

Avoiding the DevOps pit of misery: Tips from the trenches



Jason Hibbets, Senior Community Architect Opensource.com, Red Hat
Chris Short, Senior DevOps Advocate, SJ Technologies

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JASON

Introduce yourself. Smile.

Remind them about social media and to Tweet what they like.

Dilly, Dilly



Image credits: <http://ow.ly/O1aF30ig12B> (Attributed to Adweek, Bud Light)

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CHRIS

- Don't be the people who delivery the wrong goods--like mead
- Talk about what the DevOps pit of misery looks like
- What is DevOps and the purpose of DevOps
- We'll talk about why you need DevOps and the culture

What is the DevOps pit of misery?

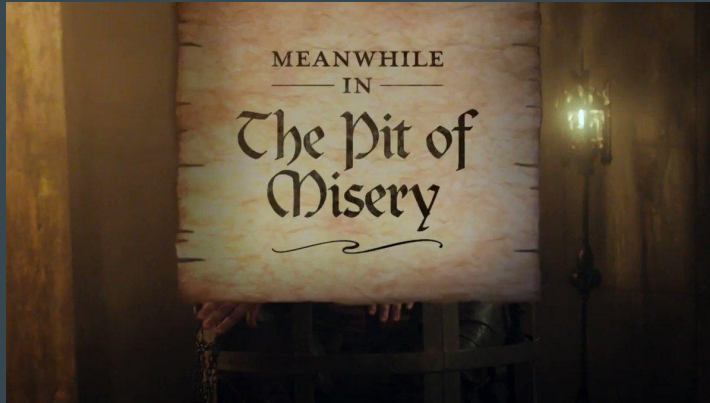


Image credits: <https://twitter.com/budlight/status/934851751655636993> (Attributed to Bud Light)

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- JASON
- Let's pretend that we all work for the ACME company
- It takes weeks sometimes months to deploy code into production
- ACME's IT department implemented a "tool" and the CIO "checked" the DevOps box
- Then a small group of people in ACME's IT department tried out some DevOps practices and deployed a new feature in record time
- Now the CIO wants *"all the DevOps"*
- Signs that you're living in the pit of misery -- JASON
 - Do customers know your systems are down before you know do? -- CHRIS
 - Do outages occur repeatedly for the same or unknown reasons? -- JASON
 - Do you have knee jerk reactions to outages (restarting services at random, re-deploy code, etc.) -- CHRIS
 - Do you do postmortems? Do you blame people or systems? -- JASON
 - Does it take a long time to deliver features? -- CHRIS

What is DevOps?



Image credits: <https://opensource.com/article/18/2/devops-delivers-cool-apps-users> (Opensource.com)

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- DevOps means different things to different people (and that's fine)
- DevOps is a set of modern IT practices to bring software developers and operations staff together
- Work collaboratively, with a goal to reduce the time and friction involved in deploying new versions of software
- Outcomes Focused:
 - Shorter development cycles
 - Organization a competitive edge
 - Reduced costs
 - No more devs throwing code over the wall to ops

What DevOps is not



Image credits: <https://opensource.com/article/17/10/dear-devops> (Opensource.com)

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- Not a singular group in a larger org; Multifaceted team
- You can't buy DevOps; you have to change the culture
- DevOps is not a tool you buy or clone from GitHub

What is the purpose of DevOps?

