

DECLARATIVE GITOPS-BASED AUTOMATED DEPLOYMENT AND MANAGEMENT OF HTTP GATEWAY SERVICES

Kristiyan Kolev, Vesselin Kyurkchiev

Abstract. *In this paper, we present a declarative, GitOps-based approach to automated deployment and management of HTTP gateway services. The proposed architecture combines a YAML-driven configuration model, template-based generation, and a two-stage CI/CD pipeline. A key contribution is the introduction of behavioral regression testing for infrastructure, an HTTP snapshot comparison between staging and production prior to each deployment. We further demonstrate that drift detection can reliably identify unauthorized deviations from the declared infrastructure state. The results show that intent-based configuration combined with behavioral validation gates provides a reproducible and auditable deployment workflow.*

Key words: GitOps, Declarative Configuration, HTTP Gateway, Behavioral Regression Testing, Drift Detection, CI/CD Pipeline

Acknowledgments

The research is supported by the project FP25-FMI-010 “Innovative interdisciplinary research in Informatics, Mathematics, and Pedagogy of Education” of the Scientific Fund of the Paisii Hilendarski University of Plovdiv, Bulgaria.

Kristiyan Kolev^{1,*}, Vesselin Kyurkchiev¹

¹ Paisii Hilendarski University of Plovdiv,
Faculty of Mathematics and Informatics,
236 Bulgaria Blvd., 4027 Plovdiv, Bulgaria

Corresponding author: kristiyan.kolev@uni-plovdiv.bg