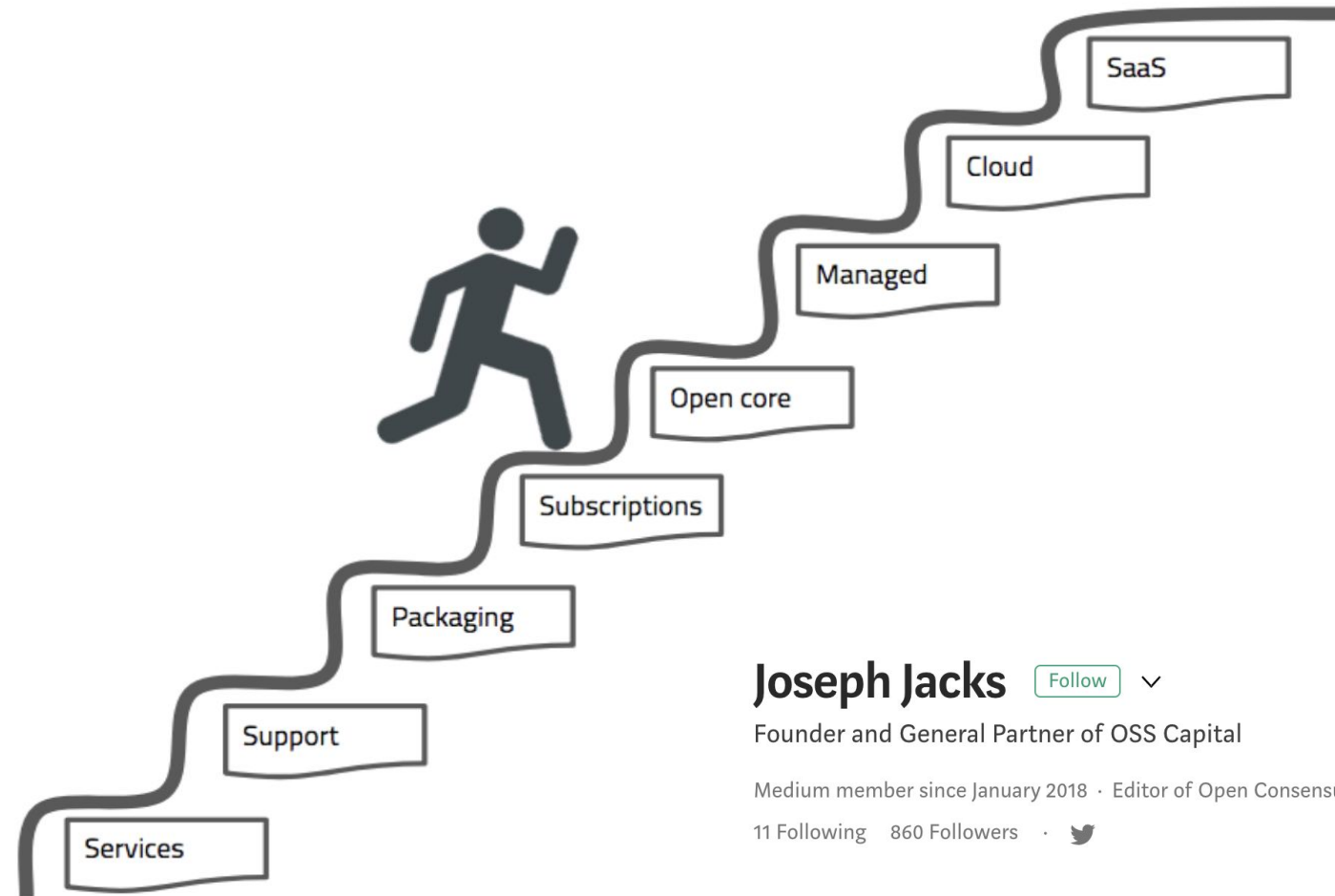




Is your DevOps 'tool tax' weighing you down? How can a single application across the lifecycle help

Brandon Jung  
VP Alliances, GitLab

# Open source business models



**Joseph Jacks**

Follow

Founder and General Partner of OSS Capital

Medium member since January 2018 · Editor of Open Consensus

11 Following · 860 Followers ·





## Collaboration



## Transparency





---

From idea to production:  
200% faster



## Aspiration: Shift-left

*“Consumers want to interact with us in new, different ways. Shifting left enables us to fix problems earlier and be competitive in **creating digital experiences quickly... It’s table stakes.**”*

**Michael, Director of Product Integrations**

S&P 500 Telecommunications, Mass Media

[Listen to live broadcast](#)







## Problem: Tool tax

*“Our feedback cycle took two weeks before we consolidated. It would have taken us **10 plus people to manage multiple tools.**”*

**Michael, Director of Product Integrations**

S&P 500 Telecommunications, Mass Media

[Listen to live broadcast](#)





## Solution: Fast results

*“We now do **1000s of deployments per week** to our front-end with GitLab. Our GitLab team is 2 people and they support 1000 users. The **feedback life cycle went from 2 weeks to seconds.**”*

**Michael, Director of Product Integrations**

S&P 500 Telecommunications, Mass Media

[Listen to live broadcast](#)





