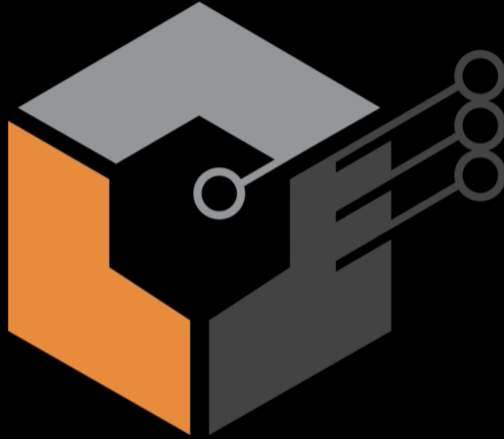


F5 101 Exam Preparation

Troubleshooting Network and Applications

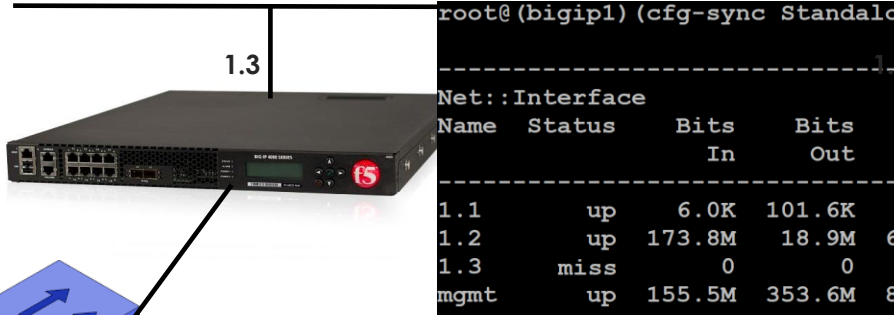


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Layer 1 connectivity Issue

1. Failover is not working from the BIG-IP A/S standby pair. Based from the output of show net interface from tms. What seems to be the problem

Network Failover



```
root@(bigip1) (cfg-sync Standalone) (Active) (/Common) (tmos)# show net interface
-----
Net::Interface
Name  Status  Bits      Bits      Pkts      Pkts      Drops  Errs      Media
      In    Out       In    Out
-----
1.1   up      6.0K     101.6K    13       250       0      0      10000T-FD
1.2   up     173.8M   18.9M    61.5K    18.7K     0      0      10000T-FD
1.3   miss    0         0         0         0         0      0      none
mgmt  up     155.5M   353.6M   85.8K    23.0K     0      0      100TX-FD
```

