The LibreCube Ecosystem:
How to Use, How to Contribute

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LibreCube Initiative

Ecosystems

Ecosystem, the complex of living organisms, their physical environment, and all their interrelationships in a particular unit of space.

Encyclopaedia Britannica

Ecosystems

python™

NumPy

IPy[]:
IPython

SciPy

matplotlib

SymPy

Mayavi

pandas

Cython

StatsModels
Statistics in Python

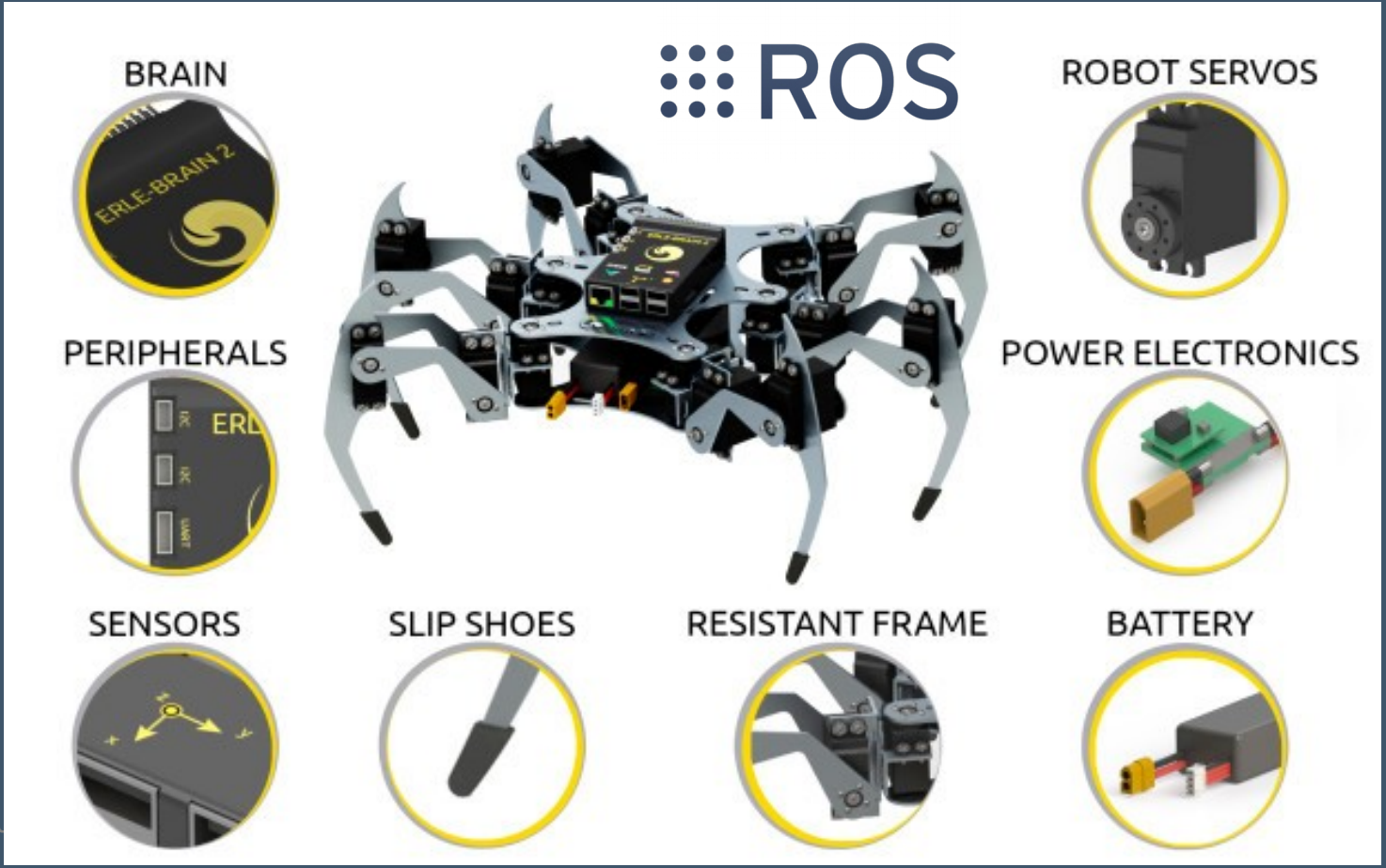
scikits
learn
machine learning in Python

