

DOCKETED	
Docket Number:	22-EVI-06
Project Title:	Vehicle-Grid Integration
TN #:	256319
Document Title:	ISO 15118 Workshop - Updated Joint Office EVerest Presentation
Description:	This document supersedes TN256282
Filer:	Jeffrey Lu
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	5/13/2024 12:28:00 PM
Docketed Date:	5/13/2024



Joint Office of
**Energy and
Transportation**

open-source

Building an  Future Where Everyone

Can Ride and Drive Electric

K. Shankari, PhD

Principal Software Architect, Standards and Reliability Pillar

California Energy Commission Virtual Workshop

13 May 2024

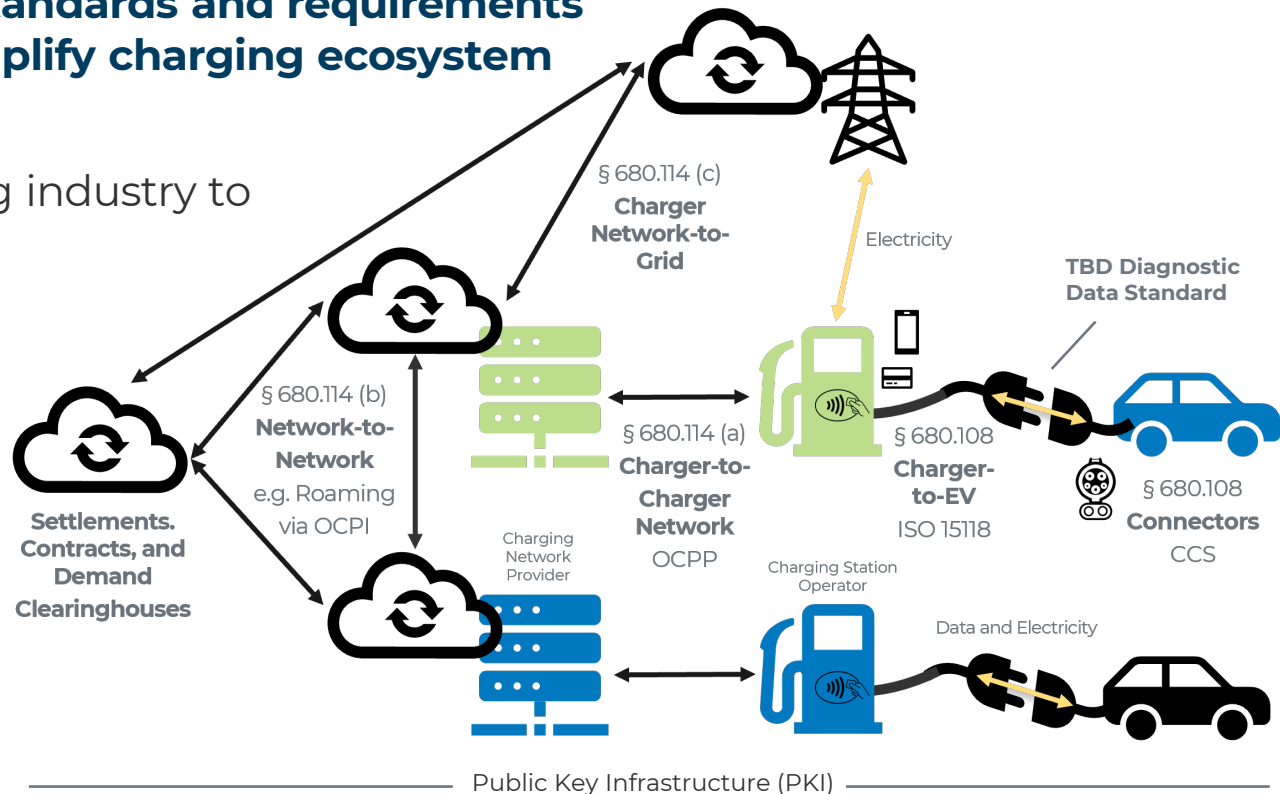
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Simplifying the Charging Ecosystem

