2019

A BEGINNERS GUIDE TO A SUCCESSFUL DEVOPS JOURNEY

BRIGHTRED RESOURCING LIMITED

FEBRUARY 2019

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When DevOps was introduced in the last decade, many people were apprehensive about its success, owing to the lack of a proper definition. As such, businesses were slow to adopt this new methodology. However, looking at the amazing benefits offered by DevOps in recent times, businesses are now aggressively embracing this new approach. With the advent of Internet of Things (IoT), BYOD and heterogeneous networks that are augmented with Artificial Intelligence and Big Data, DevOps has now turned from an option to a necessity.

An Overview of DevOps

DevOps is a methodology that integrates people, tools and processes to create a continuous deployment model for a fast, reliable and secure business operation. Different people in the organisation have different views about DevOps. From a business perspective, it is an operational methodology that integrates every team and process for seamless and better communication across the organisation. The technical function looks at it as an operational system that automates software development, deployment and maintenance. From the employee point of view, DevOps is all about a cultural shift from top to bottom in the organisation wherein each member has a predefined role and responsibility pertaining to an entire life cycle of a service.

In simpler terms, DevOps brings Developers and Operations together to work in a cross-functional team on an entire lifecycle of the product, right from design and development to production and maintenance. As teams build code in smaller increments, DevOps brings faster
time to market, increases the pace of Build and Release, improves business collaboration, increases business efficiency and optimises operational costs.

The State of DevOps

According to Grand View Research, the DevOps market is expected to reach $12.85 billion by 2025, growing at a Compound Annual Growth Rate (CAGR) of 18.60% between 2017 and 2025.
Similarly, MarketsandMarkets reports that the DevOps earned a revenue of $2.90 billion in 2017. This value is expected to touch $10.23 billion by 2023, growing

at a CAGR of 24.7% during this period. According to Technavio, the DevOps market is expected to touch $4,319 million by 2022, growing at a CAGR of over 20% during 2017 and 2022. Allied Market Research reports that DevOps market earned a revenue of $2.885 million in 2016. This value is expected to touch $9407 million by 2023, growing at a CAGR of 18.7% between 2017 and 2023. Wise Guy Reports state that the DevOps market was valued at $2590 million in 2017. This value is expected to touch $6660 million by 2025, growing at a CAGR of 14.5% between 2018 and 2025. Looking at these numbers, it is evident that DevOps is here to stay.

DevOps is here to stay!

DevOps redefines entire business processes to improve business efficiency and optimise costs. However, the key to successful implementation of DevOps lies in understanding how DevOps works and identifying ways to leverage this methodology.

3 important areas that need your attention:

1. Making a Cultural Shift

Often when you speak to companies about DevOps, the conversation strays away from the teams themselves and focuses on the technologies that they use. A common failure is focusing on the tools. While tools are important and useful, they should not be implemented before a clear vision and plan are in place.

Internal conflict within different silo's in an organisation is nothing new. One of the most common, however, is between Development and Operations. One group "builds" the products and services and the other "runs" those same products and services in a customer facing production environment. There is another group called the quality team that always tries to find faults in the code. As bugs arise, the code is again resent to developers and the entire process is repeated. The developer team wants to bring innovation and creativity into the system by introducing new and exciting features to the code. However, 'Change' is one word that operations people don't like. They are more concerned about the stability of the system; fewer changes and minimal updates.

While this conflict between groups is common, as a leader you need to realise that there are ways to change this behaviour so that your company works more smoothly and efficiently.

This is what DevOps is designed for. In a DevOps setup, you build small teams that comprise of designers, developers, operations and QA people. The development of code is done in an incremental process wherein small parts of code is developed, tested and pushed into production bringing faster time to market, eliminating errors and optimising costs.

The advantage of cross-functional teams is that the operations guy will educate the developer about production issues while the developer teaches others about how the code will behave. With production knowledge, a developer will be able to minimise bugs while operations teams don't have to run to a developer during a downtime. They can perform small changes directly on the code. As the quality guy is part of the team, testing is proactively done, expediting the entire process with minimal bugs and increased operational efficiencies.

Educating the employees is the key

While DevOps brings revolutionary changes to business processes, the first objection to this implementation comes from the employees. For this reason, it is important to educate the employees first so that this methodology is implemented right from top to bottom in the organisation.

Firstly, it is important to educate people that developers and operations are not opposite teams, but they should work hand in hand to make a business successful. Similarly, everyone should understand that the quality team is not trying to find faults, but it is striving to improve the quality of code and remove bugs.