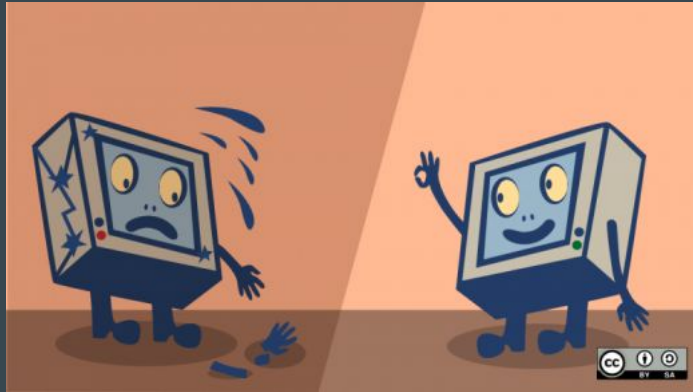


Image credits: <https://opensource.com/article/17/7/state-systems-administration> (Opensource.com)

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- DevOps was coined by Andrew 'Clay' Shafer and Patrick Debois in 2009
- **Goal:** Bring developers and operators together for continuous learning and improvement
- For many the goal is to shorten development cycles and reduce costs
- How do you get to this goal? Culture drives the desired changes

Why DevOps?



Image credits: <https://opensource.com/article/16/12/yearbook-linux-test-driving-distros> (Opensource.com)

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- We're going to share some statistics from the latest State of DevOps reports
- I'm from Detroit so we're going to use an auto manufacturing analogy to help translate what each one means
- From the 2017 State of DevOps report, high performers have:

46x

46 times more frequent code deployments

Source: [2017 State of DevOps Report](#) (Puppet Labs)

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- 46 times more frequent code deployments
 - Making smaller changes more frequently increases safety, speed, and reliability
 - The Toyota Camry typically gets better every year
 - A new style is announced and the following years allow for iterative improvements
 - Think about doing this with code multiple times a day

440x

440 times faster lead time from commit to deploy

Source: [2017 State of DevOps Report](#) (Puppet Labs)

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CHRIS

- 440 times faster lead time from commit to deploy
 - All of the work is put into making the car and the finished product is deployed all at once
 - This means that all the undiscovered bugs and issues are deployed all at once too
 - If batch sizes are smaller there is less likelihood of error
 - Agile methods go hand in hand with DevOps

5x

5 times lower change failure rate (changes are 1/5 as likely to fail)

Source: [2017 State of DevOps Report](#) (Puppet Labs)

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CHRIS

- 5 times lower change failure rate (changes are 1/5 as likely to fail)
 - Vehicles take four to five years before entering the market
 - What happens once they're on the market and flaws are discovered?
 - You can't redeploy a car.
 - RECALLS!

JASON

- My entire car got recalled; something about diesel emissions

96x

96 times faster mean time to recover from downtime

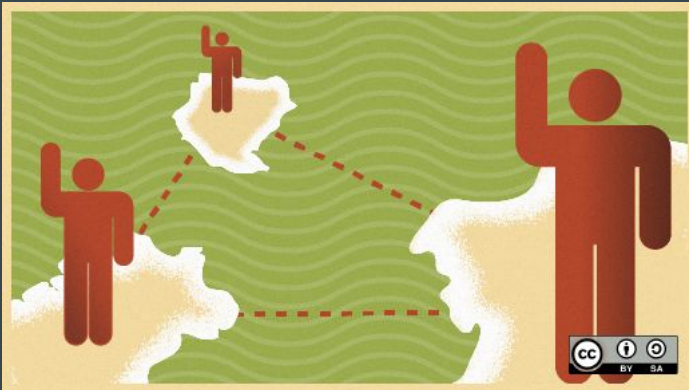
Source: [2017 State of DevOps Report](#) (Puppet Labs)

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- 96 times faster mean time to recover from downtime
 - If your car is a flop, you don't know that until five years of effort and time is put into it.
 - Downtime in a car means you don't sell cars
 - Cars will just sit on the dealer's lot
 - Or a junk yard in Jason's case

DevOps: The three ways



- The First Way: Systems thinking
- The Second Way: Amplify feedback loops
- The Third Way: Culture of continual experimentation and learning

Source: [IT Revolution](#)

Image credits: <https://opensource.com/article/18/2/essential-roles-devops-culture-success> (Opensource.com)

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- The First Way: Systems thinking
 - The First Way emphasizes the performance of the entire system, as opposed to the performance of a specific silo of work or department
- The Second Way: Amplify feedback loops
 - The Second Way is about creating the right to left feedback loops
- The Third Way: Culture of continual experimentation and learning
 - The Third Way is about creating a culture that fosters two things: continual experimentation→ taking risks and learning from failure; and understanding that repetition and practice is the prerequisite to mastery.
- Key takeaway
 - “These are the values and philosophies that frame the processes, procedures, and practices of DevOps”
- Source:
<https://itrevolution.com/the-three-ways-principles-underpinning-devops/>

Who drives culture in DevOps?