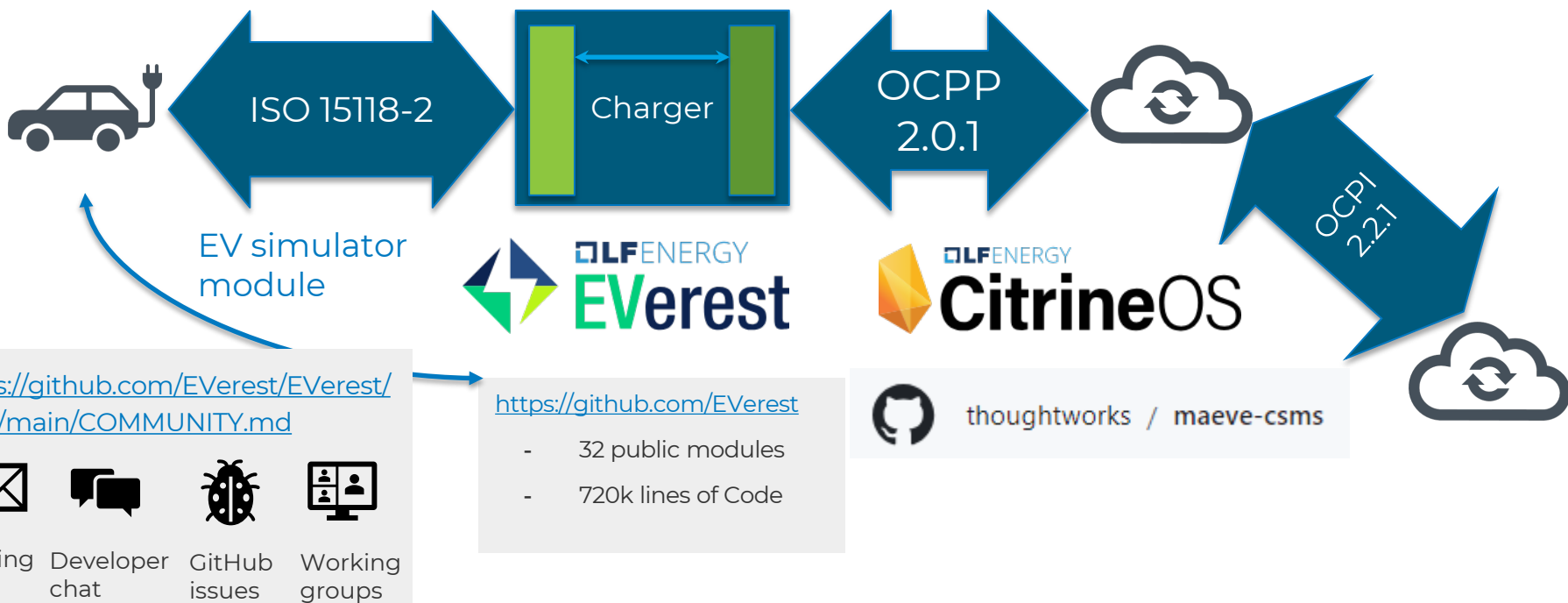
NEVI minimum standards and requirements signal how to simplify charging ecosystem

We are supporting industry to implement:

