Core Flight System (cFS) Training

Community Apps:
Attitude Determination and Control

Introduction

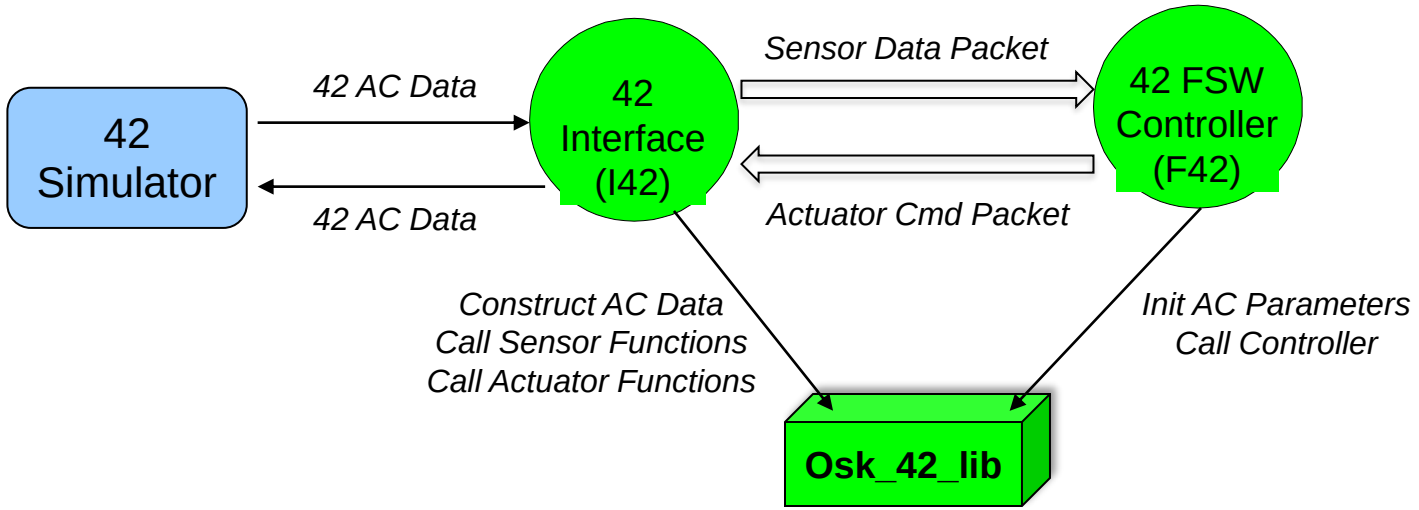
This slide deck is very preliminary. Consider them initial design sketches without much explanation.

I've included them with OSK v2.4 because the draft information should still be useful to help understand what's been implemented. OSK v2.4 includes a major upgrade to 42 simulator release "2042". The previous 42 simulator used with OSK v2.3 and earlier versions predates when 42 was released without version numbers!

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.

