Report on
Internetworking Technology Assignment

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Abstract:

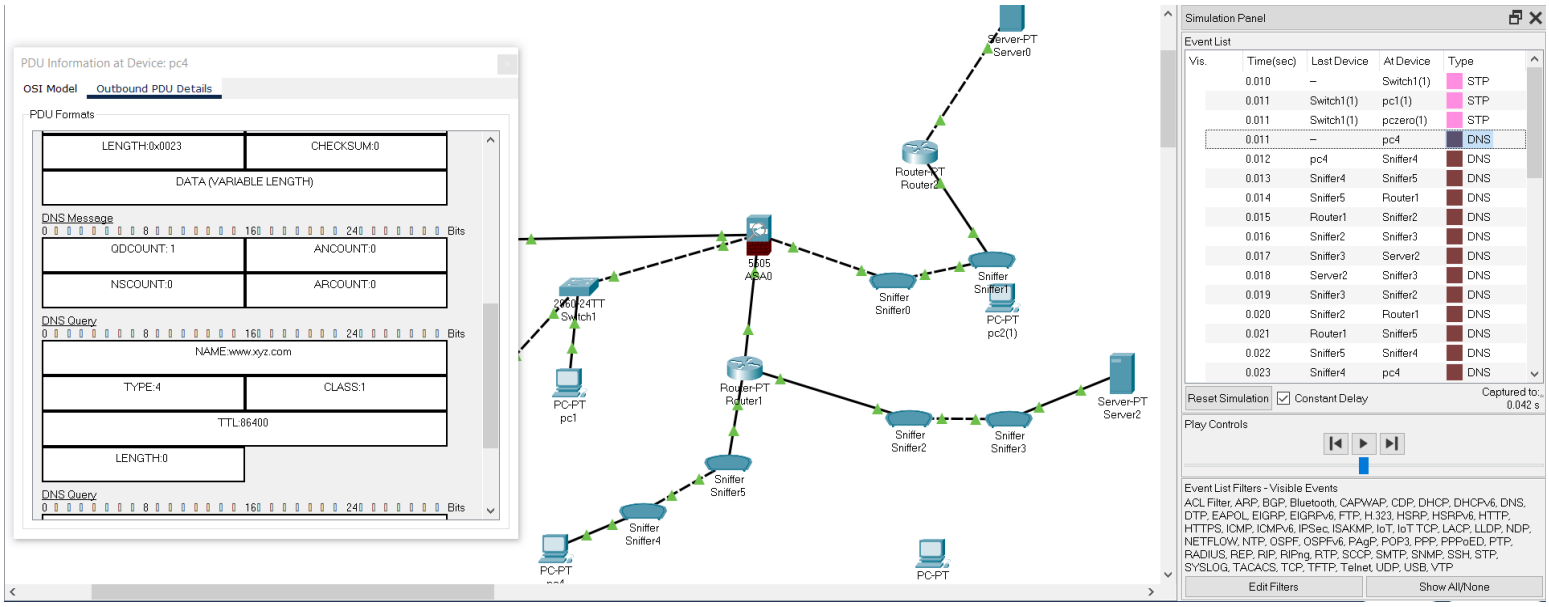
This report highlights the setup of a DNS server inside the campus and an HTTP server on the internet outside of the campus. The implementation is done through Cisco Packet Tracer software(v8.0.0.0212). To observe the flow of packets through the network,packet sniffers which are inbuilt in the Cisco Packet Tracer are used and are demonstrated in the subsequent sections. The report also explains how a website name gets resolved using the DNS and HTTP server.

