Satellite Operations Services Optimizer - Weekly Meeting – 2023/09/29

Question 1: optimization based on resources, which resources to use as little as possible of

- Number of assets that have their own resources
- First Ground Station don't use more than one station per orbit; no hand offs, one station should be able to see enough
- Second spacecraft there are 5 of them. Use them equally and distribute the load; each image should only be taken once not multiple times by more than one satellite.

Question 2: Image format question: let's say a user makes a request for a certain area of interest; will image file format

- The image order will have a tag attached and fed up to the satellite and the satellite has to take the appropriate image corresponding to the order
- Satellite responds to image order, and we have data requirements
- Later, they may add power requirements that vary but for now assume power requirements are the same

Question 3: Architecture feedback AWS or not

- We can deploy on cloud, but we cannot lock into a specific cloud framework
- Lambda is too locked in
- Having vendor locking is a deal breaker
- We need to make sure its open source, a cloud lock-in will defy the open-source principle
- We need to have docker containers that get deployed into cloud in a general sense

Question 4: Image order/storage

- We never store or transfer images
- We keep track of them and the status of the image order to confirm its completion or retry

Question 5: Paper question about ephemeris

- Mysterious third party gives us the image, don't worry about where it comes from
- Just be able to take it in
- TLE is one of the spacecraft parameters

- A changed TLE needs to be responded but ephemeris is not important
- The ground station is not directly interfaced
    - We have mock states/activities of it and then respond to these
- We have logs about ground station activities, and we need to respond to this

Question 6: Login/Registration

- Very good feature to have
- Not a required feature but they won't deny

Question 7: Microsoft teams group chat

- Good to go

Question 8: priority of users; how to determine this?

- This will be associated with image orders themselves
- Image orders will have a priority parameter (e.g., high, medium, low)

Question 9: Downlinking question

- Tell satellite when to download
- The system will update the activities
- The system will downlink the activities when the ground station is available
- Send messages to ground station to let it know
- The system will model the ground station, satellite, and timings; no real objects/times
- It's a mock
- Need to calculate when a ground station has visibility with each satellite
- Respond accordingly to create a downlink request