scikits-image
image processing in python

PyTables

NetworkX

Ecosystems


ROS
BRAIN
ERLE-BRAIN 2
ROBOT SERVOS
PERIPHERALS
POWER ELECTRONICS
SENSORS
SLIP SHOES
RESISTANT FRAME
BATTERY

LibreCube's Vision

LIBRECUBE
open source cubesat projects
www.librecube.net

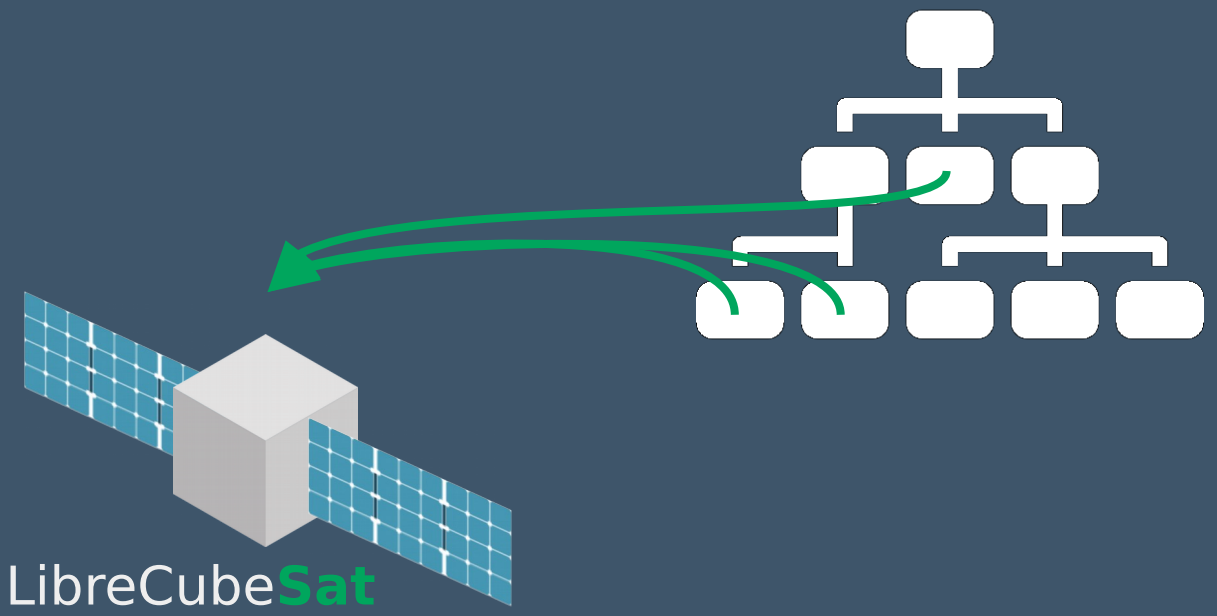
