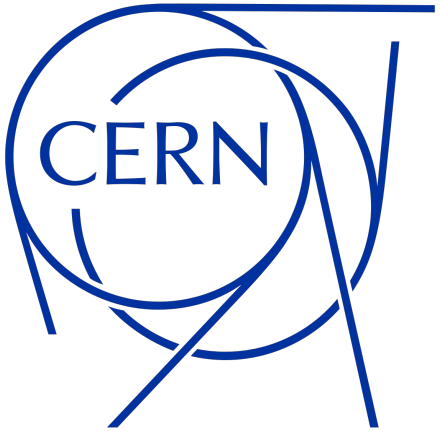


CTA Helm Chart for CI/CD environment

Damian Jarosław Raczkowski

Date 22.08.2024

Plan of the presentation

- State of the CI before (and why it was bad)
- What is a Helm chart (and why we use it)
- What has changed in comparison to the old CI
- What is it good for CTA developer?
- Next steps to improve

State of the CI before

- **So why it actually sucks?**
  - Multiple “hacks” and bash one-liners either in create_instance.sh file or in docker images.
  - Hard to maintain code
  - Multiple files created/modified on the fly instead of being consumed by the pods
  - No standardised way of running tests = hard time for outsiders

What is Helm

- **Package that allow to easily define kubernetes applications**
- **Graduated project from Cloud Native Computing Foundation (CNCF)**

Why helm?

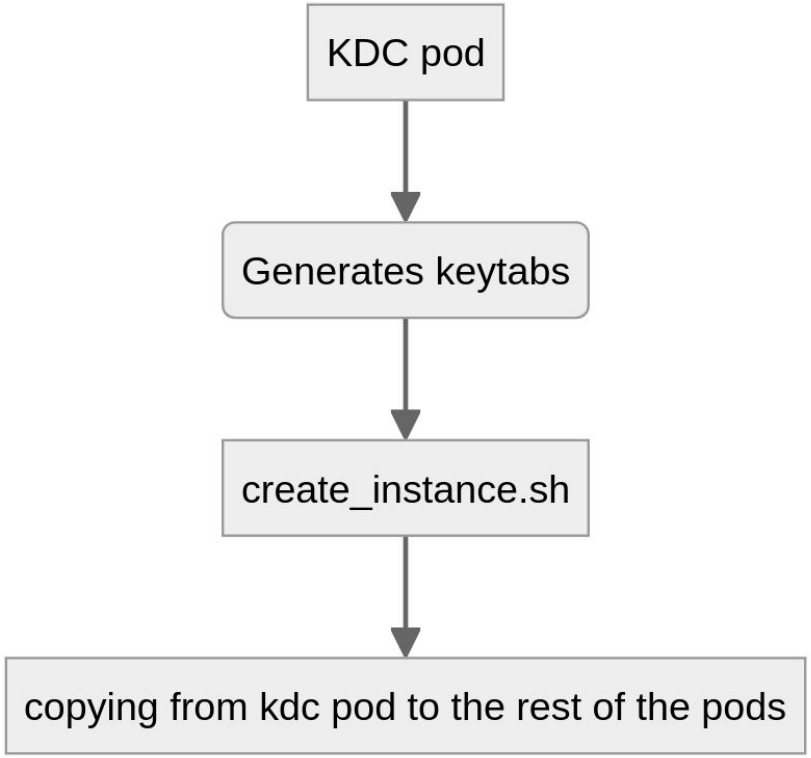
- All of the pods configuration in one environment
- Easy to update changes (literally one command)
- Easy to add additional projects / resources

```
mychart/
  Chart.yaml
  values.yaml
  charts/
  templates/
  ...
```

