

# **Peripheral Simulation**

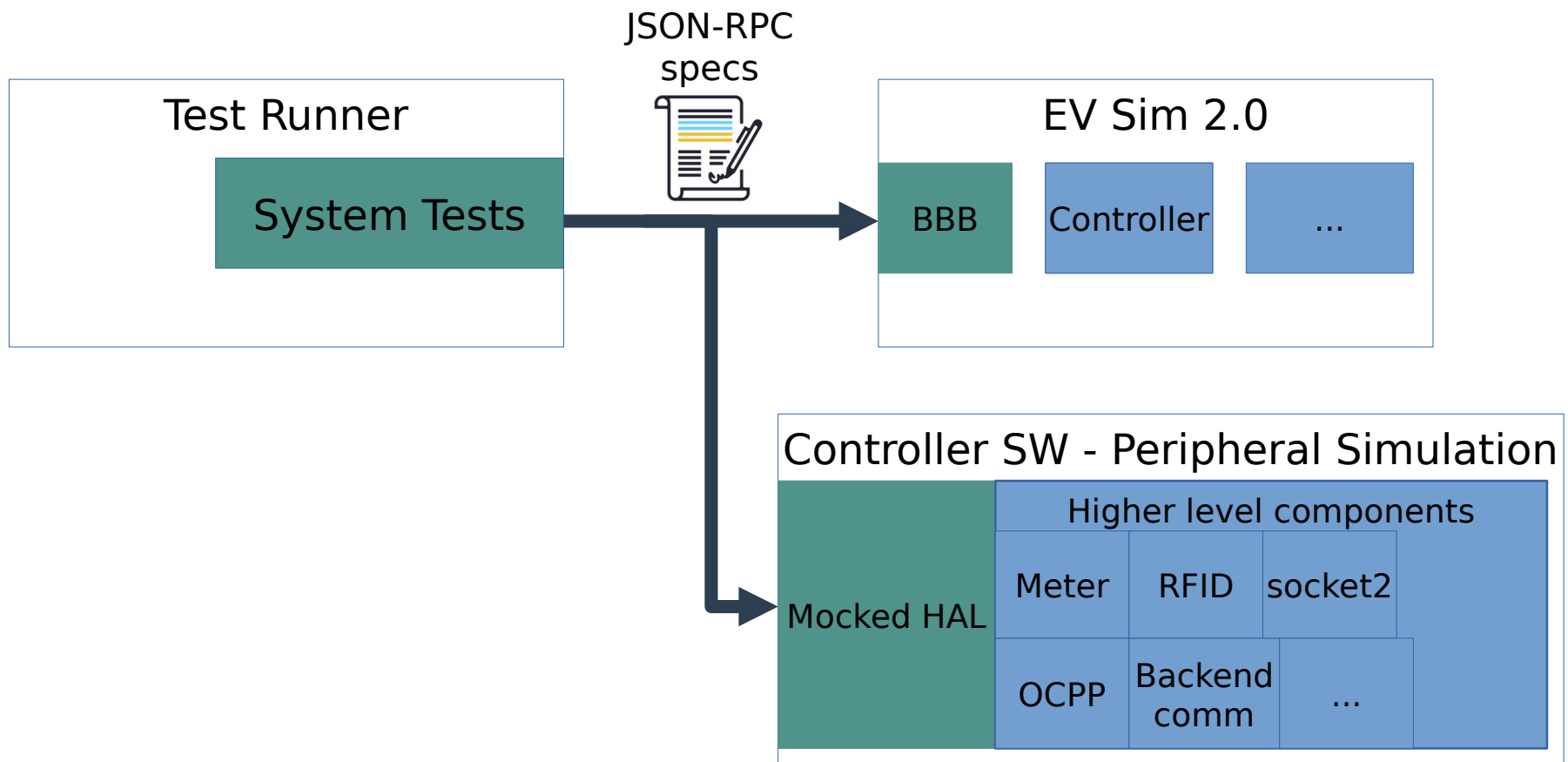
## **“Host Simulation 2.0”**

# Main Motivations

- **Leverage our large collection of system tests and run them in a CI pipeline on a x86\_64 PC.**
- **Provide an alternative to our current host simulation that better resembles the system in the controller.**
- **Add an alternative develop and test features that requires complex setups (e.g.: master/slave, DLM with multiple charge points) which are not dependent on specific HW.**



