



Eclipse BlueChi™

Multi-node service controller for
Automotive and Edge

<https://github.com/eclipse-bluechi/bluechi>

Agenda

- Introducing Eclipse BlueChi™
- Architecture and Components
- Eclipse BlueChi in Action

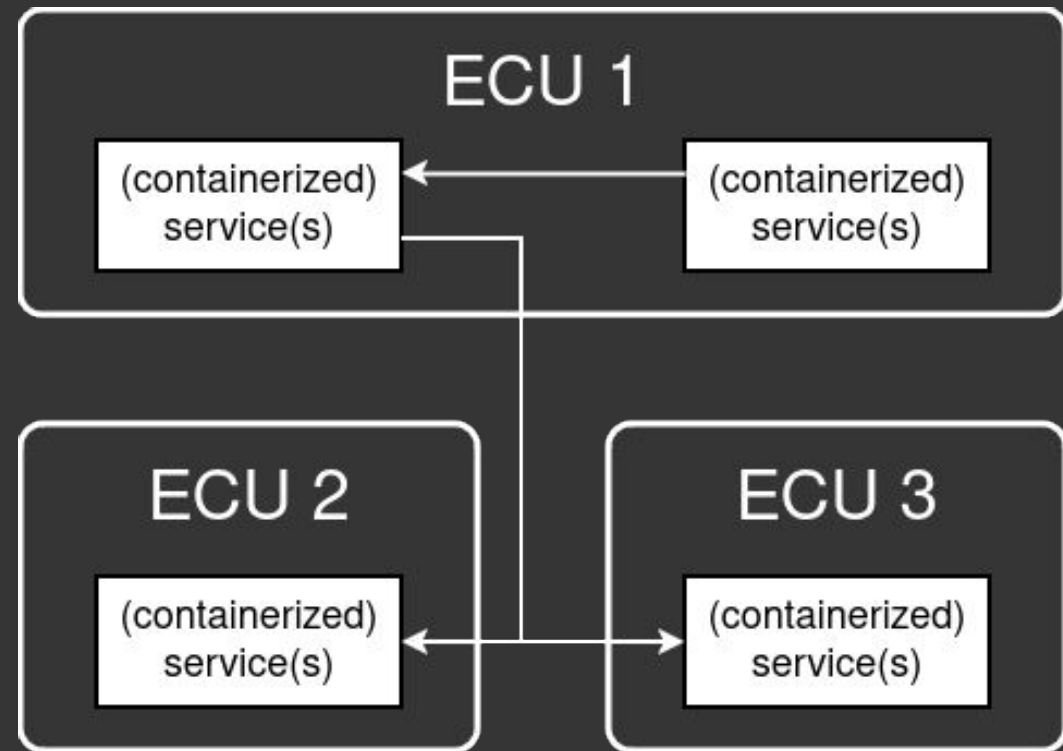


Introducing Eclipse BlueChi™

The problem

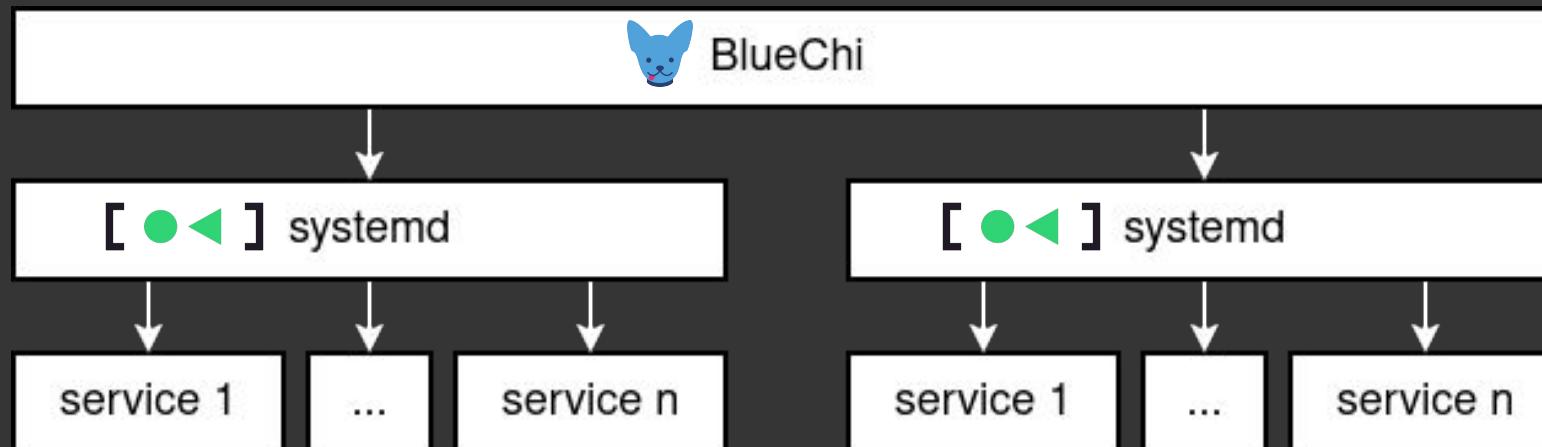
Automotive has a need for a workload orchestrator, which is

