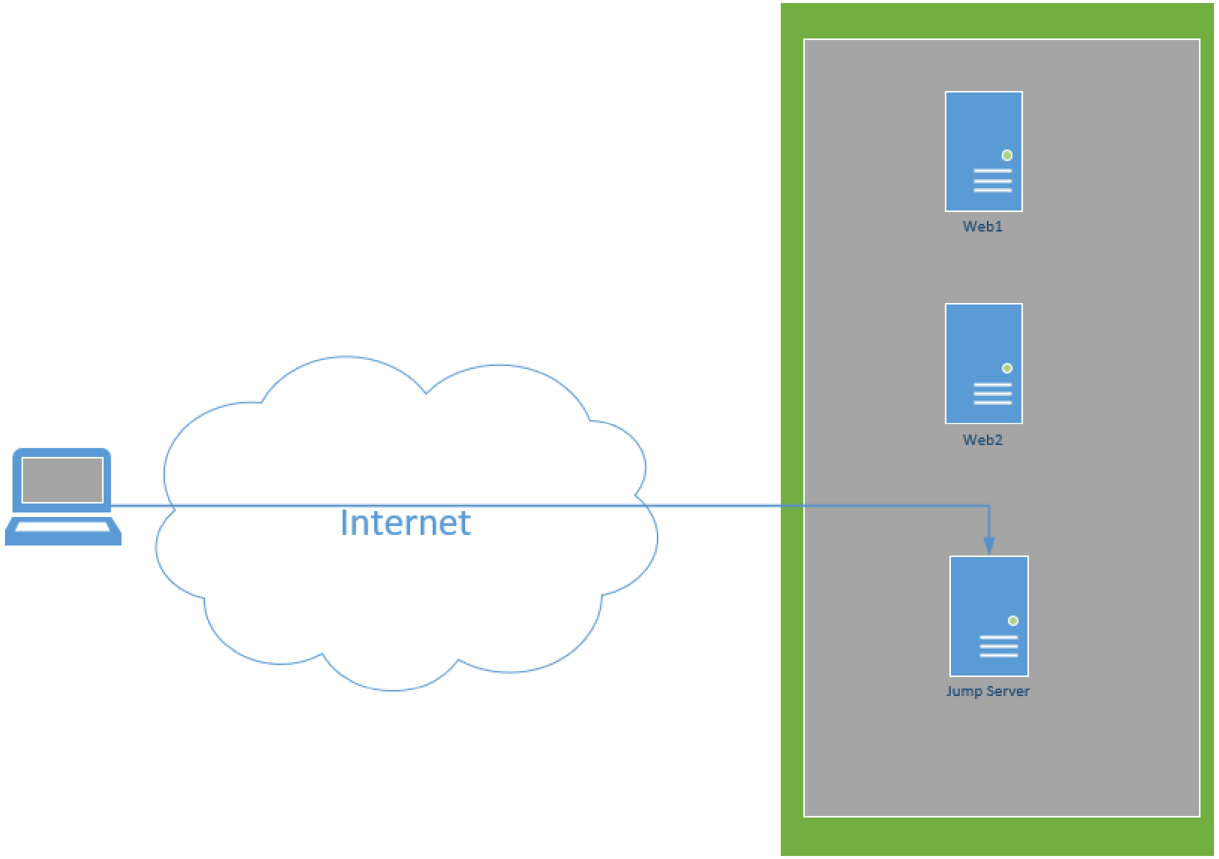
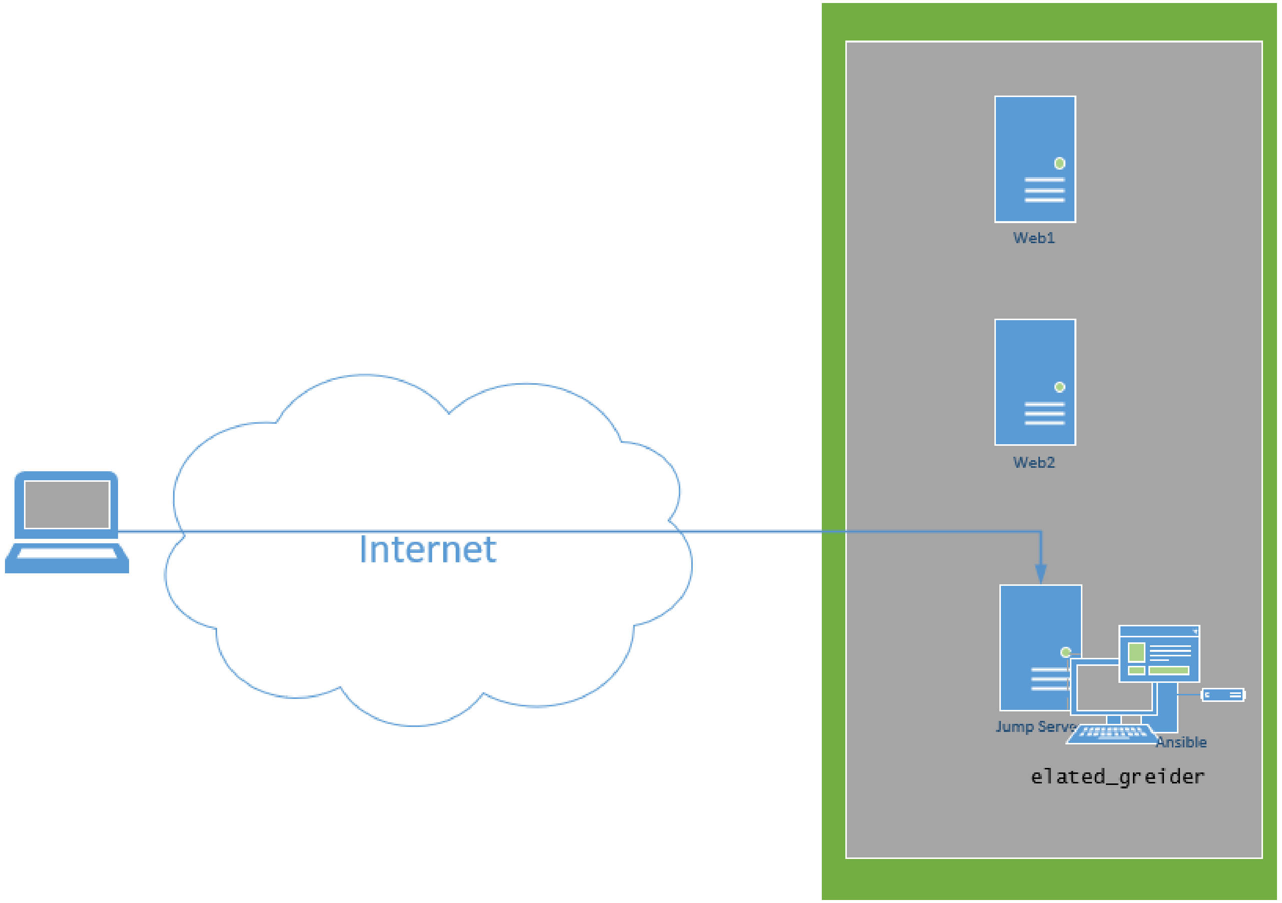
ELK Project