Secondly, as cross-functional teams are created and employee roles are redefined, employees worry about their job position and rewards. So, it is important to make them understand that their job security doesn't get a hit. By educating them about their new role and responsibilities, changes can be successfully implemented. Earlier, a specific team was responsible for a specific part of an application. In this new setup, a cross-functional team is responsible for the entire process, right from developing the code to production. As such, each employee becomes responsible for the entire operations of the team. So, each member of the team would give 100%. This is a win-win situation for everyone. As technologies keep changing, businesses should arrange training sessions for employees to update them with newer procedures. When you make your employees feel important about the procedure, they would surely put in 100% effort to make it a success.

Thirdly, people are not receptive to new changes. They would definitely discourage any type of change in the organisation. It is important to first change the culture before implementing any tools and technologies within the organisation. Gartner reports that 90% of DevOps failures are the result of wrong leadership approaches. At the end of the day, it is people that can make or break any technology.

2. DevOps Processes

Agility and automation are the two important characteristics of DevOps. This is achieved with continuous integration, continuous delivery, testing and deployment. 'Continuous' is a word that is seen everywhere in a DevOps environment.

Continuous INTEGRATION

In a DevOps environment, code is shared and incrementally developed. A shared repository is created, and every developer submits code into this shared repository. So developers across the organisation have access to the latest code. In addition, quality team takes this code from the shared repository and perform testing operations. Automation of processes is done at every possible stage. So, developers are equipped with the latest code at any given point in time. While this approach allows multiple developers to work on the same code, it also saves time and minimises production errors.

Continuous DELIVERY

Continuous delivery is the obvious result of continuous integration. As developers continuously develop code, it is automatically built, tested and delivered to users. Applications such as JIRA allow developers to work in collaboration and automatically build and ship code. The tool allows you to create your own workflow or follow an out-of-box procedure. As code is developed in smaller increments, it is quickly delivered to production. So, users don't have to wait for 6 months to get new updates and fixes. Businesses can proactively monitor the performance of the application and quickly release updates or fixes.

Continuous DEPLOYMENT

When continuous delivery is automated, it turns into a continuous deployment, eliminating human intervention. In a continuous deployment environment, the code is developed and shared into a common repository which is automatically tested using automated testing procedures. If the code passes the testing procedures, it is then automatically pushed into production and goes live. If not, it goes back to the development style and the process is automatically repeated. As code automatically goes live, organisations that implement continuous deployment should ensure that every procedure is fail-proof. So, installing the right testing tool is the key here. For instance, Cucumber helps businesses in creating a continuous deployment environment wherein code is automatically tested. While it is easy to write code for testing in Cucumber, the same code can be easily reused. Git is a great tool for version control needs. Be it a small project or a large one, Git offers the required speed and efficiency in tracking and managing code in a distributed environment.

