

Sorosh Khalili
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CS 470 Final Reflection

In addition to the first full stack development course, this course has taught me a lot of new concepts, especially about how to migrate a full stack application to the cloud using Amazon Web Services. Although I was familiar with developing an application previously, the process of utilizing a cloud provider to host the application was completely new to me. Containers, containerization, and applications that facilitate this process were all new skills that I learned and developed in this course. However, there is still much more to learn about all the content provided in this course and I do believe that despite being very new to all the contents, my perseverance and determination can help me to achieve a satisfactory level.

Rather than describing problem-solving as one of my strengths, I would choose analytical skill, determination, and persistency as my greatest assets and strengths as a software developer. In addition to the previously mentioned strengths, I practice paying attention to the details since paying a great deal of attention to the details can significantly improve the success level of software development in achieving excellence in their work.

I have always been passionate about software development but after my experience with cloud development and utilizing just a small portion of what cloud development has to offer, I am seeing a brighter future ahead of myself. Perhaps roles associated with developing, maintaining, and administering cloud development can be simply part of the job role that I can assume in the future.

Undoubtedly, the serverless model is one of the most cost-efficient and scalable models of software development that enables developers to focus on the most important part of their job which is developing software. Utilizing cloud infrastructure and tools promotes modular programming which is developing separate application functions into independent pieces containing all the necessary parts each capable of executing one aspect of the application's functionalities. This approach is the fundamental reason for utilizing microservices which leads to rapid and streamlined expansion and growth of the application. As a result of utilizing serverless models and microservices, applications can be easily scaled, and any possible error can be handled and fixed quickly and effectively. Using the serverless model for large-scale application execution is usually much more cost-efficient, especially for small businesses with limited resources. Cloud service providers typically offer optimization tools and pricing calculators to enable developers to estimate their cost of operation whether they are upscaling or downscaling. The cost associated with serverless application operation depends upon the number of users utilizing the application and the website traffic which can fluctuate. However, containers have fixed operation costs. As a result, containers are more cost-predictable than serverless.

Typically, companies' deciding factors in plans for expansion build upon the success of their application. Successful applications make expansion planning decisions easier for companies since they can see future expansion benefits for the company. Business expansion also makes a company's brand recognized by a larger customer base and can lead to higher revenue. In contrast, unsuccessful applications would make it harder for companies to determine whether expansion is the right path for them. Also, rapid growth can create new challenges for a business that can lead to Loss of control and compromised quality of the application.

Elasticity and pay-for-service play a big role in decision-making for the planned future growth of an organization. Elasticity helps companies avoid paying for unused capacity or idle resources and eliminates unnecessary investment in additional resources, equipment, and maintenance. As such, resources will no longer become an obstacle preventing development growth. Elasticity utilization can lead to improved agility, high availability, performance efficiency, and flexible pricing. Cloud elasticity promotes the pay-for-use model which requires businesses to only pay for the resources they use at any given time. The pay-for-use model helps businesses maintain adequate cloud infrastructure for optimal performance while reducing costs.