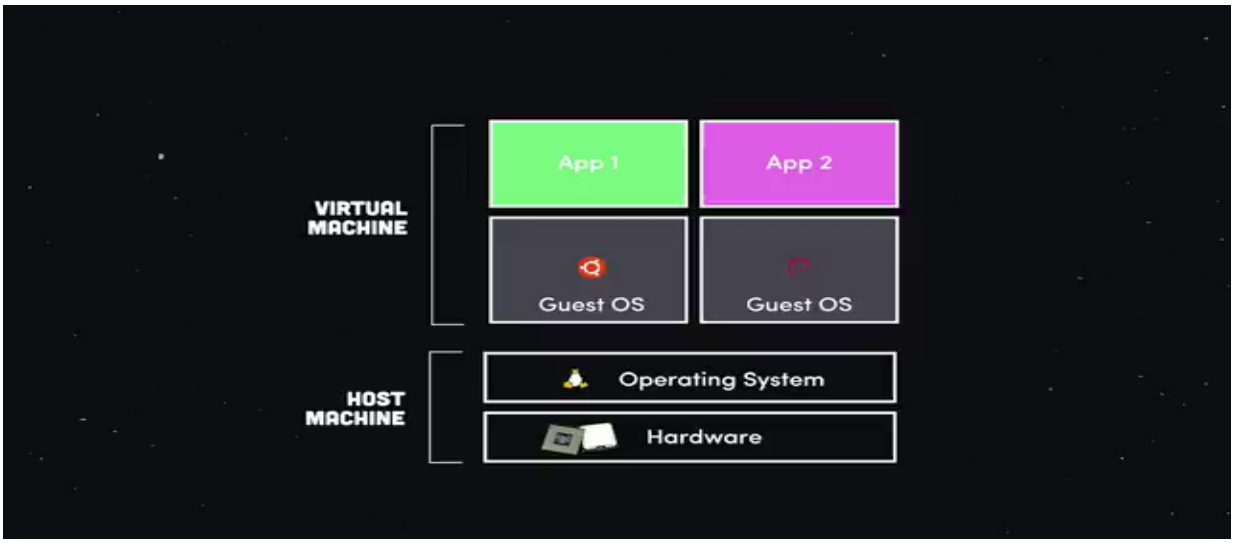
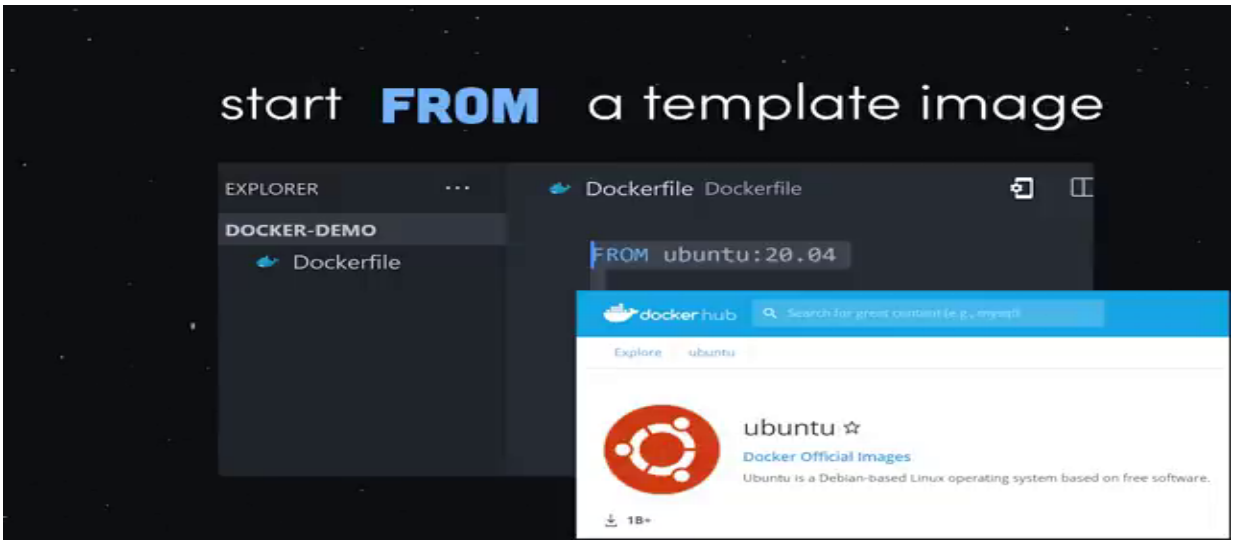
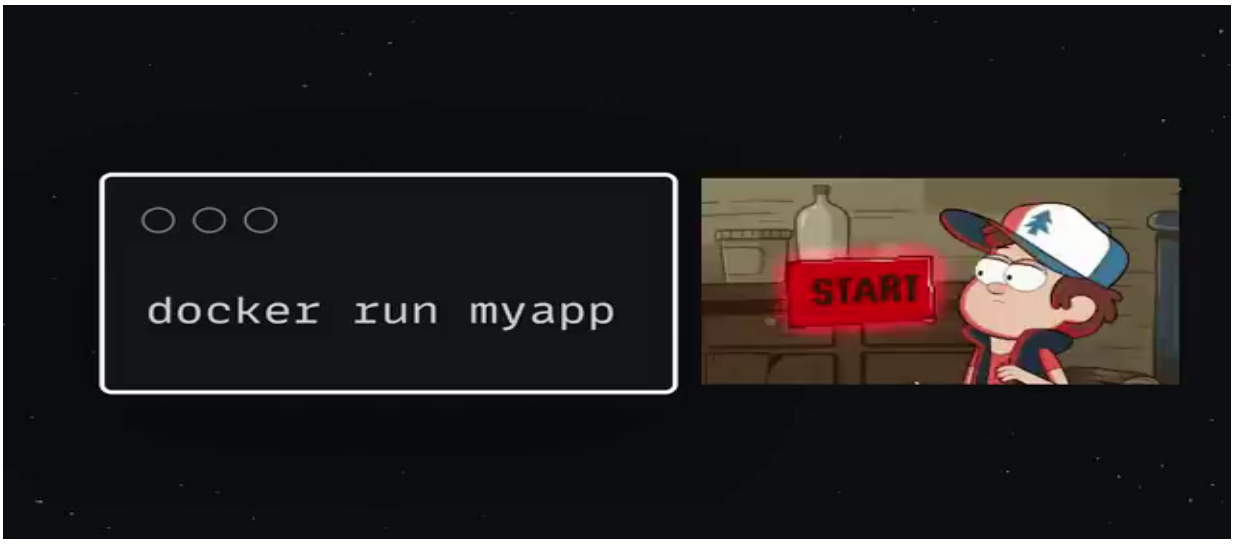

