Lab 03

1. Where are US DNS root servers? Why do you think we have the number that we do and the locations chosen as they are?

The root servers are managed by the IANA Internet Assigned Numbers Authority but the US Department of Commerce NTIA exercises the ultimate authority over DNS root zone of the Internet. We have 13 clusters because a combination of limits in the DNS definition and in certain protocols like UDP resulted in a limited number of root servers that can be accommodated in DNS name query responses.

1. What are the RFC number for:

* ARP was defined by the RFC 826 in 1982
* IP was defined by RFC 791 in 1981
* DNS was defined by RFC 882 and 883 in 1983

1. Who certifies UNIX administrators? List some of the certification

Each vendor certifies its own version of UNIX

1. Identify a vendor of Ethernet hubs

Cisco

1. What is the difference between IPV4 and IPV6?
   1. Simplified header format. IPv6 has a fixed length header, which does not include most of the options an IPv4 header can include. Even though the IPv6 header contains two 128 bit addresses (source and destination IP address) the whole header has a fixed length of 40 bytes only. This allows for faster processing.

* 1. Address extended to 128 bits. This allows for hierarchical structure of the address space and provides enough addresses for almost every 'grain of sand' on the earth.

* 1. 3. A lot of the new IPv6 functionality is built into ICMPv6 such as Neighbor Discovery, Autoconfiguration, Multicast Listener Discovery, Path MTU Discovery.
  2. 4. Enhanced Security and QoS Features.

1. What is IPSEC?

It is a protocol suite for securing Internet Protocol (IP) communications by authenticating and encrypting each IP packet of a communication session. IPsec also includes protocols for establishing mutual authentication between agents at the beginning of the session and negotiation of cryptographic keys to be used during the session.