

# I did it ! I broke production !

**Sofía LESCANO CARROLL**



@SofLesc





Raise your hand if you have the rights to deploy /  
make changes in production



Keep it raised if you never broke production



Well, I did ;)



Twice.



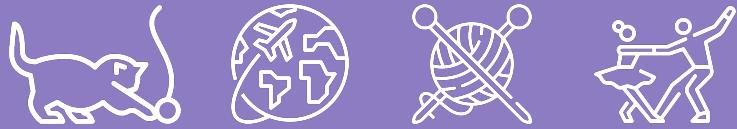
Within the same hour.

" Discover someone's true  
nature when you see how they  
react to an incident in  
production "



# Sofia Lescano Carroll

Senior Software Developer



 Madrid

# ankorstore



We rewild retail

2022



[New](#) [Home & Kitchen](#) [Food & Drinks](#) [Beauty & Wellness](#) [Fashion & Accessories](#) [Jewellery](#) [Baby & Kids](#) [Stationery & Hobbies](#) [£50 off](#) [Mother's Day](#)

£100 minimum order | Free delivery from £300 | Flexible payment terms

We connect  
300,000 independent retailers  
with 30,000 brands across Europe.

[REGISTER](#)

### Outstanding product selection

Shop nearly 2 million products from 30,000 curated brands across 28 countries in Europe



### Try new brands with ease

Place low minimum orders of £100, plus get free shipping on multi-brand orders over £300



### Buy now, pay later

Reduce your cash flow worries with our 60-day payment terms





# Our organisation

# Our teams

Functional perimeter



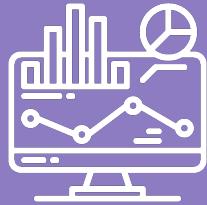
Engineering manager



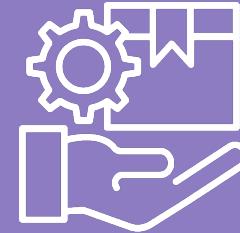
3-8 Software  
Engineers (BE & FE)



Product designer



Data analyst



Product manager

## Our objective

Sustainably deliver business value

Engineering

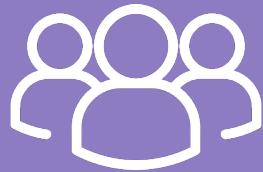
Product

The Product Manager is largely responsible for “What to do”,  
and the rest of the team is responsible for “How to do it”.

Our guidelines

Engineering principles  
&  
Software architecture principles

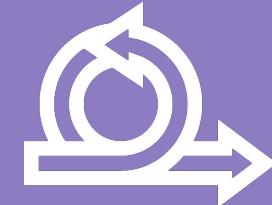
# Engineering principles



**Small long-lived  
squad**



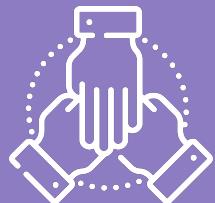
**Self-organization**



**Iterative process**



**Autonomy**



**Collaboration**



**Transparency**



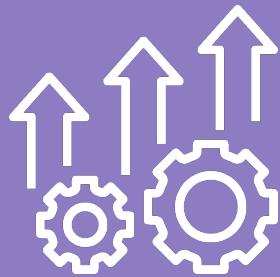
**Safety**

**Engineering principles**

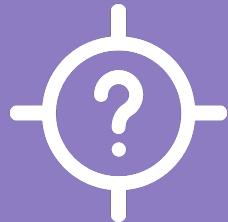
# Software architecture principles



Data privacy



Always improve



No deviant system  
behaviour



Localisation



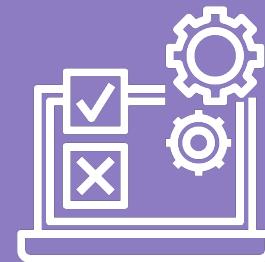
Environment  
parity



Documentation



Disposability

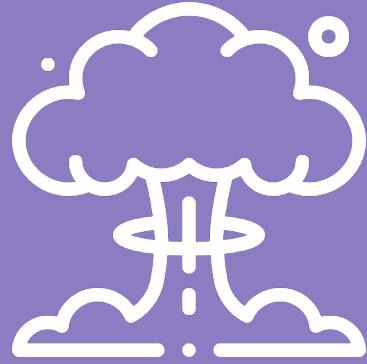


Testing

Software architecture principles

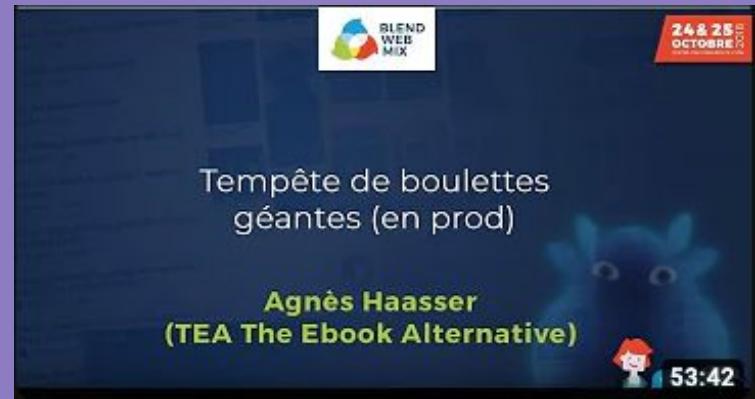


# The day I broke production



There are plenty ways of breaking  
production ...

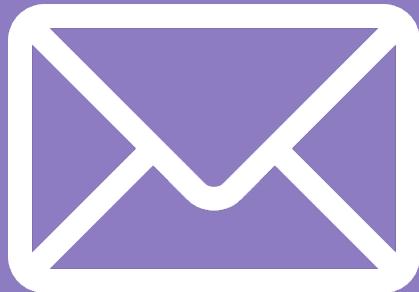
# Fortunately I didn't break it THAT much ...



It was on valentine's day ...



I wasn't much worried about my deployments



I got a message from a colleague ...

2:58 PM

Sofia we've a problem I think you need to revert this PR asap <https://github.com/>

<https://ankorstore.slack.com/archives/C038XNK5V9Q/p1676382547856839>

Hi Team! 😊 I've noticed that two Brands can not see any orders in their account at the moment, for example : <https://bo.ankorstore.com/> do you know if this is part of a bigger issue?

