

DEVOPS IS NOT ABOUT DEV AND OPS ANY LONGER

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When DevOps was introduced in 2007 by a Belgium engineer Patrick Debois, IT leaders opined that this methodology was going to revolutionise the technology world. Every year subsequently has been predicted as the year of DevOps. However, many businesses did not understand what DevOps exactly is. Things have been changing rapidly the last 3 years. DevOps became super popular in 2017. In 2018 DevOps made a great leap, turning into a necessity from being an option. With multi-cloud and hybrid-clouds on the rise on one side and changing technologies on the other side, businesses needed an IT management system that could streamline processes and effectively manage complex network infrastructures. DevOps rightly answers that challenge.

The Traditional DevOps

In simple terms, DevOps is about bringing developers and operations teams together. However, there are other teams involved too. In a traditional DevOps system, businesses create a cross-functional team of developers, designers, testers and operations that work as single entity, right from the design of the application until it goes live. The maintenance of the application is also handled by this team. As the team comprises of members from all departments, bugs are minimised, and production issues are sorted out in the development stage itself. Testing is

automatically done at every stage. DevOps brings faster time to market with minimal bugs and automated deployment procedures.

Though a great concept, DevOps hadn't received the right levels of appreciation until 2017 owing to the lack of understanding of the concept. However, in 2018, DevOps became a major component of every IT network. Looking at the amazing benefits offered by this methodology, businesses aggressively embraced DevOps. Analyst firm [Statista](#) reports that DevOps adoption was only 10% in 2017. This value increased to 17% in 2018. According to [MarketsandMarkets](#), DevOps market value was \$3.42 billion in 2018. This value is expected to touch \$10.31 billion by 2023, growing at a Compound Annual Growth Rate (CAGR) of 24.7% during 2018 and 2023.

DEVOPS TRENDS 2019

DevOps is expected to get into top gear in 2019, opinions IT experts looking at the rapid innovations happening around DevOps. Today DevOps is not just developers and operations. There are several other ideas that are shaping DevOps. Here are a few important ones among them.

1. DEV/SECOPS

As the name speaks, DevSecOps is about adding security teams to DevOps cross-functional teams. It means security teams work with release teams using a 'security as code' approach. Contrary to the traditional security models wherein security is

added as a top layer to applications, DevSecOps integrates security into the code to ensure fast and secure delivery of applications. It eliminates the decades-long rivalry between speed of delivery and security by actually merging both into a single streamlined process. For instance, an application might not scale as expected in the cloud. By identifying poor design and redesigning it in the coding stage, security issues can be addressed.



DevSecOps brings greater speed and agility while allowing you to quickly respond to changes. It optimises security across the infrastructure for a better ROI. So, complex software applications can easily be built and securely delivered while critical security issues are automatically dealt within the coding phase, thereby resulting in zero downtimes and increased security.

With DevOps, software updates can happen multiple times within a day and your regular security protocols cannot handle this volume. If they do, they consume time. DevSecOps efficiently manages this challenge. 2019 is going to see many more innovations in the DevSecOps approach.

2. DevOps with NoOps

NoOps, the term coined by Forrester, is another innovation in DevOps. In a traditional DevOps environment, developers have to work with operations teams to discuss production and infrastructure issues. However, in a NoOps environment, the deployment pipeline is completely automated in such a way that the code written by the developers is automatically built, tested and is delivered into production. So, developers don't have to talk to operations guys, but they can focus on adding innovation to the

code. While it improves faster time to market, it also saves time required for managing infrastructure issues. Moreover, developers don't need in-depth knowledge of operations. With automated deployment tools available in the market to easily orchestrate processes, manage the development environment and scale the infrastructure, developers autonomously work on the code.

Though NoOps seems to remove the operations teams from



the organisation, it actually doesn't. Operations teams are still needed to maintain the infrastructure as most organisations don't have a complete automation system installed yet. NoOps is still in its nascent stage and organisations are still exploring this trend right now.

3. Artificial Intelligence and Machine Learning in DevOps

Artificial intelligence and Machine learning are two important trends that are revolutionising the technology world. DevOps is not excluded.