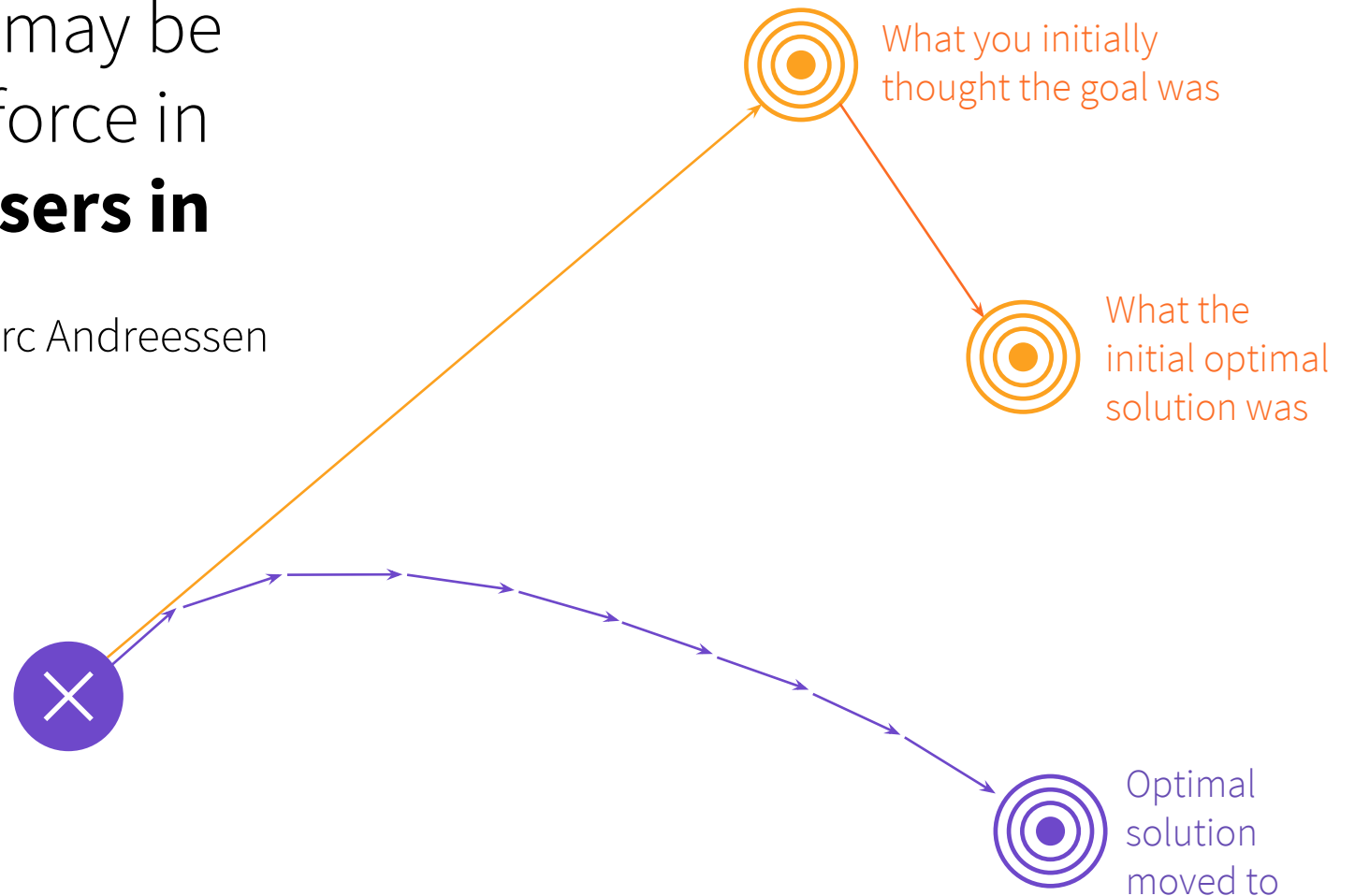
Why is this relevant?

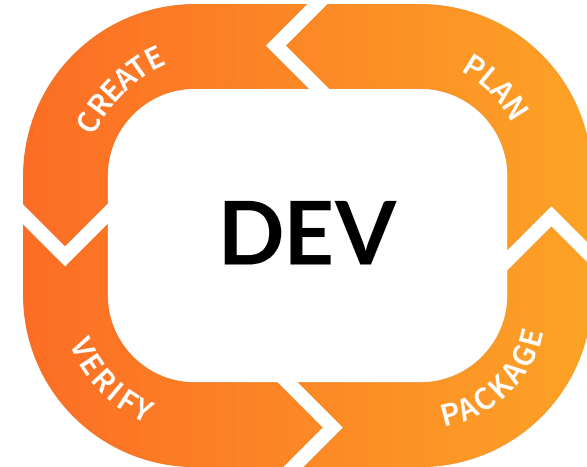
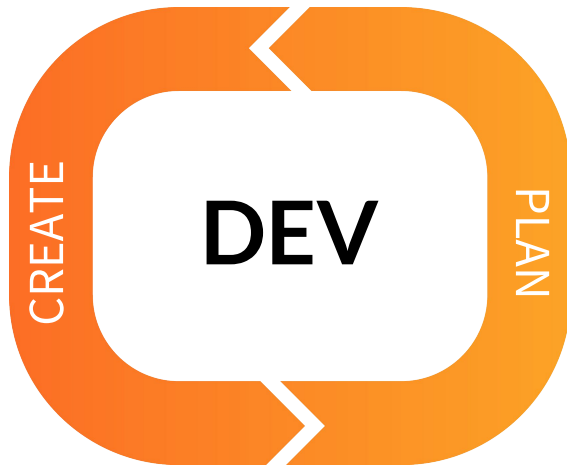


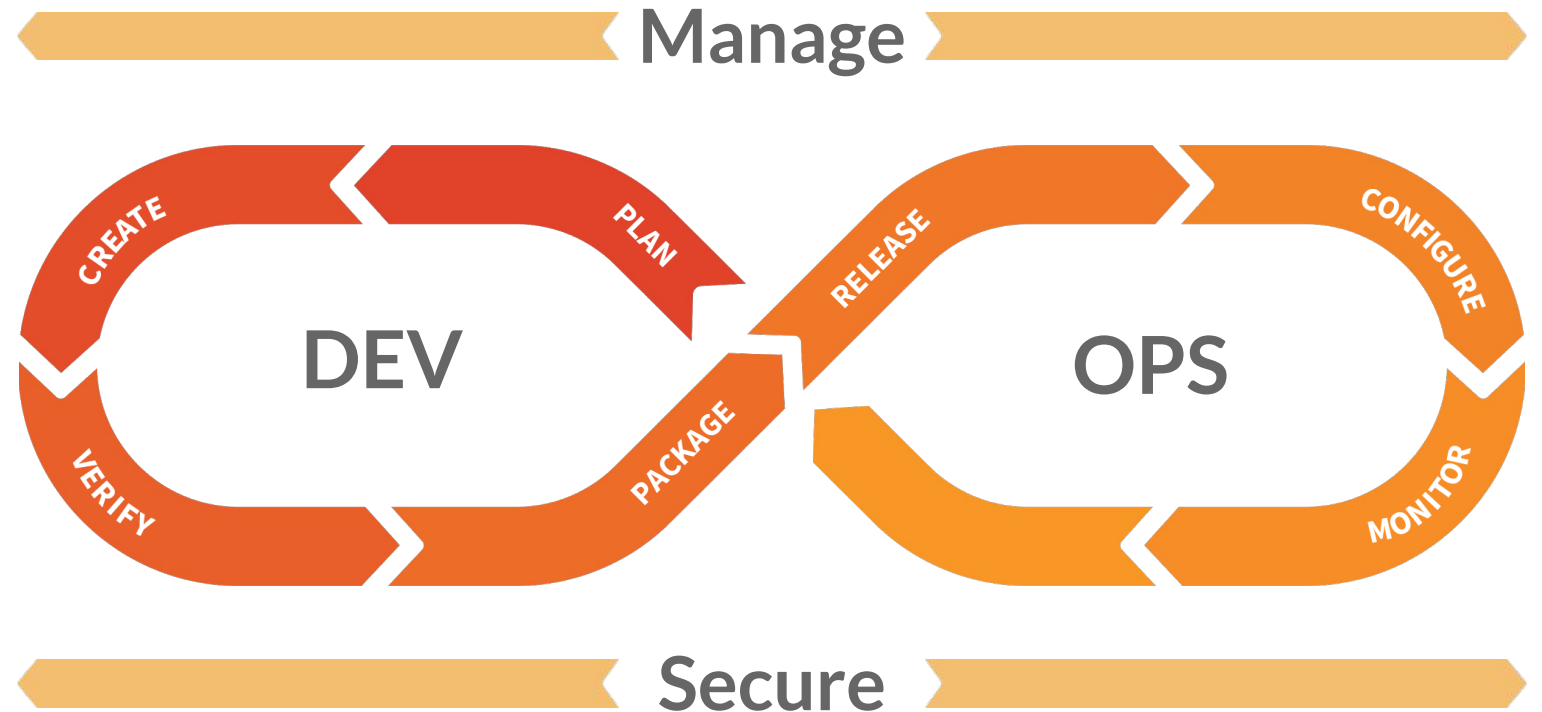
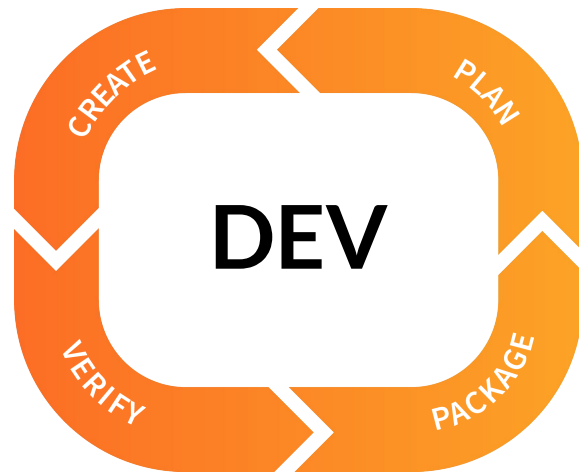


