

Demystifying DevOps and CI/CD



"DevOps"

Image credit: <https://github.com/infrabricks/wordcloud>

 @IAmJerdog

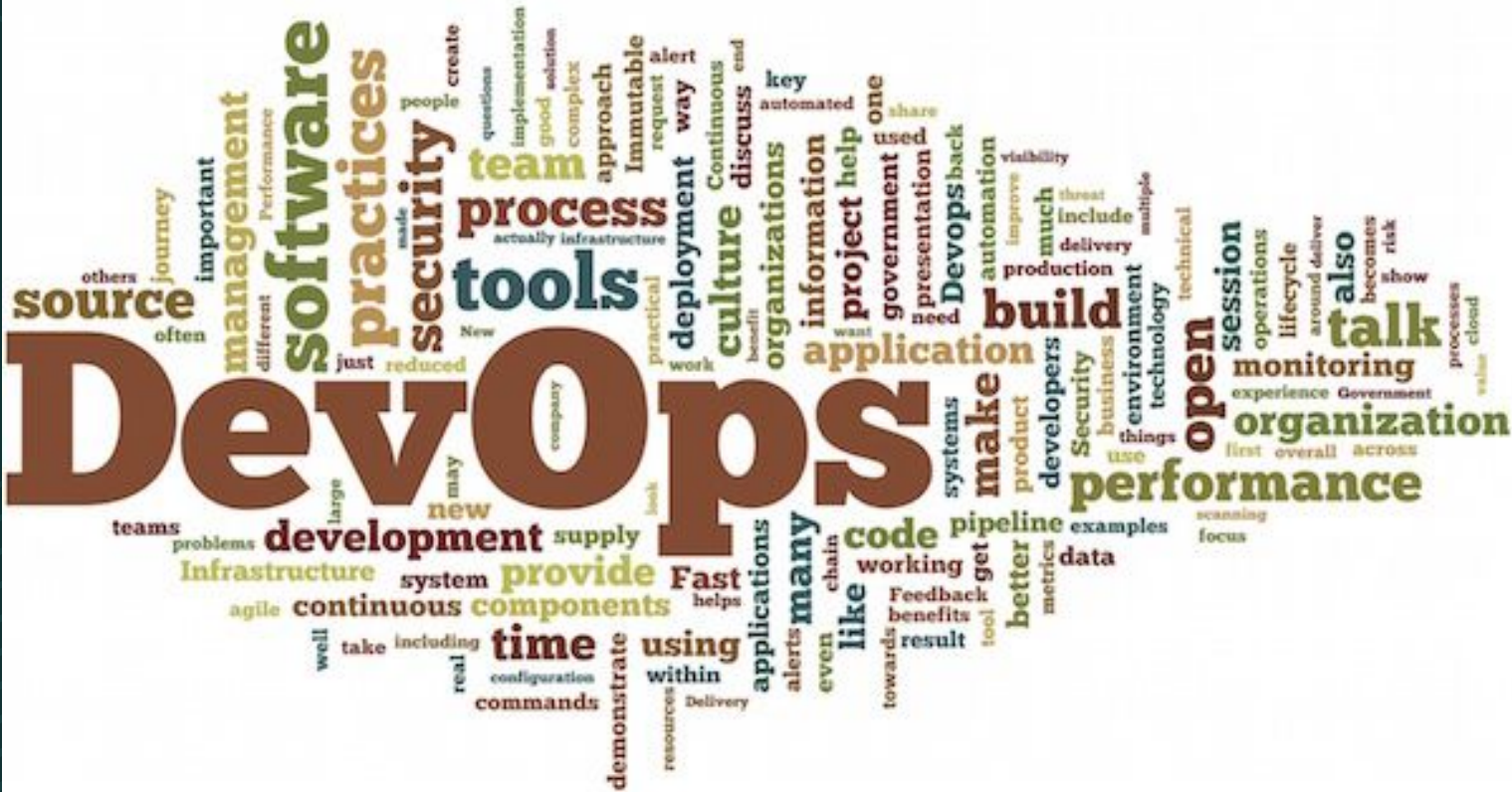


Image credit: <https://github.com/infrabricks/wordcloud>

AI Ops DevTestOps
TreeOps
GitOps
ML Ops
DevSecOps

Coming Soon(ish)

Made with by [Creative Tim](#). Free download [here](#).

