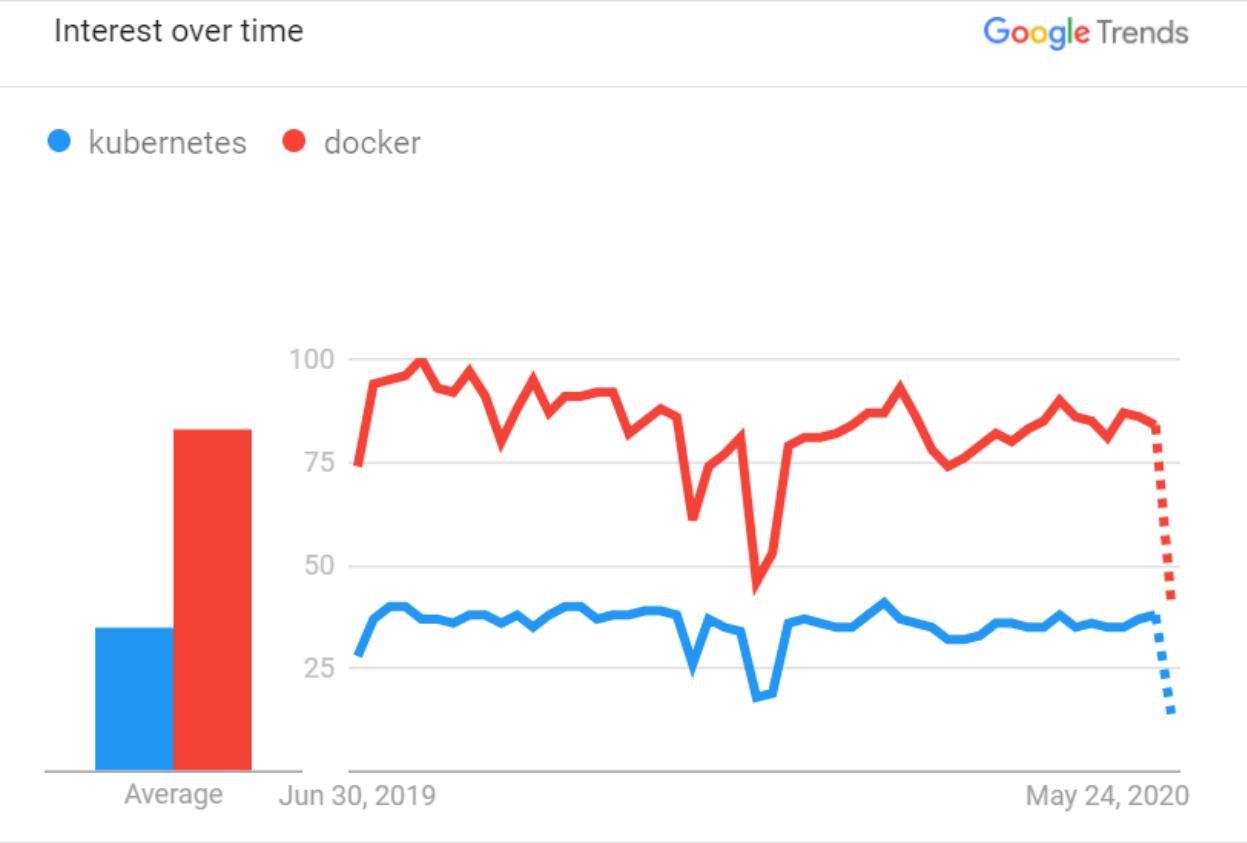
Kubernetes vs Docker

Kubernetes and Docker are the two most popular phrase these days in DevOps. Everyone who wants to adopt DevOps talks about Kubernetes and Docker. People believe that they are almost similar with few differences in their architecture and functionality but when you break them down, you think it is completely different than you thought. Kubernetes is not an alternative to Docker or vice-versa as both can run without each other but at the same time can benefit greatly to each other. This article is to clear the understanding and highlight some of they key difference between both the phrase.