Thread in # questions-product-tech | Feb 14th | [View message](#)

I've done it here <https://github.com/>

**#29904 Revert "perf: reduce number of queries on account orders"**

Reverts #29694

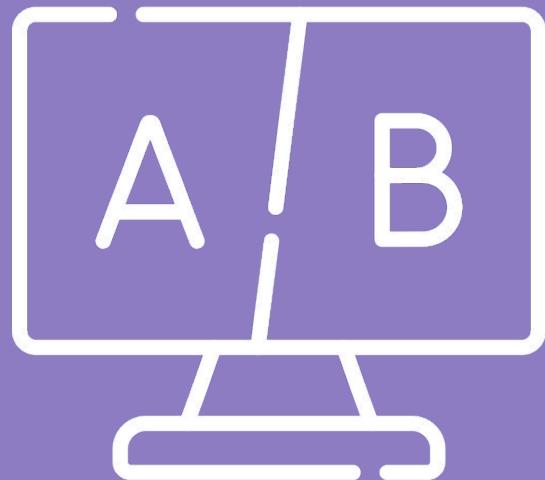
Labels

merge-queue/ready

 ankorstore/ankorstore | Feb 14th | Added by GitHub

- ① Someone spotted an issue in production
- ② My colleague caught it up, triggered an incident and started a fix
- ③ Reached out to let me know so I could manage it

# What happened ?



We forgot we had an A/B test ongoing

# Consequences

Liste des commandes

Créer une commande ▾

Synchronisez Ankorstore avec votre e-shop préféré  
Installez l'application Shopify ou WooCommerce et commencez à gérer les commandes depuis votre e-shop préféré.  
[Commencer](#)

Commandes à valider 1      Commandes à expédier 3      Problèmes de réception 0

Recherche par numéro de commande ou par détaillant      Exporter

⚠ Au moins une commande contient des boissons alcoolisées.  
Toutes les expéditions contenant des boissons alcoolisées doivent répondre à des normes d'emballage spécifiques. Vous trouverez plus d'informations sur [ces normes dans notre FAQ](#).

Toutes 5    A accepter 1    A envoyer 3    Envoyées 1    Problèmes de réception 0    Annulées 0    Terminées 0

Filtres: Priorité ▾    Type de commande ▾    Tout effacer

5 Produits

Client	Priorité	Statut	Référence	Date de création	Montant net	Suivi	Origine du stock	Type de commande
[redacted]	En retard	Commande à valider	#2350906	12 juin 2023	106,01 €	>		
[redacted]	En retard	Commande à expédier	#2350901	31 mai 2023	106,01 €	>		
[redacted]	En retard	Commande à expédier	#2350896	31 mai 2023	106,01 €	>		
[redacted]		Expédiée et en attente d...	#2350891	31 mai 2023	115,65 €	>		
[redacted]	En retard	Commande à expédier	#2350881	26 mai 2023	106,01 €	>		

A large red 'X' is drawn across the entire table.



PagerDuty EU APP 2:59 PM

Resolved: #569 Brands unable to access order list in brand BO

Assigned: Triggered by: Slack

↑ High Urgency

Priority: P2 Service: Global

Resolved by [REDACTED] (@ [REDACTED]) | Feb 14th

More actions... ▾

Acknowledged #569: Brands unable to access order list in brand BO by [REDACTED]

(@ [REDACTED]) | Jump

Status update

4:05

Message: http://[REDACTED]  
the culprit as [REDACTED]

Resolved: #570 Operations involving invoice generation, uploads and file handling are experiencing errors

Assigned: Triggered by: Slack

↑ High Urgency

Priority: P2 Service: Global

Resolved by [REDACTED] (@ [REDACTED]) | Feb 14th

More actions... ▾

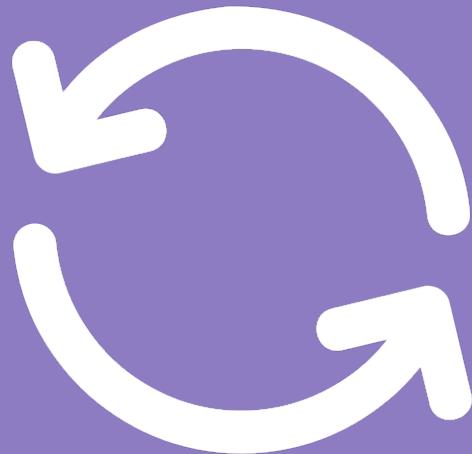


Sofia LESCANO CARROLL 4:04 PM

i hope its not me again the incident

I passed the sentry PR

# What happened ?



Updated a library that had incorrect dependencies

# Consequences

Gomon APP 5:01 PM  
Monitor Opened: [Order-Management] Orders stuck in received status  
Timestamp: 2023-02-14T16:01:38Z  
Records: 97

order_id	submitted_at	received_at	status	invoice_count	invoice_labels
2023-01-19	13:42:08	2023-02-14 15:42:10	received	0	
2023-02-09	15:34:16	2023-02-14 15:41:42	received	0	
2023-01-27	17:38:19	2023-02-14 15:40:53	received	0	
2023-01-25	16:31:10	2023-02-14 15:39:35	received	0	
2023-02-07	08:45:31	2023-02-14 15:39:18	received	0	
2023-02-08	09:59:41	2023-02-14 15:39:18	received	0	
2022-12-02	20:52:15	2023-02-14 15:39:05	received	0	
2023-02-09	15:33:07	2023-02-14 15:38:45	received	0	
2022-12-19	09:47:13	2023-02-14 15:38:16	received	0	
2022-11-29	10:12:47	2023-02-14 15:38:07	received	0	
2022-11-29	14:52:13	2023-02-14 15:37:55	received	0	
2023-02-08	10:57:09	2023-02-14 15:37:00	received	0	
2022-11-29	10:12:47	2023-02-14 15:36:12	received	0	
2023-02-08	11:44:03	2023-02-14 15:34:42	received	0	
2022-11-30	14:46:12	2023-02-14 15:34:13	received	0	
2023-02-07	08:45:00	2023-02-14 15:33:55	received	0	
2023-01-10	09:32:32	2023-02-14 15:33:47	received	0	
2023-01-25	17:11:41	2023-02-14 15:33:44	received	0	
2023-02-10	15:57:26	2023-02-14 15:33:33	received	0	
2023-01-30	23:30:56	2023-02-14 15:33:07	received	0	
2023-02-08	12:17:38	2023-02-14 15:33:06	received	0	

We were doing so well till then...

1 incident in 9 months

" Only people that do nothing break  
nothing ;) Good luck ! "

- William, senior developer

"We are not a team because we work together. We are a team because we respect, trust and care for each other"

If we fail, we fail as a team

Managing incidents is  
good, preventing them  
is better.

