CONTINUOUS DEPLOYMENT

LIKE YOU KNOW NO FEAR 😱

I'm Chris

I work for a munich based startup called Matmatch

Matmatch

We're a development team of 7 (and me) trying to change the world of materials

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THE RUNWAY
METAPHOR
24
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THE DOWNHILL METAPHOR

ADJUST QUICKLY IS A *VERY* IMPORTANT

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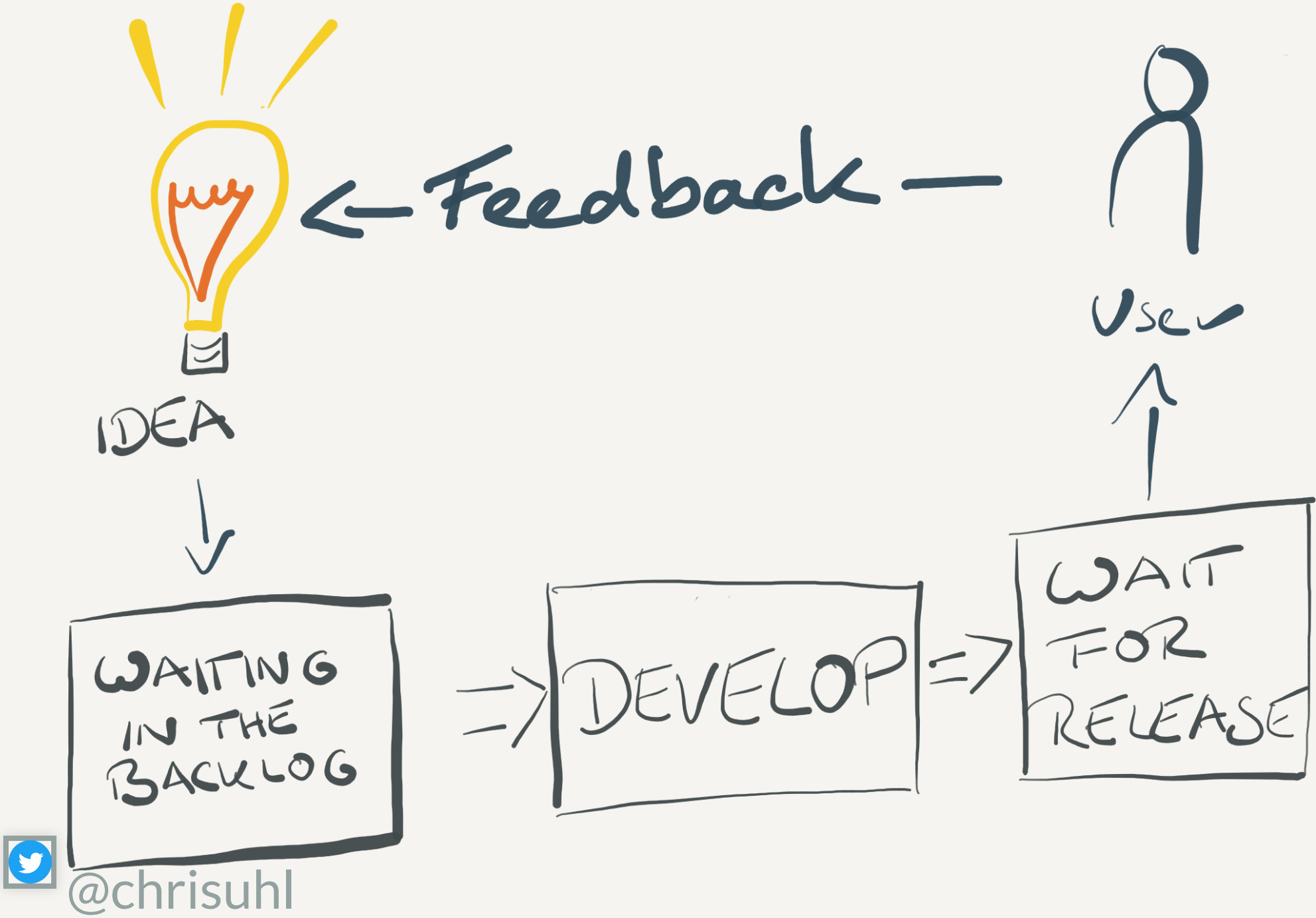
BIG RISKS

