



Senior Solutions Architect: Global Partners



as a stand-in for







Senior Solutions Architect: Channel



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Contact GitLab

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Agenda

- GitLab 1.
- 2. Cloud Native
- 3. Developer Advantage
- 4. DevOps Advantage
- 5. Strategic Advantage

Unlocking transformation returns is becoming more challenging

- Essential pivot toward new business outcomes
- Table stakes for survival
- Investments have yet to fully deliver







92%

66 ...of companies say their current business model will not remain viable if they digitize at the current speed.¹

¹ Mckinsey & Company Why do most transformations fail? A conversation with Harry Robinson

Modern microservices architectures increase number of projects

| 2006 | S3 launches with 8 microservices |
|------|--|
| 2014 | AWS Lambda initial release |
| 2017 | Netflix had 700 microservices |
| 2020 | Uber had 2200 critical microservices |
| 2021 | S3 has over 300 microservices (37x increase since 2006) |





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As DevOps matures, developers have more tools to work with per project

They will need to consider:

- Planning
- Source code management Feature flags
- Code review
- Continuous integration
- Package management
- SAST
- Continuous delivery

- Review apps
- DAST
- Infrastructure as code
- Monitoring
- Container network security
- Value stream management









Time

The compounding effect is an exponential increase in complexity



Time





The Four Phases of DevOps







Platform adoption is growing--quickly

Consolidation of DevOps onto platforms supports long-term market growth.

"By 2024, 60% of organizations will have switched from multiple point solutions to **value stream delivery platforms to streamline application delivery, up from 20% in 2021.**"¹





¹ Gartner Market Guide for Value Stream Delivery Platforms, Manjunath Bhat, Thomas Murphy, Daniel Betts, Chris Saunderson, Hassan Ennaciri, Joachim Herschmann GARTNER is a registered trade and service mark of Gartner, Inc. and/or its affiliates in the US and internationally and is used herein with permission. All rights reserved. Graphic created by GitLab



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| Delivers 407% ROI within three years | Level 4 Revenue acceleration due to faster innovation |
|--------------------------------------|---|
| within the years | Level 3 |
| of deployment - | Development cost reduction due to better developer experience |
| | Level 2 |
| Typical break-even point | Eliminate tool chain integration costs |
| | Level 1 |
| ROI | Software tool license cost reduction |
| Time growing G | tl ab adoption across your organization |

Source: The Total Economic Impact[™] of GitLab, a commissioned study of a limited number of our customers conducted by Forrester Consulting, June 2020 ¹When Deployed to Revenue-Generating Applications





Cloud Native Apps

Infrastructure as Code

Externalized dependencies

Loosely coupled



Scale-out

Externalized state

Configuration as Code

Continuous Delivery

Two pizza teams

Containerized

Getting There





So why GitLab?

Developer Advantage

- Quick to start with
 - Single database
 - Single UI
 - Project Templating
 - AutoDevOps
- Easy to work with
 - Pipelines (CI/CD) as code
 - Multi-project pipelines
 - Review apps for each commit
 - Complete security, quality and performance testing results available pre-merge

