1. What are the different types of networks?

ans.posted this on Dec 12, 2017

A network is defined as a group of two or more computer systems linked together.

There are many types of computer networks, the common types of area networks including those five: *LAN - Local Area Network, WAN - Wide Area Network, WLAN - Wireless Local Area Network, MAN - Metropolitan Area Network and CAN - Campus Area Network.*

LAN (Local Area Network) - Can go up to 1 KM radius. A local area network (LAN) is a group of computers and associated devices that share a common communications line or wireless link to a server. Typically, a LAN encompasses computers and peripherals connected to a server within a distinct geographic area such as an office or a commercial establishment.

WAN (Wide Area Network) - No Limit. A wide area network (WAN) is a network that exists over a large-scale geographical area. A WAN connects different smaller networks, including local area networks (LANs) and metro area networks (MANs). This ensures that computers and users in one location can communicate with computers and users in other locations. WAN implementation can be done either with the help of the public transmission system or a private network.

WLAN(Wireless Local Area Network) - A wireless local area network (WLAN) is a wireless computer network that links two or more devices using wireless communication within a limited area such as a home, school, computer laboratory, or office building. This gives users the ability to move around within a local coverage area and yet still be connected to the network. Through a gateway, a WLAN can also provide a connection to the wider Internet.

Most modern WLANs are based on IEEE 802.11 standards and are marketed under the Wi-Fi brand name.

MAN(Metropolitan Area Network) - A metropolitan area network is a computer network that interconnects users with computer resources in a geographic area or region larger than that covered by even a large local area network (LAN) but smaller than the area covered by a wide area network (WAN). The term is applied to the interconnection of networks in a city into a single larger network (which may then also offer efficient connection to a wide area network). It is also used to mean the interconnection of several local area networks by bridging them with backbone lines. The latter usage is also sometimes referred to as a campus network.

CAN (Campus Area Network) - A campus area network is a computer network made up of an interconnection of local area networks (LANs) within a limited geographical area. The networking equipments (switches, routers) and transmission media (optical fiber, copper plant, Cat5 cabling etc) are almost entirely owned by the campus tenant / owner: an enterprise, university, government etc.

Figure 1 shows the 5 common types of networking.

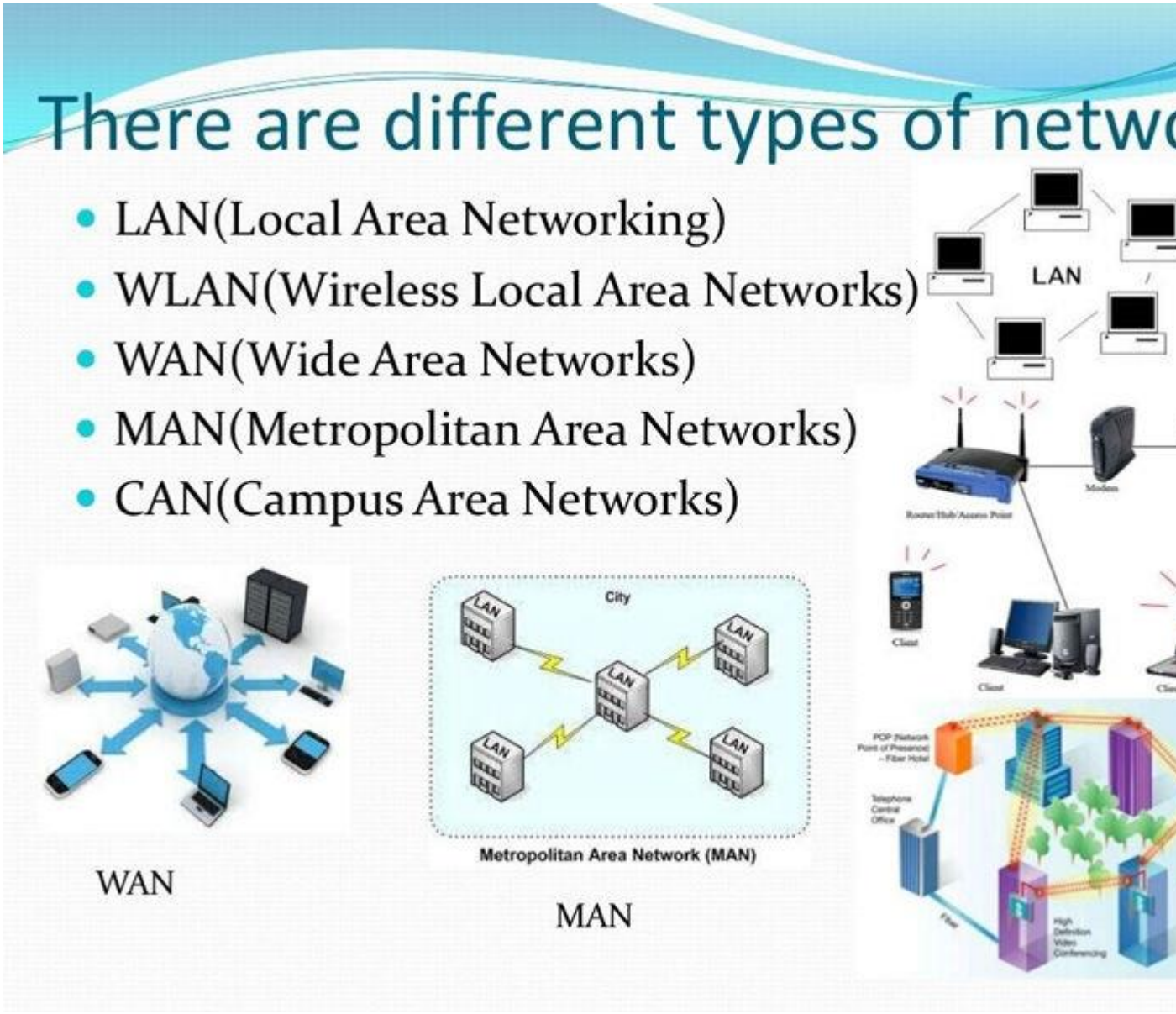


Figure from https://www.slideshare.net/cegonsoft1999/presentation3-29032644

In addition to these five items, there are some other types of networking:

SAN (Storage Area Network or System Area Network) - For storage area network, as a dedicated high-speed network that connects shared pools of storage devices to several servers, these types of networks don't rely on a LAN or WAN. Instead, they move storage resources away from the network and place them into their own high-performance network. SANs can be accessed in the same fashion as a drive attached to a server. Types of storage-area networks include converged, virtual and unified SANs.
Then for system area network, it is used to explain a relatively local network that is designed to provide high-speed connection in server-to-server applications (cluster environments), storage

area networks (called “SANs” as well) and processor-to-processor applications. The computers connected on a SAN operate as a single system at very high speeds.

PAN (Personal Area Network) - The smallest and most basic type of network, a PAN is made up of a wireless modem, a computer or two, phones, printers, tablets, etc., and revolves around one person in one building. These types of networks are typically found in small offices or residences, and are managed by one person or organization from a single device.

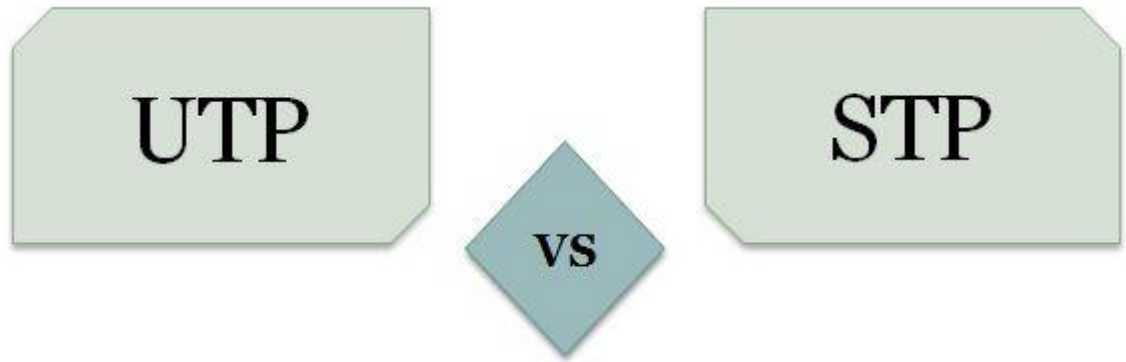
POLAN (Passive Optical Local Area Network) - As an alternative to traditional switch-based Ethernet LANs, POLAN technology can be integrated into structured cabling to overcome concerns about supporting traditional Ethernet protocols and network applications such as PoE (Power over Ethernet). A point-to-multipoint LAN architecture, POLAN uses optical splitters to split an optical signal from one strand of single-mode optical fiber into multiple signals to serve users and devices.

EPN (Enterprise Private Network) - These types of networks are built and owned by businesses that want to securely connect its various locations to share computer resources.

VPN(Virtual Private Network) - A virtual private network extends a private network across a public network, and enables users to send and receive data across shared or public networks as if their computing devices were directly connected to the private network. Applications running across the VPN may therefore benefit from the functionality, security, and management of the

2. Explain the Shielded twisted pair (STP) and Unshielded twisted pair(UTP)

ANS. Difference Between UTP and STP Cables



UTP (Unshielded twisted pair) and STP (Shielded twisted pair) are the types of twisted pair cables which act as a transmission medium and imparts reliable connectivity of electronic equipment. Although the design and manufacture are different but both serve the same purpose.

The basic difference between UTP and STP is **UTP (Unshielded twisted pair)** is a cable with wires that are twisted together to reduce noise and crosstalk. On the contrary, **STP (Shielded twisted pair)** is a twisted pair cable confined in foil or mesh shield that guards the cable against electromagnetic interference.

Content: UTP Cable Vs STP Cable

Comparison Chart

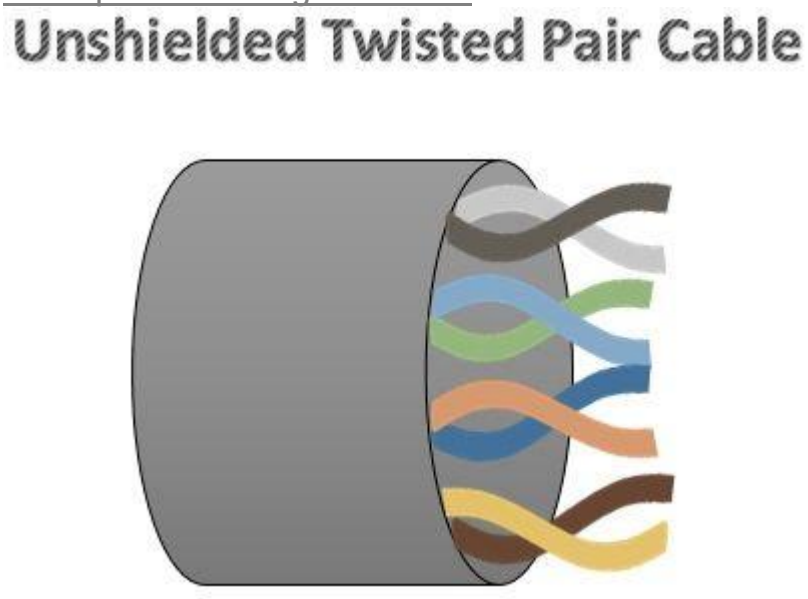
BASIS FOR COMPARISON	UTP	STP
Basic	UTP (Unshielded twisted pair) is a cable with wires that are twisted together.	STP (Shielded twisted pair) is a twisted pair cable enclosed in foil or mesh shield.
Noise and crosstalk generation	High comparatively.	Less susceptible to noise and crosstalk.
Grounding cable	Not required	Necessarily required
Ease of handling	Easily installed as cables are smaller, lighter, and flexible.	Installation of cables is difficult comparatively.
Cost	Cheaper and does not require much	Moderately expensive.

BASIS FOR COMPARISON	UTP	STP
	maintenance.	
Data Rates	Slow comparatively.	Provides high data rates

Definition of UTP Cable

Unshielded twisted-pair (UTP) cable is the most prevalent type of telecommunication medium in use today. Its frequency range is suitable for transmitting both data and voice. Therefore, these are most commonly used in telephone systems.

A twisted pair consists of two insulated conductors (usually copper) in a twisted configuration. Color bands are used in plastic insulation for identification. In addition, colors also identify the specific conductors in a cable and to indicate which wires belong in pairs and how they relate to other pairs in a larger bundle.