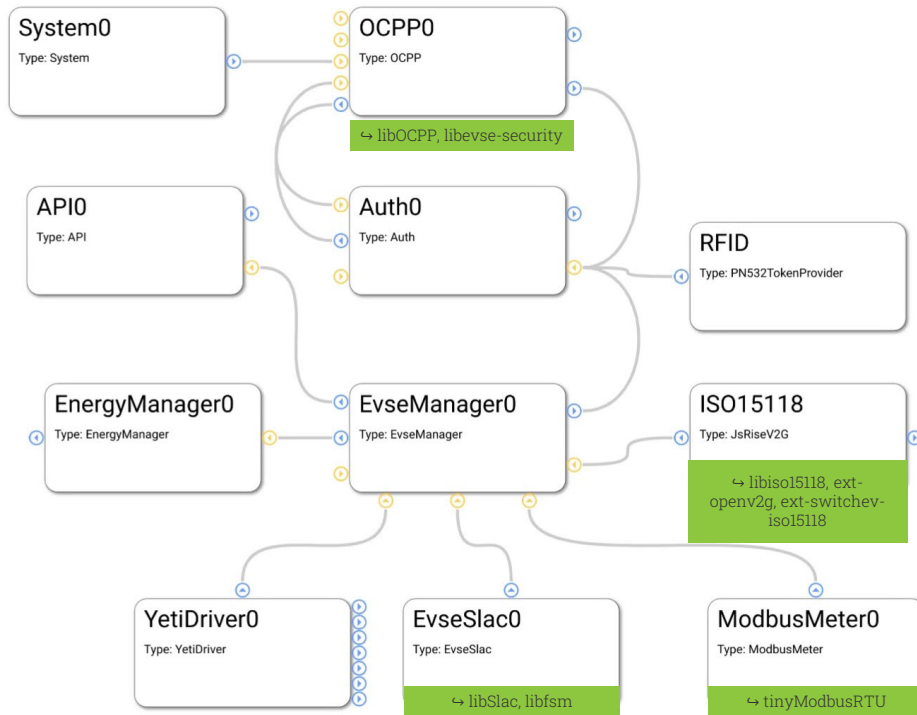
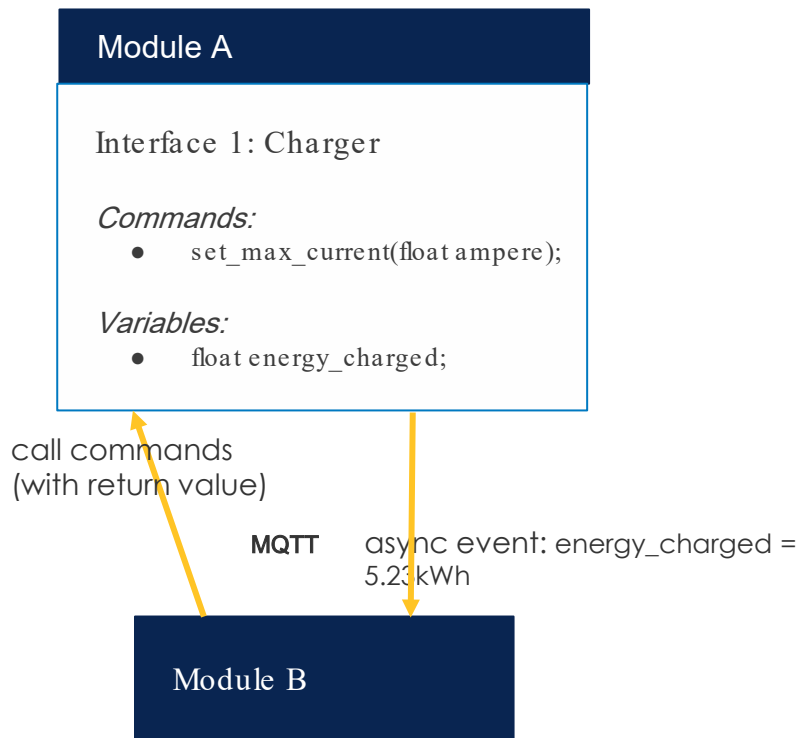
- ❑ OCPP 2.0.1
- ❑ ISO 15118-2