- building the wrong product
- being too slow

It's our duty as software professionals to get ideas out there as fast as possible*


Feedback
IDEA
User
WAITING IN THE BACKLOG
DEVELOP
WAIT FOR RELEASE
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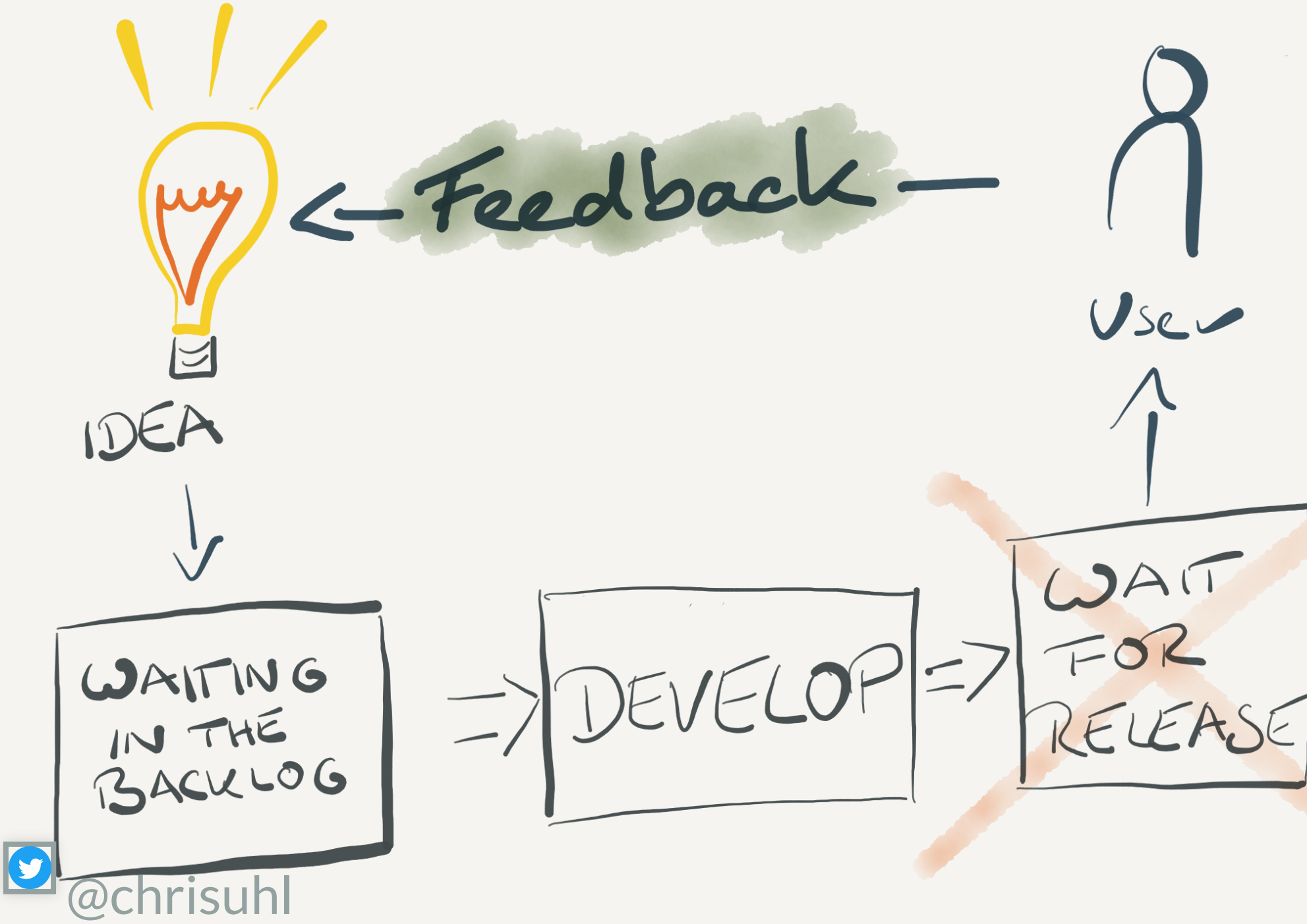
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WHAT DOES DONE MEAN?

