



Advanced Software Defined Radio technology for new satellite ground equipment architecture

Moses Browne Mwakyanjala, Onboard Space Systems

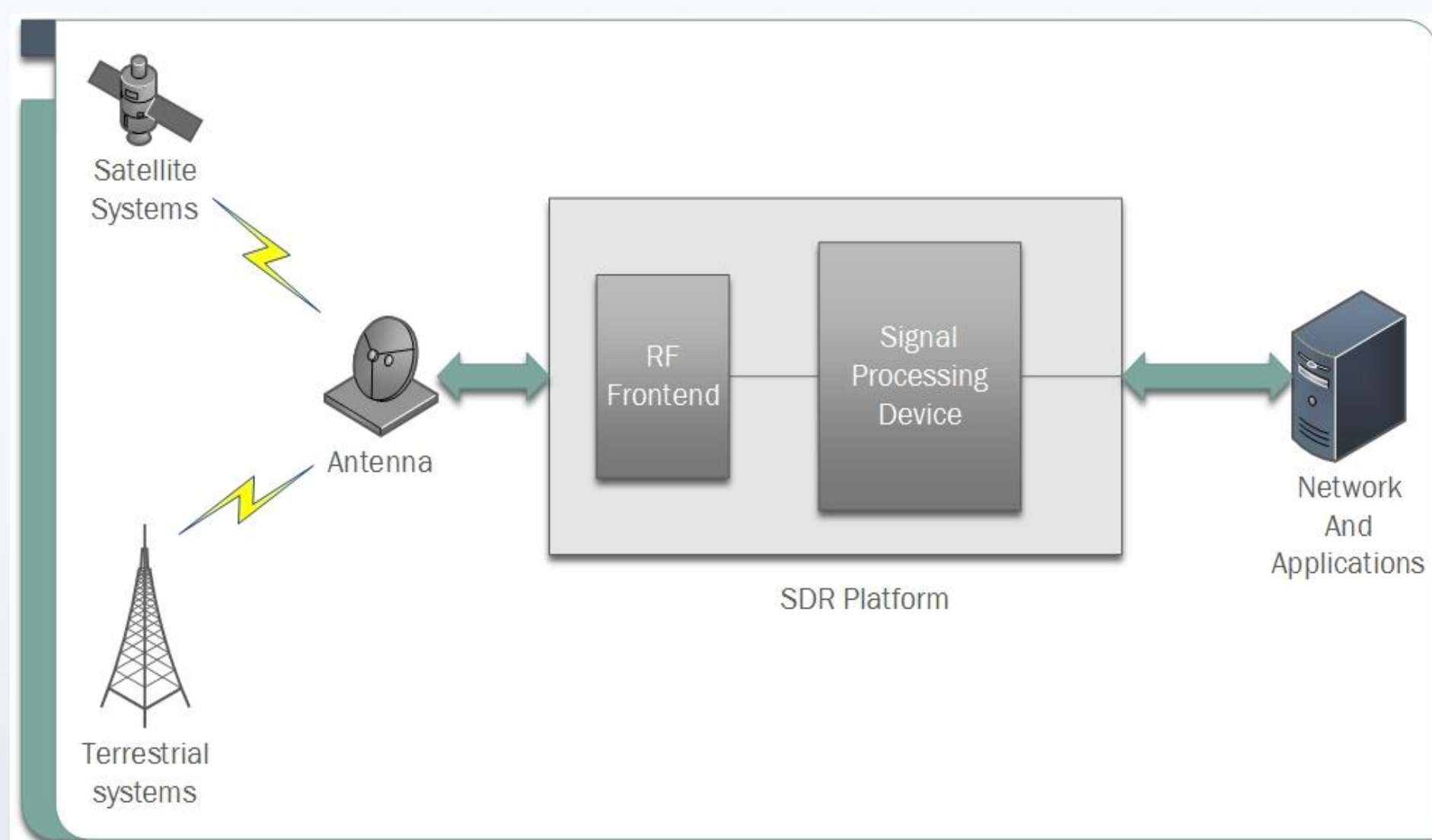
moses.browne.mwakyanjala@ltu.se

Supervisor: Prof. Reza Emami

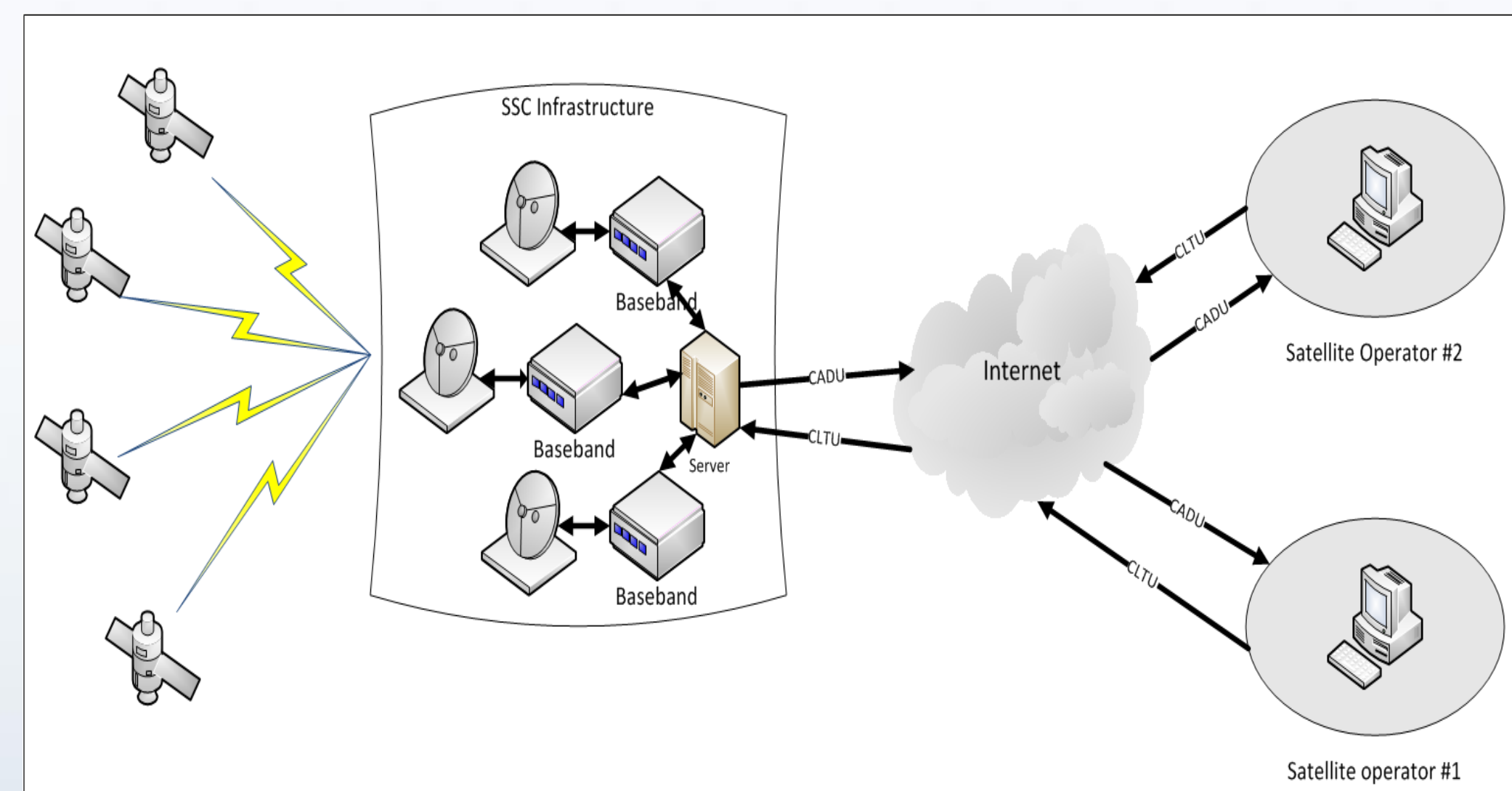
Satellite management is an expensive service due to the high costs of space-standard equipment. Other than the antenna facilities, a major portion of the costs is associated with the type and number of baseband systems, consisting of radio receivers and transmitters, which are needed to support different generations of satellite missions. This project aims at implementing baseband systems that will lower the cost of satellite management service by using software-defined radio technology

Current baseband systems are hardware based, expensive and cant adapt to new digital communications and signal processing advances without additional costs. Software-defined radio technology can bring about new baseband systems with

- Low implementation and operational cost
- Cognitive radio support
- Multibeam access support
- CCSDS missions support



SDR architecture



Satellite management architecture

In collaboration with:

