**IT Solutions Network Setting Up a Network**

Our company was approached by an organization to come up with a network solution that would efficiently suite there business requirements. They require implementation of multiple VLAN’s on the network to provide redundant reliable service to all their employees and clients. The network we will be implementing will consist of the following equipment: 6 routers, 4 switches, one primary domain controller, one backup domain controller, several windows client machines spread across the two subnets, at least three windows client machines set up in their own VLAN(for audio and video streaming), a Linux server running Clonezilla software, and two printers set up in the printer pool.

The purpose of multiple subnets is to make the network run a lot smoother, as well as split up the two VLANS: staff and student. The purpose of setting up the VLAN’s is so that remote end devices can still access all of the network resources they are required to

**IP Addressing Scheme**

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| --- | --- | --- | --- | --- | --- |
| DEVICE | INTERFACE | IPv4 | SUBNET MASK | IPv6 | DEFAULT GATEWAY |
| Core1 | G0/0 | 172.16.6.1 | 255.255.255.0 | 2001:db8:1:6::1/64 | N/A |
|  | S0/0/0 | 172.16.1.1 | 255.255.255.0 | 2001:db8:1:1::1/64 | N/A |
|  | S0/0/1 | 172.16.2.1 | 255.255.255.0 | 2001:db8:1:2::1/64 | N/A |
| Core2 | G0/0 | 172.16.6.2 | 255.255.255.0 | 2001:db8:1:6::2/64 | N/A |
|  | S0/0/0 | 172.16.3.2 | 255.255.255.0 | 2001:db8:1:3::1/64 | N/A |
|  | S0/0/1 | 172.16.4.1 | 255.255.255.0 | 2001:db8:1:4::1/64 | N/A |
| Default1 | G0/0 | 172.16.10.1 | 255.255.255.0 | 2001:db8:1:10::1/64 | N/A |
|  | S0/0/0 | 172.16.1.2 | 255.255.255.0 | 2001:db8:1:1::2/64 | N/A |
| Backup1 | G0/0 | 172.16.10.2 | 255.255.255.0 | 2001:db8:1:10::2/64 | N/A |
|  | S0/0/0 | 172.16.2.2 | 255.255.255.0 | 2001:db8:1:2::1/64 | N/A |
| Default2 | G0/0 | 172.16.20.1 | 255.255.255.0 | 2001:db8:1:20::1/64 | N/A |
|  | S0/0/0 | 172.16.3.2 | 255.255.255.0 | 2001:db8:1:3::2/64 | N/A |
| Backup2 | G0/0 | 172.16.20.2 | 255.255.255.0 | 2001:db8:1:20::2/64 | N/A |
|  | S0/0/0 | 172.16.4.2 | 255.255.255.0 | 2001:db8:1:4::2/64 | N/A |
| Clone  Switch | VLAN 5 | 172.16.6.3 | 255.255.255.0 | 2001:db8:1:6::3/64 | N/A |
|  | VLAN 25 | NULL | NULL | NULL | NULL |
| Staff  Switch | VLAN 10 | 172.16.10.3 | 255.255.255.0 | 2001:db8:1:10::3/64 | N/A |
|  | VLAN 20 | NULL | NULL | NULL | NULL |
| Student  Switch | VLAN 20 | 172.16.20.3 | 255.255.255.0 | 2001:db8:1:20::3/64 | NULL |
| PDC/DNS/DHCP/TFTP | Fa0/0 | 172.16.6.4 | 255.255.255.0 | 2001:db8:1:6::4/64 | 172.16.6.3 |
| Active  Directory  Server | NULL | NULL | NULL | NULL | NULL |
| Clone  Server | Fa0/0 | 172.16.6.5 | 255.255.255.0 | 2001:db8:1:6::5/64 | N/A |
| PC0 |  |  |  |  |  |
| PC1 |  |  |  |  |  |
| LAPTOP0 |  |  |  |  |  |
| PC2 |  |  |  |  |  |
| PC3 |  |  |  |  |  |
| LAPTOP1 |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
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