WHAT DOES DONE MEAN?

- to you

WHAT DOES DONE MEAN?

- to you
- to your PO

WHAT DOES DONE MEAN?

- to you
- to your PO
- to your CEO

WHAT DOES DONE MEAN?

- to you
- to your PO
- to your CEO
- to your customer

Done means live and available to the customer, everything else is just an excuse

Me, for the lack of a better definition

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WHAT IS CONTINUOUS

- -integration
- -delivery
- -deployment

CONTINUOUS

EGRATION

D → TEST →

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CONTINUOUS

EGRATION

DELIVERY

1 CLICK

SM

) → TEST → ACCEPTANCE → DEPLOY → TE

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CONTINUOUS

EGRATION DELIVERY DEPLOYME

D → TEST → ACCEPTANCE → DEPLOY → SM
TE

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WE DEPLOY ON FRIDAYS

Any do-not-deploy rule is a synonym for lack of tests, lack of trust or lack of feedback

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WHAT TO OPTIMIZE FOR

MTBF VS. MTTR

Mean Time Between Failure *vs* Mean Time To Recovery

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ERRORS HAPPEN. SO DO BUGS.

That's when you need a tested, trained and automated way to release your fixes

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DELIVERY PERFORMANCE

	Elite	High	Mid	Low
Freq	> 1/h	1/h - 1/d	1/w - 1/m	1/w - 1/m
Lead Time	< 1h	1d - 1w	1w - 1m	1m - 6m
MTTR	<1h	<1d	<1d	1w - 1m
CFR	0-15%	0-15%	0-15%	46-60%

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TIME SPENT

	Elite	High	Mid	Low
new work	50%	50%	40%	30%
rework	19,5%	20%	20%	20%
security	5%	5%	5%	10%
defects	10%	10%	10%	20%
support	5%	10%	10%	15%

[DORA State of DevOps Report 2018 p32]

DEMO

please go to https://demo.matmatch.com

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THE MATMATCH PATH TO CD

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THE MATMATCH PATH TO CD

1. Fix Deployment Automation

THE MATMATCH PATH TO CD

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2. Fix Testing

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THE MATMATCH PATH TO CD

1. Fix Deployment Automation
2. Fix Testing
3. Fix Review Process
4. Fix Observability
5. Fix Release Process
6. Fix Fear

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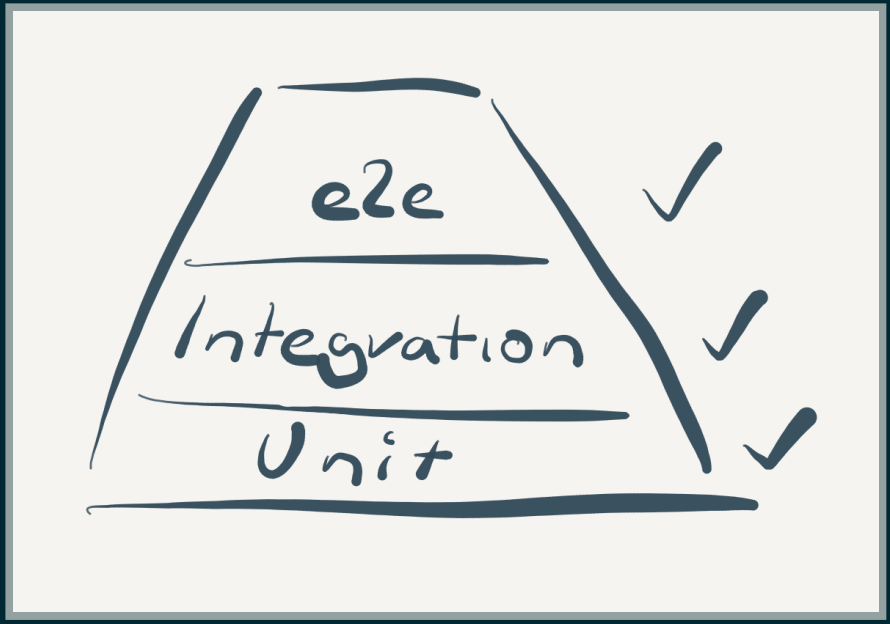
GETTING THERE

```
make deploy production
```

