The background of the slide features a blue gradient with a network of white lines and dots. On the left, a hand is shown reaching towards a cluster of interlocking gears. Below the gears, another hand is shown palm-up. The text is overlaid on the right side of the image.

CS 470 Project Two Conference Presentation: Cloud Development

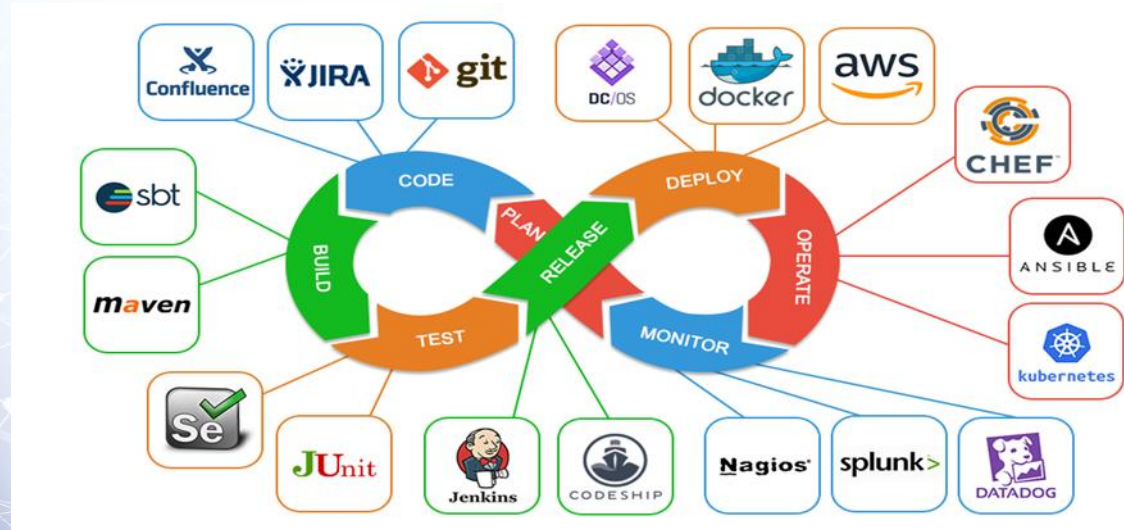
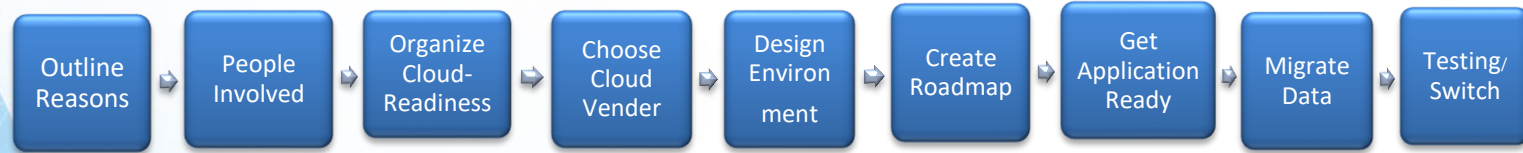
Candace Ralston
06/23

Overview

- My name is Candace Ralston-student
- About serverless cloud, containerization, and orchestration

