

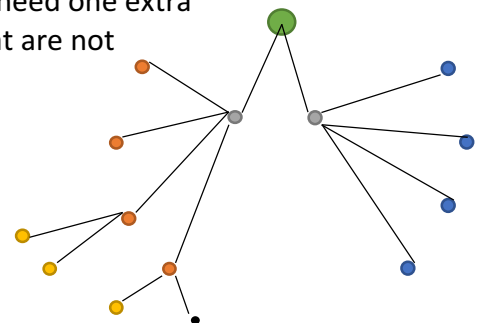
Major Network: 200.88.202.0/23

SUBNET NAME	NEEDED SIZE	ALLOCATED SIZE	ADDRESS	MASK	DEC MASK	ASSIGNABLE RANGE	BROADCAST
ARAN	56	62	200.88.202.0	/26	255.255.255.192	200.88.202.1-200.88.202.62	200.88.202.63
JUPITER	56	62	200.88.202.64	/26	255.255.255.192	200.88.202.65-200.88.202.126	200.88.202.127
PATRICIA	56	62	200.88.202.128	/26	255.255.255.192	200.88.202.129-200.88.202.190	200.88.202.191
SAGA	56	62	200.88.202.192	/26	255.255.255.192	200.88.202.193-200.88.202.254	200.88.202.255
SANTOS	56	62	200.88.203.0	/26	255.255.255.192	200.88.203.1-200.88.203.62	200.88.203.63
SVEA	56	62	200.88.203.64	/26	255.255.255.192	200.88.203.65-200.88.203.126	200.88.203.127
LINDHOLMEN	24	30	200.88.203.128	/27	255.255.255.224	200.88.203.129-200.88.203.158	200.88.203.159
RAMBERGET	24	30	200.88.203.160	/27	255.255.255.224	200.88.203.161-200.88.203.190	200.88.203.191
SCIENCE PARK	24	30	200.88.203.192	/27	255.255.255.224	200.88.203.193-200.88.203.222	200.88.203.223

Comments:

Firstly, I account for 100% expandability in each subnet. This means that 12 addresses for the backbones becomes 24 and the closest is 2 to the power of 4 which is equal to 32. The 28 addresses for the schools will be 56 addresses and the closest is 2 to the power of 5 which is equal to 64. I then calculate $64 * 6 + 32 * 3 = 480$. If I divide 480 by 256 (number of ip addresses in each subnet) I get 1.875. From this I conclude that I will need both 200.88.202 and 200.88.203. By releasing one bit, 200.88.202.0/23 I get both these options. Then I just start at 200.88.202.0 and add up with 64 until I can't fit 64 bits anymore. When this happens I start adding from 200.88.203.0 with 64 until there are no more 64 sized networks, then I take the 32 sized networks and add them.

To calculate the subnets I took the ip addresses ending with 202(gray dot to the right) and 203 (gray dot to the left) and divided them in to four groups, blues and reds. By dividing 202 and 203 in 4 parts I need to mask /26 of those addresses. But we still have 3 remaining addresses (yellows) wich need to be masked. To mask those we need one extra bit therefore the mask will be /27. The black dot is addresses that are not used.



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