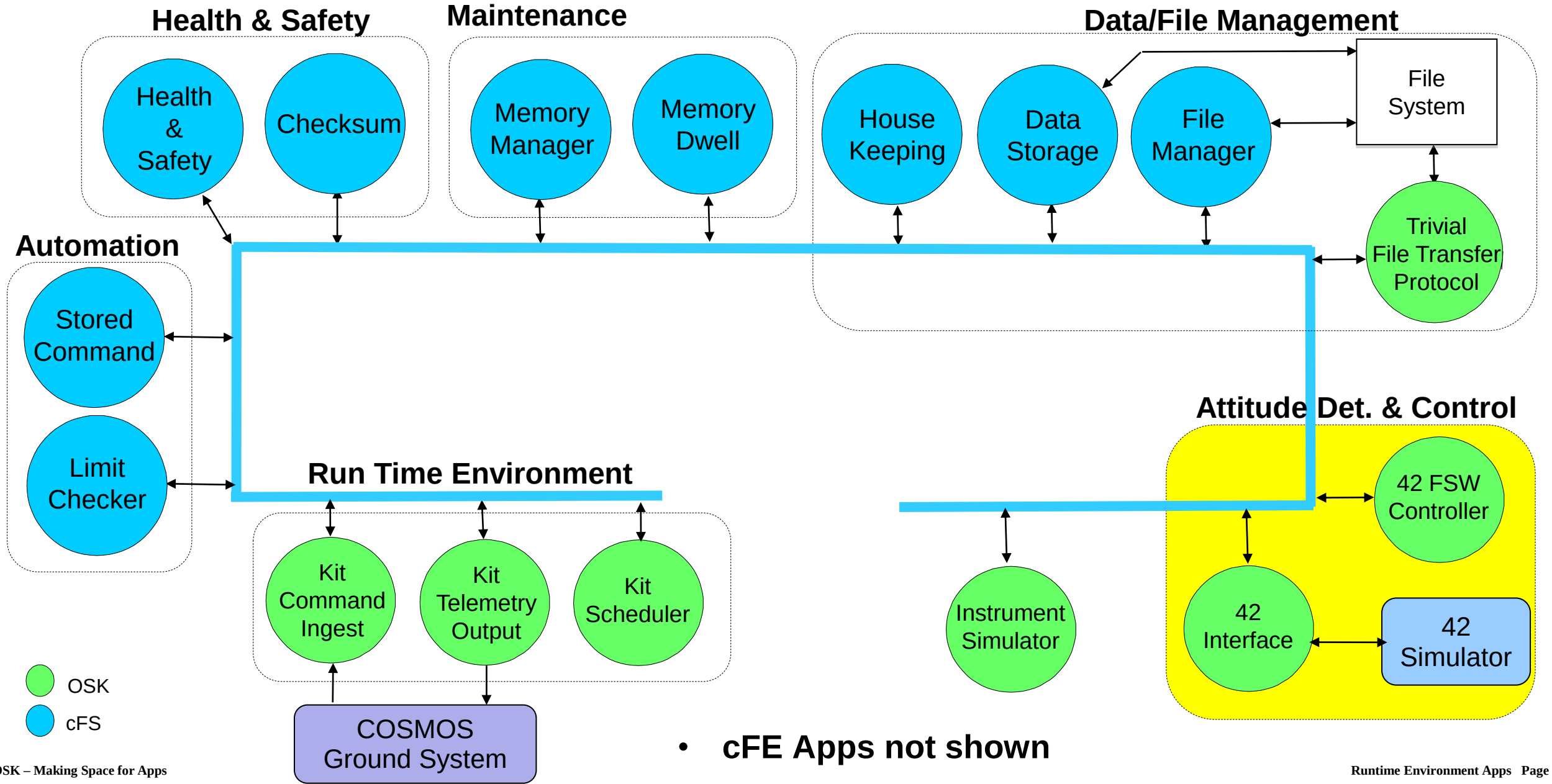
I created the I42 and F42 apps to demonstrate how the sensor data processing, attitude determination and actuator commanding are often distributed across apps.

ADC
Application Overview



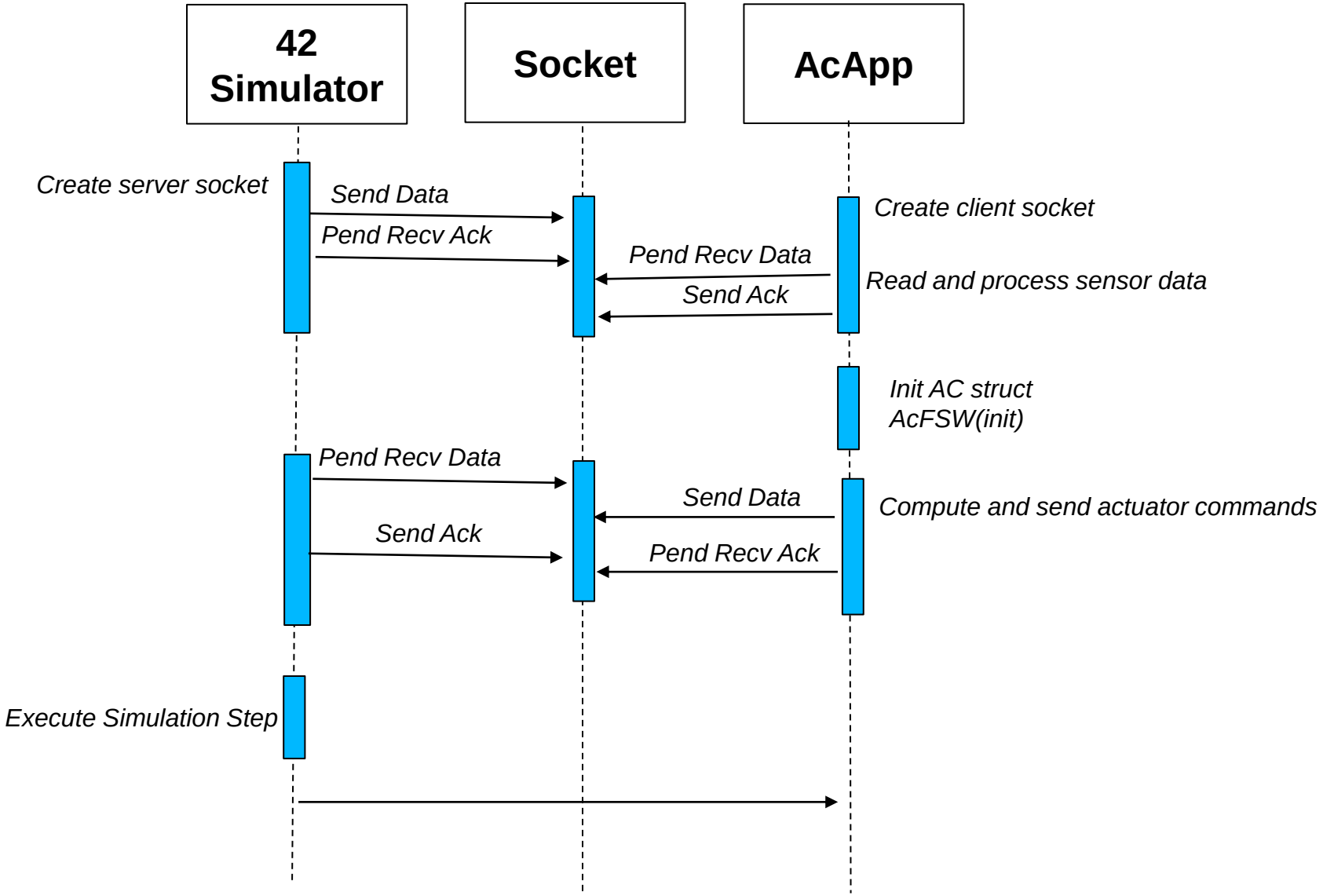
Ac42
AcApp
AppReadFromSocket
AppWriteToSocket
Dcmkit
Fswkit
Mathkit
timekit

