

Demystifying DevOps and CI/CD

"DevOps"

DevTestOps

AIOps

TreeOps

GitOps

MLOps

DevSecOps

Coming Soon(ish)



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

 @IAmJerdog

Jeremy Meiss

DevRel & Community leader

Open to work

jmeiss.me



 @IAmJerdog

What is DevOps?

“You can’t buy DevOps”



FALSE

- You may not be able to buy it, but I can sell it to you
- Seriously, I would love to sell you some devops
- What will it take to get you in a devops today?



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

- 5 stars & Up 4 stars & Up 3 stars & Up 2 stars & Up 1 star & Up

RESULTS

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

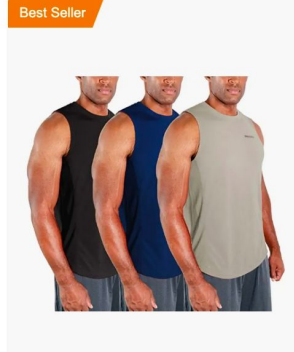


DEVOPS 2-3 Pack Men's Athletic Long Sleeve Compression Shirts

4.5 stars (14,494 reviews)

\$29.98

prime

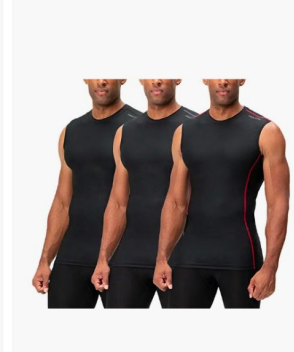


DEVOPS 3 Pack Men's Muscle Sleeveless Dri Fit Gym Workout Shirts

4.5 stars (14,343 reviews)

\$25.57

prime



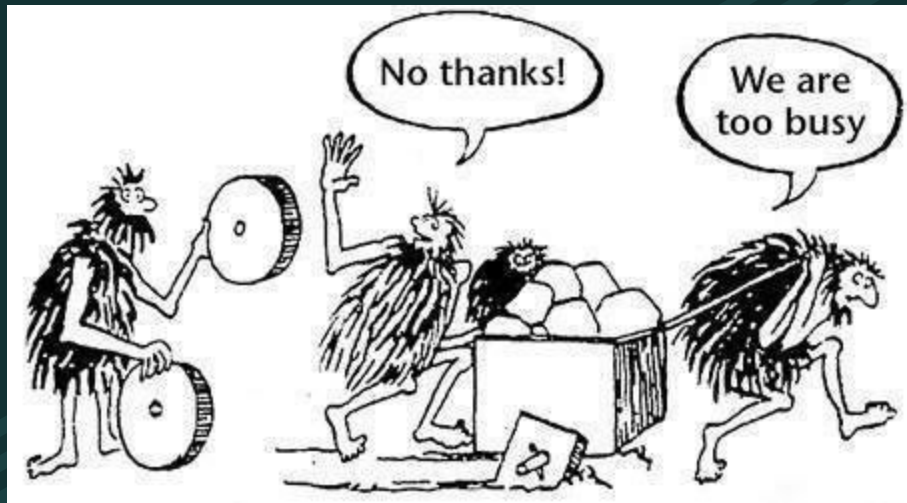
DEVOPS 2-3 Pack Men's Athletic Compression Shirts Sleeveless

4.5 stars (17,760 reviews)

\$20.97

prime

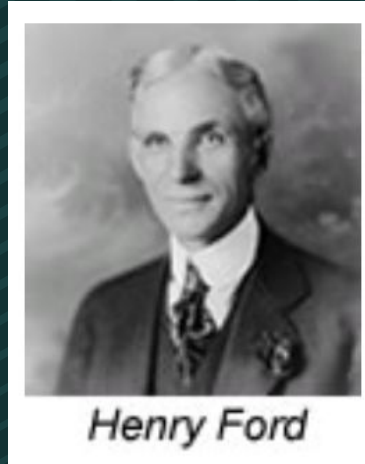
“Ok blue-haired dude,
what really is DevOps and
where did it come from?”



1910s to 1930s



"Flow production"

