DNS IN DETAIL REPORT

Tryhackme.com
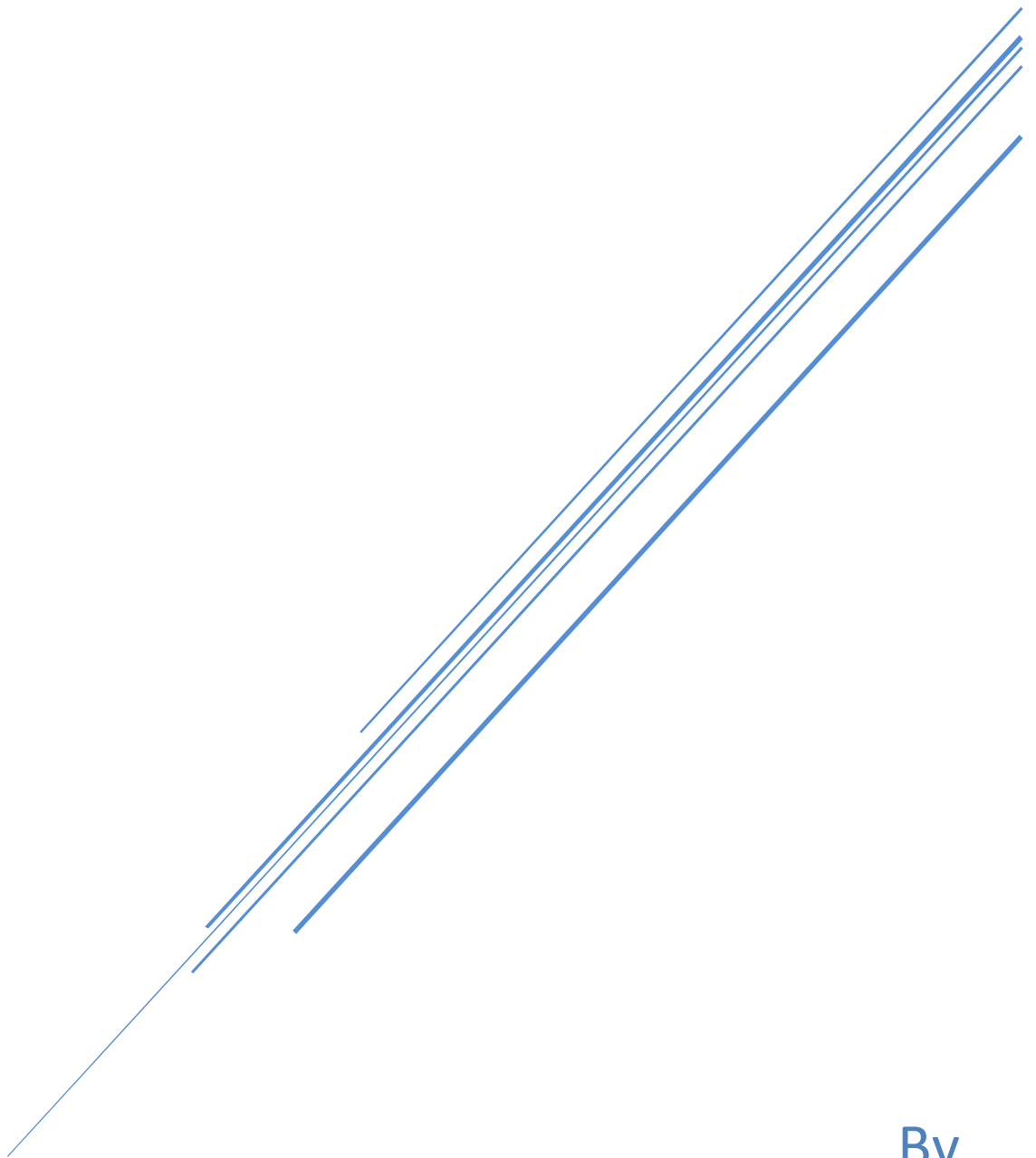
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Introduction

The Domain Name System, or DNS, is an essential element of the internet that makes it easier for devices to communicate with one another by removing the need for complicated numerical addresses to be remembered. By enabling us to connect memorable domain names, like "tryhackme.com," with the appropriate IP addresses, such 104.26.10.229, DNS offers a user-friendly approach.in the module I learned more regarding the domain hierarchy, the dns record types, and the steps involved when a dns request is made.

