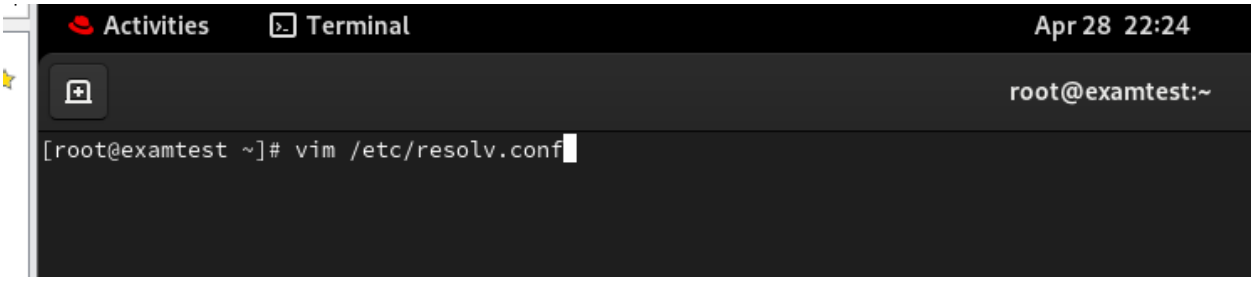
Q2 : Scenario

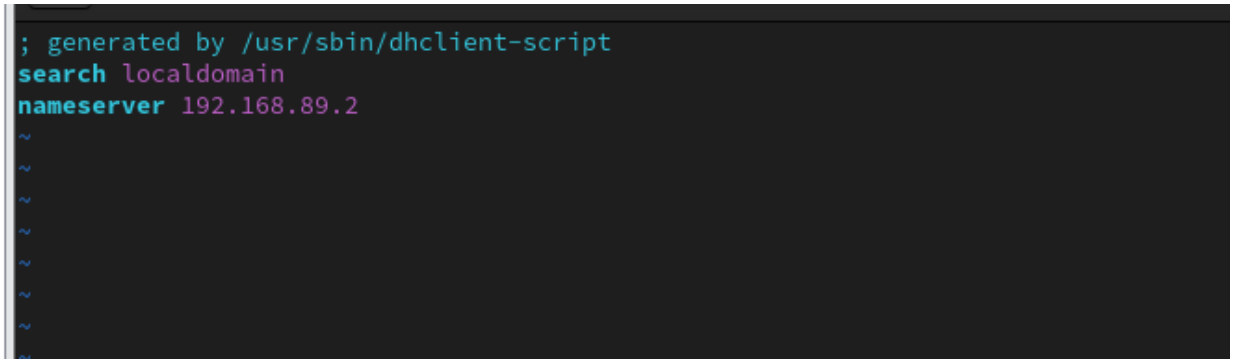
Your internal web dashboard (hosted on internal.example.com) is suddenly unreachable from multiple systems. The service seems up, but users get “host not found” errors. You suspect a DNS or network misconfiguration. Your task is to troubleshoot, verify, and restore connectivity to the internal service.

🛠️ **Your Task:**

1. Verify DNS Resolution: Compare resolution from /etc/resolv.conf DNS vs. 8.8.8.8.

First from my /etc/resolv.conf DNS





```
[root@examtest ~]# vim /etc/resolv.conf
[root@examtest ~]# dig internal.example.com

; <<>> DiG 9.16.23-RH <<>> internal.example.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NXDOMAIN, id: 57576
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; MBZ: 0x0005, udp: 1232
;; QUESTION SECTION:
;internal.example.com.          IN      A

;; Query time: 5 msec
;; SERVER: 192.168.89.2#53(192.168.89.2)
;; WHEN: Mon Apr 28 22:25:03 EEST 2025
;; MSG SIZE  rcvd: 49

[root@examtest ~]#
```

The Domain internal.example.com doesn't exists in my local my /etc/resolv.conf DNS

