History of Operating Systems

In what is known as the batch era computers had very little computing power. This lead early systems to have extremely rudimentary user interfaces as interfaces took away from the ability to maximize the utilization of the processor. These interfaces were mainly punched cards or paper tape. Programs had to include code to interface with I/O devices and any housekeeping that is needed. This however was more efficient than some of the earlier alternative that required the user to partly rewire the system. The next stage was the command-line interfaces. They interacted as a series of request-response transactions. This allowed users to get more direct feedback from the computer. While these originally used ink and paper to display, soon video-display terminals took over. This cut the cost of ink and paper and allowed more visual displays instead of the textual ones they had been limited to. These earlier styles have no completely disappeared from the world and can still be seen in some forms today. Graphical interfaces have been experimented with as far back as 1962. Video games became mass-market devices before computers as they ran hardwired programs on extremely cheap and simple processors. When trying to make interactive computers there was the problem that the VDTs were unable to support interactivity even after they could print pixels instead of just formed characters. It wasn’t until silicon had increased computing power. The other missing part was the invention of the mouse. The first GUI had been built in 1973 by Xerox Palo Alto Research Center.

List of GUI Operating Systems and their advancements: The first graphical user interface (GUI) was developed by Xerox Palo Alto Research Center in the 70’s. The first personal computer (PC) which used a modern graphical user interface was developed in 1973 by Xerox Alto. The Xerox 8010 STAR released in 1981 was the first system that was referred to as a fully integrated desktop computer. The Apple Lisa Office System 1 was released in 1983 with intention of being a document processing workstation. Visicorp Visi On was released in 1984 and was the first desktop GUI for the IBM PC. It was an expensive system intended for big corporations. This system had a GUI that used a mouse, had a built-in installer and help system, and it did not use icons. The Mac OS System 1.0 was released in 1984 as the first operating system GUI for the Macintosh. It has many of the features found in modern operating systems as it was windows based and used icons. The Amiga Workbench 1.0 was released in 1985. It included features such as color graphics, preemptive multitasking, stereo sound, and multi-state icons. The Windows 1.0X was released by Microsoft in 1985. It featured 32x32 pixel icons and color graphics. The Graphical Environment Manager (GEM) was developed by Digital Research, Inc. in 1985. It was originally created for the CP/M operating system on the Intel 8088 and Motorola 68000 microprocessors. It was ported to a large number of different systems. The IRIX 3 was released in 1986 as a 64-bit created for UNIX. It had support for vector icons. The Graphic Environment Operating System (GEOS) was released in 1986 by Berkeley Softworks. It was designed for the Commodore 64 and included a graphical word processor and pain program. The Windows 2.0X was released in 1987. This system allowed the windows to be overlapped, resized, maximized, and minimized. The OS/2 1.X was released in 1988 by IBM and Microsoft. The NeXT was released in 1989 as a research computer for universities and research labs. It had significant advances made in 1989 with NeXTSTEP 1.0 GUI which evolved into OPENSTEP. It introduced more colors and bigger icons. The OS/21.20 was released in 1989. It had nicer and smoother windows. Windows 3.0 was released in 1990. It supported higher memory capacity and higher screen resolutions. The Amiga Workbench 2.04 was released in 1991. It introduced a 3D look. The desktop could be divided vertically into screens of different resolution and color depths. The Mac OS System 7 was released in 1991. It was the first Mac OS GUI which supported color. The Windows 3.1 was released in 1992. This version included TrueType which made it a functional desktop publishing platform. The OS/2 2.0 was released in 1992. This was the first GUI that was subjected to international acceptance, usability, and accessibility testing. The GUI was developed using object-oriented design. Windows 95 was released in 1995. A small close button was added to each window. The start button was added. The OS/2 WARP 4 was released in 1996. Icons were placed on the desktop, where custom files and folders could be created. The Mac OS System 8 was released in 1197. Icons of 256 colors were the default in this version. This version used a platinum grey theme that became a trademark for future versions. The Windows 98 was released in 1998. This version changed the Windows Explorer and the “Active Desktop” appeared. The KDE 1.0 was released in 1998. This was released as a free system that is open for anyone to modify. The BeOS 4.5 was released in 1999. It was developed to use newer technologies and hardware such as symmetric multiprocessing by utilizing modular I/O bandwidth, pervasive multithreading, preemptive multitasking and a custom 64-bit journaling file system known as BFS. The GNOME 1.0 was released in 1999. It was developed originally for Red Hat Linux and later it developed for other Linux distributors. The Mac OS X was released in 2001. The icons were increased to 128 x 128 anti-aliased and semi-transparent icons. While there was originally a lot of criticism for this update it is today used as the basis of all Mac OS X operating systems. Windows XP was released in 2001. The GUI was designed so that users could change the entire look and feel of the interface. Icons were rendered in millions of colors. The KDE 3 was released in 2002. This version improved graphics and unified the user experience. Windows Vista was released in 2007. This version had a lot of 3D animation and also included the use of widgets. The Mac OS X Leopard was released in 2007. This version improved the interface with a more 3D look and more animations and interactivity. The GNOME 2.24 was released in 2008. This version was based around making a computer that looked good. The KDE V4.0 was released in 2008 with V4.2 being released in 2009. This version improved windows management and added support for desktop widgets. It had most of its design elements configurable. It also had the capability to run on both Windows and Mac OS X platforms.

What makes a good interface is a rather interesting question. This is due to the fact that what makes the interface good is different depending on the task the interface is supposed to perform. For some specialized machines less interface can be better as it allows the machine to run closer to its full potential and be slowed down by human interaction. However with more general computing machines you need more of a balance. With computers being used by such a wide range of peoples with wide ranges of skill sets you need the interface to be as intuitive as possible while still allowing the user to have control and do what they need to do. The machines we have today need to do a wide variety of tasks as machines are integral to how we operate on a daily basis and every task has the potential to be linked to our computers. They also need to be rather simple to understand and explore as people using these machines are not going to have any kind of training in the machine. This means we need to hide away from the user all the complex tasks being performed and make everything simple and easy to understand.

The original batch system had very little pros beyond being able to deal with very limited hardware capabilities. Its cons however are a bit more extensive as it made any task take anywhere from hours to days. Also if there was an error in the program it would throw and error and have to be place back to the beginning of the process. Also the machines that were used to code the input cards were very prone to making mistakes. There is no real-time feedback. Command line had some better pros. It was able to give much greater feedback with the user. It was able to be used for basic visuals and was easy to program and understand. It was also simple enough to be used on systems with hardware limitations. Its cons were that it required the user to have knowledge of the system and its commands to operate the system. It also is not as interactive as GUIs. The GUIs have many pros. They can be extremely user friendly as they can use icons to perform tasks. They need little to no training to use to their full potential. They allow for full visuals and make a much smoother and pretty user interface. They are however not without cons. They are heavier on the hardware of the system. They also require much more advance hardware than the other types of interfaces.

**Sources**

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