GETTING THERE

FIX TESTING

Separate our tests into different build steps for quicker feedback



GETTING THERE

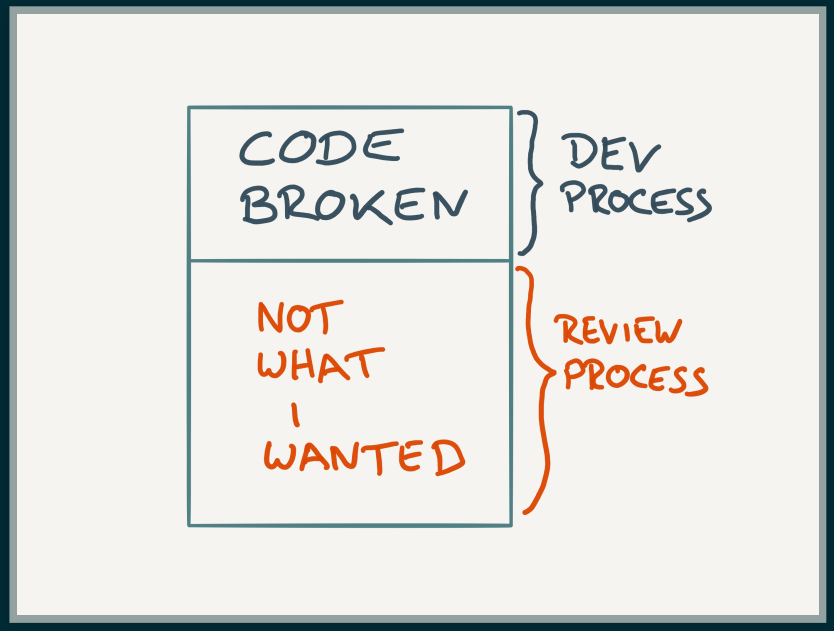
FIX TESTING

Speed up the build -> Build on big ec2 spot instances

(We went from TravisCI over AWS CodeBuild to Gitlab Runners)

GETTING THERE

FIX THE REVIEW PROCESS



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GETTING THERE

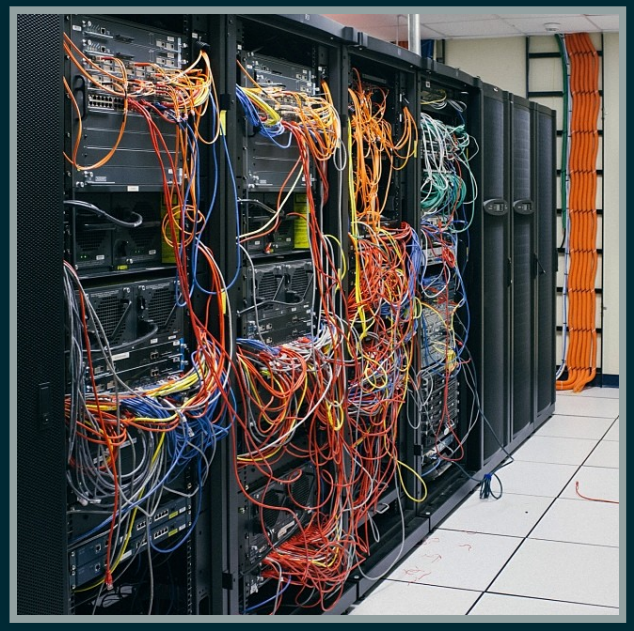
FIX THE REVIEW PROCESS

Demo to the company what you did. It's so easy to lose track of what you released

