Using HorizontalPodAutoscaler Without Metrics Adapter

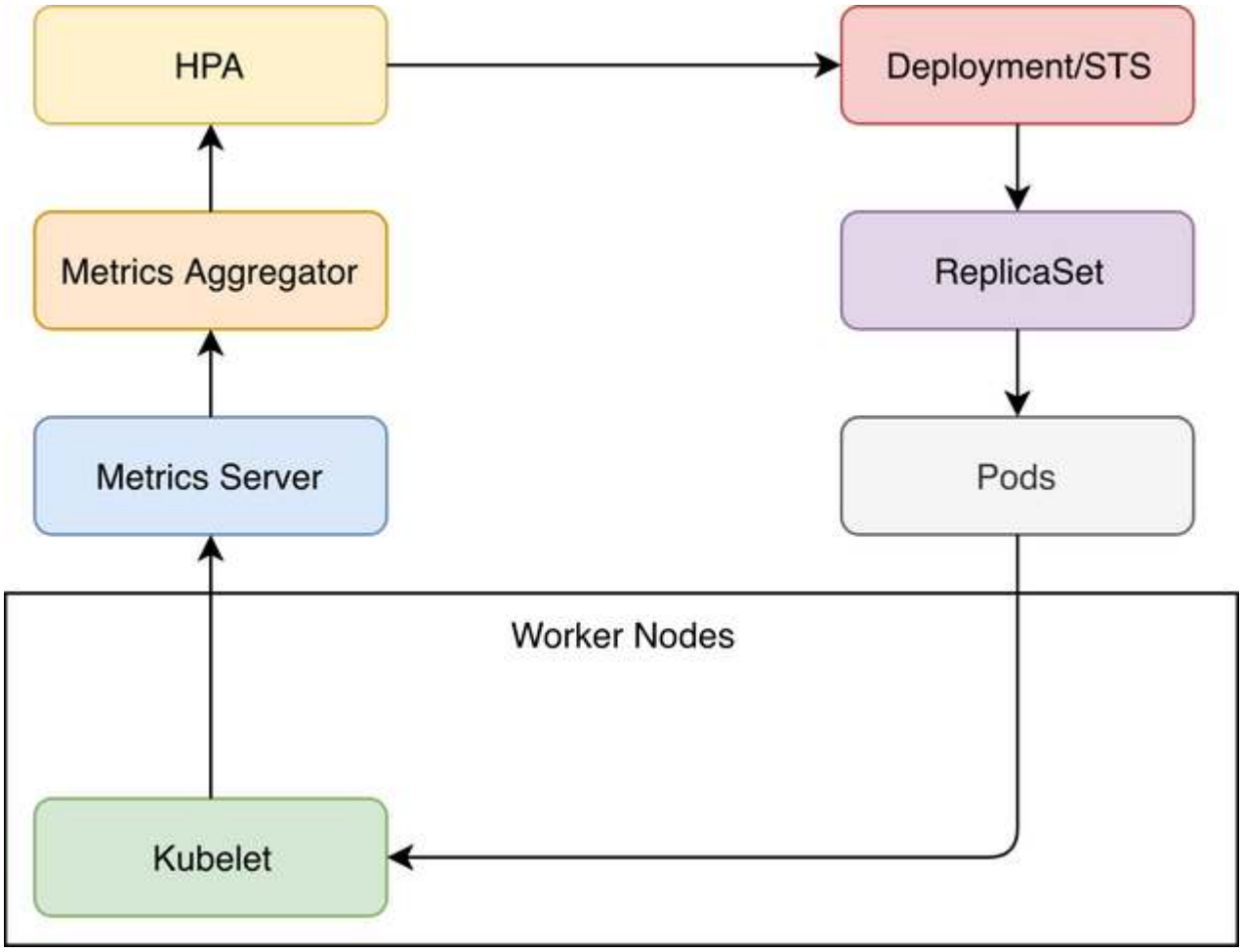
In this lesson, we will see what are the limitations of using HPA without metrics adapter and the data available in Metrics Aggregator.

WE'LL COVER THE FOLLOWING

Limitations of using `HPA` without metrics adapter

If we do not create a `Metrics Adapter`, *Metrics Aggregator* only knows about CPU and memory usage related to containers and nodes. To make things more complicated, that information is limited only to the last few minutes. Since `HorizontalPodAutoscaler (HPA)` is just concerned about Pods and containers inside them, we are limited to only two metrics. When we create an `HPA`, it will scale or descale our Pods if memory or CPU consumption of the containers that constitute those Pods is above or below predefined thresholds.

`Metrics Server` periodically fetches information (CPU and memory) from Kubelets running inside worker nodes. Those metrics are passed to *Metrics Aggregator* which, in this scenario, does not add any additional value. From there on, `HPAs` periodically consult the data in the *Metrics Aggregator* (through its API endpoint). When there is a discrepancy between target values defined in an `HPA` and the actual values, an `HPA` will manipulate the number of replicas of a Deployment or a StatefulSet. As we already know, any change to those controllers results in rolling updates executed through the creation and manipulation of ReplicaSets, (which create and delete Pods), which are converted into containers by a Kubelet running on a node where a Pod is scheduled.



HPA with out of the box setup (arrows show the flow of data)

Q

When there is a discrepancy between target values defined in an `HPA` and the actual values, an `HPA` will manipulate the number of nodes of a Deployment or a StatefulSet.

COMPLETED 0%

1 of 1

Data available in Metrics Aggregator

Functionally, the flow we just described works well. The only problem is the data available in the *Metrics Aggregator*. It is limited to memory and CPU.

More often than not, that is not enough. So, there's no need for us to change

the process, except to extend the data available to `HPA`. We can do that through a `metrics adapter`.

In the next lesson, we will explore the `Prometheus Adapter`.