Jeremy Meiss

Director, DevRel & Community



timeline.jerdog.me



 @IAmJerdog

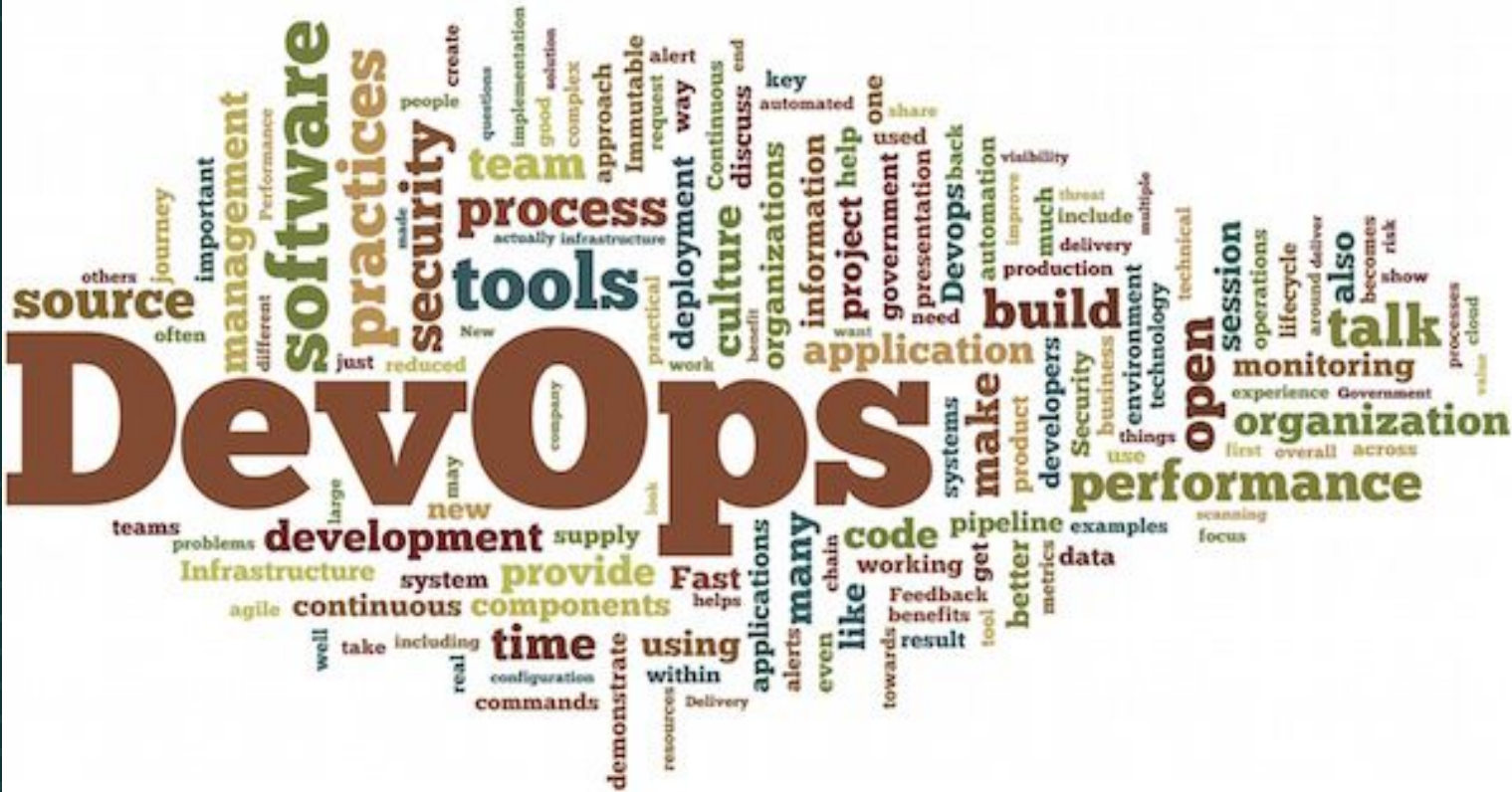


Image credit: <https://github.com/infrabricks/wordcloud>



What is DevOps?

amazon

Hello
Select your address

All ▾ devops

Q

US ▾

Hello, Sign in
Account & Lists ▾

Returns
& Orders

0
Cart

All Back to School Off to College Best Sellers Amazon Basics Today's Deals New Releases Customer Service Prime ▾ Music Books

1-48 of over 1,000 results for "devops"

Sort by: Featured ▾

Eligible for Free Shipping

☐ Free Shipping by Amazon

All customers get FREE Shipping on orders over \$25 shipped by Amazon

Delivery Day

☐ Get It Today

Prime Try Before You Buy

☐ Try Before You Buy

Department

Men's Clothing

Running Clothing

Books

Computer Programming

Information Management

Computers & Technology Industry

Women's Clothing

Men's Soccer Clothing

Cycling Clothing

▾ See All 8 Departments

Customer Reviews

★★★★☆ & Up

★★★★☆ & Up


★★★★☆ & Up

★★★★☆ & Up

RESULTS

Price and other details may vary based on product size and color.

Best Seller



● ● ● ● ● +7

DEVOPS


2-3 Pack Men's Athletic Long Sleeve Compression Shirts

★★★★☆ ~ 14,494

\$29⁹⁸

prime

Best Seller



● ● ● ● ● +3

DEVOPS


3 Pack Men's Muscle Shirts

Sleeveless Dri Fit Gym Workout...

★★★★☆ ~ 14,343

\$25⁵⁷

prime



● ● ● ● ● +6


DEVOPS

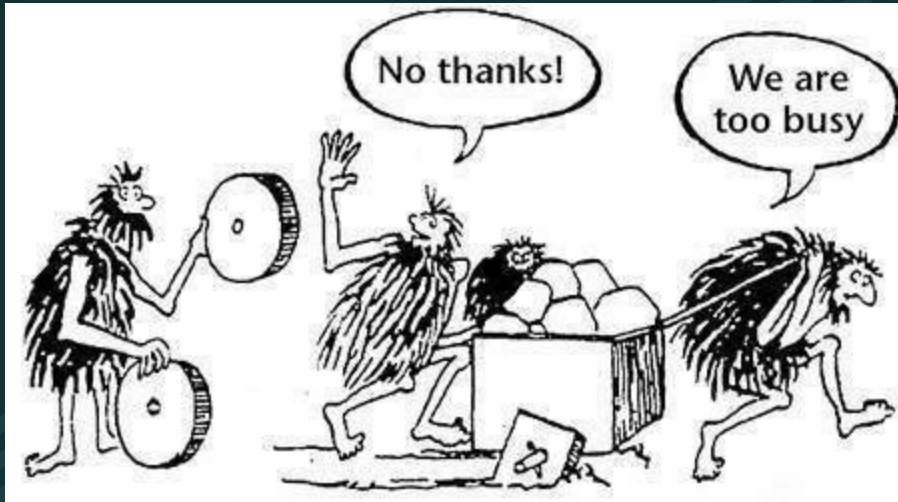
2-3 Pack Men's Athletic Compression Shirts Sleeveless

★★★★☆ ~ 17,760

\$20⁹⁷

prime

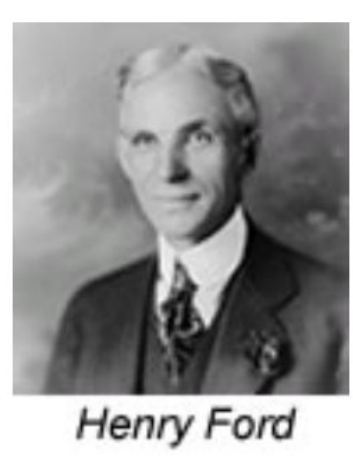
 @IAmJerdog



1910s to 1930s



"Flow production"

