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Chapter 1 : Lan/Wan Network Planning and Design.

On a 'Local Area Network' data transfer speeds are higher than WAN and MAN that can extend to a Mbps (Ethernet network) and Gbps (Gigabit Ethernet). LAN networks can be implemented in multiple ways, for example twisted pair cables and a wireless Wi-Fi with the IEEE standard can be used for this purpose.

Computer Network Planning Computer network planning consists of the following steps: Identifying the applications that you intend to use: It is important to discuss the applications that you intend to use such as the above. These in turn are used for estimating the software, hardware, and traffic requirements. Computing traffic requirements include several factors. A few points to consider include the following: Identification and documentation of major traffic sources. Estimation of bandwidth requirements for each application. Quality of Service QoS requirements for each application Reliability requirements. Scalability refers to the extent of network growth that should be supported. For corporate network, scalability is a major consideration. Provision must be made to add users, applications, additional sites, and external network connections. Hence, WANs are costly in bandwidth terms and need to be planned and designed with utmost care to minimize resource consumption. The availability of a network needs to be given careful consideration while designing a network. It is the amount of time a network is available to users over a period of time and is often a critical design parameter. Availability has direct relation with the amount of redundancy required. Another important factor that needs to be considered when computing availability requirements is the business loss to the Company due to unavailability of the network for a given amount of time. A right balance needs to be arrived at such that the profitability is maintained. Security and accessibility are among the important design phase steps. A security plan needs to be devised that meets the required security specifications. Who will be administering the security of these services How the people be trained on security policies and procedures Recovery plan, in case a security breach does take place. For LANs, the tendency is to minimize the equipment cost. That is minimizing the cable cost, minimizing the per port cost, and the labour cost. For WANs the primary goal is to minimize the usage of the bandwidth. This is because, the recurring costs for bandwidth are normally much higher than the equipment or labour cost. Therefore more weightage is given to reliable equipment, and efficient utilization of bandwidth. Some factors that optimize cost are: Integrate both voice and data circuits Optimize or eliminate under utilized circuits.

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Chapter 2 : Comparison of LANs and WANs : CCNA Tutorial

LAN (Local Area Network) is a computer network covering a small geographic area, like a home, office, schools, or group of buildings. 2. LAN has high speed (upto mbps).

SD-WAN makes managing networks simple, cost effective and reliable. It also provides operational and performance benefits and huge cost savings as compared to traditional WAN infrastructure. The right SD-WAN can improve network management, decrease time to market and increase business agility. The right SD-WAN solution should allow you to design, deploy and change your deployments and orchestrate services quickly and easily â€" without CLI configuration. Some SD-WAN solutions require CLI configuration, increasing complexity and requiring highly skilled, expensive IT staff at corporate and sometimes in remote locations when problems occur. Centralized management with easy-to-use, menu-driven workflows can eliminate tedious, error-prone CLI configuration. A SD-WAN managment console should give you a complete view of the enterprise network, from the hybrid WAN at branch locations, cloud infrastructure environments and even reaching to the end user with branch wireless and wired LAN networks. Look for global orchestration that allows you to apply software-defined and business policy-based orchestration across the entire connectivity fabric, spanning hybrid WANs, cloud networks and branch wireless and wired LANs. Intent-based policies should be expressed in the language of businessâ€"apps, users, locations, performance SLAs and security constraints. This eliminates the need for technical translation, intermediation and error-prone configuration updates. SD-WAN delivers automatic provisioning of devices and services like WAN optimization for application latency, especially in remote locations or with cloud apps, based on your business policies and full mesh connections between clouds and distributed locations. Fully featured SD-WAN solutions should be able to identify, classify and optimize more than a thousand applications over any network without you having to think about it. Quality of Service QoS that is easy to implement can ensure that both inbound and outbound traffic is appropriately prioritized by business criticality. Given the growth in cloud apps, SD-WAN must enable total management of SaaS applications from local breakout management to latency mitigation to visibility into end-user experience. To accelerate the wide variety of enterprise apps in use, SD-WAN optimization should streamline data, transport and applications. Path control should be automated with the capability to path select based on application type, business priority and path quality as determined by available bandwidth, latency, jitter or packet loss. What about Remote Sites and Guest Access? SD-WAN provides a connectivity and orchestration fabric from a central place of management to wherever users are located - on campuses, mobile or remote. SD-WAN policy overlays should automatically integrate with existing routers, WAN optimization appliances and other existing appliances for fast provisioning of unified, optimized networks. In addition, Guest Wi-Fi access must enable security and ease of guest access with rapid, secure self-registration when guests or employees bring their own devices BYOD. SD-WAN should provide a unified at-a-glance view of your network topology, including registered and online appliances. For visibility, it should offer continuous automatic monitoring of network events, site and tunnel status, as well as providing report-based usage and availability data about your overall network, specific sites, servers, all applications and users. Truly integrated tools â€" not a third party add on â€" can provide you with visibility end to endâ€"all the way from the end user to the cloud, as well as instant and perfect visibility into the quality of every available path. Centralized support for embedded security, firewalls, access points and switches should help simplify and consolidate the overall management of equipment, especially at the branch and other distributed locations. Check for security that complements and integrates with third-party CASB or on-premises firewalls. Security rules should be part of the policy and easy to implement, deploy, manage and change universally throughout the systemâ€"without any error-prone command-line interface CLI configuration. The centralized, secure, global management system based on a single global policy should automate services and be easily changed for rapid response to changing conditions or new needs. User identity-based control provides an easy and intuitive way to define network access. Be sure you can identify users by name, roles or job functions.