# Incidents have a cost



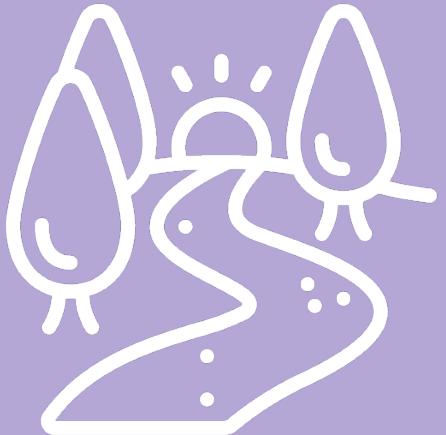
Monetary



Company image  
and trust



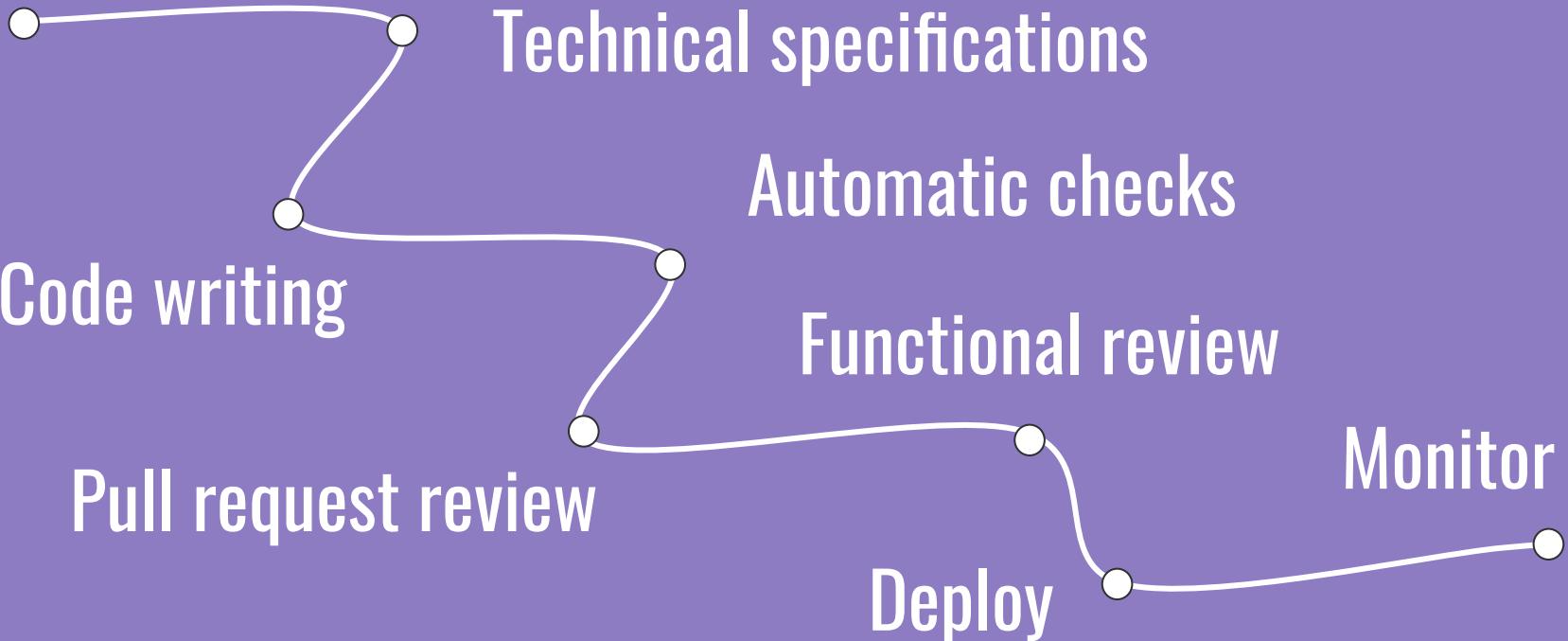
Employees  
health



How do we deliver a  
feature and prevent  
incidents ?

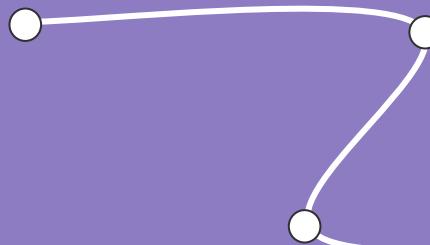
# Journey of a feature

Product need definition



# Journey of a feature

Product need definition



**Technical specifications**

Code writing

Automatic checks

Functional review

Pull request review

Monitor

Deploy



# Technical specification



Context



Technical  
investigation,  
edge cases



Define  
acceptance  
criteria



Team review

# Journey of a feature

Product need definition



Technical specifications

**Automatic checks**

Code writing



Functional review

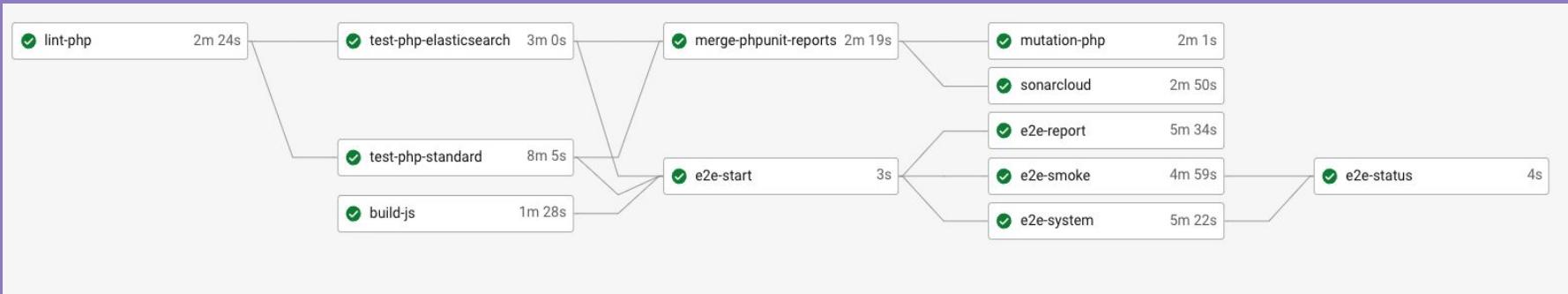
Pull request review

Deploy

Monitor



# Automatic checks on PR



# Automatic checks on PR

## Linter:

- code-style
- phpstan : static analysis
- deptrac : dependency analysis

## SonarCloud :

- test coverage
- code duplication
- code smells

## Tests:

- unit
- functional

## E2E:

- scenario simulation

## Mutation testing:

- quality of tests

# Automatic checks on PR



## Pre-commit

```
→ ankorstore git:(feat/oxp-1087-update-nafo-on-fulfillment) ✘ git commit --amend
Trim Trailing Whitespace.....Passed
Fix End of Files.....Passed
Check Yaml.....(no files to check)Skipped
Check JSON.....(no files to check)Skipped
Check Xml.....(no files to check)Skipped
Check for merge conflicts.....Passed
Check for added large files.....Passed
Forbid new submodules.....Passed
Detect Private Key.....Passed
Check that scripts with shebangs are executable.....Passed
Check for case conflicts.....Passed
ShellCheck v0.8.0.....(no files to check)Skipped
git-keep-removal.....Passed
php-cs-fixer.....Failed
- hook id: php-cs-fixer
- exit code: 1
- files were modified by this hook
deptrac-layers.....Passed
route-names-check.....(no files to check)Skipped
deptrac-domains.....Passed
phpstan-changes.....Failed
- hook id: phpstan-changes
- exit code: 1
```

Wow.  
Where do I start ?

# Automatic checks on PR

## Linter:

- code-style
- ~~phpstan : static analysis~~
- ~~deptrae : dependency analysis~~

## SonarCloud :

- test coverage
- ~~code duplication~~
- ~~code smells~~

## Tests:

- unit
- functional

## E2E:

~~scenario simulation~~

## Mutation testing:

~~quality of tests~~

# Test your code

sl-carroll on 7 May  
Is this tested? 😕

[REDACTED] on 11 May Author  
Since this happens on `kernel.terminate` it's a bit harder to test.

