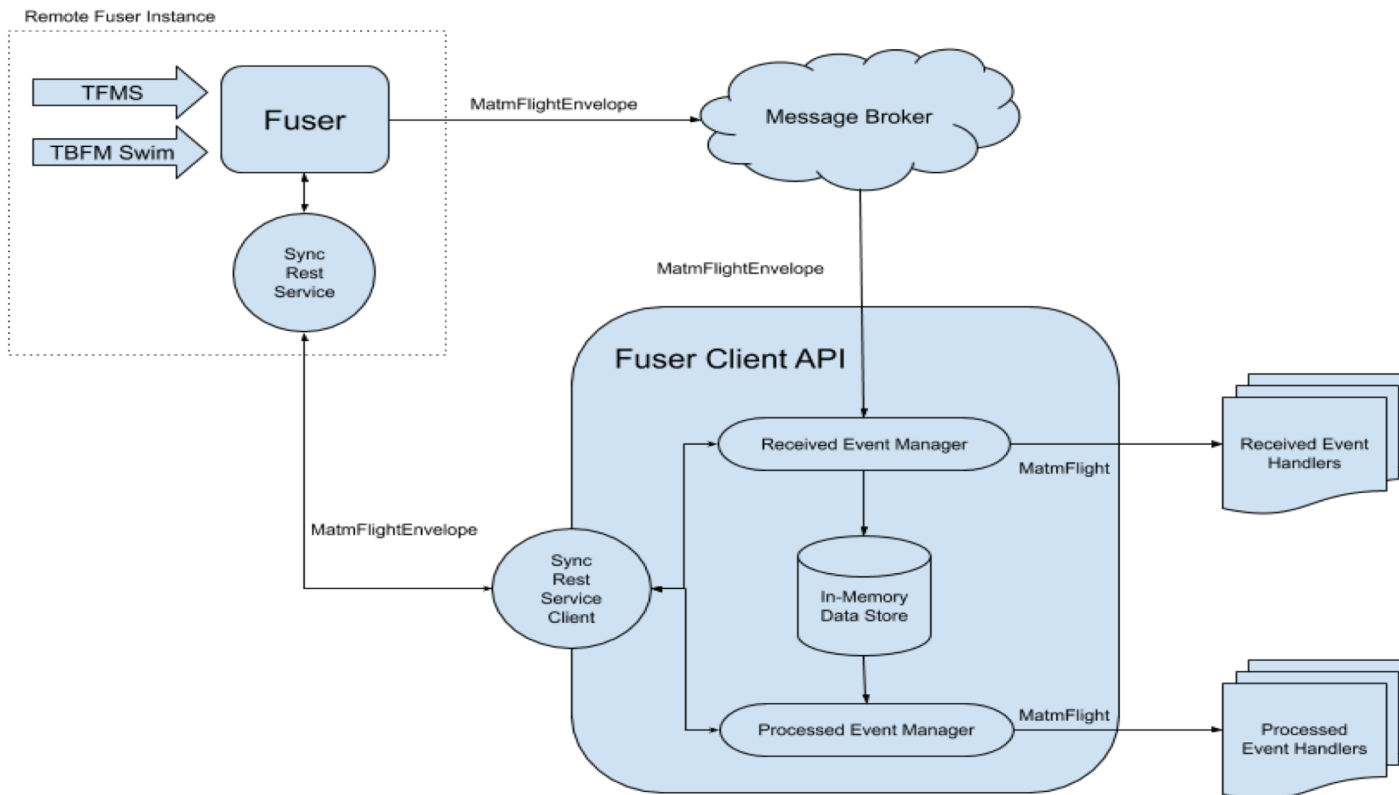


- Java
- Apache Camel
- Spring Framework
- Apache CXF
 - Web services used for reconstitution
- Redis
 - Used for recovery
- ActiveMQ
 - Pub/Sub messaging
- Postgresql
 - Optional database loading
- Dropwizard
 - Metrics



- 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



- 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**