Open source reference implementation of CFR 680

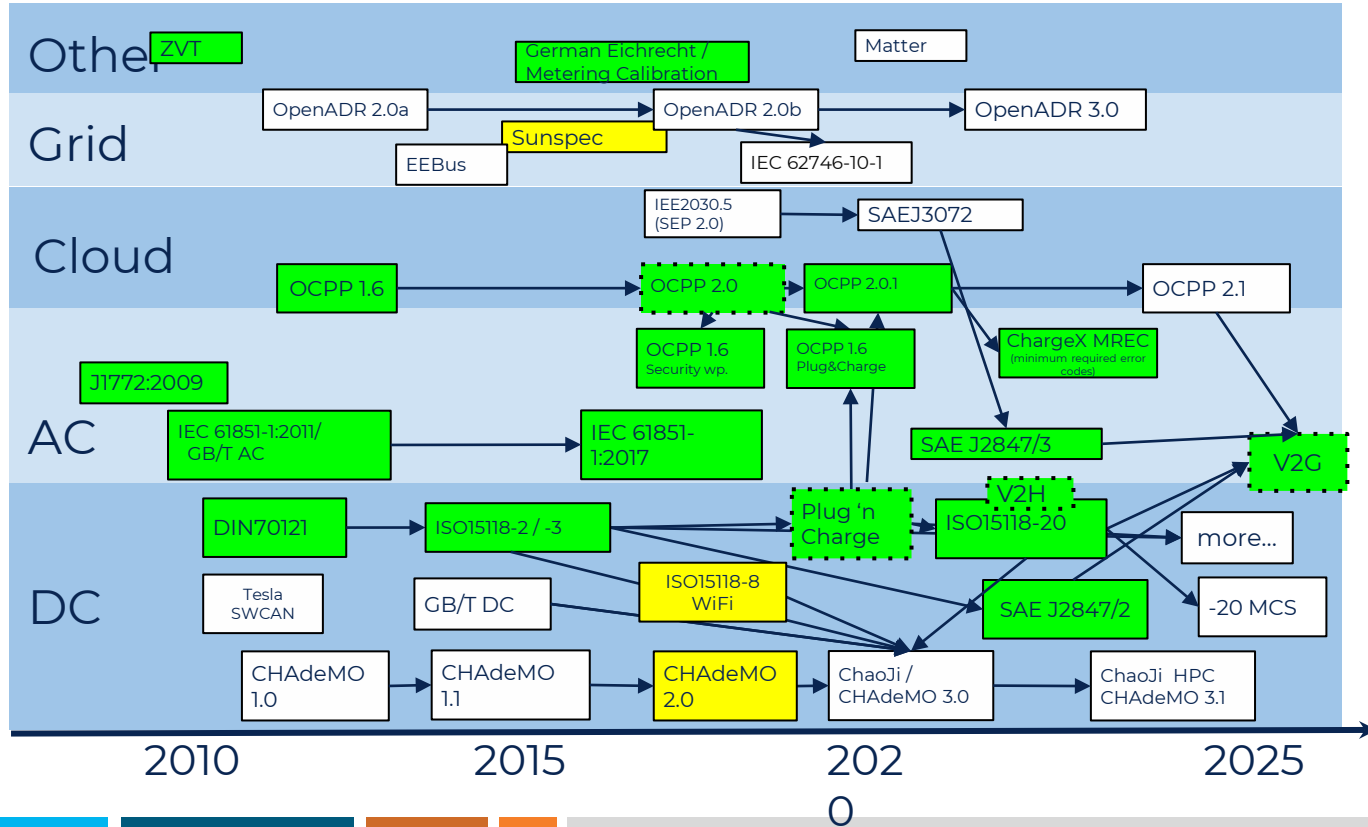


Modular system: Drag and drop to assemble



Build a simple AC wallbox using drag and drop: https://youtu.be/4yIkUCx_OtM?t=1852

Everest: Wide variety of supported protocols



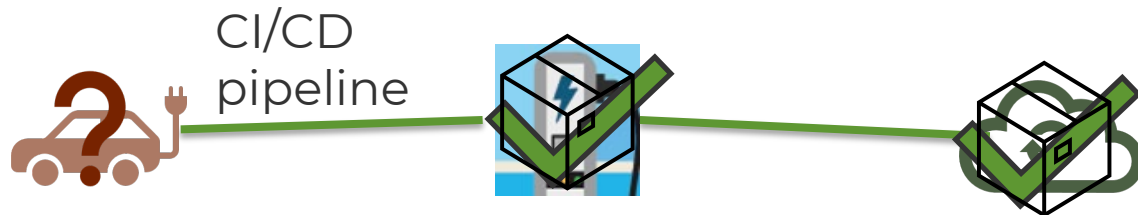
Testing:

