

## **ABSTRACTS**

This thesis investigates the creation and management of a virtual data center utilizing Amazon Web Services (AWS) and Datadog. The primary focus is on leveraging AWS's cloud infrastructure to establish a scalable and secure virtual environment, while integrating Datadog to provide real-time monitoring, analytics, and performance optimization. The study outlines the fundamental components and services of AWS, such as EC2, VPC, and S3, and demonstrates the step-by-step process of configuring a virtual data center. Furthermore, the role of Datadog in enhancing operational efficiency through its comprehensive monitoring and alerting capabilities is thoroughly examined. Through a series of practical implementations and case studies, the thesis highlights the significant improvements in performance, reliability, and scalability achieved by combining AWS and Datadog. The findings offer practical insights for IT professionals and contribute to the advancement of cloud-based infrastructure management practices.