

## Section 9 Assignment

### Review Real-World Case Studies

This assignment focuses on reviewing and understanding real-world examples of designing and implementing cloud strategies.

#### First Task

Your first action is to read the article at the following link:

<https://www.linkedin.com/pulse/uncovering-success-stories-explore-cloud-native-case-studies-arslan/>

This article provides case studies for:

- Capital One
- Elkjøp
- Vodafone

#### Review Questions

1. How did adopting a microservices architecture help these companies achieve benefits of cloud-native development? What are some key things to consider when moving from monolith to microservices?
2. What cultural and organizational changes were required for these companies to adopt cloud-native practices? How can companies overcome inertia or resistance to change?
3. Why was implementing monitoring, logging, and tracing tools important for gaining visibility into these cloud-native systems? How might these tools help debug and optimize performance?
4. What cloud design patterns did you notice these companies using, like horizontal scaling or infrastructure as code? How did those patterns enable their goals?
5. How did the companies balance innovation velocity with stability, security and compliance requirements? What safeguards can be put in place?
6. What lessons can be learned from these case studies about migrating legacy applications to the cloud vs greenfield development?
7. How might adopting cloud-native practices future-proof these companies to take advantage of new technologies like serverless and AI/ML?
8. What cultural mindsets or organizational structures make a company more "cloud-native ready"? How can students help drive this transformation?
9. What skills are needed to design, build and operate cloud-native systems?

#### Second Task

Review these specific cloud strategies that have been implemented by real companies. These examples showcase how a wide range of companies across different industries have adopted various cloud design strategies to achieve their business goals and optimize their cloud infrastructure.

Strategy	Description	Links
<b>Scalability and Elasticity</b>	Netflix is a prime example of using scalability and elasticity to handle varying levels of traffic. They can seamlessly scale their streaming services to accommodate millions of users during peak times, such as when they release a new show or movie.	<a href="https://www.linkedin.com/pulse/case-study-how-netflix-uses-aws-innovation-agility-scalability-paul/">https://www.linkedin.com/pulse/case-study-how-netflix-uses-aws-innovation-agility-scalability-paul/</a>
<b>High Availability</b>	Airbnb relies on high availability to ensure uninterrupted access for hosts and guests. By using multiple availability zones and regions, they can maintain their platform's availability even in the face of infrastructure failures.	<a href="https://www.linkedin.com/pulse/why-airbnb-using-aws-cloud-services-what-benefits-provides-saxena/">https://www.linkedin.com/pulse/why-airbnb-using-aws-cloud-services-what-benefits-provides-saxena/</a>
<b>Data Backup and Disaster Recovery</b>	Dressbarn used AWS to ensure data backup and recovery as it conducted a major digital transformation to its business.	<a href="https://aws.amazon.com/partners/success/dressbarn-n2ws/">https://aws.amazon.com/partners/success/dressbarn-n2ws/</a>
<b>Microservices Architecture</b>	Spotify has successfully implemented microservices architecture. They use microservices to deliver their music streaming service at scale, allowing for continuous updates and improvements	<a href="https://www.processexcellencenetwork.com/tools-technologies/articles/three-companies-using-microservices">https://www.processexcellencenetwork.com/tools-technologies/articles/three-companies-using-microservices</a>
<b>Serverless Computing</b>	Coca-Cola European Partners used serverless computing to create a serverless data pipeline for processing sales data. This approach enabled them to process large amounts of data without managing servers, reducing operational overhead.	<a href="https://dashbird.io/blog/serverless-case-study-coca-cola/">https://dashbird.io/blog/serverless-case-study-coca-cola/</a>
<b>Cost Optimization</b>	Lyft, the ride-sharing company, optimized costs by using a combination of on-demand and spot instances for their cloud workloads. By leveraging different pricing models, they could efficiently manage their infrastructure costs.	<a href="https://aws.amazon.com/solutions/case-studies/lyft-cost-management/">https://aws.amazon.com/solutions/case-studies/lyft-cost-management/</a>

<b>Compliance and Security</b>	Capital One, a financial services company, focuses on compliance and security by using cloud services with strong security features. They leverage encryption, identity and access management controls, and compliance certifications to protect customer data.	<a href="https://www.corporatecomplianceinsights.com/aws-cloud-regulatory-implications/">https://www.corporatecomplianceinsights.com/aws-cloud-regulatory-implications/</a>
<b>Hybrid Cloud Approach</b>	Siemens, a multinational engineering and electronics company, uses a hybrid cloud approach. They combine on-premises infrastructure with cloud resources to manage their digital industrial applications efficiently.	<a href="https://convergetechmedia.com/siemens-partners-with-ibm-on-hybrid-cloud-solution-for-industry-4-0/amp/">https://convergetechmedia.com/siemens-partners-with-ibm-on-hybrid-cloud-solution-for-industry-4-0/amp/</a>
<b>DevOps and CI/CD</b>	Etsy, an e-commerce platform for handmade and vintage items, emphasizes DevOps and CI/CD practices. They continuously deploy code changes to their website, enabling rapid feature releases and bug fixes.	<a href="https://www.simform.com/blog/etsy-devops-case-study/">https://www.simform.com/blog/etsy-devops-case-study/</a>

### *Review Questions*

1. How do companies like Netflix and Airbnb maintain high availability and prevent downtime? What AWS services and architectures do they leverage?
2. What data backup and disaster recovery strategies did Dressbarn employ during their digital transformation? How did AWS services help enable this?
3. How does microservices architecture help a company like Spotify rapidly innovate and scale their services? What are the benefits and challenges?
4. What motivated Coca-Cola European Partners to adopt a serverless architecture? How did this approach benefit them compared to traditional servers?
5. How did Lyft optimize and manage costs in the cloud? What pricing models and services did they use?
6. Why is compliance and security particularly important for a company like Capital One? How does the cloud support their security and compliance needs?
7. What factors motivated Siemens to take a hybrid cloud approach? When might a hybrid strategy be preferable to a fully cloud-based one?
8. How has a DevOps and CI/CD culture enabled faster development for Etsy? What practices are they using?

**Now, return to the course and post your feedback regarding this assignment.**