greater
reliability
and
interop-
erability

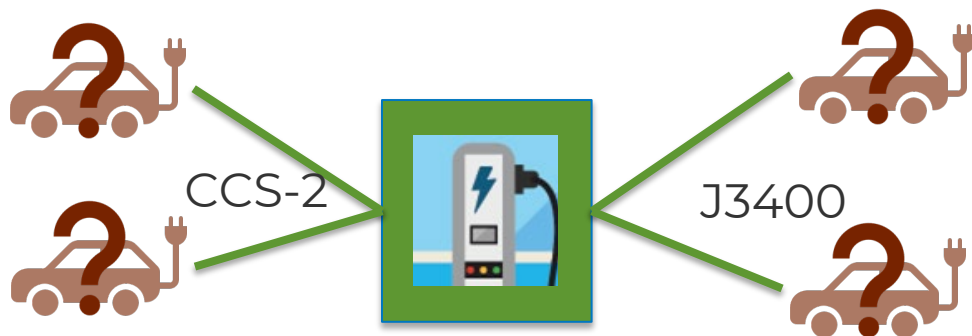
SIL
chaos
engineering



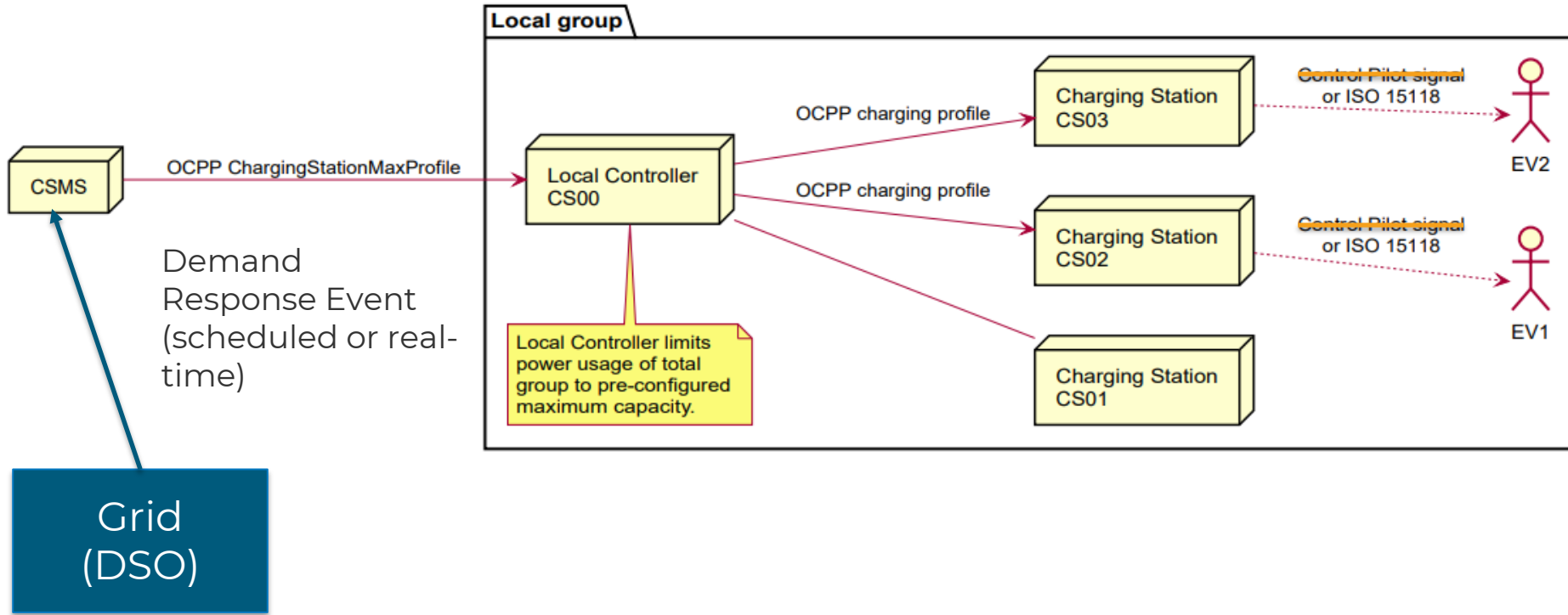
End to end SIL
conformance
testing



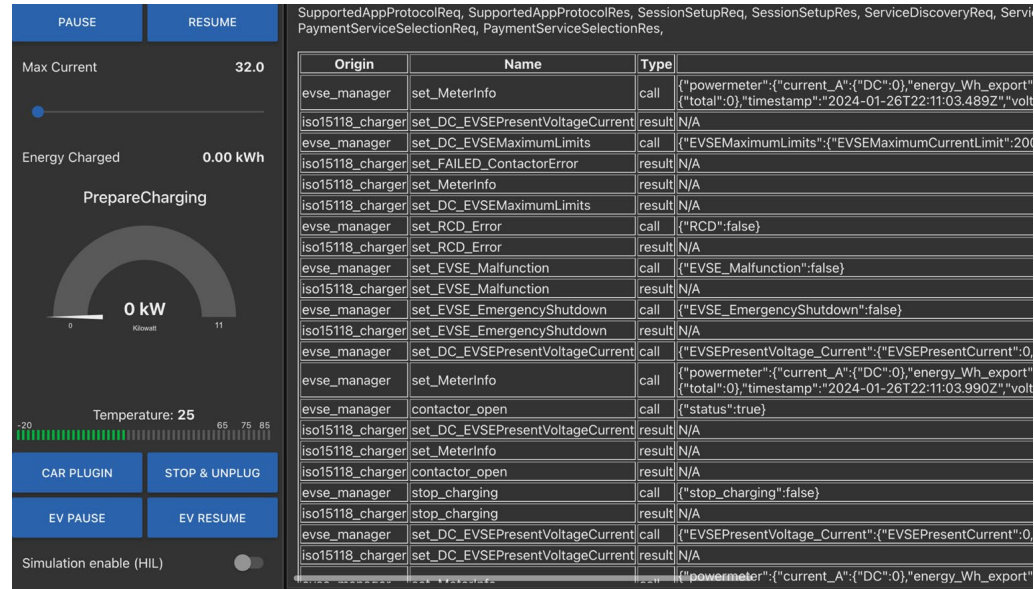
