##### **Network IP:**

##### **39.95.80.0**

##### **Mask:**

##### **255.255.240.0 (/20)**

##### **Sub networks:**

* N1: 960 IP's
* N2: 704 IP's
* N3: 256 IP's
* N4: 320 IP's
* N5: 64 IP's

What other networks you need ?

|  |  |  |  |
| --- | --- | --- | --- |
| Retea | Ip-uri necesare | Dimensiune clasa de adrese | Netmask |
| N1  39.95.80.0/22 | 960 + 1 (retea) + 1 (bcast) + 1 (default gateway) = 963 | 1024=2^10 | /22 |
| N2 39.95.84.0/22 | 704+1+1+1=707 | 1024 =2^10 | /22 |
| N3  39.95.88.0/23 | 256+1+1+1=259 | 512=2^9 | /23 |
| N4 39.95.90.0/23 | 320+1+1+1=323 | 512 =2^9 | /23 |
| N5  39.95.92.0/25 | 64+1+1+1=67 | 128=2^7 | /25 |
| ... |  |  |  |

39.95.80.0/20

Netmask = /20 = 11111111.11111111.11110000.00000000

=> 2^(32-20) = 2^12 = numarul de ip-uri din aceasta clasa de adrese

DIMENSIUNEA UNEI CLASE DE ADRESE este 2^(numarul de 0-uri din NETMASK)

* Adresa de retea: 39.95.80.0 AND 255.255.240.0 = 39.95.80.0
* Adresa de bcast: 39.95.80.0 OR 0.0.15.255 = 39.95.95.255

NOT NETMASK: 00000000.00000000.00001111.11111111

80=01010000b

01010000b OR  
00001111b  
---------------  
01011111b = 95

39.95.80.0/20 => are 2^12 ip-uri => o impart in 2 subclase de 2^11 ip-uri fiecare

* 39.95.80.0/21 (39.95.80.0 … 39.95.87.255)
  + 39.95.80.0/22 => are 2^10 ip-uri = 2^8 \* 2^2
  + 39.95.84.0/22
* 39.95.88.0/21 (39.95.88.0 … 39.95.95.255)
  + 39.95.88.0/22
    - 39.95.88.0/23 => 2^9 ip-uri = 2^8 \* 2^1
    - 39.95.90.0/23
  + 39.95.92.0/22
    - 39.95.92.0/23
      * 39.95.92.0/24
        + 39.95.92.0/25
        + 39.95.92.128/25

...

* + - * 39.95.93.0/24
    - 39.05.94.0/23

**Metoda 1**

39.95.80.0 OR NOT/21 = 39.95.87.255

/21 = 11111111.11111111.11111000.00000000

NOT /21 = 00000000.00000000.00000111.11111111

01010000b OR  
00000111b  
---------------  
01010111b = 87

**Metoda 2**

39.95.80.0/21 => 2^11 ip-uri = 2^8 \* 2^3

Ultimul octet se schimba de 2^8 ori

Penultimul octet se schimba de 2^3 ori

=> urmatoarea clasa de adrese incepe la adresa 39.95.88.0