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# Exploring the Intersection of Cluster API and Infrastructure as Code

*What does it look like to combine these two  
technologies?*

Presented by **pulumi**

# A quick bit about me

- Lifelong learner
- Newbie programmer (so don't laugh too hard at my code)
- Pulumi user (started with TS and moved to Go)
- Work at VMware (via the Heptio acquisition) helping folks with Kubernetes
- Fan of Cluster API

# An intro to Cluster API (CAPI)

- A project to bring declarative, Kubernetes-style APIs to cluster lifecycle management
- Has the ability to interact with IaaS providers (vSphere, AWS, Azure, etc.) to create all necessary infrastructure
- Also supports “Bring Your Own Infrastructure” (BYOI)
- More info at <https://cluster-api.sigs.k8s.io> and GitHub repository at <https://github.com/kubernetes-sigs/cluster-api>

# Cluster API and BYOI

- Users can create their own base infrastructure and then have CAPI “consume” that
- This is where infrastructure-as-code comes into play
- Is it possible to use IaC for BYOI with CAPI? Yes!
- Can I use even more acronyms in a single sentence?



# IaaS information needed by CAPI

For AWS (other IaaS providers will vary):

- VPC ID
- List of both public and private subnets (both are needed)
- (Optional) List of additional security group IDs

More information about BYOI on AWS here:

<https://github.com/kubernetes-sigs/cluster-api-provider-aws/blob/master/docs/book/src/topics/consuming-existing-aws-infrastructure.md>

# Demo

*Enough talk, let's see this in action*

Demo repo: <https://github.com/scottslowe/2020-ces-iac-capi>

# Additional resources

- Cluster API book: <https://cluster-api.sigs.k8s.io>
- Cluster API GitHub repo: <https://github.com/kubernetes-sigs/cluster-api>
- Cluster API Provider for AWS (CAPA) GitHub repo: <https://github.com/kubernetes-sigs/cluster-api-provider-aws>
- CAPA docs on BYOI: <https://github.com/kubernetes-sigs/cluster-api-provider-aws/blob/master/docs/book/src/topics/consuming-existing-aws-infrastructure.md>
- Cluster API articles on my site: <https://blog.scottlowe.org/tags/capi>
- Pulumi articles on my site: <https://blog.scottlowe.org/tags/pulumi>



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# Thank you!

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