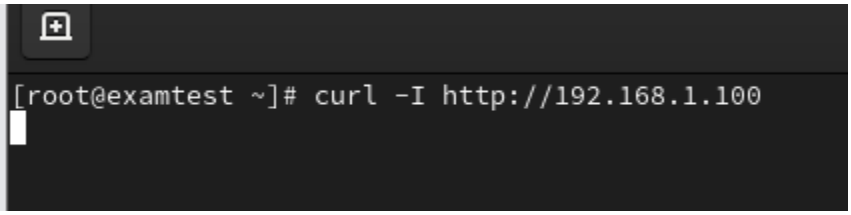
Second from 8.8.8.8 DNS

```
[root@examtest ~]# dig @8.8.8.8 internal.example.com

; <<>> DiG 9.16.23-RH <<>> @8.8.8.8 internal.example.com
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NXDOMAIN, id: 27365
;; flags: qr rd ra ad; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; QUESTION SECTION:
;internal.example.com.          IN      A

;; AUTHORITY SECTION:
example.com.            293     IN      SOA     ns.icann.org. noc.dns.icann.org. 2025011626 7200 3600 1209600 3600

;; Query time: 49 msec
;; SERVER: 8.8.8.8#53(8.8.8.8)
;; WHEN: Mon Apr 28 22:29:34 EEST 2025
;; MSG SIZE  rcvd: 105

[root@examtest ~]#
```

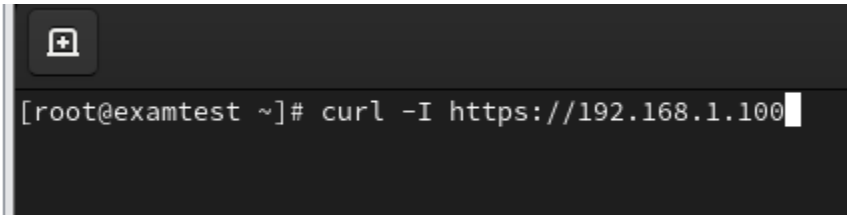
The Domain internal.example.com doesn't exists 8.8.8.8 DNS

2. Diagnose Service Reachability:
Confirm whether the web service (port 80 or 443) is reachable on the resolved IP.
Use curl, telnet, netstat, or ss to find if the service is listening and responding.

assume the server IP is 192.168.1.100
I will use the curl command to check the server is running on Port 80 and port 443 or not



If the Port 80 works the server will respond with OK 200 message otherwise it will return error



If the Port 443 works the server will respond with OK 200 message otherwise it will return error

3. Trace the Issue – List All Possible Causes

🩹 Your goal here is to identify and list all potential reasons why internal.example.com might be unreachable, even if the service is up and running. Consider both DNS and network/service layers.

4. Propose and Apply Fixes

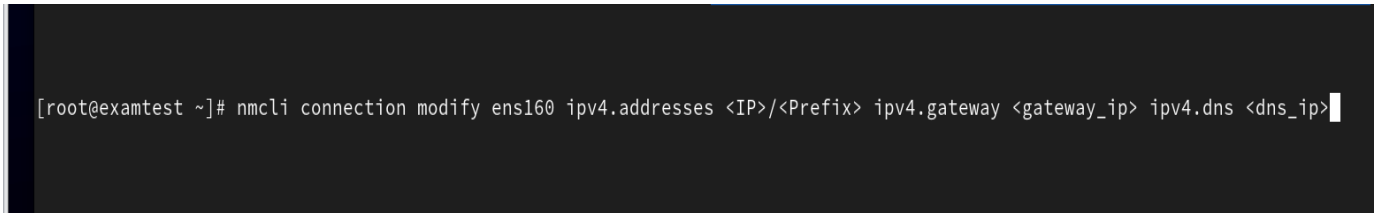
✅ For each potential issue you identified in Point 3, do the following:

1. Explain how you would confirm it's the actual root cause
2. Show the exact Linux command(s) you would use to fix it

🧠 Note:

First Network Troubleshooting

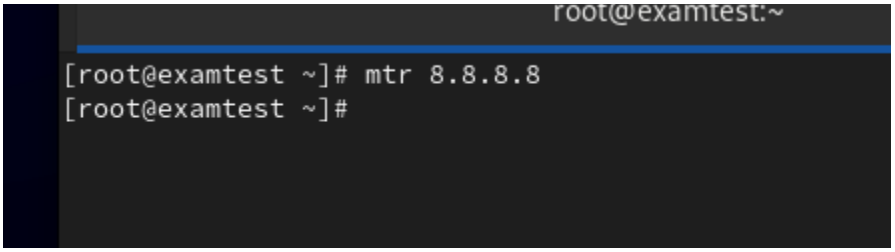
I will Make sure the client can reach the Internet and if it's not I will use NetworkManager CLI command to set the setting of client Ip address , Subnet , DNS and Gateway manually or from DHCP



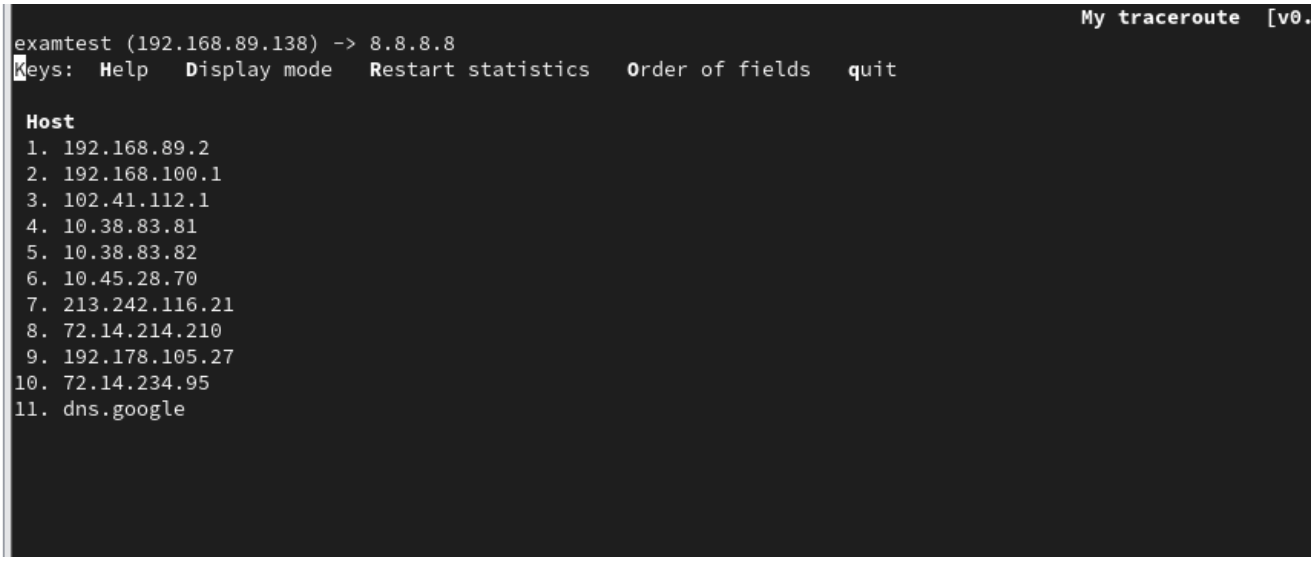
ping on the resolved IP of internal.example.com if it responds successfully That means I have no issues in network and the issue will be in DNS or firewall . If there is no response I will keep trouble shooting on network