VIRTUAL MACHINE
App 1
App 2
Guest OS
Guest OS
HOST MACHINE
Operating System
Hardware


DOCKERFILE





The video discusses Docker, a tool that can package software into containers that run reliably in any environment. The transcript explains that there are three fundamental elements in the universe of Docker: the Docker file, the image, and the container. The Docker file is like DNA; it's just code that tells Docker how to build an image, which itself is a snapshot of your software along with all of its dependencies down to the operating system level. The image is immutable and can be used to spin up multiple containers, which is your actual software running in the real world. To create a Docker file, one can use the "from" command to start from an existing template like Ubuntu. This base image gets pulled down from the cloud and one can also upload their own images to a variety of different Docker registries. From there, one might want to use the "run" command to run a terminal command that installs dependencies into the image. One can set environment variables and do all kinds of other stuff. Then, the last thing one will do is set a default command that's executed when they start up a container. Once the Docker file is created, one can create the image file by running the "docker build" command. It goes through each step in the Docker file to build the image layer by layer. One can then bring this image to life as a container with the "docker run" command. As the app demands more resources, one can run it on multiple machines, multiple clouds, on-prem, or wherever they want reliably. The transcript explains that a Docker container is conceptually very similar to a virtual machine, where the hardware is simulated then installed with the required OS and dependencies. However, the key difference is that

instead of virtualizing hardware, containers only virtualize the OS, or in other words, all apps or containers are run by a single kernel. This makes almost everything faster and more efficient.