



Core Flight System (cFS) Training

**Community Apps:
Attitude Determination and Control**



Introduction



- **This slide deck is very preliminary. Consider them initial design sketches without much explanation.**
- **Objectives**
 - Describe how 42 standalone and OSK with 42 can be used to develop algorithms and how these algorithms can be ported and integrated into the cFS FSW target

ADC Systems Engineering

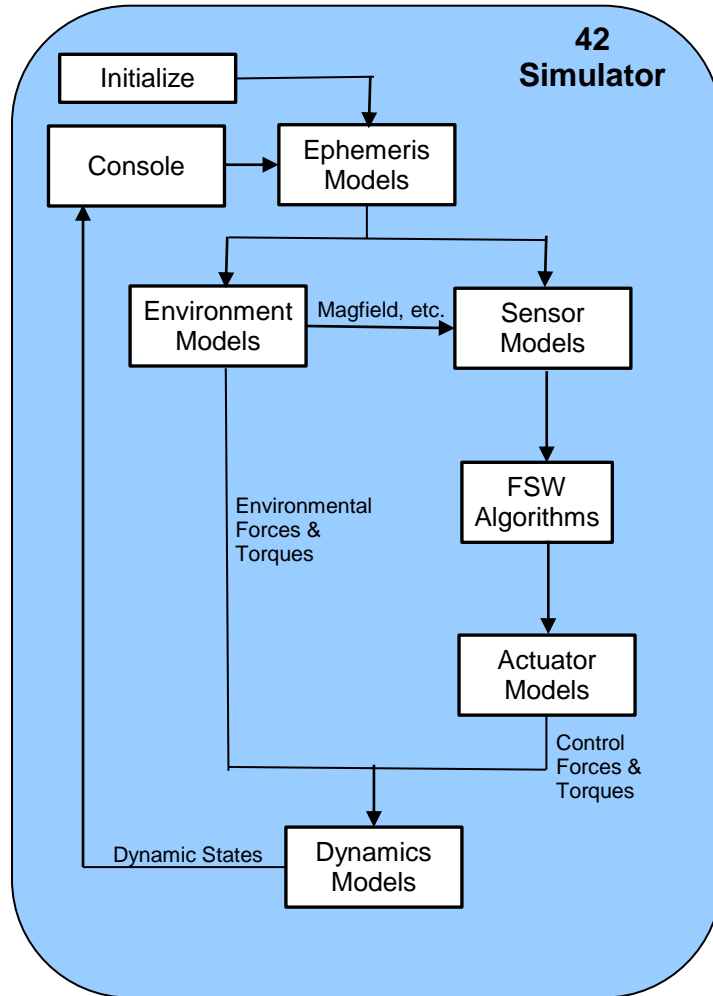


Introduction



- Describes a typical ADC algorithm-to-FSW workflow to understand what mission FSW problems can be solved within the context of OSK





