Week 3

**First step**  
  
1) 26 subnetworks needed at moment

2) around 35 subnetwokrs in the close future (about 5 years)  
3) 564 hosts

4) 650 in future

**Second step**

2^S >=35; 2^6=64; S=6;

2^H-2>=650; 2^10=1024; H=10;

**64 subnetworks with 1022 hosts/subnetwork**

**Third step**

Subnet mask 255.255.0.0 by default

255.255.252.0 or 1111 1111.1111 1111.1111 1100.0000 0000 or /22

**Fourth step**

Class B: 255.255.252.0

Chosen IP 168.191.0.0 / 1010 1000 . 1011 1111 . 0 . 0

|  |  |  |
| --- | --- | --- |
| Subnetwork | ID Subnetwork | IP address subnetwork |
| #0 | 000000 | 1010 1000 . 1011 1111 . 000000 00. 0000 0000 |
| #1 | 000001 | 1010 1000 . 1011 1111 . 000001 00. 0000 0000 |
| ... | … | … |
| #25 | 011001 | 1010 1000 . 1011 1111 . 011001 00. 0000 0000 |
| … |  |  |
| #63 | 111111 | 1010 1000 . 1011 1111 .111111 00. 0000 0000 |

#0-#63 = 64 subnetworks available (required 26)

IP range: 168.191.0.0-168.191.252.0

252=63\*4 Increment no: **4**

**Fifth step**

Reteaua 168.161.191.0.0 subnetata \22

2^10-2=1024-2=1022 hosts Binary IP address: 10101000.10111111.000000 00.0000 0000

|  |  |  |  |
| --- | --- | --- | --- |
| Subnetwork | Subnetwork IP | Domain Address | Broadcast Address |
| #0 | 168.191.0.0 | 168.191.0.1-168.191.3.254 | 168.191.3.255 |
| #1 | 168.191.4.0 | 168.191.4.1-168.191.7.254 | 168.191.7.255 |
| #2 | 168.191.8.0 | 168.191.8.1-168.191.11.254 | 168.191.11.255 |
| #3 | 168.191.12.0 | 168.191.12.1-168.191.15.254 | 168.191.15.255 |
| #4 | 168.191.16.0 | 168.191.16.1-168.191.19.254 | 168.191.19.255 |
| #5 | 168.191.20.0 | 168.191.20.1-168.191.23.254 | 168.191.23.255 |
| … | … | … | … |
| #25 | 168.191.100.0 | 168.191.100.1-168.191.103.254 | 168.191.103.255 |
| … | … | … | … |
| #63 | 168.191.252.0 | 168.191.252.1-168.191.255.254 | 168.191.255.255 |