

## CS 470 Final Reflection

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YouTube Video: [https://youtu.be/B\\_4iRJuMeTk](https://youtu.be/B_4iRJuMeTk)

### **Introduction**

As a software engineer, I am constantly looking for opportunities to expand my skill set and improve my marketability as a candidate. This course's use of AWS and its tools has provided me with a wealth of knowledge and experience that I can leverage to reach my professional goals.

### **How This Course Will Help Me**

This course has given me a strong foundation in full-stack development using Docker and AWS services, such as EC2, S3, API Gateway, and Lambda. I have learned how to develop, deploy, and manage scalable applications using these tools. With this knowledge, I can confidently tackle complex projects and build scalable and reliable applications that meet the needs of businesses and end-users.

### **Strengths as a Software Developer**

My strengths as a software developer include my ability to quickly learn new technologies and my strong problem-solving skills. I can work independently or as part of a team and I am always willing to take on new challenges. I also have excellent communication skills, which allow me to work effectively with clients and other team members.

## **Roles Prepared to Assume**

Based on the knowledge and skills I have gained from this course, I am prepared to assume a variety of roles in a new job, including:

- Full-Stack Developer
- Cloud Engineer
- Frontend Developer
- Backend Developer

## **Planning For Growth: Microservices and Serverless**

As I plan for the growth of my web application, I am considering the use of microservices and serverless architectures to produce efficiencies of management and scale. With microservices and serverless, scaling is automatic and handled by the platform. If one service fails, it does not affect the others, allowing for better error handling and fault tolerance. I can set up automatic scaling policies to handle spikes in traffic, ensuring that the application remains responsive and available. Predicting the cost of microservices and serverless architectures can be challenging. However, AWS provides tools to help estimate costs, such as the AWS Cost Explorer (Amazon, 2023). Additionally, I can set up cost allocation tags to track costs (Amazon, 2023). Serverless architectures are more cost-predictable than containers because they only charge for the execution time of a function. With containers, I would need to pay for the entire container, even if only part of it is being used.

## **Containers or Serverless?**

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## **Pros and Cons of Expansion**

When considering expansion, there are several pros and cons to consider:

### **Pros**

- **Scalability:** Microservices and serverless architectures can scale quickly and easily.
- **Flexibility:** These architectures allow for flexibility in development and deployment.
- **Resilience:** With these architectures, one service failure does not affect the others, allowing for better fault tolerance.

### **Cons**

- **Complexity:** Microservices and serverless architectures can be more complex to develop and manage than monolithic applications.
- **Cost:** Predicting the cost of these architectures can be challenging, and they may be more expensive than traditional hosting models.

## **Elasticity and Pay-for-Service**

Elasticity enables businesses to build scalable and resilient applications. For instance, Amazon Elastic Compute Cloud (EC2) provides scalable compute capacity in the cloud. Pay-for-service models offer flexibility in infrastructure investment. One example is Amazon Simple Storage Service (S3), which charges businesses only for the storage they use.

### **References**

Using AWS Cost Allocation Tags - AWS Billing. Amazon. (2023). Retrieved April 20, 2023, from <https://docs.aws.amazon.com/awsaccountbilling/latest/aboutv2/cost-alloc-tags.html>