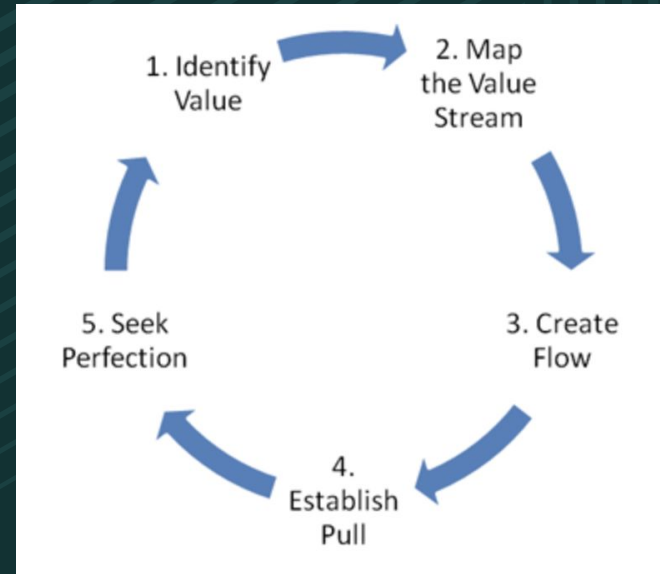
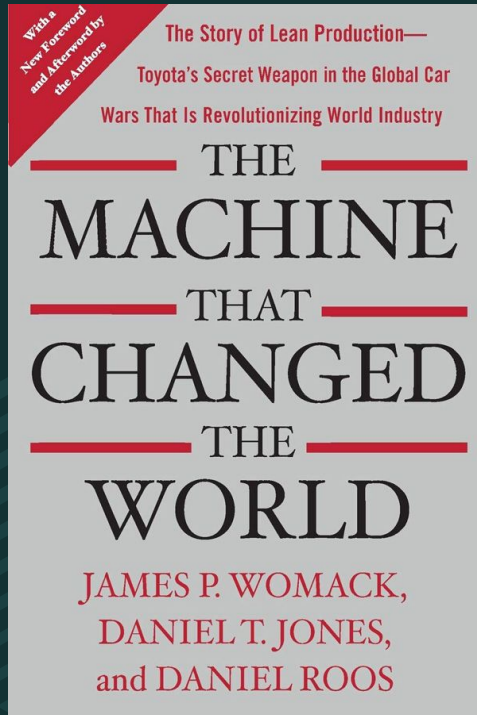


Henry Ford



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

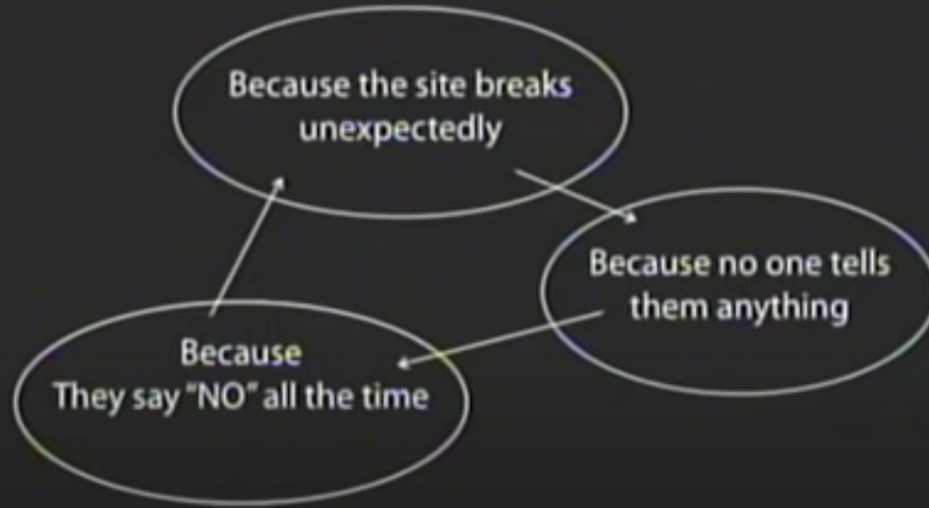
Velocity

Web Performance and
Operations Conference



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

Ops stereotype





WITH ALL DUE RESPECT



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!



Image credit: [freepik](#)

 @IAmJerdog



Devopsdays Kansas City

MAY 15 - 16, 2024

The Madrid Theatre, Kansas City, MO

3810 Main St, Kansas City, MO 64111

DevOpsDays is coming *back* to Kansas City, May 15-16, 2024!

Other Kansas City Events

2016 2017 2018 2019

Follow



MAY 15-16, 2024

devopsdayskc.org

After 4 years, DevOpsDays Kansas City is BACK for 2024!