“Writing a few bullet points and printing them on colorful posters is not leadership.” -- Chris Short

Image credits: <https://opensource.com/article/17/12/who-drives-culture-devops> (Opensource.com)

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- [Google's Project Aristotle](#) stated "physiological safety" is a key contributor to effective teams
- Safety is a tenant of DevOps
- Creating safe deployments AND safe cultures are what DevOps is all about
- How do you influence culture change
- Bottom-up and top-down approaches
- Key takeaways
 - The best driver of culture is the CEO of an organization
 - **Why?** They set the tone for all activities and spreads the culture
 - When you define a culture: the organization's ideals, values, and tenets must be instilled and driven by its most senior leaders

Why is change so hard?



“The primary need is not overcoming resistance but enabling and supporting people to adapt.” -- Dr. Alison Eyring

[CMO.com](https://cmo.com)

Image credits: <https://opensource.com/article/18/2/essential-roles-devops-culture-success> (Opensource.com)

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- Change is hard because it involves people
- People resist change
- We need to routinely implement small, subtle changes to avoid getting stuck in repetitiveness
- Enable the facilitation of changes in our organizations
- Example: Update to all the apps on your phone
- Key takeaways
 - Being agile, adaptable, and flexible is key
 - [“The primary need is not overcoming resistance but enabling and supporting people to adapt.”](#)

54%

54% of C-suite executives polled by management consultancy A.T. Kearney said that **having a corporate culture unable to embrace digital technologies was one of their biggest barriers**. Source: [CMO.com](https://www.cmo.com)

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- [CMO.com](https://www.cmo.com)

Diversity on your team



Image credits: <https://opensource.com/life/16/3/creating-welcoming-and-inclusive-open-source-space> (Opensource.com)

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- I understand Jason and I are two white men
- My time in the military showed me a inclusion and diverse ideas were key to mission success
- Diverse groups are great for organizations because they provide unique perspectives
- Human resource can be a great partner here to help you hire a diverse team

JASON

- Military brat background
- We are very keen about diversity and inclusion at Red Hat
- Learnings from open source communities
- Teams & committees: Diversity and inclusion, Women in Open Source Award, scholarships

Diversity & DevOps outcomes



Image credits: <https://opensource.com/life/16/3/creating-welcoming-and-inclusive-open-source-space> (Opensource.com)

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- Coming back around to the Outcomes philosophy of DevOps
- You won't know how people use the products you're working on
- But a diverse group of people will be able to come up with more use cases
- If you're all white folks from Silicon Valley you're probably going to make a bad product

35%

“Analysis of the data from the group of 366 companies indicates racially/ethnic diverse organizations were 35 percent more likely **to have financial returns above their national industry median**”

Source: [McKinsey & Company Why Diversity Matters](#)

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CHRIS

- [McKinsey & Company Why Diversity Matters](#) report shows...
 - Analysis of the data from the group of 366 companies indicates racially/ethnic diverse organizations were 35 percent more likely to have financial returns above their national industry median

Fail early, fail often



Image credits: <https://opensource.com/open-organization/17/4/accountability-by-design> (Opensource.com)

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- Raise your hand if you've blown up production
 - It's a rite of passage in DevOps; you're going to break stuff
- Failure should occur as quickly as possible in your pipeline before (preferably WAY before) prod
- If it fails in production you're not doing DevOps
- Failures are blameless; the system you created failed, a person didn't break something

Why is “failure” so hard?