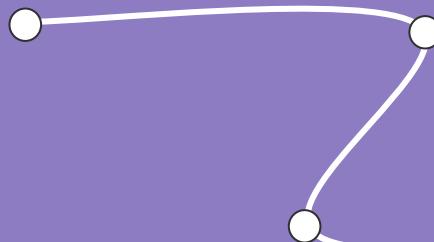
sl-carroll on 11 May  
even a unit test? 😕

[REDACTED] on 11 May Author  
You were so right!

1

# Journey of a feature

Product need definition



Technical specifications

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Functional review

Pull request review

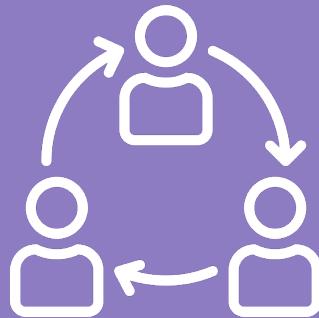
Deploy

Monitor

# Pull request review



At least one reviewer



Knowledge share



Coherence,  
edge cases

...



Accept

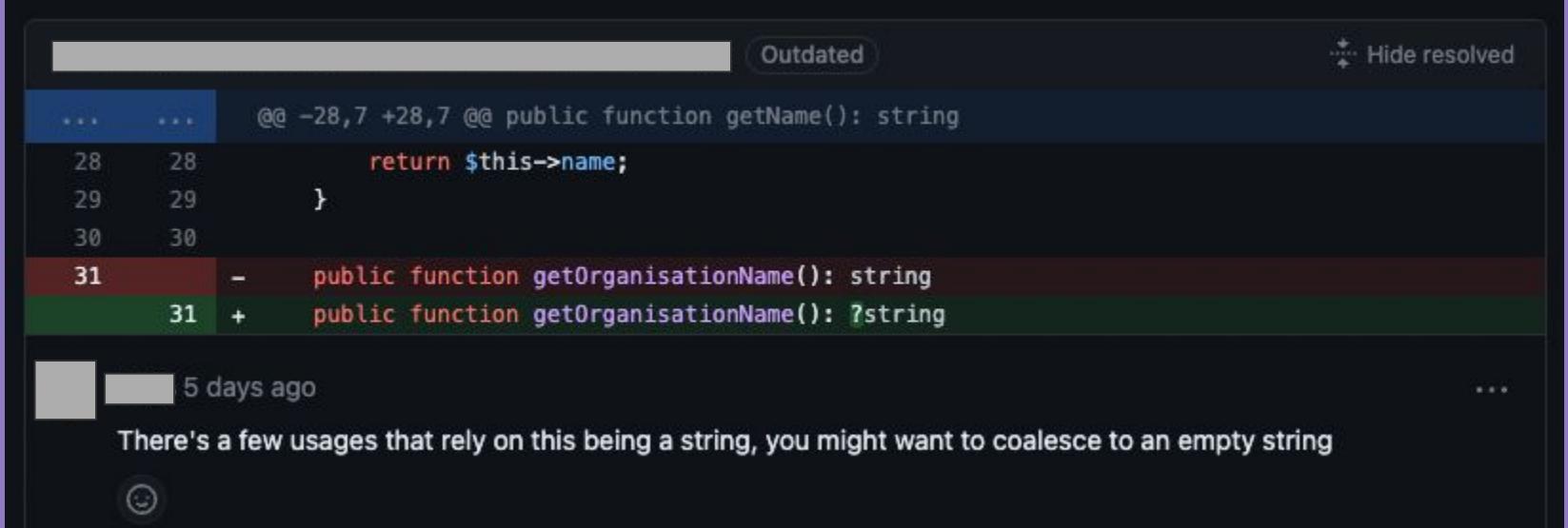


Anne-Laure DE BOISSIEU

Revue de code :  
on n'est pas venu pour souffrir

22:11

# Pull request review



Outdated Hide resolved

```
@@ -28,7 +28,7 @@ public function getName(): string
28:     28         return $this->name;
29:     29     }
30:     30
31: -    public function getOrganisationName(): string
31: +    public function getOrganisationName(): ?string
```

5 days ago

There's a few usages that rely on this being a string, you might want to coalesce to an empty string

...

Hotfix

# Journey of a feature

Product need definition



Technical specifications



Code writing



Automatic checks

Functional review

Pull request review



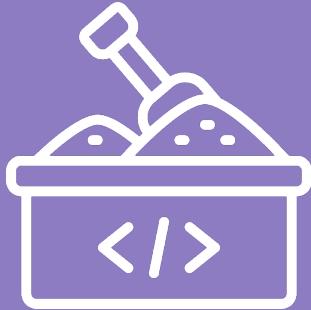
Deploy



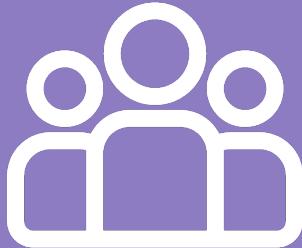
Monitor



# Functional review



Code deployed on sandbox



Every team member is invited

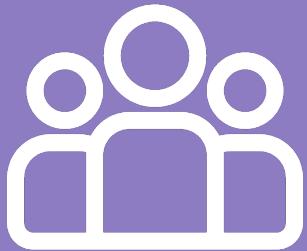


Verify acceptance criteria



Can be done asynchronously

# Sandbox Environment



One sandbox by team



Ideally, one environment by PR

# Functional review

feat: add test for [REDACTED]

Merged

[REDACTED] merged 14 commits into develop from OXP-301 [REDACTED] on Sep 21, 2022

Conversation 13

Commits 14

Checks 5

Files changed 6



[REDACTED] commented on Sep 16, 2022 · edited

...

**i What problem does it solve?**

- [REDACTED] /OXP-301

This PR adds Unit test for [REDACTED]

Was changed :

- Using Repositories + Factory within [REDACTED] -- Replaced static calls from Models



