Aerograph Architecture

Advanced Air Mobility National Campaign (AAM NC) Tech Talk
May 13, 2022

Microsoft Teams Meeting Chat Transcript:

[5/13 10:17 AM] Gawdiak, Yuri O. (HQ-EL000)
Sorry if I missed it, how is Aerograph related to the Flight Data Portal?

[5/13 10:21 AM] Sprague, John D (HQ-JD010)
Yuri, good question and I don't believe we've engaged with the Flight Data Portal folks yet to be included/collaborate. Same with Grafana, I believe. If anyone knows more, please comment.

[5/13 10:23 AM] Mederos, Luis (ARC-AT)
Yuri and John: When we started Aerograph back in 2019, Mohana and I found the Flight Data Portal was more of a file/folder storage system. This is a completely different concept.
like 2

[5/13 10:24 AM] Gawdiak, Yuri O. (HQ-EL000)
So potentially the Flight Data Portal could be an input to Aerograph?
like 1

[5/13 10:25 AM] Mederos, Luis (ARC-AT)
Yes IMHO\
like 1

And any other aeronautics data source

[5/13 10:33 AM] Sprague, John D (HQ-JD010)
Follow on Flight Test (FOFT)

[5/13 10:38 AM] Rios, Joseph (ARC-AF)
would be interesting to see the mapping of those "functions" to the prior noted dockers... I assume the functions are "many to one" in relation to the dockers? or am i misinterpreting?

[5/13 10:44 AM] Bagnall, Timothy M. (ARC-AFO)[UNIVERSITIES SPACE RESEARCH ASSN]
Hi Joey, Depending on what you mean by functions, Slide 15 may be helpful. It shows where many of the nominal message flow components (Slide 16) exist in docker containers. Of course, Jerry can answer this question directly in just a few minutes.

[5/13 10:48 AM] Guha, Saugata (ARC-AFH)[UNIVERSITIES SPACE RESEARCH ASSN]
Very nice presentation. Thanks

[5/13 10:48 AM] Pai, Raj (ARC-AF)
What kind of use cases do you anticipate that will make use of the document data stored in Mongo?

[5/13 10:50 AM] SNELLING, BRAD J. (AFRC-510)[AMERICAN SYSTEMS CORPORATION]
Thanks for the outstanding support so far with our partner demos! Can you speak a little more to data validation? What can the project Chief Engineers do to help validate output products from transformations and requested analysis using these tools?

[5/13 10:51 AM] Eng, Daniel W. (AFRC-510)[Peerless Technologies Corp.]
So Aerograph can ingest data in any form or format & will extract & transform it w/o any "pre-formatting" of the input data? Is this true?

[5/13 11:00 AM] Pai, Raj (ARC-AF)
nice job!

[5/13 11:00 AM] Wilwerding, Jerome C. (ARC-AFO)[UNIVERSITIES SPACE RESEARCH ASSN]
We do not support any data in any format. We must code to the format of the data to extract. That said, our system has the ability to support multiple formats of the same data. But, we must know the data formats in order to ingest them.
like 2

Eng, Daniel W. (AFRC-510)[Peerless Technologies Corp.]5/13 11:01 AM

Great briefing - thx!! 👍

[5/13 11:01 AM] BACCHESCHI, NANCY L. (AFRC-430)[AMERICAN SYSTEMS CORPORATION]
Great presentation!

Eng, Daniel W. (AFRC-510)[Peerless Technologies Corp.]5/13 11:02 AM

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[5/13 11:02 AM] Bhadoria, Divya (ARC-AFH)
Thank you all for joining us today
like 1

[5/13 11:27 AM] Smith, Irene Skupniewicz (ARC-AFO)
Nice architecture! Thanks for this deck.

[5/19 8:00 AM] Sprague, John D (HQ-JD010)
Some of the answers were put in during the event but here are the rest:

[12:48 PM] Pai, Raj (ARC-AF)
What kind of use cases do you anticipate that will make use of the document data stored in Mongo?
Mongo is currently storing our derived analytical artifacts (e.g., charts, tables, etc.) which are produced from the automated analytics capability. We've found Mongo does a great job of storing and organizing these artifacts. A primary reason for Mongo is that the metadata and output of the analytics is not always consistent enough to easily store within a relational datastore. Mongo provides the flexibility of allowing differences within the data document that we needed to easily capture these differences. For further questions please contact John Sprague anytime.

[12:50 PM] SNELLING, BRAD J. (AFRC-510)[AMERICAN SYSTEMS CORPORATION]
Thanks for the outstanding support so far with our partner demos! Can you speak a little more to data validation? What can the project Chief Engineers do to help validate output products from transformations and requested analysis using these tools?
Project Chief engineers can collaborate with the Data Services Team to specify data verification rules and conditions for data fields. For example, if one field is supposed to be in decimal degrees but the number given is an integer. Or if an aircraft's nacelle angle is only supposed to range from 5 – 75 degrees, numbers outside of this range are suspect. After data verification, it would be really helpful to have Chief engineers as reviewers-in-the-loop to review artifacts, in both their design and implementation but, perhaps more importantly, continuously throughout a flight test event to make sure the chart/artifact is valid. Validation may involve a more manual process, but we can discuss whether any of it can be automated. For further questions please contact John Sprague anytime.

[12:51 PM] Eng, Daniel W. (AFRC-510)[Peerless Technologies Corp.]
So Aerograph can ingest data in any form or format & will extract & transform it w/o any "pre-formatting" of the input data? Is this true?
Ideally, Aerograph is capable of ingesting data in any form or format. However, it's not an instantaneous feature. The Data Services Teams engineers need to coordinate with the data product owner to characterize the source data file. The source data file must be consistent, standard, and readable. For example, Aerograph would not be able to ETL obfuscated data. More specifically, the data sets Aerograph ingests must be well defined and have a corresponding ETL implementation. The software is not flexible enough to handle 'any' data without some level of effort. The software is capable of supporting multiple versions/formats of data sets. As long as we can map an input file to an ETL implementation, then we can support that dataset. Aerograph should be flexible enough to support any data set with sufficient lead time to implement the corresponding ETL. If you'd like to discuss further contact John Sprague anytime.