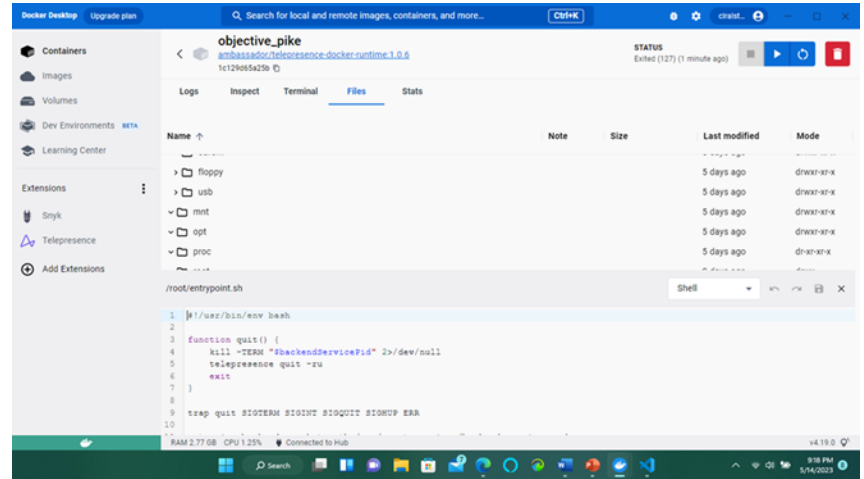


Containerization



Orchestration

A docker Compose is a tool that was developed to help define and share multi-container applications.





The Serverless Cloud

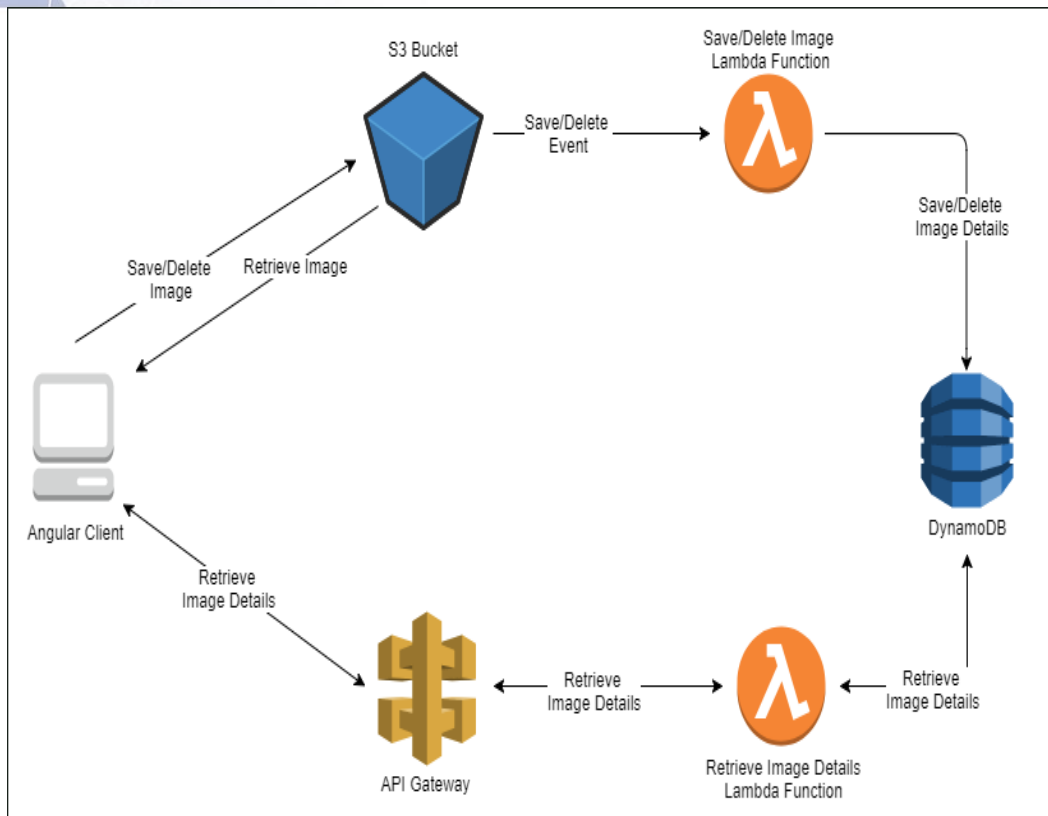
Pros	Cons
No server management	Testing and debug are challenging
Charged for used space	Security concerns
Scalable	No long-running processes
Quick deployment and updates	Performance affected
Code runs closer to user	Lock-in is a risk

S3 Storage	Local Storage
Data Retrieval	Data Retrieval limit
Collaboration	No Collaboration
Disaster Recovery	Limited Disaster Recovery
Subscription Pay	More/adding & upgrading
Green Business	More Waste
Increased Capability	Limited Capability

