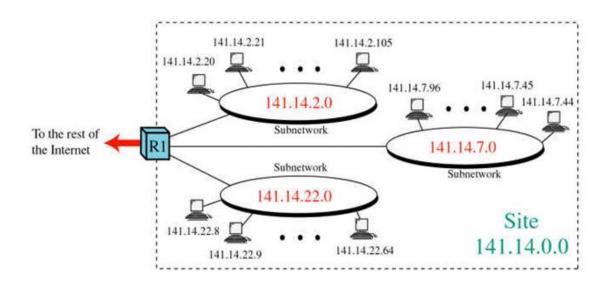
Subnetting

IP network bisa dibagi menjadi subnet yang lebih kecil.

Dengan subnet sebuah LAN dapat dipecah agar mudah dimanage.



Ada 2 tipe dari subnetting yaitu: Static Subnetting Variable Length Subnet Mask (VLSM)

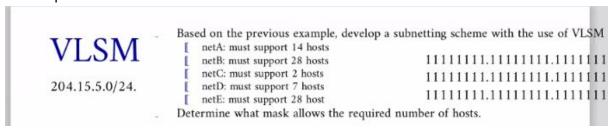
Contoh pembahasan static subnetting di kelas sinkronus pada tanggal 11 November

Network Address (NA)	4 th Octet of NA (in binary)	Subnet Mask	First Host	Last Host	
204.17.5.0	x.x.x. <mark>000</mark> 00000	255.255.255.224	x.x.x.1	x.x.x.30	0-31
204.17.5.32	x.x.x. <mark>001</mark> 00000	255.255.255.224	x.x.x.33	x.x.x.62	32-63
204.17.5.64	x.x.x.01000000	255.255.255.224	x.x.x.65	x.x.x.94	64-95
204.17.5.96	x.x.x.01100000	255.255.255.224	x.x.x.97	x.x.x.126	96-12
204.17.5.128	x.x.x.10000000	255.255.255.224	x.x.x.129	x.x.x.158	
204.17.5.160	x.x.x.10100000	255.255.255.224	x.x.x.161	x.x.x.190	
204.17.5.192	x.x.x.11000000	255.255.255.224	x.x.x.193	x.x.x.222	
204.17.5.224	x.x.x.11100000	255.255.255.224	x.x.x.225	x.x.x.254	
	2n - 2 = 25-2=30		4444 4444	x.x.x = 204	7.157-5-5
	t = $2^m = 2^3 = 8 \text{ So}$ for network id		5.255.255.22		1100000
		128			
		64 32			

Untuk membagi menjadi 8 subnet, diperlukan 3 bit untuk diubah. Setiap bagian, terdapat bit untuk network dan broadcast sehingga terjadi pengurangan 2 bit untuk setiap host subnet.

```
Example
                                                             2 = 2^1 => 1 bit
                                                             4 = 2^2 = 2 bit
                                                             6 -> 8 = 2^3 => 3 bit
              Given network of 204.17.5.0/24. Create two
               network subnet:
                                              hostbit = 8 bit
                                              total alamat = 2^8 = 256
                                              jumlah host yang bisa ditampung = 2^8 - 2 = 254
  204.17.5.0-255 Before subnetting:
                 204.17.5.0
                                           11001100.00010001.00000101.00000000
network: 204.17.5.0
broadcast: 204.17.5.255 255.255.255.0
                                           11111111.111111111.111111111.000000000
first host: 204.17.5.1
last host: 204.17.5.254
                 After subnetting with two subnet
                                           11001100.00010001.00000101.00000000
       subnet-0 204.17.5.0
                 255.255.255.128
                                           204.17.5.128
                                           11001100.00010001.00000101.10000000
        subnet-1 255.255.255.128
                                           subnet-0, hostbit = 7, total=2^7 (204.17.5.0-127) host=2^7-2=126
                                                        subnet-1, hostbit = 7, total=2^7 (204.17.5.128-255) host=2^7-2=126
         network: 204.17.5.0
                                                        network: 204.17.5.128
         broadcast: 204.17.5.127
                                                        broadcast: 204.17.5.255
         first host: 204.17.5.1
                                                        first host: 204.17.5.129
         last host: 204.17.5.126
                                                        last host: 204.17.5.154
```

Contoh pembahasan VLSM:



	ubnet.	Kebutuhai Host		butuhan t(2*n-2)	(21		n-host		ork bit nost bit)	Subnet mask /x	Subnet mask Decimal	
A		14		14	16		4		28	/28	255.255.255.240	
	В	28		30	32	!	5		27	/27	255.255.255.224	
	C	2		2	4		2		30	/30	255.255.255.252	
	D	7		14	16	i	4		28	/28	255.255.255.240	
	Е	28		30	32		5		27	/27	255.255.255.224	
ibne t	Kebutubar host(2*n- 2)		Subnet mask /x		t mask imal	All Add	ress	Network Address		Broadcast Address	First Host Address	Last Host Addre
A	14	16	/28	255.255	.255.240	64-7	9	204.15.5.64	204	1.15.5.79	204.15.5.65	
В	30	32	/27	255.255	.255.224	0-31		204.15.5.0	15.5.0 204.15.5		204.15.5.1	204.15.5.78
С	2	4	/30	255.255	.255.252	96-9	9	204.15.5.96	15.5,96 204.		204.15.5.97	204,15.5.30
D	14	16	/28	255.255	.255.240	80-9	5	204.15.5.80	.15.5.80 204.15.5.9		204.15.5.81	204.15.5.98
Е	30	32	/27	255.255	.255.224	32-6	3	204.15.5.32	204	1.15.5.63	204.15.5.33	204.15.5.94
								0				204.15.5.62

Pada VLSM terjadi pembagian sesuai kebutuhan host pada setiap subnet. Pada pembahasan tersebut, subnet dengan jumlah host terbanyak akan mendapatkan prioritas address terlebih dahulu. Pada contoh tersebut, host B mendapatkan address dari 0-31