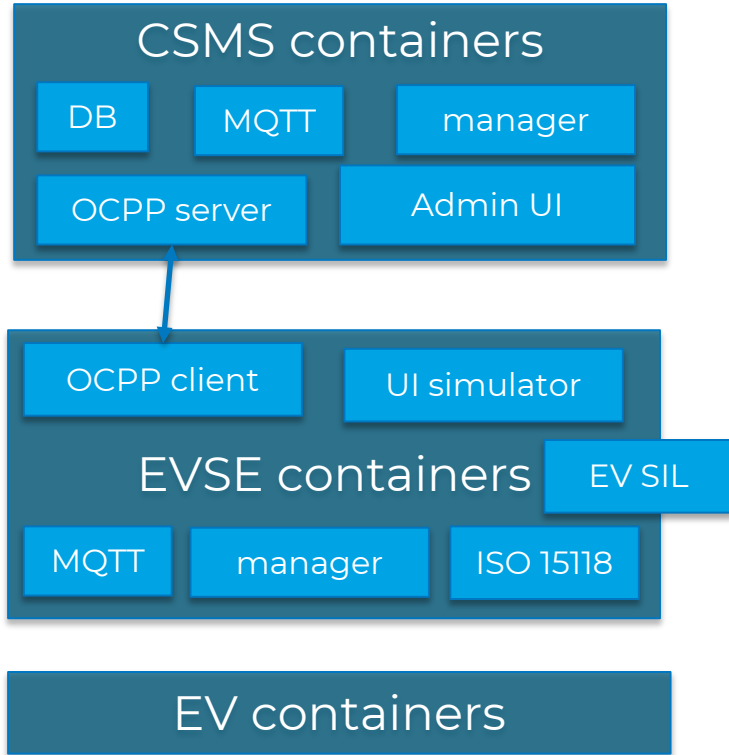
Tabletop
Testival



Beyond the car: VGI and energy management



Single-line Software in the Loop (SIL) demos



More demos, including CFR 680 compliant session
<https://github.com/everest/everest-demo>

