

Disaster Recovery Solutions using CI-CD Pipelines in DevOps

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Abstract: *In today's fast-paced, interconnected digital world, business continuity is critical, and organizations need to be prepared to recover quickly from unexpected disruptions. Disaster recovery (DR) is a key part of today's IT strategy, ensuring that systems, data, and applications can be recovered after a disaster. DevOps, which focuses on continuous integration (CI) and continuous delivery (CD), provides a strong foundation for operating and simplifying software development, deployment, and maintenance procedures. This article explores the integration of disaster recovery into CI/CD pipelines, emphasizing how DevOps practices can improve time to recovery (RTO), reduce recovery objectives (RPO), and enhance overall process resilience. Leveraging automation, version control, Infrastructure as Code (IaC), and continuous testing, the CI/CD pipeline enables disaster recovery processes to be continuously implemented, tested, and modified to minimize downtime and business disruption. This article examines the fundamental concepts of integrated disaster recovery, including the use of automated backups, failover strategies, and infrastructure, as well as the challenges and limitations of implementing solutions in a complex and changing environment. Through case studies and examples, this case study demonstrates the benefits of disaster recovery using CI/CD pipelines and highlights the importance of planning efforts in business continuity management.*

Keywords: Disaster recovery, Continuous Integration (CI), Continuous Delivery (CD), DevOps, Business Continuity, Automation, Infrastructure as Code (IaC), Recovery Time Objective (RTO), Failover Strategies, Version Control, Backup Automation, System Resilience