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

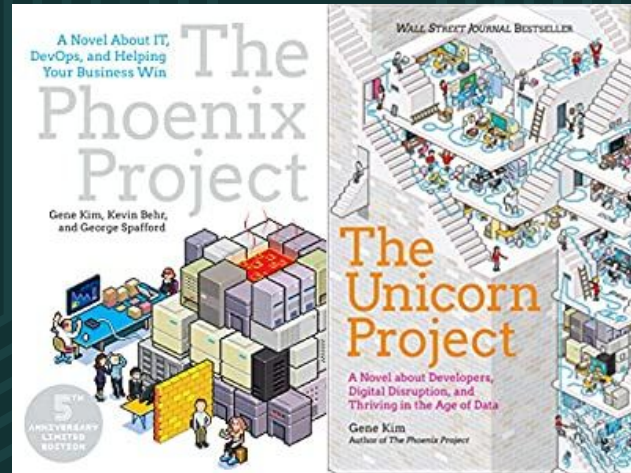
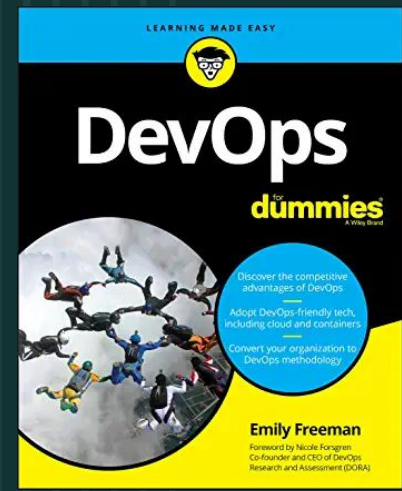
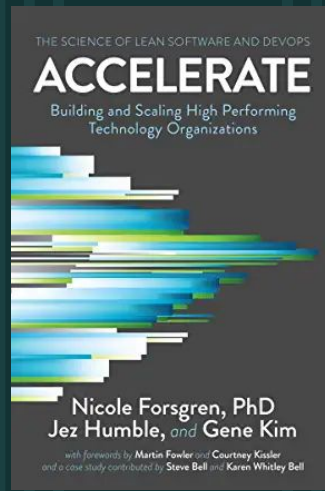
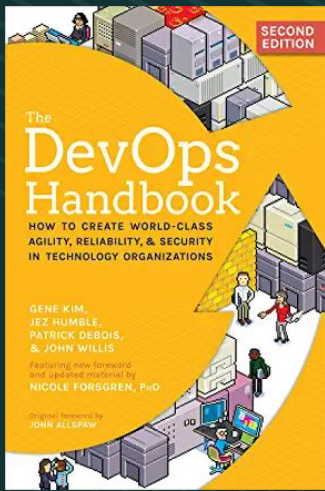
Normal 0%

