



**Strathmore University**

**School of Computing & Engineering Sciences**

**BBT 4206: Cloud Computing**

**Netflix Case Study Assignment (GROUP WORK)**

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A number of important considerations forced Netflix to move from traditional IT infrastructure to a more scalable and resilient solution, which in turn prompted the streaming giant to migrate to cloud computing. The two-day system outage that Netflix faced in 2008 due to a hardware malfunction was one of the main factors. This incident demonstrated the drawbacks of depending solely on pricey, high-end hardware and demonstrated the necessity of application-level availability management. The disruption acted as a wake-up call for Netflix, which made it reconsider how it approaches IT infrastructure and look into more dependable options. The sharp rise in demand for streaming services that started in 2009 when Netflix switched from renting out DVDs to streaming them online was another important factor. There was an immediate need for a more elastic and scalable infrastructure since Netflix could not keep up with the increasing demand on the traditional data centers it was relying on. Furthermore, cloud computing's potential cost savings were a major factor in Netflix's choice. The pay-as-you-go nature of the cloud made it an economically viable choice by removing the need to incur the high upfront expenditures of constructing and operating physical data centers. Moreover, cloud computing provided Netflix with the flexibility and reach it required to build a global infrastructure that could distribute content to a quickly growing audience with the least amount of latency.

Netflix used a number of cloud delivery models during its cloud migration, each of which was appropriate for a certain area of the company's business. The main architecture was Infrastructure as a Service (IaaS), where Netflix used Elastic Compute Service (EC2) offered by Amazon Web Services (AWS) to fulfill its processing requirements. With the help of this architecture, Netflix was able to extend its infrastructure as needed without having to make significant expenditures in physical hardware. Another important factor was Storage as a Service (SaaS), since Netflix uses Amazon S3 for data storage. Netflix's streaming services created enormous amounts of video data and user activity logs, which were difficult to manage without the enormous storage capacity that Amazon S3 offered. Netflix may have also used Platform as a Service (PaaS) for certain functions like data analytics and content delivery optimization, albeit this is less prominent. This would have increased Netflix's capacity for innovation and provided a superior customer experience.

Along with a number of noteworthy advantages, the move to the cloud also included certain possible risks and difficulties. The cloud's scalability and flexibility allowed Netflix to dynamically

modify its infrastructure to meet expanding demand without having to make large upfront investments, which was one of the biggest advantages. Another significant benefit of the cloud was its cost-effectiveness, which allowed Netflix to pay only for the resources it really utilized rather than the hefty expenses of constructing and operating its own data centers. The cloud enhanced Netflix's availability and resilience as well, making sure that its services continued to function even in the event of hardware malfunctions or periods of high demand. Reliability was essential to preserving user trust and happiness. The adaptability of the cloud also made it easier for Netflix to introduce new services and technologies, spurring innovation and improving user experience with features like personalized browsing and better service quality.

The cloud transfer was not without dangers and difficulties, though. Vendor lock-in posed a serious concern to Netflix since its strong reliance on AWS made it challenging to swap providers or leave the cloud if necessary. This reliance on a single supplier presented possible long-term hazards in the event that AWS's conditions or services deteriorated. Another significant danger was security, since keeping private information on the cloud increased the chance of account takeovers and data breaches. Netflix put in place robust security measures, such as data encryption and backups across many AWS regions, to reduce these risks. Re-architecting programs, managing data migration, and ensuring minimal service disruption were all difficult tasks in the complex conversion process. Furthermore, the move to the cloud required adjustments to how operations were carried out, such as implementing continuous integration and deployment, adopting cloud-native tools, and increasing the number of automated procedures to handle the elastic nature of cloud resources. Because of these obstacles, Netflix had to change the way it operated and adopt new procedures in order to take full advantage of cloud computing.

In conclusion, a number of factors, including worries about system dependability, the need for scalability, cost effectiveness, and a desire for global reach, contributed to Netflix's decision to migrate to the cloud. In order to meet its needs, the company used a variety of cloud delivery models. While this helped the company achieve considerable scalability, cost savings, and innovation gains, it also faced risks and difficulties with regard to vendor lock-in, security, and operational complexity. Netflix has been able to sustain its leadership in the streaming market by skillfully managing these variables and providing a dependable and cutting-edge service to its diverse worldwide user base.

### **List of References**

Amazon Web Services. (2018, March 24). *Migrating to Cloud - Lessons from Netflix, Brought Up to Date* [Video]. YouTube. <https://www.youtube.com/watch?v=XrWII4ewrXA>