

Digital Career Institute

Fundamentals - 1.1 Course Intro



Goal of the Module

Course Kick Off

- Overview of the course' structure and characteristics

Introduction to Linux and MacOS

- History and characteristics of Linux and MacOS
- Shell and desktop environment

Topics

Course Kick Off

- Course Introduction
(presentation by program manager)
- Technical Setup of the Laptops
- Curriculum Overview

Introduction to Linux and MacOS

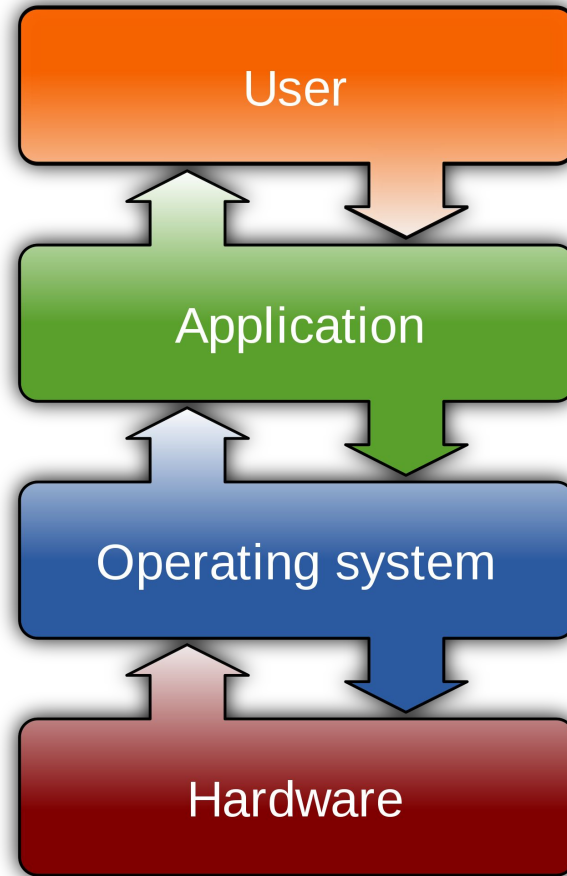
- History of Unix/MacOS/Linux
- Linux Kernel (kernel- & user-space)
- Distributions
- Shell (bash)
- Desktop Environments

Introduction to Linux & MacOS

Operating System

“An **operating system** (OS) is system software that *manages* **computer hardware, software resources**, and provides common services for computer programs.” [WIKIPEDIA]

Operating System - Context



Operating System

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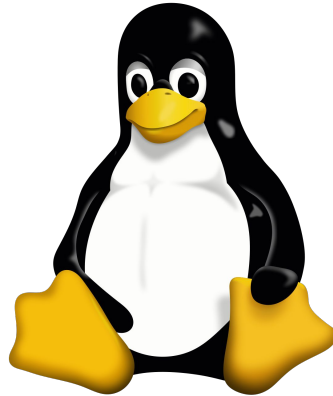
Computing Resources

- Hardware
 - CPUs
 - Memory
 - Storage
 - Network
 - ...
- Software
 - Multiple Users
 - Authentication/Authorization
 - Multiple Processes
 - Scheduling/Multi-Tasking
 - Virtual Memory
 - Swapping
 - Networking Protocols
 - Filesystems
 - System Calls (e.g. file input/output)

Linux

“**Linux** is a family of open-source **Unix-like operating systems** based on the **Linux kernel** first released on September 17, 1991 by Linus Torvalds.” [WIKIPEDIA]

This is **Tux** (see [TUX]) the mascot of Linux:

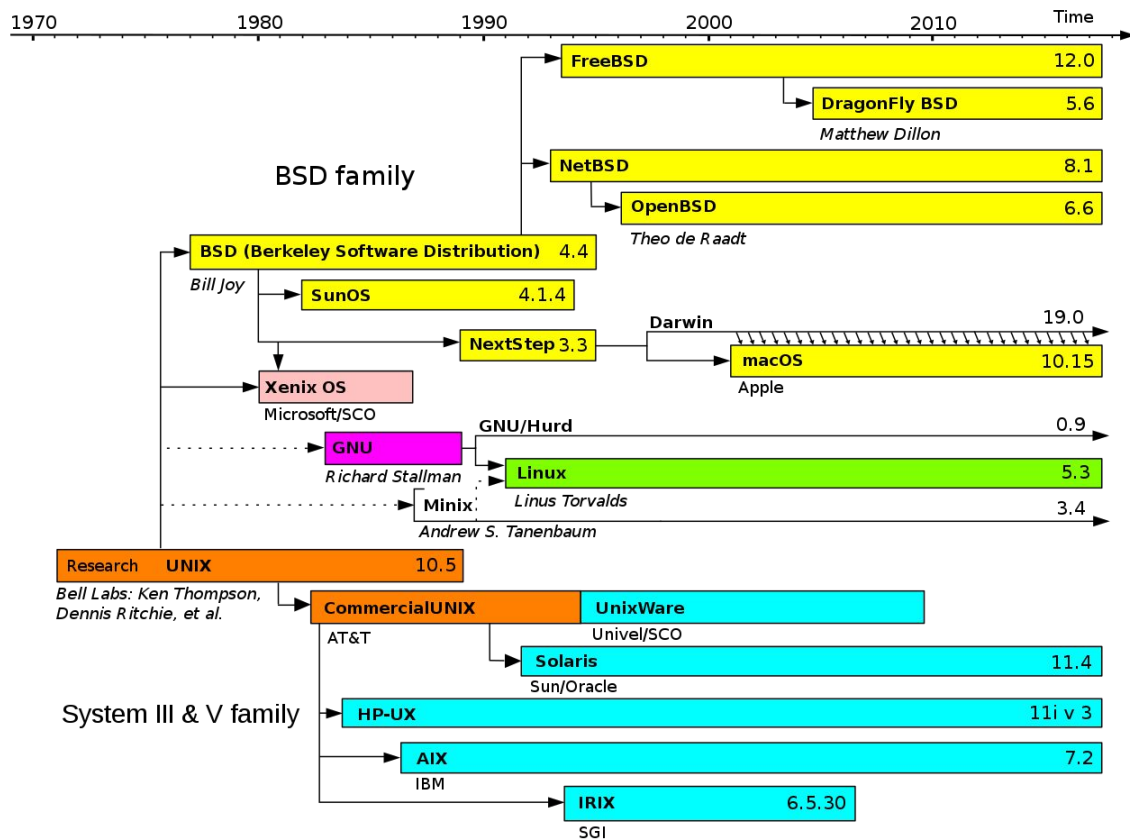


By Larry Ewing, Simon Budig, Garrett LeSage -
<https://isc.tamu.edu/~lewing/linux/>,
<http://www.home.unix-ag.org/simon/penguin/>,
garrett/Tux on GitHub, CC0,
<https://commons.wikimedia.org/w/index.php?curid=753970>

Linux Kernel

“The **Linux kernel** is a free and open-source, **monolithic, modular, multitasking**, Unix-like operating system kernel.” [WIKIPEDIA]

History of Linux/ MacOS



Linux Distribution

“A **Linux distribution** (often abbreviated as distro) is an **operating system** made from a **software collection** that is based upon the Linux kernel and, often, a **package management system**.”

[DISTRIBUTION]

Common package management systems are introduced by debian [DEBIAN] (“apt” [APT]) and RedHat (“rpm” [RPM]).

[DISTRIBUTION]: https://en.wikipedia.org/wiki/Linux_distribution

[DEBIAN]: <https://en.wikipedia.org/wiki/Debian>

[APT]: [https://en.wikipedia.org/wiki/APT_\(software\)](https://en.wikipedia.org/wiki/APT_(software))

[RPM]: https://en.wikipedia.org/wiki/RPM_Package_Manager

Shells & Desktop Environments

Shell

“A **Unix shell** is a command-line **interpreter** or shell that provides a command line **user interface** for Unix-like operating systems. The shell is both an **interactive** command language and a **scripting language**, and is used by the operating system to control the execution of the system using **shell scripts**.