As DevOps deals with the development of complex software solutions in automated and continuous methods, AI and ML play a key role here. For instance, DevOps teams continuously



monitor processes and log data via the continuous feedback loops. With machine learning, the system can automatically scour through this data, identify issues and make recommendations. As such, teams can proactively detect problems and instantly resolve them. Moreover, in situations wherein you receive multiple alerts with high severity, machine learning helps you to prioritise them based on earlier instances.

In addition, machine learning helps you to integrate all tools and processes for an holistic view of the entire operation. Another area of AI and ML is software testing. When you run automated tests, large volumes of data are generated. When you analyse this data, poor coding patterns can be identified and eliminated.

That's not all! AI can provide assistance to developers by telling them about how the application might perform in the production stage. This prediction is based on the earlier build/compile/test and performance results of similar applications.

Effective communication across the infrastructure is a key requirement in a DevOps environment.



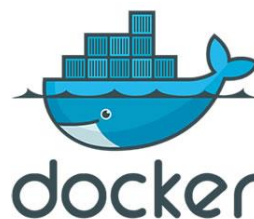
However, as services and tools increase, the complexity of the system makes it difficult for teams to interact with each other. With artificial intelligence in place, you can use chatbots that interact with people and provide solutions on the go. Customer service can be greatly improved. This is just the tip of the iceberg. AI and ML is going to

completely revamp the DevOps methodology in the future.

4. More Containerisation in DevOps

Containerisation has been on the rise for the last 2-3 years. A Container is a system that allows you to wrap a software application along with its operating system, libraries and dependent files into a package so that you can instantly deploy it onto any environment. It is similar to a virtual machine but is lightweight. Containers allow you to move applications across any environment without worrying about software compatibility and performance issues. Docker is a leading provider of Containerisation solutions. Using a Docker image, you can instantly deploy services across the infrastructure, right from physical machines, cloud, virtual machines to bare metals.

Containerisation and DevOps complement each other. With Containers, operations team can



prepare the configuration and dependencies while developers build the code. It is then easily deployed on any environment using automated solutions. It

optimises resources by allowing vertical scaling as you can simply add more Containers on the go. Containers are of two types; namely Application Containers and System Containers. Docker is an example of Application Container while LXC is an example of System Container.

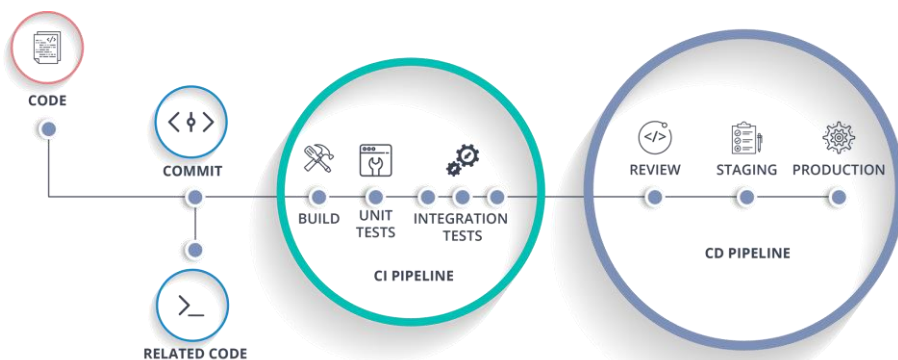
Currently, the market is dominated by Docker. According to [Datanyze](#), Docker holds a market share of 48% which equates to 11,454 domains.

It is followed by Kubernetes and Vagrant with 29% (6904 domains) and 5.93% (1,411 domains) respectively.

2018 was a great year for kubernetes

This year, more and more businesses are likely to implement Kubernetes. As such, Container-as-a-Service (CaaS) is quickly catching up.

