Scaling nodegroups

Document Level Classification

300

Using a Dedicated Node Group

Dedicated node groups can be used for workloads that need to run for a long time without being evicted, like Jenkins builds. A dedicated node group works out of band with Kubernetes Node Autoscaling and as such will never be scaled up or down automatically. Keep in mind that any long running workload will at a minimum be subjected to the uptime of its host operating system. Kubernetes assumes that it is safe to gracefully shutdown your workloads and usually assumes that applications running

on Kubernetes are horizontally scalable. If you want a special node type and your application *does* support scaling up and down, check out the Custom Kubernetes Node Types for Karpenter Autoscaling guide.

Long running workloads are a Kubernetes anti-pattern as Kubernetes requires the ability to preempt workloads and turn off pods in order to scale in and out or prioritize workloads. You should not use a dedicated node group if you can help it.

Creating a Dedicated Node Group

Any Nodegroup you create with AWS will be ignored by Karpenter and Compactor. This means that pods scheduled there will not ever be compacted and nodes will never be scaled up or down. This means that **you will be responsible for the desired node count** as well as monitoring when that node count needs expanding or contracted. You are sidestepping autoscaling and compaction completely when you make your own EKS Nodegroup.

For the most part, you will just need to follow the AWS EKS guide for creating a managed node group. **You will need to both taint and label your nodes** as you follow this guide. This makes sure that workloads that are not specifically configured to use these nodes to not schedule on them. This also ensures that workloads that belong on these nodes can identify them for scheduling. Remember what labels and taints you put on your nodes so that they can also be placed on your pod's configuration later (in the next section).

Assigning Workloads to Tainted Nodes

To configure your workloads to use the new dedicated node group, see the Assigning Workloads to Tainted Nodes wiki article. The examples in this article assume you will apply the node label `use: dedicated` and the taint `epicgames.com/my-special-taint:NoExecute`. After you have configured both your dedicated node group and configured your workload, you will notice that your workload pods will move onto the dedicated nodes you created. Don't forget to manually adjust your desired node count to ensure you have enough capacity!

Adding Non-Autoscaling Nodegroups to EKS Clusters

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Any Nodegroup you create with AWS will be ignored by Karpenter. This means that pods scheduled there will not ever be compacted and nodes will never be scaled up or down. This means that **you will be responsible for the desired node count** as well as monitoring when that node count needs expanding or contracted. You are sidestepping autoscaling and compaction completely when you make your own EKS Nodegroup.

For the most part, you will just need to ask in **#cloud-ops-support-ext** or follow the AWS EKS guide for creating a managed node group. **You will need to both taint and label your nodes** as you follow this guide. This makes sure that workloads that are not specifically configured to use these nodes to not schedule on them. This also ensures that workloads that belong on these nodes can identify them for scheduling. Remember

what labels and taints you put on your nodes so that they can also be placed on your pod's configuration later (in the next section).

Assigning Workloads to Tainted Nodes

To configure your workloads to use the new dedicated node group, see the *Assigning Workloads to Tainted Nodes* heading. The examples in this article assume you will apply the node label `use: dedicated` and the taint `epicgames.com/my-special-taint:NoExecute`. After you have configured both your dedicated node group and configured your workload, you will notice that your workload pods will move onto the dedicated nodes you created. Don't forget to manually adjust your desired node count to ensure you have enough capacity!