Continuous MONITORING

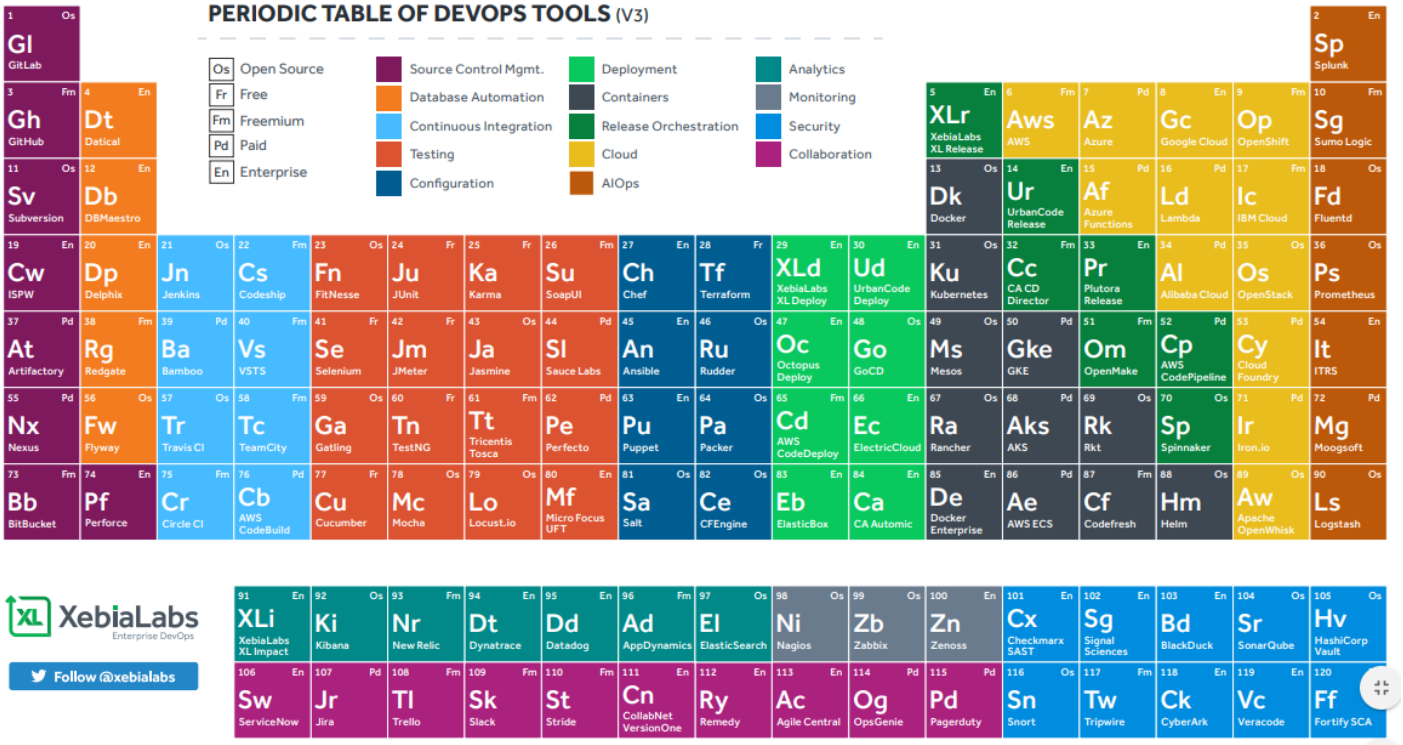
Continuous monitoring and feedback are key to the successful implementation of DevOps. Firstly, you need to define key metrics across the DevOps pipeline and proactively monitor them. When that metric reaches the threshold value, the system should automatically send alerts and notifications to the concerned people so that the issue can be instantly resolved. With continuous monitoring of the system, businesses can be assured of a secure and reliable DevOps infrastructure.

3. DevOps Tools

At the outset, it is important to understand that DevOps is not a technology. As such, there are no DevOps tools. DevOps is a methodology that redefines business procedures. So, tools used in every stage of DevOps pipeline are normally called as DevOps tools.

Some of the important areas include:

- Version Control
- Configuration Management and Orchestration
- Build and Deploy
- Automated Testing (Functional & Non-Functional)



To leverage DevOps, it is important to come up with common tools across development, testing and operations. Cross-functional teams should come up a common set of objectives so that a common tool strategy can be derived. With proper integration of tools and processes, you can have perfect collaboration between all departments whilst being able to automate every process across the infrastructure.

Secondly, DevOps is all about choosing the right tools for the right processes. For instance, there are several Configuration Management and orchestration tools available in the market. Puppet, Chef, Ansible and Salt are the leading CM tools. Each tool comes with its own strengths. For instance, Puppet and Chef are feature-rich tools. Ansible is simple to deploy and use. Salt offers high speed data communication, owing to its ZeroMQ messaging system. So, it all depends on the organisational requirements.

Thirdly, it is important to choose tools that provide clear insights into defined metrics. You don't want to install additional devices to monitor the performance of these tools. DevOps tools should provide you with the details of the performance and productivity of business processes.

Common DevOps Tools

Version Control	Git Mercurial CVS Microsoft TFS Team Foundation Server Apache Subversion
Configuration Management & Orchestration	Salt Puppet Chef Ansible CFEngine
Deployment Automation	Jenkins Octopus Deploy Microsoft Visual Studio Electric Flow AWS CodeDeploy
Testing	Jenkins JUnit Maven TestNG Bamboo

https://techbeacon.com/7-steps-choosing-right-devops-tools

Don't reinvent the wheel…

One of the biggest obstacles for a faster implementation of DevOps in an organisation is finding the right people for the right processes. Businesses have to either train the staff and assign them new roles or search for DevOps-experienced professionals. However, both options are expensive and time consuming.

Now you don't have to reinvent the wheel! Brightred is here to help.

Brightred is a leading specialist recruitment services provider in the UK. Backed by several years of IT experience and a rich pool of talented professionals, Brightred offers people solutions to support businesses of all sizes, in their pursuit of advancement in technology and innovation. Especially for organisations that run complex IT procedures, Brightred unites the greatest, most talented professionals with the most ambitious and forward-thinking employers. We do all the groundwork at Brightred to give you the right people for the right processes which means you can forget about people and concentrate more on your core processes.