Open Source Space and Earth Exploration

Open Source Everything

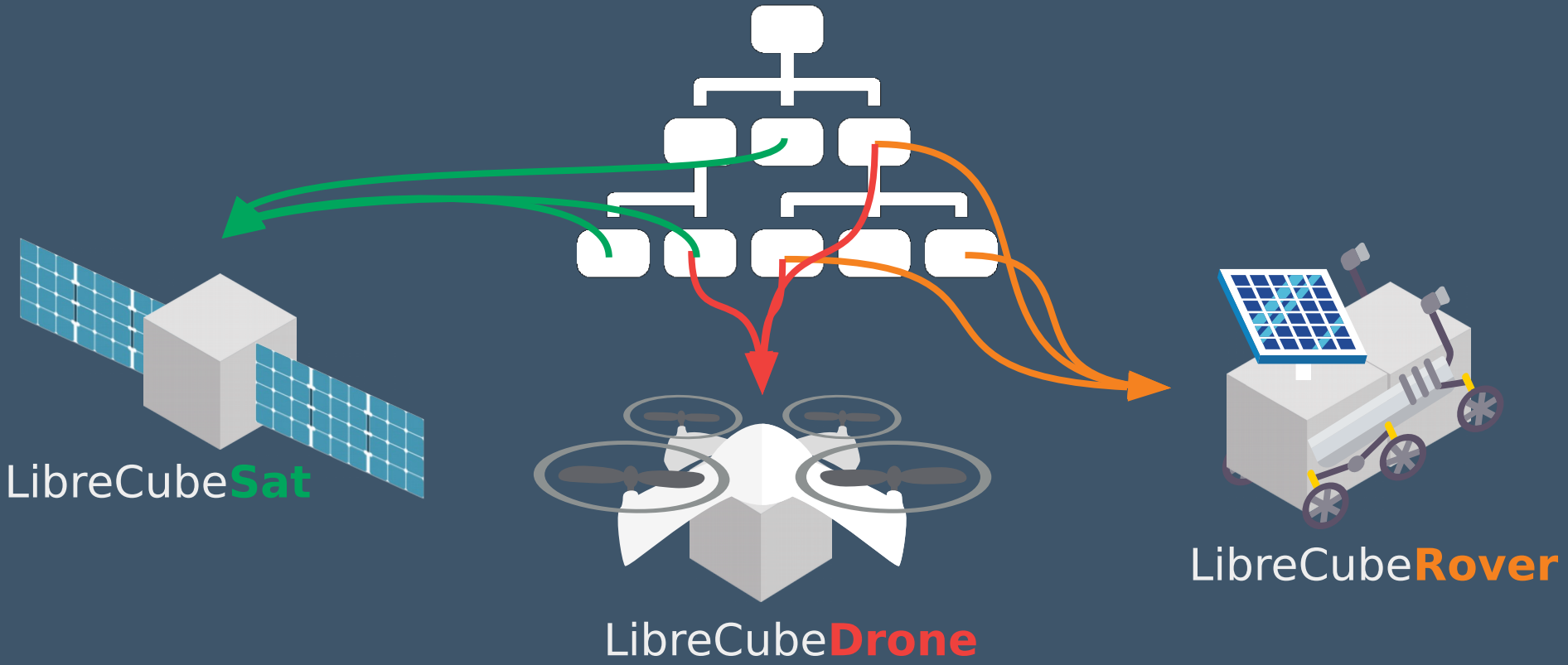
Space Standards

Reference Architecture

Build your Mission



Build your Mission



Standards

- Open Space Standards

CCSDS

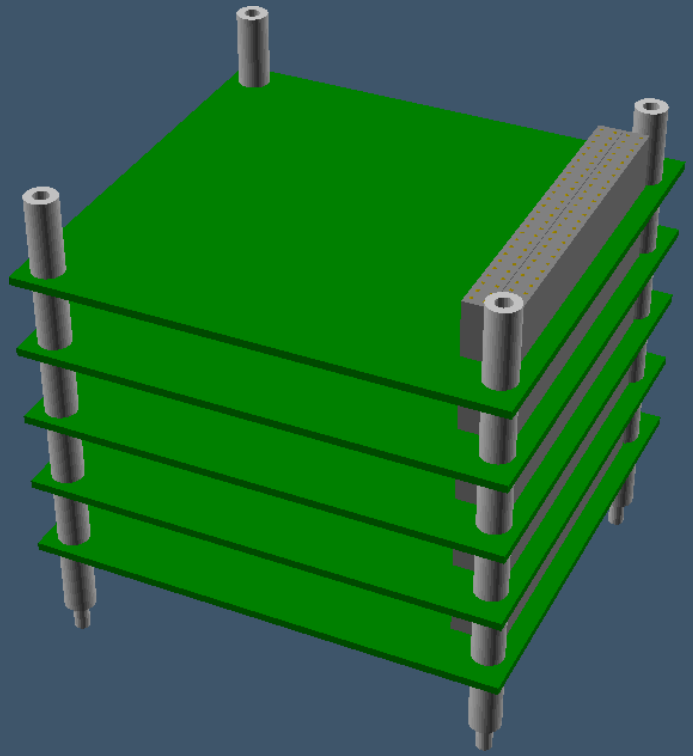
The Consultative Committee for Space Data Systems

