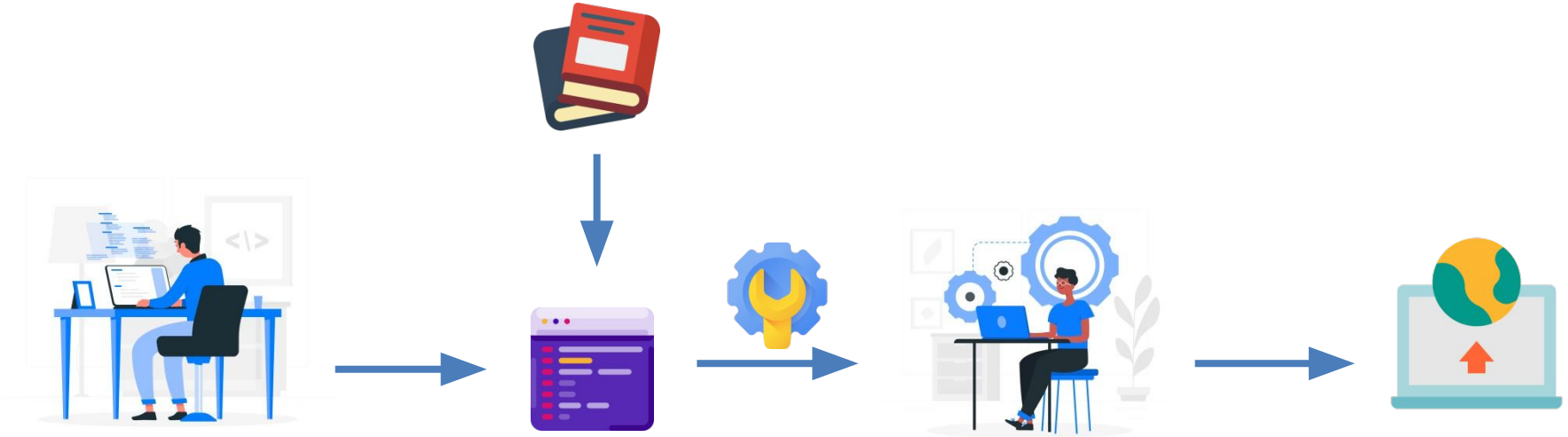
greatlearning
Power Ahead

Introduction to Kubernetes

Why do we need Kuberenetes?

Issues we faced before Containerization



Developer

Tester

Standard Delivery Pipeline

Issues we faced before Containerization

greatlearning
Power Ahead

Developer

Operating System

Pytest 5.4.3

Pycharm IDE

Backend Code

Dependencies

Tester

Operating System

Pytest 5.3.0

Spyder IDE

Backend Code

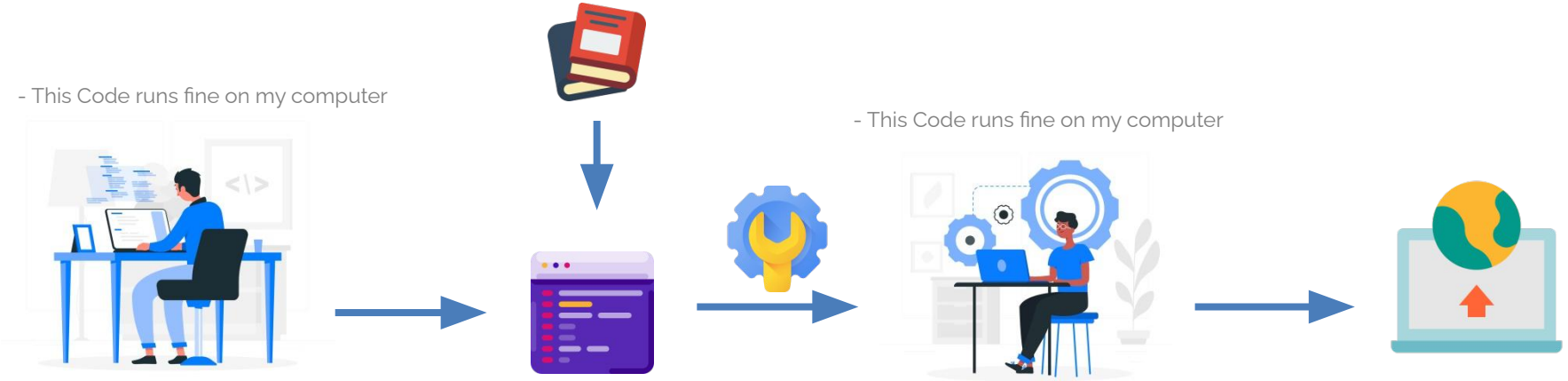
Dependencies

Issues we faced before Containerization

- Now Let's see what happens when we introduce Containers.

