



LF

NETWORKING

LFN Developer & Testing Forum



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ONAP: Stability, Resiliency and Stress tests

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ONAP: Stability, Resiliency and Stress tests

- Agenda
 - Reminders
 - Current status
 - Goals

Reminders

ONAP: Stability, Resiliency and Stress tests

ONAP stability/resiliency/stress tests What are we talking about?

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Critical questions

- Can ONAP survive the restart of a POD ? **most of the time yes, it depends of the pod..**
- Can ONAP survive a helm chart redeployment ? **most of the time yes but not 100% guarantee**
- Can ONAP survive the restart of a k8s controller ? **Not sure, as ONAP is not cloud native yet, the full promise of k8s is not met yet.**
- Can ONAP survive the restart of a k8s worker ? **not sure especially if some DBs are on this host. One more time the promise of k8s is not met.**
- Do we have figures on an ONAP solution for a given lab: number of simultaneous onboarding/instantiation/loop ? **not really**
- Can we perform a Backup&Restore (disaster scenario) ? **maybe with pain**
- Can we perform a smooth upgrade ? **clearly no**
- Can the community version be used in production ? **depend how brave you are but reasonably not yet**

Current status

- Stability and resiliency tests now integrated in weekly CI
 - Stability
 - Onboarding testing: 10 // service onboarding during 24h
 - Instantiation testing: 10 // service instantiation during 24h
 - Resiliency
 - Node drain test based on Litmus

ONAP: Stability, Resiliency and Stress tests



ONAP Xtesting results

70%

LAST CHECK



TREND

ISTANBUL
ONAP VERSION

ORANGE
LAB OWNER

infrastructure-healthcheck

2021-11-14 09:19

20%

LAST CHECK

► Full results

healthcheck

2021-11-14 09:19

90%

LAST CHECK

► Full results

smoke usecases

2021-11-14 09:19

89%

LAST CHECK

► Full results

security

2021-11-14 09:19

100%

LAST CHECK

► Full results

stability

Note: results may be uploaded after several days, be patient..

▼ Stability results

[10 // basic_vm - 24h](#)

[5 // basic_onboard - 24h](#)

resiliency

Note: results may be uploaded after several days, be patient..

▼ Resiliency results

[Resiliency page](#)

info only

Note: results may be uploaded a day after the page is created, be patient..

► Results

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basic_onboard

Number of tests: 1085

Global success rate: 92 %

Number of simultaneous tests: 5

Test duration: 1440 m

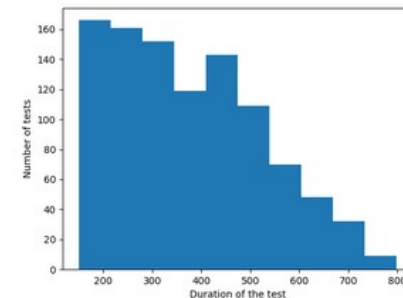
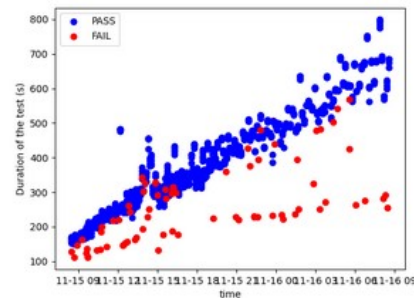
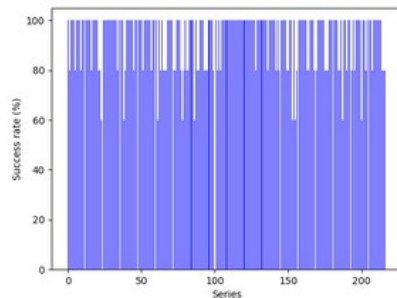
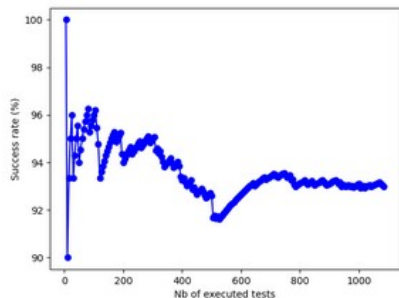
Number of executed series: 217

Min duration: 111

Max duration: 799

Mean duration: 366

- Honolulu : optimization SDC/Cassandra backend
- Istanbul : regressions detected (JIRA [SDC-3773](#)) during first campaign, quickly fixed by SDC team
- We (integration / no feedback from TSC/PTL) consider that the results is acceptable 1000 services onboarded with a success rate of 90 % in less than 24h)
- The linear increase is understandable as we cannot clean the resources by design (a model once created cannot be deleted to ensure consistency), so the more you onboard the more objects you have to deal with. The test includes a step when we retrieve all the models to detect if the model already exists or not.

