

The Changing Role of CIOs and the Value of DevOps

SQL Saturday Orlando

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Agenda

<p>Key takeaways</p> <ul style="list-style-type: none"> • CIOs are going through a transformation, and DevOps aligns with that transformation • The support of an executive acts as a catalyst for cultural change • Companies need to measure shared outcomes that drive organizational performance 	<p>What is the value of DevOps?</p> 	<p>redgate</p> <p>A critical time for CIOs</p> 
<p>redgate</p> <p>Standardize team-based development</p> 	<p>redgate</p> <p>Automate database deployments</p> 	<p>redgate</p> <p>Monitor performance & availability</p> 
<p>redgate</p> <p>Protect and preserve data</p> 	<p>redgate</p> <p>Next steps</p> 	

Key takeaways

- CIOs are going through a transformation, and DevOps aligns with that transformation
- The support of an executive acts as a catalyst for cultural change
- Companies need to measure shared outcomes that drive organizational performance

What is the value of DevOps?



“DevOps is the union of people, process, and products to enable continuous delivery of value to our end users.”

Donovan Brown - Principal DevOps Manager, Microsoft



David Linwood's "three lenses"



CEO



CIO / CTO



IT & Dev Managers / Team Leaders

The ROI of Database DevOps, David Linwood



Let's oversimplify a bit



CEO - corporate vision, maximize value



CIO / CTO - strategic goals for IS



Managers - tactical approach



The CEO lens

- Lower cost
 - Major failures are expensive
- Higher revenue
 - Faster time to market than competitors
 - Customer satisfaction



Why should CEOs invest in DevOps?

47% of CEOs reported to Gartner that they are experiencing pressure from their board of directors to transform their digital business

2017 CEO Survey, Kasey Panetta, Gartner



Why should CEOs invest in DevOps?

Building the right software helps companies gain more market share than they can by mergers and acquisitions

*“Information Technology and Industry Concentration” - James Bessen,
Boston University School of Law, 2017*



Why should CEOs invest in DevOps?

- Software core to business operations does not “level the playing field” between large and small firms
- It “tilts” the playing field in favor of those who use it most effectively

*“Information Technology and Industry Concentration” - James Bessen,
Boston University School of Law, 2017*



C-Level Executives

How threatening are the following factors to the success of your business? (somewhat/very)

Security / data breach	66%
Increased regulation	62%
Disruption from tech industry	62%
Access to developer talent	61%
Growing competition from China	60%
Corporate tax rates	58%
Trade tariffs	56%
Access to capital	56%

The Developer Coefficient 2018, Stripe and Harris Poll



The manager lens

- Team performance
- Number and impact of defects
- Recovering from failure
 - Minimize the impact of failure on the customer and the team



Why should managers invest in DevOps?



Accelerate, Forsgren, Humble and Kim, 2018, p49



A critical time for
CIOs



The CIO lens

- Throughput of the department
- Quality of services to the business
- How to hire and retain good staff



The CIO lens, **REBOOTED**

- Throughput of the department
 - Ability to collaborate
- Quality of services to the ~~business~~ **CUSTOMER**
- How to hire and retain good staff
 - Employee satisfaction



By 2020... “50% of the CIOs that have not transformed their capabilities will be displaced from the digital leadership team.”

Gartner Predicts, 2016



Focus: deliver value to the customer

DevOps sounds like Development + Operations

- From a CIO perspective, it's bringing together all of IT and Marketing to work in an integrated fashion
- Specialists still exist: business groups move into a matrix to deliver value to the customer

*“What it Means: A Forrester podcast”, CIOs and the Future of IT,
George Colony and Bobby Cameron*



Why should CIOs invest in DevOps?

2017 Forrester Research survey

- 64% of respondents said their businesses are dissatisfied with time to release new features to customers
- Only 23% of enterprises are releasing at least monthly

The Forrester Wave: Continuous Delivery and Release Automation, Q3 2017



Why should CIOs invest in DevOps?

- DevOps uses measurable global outcomes
- DevOps can advance the rate of these outcomes by setting goals universal to all teams
- This tears down the “wall of confusion” epitomized by dev teams being measured by throughput, IT teams being measured by stability

