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Assignment 1

Operating System Concepts

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HISTORY OF OPERATING SYSTEMS

1950-1959

1. Mark III: “Calculators" (computers) then under construction.
2. SEAC (Standards Eastern Automatic Computer)
3. SWAC (Standards Western Automatic Computer)
4. EDVAC (electronic discrete variable computer). The first computer to use magnetic tape.
5. IBM introduces the IBM 701, the first computer in its 700 and 7000 series of large-scale machines
6. FORTRAN (Formula Translation), the first high-level programming language development
7. The Bendix G-15 computer was introduced by the Bendix Corporation.
8. FORTRAN development finished.
9. Seton, a balanced ternary computer developed.
10. The silicon integrated circuit developed by Robert Noyce.

1960 - 1969

1. The AN/UYK-1 (TRW-130) computer was designed with rounded edges.
2. ATLAS is completed by the University of Manchester team.
3. Launch of IBM System/360 – the first series of compatible computers.
4. The first supercomputer, the Control Data CDC 6600, was developed.
5. Hewlett-Packard entered the general-purpose computer business with its HP-2116A for computation.
6. Intel founded by Robert Noyce and a few friends.
7. Development of UNIX operating system begun.

1970-1979

1. AiResearch and American Microsystems develop the MP944.
2. Kenbak-1 ships. This small, cheap (US$750) personal computer.
3. Atari founded by Nolan Bushnell and Ted Dabney.
4. Microcomputer Micral N, created in 1973 by Frenchman François Gernelle.
5. Motorola announces the MC6800 8-bit microprocessor.
6. Olivetti released the personal computer Olivetti P6060.
7. Cray-1 supercomputer was invented by Seymour Cray.
8. Introduction of the 16-bit Intel 8086, the first x86 microprocessor.
9. The 68000 Microprocessor launched by Motorola.

1980 - 1989

1. Sinclair ZX80 was released for under £100. Tandy released the TRS-80 Color Computer.
2. Sinclair ZX81 was released, for a similar price to the ZX80.
3. The Sinclair ZX Spectrum was announced.
4. Apple introduced its Lisa.
5. Apple Macintosh released, based on the 8 MHz version of the Motorola 68000 processor.
6. Microsoft Windows launched.
7. The 8514/A introduced by IBM.
8. EISA Bus standard introduced.
9. Apple Computer Macintosh IIci released based on a faster version of the 68030.

1990 - 1999

1. Multimedia PC (MPC) Level 1 specification published by a council of companies including Microsoft and Creative Labs.
2. The Linux kernel is born with the following post to the Usenet Newsgroup comp. OS. Minix by Linus Torvalds.
3. IBM ThinkPad 700C laptop created.
4. MPC Level 2 specification introduced
5. Linus Torvalds released version 1.0 of the Linux kernel.
6. Toshiba released the Libretto sub-notebook.
7. IBM's Deep Blue became the first computer to beat a reigning World Chess Champion, Garry Kasparov, in a full chess match.
8. Linux Kernel 2.2.0 is released.

2000 - 2010

1. The Ericsson R380, the first phone running Symbian OS was released.
2. Microsoft released Windows XP, based on Windows 2000 and Windows NT kernel. Windows XP introduces a heavily redesigned GUI and brings the NT kernel to the consumer market.
3. RIM (now BlackBerry Ltd) released the first BlackBerry smartphone.
4. Nvidia releases GeForce FX, a family of DirectX 9.0-compatible 3D cards with extensive support for pixel and vertex shaders.
5. The first release of the Ubuntu Linux distribution.
6. Microsoft releases the Xbox 360.
7. AmigaOS 4 was released by Hyperion Entertainment (VOF) under license from Amiga, Inc. for AmigaOne registered users.
8. Apple launches Mac OS X Leopard (v10.5)
9. The HTC Dream (T-Mobile G1), the first commercially available device to run the Android operating system, was released.
10. Microsoft releases Windows 7.

2010 – 2019

1. Apple releases the iPhone 4.
2. Intel announces the commercialization of 3D transistors, a variant of the FinFET.
3. Raspberry Pi, a bare-bones, low-cost credit-card sized computer.
4. Sony releases the PlayStation 4 in Europe.
5. Intel unveiled its first eight-core desktop processor, the Intel Core i7-5960X.
6. Microsoft releases the operating system Windows 10.
7. Fixstars Solutions releases the world's first 13 TB SSD.
8. Nintendo releases the hybrid gaming console Nintendo Switch.
9. Lexar announces the first SD card in which could store 1 terabyte.

Generations of Operating System

THE FIRST GENERATION (1945 - 1955)

VACUUM TUBES AND PLUGBOARDS

Digital computers were not constructed until the second world war. Calculating engines with mechanical relays were built at that time. However, the mechanical relays were very slow and were later replaced with vacuum tubes. These machines were enormous but were still very slow.

These early computers were designed, built and maintained by a single group of people. Programming languages were unknown and there were no operating systems so all the programming was done in machine language. All the problems were simple numerical calculations.

By the 1950's punch cards were introduced and this improved the computer system. Instead of using plugboards, programs were written on cards and read into the system.

THE SECOND GENERATION (1955 - 1965)

TRANSISTORS AND BATCH SYSTEMS

Transistors led to the development of the computer systems that could be manufactured and sold to paying customers. These machines were known as mainframes and were locked in air-conditioned computer rooms with staff to operate them.

The Batch System was introduced to reduce the wasted time in the computer. A tray full of jobs was collected in the input room and read into the magnetic tape. After that, the tape was rewound and mounted on a tape drive. Then the batch operating system was loaded in which read the first job from the tape and ran it. The output was written on the second tape. After the whole batch was done, the input and output tapes were removed and the output tape was printed.

THE THIRD GENERATION (1965 - 1980)

INTEGRATED CIRCUITS AND MULTIPROGRAMMING

Until the 1960's, there were two types of computer systems i.e the scientific and the commercial computers. These were combined by IBM in the System/360. This used integrated circuits and provided a major price and performance advantage over the second generation systems.

The third generation operating systems also introduced multiprogramming. This meant that the processor was not idle while a job was completing its I/O operation. Another job was scheduled on the processor so that its time would not be wasted.

THE FOURTH GENERATION (1980 - PRESENT)

PERSONAL COMPUTERS

Personal Computers were easy to create with the development of large-scale integrated circuits. These were chips containing thousands of transistors on a square centimeter of silicon. Because of these, microcomputers were much cheaper than minicomputers and that made it possible for a single individual to own one of them.

The advent of personal computers also led to the growth of networks. This created network operating systems and distributed operating systems. The users were aware of a network while using a network operating system and could log in to remote machines and copy files from one machine to another.

Classification of Operating System

OPERATING SYSTEM CLASSIFICATION DEPENDS ON

Purpose, Task processing mode, Way of user-system interaction, means of multi-processing, Architecture and on this basis, operating system can be broadly classified as:

1. On the Basis of Purpose:

- ✓ Time Sharing Operating System
- ✓ Real Time Operating System
- ✓ Distributed Operating System

2. On the Basis of Processing:

- ✓ Single Processor System
- ✓ Multi-Processor System

3. On the Basis of Tasking:

- ✓ Single Tasking
- ✓ Multi-Tasking

4. On the Basis of Number Of Users:

- ✓ Single User
- ✓ Multi User