Design Oriented Research Plan

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Topic

The topic of cloud integration and computing was chosen for this research for the purpose of implementing it in the individual project. As the main reason for using cloud computing is scalability and flexibility, looking deeper and answering the main question, would help apply the gathered information directly to the “U2” (YouTube mockup) project.

As an expected result, deep knowledge will be acquired and used not only in the given project, but in future projects as well. Moreover, cloud computing and integration is vital for almost every enterprise software, therefore, companies would require their developers to be experienced, or at least proficient in it.

The DOT Framework & Methods will be used to answer the sub questions, which, altogether, will help answer the main question. Different methods will be used, depending on the question.

Main question

What are the key scalability and performance considerations when designing and implementing cloud integration architectures for large-scale applications and systems?

Sub questions:

1. What are the best practices for designing scalable and high-performance cloud integration architectures?
   Library – Best good and bad practices, Design pattern research.
   Field – Document analysis

2. How do organizations evaluate the scalability and performance of cloud integration solutions during the design and implementation phases?
   Library – Available product analysis, Literature study
   Workshop – Architecture sketching, Prototyping

3. What role do cloud-native technologies such as containers, serverless computing, and edge computing play in enhancing scalability and performance in cloud integration environments?
   Library – Literature study, Community research
   Lab – Data analysis, Non-functional test

4. How do organizations conduct performance testing and optimization in cloud integration architectures to ensure optimal performance under varying workloads?
   Library – Available product analysis, Design pattern research
   Lab – Component test

Deliveries

Estimated time of delivering the research report is in approximately 3 weeks.

Estimated time of applying the results is in approximately 5 weeks.