# General Concept



# Approach Limitations

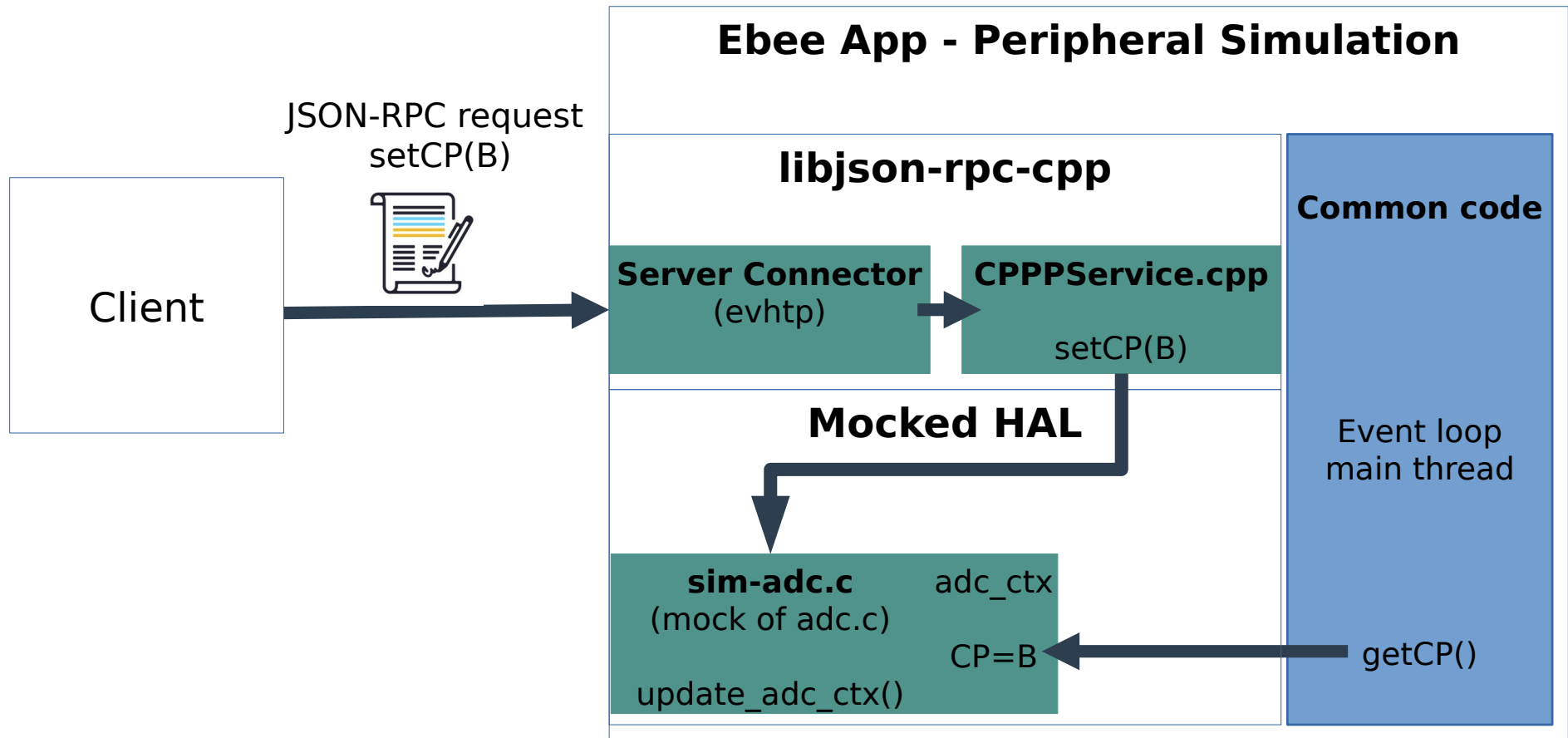
With Mocks, we can emulate:

- **Hardware getters (e.g.: getCPState, getNFCUid, etc..)**
- **Callbacks handlers (via controller's SW event\_base)**