Example: Pipelines as Code

| 🖻 .aut | edevops.gitlab-ci.yml 🛱 15.3 KB | passed Pipeline #3376546 | 37 triggered 4 months ago by | Michał Kułakowski |
|--------------------------------------|--|---|------------------------------------|--------------------|
| 1 2 3 4 5 6 7 8 | <pre>image: alpine:latest variables: # AUT0_DEVOPS_DOMAIN is the application deployment domain and should be set as a variable at the group or project level. # AUT0_DEVOPS_DOMAIN: i2p.fun # POSTGRES_USER: user</pre> | Merge branch 'mkula Revert Background to green See merge request !6 | akowski-revert-backg | round-to-gi |
| 9 10 11 12 | POSTGRES_PASSWORD: testing-password POSTGRES_ENABLED: "true" POSTGRES_DB: \$CI_ENVIRONMENT_SLUG | ① 12 jobs for 7-trivial-new- | issue in 13 minutes and 58 seconds | (queued for 6 minu |
| 13 14 15 | KUBERNETES_VERSION: 1.8.6 HELM_VERSION: 2.6.1 | Auto DevOps | | |
| 17 18 19 | - build - test - review | -o- 1f17f5c6 🔓 | | |
| 20 21 22 | - dast - staging - canary | ា No related merge requests f | ound. | |
| 23 24 25 | production performance cleanup | Pipeline Needs Jobs 12 Te | ests 0 Security Licenses 7 C | code Quality |
| 20 27 28 29 | <pre>build: stage: build image: docker:git</pre> | Group jobs by Stage Job dep | pendencies | |
| 30 31 32 | <pre>services: - docker:dind variables:</pre> | Build | Test | Review |
| 33 34 35 36 | DOCKER_DRIVER: overlay2 script: - setup_docker - build | 🕑 build 💭 | Code_quality | review |
| 37 38 39 | only: - branches | | Container_s | |
| 40 41 42 | <pre>.test: services: - postgres:latest waribles:</pre> | | gemnasium-m | |
| 43 44 45 46 | POSTGRES_DB: test stage: test image: gliderlabs/herokuish:latest | | Secret dete | |
| 47 48 49 | <pre>script: - setup_test_db - cp -R . /tmp/app</pre> | | Spotbugs-s | |
| 50 51 | - /Din/herokuish buildpack test only: - branches | | ⊘ test Ø | |



mkulakowski-revert-background-to-green' into 'master' green al-new-issue in 13 minutes and 58 seconds (queued for 6 minutes and 59 seconds) equests found. 12 Tests 0 Security Licenses 7 Code Quality Job dependencies Test Review Dast 0 ✓ code_quality review 0 🕢 dast (\mathbf{C}) 🕝 container_s... 📿 gemnasium-m... 🕑 license_sca... 📿 Secret_dete... 📀 spotbugs-s... 📿 🕑 test 0

Example: Multi Project Pipelines

| Build | Test | Post-test |
|-------------|--------------|------------|
| 🕑 build-job | est-job-1 | odownstrea |
| | 🕑 test-job-2 | odownstrea |
| | | |
| | | |



"Our feedback loops were 4-6 weeks. Could you imagine writing code today and six weeks from now being told whether or not it works or is broken? I don't remember the shirt that I wore yesterday, let alone what I had for breakfast this morning, let alone what I wrote six weeks ago, and chances are I've been working on features for the last six weeks, and for me to try to unpick what I was thinking at that point could be a huge context-switch penalty." -- Chris Hill, Software Engineering Director, Jaguar Land Rover

Jaguar Land Rover uses GitLab to compress release cycle

- Build time $6w \rightarrow 30$ min
- 700 builds day

- OTA release transparent to the driver
- from commit to production in < 60 min
 - 70 production deploys/component/day
- **30 mins** to onboard new application to CI/CD

Operational Advantage

- Tight and flexible Kubernetes integration
 - Kubernetes agent monitors changes GitOps style
 - Infra as Code
 - Policy as Code
 - Install and manage pre-integrated (or any) apps
 - Prometheus monitoring
 - ElasticSearch for Log aggregation
 - Service Mesh
 - Network and Container Policies
 - Etc.
- Canary Releases