# Journey of a feature

Product need definition



Technical specifications



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Functional review



Pull request review



Deploy

Monitor

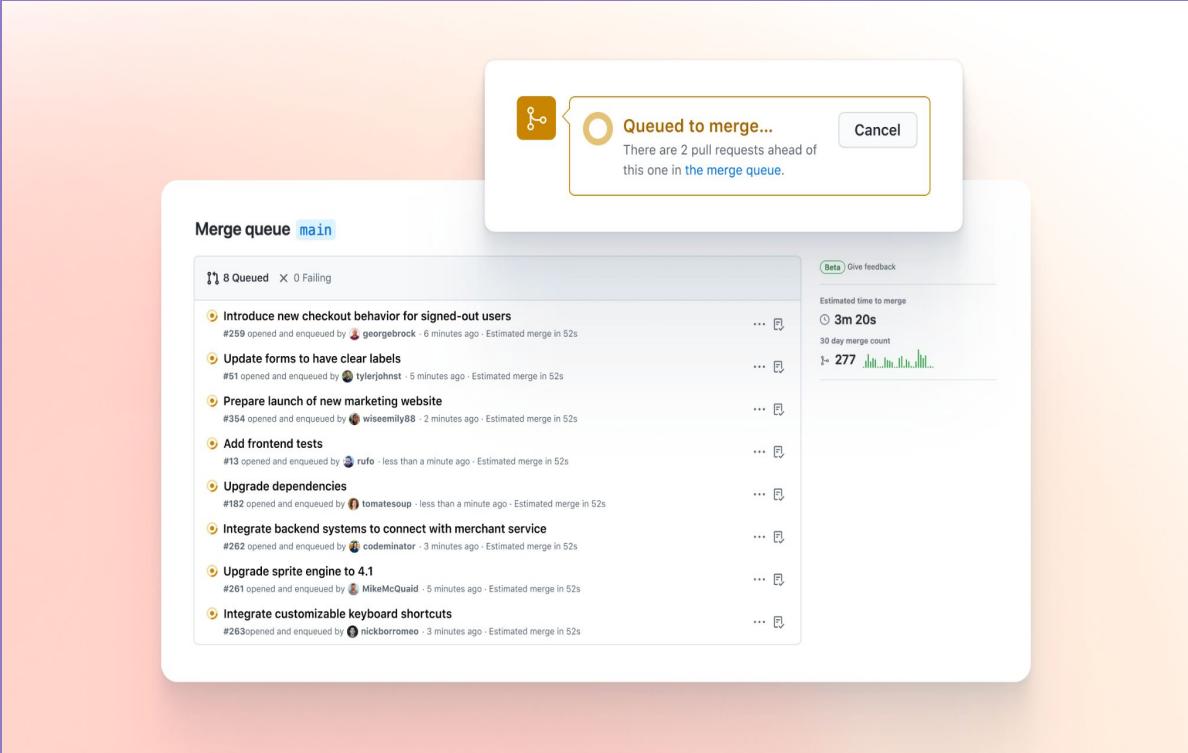


# Deploy

Every developer is autonomous to deploy  
his/her code to production.

Autonomy goes hand in hand with  
accountability and ownership.

# Deploy: Github merge queue



# Deploy



A PR can be added  
to the queue if CI  
is ok



CI checks can be  
bypassed with  
authorisation of  
L4+



Deploys only done on  
working hours

# Journey of a feature

Product need definition



Technical specifications



Code writing

Automatic checks



Functional review



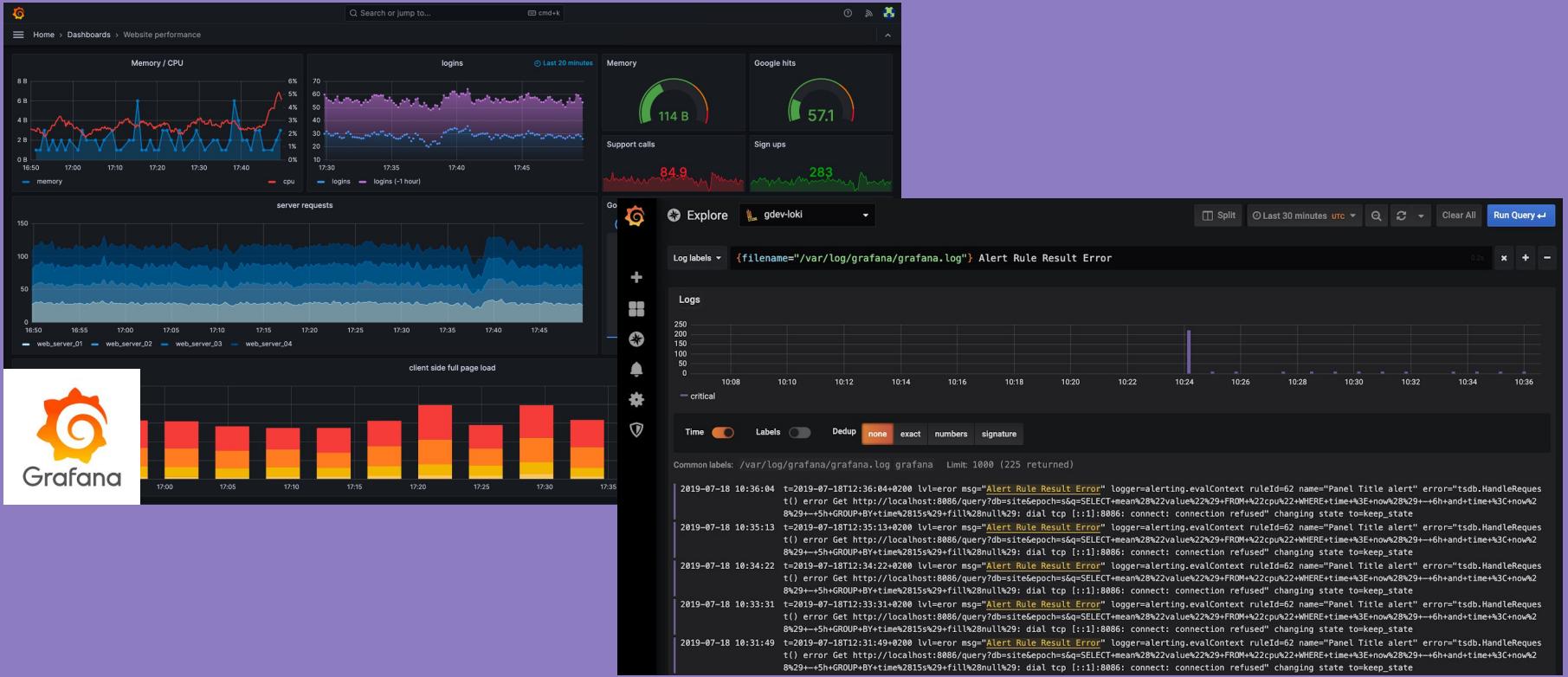
Pull request review

Deploy

Monitor



# Monitor



# Monitor

## Order Management Squad

Manage folder dashboards and permissions

Dashboards   Panels   Alert rules   Permissions   Settings

Search for dashboards and folders

Filter by tag   Starred

- External API Metrics
  - Order Management Squad
- Public Integrations
  - Order Management Squad
- Queue Logs
  - Order Management Squad

# Alerts

 **Ankorstore APP** 6:29 AM  
 **JOB FAILURE** 

Error  
503 Service Unavailable: upstream connect error or disconnect/reset before headers.  
retried and the latest reset reason: connection failure

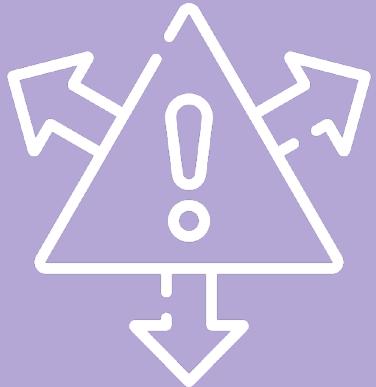
name	tries
[REDACTED]	1

queue id  
[REDACTED] 7edb133e-354a-4316-9b51-e8c0fc16942f

uuid link  
[REDACTED] [REDACTED]