**Cycle time compression** may be the most underestimated force in determining **winners & losers in tech.**

— Marc Andreessen







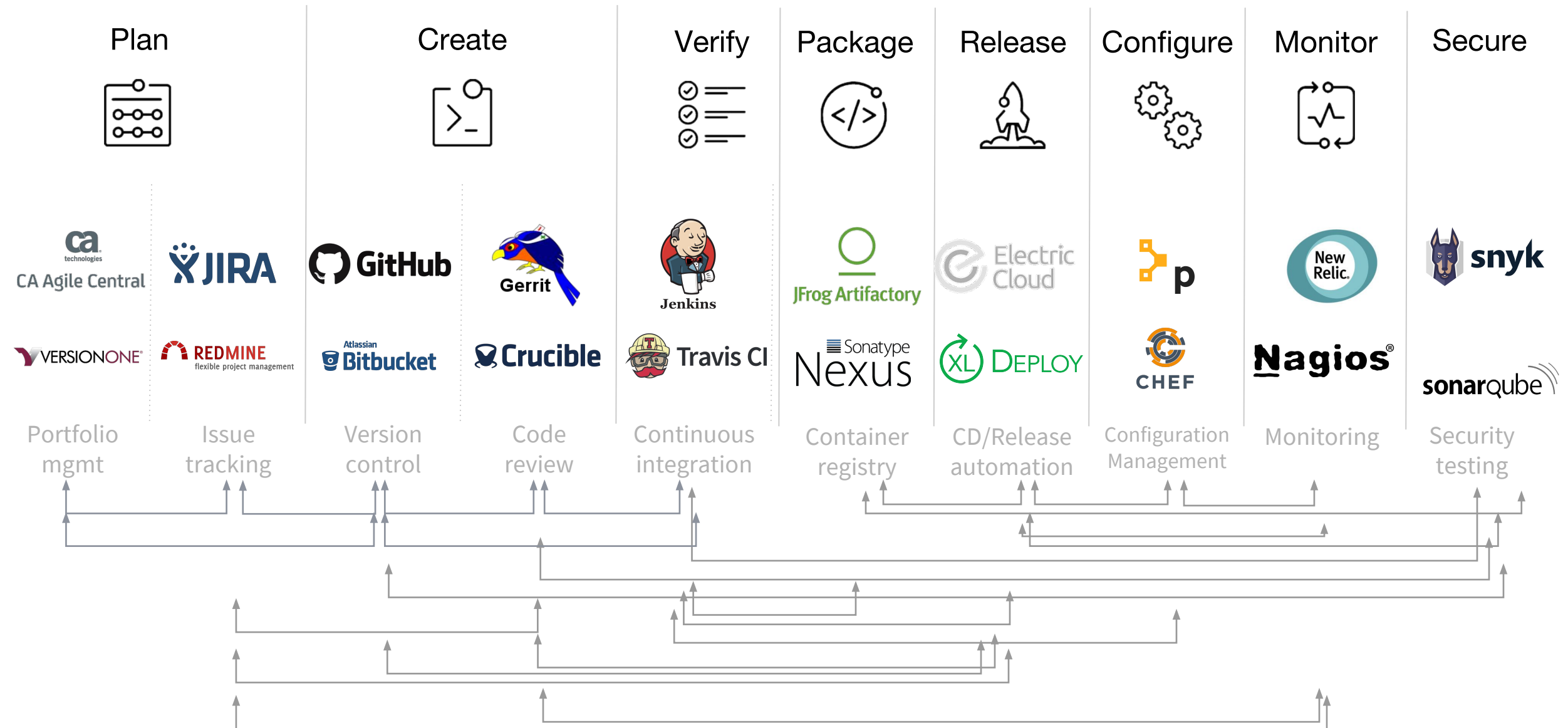
Different teams are using unique set of tools and integrations



# The Toolchain Crisis Leads to the DevOps Tool Tax



# Integration complexity of toolchains slows down teams: Integration Tax







## Microsoft Word

---



One person edits at a time



Multiple copies (hand offs)



Version conflicts



Waiting for feedback



Sequential



# What could it be like?



## Microsoft Word



One person edits at a time



Multiple copies (hand offs)



Version conflicts

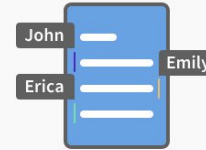


Waiting for feedback

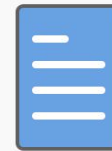


Sequential

## Google Docs



Many people edit at the same time



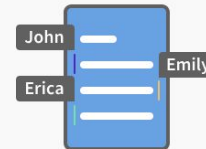
One copy



No conflicts



Real time feedback



Concurrent

# Incident Management: Data Tax

The screenshot displays a GitLab incident management interface. At the top, the navigation bar includes 'Projects', 'Groups', 'Activity', 'Milestones', and 'Snippets'. The incident is titled 'High rate of 500 errors on API nodes' and was opened 32 minutes ago by the 'GitLab Bot'. A 'Close incident' button is visible in the top right. Below the title, there is a 'Triggered alert' section with a graph showing a high rate of 500 errors on API nodes, and a 'Recommended runbook' section with a link to 'Troubleshoot API latency at api.xyz.com'. The incident is categorized under 'Timeline' with 8 items, 'Alerts' with 2, 'Deployments' with 4, 'Similar incidents' with 8, and 'Runbooks' with 2. The main content area shows a timeline of updates: a status page set to 'Investigating' by Chloe Williams, a comment by Chloe Williams stating 'I'm now looking into the root of the problem so I'm updating the status page to "investigating".', a comment by Elsie Willis suggesting rate limiting, and a comment by Lonnie Garcia stating 'I've verified that this issue is currently a problem.' and 'I vote that we open up a feature request, if one does not exist currently to provide the necessary options w/i the application. I can't think of anything our team can really do in situations such as this.' The right sidebar contains a 'Todo' list with items like 'Manager' (Chloe Williams), '3 assignees', 'Responders' (4 paged), 'Slack channel' (#inc-1337), 'Zoom call' (456-123-1337), 'Status page' (Investigating), 'Labels' (API, Severity 2), 'Confidentiality' (Not confidential), '4 participants', 'Notifications' (checked), and a 'Reference' link to 'tanuki-group/fitness-a...'. A 'Move incident' button is at the bottom of the sidebar.