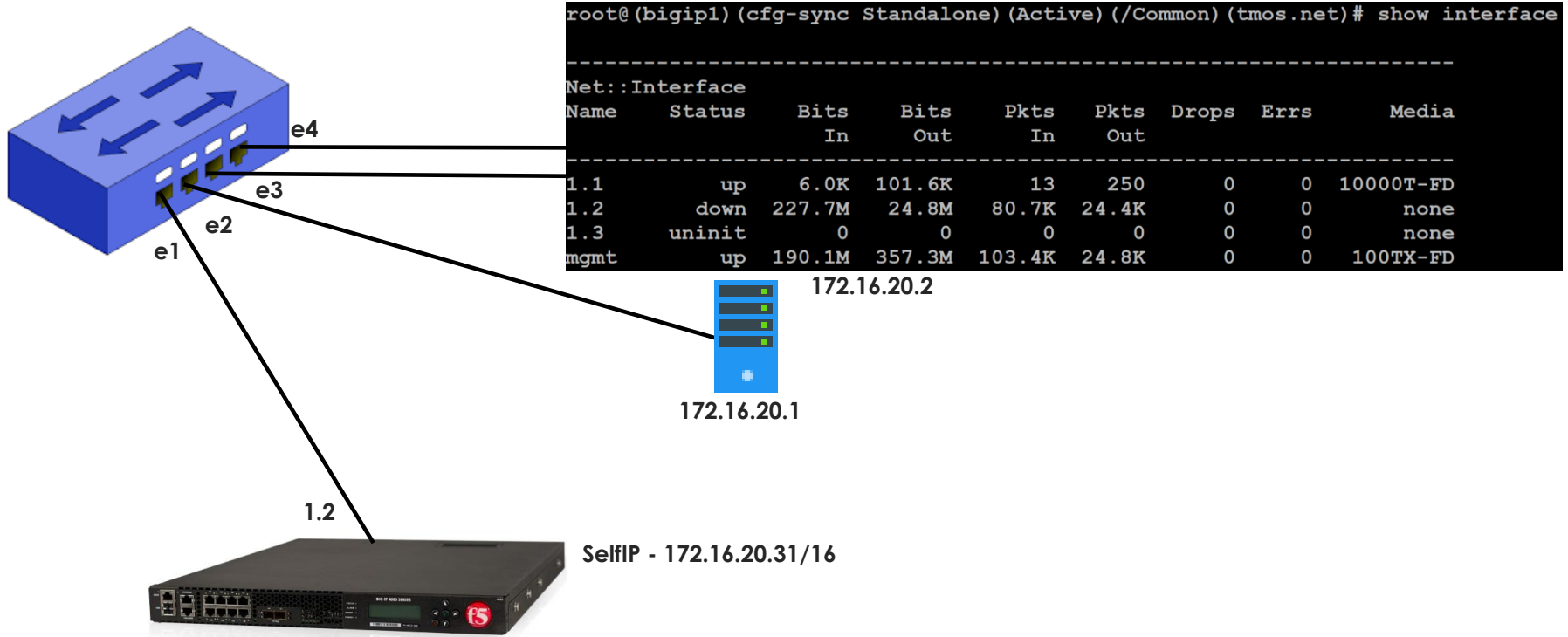
172.16.20.1 172.16.20.2 172.16.20.3

172.16.20.4 172.16.20.5 172.16.30.5

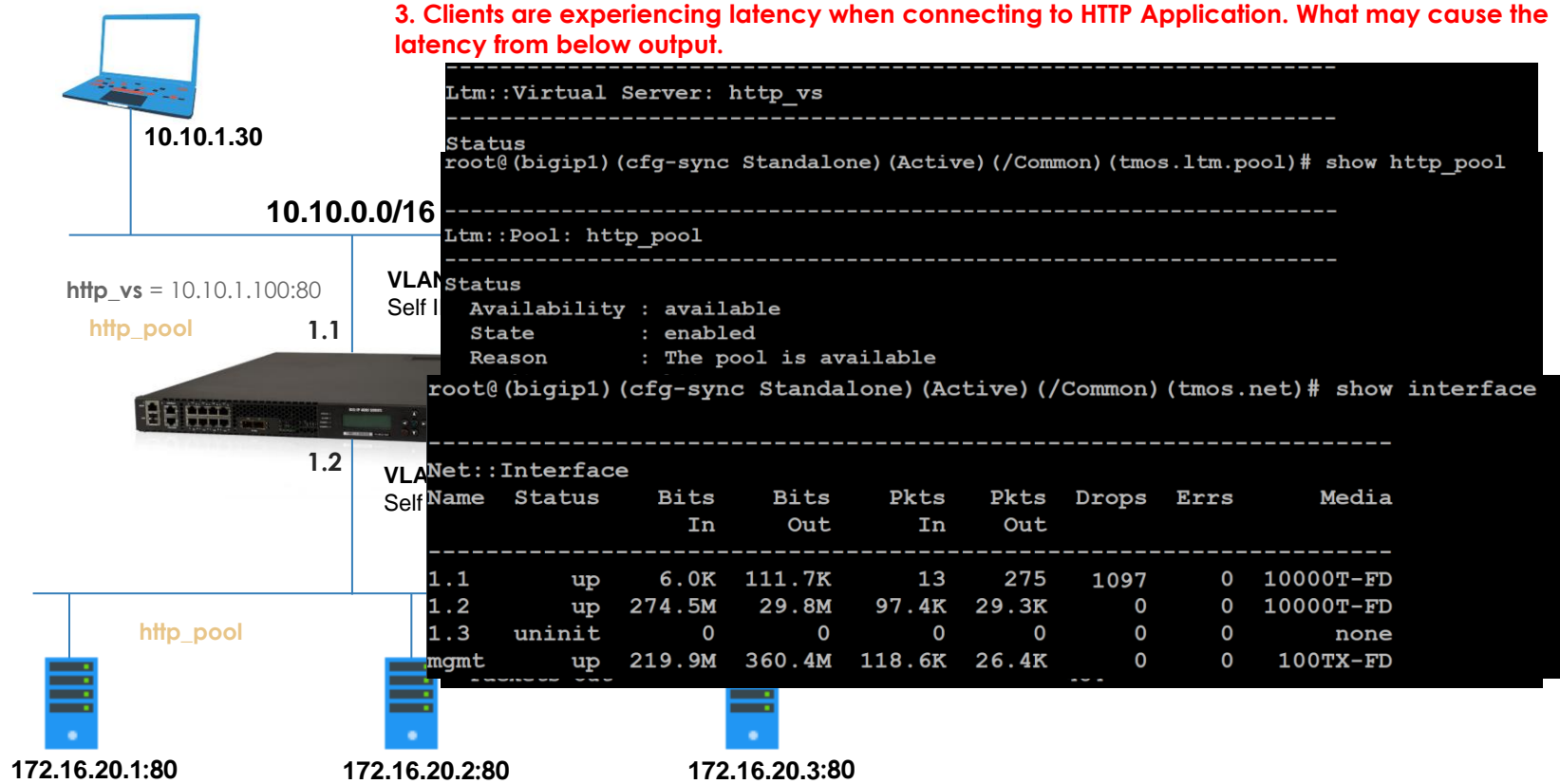
<https://t.me/learningnets>

Layer 1 connectivity Issue

2. You experience connection lost and decided to run show interface from tmsch net. You verified that switch is up and running.



Layer 1 connectivity Issue

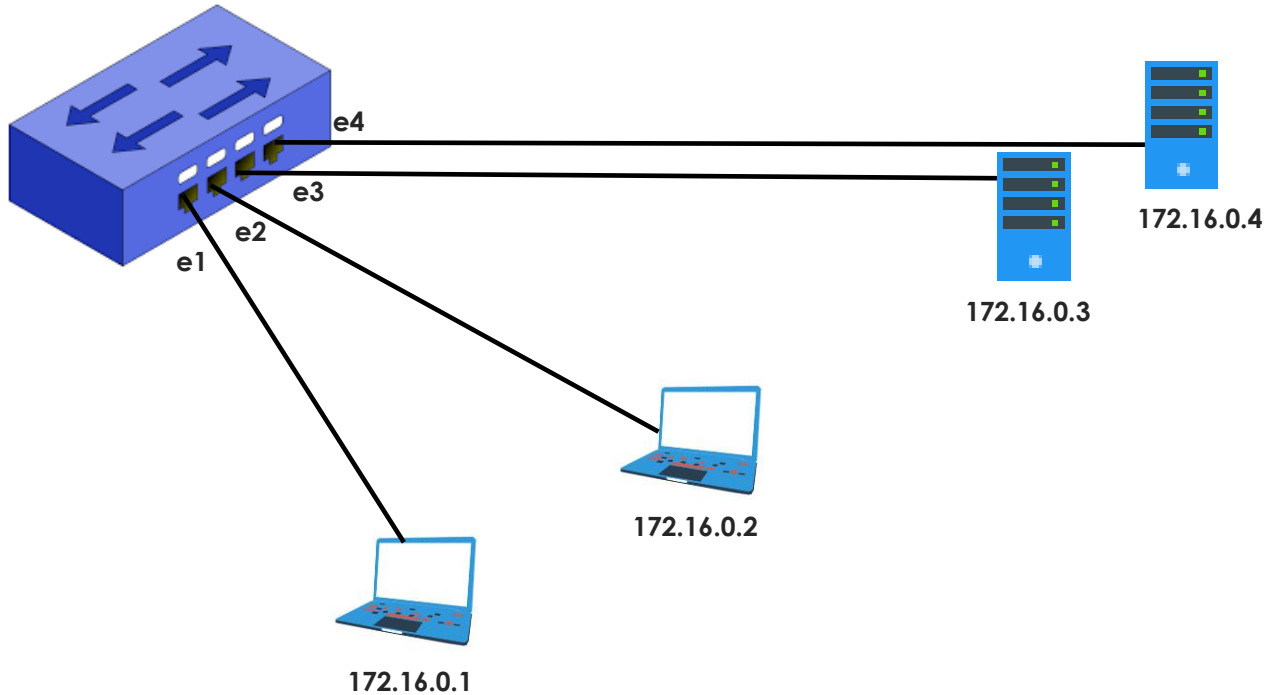


3. Clients are experiencing latency when connecting to HTTP Application. What may cause the latency from below output.

```
Ltm::Virtual Server: http_vs
-----
Status
root@(bigip1) (cfg-sync Standalone) (Active) (/Common) (tmsh.ltm.pool)# show http_pool
-----
Ltm::Pool: http_pool
-----
Status
Self I Availability : available
State : enabled
Reason : The pool is available
root@(bigip1) (cfg-sync Standalone) (Active) (/Common) (tmsh.net)# show interface
-----
VLANNet::Interface
Self Name Status Bits Bits Pkts Pkts Drops Errs Media
In Out In Out In Out
-----
1.1 up 6.0K 111.7K 13 275 1097 0 10000T-FD
1.2 up 274.5M 29.8M 97.4K 29.3K 0 0 10000T-FD
1.3 uninit 0 0 0 0 0 0 0 none
mgmt up 219.9M 360.4M 118.6K 26.4K 0 0 100TX-FD
-----
```

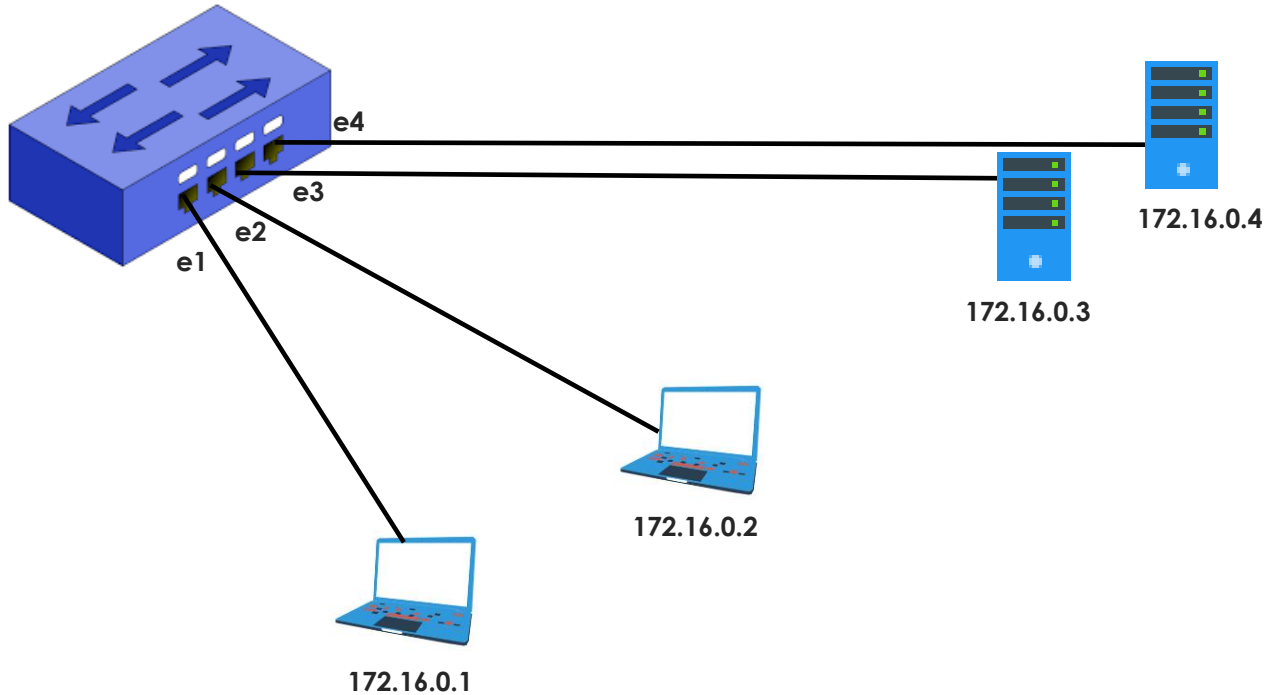
Layer 1 connectivity Issue

4. You experience slowness when PCs and Servers communicates. Upon checking the status of interfaces e1 and e4, you see number of collisions continuously incrementing. What may cause these collisions?