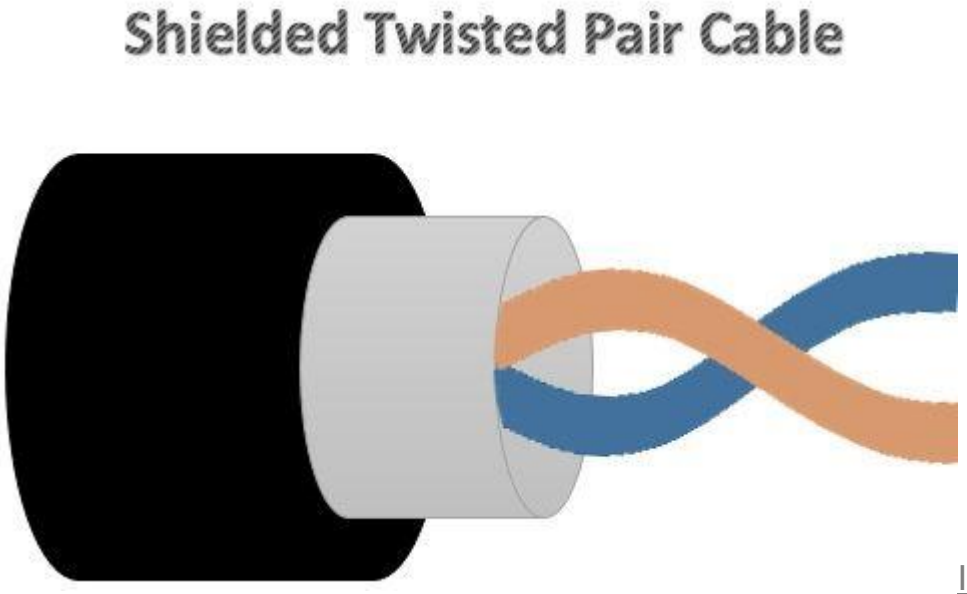


The two wires are twisted in the twisted pair cable which significantly reduces the noise generated by the external source. The **noise** here we are talking about is generated when two wires are parallel which causes an increase in voltage

level in the wire closest to the source and also uneven load and damaged signal.

Definition of STP Cable

Shielded twisted-pair (STP) cable has an additional braided mesh coating or metal foil that wraps each set of insulated conductors. The metal casing intercepts the penetration of **electromagnetic noise**. It also can eradicate a phenomenon called crosstalk, which is the unwanted effect of one circuit (or channel) on another circuit (or channel).



It occurs when one line (acting as a kind of receiving antenna) picks up some of the signals travelling down another line (acting as a kind of sending antenna). This effect can be experienced during telephone conversations when one can hear other conversations in the background. Shielding each pair of a twisted-pair cable can eliminate most crosstalk.

STP has the similar quality factor and uses the same connectors as UTP, but the shield must be connected to the **ground**.

Key Differences Between UTP and STP Cables

1. UTP and STP are the types of twisted pair cable where UTP is the unshielded type whereas STP is shielded, for doing so metal foil or braided mesh is used.
2. UTP reduces the crosstalk and noise as compared to the parallel arrangement of the wires but not at great extent. On the contrary, STP decreases the crosstalk, noise, and electromagnetic interference significantly.

3. UTP cables are easily installed while installation of STP cables is difficult are the cables are bigger, heavier and stiffer.
4. Grounding is not required in UTP cables. As against, STP cables requires grounding.
5. UTP cables are inexpensive whereas STP cables are costly comparatively due to additional material and manufacturing.
6. STP cables incorporate a conducting shield built of metallic foil enclosing the twisted wire pairs, which obstructs out electromagnetic interference, permitting it to carry data at an enhanced rate of speed. In contrast, UTP provides less speed of data transfer.

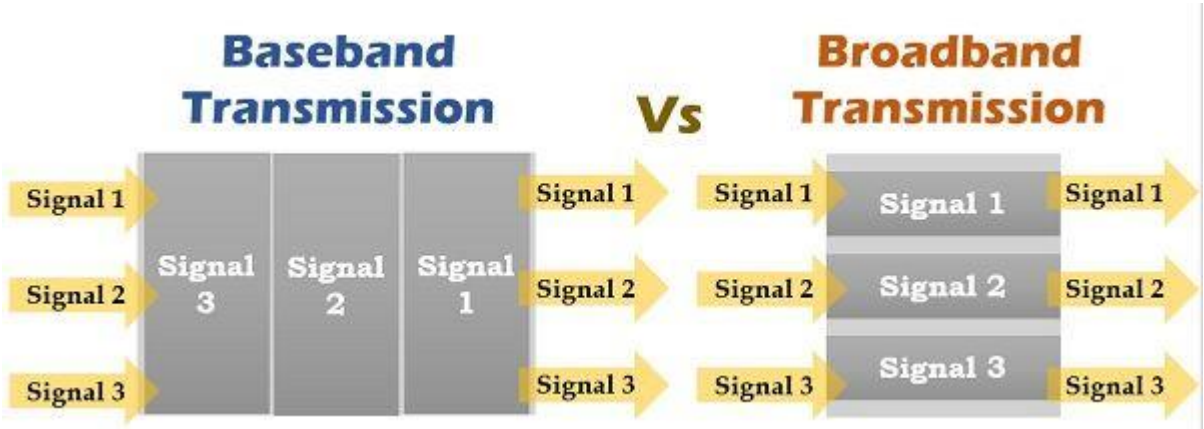
Conclusion

UTP and STP cables differ in the design and structure where STP cable has an additional metal foil wrapped in insulated conductors.

However, both STP and UTP cables have their respective merits and demerits, when it comes to proper installation and maintenance in a suitable situation for their use, both work finely.

3. What is difference between baseband and broadband transmission?

ANS. Difference Between Baseband and Broadband Transmission



The baseband and broadband are the types of signalling techniques. These terminologies were developed to categorise different types of signals depending on particular kind of signal formats or modulation technique.

The prior difference between baseband transmission and broadband transmission is that in the baseband transmission the whole bandwidth of the cable is utilized by a single signal. Conversely, in the broadband transmission, multiple signals are sent on multiple frequencies simultaneously using a single channel.

Content: Baseband and Broadband Transmission

Comparison Chart

BASIS FOR COMPARISON	BASEBAND TRANSMISSION	BROADBAND TRANSMISSION
Type of signalling used	Digital	Analog
Application	Work well with bus topology.	Used with a bus as well as tree topology.
Encoding Used	Manchester and Differential Manchester encoding.	PSK encoding.
Transmission	Bidirectional	Unidirectional
Signal range	Signals can be travelled over short distances	Signals can be travelled over long distances without being attenuated.

Definition of Baseband Transmission

Baseband transmission uses whole frequency spectrum of the medium for the transmission. That is the reason frequency division multiplexing cannot be used in the transmission but time division multiplexing is used in this transmission as in TDM the link is not divided into multiple channels instead it provides each input signal with a time slot, in which the signal utilize whole bandwidth for a given time slot. The signals are carried by wires in the form of electrical pulse.

Signals transmitted at point propagated in both the directions hence it is bidirectional. The expansion of baseband signal is limited to shorter distances because at high frequency the attenuation of the signal is most strong and the pulse blur out, causing the large distance communication completely impractical.

Definition of Broadband Transmission

The **Broadband transmission** employs analog signals which include optical or electromagnetic wave form of signal. The signals are sent into multiple frequencies permitting multiple signals to be sent simultaneously. Frequency division multiplexing is possible in which the frequency spectrum is divided into multiple sections of bandwidth. The distinct channels can support different types of signals of varying frequency ranges to travel simultaneously (at the same instance).

The signals propagated at any point are unidirectional in nature, in simple words the signal can be travelled at only one direction, unlike baseband transmission. It requires two data path that are connected at a point in the network refer to as headend. The first path is used for signal transmission from the station to the headend. And the other path is used for receiving propagated signals.

Key Differences Between Baseband and Broadband Transmission

1. Baseband transmission utilizes digital signalling while broadband transmission uses analog signalling.
2. Bus and tree topologies, both work well with the broadband transmission. On the other hand, for the baseband transmission bus topology is suitable.
3. Baseband involves manchester and differential manchester encoding. In contrast, broadband does not make use of any digital encoding instead it uses PSK (Phase shift keying) encoding.

4. The signals can be travelled in both the direction in baseband transmission whereas in broadband transmission the signals can travel in only one direction.
5. In baseband transmission, the signals cover shorter distances because at higher frequencies the attenuation is most pronounced which make a signal to travel short distances without reducing its power. As against, in broadband signals, the signals can be travelled at longer distances.

Conclusion

The baseband and broadband transmissions are the types of signalling. Baseband transmission uses digital signalling and involves digital signal or electrical impulse that can be carried in a physical media such as wires. The broadband transmission uses analog signalling which involves optical signals or signals in the form of an electromagnetic wave. Baseband transmission utilizes the whole bandwidth of the channel to transmit a signal whereas in broadband transmission the bandwidth is divided into variable frequency ranges to transmit the different signals at the same instant.

Related Differences:

1. **Difference Between Analog and Digital Signal**
2. **Difference Between 3G and 4G Technology**
3. **Difference Between Analog and Digital Computer**
4. **Difference Between PCM and DPCM**
5. **Difference Between H.323 and SIP**

4. What is the difference between a hub, modem, router and a switch?

ANS.

Device	What is does
Modem:	Stands for "modulating-demodulating": modems are hardware devices that allow a computer or another device, such as a router or switch, the Internet. They convert or "modulate" an analog signal from a telephone or cable wire to digital d 0s) that a computer can recognize.

	Simply send traffic from point A to piont B without further manipulation.
Routers:	Are responsible for sending data from one network to another. Work at Layer 3 (Network) of the OSI model, which deals with IP addresses. Typically, routers today will perform the functionality of both a router and a switch - that is, the route multiple ethernet ports that devices can plug into.
Switches:	They use the MAC address of a device to send data only to the port the destination device is plugge Work at Layer 2 (Data Link) of the OSI model, which deals with MAC addresses.
Hubs:	Unlike switches, hubs broadcast data to all ports, which is inefficient, so hubs are basically a multipo

Note: it is also useful to know the following terms:

- Default gateway - a piece of software usually located on a router, a firewall, a server, etc, that enables traffic to flow in and out of the network. Gateways act as a junction between multiple networks.

- DHCP (Dynamic Host Configuration Protocol) - a protocol that automatically provides and assigns IP addresses, default gateways, DNS servers and other network parameters to client devices. Most routers/switches have the ability to provide DHCP server support.

  In case you have several devices on your network that support DHCP, you need to make sure that only one of them is configured with DHCP. Having several devices with DHCP enabled will lead to a DHCP Race Condition - also known as Conflicting DHCP Servers.
  Note: modern voice system will require your network to have a router in it. Despite the fact that some modems have integrated router features, they barely capable of maintaining voice systems functionality. You may want to have both modem and router in your network (modem will need to be launched in bridged mode).

5. 31/05/2020 10:32 pm

Yes, that's because MAC addresses are hard-wired into the NIC circuitry, not the PC. This also means that a PC can have a different MAC address when the NIC card was replace by another one.

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6. When troubleshooting computer network problems, what common hardware-related problems can occur?.

ANS. # How to troubleshoot common hardware related issues and troubleshooting tools

A hardware problem or issue is one of the most dreaded incidences for a computer user. This is due to the fact that such a malfunction can result into complete computer failure. With respect to this, it is considered very important for an individual to be conversant with all the available troubleshooting tools. In addition, one should ensure that he or she is familiar with the indicators or symptoms of a hardware failure so as to curb it in advance. Below is a brief description of some of the most common hardware problems and their resolutions.

Common symptoms

Here are some common symptoms through which one can know if the hardware has got some problems or not;

Unexpected shutdowns

Unexpected shutdowns occur when a computer just turns off without making any notification or giving a message. This is a problem that can be very frustrating since it can lead to loss of unsaved work or even interruption of a session one are logged onto. In most cases, such a problem occurs due to possible system changes such as addition of a new hardware driver. In such an occurrence, the operating system is not completely stopped and one can press the NUM Lock key or Ctrl+Alt+Del to try and get back to the OS for recovery.

