

Bluval - Akraino blueprint validation framework



This is a draft and work in progress

- [Introduction](#)
- [Requirements](#)
- [Technical guidelines](#)
- [Test cases bundle for different layers](#)
- [BluVal implementation Overview](#)
- [BluVal installation and execution](#)
- [Distro support](#)
 - [Kubernetes and setup details](#)

Introduction

BluVal is a diagnostic toolset framework to validate different layers in the Akraino infrastructure developed and used in Akraino edge stack. BluVal integrates different test cases, its development employs a declarative approach that is version controlled in LF Gerrit. They are integrated in CI/CD tool chain where peer Jenkins jobs can run the test cases and the results are reported in LF Repo (Nexus). The test cases cover all blueprint layers in the cluster.

Requirements

- Support Kubernetes
- Integrate with LF Gerrit
- Run well in an Akraino validation lab
- Store test results in a database

Technical guidelines

To support python3

To be fully covered by unit tests

To provide docker containers and manifest for both architectures supported: amd64 and arm64

To publish the documentation online

Test cases bundle for different layers

Akraino Edge Stack Validation Toolset

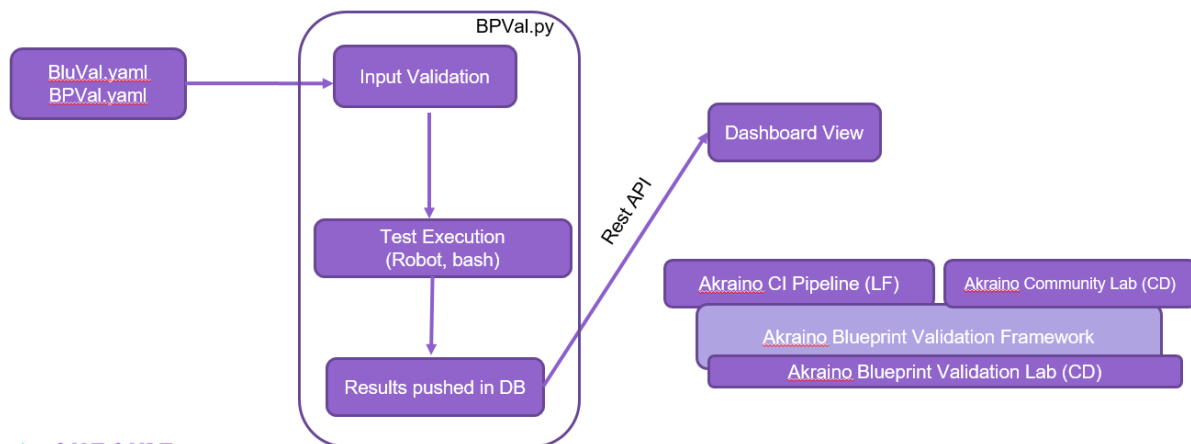
Layers	Test Cases
Hardware Baremetal	IP connectivity validation, MAC data validation, Boot sequence validation, Hardware health validation, RAID configuration validation
BIOS version	Firmware validation, Numa, Drives block devices
OS	Linux Test Project, Linux kernel performance test tool
K8s	Kubetest, Conformance Sonobuoy, K8s High availability
Openstack	Tempest, Rally, Shaker
Ceph	
ONAP	
VNF	VNF SDK, Sample VNF
Application	



BluVal implementation Overview

bluval.py runs the tool-set to test the REC Akraino validation framework. It performs the following actions:

1. Input validation
2. Test execution
3. Results pushed in DB
4. Dashboard view



BluVal installation and execution

bluval.py toolset project is from Akraino gerrit (Linux Foundation credentials required). It is to be cloned into /opt/akraino on the designated Regional controller or test host.

For cloning 'git clone' command can be used as shown in the below procedure:

This is how you can validate the bluval engine setup, if you have proper connectivity it should show some testcases in PASS status.

```
ns156u@aknode82:~$ git clone https://gerrit.akraino.org/r/validation.git
ns156u@aknode82:~$ cd validation
ns156u@aknode82:~/validation$ python -m venv .py35 # First time only
ns156u@aknode82:~/validation$ source .py35/bin/activate
(.py35) ns156u@aknode82:~/validation$ pip install -r bluval/requirements.txt # First time only
(.py35) ns156u@aknode82:~/validation$ python bluval/bluval.py -l hardware dummy # this will run
hardware test cases of dummy blue print
(.py35) ns156u@aknode82:~/validation$ deactivate
```

Distro support

In order to keep the test infra small, only a limited number of distros may be supported. Others can be added easily if needed. At the moment, the Vuls tests support

- Ubuntu 16
- Ubuntu 18
- CentOS 7
- CentOS 8

Kubernetes and setup details

The pre-requisite for the bluval engine to test kubernetes test cases are listed below:

- Three node setup - With atleast one master and 2 worker nodes
- Testcases executed successfully on Kubernetes 1.18.6 and 1.17.2 versions