DevOps

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Post Graduate Program in DevOps

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Linux Refresher

Learning Objectives
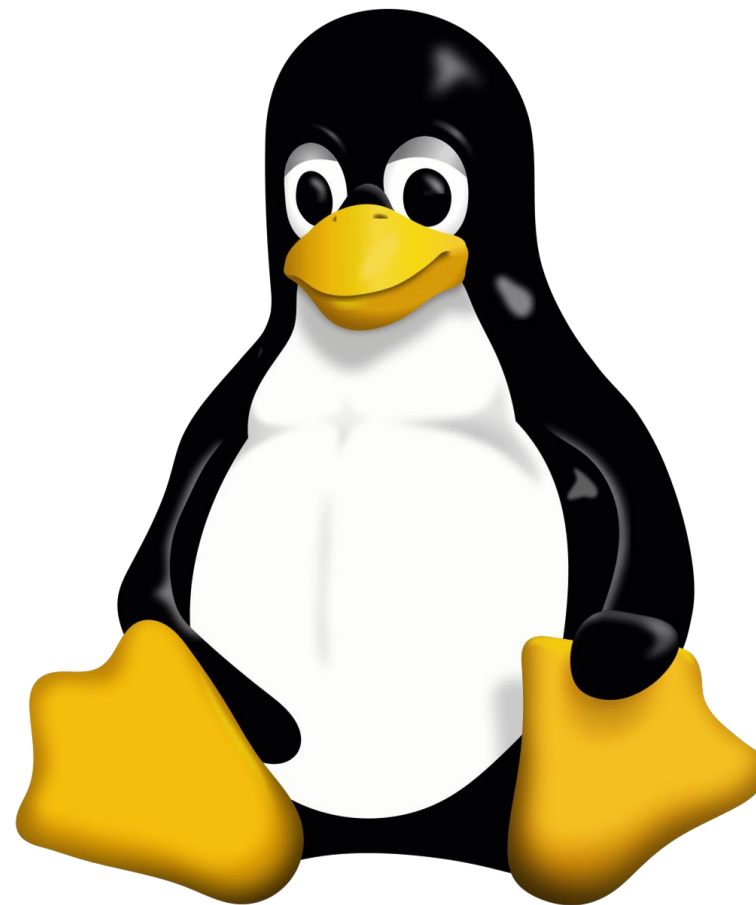
By the end of this lesson, you will be able to:

- Describe the Linux operating system and its workflow

- List popular Linux distributions

- Understand the importance of Linux in DevOps

- Execute basic commands of Linux
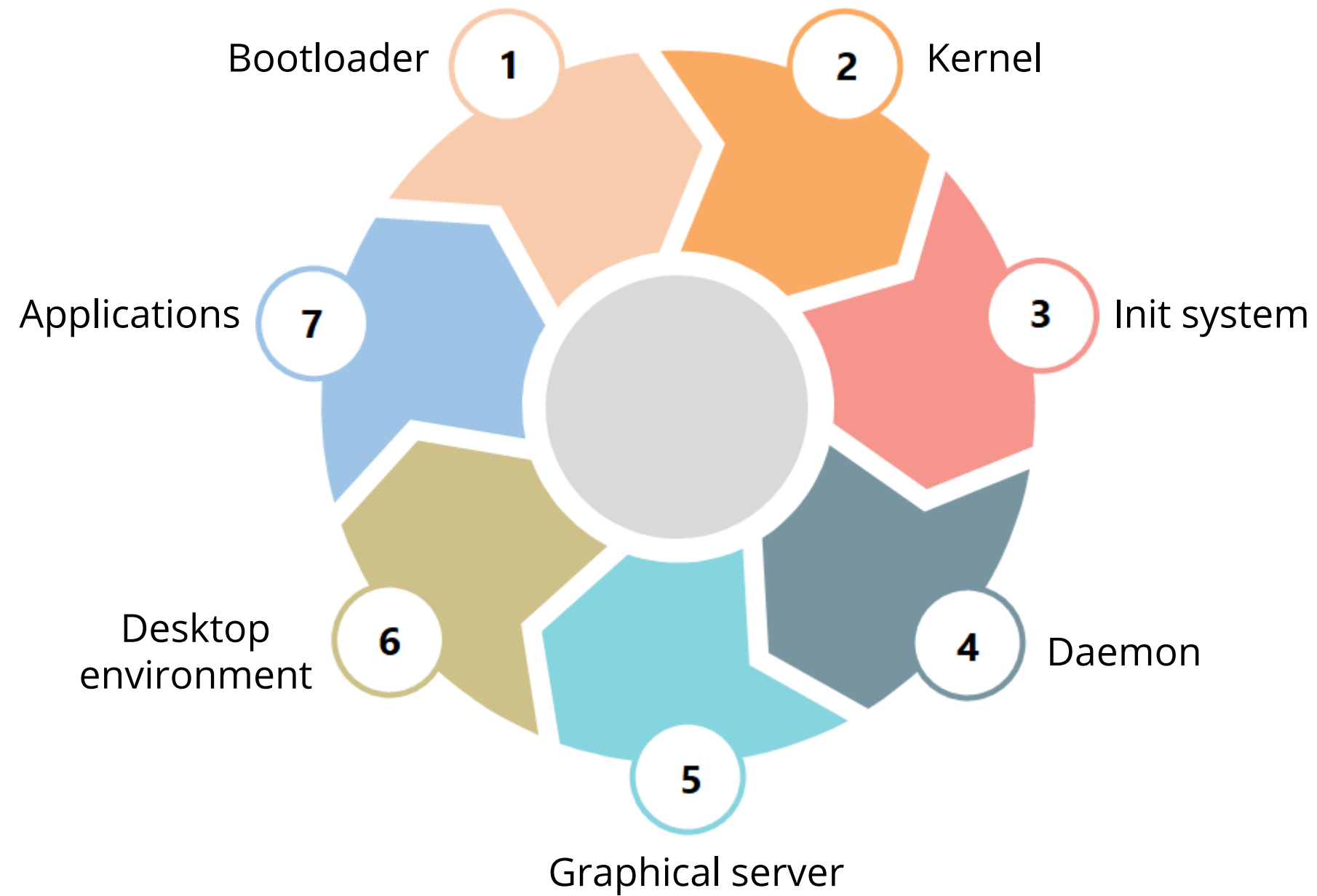
Linux Introduction