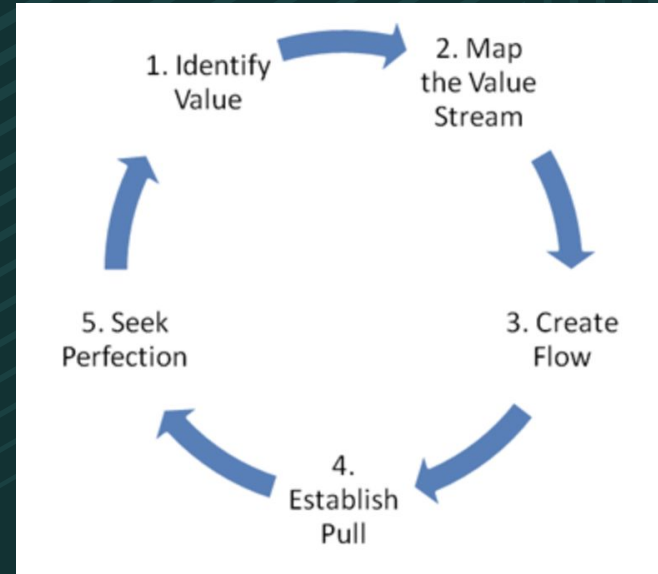
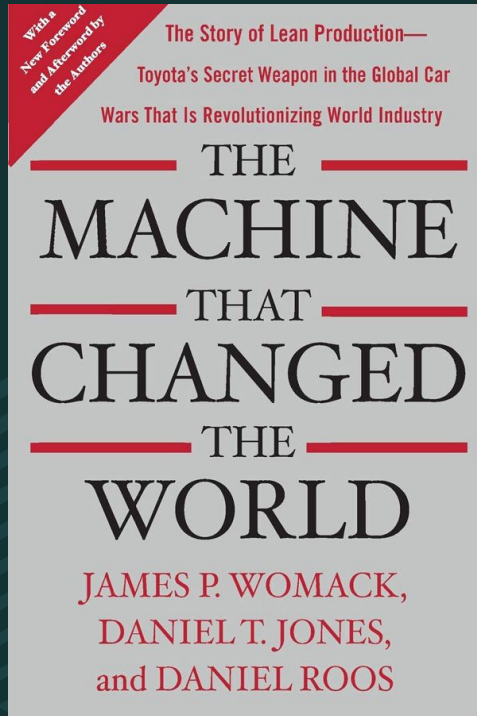


Henry Ford



Kiichiro Toyoda

1990s





Manifesto for Agile Software Development

We are uncovering better ways of developing software by doing it and helping others do it.

Through this work we have come to value:

Individuals and interactions over processes and tools

Working software over comprehensive documentation

Customer collaboration over contract negotiation

Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

O'REILLY

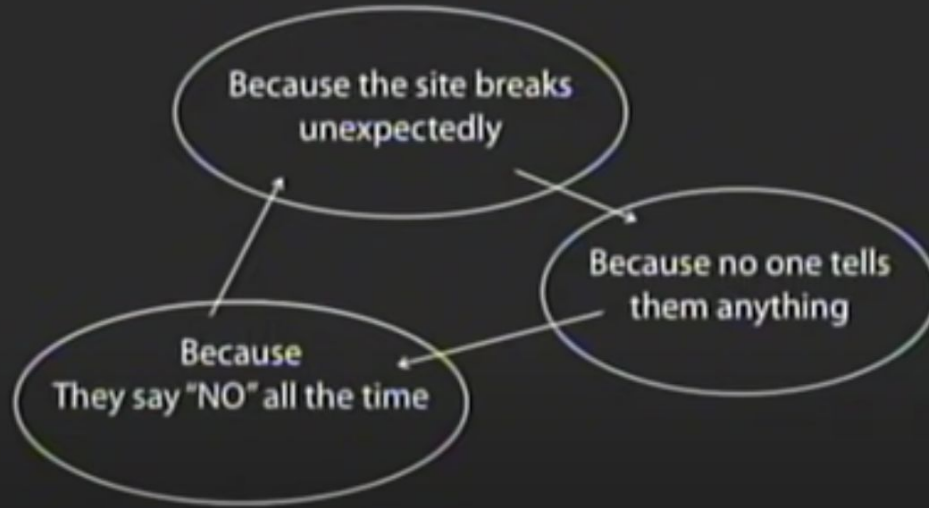
Velocity

Web Performance and
Operations Conference



"10+ Deploys per Day: Dev and Ops Cooperation at Flickr"
- John Allspaw, Paul Hammond

Ops stereotype







**The conference that brings development
and operations together.**



Home



Contact



Events



Presentations



Blog

Devopsdays Ghent 2009



welcome program reactions speakers participants

[Tweets from devopsdays events](#)

This is how the first devopsdays was announced:



The first devopsdays happened in Belgium - Ghent and was a great success. Have a look at the [reactions](#) is created and the [presentations](#) that were held. See you next time!





Patrick Debois - #thinktogether make code not war

@patrickdebois

Normal

0%

Dev(sec)Ops: everything you do to overcome the friction created by silos ... All the rest is plain engineering

11:24 AM · Jan 15, 2021 · Twitter for Android



matty stratton, jewish prank dinosaur 🇺🇸 ❤️

@mattstratton

Normal 0%

You can't buy devops, but I can sell it to you.



Patrick Debois - #thinktogether make code not ... @patrickdeb... · Mar 30

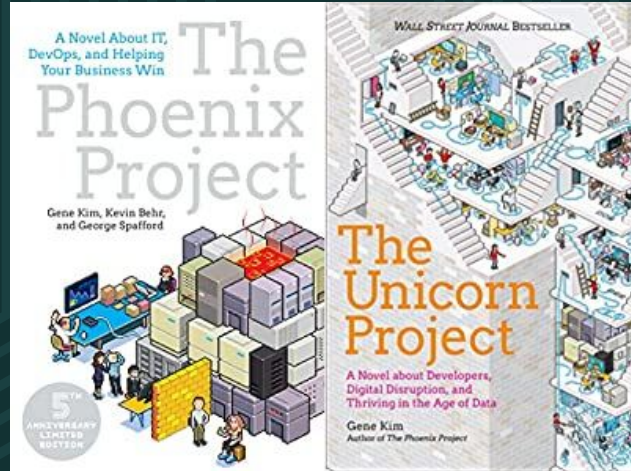
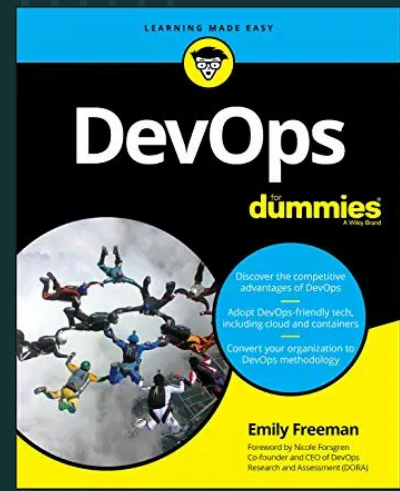
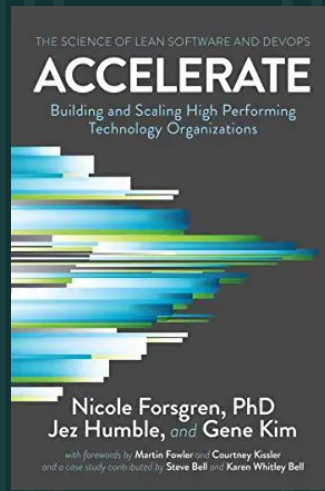
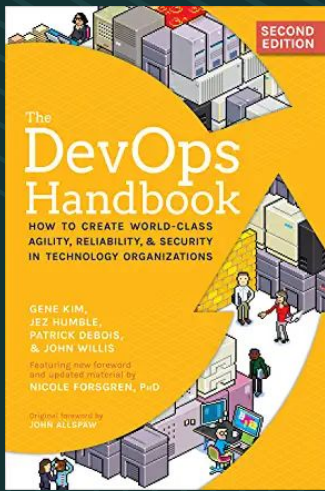
Normal 0%