GETTING THERE

FIX OUR ENVIRONMENT

Dependable releases need dependable infrastructure



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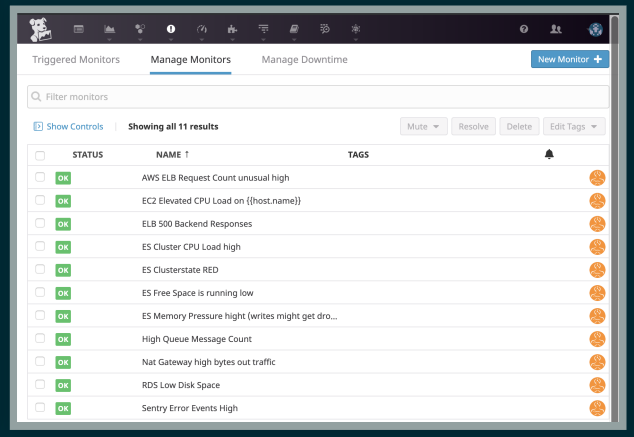
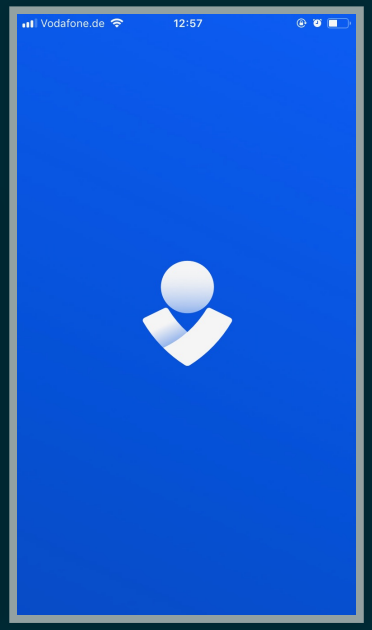
GETTING THERE

OBSERVABILITY OF THE SYSTEM

Get good metrics and feed them into good tools

Elastic Stack - Datadog - Opsgenie





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GETTING THERE

COPS OF THE DAY

Increase operational knowledge in the team:

Random pair of developers run the "morning checklist"

GETTING THERE

CHATOPS

Be involved in the system behavior - convert important business events to chat messages

#matchat-production

17 | 0 | Add a topic

Search

Tuesday, April 30th

Jump (Cmd + J) 1 new message since 11:50 AM on May 4th Mark as read ×

"email" : [redacted],
"firstName" : [redacted],
"lastName" : "K",
"company" : "MM",
"phone" : "-",
"gaClientId" : "[redacted]
"companyCode" : "DEST",
"type" : "Contact supplier",
"message" : "uehvoierv",
"materialName" : "Formadur 2083 Superclean Plate",
"quantity" : "50 ",
"form" : "Bar",
"optIn" : true,
"contactFormType" : "contactFormBuyerRequest",
"selectedCountries" : [ ],
"materialId" : "DESTA10",
"url" : "https://matmatch.com/materials/desta10-formadur-2083-superclean-plate",
"dimensions" : "40x100x200"
}.

User [redacted] . ([redacted]) activated their account. They signed up at 30-04-2019 13:48:23.

New user signed up using google! RITHUL Industrial Products .: [redacted]

User [redacted] ([redacted]) activated their account. They signed up at 30-04-2019 13:51:55.

frontend APP 2:05 PM

frontend node (git 4.4794737e+07) started at 2019-04-30T12:05:57+00:00 on production-frontend-589bcb75bc-5qxjq

frontend node (git 4.4794737e+07) started at 2019-04-30T12:06:40+00:00 on production-frontend-589bcb75bc-kznwd

Message #matchat-production

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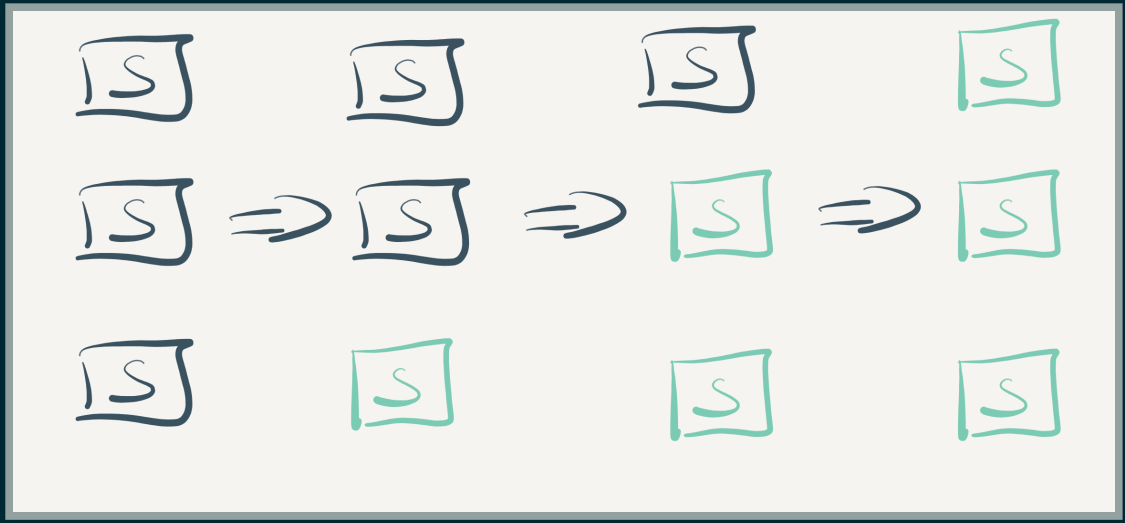
GETTING THERE