Layer 1 connectivity Issue

4. You experience slowness when PCs and Servers communicates. Upon checking the status of interfaces e1 and e4, you see number of collisions continuously incrementing. What may cause these collisions?



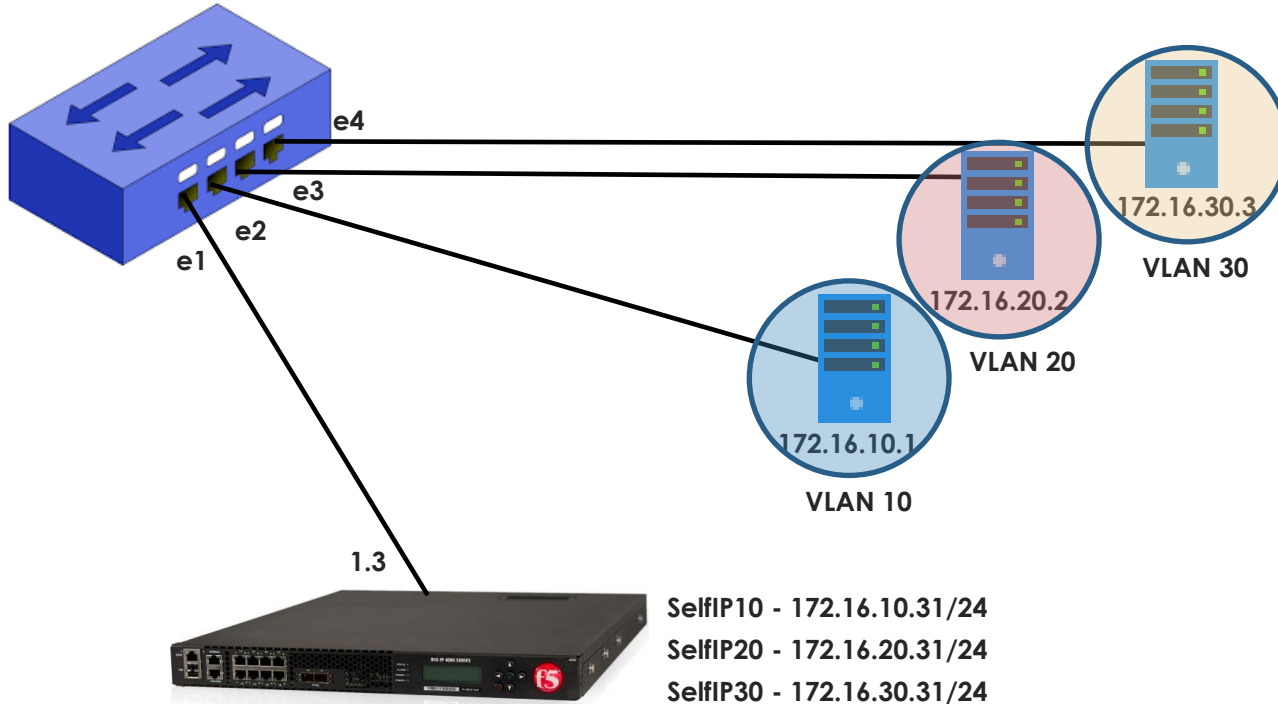
Layer 1 connectivity Issue

Common Layer 1 Issues

- Cable Specifications
- Bad Cable
- Incorrect media (SFP+, Optics)
- Speed Settings
- Duplex Settings
- Connected device Unavailable

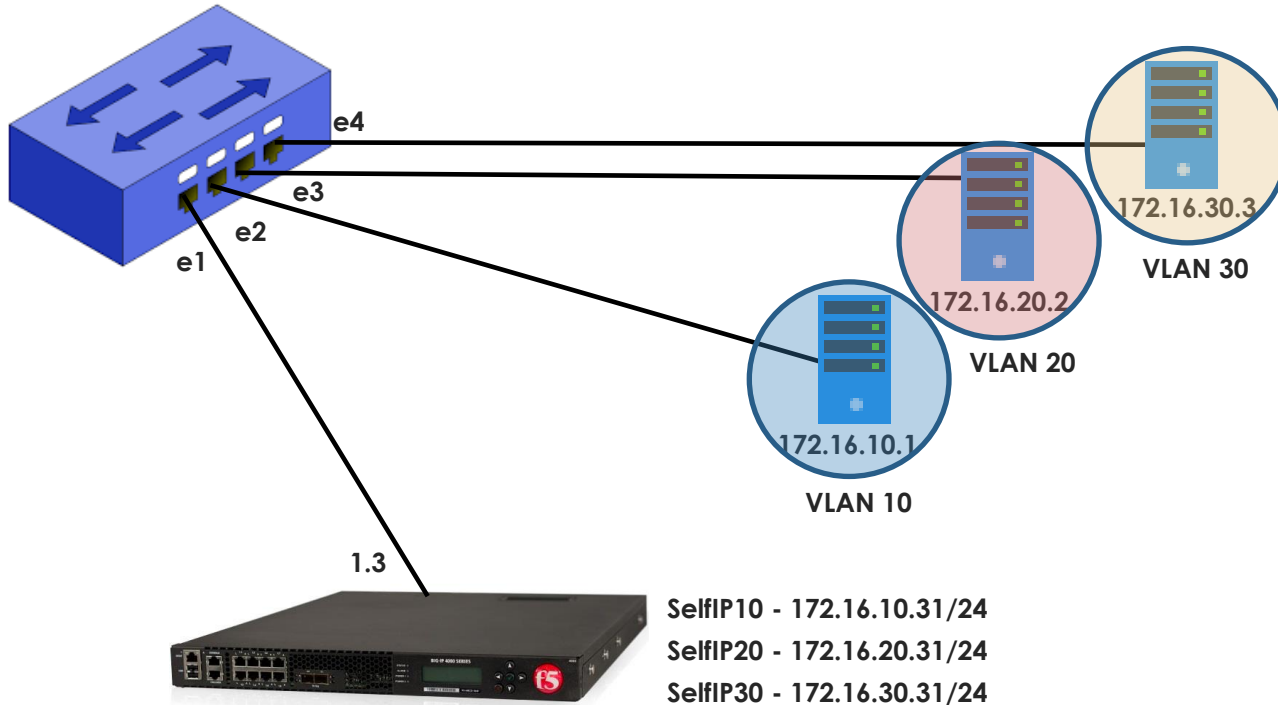
Layer 2 connectivity Issue

1. BIG-IP unable to reach all three Nodes – 172.16.10.1, 172.16.20.2 and 172.16.30.3. All nodes are in a different VLAN. Physical connection from the BIG-IP to the switch is working properly.



