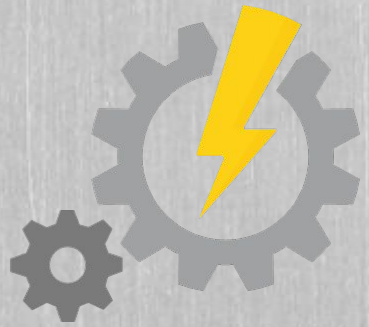
THE DEVOPS LANDSCAPE

TOOLS, TIPS AND STARTING POINTS

June 22, 2017



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everything connects

2001	2004	2007	2011	2012	2013	2015
Introduced OOAD, RUP, Java and unit testing to COBOL programmers.	First use of Scrum, continuous integration and test coverage tools.	SOA, automated deployment, ops feedback to dev, EA process tuning.	Introduced agile and devops techniques in support of major mobile initiative.	Process rollout includes policy and procedures to support government audit.	TDD, Database as code, OSGi	First Docker deployment to AWS cloud

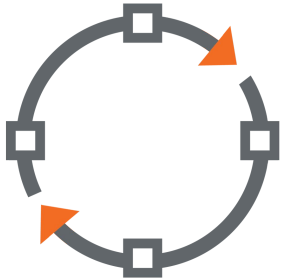
Who are you?

DevOps is department-wide IT process improvement, with an emphasis on Lean/agile techniques.

Application deployment is only one of the processes a DevOps initiative should address.

In true agile fashion, you should have a backlog of processes to improve, prioritized based on business value.

WHY NOW? INCREASING EXPECTATIONS AND COMPLEXITY



PROCESS

Desire for innovation

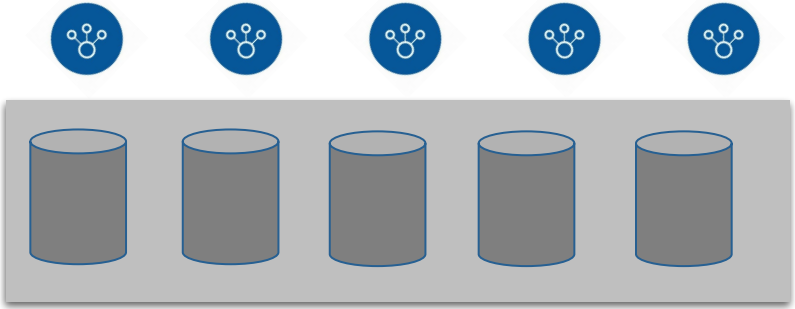
Demand for speed

Assumption of quality

Cross-Platform Access, Mobile First

Cloud-Based Apps

Secure API
(Microservice Architecture)



Combination of cloud and on-prem data stores

Monitoring

Cybersecurity

Continuous Delivery

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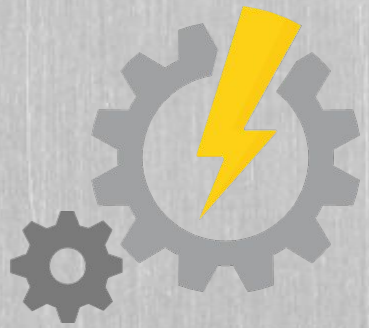
MANAGING YOUR DEVOPS PROGRAM

LEAN PROCESS IMPROVEMENT



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Streamline work as it moves through your entire IT department.

- ✓ Identify work and measure the end-to-end time to complete it.
- ✓ Performance tune the workflow of each stage in the process.
- ✓ Remove delays in handing off work to the next station.
- ✓ Prevent rework by improving quality at each step.
- ✓ Identify and prevent distractions, a.k.a. unplanned work.
- ✓ Align each department's projects to business priorities.

Apply Agile thinking at every step.

CULTURE

AUTOMATION

MEASUREMENT

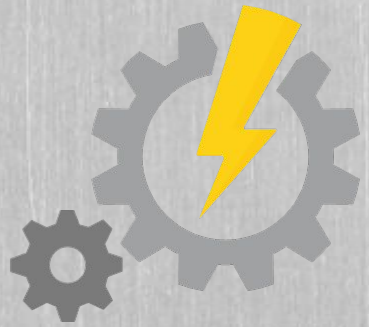
SHARING

Every other department has had the benefit of IT tuning their processes and automating their workflows.

