Comparative characteristics of operating systems of the windows 7th and 10th generations family

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Abstract: The article reveals the concept and essence of operating systems, describes the functions of operating systems, provides statistics on the most popular operating systems among the Windows family, describes the characteristics and features of Windows 7 and Windows 10 operating systems, conducts a comparative analysis of the characteristics and draws conclusions.

Keywords: OS, Application, User, System, Windows

Introduction:

Throughout our life, we are in contact with operating systems: while studying at school and university, cashing money, paying for travel, etc. Information technology has long been an integral part of our life. Today, an operating system (OS) is a set of programs that control the operation of all devices of a personal computer and the process of executing application programs, which serves to efficiently use computer resources and provide the necessary conditions for user work.

Materials and methods:

Modern operating systems provide:
- Multitasking;
- Developed graphical user interface;
- Stability in work and security;
- Complete independence from the hardware;
- Means of ensuring computer security;
- Compatible with all kinds of applications. The main functions of the OS include:

1) Communication with the user in real time to prepare devices for operation, override the configuration and change the state of the system.

2) Performing input-output operations; in particular, the OS includes programs for processing interrupts from input-output devices, processing requests to input-output devices and distributing these requests between devices.

3) Memory management associated with the distribution of RAM between application programs.

4) File management; the main tasks in this case are to ensure protection, control sampling and preserve the secrecy of stored information.

5) Handling exceptional conditions during task execution

6) The appearance of an arithmetic or machine error, interrupts associated with incorrect addressing or the execution of privileged instructions.

7) Supporting, providing networking, utilization of utilities and high-level languages

Some of the most popular operating systems that perform the above functions are Windows 7 and 10 generations. According to statistical data from

StatCounter for June 2018, it can be concluded that Windows 10 retained its leading position among Windows systems. Windows 10 was preferred by 46.75% of respondents to a personal audience, while Windows 7 was the next most popular with a personal audience of 39.63%, which is clearly shown in Figure 1.

Thus, it was decided to conduct a comparative characteristic of Windows 7 and Windows 10.

The custom OS Windows 7 follows the release date of October 22, 2009 after Windows Vista and is the predecessor of Windows 8. Officially, the development of Windows 7 began immediately after the release of Windows Vista in late 2006, in the process of its creation, the developers managed not only to "work on bugs ", But also fill the system with completely new functions. Already during the beta testing phase of Windows 7, it became clear that it would become more popular and in demand than Windows Vista.

This OS has support for Unicode 5.1, the Instant Search search bar recognizes more languages in comparison with previous generations, and also supports multi-touch control.

Windows 7 is the first Windows operating system to include more fonts for displaying non-Latin characters than for displaying Latin characters. The Font Control Panel displays only those fonts for which the layout is installed on the system.

This OS supports folder aliases internally.

Results:

Windows Media Player 12 not only features a new interface, but also eliminates the need for a large number of codecs for playback (thus supporting popular codecs such as AAC, divx, xvid, and even H. 264).
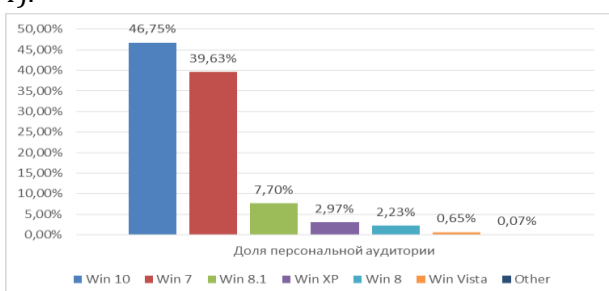

Figure: 1. Shares of personal Windows OS audience

The remote desktop function has also undergone changes: support for the Aero Peek interface, Direct 2D and Direct3D 10.1, support for multiple monitors, multimedia extensions, DirectShow, and the ability to play audio with low latency were introduced.

The Branch Cache network technology has been introduced, which allows caching the content of Internet traffic. A Windows 7 user does not need to use a limited bandwidth channel to get a file on the local network that has already been downloaded by someone on his network, he can get it from the local cache storage.

In addition to the above, Windows 7 can add support for USB 3.0, Bluetooth 4.0, DirectX 11.1 and NET. Framework 4.5 by default.

The taskbar has also been increased by 10 pixels and the borders have been removed from the quick launch bar. All text elements were replaced with graphical elements with larger icons.

The updated Wordpad now allows you to work not only with text documents with the extension. doc ,. docx, .odt, but also has new options. The developers worked hard to add an image to the document, and using the quick e-mail function, the created file can be sent to the specified address.

However, the main advantage of Windows 7 is compatibility with PCs with fairly simple technical characteristics: even a processor with only 1 GHz, 1 GB of RAM and a regular video card with DirectX 9 support is suitable. It is also worth noting that the distribution with the OS contains a set of drivers, which is suitable for almost any motherboard, video adapter and audio card. The user can simply install Windows 7 and not search through the old boxes for disks, so that the sound appears on the computer and the image is adjusted - everything is already provided.

Windows 10 was released after Windows 8 on July 29, 2015. The new generation of the OS had a lot of new features and interface capabilities, which will be described in detail below.