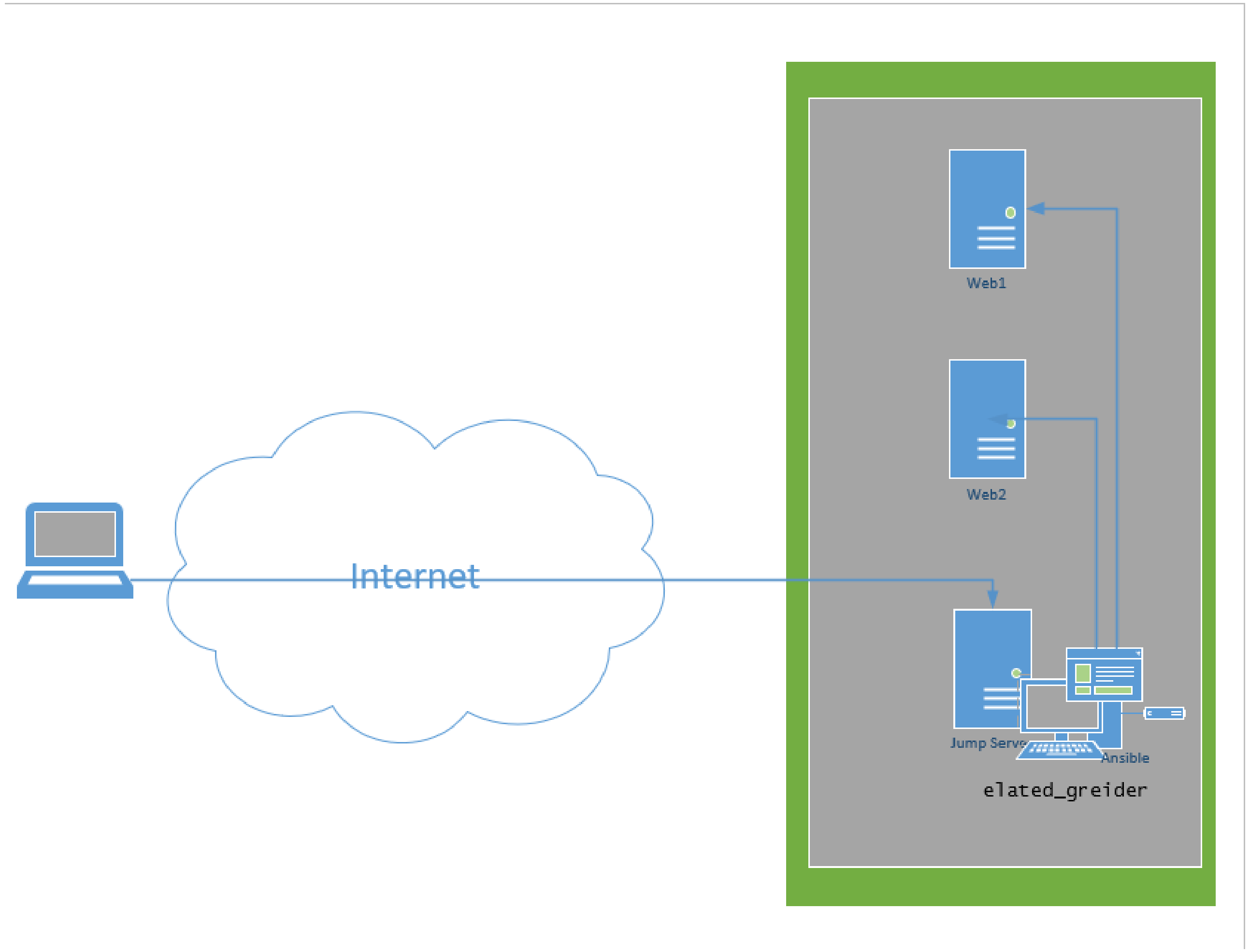
Last Class
Some of You Only Gained SSH Access



