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CS-470 Full Stack Development II

Final Reflection

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Presentation YouTube Link: https://youtu.be/FntnPWoljRU

In completing this class I have developed some valuable new skills and experience. I have gotten more experience in migrating a MEAN stack application to the cloud while using AWS. I have also developed new skills using S3, DynamoDB, Lambda, developing policies, creating IAM roles, creating a presentation, API Gateway, as well as getting through any problems that came up through troubleshooting. The biggest challenge to me was doing project two and creating a presentation. The presentation alone wasn't too bad, it was the narrating that made me move out of my comfort zone. This in turn has allowed me to be more open and vocal when having to present something to anyone whether it be work related or just in everyday life. This class has developed my software developer skills with problem solving, collaboration, and communication with anyone whether it be part of my team or the client.

To better prepare for the future growth of my web application, adopting microservices or a serverless architecture can significantly improve management efficiency and scalability. Serverless architecture is beneficial for handling scale and error management, as it automatically adjusts to demand, ensuring responsiveness even during high-traffic periods.

In a serverless environment, predicting costs involves understanding the pay-per-use model, where expenses are directly tied to actual resource consumption. This model can be cost-effective for applications with unpredictable traffic patterns but may also lead to unexpected costs if there is a sudden surge in usage. However, containers often offer more predictable costs because they are typically billed based on fixed resource allocations, independent of usage fluctuations. However, managing containers can be more expensive compared to a serverless setup.

When weighing the pros and cons, serverless architecture reduces the need for infrastructure management and provides automatic scaling, though it can present challenges in cost prediction during periods of unexpected high traffic. On the other hand, containers offer greater control over the environment and can be more cost-effective for consistent workloads, but they require more effort to manage scaling and infrastructure.

Elasticity and the pay-per-service model are key factors in deciding between serverless and containers. Serverless platforms offer superior elasticity, which is a big advantage for applications with varying traffic levels. The pay-per-service approach in serverless can help minimize costs during low-traffic periods, but it might become less predictable when traffic spikes. For planned future growth, understanding the application's usage patterns will be essential in selecting the most suitable architecture.