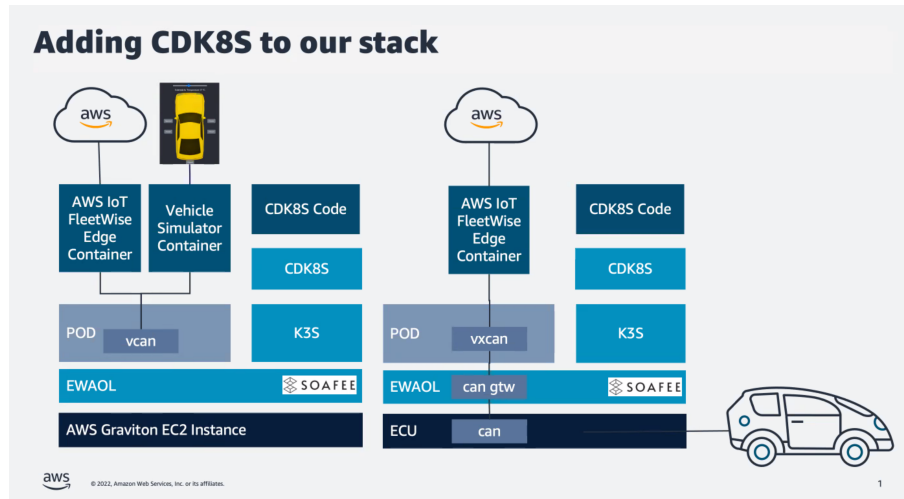# Mar 10 F2F Meeting

Workload Orchestration Presentation from AWS

Francesco Salamida : please kindly upload your slides to substitute the screenshots.

- CDK8S
  - CAN
    -
    - socket can
    -
    -
- Rust VMM
  - Virtualization components written in Rust
  - Build as separate libraries that can be re-used in multiple implementations

- Open Source Project with open governance
  - AWS
  - Intel
  - Alibaba
  - Google
  - Linaro
  - Red Hat

What is rust-vmm?

Virtualization components written in Rust

Build as separate libraries that can be re-used in multiple implementations

Open Source project with open governance:

- AWS
- Intel
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- Google
- Linaro
- Red Hat
- Individual contributors
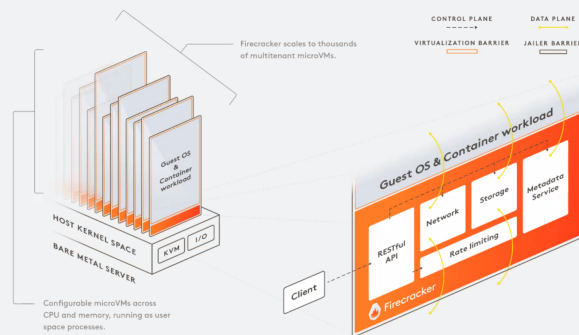
Why rust-vmm?

Faster development for new custom VMMs

Security & Testability

Clean interface

Reduce code duplication

Supports virtio and KVM

Firecracker is based on rust-vmm

Example feature: Save/Restore

Firecracker Snapshot functionality

Run a microVM, pause execution, save state, stop

Start a microVM from previously saved state

[Used by AWS Lambda](#) to speed up execution of functions

VM start-up time can be reduce to 2 msec

aws
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- K3s: how heavy it is?
    - light-weight

Brainstorm for White Paper

Background Questions

- What is SDV?
- Why SDV is important?
    - Reduce development life-cycle
    - Increase reusability of SW components
    - Everyone can develop application softwares for automotive just like mobile phone.
        - https://digitalauto.netlify.app/
        - OEMs can utilize application as ecosystem to provide more end-user values
        - However, due to the automtoive natures, such kind of applications need filitering to guarantee safety and security
            - Application Firewall
            - App Store only certificated apps can enter vehicle
    - Walt: Mabye SDV will be only applied to EV? Will it still be able to happen in the cubustion cars?
- What is micro-service?
- Why micro-service is important?
- What does micro-service mean to AGL?
- What's the future AGL should be?
    - What kind of use case should AGL need to support?
        - How SDV can change people's life?
        - How a SDVized AGL can provide additional values to end users?

Scope of AGL in terms of Software Defined Vehicle

- **What is scope of AGL? Some stragic discussions may be needed in SC/AB level.**
    - **Extend More flexible for more use cases (EV, ADAS and etc.)**
    - **Shrink Bring up quality of current AGL scope (infotation) to make it more production-close**
        - **prodution-close can has two definitions:**
            - **Get ready for short-term product SDV may have a little help here**
            - **Get ready for long-term product SDV is get ready for the future infortainment needs**
- What will be the focus of AGL in domain point of view?
    - only infotainment
    - infotainment and telematics
    - or extend to EV related field (such as battery management)
    - or extend to ADAS/AD
- What will be the focus of AGL in technical point of view?
    - Environment Partity
    - Workload Orchestration
    - else?

Technical Insights

- Workload Orchestration
    - What is the suitable container (runtime) type
    - What will be the requirement for automotive orchestrator?
        - Is k3s a good one?
        - If no, what's the gap
    - Any lightweight VMM suitable for the AGL?
        - crosvm?

- rust-vmm?
- Environment Parity
  - Device Virtualization in the Hypervisor Environment
  - Device Virtualization in the Non-Hypervisor Environment
  - Device Virtualization across ECUs
  - Device Virtualization across Cloud and Edge