A Few of You Set Up Ansible

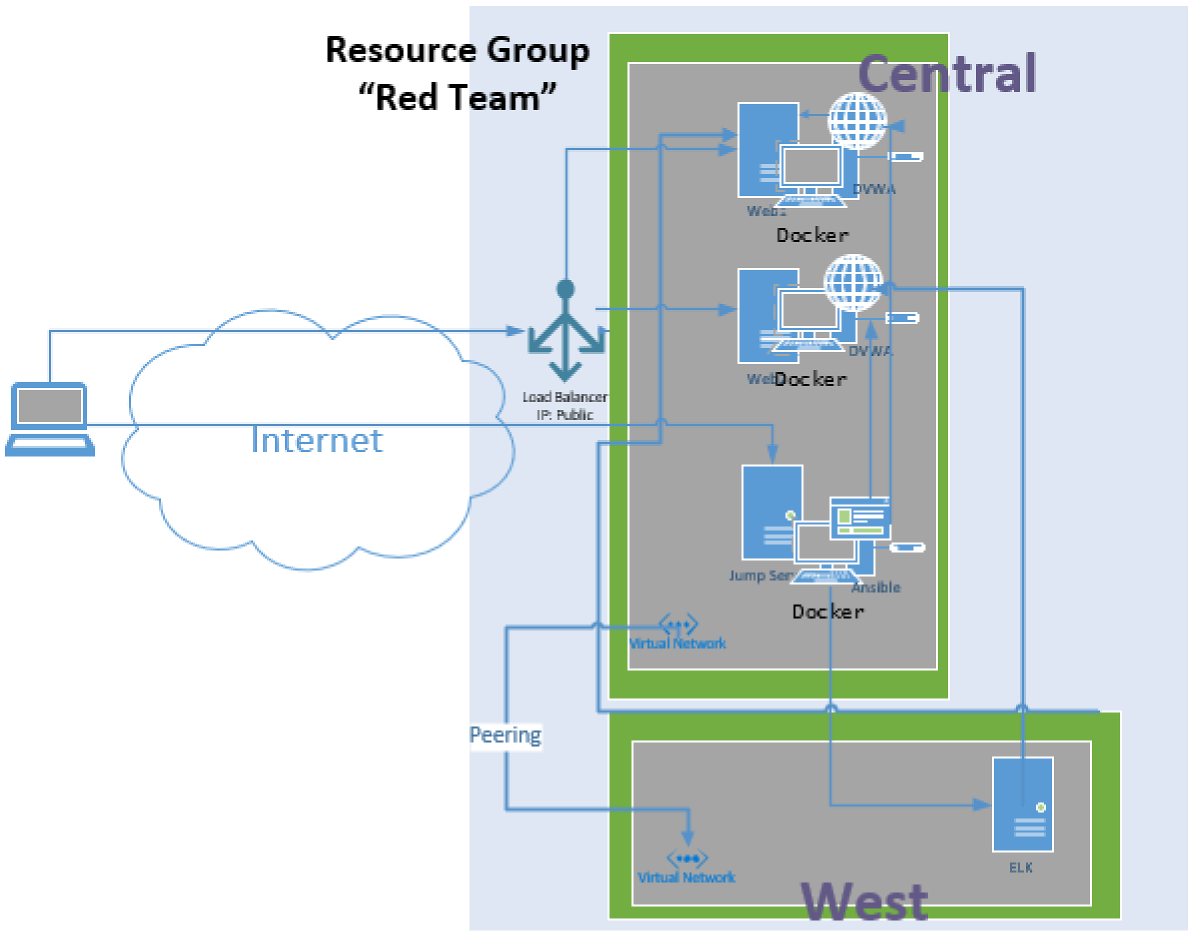


And Three of Us Connected Ansible to the Web Servers

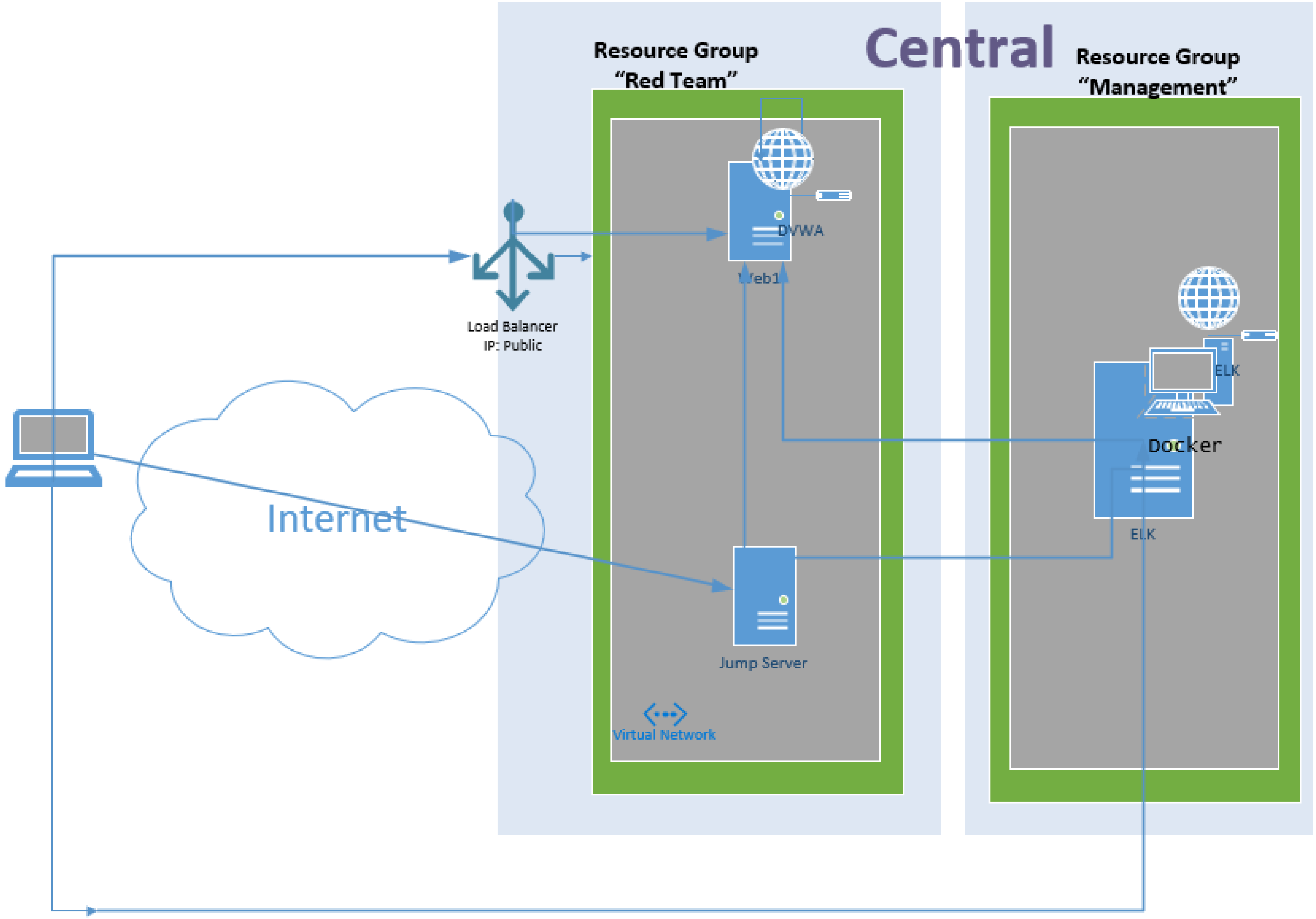


Day 1
Start

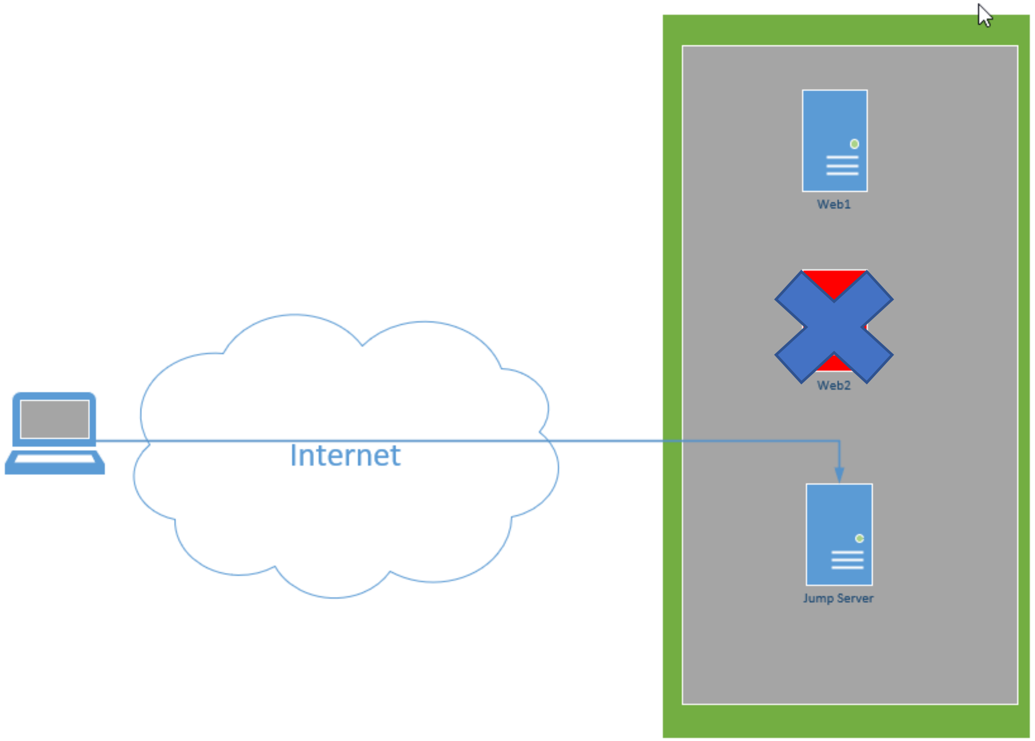
Original Project



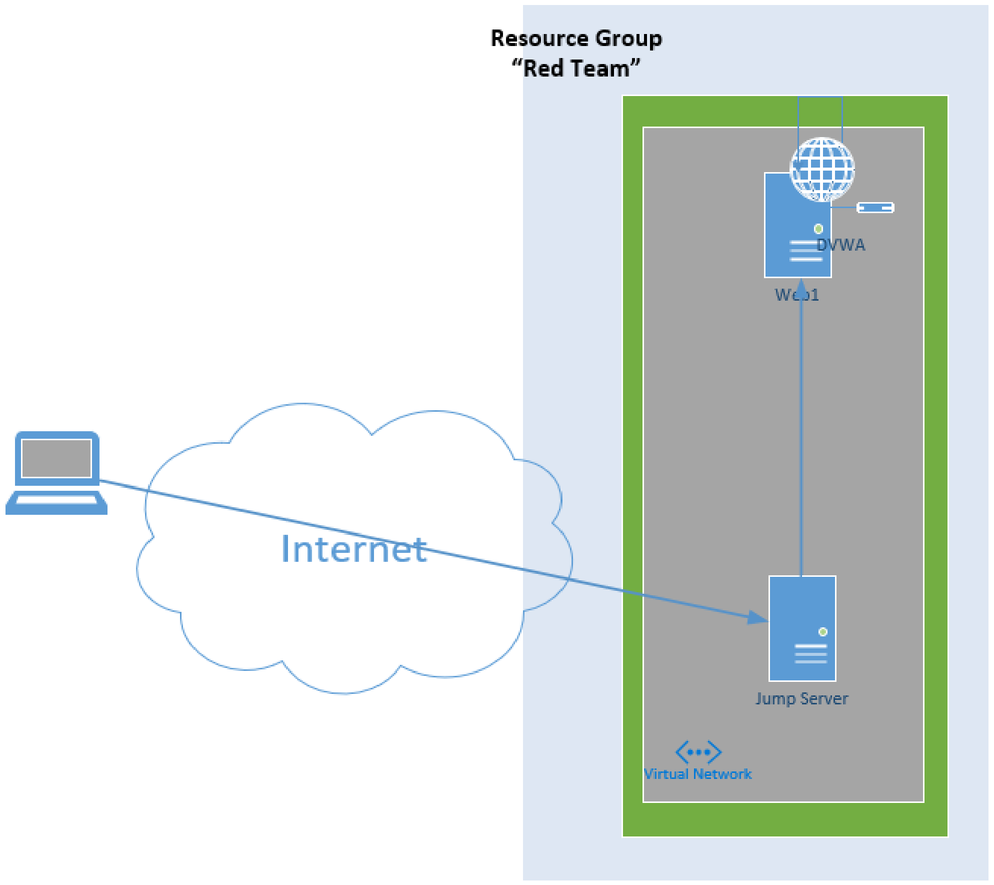
New Project


Central
Resource Group
“Red Team”
Resource Group
“Management”
DVWA
Web1
Load Balancer
IP: Public
ELK
Docker
ELK
Internet
Jump Server
Virtual Network

1. Forget About Ansible
2. Delete Any Containers on Web1
3. Delete VM Web 2
4. Create Usernames and Passwords for both VMs – Certs will not be used