I will use mtr command to

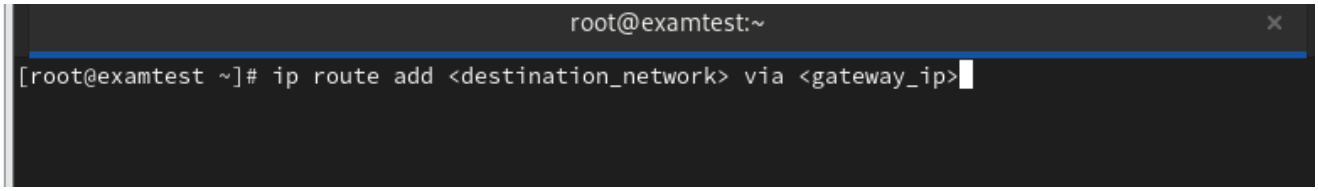
replace 8.8.8.8 with <resolved server ip>



I will follow the traffic to determine where is the disconnection happened



I may add a manually gateway path

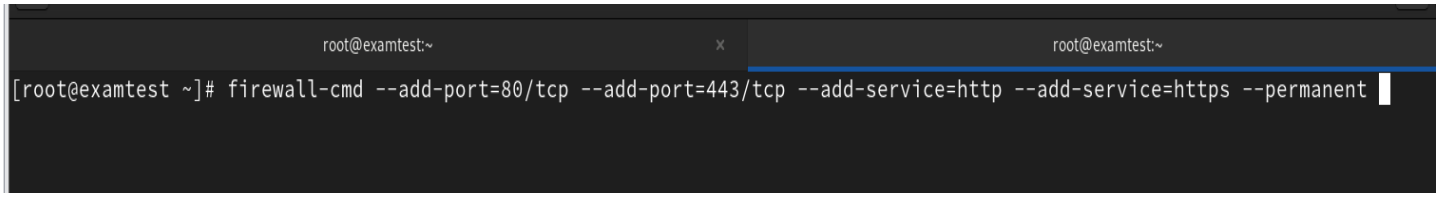


Second Firewall troubleshooting

After Making sure the Client can reach the Internet I will make sure that my firewall allow traffic on 80 and 443 ports and on http and https services on runtime and permanently

runtime

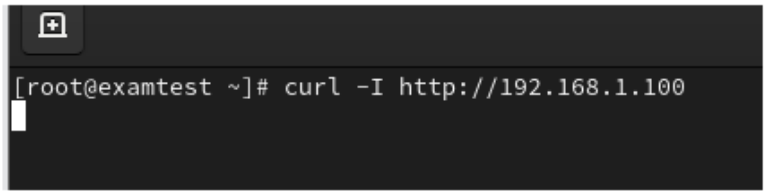
permanent



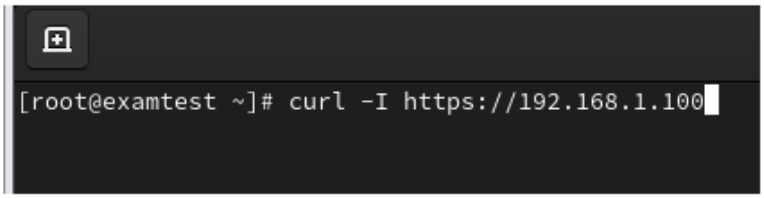
Then I will use curl command to make sure I can reach the resolved ip of internal.example.com

assume the server IP is 192.168.1.100

I will use the curl command to check the server is running on Port 80 and port 443 or not



If the Port 80 works the server will respond with OK 200 message otherwise it will return error



If the Port 443 works the server will respond with OK 200 message otherwise it will return error

if it reached the server correctly then the problem will ne in the DNS resolve

DNS Troubleshooting

one of the solution that I can edit the /etc/resolv.conf file replacing the resolved ip and the domain name

I can also find what is the suitable DNS that can resolve internal.example.com and put it as a secondary DNS

assuming that 8.8.8.8 will be the DNS that can resolve the server domain correctly

or append it in /etc/resolv.conf file
nameserver 8.8.8.8