- deterministic
- lightweight and fast
- able to control containerized applications
- and FuSa certifiable



The idea behind BlueChi

- systemd controls local services
- BlueChi adds a thin layer to enable remote management



Introducing: Eclipse BlueChi



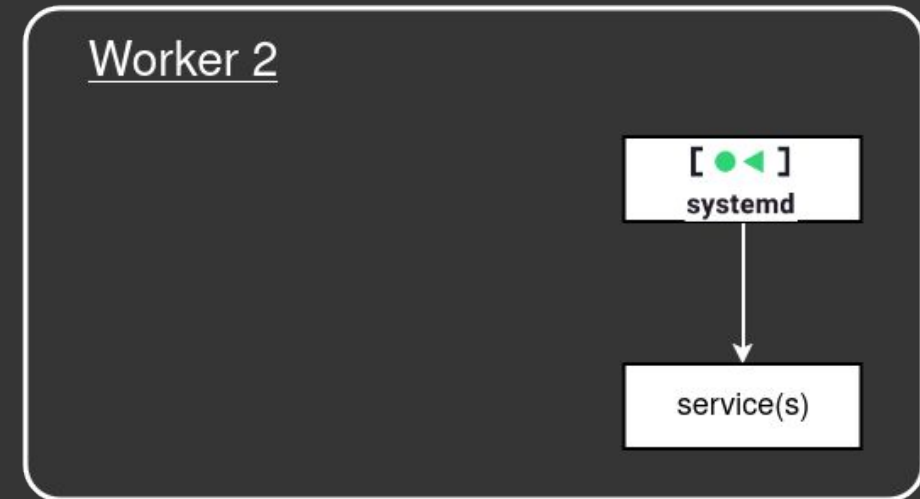
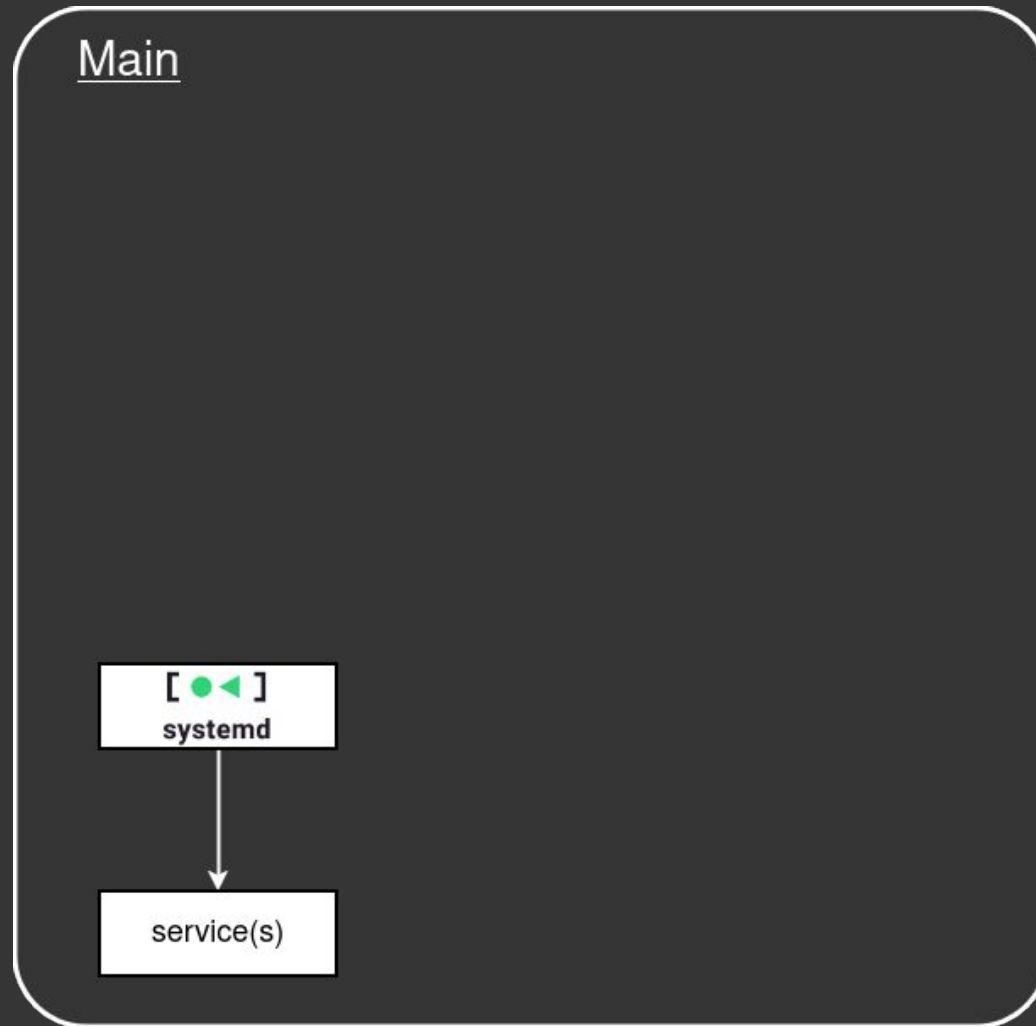
- extends systemd for multi-node environments
- focus on highly regulated ecosystems
- written in C

