DevOps
(Development + Operations)

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Background

- A business must become increasingly agile to support accelerated innovation and rapidly evolving customer needs.

- Time to market is key.

- IT must become agile to facilitate business needs.

- IT operations must be able to deploy applications in a consistent, repeatable and reliable manner. This can only be achieved with the adoption of automation.

What is DevOps?

- DevOps is a new term that primarily focuses on improved collaboration, communication, and integration between software developers and IT operations.

- It's an umbrella term that some describe as a philosophy, cultural change and paradigm shift.

IT & Developer Role Merge and Follow Series of Systematic Principles

- Infrastructure as Code

- Continuous Integration

- Continuous Deployment

- Automation

- Monitoring

- Security

Traditional Deployment Model
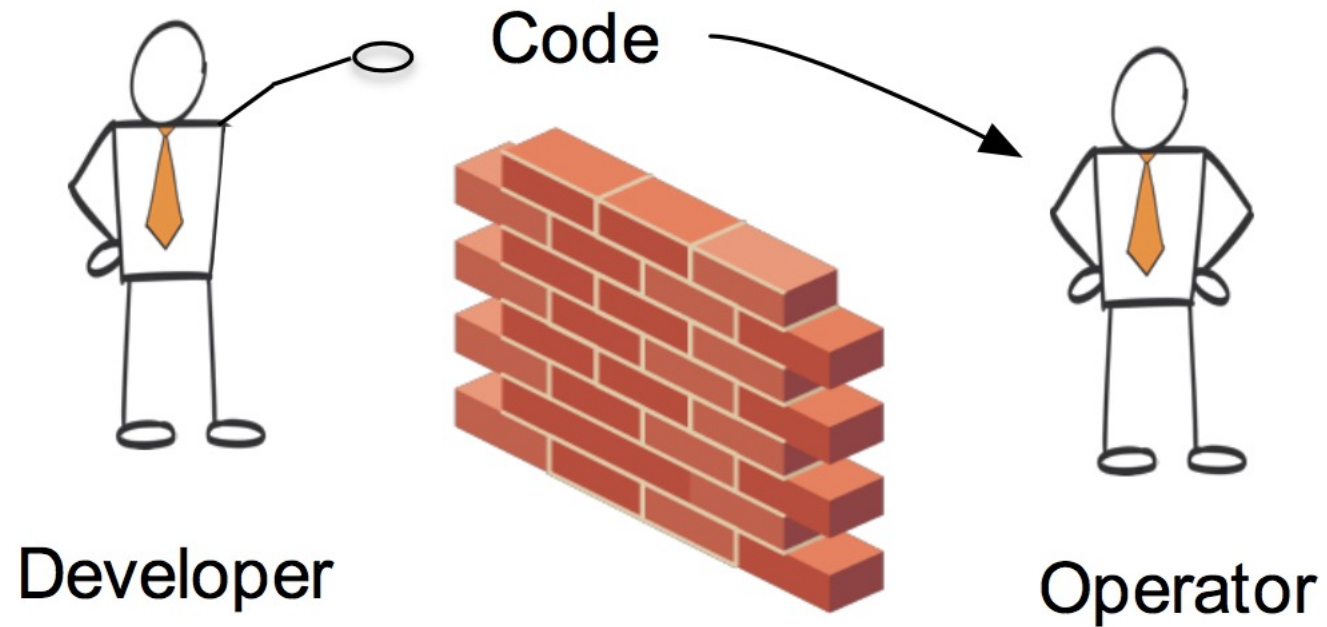
WORKED FINE IN DEV

OPS PROBLEM NOW

Infrastructure as Code

- Traditionally, infrastructure is provisioned using manual process.
- A fundamental principle of DevOps is to treat infrastructure the same way developers treat code.
- Practicing "Infrastructure as Code" means applying the same rigor of application code development to infrastructure provisioning and setup.
- All infrastructure provisioning "code" and environment configuration must be stored in version management system such as Git.
- Same programming best practices must apply to the infrastructure code as applied to application code.
- Infrastructure provisioning, orchestration, and deployment should support the use of "infrastructure code".

THE 1ST RULE OF DEVOPS CLUB

IS TO CONTINOUSLY DEPLOY INTO PRODUCTION

Automation

- Another core philosophy and practice of DevOps is automation.

- Automation focuses on the setup, configuration, deployment, and support of infrastructure and the applications that run on it.

- By using automation, you can set up environments more rapidly in a standardized and repeatable manner. The removal of manual process is a key to a successful DevOps strategy.

- Historically, server configuration and application deployment has been a predominantly a manual process. Environments become nonstandard, and reproducing an environment when issue arises is difficult.

Benefits of Automation

- Rapid Changes
- Improved Productivity
- Repeatable Configurations
- Leveraged Elasticity
- Leveraged auto scaling
- Automated Testing

Zhuowei Zhang
@zhuowei

Never spend 6 minutes doing something by hand when you can spend 6 hours failing to automate it

Monitoring

- Communication and collaboration is fundamental in a DevOps strategy.
- To facilitate this, feedback is critical.
- Feedback comes from logs, monitoring, alerting and auditing infrastructure so developers and operations teams can work together closely and transparently.
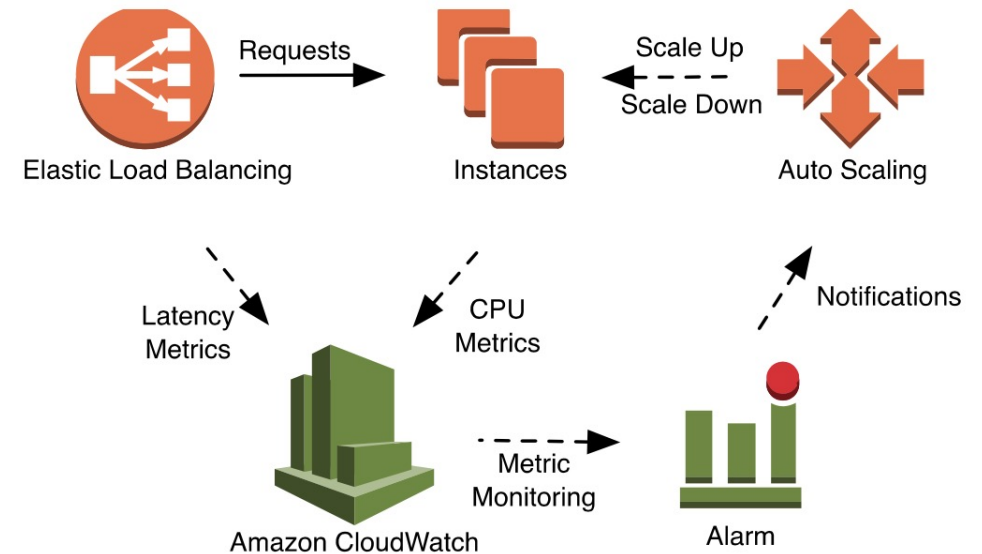
Security

- In a DevOps enabled environment, focus on security is still of paramount importance.

- Infrastructure and company assets needs to be protected, and when issue arise they need to be rapidly and effectively addressed.

Summary

In order to make the journey to the cloud smooth, efficient and effective, technology companies should embrace DevOps principles and practices.

Additional Resources

See Lecture Page