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| 01-01 | DEVOPS  Getting started | | | |  |
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| What exactly do we mean by DevOps  An introduction  The term DevOps is a mix of two terms: development (code) and operations. It is a culture that encourages everyone to participate in the growth and operating process. It simply means to bring together the development and operations processes.  This DevOps course will teach you the fundamentals of DevOps and give you in-depth knowledge of the usage tools like Git or Mercurial, Jenkins, Puppet, Chef, Nagios, Docker, and Kubernetes Ansible. | |  | Person walking away on zebra crossing | | | |
|  | DevOps is simply where the various teams meet to make the producion process more productive | | | |
| Why DevOps | | | |
| DevOps enables a single team to manage the whole application lifetime and infrastructure, including development, testing, deployment, and operations. DevOps assists you in bridging the gap between software developers, quality assurance engineers, and system administrators.  DevOps encourages collaboration between development and operations teams so that code may be sent to production more quickly and in a repeatable manner. The aim of DevOps in fact is to deploy code to production as frequently as possible.  DevOps aids in increasing the pace with which a business can provide apps and services. It also enables businesses to provide better service to their clients and compete more effectively in the market.  DevOps is a practice or methodology for bringing together "Developers" and "Operations" personnel. DevOps is a shift in IT culture that focuses entirely on delivering speedy IT services through the use of agile methodologies in the context of a system-oriented approach. | For businesses and organizations, DevOps has become one of the most valuable business disciplines. The quality and speed of application delivery have greatly increased as a result of DevOps.  DevOps is also a series of development and IT operations with improved communication and collaboration.  The integration of the operations and development processes is what DevOps is all about. DevOps adopting companies saw a 22% increase in software quality and a 17 percent increase in application deployment frequency, as well as a 22 percent increase in customer satisfaction. As a result of the successful DevOps adoption, sales increased by 19%.  DevOps is not a stage in the production process it is continuous through the lifespan of the project. DevOps must be a consideration for all teams and stages | | |
| Multiple interweaving highways with cars driving in different directions | |  |
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| 01-02 | DevOps | | | | Issue #10 |
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| What problems will DevOps solve?  The operating and development teams were completely isolated from one another.  Following the design-build phase, testing and deployment are carried out. As a result, they took longer than actual build cycles.  Without DevOps, team members waste a significant amount of time designing, testing, and deploying rather than building the product.  Human errors in production are caused by manual code deployment.  The coding and operations teams work on separate timeframes and are out of sync, causing even more delays. | | History  In 2009, the first conference named “DevOpsdays” was held in Ghent Belgium. Belgian consultant and Patrick Debois founded the conference.  In 2012, the state of DevOps report was launched and conceived by Alanna Brown at Puppet.  In 2014, the annual State of DevOps report was published by Nicole Forsgren, Jez Humble, Gene Kim, and others. They found DevOps adoption was accelerating in 2014 also.  In 2015, Nicole Forsgren, Gene Kim, and Jez Humble founded DORA (DevOps Research and Assignment).  In 2017, Nicole Forsgren, Gene Kim, and Jez Humble published "Accelerate: Building and Scaling High Performing Technology Organizations". | | Features  Automation  Continuous integration  Configuration Management  Continuous Deployment  Collaboration  Incremental Testing  Continuous build | |
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| Advantages vs Disadvantages of DevOps | | | | | | |
| Advantages | | | Disadvantages | | |
| DevOps is a fantastic method for quickly developing and deploying apps. | | | Developers who are DevOps professionals or experts are in short supply. | | |
| It reacts more quickly to market developments, resulting in increased business growth. | | | In the continuous integration of automation projects, a lack of DevOps understanding can be a challenge. | | |
| By reducing software delivery time and transportation expenses, DevOps increases business profit. | | | Adopting new DevOps technologies into industries in a timely manner is difficult. | | |
| It enhances client happiness and experience. | | | Developing with DevOps is really costly. | | |
| DevOps streamlines collaboration by storing all tools in the cloud and making them available to clients. | | |  | | |
| DevOps clarifies the description process, allowing product development and delivery to be more transparent. | | |  | | |
| DevOps is a term that refers to a team's collaborative accountability, which leads to increased team engagement and productivity. | | |  | | |

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| 01-03 | |
| A laborer and his tools  A DevOps Engineer should have basic knowledge of **Linux**, and a few **Scripting languages.** In this course we will be using Python and PowerShell. It is also advisable to understand how declarative languages work (which is extremely useful for infrastructure management).  Later in this course we will look through what kind of architecture a DevOps team looks to adopt, common DevOps Principles, practices, Lifecyle of the DevOps process and other aspects that directly affect it. However, for the remainder of this module I will give you a short introduction to some of the popular DevOps tools I will be teaching you how to use in this course.  1) Puppet  The most extensively used DevOps tool is Puppet. It enables the frequent release of technology changes. Versioning, automated testing, and continuous delivery are some of the specific uses. It allows you to manage your entire infrastructure as code from a single point  Uses  Context-aware reporting in real time.  Create a consistent model of the complete environment and manage it.  Infrastructure that is defined and enforced on a regular basis.  Detection and resolution of desired state conflicts.  It inspects and reports on all packages operating on the network.  It automates the software distribution process and eliminates manual labor.  It enables the developer to produce high-quality software quickly.  2) Docker  Docker is a high-end DevOps tool for developing, deploying, and running distributed applications across multiple systems. It also aids in the rapid assembly of apps from their components, and it is often appropriate for container management.  Uses  It makes the system more comfortable and faster to configure.  It improves efficiency.  It provides containers for running applications in a controlled environment.  It sends an active container the incoming request for published ports on accessible nodes. This feature allows the connection to be established even if the node is idle.  It allows you to save secrets within the swarm.  3) Jenkins  Jenkins is a DevOps tool that tracks the progress of repetitive activities. Jenkins is a piece of software that lets you do continuous integration. Jenkins will be installed on a server that will host the central build. It aids in the more effective integration of project changes by promptly identifying difficulties.  Uses  Jenkins expands the automation's scope.  Using a web interface makes it simple to set up and configure.  It has the ability to distribute jobs over numerous machines, enhancing concurrency.  It facilitates continuous integration and delivery.  It comes with 400 plugins to let you build and test virtual projects.  It features a built-in GUI tool for easy updating and requires little maintenance. |
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4) Use Git.

Git is an open-source distributed version management system that anybody can use for free. It's built to manage small to large jobs quickly and efficiently. It was created to help programmers coordinate their efforts. Version control helps you to keep track of and collaborate with other members of your team in the same workspace. The DevOps tool relies on it as a major distributed version control system.

Uses

It's a free, open-source program.

It makes dispersed development possible.

It is in favor of the pull request.

It allows for a quicker release cycle.

Git is a very scalable project management system.

It is extremely safe and efficient at completing jobs.