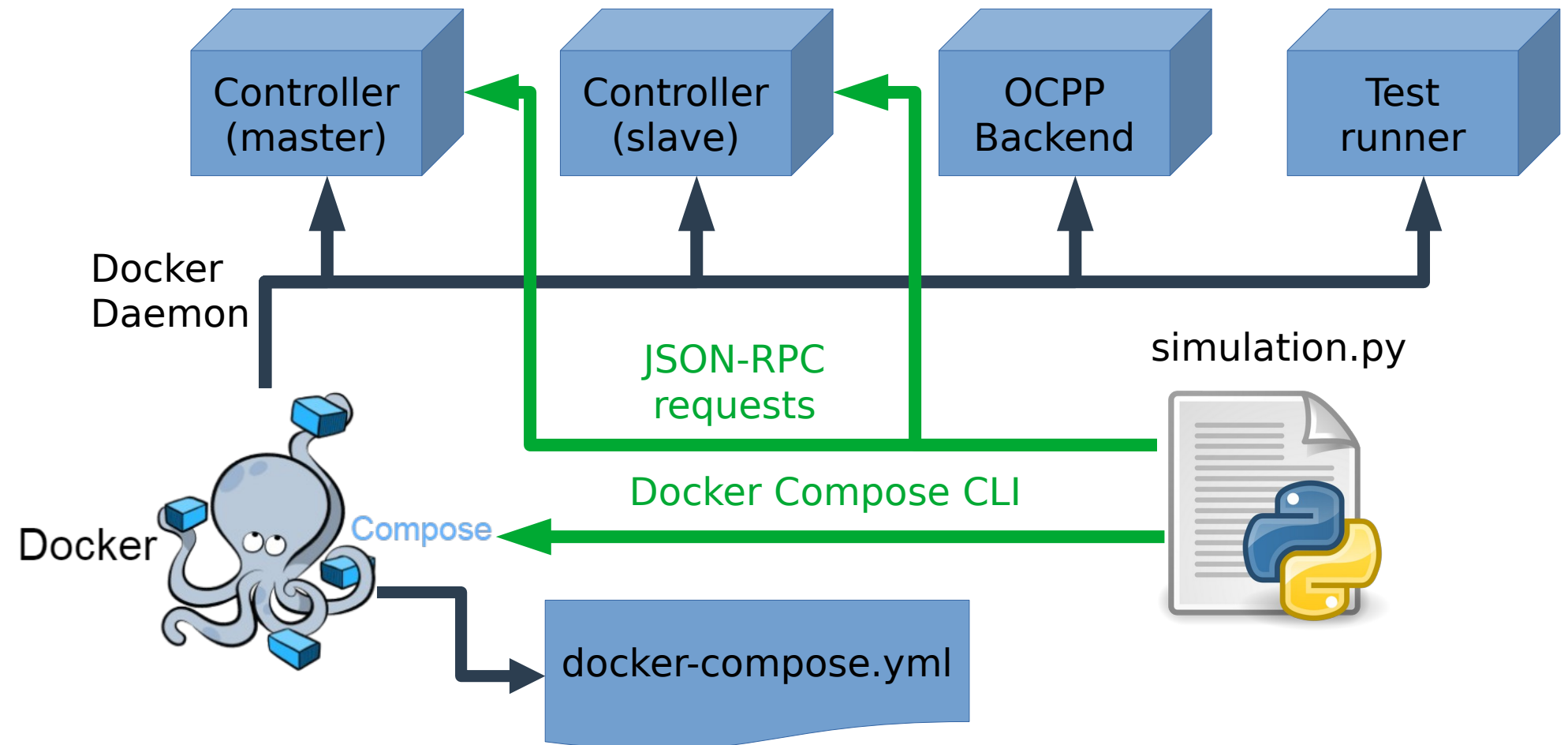
However it becomes increasingly difficult or unfeasible to emulate:

- **Hardware setters (e.g.: setCPDriverState)**
- **Complex hardware output (power line communication)**