fixing your devops problems with machine learning



GIF ALT

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



 @IAmJerdog

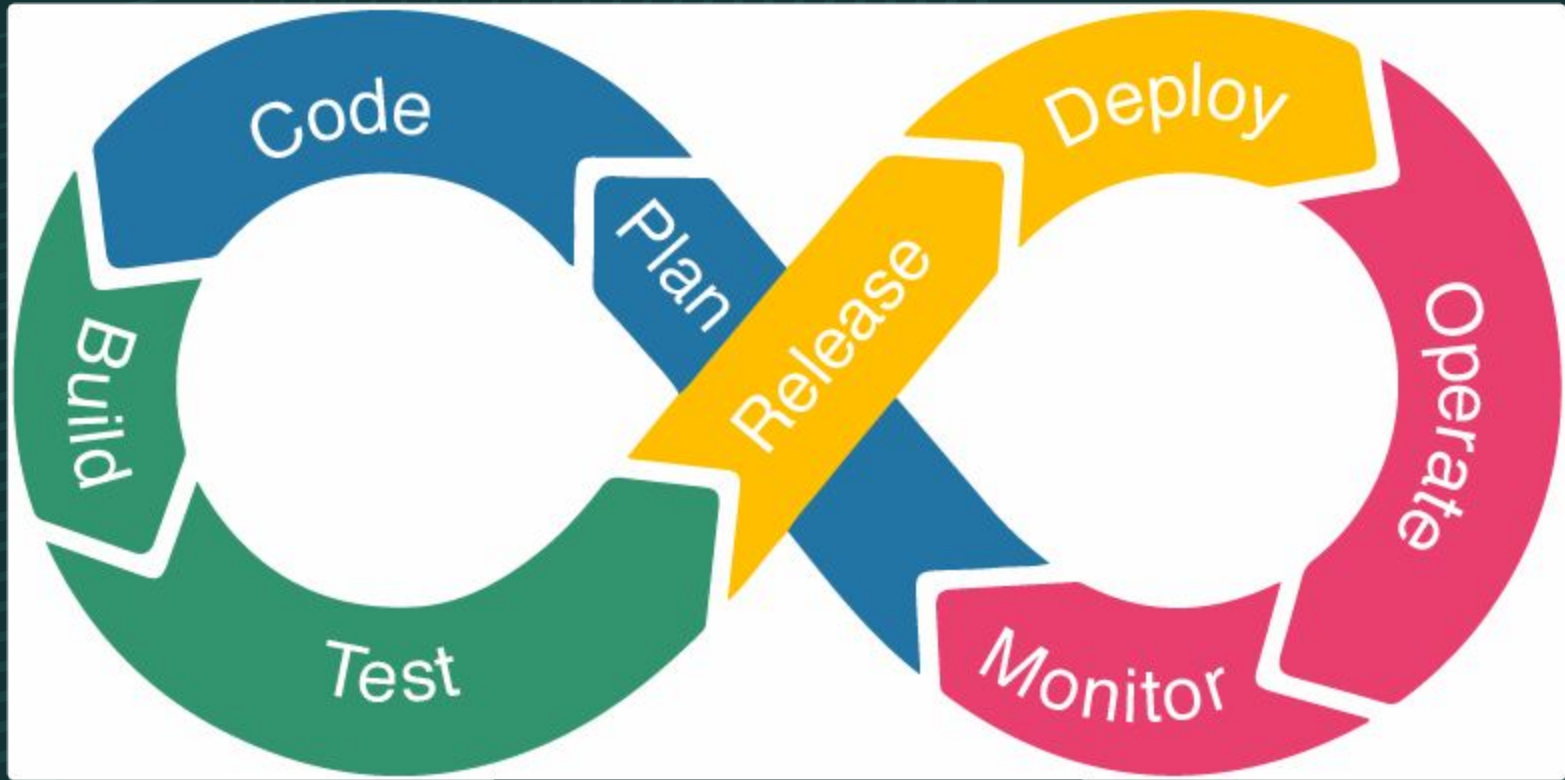
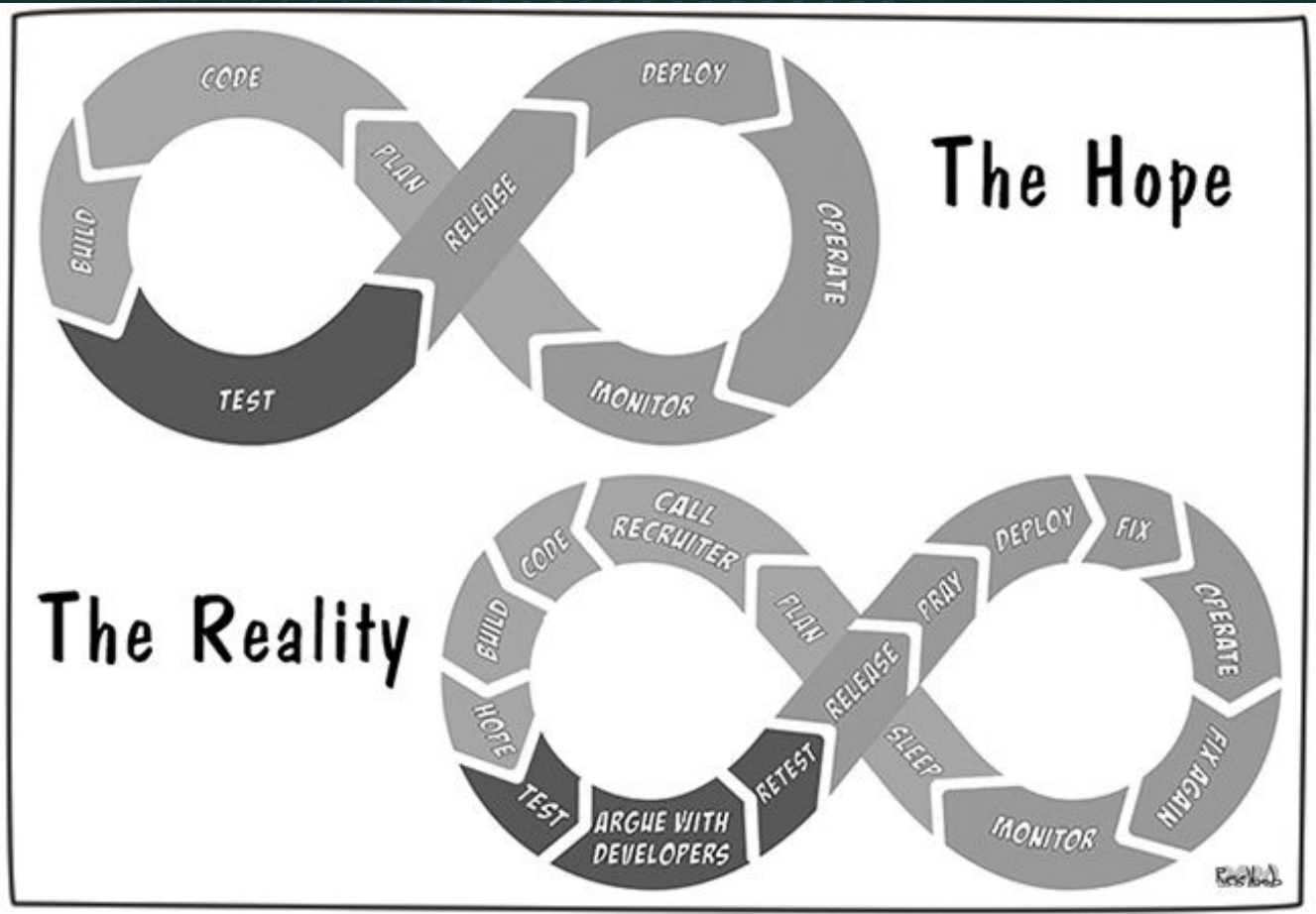


Image credit: [ROELBOB](#) at [DevOps.com](#)

 [@IAmJerdog](#)