Example: Environment Dashboard

| 🦊 GitLab Projects 🗸 G | Groups ~ More ~ 🛄 | | | + ~ Search or jump to. | •• | ٩ | 143 | 112 | E 96 | ? ~ | ~ 🛞 |
|-----------------------|----------------------------|------------------|--------------------|---|-------------|--------------|-----|-----|-------------|---------|-------|
| chipmunk | fpotter > tour > 🚳 chipmun | k > Environments | | | | | | | | | |
| | Available 8 Stopped | 7 | | | | | | | New | enviror | nment |
| Repository | Environment | Deployment | Job | Commit | Updated | Auto stop in | | | | | |
| D Issues 36 | > Preview 6 | | | | | | | | | | |
| 11 Merge Requests 8 | ✓ staging | #57 by 🤧 | staging #39504 | P master → 9af71d0a Merge branch '13-temp | 1 month ago | | | Ľ | • • | |) - |
| · CI/CD | | | | | | | | | | | |
| Security & Compliance | Instance | e (1) | | | | | | | | | |
| | Complete Succ | ceeded 📃 Runn | ing 🖊 Failed 📃 Pen | ding 🗌 Unknown 🛑 Canary | | | | | | | |
| Metrics | ~ production | #47 by 🔍 | rollout 100% #35 | ₽ master ⊸36cf9b6e | 2 months | | | ۲Z | ▶ ∨ | | |
| Tracing | production | n n Sy y | | Merge branch '5-neque | | | | | | | |
| Environments | Instance | e (1) | | | | | | | | | |
| Error Tracking | 100% | | | | | | | | | | |
| Serverless | Succ | ceeded 📃 Runn | ing 🖊 Failed 📃 Pen | ding 🗌 Unknown 🛑 Canary | | | | | | | |
| Pod logs | | | | | | | | | | | |

Example: App Environment Monitoring and Logs





| f × | | | | | * 2 |
|--|--|-------------------------|----------------------|--|--|
| | -11-04 17:50:26.008 | INFO 1 [ost-start | Stop-1] o.s.b.w.ser | vlet.FilterRegistrationBean | : Mapping filter: |
| -6b9f6cd5cd- | ·11-04 17:50:26.009 | INFO 1 [ost-start | Stop-1] o.s.b.w.ser | vlet.FilterRegistrationBean | : Mapping filter: |
| | -11-04 17:50:26.284 | INFO 1 [| main] o.s.w.s.han | dler.SimpleUrlHandlerMappin | g : Mapped URL path |
| -6b9f6cd5cd- | ramework.web.servle | t.resource.ResourceHtt | pRequestHandler] | | |
| | -11-04 17:50:26.638 | INF0 1 [| main] s.w.s.m.m.a | .RequestMappingHandlerAdapt | er : Looking for |
| -6b9f6cd5cd- | context.AnnotationCo | nfigServletWebServerAp | plicationContext@56 | 79c6c6: startup date [Thu No | ov 04 17:50:21 UTC 2021]; |
| | ·11-04 17:50:26.776 | INFO 1 [| main] s.w.s.m.m.a | .RequestMappingHandlerMappi | ng : Mapped "{[/]}" onto |
| -6b9f6cd5cd- | 11_04 17.50.26 700 | TNEO 1 [| mainleyemma | PequestManningHandlerManni | na i Manned |
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| -postgresqi-u | BasicErrorControlle | r.errorHtml(javax.serv | let.http.HttpServle | tRequest, javax.servlet.http | .HttpServletResponse) |
| | -11-04 17:50:26.792 | INFO 1 [| main] s.w.s.m.m.a | .RequestMappingHandlerMappi | ng : Mapped "{[/error]}" |
