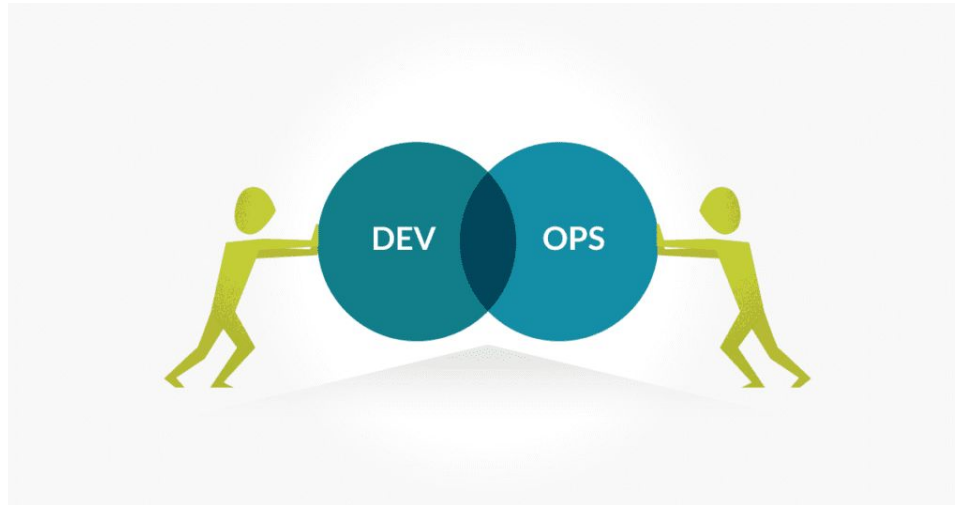# DevOps Tools in Automation

By Aaron Smith

What is DevOps?

DevOps is a set of practices that emphasize collaboration between Development and Operations Teams to deploy code to production faster in an automated & repeatable way.

What does DevOps solve?

- Before DevOps, the development and operation team worked in complete isolation.
- Without using DevOps, team members were spending a large amount of their time in testing, deploying, and designing instead of building the project.
- Manual code deployment leads to human errors in production.
- Coding and operation teams not in sync, causing delays.

Advantages of DevOps..

- Predictability
- Reproducibility
- Maintainability
- Greater Quality
- Reduced Risk
- Cost Efficiency
- Breaks large code bases into small pieces
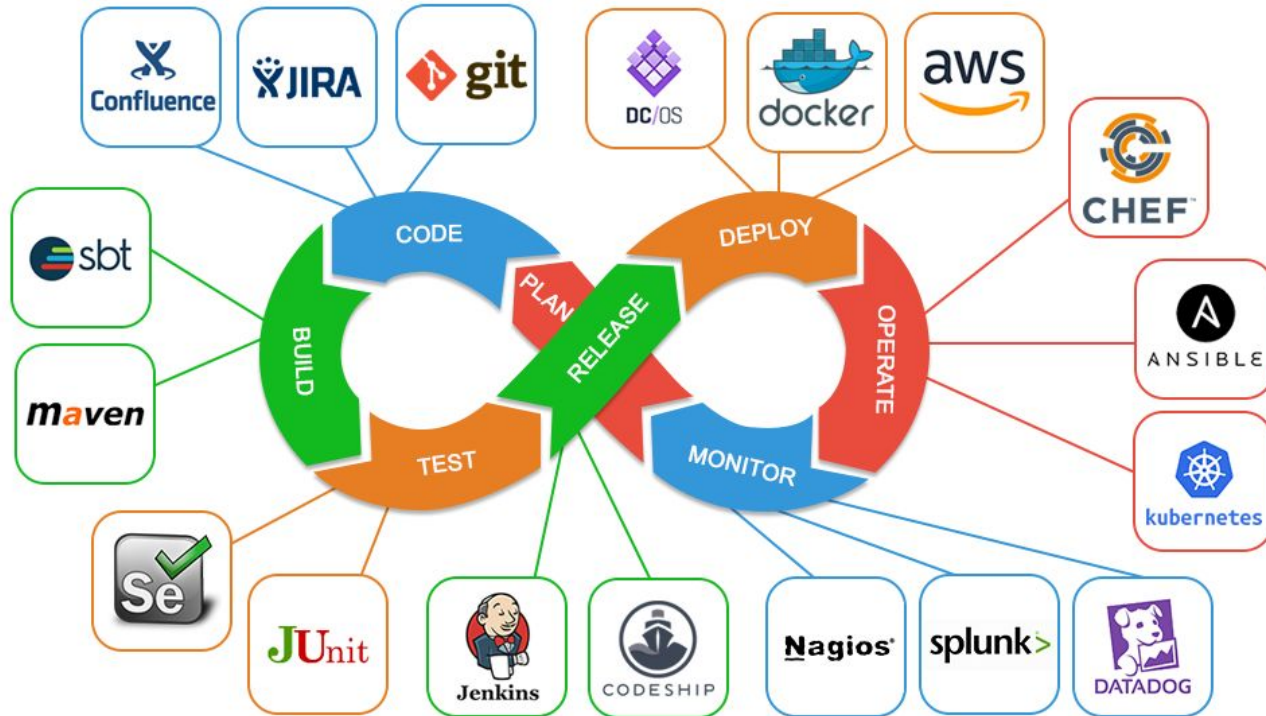
DevOps Automation Tools

Various tools are used to automate all the testing processes and configure them to achieve speed and agility. This is called DevOps automation.

