МОСКОВСКИЙ ГОСУДАРСТВЕННЫЙ
ТЕХНИЧЕСКИЙ УНИВЕРСИТЕТ
ГРАЖДАНСКОЙ АВИАЦИИ

Л.В. Семенова,
Н.Н. Ковалева

ИНОСТРАННЫЙ ЯЗЫК
INFORMATION TECHNOLOGIES IN MODERN LIFE

Учебно-методическое пособие
по английскому языку

для студентов III-IV курсов
направления 09.03.01
очной формы обучения

Москва
2019

ФЕДЕРАЛЬНОЕ АГЕНТСТВО ВОЗДУШНОГО ТРАНСПОРТА

ФЕДЕРАЛЬНОЕ ГОСУДАРСТВЕННОЕ БЮДЖЕТНОЕ ОБРАЗОВАТЕЛЬНОЕ УЧРЕЖДЕНИЕ ВЫСШЕГО ОБРАЗОВАНИЯ

«МОСКОВСКИЙ ГОСУДАРСТВЕННЫЙ ТЕХНИЧЕСКИЙ УНИВЕРСИТЕТ ГРАЖДАНСКОЙ АВИАЦИИ (МГТУ ГА)»

Кафедра иностранных языков

Л.В. Семенова, Н.Н. Ковалева

ИНОСТРАННЫЙ ЯЗЫК

INFORMATION TECHNOLOGIES IN MODERN LIFE

Учебно-методическое пособие

по английскому языку

для студентов III-IV курсов
направления 09.03.01
очной формы обучения

Москва
2019

ББК ЧИ (Англ.)
С-30

Рецензент:
Пантюхова С.В. – старший преподаватель

Семенова Л.В.
С-30 Иностранный язык. Information technologies in modern life: учебно-методическое пособие по английскому языку./ Л.В. Семенова, Н.Н. Ковалева. – Воронеж: ООО «МИР», 2019. – 52 с.

Данное учебно-методическое пособие издается в соответствии с рабочей программой учебной дисциплины «Иностранный язык» по учебному плану для студентов III-IV курсов направления 09.03.01 очной формы обучения.

Цель учебно-методического пособия – развитие у студентов навыков чтения, перевода и обсуждения текстов по специальности на английском языке

Рассмотрено и одобрено на заседании кафедры 25.03.2019 г. и методического совета 26.03.2019 г.

В авторской редакции.

Подписано в печать 10.04.2019 г.
Формат 60x84/16 Печ.л. 2,75 Усл. печ. л. 2,56
Заказ 473/7835 Тираж 50 экз.

Московский государственный технический университет ГА
125993 Москва, Кронштадтский бульвар, д.20

Отпечатано ООО «МИР»
394033, г. Воронеж, Ленинский пр-т 119 А, лит. Я, оф. 215

TEXT 1. Evolution of the 8086, 8088, AND 80286

1. Прочитайте текст и расскажите об эволюции первых микропроцессоров, начиная с 1972 года.
2. Задайте 5-7 вопросов по содержанию текста.
3. Сделайте письменный перевод последнего абзаца текста.

The earliest microprocessors were 4-bit devices. This means they transferred only four bits of information at a time. To transfer more than four bits, they performed several separated transfer operations. Of course, this also made them slow.

The Intel 8008, introduced in 1972, was the first commercial 8-bit microprocessor (it transferred information eight bits at a time), and is still considered the foremost "first-generation" 8-bit microprocessor. Designed with a calculator-like architecture, the 8008 had an accumulator, six scratchpad registers, a stack pointer (a special address register for temporary storage), eight address registers, and special instructions to perform input and output. In 1973, Intel introduced a "second-generation" version of the 8008, named the 8080.

This 8080 is an enhanced 8008; it has more addressing and input/output (I/O) capability, more instructions, and executes instructions faster. The internal organization is better, too, although Intel maintained the overall 8008 architectural philosophy in the 8080. The 8080 is historically the de facto standard in second-generation microprocessors - the one many people still think of first when someone mentions microprocessors.

By 1976, advances in technology allowed Intel to produce an enhanced version of the 8080, called the 8085. Essentially a repackaged 8080, the 8085 added such features as power-on reset (to initialize the microprocessor), vectored interrupts (to service the needs of peripherals), a serial I/O port (to attach printers and other peripherals), and a single, +5-volt power supply (the 8060 requires two supplies).

By the time the 8085 arrived, Intel had heavy competition in the 8-bit microprocessor marketplace. Zilog Coqioration's 8080 enhancement, the Z80, was catching on, as were non-8080 designs such as the Motorola 6800 and the MOS Technology (now Commodore) 6502. Rather than continue the struggle on the now-diluted 8-bit front, Intel made a quantum leap forward in 1978 by introducing the 8086, a 16-bit microprocessor that can process data ten times faster than the 8080.

The 8086 is software-compatible with the 8080 at the assembly-language level. This means that with some minimal translation, existing 8080 programs can be reassembled and executed on the 8086. To allow for this, the 8080 registers and instruction set appear as subsets of the 8086 registers and instructions. With this compatibly, Intel could capitalize on its experience with the 8080 to gain acceptance in more sophisticated applications.

In the same vein, realizing that many designers still wanted to use the cheaper 8-bit support and peripheral chips in their 16-bit systems, Intel produced a version of the 8086 with the same 16-bit internal data paths, but with an 8-bit data bus coming out of the chip. This microprocessor, the 8088, is the one that IBM uses in the Personal Computer (PC), the PC XT, and the Portable Computer.

In 1982, Intel introduced the 80186 (and a companion, 8-bit 80188), which packs the processing power of the 8086 plus the support circuitry of 15 other chips. This "computer on a chip" contains two independent DMA (direct memory access) channels for high-speed peripherals such as disc drives, and a programmable interrupt controller. In terms of soft-ware, it provides the 8086 instruction set plus some additional instructions that are valuable to people who are designing high-level language translators or compilers.

The same year, Intel spawned the 80286, the microprocessor that controls the IBM PC AT and its "work-alikes". The 80286 (or 286 for short) is an enhanced 80186 that provides special features necessary for memory management and protection. These features are important for multi-user applications, in which several users share the computer (usually through a local area network, or LAN). They are also important for multitasking applications, in which several programs run at the same time. The IBM compatible PS's use Intel microprocessors, starting with the first PC (starting in 1981) which used the 8088, and increasing in power to 80486 microprocessors used in the current line of entry-level and low-end IBM computers. Rather than continue using numbers to identify microprocessors, however Intel decided on Pentium as the name for its most recent and most powerful microprocessor for personal computer. The Pentium runs at 66 mHz or more, has 3.1 million transistors, and can do two things at once. The PC72-computers are the IBM business machines, which use the Pentium processor.

TEXT 2. Operating Systems

1. Прочитайте текст и скажите, каковы функции операционных систем.
2. Перечислите факты, которые вы хотели бы запомнить.
3. Выразите своё мнение о содержании текста и соотнесите со своим собственным опытом.

A typical application job needs the computer, a printer, a monitor, a keyboard, and the storage for data and programs. System programs, or operating systems, manage these components, usually without your knowing it. Some system programs are already in the ROM chips in your computer. They boot, or start, the activity in a computer when you first turn it on. They also tell the computer how to create what you see on your screen - for example, how to cause an M to appear on-screen when you press the M key.

The remainder of an operating system is stored on a hard disk. This portion of your hard disk is sometimes called the system master or the disk operating system (DOS, which rhymes with boss). The programs in the ROM chip cause the computer to get the system programs from the disk and put them in memory. Usually, only a select group of system programs are transferred to memory; the others are accessed as needed. An operating system is written for a specific type of computer such as IBM-compatible, Macintosh, or Sun; most cannot be used on other types of computers.

Operating systems direct a computer to move data from RAM to the disk, route the data traveling to a printer, or see that data coming from a disk to screen does not bump into the input you are typing as it travels through the circuits.

Some system programs need input from you. If you are starting with a brand-new floppy disk, for example, you will need to format or initialize (that is, prepare) it so your computer and disk drive can store data on it. Storage is an essential function. If you have spent your whole weekend writing a report for work or school, you certainly would not take a chance on something happening to your only copy. Another system program lets you make a backup copy of that report. You can also use system programs to get rid of files you no longer want, or list the files on your disk.

Most operating systems for personal computers enable one user to do one job at a time. Advanced operating systems such as OS/2 or UNIX allow one or more of the following complex configurations:

• A multi-user operating system allows two or more users to run programs at the same time.

• A multitasking operating system allows you to run two or more tasks at the same time. The task that is currently accepting input is the foreground task, and the task that is operating beside it is the background task. A background task such as print spooling (printing documents in sequence) cannot accept input while

you are working in the foreground task. In cooperative multitasking, applications are given equal slices of time; in preemptive multitasking, the application that needs extra processing power gets a bigger share of the CPU.

• An operating system that offers task switching, on the other hand, lets you load multiple programs so that they will be available for use. Task switching does not allow two programs to be run concurrently.

• A multithreading operating system handles multiple threads. A thread is a path or theme, much as a reference theme threads through this book. In computer processing, it is a path of execution through a process, which in turn is an execution program that "owns" resources (such as open files and memory) while it runs. Traditional personal computers handle one thread, processing what is called a single-threaded application. Advanced operating systems for personal computers allow multiprogramming in which a process may have multiple threads. One way the OS handles multiple threads is by time slicing: processing time is diced into tiny equal amounts, and allocated to the various threads among which processing rotates.

TEXT 3. DOS Versions

1. Прочитайте текст и составьте подробный план текста.
2. Перескажите текст по составленному плану.
3. Составьте краткую аннотацию к тексту. Стиль аннотации, как правило, имеет безличностный характер. Используйте при работе следующие клише:

The subject master of the text is…
The text says about…
The author points out, (emphasizes, shows, describes) a number of facts…
The author concludes with a statement that…

The acronym DOS (for Disc Operating System) can refer to any operating system, but it has become almost synonymous with MS-DOS and PC-DOS. PC-DOS (Personal Computer Disk Operating System) was designed for use on IBM Personal Computers, which IBM introduced in 1981. As a result of its agreement with IBM, Microsoft was able to market its own version of the operating system called MS-DOS (Microsoft Disk Operating System). Although the two operating systems are nearly identical from a user's viewpoint, IBM does hold the copyright to PC-DOS and could, in the future, change it in a way that would make it incompatible with MS-DOS. Today, more than 100 of different types of IBM-compatible computers use the MS-DOS operating system.

The different versions of IBM-DOS and MS-DOS have been designed to run with Intel 8088, 8086, and 80286 sixteen-bit microprocessors, and with the later 80386 and 80486 thirty-two bit microprocessors. Although the earlier version of these operating systems were arcane, newer versions are somewhat more user- friendly. DOS does have a built-in memory limitation of 1MB; to exceed the limit, you need special memory software. PC-DOS and MS-DOS are single- user, single-tasking operating systems.