| sponseEntity <ja< td=""><td>wa.util.Map<java.lang.< td=""><td>String, java.lang.Obje</td><td>ect>></td><td></td><td></td></java.lang.<></td></ja<> | wa.util.Map <java.lang.< td=""><td>String, java.lang.Obje</td><td>ect>></td><td></td><td></td></java.lang.<> | String, java.lang.Obje | ect>> | | |
| web.servlet.err | or.BasicErrorControlle | r.error(javax.servlet. | http.HttpServletReq | uest) | |
| d5cd-bhcj6 20 | 21-11-04 17:50:26.857 | INF0 1 [| main] o.s.w.s.han | dler.SimpleUrlHandlerMappin | g : Mapped URL path |
| ss org.springfr | amework.web.servlet.re | source.ResourceHttpRed | uestHandler] | | |
| d5cd-bhcj6 20 | 21-11-04 17:50:26.857 | INF0 1 [| main] o.s.w.s.han | dler.SimpleUrlHandlerMappin | g : Mapped URL path [/**] |
| ramework.web.se | rvlet.resource.Resourc | eHttpRequestHandler] | | | |
| d5cd-bhcj6 20 r' | 21-11-04 17:50:27.310 | INFO 1 [| main] o.s.b.a.e.w | eb.EndpointLinksResolver | : Exposing 2 |
| d5cd-bhcj6 20 ation/ynd.sprin | 21-11-04 17:50:27.325 | INFO 1 [| main] s.b.a.e.w.s | .WebMvcEndpointHandlerMappin | ng : Mapped "{[/actuator |
| nt.web.servlet. | AbstractWebMvcEndpoint | HandlerMapping\$Operati | onHandler.handle(ja | vax.servlet.http.HttpServle | tRequest,java.util.Map <jav< td=""></jav<> |
| d5cd-bbci6 20 | 21-11-04 17:50:27 326 | TNE0 1 [| mainlshaews | .WebMvcEndnointHandlerManni | ng : Manned "{[/actuator |
| ion/vod spring- | hoat actuator v2+icon | In o 1 [| onto public java 1 | and Object | ig . happed {[/actuator |
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| d5cd-bhcj6 20 | 21-11-04 17:50:27.327 | INF0 1 [| main] s.b.a.e.w.s | .WebMvcEndpointHandlerMappi | ng : Mapped |
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| ingframework.bo | ot.actuate.endpoint.we | b.Link>> | | | |
| nt.web.servlet. | WebMvcEndpointHandlerM | apping.links(javax.ser | vlet.http.HttpServl | etRequest,javax.servlet.http | p.HttpServletResponse) |
| d5cd-bhcj6 20 | 21-11-04 17:50:27.405 | INF0 1 [| main] o.s.j.e.a.A | nnotationMBeanExporter | : Registering beans for |
| d5cd-bhcj6 20 | 21-11-04 17:50:27.475 | INFO 1 [| main] o.s.b.w.emb | edded.tomcat.TomcatWebServe | r : Tomcat started on |
| d5cd-bhcj6 20) | 21-11-04 17:50:27.480 | INFO 1 [| main] hello.Appli | cation | : Started Application |
| d5cd-bhcj6 20 | 21-11-04 17:50:34.688 | INFO 1 [nio-5000- | exec-1] o.a.c.c.[| Tomcat].[localhost].[/] | : Initializing Spring |
| d5cd-bhcj6 20 rted | 021-11-04 17:50:34.689 | INFO 1 [nio-5000- | -exec-1] o.s.web.ser | vlet.DispatcherServlet | : FrameworkServlet |
| d5cd-bhcj6 20 pleted in 31 ms | 021-11-04 17:50:34.721 | INFO 1 [nio-5000- | -exec-1] o.s.web.ser | vlet.DispatcherServlet | : FrameworkServlet |
| | | | | | |

