

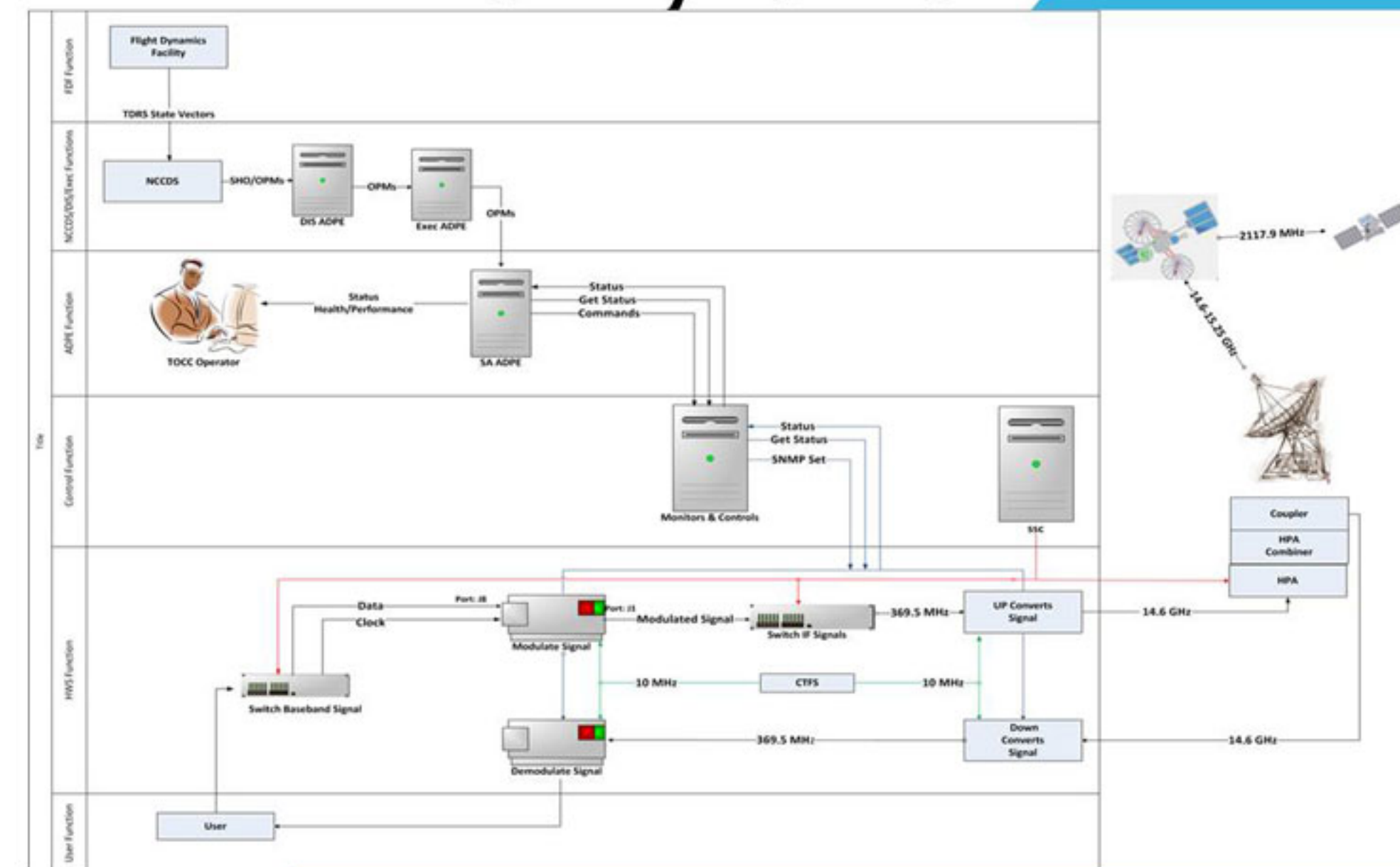


# Modeling a SSAF Service

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## Introduction

I have been working on the USS-CR (User Service Subsystem Component Replacement) Project that deals with the replacement of key components that process user signals within the TDRS (Tracking Data Relay Satellite) ground terminals at the White Sands Complex in New Mexico. New modems, Frequency Converters, Switch Gear, and a Monitor & Control System (MCS) are being provided to update Space Ground Link Terminals (SGLT) currently in use at White Sands. The Main Goal of USS-CR is to modernize equipment that is currently active and then provide backups so that hardware can stay functional until the SGSS (Space Network Ground Segment Sustainment) project is complete around the year 2017. In particular, my research involves learning various Systems Engineering techniques so that I can model a SSAF (S-band Single Access Forward) service.



## Methods

In order to get the information that I needed in order to see the component relationships necessary for a SSAF service, it was necessary for me to read multiple Interface Control Documents, Specifications Documents, and Requirements Documents. Through the USS-CR functional requirements, I was able to learn and understand the functionality of each component that is necessary for a SSAF service. While assisting with the testing of the USS-CR equipment, I was able to work alongside engineers who have incite on the process of users sending data to the TDRS Satellites.

## Purpose

While helping in the testing of the USS-CR equipment, I was able to increase my Systems Engineering skills to the point where I could see the bigger picture of how the various components and subsystems are related in the system. Through research and hands on experience, I was able to model a SSAF service which allows users to get their data to the TDRS satellites.

## Sources

- › USS-CR CMS ICD
- › 452 SRD
- › Up-Converter/PTE Down-Converter Spec
- › Modem ICD
- › Modem RSD
- › SNUG

## Conclusion

The model of the SSAF Service that I have created is very useful for people who do not understand the process of how the USS-CR equipment will allow users to send data to the TDRS Satellite. Without this model, people who are not familiar with the USS-CR project would have to read multiple documents in order to get an understanding of the relationships involved in a SSAF service. I was able to do the research and put all of the information from various documents and sources all in one easy to understand model.