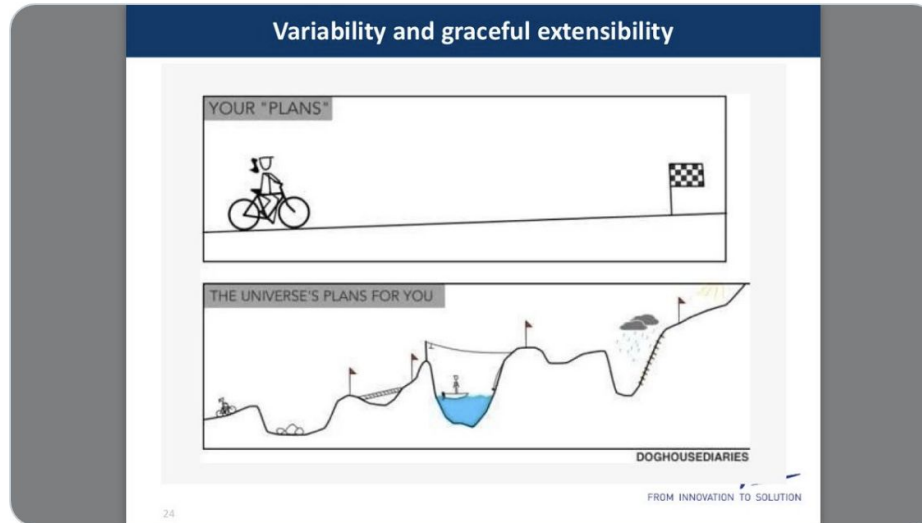
John Allspaw

@allspaw

Normal 0%



Work-as-imagined versus work-as-done



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



App Definition and Development

Database: KV, V, etc.
Streaming & Messaging: cloudevents, etc.
Application Definition & Image Build: HELM, etc.
Continuous Integration & Delivery: argo, flux, etc.

Orchestration & Management

Scheduling & Orchestration: kubernetes, etc.
Coordination & Service Discovery: etcd, etc.
Remote Procedure Call: gRPC, etc.
Service Proxy: envoy, etc.
API Gateway: etc.
Service Mesh: LINKERD, etc.

Runtime

Cloud Native Storage: etc.
Container Runtime: cri-o, etc.
Cloud Native Network: etc.

Provisioning

Automation & Configuration: etc.
Container Registry: etc.
Security & Compliance: falco, etc.
Key Management: etc.

Special

Kubernetes Certified Service Provider: etc.
Kubernetes Training Partner: etc.
Certified CNF: etc.

Platform

Certified Kubernetes - Distribution: etc.
Certified Kubernetes - Hosted: etc.
Certified Kubernetes - Installer: etc.
PaaS/Container Service: etc.

Observability and Analysis

Monitoring: etc.

Logging: etc.
Tracing: etc.
Chaos Engineering: etc.
Continuous Optimization: etc.

Serverless

Members

CD Foundation Landscape

CLOUD NATIVE Landscape

This landscape is intended as a map through the previously uncharted terrain of cloud native technologies. There are many routes to deploying a cloud native application, with CNCF Projects representing a particularly well-travelled path.

l.cncf.io

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



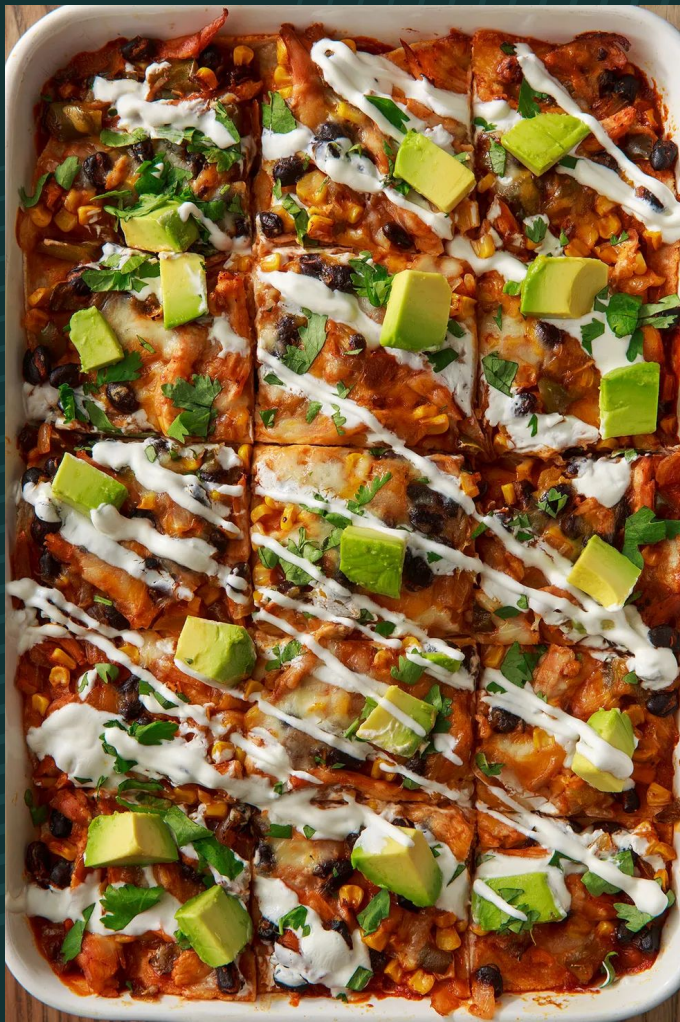
Active Users

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.



