

CSCI 5902 Advanced Cloud Architecting (Fall 2023)
Assignment 1 – Storage

Scenario: Cloud Storage Solution for Silver Screen Studios

Silver Screen Studios is a successful video production company that produces high-quality films and TV shows. The company has multiple offices around the world and employs hundreds of talented individuals who are passionate about creating compelling content.

Recently, the company has been struggling with the storage of its video content. The company has been using on-premises storage solutions, but these are becoming increasingly difficult to manage and scale. The company's IT team has decided to explore cloud-based storage solutions to manage the growing volume of video content.

The IT team has decided to use AWS as the cloud platform for the new storage solution. The team has been tasked with designing a scalable, reliable, and cost-effective storage solution that can accommodate the company's current and future storage needs.

The IT team has identified several requirements for the new cloud-based solution.

- The solution should be able to accommodate large video files, which can be up to 1TB in size. This is essential for Silver Screen Studios, as the company manages a vast amount of high-quality video content related to their film and TV productions.
- The solution should also support high-speed data transfer to ensure that the editing workstations can access the video content quickly. This is critical for Silver Screen Studios, as the company needs to be able to move large files quickly between teams.
- The solution should have redundancy to ensure that data is not lost due to hardware failure. This is essential for Silver Screen Studios, as the loss of data could result in significant financial losses and damage to the company's reputation.
- The solution should be scalable to accommodate the growing storage needs of the company. Silver Screen Studios expects its data to continue to grow over time, and the solution should be able to adapt to these changing requirements.
- The solution should be secure and comply with all relevant regulations related to intellectual property and video content. This is essential for Silver Screen Studios, as the company needs to protect its valuable video content from unauthorized access and piracy.
- The solution should be cost-effective, as Silver Screen Studios wants to ensure that it is not overspending on storage services for the data it may not use frequently.

Based on these requirements, as a cloud architect, you need to architect a cloud solution using AWS storage services that can meet the needs of Silver Screen Studios. You need to take into account the scalability, redundancy, security, compliance, and cost-effectiveness of the solution, and provide a detailed implementation plan for the proposed solution.

Assignment questions:

1. What are the main challenges that Silver Screen Studios faces with their current on-premises storage solution, and how can a cloud-based storage solution address these challenges? **(1 mark)**
2. How would you determine the appropriate storage service(s) for Silver Screen Studios to use in their cloud-based storage solution, considering factors such as scalability, performance, and cost-effectiveness? **(2 marks)**
3. What strategies would you recommend to optimize the transfer speed of large video files between teams, and what AWS storage services and features would you utilize to achieve this? **(1.5 marks)**
4. What specific AWS features and services would you implement to ensure the reliability and availability of Silver Screen Studios' storage solution, and what mechanisms would you use to monitor and maintain these features? **(1.5 marks)**
5. How would you ensure that Silver Screen Studios' video content remains secure and compliant with industry regulations while being stored in the cloud, and what specific security measures and AWS services would you recommend? **(2 marks)**
6. What backup and archiving strategies would you recommend to manage the lifecycle of Silver Screen Studios' video content, and what AWS services would you use to implement these strategies? **(1 mark)**
7. How would you balance the need to meet Silver Screen Studios' storage requirements with cost-effectiveness, and what specific cost optimization strategies and tools would you recommend? **(1 mark)**

Purpose of this assignment:

The purpose of this assignment is to assess the student's ability to design a cloud-based storage solution for a real-world scenario. The assignment aims to evaluate the student's understanding of cloud storage services, their ability to identify appropriate services for a given scenario, and their ability to design a solution that meets specific requirements such as scalability, reliability, security, compliance, and cost-effectiveness.

How to do this assignment:

To complete this assignment, the student needs to analyze the scenario and identify the challenges faced by Silver Screen Studios with their current on-premises storage solution. They need to design a cloud-based storage solution using AWS storage services that can address these challenges and meet the specific requirements identified in the scenario. The deliverables for this assignment include a well-written report (in pdf format) that addresses all the

assignment questions. You can submit the report multiple times to Brightspace before the due date. Only the most recent submission will be kept.

Marking rubric:

- Full marks: A well-written, detailed, and accurate answer that meets all the requirements of the question and demonstrates a deep understanding of the concepts and storage services used.
- Half marks: A partially complete or somewhat unclear answer that addresses some of the requirements of the question and demonstrates a basic understanding of the concepts and AWS storage services used.
- Zero point: An incomplete or inaccurate answer that does not meet the requirements of the question and demonstrates a lack of understanding of the concepts and AWS storage services used.

Academic Standards (Total marks: 10):

The assignment must adhere to academic standards, including proper citation and referencing of sources, adherence to academic writing standards, and originality of work. Plagiarism or any form of academic misconduct is not tolerated and may result in an academic integrity offense. The report must demonstrate a thorough understanding of the concepts and storage services used and must be original work. It should be well-organized, clear, concise, and free of errors in grammar and spelling.

FAQ:

Q: How many pages should the report be?

A: There is no specific page requirement, but the report should be long enough to address all the assignment questions thoroughly and clearly.

Q: Can I use external sources to support my report?

A: Yes, you may use external sources such as research papers, articles, or official documentation from cloud providers to support your report. However, you should ensure that all sources are properly cited and referenced in the report to avoid plagiarism.

Q: What citation and reference format should I use for the assignment?

A: You should use either the APA or IEEE citation and reference format.

Q: Is there any specific format for the assignment report?

A: No, there is no specific format, but make sure that your report is well-organized, properly formatted, and easy to read and understand, as this will help the marker to evaluate your work more effectively.

For any other questions or concerns, reach out to the course TA.

Good luck :)