Issues we faced before Containerization

greatlearning
Power Ahead



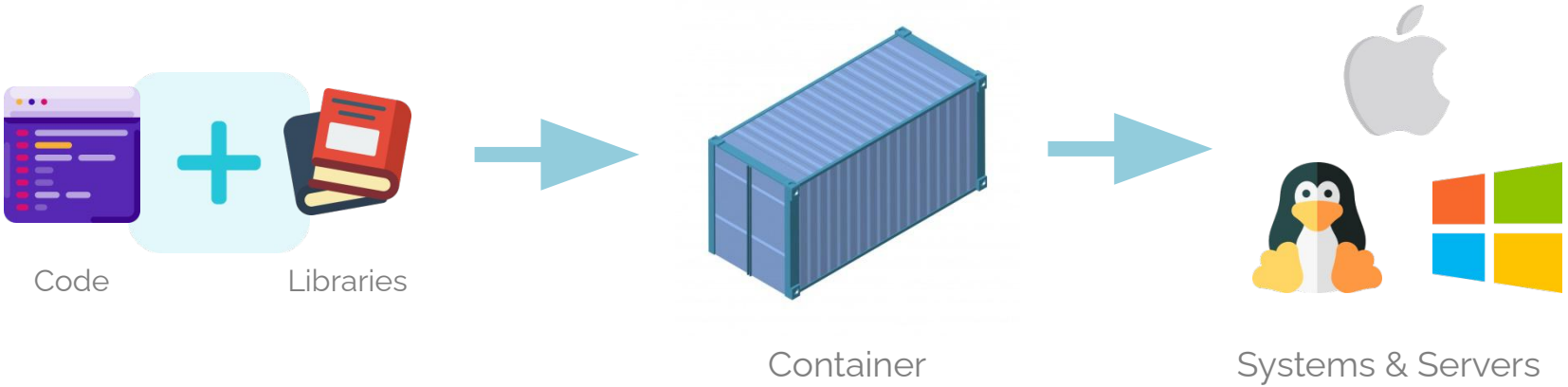
Similar Delivery Pipeline but with containers

What is a Container?

What is a Container?

greatlearning
Power Ahead

Containers are software that wrap up all the parts of a code and all its dependencies into a single deployable unit that can be used on different systems and servers.

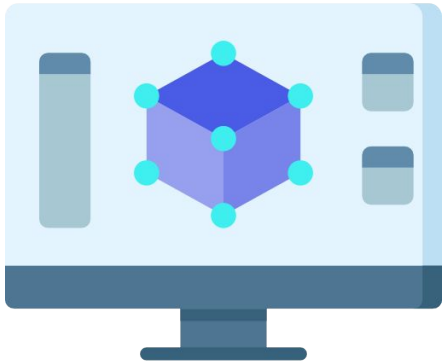


What is a Container?

greatlearning
Power Ahead

You can compare Containers to VM to get a better Idea.

Container



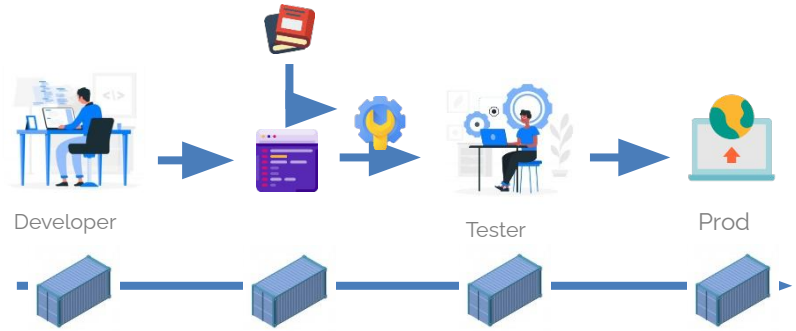
VM

Why do we need Containers?

