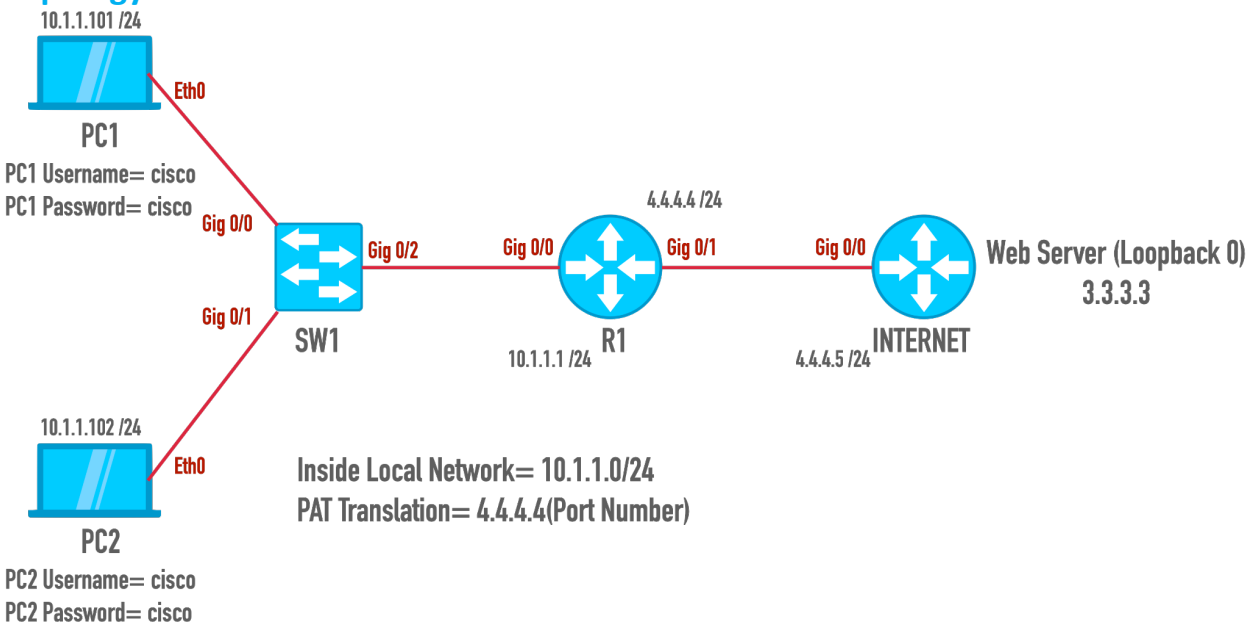
Port Address Translation (PAT)

Topology



Initial Configuration Commands

PC1:

```
sudo ifconfig eth0 10.1.1.101 netmask 255.255.255.0 up
sudo ip route default via 10.1.1.1
```

PC2:

```
sudo ifconfig eth0 10.1.1.102 netmask 255.255.255.0 up
sudo ip route default via 10.1.1.1
```

SW1:

```
enable
conf t
no ip domain-lookup
logging console
line con 0
logging synchronous
exec-timeout 0 0
hostname SW1
```

```
end
copy run star
```

R1:

```
enable
conf t
no ip domain-lookup
logging console
line con 0
logging synchronous
exec-timeout 0 0
hostname R1
int gig 0/0
no shutdown
ip address 10.1.1.1 255.255.255.0
int gig 0/1
no shutdown
ip address 4.4.4.4 255.255.255.0
router ospf 1
network 10.1.1.0 0.0.0.255 area 0
network 4.4.4.0 0.0.0.255 area 0
end
copy run star
```

INTERNET:

```
enable
conf t
no ip domain-lookup
logging console
line con 0
logging synchronous
exec-timeout 0 0
hostname INTERNET
int gig 0/0
no shutdown
ip address 4.4.4.5 255.255.255.0
int lo 0
ip address 3.3.3.3 255.255.255.255
router ospf 1
network 4.4.4.0 0.0.0.255 area 0
network 3.3.3.3 0.0.0.0 area 0
exit
line vty 0 15
```

```
transport input telnet
exit
ip http server
ip http secure-server
end
copy run star
```

Lab Tasks

- On R1, designate which interface will be the inside NAT interface and which will be the outside NAT interface.
- Identify the inside local network by use of an ACL.
- Specify that every IP address matching the ACL should be translated into a single IP address on the outside interface.
- Login to PC1 and PC2 (username= cisco, password= cisco) and test HTTP connectivity from both PCs and verify the translation on R1.

Solution

Step 1: On R1, designate which interface will be the inside NAT interface and which will be the outside NAT interface.

```
R1>en
R1#conf t
R1(config)#int gig 0/0
R1(config-if)#ip nat inside
R1(config-if)#int gig 0/1
R1(config-if)#ip nat outside
R1(config-if)#exit
```

Step 2: Identify the inside local network by use of an ACL.

```
R1(config)#access-list 1 permit 10.1.1.0 0.0.0.255
```

Step 3: Specify that every IP address matching the ACL should be translated into a single IP address on the outside interface.

```
R1(config)#ip nat inside source list 1 int gig 0/1 overload
R1(config)#end
```

Step 4: Login to PC1 and PC2 (username= cisco, password= cisco) and test HTTP connectivity from both PCs and verify the translation on R1.

PC1
inserthostname-here login: **cisco**
Password: **cisco**

inserthostname-here:~$ **telnet 3.3.3.3 80**
Connected to 3.3.3.3

PC2
inserthostname-here login: **cisco**
Password: **cisco**

inserthostname-here:~$ **telnet 3.3.3.3 80**
Connected to 3.3.3.3

```
R1#show ip nat translation
Pro Inside global      Inside local       Outside local      Outside global
tcp 4.4.4.4:41348      10.1.1.101:41348   3.3.3.3:80         3.3.3.3:80
tcp 4.4.4.4:60718      10.1.1.102:60718   3.3.3.3:80         3.3.3.3:80
(##Inside local address of PC1 and PC2 with port numbers)
(##Inside global address of PC1 and PC2 with port numbers)
```

(Note: Port numbers will differ in lab)