**What are Kubernetes?**

Kubernetes, also known as K8s, is an open source system for managing [containerized applications](https://kubernetes.io/docs/concepts/overview/what-is-kubernetes/) across multiple hosts. It provides basic mechanisms for deployment, maintenance, and scaling of applications.

Kubernetes builds upon a decade and a half of experience at Google running production workloads at scale using a system called [Borg](https://research.google.com/pubs/pub43438.html), combined with best-of-breed ideas and practices from the community.

Kubernetes is hosted by the Cloud Native Computing Foundation ([CNCF](https://www.cncf.io/about)). If your company wants to help shape the evolution of technologies that are container-packaged, dynamically scheduled, and microservices-oriented, consider joining the CNCF. For details about who's involved and how Kubernetes plays a role, read the CNCF [announcement](https://cncf.io/news/announcement/2015/07/new-cloud-native-computing-foundation-drive-alignment-among-container).

Kubernetes is used to create applications that are easy to manage and deploy anywhere. When available as a managed service, Kubernetes offers you a range of solutions to meet your needs. Here are some common use cases.

### What are the benefits of Kubernetes and why is it used?

##### Automated operations

Kubernetes has built-in commands to handle a lot of the heavy lifting that goes into application management, allowing you to automate day-to-day operations. You can make sure applications are always running the way you intended them to run.

##### Encapsulation of Infrastructure

When you install Kubernetes, it handles the compute, networking, and storage on behalf of your workloads. This allows developers to focus on applications and not worry about the underlying environment.

##### Service health monitoring

Kubernetes continuously runs health checks against your services, restarting containers that fail, or have stalled, and only making available services to users when it has confirmed they are running.

##### Increasing development velocity

Kubernetes helps you to build cloud-native microservices-based apps. It also supports containerization of existing apps, thereby becoming the foundation of application modernization and letting you develop apps faster.

##### Ease of Access of developed applications

Kubernetes is built to be used anywhere, allowing you to run your applications across on-site deployments and public clouds; as well as hybrid deployments in between. So you can run your applications where you need them.

##### Running efficient services

Kubernetes can automatically  adjust the size of a cluster required to run a service. This enables you to automatically scale your applications, up and down, based on the demand and run them efficiently.