Details:

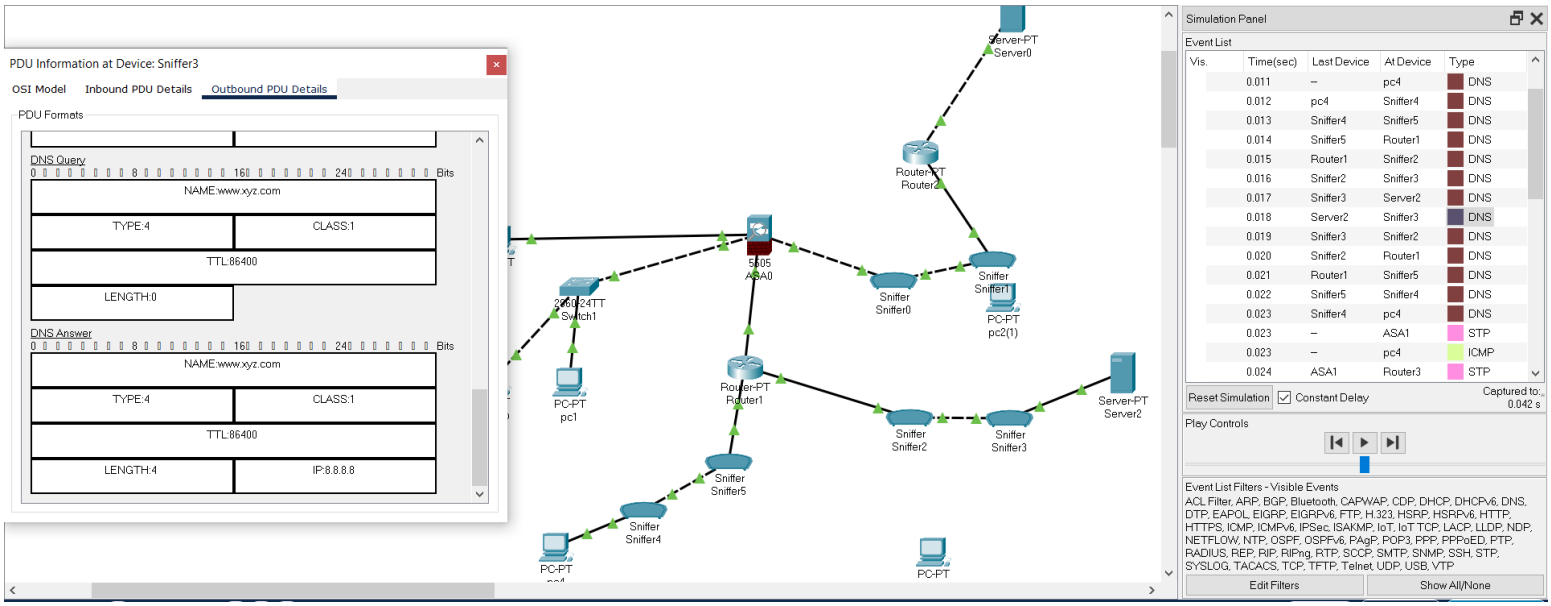
Resolving the website name :

1. Here ASA5505 is used. On the inside we have a DNS server along with a private network.
   On the outside of the ASA we have an ISP.
2. A pc in the private network uses the DNS server to obtain the ip address of a server hosting that website.
3. After receiving the particular ip address, pc tries to ping the server having this ip address.