DevOps tools help with:

1. Infrastructure Automation
2. Configuration Management
3. Deployment Automation
4. Performance Management
5. Log Management
6. Monitoring
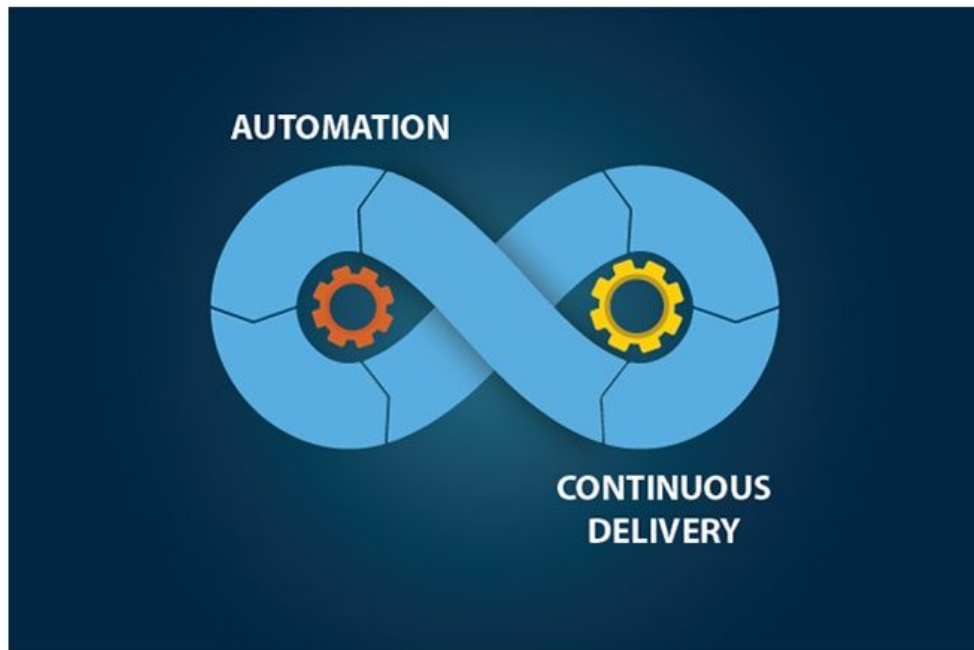
Popular Tools

It's all about Automation!

- Automated Unit Testing
- Automated Builds
- Automated Deployments
- Automated Environments

Infrastructure Automation

Amazon Web Services (AWS)

- Cloud Service, meaning you don't have to physically be there.
- Easy to scale on-demand.
- Can be configured to provision more servers based on traffic automatically.
- Pay Per Use
- Security

Configuration Management

Chef:

It is a useful DevOps tool for achieving speed, scale, and consistency. It can be used to ease out complex tasks and perform configuration management. With this tool, DevOps team can avoid making changes across ten thousand servers. Instead, they need to make changes in one place which is automatically reflected in other servers.

Deployment Automation

Jenkins:

- Jenkins is an open source continuous integration tool. It is free and easy to use. So it is quite useful for start-up and small business.
- Jenkins can be easily configured as per the requirements for continuous integration and continuous delivery.
- Jenkins has a huge plugins system, it makes it very adaptable which allows building, deploying and automating in different platforms. Some of the renowned names include: GitHub, Build Pipeline, Slack, Docker and many more.
- The integration work of Jenkins is mostly automated. This saves time on overall lifecycle of a project.

Testing Tools

Selenium: Selenium is a free (open source) automated testing suite for web applications across different browsers and platforms.

Soap Ui: Soap UI is the leading open source cross-platform API Testing tool. It allows testers to execute automated functional, regression, compliance, and load tests on different Web API.

