

Flexible Instruction Day Assignment #5

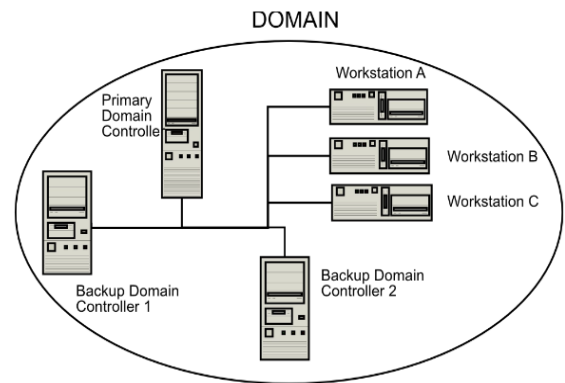
Server Roles

This material is a review of the material covered under multiple sections in the network design and management portions of the Tasklist (504, 702, etc.) and was added into the A+ Certification several years back. This serves to bring the material together to be used as both an introduction for new students and a review for returning students.

You will learn about the basic types of servers and what purpose they serve.

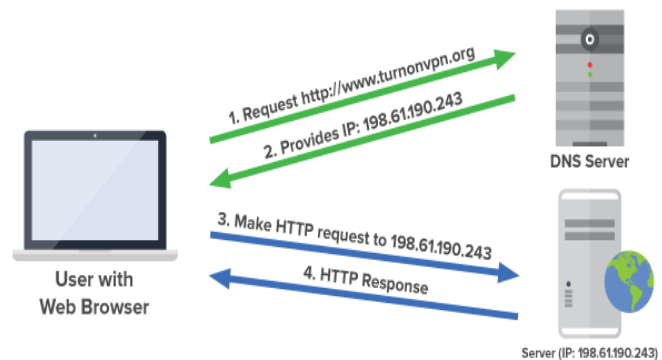
When we think of the general categories of server types, we think what is the main purpose. what is its main function? If a server just does one main thing, like mail, then we could say its a mail server. In reality, servers often perform multiple functions so it makes sense to think in terms of roles. The server may handle the mail server role but also handle the role of an application server or some other server type/role. Another approach is to create dedicated servers inside virtual machines where you could have several virtual servers running on a single physical server. Lets take a look at some of the more common server roles.

A **domain controller** manages the network and handles authentication (log in) requests to connect to the network and use network resources. For reliability and performance, large networks often have several domain controllers to handle the workload and in case the main server PDC (primary domain controller) fails. If the **PDC** did fail, one of the other domain controllers (**BDC** backup domain controllers) could take over as the main server.



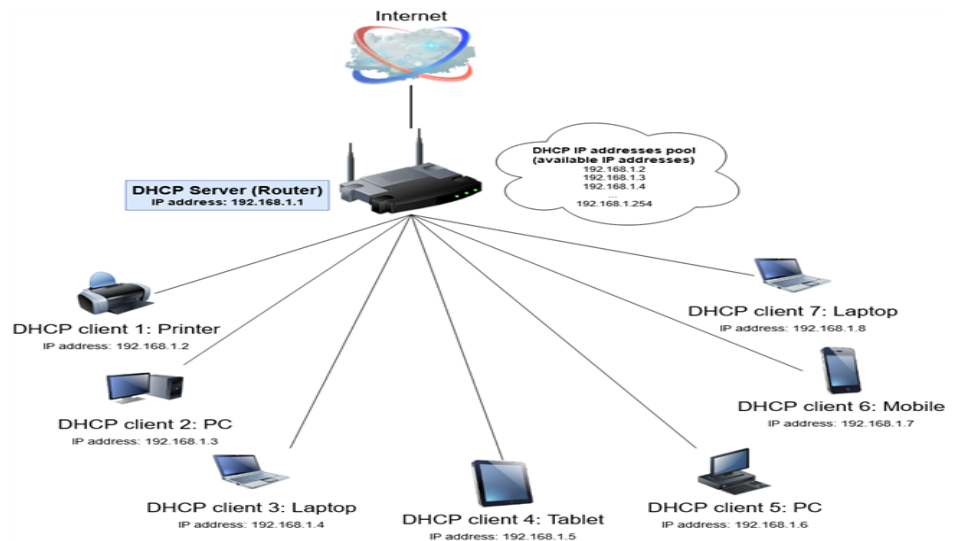
Mail servers are specifically configured to facilitate the sending, receiving and storage of email. This may sound simple but dealing with all of the incoming and outgoing mail while dealing with SPAM and malware, is a major task.

