



Number of Required Hosts Per Location: 375
Number of Available Hosts per Subnet: 1,022

	Subnet IP Address	Useable Range	Subnet Mask	CIDR Value	Broadcast Address
Default VLAN	172.16.0.0	172.16.0.1 - 172.16.3.254	255.255.252.0	/22	172.16.3.255
Management Vlan	172.16.4.0 172.16.8.0 172.16.12.0	172.16.4.1 - 172.16.7.254 172.16.8.1 - 172.16.11.254 172.16.12.1 - 172.16.15.254	255.255.252.0	/22	172.16.7.255 172.16.11.255 172.16.15.255
Production Vlan	172.16.16.0 172.16.20.0 172.16.24.0	172.16.16.1 - 172.16.19.254 172.16.20.1 - 172.16.23.254 172.16.24.1 - 172.16.27.254	255.255.252.0	/22	172.16.19.255 172.16.23.255 172.16.27.255

Management Vlan	Assigned Subnet
Honolulu	172.16.4.0
Hilo	172.16.8.0
Lihue	172.16.12.0

Production Vlan	Assigned Subnet
Honolulu	172.16.16.0
Hilo	172.16.20.0
Lihue	172.16.24.0

Router	Description
R1	Honolulu - Core 1
R2	Honolulu - Core 2
R3	Hilo - Core 1
R4	Hilo - Core 2
R5	Lihue - Core 1
R6	Lihue - Core 2
R7	Honolulu - Perimeter
R8	Hilo - Perimeter
R9	Lihue - Perimeter

Switch	Description
S1	Honolulu - Floor 1
S2	Honolulu - Floor 2
S3	Honolulu - Floor 3
S4	Honolulu - Distribution 1
S5	Honolulu - Distribution 2
S6	Hilo - Floor 1
S7	Hilo - Floor 2
S8	Hilo - Floor 3
S9	Hilo - Distribution 1
S10	Hilo - Distribution 2
S11	Lihue - Floor 1
S12	Lihue - Floor 2
S13	Lihue - Floor 3
S14	Lihue - Distribution 1
S15	Lihue - Distribution 2

Server	Description
SRV1	DHCP Server 1
SRV2	DHCP Server 2
SRV3	DHCP Server 3

Switch Connections S1 - 3, S6 - 8, S11 - 13

VLAN	Interface	Location Distribution Switch 1	Location Distribution Switch 2
VLAN 1 (Default)	Fa0/9-24	Unused	Unused
Management	Fa0/1 - 4	Fa0/1 - 2	Fa0/3 - 4
Production	Fa0/5 - 8	Fa0/5 - 6	Fa0/7 - 8
Trunk	Gi0/1 - 2	Gi0/1	Gi0/2

Distribution Switch Connections

Switch	Location Core Router 1	Location Core Router 2	Access Switches
S4 - 5, S9 - 10, S14 - 15	Fa0/1 - 2	Fa0/3 - 4	Gi0/1 - 6

Cat5e cables will be used for most connections since they can handle up to 1000Mbps. Cat6 cables can be used on the trunk ports, since those lines will likely have more traffic.

The Distribution Switches (S4 - 5, S9 - 10, and S14 - 15) should have at least 6 Gigabit Ethernet ports available so that Gigabit capabilities can be used on the trunk ports.

Depending on available infrastructure, leased line connectivity would be best. However, due to locations being on seperate islands, satellite connections may have to be used.