In case that fails, one can run some hardware diagnostic tests so as to have a thorough check of anything that could be interrupting one's system. One can perform the Power on Self-Test (POST).

System lockups

System lockups can be very frustrating especially if they occur without the display of an alert message. The screen appears as if it is frozen. Looking at the Event viewer can be good but in such problems with one's hardware, it may not be of much help because the Event Viewer has nothing written on it.

POST code beeps

The Power on self-test occurs when one's computer is immediately powered on to check for one's computer's minimum hardware configurations. POST code beeps are normally delivered via the system speaker and serve as a communication media when the video is not working. Each beep has a correspondence to a specific error message.

Blank screen on boot up

A blank screen on boot up is another dreaded problem that does not necessarily indicate a problem with video but one associated with configurations of the BIOS. In such a case, one may choose to make BIOS modifications so that instead of using a separately installed video card, one can configure the BIOS to utilize the in-built one and identify some of the problems occurring.

BIOS time and settings resets

Unplugging one's computer or powering it off does not lead to lose of computer configurations. At times, the BIOS configurations may keep resetting and getting erased due to the CMOS battery on the motherboard getting spoilt or it no longer being charged. In addition, one may also receive some prompts indicating an invalid configuration or incorrect date and time setting. In case of such a problem, replacing the CMOS battery can be the best way to come up with a resolution for the problem. One can also decide to carry out a complete clearance of the BIOS configuration which should be done in accordance to documentations by the manufacturer.

Attempts to boot to incorrect device

At times, one may see attempts by one's computer to boot from the wrong device for instance when one are using an external USB and the computer system attempts to boot from the USB instead of the internal drive in the computer. The boot order of one's computer can be set at the BIOS where one decide the particular drive to start up or one may alter the order in which

the boot process occurs. With such a problem at hand, one should take a look at one's BIOS configurations and possibly modify them in a way that is ideal for one's system.

Continuous reboots

This is a problem that mostly occurs in instances where one's computer keeps looping over the start up process where it appears to be starting and then restarts. In such a case, the first step should be to try and establish the occurrence point of the problem either in the course of the BIOS check where the Power on Self-test is undergoing among some other possible reasons. Once that is established, then one can easily decide if the problem is hardware related or related to the Windows configuration.

No power

At times, one may turn on one's computer and nothing of much significance happens. This should therefore reflect to the possibility of some power related issues in one's computer. Use one's Multimeter check so as to see if there is some power coming from the wall socket. Also ensure that the motherboard is powered which can then help in identification of the problem in one's computer.

Overheating

One's computer tends to emit a lot of heat due to the numerous numbers of components running in it and generating the heat. In case of an overheating problem, then urgent cooling is required. One can induce cooling by using some fans to bring in cool air into one's computer. In this case, the fans can be passed over the warm equipment making the heat to rise up and allow the cool air to pass in much faster.

The HW Monitor is an example of software that one can use to access and determine the level of heat in one's computer

One can also do some troubleshooting or maybe clean one's system. Make an effort to ensure that there is proper spinning of the fans, clear dust and restart one's system to check if such a heat problem occurs. With that, one will be able to accurately determine the occurrence point of one's problem.

Loud noise

A computer should not be a source of too much noise>. The only noise allowed is just a little humming of the fan. Noise inside the computer case could result from some loose components inside it. Such noise can be heard when trying to move one's computer between two different locations. Some scraping noise from the inside case could be an indicator of the hard drive going bad. Some of the odd noises one will hear in such cases call for immediate backup of one's stuff in the drive.

There may also be some clicking noises which relate to fans not working properly or getting spoilt. Such noises can also indicate that the fans spinning rate is too fast. Such noises should be resolved with immediate effect so as to ensure that one's computer's cooling system is in good working condition.

Intermittent device failure

This can be a very frustrating issue whose occurrence is not specific on execution of any activity but just random. Such a problem could translate into the possibility of a hardware problem and therefore a comprehensive hardware check should be the first step to handle this. One should also take a close check at the software drivers since a software driver that is poorly written can be the cause of such a problem. Ensure that all the software drivers are the latest versions.

Fans spin - no power to other devices

Sometimes, one may power on one's computer and the only activity going on is the spinning of the fans and nothing more. Such an incidence should clearly indicate that there is a problem with power supply to the motherboard, either it is just sufficient to drive the fans and not enough for one's motherboard. In addition, it could also mean that one have a problem with one's motherboard. With the fans driving power not relying on the motherboard, a change of the motherboard can be done to try and fix the problem.

Indicator lights

Indicator lights are normally associated with some computer components for instance the network adapter or a sign that the power is on. With these lights, one can easily determine if the component associated with them is working. In case the lights are not working or functional, that should immediately translate into a faulty component.

Smoke

It is said that smoke being emitted by one's computer is what keeps it running. However, the smoke released is not too much to be seen. In some cases, one might smell some smoke or bad odour coming from one's computer. This should be a clear indication that there are some electrical problems in one's computer. This therefore calls for immediate disconnection of the power source but to be much safer, unplug the power cord behind one's computer.

Burning smell

A burning smell from inside one's computer is also another problem to call for alarm. This means that one should open up one's system and check for any blown capacitors. In addition, check for any component on the motherboard that appears to be black or not alright. On completion of a visual check, one should run a hardware diagnosis so as to establish the source of the burning smell. Make a comprehensive check on every hardware component of the computer so as to be sure that such a problem will not arise in future.

BSOD

The blue screen of death also known as the Windows Stop Error is quite dreaded since it completely stops everything and it is only a reboot of the system that can get things back to normal. With the information displayed on the screen being of utmost importance, one should write it on an Event Viewer so as to determine activities that happened in the past. With the Event Viewer tracking down of the exact point the problem occurs becomes quite easy.

Tools:

Here are some tools which can be used for the fixation of hardware;

Multimeter

The multimeter is a special kind of device that one should be well trained to use especially if one are to handle electrical issues with one's hardware. This is a device that can be used to take resistance, current and voltage measurements. One should make sure that the right kind of Multimeter is what one has since this is a tool that must be highly accurate when taking any kind of measurements. One should settle on one that is very easy to use and with a lot of clarity. High levels of accuracy should also be considered. The multimeter can be used to check alternating current voltage. One can also use it to check the direct current so as to ascertain that the voltage to the motherboard is okay and also ensure that the CMOS battery is fully charged.

Power supply tester

A power supply tester is a tool that is very easy to use since it bears a perfect display on its front where power can be plugged directly from the power supply. Plugging other components into this device can give one voltage statistics and information concerning what one have plugged in as well as the voltage they are using.

Loopback plugs

Loopback plugs are mainly used in cases where one is working on network connections either serial or wide area connections. These plugs are used to test physical ports and should be used hand in hand with specific software which will send out information and wait to receive it. The loopback plug for serial ports is RS-232 while for network connections are Ethernet or T1.

POST card

The power on self- test card becomes of much importance the moment one start-up one's computer and one get nothing from it. This card looks at the power and issue detailed error messages to help one discover more concerning one's hardware problems.

It is unarguably true that computer hardware problems can be quite a nuisance and headache especially for an individual not well conversant with the hardware problems and their troubleshooting tools. On the other hand, knowing the hardware problems but not being aware of their troubleshooting tools can be of no use. It is therefore important that one equip one's self with all the important information ranging from hardware problems to their

troubleshooting tools. With that in mind, handling hardware related problems becomes very easy and one can even do it by one's self without the need to consult a computer expert.

7. In a network that contains two servers and twenty workstations, where is the best place to install an Anti-virus program?

Network TestingProgram DesignComputer ScienceNetwork TechnologyIT Security

Question added by Vijai Kumar , System Support Engineer , Sybrid Private Limited, ALakson Group company
Date Posted: 2016/02/29

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- **34 Answers**

Answer added by mohammed bin ayyash, تقني رئيسي في صيانة الإتصالات , الشركة الجزائرية لتسيير شبكة نقل الكهرباء
4 years ago

sdans les deux serveurs et les postes de travailles

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Downvote(0) Reply (0)

Answer added by cherif ounnas, ingeniieur , COMENA/CRNB
4 years ago

n a network that contains two serversi and twenty workstations, the best place to install an Anti-virus program is in the two servers

Upvote (0)
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Answer added by bothaina Bazerbashi, It supporter , ministry of culture
4 years ago

Install Antivirus in servers and workstation

Upvote (0)
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Answer added by Deleted user
4 years ago

Install an anti virus on all servers and workstations

Answer added by أحمد مبارك حفنى عثمان الحوضه, IT&software&hardware , ميليا سيناء براديس
4 years ago

install

Antivirus

computer

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Answer added by Islam Attili, Sales representative for Printing and archiving solutions , Elajou group
4 years ago

Anti virus should be installed on every machine (servers, PCs, workstations)

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Answer added by mohamad alhlalat, Maintenance Technical , karkabeh
4 years ago

Antivirus installed on any computer

Upvote (0)
Downvote(0) Reply (0)

Answer added by Deleted user
4 years ago

Anti virus installed on both server and wolrkstations

8. Define Static IP and Dynamic IP? Discuss the difference between IPV4 and IPV6.
ANS.

8.  The Internet Protocol, or IP, is the set of rules that makes it possible for our computers and other communication devices to connect to each other over the internet. Whenever you open a website on your browser, a data packet with your IP address is sent to the web server's own IP address, after which the website is then served over the internet back to your device.

IPv4 and IPv6 stand for Internet Protocol version 4 and version 6, respectively. The two versions currently coexist, and IPv6 will take over once the IPv4 addresses run out. What are the major differences between IPv4 and IPv6? Let’s find out.

IPv4 Definition

IP addresses operate in the same way as street addresses laid out on a map. They direct packets to their intended destinations.

IP controls all internet traffic. Data packets with the IP information of their points of origin and their destinations travel on the internet, with routers helping to direct them down the correct path.

IP is the other half of TCP/IP, or the so-called Internet Protocol Suite. TCP, Transmission Control Protocol, governs the transport layer while IP is concerned with the network layer. TCP/IP was developed by the Defense Advanced Research Projects Agency (DARPA), a US federal agency under the Department of Defense. It became the computer networking standard for the US military in 1982. Soon after, it became the primary standard for packet-switching networks like the internet.

IPv4 is a connectionless protocol operating on a best-effort delivery model, which means it does not guarantee delivery nor can it avoid duplicates. TCP sits atop IP and addresses these shortcomings through mechanisms such as data integrity checking.

IPv4 became the main protocol governing data packet transmissions in 1981. During the definition of the standard, the version numbers progressed rapidly, starting with version 1 until IPv4 became the one that was utilized in ARPANET, the forerunner of the internet, in 1983.

Originally, IP addresses were designed to support only a low number of networks. By the time IPv4 was rolled out in 1981, it had been divided into address classes in a classful network addressing architecture to cope with this limitation. This architecture was superseded in 1993 when Classless Inter-Domain Routing (CIDR) was introduced to slow both IPv4 address exhaustion and the rapid growth of routing tables across the internet.

IPv4 addresses are numeric and formatted using dotted decimal notation, or four decimal octets separated by dots, e.g., 172.217.31.238. Since an octet is eight bits in length, with the four octets, each IPv4 address is 32-bits, or four bytes, long.

At 232 IP addresses, the number of IPv4 addresses total almost 4.3 billion. The number goes down to around four billion if some 300 million addresses reserved for multicast and private networks are excluded. Network address translation (NAT) is used to allow IP addresses reserved for private networks to communicate over the internet.