It’s time we got that same treatment.

DEVOPS CULTURE

WHAT IT IS AND HOW TO GET IT



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The Real DevOps of Silicon Valley

https://www.youtube.com/watch?v=2PjVuTzA2lk

FIXING CONFLICT STARTS WITH UNDERSTANDING PERSPECTIVES

Driven by customer and executive management demands.

Dependent on IT, but have little ability to control it.

Required to trust IT, but don't like the systems they already have.

Continuously asked to do everything faster – and with higher quality.

Need to make commitments, but can't control timing of all the work in the pipeline.

Dev throws buggy software over the wall and pressures them to get done testing it.

Rarely included up front. Have little understanding of business expectations.

Time to test is increasing with the complexity of systems.

Deal with all the problems generated by Dev.

Continually receive unplanned requests that interrupt their own planned work.

Have no insight into the relative business priority of their myriad requests.

Have own requests of Dev that are not given priority.

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App Dev has gone agile, but the rest of IT hasn't. DevOps best practices would bring Kanban to them.

Part of our culture is our level of formality. EA processes will also need agile thinking applied to them.

At first, collaboration between groups will need to be facilitated / created. It's very easy to establish a weekly meeting, for example.

AUTOMATE ALL THE THINGS

CULTURE PROBLEMS GO AWAY WHEN OUR TOOLS DO THE WORK FOR US

DEVOPS PIPELINE AND TOOLING

Check in

Success

IDE
Version Control
Front-end Unit Testing
Back-end Unit Testing
End-to-End Testing
Automated Build

Automated Build
Static Analysis
Regression Test
Coverage Metrics
Documentation Generation
Packaging
Release Management

Infrastructure as Code
Version Controlled Database
Patch management
Log Management
Monitoring

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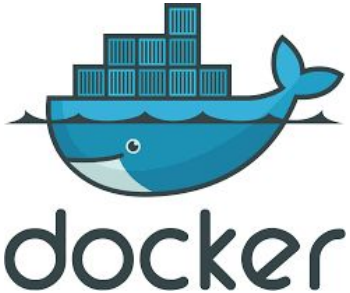
HIGHLIGHTS OF THE LATEST ADVANCEMENTS

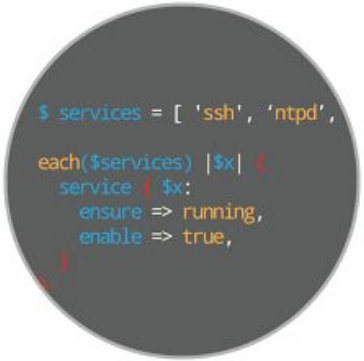
Responsive web design and single page apps have brought an explosion of JavaScript.

Front end unit testing is now a requirement. Framework choices abound.



Containers simplify ops. All applications can be deployed and managed the exact same way.

Application servers are configured by the developers and deployed inside the container.



Scripted infrastructure provides for transparency, code review and version control.

It saves deployment time and ensures promotion environments are identical.

ANOTHER VIEW OF THE DEVOPS PIPELINE

Stage	JIRA *JIRA for management of and insight into the overall process.*
Code	Git, IDEA / WebStorm, Visual Studio / VS Code, Unit testing frameworks
Build	Jenkins, Bitbucket Pipelines, TeamCity, TFS, Maven, Gradle, Grunt, Gulp, Webpack
Test	Jasmine.js, Protractor, Karma, Mocha, Selenium, JUnit, Microsoft Unit Test Framework
Package	Docker, Kubernetes, CoreOS, Virtualization
Release	CI Tools, Configuration Tools, Serena, Urban Code, VS Release Automation
Configure	Ansible, Chef, Puppet, Amazon Cloud Formation, Azure Configuration Manager, etc.
Monitor	Nagios, AppDynamics, Amazon CloudWatch, Google cAdvisor, Docker Universal Control Plane (UCP)

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QUESTIONS?

Let’s break into groups and tackle them: DevOps culture, unit testing, CI/CD, Docker and scripted infrastructure.