fixing your devops problems with machine learning



GIF ALT

8:09 AM · Mar 30, 2022 from Lisle, IL · Twitter for iPhone



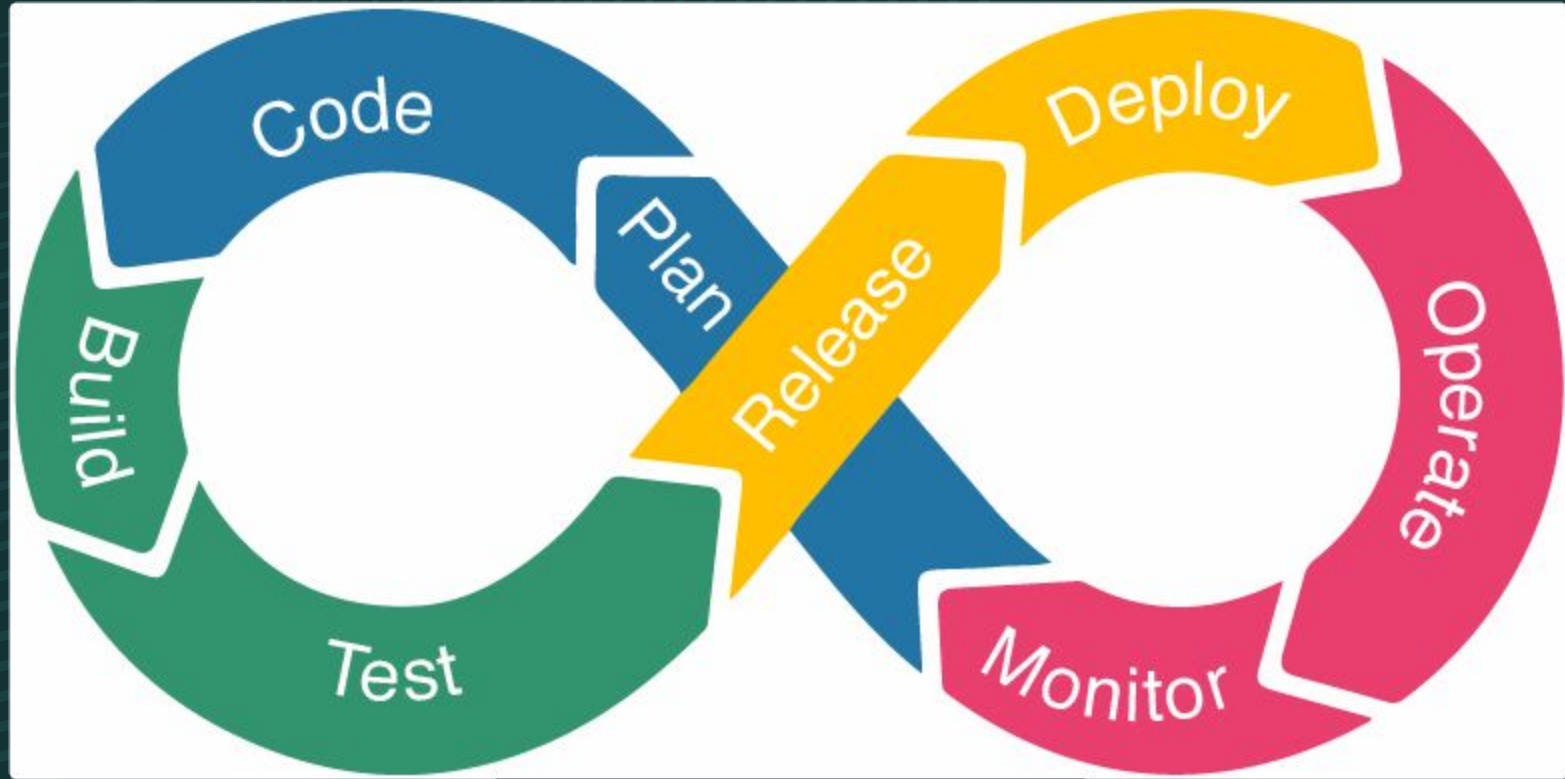
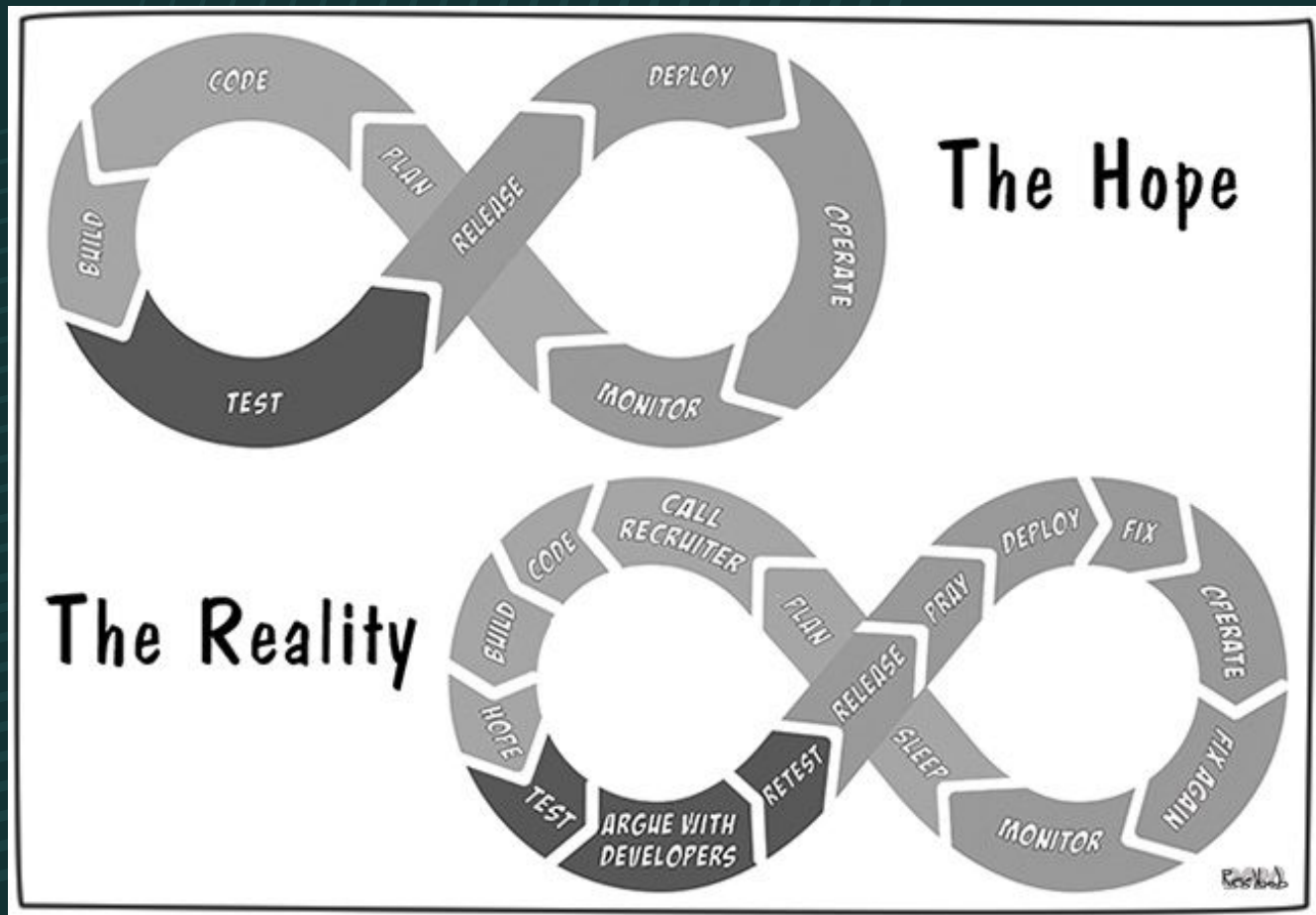