Accelerate, Forsgren, Humble and Kim, 2018



Compliant Database DevOps

Standardize
team-based development

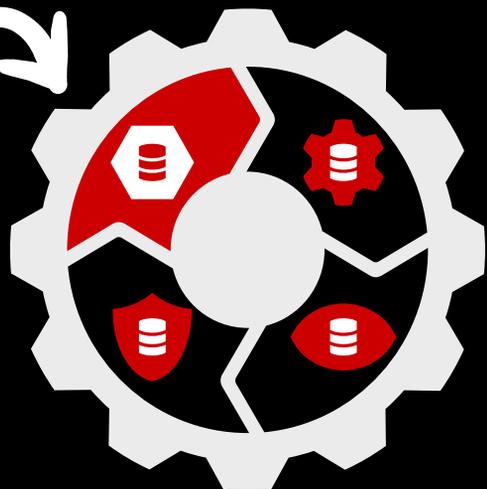
Automate
database deployments

Protect
and preserve data

Monitor
performance & availability

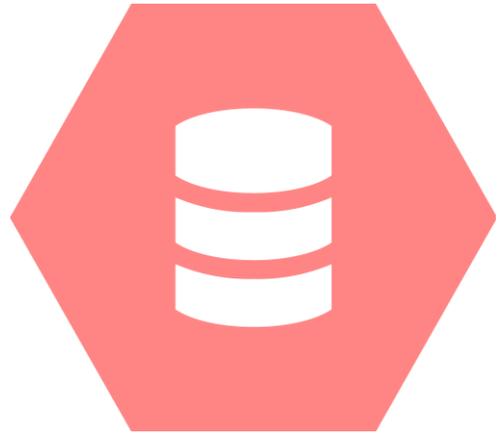


Standardize
team-based development



Standardize

- Implement coding standards
- Compare and control environments
- Version control



 redgate

“Teams that do well at continuous delivery store database changes as scripts in version control and manage these changes in the same way as production application changes.”

Accelerate: State of DevOps 2018, DORA

 redgate

Standardize - CIO lens

- Motivation - Stable, repeatable processes; ability to deliver value to the business quickly
- Concern - Strategy to help team adapt to new processes



Standardize - CIO lens

- Motivation – *Productive cycle of continuous improvement*, ability to deliver value to the *customer* quickly
- Concern - Strategy to help team *build new culture*



“...only 52% of database development uses version control”

2018 State of Database DevOps - Redgate



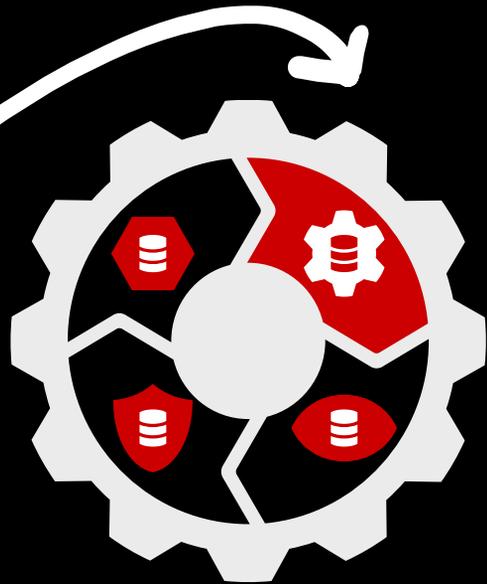
Standardize – don't put off the database

- Mistake: Grab all the lowest hanging fruit first
- The database is too important to leave out
- Instead: tackle difficult tasks as you go



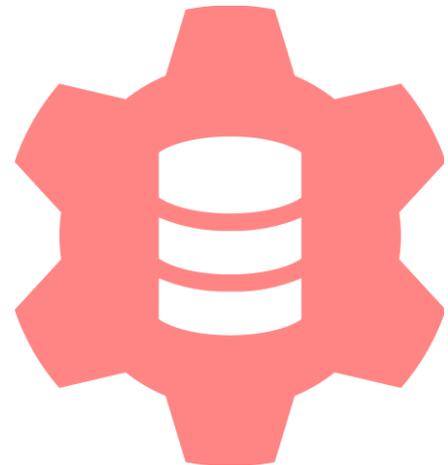


Automate
database deployments



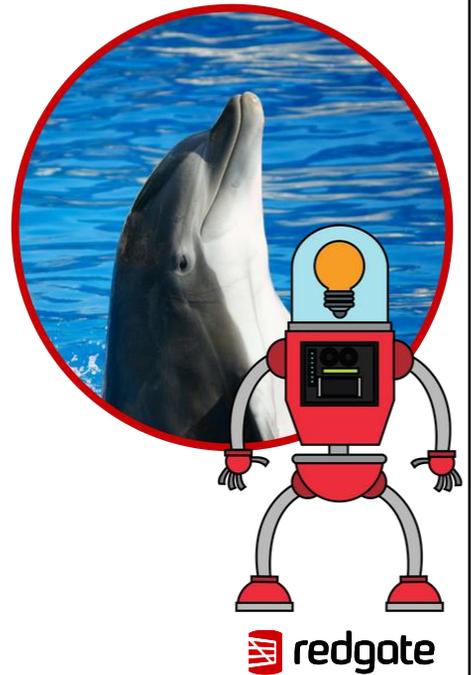
Automate release pipeline

- Dev - Continuous integration and unit testing
- QA - Regression testing, performance testing
- Staging - Acceptance testing
- Production



