

## OPTIMIZING DEVOPS PIPELINES FOR MULTI CLOUD ENVIRONMENTS

*Rohan Viswanatha Prasad<sup>1</sup>, Rakesh Jena<sup>2</sup>, Rajas Paresh Kshirsagar<sup>3</sup>, Om Goel<sup>4</sup>, Prof.(Dr.) Arpit Jain<sup>5</sup> & Prof. (Dr) Punit Goel<sup>6</sup>*

<sup>1</sup>Visvesvaraya Technological University, India

<sup>2</sup>Biju Patnaik University of Technology, Rourkela, Odisha 751024, India

<sup>3</sup>N.Y. University, Malad (W), Mumbai - 400064, Maharashtra, India

<sup>4</sup>ABES Engineering College Ghaziabad, India

<sup>5</sup>KL University, Vijaywada, Andhra Pradesh, India

<sup>6</sup>Maharaja Agrasen Himalayan Garhwal University, Uttarakhand, India

### ABSTRACT

*In the era of cloud computing, the shift towards multi-cloud environments has become increasingly popular, providing flexibility and resilience to organizations. However, the complexity of managing DevOps pipelines across multiple cloud platforms presents unique challenges. This paper explores strategies for optimizing DevOps pipelines in multi-cloud environments to ensure seamless integration, efficient deployment, and continuous delivery. Key aspects such as pipeline automation, security, scalability, and real-time monitoring are addressed to enhance performance. The integration of tools like Terraform, Jenkins, Kubernetes, and containerization technologies is analyzed for their role in automating workflows across diverse cloud platforms. The paper also discusses overcoming vendor lock-in issues, achieving interoperability, and maintaining consistent environments across public, private, and hybrid clouds. These strategies provide a blueprint for organizations to enhance their multi-cloud DevOps processes, driving faster deployment cycles and improved operational efficiency.*

**KEYWORDS:** *Multi-Cloud, Devops Pipelines, Automation, Terraform, Jenkins, Kubernetes, Containerization, Scalability, Real-Time Monitoring, Vendor Lock-In, Interoperability*

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