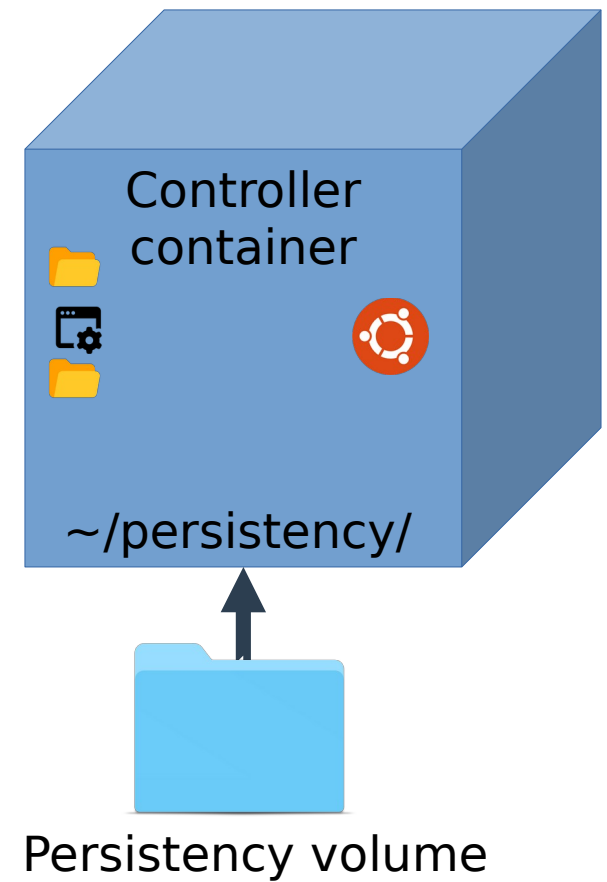
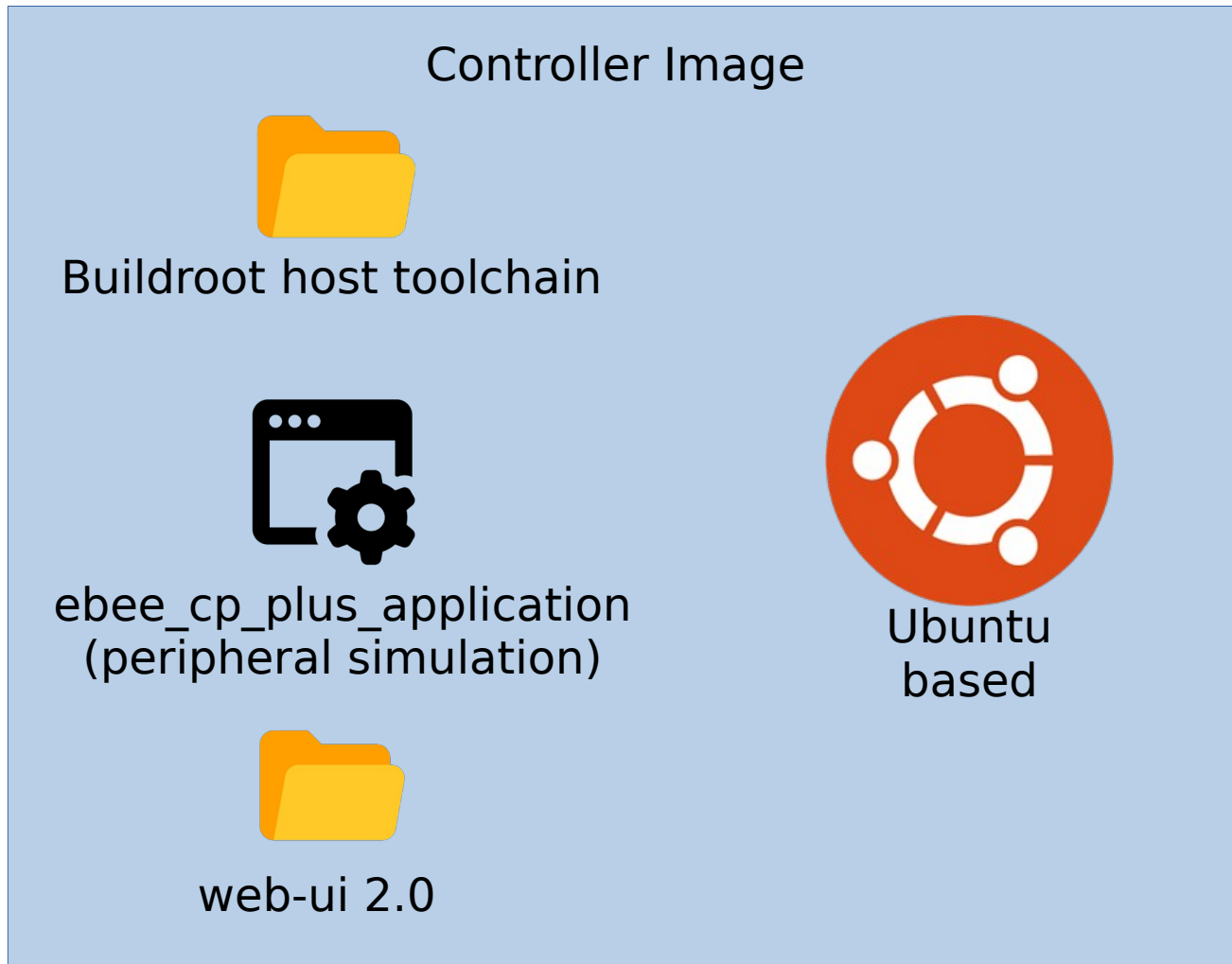
# General Architecture



# Simulation overview



# Simulation overview





**Demo time!**



# Roadmap - Coming soon

- **(In Progress) Run system tests against simulation in CI/CD**
- **(In Progress) Create a dedicated x86\_64 buildroot image for the simulation**
- **(In Progress) Increase number of simulated components**
- **(Not Started) Improve HAL abstraction of mocked components**
- **(Reflection) Shall we keep a in-app based simulation or are there better alternatives?**
- **(Reflection) Is there any benefit on running the simulation in the original arch under QEMU?**



# Closing points

- Interested in using it?

[https://gitlab.com/ebee\\_smart/controller\\_software/-/blob/master/simulation/README.md](https://gitlab.com/ebee_smart/controller_software/-/blob/master/simulation/README.md)

- **Suggestions and Feedback is very much appreciated**

**Questions?**

**Comments?**

**Concerns?**





**Thank you**