The Serverless Cloud

Lambda

- AWS
- Event-Driven
- Serverless Computing Platform





The Serverless Cloud

	MongoDB	DynamoDB
Run Anywhere	Deploy Anywhere	AWS
Data Model	JSON Based	Limited key-value
Querying	Query Language	Key-value Queries
Indexing	Robust/Easy	Limited/Complex
Data Integrity	Strong Consistent	Eventually Consistent

Database

➤ Queries used

- Get all questions
- Get all answers
- Get a single question
- Get a single answer

➤ Lambda Script

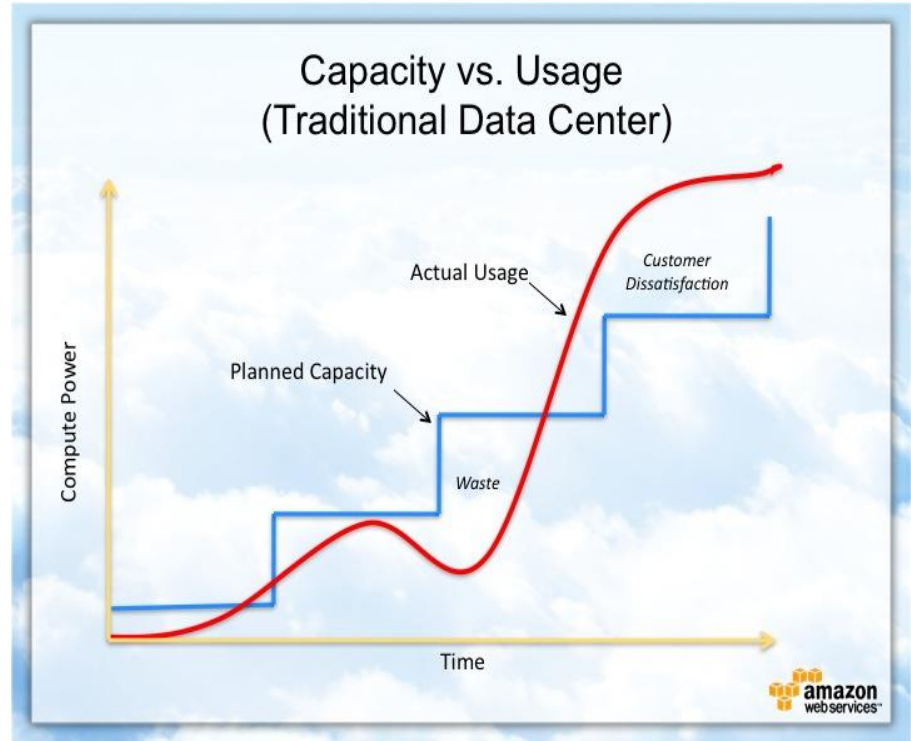
Cloud-Based Development Principles

- **Elasticity:**

Acquire resources as need them and release resources

- **Pay-for-use model:**

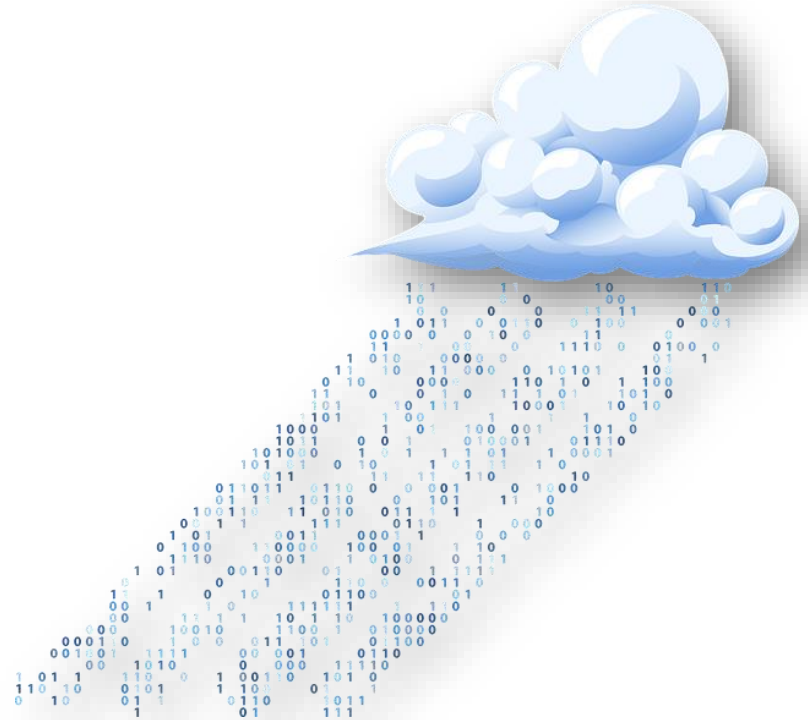
easily adapt to changing business needs by only buying the storage space needed



Securing Your Cloud App

Access

- Multi-Factor Authentication (MFA)