GitLab Projects Groups Activity Milestones Snippets Search or jump to...

Tanuki Group > Fitness App > Operations > Incidents > ?1337

**Open** Opened 32 minutes ago by GitLab Bot Close incident

## High rate of 500 errors on API nodes

Triggered alert [All relevant alerts](#) Recommended runbook [All relevant runbooks](#) [Create runbook](#)

High rate of 500 errors on API nodes API 32 min ago

Troubleshoot API latency at api.xyz.com api\_latency.ipynb Updated 1 wk ago

Postmortem **Timeline 8** Alerts 2 Deployments 4 Similar incidents 8 Runbooks 2

Write a comment or drag your files here...

Status page set to **Investigating** by Chloe Williams @chloewilliams · 7 minutes ago

**Chloe Williams** @chloewilliams · 1 minute ago Master 🔒 🗨 👤 ⋮  
I'm now looking into the root of the problem so I'm updating the status page to "investigating".

**Elsie Willis** @elsie · 3 minutes ago via Slack Master 🔒 🗨 👤 ⋮  
If this is enough to cause a problem where is the appropriate place for rate limiting? I would suggest we rate limit, as there is not a legitimate reason that I can think of for this many (22 in a short interval) clone requests.

**Lonnie Garcia** @lonniegarcia · 15 minutes ago Master 🔒 🗨 👤 ⋮  
I've verified that this issue is currently a problem.  
  
I vote that we open up a feature request, if one does not exist currently to provide the necessary options w/i the application. I can't think of anything our team can really do in situations such as this.

Acknowledged by Carlos Mills @carlitosmoinhos · 29 minutes ago

Acknowledged by Lonnie Garcia @lonniegarcia · 30 minutes ago

4 responders notified by PagerDuty · 32 minutes ago

Created from alert **High rate of 500 errors on API nodes** by GitLab Bot · 32 minutes ago

**Todo** Add todo >>

**Manager** Edit  
**Chloe Williams** @chloewilliams

**3 assignees** Edit

**Responders** 4 paged Edit  
**3** 👤 **1** 👤

**Slack channel** Edit  
 **#inc-1337**

**Zoom call** Edit  
 **456-123-1337**

**Status page** Edit  
**Investigating** 7 min ago

**Labels** Edit  
**API** **Severity 2**

**Confidentiality** Edit  
 Not confidential

**4 participants** Edit

**Notifications** 🔔

Reference: tanuki-group/fitness-a... 🔗

Move incident

# Ops flow: Incident Management

Triggered alert  
Recommended  
runbook

GitLab

Projects

Groups

Activity

Milestones

Snippets

Search or jump to...

Tanuki Group

Fitness App

Operations

Incidents

?1337

Open

Opened 32 minutes ago by GitLab Bot

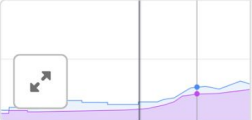
Close incident

Manager

Edit

Triggered alert

All relevant alerts



High rate of 500 errors on API nodes


API

32 min ago

Recommended runbook

All relevant runbooks

Create runbook



Troubleshoot API latency at api.xyz.com

api\_latency.ipynb

Updated 1 wk ago

Write a comment or drag your files here...

Status page set to **Investigating** by Chloe Williams @chloewilliams · 7 minutes ago

Chloe Williams @chloewilliams · 1 minute ago

I'm now looking into the root of the problem so I'm updating the status page to "investigating".

Master

Elsie Willis @elsie · 3 minutes ago via Slack

If this is enough to cause a problem where is the appropriate place for rate limiting? I would suggest we rate limit, as there is not a legitimate reason that I can think of for this many (22 in a short interval) clone requests.

Master

Lonnie Garcia @lonnigarcia · 15 minutes ago

I've verified that this issue is currently a problem.

Master

I vote that we open up a feature request, if one does not exist currently to provide the necessary options w/ the application. I can't think of anything our team can really do in situations such as this.

Acknowledged by Carlos Mills @carlitosmoinhos · 29 minutes ago

Acknowledged by Lonnie Garcia @lonnigarcia · 30 minutes ago

4 responders notified by PagerDuty · 32 minutes ago

Created from alert High rate of 500 errors on API nodes by GitLab Bot · 32 minutes ago

Slack channel

#inc-1337

Edit

Zoom call

456-123-1337

Edit

Status page

Investigating

7 min ago

Edit

Labels

API

Severity 2


Edit

Confidentiality

Not confidential

Edit

4 participants



Edit

Notifications

☒

Reference: tanuki-group/fitness-a...

Move incident

GitLab

ProjectsGroupsActivityMilestonesSnippets

Search or jump to...

Tanuki Group > Fitness App > Operations > Incidents > ?1337

OpenOpened 32 minutes ago by GitLab Bot

High rate of 500 errors on API nodes

Triggered alertAll relevant alerts

Recommended runbookAll relevant runbooksCreate runbook

High rate of 500 errors on API nodes API32 min ago

Troubleshoot API latency at api.xyz.com api\_latency.ipynbUpdated 1 wk ago

PostmortemTimeline8Alerts2Deployments4Similar incidents8Runbooks2

Write a comment or drag your files...

Status page set to **Investigating** by Chloe Williams @chloewilliams · 7 minutes ago

Chloe Williams @chloewilliams · 1 minute ago

I'm now looking into the root of the problem so I'm updating the status page to "investigating".

Master

Elsie Willis @elsie · 3 minutes ago via Slack

If this is enough to cause a problem where is the appropriate place for rate limiting? I would suggest we rate limit, as there is not a legitimate reason that I can think of for this many (22 in a short interval) clone requests.

Master

Lonnie Garcia @lonniegarcia · 15 minutes ago

I've verified that this issue is currently a problem.

Master

I vote that we open up a feature request, if one does not exist currently to provide the necessary options w/ the application. I can't think of anything our team can really do in situations such as this.