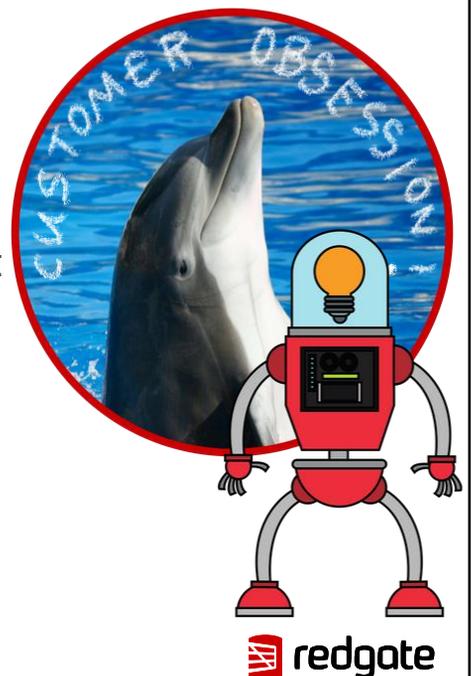
Automate: CIO lens

- Motivation - Increase high quality output without increasing headcount
- Concern - Skills within team to tune tools and evolve processes



Automate: CIO lens

- Motivation - Increase high quality output without increasing headcount
- Concern - Skills within team to *select the right tools* and *form cross-department teams to produce software that delights the customer*



“Adding human resources to a late software project makes it later”

Brooks' Law - Fred Brooks



Brooks' law is based on...



Ramp-up time



Communication overhead



Limited divisibility of tasks

The Mythical Man-Month: Essays on Software Engineering, Fred Brooks



DevOps practices that change scaling

-  Configuration management in code, regularly disband and re-form teams as soon as work is done / begins
-  Give visibility to workers into the flow of work from the business all the way to customers
-  Practice decomposing tasks rigorously, architect loosely coupled systems



DevOps vs Brooks' law

-  Low performers: Brooks' law observed at <100 developers
-  Medium performers: Brooks' law NOT observed at >100 developers
-  High performers: Brooks' law violated, even at 100+ developers

Accelerate: The Science of Lean Software and DevOps - Nicole Forsgren, Jez Humble, Gene Kim



DevOps vs Brooks' law



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Measuring DevOps performance

- Outcome: Throughput
 - Deployment frequency
 - Lead time for changes
- Categorizations
 - Elite
 - High
 - Medium
 - Low

Accelerate: State of DevOps 2018, DORA



Measuring DevOps performance

- Outcome: Stability
 - Time to restore service
 - Change failure rate
- Categorizations
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Accelerate: State of DevOps 2018, DORA



Measuring DevOps performance

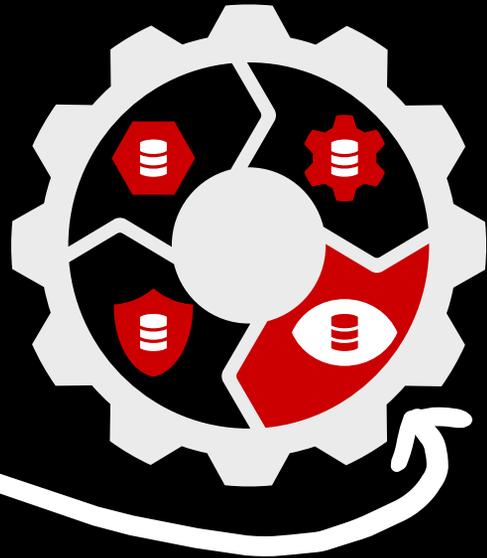
- Throughput / tempo
 - Deployment frequency
 - Lead time for changes
- Stability
 - Time to restore service
 - Change failure rate
- Categorizations
 - Elite
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 - Medium
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Accelerate: State of DevOps 2018, DORA





Monitor
performance & availability



Monitor & optimize

- Provide feedback on customer experience
- Predict and warn on negative customer experience before it happens



Monitor & optimize: CIO

- Motivation - Measure and demonstrate uptime and performance
- Concern - Meeting significant SLAs



Monitor & optimize: CIO

- Motivation - Measure and demonstrate uptime and performance
- Concern - Meeting significant SLAs, *providing visibility to the team to support decision making*



“Failure is inevitable”

Accelerate, Forsgren, Humble and Kim, 2018



Recovery time for ‘misguided performers’

- Approach: release infrequently, use extra time for testing and QA
- Finding: longest time to restore service (1 to 6 months)