Chapter 3 : CCNA Training Â» WAN Tutorial

Tip: A LAN (local area network) is a group of computers and network devices connected together, usually within the same building. A WAN connects several LANs, and may be limited to an enterprise (a corporation or an organization) or accessible to the public.

September 16, mohankumar Leave a comment Go to comments A wide area network WAN is a large telecommunications network that consists of a collection of LANs and other networks. WANs generally span a wide geographical area, and can be used to connect cities, states, or even countries. WANs are often built using leased lines. These leased lines involve a direct point-to-point connection between two sites. Point-to-point WAN service may involve either analog dial-up lines or dedicated leased digital private lines. Analog lines â€" a modem is used to connect the computer to the telephone line. Analog lines may be part of a public-switched telephone network and are suitable for batch data transmissions. Dedicated lines â€" digital phone lines that permit uninterrupted, secure transmission at fixed costs. Leased lines can get pretty expensive in the long run. Instead of using leased lines, WANs can be built using circuit switching. The best example of this is a dialup connection. Circuit switching is more difficult to setup, but it does have the advantage of being less expensive. Packet switching is a method that groups all transmitted data together into bits called packets. Sequences of packets are then delivered over a shared network. Similar to circuit switching, packet switching is relatively inexpensive, but because packets are buffered and queued, packet switching is characterized by a fee per unit of information, whereas circuit switching is characterized by a fee per time unit of connection time even when no data is transferred. Cell relay is similar to packet switching but it uses fixed length cells instead of variable length packets. Data is divided into these cells and then transported across virtual circuits. This method is best for simultaneous voice and data but can cause considerable overhead. New types of network-based software used for productivity, like work-flow automation software, can also be used over WANs. This allows workers to collaborate on projects easily, regardless of their location. They provide communications links over great distances. WANs have existed for decades, but new technologies, services, and applications have developed over the years to dramatically increase their effect on business. WANs were originally developed for digital leased-line services carrying only voice not data. At first, they connected the private branch exchanges PBXs of remote offices of the same company. WANs are still used for voice services, but today they are used more frequently for data and image transmission like videoconferencing. These added applications have spurred significant growth in WAN usage, primarily because of the surge in LAN connections to the wider networks. A wide area network allows companies to make use of common resources in order to operate. Internal functions such as sales, production and development, marketing, and accounting can also be shared with authorized locations through this sort of network. In the event of a problem â€" say a company facility is damaged from a natural disaster â€" employees can move to another location and access the network. Productivity is not lost. The wide area network has made it possible for companies to communicate internally in ways never before possible. Share your thoughts by comments!

Chapter 4 : Introduction to LAN, WAN and MAN: Networking Tutorial

LAN (Local Area Network) represents a small segment of network that can be span in limited geographical area such as your home network, university campus, cyber cafÃ© and office building. WAN represents a large part of network that is not bounded by geographical location.

