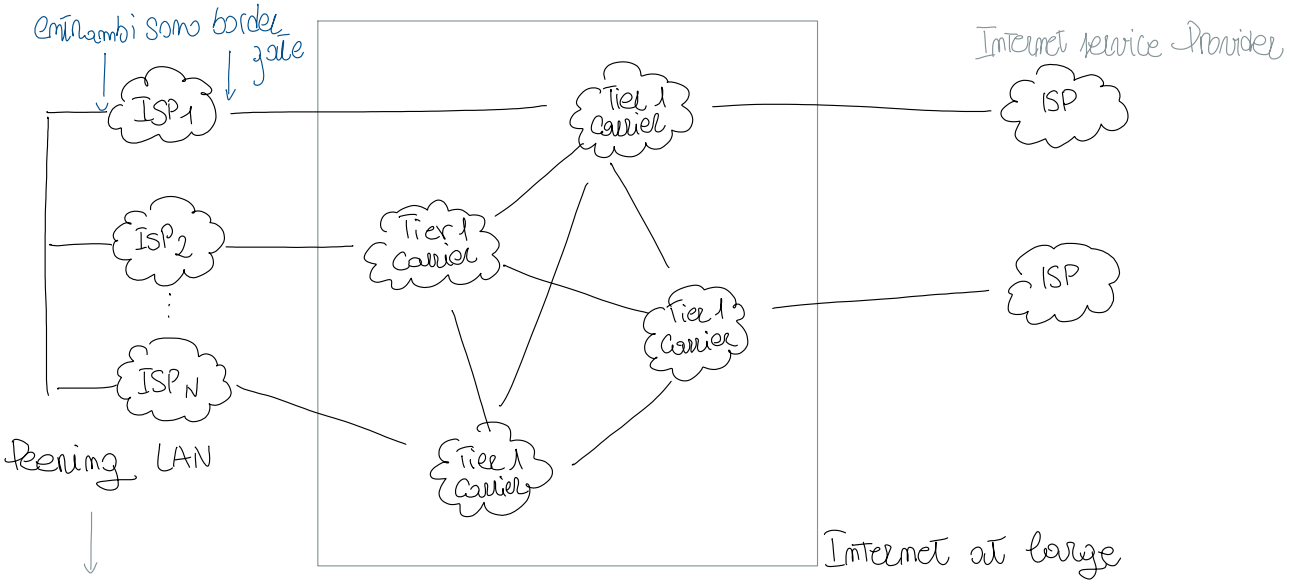
Lezione 31 - 18 05 18

Friday, May 18, 2018 08:25



(Neutral Access Point)

Border Gateway Routing Protocol v. 4 (BGP) — dinamico

↳ Annuncia gli indirizzi disponibili ad ogni router → attraverso un vettore di autonomous systems per cui può passare

È una gestione legata ai contratti fra gli ISP.

Address Allocation for Private Internets:

RFC 1918

Hosts within enterprises that use IP can be partitioned into three categories:

Category 1: hosts that do not require access to hosts in other enterprises or the Internet at large; hosts within this category may use IP addresses that are unambiguous within an enterprise, but may be ambiguous between enterprises.

Category 2: hosts that need access to a limited set of outside services (e.g., E-mail, FTP, netnews, remote login) which can be handled by mediating gateways (e.g., application layer gateways). For many hosts in this category an unrestricted external access (provided via IP connectivity) may be unnecessary and even undesirable for privacy/security reasons. Just like hosts within the first category, such hosts may use IP addresses that are unambiguous within an enterprise, but may be ambiguous between enterprises.

Category 3: hosts that need network layer access outside the enterprise (provided via IP connectivity); hosts in the last category require IP addresses that are globally unambiguous.

We will refer to the hosts in the first and second categories as "private". We will refer to the hosts in the third category as

"public".

Indirizzi privati:

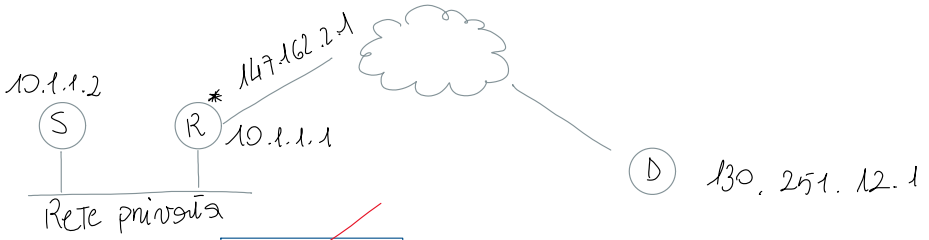
The Internet Assigned Numbers Authority (IANA) has reserved the following three blocks of the IP address space for private internets:

```
10.0.0.0        -   10.255.255.255  (10/8 prefix)
172.16.0.0      -   172.31.255.255  (172.16/12 prefix)
192.168.0.0     -   192.168.255.255 (192.168/16 prefix)
```

} pacchetti che arrivano ad un router con questi indirizzi vanno droppati

We will refer to the first block as "24-bit block", the second as "20-bit block", and to the third as "16-bit" block. Note that (in pre-CIDR notation) the first block is nothing but a single class A network number, while the second block is a set of 16 contiguous class B network numbers, and third block is a set of 256 contiguous class C network numbers.

NAT: (Network Address Translation)



S	10.1.1.2
D	130.251.12.1

anzichè uscire in rete

Per evitarlo il router mette il suo indirizzo pubblico

~~S~~	147.162.2.1
D	130.251.12.1

Il pacchetto torna però al router

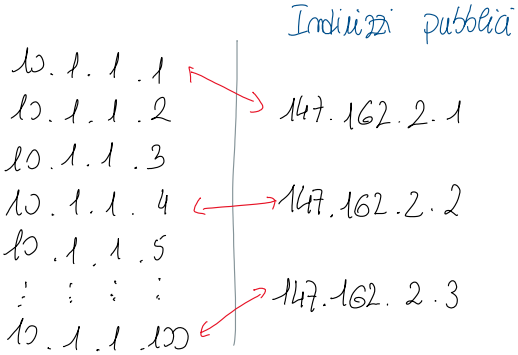
S	130.251.12.1
D	147.162.2.1

Il router deve ora sostituire il proprio indirizzo pubblico con il privato del mittente

S	130.251.12.1
D	10.1.1.2

Il router potrebbe:

- mappare ad ogni indirizzo privato un indirizzo pubblico del router (NAT PURO)



- guardare il contenuto dei pacchetti per creare una mappa dinamica

ICMP	ID	SEQ.	10.1.1.2

Quando torna ICMP di risposta guarda la tabella

Lavorando con Port → il router ne genera lui uno (new port)

IP sorg
Port sorg
IP dest
Port dest
Richiesta

dest IP
dest Port
new port

↓

private IP
private port

} chiave di ricerca quando arriva un pacchetto