 **Gomon APP** 6:28 PM  
Monitor Firing: [Order-Management] Checkouts with incoherent order statuses  
Timestamp: 2023-06-05T16:28:51Z  
Records: 1

checkout_id	submitted_at
[REDACTED]	2023-05-30 14:34:28

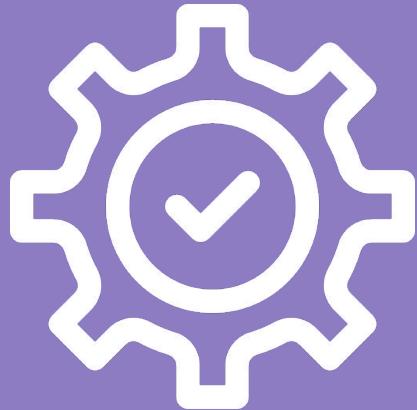


# How do we manage incidents ?

Incident management is the process of  
identifying, responding to, and  
resolving anomalous conditions that  
result in service degradation or  
outages.



These events require human intervention to restore service to operational status and are always given immediate attention.



To be effective, it is essential to have a  
clear and agreed process

# Roles and responsibilities

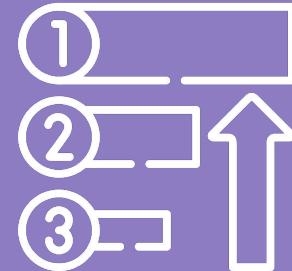
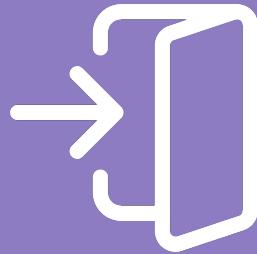
**GEOC** : Global  
engineer on-call



