System Administration (LTAT.06.003)

Lab 4
Domain Name Server
What is DNS?

The **Domain Name System** is a distributed database which is the standard mechanism on the Internet for advertising and accessing all kinds of information, not just web pages - think of it as phonebook for the Internet.

DNS provides mappings between human readable (conveniently) hostnames and IP addresses (which are convenient for machines).

DNS makes host information available all over the Internet, so that it could provide the means to retrieve information from anywhere on the network.
Nameservers are the server side of the DNS’s client/server operations. They make information available to the clients, called resolvers. The latter are usually made up of library functions that create the queries on behalf of the user and send them across the network to a nameserver.
DNS as a tree

Structure wise the DNS database is similar to that of a Unix filesystem. The whole database is pictured as an inverted tree, with the root node at the top. Each node in the tree has a text label, which identifies it relatively to its parent.

Each node is also the root of a new subtree of the overall tree. Each of these subtrees represents a partition of the overall database or a domain in the DNS. Subdomains, like subdirectories in unix filesystems, are drawn as children of their parent domains.
DNS records

DNS records are “instructions” that reside in DNS servers and provide information about domain to IP address mappings. DNS records also provide information on how to handle requests for a certain domain. All DNS records have a time-to-live (TTL), which is specified in seconds and indicates how often a DNS server will refresh it.

Probably most common record types that almost all DNS zones hold are:

- **NS** - for a name servers
- **A** - for IPv4 addresses
- **CNAME** - for aliases, that points to another domain
- **MX** - for mail
DNS lab this week

- Backup VMs
- Read a lot during this lab (Most of the lab manual is “fluff” there is less work than seems at a first glance)
- Configure recursive DNS locally
  - Personal zone
  - Reverse mapping
- Declare the whole lab in Ansible and never worry about it again :)