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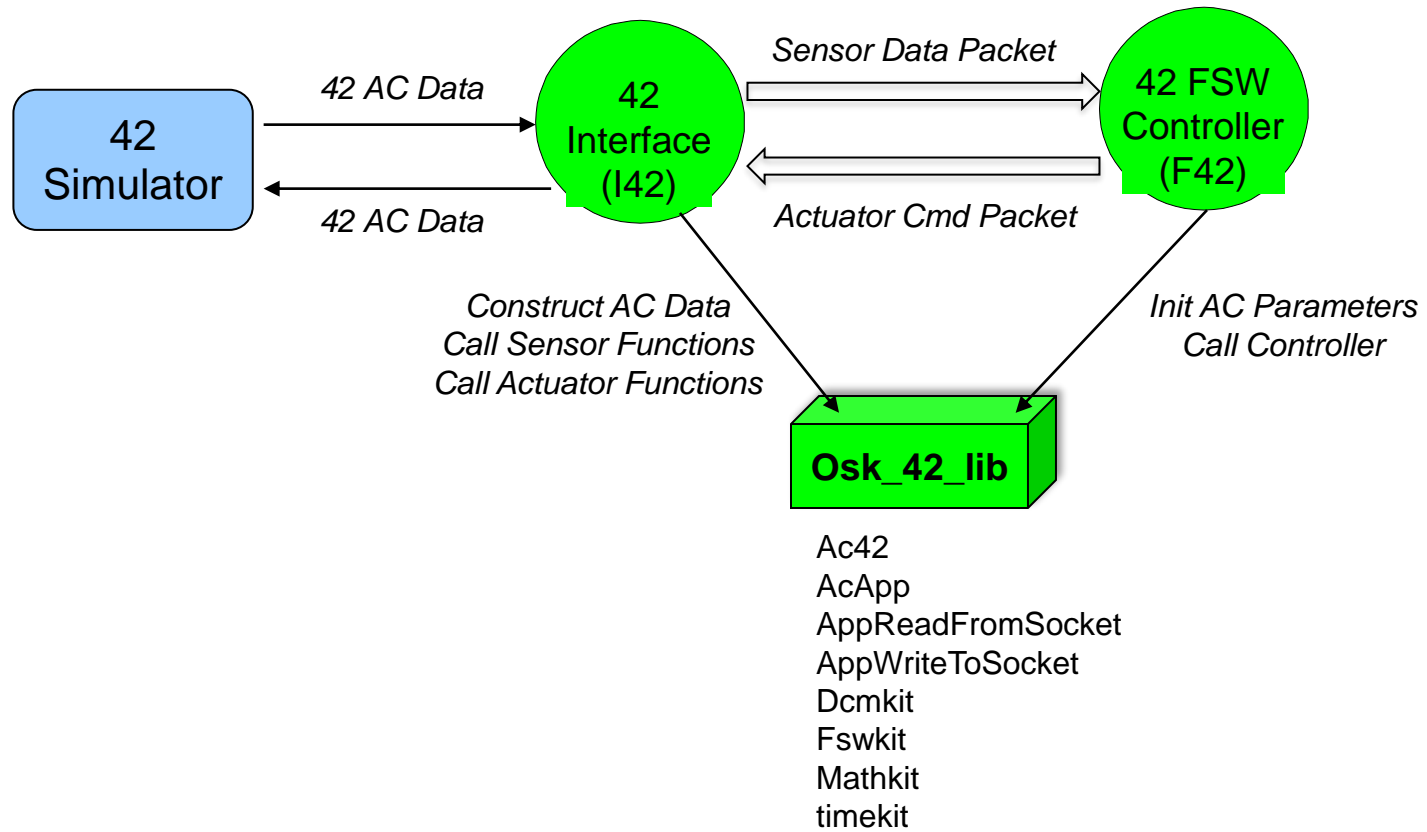
ADC Application Designs