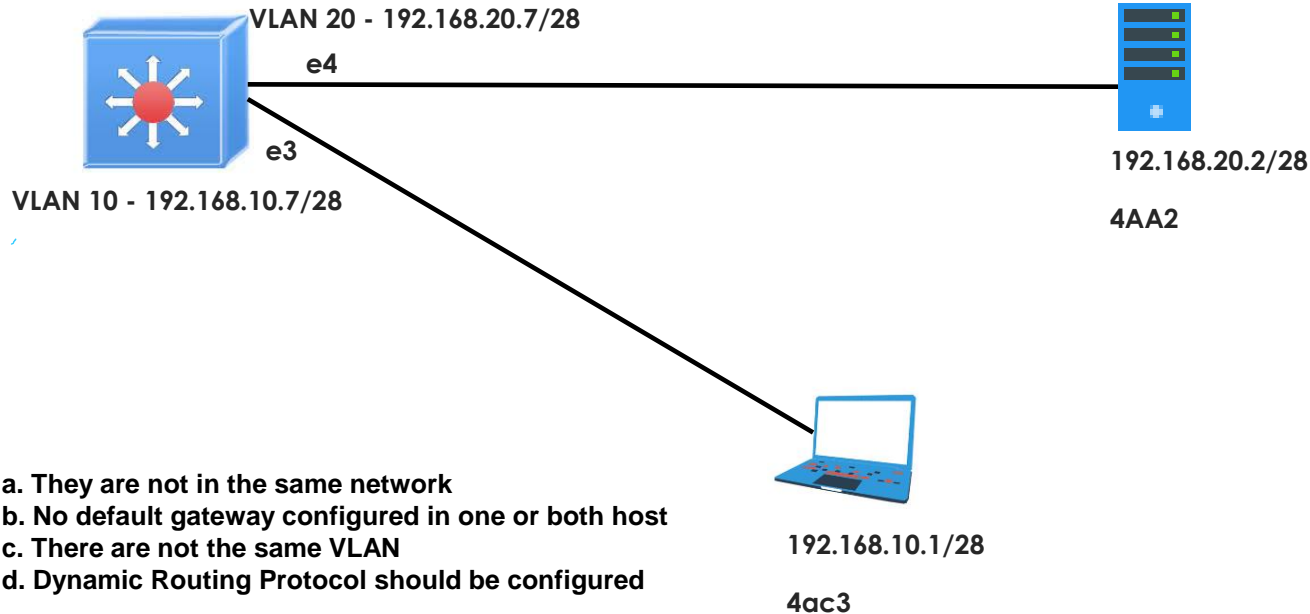
Layer 2 connectivity Issue

2. BIG-IP able to reach all Nodes except 172.16.20.2. All nodes are in a different VLAN. Physical connection from the BIG-IP to the switch is working properly.



Layer 2 connectivity Issue

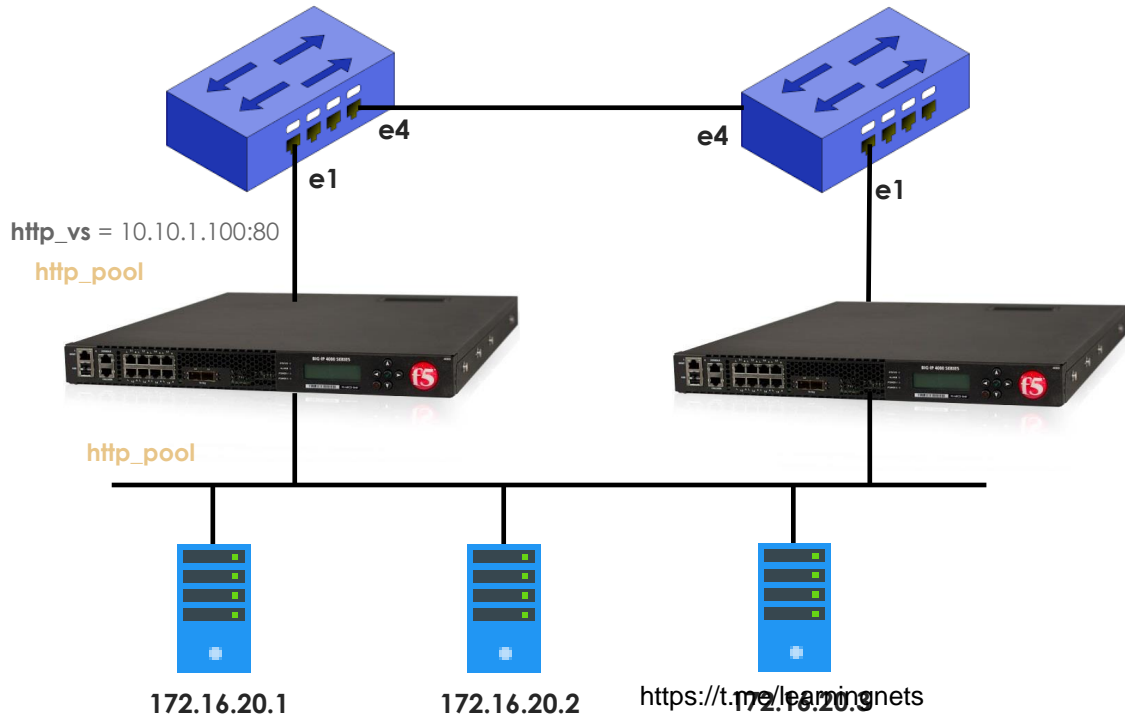
3. You verified that PC and Server MAC address both has entry in the MAC Table. But you don't see both entries in the ARP Table. What causes this is issue?



- a. They are not in the same network
- b. No default gateway configured in one or both host
- c. There are not the same VLAN
- d. Dynamic Routing Protocol should be configured

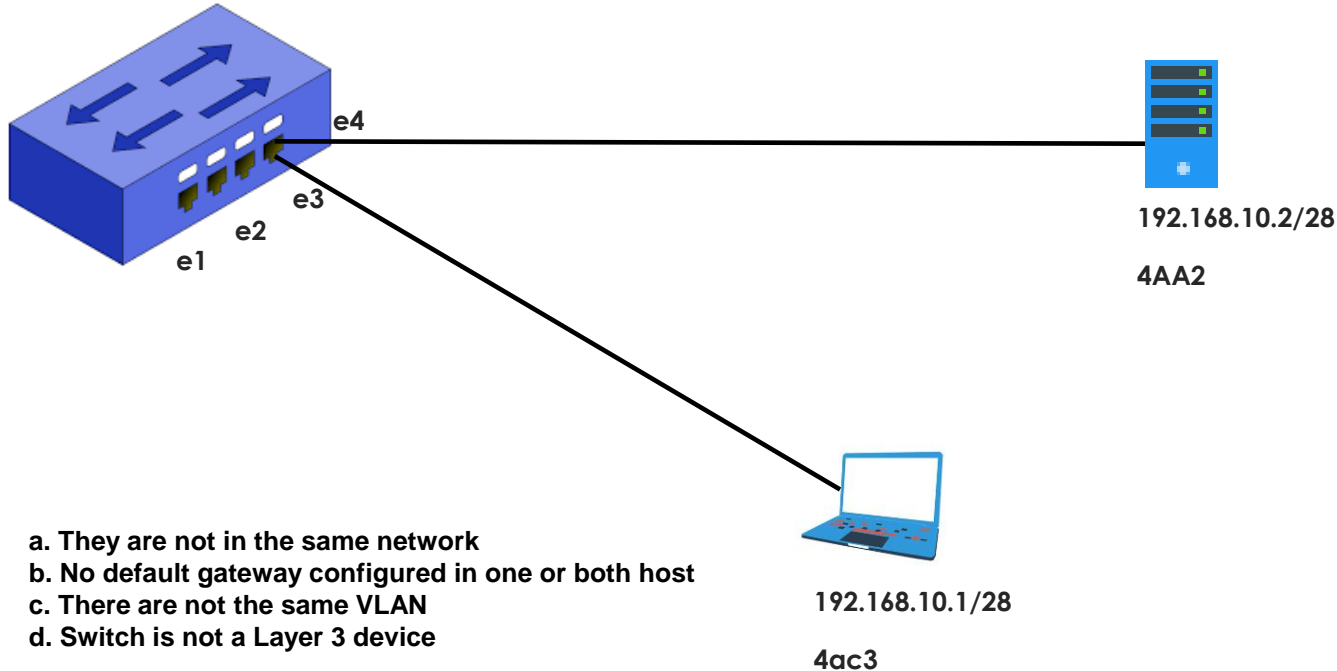
Layer 2 connectivity Issue

4. You just recently setup a BIG-IP Active/Standby pair. What feature do you need to enable to optimize BIG-IP High Availability?