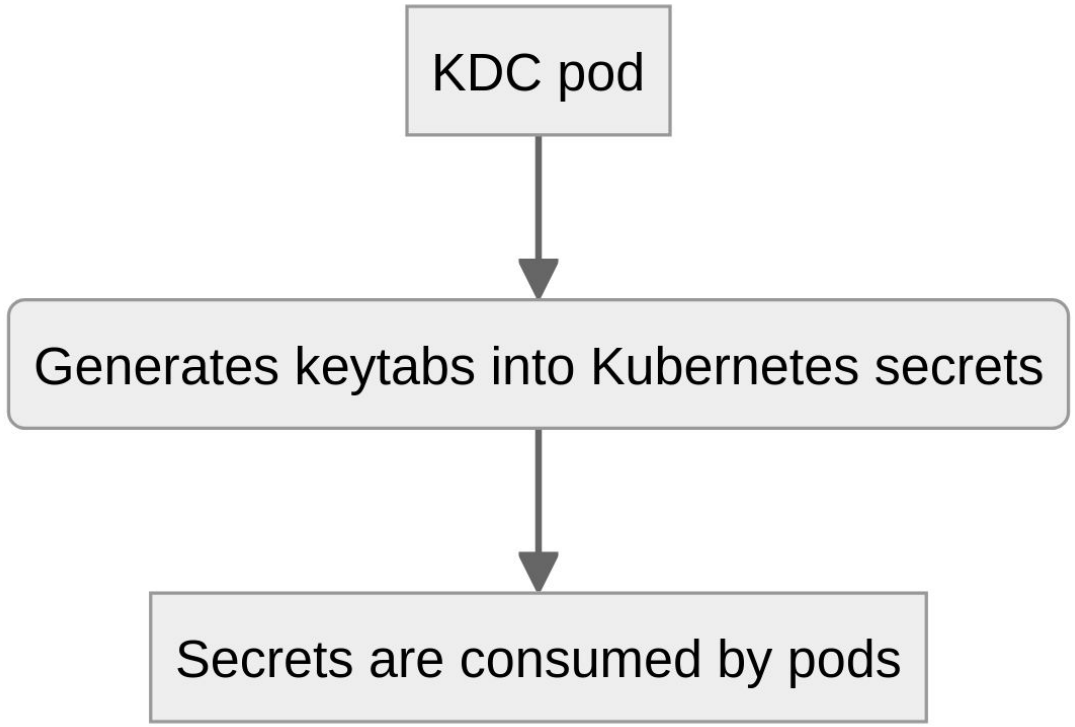

LET US GET SERIOUS
AND CLEAN SOME CODE

What has changed in comparison to the old CI

- **Keytabs authentication**
  - before:



  - now:

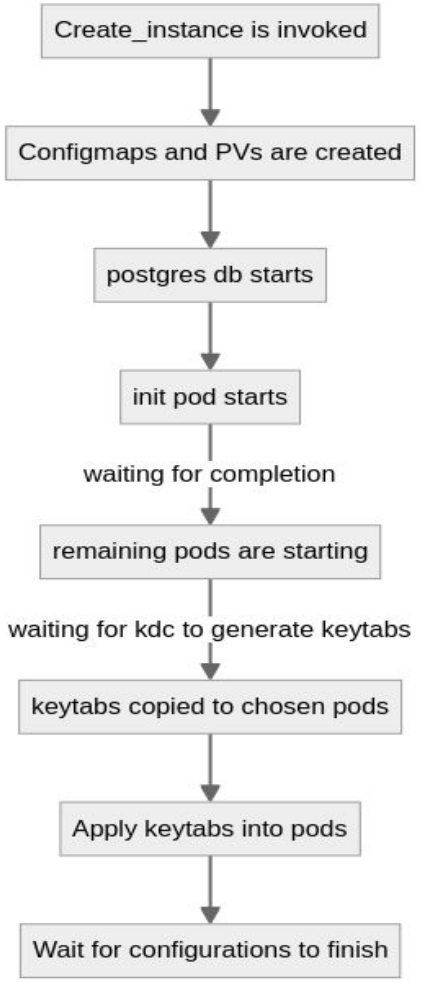


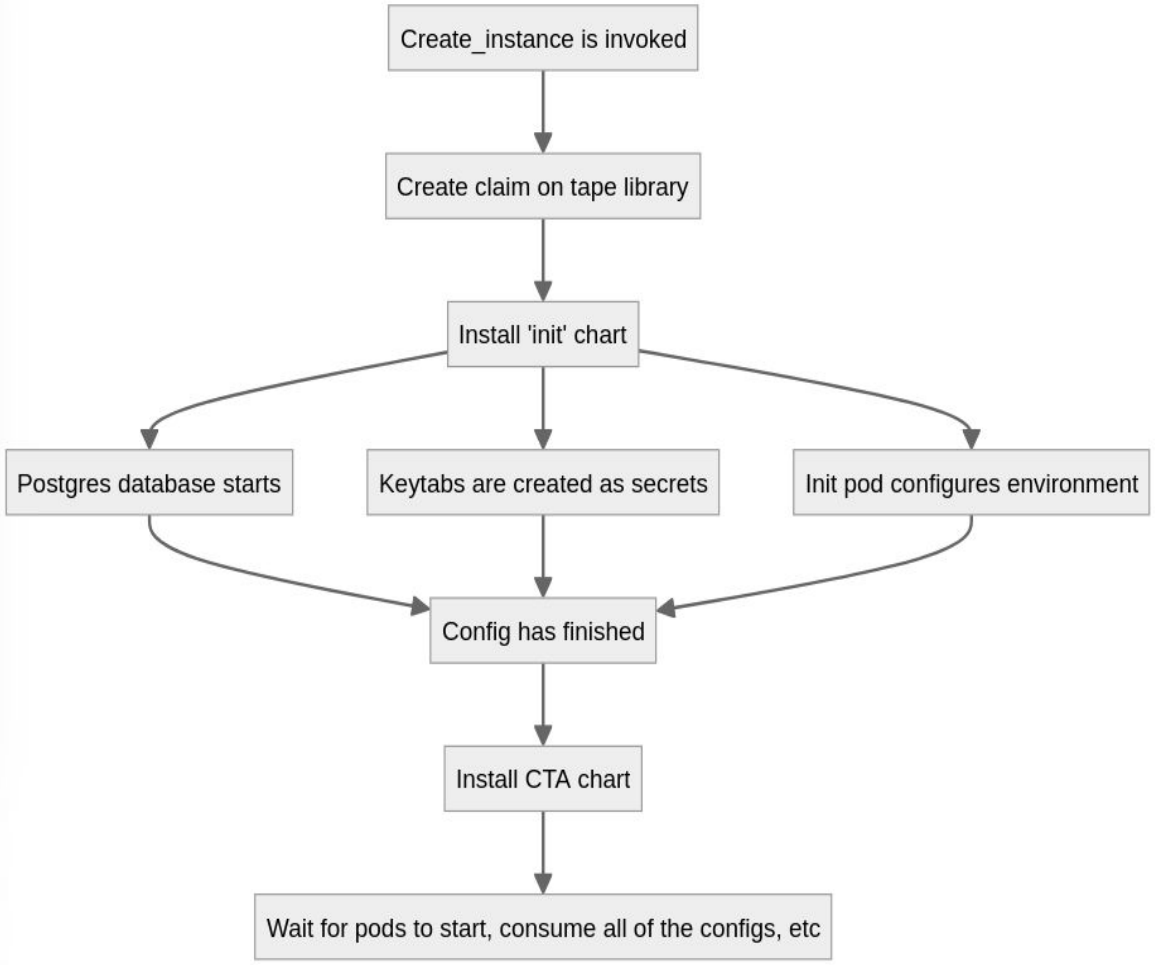
What has changed in comparison to the old CI

- **extract configs and secrets from setup scripts:**
  - sss-keytabs
  - krb5-config file
  - eos mgm, fst, quarkdb configs

