LEIDEN UNIVERSITY MEDICAL CENTER

Operating system basics

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Introduction

Operating systems

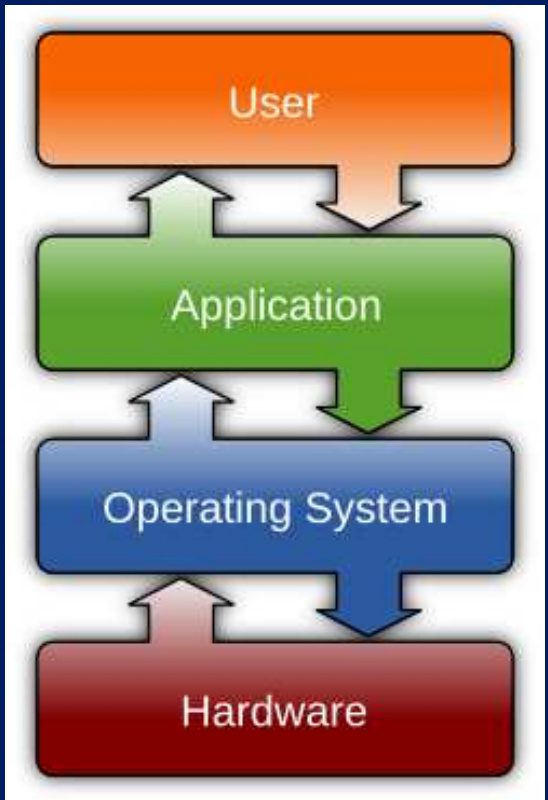

Figure 1: Operating systems.

An operating system is a software layer between the hardware and the applications.

Applications can be the same on different operating systems (Skype, Firefox, World of Warcraft, . . .).

Introduction

Before operating systems

Load one program from tape (if you are lucky to have one).

Figure 2: Sharp MZ-80K.

Figure 3: Cassette tape.

If you want to run an other program, reset the computer and load an other program.

Introduction

Before operating systems

With the advent of *random access* devices came the need for operating systems.

Figure 4: Commodore Amiga 500.

Figure 5: Floppy disks and diskettes.

Introduction

Text based operating systems

This picture may look familiar to some of us.

Figure 6: FreeDOS.

Introduction

The evolution of operating systems

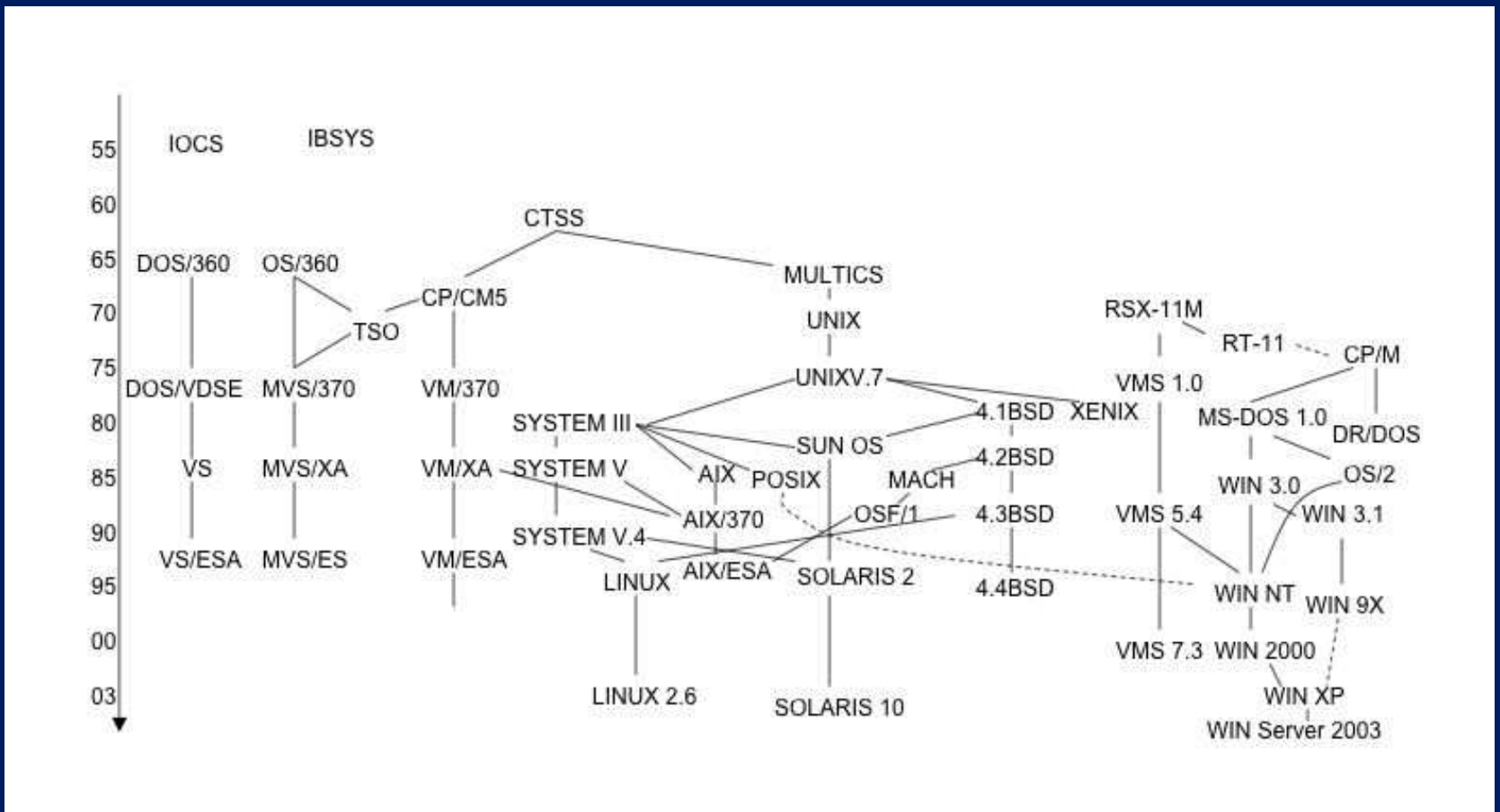

Figure 7: The operating system family tree.