- Remove friction and compress change cycle
 - Single UI and rights for Dev, Ops, Security and Compliance
- Low overhead
 - Unique single application approach
- Dependable & transparent
 - Regular cadence monthly releases
 - Open roadmap
 - Everyone can contribute Ο
- Truly cloud agnostic

| Manage | Plan | Create | Ver |
|--|---|--|---|
| Since 2016 GitLab added: | Since 2011 GitLab added: | Since 2011 GitLab added: | Since GitLab |
| Subgroups Value Stream Management Audit Events DevOps Reports Compliance Management Audit Reports | Design Management Service Desk Portfolio Management Team Planning Quality Management Requirements Management | Code Review Source Code Management Snippets Web IDE Static Site Editor Wiki Live Preview | Review Contin Integra Merge Access Testing Code T and Co Usability Testing |
| Stage Roadmap: | Stage | Stage Roadman: | Perform Testing Sta Road |
| Koadmap: Manage Direction | Roadmap: Plan Direction | Roadmap: Create Direction | Koad Verify D |

3 ß Jan Bar ~ 0</> $\langle \cdot \rangle$ Configure ify Package Secure Release Monitor Protect 2012 Since 2016 Since 2017 Since 2016 Since 2018 Since 2017 Since 2019 dded GitLab added GitLab added: GitLab added: GitLab added: GitLab added: GitLab added: Dependency SAST Infrastructure Incident Apps Pages Container as Code Proxy Managemen Scanning Vulnerability Jous Continuous tion (CI) Helm Chart Management Delivery Kubernetes Product Container Registry Management Analytics Network C Release Trains Dependency Security Container Scanning Orchestration Auto DevOps Error Tracking bility Container Host Registry Fuzz Testing Feature Flags ChatOps Tracing Security Package esting API Security Advanced Secrets Logging Registry Security Management verage Deployments Orchestration DAST On-call • Git LFS Environment Deployment Schedule Secret Management Management Management Detection Upcoming Release Metrics nance Upcoming Categories: License Evidence Categories: Runbooks Compliance Dependency Cluster Cost Firewall Code Quality Management Stage Stage Stage Stage Stage Stage ge map: Roadmap: Roadmap: Roadmap: Roadmap: Roadmap: Roadmap: rection Package Secure Direction Release Configure Monitor Protect Direction Direction Direction Direction Direction

GitLab Cloud Allies



💐 aws marketplace

aws partner network

isv accelerate

GitLab Inc. Wins Google Cloud Technology Partner of the Year Award for Application and Development

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GitLab Inc.'s complete DevOps platform recognized as key component of Google Cloud's Partner ecosystem

SAN FRANCISCO, CALIFORNIA – July 20, 2021 - <u>GitLab Inc.</u>, a company that offers the complete DevOps Platform, today announced that it has received the 2020 Google Cloud Global Technology Partner of the Year award for Application Development.

GitLab Inc. was recognized for the company's achievements in Application Development and Modernization in the Google Cloud ecosystem, helping joint customers unite teams and workflows with GitLab to efficiently and securely develop cloud native, scalable solutions with cutting edge technology on Google Cloud. GitLab supports various types of deployment targets for DevOps teams to choose from like GKE, GKE AutoPilot, CloudRun, and Anthos as a Cloud Native, multi-cloud and hybrid-cloud software development platform. GitLab also enables enterprises to adopt modern workflows like GitOps when deploying to Google Cloud's platform. The partnership brings value to customers by reducing cycle times so that they can deliver valuable applications and updates quickly. Additionally, the partnership brings GitLab's unique CI/CD and DevSecOps platform to Google Cloud, so teams can work with secure, innovative technologies.

"We're proud to recognize Gitlab as our Technology Partner of the Year for Application Development," said Kevin Ichhpurani, Corporate Vice President, Global Partner Ecosystem at Google Cloud. "This award recognizes GitLab's commitment to customer success, and its delivery of innovative and impactful solutions on Google Cloud in Application Development. We look forward to building together with GitLab and creating business value for customers with cloud technologies."

By combining GitLab's integrations with Google Cloud services, the partnership enables a consistent and efficient developer and operator experience for a more predictable software development lifecycle for various workloads across teams in a broad range of verticals and enterprises. Collaboration is one of GitLab's key values and by practicing this value with a partner like Google

Velocity, efficiency, and security

A look at DevOps success for our customers

GitLab is at the heart of UBS **Development Revolution**

Prior to GitLab, UBS was experiencing competitive challenges due to their slow time to market. They lacked the visibility needed to identify bottlenecks and improve productivity in their delivery platform. UBS partnered with GitLab to take their cloud native and traditional banking applications to the next level from a single platform.

Learn more about our strategic UBS collaboration

"







With GitLab, we leapfrog many of our competitors and break the barriers between coding, testing, and deployment.



Mike Dargan Head of Technology, UBS



What is Cloud-Native?

- Flexibility
- Scalability
- Supporting services

https://about.gitlab.com/cloud-native/ https://about.gitlab.com/solutions/cloud-native/



Moving To The Cloud

- **58%** of FSI workloads are hosted in the cloud *
- Banks are moving both core and non-core systems to the cloud
- Adoption is increasing due to:
 - Security
 - Regulation
 - Customer experience



* Source: The State of DevOps in Financial Services 2018 (Contino)

Moving To The Cloud

Banks are typically faced with three approaches to migrating core functions to the cloud:



The ultimate goal is a cloud-friendly, loosely-coupled, microservices architecture:





The characteristics of Cloud-native





Microservices

Containers

However, Kubernetes has a steep learning curve!



Kubernetes

GitLab Application Architecture







All connections use Unix sockets unless noted otherwise.

