Cybersecurity Incident Report: Network Traffic Analysis

Part 1: Provide a summary of the problem found in the DNS and ICMP traffic log.

The UDP protocol reveals that port 53 is unreachable. This is based on the results of the network analysis, which show that the ICMP echo reply returned the error message “udp port 53 unreachable.” The port noted in the error message is used for DNS service. The most likely issue is a problem with the DNS server.

Part 2: Explain your analysis of the data and provide at least one cause of the incident.

Time incident occurred was 1:24 pm.

The IT team became aware of the incident when users complained about not being able to access www.yummyrecipesforme.com, and saw the error “destination port unreachable” after waiting for the page to load.

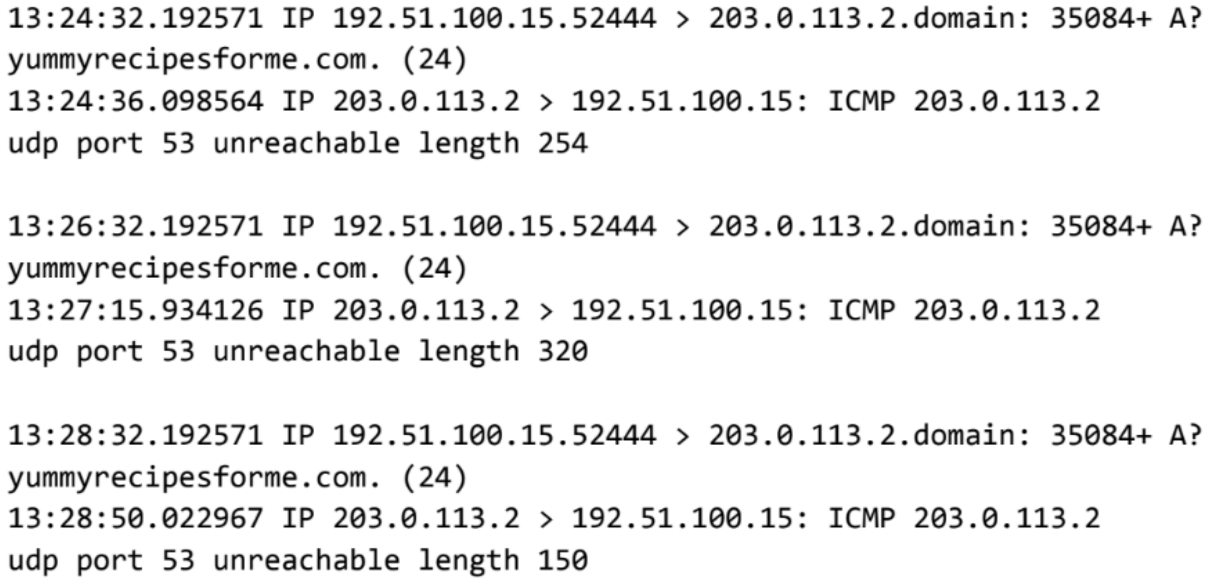
To investigate the incident, the IT department attempted to visit the website and also received the error “destination port unreachable.” To troubleshoot the issue, they loaded a network analyzer tool, tcpdump, and attempted to load the webpage again. The analyzer shows that when UDP packets are sent to the DNS server, ICMP packets are received containing the error message: “udp port 53 unreachable.”

The next step is to identify whether the DNS server is down or traffic to port 53 is blocked by the firewall. The DNS server might be down due to a successful Denial of Service attack or a misconfiguration.

Scenario

You are a cybersecurity analyst working at a company that specializes in providing IT services for clients. Several customers of clients reported that they were not able to access the client company website www.yummyrecipesforme.com, and saw the error “destination port unreachable” after waiting for the page to load.

You are tasked with analyzing the situation and determining which network protocol was affected during this incident. To start, you attempt to visit the website and you also receive the error “destination port unreachable.” To troubleshoot the issue, you load your network analyzer tool, tcpdump, and attempt to load the webpage again. To load the webpage, your browser sends a query to a DNS server via the UDP protocol to retrieve the IP address for the website's domain name; this is part of the DNS protocol. Your browser then uses this IP address as the destination IP for sending an HTTPS request to the web server to display the webpage The analyzer shows that when you send UDP packets to the DNS server, you receive ICMP packets containing the error message: “udp port 53 unreachable.”



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13:24:32.192571 IP 192.51.100.15.52444 > 203.0.113.2.domain: 35084+ A?
yummyrecipesforme.com. (24)
13:24:36.098564 IP 203.0.113.2 > 192.51.100.15: ICMP 203.0.113.2
udp port 53 unreachable length 254

13:26:32.192571 IP 192.51.100.15.52444 > 203.0.113.2.domain: 35084+ A?
yummyrecipesforme.com. (24)
13:27:15.934126 IP 203.0.113.2 > 192.51.100.15: ICMP 203.0.113.2
udp port 53 unreachable length 320

13:28:32.192571 IP 192.51.100.15.52444 > 203.0.113.2.domain: 35084+ A?
yummyrecipesforme.com. (24)
13:28:50.022967 IP 203.0.113.2 > 192.51.100.15: ICMP 203.0.113.2
udp port 53 unreachable length 150
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