FIX RELEASE PROCESS

GETTING THERE

ROLLING RELEASES



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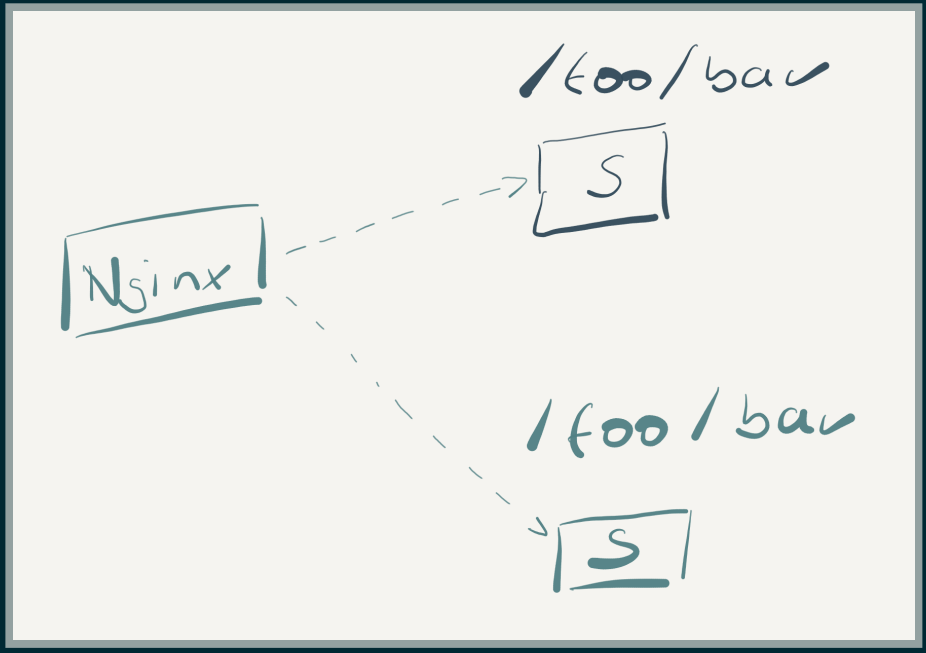
GETTING THERE

SHADOW RELEASES



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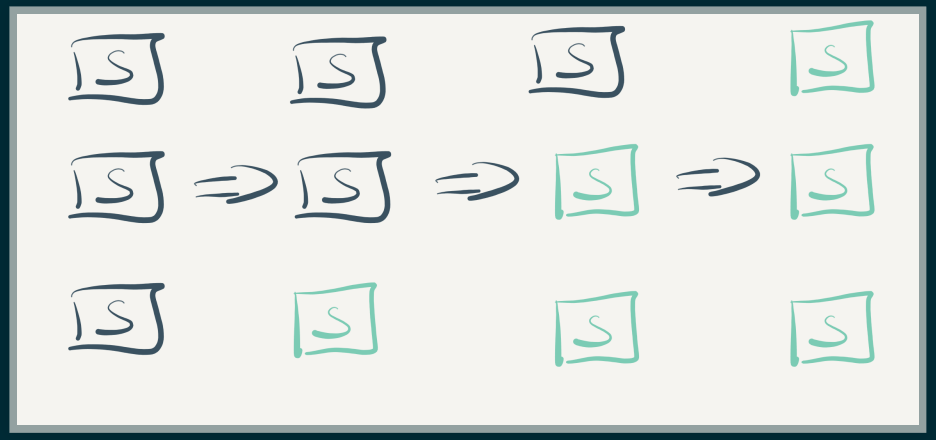
GETTING THERE (FOR COMPLETENESS)

