Demystifying DevOps and CI/CD





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"Devops"

🔰 @IAmJerdog

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



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Made with by Creative Tim. Free download here.



Jeremy Meiss

Director, DevRel & Community



timeline.jerdog.me









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What is DevOps?











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







WITH ALL DUE RESPECT







Devopsdays Ghent 2009

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Tweets from devopsdays events

welcome program reactions speakers participants

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 <u>reactions</u> is created and the <u>presentations</u> that were held. See you next time!







Image credit: <u>freepik</u>



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



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

















Image credit: <u>ROELBOB</u> at <u>DevOps.com</u>



John Allspaw @allspaw Normal 0%

Work-as-imagined versus work-as-done



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



...

Image credit: <u>ROELBOB</u> at <u>DevOps.com</u>





Image credit: <u>ROELBOB</u> at <u>DevOps.com</u>

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





Image source: Demotivational

Continuous {IntegrationIDeployment}



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	2



Continuous integration (CI)	Grady Booch	





1991







EMBRACE CHANGE

Kent Beck

1997





extreme Programming explained

EMBRACE CHANGE

Kent Beck

1997



2001















Software Development without CI/CD





Software Development without CI/CD

Traditional Way mess up here easily! change merge change **Programmer A** Programmer B **Code Base QA** Testing Deployment **Programmer C**

Image source: Oursky



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





• Merge code changes often



Code





CI/CD Runtime



Test



Scan for Vulnerabilities





- Merge code changes often
- Run automated tests to validate builds



Code







CI/CD Runtime

Test



Scan for Vulnerabilities





- Merge code changes often
- Run automated tests to validate builds
- Only integrate tested code into code base





- Merge code changes often
- Run automated tests to validate builds
- Only integrate tested code into code base
- Changes frequently merged into release branches









Image credit: Product Coalition

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



Server deployment



Active Users



• Faster release cycles





Server Deployment



Active Users



- Faster release cycles
- Low-risk releases









Active Users



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









Active Users



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









Active Users



Is CI/CD a TOOL?



Are there benefits to CI/CD?



CI/CD Benefits



- Improve team productivity & efficiency
- Accelerate speed to market
- Identify product/market fit
- Release higher quality, more stable products
- Increase customer satisfaction
- Keep devs happy and shipping code



Implementing CI/CD



Make sure everyone is on the same page



Always start small



Do what works for you



Always measure


CI/CD Benchmarks



Throughput

At will



Duration

<10 minutes



Success Rate



Mean Time to Recovery

> 90%

<1 hour

🥑 @IAmJerdog

• Make testing an integral part of the dev process



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



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- Ensure testing environment mirrors production
- Use coding better practices, i.e. pair programming



- 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



	Deploy	
	Deployment started 9s ago	
	Fetching Source Code	6s 🥑
	Skipping Build Cache	1s 🖑
	▶ Building	
	Uploading Build Output	Verce
review	Deployments	
test-nextjs	-vercel-qxdiffran-jerdog ve Queued Update index.js	lust new by inclose

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https://circle.ci/ssd2022

🥑 @IAmJerdog

Thank you.

For feedback and swag: circle.ci/jeremy

Timeline.jerdog.me



DEV jerdog

in /in/jeremymeiss

