DOCKER

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MOTIVATION

Main challenges:

- Different environments

- Dependencies and version mismatches

- Collaborative work and consistency

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WHAT IS DOCKER?

- Platform to make it easier to create, deploy and run applications in "containers".

- Allows to package an application with all its required dependencies

- Containerization

Advantages:

Consistency

Isolation

Lightweight

Source: Docker

Source: Accesto

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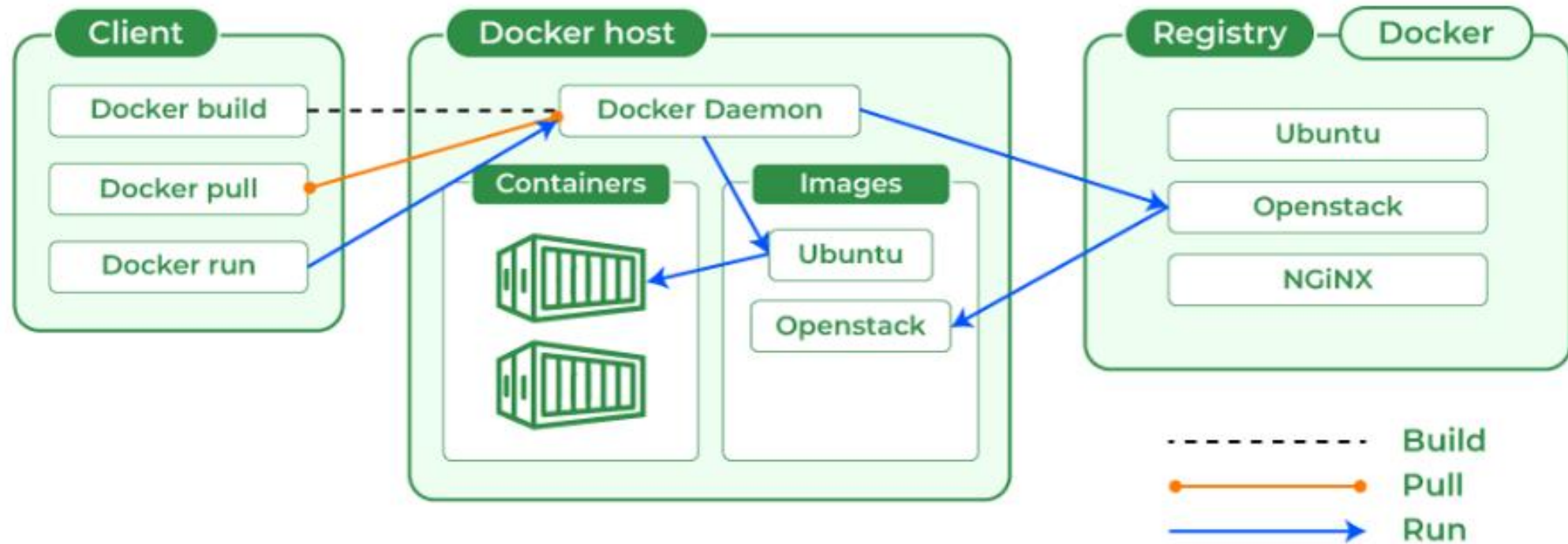
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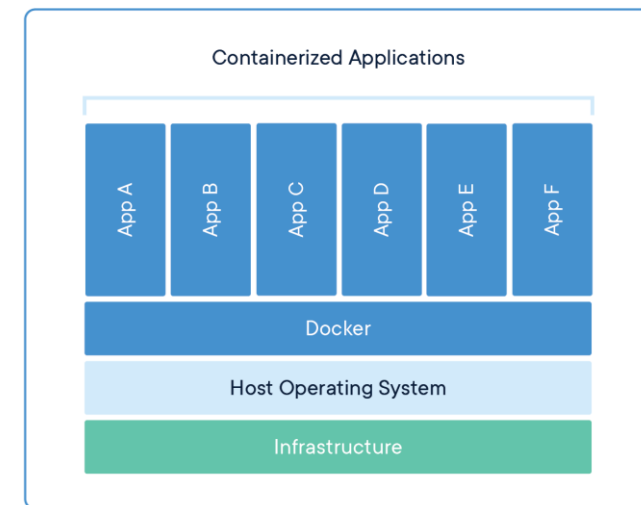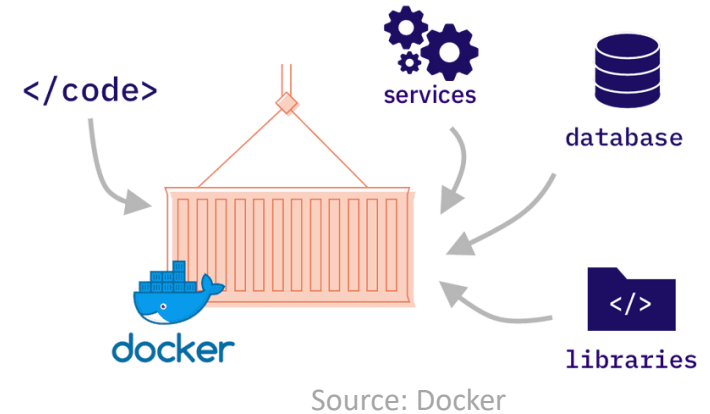
KEY ELEMENTS

- **Docker Image:** A template/blueprint, which contains anything needed to run an application (Immutable).

- **Docker Container:** A running instance of an image (Mutable)

- **Dockerfile:** Script containing commands to define a Docker Image

- **Docker Hub:** Cloud-based registry for images

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DOCKER ARCHITECTURE

Source: GeeksForGeeks

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BASIC WORKFLOW

1. Make dockerfile

2. Build image

3. Run container

4. Test application

5. Push image to Docker Hub (optional)

6. Update and iterate

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EXAMPLE: MAESTRO STAND ALONE FROM A DOCKER PERSPECTIVE

- Dockerfile
- Steps:
    1. *docker build -t maestro:latest .*
    2. *docker container run --rm --name maestro-container -v ${pwd}\maestro_stand_alone:/maestro_stand_alone -v ${pwd}\fmus:/fmus -w /maestro_stand_alone -it maestro:latest /bin/bash*