MODERN IT INFRASTRUCTURE CONCEPTS

1. Modern IT Infrastructure Concepts

00:00 - 00:12

Organizations rely on their IT infrastructure to operate, develop, and power their online presence. It is essential to know the basics of IT infrastructure to put DevOps into context.

2. Main components of IT infrastructure

00:12 - 00:38

IT infrastructure is the combination of components that is necessary to power any organization's operations, software, and online products. Although it is always customized for specific needs, some components are common across all organizations. These components are: hardware, network, and software.

3. Hardware

00:38 - 00:53

Hardware is the essential part of any IT Infrastructure system. Any software needs power to operate. Hardware can be hosted on organization's own premises, or it can be accessed through a cloud provider.

4. Network

00:53 - 01:03

We need a network to ensure the hardware communicates to other parts of the infrastructure, and the organization is securely connected to the internet to serve customers.

5. Software

01:03 - 01:24

Once we have the hardware and network components, we need software to manage the hardware and network. Operating systems are used to interact with hardware and configure it for organization's use. The main goal of infrastructure software is to enable the product engineering teams to develop online products.

6. Change management

01:24 - 02:01

When software is developed it requires constant maintenance. This means that most software is changed all the time, like a data engineer changing the source code of a data table. The problem is these changes could be very expensive and disruptive to the operations of the organization, if they are not managed properly. Infrastructure Engineering offers and maintains the tools that's necessary to develop software securely and cost effectively. Let's take a look into various components of Infrastructure Engineering and see how they help create software.

7. Developer platform

02:01 - 02:12

The Developer Platform provides the tools and maintains the systems for the developers. They ensure a good developer experience for developing the code.

8. Codebase & version control

02:12 - 02:42

Once a code is developed in a developer's computer, it needs to be merged with the rest of the code base that the organization is using. The code base is the repository of code that creates the products. Organizations use version control softwares like Git to ensure the change in the code base happens in a secure way. Although they are shown separately here, version control is mostly integrated with the DevOps Continuous Integration / Continuous Delivery Pipelines.

9. DevOps CI/CD pipelines

02:42 - 03:27

DevOps is a part of Infra Engineering, responsible for securely integrating and delivering software products after a change happens. At this stage the Continuous Integration / Continuous Delivery or CI/CD pipelines are responsible for integrating the change in the codebase of the software. When a developer writes the code in their computer, it needs to be integrated with the main version of the software. It needs to be built and tested before start serving the users. Building the code means turning it into a language that could be interpreted and executed by the hardware. Once the code is built, it gets tested thoroughly and integrated with the software.

10. Deployment platform

03:27 - 03:37

Deployment means putting the software into use. Once software is put into use, it starts interacting with the user and serving its functionality.

11. Change management in microservices

03:37 - 04:02

In the microservices architectures, different services are deployed separately. When a change is introduced in any of the services, that service gets redeployed with an improved version. But the others are not impacted. Imagine them as different machines that sit separately and are not affected by each other unless they share data.

12. Let's practice!

04:02 - 04:13

We have learned quite a bit about IT infrastructure and in specific change management. Now let's jump onto the exercises and practice.