Domain Hierarchy

A domain name consists of two parts: the second-level domain (SLD) and the top-level domain (TLD). The SLD precedes the TLD, such as "tryhackme" in "tryhackme.com". The SLD can include lowercase letters, numbers, and hyphens, but not at the beginning or end, and is limited to 63 characters. The TLD can be a generic top-level domain (gTLD) like .com or a country code top-level domain (ccTLD) like .ca. Subdomains are nested under the main domain and serve specific purposes, such as a blog or support website, identified by a prefix in the subdomain.

Dns Record Types

DNS record types are used to store various types of information about a domain name, such as its IP address, mail servers, and other resources. The most common types of DNS records are:

- A records: These records resolve to an IP address, which is used to connect to a website or other resource.

- AAAA records: These records resolve to an IPv6 address, which is a newer type of IP address that is used to support the growing number of devices on the internet.

- CNAME records: These records resolve to another domain name, which is often used to create subdomains.

- MX records: These records point to mail servers, which are used to send and receive email.

- TXT records: These records can store any type of text data, which can be used for a variety of purposes, such as preventing spam and verifying domain ownership.

DNS record types are an important part of the Domain Name System (DNS), which is the system that translates domain names into IP addresses. Without DNS, it would be much more difficult to access websites and other resources on the internet.

Steps Involved When A Dns Request Is Made

When you request a domain name, your computer first checks its local cache, and if the address is not found, it sends a request to the Recursive DNS Server provided by your ISP or your chosen server. If the result is available in the local cache, it is returned; otherwise, the search for the correct answer begins with the root DNS servers. The root servers redirect the request to the appropriate Top-Level Domain (TLD) server based on the requested domain. The TLD server holds records for the authoritative server (nameserver) responsible for the domain. The authoritative server stores the DNS records for the domain and provides the response to the Recursive DNS Server. The Recursive DNS Server caches the response and relays it back to the original client. DNS records have a TTL value, determining how long they are cached, reducing the need for frequent DNS requests.

End of module practical

Below is a practical activity to help grasp and practices the knowledge gathered through the module

1) What is the CNAME of shop.website.thm? shops.myshopify.com

Figure 1

2) What is the value of the TXT record of website.thm?
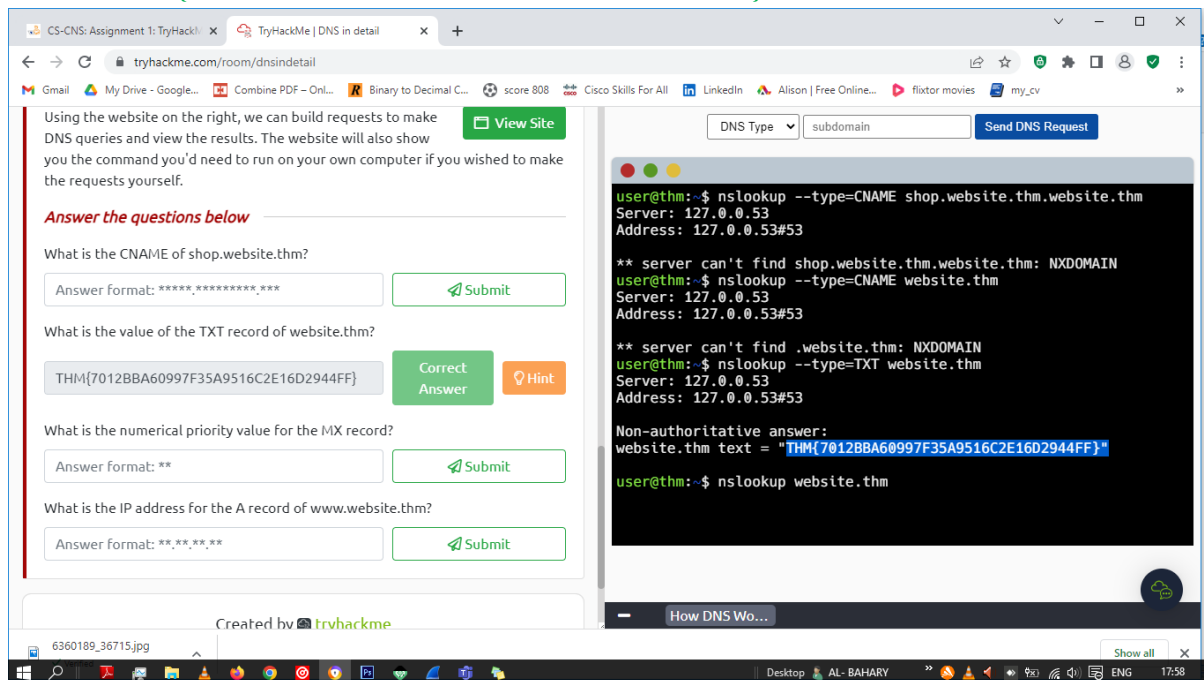THM{7012BBA60997F35A9516C2E16D2944FF}

