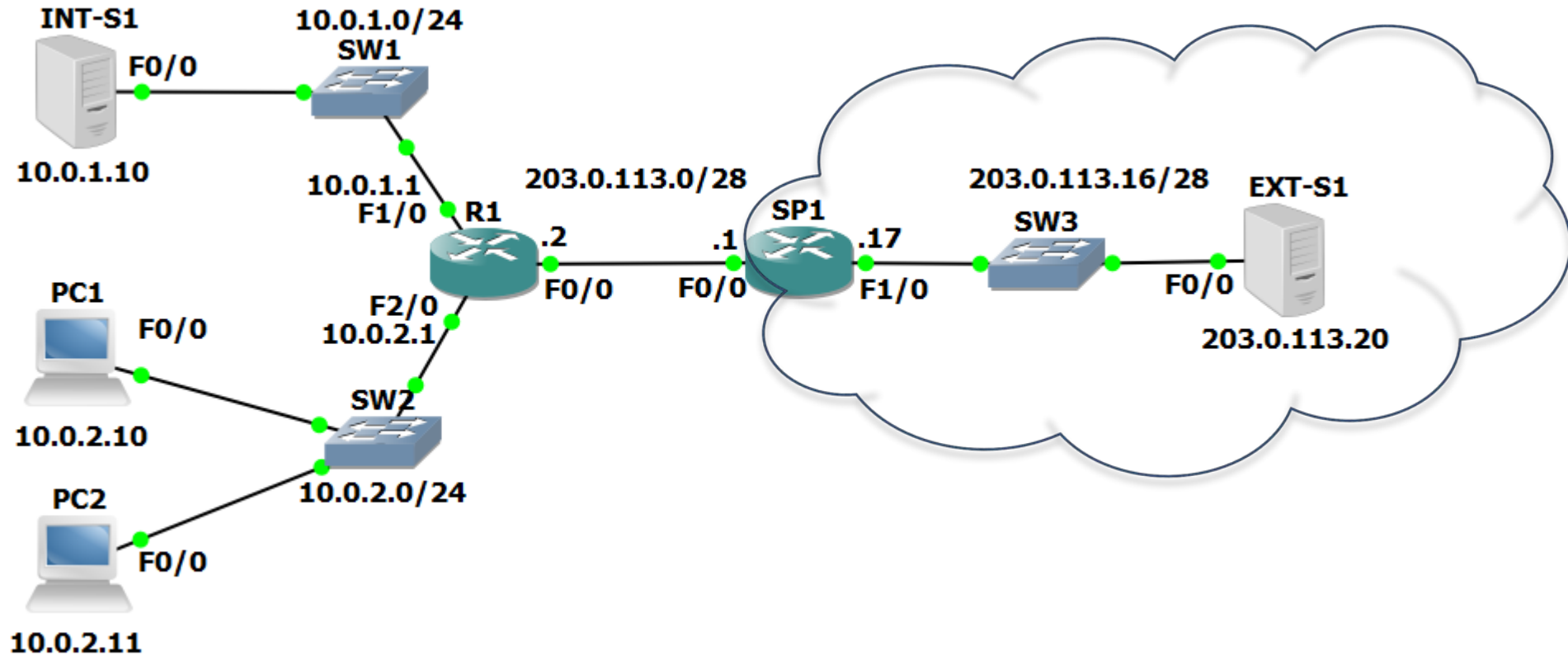


NAT Types



- **Static NAT** – permanent one-to-one mapping usually between a public and private IP address. Used for servers which must accept incoming connections.
- **Dynamic NAT** – uses a pool of public addresses which are given out on an as needed first come first served basis. Usually used for internal hosts which need to connect to the Internet but do not accept incoming connections.
- **PAT (Port Address Translation)** – allows the same IP address to be reused.

NAT Lab



Static NAT Scenario



- We have bought the range of public IP addresses 203.0.113.0/28 from our service provider
- 203.0.113.2 is used on the outside interface on our Internet edge router R1
- 203.0.113.1 is used as the default gateway address. It is the SP1 router on the other side of the link
- 203.0.113.3 – 203.0.113.14 remain available

Static NAT Scenario



- Int-S1 at 10.0.1.10 is an internal web server which needs to accept incoming connections from the Internet
- We need to assign a fixed public IP address to accept incoming connections. We will use the first available address 203.0.113.3
- A static NAT translation is required to translate the public IP address 203.0.113.3 on F0/0 to 10.0.1.10 on F1/0 for incoming connections
- The translation is bidirectional so will also translate 10.0.1.10 to 203.0.113.3 for outbound traffic from the server

Static NAT Configuration



```
R1(config)#int f0/0
```

```
R1(config-if)#ip nat outside
```

```
R1(config)#int f1/0
```

```
R1(config-if)#ip nat inside
```

```
R1(config)#ip nat inside source static 10.0.1.10 203.0.113.3
```

NAT Verification – show ip nat translation

```
R1#sh ip nat translation
```

Pro	Inside global	Inside local	Outside local	Outside global
icmp	203.0.113.3:1	10.0.1.10:1	203.0.113.20:1	203.0.113.20:1
tcp	203.0.113.3:80	10.0.1.10:80	203.0.113.20:45849	203.0.113.20:45849
---	203.0.113.3	10.0.1.10	---	---