Acknowledged by Carlos Mills @carlitosmoinhos · 29 minutes ago

Acknowledged by Lonnie Garcia @lonniegarcia · 30 minutes ago

4 responders notified by PagerDuty · 32 minutes ago

Created from alert High rate of 500 errors on API nodes by GitLab Bot · 32 minutes ago

Manager

Chloe Williams

@chloewilliams

3 assignees

3 responders4 paged

31?

Status page

Investigating7 min ago

Labels

APISeverity 2

Confidentiality

Not confidential

4 participants

Notifications

Reference: tanuki-group/fitness-a...

Move incident

Age Group	Percentage
18-24	35%
25-34	25%
35-44	15%
45-54	10%
55-64	5%
65-74	3%
75-84	2%
85+	1%

# Ops flow: Incident Management

The screenshot displays the GitLab incident management interface for incident #1337. The incident title is "High rate of 500 errors on API nodes", triggered by an alert 32 minutes ago. The interface includes a timeline of events, a list of participants, and a status page. A white callout box on the right highlights the following communication channels:

- Slack channel: **#inc-1337**
- Zoom call: **456-123-1337**
- Status page: **Investigating** (7 min ago)

## Chat, video, and status page

Join the incident Slack channel and Zoom call, update your public status page

# Ops flow: Incident Management

## Timeline

Status page, comments and Slack messages, responder updates

The screenshot displays the GitLab incident management interface for incident #1337. The interface is divided into a main timeline area and a right-hand sidebar. The timeline area shows a sequence of updates: a status change to 'Investigating' by Chloe Williams, a comment from Chloe Williams about looking into the root of the problem, a comment from Elsie Willis asking about rate limiting, a comment from Lonnie Garcia verifying the issue and suggesting a feature request, and several acknowledgment messages from Carlos Mills, Lonnie Garcia, and PagerDuty. The right-hand sidebar contains various configuration options for the incident, including Manager (Chloe Williams), assignees (3), responders (4), Slack channel (#inc-1337), Zoom call (456-123-1337), status page (Investigating), labels (API, Severity 2), confidentiality (Not confidential), participants (4), notifications (enabled), and a reference link.

GitLab Projects Groups Activity Milestones Snippets

Tanuki Group > Fitness App > Operations > Incidents > #1337

Search or jump to...

Todo Add todo >>

Manager Chloe Williams @chloewilliams Edit

3 assignees Edit

Responders 4 paged 3 1 1 Edit

Slack channel #inc-1337 Edit

Zoom call 456-123-1337 Edit

Status page Investigating 7 min ago Edit

Labels API Severity 2 Edit

Confidentiality Not confidential Edit

4 participants Edit

Notifications ☒ Edit

Reference: tanuki-group/fitness-a...

Move incident

Status page set to **Investigating** by Chloe Williams @chloewilliams · 7 minutes ago

**Chloe Williams** @chloewilliams · 1 minute ago  
I'm now looking into the root of the problem so I'm updating the status page to "investigating"

**Elsie Willis** @elsie · 3 minutes ago via Slack  
If this is enough to cause a problem where is the appropriate place for rate limiting? I have a legitimate reason that I can think of for this many (22 in a short interval) clone requests

**Lonnie Garcia** @lonniegarcia · 15 minutes ago  
I've verified that this issue is currently a problem.  
  
I vote that we open up a feature request, if one does not exist currently to provide the ability to do anything our team can really do in situations such as this.

Acknowledged by Carlos Mills @carlitosmoinhos · 29 minutes ago

Acknowledged by Lonnie Garcia @lonniegarcia · 30 minutes ago

4 responders notified by PagerDuty · 32 minutes ago



# Ops flow: Incident Management

The screenshot displays the GitLab incident management interface for an incident titled "High rate of 500 errors on API nodes". The interface is organized into several sections:

- Header:** Includes the GitLab logo, navigation tabs (Projects, Groups, Activity, Milestones, Snippets), a search bar, and user profile icons.
- Breadcrumbs:** Shows the path: Tanuki Group > Fitness App > Operations > Incidents > #1337.
- Incident Details:**
  - Status:** Open (Opened 32 minutes ago by GitLab Bot). Buttons for "Close incident" and a dropdown menu are visible.
  - Title:** High rate of 500 errors on API nodes.
  - Triggered alert:** High rate of 500 errors on API nodes (API) - 32 min ago. Includes a small line graph.
  - Recommended runbook:** Troubleshoot API latency at api.xyz.com (api\_latency.ipynb) - Updated 1 wk ago.
- Timeline:** A horizontal bar with tabs for Postmortem, Timeline (8 items), Alerts (2), Deployments (4), Similar incidents (8), and Runbooks (2).
- Comments:**
  - A comment box with the placeholder "Write a comment or drag your files here...".
  - A status update: "Status page set to **Investigating** by Chloe Williams @chloewilliams · 7 minutes ago".
  - A comment by **Chloe Williams** @chloewilliams · 1 minute ago: "I'm now looking into the root of the problem so I'm updating the status page to 'investigating'." (Master branch, 3 icons).
  - A comment by **Elsie Willis** @elsie · 3 minutes ago via Slack: "If this is enough to cause a problem where is the appropriate place for rate limiting? I would suggest we rate limit, as there is not a legitimate reason that I can think of for this many (22 in a short interval) clone requests." (Master branch, 3 icons).
  - A comment by **Lonnie Garcia** @lonniegarcia · 15 minutes ago: "I've verified that this issue is currently a problem." (Master branch, 3 icons).  
Follow-up text: "I vote that we open up a feature request, if one does not exist currently to provide the necessary options w/i the application. I can't think of anything our team can really do in situations such as this."
- Footer:**
  - Acknowledged by Carlos Mills @carlitosmoinhos · 29 minutes ago.
  - Acknowledged by Lonnie Garcia @lonniegarcia · 30 minutes ago.
  - 4 responders notified by PagerDuty · 32 minutes ago.
  - Created from alert **High rate of 500 errors on API nodes** by GitLab Bot · 32 minutes ago.
- Right Sidebar:**
  - Todo:** Add todo button.
  - Manager:** Chloe Williams @chloewilliams (Edit).
  - 3 assignees:** (Edit).
  - Responders:** 4 paged, 3 (1 icon) (Edit).
  - Slack channel:** #inc-1337 (Edit).
  - Zoom call:** 456-123-1337 (Edit).
  - Status page:** Investigating (7 min ago) (Edit).
  - Labels:** API, Severity 2 (Edit).
  - Confidentiality:** Not confidential (Edit).
  - 4 participants:** (Edit).
  - Notifications:** (Checked) (Edit).
  - Reference:** tanuki-group/fitness-a... (Copy icon).
  - Move incident:** Button.