Twitter Advertisement If you are at home reading this then you are most likely connected to the Internet. Whether it is by a wireless signal or physical Ethernet connection, you are a part of a network. Your home network â€" all computers, routers, modems, etc â€" is called a local area network LAN. A wide area network WAN is a large telecommunications network that consists of a collection of LANs and other networks. WANs generally span a wide geographical area, and can be used to connect cities, states, or even countries. Leased Line WANs are often built using leased lines. These leased lines involve a direct point-to-point connection between two sites. Point-to-point WAN service may involve either analog dial-up lines or dedicated leased digital private lines. Analog lines â€" a modem is used to connect the computer to the telephone line. Analog lines may be part of a public-switched telephone network and are suitable for batch data transmissions. Dedicated lines â€" digital phone lines that permit uninterrupted, secure transmission at fixed costs. Leased lines can get pretty expensive in the long run. The best example of this is a dialup connection. Circuit switching is more difficult to setup, but it does have the advantage of being less expensive. Packet Switching Packet switching is a method that groups all transmitted data together into bits called packets. Sequences of packets are then delivered over a shared network. Similar to circuit switching, packet switching is relatively inexpensive, but because packets are buffered and queued, packet switching is characterized by a fee per unit of information, whereas circuit switching is characterized by a fee per time unit of connection time even when no data is transferred. Cell Relay Cell relay is similar to packet switching but it uses fixed length cells instead of variable length packets. Data is divided into these cells and then transported across virtual circuits. This method is best for simultaneous voice and data but can cause considerable overhead. New types of network-based software used for productivity, like work-flow automation software, can also be used over WANs. This allows workers to collaborate on projects easily, regardless of their location. They provide communications links over great distances. WANs were originally developed for digital leased-line services carrying only voice not data. At first, they connected the private branch exchanges PBXs of remote offices of the same company. WANs are still used for voice services, but today they are used more frequently for data and image transmission like videoconferencing. These added applications have spurred significant growth in WAN usage, primarily because of the surge in LAN connections to the wider networks. Internal functions such as sales, production and development, marketing, and accounting can also be shared with authorized locations through this sort of network. In the event of a problem â€" say a company facility is damaged from a natural disaster â€" employees can move to another location and access the network. Productivity is not lost. What do you think of WANs? Leave your thoughts, ideas, and comments below.

Chapter 5 : DCN Network LAN Technologies

This post focuses on the basics of LAN network, WAN network and MAN network, as well as the differences between LAN vs WAN vs MAN. Tutorials Of Fiber Optic Products Here You Can Find The Best Fiber Optic Tutorials!

David Delony May 10, Source: This article will help you sort out all of these terms. The key difference is the geographical areas they serve. It covers, as the name suggests, a local area. Stay ahead of the curve with Techopedia! Join nearly , subscribers who receive actionable tech insights from Techopedia. Whether wired or wireless, nearly all modern LANs are based on Ethernet. Thanks in large part to its open technology, Ethernet now rules supreme. There are two ways to implement Ethernet: Twisted pair cables plug into switches using RJ connectors, similar to phone jacks. Cables plug into switches , which can be connected to other networks. A connection to another network is a gateway that goes to another LAN or the internet. The downsides to wireless are the potential for interference and potential eavesdropping. To learn more about the Making Sense of the The name is exactly what it sounds like: Beyond that, the definition is less clear. Distances can range from a network connecting multiple buildings on a corporate or college campus to satellite links connecting offices in different countries. WANs can be wired â€" using fiber-optic cable, for example â€" or wireless. Laying fiber may make sense when connecting a campus, but becomes more expensive when connecting greater distances. To save money, an organization may opt for wireless technology or lease lines from a third party. It uses the internet to allow people to log into a network remotely and access its resources, but encrypts the connection to thwart eavesdroppers. If your company sets you up with a VPN, you can access your corporate intranet , file servers or email from home or a coffee shop â€" just as if you were using it in your office. This makes VPN a popular way to support remote workers, especially in fields where privacy is paramount, such as health care. Want to learn how to set up a VPN? Remote desktop virtualization takes this process even further. The entire desktop and applications run on a remote server, and are accessed from a client, which can run on a conventional laptop or even on mobile devices such as tablets or smartphones. This makes virtual desktops great for supporting BYOD bring your own device schemes. If a device is lost or stolen, the data is safe because it lives on a central server. Citrix and VMware are the biggest known vendors of virtual desktops. You might not think of your wireless headset, your printer or your smartphones as components in a network, but they are definitely talking with each other. Many peripheral devices are actually computers in their own right. One of the most common ways for organizations to build this kind of network is to use microwave transmission technology. You might have seen a microwave antenna on a TV news van, extended high in the air, beaming video and sound back to the main TV studio. Laying cable themselves is quite expensive. Written by David Delony David Delony is a Bay Area expatriate living in Ashland, Oregon, where he combines his love of words and technology in his career as a freelance writer. David holds a B.

Chapter 6 : Difference between LAN CAN MAN and WAN in Tabular Form | calendrierdelascience.com

SD-WAN is an innovative way to orchestrate application delivery, accelerate application performance and unify network connectivity - often across hybrid WAN, LAN/WLAN and cloud networks. SD-WAN makes managing networks simple, cost effective and reliable.

