

ONE, TWO, GREEN & BLUE; SEE THE WAYS VCLUSTER CAN WORK FOR YOU

DYNAMIC KUBERNETES ENVIRONMENTS USING VCLUSTER, CLUSTER-API & ARGO CD



\$ WHOAMI && ID | GREP ADOBE

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- ETHOS IS ADOBE'S KUBERNETES INSTALLATION FOR CONTAINERIZED WORKLOADS

- ~210 CLUSTERS IN AWS, AZURE & DATACENTER ACROSS 22 DIFFERENT REGIONS
- ~14K COMPUTE NODES, 1.3 PB MEMORY, 400K CPU & 180K PODS
- COST EFFICIENCY IS CRITICAL!



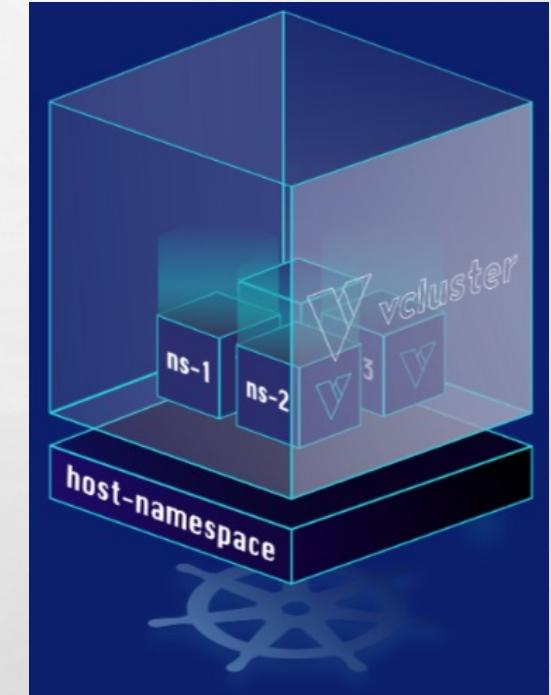
SOME OF THE PROBLEMS WE'RE FACING

- COSTS CAN BE EXCESSIVE IF WE'RE NOT CAREFUL
- MULTI-TENANCY RBAC/CONTROLS CAN BE A PAIN IN THE <INSERT CHOICE WORDS HERE>
- “SUM OF THE WHOLE” AGAINST THE API & ETCD SERVERS CAN BE OVERWHELMING
- CUSTOM OPERATORS ARE EASIER TO RUN/MANAGE IF THEY ARE CLUSTER-WIDE NOT PER-NAMESPACE
- TENANTS WANT MORE CONTROL AND DON’T ALWAYS UNDERSTAND WHY THEY CAN’T HAVE IT
- PRE-UPGRADE TESTING CAN BE DIFFICULT IF YOU NEED TO BUILD NEW CLUSTERS



WHY DO I CARE ABOUT VCLUSTER?

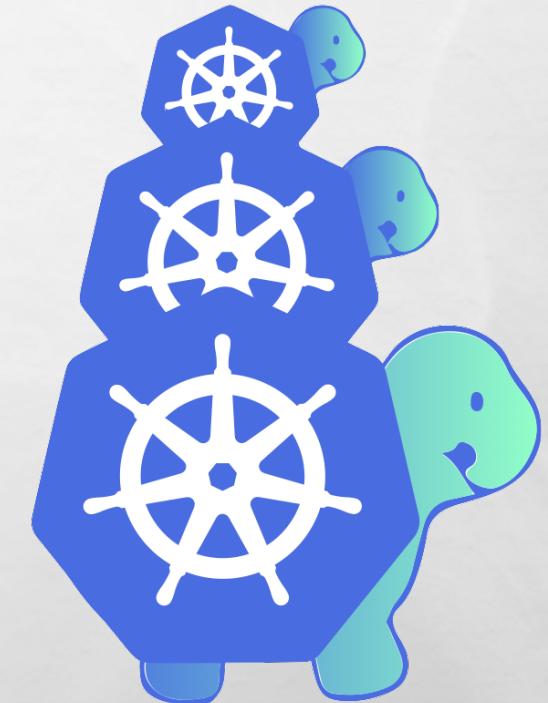
- COST EFFICIENCY
 - CHEAPER TO RUN PODS THAN FULL CLUSTERS
 - EASIER TO SET QUOTAS ON A NAMESPACE THAN SPEND LIMITS FOR A CLOUD PROVIDER
- SECURITY
 - HOST CLUSTER SECURITY IS STILL APPLIED; PSP, NETPOL, OPA, ETC
 - RBAC CAN BE MORE “FLEXIBLE” WITHOUT IMPACTING OVERALL SECURITY POSTURE
- HIGHLY DYNAMIC
 - CLUSTERS CAN BE CATTLE NOT PETS
 - EASILY PROVISIONED & DESTROYED ON A WHIM



[HTTPS://WWW.VCLUSTER.COM/](https://www.vcluster.com/)

