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Company



# Modernizing DevOps Infrastructure via GitHub Enterprise Cloud Migration

Transitioning from legacy on-premise Bitbucket and ClickUp to a unified GitHub ecosystem to enhance scalability, security, and cross-functional visibility.

## Overview

We executed a large-scale migration of nearly 1,800 repositories from on-premise Bitbucket to GitHub Enterprise Cloud using custom Python and shell automation.

- Consolidated project management by transitioning from ClickUp to GitHub Projects, eliminating redundant licensing costs and unifying task tracking with source code.
- Modernized the CI/CD landscape by introducing GitHub Actions and scaling self-hosted runners, resulting in faster releases and standardized deployment practices.



## Client Profile

This leading NYC-based medical center is at the forefront of healthcare, education, and clinical research. Managing a complex network of facilities, the organization requires a high-performance, secure digital infrastructure to support its mission-critical medical and research applications.

## Challenges: Hardware Dependency and Tool Sprawl

The existing legacy environment hindered the speed of innovation and increased operational risks:

- **Infrastructure Maintenance:** The on-premise Bitbucket setup required constant hardware upkeep and lacked native cloud-scale features.
- **Siloed Collaboration:** Project management in ClickUp was disconnected from the codebase, leading to poor visibility and reporting complexity.

- **Fragile Authentication:** Reliance on individual Personal Access Tokens (PATs) for Jenkins-Ansible integrations created security risks and maintenance hurdles.
- **Scalability Bottlenecks:** Manual deployment processes and limited runner capacity slowed down the CI/CD pipeline as development needs grew.

## QBurst Solution: Unified GitHub Ecosystem Transformation

We initiated a phased transformation to centralize the client's development lifecycle. By developing containerized Python and Shell scripts, we automated the discovery and bulk mirroring of 1,800 repositories. We replaced individual tokens with a secure GitHub App integration, ensuring service-account-based authentication for the entire automation framework.

The Transformation Covered Two Critical Streams:

- **Source Code Modernization:** Beyond migration, we introduced GitHub Actions for template-driven automation. We provisioned and scaled self-hosted Linux runners across redundant data centers, managed via Ansible playbooks to ensure high availability and repeatability.
- **Project Management Consolidation:** We built a custom Python-driven pipeline to transform exported ClickUp CSV data into GitHub issues. This transition enabled teams to manage code, issues, and sprints within a single integrated environment, leveraging the client's existing Enterprise license.

## Technical Highlights

- **Automated Inventory Discovery:** A custom Python script scanned the Bitbucket environment to prioritize active projects among 1,800 repositories.
- **Containerized Migration Tools:** Portable shell scripts leveraged the GitHub CLI for rapid, error-free bulk repository mirroring.
- **Scalable Runner Architecture:** Provisioned 6 self-hosted runners across CDC and BDC data centers to support high-concurrency GitHub Actions workflows.

- **Jenkins & Ansible Integration:** Updated CI/CD pipelines to ensure seamless data flow across Dev, QA, Staging, and Production environments.
- **Automated Task Mapping:** A Jenkins-wrapped Python pipeline converted legacy ClickUp sprints into GitHub Projects, ensuring zero disruption to active tasks.

## Impact

- **Significant Cost Savings:** Eliminated secondary licensing fees by decommissioning ClickUp in favor of a unified GitHub Enterprise model.
- **Accelerated Release Cycles:** Template-driven GitHub Actions and scaled runner capacity made deployments faster and more frequent.
- **Future-Ready Scalability:** The transition from on-premise hardware to cloud-native SCM removed infrastructure bottlenecks for long-term growth.
- **Enhanced Visibility:** Unifying code management and project tracking boosted developer productivity and cross-departmental transparency.
- **Security Hardening:** Implementing GitHub App authentication and centralized audit trails improved the overall governance and security posture.