2020-10-14 - OPNFV/CNTT - HA requirements and testing approaches

Topic Leader(s)

- Georg Kunz
- Mark Beierl
- Pankaj Goyal

Topic Overview

Discussions of current CNTT Release 1 HA requirements are approach to testing

Slides & Recording

https://zoom.us/rec/share/7Z-OKpnOQxP9Ts4qX-5JorXNa9QMMtwKcqRDe7_wKXuae1Ha_pMa7kM7KdmvHKiA.73iS3YbI-FxTTKAz? startTime=1602689230000

Agenda

CNTT Requirements

https://wiki.opnfv.org/display/SWREL/Jerma+Requirements+Working+Group+Assessment

- req.gen.rsl.01: The Architecture must support resilient OpenStack components that are required for the continued availability of running workloads.
- req.inf.ntw.07 The Architecture must <u>support</u> network resiliency.

Existing HA test cases in OPNFV - Yardstick

Example test cases

- Control node restart: restart entire node
- Neutron service restart: kill Neutron process and measure API response and recovery. Same concept for Nova, Glance, Cinder, Keystone, MySQL, RabbitMQ, HAProxy
- CPU load
- Disk IO load

Properties

- Framework for building resilience test scenarios
- Framework geared towards OpenStack: translation of Yardstick scenarios to Heat
- Majority of the tests white box testing which is not suitable

High-level questions

- What kind of test cases can we actually design for?
- No white box testing only black box testing
- how to define pass / fail criteria
- Node level
- Network resilience
 - Switch level, port level?
 - ° Availability of redundant fabric in OPNFV labs, Packet
 - API for configuring switches

Existing resilience and robustness testing

Instead of building a new framework, integration of existing resilience testing frameworks.

Non-exhaustive list of tools - extend with more suitable candidates you are aware of

- Litmus (https://github.com/litmuschaos/litmus)
- PowerfulSeal (https://github.com/powerfulseal/powerfulseal)
- OpenShift Kraken (https://github.com/openshift-scale/kraken)
- Chaos Toolkit

- Pumba
- Litmus
- Chaos Mesh

Minutes

- Cedric
 - ° RC-1/2 should be used in production environments and hence not execute destructive testing
 - the Yardstick framework is hard to maintain questionable if we want to re-active it
- key question: is resilience testing in the scope of RC-1/2
 - · CNTT specifies requirements on resilience there is a need for validating such requirements via an automated test
 - we likely need such tests and then need to de-/select destructive tests depending on use case: workload onboarding (non-destructive) vs. OVP badging (destructive)
- Need to distinguish between HA and resiliency. A resilient system continues to function in case of a failure (we can limit to a single failure scenario)
- In a cloud environment one expects infrastructure failures and thus expect resiliency and HA from the software systems (OSTK, etc.) # of deployments, etc.
- Recovery also needs to be taken into account. If the recovery impacts the workloads to the point where they are no longer functional, then it cannot be considered resilient
- RA1 Chapters 3 and 4 specify the services, # of minimum deployments, etc. to meet the requirements specified in Chapter 2; also review Ch5 (Thanks, Cedric)
- Opened CNTT Issue #2061 to make the network resiliency requirement more specific

Action Items