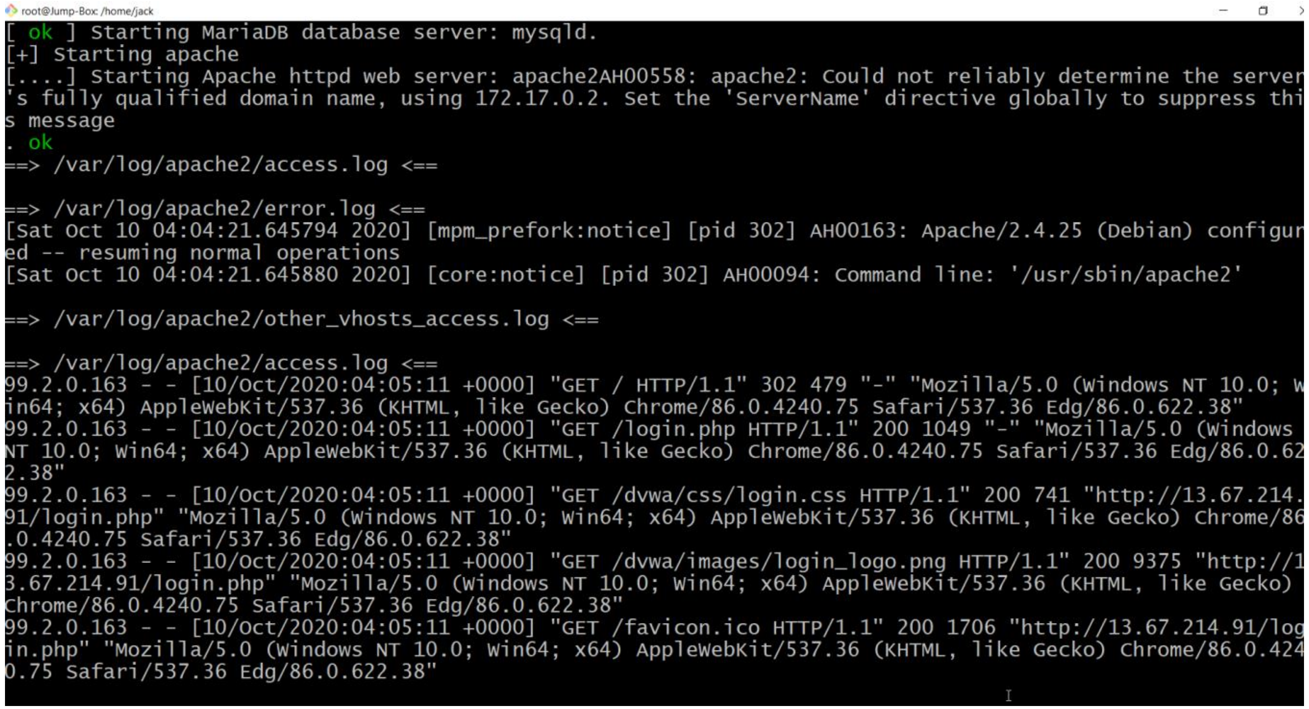
Lets Setup DVWA



1. SSH into the Jump Server and use it to SSH into the Web1
2. Run the DVWA Script that Terrace and Steve Created and Thank Them

```
#!/bin/bash

if ! [ $(id -u) = 0 ]; then
   echo "The script need to be run as root." >&2
   exit 1
fi

if [ $SUDO_USER ]; then
    real_user=$SUDO_USER
else
    real_user=$(whoami)
fi
#Check to see if user is Root
#
apt-get update
apt-get upgrade
#Update and upgrade Current VM
#
apt install docker.io
#installs docker to box
#
apt install python3-pip
#installs python
#
apt install docker
#installs docker python module
#
systemctl start docker
#starts docker
#
docker pull vulnerables/web-dvwa
#pulls docker Dvwa
#
docker run -it -p 80:80 --restart always vulnerables/web-dvwa
#Create Image
#
```

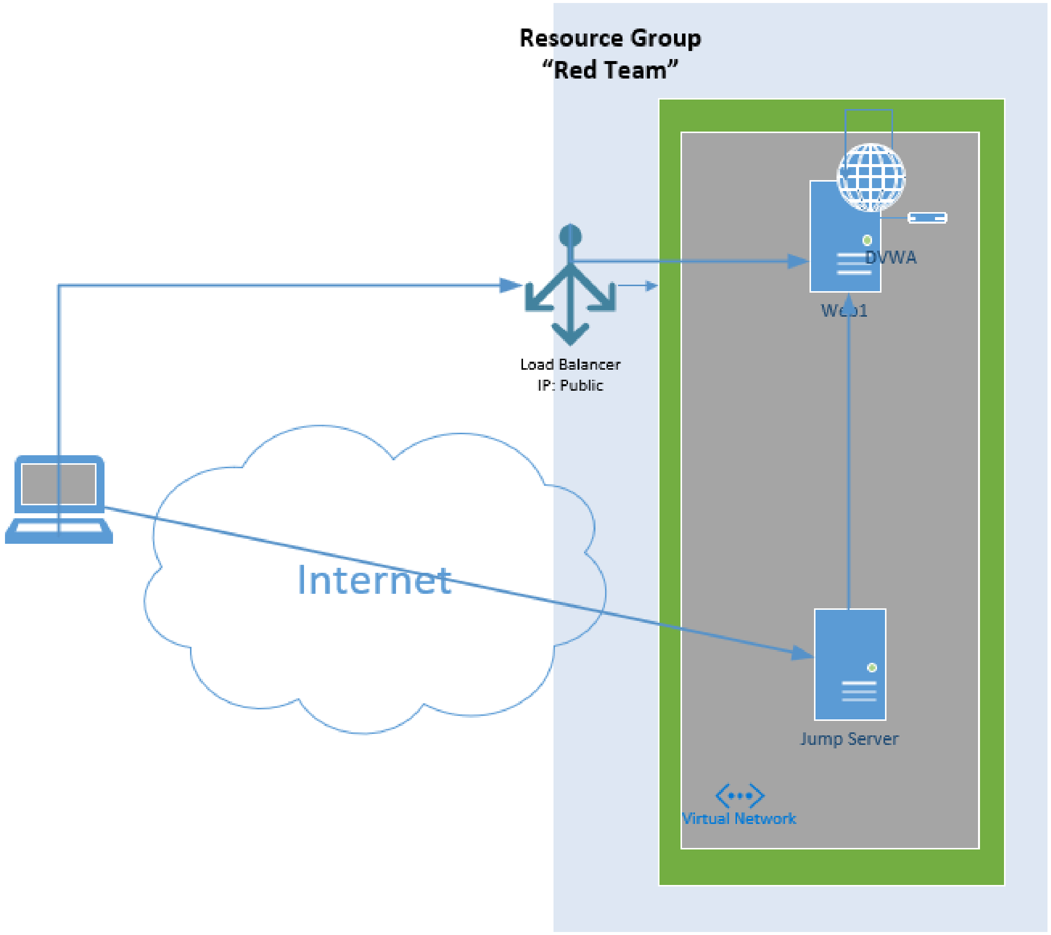
If It’s Working, it will look like below



```
[ ok ] Starting MariaDB database server: mysqld.
[+] Starting apache
[....] Starting Apache httpd web server: apache2AH00558: apache2: Could not reliably determine the server
's fully qualified domain name, using 172.17.0.2. Set the 'ServerName' directive globally to suppress thi
s message
. ok
==> /var/log/apache2/access.log <==

==> /var/log/apache2/error.log <==
[Sat Oct 10 04:04:21.645794 2020] [mpm_prefork:notice] [pid 302] AH00163: Apache/2.4.25 (Debian) configur
ed -- resuming normal operations
[Sat Oct 10 04:04:21.645880 2020] [core:notice] [pid 302] AH00094: Command line: '/usr/sbin/apache2'

==> /var/log/apache2/other_vhosts_access.log <==

==> /var/log/apache2/access.log <==
99.2.0.163 - - [10/Oct/2020:04:05:11 +0000] "GET / HTTP/1.1" 302 479 "-" "Mozilla/5.0 (Windows NT 10.0; W
in64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/86.0.4240.75 Safari/537.36 Edg/86.0.622.38"
99.2.0.163 - - [10/Oct/2020:04:05:11 +0000] "GET /login.php HTTP/1.1" 200 1049 "-" "Mozilla/5.0 (Windows
NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/86.0.4240.75 Safari/537.36 Edg/86.0.62
2.38"
99.2.0.163 - - [10/Oct/2020:04:05:11 +0000] "GET /dvwa/css/login.css HTTP/1.1" 200 741 "http://13.67.214.
91/login.php" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/86
.0.4240.75 Safari/537.36 Edg/86.0.622.38"
99.2.0.163 - - [10/Oct/2020:04:05:11 +0000] "GET /dvwa/images/login_logo.png HTTP/1.1" 200 9375 "http://1
3.67.214.91/login.php" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko)
Chrome/86.0.4240.75 Safari/537.36 Edg/86.0.622.38"
99.2.0.163 - - [10/Oct/2020:04:05:11 +0000] "GET /favicon.ico HTTP/1.1" 200 1706 "http://13.67.214.91/log
in.php" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/86.0.424
0.75 Safari/537.36 Edg/86.0.622.38"
```

