Packaging and Release

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CS 333 – TESTING AND DEVOPS

Pipeline

- Packaging
  - Artifact repository
  - Application pre-deployment staging
- Releasing
  - Change management
  - Release approvals
  - Release automation

Docker

- Platform as a Service
- OS-level virtualization (no more “it works on my machine”)
- Isolated from one another and bundle their own software, libraries, and configuration files.
- **Packaging** up software with dependencies and ship them!

Uses

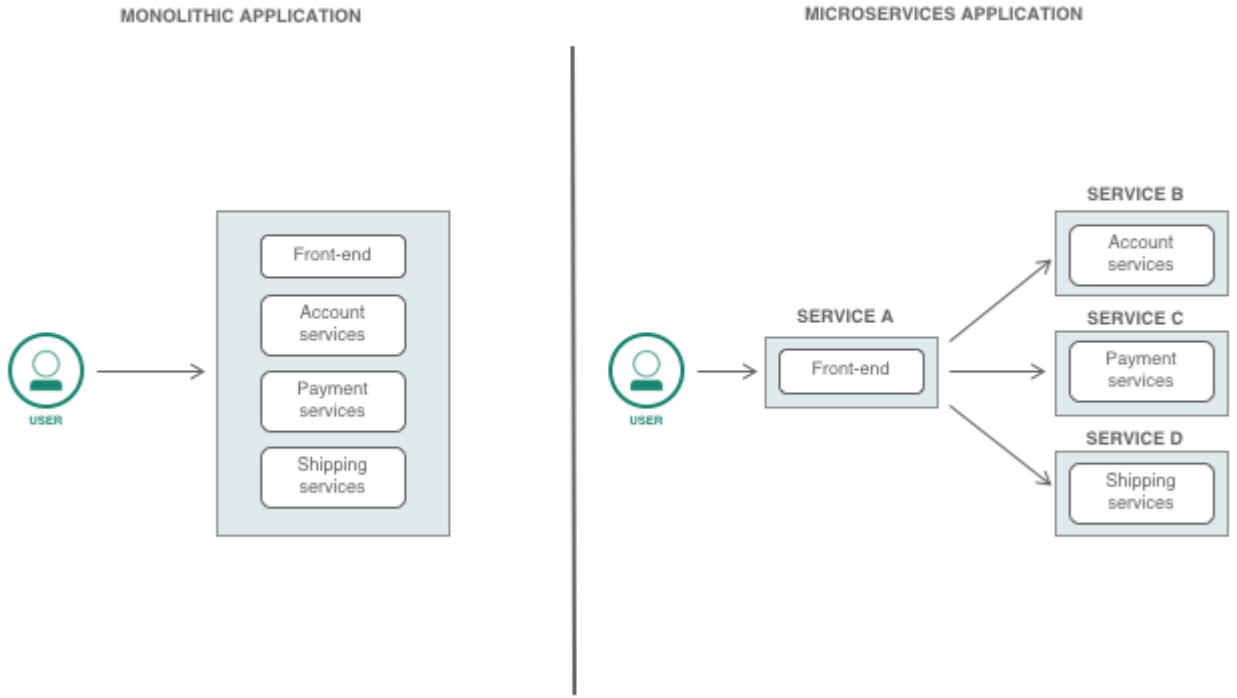
- Installation
  - individual development environment
  - the software pipeline
    - hosting (many environments on one machine)
    - deployment (one environment shared to many machines)

Individual Environments

- Replaces bash scripts
- Eliminates dependency issues
  - https://dl.acm.org/doi/10.1145/3460319.3464797
  - Kind of like **`venv`** in Python but extends beyond language dependencies

Hosting

- Testing vs Deployment environments
- Microservices



https://developer.ibm.com/articles/why-should-we-use-microservices-and-containers/

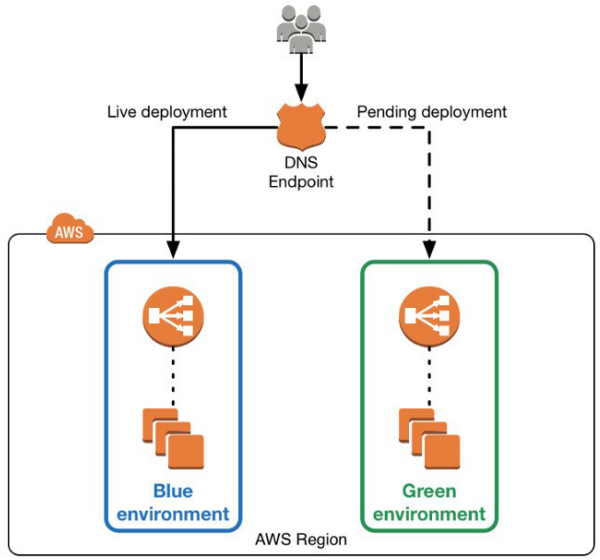
Deployment

- Updates
- Same environment across different hosts
  - Autoscaling
    - Kubernetes
  - Clustering
    - Docker Swarm

Blue/Green Deployment

A blue/green deployment is a deployment strategy in which you create two separate, but identical environments.

- One environment (blue) is running the current application version
- One environment (green) is running the new application version.
- Once testing has been completed on the green environment, live application traffic is directed to the green environment and the blue environment is deprecated.



Using a blue/green deployment strategy increases application availability and reduces deployment risk by simplifying the rollback process if a deployment fails.

Docker Components

1. Docker daemon
2. Docker client
3. Docker registries
4. Docker Image
5. Docker Container
6. Containerize an Application
7. Update the Application
8. Share the application

Questions?

1. Docker daemon
2. Docker client
3. Docker Image
4. Docker registries
5. Docker Container
6. Containerize an Application
7. Update the Application
8. Share the application

Let's Do Something!

- Your group has been assigned a topic
- Put together a 3 – 5 minute presentation on that topic
  - Provide the relevant details of your topic
  - Explain how your topic fits into the larger picture
  - Examples, metaphors, and/or visual aids are highly encouraged!
- We'll start the presentations around 4:30-5pm