OSK FSW SimSat Applications

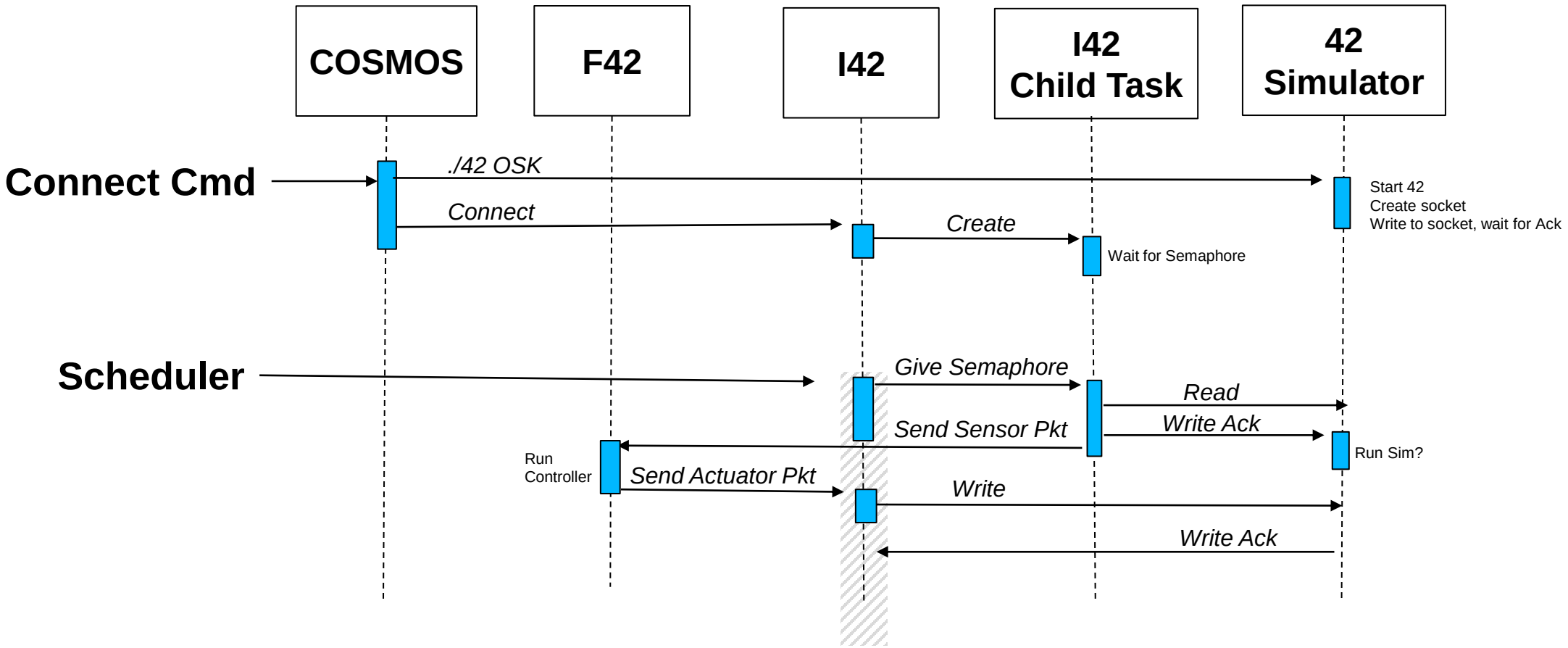


- **cFE Apps not shown**

42 AcApp Standalone Initialization Control Flow



42 Control Flow



I42 is client, 42 Simulator is server

I42 Manage Execution

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