1. Create a Load Balancer and add Web01 into it
2. Open port 80 from your Load Balancer to your Web server (NSG)

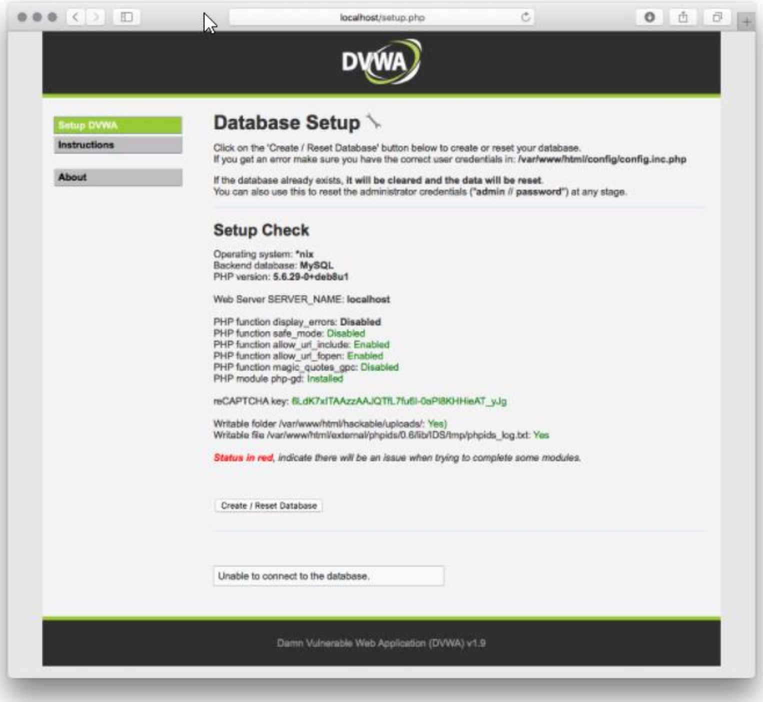
https://www.youtube.com/watch?v=-VMPzVoo5Nk



1. Test Connecting to the DVWA Using the Public IP of the Load Balancer
2. Log in following the below Instructions – Start reading where the images start, ignore everything before it

https://hub.docker.com/r/vulnerables/web-dvwa

machine:



Database Setup

Click on the 'Create / Reset Database' button below to create or reset your database.
If you get an error make sure you have the correct user credentials in: **/var/www/html/config/config.inc.php**

If the database already exists, **it will be cleared and the data will be reset**.
You can also use this to reset the administrator credentials ("**admin // password**") at any stage.

Setup Check

Operating system: ***nix**
Backend database: **MySQL**
PHP version: **5.6.29-0+deb8u1**

Web Server SERVER_NAME: **localhost**

PHP function display_errors: **Disabled**
PHP function safe_mode: Disabled
PHP function allow_url_include: Enabled
PHP function allow_url_fopen: Enabled
PHP function magic_quotes_gpc: Disabled
PHP module php-gd: Installed

reCAPTCHA key: 6LdK7xITAAzzAAJQTfL7fu6I-0aPl8KHHieAT_yJg

Writable folder /var/www/html/hackable/uploads/: Yes)
Writable file /var/www/html/external/phpids/0.6/lib/IDS/tmp/phpids_log.txt: Yes

Status in red, *indicate there will be an issue when trying to complete some modules.*

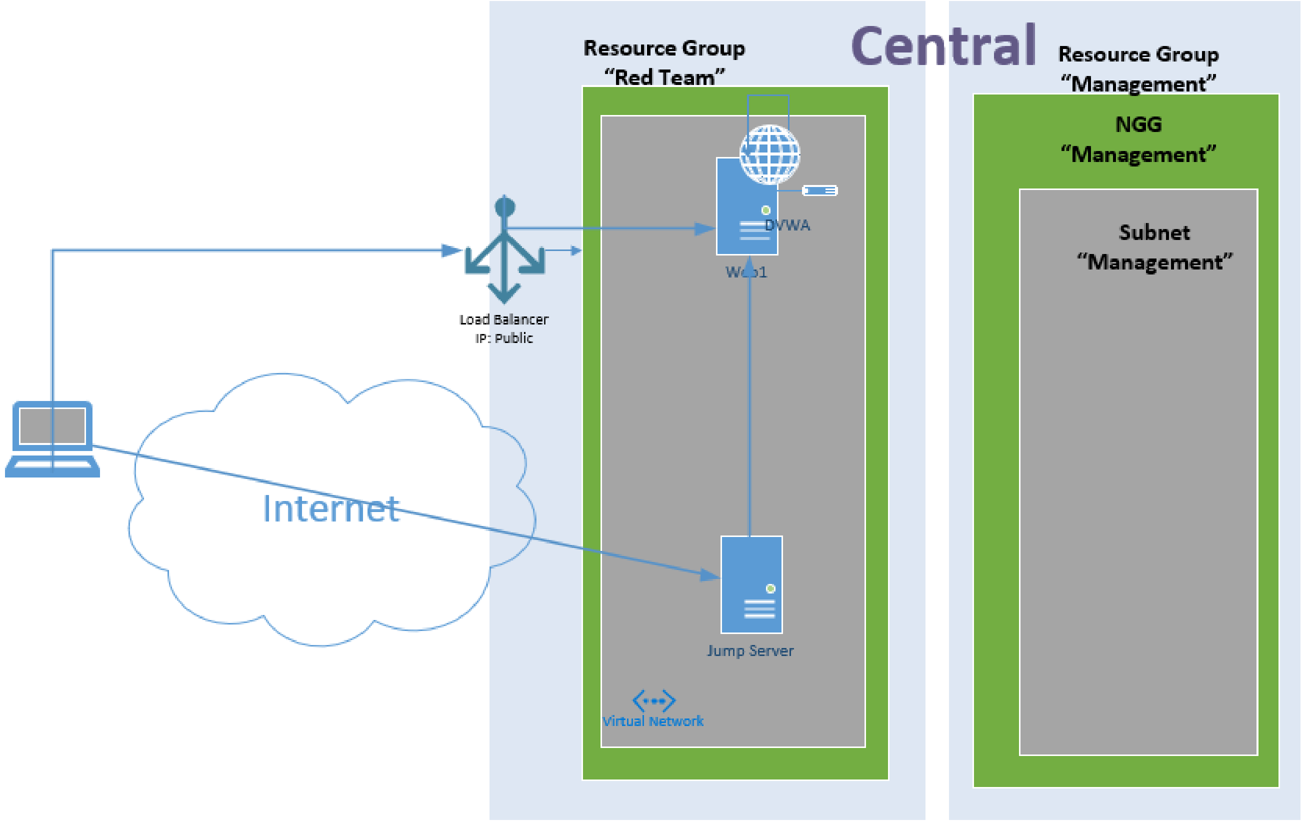
Unable to connect to the database.