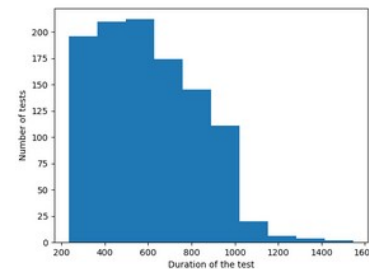
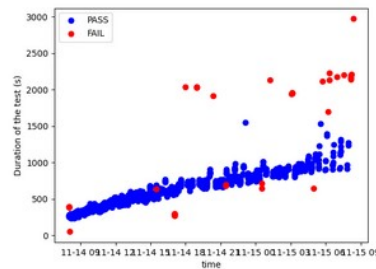
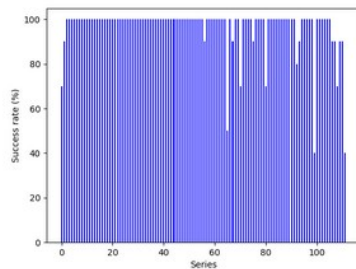
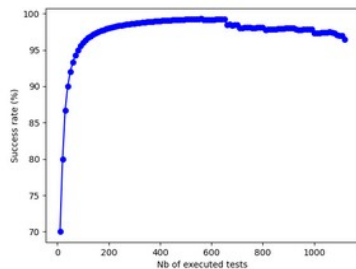


ONAP: Stability, Resiliency and Stress tests

basic_vm

Number of tests: 1120
Global success rate: 96 %
Number of simultaneous tests: 10
Test duration: 1440 m
Number of executed series: 112
Min duration: 50
Max duration: 2973
Mean duration: 633

- Honolulu : Fixes done by SO team
- Istanbul : Number of simultaneous instances increased => issue when MariaDB replica is set to 3 => recommendation to move to 1. Very good results when replicaset set to 1 (success rate above 95%). However errors occur after 35h (timeout) JIRA created [SO- 3791](#) in Istanbul, wait for SO team feedback.
- We (integration) consider that it is not blocking but further investigation should be done
 - Understand the nature of the errors after 35h (dimensioning issue?)
 - Optimize SO/Camunda/Mariadb back end
 - Reduce the linear test duration increase (could ne linked to item 1)
- Unlike for onboarding, we use here only 1 model and we clean all the resources in the SO and in the target Openstack. We should not observe such drift (JIRA created in Frankfurt for this issue)



ONAP: Stability, Resiliency and Stress tests



Litmus

- Litmus = k8s chaos engineering framework
- Node drain consisting in evicting a full node is working well BUT the evicted components are the ones scheduled randomly on the first node (~ 15 pods among the 200)
- Node memory and cpu hog should be tuned to be more useful
- Lots of Litmus scenarios not used even if they would be applicable to ONAP

Resiliency Results

node-drain
Pass
node-memory-hog
Pass
node-cpu-hog
Pass

- Stability and resiliency tests can be triggered in weekly chain
- BUT
 - weekly chains are no more triggered weekly (not enough resources to install a dedicated ONAP + humane resources to exploit the results)
 - Analysis and troubleshooting is complex and require cross projects work (Integration/SDC, Integration/SO)
 - On instantiation SO is the main contact but the issue is not necessarily in SO...



Goals

- Stability
 - Improve the understanding on the linear growth of the instantiation duration
 - Increase the test duration from 24h to 1 week
 - Better tune the Databases
 - Use new test scenario (stimulate more CDS, SDNC,..)

- Resiliency
 - Improve the node drain test to detect components that are not “cloud native” enough to support such test – currently the choices of the components is random, all the components scheduled on the first compute node
 - Improve the use of Litmus: the framework is there and only a small part of the tests are exploited
 - Tune Node CPU/Memory heating
 - Use Cassandra and MariaDB chaos scenarios

- Stress
 - Automate a stress campaign on AAI
 - to find dimensioning figures (number of objects, response time, ..)
 - leveraging ATT scripts based on gatling (<https://gatling.io/>)



Conclusions

ONAP: Stability, Resiliency and Stress tests

Can ONAP survive the restart of a POD ? **most of the time yes**

Can ONAP survive a helm chart redeployment ? **most of the time yes**

Can ONAP survive the restart of a k8s controller ? **yes**

Can ONAP survive the restart of a k8s worker ? **most of the time yes**

Do we have figures on an ONAP solution for a given lab: number of simultaneous onboarding/instantiation/loop ? **We found some figures for onboarding and instantiation**

Can we perform a Backup&Restore (disaster scenario) ? **still with pain**

Can we perform a smooth upgrade ? **Still not**

Can the community version be used in production ? **We have a much better view than in 2020 conservative organizations would probably say not yet but not only for stability/resiliency reasons (security/versioning,B&R). Additional work is needed (reduction of the component scope (exclude unmaintained components), hardening of the kubernetes/OS, completion of k8s with additional services (storage class, vault, supervision stack,..)**

Thanks

Questions