The latest version of MS-DOS is 6.2, designed with state-of-the-art microprocessors in mind. It is easy to install, and will not overwrite any third-party programs that enhance the operating system already in use. MS-DOS 6.2 has another advantage: you do not need to partition your hard disk into 32MB segments. You can operate an entire hard disk - of up to IGB capacity – as a single drive. MS-DOS 6.2 includes capabilities for managing memory. It also includes greatly expanded online help and a few commands including CHOICE, which makes interactive batch files possible; MOVE, which allows you to move a file to a different directory; and DELTREE, which enables you to delete a directory and all its subdirectories and files. SMARTDrive caches CD-ROM drives.

For version 6.2 of MS-DOS, Microsoft has licensed three programs from other companies. A virus protection program comes from Central Point Software; backup capabilities and defragmentation software (which gathers the pieces of a

file scattered throughout a disk and stores them contiguously) from Symantec. (The licensed utilities' screens look different from those DOS offers). MS-DOS also includes ScanDisk – which surveys the surface of a hard disk to find and fix problems or potential problems – and UnErase, which calls back a file that has been accidentally erased.

Microsoft dropped the DOS Shell as a standard DOS feature after version 5. The Shell offered an easy way to manage files, and was the only way to implement task-switching. The Shell is now on the DOS Supplemental Disk included in the OS package. The supplemental disk also contains AccessDOS, a program that can help people with disabilities to use computers.

IBM's PC-DOS 6.1 is basically the same as MS-DOS 6.0 having been completed before the shared technology agreement between IBM and Microsoft expired in late September of 1993 Unlike MS-DOS, it has some support for pen-based computing and PCMCIA cards, and offers task switching. It comes with excellent documentation and telephone support, and includes the DOS Shell. It does not include QBasic, a version of the programming language BASIC that is included with MS-DOS.

A competing OS is called Novell DOS 7, with offers the usual DOS functions and more. Functions include file compression, task switching, multitasking, a special version of Slacker (the disk-compression utility), online documentation, built-in networking, file transferring, file protection, security procedures such as passwords and anti-virus utilities, and the GEM GUI. Novell claims its DOS 7 is a better foundation than MS-DOS or PC-DOS for running Windows. But DOS 6.2 also features improved coordination between DOS and Windows. Although Novell DOS 7 is the DOS version most likely to have compatibility problems with other software, it is very highly rated operating system.

ProDOS (Professional Disk Operating System) is the revised version of the Apple-DOS (Apple Disk Operating System) developed by Apple for its use on the Apple 2 computers. Apple-DOS was a simple operating system designed for the nonprofessional computer user. ProDOS is even easier to use than the earlier Apple-DOS, but it offers more functions. It contains a variety of menus that partially eliminate the need for typed commands codes, and it allows a single user to perform one task at a time. ProDOS, like Apple 2 computers, is no longer upgraded or manufactured.

TEXT 4. WINDOWS Versions: 7, 9, 10

1. Прочитайте текст и скажите, что вы узнали об операционных системах Windows 7, 8, 10 и чем они отличатся друг от друга.
2. Скажите как вы понимаете термины: «virtual machine», «new texture compression algorithm», «non-touch PCs», «background processes», «low-level programing».
3. Просмотрите текст ещё раз и скажите, каковы основные достижения той или иной ОС. Переведите текст.

Windows 7 is the operating system of the Windows NT family of Microsoft, designed to work on computers with 32-bit and 64-bit processors, follows the release time of Windows Vista and the predecessor of Windows 8. The operating system went on sale on October 22, 2009 – less than three years after the release of the previous Windows Vista operating system. Access to RTM was granted to partners and customers with a Volume Licensing license on July 24, 2009. On the Internet, the original installation images of the final version of the system have been available since July 21, 2009. From July 2011 to March 2017, Windows 7 occupied the leading position in the number of users in the world. As of September 2018, the share of Windows 7 is 40% among the operating systems used in the world to access the Internet and ranks first in the world in popularity. This operating system supports Unicode 5.1. Instant Search now recognizes more languages.

This OS has the support of multi-touch control. All OS versions include 50 new fonts. Existing fonts are modified to correctly display all characters. Windows 7 is the first version of Windows, which includes more fonts for displaying non-Latin characters than for displaying Latin characters. The font control panel has also been improved – by default, it displays only those fonts for which the layout is installed in the system. An additional advantage of Windows 7 can be considered a closer integration with the manufacturers of drivers. Most drivers are detected automatically, while т 90% of cases, there is backward compatibility with drivers for Windows Vista.

Also in Windows 7, Windows XP Mode appeared, allowing you to run old applications in a Windows XP virtual machine, which provides almost complete support for old applications. The new, 11th version of DirectX, first released just as part of this OS, has the following improvements: added support for new computational shaders, multi- threaded rendering, improved tessellation, new texture compression algorithms, etc. Changes have been made to BitLocker encryption technology and the BitLocker to go removable media encryption function has been added, allowing encryption of removable media. Added the ability to protect data on USB drives using Enhanced Storage.

Windows 8 is an operating system belonging to the Windows NT family, in the line following Windows 7 and before Windows 8.1. Developed by

Microsoft. It went on sale October 26, 2012. As of May 2018, the share of the Windows 8 operating system among those used in the world for access to the Internet is 6.9% and ranks third after Windows 7. The server version is Windows Server 2012. As of July 2013, 100 million licenses were sold. Windows 8, unlike its predecessors – Windows 7, Windows Vista, Windows XP and earlier, uses a new interface called Metro. This interface appears first after system startup; it is similar in functionality to the desktop – the start screen has application tiles (akin to shortcuts and icons), by clicking on which an application is launched, a website or folder opens (depending on which element or application is attached to the tile). The Metro interface is focused on the touch screen, but does not exclude use on non-touch PCs.

Two new methods for user authentication: a picture-password that allows the user to log in using three taps, and a four-digit PLN code, as well as built-in support for biometric devices. The password for a non-local user account corresponds to the password for a Microsoft account.

System Restore. Added two new features: Restore and Reset. Recovery for Windows returns all system files to their original state, while retaining all settings, user files, and applications. Reset returns the computer to factory settings.

New task manager. In Windows 8, the task manager has been completely changed. Added new graphics performance, optimized management of running applications, background processes and services on a single tab "Performance". Also in the task manager was transferred autoload management from the "System Configuration".

The release of Windows 8 took place on October 26, 2012. According to Microsoft, in the first days after the release, 4 million Windows 8 updates were sold, and a month later, more than 40 million OS licenses were sold. Nevertheless, the initial demand for a new operating system was assessed by analysts as weak. According to the company Net Applications, the market share of Windows 8 among Windows-systems by the end of February 2013 was 3%. The same indicator for Windows Vista for this period was 4%, and for Windows 7 – 9.7%.

On March 26, 2013, Microsoft officially confirmed that they are working on an update codenamed Windows Blue. On May 14, the update received the official name of Windows 8.1, it also became known that the update will be free for owners of the official versions of Windows 8 and will be distributed through the Windows Store. The public preliminary version of Windows 8.1 appeared on June 26, 2013, the release of the final version occurred on October 17, 2013.

Windows 10 is an operating system for personal computers and workstations, developed by Microsoft as part of the Windows NT family. After Windows 8.1, the system received the number 10, bypassing 9. The server analogue of Windows 10 is Windows Server 2016. The system is designed to become one for different devices, such as personal computers, tablets, smartphones, Xbox One consoles, etc.

On June I, 2015, Microsoft announced that Windows 10 will be released on July 29, 2015. On July 20, 2015, the corporation launched a Windows 10 advertising campaign called "Upgrade Your World" with TV commercials highlighting new features and technologies supported by Windows 10 that aimed to provide users with a more "personal" experience. The advertising campaign ended with launch events in 13 cities on July 29, 2015, where the "unprecedented role of the biggest fans in the development of Windows 10" was noted. The updated Start menu will allow the user to view lists of frequently used applications and files in one click, as well as customize applications, programs, contacts and websites. Part New browser Microsoft Edge, which comes in the system with the assembly 10158, Internet Explorer remains for compatibility with older applications. The OneGet service is built into the system, allowing you to install programs like in Linux with the help of package managers.

Windows 10 included DirectX 12 along with WDDM 2.0. Introduced in March 2014 at the GDC, DirectX 12 conference is aimed at providing efficiency at the console level with access to hardware resources and reduction of overhead costs for the processor and graphics driver. Most of the performance improvements are achieved using low-level programming, which allows developers to more efficiently use resources and reduce narrow-profile nodes with a single-threaded processor caused by abstraction through higher-level APIs.

Windows 10 incorporates multifactor authentication technology based on the standards developed by the FIDO Alliance. The OS includes improved support for biometric authentication through the Windows Hello platform. Devices with supported cameras (requiring infrared lighting, such as Intel RealSense) allow users to register with aperture or face recognition. Devices with supported readers allow users to register through fingerprint recognition. Credentials are stored locally and secured using asymmetric encryption.

When Windows 10 was first released, multifactor authentication was provided by two components: Windows Hello and Passport. Later Passport was merged with Windows Hello.

TEXT 5. MacOS (Apple Operating Systems)

1. Прочитайте текст. Расскажите об этапах развития операционной системы Apple.
2. Рассмотрите каждый компонент текста и составьте реферат ко всему тексту. Внимательно прочитайте и запомните следующий алгоритм реферирования:
   а) Беглый просмотр текста и ознакомление с его общим смыслом.
   б) Более внимательное чтение текста, определение значения незнакомых слов по контексту или словарю.
3. Смысловой анализ текста и распределение материала статьи на основные группы по степени важности:
   а) наиболее важные сообщения;
   б) второстепенная информация;
   в) малозначимая информация.
4. Организация отобранного материала, языковая обработка и изложение.

MacOS is a series of graphical operating systems developed and marketed by Apple Inc. since 2001. It is the primary operating system for Apple's Mac family of computers. Within the market of desktop, laptop and home computers, and by web usage, it is the second most widely used desktop OS, after Microsoft Windows.

MacOS is the second major series of Macintosh operating systems. The first is colloquially called the "classic" Mac OS, which was introduced in 1984, and the final release of which was Mac OS 9 in 1999. The first desktop version, Mac OS X 10.0, was released in March 2001, with its first update, 10.1, arriving later that year. After this, Apple began naming its releases after big cats, which lasted until OS X 10.8 Mountain Lion. Since OS X 10.9 Mavericks, releases have been named after landmarks in California. Apple shortened the name to "OS X" in 2012 and then changed it to "macOS" in 2016, adopting the nomenclature that they were using for their other operating systems, iOS, watchOS, and tvOS. The latest version is macOS High Sierra, which was publicly released in September 2017.