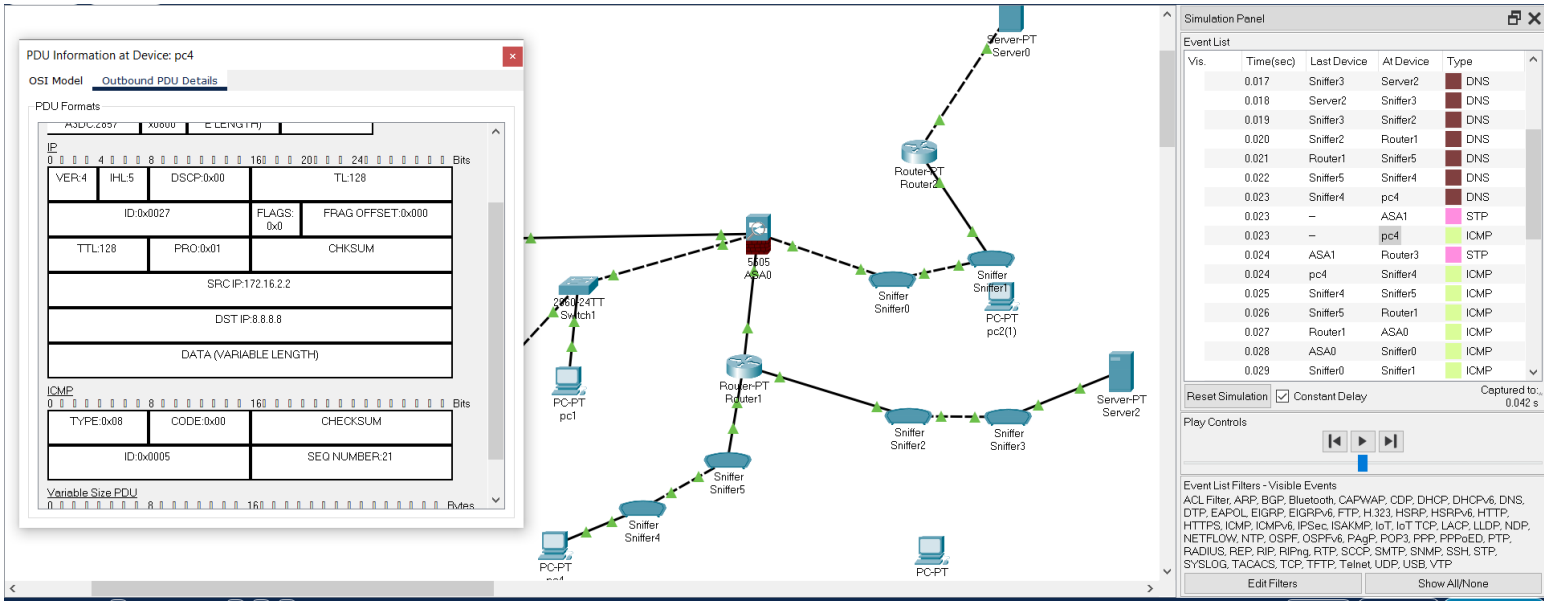
dns request being sent from pc



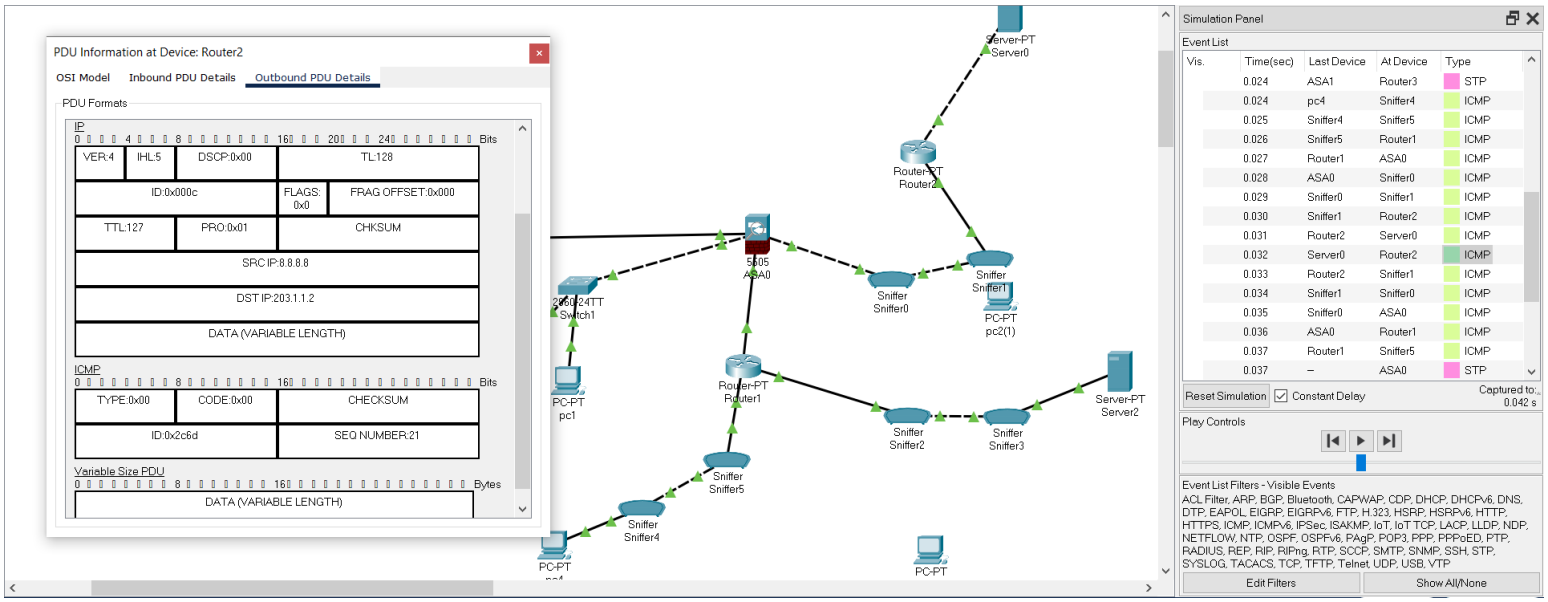
