

Stor4NFV Home

Project: Storage for NFV (Stor4NFV)

For NFV to be successful, it must address a large range of use cases. Some of these require access to very large amounts of storage, such as:

1. hi-definition video streaming for use with virtual Content Delivery Network (CDN);
2. persistent routing tables;
3. crash recovery (application and network state);
4. Mobile Edge Computing (MEC), etc.

Taking vCDN as an example, OPNFV does not currently address some of the needs of vCDN, such as: content caching; load balancing; tenant isolation; and scalability. A new project Stor4NFV is proposed to focus on its needs alongside other scenarios, and to be optimized for the needs of NFV; especially for storage intensive use cases such as vCDN. I/O performance improvements will be one initial target, but we also need to consider scaling and stability factors as well. Ultimately storage will need to progress to be a key part of the entire OPNFV architecture, including but not limited to: service assurance; platform capabilities; integration with networking stacks, and testing.

Specifically, for I/O optimization details, we are looking at the following areas in the Stor4NFV project:

- Client RDB cache to accelerate Ceph I/O read and write;
- High throughput and low latency solution based on all flash storage media;
- Customized optimization approaches for different sorts of data, such as small data and large data;
- Integration of OpenSDS and Ceph with the OPNFV platform;

A flexible and performant storage project would be of benefit to all NFV use cases (from communication through to enterprise). By targeting a storage intensive use case we will ensure that storage does not become an unexpected bottleneck for NFV applications.

The output of the project will be:

- A list of the performance goals, which will be collected by OPNFV members
- A set of recommended hardware and software, and comprehensive instructions of system configurations and settings, including hardware settings, OpenSDS as well as Ceph configuration and network topology for deployment, etc.
- Pull requests as well as patches for performance optimization to the upstream OpenSDS and Ceph
- Benchmark and profiling tools to measure the overall performance of the storage, including latency, bandwidth, throughput etc. for different data scenarios

In addition, we will also consider the following integration factors with OPNFV and OpenStack:

- Storage solution to support rapid launch for VNF auto-scaling with OpenStack
- Multiple hypervisor support, such as running KVM on Ceph, running container on Ceph, etc.
- VNF HA support with storage, i.e., live migration and evacuation with OpenSDS Ceph and OpenStack
- Infrastructure validation with Yardstick and test with Storperf
- Installers for Stor4NFV deployment, we will support Apex and Compass

NOTE: Stor4NFV project has an implementation of the requirements which we identified. Stor4NFV project tries to contribute all functional codes to upstream projects, such as Ceph and OpenSDS. Installation, documentation, integration code for Ceph and OpenSDS, and those which are optimized for NFV use cases specifically can be found in OPNFV Stor4NFV repository. Once the functional code is upstreamed to upstream projects, the code will be removed from OPNFV Stor4NFV repository.

- Stor4NFV project
- Deliverables/Documents:
 - F: TBD (To Be Determined)
- Presentation Slides
 - July 25, 2017 - [Presentation at OpenStack Days China, Beijing](#)
 - Aug. 10, 2017 - [Presentation at OPNFV technical discussion meeting](#)
 - Nov 24, 2017 - [Presentation at 7th OpenStack Bug Smash, Wuhan](#)
- [Project Proposal \(Presentation slides, Old Version\)](#)
- Workspace
 - Stor4NFV Dashboard <https://etherpad.opnfv.org/p/stor4nfv>
 - Stor4NFV Architecture: TBD
 - Implementation Plan / Blueprints https://etherpad.opnfv.org/p/stor4nfv_bps
 - Ceph
 - OpenSDS
 - Release Planning
 - F Planning (under development)
- Meeting: [Note \(Agenda\)](#), [Join](#)
 - Oct 26, 2017 Agenda
 1. Open
 2. Feature plan for F release: [Fraser](#)
- IRC: Server:[freenode.net](#) Channel:#opnfv-stor4nfv
- Mailing List: use [opnfv-tech-discuss](#) and tag your emails with [stor4nfv] in the subject for easier filtering

- Review: <https://gerrit.opnfv.org/gerrit/>
 - Repository: <https://gerrit.opnfv.org/gerrit/>
 - Git Web: <https://gerrit.opnfv.org/gerrit/gitweb?p=stor4nfv.git;a=summary>
 - JIRA: <https://jira.opnfv.org/plugins/servlet/project-config/STOR4NFV/summary>
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Key Project Facts

Macro TBD

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If you would like to contribute to this project please add yourself to the contributors list and contact us. See also [Developer Getting Started](#).

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