<https://github.com/eclipse-bluechi/bluechi>



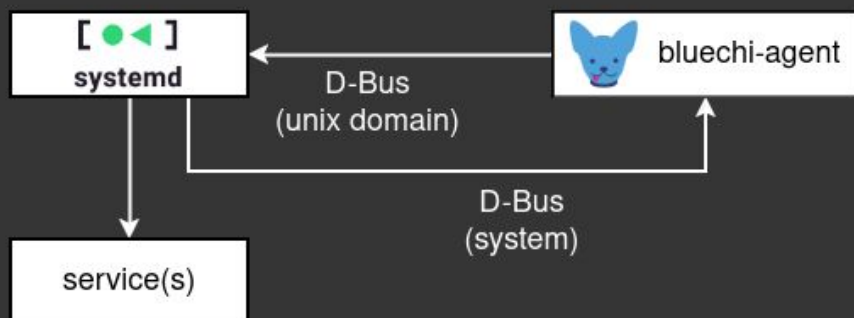
Architecture and Components

Architecture and Components

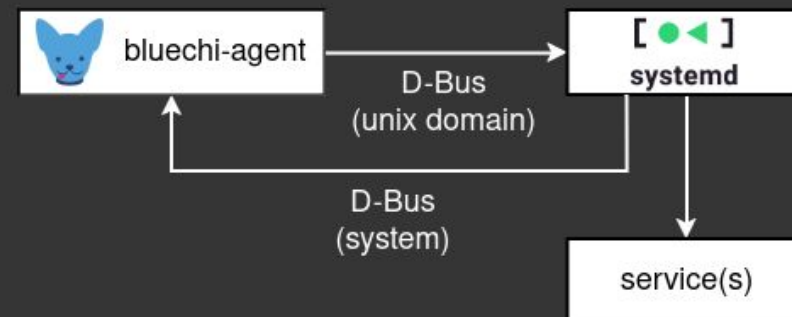


Architecture and Components

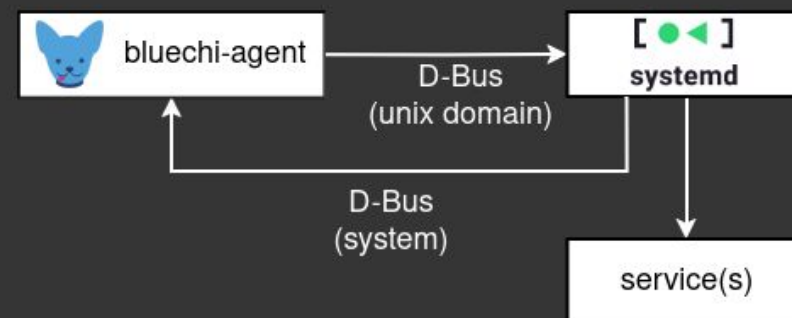
Main



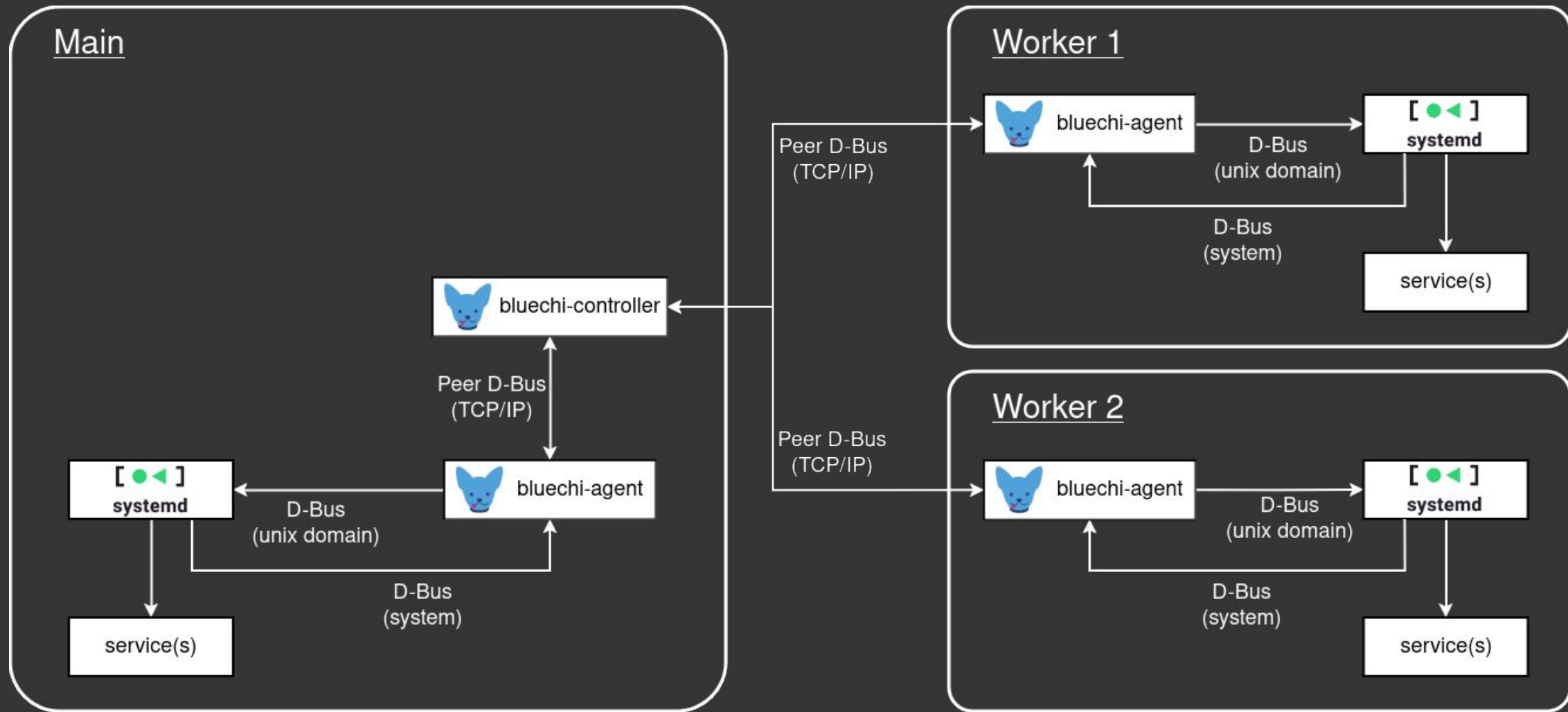
Worker 1



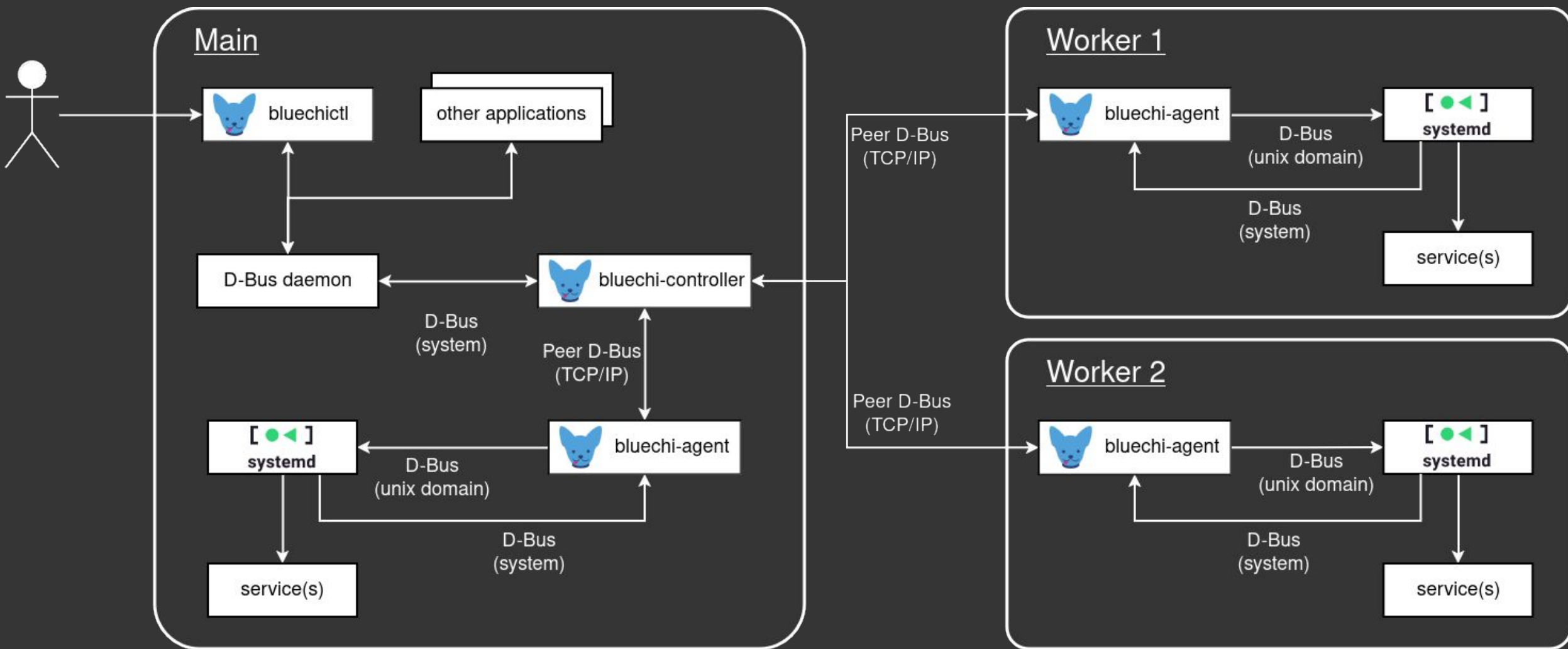