dns answer sent from dns server to pc



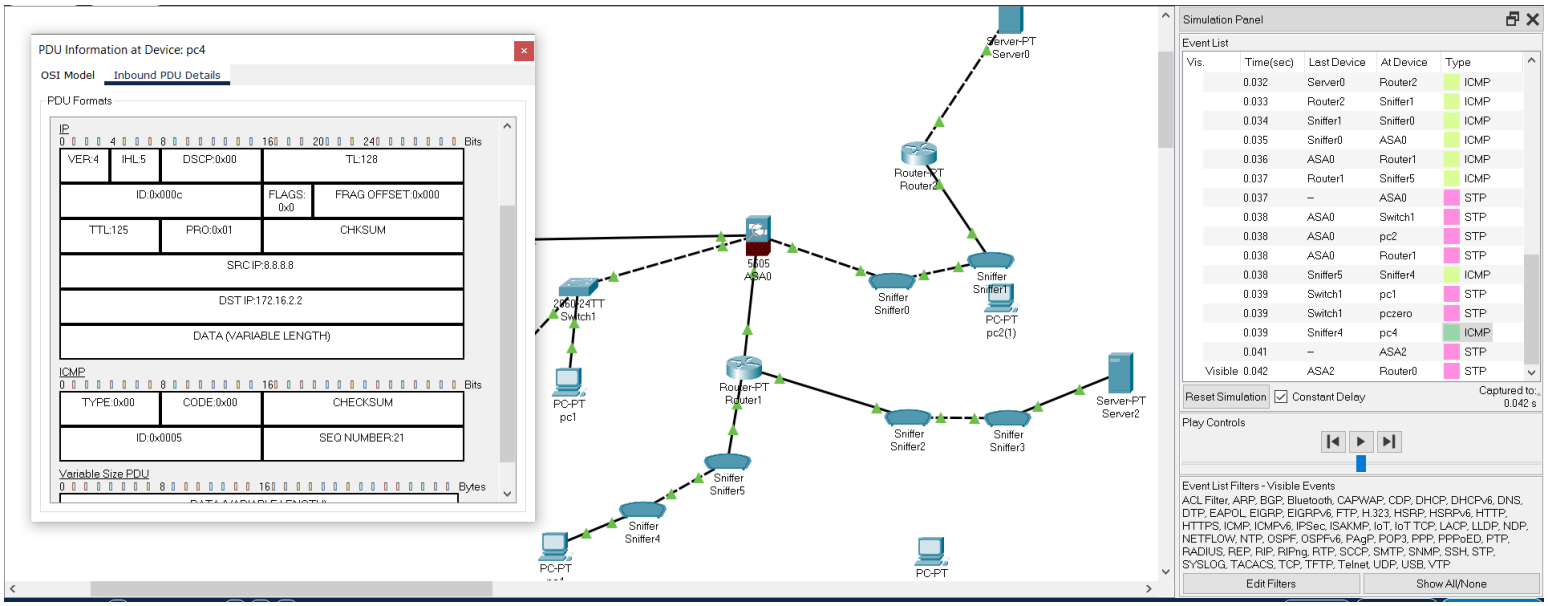
icmp request sent by pc to an ip, received from dns