Image credit: [ROELBOB](#) at [DevOps.com](#)





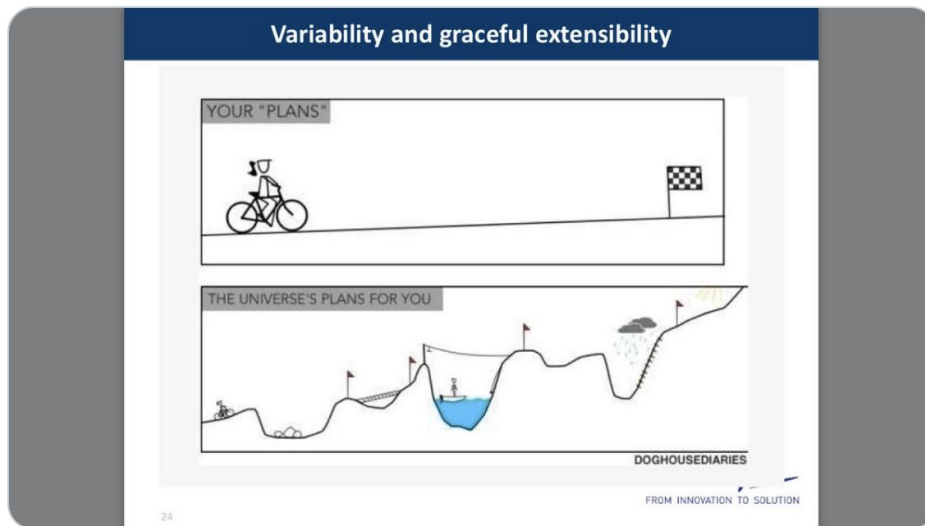
John Allspaw

@allspaw

Normal 0%



Work-as-imagined versus work-as-done



3:00 AM · Apr 28, 2016 · Twitter for iPhone





Imagine you're getting ready to ship
something...



You press the big red
button



click





silence

Do you...

a) Sweat and wait to see if it blows up

Do you...

- a) Sweat and wait to see if it blows up
- b) Pack up, go home & enjoy your weekend

It all boils down to
automation.



Image source: Horizon Zero Dawn



PEBKAC

Tech support can't help you when you're the problem.

Image source: Demotivational

 @IAmJerdog

Continuous {Integration|Deployment}

CI == Continuous Integration

the **practice** of merging all developers' working copies to a **shared** code repository



Code



Shared Code
Repo



CI/CD Runtime



Test



Scan for
Vulnerabilities



Build Website

CD == Continuous Deployment

the **practice** of automatically deploying new software releases to **target environments**



Build Website



Server
deployment



Active Users

Agile software development principles [\[edit \]](#)

The *Manifesto for Agile Software Development* is based on twelve principles:^[23]

1. Customer satisfaction by early and continuous delivery of valuable software.
2. Welcome changing requirements, even in late development.
3. Deliver working software frequently (weeks rather than months)
4. Close, daily cooperation between business people and developers
5. Projects are built around motivated individuals, who should be trusted
6. Face-to-face conversation is the best form of communication (co-location)
7. Working software is the primary measure of progress
8. Sustainable development, able to maintain a constant pace
9. Continuous attention to technical excellence and good design
10. Simplicity—the art of maximizing the amount of work not done—is essential
11. Best [architectures](#), requirements, and designs emerge from self-organizing teams
12. Regularly, the team reflects on how to become more effective, and adjusts accordingly

Framework	Main contributor(s)
Adaptive software development (ASD)	Jim Highsmith, Sam Bayer
Agile modeling	Scott Ambler, Robert Cecil Martin
Agile unified process (AUP)	Scott Ambler
Disciplined agile delivery	Scott Ambler
Dynamic systems development method (DSDM)	Jennifer Stapleton
Extreme programming (XP)	Kent Beck, Robert Cecil Martin
Feature-driven development (FDD)	Jeff De Luca
Lean software development	Mary Poppendieck, Tom Poppendieck
Lean startup	Eric Ries
Kanban	Taiichi Ohno
Rapid application development (RAD)	James Martin
Scrum	Ken Schwaber, Jeff Sutherland
Scrumban	
Scaled agile framework - SAFe	Scaled Agile, Inc.