Development

The heritage of what would become macOS had originated at NeXT, a company founded by Steve Jobs following his departure from Apple in 1985. There, the Unix-like NeXTSTEP operating system was developed, and then launched in 1989. The kernel of NeXTSTEP is based upon the Mach kernel, which was originally developed at Carnegie Mellon University, with additional kernel layers and low-level user space code derived from parts of BSD. Its

graphical user interface was built on top of an object-oriented GUI toolkit using the Objective-C programming language.

Throughout the early 1990s, Apple had tried to create a "next-generation" OS to succeed its classic Mac OS through the Taligent, Copland and Gershwin projects, but all of them were eventually abandoned. This led Apple to purchase NeXT in 1996, allowing NeXTSTEP, then called OPENSTEP, to serve as the basis for Apple's next generation operating system. This purchase also led to Steve Jobs returning to Apple as an interim, and then the permanent CEO, shepherding the transformation of the programmer-friendly OPENSTEP into a system that would be adopted by Apple's primary market of home users and creative professionals. The project was first code named "Rhapsody" and then officially named Mac OS X.

Mac OS X

Mac OS X was originally presented as the tenth major version of Apple's operating system for Macintosh computers; current versions of macOS retain the major version number "10". Previous Macintosh operating systems (versions of the classic Mac OS) were named using Arabic numerals, as with Mac OS 8 and Mac OS 9. The letter "X" in Mac OS X's name refers to the number 10, a Roman numeral. It is therefore correctly pronounced "ten" in this context. However, it is also commonly pronounced like the letter "X".

The first version of Mac OS X, Mac OS X Server 1.0, was a transitional product, featuring an interface resembling the classic Mac OS, though it was not compatible with software designed for the older system. Consumer releases of Mac OS X included more backward compatibility. Mac OS applications could be rewritten to run natively via the Carbon API; many could also be run directly through the Classic Environment with a reduction in performance.

The consumer version of Mac OS X was launched in 2001 with Mac OS X 10.0. Reviews were variable, with extensive praise for its sophisticated, glossy Aqua interface but criticizing it for sluggish performance. With Apple's popularity at a low, the makers of several classic Mac applications such as FrameMaker and PageMaker declined to develop new versions of their software for Mac OS X. Ars Technica columnist John Siracusa, who reviewed every major OS X release up to 10.10, described the early releases in retrospect as 'dog-slow, feature poor' and Aqua as 'unbearably slow and a huge resource hog'.

Following releases Apple rapidly developed several new releases of Mac OS X. Siracusa's review of version 10.3, Panther, noted "It's strange to have gone from years of uncertainty and vaporware to a steady annual supply of major new operating system releases." Version 10.4, Tiger, reportedly shocked executives at Microsoft by offering a number of features, such as fast file searching and improved graphics processing, that Microsoft had spent several years struggling to add to Windows with acceptable performance.

As the operating system evolved, it moved away from the classic Mac OS, with applications being added and removed. Considering music to be a key market, Apple developed the iPod music player and music software for the Mac, including iTunes and GarageBand. Targeting the consumer and media markets, Apple emphasized its new "digital lifestyle" applications such as the iLife suite, integrated home entertainment through the Front Row media center and the Safari web browser. With increasing popularity of the internet, Apple offered additional online services, including the .Mac, MobileMe and most recently iCloud products. It later began selling third-party applications through the Mac App Store.

In 2006, the first Intel Macs released used a specialized version of Mac OS X 10.4 Tiger. A key development for the system was the announcement and release of the iPhone from 2007 onwards. While Apple's previous (Pod media players used a minimal operating system, the iPhone used an operating system based on Mac OS X, which would later be called "iPhone OS" and then IOS. The simultaneous release of two operating systems based on the same frameworks placed tension on Apple, which cited the IPhone as forcing it to delay Mac OS X 10.5 Leopard. However, after Apple opened the IPhone to third-party developers its commercial success drew attention to Mac OS X, with many iPhone software developers showing interest in Mac development.

In 2007, Mac OS X 10.5 Leopard was the sole release with universal binary components, allowing installation on both Intel Macs and select PowerPC Macs. It is also the final release with PowerPC Mac support. Mac OS X 10.6 Snow Leopard was the first version of OS X to be built exclusively for Intel Macs, and the final release with 32-bit Intel Mac support. The name was intended to signal its status as an iteration of Leopard, focusing on technical and performance improvements rather than user-facing features; indeed, it was explicitly branded to developers as being a 'no new features' release. Since its release, several OS X or macOS releases (namely OS X Mountain Lion, OS X El Capitan and macOS High Sierra) follow this pattern, with a name derived from its predecessor, similar to the 'tick-tock model' used by Intel.

In two succeeding versions, Lion and Mountain Lion, Apple moved some applications to a highly skeuomorphic style of design inspired by contemporary versions of iOS, at the same time simplifying some elements by making controls such as scroll bars fade out when not in use. This direction was, like brushed metal interfaces, unpopular with some users, although it continued a trend of greater animation and variety in the interface previously seen in design aspects such as the Time Machine backup utility, which presented past file versions against a swirling nebula, and the glossy translucent dock of Leopard and Snow Leopard. In addition, with Mac OS X 10.7 Lion, Apple ceased to release separate server versions of Mac OS X, selling server tools as a separate downloadable application through the Mac App Store. A review described the trend in the server products as becoming "cheaper and simpler... shifting its focus from large businesses to small ones.

OS X

In 2012, with the release of OS X 10.8 Mountain Lion, the name of the system was shortened from Mac OS X to OS X. That year, Apple removed the head of OS X development, Scott Forstall, and design was changed towards a more minimal direction. Apple's new user interface design, using deep color saturation, text-only buttons and a minimal, 'flat' interface, was debuted with iOS 7 in 2013. With OS X engineers reportedly working on iOS 7, the version released in 2013, OS X 10.9 Mavericks, was something of a transitional release, with some of the skeuomorphic design removed, while most of the general interface of Mavericks remained unchanged. The next version, OS X 10.10 Yosemite, adopted a design similar to iOS 7 but with greater complexity suitable for an interface controlled with a mouse.

From 2012 onwards, the system has shifted to an annual release schedule similar to that of iOS. It also steadily cut the cost of updates from Snow Leopard onwards, before removing upgrade fees altogether from 2013 onwards. Some journalists and third-party software developers have suggested that this decision, while allowing more rapid feature release, meant less opportunity to focus on stability, with no version of OS X recommendable for users requiring stability and performance above new features. Apple's 2015 update, OS X 10.11 El Capitan, was announced to focus specifically on stability and performance improvements.

MacOS

In 2016, with the release of macOS 10.12 Sierra, the name was changed from OS X to macOS to streamline it with the branding of Apple's other primary operating systems: IOS, watchOS, and tvOS. macOS 10.12 Sierra's main features are the introduction of Siri to macOS, Optimized Storage, improvements to included applications, and greater integration with Apple's iPhone and Apple Watch. The Apple File System (APFS) was announced at the Apple Worldwide Developers Conference in 2016 as a replacement for HFS+, a highly criticized file system. At the 2017 Worldwide Developers Conference Apple previewed macOS 10.13 High Sierra. It uses APFS, rather than HFS+, on solid state drives.

TEXT 6. UNIX Operating System

1. Прочитайте текст и расскажите на английском языке историю развития операционной системы UNIX.
2. Составьте на английском языке план текста (тезисный, назывной или вопросный), пользуясь которым вы сможете передать содержание текста.
3. Переведите на русский язык последние три абзаца текста и объясните, что имеется в виду в словосочетании «UNIX philosophy» и «open system».

Since it began to escape from AT&T'S Bell Laboratories in the early 1970's, the success of the UNIX operating system has led to many different versions: recipients of the (at that time free) UNIX system code all began developing their own different versions in their own, different, ways for use and sale. Universities, research institutes, government bodies and computer companies all began using the powerful UNIX system to develop many of the technologies which today are part of a UNIX system.

Computer aided design, manufacturing control systems, laboratory simulations, even the Internet itself, all began life with and because of UNIX systems. Today, without UNIX systems, the Internet would come to a screeching halt. Most telephone calls could not be made, electronic commerce would grind to a halt and there would have never been "Jurassic Park"!

By the late 1970's, a ripple effect had come into play. By now the under- and post- graduate students whose lab work had pioneered these new applications of technology were attaining management and decision-making positions inside the computer system suppliers and among its customers. And they wanted to continue using UNIX systems.

Soon all the large vendors, and many smaller ones, were marketing their own, diverging, versions of the UNIX system optimized for their own computer architectures and boasting many different strengths and features. Customers found that, although UNIX systems were available everywhere, they seldom were able to interwork or co-exist without significant investment of time and effort to make them work effectively. The trade mark UNIX was ubiquitous, but it was applied to a multitude of different, incompatible products.

In the early 1980's, the market for UNIX systems had grown enough to be noticed by industry analysts and researchers. Now the question was no longer "What is a UNIX system?" but "Is a UNIX system suitable for business and commerce?"

Throughout the early and mid-1980's, the debate about the strengths and weaknesses of UNIX systems raged/ often fueled by the utterances of the vendors themselves who sought to protect their profitable proprietary system sales by talking UNIX systems down. And, in an effort to further differentiate their

competing UNIX system products/ they kept developing and adding features of their own.

In 1984, another factor brought added attention to UNIX systems. A group of vendors concerned about the continuing encroachment into their markets and control of system interfaces by the larger companies, developed the concept of "open systems." Open systems were those that would meet agreed specifications or standards. This resulted in the formation ofX/Open Company Ltd whose remit was, and today in the guise of The Open Group remains, to define a comprehensive open systems environment. Open systems, they declared, would save on costs, attract a wider portfolio of applications and competition on equal terms. X/Open chose the UNIX system as the platform for the basis of open systems.

Although UNIX was still owned by AT&T, the company did little commercially with it until the mid-1980's. Then the spotlight of X/Open showed clearly that a single, standard version of the UNIX system would be in the wider interests of the industry and its customers. The question now was, "which version?".

In a move intended to unify the market in 1987, AT&T announced a pact with Sun Microsystems, the leading proponent of the Berkeley derived strain of UNIX. However, the rest of the industry viewed the development with considerable concern. Believing that their own markets were under threat they clubbed together to develop their own "new" open systems operating system. Their new organization was called the Open Software Foundation (OSF). In response to this/the AT&T/Sun faction formed UNIX International.

The ensuing "UNIX wars" divided the system vendors between these two camps clustered around the two dominant UNIX system technologies: AT&T'S System V and the OSF system called OSF/1. In the meantime, X/Open Company held the center ground. It continued the process of standardizing the APIs necessary for an open operating system specification. In addition, it looked at areas of the system beyond the operating system level where a standard approach would add value for supplier and customer alike, developing or adopting specifications for languages, database connectivity, networking and mainframe interworking. The results of this work were published in successive X/Open Portability Guides.

