





What are the Key Differences between Docker vs. Kubernetes ?

Feature	Docker 	Kubernetes 
Definition	A platform to build, package, and run containers.	An orchestration system to manage and scale containerized applications.
Purpose	Helps create and run containers efficiently.	Manages, scales, and automates container deployment.
Component Type	Containerization tool.	Container orchestration tool.
Container Management	Runs single or multiple containers on a host.	Manages a cluster of multiple containers across multiple nodes.
Scaling	Manual scaling (run more containers manually).	Automatic scaling (adds/removes containers based on demand).
Networking	Uses a default bridge network or custom networks.	Provides internal networking with DNS-based service discovery.
Load Balancing	Requires external tools (NGINX, HAProxy).	Built-in load balancing across containers.
Fault Tolerance	No built-in recovery (container restarts manually).	Automatic container restart, rescheduling, and self-healing.
Storage	Supports volumes and bind mounts.	Supports persistent storage using PersistentVolumes (PVs) and PersistentVolumeClaims (PVCs).
Deployment	Manually starts/stops containers.	Uses YAML configurations to define Deployments, Services, and Pods.
State Management	Containers are stateless by default.	Supports both stateless and stateful applications (StatefulSets).
Monitoring	Basic monitoring with <code>docker stats</code> .	Advanced monitoring with Prometheus, Grafana, and built-in Kubernetes metrics.
When to Use?	Best for developing and running single-container applications.	Ideal for deploying, managing, and scaling multi-container applications in production.

Do You Need Both?

Yes! **Docker** is used to build and package containers, while **Kubernetes** manages and orchestrates them at scale.

Q1: How does Kubernetes improve fault tolerance compared to Docker?

- A) Kubernetes requires manual container restarts like Docker
- B) Kubernetes automatically restarts failed containers and reschedules them if a node fails
- C) Docker has a built-in self-healing mechanism like Kubernetes
- D) Both Docker and Kubernetes require manual intervention to restart containers

 **Correct Answer: B**

Q2: What storage feature does Kubernetes offer that is not available in standalone Docker?

- A) Bind mounts for sharing files between host and container
- B) Persistent storage using PersistentVolumes (PVs) and PersistentVolumeClaims (PVCs)
- C) Temporary volumes that get deleted when the container stops
- D) Direct disk access without storage management

 **Correct Answer: B**

Q4: How does Kubernetes support stateful applications better than Docker?

- A) Kubernetes does not support stateful applications
- B) Kubernetes uses StatefulSets to manage stateful applications
- C) Docker provides built-in tools for managing stateful applications
- D) Both Docker and Kubernetes are only designed for stateless applications

 **Correct Answer: B**