# Ops flow: Incident Management

The screenshot displays the GitLab incident management interface for an incident titled "High rate of 500 errors on API nodes". The incident was opened 32 minutes ago by the GitLab Bot. A recommended runbook, "Troubleshoot API latency at api.xyz.com", is highlighted, noting it was updated 1 week ago. The timeline shows several updates: a status page set to "Investigating" by Chloe Williams, a comment by Chloe Williams stating she is looking into the root of the problem, a comment by Elsie Willis suggesting rate limiting, and a comment by Lonnie Garcia verifying the issue is currently a problem. The sidebar on the right provides additional details: the manager is Chloe Williams, the status is "Investigating", the incident is labeled "API" and "Severity 2", and it is not confidential. The incident has 4 participants and notifications are enabled. A "Move incident" button is visible at the bottom of the sidebar.

**GitLab** Projects Groups Activity Milestones Snippets Search or jump to...

Tanuki Group > Fitness App > Operations > Incidents > ?1337

**Open** Opened 32 minutes ago by GitLab Bot Close incident

**High rate of 500 errors on API nodes**

Triggered alert All relevant alerts

High rate of 500 errors on API nodes 32 min ago

Recommended runbook All relevant runbooks Create runbook

Troubleshoot API latency at api.xyz.com api\_latency.ipynb Updated 1 wk ago

Postmortem **Timeline** 8 Alerts 2 Deployments 4 Similar incidents 6 Runbooks 2

Write a comment or drag your files here...

Status page set to **Investigating** by Chloe Williams @chloewilliams · 7 minutes ago

**Chloe Williams** @chloewilliams · 1 minute ago Master I'm now looking into the root of the problem so I'm updating the status page to "investigating".

**Elsie Willis** @elsie · 3 minutes ago via Slack Master If this is enough to cause a problem where is the appropriate place for rate limiting? I would suggest we rate limit, as there is not a legitimate reason that I can think of for this many (22 in a short interval) clone requests.

**Lonnie Garcia** @lonniegarcia · 15 minutes ago Master I've verified that this issue is currently a problem.

I vote that we open up a feature request, if one does not exist currently to provide the necessary options w/ the application. I can't think of anything our team can really do in situations such as this.

Acknowledged by Carlos Mills @carlitosmoinhos · 29 minutes ago

Acknowledged by Lonnie Garcia @lonniegarcia · 30 minutes ago

4 responders notified by PagerDuty · 32 minutes ago

Created from alert High rate of 500 errors on API nodes by GitLab Bot · 32 minutes ago

**Todo** Add todo

**Manager** Chloe Williams @chloewilliams Edit

**Labels** API Severity 2 Edit

**Confidentiality** Not confidential Edit

**4 participants** Edit

**Notifications** ☒ Edit

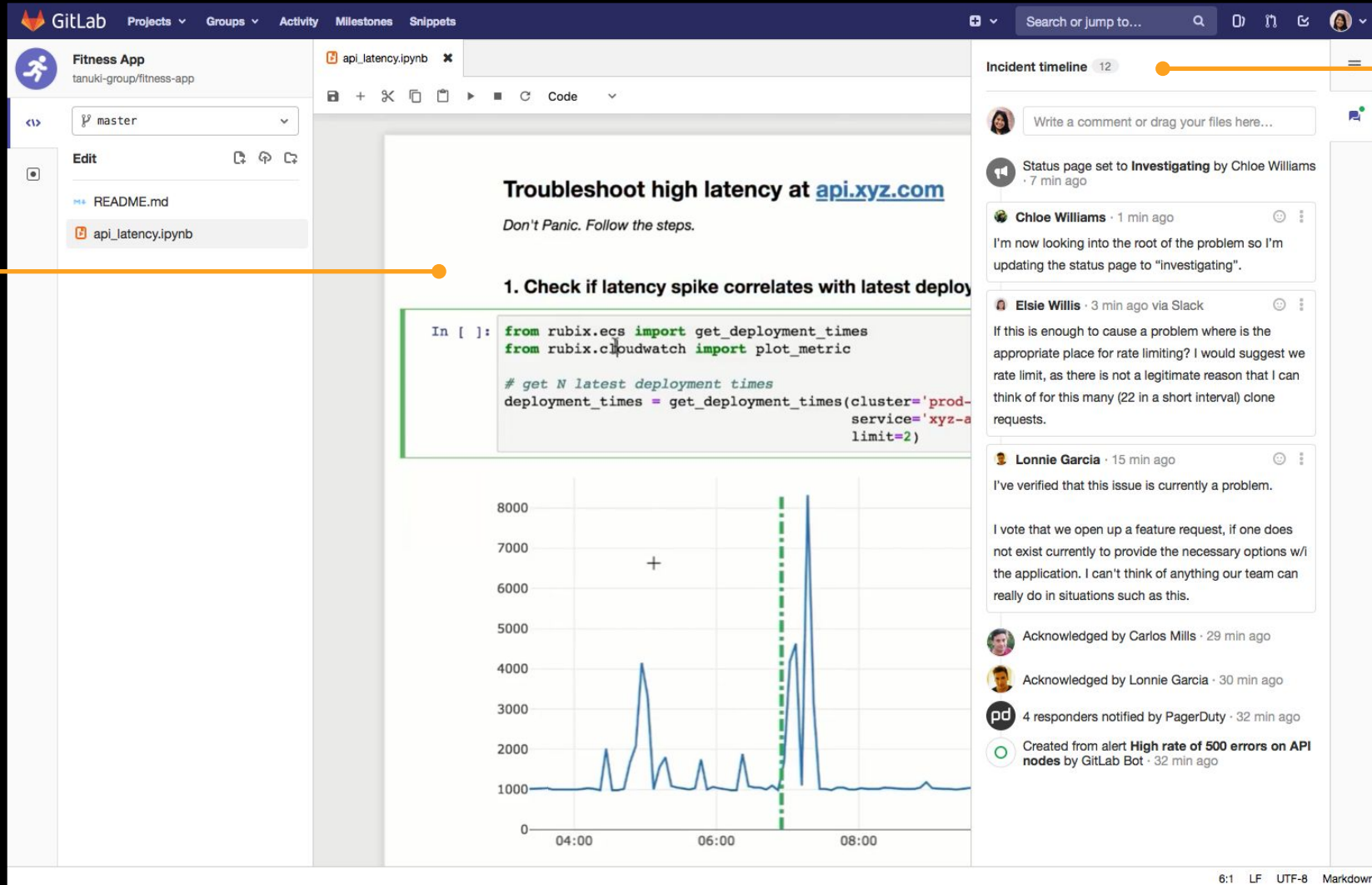
Reference: tanuki-group/fitness-a...

