



Kubernetes Manifests

Here are four types of Kubernetes manifests.

1. **Deployment Manifests:** A deployment manifest describes how to create and manage a group of identical pods, ensuring that the desired number of replicas are running at all times. It specifies the image, number of replicas, resource requirements, and other settings for the pods. Deployments provide features like scaling, rolling updates, and rollbacks.
2. **Service Manifests:** A service manifest defines a stable network endpoint that enables communication with pods or other services within a Kubernetes cluster. It acts as an abstraction layer, allowing access to pods using a consistent IP address or hostname, regardless of changes in pod IP addresses or scaling. Services can expose ports, perform load balancing, and provide internal or external access to applications running in the cluster.
3. **ConfigMap Manifests:** A ConfigMap manifest is used to store non-sensitive configuration data, such as environment variables or configuration files, that are required by applications running in the cluster. ConfigMaps separate configuration from application code, making it easier to manage and update configurations independently. Applications can access the ConfigMap data as environment variables or as mounted volumes.
4. **Secret Manifests:** A Secret manifest is used to store sensitive information, such as passwords, API keys, or TLS certificates, securely within the Kubernetes cluster. Secrets are base64-encoded representations of sensitive data and are encrypted at rest. They can be mounted as files or exposed as environment variables to be consumed by applications running in the cluster.

In summary, deployment manifests define how to manage groups of pods, service manifests provide network access to pods, ConfigMap manifests store non-sensitive configuration data, and Secret manifests store sensitive information securely. These manifests help define and manage the desired state of applications running in a Kubernetes cluster.