Worker 2



Architecture and Components



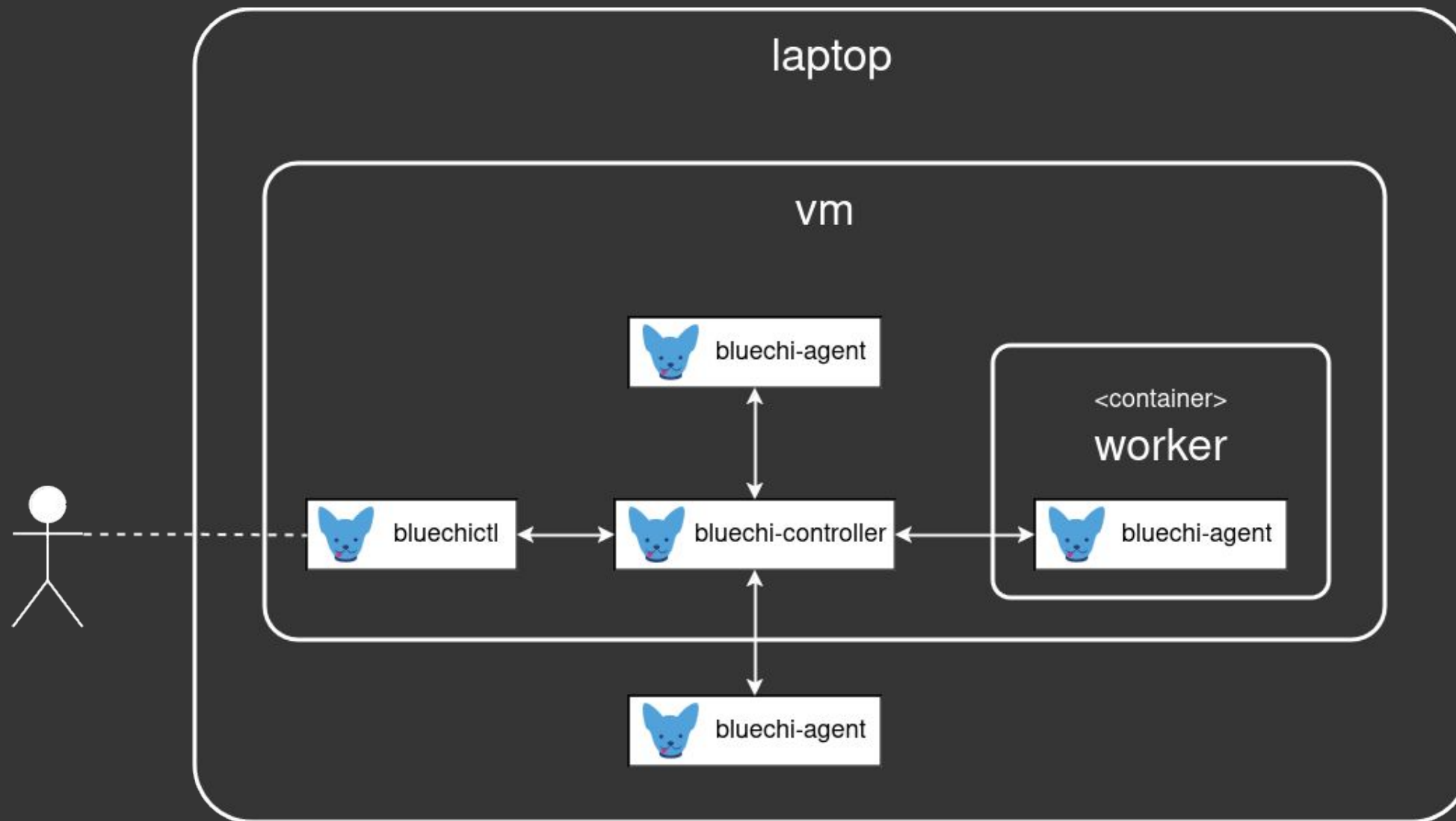
Architecture and Components



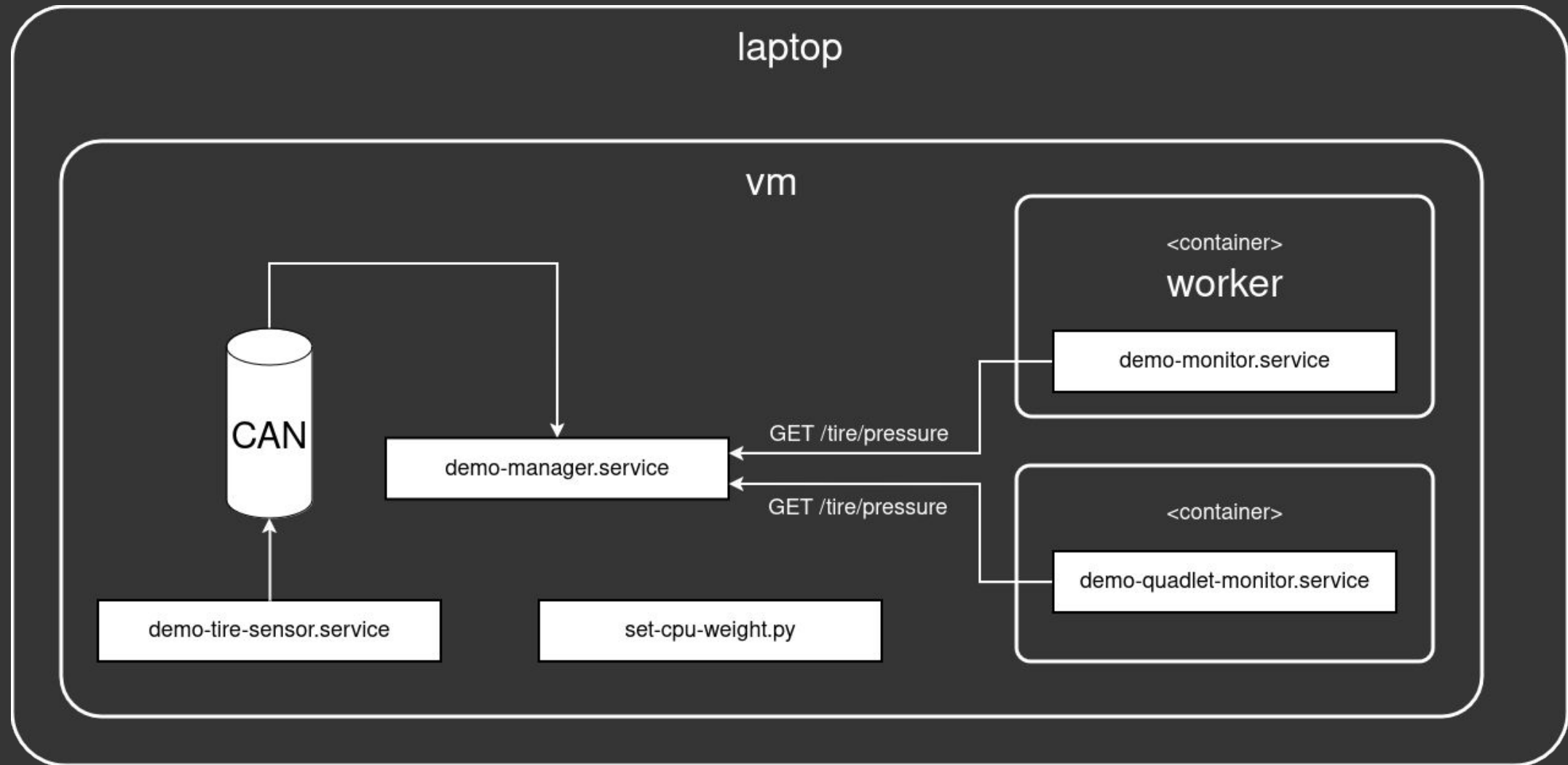


Eclipse BlueChi in Action

Demo: BlueChi setup



Demo: Applications





Demo

<https://github.com/eclipse-bluechi/bluechi-demos/tree/main/workshop-october-2024>

Questions?