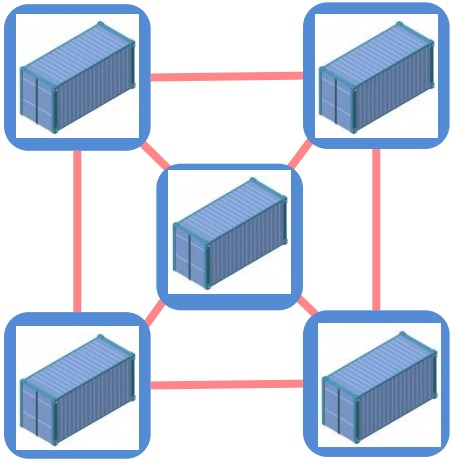
Why do we need Containers?

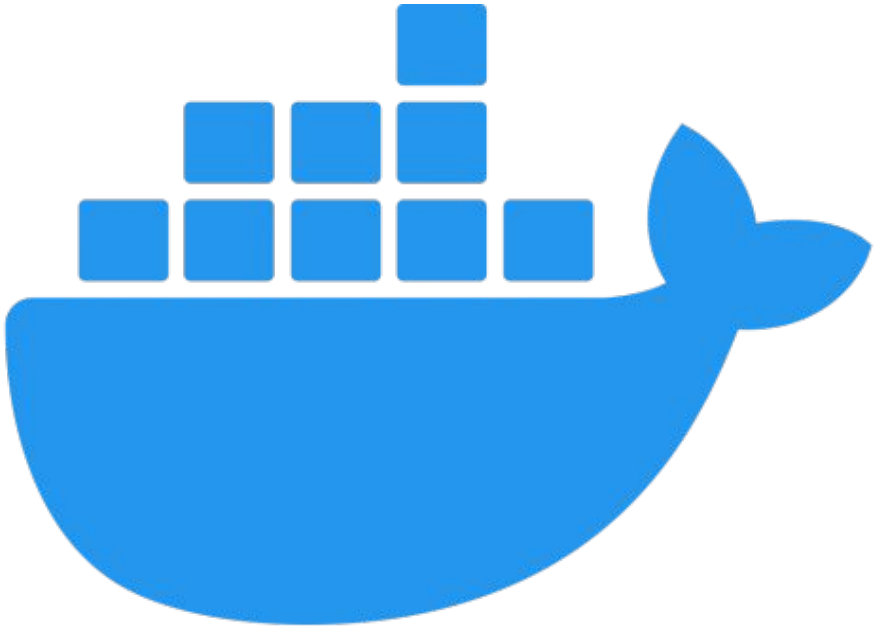
greatlearning
Power Ahead

Consistent Development Environments



Mircoservices



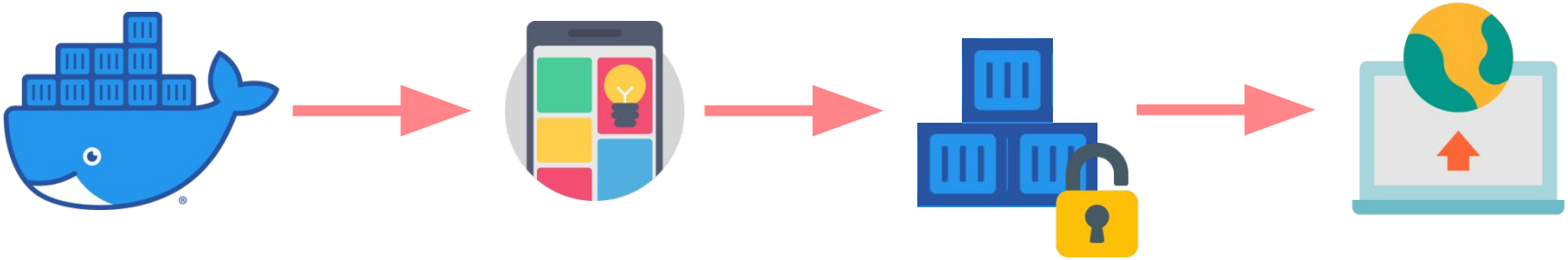


What is Docker?

