ONAP & CNCF

Sylvain Desbureau ONAP Cloud Native coordinator

June, 2019
Agenda

• CNCF?

• Status of CNF in ONAP

• ONAP journey to cloud native

• First ideas / propositions for moving on
CNCF? (1)

- CNCF stands for “Cloud Native Computing Foundation”
  - “The Cloud Native Computing Foundation builds sustainable ecosystems and fosters a community around a constellation of high-quality projects that orchestrate containers as part of a microservices architecture.” (https://www.cncf.io/)

- As LFN (Linux Foundation Network), it’s a subset of Linux Foundation dealing with cloud native projects such as:
  - Kubernetes
  - Helm
  - Prometheus
  - Fluentd (logging parsing)
  - Jaeger (telemetry)
  - Network Service Mesh
  - …
• CNCF has huge number of contributors
- (> 50k)

• CNCF developed also an interactive landscape of Cloud native:
- https://landscape.cncf.io/

• CNCF has also proposed a “trailmap” to go to cloud native:
- https://raw.githubusercontent.com/cncf/trailmap/master/CNCF_TrailMap_latest.png
• CNCF has also “Special Interest Group” (SIG)
  - First is SIG User
  - Second is SIG “telco” (aka “us”) which was launched in May
  - Third is SIG “banking” which should be launched soon
• Telecom User Group (TUG) has a page ([https://github.com/cncf/telecom-user-group](https://github.com/cncf/telecom-user-group)) with all information if you want to attend.

• A Containerized Network Function (CNF) testbed has been launched
  - [https://github.com/cncf/cnf-testbed](https://github.com/cncf/cnf-testbed)
  - One of the first test is to “perf test” ONAP vCPE use case in Container mode vs VM mode

• One of CNF testbed goal is to have one (less than 3) platforms to test CNF against
  - So need to validate Kubernetes installation (functest-k8s in OPNFV has started)
  - Need to validate that Kubernetes is behaving well (an equivalent of functest-vnf from OPNFV would be nice to have)
  - Make it reproductible in “any” labs
Status of CNF in ONAP

• “Multicloud-k8s” project has started in Casablanca with the aim to
  - Be able to start “CNF” into a Kubernetes cluster
  - Work has continued in Dublin

• CNF test bed is reusing (part of) work done in ONAP
ONAP journey to cloud native

• Amsterdam release → Containerization
• Beijing release → Orchestration/Application
• Casablanca → start of observability
• Dublin → start of CI/CD
First ideas / propositions for moving on (1)

- IMHO, ONAP should focus on its business logic (orchestrate NF Lifecycle in general) and try to reuse at maximum CNF projects for its infrastructure
  - i.e. try to be part of a bigger crowd

- If we look at ONAP code today, specific projects (seems to) deals on infrastructure needs:
  - MSB is an API Gateway
  - DCAE Cloudify is a package manager
  - AAF works on Authentication and Authorization
  - DMaaP works on message delivery and pub/sub
  - ...
First ideas / propositions for moving on (2)

• So we could look if existing CNCF projects could be used as drop in replacement

• For example (of course studies must be performed to validate, and not all will make sense):
  - Linkerd/Istio/Consul Connect/Kong/… for MSB
  - Helm for DCAE deployment (which would also simplify LCM as we have today 2 package managers)
  - Linkerd/Istio + Vault for AAF
  - NATS for DMaaP (NATS is a standalone pub/sub server)

• It’s obviously not neutral and may impact a lot ONAP. So benefits (or simplicity to do) must be there
First ideas / propositions for moving on (3)

- ONAP journey to Cloud Native should continue too
  - Continue centralized logging work
  - Start to use OpenTracing/OpenTelemetry/Jaeger for tracing ONAP full life of a request (use of Service Mesh such as Linkerd/Istio/Consul Connect would give it for “free” in inter pod communication)
  - Propose Prometheus KPIs per Service
  - Propose Ready to use Prometheus alerts / Grafana Dashboards for ONAP
  - Create Network Policies for inter pod and out of cluster communication (again Service Mesh would help)
  - Evaluate interest of more secure docker registries such as Harbor
  - …
First ideas / propositions for moving on (4)

• Multicloud-k8s has a reference Kubernetes implementation (based on Kubespray)

• Align this reference implementation with cnf-testbed one would be good.
Quick wins

• All propositions are not equal in term of complexity.

• Some are quick wins that could be started / continued / finished during El Alto:

  - Logging
  - Prometheus integration (volunteer to make a prototype on one component, external API for examples)
  - Harbor is more of an infrastructure change but may be interesting to investigate (image SHA, vulnerabilities check, …)
Conclusion

• CNCF is on top the hype curve today
  - Lots of traction
  - Lots of developer
  - Lots of new stuff

• Reusing it in ONAP could help us focus on our core work
  - Onboarding
  - Deployment
  - Configuration
  - Monitoring
  - Self healing
  - …