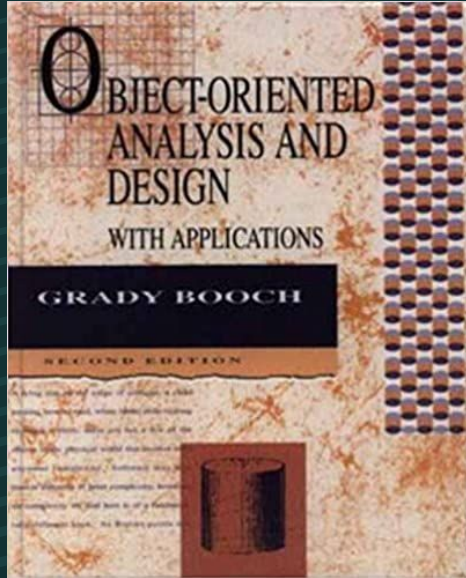
Scrumban!

Practice	Main contributor(s)
Acceptance test-driven development (ATDD)	
Agile modeling	
Agile testing	
Backlogs (Product and Sprint)	Ken Schwaber
Behavior-driven development (BDD)	Dan North, Liz Keogh
Continuous integration (CI)	Grady Booch
Cross-functional team	
Daily stand-up / Daily Scrum	James O Coplien
Domain-driven design (DDD)	Eric Evans
Iterative and incremental development (IID)	
Pair programming	Kent Beck
Planning poker	James Grenning, Mike Cohn
Refactoring	Martin Fowler
Retrospective	
Scrum events (sprint planning, sprint review and retrospective)	
Specification by example	
Story-driven modeling	Albert Zündorf
Test-driven development (TDD)	Kent Beck
Timeboxing	
User story	Alistair Cockburn
Velocity tracking	

Continuous integration (CI)