Layer 2 connectivity Issue

4. You verified that PC and Server MAC address both has entry in the MAC Table. But you don't see both entries in the ARP Table. What causes this is issue?



Layer 2 connectivity Issue

Common Layer 2 Issues and Best Practices

- VLAN misconfiguration
- 802.1Q/Tagging misconfiguration
- Verify ARP Resolution on BIG-IP and neighboring device
- Verify Interface Status and configuration
- Enable MAC Masquerading in a HA pair
- Documentation

Layer 3 Connectivity Issue

1. You are designing a small Data Center environment. Which of the following is correct.

172.16.8.10/21



172.16.8.1

e1



172.16.7.1

e2

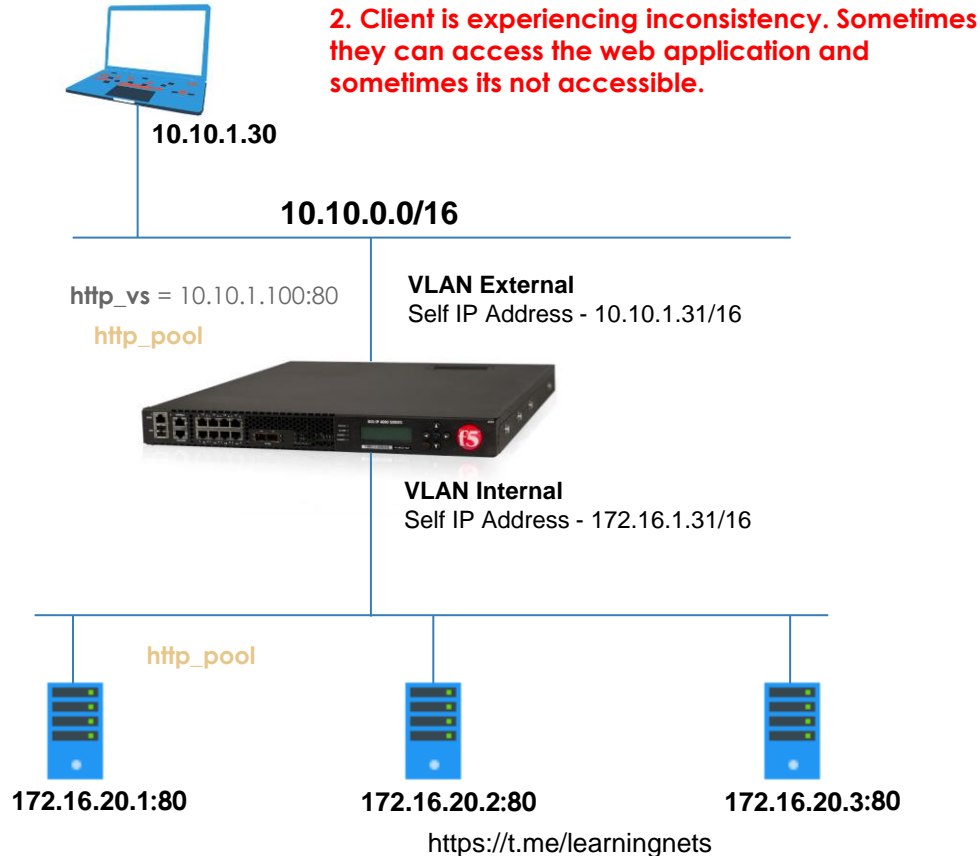
172.16.7.20/21



Destination	Netmask	Gateway
0.0.0.0	0.0.0.0	172.16.8.254
172.16.0.0	255.255.255.0	172.16.8.1
172.16.7.0	255.255.255.0	172.16.8.1

- a. Don't need a router since S1 and S2 are in the same subnet
- b. S2 should be reachable by the 1st entry of S1 routing table
- c. S2 should be reachable by the 2nd entry of S1 routing table
- d. S2 should be reachable by the 3rd entry of S1 routing table

Layer 3 Connectivity Issue



Server 1

Destination	Netmask	Gateway
0.0.0.0	0.0.0.0	172.16.1.31
10.10.0.0	255.255.0.0	172.16.1.31
10.10.1.0	255.255.255.0	172.16.1.31

Server 2

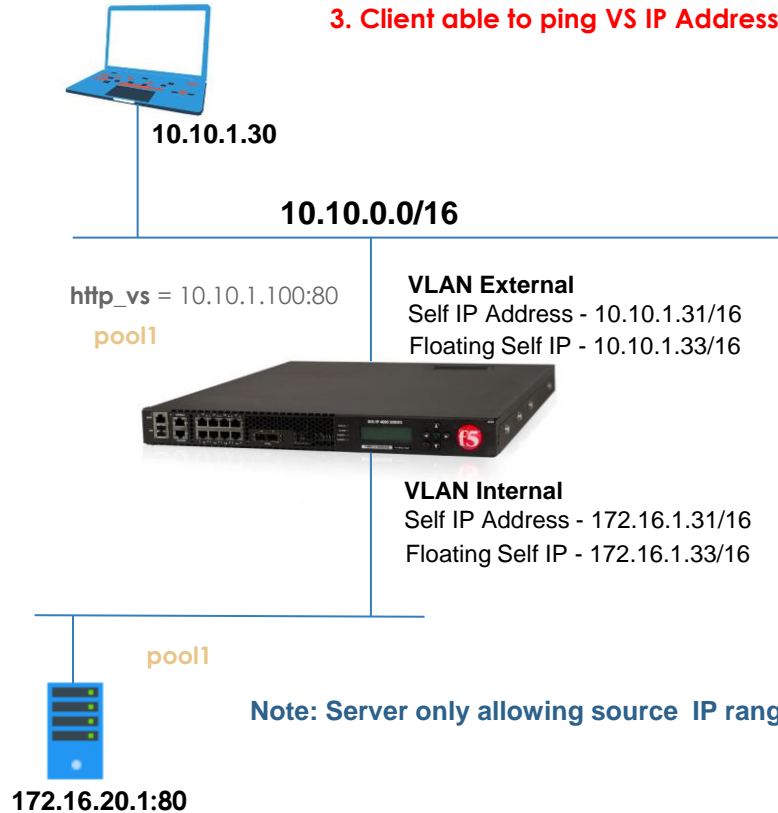
Destination	Netmask	Gateway
0.0.0.0	0.0.0.0	172.16.1.31
10.10.0.0	255.255.0.0	172.16.1.31
10.10.1.0	255.255.255.0	172.16.1.33

Server 3

Destination	Netmask	Gateway
0.0.0.0	0.0.0.0	172.16.1.31
10.10.0.0	255.255.0.0	172.16.1.31
10.10.1.0	255.255.255.0	172.16.1.31

