CENGN

OPNFV'S FAST DATA STACKS PROJECT

Fast Data Stacks (FDS) creates and composes a set of scenarios which include the virtual forwarder supplied by the FD.io project. The project provides enhancements to individual components, such as SDN controllers to allow for scenario composition. Since June 2016, CENGN has supported the FDS integration project with both SuperMicro and Kontron based labs, providing both lab and integration support.

FASTDATASTACKS

PROJECT PLAN

FDS integrates the virtual forwarder VPP (Vector Packet Processing) and Honeycomb (ODL Agent), provided by the FD.IO upstream project, into OPNFV's already existing test scenarios.

OPNFV scenarios are comprised of major pieces of building block systems that are essential for the ability to test network function virtualization infrastructure (NFVi) related continuous integration. The FDS project has focused on OpenDaylight (ODL), FD.io and High Availability (HA) test related scenarios which are built using the APEX installer from RedHat.

OPNFV scenarios are key release vehicles for compositions of features like HA and FD.io.

CENGN approached the FDS Project leadership to participate and offer lab, experts, and hardware resources, so FDS could be run on top of commercial off the shelf (COTS) hardware in a very generic manner.

OUTCOMES

CENGN succeeded in creating and implementing enhancements to OPNFV's configurations.

The development and integration of FDS into OPNFV scenarios, allowing the APEX installer to deploy with FDS in OPNFV Scenarios.

In addition, the project worked to provide required enhancements to individual components, such as SDN controllers and installers.

Today the FDS lab at CENGN is considered a key resource that gives OPNFV's FDS team more diversity in their development, integration, and test work.

Company	Device/Network
OPNFV	Test Scenarios, APEX installer, RedHat
CENGN	Lab, people and hardware resources.

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Fast Data Stacks: OpenStack-OpenDayLight-FD.io

Fast Data Stacks creates and composes a set of scenarios which include the virtual forwarder supplied by the FD.io project. The project also provides required enhancements to individual components, such as SDN controllers and installers, to implement OPNFV scenarios. It is mainly focuses on the Integration of OpenStack, OpenDayLight and FD.io VPP components to enhance carrier grade forwarding performance and availability. It introduces various policies and control mechanism to control complex network topology in an NFV environment. OPNFV's FDS provides a platform which offers any applications running in the cloud, a highly flexible, scalable, and accelerated network performance.

FDS Components:

- **VPP**
    - Highly scalable, high-performance, extensible virtual forwarder
- **OpenDaylight**
    - Extensible controller platform
    - Decouple business logic from network constructs:
        - **Group Based Policy** as mediator between business logic and network constructs
- **Honeycomb Agent**
    - Dataplane Agent for VPP
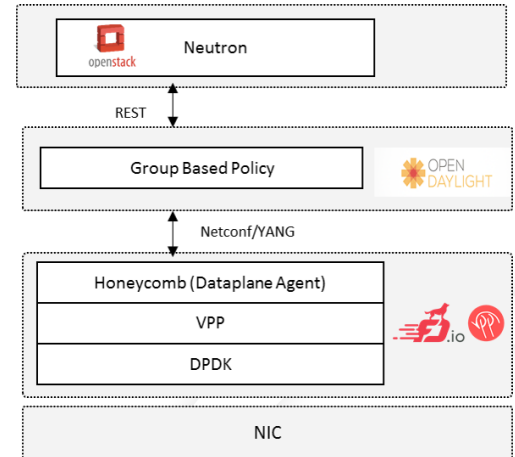
Demo Environment:

The following diagram depicts CENGN's NFVi comprised of a Liberty based OpenStack, Boron based OpenDayLight controller running group based policy, DLUX, and other features. Also included, is the latest generation of Honeycomb and VPP version 17.01 vintage software. The stack was deployed using Red Hat's APEX OPNFV deployment automation.

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