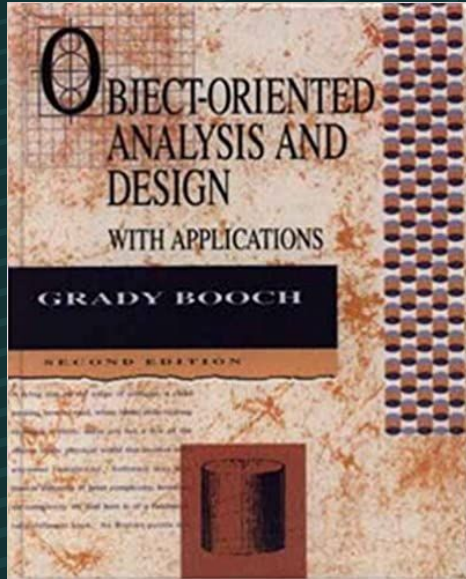
Grady Booch

Quick History of CI/CD

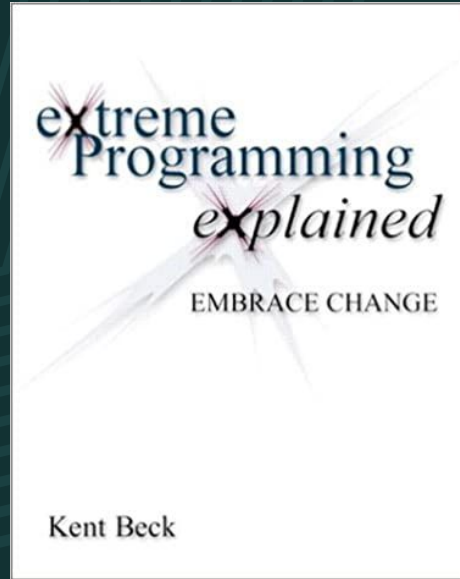


1991

Quick History of CI/CD

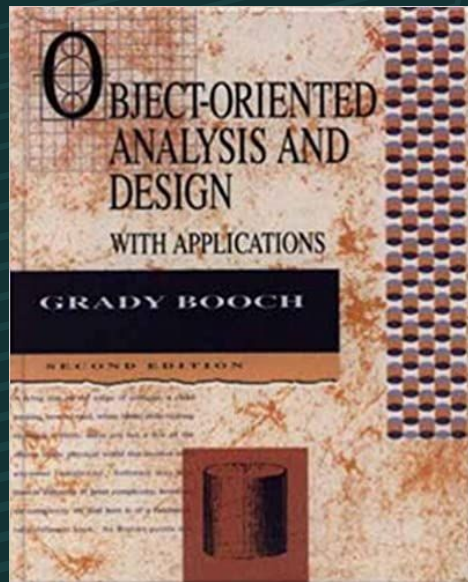


1991

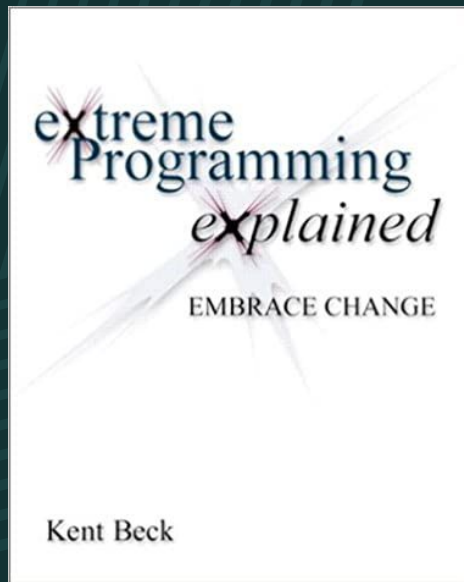


1997

Quick History of CI/CD



1991



1997



2001

Quick History of CI/CD



Quick History of CI/CD



Quick History of CI/CD

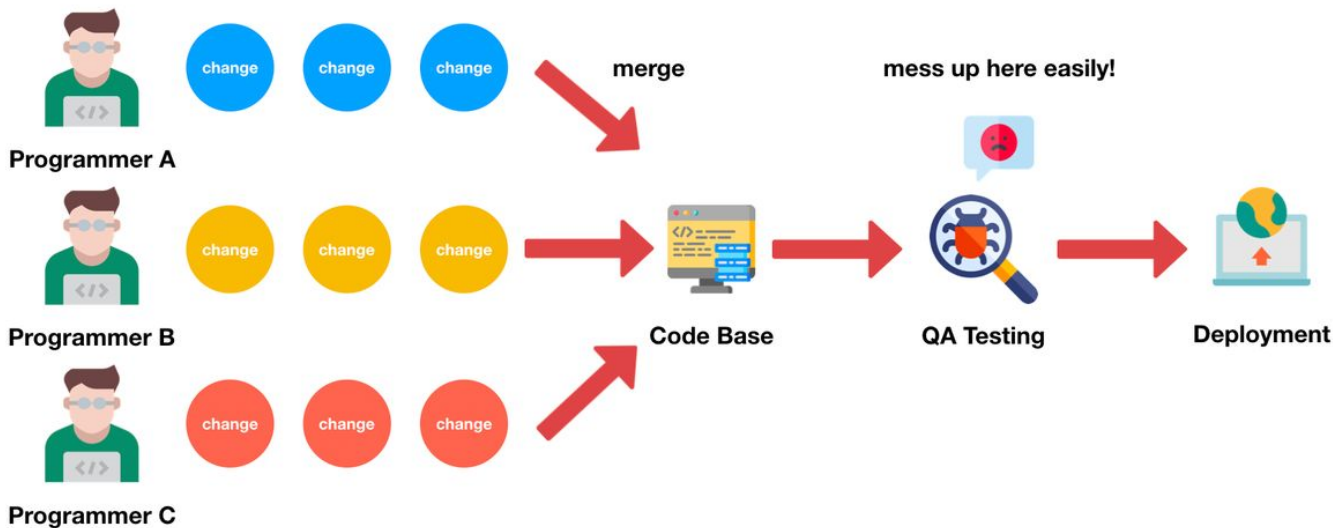


Software Development without CI/CD



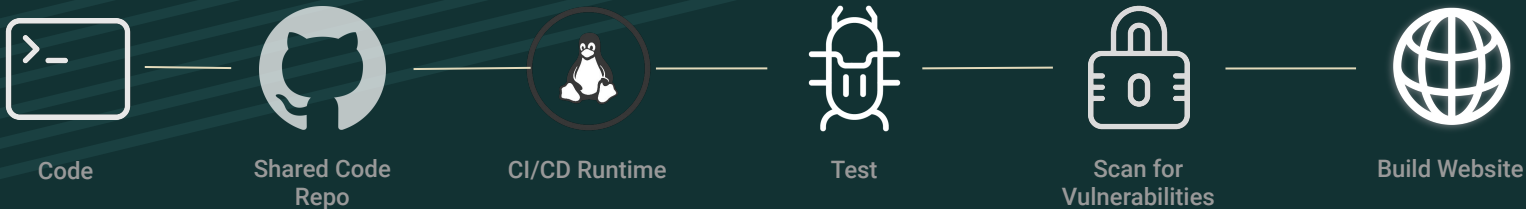
Software Development without CI/CD

Traditional Way



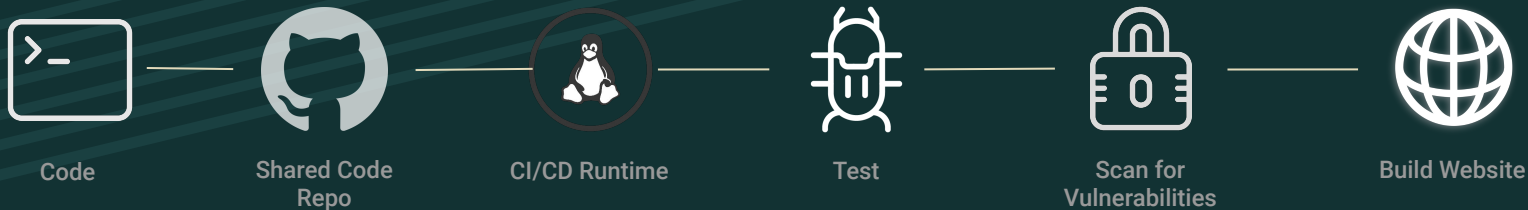
CI == Continuous Integration

the **practice** of merging all developers' working copies to a **shared** code repository



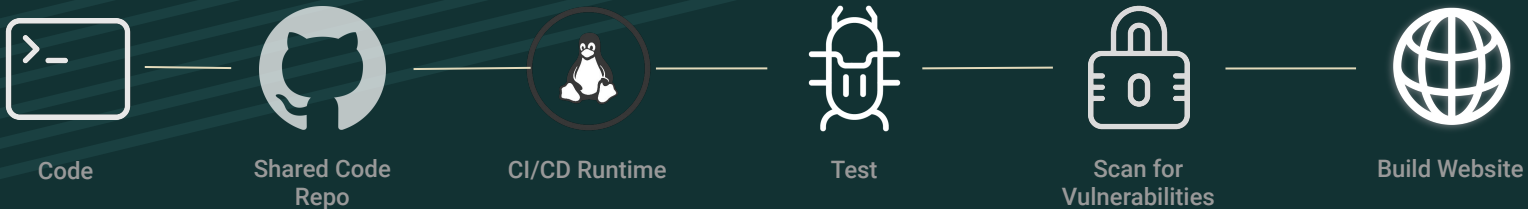
CI == Continuous Integration

- Merge code changes often, keeping team informed on code base / future conflicts