XPG 4 was released in October 1992. During this time/ X/Open had put in place a brand program based on vendor guarantees and supported by testing. Since the publication of XPG4, X/Open has continued to broaden the scope of open systems specifications in line with market requirements. As the benefits of the X/Open brand became known and understood/ many large organizations began using X/Open as the basis for system design and procurement. By 1993, over $7 billion had been spent on X/Open branded systems. By the start of 1997 that figure has risen to over $23 billion. To date, procurements referencing the Single UNIX Specification amount to over $5.2 billion.

In early 1993, AT&T sold it UNIX System Laboratories to Novell which was looking for a heavyweight operating system to link to its NetWare product range. At the same time, the company recognized that vesting control of the definition (specification) and trademark with a vendor-neutral organization would further facilitate the value of UNIX as a foundation of open systems. So, the constituent parts of the UNIX System (source code/technology and specification/trademark), previously owned by a single entity are now quite separate.

In 1995 X/Open introduced the UNIX 95 brand for computer systems guaranteed to meet the Single UNIX Specification. The Single UNIX Specification brand program has now achieved critical mass: vendors whose products have met the demanding criteria now account for the majority of UNIX systems by value.

For over twenty years, since the inception of X/Open/ UNIX had been closely linked with open systems. X/Open, now The Open Group, continues to develop and evolve the Single UNIX Specification and associated brand program on behalf of the IT community.

The freeing of the specification of the interfaces from the technology is allowing many systems to support the UNIX philosophy of small, often simple tools/ that can be combined in many ways to perform often complex tasks. The stability of the core interfaces preserves existing investment/ and is allowing development of a rich set of software tools. The Open Source movement is building on this stable foundation and is

creating a resurgence of enthusiasm for the UNIX philosophy. In many ways Open Source can be seen as the true delivery of Open Systems that will ensure it continues to go from strength to strength.

TEXT 7. Modern Android Operating System

1. Прочитайте текст и скажите, что делает операционную систему Android уникальной.
2. Расскажите на английском языке о происхождении и развитии операционной системы Android и её различных версиях.
3. Напишите краткую аннотацию текста.

Introduction

Since the IT revolution began, many operating systems have developed and used for different types of devices including computers and phones. When it comes to phones, there have been all kinds of mobile operating systems, ranging from the most basic ones to the most sophisticated modern operating systems designed for the powerful smartphones available today. It was the Palm OS as one of the earliest mobile OS', which was launched in 1996, then the Windows Pocket PC released in 2000, followed by Blackberry OS and then the revolutionary Android platform. Android has emerged as the most widely used mobile OS in current use. What makes it unique is that it is much more than just an operating system.

Origin

Android Inc. founded in 2003 in Palo Alto, California. It established by a team comprising of Andy Rubin, Nick Sears, Rich Miner and Chris White. Google acquired the company in 2005, which lead to the platform's further evolution on the global platform.

It initially developed with the goal of providing a sophisticated OS for digital cameras. The efforts later redirected to create a Smartphone operating system. Windows Mobile and Symbian were its primary competitors.

Takeover by Google

Google acquired Android in 2005 and unveiled it in 2007. It also founded the Open Handset Alliance, a group of companies that promoted open standards within the mobile device domain. The first commercial Android device launched in September

of 2008. Since then the mobile OS has seen various versions to reach the current 7.0 Nougat, which initiated in August of 2016.

Different Versions of Android OS

The history of Android OS is marked by its development over the years in the form of its various versions. The different versions of this mobile operating system and their critical features are as following.

Android 1.0

Android v 1.0 released in 2008 pioneered how to deal effectively with notifications. Its pull-down notification window was a revolutionary addition. The current Google Play Store first introduced in version 1.0 as Android Market. It

also allowed the use of home screen widgets, something the iOS platform has not yet been able to include.

Android 1.5 (Cupcake)

This version of Android launched in 2009. It is the first Android version to have an on-screen keyboard. It also allowed third-party developers to develop and add widgets by opening the widgets SDK. Android Cupcake also allowed video captured for the first time on the platform.

Android 1.6 (Donut)

Android Donut was released the same year as v 1.5 and introduced support for CDMA networks. It helped the mobile OS reach millions worldwide. It supported different screen sizes, allowing manufacturers to use Android on various sizes of devices. Version 1.6 also introduced the quick search box and also redesigned the Android Market.

Android 2.0 (Eclair)

The version 2.0 was also launched in 2009 and introduced many significant changes. In fact, it was the first mobile OS to come with Google Maps Navigation. Voice guidance and tum-by-tum navigation are some of the features introduced in Maps in Android 2.0 that continue to be in use still today. Google provided these features for free compared to paid offerings from the competition. The internet browser supported HTML5 in Android Eclair.

Android 2.2 (Froyo)

Android version 2.2 released in 2010 on the Nexus One device. This version refined the Android experience. Five home screen panels introduced in place of earlier 3. This version also added the mobile hotspot support and PIN lock screen.

Android 2.3 (Gingerbread)

Gingerbread was also introduced the same year as Froyo. The home screen and stock widgets redesigned, and the overall OS experience further refined. The version featured a better keyboard having new key colors and better multi-touch support. Android also began supporting the front-facing camera.

Android 3.0 (Honeycomb)

Version 3.0 released in 2011, and it was designed keeping in mind the needs of tablet users. Many of the designs from Honeycomb have been retained in the current versions too. Android began showing previews for each widget, which was a major concern with users in the earlier versions. One of the biggest changes in Honeycomb was that the virtual buttons replaced the physical button. Home, menu and back buttons became part of the software. Google also switched Android's highlights from green to blue.

Android 4.0 (Ice Cream Sandwich)

The Ice Cream Sandwich carried over many of the features of Honeycomb. The legacy of the virtual buttons brought forward, and the interface became even more refined. Google released many other new small features in the update including face unlock, calendar and mail apps, and data usage details.

Android 4.1 (Jelly Bean)

Android Jelly Bean released in 2012. It maintained most of the visual features from its predecessor, but there were important underlying changes. Google Now was introduced, and users could open it with a quick swipe. Emails, calendar events, and weather reports brought on the same screen. It was also the first time when Google laid the foundations for its future digital assistants. Project Butter significantly improved the mobile OS' touch performance. It involved developing the buffering graphics of the headset. Some of the other improvements in Android included better font, more flexibility with the widget, and expanded notifications.

Android 4.4 (KitKat)

Android version 4.4 was released in 2013 and introduced many big improvements and features. In fact, it accounted for a major aesthetic update to the mobile OS. The blue highlights in the Ice Cream Sandwich and Jellybean gave way to more modem and refined white highlights. The focus switched to lighter color scheme across many elements. Other new additions included the "Ok, Google" command to launch Google Now, an improved phone dialer, the Hangouts app, and full-screen apps.

Android 5.0 (Lollipop)

Google released Android Lollipop in 2014. It designed around Google's popular Material Design concept. Some of the major updates included Android Runtime replacing Dalvik VM, improved notifications, support for RAW image format, and improved refinement. With Android Lollipop, Google also introduced an entirely new version of the mobile OS, Android TV.

Android 6.0 (Marshmallow)

Android Marshmallow launched in 2015. With Android v6.0, Google brought complete changes to the app menu. A search bar was added to search apps quickly, and the background switched from white to black. It also added memory manager, more elaborate volume controls, and began supporting fingerprint sensors.

Android 7.0 (Nougat)

Android version 7.0 released in August of 2016. Google Now was replaced by the Google Assistant. The notifications system received a major update with loose grouping together and screen to screen viewing. Nougat also improved multitasking. The split-screen mode allows using two apps simultaneously.

Conclusion

All these different versions sum-up the history of the Android OS. Today, the success of this mobile OS can determine by the sheer size of its user base. Google Play Store, the official store of Android applications, features more than 2.7 million apps. The secret to Android's success lies in the flexibility it offers and its key features.

TEXT 8. Android, iOS, Windows – Smartphone Operating Systems

1. Прочитайте текст и расскажите, что вы узнали об операционных системах современных смартфонов и в чём их различие.
2. Просмотрите текст ещё раз и сформируйте к нему вопросы на английском языке.
3. Составьте краткую аннотацию к тексту.

The operating system on your mobile phone is the very basic software which allows your phone to operate. It brings together the hardware chips and components inside your phone so they all work in conjunction with each other. The operating system provides all of the basic functionality of your smartphone: being able to make calls, send and receive text messages, browse the internet and being able to run applications. Your choice of operating system has a massive impact on the look and feel of your phone and the applications that it's able to run.

Apple iOS: iPhone, iPad & iPod Touch

The best known operating system for mobile phones is probably Apple's iOS operating system (previously known as iPhone OS). Developed by Apple, iOS can only be found running on Apple's own devices such as their smartphones (iPhone family), tablets (iPad & iPad 2) and portable music players (iPod Touch). Development of iOS is dictated solely by Apple with software updates such as new features and bug fixes being delivered by Apple through iTunes.

iOS is often said to be the easiest operating system for new smartphone users to pick up. With its large market share, iOS also benefits from being the first platform that developers usually produce apps for. This means iOS devices are able to access a large variety of applications - over 500,000 are available from Apple's "App Store". Many of these applications cost in the region of 69p but a decent selection of free applications are available too. Once downloaded, these applications will appear as a new icon on your home screen. iOS is a purely touchscreen-based operating system (it only supports on-screen software keyboards) and includes standard applications such as a web browser, e-mail and maps. Notably, iOS has built-in parental controls. Killer application for iOS: Owners of an iPhone 4S can take advantage of the "Siri" virtual assistant. It uses voice recognition technology to understand what you want to do.

Android: Open source alternative from Google

The primary competitor to Apple's iOS comes in the form of Google's Android operating system. Designed to be an "open" alternative to iOS, Google develops Android internally before releasing it to smartphone manufacturers free of charge. This has led to the Android platform being adopted by companies such as Samsung, HTC, LG, Motorola and Sony Ericsson. These companies often take the basic Android operating system as provided by Google and add their own customizations to it before shipping it on their phones. Popular smartphones based on Android include the Samsung Galaxy S 8, the Xiaomi Redmi 6, the Samsung

Galaxy Note, the Galaxy Nexus with Android 7.0, the HTC Sensation family of smartphones and the low-cost Orange San Francisco. Android-based tablets include the Galaxy Tab 10.1, the Motorola Xoom and the HTC Flyer.

With the large number of Android users out there, application developers are increasingly making their applications available on the Android platform. Over 600,000 applications are available from the Android Market with a larger proportion of free applications than on the Apple iOS platform. Proponents of Android argue that one of its key benefits is its versatility. Android can be used on both tablets and smartphones and is also able to support devices with hardware keyboards such as the HTC ChaCha and the HTC Desire Z. Android has also been particularly popular with the developer community as it allows users to create and install their own customised versions of Android ("custom ROMS").