It was originally thought that IPv4 could provide IP addresses for all devices on the internet but it soon became apparent that a more robust alternative was needed to meet future demand, even if IPv4 addresses could be reused. With the number of devices accessing the internet already numbering in the billions, especially since

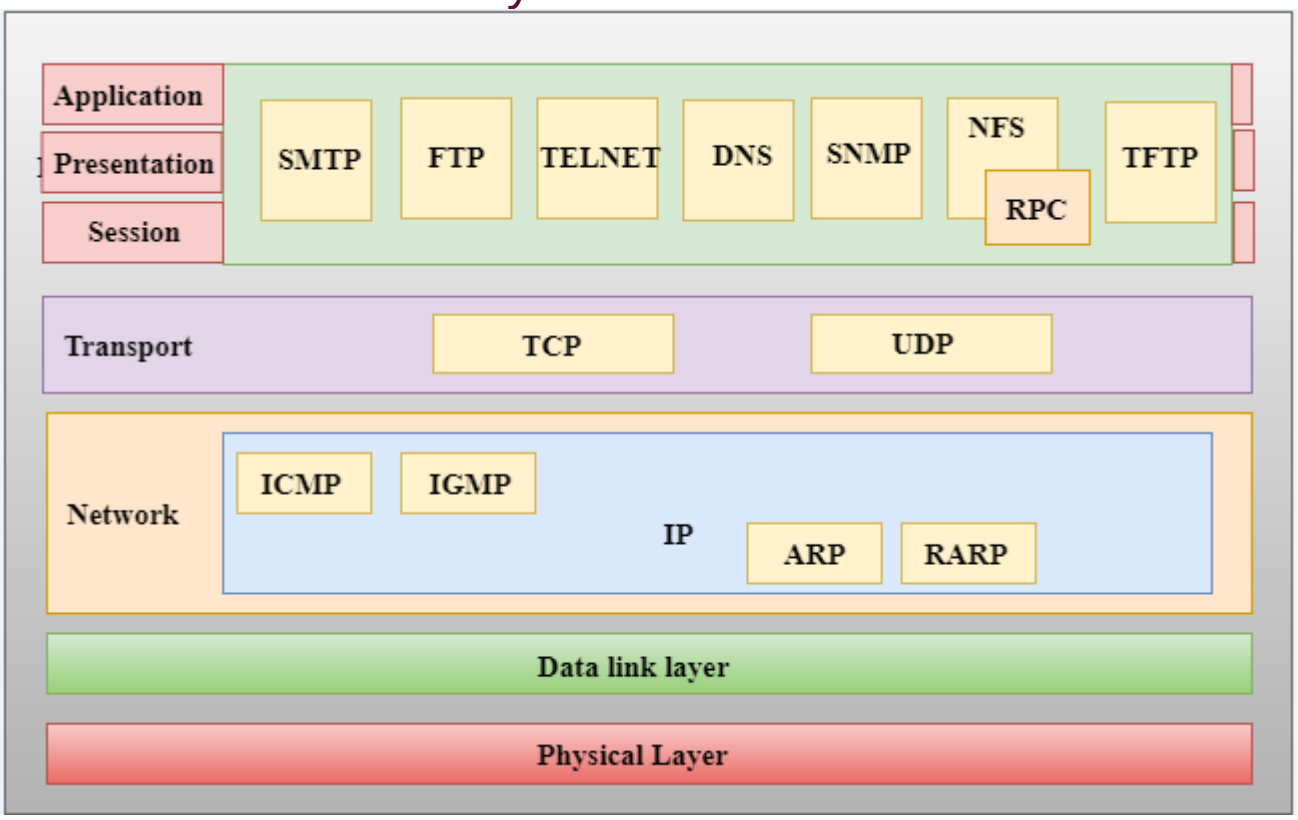
smartphones and the Internet of Things (IoT) have become ubiquitous, almost all IPv4 addresses have been assigned—enter IPv6.
9. Discuss TCP/IP model in detail.

ANS. TCP/IP model

- The TCP/IP model was developed prior to the OSI model.
- The TCP/IP model is not exactly similar to the OSI model.
- The TCP/IP model consists of five layers: the application layer, transport layer, network layer, data link layer and physical layer.
- The first four layers provide physical standards, network interface, internetworking, and transport functions that correspond to the first four layers of the OSI model and these four layers are represented in TCP/IP model by a single layer called the application layer.
- TCP/IP is a hierarchical protocol made up of interactive modules, and each of them provides specific functionality.

Here, hierarchical means that each upper-layer protocol is supported by two or more lower-level protocols.

Functions of TCP/IP layers:



Network Access Layer

- A network layer is the lowest layer of the TCP/IP model.
- A network layer is the combination of the Physical layer and Data Link layer defined in the OSI reference model.
- It defines how the data should be sent physically through the network.
- This layer is mainly responsible for the transmission of the data between two devices on the same network.
- The functions carried out by this layer are encapsulating the IP datagram into frames transmitted by the network and mapping of IP addresses into physical addresses.
- The protocols used by this layer are ethernet, token ring, FDDI, X.25, frame relay.

Internet Layer

- An internet layer is the second layer of the TCP/IP model.
- An internet layer is also known as the network layer.
- The main responsibility of the internet layer is to send the packets from any network, and they arrive at the destination irrespective of the route they take.

Following are the protocols used in this layer are:

IP Protocol: IP protocol is used in this layer, and it is the most significant part of the entire TCP/IP suite.

Following are the responsibilities of this protocol:

- **IP Addressing:** This protocol implements logical host addresses known as IP addresses. The IP addresses are used by the internet and higher layers to identify the device and to provide internetwork routing.
- **Host-to-host communication:** It determines the path through which the data is to be transmitted.
- **Data Encapsulation and Formatting:** An IP protocol accepts the data from the transport layer protocol. An IP protocol ensures that the data is sent and received securely, it encapsulates the data into message known as IP datagram.

- **Fragmentation and Reassembly:** The limit imposed on the size of the IP datagram by data link layer protocol is known as Maximum Transmission unit (MTU). If the size of IP datagram is greater than the MTU unit, then the IP protocol splits the datagram into smaller units so that they can travel over the local network. Fragmentation can be done by the sender or intermediate router. At the receiver side, all the fragments are reassembled to form an original message.
- **Routing:** When IP datagram is sent over the same local network such as LAN, MAN, WAN, it is known as direct delivery. When source and destination are on the distant network, then the IP datagram is sent indirectly. This can be accomplished by routing the IP datagram through various devices such as routers.

ARP Protocol

- ARP stands for **Address Resolution Protocol**.
- ARP is a network layer protocol which is used to find the physical address from the IP address.
- **The two terms are mainly associated with the ARP Protocol:**
    - **ARP request:** When a sender wants to know the physical address of the device, it broadcasts the ARP request to the network.
    - **ARP reply:** Every device attached to the network will accept the ARP request and process the request, but only recipient recognize the IP address and sends back its physical address in the form of ARP reply. The recipient adds the physical address both to its cache memory and to the datagram header

ICMP Protocol

- **ICMP** stands for Internet Control Message Protocol.
- It is a mechanism used by the hosts or routers to send notifications regarding datagram problems back to the sender.
- A datagram travels from router-to-router until it reaches its destination. If a router is unable to route the data because of some unusual conditions such as disabled links, a device is on fire or network congestion, then the ICMP protocol is used to inform the sender that the datagram is undeliverable.
- An ICMP protocol mainly uses two terms:

- **ICMP Test:** ICMP Test is used to test whether the destination is reachable or not.
- **ICMP Reply:** ICMP Reply is used to check whether the destination device is responding or not.

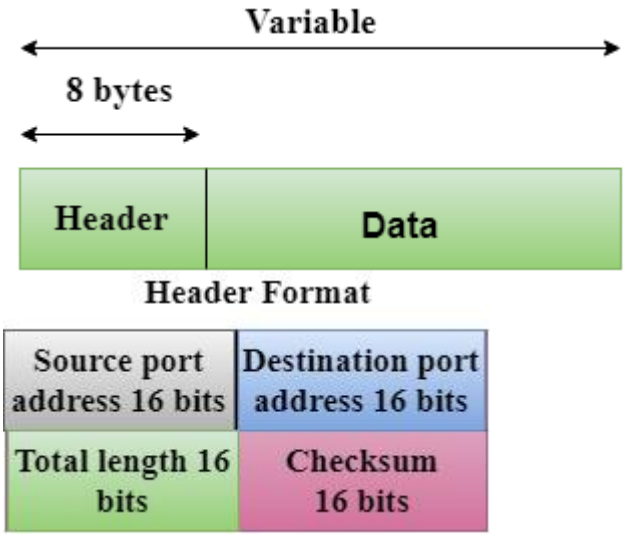
- The core responsibility of the ICMP protocol is to report the problems, not correct them. The responsibility of the correction lies with the sender.
- ICMP can send the messages only to the source, but not to the intermediate routers because the IP datagram carries the addresses of the source and destination but not of the router that it is passed to.

Transport Layer

The transport layer is responsible for the reliability, flow control, and correction of data which is being sent over the network.

The two protocols used in the transport layer are **User Datagram protocol and Transmission control protocol**.

- **User Datagram Protocol (UDP)**
  - It provides connectionless service and end-to-end delivery of transmission.
  - It is an unreliable protocol as it discovers the errors but not specify the error.
  - User Datagram Protocol discovers the error, and ICMP protocol reports the error to the sender that user datagram has been damaged.
  - **UDP consists of the following fields:**
    Source port address: The source port address is the address of the application program that has created the message.
    Destination port address: The destination port address is the address of the application program that receives the message.
    Total length: It defines the total number of bytes of the user datagram in bytes.
    Checksum: The checksum is a 16-bit field used in error detection.
  - UDP does not specify which packet is lost. UDP contains only checksum; it does not contain any ID of a data segment.



- **Transmission Control Protocol (TCP)**
  - It provides a full transport layer services to applications.
  - It creates a virtual circuit between the sender and receiver, and it is active for the duration of the transmission.
  - TCP is a reliable protocol as it detects the error and retransmits the damaged frames. Therefore, it ensures all the segments must be received and acknowledged before the transmission is considered to be completed and a virtual circuit is discarded.
  - At the sending end, TCP divides the whole message into smaller units known as segment, and each segment contains a sequence number which is required for reordering the frames to form an original message.
  - At the receiving end, TCP collects all the segments and reorders them based on sequence numbers.

Application Layer

- An application layer is the topmost layer in the TCP/IP model.
- It is responsible for handling high-level protocols, issues of representation.
- This layer allows the user to interact with the application.
- When one application layer protocol wants to communicate with another application layer, it forwards its data to the transport layer.
- There is an ambiguity occurs in the application layer. Every application cannot be placed inside the application layer except those who interact with the

communication system. For example: text editor cannot be considered in application layer while web browser using **HTTP** protocol to interact with the network where **HTTP** protocol is an application layer protocol.

Following are the main protocols used in the application layer:

- **HTTP:** HTTP stands for Hypertext transfer protocol. This protocol allows us to access the data over the world wide web. It transfers the data in the form of plain text, audio, video. It is known as a Hypertext transfer protocol as it has the efficiency to use in a hypertext environment where there are rapid jumps from one document to another.
- **SNMP:** SNMP stands for Simple Network Management Protocol. It is a framework used for managing the devices on the internet by using the TCP/IP protocol suite.
- **SMTP:** SMTP stands for Simple mail transfer protocol. The TCP/IP protocol that supports the e-mail is known as a Simple mail transfer protocol. This protocol is used to send the data to another e-mail address.
- **DNS:** DNS stands for Domain Name System. An IP address is used to identify the connection of a host to the internet uniquely. But, people prefer to use the names instead of addresses. Therefore, the system that maps the name to the address is known as Domain Name System.
- **TELNET:** It is an abbreviation for Terminal Network. It establishes the connection between the local computer and remote computer in such a way that the local terminal appears to be a terminal at the remote system.
- **FTP:** FTP stands for File Transfer Protocol. FTP is a standard internet protocol used for transmitting the files from one computer to another computer.

10. What is a Web Browser (Browser)? Give some example of browsers.

ANS. What Is a Browser?

A web browser, or browser for short, is a computer software application that enables a person to locate, retrieve, and display content such as webpages, images, video, as well as other files on the World Wide Web.

Browsers work because every web page, image, and video on the web has its own unique Uniform Resource Locator (URL), allowing the browser to identify the resource and retrieve it from the web server.

What Is the Difference Between a Search Engine and a Browser?

Some people confuse web browsers and search engines, but they are not the same and perform different roles. A search engine is essentially a type of website that stores searchable information about other websites (common examples of search engines are Google, Bing, Yahoo, and Baidu). However, to connect to a website's server and display its webpages requires a browser. Some examples of browsers can be found below.

5 Popular Browsers

1. Google Chrome

Chrome, created by internet giant Google, is the most popular browser in the USA, perceived by its computer and smartphone users as fast, secure, and reliable. There are also many options for customization in the shape of useful extensions and apps that can be downloaded for free from the Chrome Store. Chrome also allows easy integration with other Google services, such as Gmail. Due to the success of the "Chrome" brand name, Google has now extended it to other products, for example, Chromebook, Chromebox, Chromecast, and Chrome OS.

