Continuous integration on SEAPATH

A continuous integration (CI) process has been implemented in order to build and deploy a custom cluster and automatise the periodical validation of the development. Source code can be found in https://github.com/seapath/ci.

The CI is based on a Jenkins server that has been completely dockerized in order to guarantee its reproducibility and scalability.

Remote actions are achieved thanks to Ansible playbooks.

Jenkins

Jenkins is an open source automation server that permits the periodical build, test, deployment or other tasks that need to be automated such as code synchronisation.

The main CI job can be divided into different stages:

- Fetch source code from SEAPATH GitHub.
- Build Yocto images for the cluster machines
- Flash the cluster machines with the newly created images (this is done thanks to a PXE mechanism) and reboot them
- Configure the cluster
- Deploy the VMs on the cluster

As shown on the diagram, each step of the chain is validated with the corresponding Cukinia tests and results collected on the CI Jenkins server.
Jenkins UI

Jenkins offers a web UI to configure, manage and follow the progress of its jobs. As shown in the following picture, the stage view shows job information such the progress of the pipeline execution or the trend of the test results for the consecutive job executions.
Analyse tests result

The results of the Cukinia tests run on the cluster are retrieved and displayed on the Jenkins UI.

Blue Ocean View

The Blue Ocean plugin offers an intuitive UI that simplifies the view and edition of a pipeline. It also permits re-running stages for a determined build.
Log information

The complete output of a job execution can be obtained as well as the partial logs for each stage, as shown on the following picture.

RT test results

In order to validate the real-time requirements of the SEAPATH project, the CI also permits to execute cyclic tests on the VMs and retrieve the results.