linaro Connect 2025

LIS25-308 Building Bridges: Contributing to KubeVirt and Enabling Multi-Arch Support

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Aganda

- What KubeVirt is
- Key Processes of the Contribution to the KubeVirt Project
    - Functional Verification and Enablement
    - Build Enablement
    - Testing Enablement
    - Integrating Arm64 Testing to the CI Lane
- Good to Do to Build Relationships With the Community

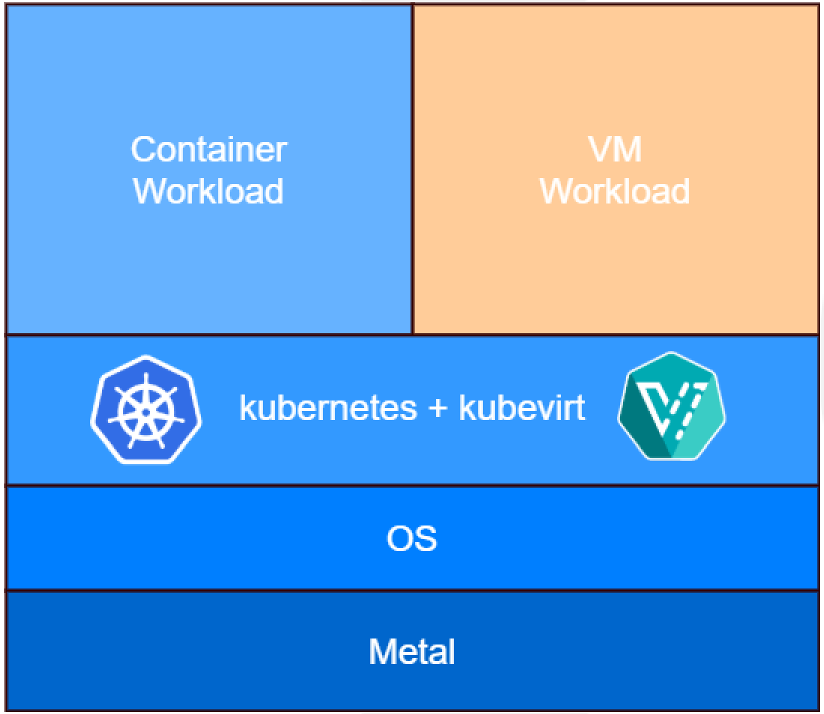
What KubeVirt is

- A way to run Virtual Machines on Kubernetes

- This project is leaded by Red Hat

- Red Hat OpenShift Virtualization and SUSE harvester is based on KubeVirt

- It had become an incubating project in CNCF in April 2022. Now, we are in the graduation process.



Our contributions in KubeVirt project

1. Made KubeVirt works on Arm64 server
    - The patch sets submitted on May 4, 2020, and got merged on Apr 14, 2021
2. Enabled cross build tool and made multi-arch KubeVirt image released
3. Enabled e2e tests in docker in docker environment
4. Integrated Arm64 server into KubeVirt CI lane
5. Added Arm64 Unit tests and E2E tests in pro-submit process of PR submission
6. Enable KubeVirt child project containerized-data-importer on Arm

Functional Verification and Enablement

- Functional Verification and Enablement
  - Read the code and figure out how it works
  - Understand the main gaps in enablement
  - Design a solution on how to solve the issue and write a draft code

- KubeVirt
  - The Main gap, Virtual Machine XML configuration is different between x86_64 and Arm64
  - VM Memory footprint is different from Arm64 and x86_64
  - Design the code, where we should add the differentiated code

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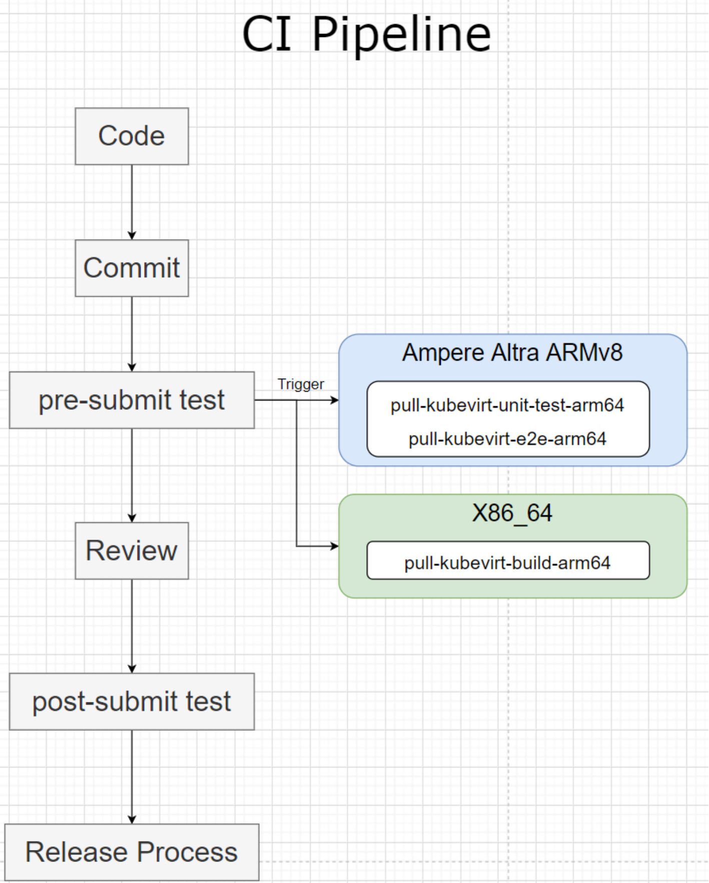
Testing Enablement

- Test verification and enablement
  - Unit test, integration test, E2E test
  - Arch-specific test writing
  - E2E test, test environment
    - Minimum test sets at the first

- KubeVirt
  - E2E test environment
  - Nested virtualization VS Docker in docker environment

Integrating Arm64 Testing to the CI Lane

- Aline the system with the community CI line
  - OS, Softwares, System settings
- Stability testing, and test result publishing
  - Verify the testing locally first
  - Then verify the stability in the community CI line
  - Finally, publish the test result to users



Good to Do to Build Relationship with the Community

1. Build a clear Road map on different issues
   - https://github.com/kubevirt/kubevirt/issues/3558
2. Actively join community meetings or events
3. Give quick responses to the community
   - Regularly check if there are some Arm issues and reply
4. Continue making contributions and keep in touch with the community
5. Do review works

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Thank You!