What is Docker?

greatlearning
Power Ahead

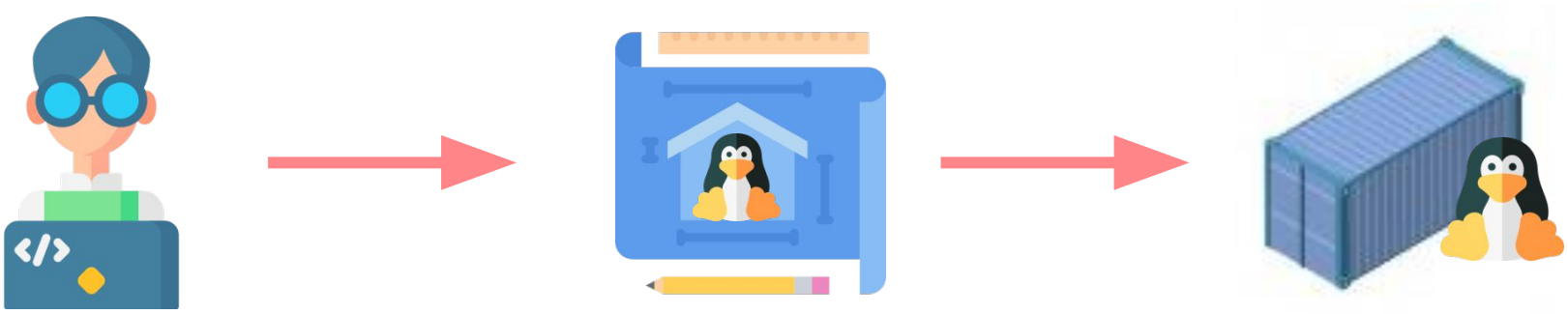
Docker is a tool that helps in developing, building, deploying and executing software in isolation. It does so by creating containers that completely wrap a software.



The Isolation provided by container gives a layer of security to the containers.

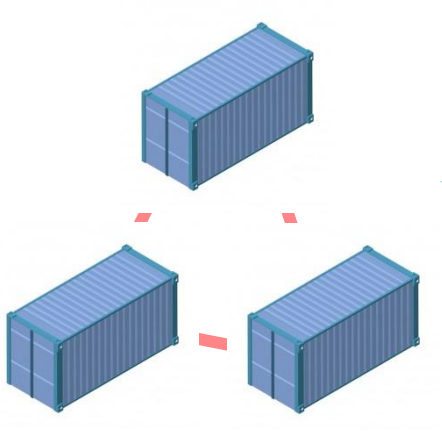
Docker Objects - Images

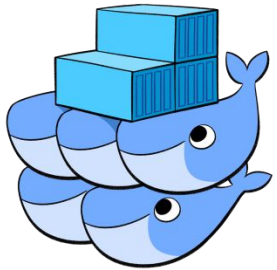
Docker images are sets of instructions that are used to create containers and execute code inside it.



What is a Container?

Multiple isolated containers can be launched together to form Microservices which can be easily managed using any orchestration tool e.g. Docker Swarm, Kubernetes, etc.

