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CS 479 Final Reflection

https://youtu.be/kLDYfIftkt8

Experiences and Strengths:

Explain how this course will help you in reaching your professional goals.

What skills have you learned, developed, or mastered in this course to help you become a more marketable candidate in your career field?

I've learned more about full-stack development and alternative solutions to deploy SAPs in a serverless way. Therefore increasing my knowledge of Lambda functions, API gateways, DynamoDBs, and S3 buckets and how to tie them all together.

Describe your strengths as a software developer.

Persistence, willingness to fail while learning from my mistakes along the way, and always open for a new challenge.

Planning for Growth:

Synthesize the knowledge you have gathered about cloud services.

Identify various ways that microservices or serverless may be used to produce efficiencies of management and scale in your web application in the future.

How would you handle scale and error handling?

Utilizing event-driven lambda functions that automatically scale resources based on demand. Develop stateless functions that can handle various workloads and parallel executions. For error handling, implement centralized logging such as CloudWatch Logs which allows you to collect and analyze logs. Errors can be generated via methods such as try-catch blocks in the code. Set up monitoring and alerting via CloudWatch Alarms to gain insight into error rates, and latency, and to trigger alarms should errors arise. Automated remediation can be implemented via CloudWatch Events to trigger automated actions based on predefined rules.

How would you predict the cost?

Reviewing cost analysis given by AWS or other cloud services and looking for trends or patterns.

What is more cost-predictable, containers or serverless?

Serverless. It provides granular billing based on actual resource consumption. In terms of container management an organization is generally trying to figure out how to reduce costs by adjusting the sizing of pods and determining the least possible container size they can get away with while still maintaining functionality.

Explain several pros and cons that would be deciding factors in expansion plans.

Pros include scalability, cost efficiency, simplicity in operational tasks, elasticity, and the services are vendor-managed. The last pro, vendor-managed, can also be a con as you are locked into a vendor and not inherently cloud agnostic. One good approach is to spread your application across multiple clouds in case of any unforeseen outages. Therefore if a problem arises in AWS your site would still be up in the same region in Azure or GCP. Limitations are imposed on

resources such as CPU, memory, and execution time limits. These limit the type of application one can use. For example, a Java application is not an ideal candidate for serverless. A new set of security auditing is added by using serverless.

What roles do elasticity and pay-for-service play in decision-making for planned future growth?

Under the umbrella of elasticity falls scalability, cost optimization, resilience, and reliability. The ability to scale horizontally based on events allows for a vastly improved experience. Due to S3 being infinite in disk space that reduces the risk of ever filling up local storage. Ultimately each service in the pursuit of a truly serverless SAP brings its own fault tolerance and redundancy. This all boils down to elasticity.

Pay-for-service provides a huge relief since one can expand into other regions and develop without incurring unnecessary costs during the initial phase of deployment. The cost is more predictable and one can view the trends as each region goes live. A bonus is if no traffic exists on specific regional endpoints there is no cost incurred.