Bringing Full Stack to Small Sats

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Here’s What We’ll Be Covering

- What are we building?
- Why build something new?
- How are we building it?
- Why should you care?
What Are We Building?

- Application
- KubOS
- Sat Hardware
Why Build Something New?

- Software as a first class citizen
- Vertical software integration
- Horizontal hardware compatibility
How Are We Building It?

KubOS High Level Architecture
Middleware Environment

- Radio
- Telemetry
- Command & Control
- Drivers
- HAL
- ADCS
- Payload
- EPS
Portability Layers

Operating System

FreeRTOS
Linux

OS Abstraction Layer

CSP
IPC
Threading
Timing

Hardware Abstraction Layer

GPIO
I2C
SPI
UART
Portability - Supported Hardware

- STM32F407 Discovery Board
- MSP430F5529 LaunchPad
- NanoAvionics SatBus 3C1
- ISIS iOBC
- Coming Soon - Pumpkin SuperNova OBC
Development Environment

- SDK-in-a-box VM
- Yotta
- Toolchains
- Flashing
- Debugging
Why Should You Care?

- Accessibility
- Reusability
- Transparency
- Collaboration
Questions?

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