Smart charging modules and improved documentation

K01.FR.36	✓
K01.FR.37	
K01.FR.38	
K01.FR.39	✓
K01.FR.40	✓
K01.FR.41	✓
K01.FR.42	
K01.FR.43	
K01.FR.44	✓
K01.FR.45	✓

Schedule Validation Follow-Ups ✓

#537 by christopher-davis-afs was merged 2 weeks ago • Approved  3 tasks done

Make EVSE mockable and add mock ✓

#534 by christopher-davis-afs was merged on Mar 28 • Approved  3 tasks done

tests: Rename K01.FR.39 tests ✓

#533 by christopher-davis-afs was closed last week • Draft  3 tasks done

Accenture
Federal + NREL
Dedicated dev team




Yocto
builds

PKI testing and best
practices in the US
context

Documentation on
writing a new
module for custom
hardware and
plumbing it in

Communities Taking Charge Accelerator: \$54 million in funding available



Topic Area	Anticipated # of Awards	Anticipated Award Range (\$)	Total Funding Available (\$)
 1. Solving for No-Home Charging: Expanding Charging Access for Privately Owned E-Mobility	6-20	\$250,000 - \$4,000,000	\$23,000,000
 2. Expanding E-Mobility Solutions through Electrified Micro, Light and Medium-Duty Fleets	5-15	\$250,000 - \$4,000,000	\$20,000,000
 3. Managed Charging for Clean Reliable Energy	3-6	\$1,000,000 - \$4,000,000	\$11,000,000

Open-source contributions are explicitly required



“The intent is to provide resources and solutions into ecosystems supporting open-source distribution and may also contribute to Standards Development Organizations (SDO) for industry consensus.”

“When applicants apply to one or more Topic Areas for which open-source software distribution is required, applicants must submit an Open-Source Software Distribution Plan as part of their Full Application.”

Deadline: May 20, 2024

Hop on the open-source EV charging bandwagon!



thoughtworks

/ maeve-csms



OpenChargingCloud / WWCP_OCPC



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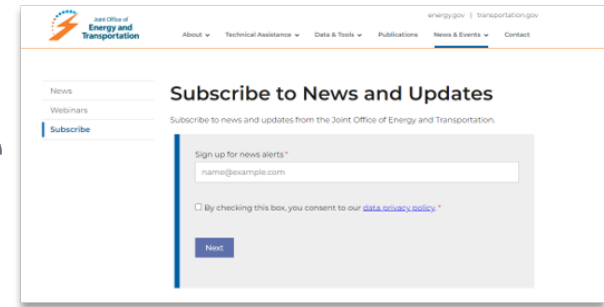
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A screenshot of the Joint Office of Energy and Transportation website. The header includes the logo and navigation links: About, Technical Assistance, Data & Tools, Publications, News & Events, and Contact. On the left, there are links for News, Webinars, and a highlighted Subscribe button. The main content area is titled 'Subscribe to News and Updates' and includes a sub-header 'Subscribe to news and updates from the Joint Office of Energy and Transportation.' Below this is a form with a label 'Sign up for news alerts *', an email input field with the placeholder 'name@example.com', and a checkbox with the text 'By checking this box, you consent to our [data privacy policy](#) *'. A 'Next' button is at the bottom of the form.

