TF-A Project OpenCI

Status

Joanna Farley

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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

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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

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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)
    - …

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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/

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Thank You
Danke
Gracias
谢谢
ありがとう
Asante
Merci
감사합니다
ધન્યવાદ
Kiitos
شكرًا
ধন্যবাদ
תודה