TALLINN UNIVERSITY OF TECHNOLOGY

Faculty of Information Technology

Oliver Orav 143022IABB

DEPLOYING AND ORCHESTRATING DOCKER INFRASTRUCTURE BASED JAVA APPLICATIONS IN PRODUCTION BY THE EXAMPLE OF SWEDBANK AS

Bachelor's thesis

Supervisor: Gert Kanter

Ahto Karolin

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Summary

Docker has made a great impression on todays containerized infrastructure. Although containers have been around for a while, Docker has simplified the process and has made a secure implementation that can be used in production environment. Furthermore, IBM's research report shows that running a container has no noticeable impact on the performance of the application.

Deploying software on Docker infrastructure still requires some planning and thoughts as it introduces new problems and risks that need to be mitigated beforehand. In Swedbank the main concerns were about security and stability, which needed to be addressed before running the solution in production. One of the main concerns was the need to make the application configuration immutable and connected to a version of the application. Instead of implementing new software or buying one already made, the solution was to encrypt secret configuration and adding that to the version control system. In addition, the script was developed to be flexible, allowing decrypting only some of the fields in the properties file so it retains its readability.

Creating the container of Java application for deployment required steps to secure it and minimize the attack surface, but on the other hand keeping functionality that developers and service managers needed. Separate base image was created to provide that kind of result. To add more, this allowed establishing common principles and best practices inside the organisation for building Docker images.

In the end, deployment of the application with Docker and Rancher was the fastest part of the development processes. Configuring Rancher and creating deployment templates allowed automating service manager's work and therefore reducing the risk of human error.

In conclusion, solution provided by the thesis, gave faster deployment speed and did not produce extra bottlenecks performance wise. Nonetheless, using Docker based infrastructure in production requires thorough planning and changes in multiple parts of the system, to keep deployment secure, stable and reliable