Damn Vulnerable Web Application (DVWA) v1.9

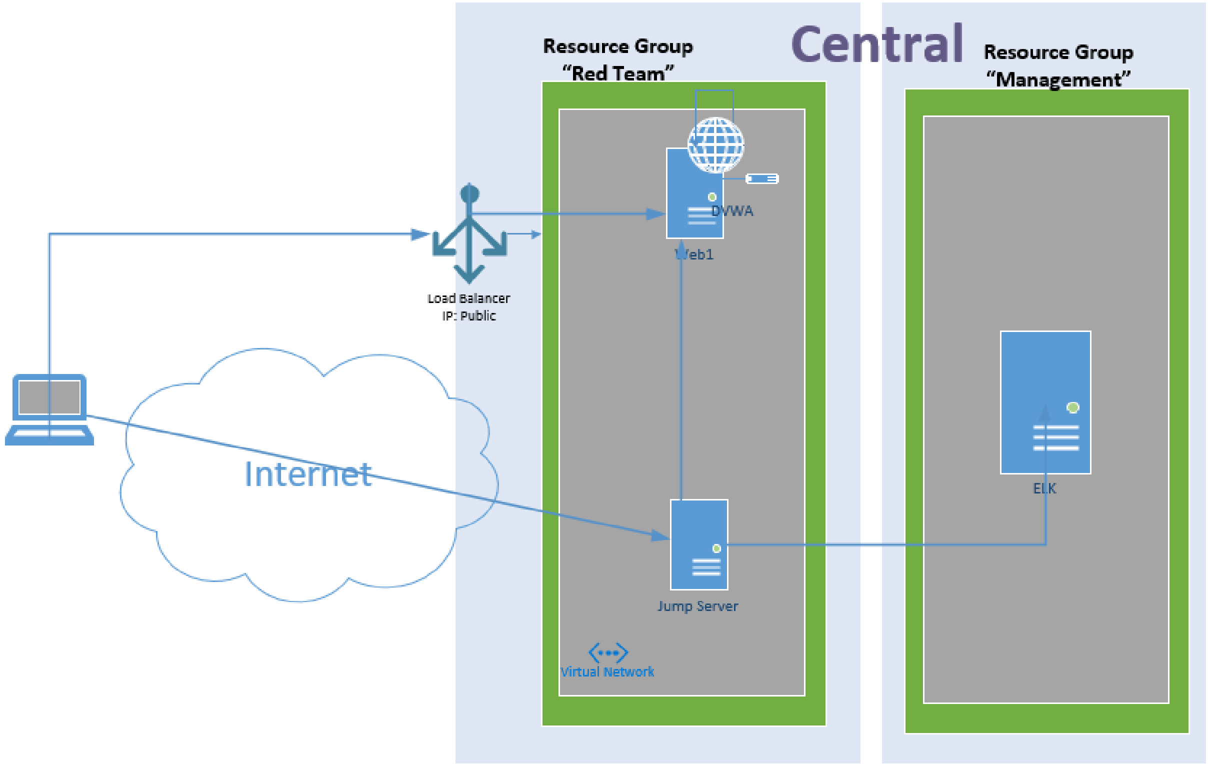
Just click on the `Create / Reset database` button and it will generate any aditional configuration needed.

Login with default credentials

1. Create New Resource Group – “Management”
2. Create New Subnet in Existing Virtual Network
3. Create New NSG - “Management” in Management Resource Group
4. Associate NSG to “Management” Subnet



1. Create a Simple New VM, in Resource Group “Management”, Called “ELK”.
Create a username and password and make sure the B series VM has 2 CPUs and 4gb of Memory
Make Sure you Don’t Create a NEW NSG as part of the Setup
Give it a Public IP
2. Verify you can SSH into it the new VM
3. Add "vm.max_map_count=262144" in /etc/sysctl.conf

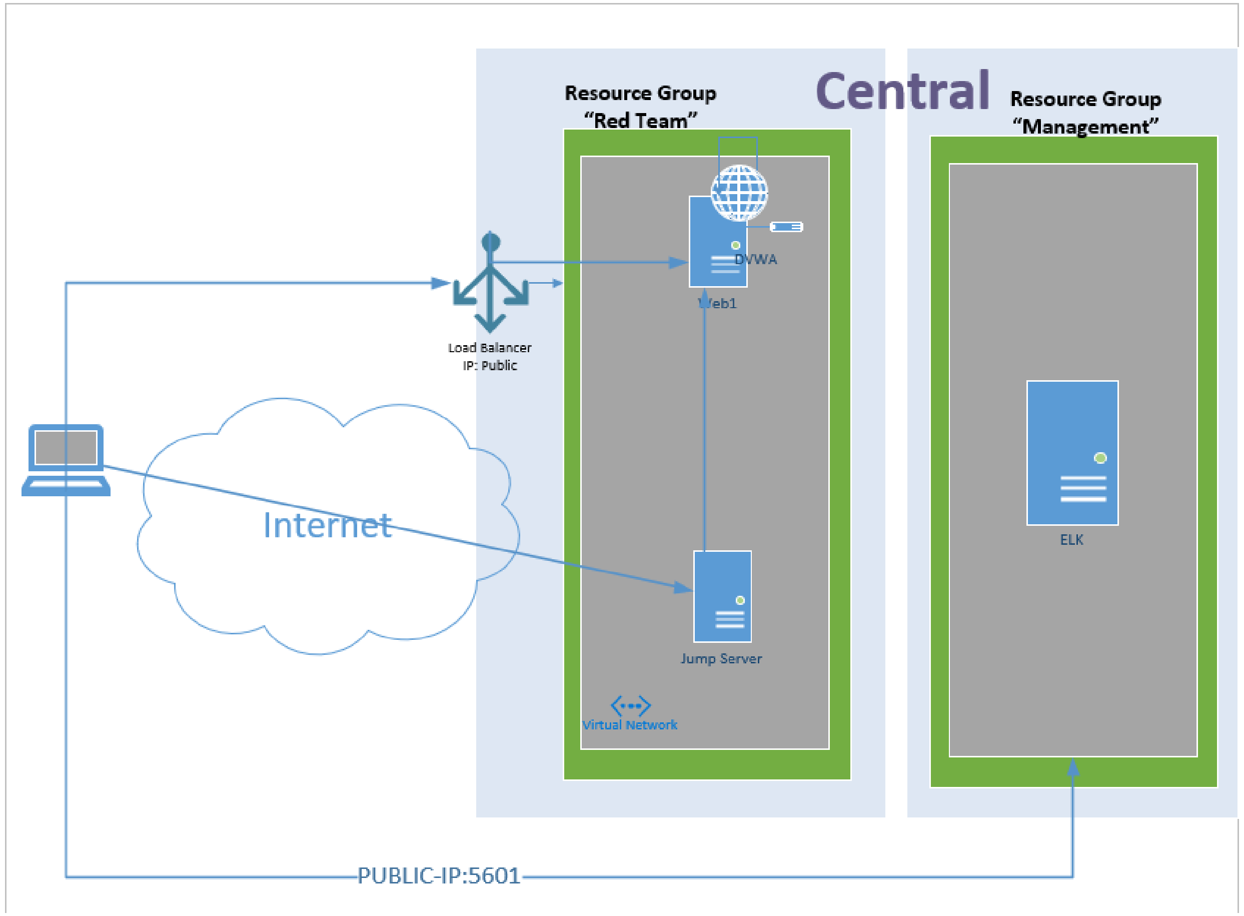


Install ELK

```
#!/bin/bash

if ! [ $(id -u) = 0 ]; then
  echo "The script need to be run as root." >&2
  exit 1
fi

if [ $SUDO_USER ]; then
   real_user=$SUDO_USER
else
   real_user=$(whoami)
fi
#Check to see if user is Root
#
apt-get update
apt-get upgrade
#Update and upgrade Current VM
#
apt install docker.io
#installs docker to box
#
apt install python3-pip
#installs python
#
apt install docker
#installs docker python module
#
sysctl -w vm.max_map_count=262144
#increases virtual memory
#
systemctl start docker
#starts docker
#
docker pull sebp/elk
#pulls docker elk
#
docker run -it -p 5601:5601 -p 9200:9200 -p 5044:5044 --restart always sebp/elk
#Create Image
#
```