Introduction

Modern operating systems

Currently, there are two main classes for personal computers.

- Unix-like operating systems.
  - Solaris.
  - HP-UX.
  - BSD.
    - OS X.
  - Linux.
- Microsoft Windows.

Windows

Microsoft Windows

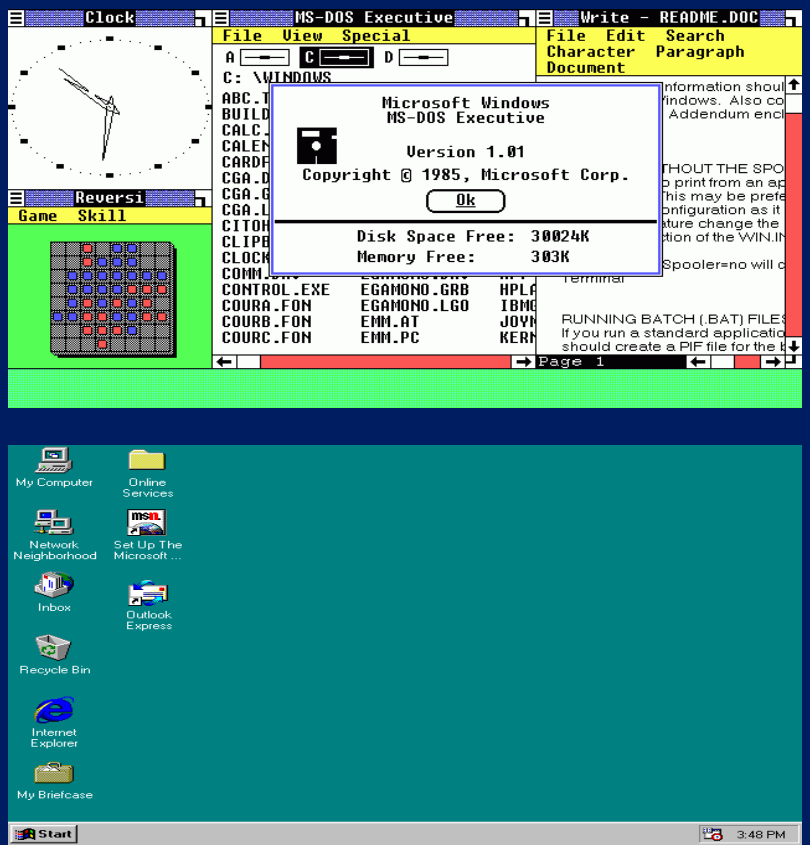

Figure 8: Older versions.

Most popular user platform.

Used to compete with OS/2.

Less popular for servers.

- Webserver.
- File server.
- Name server.
- Firewalls.

Windows

Microsoft Windows

Figure 9: Windows 8.1.

Requirements:

- 1 GHz CPU.
- 2 GB memory.
- 20 GB disk.

Unix-like operating systems

OS X

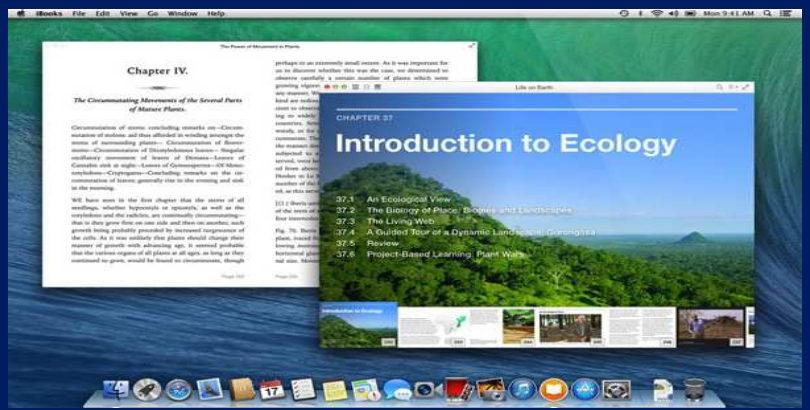

Figure 10: OS X.

Requirements:

- Dual core CPU.
- 2 GB memory.
- 13 GB disk.

Unix-like operating systems

Linux

Figure 11: Different flavours.

Requirements:

- 1 GHz CPU.
- 128 MB memory.
- 5 GB disk.

Unix-like operating systems

Marketing

Figure 12: Mac vs. PC.

But actually, there is hardly any difference.

- You can run Windows or Linux on an Apple computer.
- You can run OS X on an HP computer.

Unix-like operating systems

Why our interest?

Unix-like systems are *modular*, you install what you need.

Furthermore:

- Designed for networking.
  - Clusters.
- Over 40,000 available packages.
- Free.

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Powerful command line tools.

Questions?

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https://humgenprojects.lumc.nl/trac/humgenprojects/wiki/scripting