Layer 3 Connectivity Issue

3. Client able to ping VS IP Address 10.10.1.31/16 but unable to access Web Application



Server 1

Destination	Netmask	Gateway
10.10.1.30	255.255.255.0	172.16.1.33

Note: Server only allowing source IP range 10.10.1.0/24

HTTP Troubleshooting



10.10.1.30

10.10.0.0/16

https_vs = 10.10.1.100:443

s_pool1



VLAN External

Self IP Address - 10.10.1.31/16

Floating Self IP - 10.10.1.33/16

VLAN Internal

Self IP Address - 172.16.1.31/16

Floating Self IP - 172.16.133/16

s_pool1

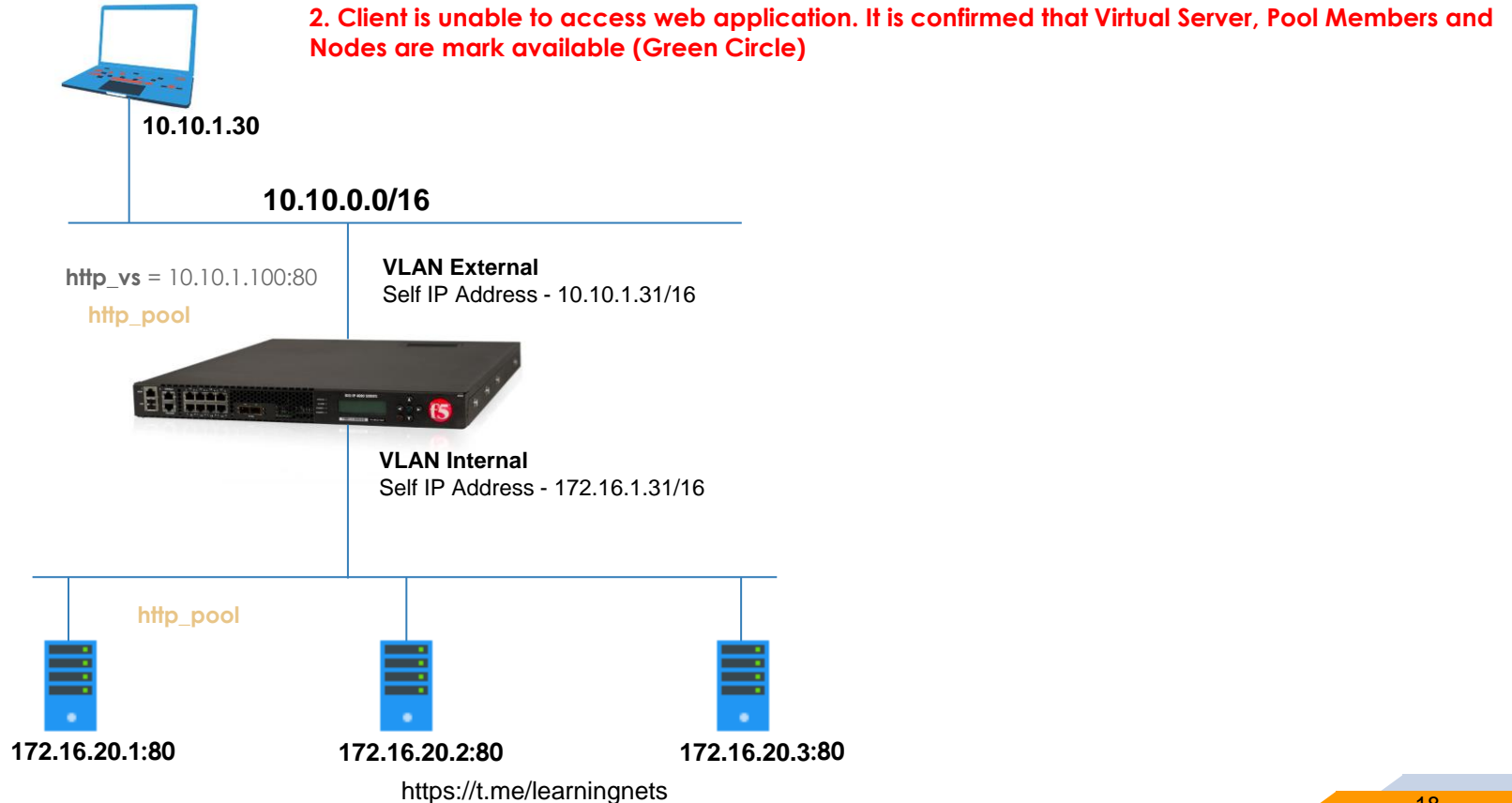


172.16.20.1:443

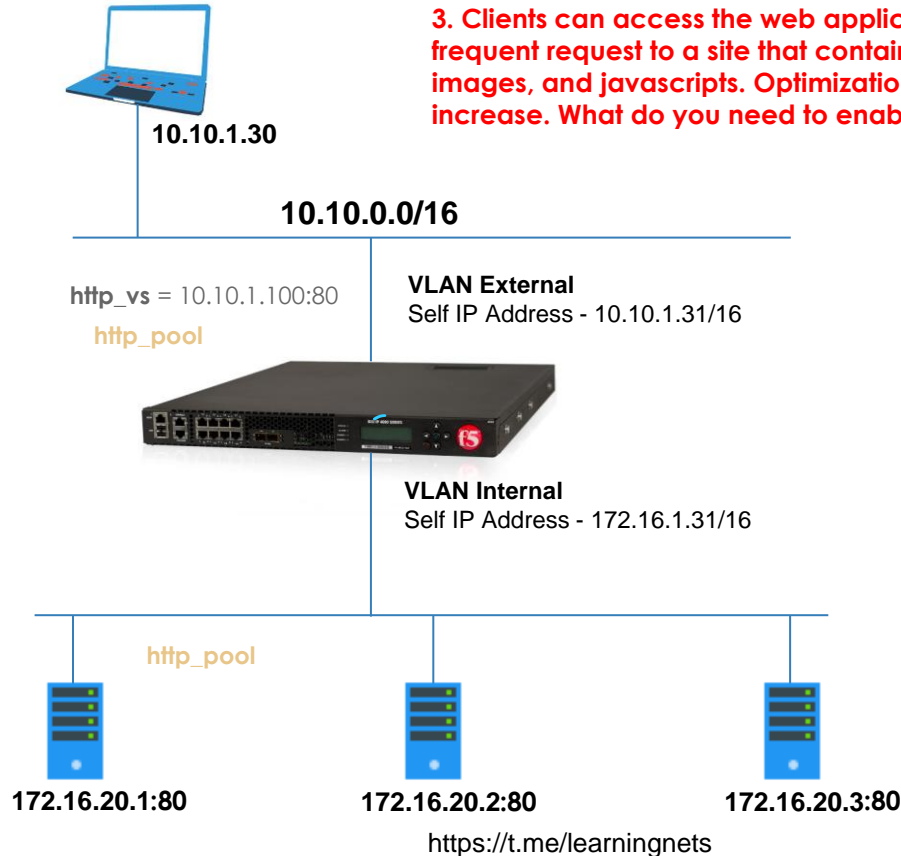
1. Client is unable to access web application. Pool Member 1 is mark Available (Green Circle).

```
root@TrainingServer33:~# netstat -tulpn | grep "80 \|443"
tcp        0      0 127.0.0.1:80          0.0.0.0:*            LISTEN    28555/apache2
```

HTTP Troubleshooting



HTTP Troubleshooting



3. Clients can access the web application successfully via BIG-IP. The BIG-IP is receiving frequent request to a site that contains large amount of static content such as CSS files, images, and javascripts. Optimization is needed as number of clients continuously increase. What do you need to enable.

HTTP Troubleshooting

HTTP Caching / Web Acceleration

- is a collection of HTTP objects stored in the BIG-IP system's memory
- subsequent connections can reuse to reduce traffic load on the origin web servers.
- reduce the need to send frequent requests for the same object and eliminate the need to send full responses
- Cache Content Types: 200, 203, 303, 301, 401 HTTP Responses, CSS files, JavaScript, images

HTTP Compression aka Content Encoding

- Client sends HTTP Request, BIG-IP reads the ACCEPT-ENCODING and removes its header and passes to the Server
- Server receives the REQUEST and force not to compress HTTP Request Body.
- BIG-IP receives Server response and inserts CONTENT-ENCODING header (gzip or deflate) and sends compressed data back to the client.
- Compress and reduce the size of HTTP REQUEST Body using available method from Client to BIG-IP to Client.

