

DevOps as culture: what the history of DevOps can teach us about its implementation

Jacob Archambault

September 3, 2024

Outline

- 1 Challenges for DevOps today
 - For developers and enquirers
 - For business
 - Common challenges

Outline

- 1 Challenges for DevOps today
 - For developers and enquirers
 - For business
 - Common challenges

- 2 A short history of DevOps
 - its beginning
 - its roots
 - Throughput
 - Communication

Outline

- 1 Challenges for DevOps today
 - For developers and enquirers
 - For business
 - Common challenges

- 2 A short history of DevOps
 - its beginning
 - its roots
 - Throughput
 - Communication

DevOps challenges: developers and inquirers

- Overwhelming amount of toolchain growth

DevOps challenges: developers and inquirers

- Overwhelming amount of toolchain growth
- added complexity

DevOps challenges: developers and inquirers

- Overwhelming amount of toolchain growth
- added complexity
- doesn't feel like I'm going faster or solving problems.

DevOps challenges: developers and inquirers

- Overwhelming amount of toolchain growth
- added complexity
- doesn't feel like I'm going faster or solving problems.
- Meaning of DevOps is opaque

DevOps challenges: developers and inquirers

- Overwhelming amount of toolchain growth
- added complexity
- doesn't feel like I'm going faster or solving problems.
- Meaning of DevOps is opaque
 - CI/CD pipeline management

DevOps challenges: developers and inquirers

- Overwhelming amount of toolchain growth
- added complexity
- doesn't feel like I'm going faster or solving problems.
- Meaning of DevOps is opaque
 - CI/CD pipeline management
 - Docker, Kubernetes, Terraform

DevOps challenges: developers and inquirers

- Overwhelming amount of toolchain growth
- added complexity
- doesn't feel like I'm going faster or solving problems.
- Meaning of DevOps is opaque
 - CI/CD pipeline management
 - Docker, Kubernetes, Terraform
 - Identity and access permissions

DevOps challenges: developers and inquirers

- Overwhelming amount of toolchain growth
- added complexity
- doesn't feel like I'm going faster or solving problems.
- Meaning of DevOps is opaque
 - CI/CD pipeline management
 - Docker, Kubernetes, Terraform
 - Identity and access permissions
 - AWS, Azure, Google Cloud

Outline

- 1 Challenges for DevOps today
 - For developers and enquirers
 - **For business**
 - Common challenges

- 2 A short history of DevOps
 - its beginning
 - its roots
 - Throughput
 - Communication

DevOps challenges: business

- DevOps engineers are among the highest paid positions outside of management

DevOps challenges: business

- DevOps engineers are among the highest paid positions outside of management
- Not using DevOps technologies poses a flight risk

DevOps challenges: business

- DevOps engineers are among the highest paid positions outside of management
- Not using DevOps technologies poses a flight risk

Outline

- 1 Challenges for DevOps today
 - For developers and enquirers
 - For business
 - Common challenges
- 2 A short history of DevOps
 - its beginning
 - its roots
 - Throughput
 - Communication

DevOps challenges: avoiding a worst-of-all-worlds scenario

- increased operating costs from hiring more experienced developers

DevOps challenges: avoiding a worst-of-all-worlds scenario

- increased operating costs from hiring more experienced developers
- added unnecessary complexity in our dev stack

DevOps challenges: avoiding a worst-of-all-worlds scenario

- increased operating costs from hiring more experienced developers
- added unnecessary complexity in our dev stack
- restricted the freedom of developers to actually get stuff done

DevOps challenges: avoiding a worst-of-all-worlds scenario

- increased operating costs from hiring more experienced developers
- added unnecessary complexity in our dev stack
- restricted the freedom of developers to actually get stuff done
- forfeited ownership of our infrastructure

DevOps challenges: avoiding a worst-of-all-worlds scenario

- increased operating costs from hiring more experienced developers
- added unnecessary complexity in our dev stack
- restricted the freedom of developers to actually get stuff done
- forfeited ownership of our infrastructure
- rebranded our operations team

Outline

- 1 Challenges for DevOps today
 - For developers and enquirers
 - For business
 - Common challenges
- 2 A short history of DevOps
 - its beginning
 - its roots
 - Throughput
 - Communication

DevOps: its beginning

- Velocity Conference 2009: John Allspaw and Paul Hammond, "10+ Deploys Per Day: Dev and Ops Cooperation at Flickr"

DevOps: its beginning

- Velocity Conference 2009: John Allspaw and Paul Hammond, "10+ Deploys Per Day: Dev and Ops Cooperation at Flickr"
- Patrick Debois DevOps Days 2009, Ghent, Belgium

Outline

- 1 Challenges for DevOps today
 - For developers and enquirers
 - For business
 - Common challenges
- 2 A short history of DevOps
 - its beginning
 - **its roots**
 - Throughput
 - Communication

Goldratt's theory of constraints

- Increase: throughput

Goldratt's theory of constraints

- Increase: throughput
- Decrease:

Goldratt's theory of constraints

- Increase: throughput
- Decrease:
 - operating costs

Goldratt's theory of constraints

- Increase: throughput
- Decrease:
 - operating costs
 - inventory

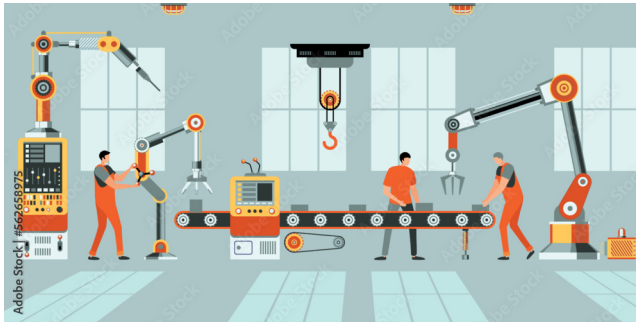
Goldratt's theory of constraints

- Increase: throughput
- Decrease:
 - operating costs
 - inventory
 - scrap

Goldratt's theory of constraints

- Increase: throughput
- Decrease:
 - operating costs
 - inventory
 - scrap
- Remove bottlenecks

Goldratt's theory of constraints (cont.)



Conway's law

'Organizations which design systems [...] are constrained to produce designs which are copies of the communication structures of these organizations.' - Melvin Conway, 'How do Committees Invent?' *Datamation*, 1967

Conway's law: examples

- 'A contract research organization had eight people who were to produce a COBOL and an ALGOL compiler. After some initial estimates of difficulty and time, five people were assigned to the COBOL job and three to the ALGOL job. The resulting COBOL compiler ran in five phases, the ALGOL compiler ran in three.'

Conway's law: examples

- 'A contract research organization had eight people who were to produce a COBOL and an ALGOL compiler. After some initial estimates of difficulty and time, five people were assigned to the COBOL job and three to the ALGOL job. The resulting COBOL compiler ran in five phases, the ALGOL compiler ran in three.'
- front-end [devs] backend [devs] monolithic database [DBA team]

Conway's law: examples

- 'A contract research organization had eight people who were to produce a COBOL and an ALGOL compiler. After some initial estimates of difficulty and time, five people were assigned to the COBOL job and three to the ALGOL job. The resulting COBOL compiler ran in five phases, the ALGOL compiler ran in three.'
- front-end [devs] backend [devs] monolithic database [DBA team]
- a web api controller [manager] delegates most business logic to business classes [developers] which are part of the same in-memory process [team], while serving as a single entry-point for wider cross-network [cross-team] communication.