2. Apple Safari

Safari is the default on Apple computers and phones, as well as other Apple devices. It's generally considered to be an efficient browser, its slick design being in keeping with the ethos of Apple. Originally developed for Macs, Safari has become a significant force in the mobile market due to the domination of iPhones and iPads. Unlike some of the other browsers listed, Safari is exclusive to Apple, it doesn't run on Android devices, and the Windows version of Safari is no longer supported by important security updates from Apple.

3. Microsoft Internet Explorer and Edge

Although it has been discontinued, Internet Explorer is worthy of mention as it was the go-to browser in the early days of the internet revolution, with usage share rising to 95% in 2003. However, its relatively slow start-up speed meant that many users turned to Chrome and Firefox in the years that followed. In 2015, Microsoft announced that Microsoft Edge would replace Internet Explorer as the default browser on Windows 10, making Internet Explorer 11 the final version to be released. At the time of writing, the market share of Microsoft Edge remains lower than Internet Explorer, which is still used by many people around the world.

4. Mozilla Firefox

Unlike Chrome, Safari, Internet Explorer, and Microsoft Edge, Firefox is an open-source browser, created by community members of the Mozilla Foundation. It is

perhaps the most customizable of the main browsers, with many add-ons and extensions to choose from. In late 2003, it had a usage share of 32.21% before gradually losing out to competition from Google Chrome. It currently remains a strong competitor in the "desktop" field but has a lower market share in the mobile arena, where Google Chrome and Apple Safari tend to dominate.

5. Opera

Another web browser worthy of mention is Opera, which is designed for Microsoft Windows, Android, iOS, macOS, and Linux operating systems. It has some interesting features and is generally considered to be a reliable option by many users. Many of its earlier features have gone on to be incorporated into rival browsers. It also has a distinct user interface. At the time of writing, Opera has a usage of just 2.28% but remains influential, albeit from the fringes.

Which Browser Am I Using Right Now?

If you don't know or are unsure which browser or version that you are using to view this article right now, there are a number of ways to find out.

Probably the easiest way is to use a website which tells you. I've listed examples of three below (click on a link to find out):

- What's My Browser
- WhatIsMyBrowser.com
- thismachine.info

Another way to find out which browser you are using is through the browser itself. Browsers vary in their setup and layout, so it's impossible to give advice that works in every case. However, if you click on the browser's drop-down menu, usually found in the top right-hand corner of the page, then click on "help" and then "about," it will tell you which browser and version you are using in most cases.

This content is accurate and true to the best of the author's knowledge and is not meant to substitute for formal and individualized advice from a qualified professional..

11. What Is a Search Engine?

Also known as a web search engine and an internet search engine, a search engine is a (usually web-based) computer program that collects and organizes content from all over the internet. The user enters a query composed of keywords or phrases, and the search engine responds by providing a list of results that best match the user's query. The results can take the form of links to websites, images, videos, or other online data.

How Do Search Engines Work?

The work of a search engine can be broken down into three stages. Firstly, there is the process of discovering the information. Secondly, there is the organization of the information so that it can be effectively accessed and presented when users search for something. Thirdly, the information must be assessed to present search engine users with relevant answers to their queries.

These three stages are usually called crawling, indexing, and ranking.

Crawling

Search engines use pieces of software called web crawlers to locate publicly available information from the internet, which is why this process is known as crawling. Web crawlers can also sometimes be referred to as search engine spiders. The process is complicated, but essentially the crawlers/spiders find the webservers (also known as just servers for short) which host the websites and then proceed to investigate them.

A list of all the servers is created, and it is established how many websites are hosted on each server. The number of pages each website has, as well as the nature of the content, for example, text, images, audio, video, is also ascertained. The crawlers also follow any links that the website has, whether internal ones that point to pages within the site, or external ones that point to other websites and use them to discover more pages.

Indexing

Information found by the crawlers is organized, sorted, and stored so that it can later be processed by the algorithms for presentation to the search engine user. This is known as indexing. Not all the page information is stored by the search engine, instead, it's just the essential information needed by the algorithms to assess the relevance of the page for ranking purposes.

Ranking

When a query is entered into a search engine, the index is scoured for relevant information and then sorted into a hierarchical order by an algorithm. This ordering of the search engine results pages (SERPS) is known as ranking.

Different search engines use different algorithms, and so give different results. Over the years, algorithms have become more and more complex as they attempt to present more relevant and accurate answers in response to the queries of search engine users.

10 Examples of Search Engines

1. Google

Google is the biggest search engine in the world by far. It handles over 5 billion searches each day and has a market share of over 90% at the time of writing (August 2019). Developed originally by Larry Page and Sergey Brin in 1997, Google has become so successful that it has become synonymous with search engine services, even entering the dictionary as a verb, with people using expressions such as: "I googled it" when they've searched for something online.

2. Bing

The origins of Microsoft's Bing can be found in the technology company's earlier search engines, MSN Search, Windows Live Search, and Live Search. Bing was launched in 2009 with high hopes that it could usurp its rival Google, but despite attracting many fans, things haven't quite worked out that way. Even so, Bing is the third largest search engine worldwide after Google and Baidu. It is available in 40 different languages.

3. Yahoo!

Yahoo! Search is another big player in the search engine world. However, for much of its history it has supplied the user interface, but relied on others to power the searchable index and web crawling. From 2001 to 2004, it was powered by Inktomi and then Google. From 2004, Yahoo! Search was independent until a deal was struck with Microsoft in 2009 whereby Bing would power the index and crawling.

4. Ask.com

Originally known as Ask Jeeves, Ask.com is a little different from Google and Bing, as it uses a question and answer format. For a number of years, Ask.com was focused on becoming a direct rival to the big search engines, but nowadays, answers are supplied from its vast archive and users contributions, along with the help of an unnamed and outsourced third-party search provider.

5. Baidu

Founded in the year 2000 by Robin Li and Eric Xu, Baidu is the most popular search engine in China, and the fourth most visited website in the world, according to Alexa rankings. Baidu has its origins in RankDex, a search engine previously developed by Robin Li in 1996. As well as its Chinese search engine, Baidu also offers a mapping service called Baidu Maps and more than 55 other internet-related services.

6. AOL.com

AOL, now styled as Aol. and originally known as America Online, was a big player in the early days of the internet revolution, providing a dial-up service for millions of

Americans in the late 1990's. Despite AOL's decline as broadband gradually replaced dial-up, the AOL search engine is still used by a significant minority of searchers. On June 23, 2015, AOL was acquired by Verizon Communications.

7. DuckDuckGo

DuckDuckGo (DDG) has a number of features that distinguish it from its main competitors. It has a strong focus on protecting searchers' privacy, so rather than profiling users and presenting them with personalized results, it provides the same search results for any given search term. There's also an emphasis on providing quality rather than quantity when it comes to search results. DDG's interface is very clean and not overladen with adverts.

8. WolframAlpha

WolframAlpha markets itself as a computational knowledge engine. Instead of answering the queries of searchers with a list of links, it responds with mathematical and scientific answers for their questions, using externally sourced "curated data". WolframAlpha was launched in 2009 and has become a valuable tool for academics and researchers.

9. Yandex

Launched in 1997, Yandex is Russia's largest search engine, and the country's fourth most popular website. Outside of Russia, the search engine also has a major presence in Ukraine, Belarus, Kazakhstan, and other countries of the Commonwealth of Independent States. As well as search, Yandex offers many other internet-related products and services, including maps and navigation, music, eCommerce, mobile applications, and online advertising.

10. Internet Archive

The Internet Archive provides free public access to a wide range of digital materials. A nonprofit digital library based in San Francisco, it's a great tool for tracing the history domains and seeing how they have evolved over the years. Besides websites, you can also find software applications and games, movies/videos, music, moving images,

and a huge collection of public-domain books. The Internet Archive also campaigns for a free and open internet.

12. What is the Internet & WWW? What are the uses of internet in our daily life?

ANS. **Top 17 Most Powerful Uses of Internet in our daily life**

- BYVIJAY SHARMA
- ONMARCH 20, 2016

The uses of the Internet in our daily life is depending on desires and goals. Activities in our daily life are decided after the use of the Internet. The Internet innovated our daily life, business, and technologies. We spend lots of time on the computer and the Web.

Positive use of the Internet makes our lives, business and career easy and simple for example, you can learn basic computer skills online and you can also use the internet to let more people know about your local business online The Internet provides us useful data, information, and knowledge for personal, social, and economic development and it is up to us to utilize our time on the world wide web in a productive manner. The Internet is a revolution in information technology.

The use of the internet changing the lives, businesses, technologies, social behavior, customer consumption, and transforming traditional methods. The Internet is used to solve daily life, professional, and business problems. It for shopping to save time and find more product options. It's for learning and building skills. It's a communication channel that making it possible for all types of social, technical, and business groups to explore the opportunities.

While there are various uses of the Internet but you can use the internet for getting an online education. You can use the Internet to promote your business online.

Learn more: 16 Most Powerful benefits of digital marketing for small businesses

You are free to use the Internet. The Internet is a magical tool that will help you to become successful in your career and business. But only the positive and productive use of the Internet.

The global network of computers has changed our lives tremendously. We are hungry to use the Internet. That's why more than 40% of the world's population is connected to the Internet according to internetlivestatus.com. This is because we are connected to various information and lifestyle facilities. It is because a large number of new people are getting connected to the Internet via their portable devices every day.

We start our day after notifications and emails. This means that as soon as we wake up we are flooded with information from different sources. Sometimes it is struggling to prioritize and decide which information is useful and which is not. Using the Internet positively means we can decide what is important for the day.

The Internet is a sea of data and information in which a little dip can speed up and change the way we live and do business. That's why it is really important and challenging to use the Internet in as many of our daily life activities as possible. The use of the Internet in education is providing new opportunities for both students and educators alike.

There are many Productive things you can do on the Internet. So, Let's start to know one by one what role the Internet is playing in our lives. How is the Internet affecting our life? What INTERNET activities we are doing daily?

Uses of the Internet and Internet-related services in our Daily Life

The following points will help you learn why the internet is important. How the internet changed the world. What are the advantages for you if you're connected to the internet? How the internet is influencing your life. So, Let's begin:

1. Uses of the Internet for business promotion and digital marketing:

Today, the Internet is a prime and main source for business promotion and marketing. You use the internet to build the presence of your local business online to get more customers.
You can sell your products on your own online store website or also by using online selling platforms such as amazon. You can also create, run, and grow your online store by using third party software and business services.

Due to the uses of the internet, and the large of amount consumer and broad market eCommerce, online selling, digital marketing, dropshipping, advertising and software development industries are in a boom.

We can see new apps, services, and creative businesses starting up every single day, which in turn is creating jobs, employment opportunities, economic development. It's also challenging traditional shopping and

selling experiences. But more than that providing growth opportunities for small business owners, traditional store owners, and marketers to utilize eCommerce options.

I believe that the uses of the Internet in business have brought about an exciting stir in the business world and it will not hold back anymore. Use of Google Ad words, Facebook ads, and content marketing are common in product and services marketing on the Internet.

You can use the internet to promote and advertise any type of business:

- You can build an online presence for your business through google my business, google map, and Facebook page.
- You can promote and market products by using social media apps such as WhatsApp.
- You can use email marketing to send personalized and targeted offers.
- You can create your business website to promote your product and services.
- You can use eCommerce or online selling platforms to sell products online.
- You can use search engine optimize, content marketing to drive more customers to your online store or business website.
- You can use the internet to create daily deals, coupon codes, product discounts, and many other new and existed customers.
- You can also use the Affiliate Marketing platform – performance-based marketing to promote and sell your products online.
- You can use paid video, search engine, and social media advertising.

The Internet is populated by online marketing, eCommerce, Advertising, education, and entertainment content. There are millions of IT professionals, content creators, consumers, and businesses are involved in these daily activities 24/7/365.

Not only that, but there are also various web-based applications and companies that help you in the promotion, marketing, and sales process. You as a business owner don't have to do all the works on your own. You can use hire digital marketing agencies or contractors, you can automate lead generation and marketing, You can track, manage customers, deals, tasks by using CRM and many other things.