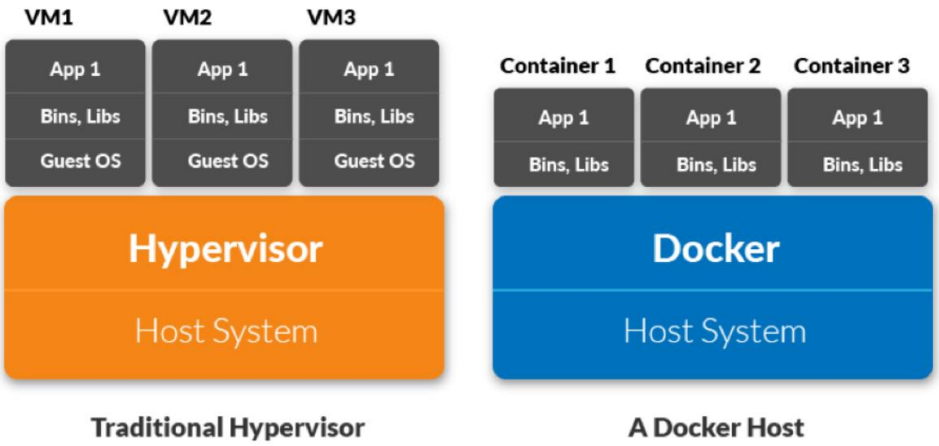
Before, we talk about these two phrases, let's see the trends of them in current market.

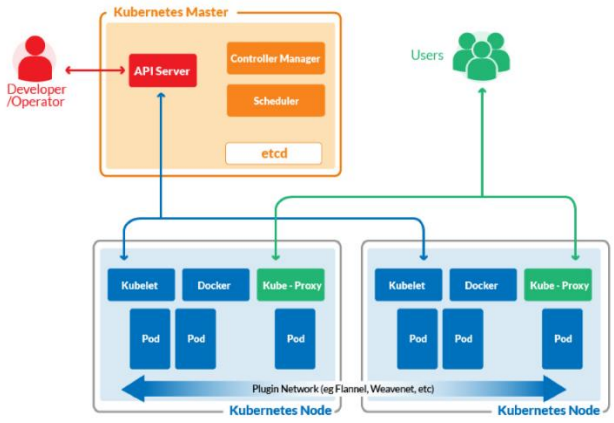


Source: trends.google.com

- Docker is a containerization platform whereas Kubernetes is a container orchestrator for container platforms like a Docker.
  Here comes the important point that what is Docker and Kubernetes. Docker is a standalone software/application which can be installed to run containerized applications. Containerization is an approach of running applications on an OS such that application is isolated from the rest of the system. Basically, it creates an illusion for your application that it is getting its very own OS instance though multiple containers are running on same system. Docker is what enables us to run, create and manage containers on a single OS.

  Kubernetes allows you to manage these containers installed or deployed on different nodes or hosts. It can allow you to automate container provisioning, networking, and load-balancing, security and scaling across all the nodes.





Now, we have basic understanding on the two terms, let us see the similarities between them:

1. Both share microservices- based architecture.
2. Both are open-source and have large open source community and projects.
3. Both use YAML files to specific application stacks, config and deployments.

Differences between Kubernetes and Docker:

1. Kubernetes run across a cluster while Docker runs on a single node.
2. Kubernetes is more extensive than Docker Swarm and is meant to coordinate cluster of nodes at scale in production in an efficient manner.
3. Kubernetes is auto scalable whereas Docker is not.
4. Fault tolerance is low in Kubernetes than Docker.
5. Kubernetes offers variety of storage options and storage volumes can be shared with any other container.
6. Kubernetes has in-built logging and monitoring feature.
7. Kubernetes supports up to 5000 nodes whereas Docker supports only 2000 nodes.
8. Kubernetes is less extensive and customizable whereas Docker is more comprehensive and highly customizable.

Conclusion

Containers are amazing. Both Docker and Kubernetes are changing and transforming themselves into something better and helping us to implement our infrastructure in better way. You can use Kubernetes with Docker to make your infrastructure more robust and your app highly available and to make your application more scalable.

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