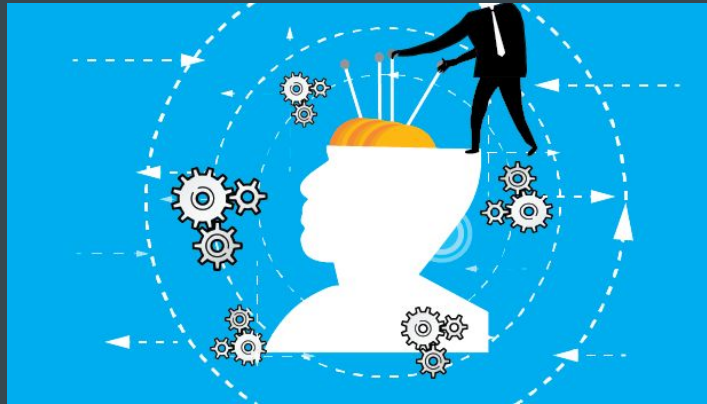


Image credits: <https://enterpriseproject.com/article/2017/10/why-agile-leaders-must-move-beyond-talking-about-failure>
(Enterprisers Project)

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- Talk of failure is uncomfortable to many who are trying to make the transition to agile and DevOps culture
- DevOps is about creating a culture in which failure is not only safe but encouraged
- Always shift left--getting testing done early in the development process
- Automation will help provide the safety net but you have to know metrics that indicate impending failures
 - Deploy an application and your response times skyrocket, that's a problem
 - Your automation should know this and ease off the deployment
- Don't tell your team that you want them to fail. Tell them that you expect them to make good decisions by testing out ideas before committing to them

Tips from the trenches: Avoiding the pit of misery

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Now it's time to dive into some practical advice

Identify your stakeholders

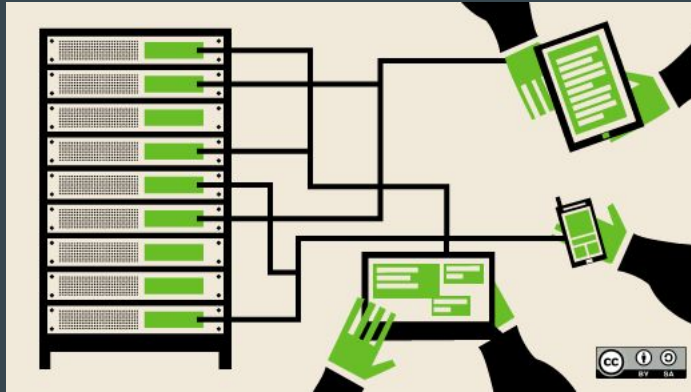


Image credits: <https://opensource.com/open-organization/16/11/exploring-cultures-agility-and-blamelessness> (Opensource.com)

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- Stakeholders: identify who they are and start to educate them
 - Ask: Who do you think some of your stakeholders might be?

Set goals *AND* measure them



Image credits: <https://opensource.com/open-organization/16/9/culture-trumps-tools-every-time> (Opensource.com)

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- Goals: Set them, determine how you'll measure them, and measure them
 - "you can only expect what you inspect"
 - "what gets measured is what gets done"

Establish processes: Then test and iterate

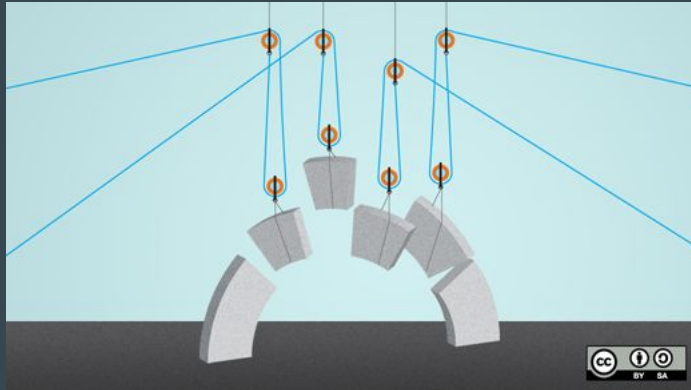


Image credits <https://opensource.com/life/15/5/constructing-open-infrastructure> (Opensource.com)

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- Processes: Establish them, make them visible to stakeholders, test them, then iterate
 - Ask: What's a process you might document?
 - Ask: How do you make them visible to stakeholder?