EUROPEAN COOPERATION

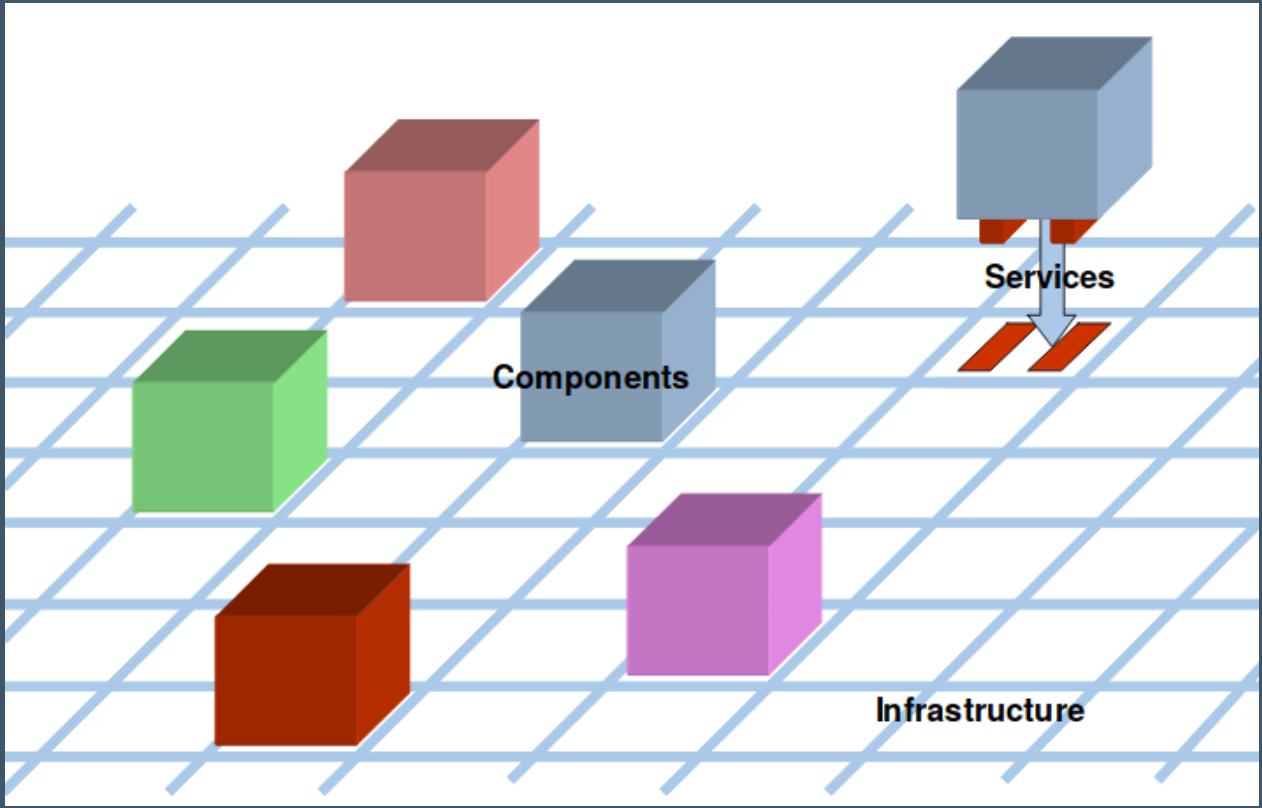
ECSS

FOR SPACE STANDARDIZATION