Jemeter: designed to load test functional behavior and measure performance. You can use JMeter to analyze and measure the performance of web application or a variety of services.
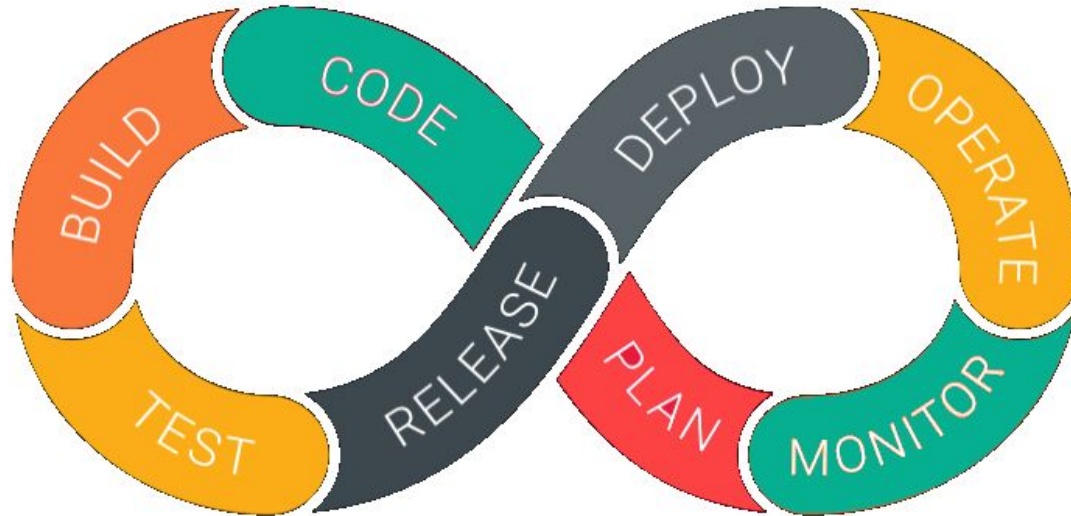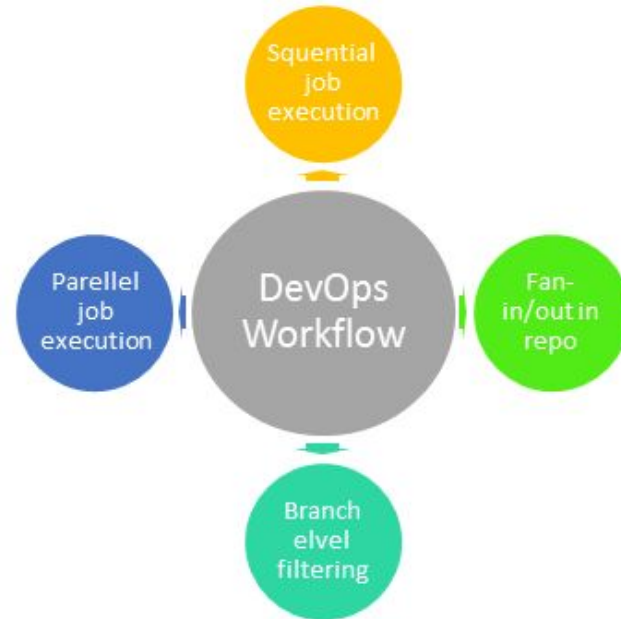
DevOps Lifecycle

1. Development
2. Testing
3. Integration
4. Deployment
5. Monitoring

DevOps Workflow

Workflows provide a visual overview of the sequence in which input is provided. It also tells about actions are performed, and output is generated for an operations process.

Agile or DevOps?

Both Agile and DevOps work side by side. Agile process focuses on functional and non-functional readiness while DevOps focuses on that IT infrastructure aspects. Agile addresses gap between customer requirements and development teams. DevOps addresses the gap between development and Operation team.
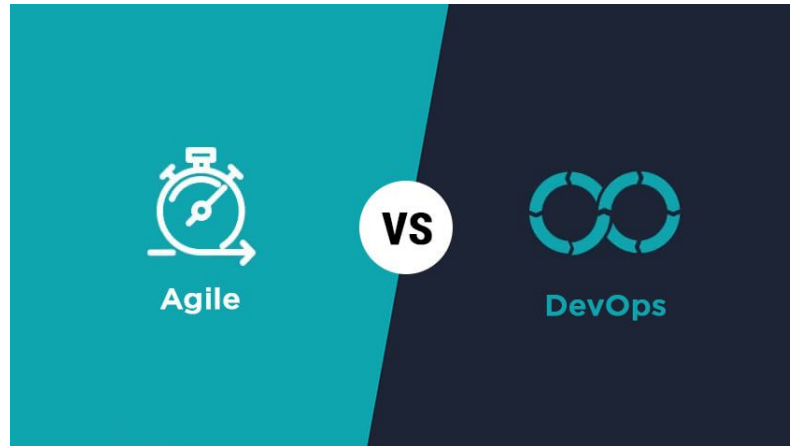
Conclusion

- DevOps is a culture which promotes collaboration between Development and Operations Team to deploy code to production faster in an automated & repeatable way
- DevOps offers Maintainability, Predictability, Greater quality cost efficiency and time to market.
- Automation Tools are used to ensure efficiency