What has changed in comparison to the old CI

“create_instance” script workflow

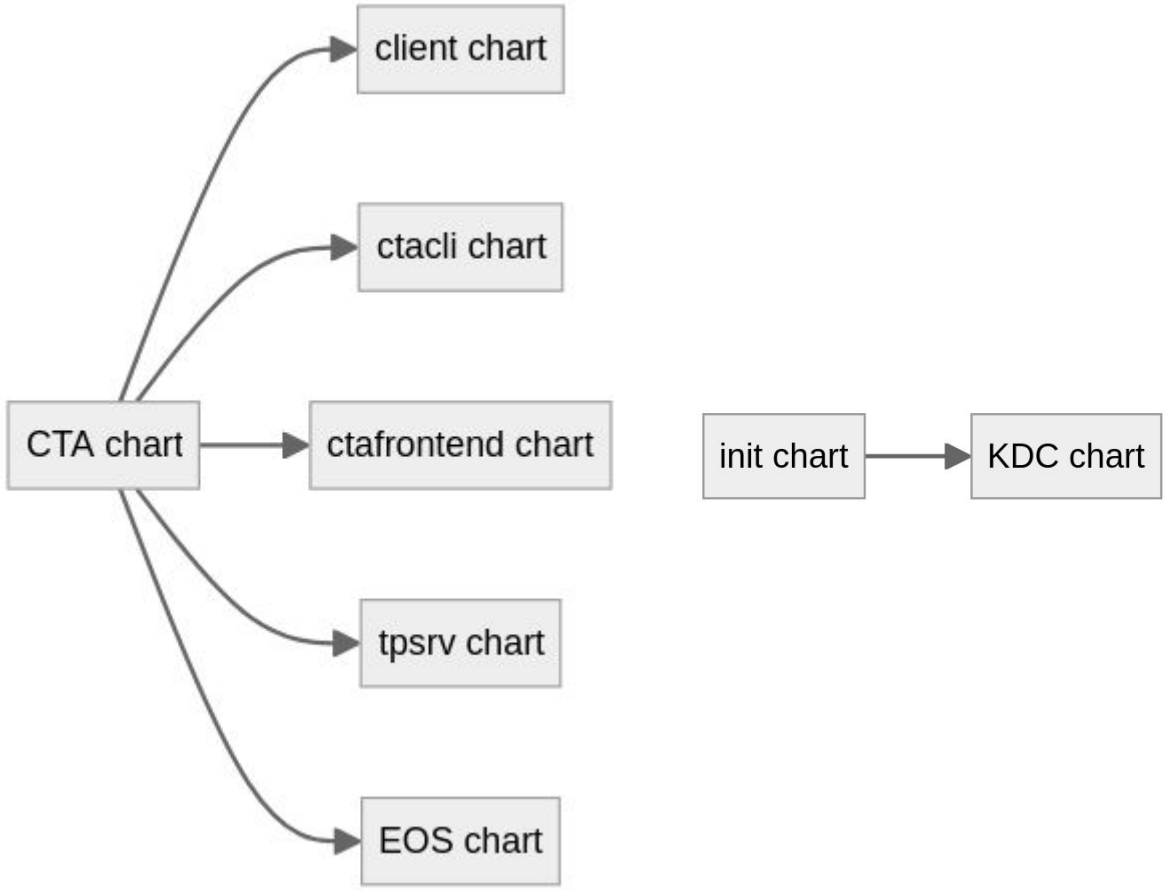




What has changed in comparison to the old CI

Two Helm charts

- **Init** - contains:
  - init, kdc and postgresql pods configurations
  - persistent volume claims
  - required headless services configuration
- **CTA** - contains:
  - ctafrontend, ctacli, client, tape servers and eos pods configurations
  - required headless services configuration
  - Each as independent subchart.



How the performance changed

Main branch	Helm chart branch
19m40 secs	18m53 secs
https://gitlab.cern.ch/cta/CTA/-/jobs/42554807	https://gitlab.cern.ch/cta/CTA/-/jobs/42550626

What is in for CTA developer

- Easier to test developed code
- helm upgrade -f values.yaml cta <cta_dir> to save precious time

Kubernetes manifests

Helm charts

Next steps to improve

- **Integrate with EOS chart**
  - Current setup has everything in single container
  - Integrating with EOS chart will reduce things to look after

Next steps to improve

- **Divide containers into specialised ones.**
  - Specialised containers = safer, smaller, faster
  - Elimination of remaining “hacks” that couldn’t be removed Ex. file ownerships

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