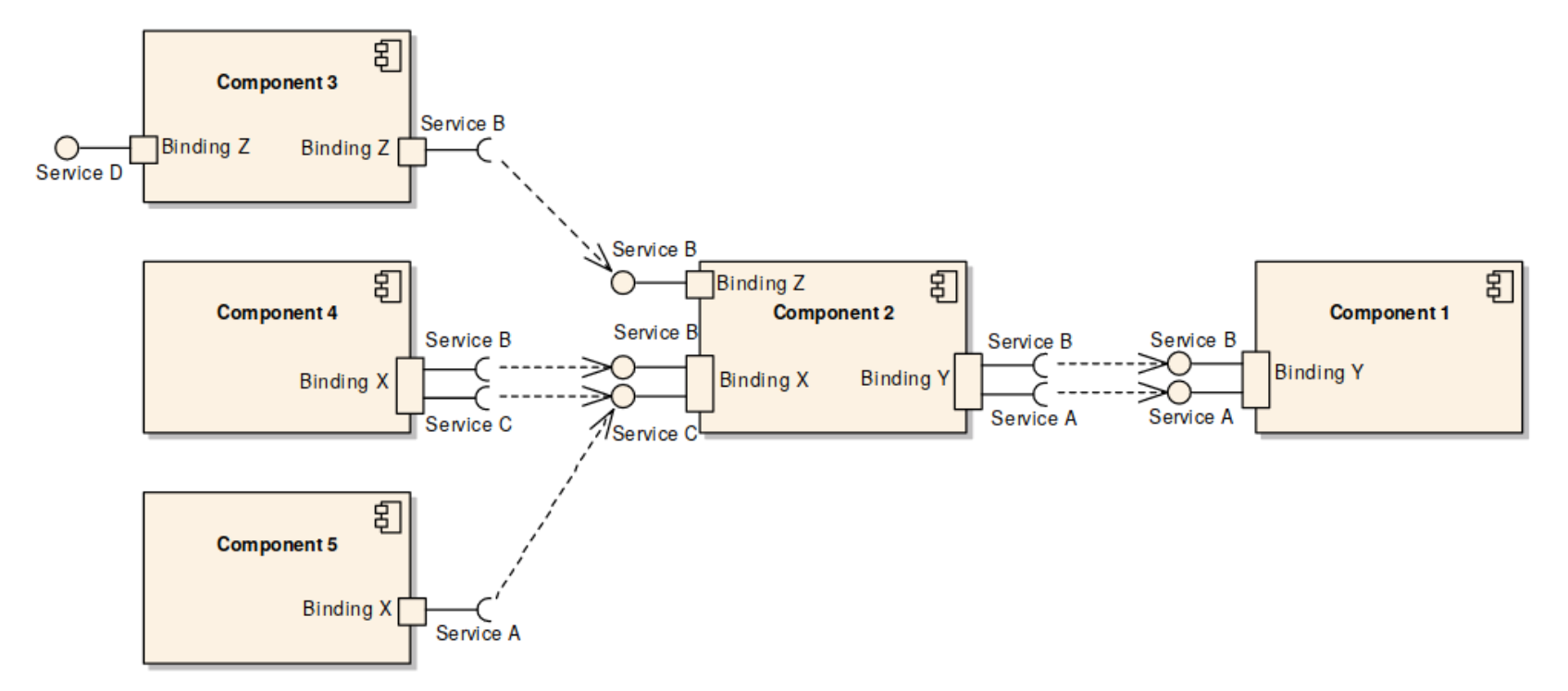
- Dedicated Workgroups (if needed)