**SEM** : Squad  
escalated member

**IM** : Incident  
manager

# Roles: GEOC



Daily rotation

Entry point

Any incident is  
priority

Ensure the issue is  
resolved

# Roles: SEM



Issue escalated by  
GEOC



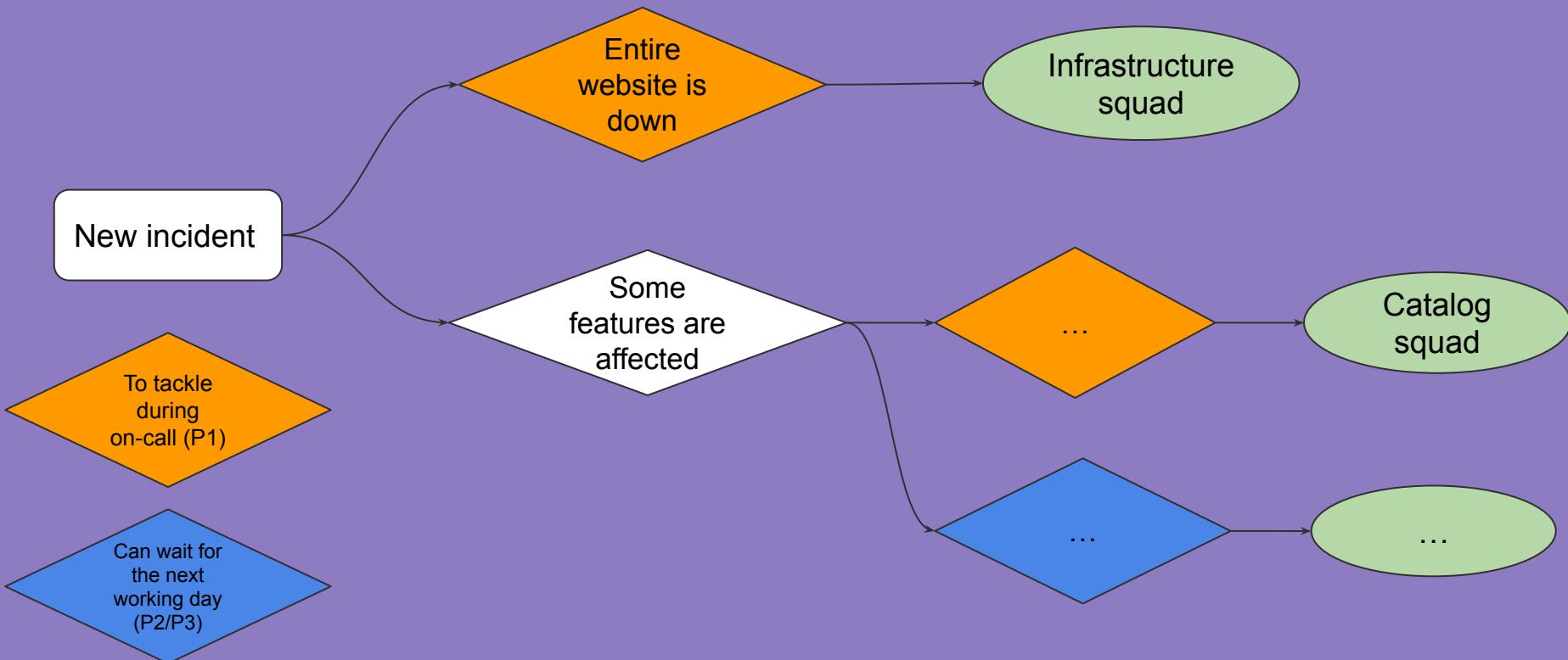
Provide expertise  
and help resolve

# Roles: IM

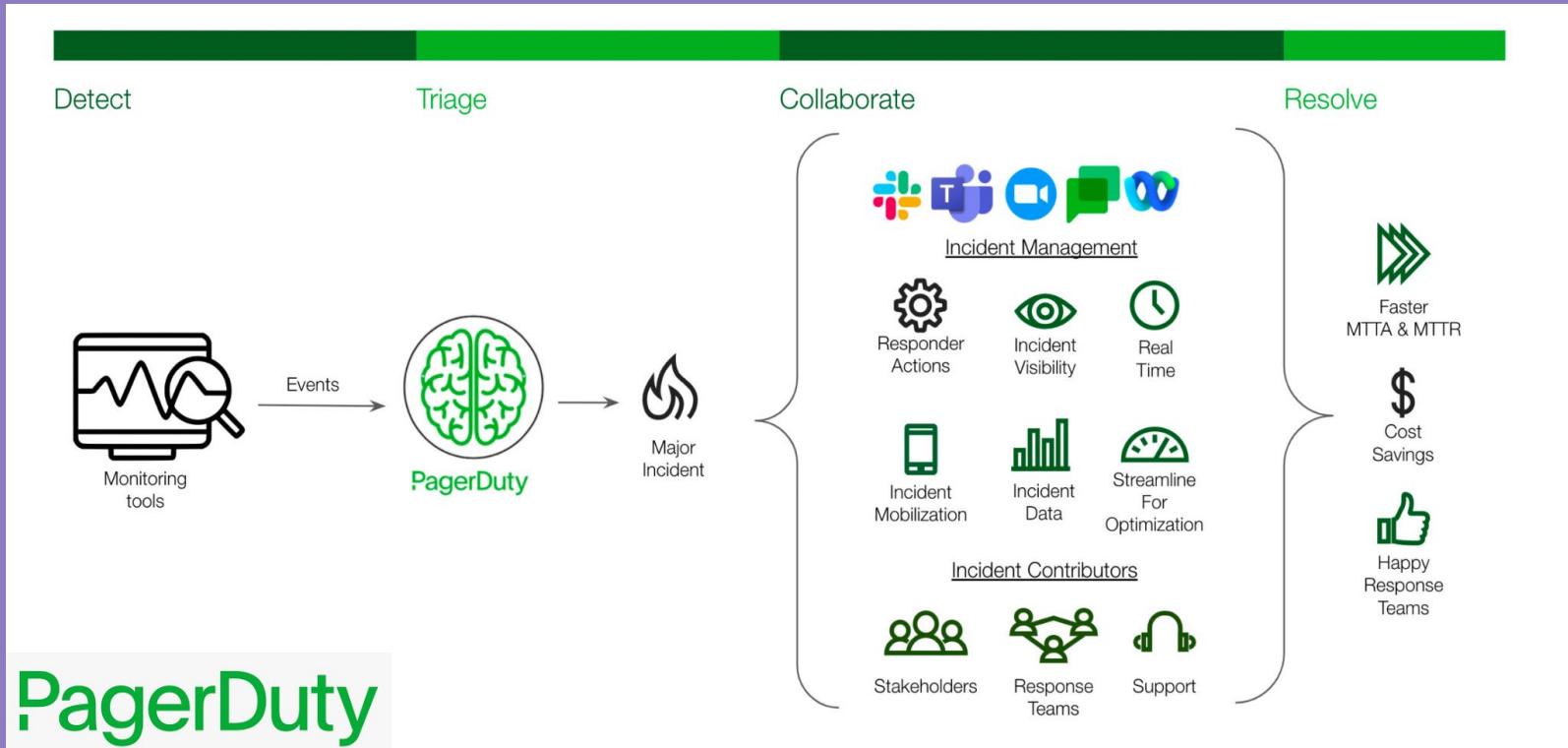


Oversee the incident and communicate with stakeholders

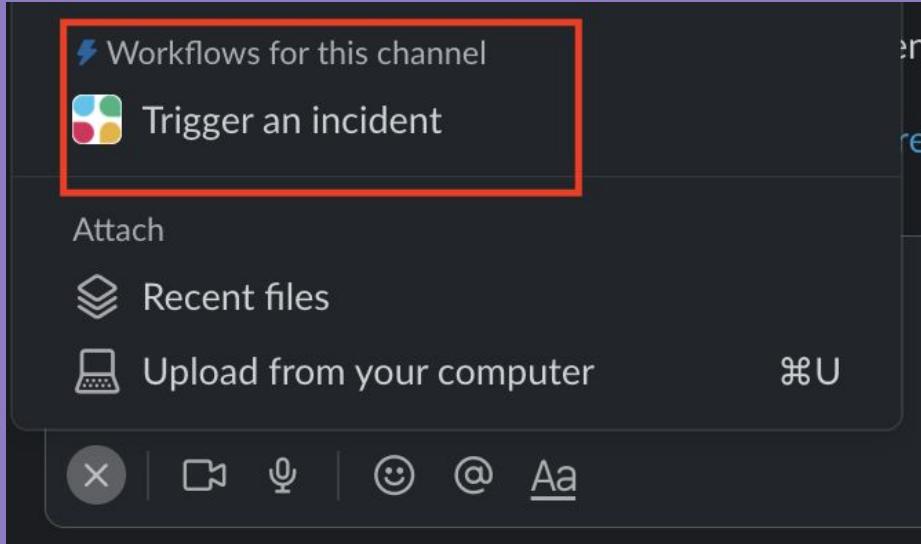
# Decision diagram



# Tooling : Pager Duty

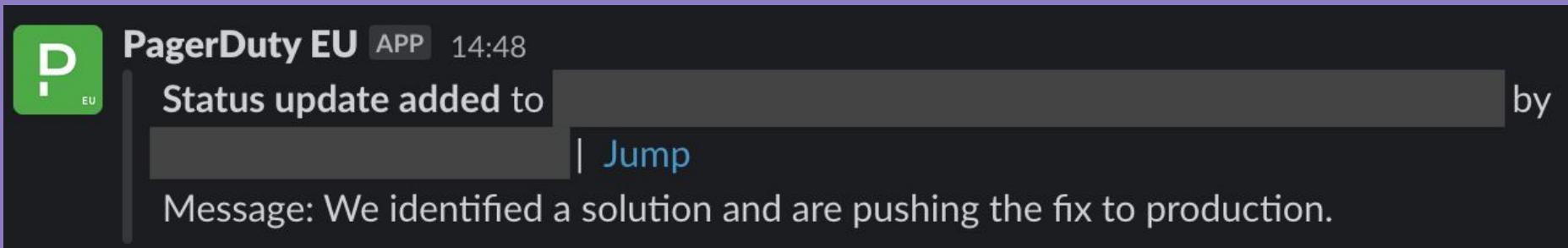


# Tooling: Trigger an incident



- 1/ Brand or retailer reaches customer support
- 2/ employee identifies an issue while browsing the marketplace

# Communication



- 1/ A global channel **#incidents** to communicate with stakeholders
- 2/ A more technical one **#tech-incidents** to discuss between engineers and resolve the incident

# Everyone is welcome

# tech-incident ▾ Tech channel for Incidents related talks

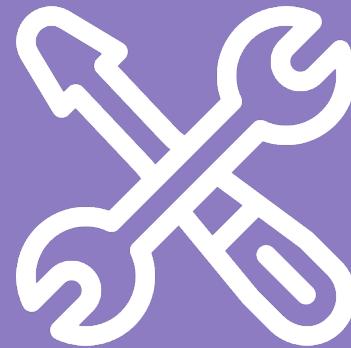
 Situation Room  PagerDuty  How to raise an incident?  Hotfix process  Postmortems  Incident Management - ...  Runbooks & Procedures

A situation room is always available for anyone that would like to help and in order to meet and solve the incident

