LESSONS FROM LEADING A "YOU BUILD IT, YOU RUN IT" TEAM

Can a bank adopt DevOps?
COVERED TODAY

A BRIEF OUTLINE

• DevOps challenges for a bank
• Code Review
• Segregation of duties
• Risk Management
  ◦ Security
  ◦ Monitoring & Alerting
  ◦ Support

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DevOps

• Breaking Silos
• Dev – Ops
• Sec – Dev – Ops
• Auditing...
• Risk...
• Compliance...

You Build it, You Run it

• Amazon
• Dev Teams, operating products
• Alternative: SRE
CHAOS MONKEYS
CHAOS MONKEYS

> 1M/Day

VOLUME

Reporting

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CHAO MONKEYS

• You build it, you run it
• 24/7 support
• 99.9% Availability

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### Chaos Monkeys

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deployment Frequency</td>
<td>6/week</td>
</tr>
<tr>
<td>Lead Time for Change</td>
<td>&lt; 20 min</td>
</tr>
<tr>
<td>Time to restore service</td>
<td>&lt; 30 min</td>
</tr>
<tr>
<td>Change Fail Rate</td>
<td>&lt; 5%</td>
</tr>
<tr>
<td>Multiples per day</td>
<td>&lt; 1 hour</td>
</tr>
<tr>
<td></td>
<td>&lt; 1 hour</td>
</tr>
<tr>
<td></td>
<td>0-15%</td>
</tr>
</tbody>
</table>

![Image](https://example.com/image.png)

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Aren't you a bank?
BANKING CHALLENGES

HIGHLY REGULATED

CHALLENGES

• Risk management
• Compliance
• Security
• Audit

INDUSTRY RESISTANCE

Have you ever seem cool tech coming from a bank?

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It is about people

When we failed

• Ops and Dev together
• Dev writing puppet
• Ops were the only people with access
• All the Devs left

When we succeed

• Ops and Dev together
• Equals
• Adopt new tech stack
PAIR PROGRAMMING

CODE REVIEW MOMENTS
PAIR PROGRAMMING

• HISTORICALLY WAY TO DO CODE REVIEW
• DNA
• CODE REVIEW IS MANDATORY, PAIRING IS OPTIONAL
commit fd79b2057dcb5aebdb9e8569dcb3b68e94529387 (HEAD -> master, tag: 100.774.0, origin/master, origin/HEAD)
Author: Mathew Johnson and Robbie Gong <just-dev+mjohnson+rgong@tyro.com>
Date:    Wed Apr 10 15:54:56 2019

BOC-1147: Move configuration up in dockerfile-maven plugin

commit 2b1d86c0576ea910f2c2cf093b9a1680a8befb0b
Author: Mathew Johnson and Robbie Gong <just-dev+mjohnson+rgong@tyro.com>
Date:    Wed Apr 10 15:10:53 2019

BOC-1147: Remove push goal dockerfile-maven plugin
PAIR PROGRAMMING

commit 5d79b3057d6b5obbdb0e8560dcb7b68c94529237 (HEAD -> master, tag: 100.774.0, origin/master, origin/HEAD)
Author: Mathew Johnson and Robbie Gong <just-dev+mjohnson+rgong@tyro.com>
Date:   Wed Apr 10 15:31:30 2019

BOC-1147: Move configuration up in dockerfile-maven plugin

commit 2b1d86c0576ea91af3c2f003b9e1680a8be5b08
Author: Mathew Johnson and Robbie Gong <just-dev+mjohnson+rgong@tyro.com>
Date:   Wed Apr 10 15:10:53 2019

BOC-1147: Remove push goal dockerfile-maven plugin
commit fd79b2057dcb5aebdb9e8569dcb3b68e94529387 (HEAD -> master, tag: 100.774.0, origin/master, origin/HEAD)
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Date: Wed Apr 10 15:10:53 2019

BOC-1147: Remove push goal dockerfile-maven plugin
PAIR PROGRAMMING

CP-1579: Fix kiali grafanaURL #256

fredmtyo wants to merge 1 commit into master from CP-1579_fiki_grafanaURL

Why
- All new test cases added
- No dependencies on downstream pipelines (eg, kibd-monitoring)
- Safe to be deployed to production

fredmtyo commented 29 days ago • edited

Add more comments by pushing to the CP-1579_fiki_grafanaURL branch on tyre-private/kibd-tyre-platform.

Review required
At least 1 approving review is required by reviewers with write access. Learn more.

All checks have passed
3 successful checks

This branch has conflicts that must be resolved
Use the command line to resolve conflicts before continuing.

Conflicting files
https://https/environment/pt.yml

Squash and merge — You can also open this in GitHub Desktop or view command line instructions.

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THE PLATFORM PATTERN

HOW WE HANDLE SEGREGATION OF DUTIES

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DELIVERY TEAM
- Service Ownership
- Implement Infosec controls
- Comply with regulations

PLATFORM TEAM
- Enables InfoSec controls
- Enforces required measures
- Access control
Build Pipeline

- Commit Stage
- Static Analysis
- Tests
- Production

Buildkite
- Containers
- Pipelines
- Monitoring/Alerting

- VPCs
- Access Controls (AIM)
- PaaS (EKS, ECS)

- Policies
- Attack Trees
- Security Reviews
HOW DO WE SECURE THE ENVIRONMENT
EVERYBODY RESPONSIBILITY
All team members must care about security.

TRAINING
100% of engineering are trained on OWASP top 10 vulnerability.

DEFENSE IN DEPTH
Security controls at every layer.

SECURITY TESTS
Attack trees, security reviews, scan, penetration tests, InfoSec to the left.

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HOW TO WE KEEP OUR SERVICE LEVELS

MONITORING & ALERTING

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Monitoring & Alerting

- **SERVICE LEVEL INDICATORS**
  - Availability
  - Response time
  - Data Durability
  - Latency

- **SERVICE LEVEL OBJECTIVES**
  - 99.9%
  - 90th < 1 sec, 95th < 10sec, 99th < 1 min
  - 5 years
  - < 30 minutes

- **MONITORING**
  - 29.8k
  - 2.34M
  - 123k

- **ALERTING**
  - Near to broke a SLO
  - Key indicator is broken
  - Too much alerting, is equal to no alerting

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Drills - Chaos Engineering

... experimenting on a system in order to build confidence in the system’s capability to withstand turbulent conditions in production

https://principlesofchaos.org/
Drills - Chaos Engineering

TDD for the operational requirements
HOW DO WE GET THERE?
ON-CALL
Team members on-call for their services.

ESCALATION POLICY
Make sure alerts will be acted.
Get the right people involved.

BREAK GLASS
How to access an locked environment.
KEY TAKE AWAYS

- Regulation are not blockers
- Empower the individuals
- Turn gatekeepers into collaborators
- It is about people

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