- Strong Passwords
- Physical Security Practices
- Monitoring User Activity
- End point Security



Securing Your Cloud App

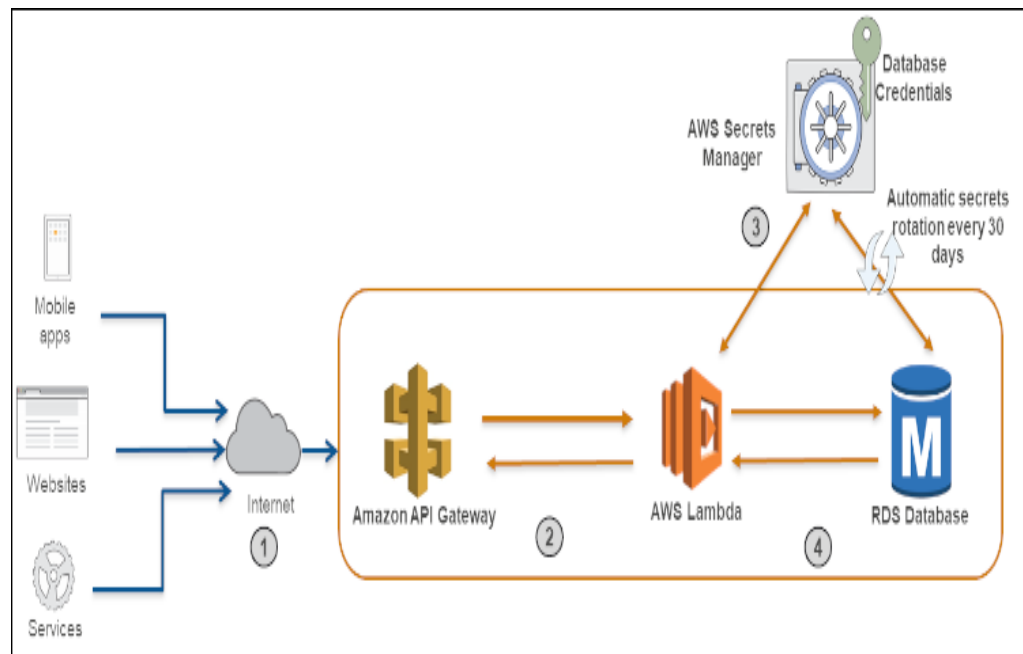
Policy	Role
Users have access to technology resources	Users are authenticated
Permissions of identity	Users are authorized
IAM regulates access to AWS	Give necessary permissions
Allow or deny user to a resource	Give as many as needed
Identity-based	Good as making new permissions
Resource-based	Applied to policies



Securing Your Cloud App

API Security

- Roles Based Access Control (RBAC)
- AWS identity and IAM a version of RBAC
- Can create additional IAMs role



CONCLUSION

- How to work with containerization and orchestration.
- What is a cloud-based, serverless system
- Securing your cloud application





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