Figure 2

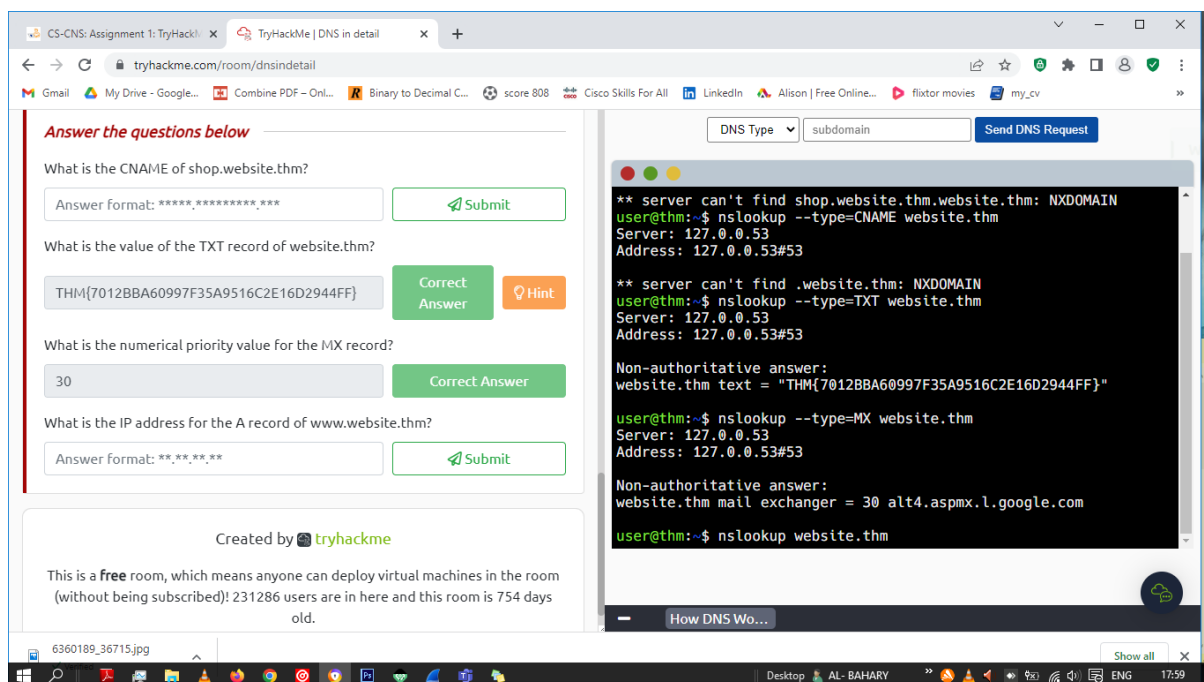3) What is the numerical priority value for the MX record? 30

Figure 3

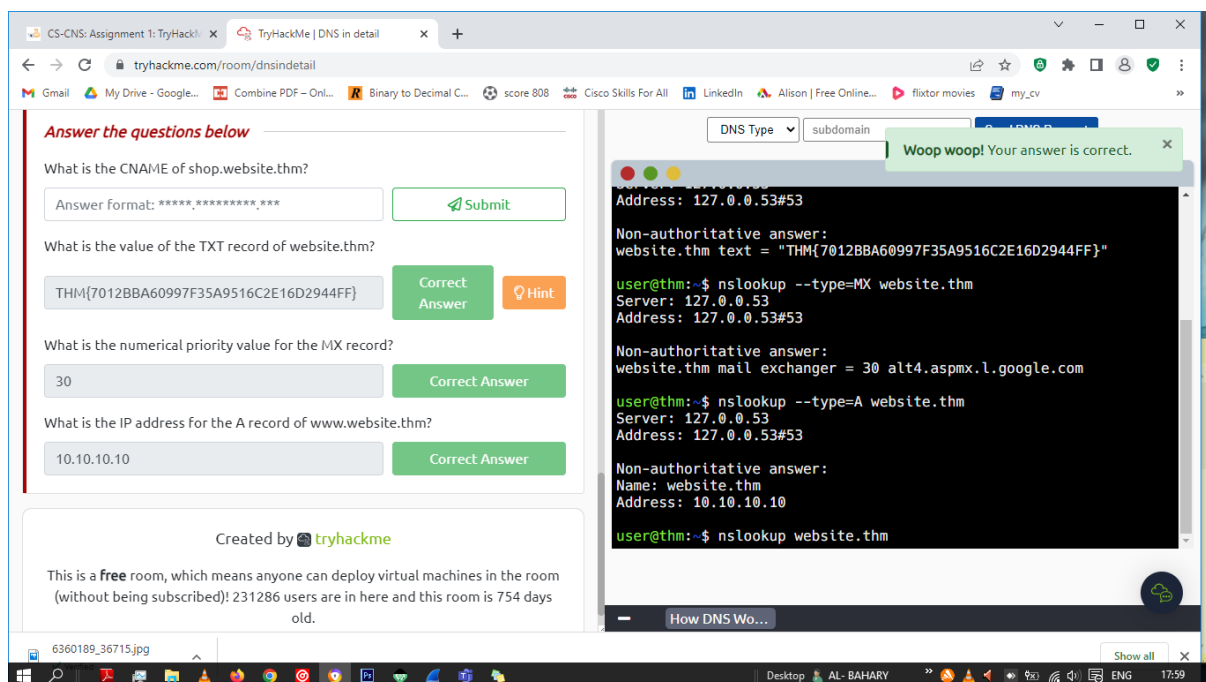4) What is the IP address for the A record of www.website.thm? **10.10.10.10**