- Packaged solution containing all required services to run GitLab Omnibus in a single 'machine':
 - On-prem Docker ■ Cloud: eg, EC2

• Simple, Functional, but NOT Cloud Native

Scalability

| 🦊 GitLab Docs | Search our d | locs | | | ۹ | Version | GitLab.co | om - | | |
|----------------------------|--------------|---------------------|-------|---------------|----------|------------|------------|-----------------|------------------|--------------|
| GitLab Docs | | GitLab Docs > Ad | minis | strator Docs | > Refe | erence ar | chitecture | s | | |
| Install | \sim | | | | | | | - | | |
| Analytics | ~ | Reference | e a | rchite | cture | es | | | | |
| Clusters | ~ | You can set up Git | Lab c | on a single s | server o | r scale it | up to serv | e manv users | s. This page det | ails the rec |
| Groups | ~ | GitLab's Quality an | nd Su | pport team | s. | | , | , | 1.3 | |
| Projects | ~ | Below is a chart re | prese | enting each | archite | cture tier | and the n | umber of use | ers they can han | idle. As you |
| CI/CD | ~ | scale GitLab accor | dingl | у. | | | | | | |
| Packages | ~ | | | 24 | | 2 | | | | |
| API | ~ | | Re | ference | Archite | ectures | | | | |
| User | ~ | | | 50000 | | | | | | |
| Administrator | ~ | | | 00000 | | | | | | |
| Reference Architectures | ~ | | | 40000 | | | | | | |
| Up to 1,000 users | | | | | | | | | | |
| Up to 2,000 users | | | User | 30000 — | | | | | | |
| Up to 3,000 users | | | er of | | | | | | | |
| Up to 5,000 users | | | Mumb | 00000 | | | | | | |
| Up to 10,000 users | | | - | 20000 — | | | | | | |
| Up to 25,000 users | | | | | | | | | | 1000 |
| Up to 50,000 users | | | | 10000 — | | | | | | 1000 |
| Consul | | | | | | | | 3000 | 5000 | |
| Database | | | | | 0 | | 1000 | | | |
| GitLab | | | | 0 — | - | | | | | |
| Load balancer | | | | | | | | | User Growth | |
| Monitoring node | | | | | | | | | | |
| | | | | | | | | | | |



Reference Architecture to Support 50,000 users

- Supported users (approximate): 50,000
- **High Availability:** Yes (Praefect needs a third-party PostgreSQL solution for HA)

| Cloud Native Hybrid Alternative: Yes Performance tested weekly with the <u>GitLab Performance Tool (GPT)</u>: Test requests per second (RPS) rates: API: 1000 RPS, Web: 100 RPS, Git (Pull): 100 RPS, Git (Push): 20 RPS Latest Results | | | | | | | | | | |
|--|-------|------------------------|----------------|-------------|---------|--|--|--|--|--|
| Service | Nodes | Configuration | GCP | AWS | Azure | | | | | |
| External load balancing node ³ | 1 | 8 vCPU, 7.2 GB memory | n1-highcpu-8 | c5.2xlarge | F8s v2 | | | | | |
| Consul ¹ | 3 | 2 vCPU, 1.8 GB memory | n1-highcpu-2 | c5.large | F2s v2 | | | | | |
| PostgreSQL ¹ | 3 | 32 vCPU, 120 GB memory | n1-standard-32 | m5.8xlarge | D32s v3 | | | | | |
| PgBouncer ¹ | 3 | 2 vCPU, 1.8 GB memory | n1-highcpu-2 | c5.large | F2s v2 | | | | | |
| Internal load balancing node ³ | 1 | 8 vCPU, 7.2 GB memory | n1-highcpu-8 | c5.2xlarge | F8s v2 | | | | | |
| Redis/Sentinel - Cache ² | 3 | 4 vCPU, 15 GB memory | n1-standard-4 | m5.xlarge | D4s v3 | | | | | |
| Redis/Sentinel - Persistent ² | 3 | 4 vCPU, 15 GB memory | n1-standard-4 | m5.xlarge | D4s v3 | | | | | |
| Gitalv ⁵ | 3 | 64 vCPU, 240 GB memory | n1-standard-64 | m5.16xlarge | D64s v3 | | | | | |

Installation on AWS (EC2)



https://docs.gitlab.com/ee/install/aws/

Leverage native AWS services:

- AWS RDS (PostgresSQL)
- ElastiCache (Redis)



A GitLab Runner is a lightweight, highly-scalable agent that picks up a CI job through the coordinator API of GitLab CI/CD, runs the job, and sends the result back to the GitLab instance.