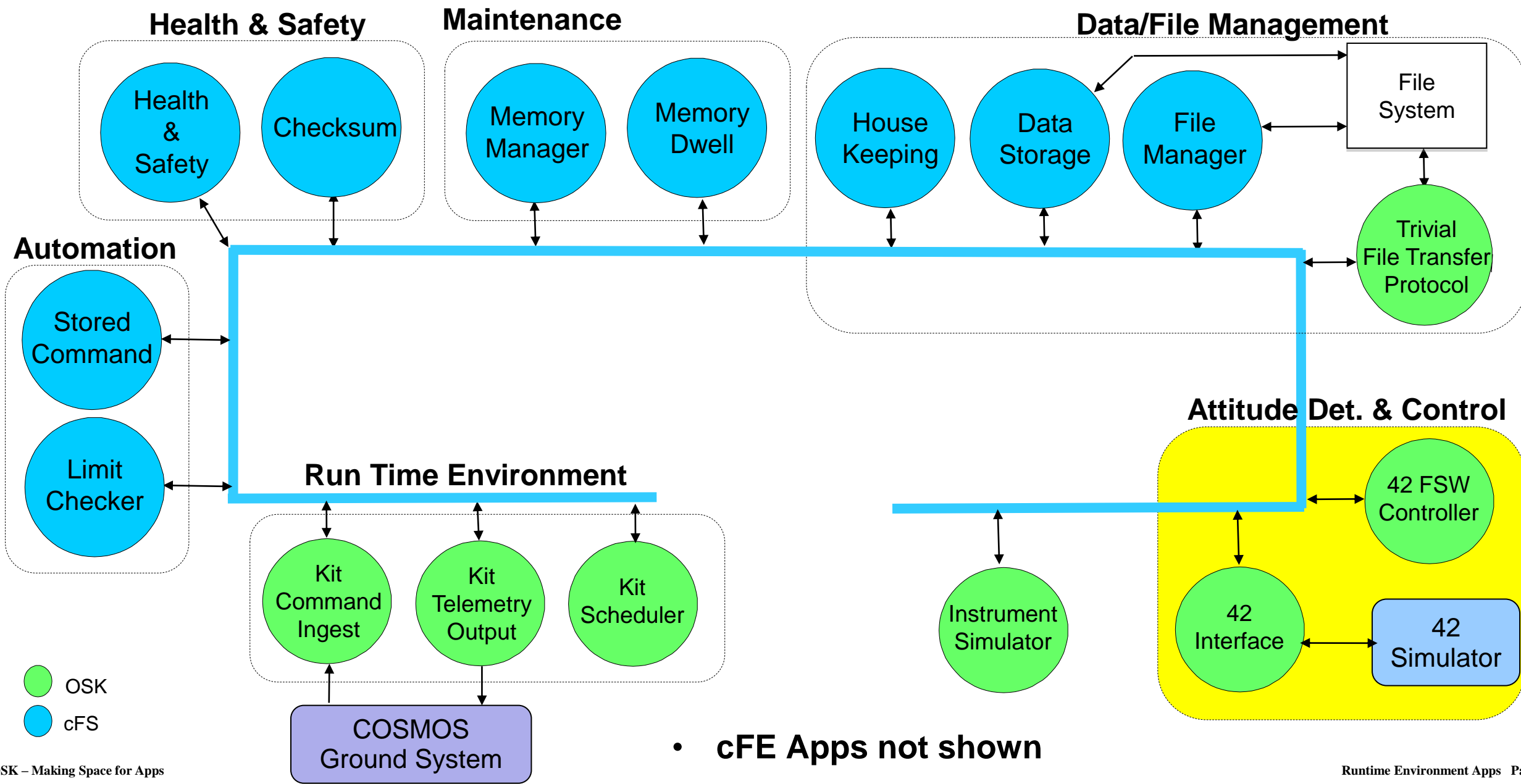


Introduction



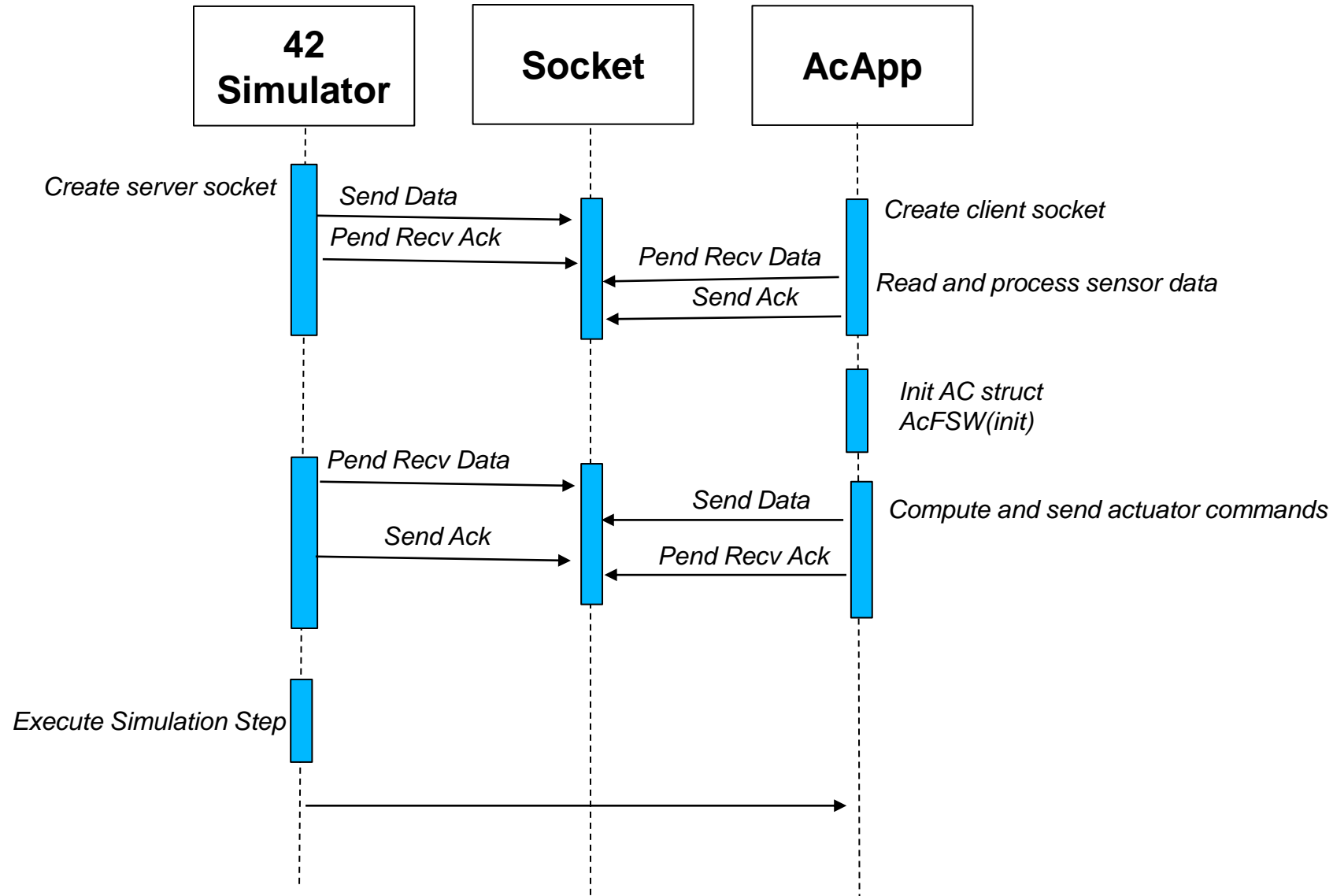
- **42 release 2042 includes a standalone “AcApp”. AcApp has been integrated into an OSK library called `osk_42_lib`. The I42 app provides the interface to the 42 simulator. It constructs `osk_42_lib`’s “Ac struct” and calls the sensor data processing and actuator command functions defined in AcApp. The F42 app calls the controller function in AcApp.**
- **I created the I42 and F42 apps to demonstrate how the sensor data processing, attitude determination and actuator commanding are often distributed across apps.**

