ViNePerf Nile Release Planning

Overview

Project Name	Enter the name of the project
Target Release Name	Nile
Project Lifecycle State	Incubuation

Scope

ViNePerf provides an automated test-framework and comprehensive test suite based on industry standards for measuring the data-plane performance **in different cloud environments**. Dataplane in a cloud includes different switching technologies with **physical** and **virtual** network interfaces, and carries traffic to and from workloads running as **virtual-machines and containers**. The architecture of ViNePerf is agnostic of cloud-type, switching-technology, and traffic-generator. ViNePerf allows user to **customize the test-cases**, network-topology, workload-deployment, hardware-configuration, and the versions of the software components such vswitch, vnf, cnf, cni, etc. ViNePerf can be used both **pre-deployment and post-deployment** of the cloud. Though ViNePerf architecture is designed for evaluation of dataplane of clouds in **Lab environments**, it can also be in **production clouds**. ViNePerf methods follows standards developed by the **IETF** and **ETSI NFV**, and contribute to the development of new standards.

Requirements

Provide a list of features or use cases, documented as Epics or Stories in Jira. Use the Jira issue insertion feature for Confluence.

1. Automate setting up eBPF programs for Baremetal usecases- similar to OVS-DPDK/VPP.
   a. Task: https://jira.anuket.io/browse/VINEPERF-676
2. Automate setting up eBPF-based CNIs - xdp, cilium, calico.
   a. Task: https://jira.anuket.io/browse/VINEPERF-677
3. Improve the ViNePerf Build Stability
   a. Task: https://jira.anuket.io/browse/VINEPERF-675
4. Newer Software Versions
   a. Epic: https://jira.anuket.io/browse/VINEPERF-673
   b. Tasks:
      i. DPDK
      ii. Qemu
      iii. Operating Systems
      iv. Containers
5. eBPF Metrics Collection
   a. Tool to collect metrics from eBPF programs.
   b. Task: https://jira.anuket.io/browse/VINEPERF-674
6. Enhance X-Testing and ViNePerf Integration
   a. Epic: https://jira.anuket.io/browse/VINEPERF-652
      i. Tasks: https://jira.anuket.io/browse/VINEPERF-654, https://jira.anuket.io/browse/VINEPERF-658
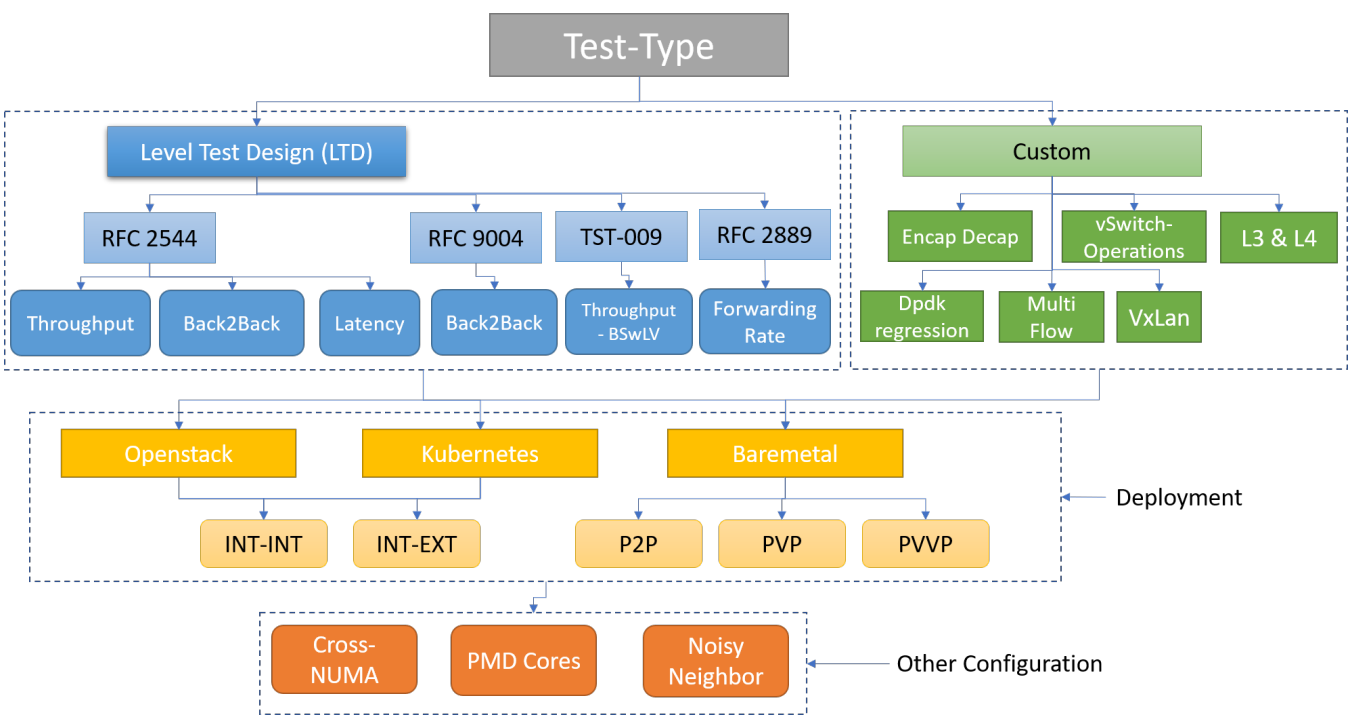
Release Artifacts

Indicate the work product (Executable, Source Code, Library, API description, Tool, Documentation, Release Note, etc) for this release.

Name	Description	Format (Container, Compressed File, etc.)

Feature Enhancements, Additional Tool Support, Newer Software Versions Stability Improvement		Source Code. Newer version of containers. Documentation (.md/.rst)

Architecture

High level architecture diagram

Internal Dependencies

SampleVNF/Prox - incorporated as a traffic gen during this release

XTesting

External Dependencies

eBPF, AF_XDP, DPDK, Qemu, K8s and CNI plugins like MULTUS, Cilium, Calico, Userspace, SRIOV etc. ETSI NFV TST009, IETF BMWG.

Test and Verification

Describe how the project will be tested and verified.

Risks

List any risks and a plan to mitigate each risk.

Risk Description	Mitigation Plan
Lack of Developers	(a) Interns (b) Student Volunteers