Note: Both are profiles configured under Acceleration Module and required to enable HTTP Profile on Virtual Server

HTTP Troubleshooting

HTTP Status Codes

- a three-digit integer seen in Response header
- identifies the general category of response on 1st digit

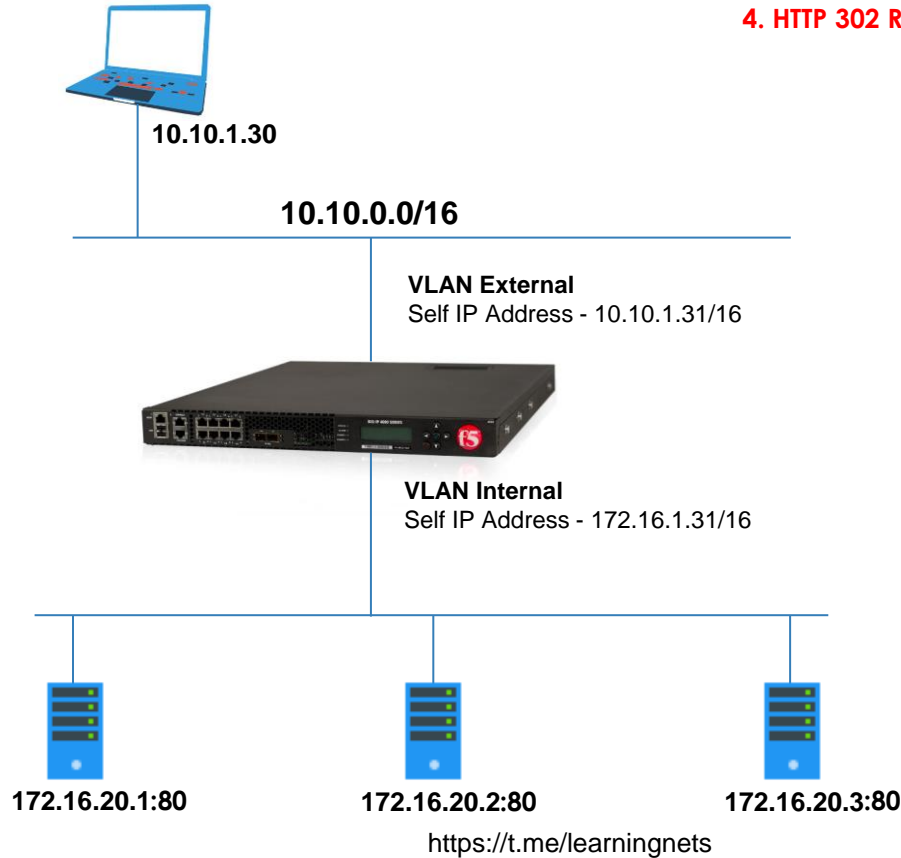
HTTP/1.0 200 OK **HTTP/1.0 404 Not Found**

General Category of Responses:

- 1XX indicates an informational message only
- 2XX indicates success
- 3XX redirects the client to another URL
- 4XX indicates an error on the client's part
- 5XX indicates an error on the server's part

HTTP Troubleshooting

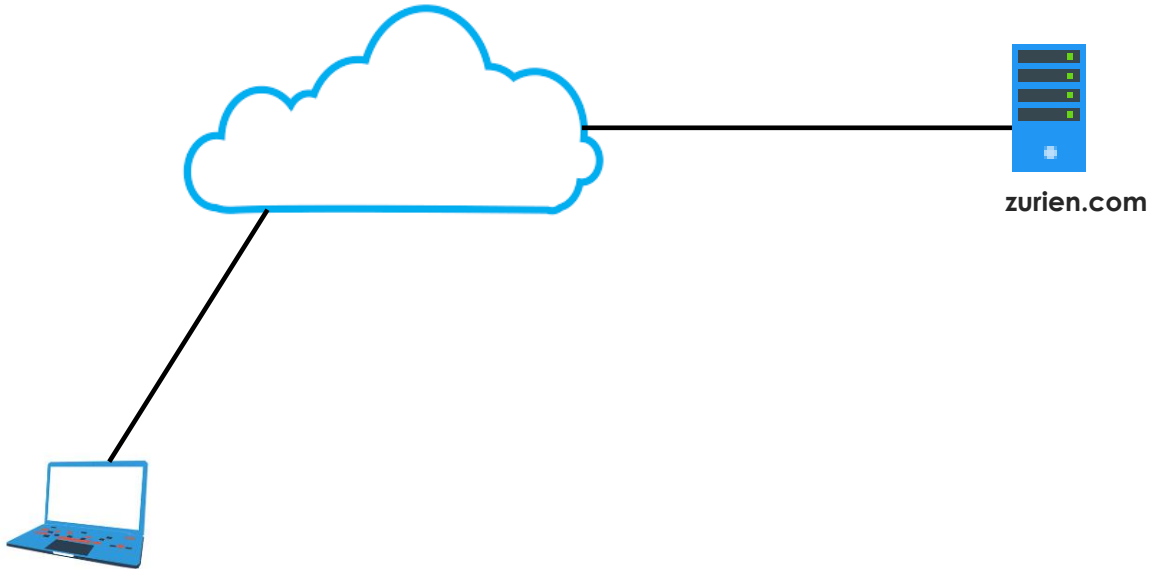
4. HTTP 302 Redirect



5. HTTP 404 Not Found

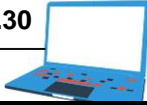
HTTP 401 Unauthorized

HTTP 502 Bad Gateway



BIG-IP Troubleshooting

192.168.1.30



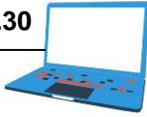
1. From the GUI, it seems that your BIG-IP is not saving any more log messages.
How and what do you need to verify?

Mgmt Network
192.168.0.0/16

```
[root@bigip1:Active:Standalone] config # df -h
Filesystem                Size      Used Avail Use% Mounted on
/dev/mapper/vg--db--vda-set.1.root
                          427M    276M   129M   69% /
none                      2.0G     2.3M   2.0G    1% /dev/shm
/dev/mapper/vg--db--vda-set.1._config
                          3.2G     90M   2.9G    3% /config
/dev/mapper/vg--db--vda-set.1._usr
                          4.0G    3.2G   656M   83% /usr
/dev/mapper/vg--db--vda-set.1._var
                          3.0G    835M   2.0G   30% /var
/dev/mapper/vg--db--vda-dat.share
                          20G     2.4G    17G   13% /shared
/dev/mapper/vg--db--vda-dat.log
                          2.9G     96M   2.7G  100% /var/log
/dev/mapper/vg--db--vda-dat.appdata
                          25G    187M    24G    1% /appdata
none                      2.0G     30M   2.0G    2% /shared/rrd.1.2
none                      2.0G     14M   2.0G    1% /var/tmstat
none                      2.0G    1.6M   2.0G    1% /var/run
prompt                    4.0M     28K   4.0M    1% /var/prompt
none                      2.0G      0   2.0G    0% /var/loipc
```