The new Start menu now allows the user to view lists of frequently used applications and files in one click, as well as customize applications, programs, contacts and websites. You can now pin the tiles to the Start menu, but you can remove them if you like.

In Windows 10, you can resize the Start menu with the mouse cursor, or expand the menu to full screen.

Recently installed applications are located in the middle of the Start menu's list of applications, rather than being displayed and highlighted when the All Applications dialog is opened, as was the case in previous versions of Windows.

Windows Store apps now open in windowed mode. The new button in the title bar expands the application to full screen.

Ability to create multiple virtual desktops with a given set of running applications or open files and conveniently switch between them.

Action Center has replaced the charms bar. Now they are available only in the application control menu in the window title.

Thanks to the new "Notification Center" with quick settings buttons, notifications will sync with other devices running Windows 10.

Added search bar, task view buttons (also desktops) and Action Center to the taskbar.

The improved Snap feature lets you open 4 apps at once and tells you what other apps are running and how you can place them.

Redrawn some icons. Also windows now have more modern opening and closing animations. Changed animation when installing programs.

In the new OS, window frames have become thinner, and their interface has also been changed.

Windows 10 Support Center has been renamed Security and Maintenance.

Windows Hello biometric sign-in helps you avoid having to enter your password on sites and apps that support it. Along with Windows Hello, Microsoft is launching a system called Microsoft Passport, designed to replace passwords using personal devices such as smartphones and wearables so that they can authenticate to corporate systems and online content.

Comparing the positive and negative aspects of each of the described operating systems, we can conclude that the advantages of Windows 7 include:

- Easy to install.

- Windows 7 is installed on the majority of modern netbooks, desktops and laptops, so it is much easier to perform a system recovery after a virus or other common procedures.

- The user interface of the seventh version of Windows, compared to Windows XP and Vista, differs in design styles and color saturation.

- Ability to easily write to dvd disk iso in Windows.

- Stability of work.

- The OS is compatible with common software products.

- High resistance to erroneous and careless actions of users.

The disadvantages of Windows 7 include the following factors:

- Working with the guide is complicated by many problems. The presence of a large number of settings complicates the configuration process, especially since some of them need to be searched for in the "Registry", some in the "Control Panel". But it is precisely because of the extent to which the setting is made correctly that the uninterrupted and reliable operation of the OS depends.

- Windows 7 is a low-speed operating system in comparison with XP and Vista, while to achieve the same results, the seventh version requires much more resources.

Fairly low level of general protection. So, if the user decides to install additional applications, then these actions can lead to irreversible consequences - to change the registry.

Speaking about Windows 10, the following advantages should be highlighted:

- Installed completely free for users of versions 7 and 8 within a year after the official release.

The Start menu is returned. Now it is more similar to the menu in Windows 7, but it became

possible to attach additional program icons. That is, it turned out to be a hybrid of a time-tested interface interspersed with experimental solutions.

- Full-screen applications can be reduced to the desired size, which was not possible in the eighth version.

- Support for multiple desktops without freezing and braking typical of the previous line system.

- Versatility. The new Windows can be used both on desktop PCs and on handheld, portable devices. All official applications are installed on any gadget with Windows 10 support, and their interface adjusts to its features.

- System requirements for installing Windows 10 are the same as for the seventh version. It will run without problems on legacy systems with limited RAM and a weak processor. The official specification is very democratic.

- Updates are installed automatically in the background and do not require a computer restart.

- You can go back to the previous Windows 7 or Vista if you have a backup on your hard disk, and also to the eighth version.

The disadvantages of Windows 10 include:

- Installation on some laptop PCs only from 2-3rd try.

- Problems with regional settings. Numerous cases have shown that when you enter the settings for your region, the OS automatically sets the US, with which nothing can be done.

- Lack of Media Center and DVD playback application. They argued that this kind of media in the world of modern technologies is outdated.

- Problems with privacy. The W10 license agreement gives Microsoft the right to collect user personal information and statistics - location data, browser history, and more.

"Start" and function of quick access to important information. But unlike Windows 7, Windows 10 has the advantage of being able to start up and resume quickly thanks to Hyperboot and InstantGo technologies. Both systems are personalized and have sufficient security and

compatibility. They have a reliable security system, support for more available equipment. However, in contrast, Windows 10 has a built-in service like OneDrive, which provides convenient access to all documents and photos in the cloud through File Explorer. Despite the modernity of the 10th generation OS, the 7th generation has a faster loading speed. Both Micro soft products are capable of handling high application performance, but the 10th generation wins when the user's primary concern is surfing the Internet. The two systems support games that require individual computer resources.

Conclusion:

Thus, Windows 7 and Windows 10 have their own strengths and weaknesses. The seemingly outdated Windows 7 OS hides reliability and continuing popularity among average users. As mentioned above, about 40% of respondents will prefer software proven over the years, in which they are confident. But at the same time, Windows 10 also offers additional options for working with multiple virtual desktops, having a smoother design, versatility, and more.

So, the choice of OS is entirely on the shoulders of the user. Each system corresponds to a person's life style, and, based on their daily tasks, the user makes a choice in favor of one or another OS.

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