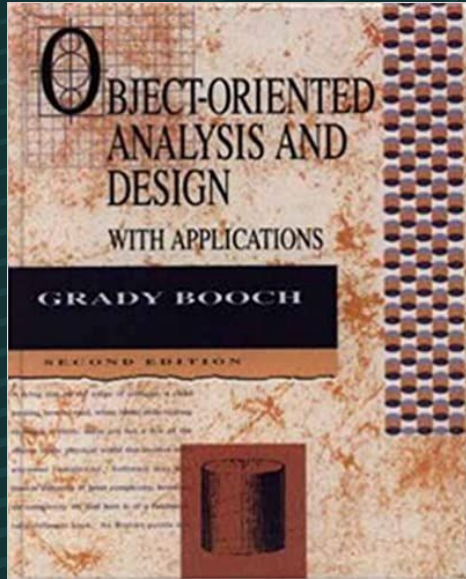
Scrumban!

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)

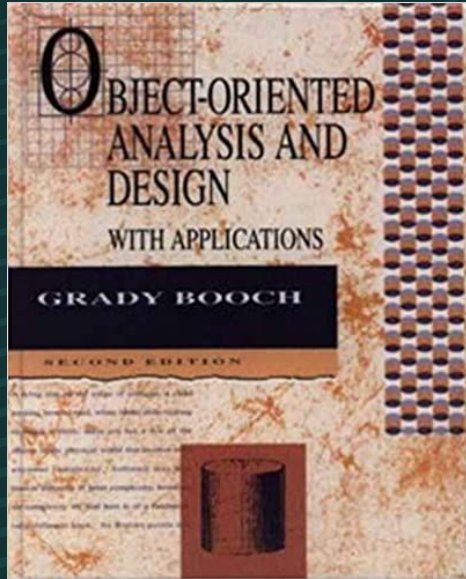
Grady Booch

Quick History of CI/CD

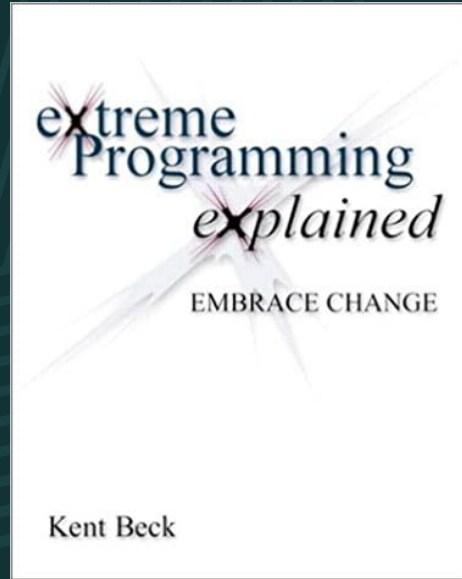


1991

Quick History of CI/CD

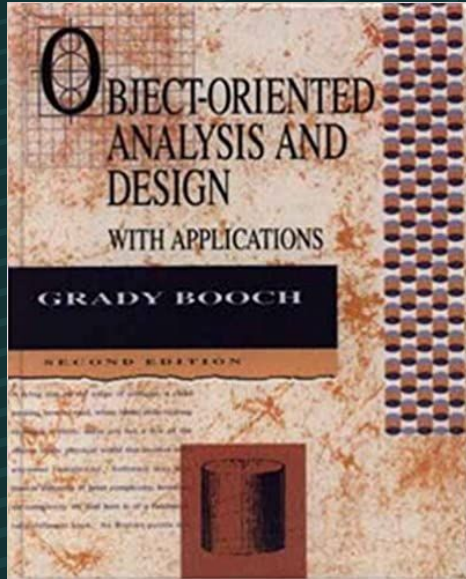


1991

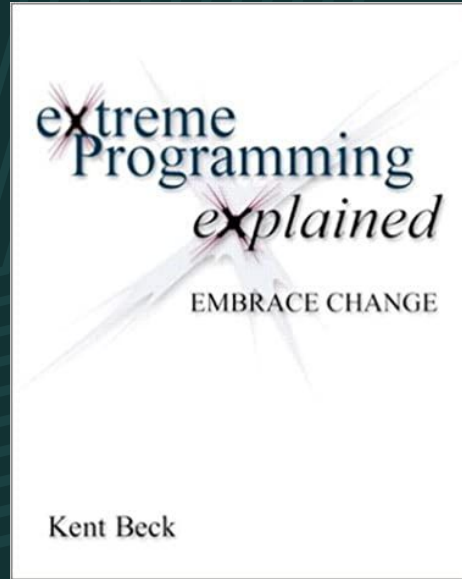


1997

Quick History of CI/CD



1991



1997



2001

Quick History of CI/CD



Quick History of CI/CD



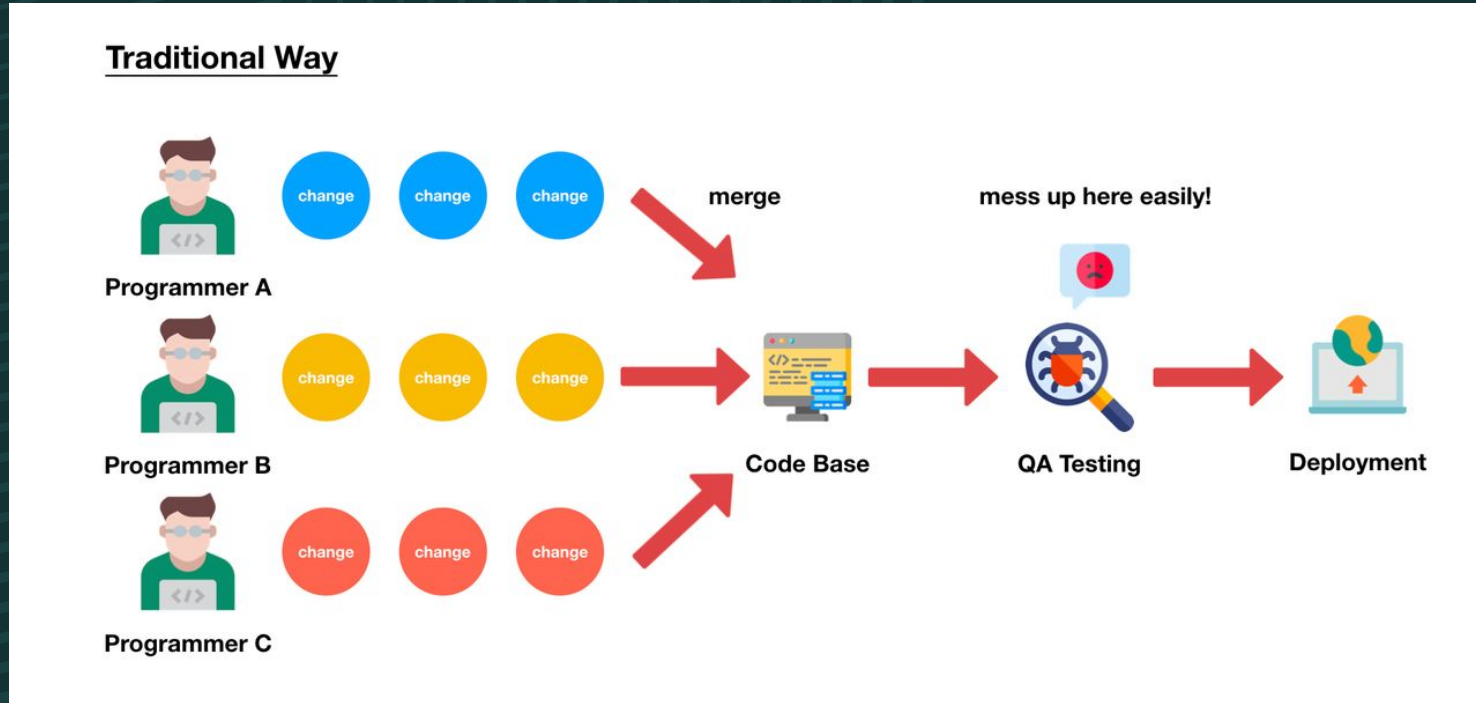
Quick History of CI/CD



Software Development without CI/CD



Software Development without CI/CD



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

CI == Continuous Integration

- Every developer commits daily+ to shared mainline code repo



CI == Continuous Integration

- Every developer commits daily+ to shared mainline code repo
- Every commit triggers automated build and test of the codebase



CI == Continuous Integration

- Every developer commits daily+ to shared mainline code repo
- Every commit triggers automated build and test of the codebase
- If the build or any test fails, it's repaired quickly – often within minutes



Code



Shared Code
Repo



CI/CD Runtime



Test



Scan for
Vulnerabilities



Build Website

CI == Continuous Integration

- Every developer commits daily+ to shared mainline code repo
- Every commit triggers automated build and test of the codebase
- If the build or any test fails, it's repaired quickly – often within minutes
- Only integrate tested code into code base



Code



Shared Code
Repo



CI/CD Runtime



Test



Scan for
Vulnerabilities



Build Website

CI == Continuous Integration

- Every developer commits daily+ to shared mainline code repo
- Every commit triggers automated build and test of the codebase
- If the build or any test fails, it's repaired quickly – often within minutes
- Only integrate tested code into code base
- Changes frequently merged into release branches