Criticisms of Android sometimes include the lack of consistency between different Android devices, delays in software updates and difficulties in ease of use. Killer application for Android: Google has created many exciting applications which are exclusive to Android. Android phones are bundled with free GPS navigation but it's also worthwhile downloading the Google Goggles augmented reality application and the Google Translate application which includes voice recognition for speech-to-speech translation.

Windows Phone: Microsoft's mobile operating system

Microsoft's attempt to take on the mobile operating system market is Windows Phone. First released in 2010, Windows Phone is a fairly new operating system and hence has fewer users than IOS and Android. Many mobile phone manufacturers are now beginning to ship smartphones with Windows Phone - examples include Nokia's Lumia range, the Samsung Omnia 7, the LG Optimus 7 and the HTC Titan.

Windows Phone has a fairly distinct look from both iOS and Android: it features Microsoft's tile- based Metro user interface (this is also set to feature in the next version of Windows 8 for PCs). Metro does away with the icon-based layout of iOS and Android and features application interfaces which are spread across horizontally-scrolling canvases. Integrated into Windows Phone is Xbox Live, Microsoft Office and access to 40,000+ applications from the Windows Phone Marketplace. The range of applications available for Windows Phone is substantially smaller than on both IDS and Android but this is likely to increase as Windows Phone matures as an operating system.

One of the key differentiation points between smartphones is the operating system they run. Popular operating systems include Apple's iOS, Google's Android and Microsoft's Windows Phone but other operating systems such as BlackBerry OS, Nokia's Symbian and Samsung's Bada also exist.

TEXT 9. Linux Operating System

1. Прочитайте текст и назовите основные свойства операционной системы Linux.
2. Как и кем была названа данная операционная система Linux?
3. Прочтите внимательно текст ещё раз и составьте реферат на английском языке, пользуясь представленными ниже клише:

The text under review gives us a sort of information about…
The subject of the text is…
At the beginning of the text the author describes… analyses… characterizes…
Then (after that) the author passes onto… gives a detailed analysis of…
At the end of the text the author draws the conclusion that…
To finish with the author describes…
In conclusion author…

Linux is a family of free and open-source software operating systems built around the Linux kernel. Typically, Linux is packaged in a form known as a Linux distribution (or distro for short) for both desktop and server use. The defining component of a Linux distribution is the Linux kernel, an operating system kernel first released on September 17, 1991, by Linus Torvalds. Many Linux distributions use the word "Linux" in their name. The Free Software Foundation uses the name GNU/Linux to refer to the operating system family, as well as specific distributions, to emphasize that most Linux distributions are not just the Linux kernel, and that they have in common not only the kernel, but also numerous utilities and libraries, a large proportion of which are from the GNU project. This has led to some controversy.

Linux was originally developed for personal computers based on the Intel x86 architecture, but has since been ported to more platforms than any other operating system. Because of the dominance of the Linux kernel-based Android OS on smartphones, Linux has the largest installed base of all general-purpose operating systems. Linux is also the leading operating system on servers and other big iron systems such as mainframe computers, and the only OS used on TOP500 supercomputers (since November 2017, having gradually eliminated all competitors). It is used by around 2.3% of desktop computers. The Chromebook, which runs the Linux kernel-based Chrome OS, dominates the US K-12 education market and represents nearly 20% of the sub-$300 notebook sales in the US. Linux also manages embedded systems, i.e. devices whose operating system is typically built into the firmware and is highly tailored to the system. This includes TiVo and similar DVR devices, network routers, facility automation controls, televisions, video game consoles and smartwatches. Many smartphones and tablet computers run Android and other Linux derivatives.

The development of Linux is one of the most prominent examples of free and open- source software collaboration. The underlying source code may be used, modified and distributed – commercially or non-commercially – by anyone under the terms of its respective licenses, such as the GNU General Public License.

Some of the most popular and mainstream Linux distributions are Arch Linux, CentOS, Debian, Raspbian, Fedora, Gentoo Linux, Linux Mint, Mageia, openSUSE and Ubuntu, together with commercial distributions such as Red Hat Enterprise Linux and SUSE Linux Enterprise Server. Distributions include the Linux kernel, supporting utilities and libraries, many of which are provided by the GNU Project, and usually a large amount of application software to fulfil the distribution's intended use. Desktop Linux distributions include a windowing system, such as Xl 1, Mir or a Wayland implementation, and an accompanying desktop environment such as GNOME or KDE Plasma; some distributions may also include a less resource-intensive desktop, such as LXDEor Xfce. Distributions intended to run on servers may omit all graphical environments from the standard install, and instead include other software to set up and operate a solution stack such as LAMP. Because Linux is freely redistributable, anyone may create a distribution for any intended use.

History

The Unix operating system was conceived and implemented in 1969, at AT&T'S Bell Laboratories in the United States by Ken Thompson, Dennis Ritchie, Douglas Mcllroy, and Joe Ossanna. First released in 1971, Unix was written entirely in assembly language, as was common practice at the time. Later, in a key pioneering approach in 1973, it was rewritten in the C programming language by Dennis Ritchic (with the exception of some hardware and I/O routines). The availability of a high-level language implementation of Unix made its porting to different computer platforms easier. Due to an earlier antitrust case forbidding it from entering the computer business, AT&T was required to license the operating system's source code to anyone who asked. As a result, Unix grew quickly and became widely adopted by academic institutions and businesses. In 1984, AT&T divested itself of Bell Labs; freed of the legal obligation requiring free licensing. Bell Labs began selling Unix as a proprietary product, where users were not legally allowed to modify Unix. The GNU Project, started in 1983 by Richard Stallman, had the goal of creating a "complete Unix-compatible software system" composed entirely of free software. Work began in 1984. Later, in 1985, Stallman started the Free Software Foundation and wrote the GNU General Public License (GNU GPL) in 1989. By the early 1990s, many of the programs required in an operating system (such as libraries, compilers, text editors, a Unix shell, and a windowing system) were completed, although low-level elements such as device drivers, daemons, and the kernel, called GNU/Hurd, were stalled and incomplete.

Linus Torvalds has stated that if the GNU kernel had been available at the time (1991), he would not have decided to write his own. Although not released until 1992, due to legal complications, development of 386BSD, from which NetBSD, OpenBSD and FreeBSD descended, predated that of Linux. Torvalds has also stated that if386BSD had been available at the time, he probably would not have created Linux. MINIXwas created by Andrew S. Tanenbaum, a computer science professor, and released in 1987 as a minimal Unix-like operating system targeted at students and others who wanted to learn the operating system principles. Although the complete source code of MINIX was freely available, the licensing terms prevented it from being free software until the licensing changed in April 2000.

Creation

In 1991, while attending the University of Helsinki, Torvalds became curious about operating systems Fmstrated by the licensing of MINIX, which at the time limited it to educational use only, he began to work on his own operating system kernel, which eventually became the Linux kernel.

Torvalds began the development of the Linux kernel on MINIX and applications written for MINIX were also used on Linux. Later, Linux matured and further Linux kernel development took place on Linux systems. GNU applications also replaced all MINIX components, because it was advantageous to use the freely available code from the GNU Project with the fledgling operating system; code licensed under the GNU GPL can be reused in other computer programs as long as they also are released under the same or a compatible license. Torvalds initiated a switch from his original license, which prohibited commercial redistribution, to the GNU GPL.

Developers worked to integrate GNU components with the Linux kernel, making a fully functional and free operating system.

Naming

Linus Torvalds had wanted to call his invention "Freax", a portmanteau of "free", "freak", and "x" (as an allusion to Unix). During the start of his work on the system, some of the project's makefiles included the name "Freax" for about half a year. Torvalds had already considered the name "Linux", but initially dismissed it as too egotistical.

In order to facilitate development, the files were uploaded to the FTP server (ftp.funet.fi) of FUNET in September 1991. Ari Lemmke, Torvalds' coworker at the Helsinki University of Technology (HUT), who was one of the volunteer administrators for the FTP server at the time, did not think that "Freax" was a good name. So, he named the project "Linux" on the server without consulting Torvalds. Later, however, Torvalds consented to "Linux".

To demonstrate how the word "Linux" should be pronounced, Torvalds included an audio guide with the kernel source code. Another variant of pronunciation is LYN-aks.

Commercial and popular uptake

Adoption of Linux in production environments, rather than being used only by hobbyists, started to take off first in the mid-1990s in the supercomputing community, where organizations such as NASA started to replace their increasingly expensive machines with clusters of inexpensive commodity computers running Linux. Commercial use began when Dell and IBM, followed by Hewlett-Packard, started offering Linux support to escape Microsoft's monopoly in the desktop operating system market.

Today, Linux systems are used throughout computing, from embedded systems to virtually all supercomputers, and have secured a place in server installations such as the popular LAMP application stack. Use of Linux distributions in home and enterprise desktops has been growing. Linux distributions have also become popular in the netbook market, with many devices shipping with customized Linux distributions installed, and Google releasing their own Chrome OS designed for netbooks.

Linux's greatest success in the consumer market is perhaps the mobile device market, with Android being one of the most dominant operating systems on smartphones and very popular on tablets and, more recently, on wearables. Linux gaming is also on the rise with Valve showing its support for Linux and rolling out its own gaming oriented Linux distribution. Linux distributions have also gained popularity with various local and national governments, such as the federal government of Brazil.

Current development

Greg Kroah-Hartman is the lead maintainer for the Linux kernel and guides its development. Stallman heads the Free Software Foundation, which in turn supports the GNU components. Finally, individuals and corporations develop third-party non-GNU components.

These third-party components comprise a vast body of work and may include both kernel modules and user applications and libraries.

Linux vendors and communities combine and distribute the kernel, GNU components, and non- GNU components, with additional package management software in the form of Linux distributions.

Design

A Linux-based system is a modular Unix-like operating system, deriving much of its basic design from principles established in Unix during the 1970s and 1980s. Such a system uses a monolithic kernel, the Linux kernel, which handles process control, networking, access to the peripherals, and file systems. Device drivers are either integrated directly with the kernel, or added as modules that are loaded while the system is running.

The GNU userland is a key part of most systems based on the Linux kernel, with Android being the notable exception. The Project's implementation of the C library functions as a wrapper for the system calls of the Linux kernel necessary to the kernel-userspace interface, the toolchain is a broad collection of programming

tools vital to Linux development (including the compilers used to build the Linux kernel itself), and the coreutils implement many basic Unix tools. The project also develops a popular CLI shell. The graphical user interface (or GUI) used by most Linux systems is built on top of an implementation of the X Window System. More recently, the Linux community seeks to advance to Wayland as the new display server protocol in place of X 11.

Many other open-source software projects contribute to Linux systems.

Installed components of a Linux system include the following:

• A bootloader, for example GNU GRUB, LILO, SYSLINUX, or Gummiboot. This is a program that loads the Linux kernel into the computer's main memory, by being executed by the computer when it is turned on and after the firmware initialization is performed.

• An init program, such as the traditional sysVinit and the newer systemd, OpenRC and Upstart.