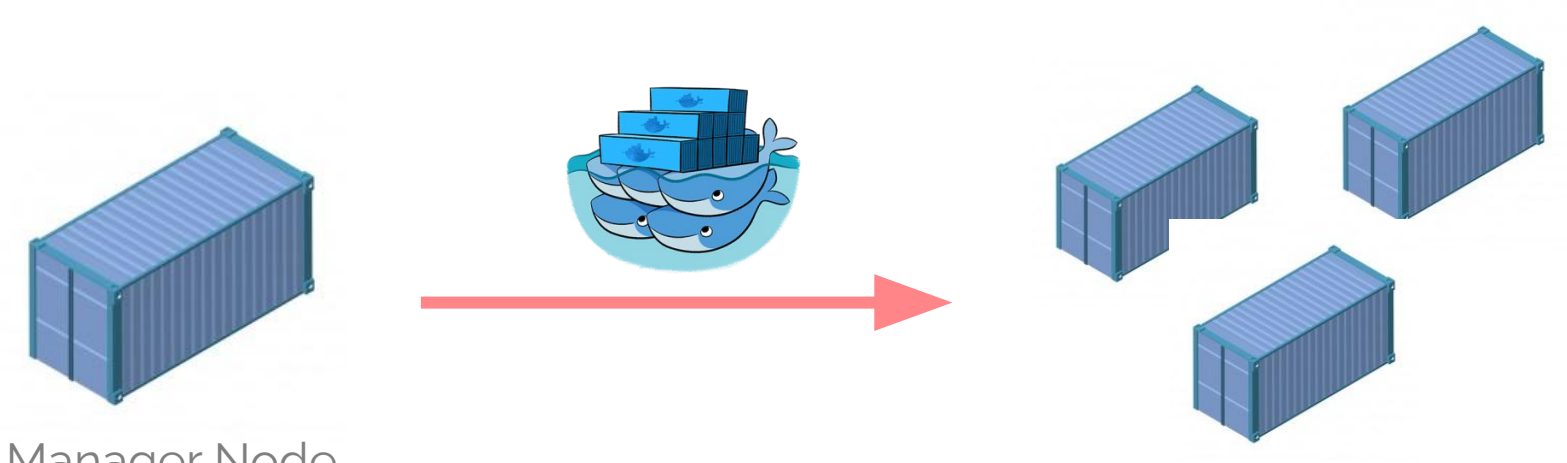




OR

Docker Swarm

For Now just understand that Docker Swarm is a service within Docker that allows us to manage multiple containers.



Manager Node

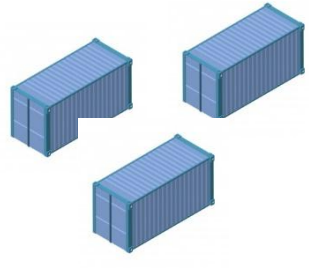
Worker Node

What is Kuberenetes?

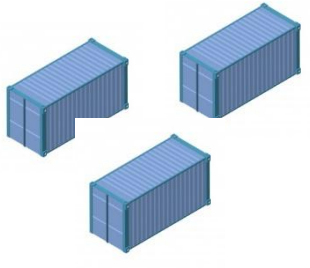
What is Kubernetes?

greatlearning
Power Ahead

Kubernetes is an opensource container orchestration tool that allows us to manage multiple containers in different types of environment. A pro about kubernetes compare to other orchestration tool is that It is a very robust and secure orchestration tool that doesn't leave us wanting much.