Code



Shared Code
Repo



CI/CD Runtime



Test



Scan for
Vulnerabilities



Build Website

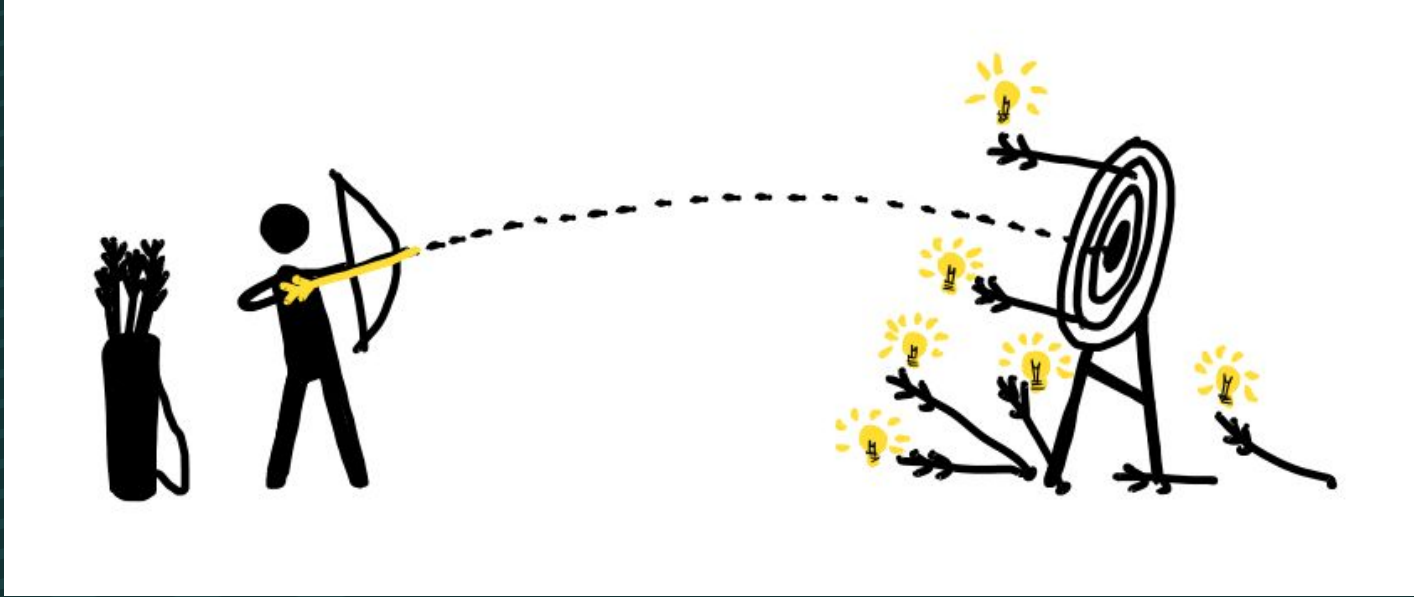


Image credit: [Product Coalition](#)



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

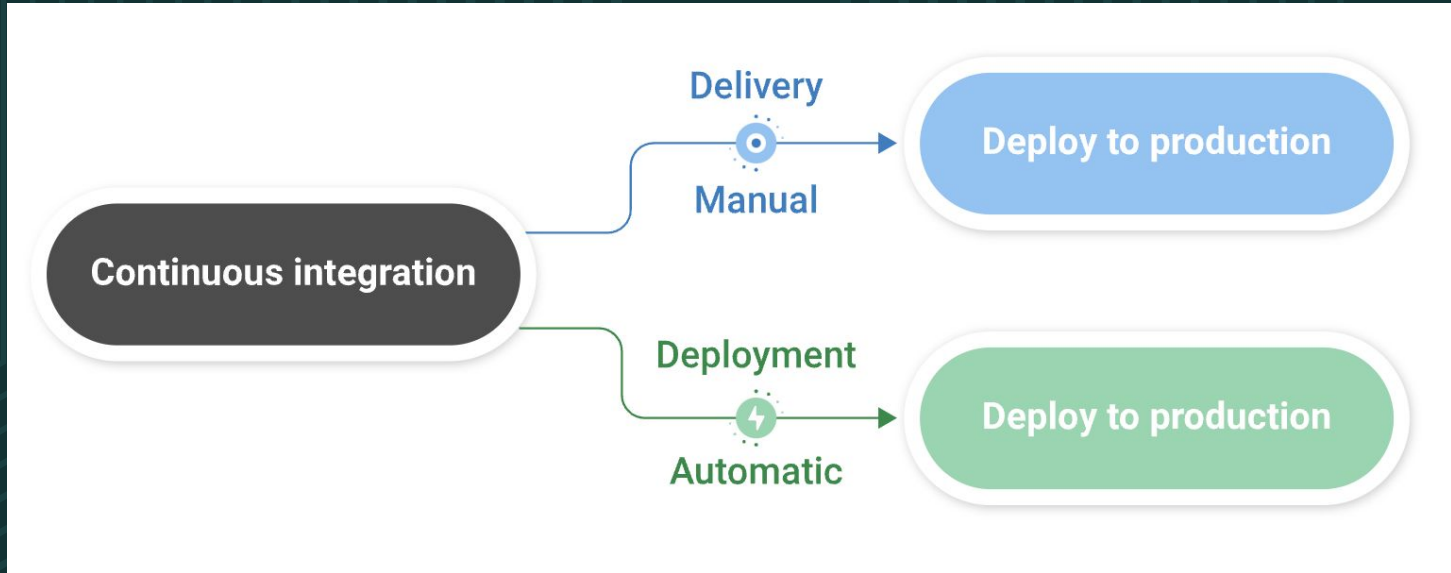


Server
Deployment



Active Users

CI vs CD(elivery) vs CD(employment)?



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

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-qxdifffran-jerdog.ve... Preview	Queued —	Update index.js jerdog-patch-1	Just now by jerdog
---	-------------	-----------------------------------	--------------------

Thank you.



IAmJerdog



jerdog



/in/jeremyeiss



jerdog@hachyderm.io