These are typically created by your admin and made visible in the GitLab UI for certain tasks and jobs. They will have the following architecture:







YOUR LAPTOP 0..n Runner process

Commonly Used Executors

Shell

Directly run commands as if writing them into terminal (bash or sh) or command prompt (cmd) or powershell

Docker Machine

"Master" machine scales up runners with *any* executor on demand Typical in cloud deployments

Kubernetes

Runs as a pod in a K8s cluster **Can also feature auto-scaling**



Docker

Execute inside of a docker image Most common!



GitLab AutoDevops



Pipeline DAG Jobs 18 Tests 0 Security Licenses 8 Code Quality



Auto Scaling methods

AWS

Docker+Machine

- Many active examples
- EC2 SpotInstances

- Works with most cloud providers and many private cloud solutions
- Docker gives Digital Ocean and AWS examples
- Drivers also listed for:

AWS, Azure, GCP, DO, Exoscale, Hyper-V, OpenStack, Rackspace, IBM Softlayer, VirtualBox, VMWare vCloud Air, VMWare Fusion, VMWare vSphere

Kubernetes

ers ons I AWS Executor and a scaling method Allows you to spin up a pod-per-job K8s ConfigMap

GitLab Runners

Ο

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Scaling - Darwin's HA machine? -<u>https://gitlab.com/guided-explorations/aws/gitlab-runner-autoscaling-aws-asg/-/bl</u> <u>ob/main/FEATURES.md</u>



GitLab

Cloud-Native Support for Developers

about.gitlab.com

For Developers - WIP

- Group / Project Hierarchy / structure
- Integration with K8s (groups, projects, etc)
- Parent Child Pipelines
- Multi-project pipelines



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GitLab Agile Planning & Reporting Structure



Coordination



Use existing cluster - support for roll-your-own and all major vendor platforms

Attach **multiple clusters** to a single project

Leverages built-in **container registry**

Create **Review Apps** for each feature branch

Provide various **deployment strategies**:

- Automatic/manual deployments
- Canary deployments
- Incremental or timed rollouts

Monitoring





GitLab: Developer Workflow - DevOps Best Practices Built In



GitLab: Parent-Child Pipelines

| up jobs by Sta | age Job depe | endencies | | |
|----------------|--------------|-------------|--------|---|
| Build | | Test | Deploy | |
| job1 | C | job2 | job3 | C |
| | | microservic | | |
| | | microservic | | |
| | | microservic | | |
| | | | | |
| | | | | |





GitLab: Multi-Project Pipelines

| Build | Test | Post-test |
|-------------|-----------|------------|
| 🕑 build-job | est-job-1 | odownstrea |
| | est-job-2 | odownstrea |
| | | |
| | | |



GitLab

Cloud-Native Support for Deploying Applications

about.gitlab.com

Deployments

- Integration with K8s
 - Env dashboards show no. of pods, canary, etc
- ECS templates
- Serverless ?
- Multi-cloud deployments (from same pipeline or multiple child pipelines)



Kubernetes - Deploy Boards

- Consolidated view of **all environments**
- View **deployments** on each
- **Promote** from one environment to another
- View progress of **rollouts**
- Easily rollback
- Access **monitoring**
- No need to access
 Kubernetes



| | Updated | Auto stop ir | ı | | | | | | |
|---|-----------------------------------|--------------|---|---|---|---|--------------|---|---|
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1. Monitoring?

See https://about.gitlab.com/customers

CNCF - Cloud Native Computing Foundation <u>https://about.gitlab.com/customers/cncf/</u>



GitLab

Thank You

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