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#3

IP Segmentation Plan

To create an IP address management and segmentation plan for an organization with eight departments, we'll use the given Class A address space 10.0.0.0/8 and subnet it appropriately to meet the requirements of at least 200 available IP addresses for each department. We'll use a conservative approach to allocate subnets to ensure growth and easy management. Since each department requires at least 200 addresses, a /24 subnet (which provides 254 usable addresses) for each department will be sufficient and simple to manage.

### Addressing Scheme Overview:

Base IP Address: 10.0.0.0/8

Subnet Size for Departments: /24 (255.255.255.0)

Each /24 Subnet Provides: 1 Network Address + 254 Host Addresses + 1 Broadcast Address

### Building 1:

1. \*\*Accounting\*\*

- Network Address: 10.0.1.0/24

- Usable IP Range: 10.0.1.1 to 10.0.1.254 (254 addresses)

- Broadcast Address: 10.0.1.255

2. \*\*Sales\*\*

- Network Address: 10.0.2.0/24

- Usable IP Range: 10.0.2.1 to 10.0.2.254 (254 addresses)

- Broadcast Address: 10.0.2.255

3. \*\*Customer Service\*\*

- Network Address: 10.0.3.0/24

- Usable IP Range: 10.0.3.1 to 10.0.3.254 (254 addresses)

- Broadcast Address: 10.0.3.255

4. \*\*Maintenance\*\*

- Network Address: 10.0.4.0/24

- Usable IP Range: 10.0.4.1 to 10.0.4.254 (254 addresses)

- Broadcast Address: 10.0.4.255

### Building 2:

5. \*\*Operations\*\*

- Network Address: 10.0.5.0/24

- Usable IP Range: 10.0.5.1 to 10.0.5.254 (254 addresses)

- Broadcast Address: 10.0.5.255

6. \*\*Executive\*\*

- Network Address: 10.0.6.0/24

- Usable IP Range: 10.0.6.1 to 10.0.6.254 (254 addresses)

- Broadcast Address: 10.0.6.255

7. \*\*Supply\*\*

- Network Address: 10.0.7.0/24

- Usable IP Range: 10.0.7.1 to 10.0.7.254 (254 addresses)

- Broadcast Address: 10.0.7.255

8. \*\*Research and Development\*\*

- Network Address: 10.0.8.0/24

- Usable IP Range: 10.0.8.1 to 10.0.8.254 (254 addresses)

- Broadcast Address: 10.0.8.255