Connect to ELK and Login

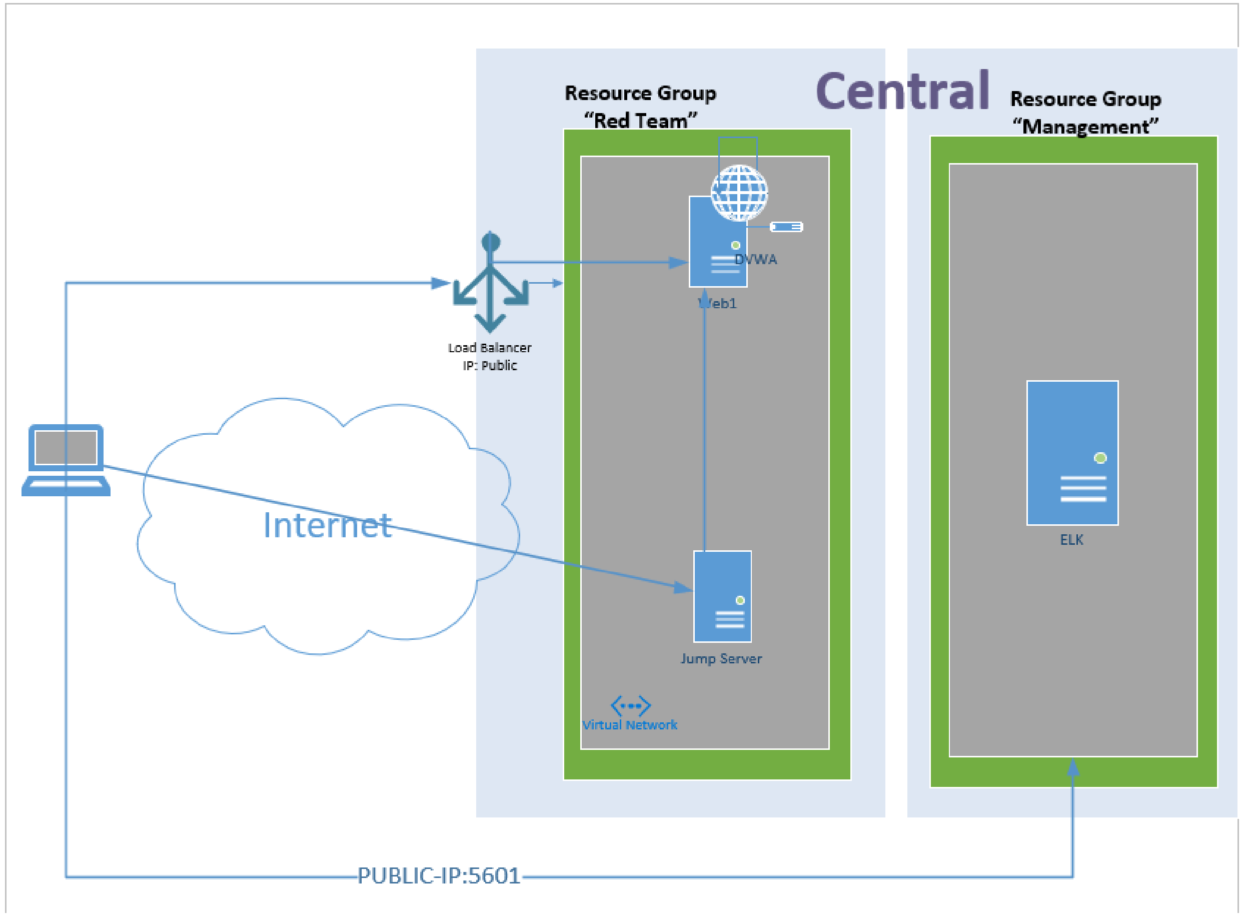
1. Modify the “management” NSG to Allow your Home IP to connect to the Elk Internal IP on port 5601
2. Browse to http://Your_IP:5601/app/kibana and Login to change the default password