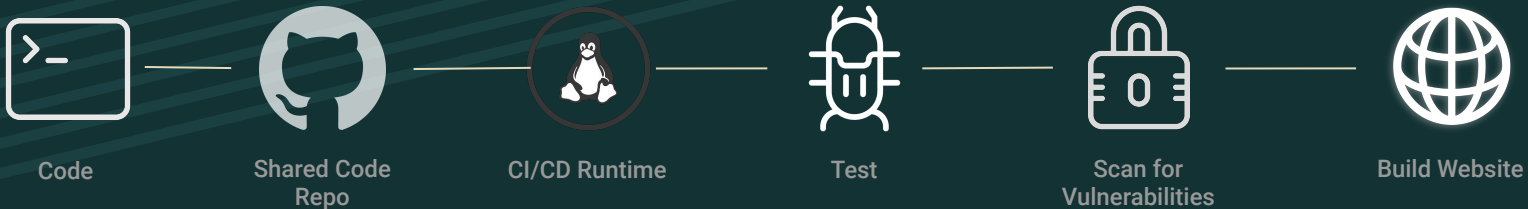
CI == Continuous Integration

- Merge code changes often, keeping team informed on code base / future conflicts
- Run automated tests to validate builds, ensuring quality code pushes



CI == Continuous Integration

- Merge code changes often, keeping team informed on code base / future conflicts
- Run automated tests to validate builds, ensuring quality code pushes
- Only integrate tested code into code base



CI == Continuous Integration

- Merge code changes often, keeping team informed on code base / future conflicts
- Run automated tests to validate builds, ensuring quality code pushes
- Only integrate tested code into code base
- Changes frequently merged into release branches



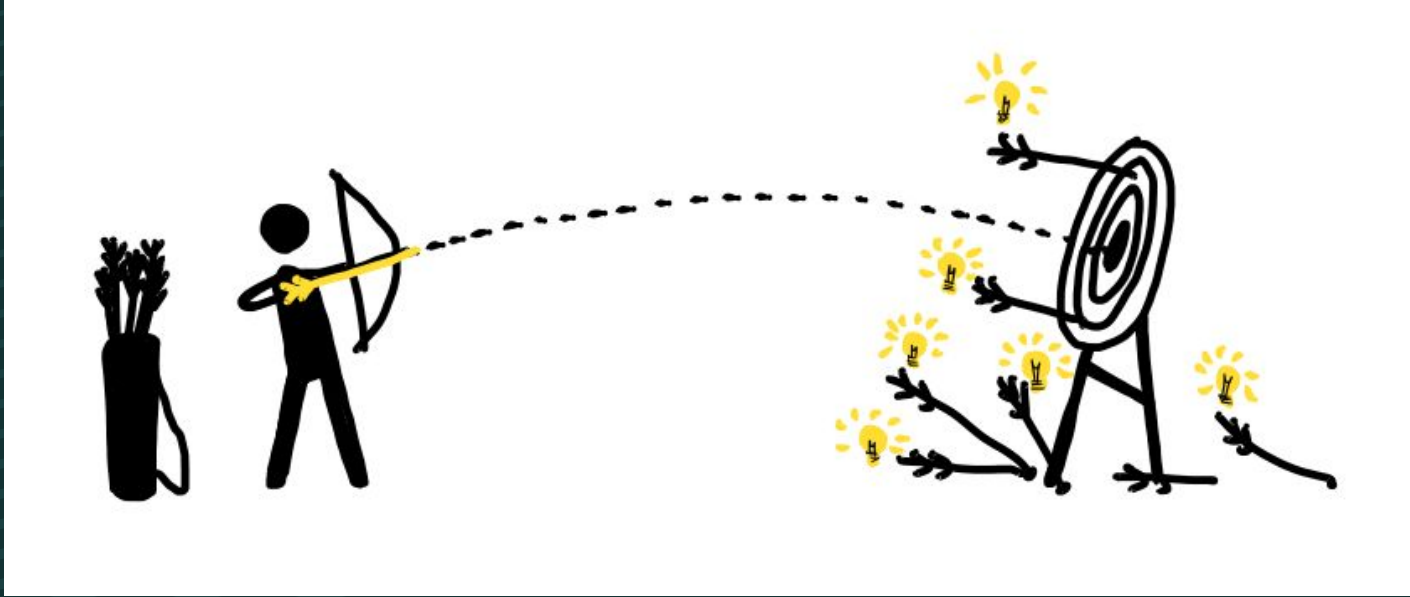


Image credit: [Product Coalition](#)



Image credit: Giphy

 @IAmJerdog

CD == Continuous Deployment

the **practice** of automatically deploying new software releases to **target environments**



Build Website



Server
deployment



Active Users

CD == Continuous Deployment

- Faster release cycles



Build Website



Server
Deployment



Active Users

CD == Continuous Deployment

- Faster release cycles
- Low-risk releases



Build Website



Server
Deployment



Active Users

CD == Continuous Deployment

- Faster release cycles
- Low-risk releases
- Higher quality



Build Website



Server
Deployment



Active Users

CD == Continuous Deployment

- Faster release cycles
- Low-risk releases
- Higher quality
- Lower costs



Build Website



Server
Deployment



Active Users

Implementing CI/CD





Image credit: Giphy

 @IAmJerdog

Make sure everyone is on the same page

Always start small

Do what works for you

Always measure



Image credit: Giphy

 @IAmJerdog

CI/CD Benchmarks



Throughput

At will



Duration

<10 minutes



Success Rate

> 90%



Mean Time
to Recovery

<1 hour

Better CI/CD Practices

- Make testing an integral part of the dev process

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- Make testing an integral part of the dev process
- Ensure testing environment mirrors production

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Better CI/CD Practices

- Make testing an integral part of the dev process
- Ensure testing environment mirrors production
- Use coding better practices, i.e. pair programming
- Automate the deploy workflow

Streamline deploy

elated-clarke-f67cc5

• Site deploy in progress

Deploys from [GitHub](#). Created at 5:48 PM.

⚙ Site settings ⚙ Domain settings

🔗 Production deploys


Production: master@HEAD **Starting Up**

5:48 PM: No deploy message

🔗 Deploy Previews

Deploy Preview #4: jerdog-patc... @a727cb0 **Building**


5:54 PM: Update config.toml



Deploy

Deployment started 9s ago...

- ▶ Fetching Source Code 6s
- ▶ Skipping Build Cache 1s
- ▶ Building
- ▶ Uploading Build Output



Preview Deployments

Deployments that are currently being worked on.

test-nextjs-vercel-qxdiffra-jerdog.ve... Preview	Queued	Update index.js jerdog-patch-1	Just now by jerdog	
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Full Report



<https://circle.ci/ssd2022>

Thank you.

For feedback and swag: circle.ci/jeremy



Timeline.jerdog.me



IAmJerdog



jerdog



/in/jeremymeiss