Start your delivery

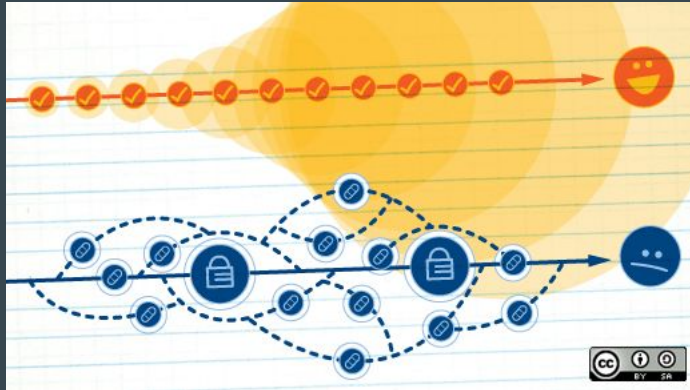


Image credits: <https://opensource.com/business/15/6/interview-jen-krieger-redhat> (Opensource.com)

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- Delivery: Start small, start with singular features, ease into continuous delivery
- From multiple small groups simultaneously
 - You're not Netflix, but you could be one day

Recognition: Successes and failures



Image credits: <https://opensource.com/article/17/10/cascadia-community-builder-award> (Opensource.com)

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- Recognition: celebrate successes and recognize failures as learning opportunities

Attend events and grow your network



Image credits: <https://opensource.com/article/18/1/foss-tools-agile-teams> (Opensource.com)

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- Events: Attend events like DevOpsDays and network with other practitioners

JASON

- DevOpsDays Raleigh CFP

Must read DevOps resources



Image credits: <https://opensource.com/article/17/12/10-must-read-devops-books> (Opensource.com)

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- Visit: <https://opensource.com/article/17/12/10-must-read-devops-books>
- The Phoenix Project - by Kevin Behr, George Spafford, and Gene Kim
- The DevOps Handbook - by Gene Kim, Jez Humble, John Willis, and Patrick Debois
- Continuous Delivery - by Jez Humble and David Farley
- Lean Enterprise - by Jez Humble, Barry O'Reilly, and Joanne Molesky
- The Open Organization Guide to IT Culture Change - by The Open Organization

JASON

- Example about Jim's leadership transformation

Join the Open Source DevOps Team



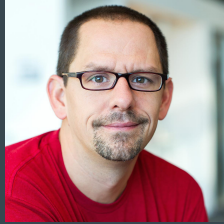
<https://opensource.com/devops-team>

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JASON

- For those interested in the intersection of open source and DevOps, join our team of DevOps practitioners
- Sharing their open source DevOps stories.
- We are looking for writers, curators, and others who can help us cover:
 - DevOps practical how to's (we want lots of these)
 - DevOps and talent
 - DevOps and culture

Contact



Email: jhibbets@redhat.com

Twitter: [@jhibbets](https://twitter.com/jhibbets) 

IRC: shibby | Slack: jhibbets

Book: <http://theopensourcecity.com>



Email: chris@chrisshort.net

Twitter: [@ChrisShort](https://twitter.com/ChrisShort) 

IRC | Slack: ChrisShort

Site: <https://devopsish.com/>

Slides: <https://github.com/jhibbets/presentations>

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Hope you learned something today, either something to avoid the pit of misery
Or we threw the rope down to you and you can start to climb out