CANARY RELEASES

We don't to this yet, but looking forward to it



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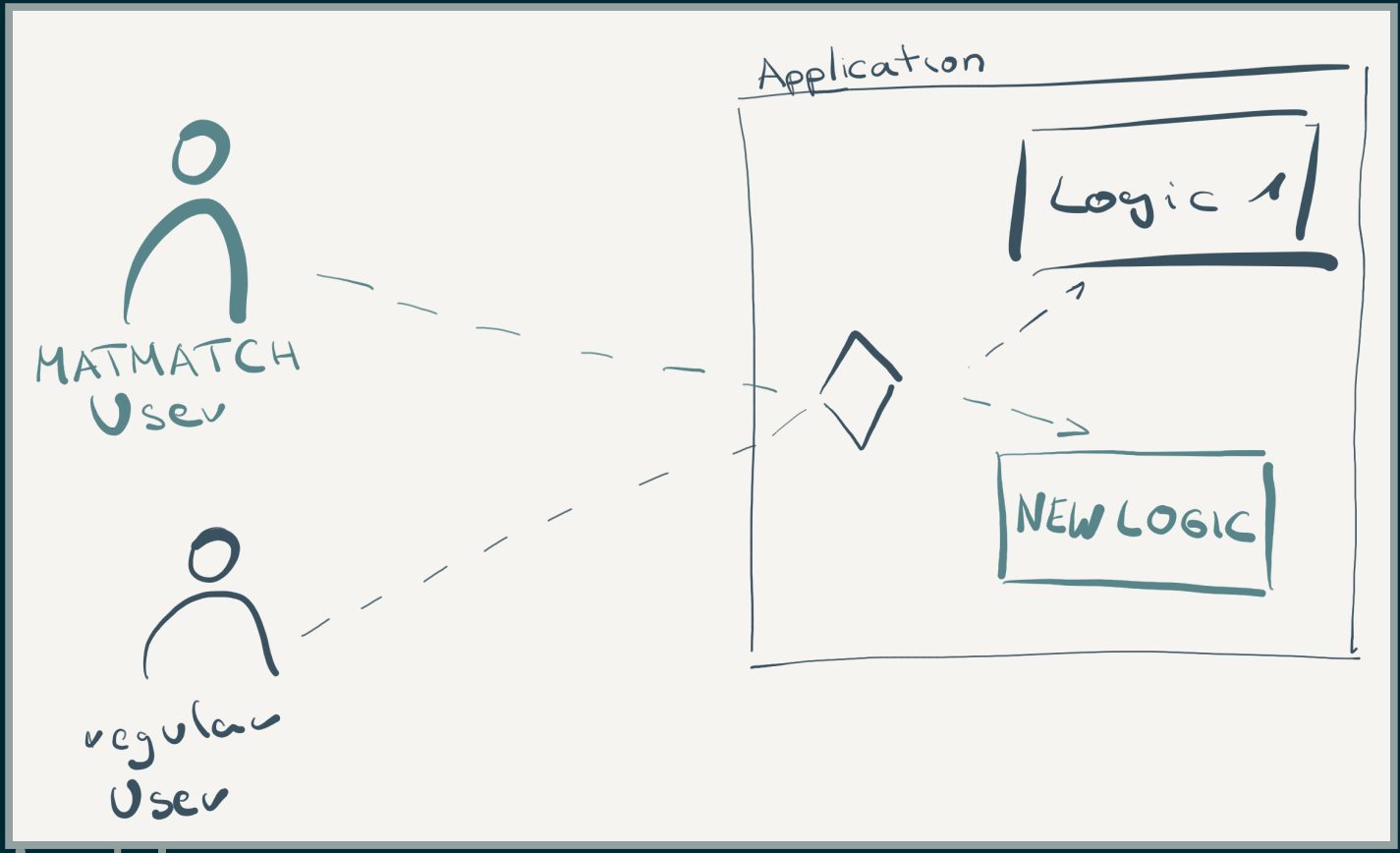
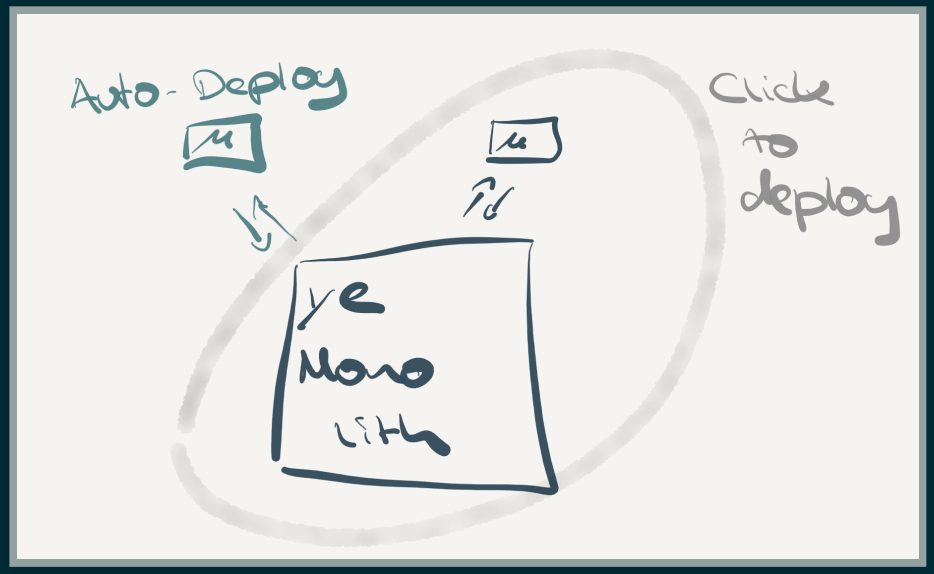
GETTING THERE