Move incident

# Ops flow: Incident Management

## Troubleshoot with interactive runbooks

Plot graphs, run database queries, run terminal commands



## Timeline

Post updates and stay on top of important events

# Ops flow: Incident Management

**Postmortem**  
Collaborative  
editing with  
templates

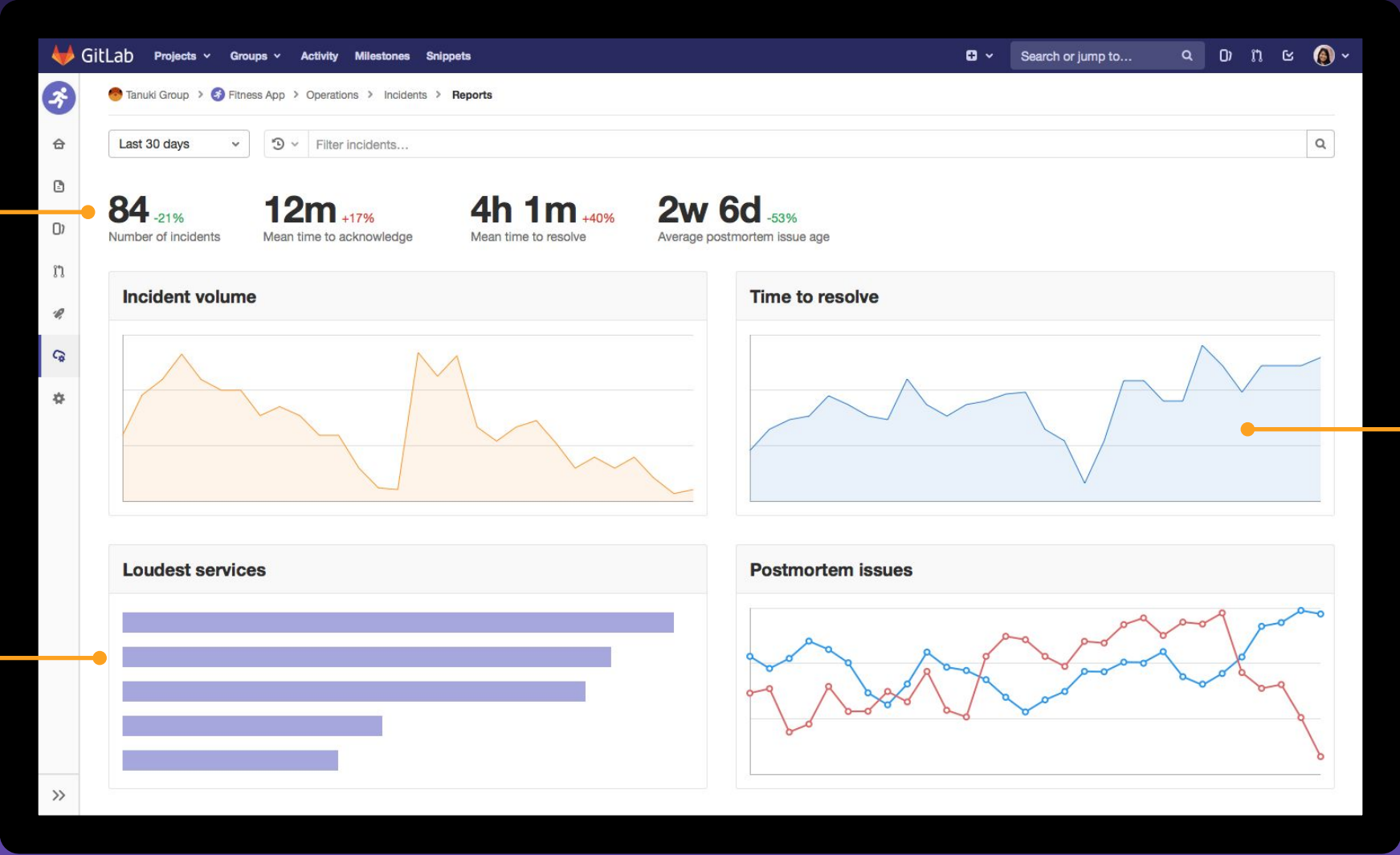
**Timeline**  
Import events and  
get a clinical  
overview

The screenshot displays the GitLab Incident Management interface for incident #1337. The interface is divided into several sections:

- Header:** Includes the GitLab logo, navigation tabs (Projects, Groups, Activity, Milestones, Snippets), a search bar, and user profile icons.
- Postmortem Section:**
  - Owner of the review process:** Chloe Williams.
  - Impact time (times in UTC):** 2018-09-20 at 00:00:00 to 2018-09-20 at 00:50:00 (50 min 12 sec).
  - Summary:** Describes a read-only mirror issue caused by a new demigod push, leading to CPU pegging on nfs-XX.
  - Follow-up issues:** Lists issues like #1853 (Prevent users from accidentally launching too many unicorns) and #17123 (Enable Dumbledore by default for self managed potions).
  - Fixing merge requests:** Lists merge requests like #17123.
  - Actions taken:** Lists actions like "Stopped all potions kicked off to eliminate the storm".
  - To do:** Lists tasks like "Check alarms on CPU for nfs hosts", "Look into new a way to prevent the storm from requests when a new demigod is uploaded", "Look at scaling up CPU on nfs nodes", "Further investigate Dumbledore and timeouts so that unicorns don't fill up", and "Law shouldn't attempt to build versions of new unicorns".
  - Timeline (all times in UTC):** Shows a sequence of events from 2018-09-20 00:34:22 to 00:50:12, including status changes and resolutions by Chloe Williams and Marlene Kuhn.
- Right Sidebar:** Contains a "Todo" list with items like Manager (Chloe Williams), 3 assignees, Responders (4 paged), Slack channel (#inc-1337), Zoom call (456-123-1337), Status page (Solved 7 min ago), Labels (API, Severity 2), Confidentiality (Not confidential), 4 participants, Notifications (checked), and a Reference link.