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Linux OS Introduction

Linux is an operating system that manages the communication between software and hardware of a system. It is an open-source Unix-like OS, based on Linux kernel.

Components of Linux OS

- Bootloader — 1
- Kernel — 2
- Init system — 3
- Daemon — 4
- Graphical server — 5
- Desktop environment — 6
- Applications — 7

Components of Linux OS

1. **Bootloader**: A software to manage the booting process of a computer that mostly comes as a splash screen to boot into an OS.

1. **Kernel**: The core of a system that manages CPU, memory, and the peripheral devices and is the basic level of an OS.

1. **Init system**: A sub-system that bootstraps the user space and is charged with controlling daemons.

1. **Daemons**: Background services such as printing, sound, and scheduling that either startup during a boot or after logging into a system/computer.

Components of Linux OS

5. **Graphical server**: A subsystem to display graphics on the monitor, commonly referred to as X server or just X

5. **Desktop environment**: The component with which the users interact the most and includes built-in applications such as file managers, configuration tools, and web browsers

5. **Applications**: High-quality software applications can be easily found using App Store-like tools that centralize and simplify application installation

Linux Distributions

Linux distributions or **distros** are different versions of Linux OS offered to suit any type of users. These distros can be can be downloaded for free, burned onto disk, and installed on a system.

Popular Linux distributions

Ubuntu

Debian

CentOS

Fedora

Linux Mint

OpenSUSE

Archlinux

Elementary OS

Importance of Linux in DevOps

Crucial role of Linux in DevOps

- The main goal of DevOps is to deliver software at a faster pace, that means building on existing infrastructure. Linux is a huge part of that.

- Efficiency demands of DevOps can be easily met if a Linux environment is configured and the associated networking connectivity will minimize obstacles of development process

- Linux is highly flexible as it can be installed on any device and configured to fit any workflow

- Linux is highly scalable as it can process large amounts of data and can easily be configured to add processing power and storage capacity

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Linux Administration

Introduction to Linux administration

Linux administration is about managing system operations such as:

- File backups and restores

- Disaster recovery

- New system builds

- Hardware, software, and user maintenance

- Filesystem housekeeping

- Application installation and configuration

- System security management and storage management

Basic Linux Commands

Basic Linux Commands

- ***ls:*** Command to list files and directories

- ***cd:*** Command to change the current or active directory

- ***sudo su:*** Command to change the current user as a super/root user

- ***mv:*** Command to move a file or rename a file

- ***rm:*** Command to remove files in a directory or the directory itself

- ***rm –r:*** Command to remove all the contents in a directory and the directory as well

- ***mkdir:*** Command to create a directory in the current directory

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Basic Linux Commands

- ***chmod:*** Command to change a file mode to **r –** read, **w-** write, or **x-** execute

- ***chown:*** Command to change the ownership of a file/folder

- ***cat:*** Command to view contents of a file

- ***echo:*** Command to display a text or a string to the standard output or a file

- ***clear:*** Command to clear the terminal screen

- ***apt-get:*** A package manager to install, remove, and upgrade software packages

- ***history:*** Command to show previously used commands

Assisted Practice

Execute Basic Linux Commands

Problem Statement:

You have been asked to execute the basic Linux commands.

Assisted Practice: Guidelines

Steps to execute basic Linux commands:

1. Executing basic Linux commands:

    ○ List the files or folders present in the current directory.

    ○ Create a new directory in the current folder and check if the folder is created.

    ○ Navigate to a specific directory by changing the current directory.

    ○ Write some text in a demo file and display the content of the file.

    ○ Change the mode of the demo.txt file to read only.

    ○ Change the current user as a super/root user.

    ○ Install git using the apt-get package manager.

    ○ List all the previously used commands and then clear the Terminal screen.

Key Takeaways

- Linux is an operating system that manages the communication between software and hardware in a system

- Bootloader, Kernel, Init system, Daemons, Desktop environment, and Applications are the main components of a Linux OS

- Linux distributions or distros are different versions of Linux OS offered to suit any type of user

- Ubuntu, CentOS, Debian, Fedora, and OpenSUSE are some of the most popular Linux distributions

- Some of the basic Linux commands are *ls, cd, sudo, mkdir, rm,* and *apt-get*

Thank You

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