How Docker changed the world for the better

Before 2013, software and DevOps engineers found it increasingly challenging to test, deploy, update and maintain software on multiple servers with multiple hardware configurations. Even when the server hardware was identical, the software running on them, like the operating system or the version of PHP or Node.js or Python, was slightly different, which caused countless issues and headaches. Especially when the software being deployed uses the Microservices architecture.

Even before the deployment stage, simply giving the software for testing or development purposes to a co-worker with a slightly different software or hardware configuration would cause a disaster. These issues plagued engineers for years, and something had to be done.

Enters Docker. Docker's initial release was back in 2013. Since then, Docker has grown tremendously, and many tech companies have adopted it into their day-to-day work. The entire idea behind Docker is that software or DevOps engineers do not have to worry about the target machine hardware, operating system, or what software version is installed. Instead, the software engineer creates a container image and packages their applications alongside the environment needed to run them. Then, all the DevOps engineer has to do is mount the image on the target machine and run it. Simple as that. There is no need to spend hours installing the correct operating system version or the development environment.

Docker has many other benefits, like the fact that it is very lightweight and can run multiple containers simultaneously, taking advantage of the target hardware resources. Unlike a traditional virtual machine which is very heavyweight and does not utilize the target hardware resources as efficiently as possible. Traditional virtual machines have a hypervisor that the guest operating systems run on. That adds a layer of complexity, slows down the machine, and takes a tremendous amount of resources. On the other hand, Docker runs a Docker demon service that is very lightweight and fast and can start in less than 15 milliseconds. In contrast, traditional virtual machines take seconds or even minutes to start.

In my Unit 12 assignment submission, I will write about Docker, how it works, its advantages and disadvantages, how it changed the way we deploy software, and how it is slowly replacing virtual machines.

The organization I will be exploring is Al Shaya Group since they previously employed me. I will discuss how Docker could have improved their workflow and their testing, deployment, updating, and maintaining their software suite.

Al Shaya Group is currently responsible for over ten different brands amounts these are Footlocker, Victoria's Secret, Mothercare, American Eagle, and more. Each of these brands has its own application, which relies on many different back-end software to run correctly. Updating and maintaining these software requires a team of engineers, which is expansive and time-consuming. What I will be proposing is to replace the traditional way of deploying, testing, maintaining, and updating these software with Docker. A single container that can be deployed on any machine and is guaranteed to run without issues or headaches, and is easy to update.