Upcoming Events

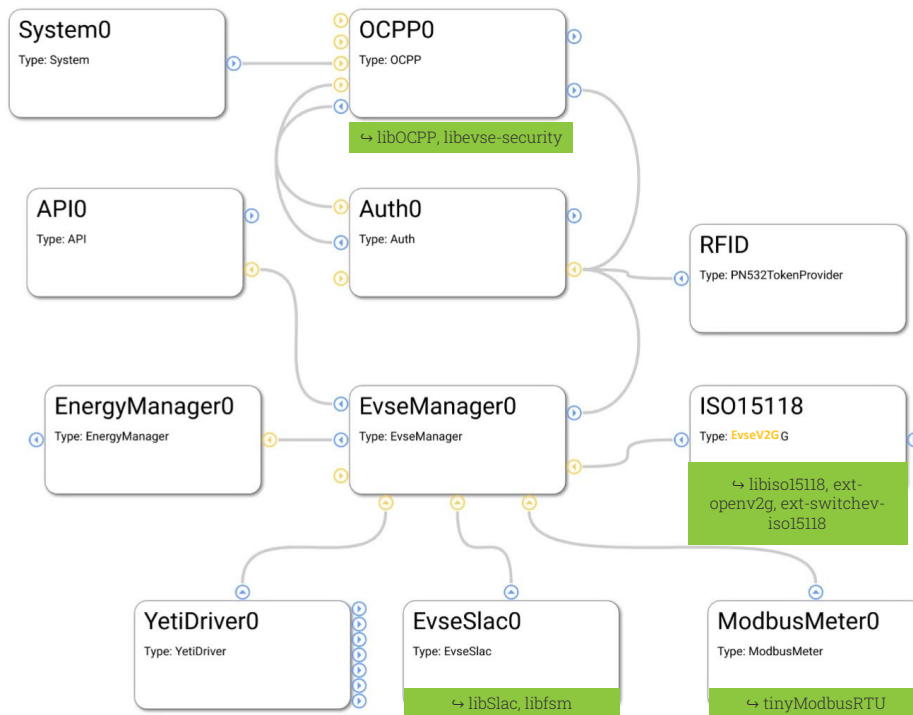
- 5/15: [Open EV Charging Summit](#) (Dallas, TX)
- 5/20-23: [ACT Expo](#) (Las Vegas, NV)
- 5/23: [Reliability Strategies for EV Charging Webinar](#)
- 6/11-14: [CharIN Festival and Conference North America](#) (Cleveland, OH)



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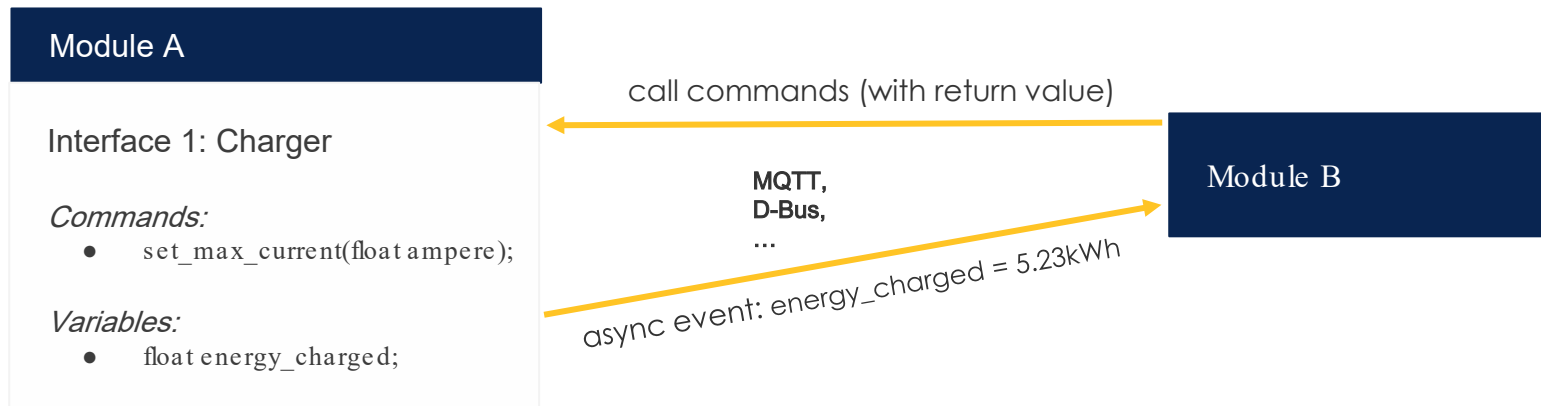
Everest is a module system AND a huge set of supporting libraries



<https://github.com/EVEREST>

- 32 public modules
- 34 Repositories
- 720k lines of Code
- easily extendable

Microservice architecture



Typical architecture found in many commercial solutions for EV charger software

- Each module is a separate Linux process
- Use publish/subscribe pattern (e.g. MQTT) for communication between modules

Research project modules can fill production gaps