# Fixing strategy



Revert



Hotfix

# Hotfix

```
+ ankorstore git:(develop) ✘ make hotfix-init
make DATE=20230621-160902 UPSTREAM_BRANCH=master RELEASE_NAME=hotfix-20230621-160902 create-release-branch-hotfix
Enter passphrase for key '/Users/sofia.lescano-carroll/.ssh/id_ed25519':
Enter passphrase for key '/Users/sofia.lescano-carroll/.ssh/id_ed25519':
From github.com:ankorstore/ankorstore
 - [deleted]           (none)    -> origin/fix/TSD-3955_-_no_vat_rate_check_if_business_is_exempt
 - [deleted]           (none)    -> origin/release/hotfix-20230621-152327
 - [deleted]           (none)    -> origin/tsd-3967-maltese-tax-number-validator
git checkout -q origin/master
git checkout -b release/hotfix-20230621-160902
Switched to a new branch 'release/hotfix-20230621-160902'
Hotfix/patch branch checked out. Please do you changes here / cherry pick commits and run 'make hotfix-release' in
+ ankorstore git:(release/hotfix-20230621-160902) ✘ git add -A
+ ankorstore git:(release/hotfix-20230621-160902) ✘ git commit -m "fix: make address dto organisation name nullable"
[release/hotfix-20230621-160902 59fb8fdc9e] fix: make address dto organisation name nullable
 2 files changed, 16 insertions(+), 2 deletions(-)
+ ankorstore git:(release/hotfix-20230621-160902) ✘ make hotfix-release
make DATE=20230621-160948 create-release-pr-hotfix
git push --set-upstream origin release/hotfix-20230621-160902
Enter passphrase for key '/Users/sofia.lescano-carroll/.ssh/id_ed25519':
Enumerating objects: 28, done.
Counting objects: 100% (28/28), done.
Delta compression using up to 10 threads
Compressing objects: 100% (14/14), done.
Writing objects: 100% (16/16), 1.35 KiB | 231.00 KiB/s, done.
Total 16 (delta 10), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (10/10), completed with 10 local objects.
remote:
remote: Create a pull request for 'release/hotfix-20230621-160902' on GitHub by visiting:
remote:     https://github.com/ankorstore/ankorstore/pull/new/release/hotfix-20230621-160902
remote:
remote: GitHub found 17 vulnerabilities on ankorstore/ankorstore's default branch (4 critical, 8 high, 5 moderate)
remote:     https://github.com/ankorstore/ankorstore/security/dependabot
remote:
To github.com:ankorstore/ankorstore.git
 * [new branch]           release/hotfix-20230621-160902 -> release/hotfix-20230621-160902
branch 'release/hotfix-20230621-160902' set up to track 'origin/release/hotfix-20230621-160902'.
gh pr create -B master -f

Creating pull request for release/hotfix-20230621-160902 into master in ankorstore/ankorstore
https://github.com/ankorstore/ankorstore/pull/33422
```

1/ make hotfix-init

2/ git cherry-pick

3/ make hotfix-release

# Postmortem

## Summary of the Incident

 **Quick recap.**

eg: "Production was down because of a Database connection env var issue."

## Context



**Give some context prior to the incident.**

eg: "We wanted to release feature X, things broke deployment because of a global missing configuration."

## Timeline



**Detailed timeline of events.**

Embed Slack conversations, stack traces, photos of graphs, anything that can help to understand the timeline of events. Feel free to add mention to coworkers to give context (especially who was in charge, who did what).

# Postmortem

## How to Improve



Explain what was the main issues you encounter during outage remediation, things that could be improved in order to reduce the reaction time next time.

## Preventative Actions



What needs doing to prevent this happening again?

List actions (with Jira tickets) to be taken to avoid reproducing the same incident and above listed pain points in the future.



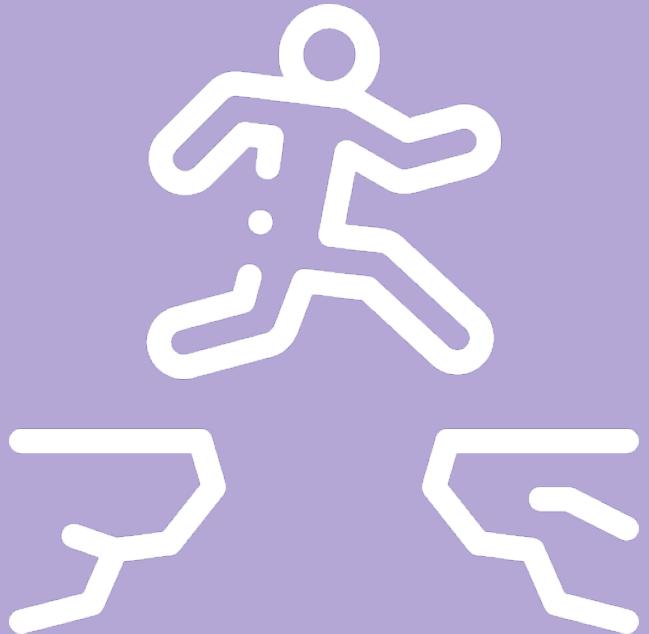
# Some numbers

# Some numbers

3 incidents in one year in our team  
(2 caused by me)

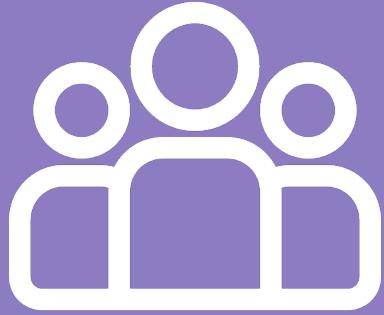
33 engineers on-call - 1 on-call per  
month on average

45 min to recover from an incident on  
average



# Challenges and limitations

# Challenges and limitations



Incidents are triggered  
by people

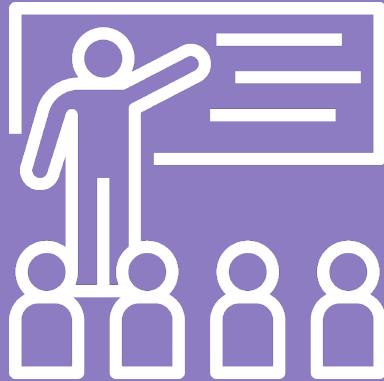


A large monolith

# Challenges and limitations



On-call was not in our contracts



Training is different than real life



**“Looks nice, but it’s not possible !”**

# Incidents have a cost



Monetary



Company image  
and trust

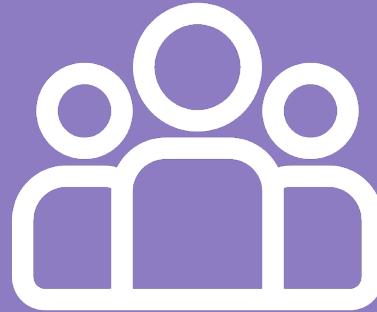


Employees  
health

# Context



Product company



A lot of developers

# How to?



Find your own recipe



Iterate

What says most about you  
is not the fact that you  
broke prod, but how you  
act and learn from it.

Freepik

juicy\_fish

Handicon

Berkahicon

Pixel  
perfect

Iconixar

Parzival' 1997

lutfix

Rukanicon

Thank you ! 

Wahyu Adam

Geotatah

nangicon

srip

Monkik

Smashicons

M Karruly

mynamepong

Icons made by the artists mentioned, from [www.flaticon.com](http://www.flaticon.com)



Thank you !

# I did it ! I broke production !

**Sofía LESCANO CARROLL**



@SofLesc



#fullRemote #PHP #Laravel #lifeInSpain #startup #ecommerce