GitHub Repository: <https://github.com/eclipse-bluechi/bluechi>

Eclipse Project Page: <https://projects.eclipse.org/projects/automotive.bluechi>

Additional Links

1. BlueChi – Ansible Collection

https://galaxy.ansible.com/ui/repo/published/eclipse_bluechi/bluechi/

2. Securing BlueChi's D-Bus connection

<https://www.redhat.com/en/blog/securing-d-bus-based-connections-mtls-and-double-proxy>

3. Make systemd better for Podman with Quadlet

<https://www.redhat.com/sysadmin/quadlet-podman>

4. Exemplary D-Bus libraries

- <https://github.com/dasbus-project/dasbus>
- <https://github.com/godbus/dbus/>
- <https://github.com/diwic/dbus-rs>

Additional Links

5. Rust crate for dubs-codegen

<https://crates.io/crates/dbus-codegen>

6. BlueChi – Typed Python bindings

https://bluechi.readthedocs.io/en/latest/api/client_generation/#typed-python-client

7. BlueChi Presentation at DevConf.cz 2024 (with resource utilization data)

<https://pretalx.com/devconf-cz-2024/talk/3MEDPW>

Secure communication

- Communication between controller and agent is unencrypted
- Encryption of Peer D-Bus connection via double-proxy:

