

Overcoming Challenges in Migrating Modular Monolith from On-Premise to AWS Cloud

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Cloud computing has gained popularity for efficient data storage, processing, and application access. This study focuses on migrating Hermit Portal's modular monolithic web application from on-premises to AWS cloud. The aim is to identify migration patterns, optimize costs, and consider project management constraints (e.g. time, cost, and performance).

Considering the Cloud Computing models perspective, the study analyzed Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Serverless models, with a focus on Amazon Web Services (AWS). Initial "lift and shift" using IaaS is recommended, followed by a gradual adoption of PaaS components like AWS Elastic Beanstalk or AWS Lambda for simplified management and reduced infrastructure responsibilities. Additionally, we explored various cost optimization strategies specific to AWS. Utilizing Reserved Instances, optimizing Windows Server and SQL Server licensing, considering PostgreSQL as an alternative to SQL Server, and leveraging Linux-based apps and web servers on AWS, were found to be effective in reducing costs.

Also, we realized during the research that conducting a comprehensive analysis within the AWS ecosystem and understanding AWS-specific features before migration is crucial. This avoids unexpected cost increases compared with on-premises hosting and accounts for refactoring and acquiring AWS-specific expertise.

In conclusion, based on our research, a phased approach with thorough analysis and AWS-Specific strategies is the key to successfully and cost-effectively migrating monolith applications to AWS Cloud. Choosing the right cloud computing model and implementing cost optimization techniques ensure a smooth transition and maximize the benefits of AWS

Keywords - Cloud Migration; Modular monolith; Lift and Shift; Clean Architecture; Optimizing costs; Optimizing resources; Database migration; AWS Pricing

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