This is the first process launched by the Linux kernel, and is at the root of the process tree: in other terms, all processes are launched through init. It starts processes such as system services and login prompts (whether graphical or in terminal mode).

Software libraries, which contain code that can be used by running processes. On Linux systems using ELF-format executable files, the dynamic linker that manages use of dynamic libraries is known as ld-linux.so. If the system is set up for the user to compile software themselves, header files will also be included to describe the interface of installed libraries. Besides the most commonly used software library on Linux systems, the GNU C Library (glibc), there are numerous other libraries, such as SDL and Mesa.

C standard library is the library needed to manage programs on a computer system, with the GNU C Library being the standard. For embedded systems, alternatives such as the EGLIBC (a glibc fork once used by Debian) and uClibc (which was designed foruClinux) have been developed, although both are no longer maintained. Android uses its own C library, Bionic. Basic Unix commands, with GNU coreutils being the standard implementation. Alternatives exist for embedded systems, such as the copy left BusyBox, and the BSD-licensed Toybox.

Widget toolkits are the libraries used to build graphical user interfaces(GUIs) for software applications. Numerous widget toolkits are available, including GTK+ and Clutter developed by the GNOME project, Qtdeveloped by the Qt Project and led by Digia, and Enlightenment Foundation Libraries (EFL) developed primarily by the Enlightenment team. A package management system, such as dpkg and RPM. Alternatively packages can be compiled from binary or source tarballs. User interface programs such as command shells or windowing environments.

User interface

The user interface, also known as the shell, is either a command-line interface (CLI), a graphical user interface (GUI), or controls attached to the associated hardware, which is common for embedded systems. For desktop systems, the default user interface is usually graphical, although the CLI is commonly available through terminal emulator windows or on a separate virtual console. CLI shells are text-based user interfaces, which use text for both input and output. The dominant shell used in

Linux is the Bourne-Again Shell (bash), originally developed for the GNU project. Most low-level Linux components, including various parts of the userland, use the CLI exclusively. The CLI is particularly suited for automation of repetitive or delayed tasks, and provides very simple inter-process communication.

On desktop systems, the most popular user interfaces are the GUI shells, packaged together with extensive desktop environments, such as KDE Plasma, GNOME, MATE, Cinnamon, Unity, LXDE, Pantheon and Xfce, though a variety of additional user interfaces exist. Most popular user interfaces are based on the X Window System, often simply called "X". It provides network transparency and permits a graphical application running on one system to be displayed on another where a user may interact with the application; however, certain extensions of the X Window System are not capable of working over the network. Several X display servers exist, with the reference implementation, X.Org Server, being the most popular.

Several types of window managers exist for Xl 1, including tiling, dynamic, stacking and compositing. Window managers provide means to control the placement and appearance of individual application windows, and interact with the X Window System. Simpler X window managers such as dwm or ratpoison provide a minimalist functionality, while more elaborate window managers such as FVWM, Enlightenment or Window Maker provide more features such as a built- in taskbar and themes, but are still lightweight when compared to desktop environments.

Desktop environments include window managers as part of their standard installations, such as Mutter (GNOME), KLWin (KDE) or Xfwm (xfce), although users may choose to use a different window manager if preferred.

Wayland is a display server protocol intended as a replacement for the Xl 1 protocol; as of 2014, it has not received wider adoption. Unlike X 11, Wayland does not need an external window manager and compositing manager. Therefore, a Wayland compositor takes the role of the display server, window manager and compositing manager. Weston is the reference implementation of Wayland, while GNOME'S Mutter and KDE's KWin are being ported to Wayland as standalone display servers. Enlightenment has already been successfully ported since version 19.

Linux currently has two modem kernel-userspace APIs for handling video input devices: V4L2 API for video streams and radio, and DVB API for digital TV reception. Due to the complexity and diversity of different devices, and due to the large amount of formats and standards handled by those APIs, this infrastructure needs to evolve to better fit other devices. Also, a good userspace device library is the key of the success for having userspace applications to be able to work with all formats supported by those devices.

Text 10. Expert Systems

1. Прочитайте текст и расскажите о сферах применения экспертных систем.
2. Что вы можете добавить о сферах применения экспертных систем в современной жизни?
3. Сделайте письменный перевод текста.

Results have been disappointing in artificial intelligence, the field of developing techniques whereby computer can be used to solve problems that appear to require imagination, intuition, or intelligence. Thus, the term is being used less frequently. Present efforts in this field are described as applied intelligence instead. One of the products of applied intelligence is the expert system that covers knowledge in only one field, such as medicine or geology.

An expert system is software that evaluates, draws conclusions, and makes recommendations based on a huge database of information (the knowledge base) in the particular field. A medical diagnosis expert system, for example, could make cross-references among such bodies of data as the history, symptoms, and test results of a patient, correlate these with the data in its database, and come up with possible diseases the patient has. This helps the doctor diagnose puzzling case and set up a plan of treatment. The expert system includes a set of rules for reasoning designed to mimic the decision-making process of human experts in a narrowly defined field, based on what is known of the human through process.

Most expert systems are used in professional fields. One such system is MYCIN, which is used to diagnose infections diseases and recommend appropriate drugs.

Oncocion advises physicians on the best treatment for cancer patients and Caduceus 2 hold information about hundreds of diseases and symptoms.

Prospector is an expert system that helps geologists in locating mineral deposits. Increasingly, businesses are using expert systems, people who use various online resources can activate expert systems that help them find information.

Expert system are used in many fields: law, medicine, engineering, business, geology, financial analysis and tax analysis among others. They perform such functions as recommending strategies, diagnosing problems, analyzing structures, and training personnel. Expert system can cut costs, boost quality, and improve productivity, and they have the potential of functioning better than any single human expert in making judgements within their own areas of expertise.

TEXT 11. The History of WWW

1. Прочитайте текст и распределите факты, содержащиеся в тексте, по степени важности.
2. Назовите хронологические данные касающиеся истории (WWW) всемирной паутины, которые вы считаете особо важными. Обоснуйте своё решение.
3. Объясните, почему автор считает, что термин WWW (всемирная паутина) не является синонимичным термину Internet (интернет).

Tim Berners-Lee's vision of a global hyperlinked information system became a possibility by the second half of the 1980s. By 1985, the global Internet began to proliferate in Europe and the Domain Name System (upon which the Uniform Resource Locator is built) came into being. In 1988 the first direct IP connection between Europe and North America was made and Berners-Lee began to openly discuss the possibility of a web-like system at CERN. In March 1989 Berners-Lee issued a proposal to the management at CERN for a system called "Mesh" that referenced ENQUIRE, a database and software project he had built in 1980, which used the term "web" and described a more elaborate information management system based on links embedded in readable text: "Imagine, then, the references in this document all being associated with the network address of the thing to which they referred, so that while reading this document you could skip to them with a click of the mouse." Such a system, he explained, could be referred to using one of the existing meanings of the word hypertext, a term that he says was coined in the 1950s. There is no reason, the proposal continues, why such hypertext links could not encompass multimedia documents including graphics, speech and video, so that Berners-Lee goes on to use the term hypermedia.

With help from his colleague and fellow hypertext enthusiast Robert Cailliau he published a more formal proposal on 12 November 1990 to build a "Hypertext project" called “WorldWideWeb" (one word) as a "web" of "hypertext documents" to be viewed by "browsers" using a client-server architecture. At this point HTML and HTTP had already been in development for about two months and the first Web server was about a month from completing its first successful test. This proposal estimated that a read-only web would be developed within three months and that it would take six months to achieve "the creation of new links and new material by readers, [so that] authorship becomes universal" as well as "the automatic notification of a reader when new material of interest to him/her has become available." While the read-only goal was met, accessible authorship of web content took longer to mature, with the wiki concept, WebDAV, blogs, Web 2.0 and RSS/Atom.

The proposal was modelled after the SGML reader Dynatext by Electronic Book Technology, a spin-off from the Institute for Research in Information and

Scholarship at Brown University. The Dynatext system, licensed by CERN, was a key player in the extension of SGML ISO 8879:1986 to Hypermedia within HyTime, but it was considered too expensive and had an inappropriate licensing policy for use in the general high energy physics community, namely a fee for each document and each document alteration. A NeXT Computer was used by Berners-Lee as the world's first web server and also to write the first web browser, WorldWideWeb, in 1990. By Christmas 1990, Berners-Lee had built all the tools necessary for a working Web: the first web browser (which was a web editor as well) and the first web server. The first web site, which described the project itself, was published on 20 December 1990.

The first web page may be lost, but Paul Jones of UNC-Chapel Hill in North Carolina announced in May 2013 that Berners-Lee gave him what he says is the oldest known web page during a 1991 visit to UNC. Jones stored it on a magneto-optical drive and on his NeXT computer. On 6 August 1991, Berners-Lee published a short summary of the World Wide Web project on the newsgroup alt. hypertext. This date is sometimes confused with the public availability of the first web servers, which had occurred months earlier. As another example of such confusion, several news media reported that the first photo on the Web was published by Berners-Lee in 1992, an image of the CERM house band Les Horribles Cernettes taken by Silvano de Gennaro; Gennaro has disclaimed this story, writing that media were "totally distorting our words for the sake of cheap sensationalism".

The first server outside Europe was installed at the Stanford Linear Accelerator Center (SLAC) in Palo Alto, California, to host the SPIRES-HEP database. Accounts differ substantially as to the date of this event. The World Wide Web Consortium's timeline says December 1992, whereas SLAC itself claims December 1991, as does a W3C document titled A Little History of the World Wide Web. The underlying concept of hypertext originated in previous projects from the 1960s, such as the Hypertext Editing System (HES) at Brown University, Ted Nelson's Project Xanadii, and Douglas Engelbart's oN-Line System (NLS). Both Nelson and Engelbart were in turn inspired by Vannevar Bush's microfilm-based memex, which was described in the 1945 essay "As We May Think".

Berners-Lee's breakthrough was to marry hypertext to the Internet. In his book Weaving The Web he explains that he had repeatedly suggested that a marriage between the two technologies was possible to members of both technical communities, but when no one took up his invitation, he finally assumed the project himself. In the process, he developed three essential technologies:

• a system of globally unique identifiers for resources on the Web and elsewhere, the universal document identifier (UDI), later known as uniform resource locator (URL) and uniform resource identifier (URI);

• the publishing language HyperText Markup Language (HTML);

• the Hypertext Transfer Protocol (HTTP).

The World Wide Web had a number of differences from other hypertext systems available at the time. The Web required only unidirectional links rather than bidirectional ones, making it possible for someone to link to another resource without action by the owner of that resource. It also significantly reduced the difficulty of

implementing web servers and browsers (in comparison to earlier systems), but in turn presented the chronic problem of link rot. Unlike predecessors such as Hypercard, the World Wide Web was non-proprietary, making it possible to develop servers and-clients independently and to add extensions without licensing restrictions. On 30 April 1993, CERN announced that the World Wide Web would be free to anyone, with no fees due. Coming two months after the announcement that the server implementation of the Gopher protocol was no longer free to use, this produced a rapid shift away from Gopher and towards the Web. An early popular web browser was Viola WWW for Unix and the X Windowing System.

