

k8s-hep Meetup

→ wrap-up

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k8s-hep Meetup ('Chicagoland')
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themes from today

Themes



- deploying k8s on-prem
- operation surprises
- managing k8s releases
- managing storage volumes
- uniformity between sites and cloud – infrastructure looks the same
- can start to do multicluster things
- need a good enviro to grow – starting points
- where to collaborate (e.g. gitlab)
- sharing images and charts
- analysis facilities in wlcg need effort
- jupyter hubs scheduled by k8s, and federated jupyter hubs

Themes, II

- various use cases – batch, analysis, federated edge service orchestration
- scoping privileges
- Helping sys admins – giving them a uniform layer – lining up w/ industry standards
- what can k8s fix that we had to do before?
- distributed OS – k8s a platform (analogy with Linux on the node)
- HTCondor is evolving to k8s and open to input
- helm deploy htcondor pool
- noting best practice methods
- functional interfaces to infrastructure

challenges

Challenges

- Distributions – the many options in a rapidly growing community
- Security – registries, image security, charts
- Why are you federating? k8s v1 was a failure; v2 still in alpha a year later – most meetings are cancelled
- Load balancing – exists? what if its out of IPs?
- Helm templating – lack of documentation
- PriorityClasses, StorageClasses for pods – understanding wha
- Security and app curation rules
- HTCondorCE that submits pilots as pod on a cluster
- Context switching – root reqs of the CE –
- Application whitelisting / black
- Priv containers, those with root access; OKD4, OKD3
- Kubernetes version

Challenges

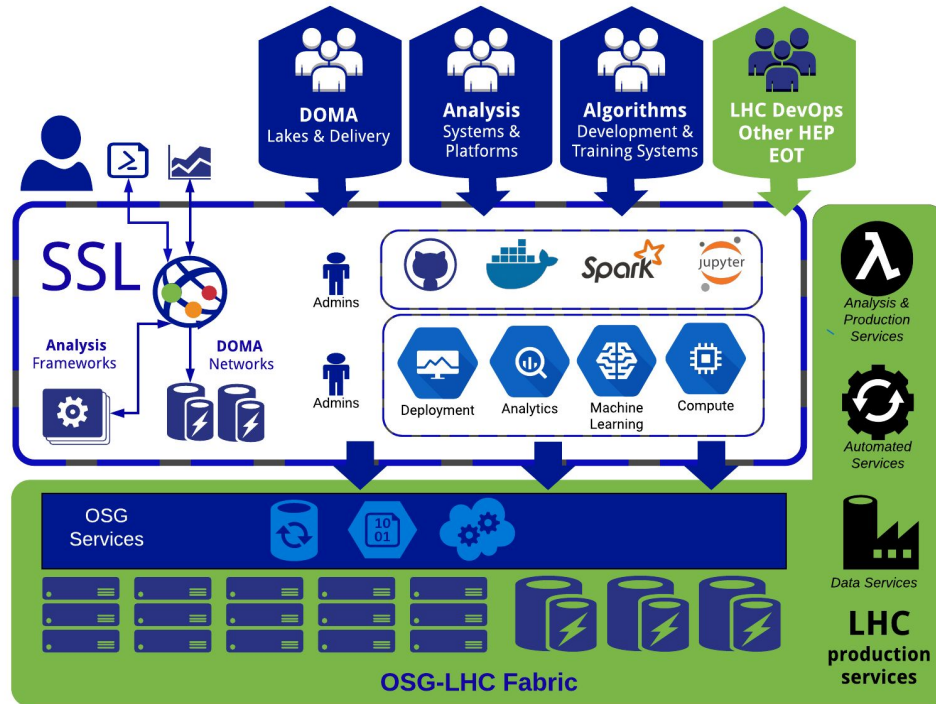


- No one is asking for ML as a service, but "federation" can be simple but with ingress on the target
- U-Fix! by SRE's!
- Provisioning the resource – the layer between htcondor vs k8s
- Logs
- chicken – egg: htcondor & k8s and handling selective eviction – what can the k8s do today, – use labels, pods, etc
-

opportunities

R&D platforms, SSLab, ...

- Vital for IRIS-HEP and OSG-LHC
- But also is a place to experiment with new technologies & share k8s tips & tricks
- Next gen Tier2, Tier3
- Lessons from Fermilab k8s-organized resources



Tier3

- Deploying all services via slate/k8s – USCMS effort at ND
- A blueprint for other Tier3's
- Find another Tier3 to work with Kenyi

Federated ML platforms

- Need to clarify the needed capabilities
- Federating multiple clusters

HTCondor, OSG

Handling k8s targets – submitting pods with base pilots

Containerizing services

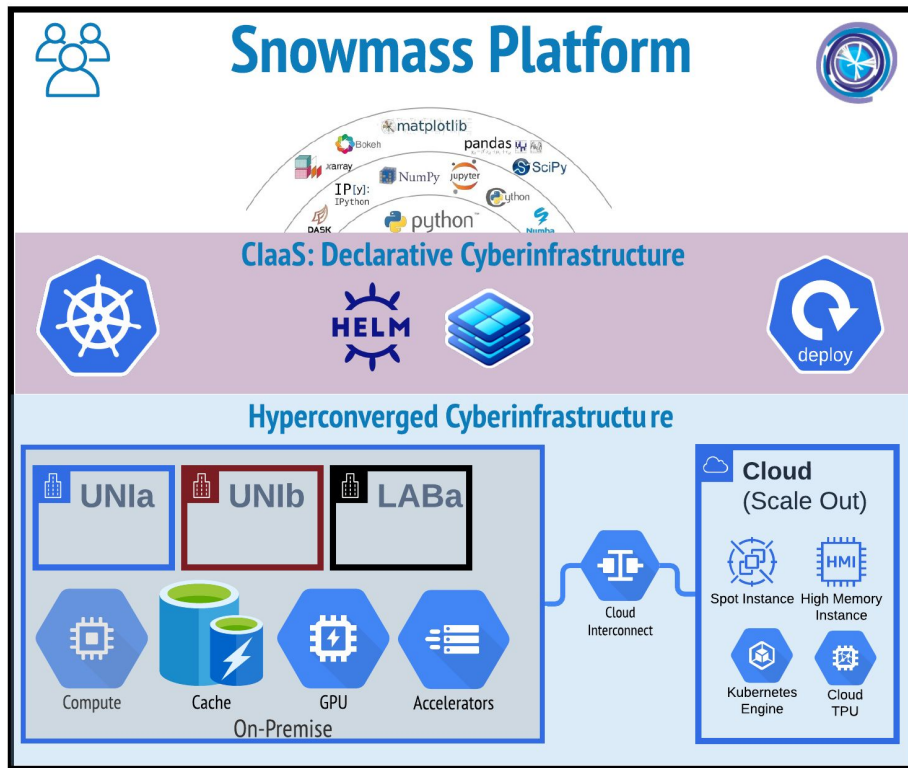
Image security

Kubernetes as grid type .. HTKondor?

a funcX'ing cool demo

a different programming model directing tasks to agents

compose with other tools – to make an analysis



- [Link](#)
- July 10–21, 2021
- 1000 attendees
- Needed:
 - datasets
 - software environments
 - mix of resources
 - easy to use platforms
 - submit, notebooks, bespoke
 - declarative, flexible & scalable infrastructure to support it all

Help define the future of particle physics with the future of Infrastructure