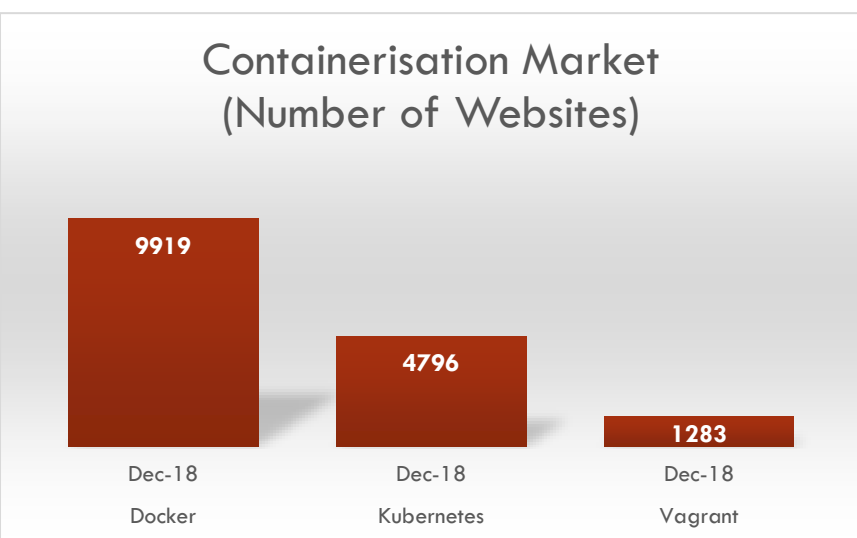
One of main reasons for the popularity of AWS is that it proactively monitors technology changes and implements them as and when needed. AWS is Containerisation-ready. It offers a Container Management Service called the 'ECS' that allows you to run Docker containers on Amazon EC2 clusters. To make your job easy, AWS provides Cluster Management tools such as scheduling, task management etc. You can manage everything via APIs.



5. CI Pipelines to Assembly lines

Another important trend that is reshaping DevOps in 2019 is Assembly lines. As more and more automation is introduced, CI pipelines are now being transformed into assembly lines. A CI pipeline is a deployable unit path that covers all stages of the code, right from build to production.

Simply put, an Assembly line is a pipeline of pipelines. In an Assembly line, CI is just one of the activities. There are several other activity pipelines owned by different teams. For instance, developers own the CI pipeline, ops team own the

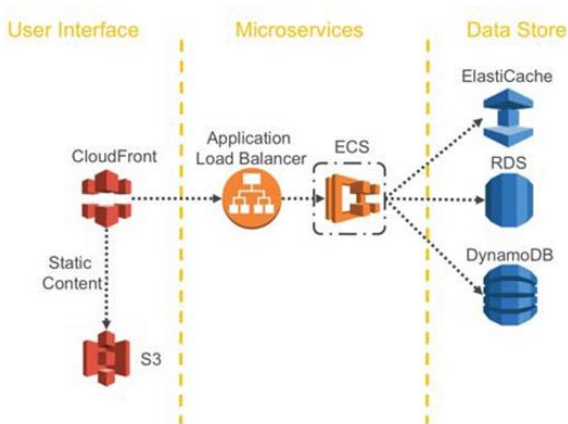


configuration management and provisioning pipeline, security teams run the security patch pipeline, semantic versioning is owned by release managers, etc. All these activity pipelines are displayed in a single pipeline so that you can have an holistic view of the entire IT operation. At the same time, each activity pipeline can interact with each other. For instance, if the ops guy changes some configuration, this information is instantly shared with the development team so that they can incorporate these changes into the code while the testing team can reorganise and retest the code. The same is the case with other teams. So, entire IT

operations are streamlined while facilitating sharing of information across all activities.

6. Microservices Architecture Continues its Dream Run

Microservice architecture is aggressively being implemented in IT networks in recent times owing to its ability to break complex software codes into smaller services that are independent. These services use lightweight mechanisms for communication.



As DevOps advocates the same idea, Microservices and DevOps go hand in hand. With Microservices architecture and DevOps, businesses can instantly and cost-effectively build and deploy software applications. As there are no dependencies, program failures won't affect other services.

The year 2018 saw more and more organisations converting their monolithic architectures into microservices. This trend is going to continue in

2019 as well, considering the speed and scalability that this architecture brings to the table. In fact, every new service is now a micro service.

Conclusion

DevOps is not traditional yet, but it is rapidly evolving. With every innovation, new tools and solutions are being incorporated into the system. As such, DevOps teams have a short and steep learning curve. Spending too much of your time on one technology might leave you behind the competition. At Brightred, we are already adept at embracing these changing trends. As such, Professionals from Brightred are DevOps-ready. From Architecture to Deployment, we have teams of professional engineers on site, or ready to deploy to your environment.



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