[...] All Unix shells provide filename wildcarding, piping, here documents, command substitution, variables and control structures for condition-testing and iteration.” [WIKIPEDIA]

Shell

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Features

Features of all Unix Shells

- filename wildcarding
- piping
- here documents
- command substitution
- Variables
- control structures for condition-testing
- iteration

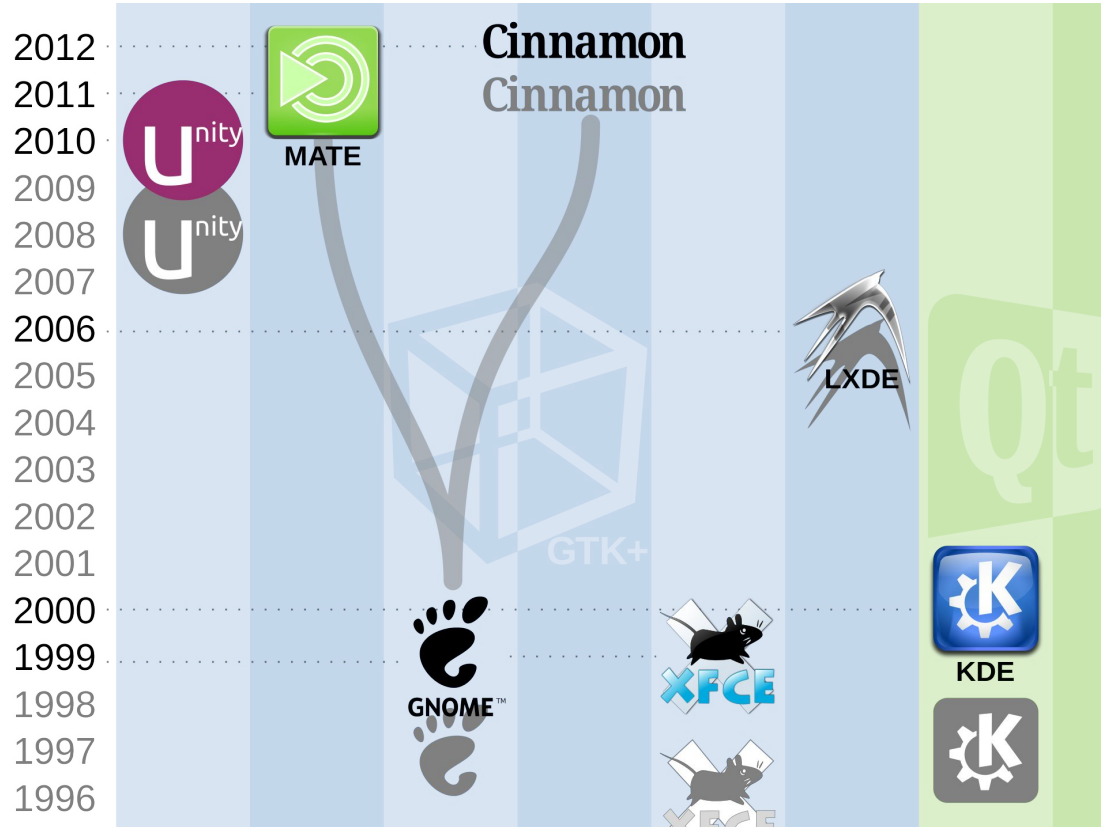
Refer to [WIKIPEDIA]

There exist various shells, among them:

- **Bash** (Bourne-Again shell; bash)
default on most Linux systems
- **Z shell** (zsh)
default on macOS since 10.15 Catalina

“In computing, a **desktop environment** (DE) is an implementation of the desktop metaphor made of a bundle of programs running on top of a computer operating system that share a common **graphical user interface** (GUI), [...]. [Desktop environments] usually do not provide access to all of the features found in the underlying operating system. Instead, the traditional command-line interface (CLI) is still used when full control over the operating system is required.” [WIKIPEDIA]

Desktop Env.



Kernel

“The **Linux kernel** is a free and open-source, **monolithic, modular, multitasking**, Unix-like operating system kernel.” [WIKIPEDIA]

Glossary

Glossary

computing resources

desktop environment

Linux distribution

Linux kernel

operating system

package management system/software

shell

A large group of people, mostly young adults, are posing for a group photo in a room with a projector screen in the background. They are arranged in several rows, with some people sitting on the floor in the front. Many are making peace signs or other celebratory gestures. The image has a semi-transparent dark overlay.

THANK YOU

Contact Details
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