Figure 4
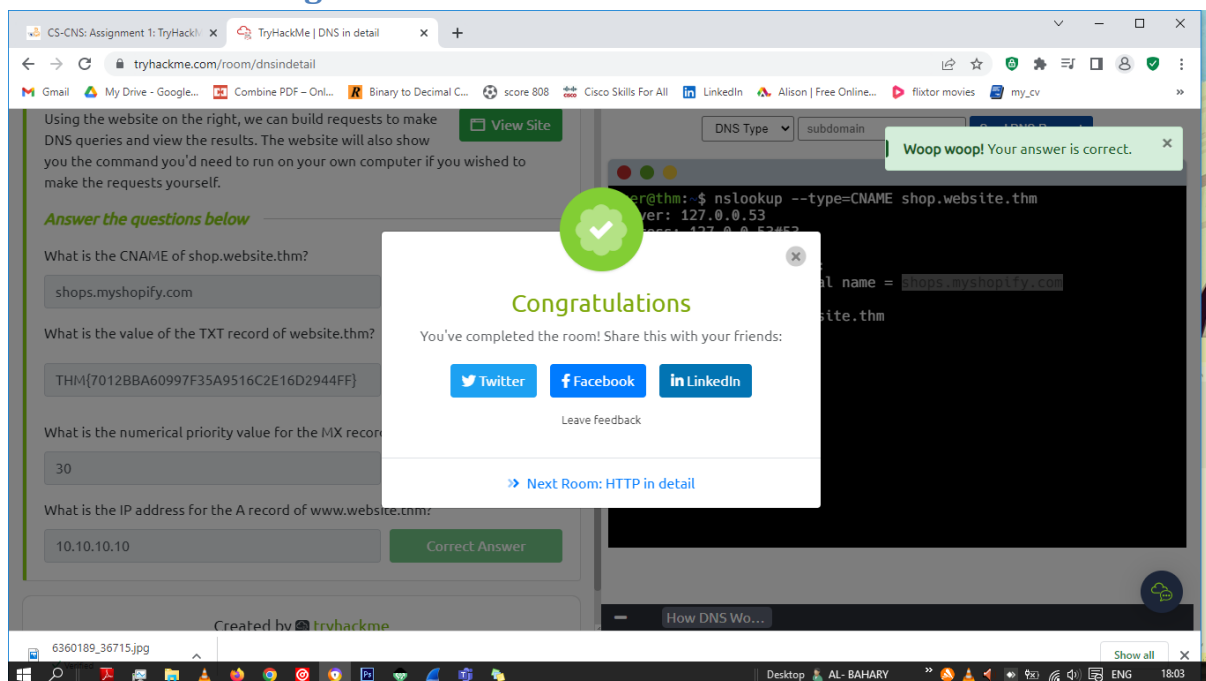
End of module badge

Figure 5

Conclusion

In conclusion, understanding DNS (Domain Name System) is crucial for navigating the internet and accessing websites without the need to remember complex IP addresses. DNS simplifies communication by translating human-readable domain names into IP addresses that computers understand. By utilizing various types of DNS records, such as A, AAAA, CNAME, MX, and TXT records, the DNS system enables efficient domain resolution, email handling, domain ownership verification, and more. Through this module I was able to gain information as to how the dns work and steps which are taken when a dns request is made. The module was simple, direct to the point and provided an introduction to the dns.