BIG-IP Troubleshooting

192.168.1.30



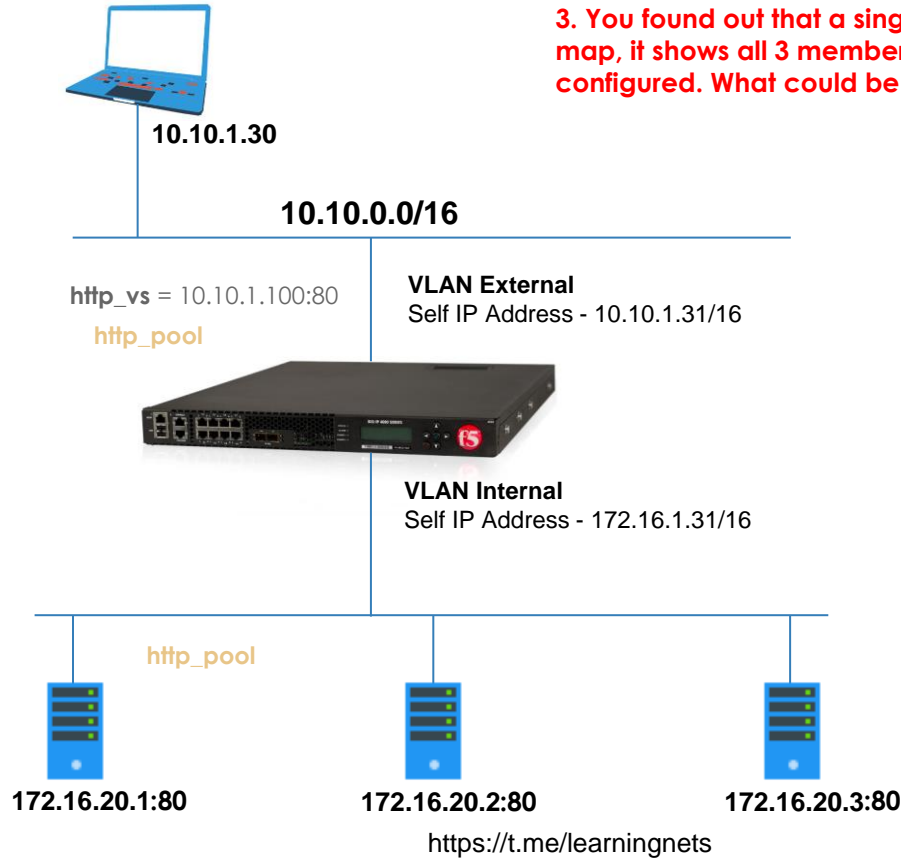
Mgmt Network
192.168.0.0/16

192.168.1.31



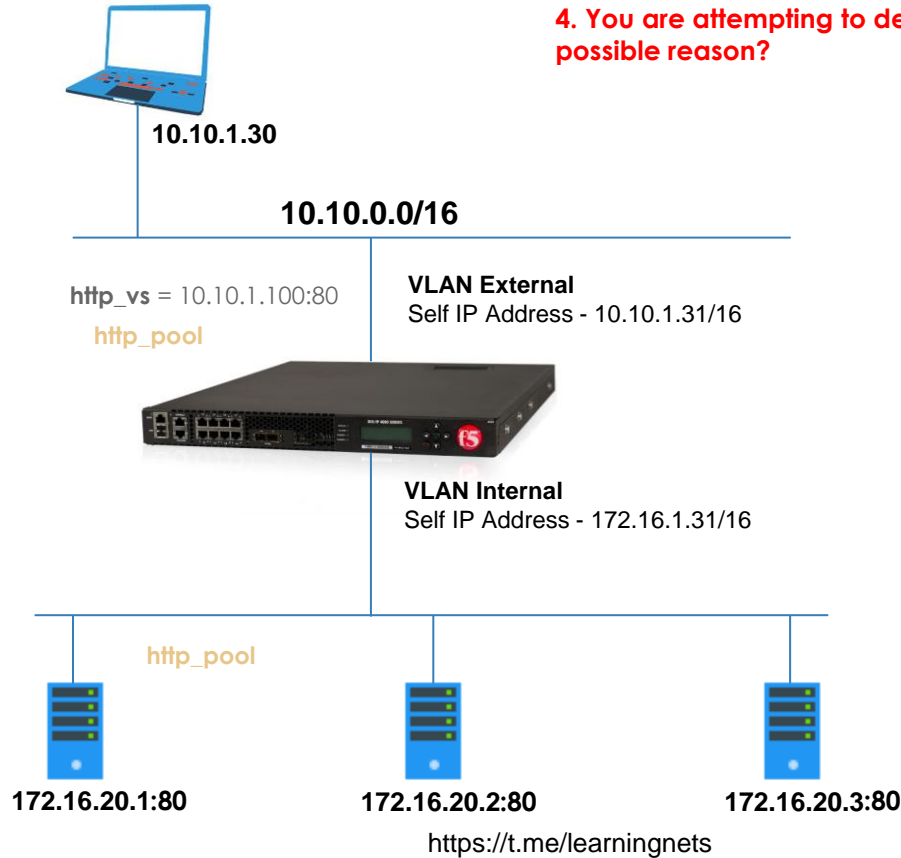
2. You are unable to access the BIG-IP GUI but still able to SSH. You need to download snapshot instance for a specific F5 support case.

BIG-IP Troubleshooting



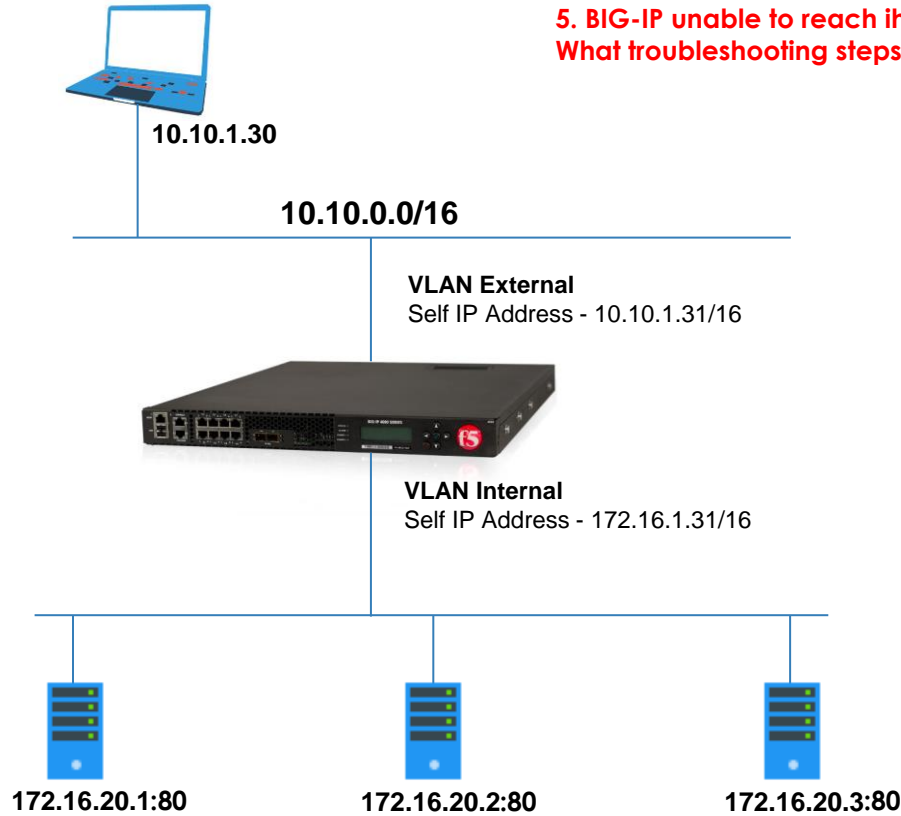
3. You found out that a single Server is over-utilized. Upon checking Network map, it shows all 3 members are online and round robin load balancing is configured. What could be the problem.

BIG-IP Troubleshooting



4. You are attempting to delete http_pool but always unsuccessful. What is the possible reason?

BIG-IP Troubleshooting



5. BIG-IP unable to reach ihealth.f5.com to upload qkview file automatically.
What troubleshooting steps you need to do.

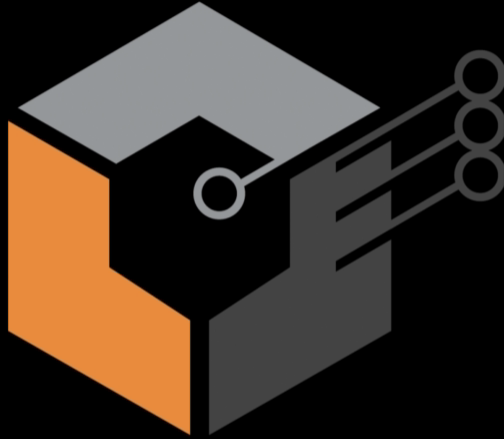
BIG-IP Troubleshooting

Common Issues and Best Practices

- Use the right Health Monitors
- Use Health Monitors to node default and to pools only
- Always check Network Map
- Troubleshoot from CLI – ping, tcpdump, df, bigtop, dig
- Use iHealth for Diagnosis
- Open F5 Support case if needed

F5 101 Exam Preparation

Troubleshooting Network and Applications



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