Related: Importance of Internet in Business

2. Uses of the Internet in Students daily life

Students have a free platform to learn throughout their lifetime. People in the age group 18 to 35 are among the most frequent users of the Internet today and these people are mostly students from all over the world. They are using the Internet to learn new skills and even acquire degrees in professional online courses.

Students can learn technical, non-technical skills by using the internet. And the cost of online learning is less than the traditional method of learning. It's because there are various sources, educators, and methods to acquire new knowledge and skills.
One of those is the following, where you can learn any kind of skills in a few hours/week/months/year at a low price. And you will also get lifetime access to all the course material and future updates. You can do it on a mobile, desktop, tablet, and anywhere, anytime.

Top 11 Most important Computer Skills to learn for career development

It wasn't possible before the advent of the Internet to expand knowledge at this speed and low price. That's why the Internet is playing a crucial role in our education. That's why due to easy access to education on the internet, technological and lifestyle changes happen fast.

3. Uses of the Internet to increase the speed of daily tasks

Our routine is initiated by the Internet. It is the first thing in the morning we do- see our notifications and emails. The Internet has made human life so much easier, now the biggest and toughest tasks are done in minutes. No matter it is a simple email, pizza order, shopping or money transfer it is so much easier by the use of the Internet in life.

Related: How to build and follow healthy habits online

4. Uses of the Internet for online selling or Shopping

Shopping has become a hassle-free task now and almost anybody can order products online after comparison with other websites. The boom and the resultant competition in the online shopping business are evident. Shopping sites are more interesting because of the huge discounts different companies are offering customers.

People are attracted to them and this is good news especially for the Indian shopper because of our frugal spending habits. The customer can pay cash for the delivery of a product delivered to his house in a few hours and can return the product if he is not satisfied with it.

Shopping on the Internet is affordable, convenient, and saves time.
The Use of Walmart, Amazon, Flipkart, Paytm, snapdeal, and many others for online shopping is common on the internet.

People can sell and buy anytime anywhere and through any device. That's how the Internet is affecting our shopping habits in daily life. And all this process is called eCommerce. eCommerce has changed business and now it's an important part of our life.

Learn: How eCommerce has changed business

5. Use of the Internet for research and development

The pace of work towards innovation and quality of research is developed by Internet tools. It is not tough to research on the Internet. From small business owners to big universities everyone is getting the benefits of the Internet for research and development. Data analysis, data entry, data research, data management, etc. services are in demand.

A person who is a data scientist and **data analyst** are really important for innovative decision-making. Even the **importance of Microsoft Excel in business** is being realized by people now. Similarly, CRM and Google Analytics are helping businesses to track, analyze the consumer's behavior on websites and advertising campaigns.
Decision making is an important part of all kinds of businesses and organizations. Success and failure depend on our decision. After the rise of online business and higher competition on the Internet to conduct business, it's really important that decisions do not be a burden on the organization. That's why today you can visualize, analyze, and monitor customers' data in real-time by using data analysis tools. That helps the business to remain competitive in the market through better data analysis.

Any information we need regarding health, money, law, RTI, etc. everything is in front of us within a few seconds. So, it is really important that we use the power of the Internet for practical benefits.

6. Use of the Internet provide us quick and free communication

The Internet is undoubtedly the most effective and far-reaching communication tool we have at present. Communication on the Internet is free and fast. We all are connected with each other on various computers and IP. Skype, chat messengers, social media is common for personal and professional purposes.

Indeed we are also using standardized communication protocols but the Internet evolves constantly by using artificial intelligence and search engines to find out how we communicate, how this can be made simpler for us to use, and have a better experience in the shortest possible time.

This ability to communicate at breakneck speeds enables us to finish our tasks faster and become more efficient.

7. International uses of the Internet by working remotely and providing business services

It is obvious that the presence of the Internet has made doing business much easier. But it has also created its own set of challenges such as high

competition, needs for quality content, etc. But knowledge is power and anyone can do business and job after learning more about it.

As the newer generations start to log into the Internet there are possibilities of completely new business and jobs. Nowadays the Internet is widely used in making money. If you have talent, then you can earn money by sitting at home on the Internet.

It is hard to imagine how many people working in 9-5 jobs want to leave into jobs and work independently as freelancers or start their own Internet business. The emergence of websites such as Upwork.com, Freelancer websites has given people the option to work remotely (from home) according to their own schedule and commitment.

Thousands of freelancers or professionals are doing this on a daily basis to earn more than their bread and butter costs. Facebook business pages, Google AdWords, Paytm, blogs, YouTube channels, Amazon, and other affiliate marketing methods are various tools used to make money by providing things of value to Internet users.

If you have an idea that can provide a facility to people then you can start an online business by using any computer and information technology tool.

8. Uses of the Internet in Money Management

The use of the Internet is not limited to only earning money, it can also be used to manage money. We can now see hundreds of websites, apps, and other tools that help us in handling daily transactions, transfers, management, budget planning, etc. and this trend is growing steadily.

The use of Internet banking and mobile banking use is also growing. All the banks are really working hard to provide Internet banking and mobile apps to empower people to utilize the power of the Internet and the latest money management tools. Buxfer.com, mint.com, etc. websites and apps are providing free and premium services to manage your money.

9. Uses of the Internet in Everyday Politics

The Internet is a great tool for politicians to connect with people. The uses of the Internet are not only in personal and business life but it is common now in politics. Politicians are using various methods to influence people and youth on social media to favor their party. They are also using it to criticize other political parties.

Our Prime Minister of India Mr. Narender Modi and Chief Minister of Delhi Mr. Arvind Kejriwal are very active with their followers on Twitter and Facebook and sharing views on a particular topic. It is a widely accepted fact that Mr. Modi's success is largely attributed to his presence on social media and an active social media team.

It is also good for people to know about the progress of ministers on a particular task. If governing political parties use social media to show the progress of their work then it is great. But if they are only using it for condolence purposes then I think they have to think again about their social media political strategies.

10. Uses of the Internet for Teaching and Sharing Knowledge with others

The Internet is a very important tool for educators. Similarly, educators are using the Internet for teaching and sharing their knowledge and experience with the world. The Internet and its application is user-friendly and make students life easy. A teacher can use YouTube channels to teach students around the world. Teachers can use the blog in which they can share their career experiences with college graduates. There are various websites for teachers to teach online. Teachers can use blogs, websites, youtube, online course ebooks, online tools, content to create and distribute educational content.

If you're free and want to spend your time doing productive things then create your own website. On the website, you can train people about the skills you're a master in.

Related: What is Blog used for? Uses of the blog in our daily life

11. Solving the problems of others by the use of the internet

You can determine the importance of the internet that it is mostly used today to solve the problems of others. Online forms, social groups are the platform in which you can provide a solution. For example, people ask on Quora, and then people who know the solution answer.

This use of the internet is not only beneficial for others who are getting the solution but also for the people who give the answer. Answer providers on the forums are mostly bloggers, internet marketers, and businesses. They use such a platform to connect with their target users or clients or readers.

Related: Best courses for starting your own online business

12. Uses of the Internet in Cashless Economy

The Internet is very useful for economic development. The use of internet banking, mobile banking, and e-wallets also helps at some point to decrease corruption in India or in any nation.

It’s because when using digital transactions it will be recorded in the database. Bank databases can be easily tracked by the income tax department. So, it will be helpful for a government that all income tax pair shows correct details or income report in the ITR.

Another thing is that offline cash transactions often not calculated and mentioned by people such as rent. If we use the internet or cashless internet transactions then it will help others to show their income report. If we’re giving rent money in cash or paying in cash for other services then it is highly possible for the receiver to hide that money for income tax report.

I am not saying that it should be mandatory to use but it can be helpful. But for that people also need education and awareness about internet banking. Also, banks need to update their banking systems. The government also needs to create privacy and cybersecurity policies etc.

So, uses of the internet in digital transactions are time-saving and helpful for the country. But be aware of cyber crimes and get more knowledge about internet security.

13. Uses of the Internet in the environmental development

The Internet can play a very important role in Environmental development. We can use internet tools such as social media and blogs by promoting environmental development activities. Sharing valuable information and knowledge regarding trees, plants and water will make positive effects on internet users. There are billion people who use the internet if each day one people inspired to save trees and plants then it will be a great use of the internet.

14. Uses of the internet for parents

Not all parents are computer and internet literate. But the internet literate people can use the internet to guide their kids. They can analyze the content on the internet better than students. So, they can suggest what is helpful for kids to do on the internet. Another thing is that they can help kids in their studies and education. I know various kids know more about the internet than their parents. But it’s highly important for parents to guide children for the best use of the internet in daily life.

15. Uses of the Internet in Tour and Travel

Uses of the Internet on tour and traveling are highly effective. We now search on Google before visiting the places. We booked our tour through the use of the Internet. We can read blogs about tour and travel experiences and tips. Tour and traveling service providers and companies are using innovative ways and marketing campaigns to attract people to their website to book the tour package.

We can now compare the tour package prizes on the INTERNET and choose the one which best suits our budget and requirement. The use of the Internet is highly effective because now we can see and analyze the place before we book our tour package. This is one of the biggest use of the Internet.

16. Government policies and schemes are easily accessible by the use of the Internet

The right utilization of Internet power is challenging for governments across the world. Government expenses are reduced due to providing data and information for people on government websites. People are taking advantage of Government policies and websites. Any government information and service are easily accessible to the citizens. Using tools such as the Right to Information, we can have online access to important government documents.

So, after seeing the above uses we have to agree that the Internet is playing an irreplaceable role in human development. No field can exclude or escape this ever-growing worldwide web we call the Internet.

Economic development is becoming stronger by the use of the Internet in any country. Till the use of the Internet is done for good things our social, economic development will continue. The Internet is harmful if we're using it for wrong things and wrong ways. Our daily activities are enhanced and our knowledge expanded by the Internet but at the same time, the Internet is providing powerful development tools for humans. That's why the good uses of the Internet are really important in everyday life.

17. Invention Engine

Today almost all things are connected and working through the Internet. There should be no doubt that the Internet is becoming the engine of every new invention. Such as machine learning, cloud computing, business intelligence, the internet of things, automation, and artificial intelligence tools and services evolution never possible

13. What is an Internet Service Provider? Give some example of ISP in India.

nk	ISP	Total
1	Reliance Jio	388,390,116
2	Airtel	175,680,949

3	Vodafone Idea	139,470,822
4	BSNL	30,907,876

14. Difference between MAC Address and IP Address

ANS

- Difficulty Level : Easy
- Last Updated : 23 Dec, 2020

Both MAC Address and IP Address are used to uniquely defines a device on the internet. NIC Card's Manufacturer provides the MAC Address, on the other hand Internet Service Provider provides IP Address.
The main difference between MAC and IP address is that, MAC Address is used to ensure the physical address of computer. It uniquely identifies the devices on a network. While IP address are used to uniquely identifies the connection of network with that device take part in a network.

Let's see the difference between MAC Address and IP Address:

S.NO	MAC Address	IP Address
1.	MAC Address stands for Media Access Control Address.	IP Address stands for Internet Protocol Address.
2.	MAC Address is a six byte hexadecimal address.	IP Address is either four byte (IPv4) or eight byte (IPv6) address.
3.	A device attached with MAC Address can retrieve by ARP protocol.	A device attached with IP Address can retrieve by RARP protocol.
4.	NIC Card's Manufacturer provides the MAC Address.	Internet Service Provider provides IP Address.
5.	MAC Address is used to ensure the physical address of computer.	IP Address is the logical address of the computer.
6.	MAC Address operates in the data link layer.	IP Address operates in the network layer.
7.	MAC Address helps in simply	IP Address identifies the connection

	identifying the device.	of the device on the network.
8.	MAC Address of computer cannot be changed with time and environment.	IP Address modifies with the time and environment.
9.	MAC Address can’t be found easily by third party.	IP Address can be found by third party.