RIGHTS BASED RELEASES



GETTING THERE

LIMIT FEAR: SMALL RELEASES



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GETTING THERE

LIMIT FEAR: MAKE IT BORING

GETTING THERE

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1. Automate everything until the "Deploy" button (Continuous Delivery)

GETTING THERE

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2. Make pushing the button a boring non-event

GETTING THERE

LIMIT FEAR: MAKE IT BORING

1. Automate everything until the "Deploy" button (Continuous Delivery)
2. Make pushing the button a boring non-event
3. Remove the button, no one cares

ISSUES WE FACED

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- K8S: Health and readiness endpoints
- K8S: Pod limits
- K8S overload: Rebuild everything from scratch
- There are no multi-level-wildcard certificates
- Dependencies between services (stateful set by accident)
- Fixing logic in a lot of places (gitlab-ci, helm charts)

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ISSUES WE FACED (SUMMARY)

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- Architectural and ops problems bite you twice as fast

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ISSUES WE FACED (SUMMARY)

- Architectural and ops problems bite you twice as fast
- But you notice them before they hit production
- The rest just needs to be worked off piece by piece

ONGOING ISSUES

- Duplicated code in gitlab-ci.yml files
- Duplicated code in helm charts
- Deployments fail to clean up every once in a blue moon

SUMMARY

- We are faster than before
- We have less defects and issues than before
- We have a ❤️ for production

7,25 humans => up to 20 releases / day 🔥

KEY TAKEAWAYS

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KEY TAKEAWAYS

- Continuous Deployment pays off big time
- Slow and steady wins the race to get there
- It's not just tech, it's also emotions
- Don't play too much with your K8S prod cluster
- Most things you have to fix for CD are things that help you a lot in general

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SUGGESTED READINGS

- Continuous Delivery, Jez Humble
- Accelerate, Nicole Forsgren Phd
- Release It, Michael Nygard
- The Phoenix Project, Gene Kim

QUESTIONS?

Examples, slides and everything else on github: https://github.com/christianuhlcc/cd-like-you-mean-it.

If you speak German, I run a podcast on my learning as an engineering manager uhl, steine, scherben

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