Accelerate: State of DevOps 2018, DORA



Visibility & Communication = Monitoring

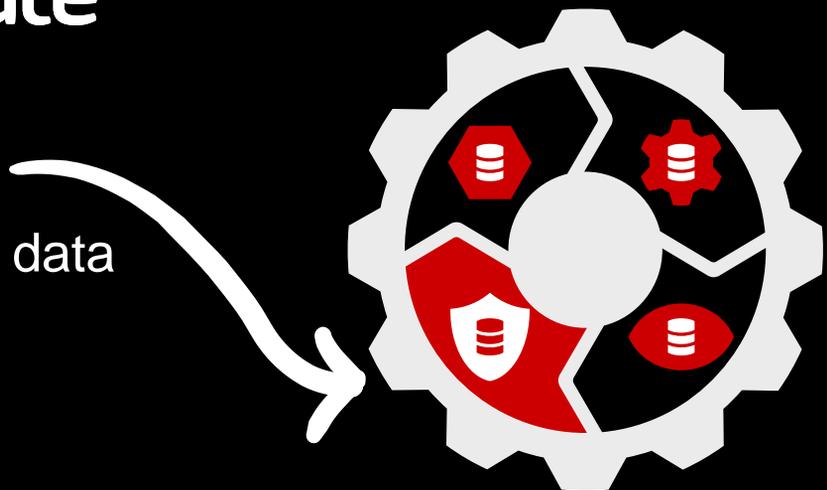
Three components of lean management:

1. Limit work in progress (WIP)
2. Display quality & productivity metrics / status
3. Use monitoring data to make business decisions on a daily basis

Accelerate, Forsgren, Humble and Kim, 2018



Protect
and preserve data



Protect and preserve

- Disaster Recovery
- Backup
- Provision
 - Mask sensitive data
 - Support fast self-serve environment creation and configuration



Protect & preserve: CIO

- Motivation – Disaster Recovery, demonstrate compliance
- Concern - Compliance processes may get outdated and leave vulnerabilities



Protect & preserve: CIO

- Motivation – Disaster Recovery, *make quality, security, and compliance part of everyday development to stay ahead of regulations without stress*
- Concern – *Need to shift compliance and security left*



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Let's talk about production data

- Acceptance testing / performance testing is often incredibly difficult without representative data
- Having production sized data sets in dev allows teams to monitor job processing times and have more test conditions
- Real data in dev brings software development closer to the customer



We can't simply use the production data

- Compliance reasons
 - Industry related: HIPAA, SOX
 - Government regulations: GDPR, California Privacy Act, etc.
- Customer trust
 - "Oops, we emailed everyone something goofy from dev."
 - Privacy breaches

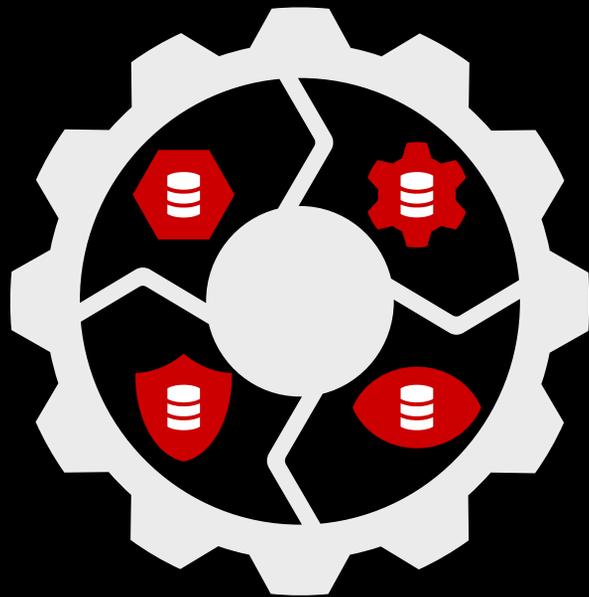


DevOps and compliance

- Build compliance and security into the software development process
 - Checklists make this easier, see “Data’s Day of Reckoning”, by Mike Loukides, Hilary Mason, DJ Patil
- Use smart masking and deployment tools to allow on-demand restore of production like data (while protecting customers)



Next steps



Key takeaways, revisited

- CIOs are going through a transformation, and DevOps aligns with that transformation
- The support of an executive acts as a catalyst for cultural change
- Companies need to measure shared outcomes that drive organizational performance



3 tips for engaging leadership



Ask: who do you see as your customer?



Think about the 'lens' of who you're talking to



Describe the value that DevOps brings in continuously delivering value to the customer



Thoughts?

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SQL in the City Summits



NYC – free with code KendraLittle
Friday, Oct 12



London – 50% off with code KendraL
Thursday, Oct 18



Chicago – free with code KendraLittle
Friday, Oct 25