RECOMMENDED ARTICLES

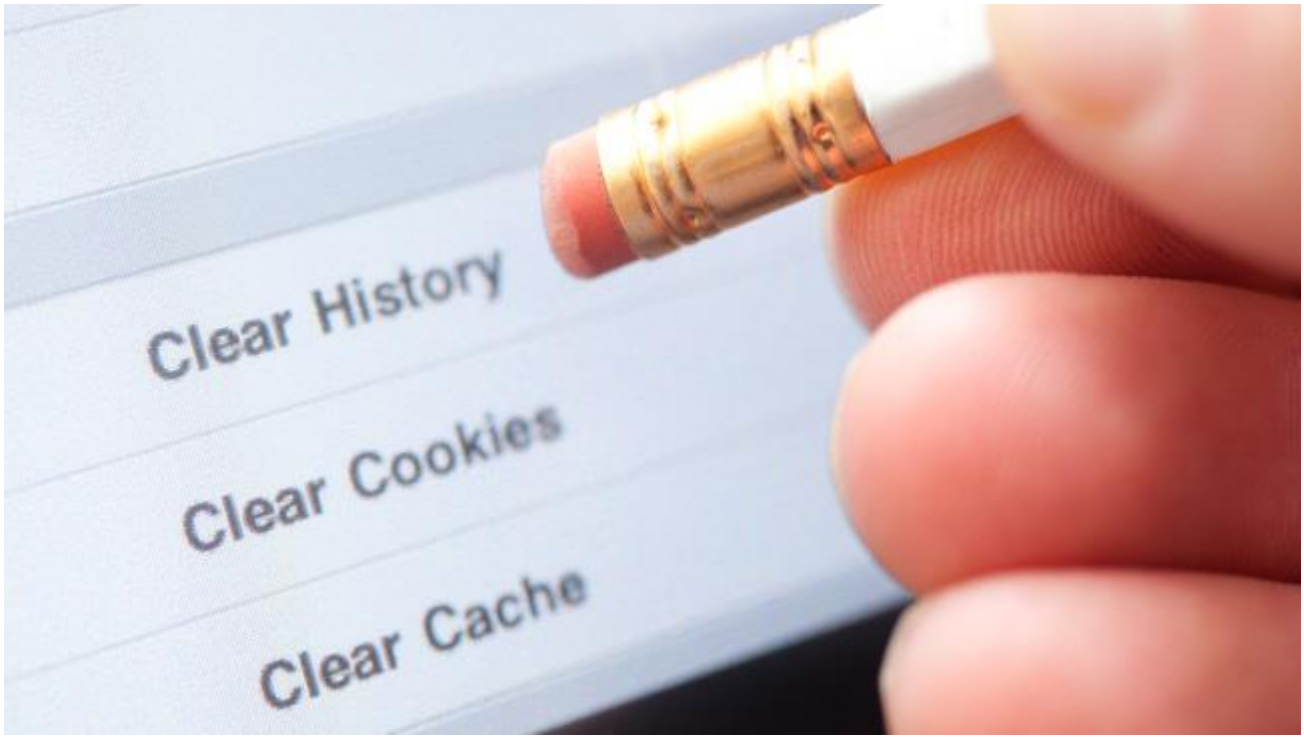
15. How to find your web history and how to delete it

ANS.

Can’t find a webpage you were only looking at last week? It’s easy using your browser’s History feature - you just need to know where to look.

By **Julian Prokaza**

Last updated: 24 September 2018 - 11.25am



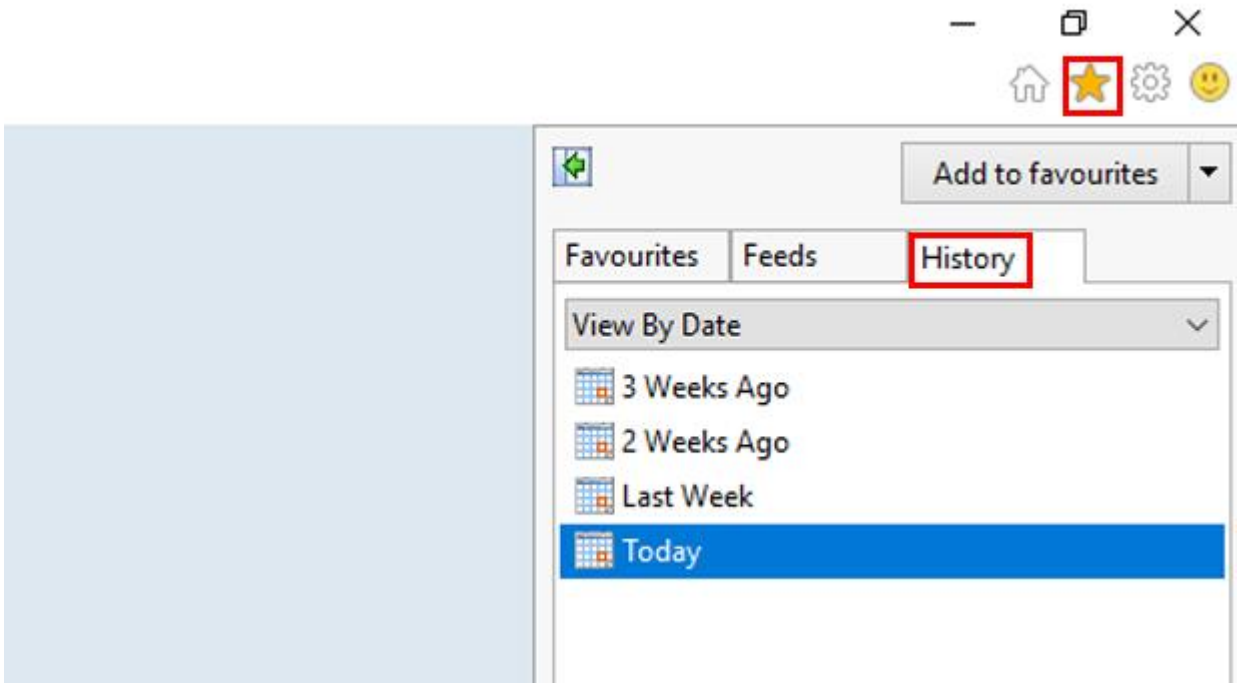
Finding a particular web page long after you last visited it can be a tricky business unless you bookmarked it or can track it down with a search engine.

Fortunately, all web browsers keep a record of every page you visit in their ‘web history’ - all you need to know is how to access it. We'll show you where to look on Google Chrome, Internet Explorer, Firefox and Microsoft Edge. Sometimes it's not so fortunate, so we'll show you how to delete it, too.

[Read more: How to check your child’s online web browser history]

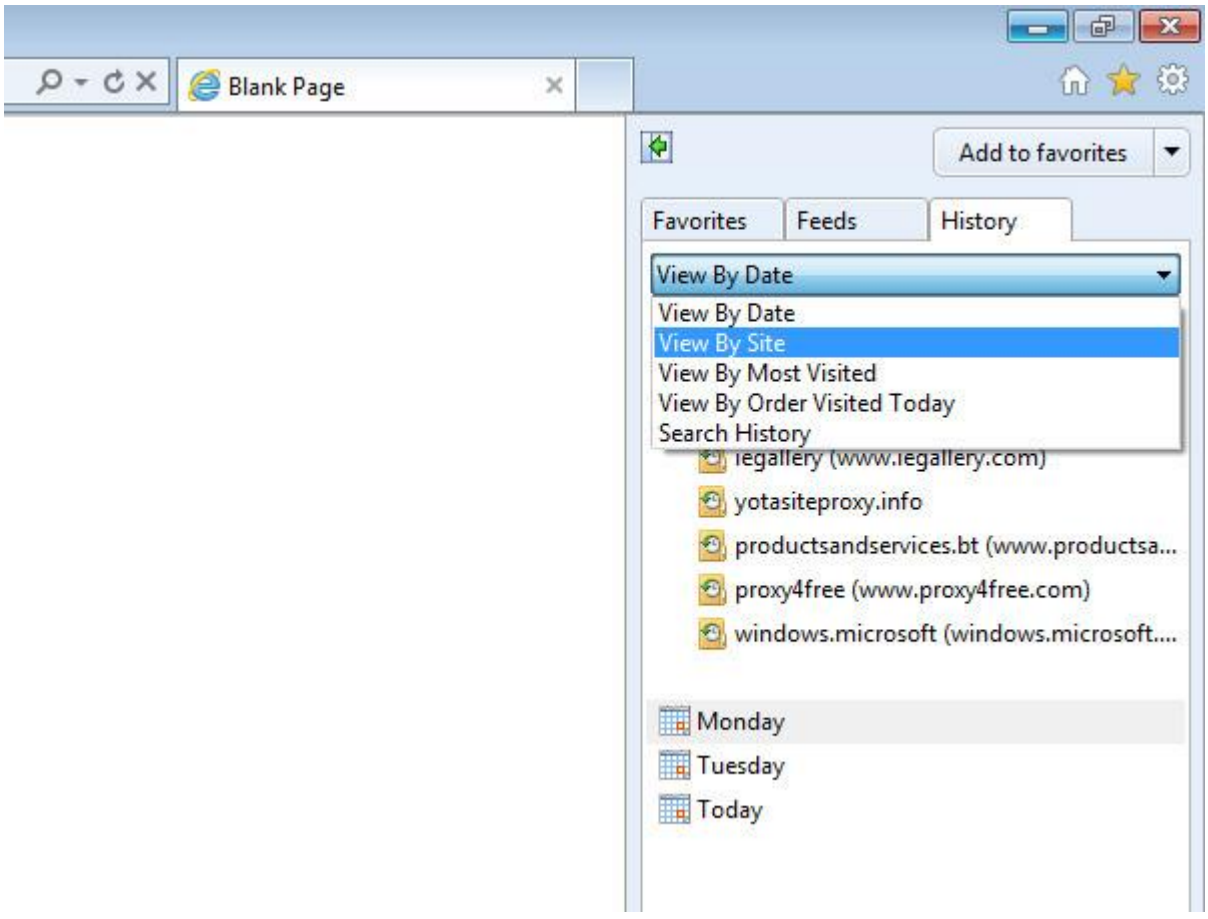
View and delete in Internet Explorer

Step 1: Open the History menu



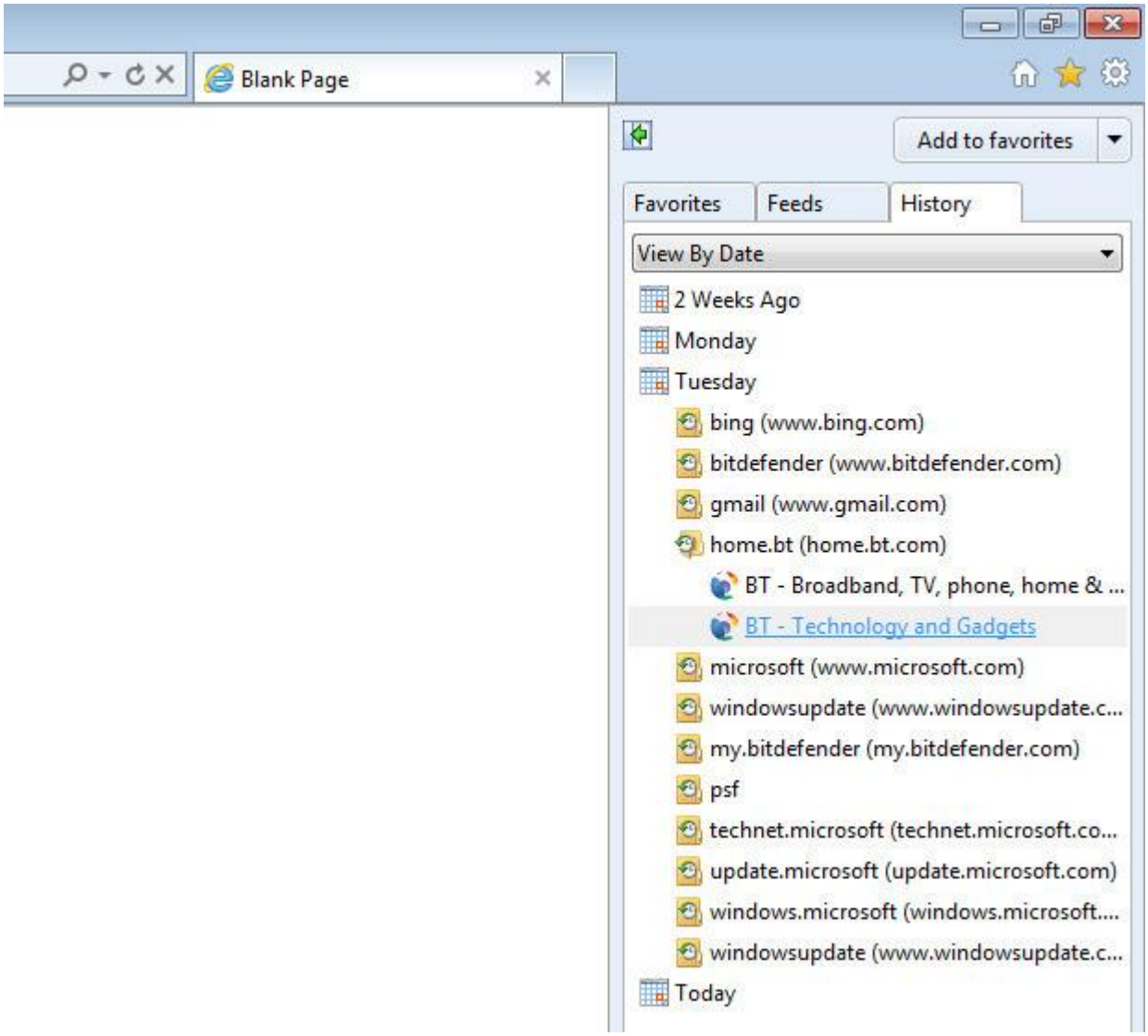
In Internet Explorer 11, click the **star** icon at the top-right of the window.