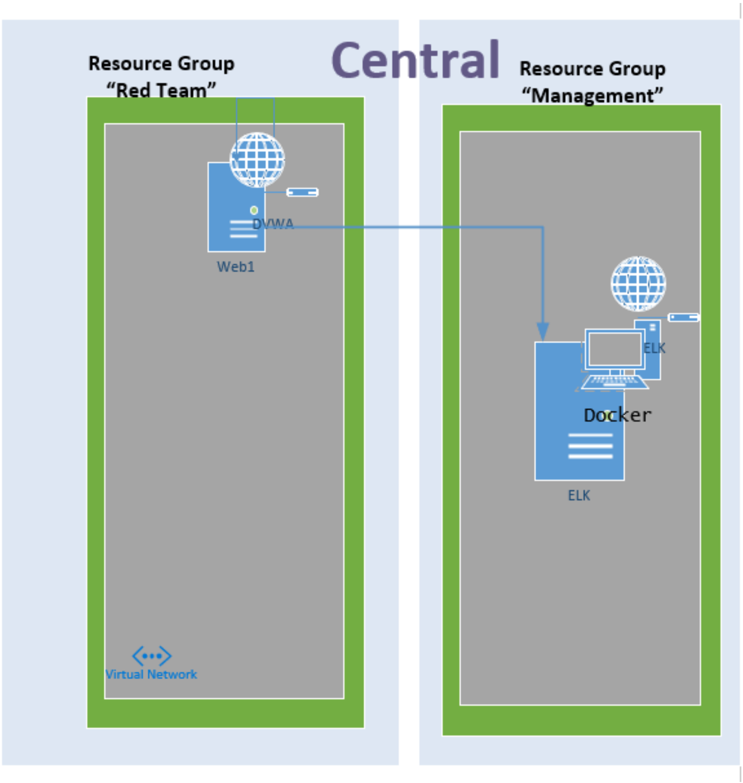
Day 1
Complete

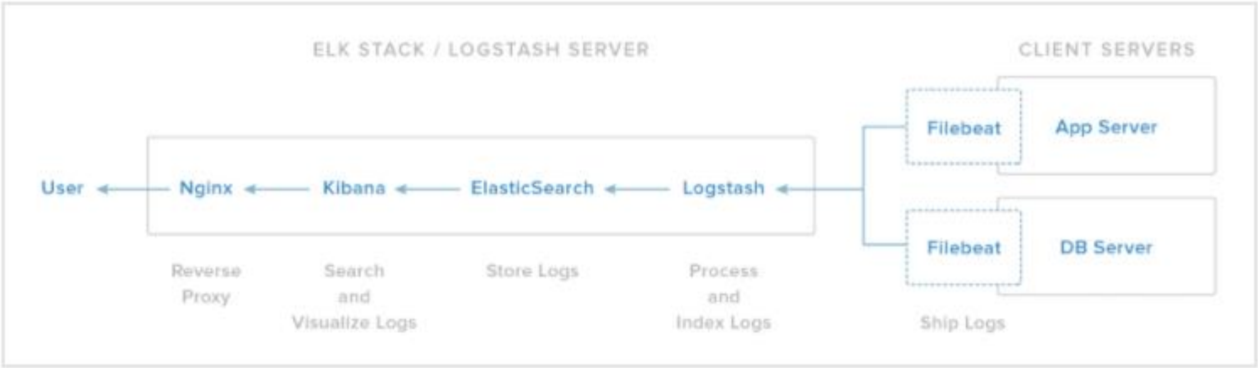
Day 2
Start

Where We Left Off

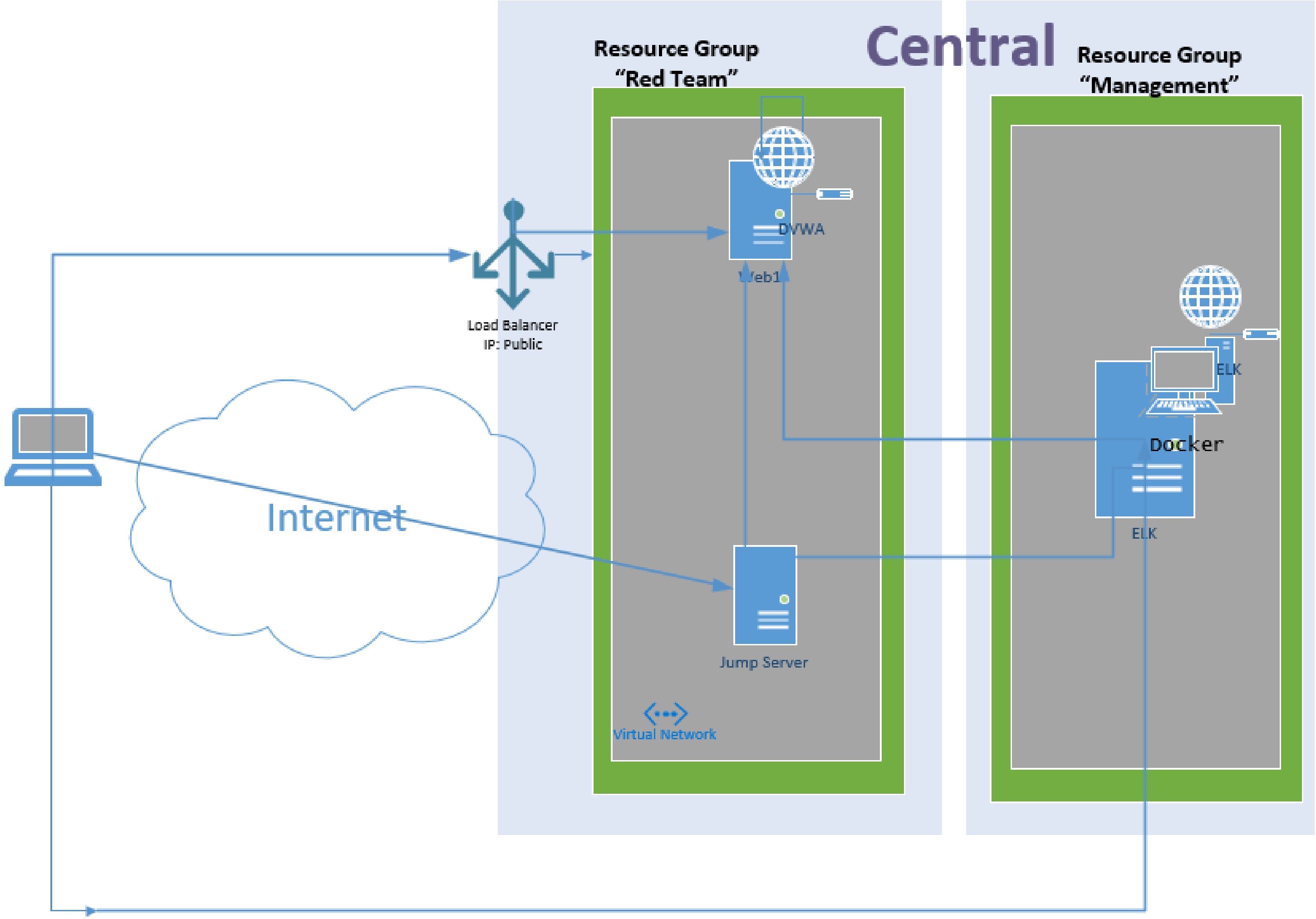


Goal
Push Logs from Web01 to ELK





By the End of Today You Should Have



Install File Beat on Web Server

1. SSH into the Web Server through the Jumpbox

```
#download filebeat
curl -L -O https://artifacts.elastic.co/downloads/beats/filebeat/filebeat-7.9.2-amd64.deb
#install filebeat
sudo dpkg -i filebeat-7.9.2-amd64.deb
```

ref: https://www.elastic.co/guide/en/beats/filebeat/6.8/filebeat-installation.html

Download the Config File, Move it, and Add Dest Server

```
#download
curl -O –L https://gist.githubusercontent.com/slape/5cc350109583af6cbe577bbcc0710c93/raw/eca603b72586fbe148c11f9c87bf96a63cb25760/Filebeat
#move
mv Filebeat /etc/filebeat/filebeat.yml
#open
Nano /etc/filebeat/filebeat.yml
#update Config to Point to ELK Server
```

Scroll to line #1106 and replace the IP address with the IP address of your ELK machine. And Update Password.

```
output.elasticsearch:
hosts: ["10.1.0.4:9200"]
username: "elastic"
password: "changeme"
```

Scroll to line #1806 and replace the IP address with the IP address of your ELK machine.

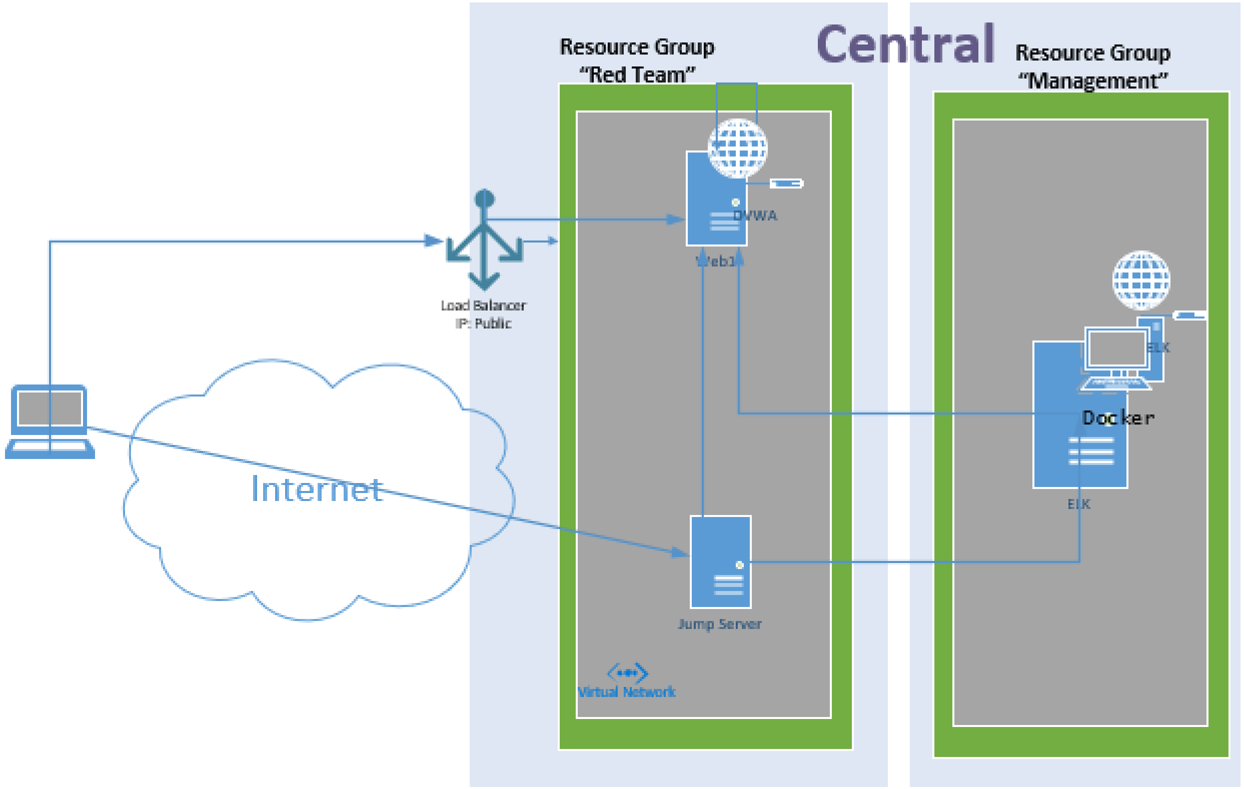
```
setup.kibana:
host: "10.1.0.4:5601"
```

Open Port On Management NSG and Start Service

1. In Azure, navigate to the Management NSG and Open the needed port from Web Server to ELK = *9200*
2. *After, Start the Filebeat on the Web Server*

```
filebeat modules enable system
filebeat setup
service filebeat start
```

Final Elk Project



Don’t Forget to…

Shutdown your VMs

Take Snapshots of each server
https://petri.com/copy-azure-vm-using-managed-disk-snapshots

Day 2
End

Day 3
Start

Home Work

- Create a Github Repository - https://www.youtube.com/watch?v=XtCcoMd6U_4

- Create and Add a Network Diagram
- The Firewall Spreadsheet with access rules
- The “why”

Day 3
End