Scholars generally agree that a turning point for the World Wide Web began with the introduction of the Mosaic web browser in 1993, a graphical browser developed by a team at the National Center for Supercomputing Applications at the University of Illinois at Urbana-Champaign (NCSA-UIUC), led by Marc Andreessen. Funding for Mosaic came from the US High-Performance Computing and Communications Initiative and the High Performance Computing Act of 1991, one of several computing developments initiated by US Senator Al Gore. Prior to the release of Mosaic, graphics were not commonly mixed with text in web pages and the web's popularity was less than that of older protocols in use over the Internet, such as Gopher and Wide Area Information Servers (WAIS). Mosaic's graphical user interface allowed the Web to become, by far, the most popular Internet protocol. The World Wide Web Consortium (W3C) was founded by Tim Berners-Lee after he left the European Organization for Nuclear Research (CERN) in October 1994. It was founded at the Massachusetts Institute of Technology Laboratory for Computer Science (MIT/LCS) with support from the Defense Advanced Research Projects Agency (DARPA), which had pioneered the Internet; a year later, a second site was founded at FNRIA (a French national computer research lab) with support from the European Commission DG InfSo; and in 1996, a third continental site was created in Japan at Keio University. By the end of 1994, the total number of websites was still relatively small, but many notable websites were already active that foreshadowed or inspired today's most popular services.

Connected by the Internet, other websites were created around the world. This motivated international standards development for protocols and formatting. Berners-Lee continued to stay involved in guiding the development of web standards, such as the markup languages to compose web pages and he advocated his vision of a Semantic Web. The World Wide Web enabled the spread of information over the Internet through an easy-to-use and flexible format. It thus played an important role in popularizing use of the Internet. Although the two terms are sometimes conHated in popular use. World Wide Web is not synonymous with Internet. The Web is an information space containing hyperlinked documents and other resources, identified by their URIs. It is implemented as both client and server software using Internet protocols such as TCP/IP and HTTP.

TEXT 12. What is the Internet?

1. Прочитайте текст и найдите абзац, где говорится о первом предназначении интернета. Сделайте письменный перевод абзаца.
2. Просмотрите текст ещё раз и ответьте на вопрос, какие возможности открыл интернет для активных пользователей.
3. Составьте письменную оценку (рецензию) информации, содержащейся в тексте.

The Internet is the global system of interconnected computer networks that use the Internet protocol suite (TCP/IP) to link billions of devices worldwide. It is a network of networks that consists of millions of private, public, academic, business, and government networks of local to global scope, linked by a broad array of electronic, wireless, and optical networking technologies. The Internet carries an extensive range of information resources and services, such as the inter-linked hypertext documents and applications of the World Wide Web (WWW), electronic mail, telephony, and peer-to-peer networks for file sharing.

The benefits of Internet are obvious. People easily find up-to-date information in any required field. It is possible to get an online degree, to study in many prestigious universities from the comfort of one's own home, to travel virtually and to learn about world attractions. However, opinions differ and many people emphasize disadvantages of Internet as well. Making world information easy to access is not always for good. First, the reliability of this information is dubious and secondly, children are under risk. They suffer from inappropriate information, placed on various websites. There were even cases when children became victims of criminal cases through Internet.

Not everyone is aware that Internet had started as a military experiment in the United States in late 1960s. It was supposed to help to survive during the nuclear war. If everything around got polluted and people couldn't get out of their homes, Internet would be the only source of information and way of communication. It was the safest and quickest path from one computer to another. For this reason, Internet was designed. As long as there was a single route between the computers, people could stay in touch. Subsequently, the modems were invented. They were the devices which allowed the computers to send certain information through telephone lines. Modem has opened doors to the Internet for millions of people. Since then the number of users is constantly growing.

Many people use the terms Internet and World Wide Web, or just the Web, interchangeably, but the two terms are not synonymous. The World Wide Web is the primary application that billions of people use on the Internet, and it has changed their lives immeasurably. However, the Internet provides many other services. The Web is a global set of documents, images and other resources, logically interrelated by hyperlinks and referenced with Uniform Resource Identifiers (URIs). URIs symbolically identify services, servers, and other

databases, and the documents and resources that they can provide. Hypertext Transfer Protocol (HTTP) is the main access protocol of the World Wide Web. Web servers also use HTTP to allow software systems to communicate in order to share and exchange business logic and data.

World Wide Web browser software, such as Microsoft's Internet Explorer, Mozilla Firefox, Opera, Apple's Safari, and Google Chrome, lets users navigate from one web page to another via hyperlinks embedded in the documents. These documents may also contain any combination of computer data, including graphics, sounds, text, video, multimedia and interactive content that runs while the user is interacting with the page. Client-side software can include animations, games, office applications and scientific demonstrations. Through keyword-driven Internet research using search engines like Yahoo! and Google, users worldwide have easy, instant access to a vast and diverse amount of online information. Compared to printed media, books, encyclopedias and traditional libraries, the World Wide Web has enabled the decentralization of information on a large scale.

And how the Internet works? In brief, to help you understand how the Internet works, we'll look at the things that happen when you do a typical Internet operation — pointing a browser at the front page of this document at its home on the Web at the Linux Documentation Project. This document is www.vk.com/id1 which means it lives in the file id under the World Wide Web export directory of the host www.vk.com.

The first thing your browser has to do is to establish a network connection to the machine where the document lives. To do that, it first has to find the network location of the host www.vk.com ('host' is short for 'host machine' or "network host'; www.vk.com is a typical hostname). The corresponding location is actually a number called an IP address (we'll explain the 'IP' part of this term later).

To do this, your browser queries a program called a name server. The name server may live on your machine, but it's more likely to run on a service machine that yours talks to. When you sign up with an ISP, part of your setup procedure will almost certainly involve telling your Internet software the IP address of a nameserver on the ISP's network.

The name servers on different machines talk to each other, exchanging and keeping up to date all the information needed to resolve hostnames (map them to IP addresses). Your nameserver may query three or four different sites across the network in the process of resolving www.vk.com, but this usually happens very quickly (as in less than a second). We'll look at how nameservers detail in the next section.

The nameserver will tell your browser that www.vk.com IP address is xxx.xx.xxx.xx; knowing this, your machine will be able to exchange bits with is www.vk.com directly. The whole network of programs and databases that cooperates to translate hostnames to IP addresses is called 'DNS' (Domain Name System). When you see references to a 'DNS server', that means what we just

called a nameserver. Now I'll explain how the overall system works. Internet hostnames are composed of parts separated by dots. A domain is a collection of machines that share a common name suffix. Domains can live inside other domains. For example, the machine www.vk.com/ lives in the vk.com/subdomain of the .com domain.

Each domain is defined by an authoritative name server that knows the IP addresses of the other machines in the domain. The authoritative (or 'primary') name server may have backups in case it goes down; if you see references to a secondary name server or ('secondary DNS') it's talking about one of those. These secondaries typically refresh their information from their primaries every few hours, so a change made to the hostname-to-IP mapping on the primary will automatically be propagated.

Now here's the important part. The nameservers for a domain do not have to know the locations of all the machines in other domains (including their own subdomains); they only have to know the location of the nameservers. In our example, the authoritative name server for the .com domain knows the IP address of the nameserver for.vk.com/ but not the address of all the other machines in . vk.com. The domains in the DNS system are arranged like a big inverted tree. At the top are the root servers. Everybody knows the IP addresses of the root servers; they're wired into your DNS software. The root servers know the IP addresses of the nameservers for the top-level domains like .com and .com, but not the addresses of machines inside those domains. Each top-level domain server knows where the nameservers for the domains directly beneath it are, and so forth. DNS is carefully designed so that each machine can get away with the minimum amount of knowledge it needs to have about the shape of the tree, and local changes to subtrees can be made simply by changing one authoritative server's database ofname-to-IP-address mappings.

When you query for the IP address ofwww.vk.com, what actually happens is this: First, your nameserver asks a root server to tell it where it can find a nameserver for .com. Once it knows that, it then asks the .com server to tell it the IP address of a vk.com nameserver. Once it has that, it asks the vk.com nameserver to tell it the address of the host www.vk.com.

Most of the time, your nameserver doesn't actually have to work that hard. Nameservers do a lot of cacheing; when yours resolves a hostname, it keeps the association with the resulting IP address around in memory for a while. This is why, when you surf to a new website, you'll usually only see a message from your browser about "Looking up" the host for the first page you fetch. Eventually the name-to-address mapping expires and your DNS has to re-query — this is important so you don't have invalid information hanging around forever when a hostname changes addresses. Your cached IP address for a site is also thrown out if the host is unreachable.

In this way, today, the Internet can be accessed almost anywhere and by numerous means, even by mobile devices. It offers great flexibility to students

and employees. Distant education becomes more and more popular. Students can get help with homework and other assignments, take up self-guided learning, or simply look up the details on interesting fact. Work has also become easier with the help of such low cost and instant sharing of knowledge. Another interesting Internet feature includes remote access which allows several computers to share information. Any office worker can access his e-mails or data from anywhere at any time. However, there are some problems, such as absence as security and control.

TEXT 13. Web Browser

1. Прочитайте текст. Назовите и охарактеризуйте основные веб браузеры.
2. Назовите основные вехи развития веб браузеров.
3. Поставьте вопросы к основной и детализирующей информации текста.

A web browser (commonly referred to as a browser) is a software application for accessing information on the World Wide Web. Each individual web page, image, and video is identified by a distinct URL, enabling browsers to retrieve and display them on the user's device. A web browser is not the same thing as a search engine, though the two are often confused. For a user, a search engine is just a website, such as google.com, that stores searchable data about other websites. But to connect to and display websites on their device, a user needs to have a web browser installed. The most popular web browsers are Chrome, Firefox, Safari, Internet Explorer, and Edge.