Step 2: Search and sort Internet Explorer History



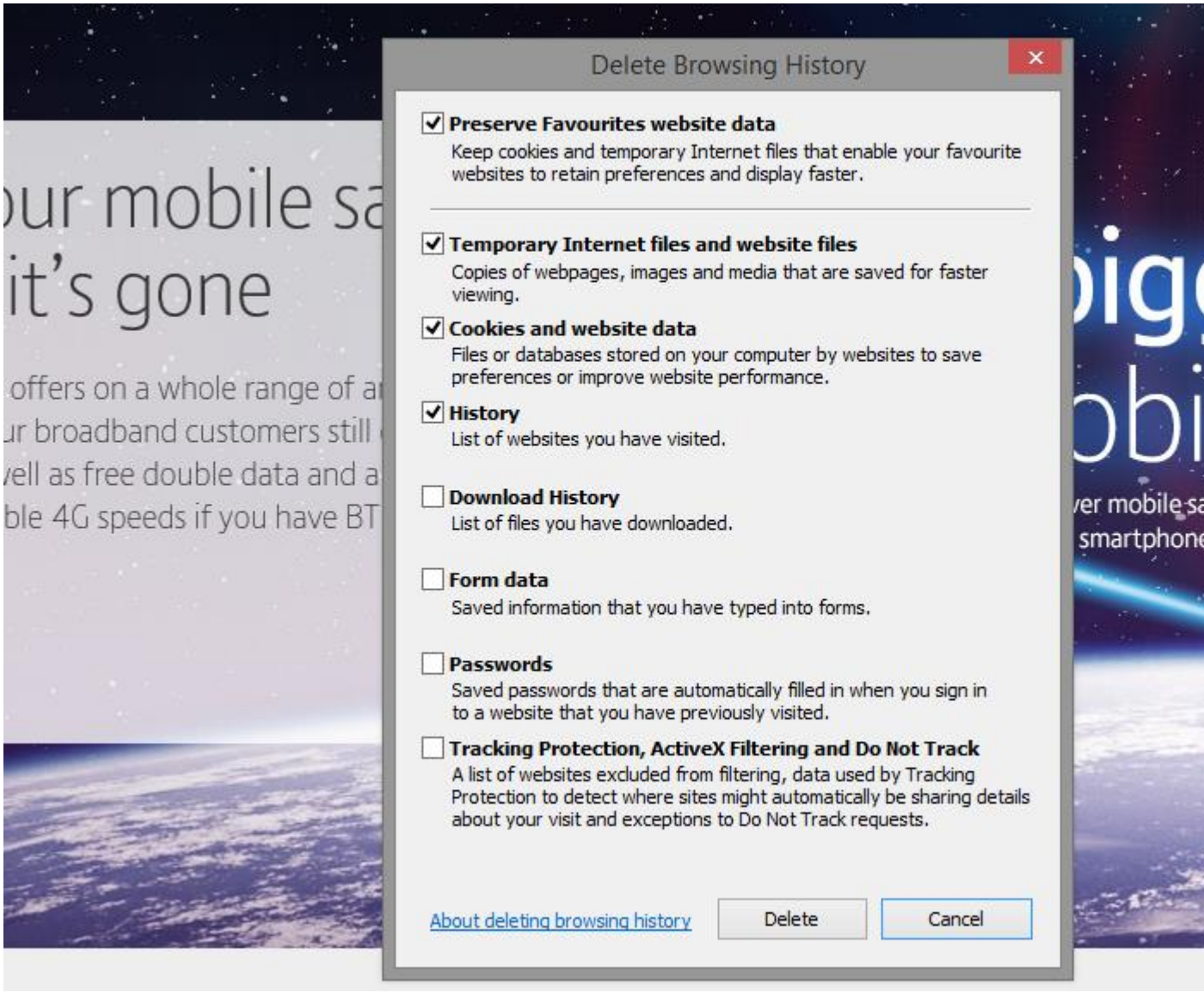
When the dialog box opens, click the **History** tab to view the web pages you've visited previously, ordered by date. There's also a drop-down list so you can view the pages by **Site, Name, Most Visited** and **Order Visited Today**, plus a **Search History** option for when it's quicker to find a page by name.

Step 3: Open a page



Clicking a day or a site in the list expands it and then you can click an individual page to open it in the current tab.

Step 4: Delete your History



To clear the browser history in Internet Explorer, click the **cog** icon at the top-right of the Internet Explorer window and select **Internet Options.**

When the **Internet Options** dialog box opens, click the **Delete** button under **Browsing history** on the **General** tab.

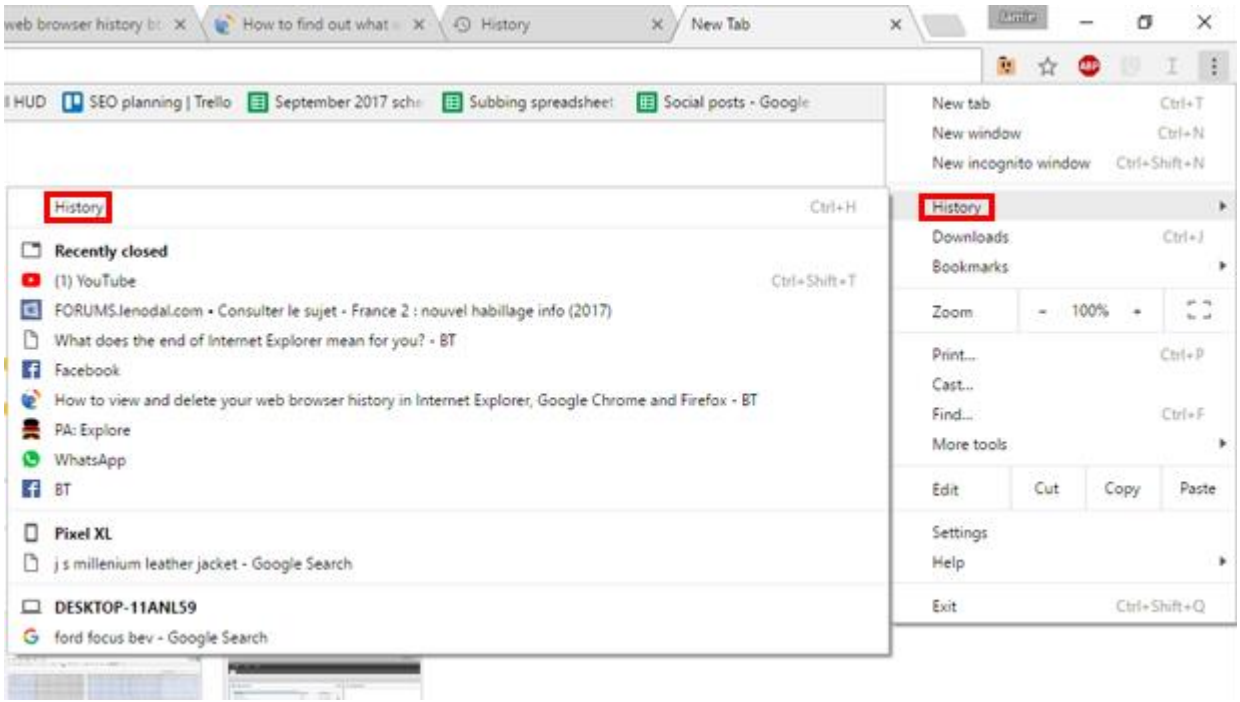
Alternatively, from the **cog**, click on **Safety**, then **Delete Browsing History**, or press **Ctrl+Shift+Delete** on your keyboard.

Then click the **Delete** button on the dialog box that opens. If you want IE to retain your passwords make sure this option is unticked.

Remember, Internet Explorer is being phased out in favour of Microsoft's new web browser Edge. **Find out what it means for your PC.**

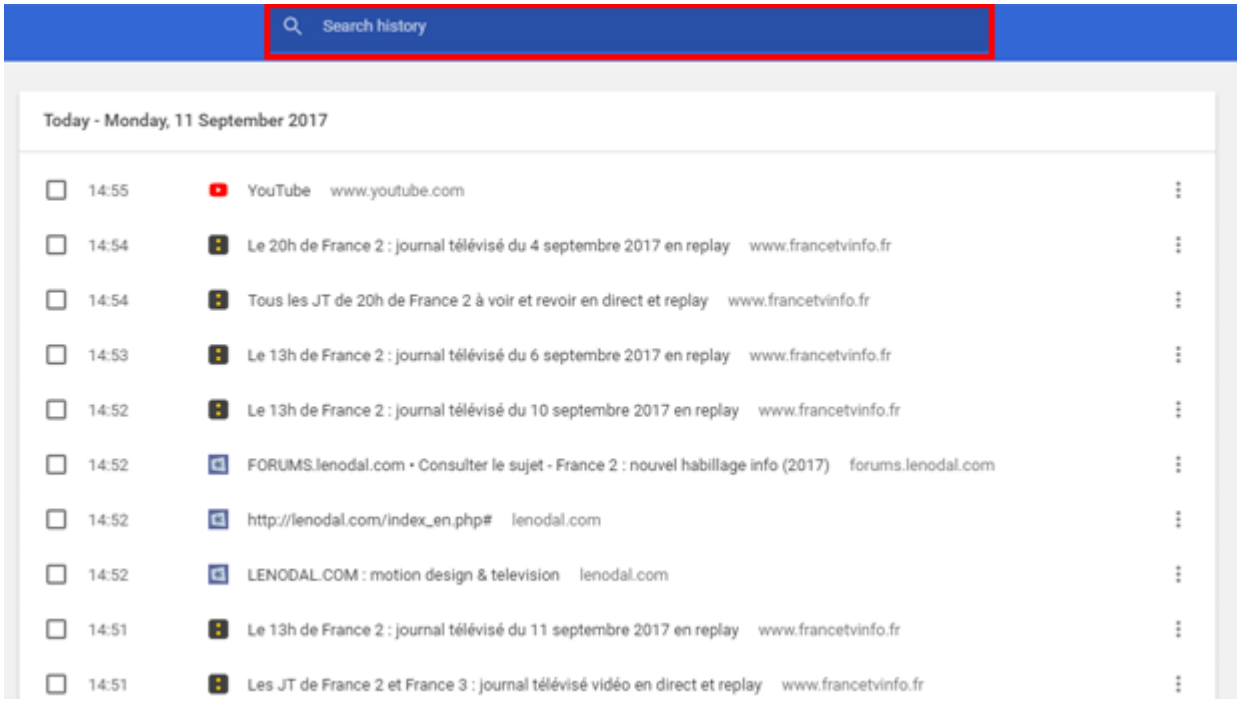
View and delete browsing history in Google Chrome

Step 1: Open the History menu



To view the web history in Google Chrome, click to open the menu at the top-right of its window and select **History**, then click **History** a second time. Or press **Ctrl+H** on your keyboard.

Step 2: Searching History



This shows the web history as a list of pages, organised by time and date, in the current tab. You can search the web history using the **Search history** box at the top of the page. If you click the menu dots □ to the right of any entry in the list, there's an option to show all pages in the web history for that site.