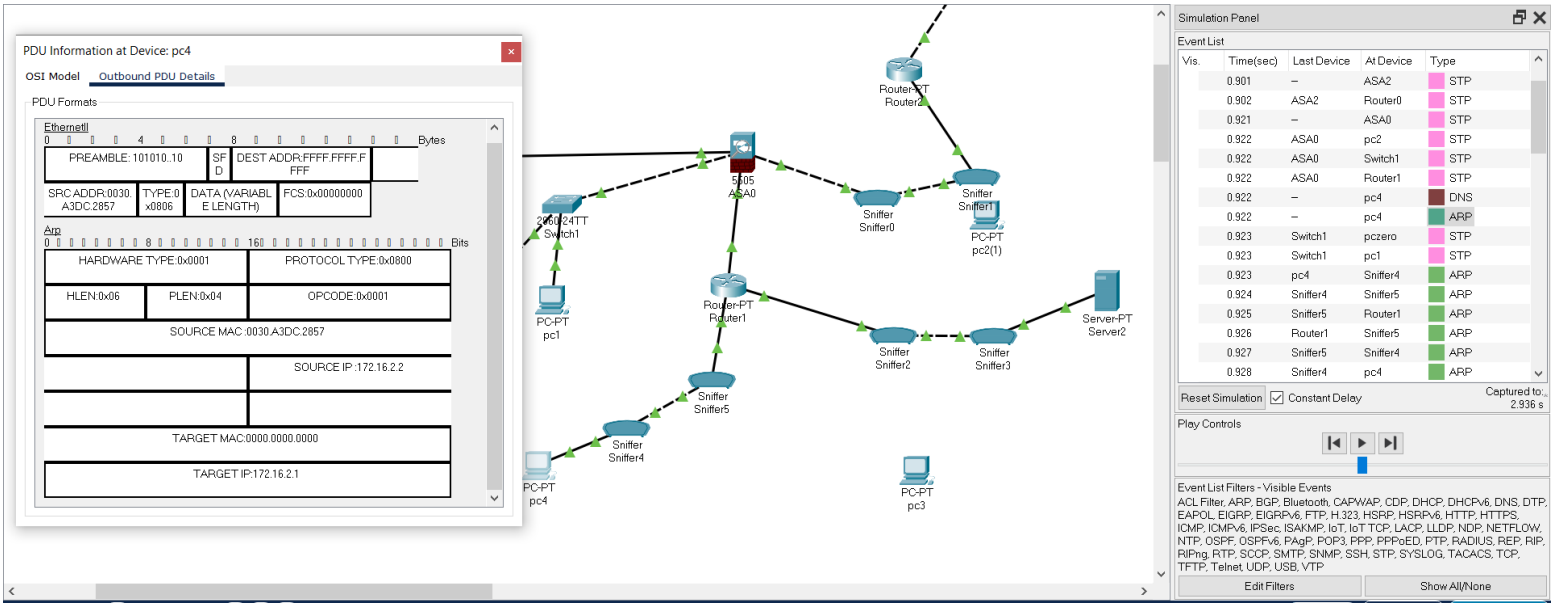


icmp reply from server to the request from pc



icmp reply reaching pc



Ping details :

1. The first ping in a freshly setup network generally fails because of no ARP done previously. This is a result of the ARP resolution process. When we issue the first ping, the PC doesn't know anything about the MAC address of the server, we are pinging, so it starts the ARP resolution process querying for the MAC address of the server.
2. During this resolution process it exceeds the time limit and gives out request timed out error.
3. It may happen to more than 1 packet.
4. For subsequent packets, since MAC addresses are already known we don't need to do ARP once again and the packets reach within time.