ABSTRACT

The management of NetPro application services faces challenges such as high memory usage, service configuration conflicts, and complex deployment processes. This final project aims to address these issues by leveraging Docker technology to improve memory efficiency, run multiple services simultaneously without conflicts, and simplify application deployment. The methods include dependency installation, service configuration through Dockerfile and Docker Compose, source code integration, Docker Image building, as well as application container deployment and monitoring. The project utilized tools such as Docker, PuTTY, Ubuntu, GitHub, Prometheus, Grafana, and Apache JMeter. The results demonstrate that using Docker enhances memory efficiency by up to 4% and storage efficiency by up to 8.5% compared to a Linux host system. Docker also enables different services, such as Nginx and Apache, to run simultaneously without port conflicts and simplifies the deployment process by pulling the Image from Docker Hub without manual installation and running the container. Thus, implementing Docker successfully improves the efficiency, flexibility, and stability of NetPro application service management while accelerating the deployment process and ensuring consistency across application environments.

Keywords: docker, container, deployment, NetPro