Pod-1



Pod-2

Kubernetes Features

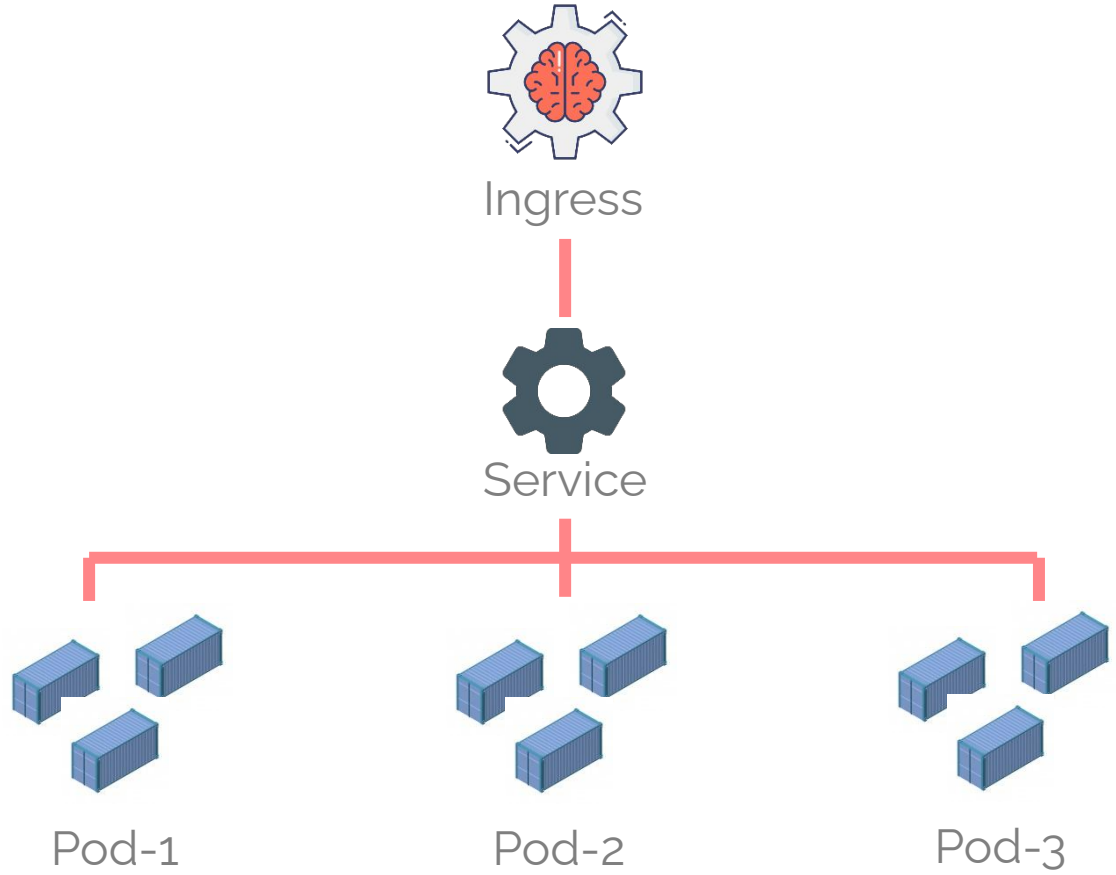
greatlearning
Power Ahead

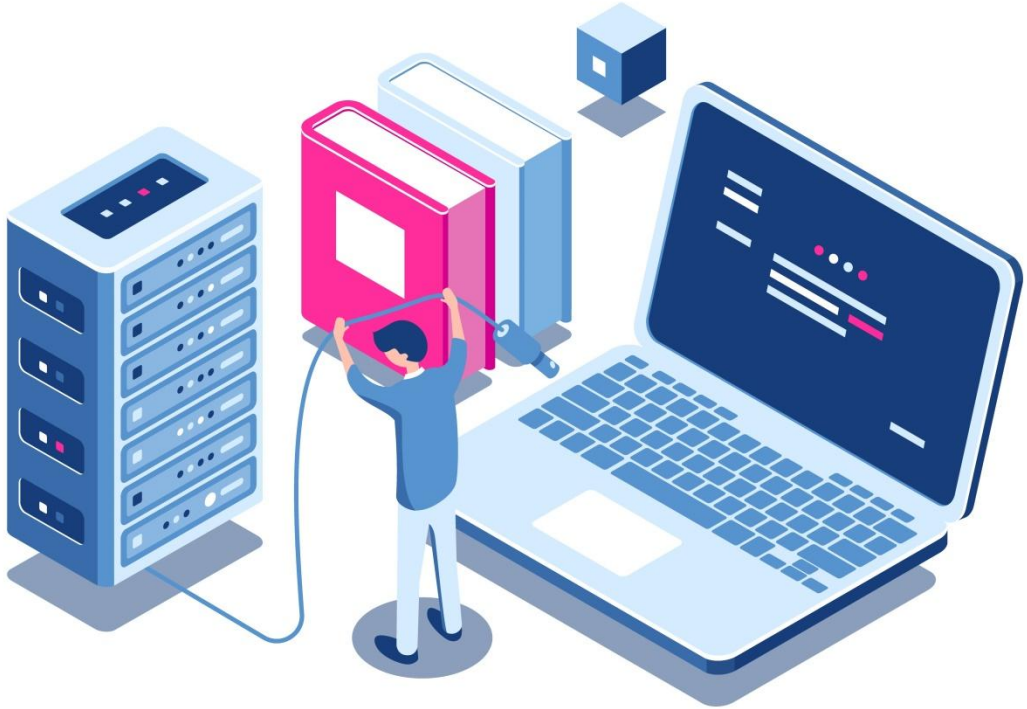
- Easy Updates and Rollbacks
- Storage Distribution
- Secret Handling
- Heals Itself
- Load Balancing
- Easy Scalling

What does Kubernetes do? & How does it do it?

Kubernetes Architecture

greatlearning
Power Ahead





Kubernetes Installation & Setup

Q&A