**Anthony’s Potato Chip Company**

Base Network: 172.16.0.0

No. of subnets = 3

No. of subnets = 2^n

2^n >= 3. **🡪**We need a no. greater than 03, so, n = 2

2^2 = 4.

Subnet-Mask of Class C = 255.255.0.0.

In Binary Form:

Subnet-Mask of Class B = 11111111.11111111. 00000000.00000000

After Borrowing 2 bits from host bites. New Subnet-Mask of Class C:

= 11111111.11111111.11000000.00000000

New Subnet-Mask of Class C = 255.255.192.0

**Block Size (increment) = 64.**

**1st Subnet:**

**Network 172.16.0.0 with a subnet mask of 255.255.192.0 (or /18). This subnet mask allows for three subnets:**

1. **Headquarter Sales (VLAN 1)**
   * **Network ID: 172.16.0.0**
   * **Subnet Mask: 255.255.192.0 (/18)**
   * **Broadcast ID: 172.16.63.255**
   * **Usable IP Range: 172.16.1.1 to 172.16.62.254**
2. **Escondido Sales Office (VLAN 3)**
   * **Network ID: 172.16.64.0**
   * **Subnet Mask: 255.255.192.0 (/18)**
   * **Broadcast ID: 172.16.127.255**
   * **Usable IP Range: 172.16.65.1 to 172.16.126.254**
3. **Alpine Manufacturing and Production (VLAN 2)**
   * **Network ID: 172.16.128.0**
   * **Subnet Mask: 255.255.192.0 (/18)**
   * **Broadcast ID: 172.16.191.255**
   * **Usable IP Range: 172.16.129.1 to 172.16.190.254**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **VLAN** | **Subnet** | **Network ID** | **Subnet Mask** | **Broadcast ID** | **Usable IP Range** |
| **1** | **Head**  **Sales** | **172.16.0.0** | **255.255.192.0 (/18)** | **172.16.63.255** | **172.16.1.1 to 172.16.62.254** |
| **2** | **Escondido**  **Sales** | **172.16.64.0** | **255.255.192.0 (/18)** | **172.16.127.255** | **172.16.65.1 to 172.16.126.254** |
| **3** | **Alpine**  **Mfg.** | **172.16.128.0** | **255.255.192.0 (/18)** | **172.16.191.255** | **172.16.129.1 to 172.16.190.254** |

**1st Subnet:**

**Headquarter Sales 🡺 vlan 1**

Network I’d = 172.16.0.0 Add block size

Broadcast I’d = 172.16.63.255 Previous no. of the next network I’d

Host Range = 172.16.1.1 to 172.16.62.254 In between network and broadcast I’d

**2nd subnet:**

**Alpine Manufacturing and Production 🡺 vlan 2**

Network I’d = 172.16.64.0 Add block size

Broadcast I’d = 172.16.127.255 Previous no. of the next network I’d

Host Range = 172.16.65.1 to 172.16.126.254 In between network and broadcast I’d

**3rd Subnet:**

**Escondido Sales Office LAN 🡺 vlan 3**

Network I’d = 172.16.128.0 Add block size

Broadcast I’d = 172.16.191.255 Previous no. of the next network I’d

Host Range = 172.16.129.1 to 172.16.190.254 In between network and broadcast I’d