Generally, networks are distinguished based on their geographical span. A network can be as small as distance between your mobile phone and its Bluetooth headphone and as large as the internet itself, covering the whole geographical world, Personal Area Network A Personal Area Network PAN is smallest network which is very personal to a user. This may include Bluetooth enabled devices or infra-red enabled devices. PAN has connectivity range up to 10 meters. PAN may include wireless computer keyboard and mouse, Bluetooth enabled headphones, wireless printers and TV remotes. For example, Piconet is Bluetooth-enabled Personal Area Network which may contain up to 8 devices connected together in a master-slave fashion. Number of systems connected in LAN may vary from as least as two to as much as 16 million. LAN provides a useful way of sharing the resources between end users. The resources such as printers, file servers, scanners, and internet are easily sharable among computers. LANs are composed of inexpensive networking and routing equipment. It may contains local servers serving file storage and other locally shared applications. It mostly operates on private IP addresses and does not involve heavy routing. LAN works under its own local domain and controlled centrally. LAN uses either Ethernet or Token-ring technology. Ethernet is most widely employed LAN technology and uses Star topology, while Token-ring is rarely seen. LAN can be wired,wireless, or in both forms at once. Metro Ethernet is a service which is provided by ISPs. This service enables its users to expand their Local Area Networks. For example, MAN can help an organization to connect all of its offices in a city. Backbone of MAN is high-capacity and high-speed fiber optics. Generally, telecommunication networks are Wide Area Network. Since they are equipped with very high speed backbone, WANs use very expensive network equipment. WAN may be managed by multiple administration. Internetwork A network of networks is called an internetwork, or simply the internet. It is the largest network in existence on this planet. Present day, Internet is widely implemented using IPv4. Because of shortage of address spaces, it is gradually migrating from IPv4 to IPv6. Internet enables its users to share and access enormous amount of information worldwide. At huge level, internet works on Client-Server model. Internet uses very high speed backbone of fiber optics. To inter-connect various continents, fibers are laid under sea known to us as submarine communication cable. When a user requests a page using some web browser located on some Web Server anywhere in the world, the Web Server responds with the proper HTML page. The communication delay is very low. Internet is serving many proposes and is involved in many aspects of life. Some of them are:

Chapter 7 : LAN WAN PAN MAN: Learn the Differences Between These Network Types

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Earlier you had to type your local IP in your payload which was given by router. But in this hack, you have to type your public IP in your msfvenom. Just copy and paste it in this command: Before sending this payload just setup your msfconsole. Type msfconsole for opening your Metasploit. Now, your all settings are done. This is the time to perform a hack by sending your payload to the victim. There are many methods to send this payload to the victim. This website gives you a link for this payload. You can send this link to your victim by using Social Engineering techniques, By using social media. Once the victim clicks on that payload app icon you got your meterpreter session and then you can perform any command. Here, I install this app using my mobile data. You can see my mobile data is on. Seeâ€¦I got my meterpreter session. Now type help this will show you the list of so many commands which you can perform. Your security is in your hands. Remember, Nobody can hack you unless you are giving permissions to them to hack yourself. Your Awareness is the only step by which you can save yourself on anywhere. If you have any doubts and suggestion regarding this tutorial just comment it below. I will definitely reply you.

Chapter 8 : A Wide Area Network (WAN) Tutorial [Technology Explained]

Wireless Local Area Network - A LAN based on Wi-Fi wireless network technology Metropolitan Area Network - A network spanning a physical area larger than a LAN but smaller than a WAN, such as a city. A MAN is typically owned and operated by a single entity such as a government body or large corporation.

Let us go through various LAN technologies in brief: Ethernet Ethernet is a widely deployed LAN technology. This technology was invented by Bob Metcalfe and D. Boggs in the year It was standardized in IEEE Network which uses shared media has high probability of data collision. On the occurrence of collision in Ethernet, all its hosts roll back, wait for some random amount of time, and then re-transmit the data. Ethernet connector is,network interface card equipped with bits MAC address. This helps other Ethernet devices to identify and communicate with remote devices in Ethernet. Ethernet follows star topology with segment length up to meters. Fast-Ethernet To encompass need of fast emerging software and hardware technologies, Ethernet extends itself as Fast-Ethernet. It can provide speed up to MBPS. Ethernet over fiber can be extended up to meters in half-duplex mode and can reach maximum of meters in full-duplex over multimode fibers. Giga-Ethernet After being introduced in , Fast-Ethernet could enjoy its high speed status only for 3 years till Giga-Ethernet introduced. Shared media in Ethernet create one single Broadcast domain and one single Collision domain. Introduction of switches to Ethernet has removed single collision domain issue and each device connected to switch works in its separate collision domain. But even Switches cannot divide a network into separate Broadcast domains. Host in one VLAN cannot speak to a host in another. By default, all hosts are placed into the same VLAN. In this diagram, different VLANs are depicted in different color codes.

Chapter 9 : How To Hack Outside The LAN (Perform An Hack Over WAN)

A wide area network (WAN) is a large telecommunications network that consists of a collection of LANs and other networks. WANs generally span a wide geographical area, and can be used to connect cities, states, or even countries.