TF-A Project OpenCI

Status

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TF-A OpenCI System Introduction

• TF-A Project CI (Continuous Integration) System Challenges
  • TF-A was originally an Arm project before establishing as a Trustedfirmware.org project
  • TF-A project has relied on Arm Servers to provide a TF-A project CI
  • CI invocation and reporting to contributors is a manual process
  • CI results reporting is opaque to broader project membership
  • Barrier to efficient processing of contributor patches
  • Limited opportunities for contributor community to extend

• OpenCI System Solution
  • Migrate the existing CI onto Trustedfirmware (Linaro Hosted) Servers in phases
    – Funded as part of Trustedfirmware.org board budget allocation
    – Redesigned and secured for more public use/access
    – CI results available directly to project contributors
    – Leads to a more transparent reporting of the quality assurance performed on the project code base
    – All CI scripts and Jenkins jobs shared in opensource repositories, so extensible by the community
TF-A OpenCI System Current Capability Status

• Current OpenCI Capabilities
  • Daily runs of the CI on the Integration branch.
  • Manual gerrit instigated CI runs on patches under review. Two levels of tests (L1 and L2) using the AllowCI label being given the value +1 or +2
  • OpenCI Infrastructure
    – Documented in a User Guide
    – Relies on Jenkins and LAVA to coordinate build/tests jobs
    – Static Analysis checking
    – Makes heavy use of FVP models and the Arm Juno board as test targets
    – Uses TF-A Tests and Boot tests to test various Feature and System build combinations
    – Builds all platform code upstreamed, however these are not (yet) runtime tested
    – Staging CI available in addition to production CI for CI development/testing

• Status
  • OpenCI live and available for project members to use
    – Can be used to validate patches for integration (sets the Verified+1 label)
    – Perform a nightly run on the integration branch to verify merge to master branch
TF-A OpenCI System Evolution

• Future Evolution
  • Developer guidance and documentation for work flow usage
    – Shared draft document, soon OpenCI documentation repository will be created
    – Extendable by project community with public repositories
    – Proposal for an OpenCI mailing list for contributor discussions
  • Arm CI can be run in parallel separately while OpenCI continues to be extended/evolved.
    – If run any issues identified will be posted as review comments
    – Eventual plan is to decommission once gaps have been addressed
  • Future items under consideration at different priority levels
    – Partner Platform additions (Ongoing)
    – Missing public FVP’s + test enablement (Ongoing)
    – Windows Build Server (Planned backlog)
    – Code Coverage (Planned backlog)
    – Quality Metric Tracking(Planned backlog)
    – MISRA Testing (Blocked)
    – ...
OpenCI References

• References
  • https://ci.trustedfirmware.org
  • https://review.trustedfirmware.org/q/project:TF-A/trusted-firmware-a
  • https://git.trustedfirmware.org/ci/tf-a-ci-scripts.git/
  • https://git.trustedfirmware.org/ci/tf-a-job-configs.git/
Thank You
Danke
Gracias
谢谢
ありがとうございます
Asante
Merci
감사합니다
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ধন্যবাদ
תודה