GitLab and Terraform for GitOps

The shift to provisioning Digital Transformation is a technology and cultural shift.

Organizations need a better way for application development and infrastructure management workflows to be in lock step within the context of security and governance. Companies are looking to software defined solutions to automate and codify their app development as well as cloud operations for reliability, consistency, and agility.

As organizations scale out, acquire new BUs, or invest in public clouds, the underlying infrastructure inevitably sprawls, diversifies, and overall becomes operationally difficult/expensive to manage. Businesses want to reap the benefits of heterogeneous infrastructure and cloud native architecture yet demand operational consistency, predictability, auditability, and cost efficiency. To do so, cross-functional teams that are invested in continually improving business through software defined need to reduce friction by collaborating and automating wherever possible.

Together, GitLab and Terraform provide developers, operators, and practitioners alike with the ability to manage infrastructure automation for complex, distributed applications while maintaining security, compliance, and reliability. Organizations standardizing on Terraform and GitLab can simplify their technology stack for software and infrastructure lifecycle management and empower their engineers to collaborate, automate, and secure processes across multi-cloud environments.

Product Integration

GitLab is a complete DevOps platform, delivered as a single application. Integrations between Terraform and GitLab lower the barrier of adoption into GitOps and Infrastructure-as-Code (IaC) workflows across DevOps teams. Functional integrations include:

GitLab Terraform provider

Use Terraform to manage resources on your GitLab instance like groups, projects, users, etc. Learn more here on how Northwest Mutual is using Terraform to deploy and manage their GitLab instances.

Terraform Plan Output in Gitlab MRs

Using the GitLab Terraform Report artifact, you can expose details from terraform plan runs directly into a merge request, enabling you to see statistics about the resources that Terraform will create, modify, or destroy.

GitLab.com as VCS provider for Terraform Cloud

GitLab can be configured as a Git provider for Terraform Cloud to store plans and sentinel policies to trigger automation pipelines in the cloud.

How it works

GitLab and Terraform provide infrastructure and operations engineers with the ability to manage sophisticated infrastructure automation for complex, distributed applications while maintaining security, compliance, and reliability. GitLab projects serve as the single source of truth for Terraform plans and sentinel policies in Git repositories that can be automated to execute with each Git commit through CI/CD pipelines for Infrastructure as Code (IaC) workflows. End users can trigger Terraform Enterprise within the GitLab CI/CD pipeline or integrate with Terraform Cloud as a VCS provider directly to trigger Terraform pipelines automatically. GitLab additionally provides approval workflows and contextual details on each iterative change via GitLab Merge Requests (MR). Together, GitOps is made easy for organizations standardizing on Terraform for cloud operations and GitLab for application development/delivery.

Furthermore, Terraform integrations within GitLab enable your GitOps / Infrastructure-as-Code (IaC) workflows to tie into GitLab's authentication and authorization and improve the user experience for teams.

Easiest way to get started is to create your free account on Terraform Cloud and GitLab.com. To learn more, view our on-demand webcast detailing an example workflow between GitLab.com and Terraform Cloud.
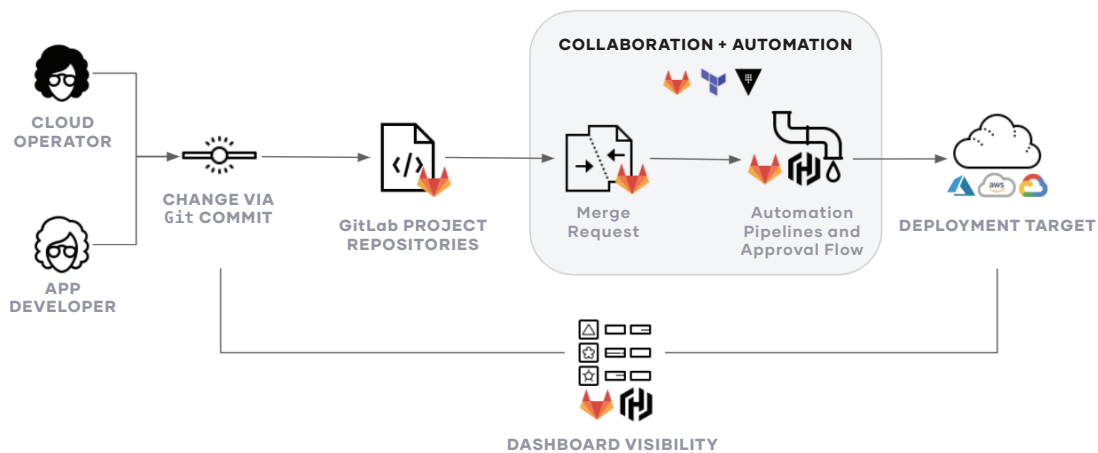
Use Cases

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Versioning and collaboration with GitLab SCM + Terraform

Provide a single source of truth for Developer and Cloud Infrastructure Admins with GitLab Source Code Management. Store your Terraform plans and trigger Terraform Enterprise and Terraform Cloud pipelines in Git repositories and treat Terraform plans and Sentinel policies in GitLab like developers treat application source code. Empower cross functional teams with visibility with direct access to collaborate and contribute towards infrastructure declared in code via code reviews, Git commits, Merge Requests, and overall transparent iteration via Git.

Automated speed, reliability, and consistency with GitLab CI/CD + Terraform Enterprise

Provide flexible, template driven modular workflows via GitLab CI/CD that evoke Terraform plans for infrastructure life cycle management. Furthermore, view CI/CD and Terraform Plan outputs within GitLab MRs for contextual changes associated with each change. Additionally, Ops teams can also configure GitLab CI/CD to evoke stored Sentinel policies in Git repositories for Policy as Code framework that provides access control, security, and operational guard rails within the automated workflow.

Company Info

GitLab is a DevOps platform built from the ground up as a single application for all stages of the DevOps lifecycle enabling Product, Development, QA, Security, and Operations teams to work concurrently on the same project. GitLab provides a single data store, one user interface, and one permission model across the DevOps lifecycle. This allows teams to significantly reduce cycle times through more efficient collaboration and enhanced focus.

Built on Open Source, GitLab works alongside its growing community, which is composed of thousands of developers and millions of users, to continuously deliver new DevOps innovations. More than 100,000 organizations from startups to global enterprises, including Ticketmaster, Jaguar Land Rover, NASDAQ, Dish Network, and Comcast trust GitLab to deliver great software faster.

GitLab is the world's largest all-remote company, with more than 1,300 team members in 68 countries and regions.

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