History

The first web browser, called WorldWideWeb, was invented in 1990 by Sir Tim Berners-Lee. He then recruited Nicola Pellow to write the Line Mode Browser, which displayed web pages on dumb terminals; it was released in 1991. 1993 was a landmark year with the release of Mosaic, credited as "the world's first popular browser". Its innovative graphical interface made the World Wide Web system easy to use and thus more accessible to the average person. This, in turn, sparked the Internet boom of the 1990s when the Web grew at a very rapid rate. Marc Andreessen, the leader of the Mosaic team, soon started his own company, Netscape, which released the Mosaic-influenced Netscape Navigator in 1994. Navigator quickly became the most popular browser. Microsoft debuted Internet Explorer in 1995, leading to a browser war with Netscape. Microsoft was able to gain a dominant position for two reasons: it bundled Internet Explorer with its popular Windows operating system and did so as freeware with no restrictions on usage. Eventually into Firefox, first released by Mozilla in 2004. Firefox reached a 28% market share in 2011. Apple released its Safari browser in 2003. It remains the dominant browser on Apple platforms, though it never became a factor elsewhere. The last major entrant to the browser market was Google. Its Chrome browser, which debuted in 2008, has been a huge success. It steadily took market share from Internet Explorer and became the most popular browser in 2012. It has remained dominant ever since. In terms of technology, browsers have greatly expanded their HTML, CSS, JavaScript, and multimedia capabilities since the 1990s. One reason has been to enable more sophisticated websites, such as web applications. Another factor is the significant increase of broadband connectivity,

which enables people to access data-intensive web content, such as YouTube streaming, that was not possible during the era of dial-up modems.

Function

The purpose of a web browser is to fetch information resources and display them on a user's device. This process begins when the user inputs a URL, such as https://en.wikipedia.org/, into the browser. Virtually all URLs on the Web start with either http: or https: which means the browser will retrieve them with the Hypertext Transfer Protocol. In the case of https: the communication between the browser and the web server is encrypted for the purposes of security and privacy. Another URL prefix is file: which is used to display local files already stored on the user's device. Once a web page has been retrieved, the browser's rendering engine displays it on the user's device. This includes image and video formats supported by the browser. Web pages usually contain hyperlinks to other pages and resources. Each link contains a URL, and when it is clicked, the browser navigates to the new resource. Thus the process of bringing content to the user begins again. To implement all of this, modern browsers are a combination of numerous software components.

Features

All major browsers allow the user to open multiple pages at the same time, either in different browser windows or in different tabs of the same window. They also support the use of extensions to add to or modify browser operation in a variety of ways. Common user interface features of browsers:

- Back and forward buttons to go back to the previous page visited or forward to the next one.
- A refresh or reload button to reload the current page.
- A stop button to cancel loading the page. (In some browsers, the stop button is merged with the reload button.)
- A home button to return to the user's home page.
- An address bar to input the URL, of a page and display it.
- A search bar to input terms into a search engine. (In some browsers, the search bar is merged with the address bar.)

TEXT 14. Web Programming

1. Прочитайте текст и найдите в тексте основной довод в пользу заголовка.
2. Выразите своё мнение о содержании текста и соотнесите его со своим собственным опытом.
3. Передайте содержание текста в устной форме.

Web programming or web development is the work involved in developing a web site for the Internet (World Wide Web) or an intranet (a private network). Web development can range from developing a simple static page of plain text to complex web-based internet applications, and social network services. A more comprehensive list of tasks to which web development commonly refers, may include web engineering, web design, web content development, client-side/server-side scripting/ and server and network security configuration. Among web professionals, "web development" usually refers to the main non-design aspects of building web sites: writing markup and coding. Most recently Web development has come to mean the creation of content management systems (CMS). These CMS can be made from scratch, proprietary or open source. In simple terms/ the CMS acts as middleware between the database and the user through the browser. A principle benefit of a CMS is that it allows non- technical people to make changes to their web site without having technical knowledge.

For larger organizations and businesses, web development teams can consist of hundreds of people and follow standard methods like "agile" methodologies while developing websites. Smaller organizations may only require a single developer. There are three kinds of web developer specialization: front-end developer, back-end developer, and full-stack developer. Front-end developers deal with the layout and visuals of a website, while back-end developers deal with the functionality of a website. Back-end developers will program in the functions of a website that will collect data. Since the commercialization of the web, web development has been a growing industry. The growth of this industry is being driven by businesses wishing to use their website to sell products and services to customers.

There are many open source tools for web development such as BerkeleyDB, GlassFish, LAMP (Linux, Apache, MySQL, PHP) stack and Perl/Plack. Another factor to the growth of the industry has been the rise of easy-to-use WYSIWYG (what you see is what you get) web-development software, such as Adobe Dreamweaver, BlueGriffon and Microsoft Visual Studio. Knowledge of HyperText Markup Language (HTML) or of programming languages is still required to use such software, but the basics can be learned and implemented quickly.

An ever growing set of tools and technologies have helped developers build more dynamic and interactive websites. Further, web developers now help to

deliver applications as web services, which were traditionally only available as applications on a desk-based computer. Examples can be seen with the rise of cloud services such as Dropbox and Google Drive. These web services allow users to interact with applications from many locations, instead of being tied to a specific workstation for their application environment.

Examples of huge transformation in communication and commerce led by web development include e-commerce. Online auction sites such as eBay have changed the way consumers find and purchase goods and services. Online retailers such as Amazon.com and Buy.com (among many others) have transformed the shopping experience for many consumers. Another example of transformative communication led by web development is the blog. Web applications such as WordPress have created blog-environments for individual websites. The increased usage of open-source content management systems and enterprise content management systems has extended web development's impact at online interaction and communication. Web development has also affected personal networking and marketing. Websites are no longer just tools for work or for commerce, but more broadly for communication and social networking. Web sites such as Facebook and Twitter provide users with a platform to communicate.

TEXT 15. File-Sharing (Internet Means of Communication)

1. Прочитайте текст и скажите, что представляют собой средства связи через интернет.
2. Назовите средства коммуникации, которые вы считаете особо важными. Обоснуйте своё решение.
3. Составьте аннотацию к тексту.

When we talk about file sharing, of course we are referring to the network. The main purpose of networks is to share information. If it were not possible to share files and folders, there would be no reason to create networks. Today we often hear the concepts of "world network", "global network". And everyone understands that this is a global telecommunications network of information and computing resources, called the Internet.

The first attempts to create a wireless communication device began in the midst of the Cold War. In 1957, the development of a new data transmission system began in America. All studies were kept in the deepest secret. The technical departments of the best universities of the country took part in the creation of the new technology. In 1962, a staff member at the University of Massachusetts, Joseph Licklider, offered his solution to the problem. He believed that it was possible to communicate via computers. Under his leadership, in the 1960, work began on a project called ARPANET. It was planned that messages in such a network would be transmitted entirely, but such a transmission had several serious flaws: the inability of a large number of users to interact, the high cost, the inefficient use of network bandwidth, the inability to function normally when the individual network components were destroyed. Paul Baran, a scientist from the University of California, began to work on eliminating these shortcomings. The result of his work was a new way of transmitting information - packet switching. In fact, each message was divided into several packets, each of which went to the addressee through its own channel. Thanks to this technical solution, the new data network has become virtually invulnerable. At the end of 1969, a historic event took place - the first message was transmitted by ARPANET. Over time, they revealed problems with the speed of data transmission, so another scientist, Winton Cerf, joined the development. He developed two protocols: the transmission control protocol (TCP) and the additional Internet protocol (IP). Thanks to the joint work of the two protocols, it became possible to establish connections between many computers located throughout the world. The connection was mainly used by American scientists. The revolutionary decision that made the Internet available to all computer owners was the emergence and further development of the WWW system. In the early 1990s, English physicist and programmer Tim Berners-Lee began work on an open system that would allow various data to be placed on the network, so that any user could have access to it. The very first site in the world was created in

August 1991 by Berners-Lee himself. On the page with the address info.cem.ch, the creator of the global network described the new data distribution system and the principles of its operation. Over the next five years after the creation of the WWW, 50 million users joined the network. To facilitate Internet surfing, a browser was developed – «Netscape», which already had scrolling and hyperlinking functions. The first search engine was «Aliweb», which a little later pressed «Yahoo!». Since the speed of the Internet was very low, the creators of the sites could not use a large number of images and animations. The first sites were mostly text and were rather inconvenient for users. For example, in order to go on a hyperlink, the user had to type on the keyboard the sequence number of this hyperlink, indicated in square brackets. So the Internet has appeared in our life.

There are many ways to communicate over the Internet in real time, but one of the most popular is the use of instant messaging. There are many different types of computers on the Internet. These computers can use different operating systems, but all of them must support the TCP / IP standard adopted for exchanging information on the Internet. This means Transmission Control Protocol / Internet Protocol and includes two protocols. IP is used to address computers on a network. In each packet of information transmitted over the network, the IP address of the computer is indicated, thanks to which the information reaches its destination. An IP address consists of four numbers separated by dots. TCP defines how information transmitted on a network is divided into packets and distributed on the Internet. Each packet is numbered and transmitted independently, therefore the paths traversed by the packets may not coincide and the sequence of their delivery to the addressee may differ from the original sequence. At the final point, packet processing is performed and the original information is restored. There are special computers on the Internet, called nodes (routers), which move information over the Internet using TCP / IP. For data exchange on the Internet using client-server technology. If you need access to Internet resources, you run a client program on your computer that, using a simple and convenient interface, forms a request in the specified protocol and displays the result of processing the request. The server program accepts requests to perform certain actions from remote computers, processes the incoming request and sends the client the result of its execution. This is the exchange of files and information on the Internet.

Сокращения и условные обозначения
(с элементами толкования)

ALU – arithmetic-logical unit – арифметико-логическое устройство
API – application programming interface – интерфейс прикладного управления
APL – a programmable language – высокоуровневый язык программирования
ASM – Association for System Management – ассоциация по системному управлению
BIOS – basic input/ output system – базовая система ввода-вывода
b.o.p.s. – billion operation per second – миллиард операций в секунду
b.p.i. – bits per inch – число бит на дюйм
b.p.s. – bits per second – число бит в секунду
CAD – computer-aided design – компьютерное проектирование
CAI – computer-aided instruction – компьютерное обучение
CMI – computer-managed instruction – команды, подаваемые компьютером
CU – control unit – устройство управления
DB – database – база данных
DEL – delete – символ удаления
ECC – error- correction code – код с исправлением ошибок
EDI – Electronic Data Interchange – электронный обмен данными
ETB – end of transmission block – конец блока передачи (символ)
FCB-file control block – блок управления файлами
FTR – File Transfer Protocol – протокол передачи файлов
Hi-FI – high fidelity – высоконадёжный, с высокой точностью воспроизведения
IAB – Internet Activities Board – Управляющий Совет по вопросам деятельности Internet
Intel – самая большая в мире корпорация по производству микропроцессоров
LSI – large-scale integration – высокий уровень интеграции
MIS – management information systems – управленческая информационная система
PIF – program information file – информационный файл программы
SCSI – Small Computer System Interface – интерфейс малых компьютерных систем
SOM – start of message – начало сообщения
SSI – small-scale integration – интеграция малого уровня
ULSI – ultralarge scale integration – интеграция ультравысокого уровня
UPS – uninterrupted power supply – бесперебойный источник питания
VLSI – very large-scale integration – интеграция сверхвысокого уровня
VR – virtual reality – виртуальная реальность
VRML – Virtual Reality Modeling Language – язык моделирования виртуальной реальности
WAN – wide-area network – глобальна сеть
WWW – World Wide Web – Всемирная информационная сеть