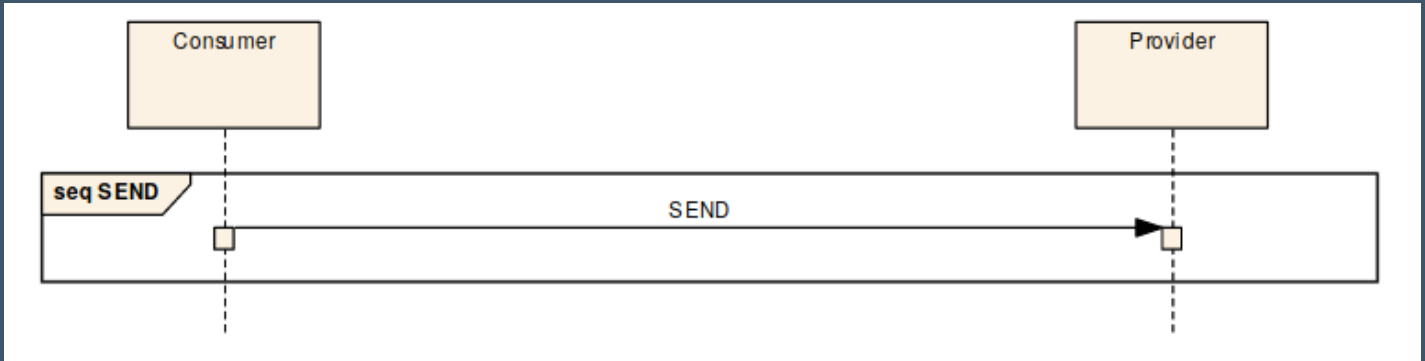
Mission Operations Services

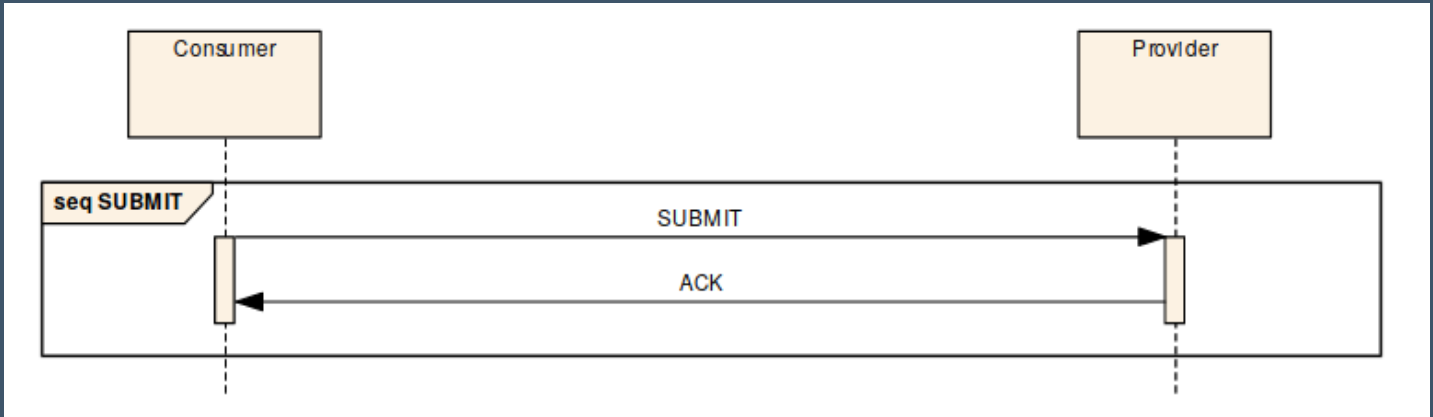


Service Oriented Approach

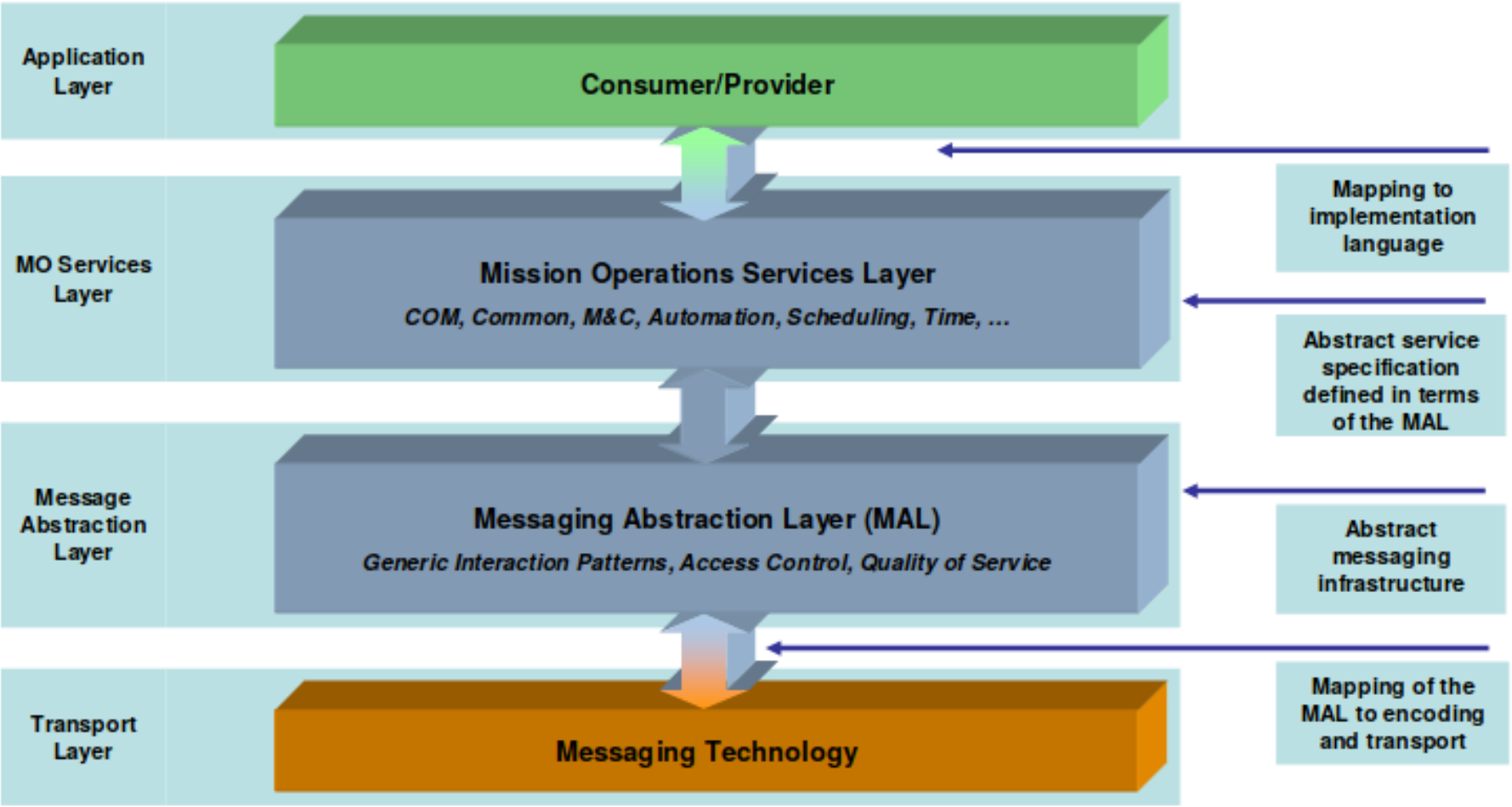


Interaction Patterns

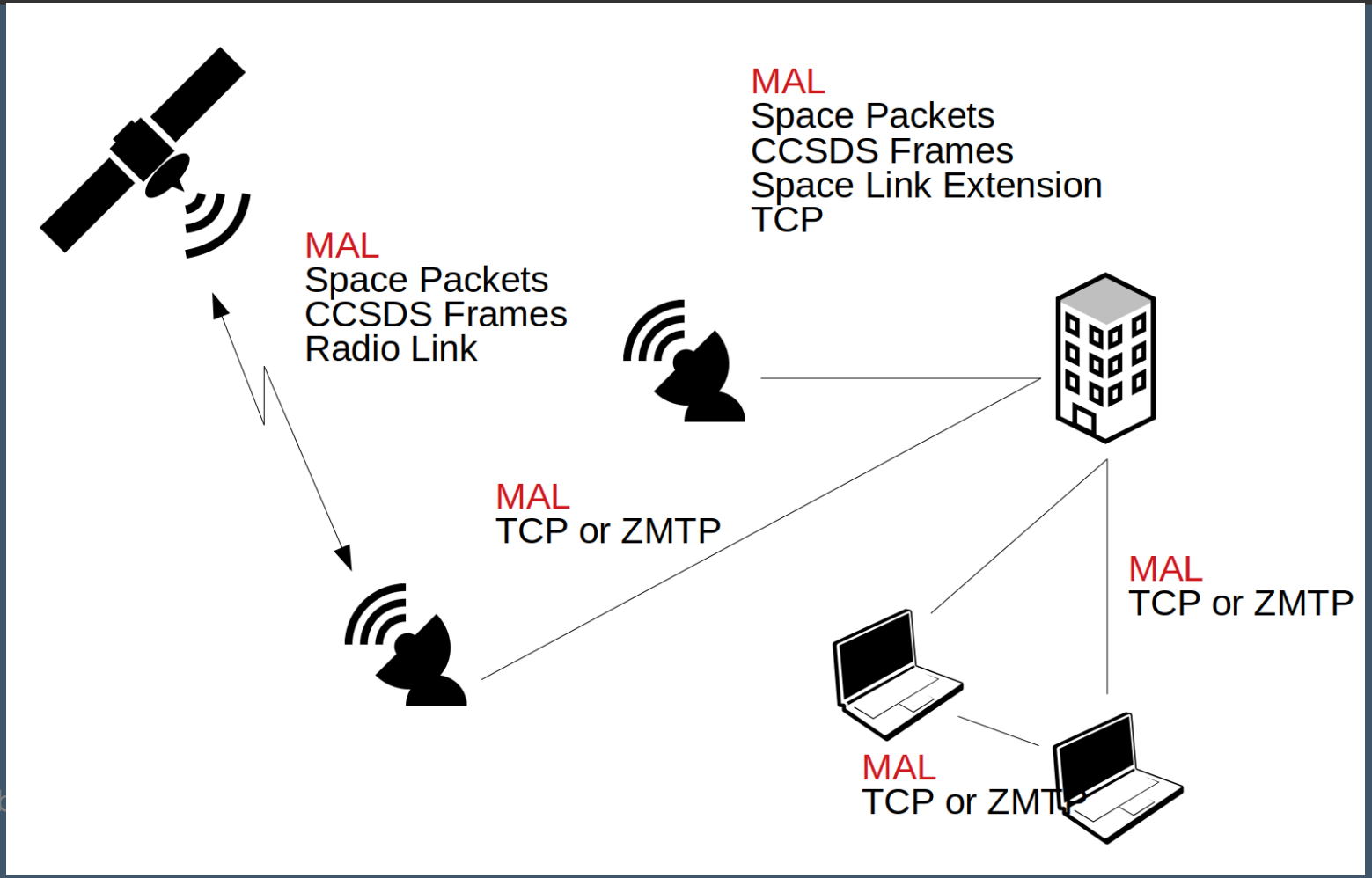




Protocol Stack



MAL Deployment



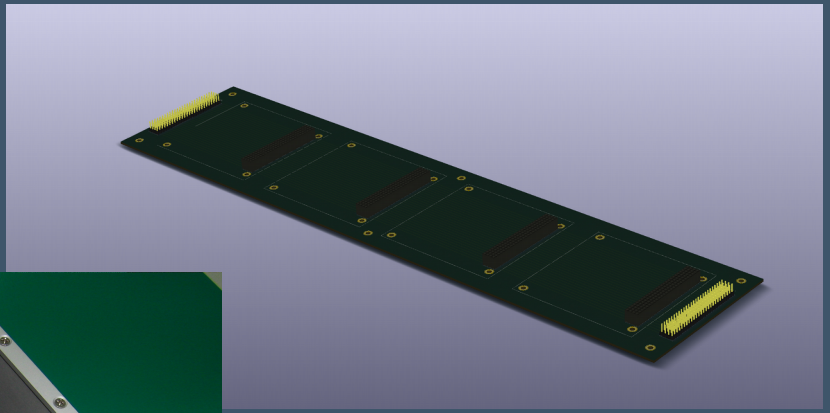
How to Use

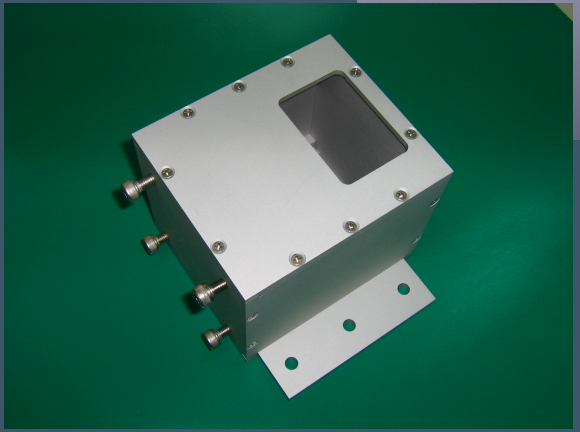
https://gitlab.com/librecube/elements

LC-3103
LibreCube LC-3103 Flatsat Board

LC-3201
LibreCube 1U Test-POD

LC-3202
LibreCube 2U Test-POD





How to Contribute

LIBRECUBE
open source cubesat projects
www.librecube.net

https://gitlab.com/librecube/prototypes

G **gnuradio-ccsds-frames**
Exchanging CCSDS frames via GNURadio and (cheap) SDRs.

P **power-control-and-distribution-unit**
A reliable and robust PCDU for space application

P **python-link-budget**
A configurable and extensible Python3 module that outputs link budget margins for a given time range.

P **python-mal**
Python implementation of message abstraction layer

M **micropython-space-can**
Space-ready CAN bus for micropython based on ECSS-CANbus Extension Protocol and ISO 15762-2

Let's Talk!

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