DNS Servers (domain name system) translate host names to IP addresses. This allows users to type the name of the website/domain like google.com instead of having to remember the IP address. A DNS server keeps a list of the IP addresses registered to domain names and will translate you domain name to an IP address when you use it. DNS uses a hierarchical organization (top level branching down to lower levels) where lower level servers have partial lists (of the IP and domain names) and the higher level servers have larger lists until you reach the root servers (contain all registered domain names and IP addresses). If your



main/primary DNS does not have your domain name/IP mapping, it should keep being passed on to higher level DNS servers until it is found or you get an error message that you name is not registered. FYI, you are issued a DNS server by default, along with your IP address but it can be changed (for better performance, etc.). Your ISP (Internet service provider) typically supplies you with an IP address and DNS.

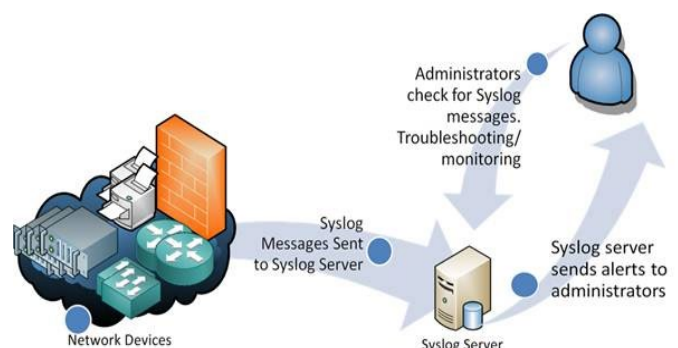
DHCP servers (dynamic host configuration protocol) give out unique IP address to the computers/devices that attach to their networks. IP addressing is a more complicated subject that we will not get into at this time but just know that each computer needs a unique IP address to participate on a network. DHCP servers keep a range/list of IP addresses that they give out to computers. What the addressees are and how long you get to keep them is configured in the DHCP server. Giving the addresses out as needed is a lot easier than setting static (non changing) addresses on each device but this is sometimes done to servers, printers, and other devices where you don't want the address to ever change. In your home, your router is probably functioning as a DHCP server or you may be getting an IP directly from you ISP.



A **Fileshare** server provides storage and management of data files. The dedicated server will often use specialized software to store, organize, and make the data accessible. The idea is that people on your network have a centralized location for storing and accessing their files. This makes the management (controlling access, backups, security, etc.) easier and increases the availability of the data.

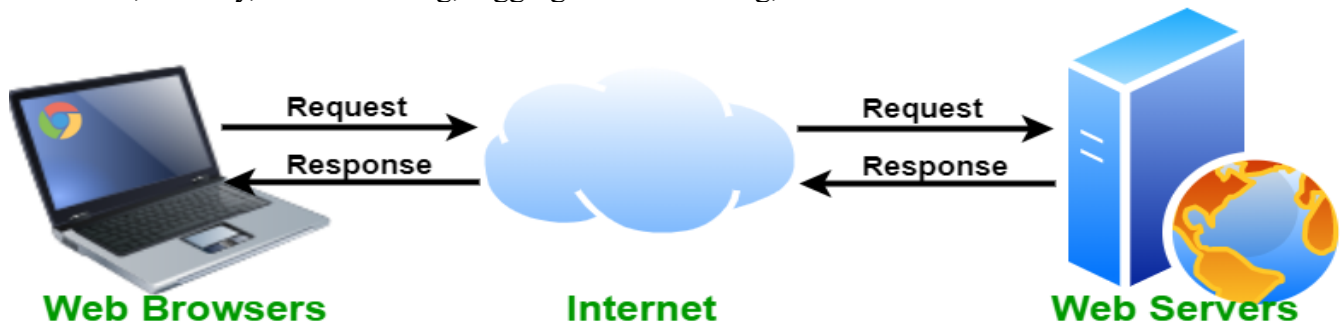
Print servers are a dedicated machine or software the handles printers and print jobs. Print servers provide access, security, device drivers, etc. in order to make printers available to network users. The server provides storage and management for print jobs. If your organization has large numbers of printers and or print jobs, you most likely have a dedicated print sever to provide easier management and better performance. Smaller networks may just add the print server role to another server.

Syslog servers are used to collect interpret and store syslog messages. Network devices (like servers , routers, and firewalls) generate information (called logs) about what their status is, how they are functioning, etc. The syslog server will collect all the messages in a single location so they can be organized and interpreted using their syslog server software. This makes it easier for IT people to monitor



networks and look for issues.

Web servers contain the files/content for an organizations web pages and makes them accessible online. The web server will connect the pages to the Internet and handle requests. The web servers typically provide storage of the content, security, load balancing, logging and monitoring, etc.



AAA (Authentication, authorization, and accounting) servers exchange authentication and authorization data with network devices (like routers, firewalls, and switches). This is used to identify who you are (login) and to determine what rights you have (for access to resources). An AAA server is vital for network security and managing access and authorizations.

This picture shows someone connecting into a network from a remote location using the Internet. The AAA server must first authenticate the user before they are allowed to enter the network.

