

Exercises

Exercise 1:

- a) Explain the difference between a DNS domain and a DNS zone.

The domains concern the DNS name space. The DNS name space is structured in hierarchical domains.

Zones concern the physical realization of DNS with the help of servers. A zone is a part of the DNS name space for which responsibility has been delegated to a server.

- b) Explain the difference between recursive and iterative resolution.

In iterative resolution, the contacted server returns a response that indicates the next responsible DNS server to contact in order to continue the search. Thus, the response contains the address of the next server to be contacted.

In recursive resolution, the server itself contacts the other DNS servers and returns the final response,

- c) Describe the process of resolving a DNS name, for example www.mit.edu.

1. The PC contacts its local DNS server
2. If the local DNS server has the answer in its cache, it immediately responds. Otherwise, it contacts one of the thirteen root servers.
3. The root server returns as a response the top-level servers that are responsible for the .edu domain.
4. The local DNS server continues with recursive resolution. It contacts one of the DNS servers for .edu.
5. The .edu DNS server returns the servers responsible for mit.edu.
6. The local server contacts one of the DNS servers for mit.edu
7. This server is the official server and therefore knows the record for www.mit.edu. It returns it as an answer.
8. The local DNS server receives the answer, caches it if possible and sends it to the PC.

- d) Describe one scenario where an attacker takes the role of a DNS server to perform a fishing attack.
- e) Can an attacker perform an SQL injection attack on a DNS sever? why? How?