



KUBERNETES ARCHITECTURE

Kubernetes Architecture

Worker Nodes

All nodes run the kubelet and kube-proxy, as well as the container engine, such as Docker or cri-o, among several options. Other management daemons are deployed to watch these agents or provide services not yet included with Kubernetes.

The kubelet interacts with the underlying container engine also installed on all the nodes, and makes sure that the containers that need to run are actually running. The kube-proxy is in charge of managing the network connectivity to the containers. It does so through the use of iptables entries. It also has the userspace mode, in which it monitors Services and Endpoints using a random port to proxy traffic via ipvs. A network plugin pod, such as calico-node, may be found depending on the plugin in use.

Each node could run in a different engine. It is likely that Kubernetes will support additional container runtime engines.

Supervisord is a lightweight process monitor used in traditional Linux environments to monitor and notify about other processes. In non-systemd cluster, this daemon can be used to monitor both the kubelet and docker processes. It will try to restart them if they fail, and log events. While not part of a typical installation, some may add this monitor for added reporting.

Kubernetes does not have cluster-wide logging yet. Instead, another CNCF project is used, called Fluentd. When implemented, it provides a unified logging layer for the cluster, which filters, buffers, and routes messages.

Cluster-wide metrics is another area with limited functionality. The metrics-server SIG provides basic node and pod CPU and memory utilization. For more metrics, many use the Prometheus project.