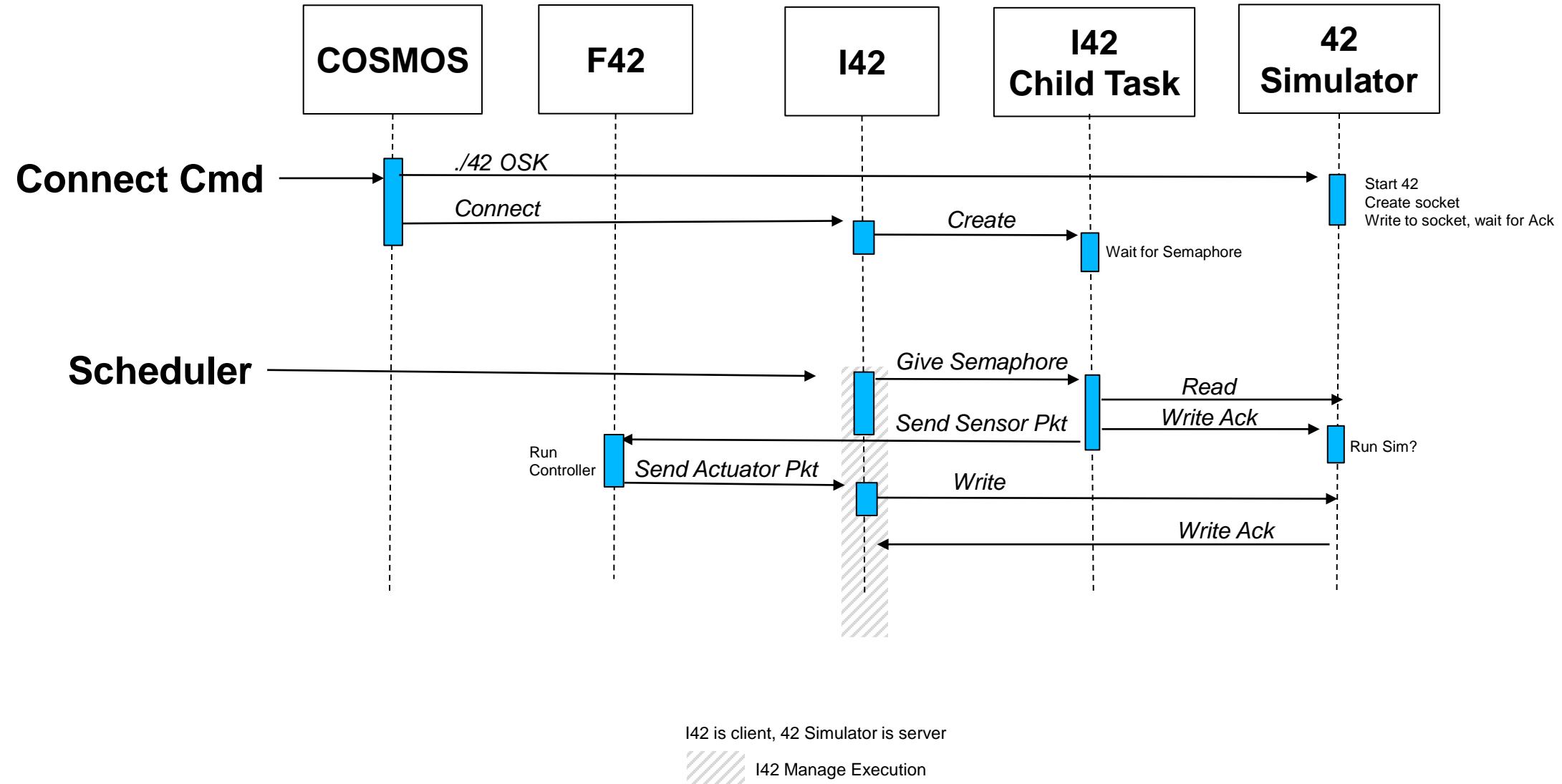




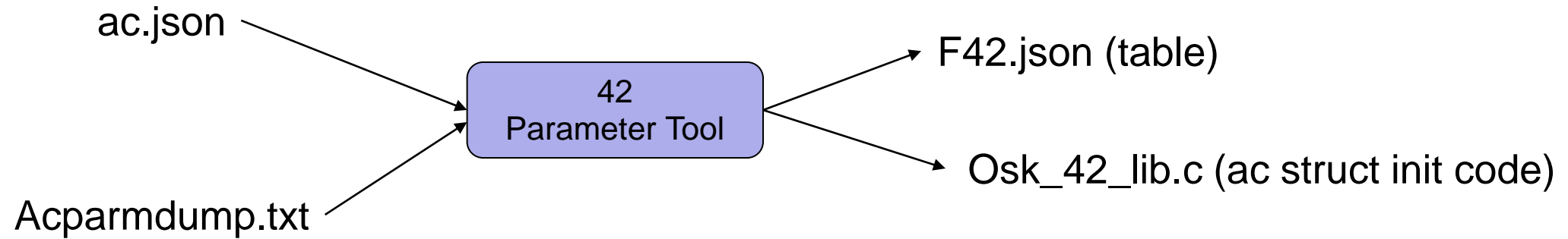
• cFE Apps not shown

42 AcApp Standalone Initialization Control Flow





Ideas for a tool to generate the `osk_42_lib` code that initializes the `ac` struct



Using OSK as Ops Simulator



Use Case Overview