A QUICK WORD ABOUT CLUSTER-API

- DECLARATIVE API FOR PROVISIONING/MANAGING KUBERNETES CLUSTERS
- RUNS AS AN OPERATOR INSIDE A MANAGEMENT CLUSTER
- EXTENSIBLE VIA CUSTOM PROVIDERS
 - THERE'S A VCLUSTER PROVIDER! WOOHOO!
- CLUSTER DEFINITION IS A SET OF YAML MANIFESTS
- TLDR; IT'S AN INCREDIBLY USEFUL TOOL FOR PROVISIONING CLUSTERS



[HTTPS://CLUSTER-API.SIGS.K8S.IO/](https://cluster-api.sigs.k8s.io/)

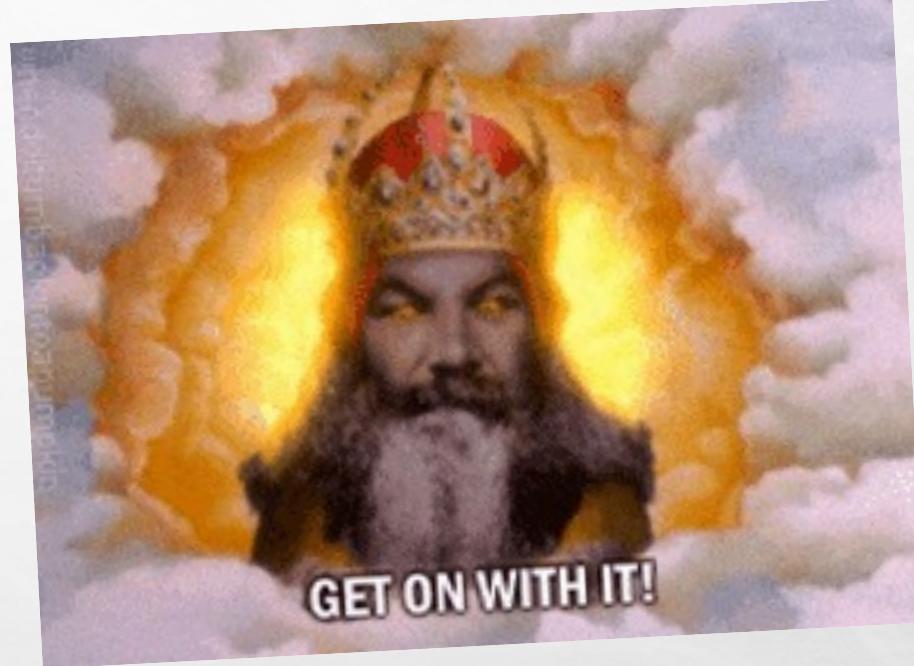
LASTLY, THE GLUE IS ARGO CD

- DECLARATIVE GITOPS DEPLOYMENT TOOL
- CAN USE HELM, KUSTOMIZE, JSONNET & PLAIN YAML
- RICH, POWERFUL ECOSYSTEM WITH ARGO ROLLOUTS, WORKFLOWS, EVENTS & MORE!
- CAN DO DYNAMIC APPLICATION DEPLOYMENTS BASED ON A PR, GIT DIRECTORIES/FILES, CLUSTER LIST AND OTHER GENERATORS!



[HTTPS://ARGO-CD.READTHEDOCS.IO/](https://argo-cd.readthedocs.io/)

**OMG, FINALLY!
THE DEMO...**



[HTTPS://GITHUB.COM/MTOUGERON/VCLUSTER-MEETUP-DEMO](https://github.com/mtougerom/vcluster-meetup-demo)



WHY DO I WANT A CLUSTER PER PR?

- BECAUSE MICROSERVICE DEVELOPERS MAY WORK ON PIECES OF THE APP, NOT THE ENTIRE THING
- ALLOWS TESTING OF CODE THAT MAY NOT BE READY; UPDATING A CRD OR OPERATOR
- UNINTENTIONALLY INTRUSIVE CODE CAN IMPACT DOZENS (OR MORE!) DEVELOPERS
- SOME APPLICATIONS CAN EASILY OVERWHELM THE API OR ETCD SERVERS

The Pull Request Paradox



WATCHY – A THOUSAND GLARING EYES

- [HTTPS://GITHUB.COM/EVANFOSTER/WATCHY](https://github.com/EvanFoster/watchy)
- CREATES 10,000'S OF SECRETS ON A CLUSTER
- CREATES 100'S OF WATCHES ON A CLUSTER
- YES, THIS SIMULATES A REAL-WORLD SITUATION



LET'S DO ANOTHER DEMO!

SO LONG AND THANKS FOR ALL THE FISH!

- [HTTPS://GITHUB.COM/MTOUGERON/VCLUSTER-MEETUP-DEMO](https://github.com/mtougeron/vcluster-meetup-demo)

 **EVERYTHING SEEN TODAY CAN BE FOUND HERE** 

- [HTTPS://WWW.VCLUSTER.COM/](https://www.vcluster.com/)
- [HTTPS://CLUSTER-API.SIGS.K8S.IO/](https://cluster-api.sigs.k8s.io/)
- [HTTPS://ARGO-CD.READTHEDOCS.IO/EN/STABLE/](https://argo-cd.readthedocs.io/en/stable/)
- [HTTPS://GITHUB.COM/EVANFOSTER/WATCHY](https://github.com/EvanFoster/watchy)

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