**Follow-up issues**  
**Fixing merge requests**  
Link to related  
issues and merge  
requests

# Ops flow: Incident Management



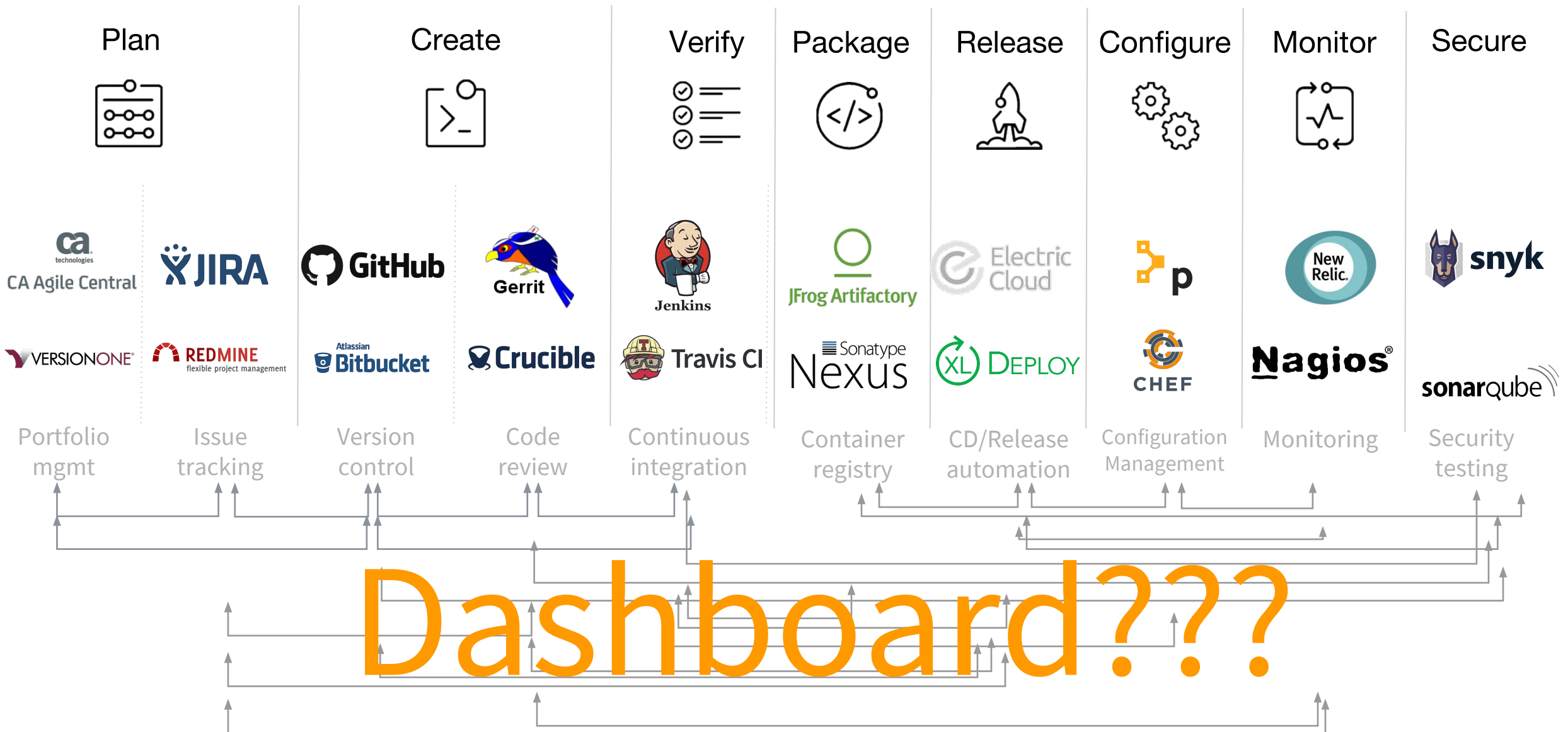
Overview metrics

Discover root causes

Understand incidents impact over time



# Data is the lifeblood of software: Data Tax







Integration/Support Tax

+ Developer tax

+ Data tax

---

**DevOps tool tax**





**beacon**   
ACCELERATE TECHNOLOGY

Cloud-based, end-to-end innovation,  
development and production platform for  
financial services. Enable clients to accelerate  
technology

Uses unique “**transparent source**” model:  
access to ALL code

Moving to GitLab (SCM and CI) allowed them  
to "freeze" base code while ensuring all new  
code met quality, security, and  
documentation standards.



Values that make a difference



---

# Convention over Configuration

# Opinionated DevOps: commit your code, GitLab does the rest



CREATE



- ✓ Merge
- ✓ Build

VERIFY



- ✓ Code Quality
- ✓ Test

SECURE



- ✓ SAST
- ✓ Dependency
- ✓ Container
- ✓ License
- ✓ DAST

PACKAGE



- ✓ Container Registry

RELEASE



- ✓ Review App
- ✓ Deploy

CONFIGURE



- ✓ Infra Config
- ✓ Scale

MONITOR



- ✓ Response
- ✓ System
- ✓ Custom
- ✓ Perf Testing



## Auto Build

Auto Test

Auto Code Quality

Auto SAST

Auto Dependency

Scanning

Auto License Management

Auto Container Scanning

Auto Review App

Auto DAST

Auto Deploy

Auto Browser Perf Testing

Auto Monitoring



If there is a `Dockerfile`, it will use `docker build` to create a Docker image.

Otherwise, it will use [Herokuish](#) and [Heroku buildpacks](#) to automatically detect and build the application into a Docker image.



Auto Build

Auto Test

Auto Code Quality

Auto SAST

Auto Dependency  
Scanning

Auto License Management

Auto Container Scanning

Auto Review App

Auto DAST

Auto Deploy

Auto Browser Perf Testing

Auto Monitoring

Based on the [Herokuish](#) and [Heroku buildpacks](#) Auto DevOps runs appropriate tests and code quality scans.





Auto Build

Auto Test

Auto Code Quality

Auto SAST

Auto Dependency  
Scanning

Auto License Management

Auto Container Scanning

Auto Review App

Auto DAST

Auto Deploy

Auto Browser Perf Testing

Auto Monitoring

Multiple security scans are built into Auto DevOps:

**Static Application Security Testing (SAST)** runs static analysis on the current code and checks for potential security issues.

**Dependency Scanning** runs analysis on project dependencies and checks for potential security issues.

**Vulnerability Static Analysis** for containers runs static analysis on the Docker image and checks for potential security issues.

**Dynamic Application Security Testing (DAST)** performs an analysis on the current code and checks for potential security issues.



Auto Build

Auto Test

Auto Code Quality

Auto SAST

Auto Dependency  
Scanning

Auto License Management

Auto Container Scanning

Auto Review App

Auto DAST

Auto Deploy

Auto Browser Perf Testing

Auto Monitoring



**Review Apps** are temporary application environments based on the branch's code so reviewers can actually see and interact with code changes as part of the review process. Auto Review Apps creates a Review App for each branch in to the Kubernetes cluster.

**Deploys** the application to a production environment in the Kubernetes cluster.

# Auto DevOps: a brief overview



Auto Build  
Auto Test  
Auto Code Quality  
Auto SAST  
Auto Dependency  
Scanning  
Auto License Management  
Auto Container Scanning  
Auto Review App  
Auto DAST  
Auto Deploy  
Auto Browser Perf Testing  
Auto Monitoring



Auto Monitoring makes it possible to monitor your application's server and response metrics right out of the box.  
Powered by Prometheus.

**Request to merge** 12124-increase-caching-limit into **master**

✓ Pipeline #82 passed with stage ✓ for 4c3763f2.

✓ Deployed to **production** on [localhost:30080](#) less than a minute ago

- Memory usage **decreased** from 3.92MB to 3.63MB

**Merged by** ☐ **Administrator** less than a minute ago

- The changes were merged into **master**
- The source branch has been removed.

Revert

Cherry-pick

# Thank you!



## Stay in touch:

 [@brandoncjung](https://twitter.com/brandoncjung)  
 [bjung@gitlab.com](mailto:bjung@gitlab.com)



Everyone can contribute  
[about.gitlab.com](https://about.gitlab.com)  
[info@gitlab.com](mailto:info@gitlab.com)