 A **Docker Swarm** is a group of either physical or virtual machines that are running the Docker application and that have been configured to join together in a cluster. Once a group of machines have been clustered together, you can still run the Docker commands that you're used to, but they will now be carried out by the machines in your cluster. The activities of the cluster are controlled by a swarm manager, and machines that have joined the cluster are referred to as nodes.

Docker swarm is a container orchestration tool, meaning that it allows the user to manage multiple containers deployed across multiple host machines.

One of the key benefits associated with the operation of a Docker swarm is the high level of availability offered for applications. In a Docker swarm, there are typically several worker nodes and at least one manager node that is responsible for handling the worker nodes' resources efficiently and ensuring that the cluster operates efficiently.

**Docker**is a software platform that enables software developers to easily integrate the use of containers into the software development process. The Docker platform is open source and available for Windows and Mac, making it accessible for developers working on a variety of platforms. The application provides a control interface between the host operating system and containerized applications.

**Containers**and their utilization and management in the software development process are the main focus of the docker application. Containers allow developers to package applications with all of the necessary code and dependencies that are necessary for them to function in any computing environment. As a result, containerized applications run reliably when moved from one computing environment to another. In the docker application, a container is launched by running an image.

**An Image** is a package of executable files that contains all of the code, libraries, runtime, binaries and configuration files necessary to run an application. A container can be described as the runtime instance of an image.

**A Dockerfile** is the name given to the type of file that defines the contents of a portable image. Imagine you were going to write a program in the Java programming language. Your computer does not understand Java on its own, so you'll need a way to convert your code into machine code. The libraries, configuration files, and programs needed to do this are collectively called the "Java Runtime Environment (JRE)." In Docker, all of these assets would be included in the Dockerfile.

**swarm mode CLI commands**

* [swarm init](https://docs.docker.com/engine/reference/commandline/swarm_init/)
* [swarm join](https://docs.docker.com/engine/reference/commandline/swarm_join/)
* [service create](https://docs.docker.com/engine/reference/commandline/service_create/)
* [service inspect](https://docs.docker.com/engine/reference/commandline/service_inspect/)
* [service ls](https://docs.docker.com/engine/reference/commandline/service_ls/)
* [service rm](https://docs.docker.com/engine/reference/commandline/service_rm/)
* [service scale](https://docs.docker.com/engine/reference/commandline/service_scale/)
* [service ps](https://docs.docker.com/engine/reference/commandline/service_ps/)
* [service update](https://docs.docker.com/engine/reference/commandline/service_update/)