

## Packet Tracer Capstone 2

**Directions:** Students will begin Packet Tracer Capstone located on the VM after completing ALL labs leading up to the Capstone 2. This Capstone is a broken WAN and LAN configuration.

**Note To student:** Read the Capstone in its entirety prior to commencing the network solution.

**Objective:** Upon completion of this Capstone, the student will have demonstrated a novice understanding of network architecture by troubleshooting various outages within all sites in order to reestablish connectivity between every device on each network via the Wide Area Networks (WAN).

**Your goal:** Solve the Five problems with this configuration and report what you did to solve these problems.

**Three sites:** Hawaii, Maryland, Texas

**Each site contains the configuration as follows:**

**Each Site Contains:**

Device	Quantity
Router (Gateway)	1
Network Switch	1
DNS Server	1
DHCP Server	1
Network Printer	1
Workstations	5
Laptops	5

**LAN IP Configuration for all Sites**

Network Device	IP address
Default Gateway Router	x.x.x.1
DNS Server	x.x.x.5
DHCP Server	x.x.x.10
Printer	x.x.x.15-16
DHCP IP address scope	.20 -.254

**LAN Network ID Configuration**

Site	Network ID	Subnet Mask
Maryland	193.1.1.0	255.255.255.0
Hawaii	193.1.2.0	255.255.255.0
Texas	193.1.3.0	255.255.255.0

**WAN IP Configuration**

WAN	Network ID	Address range	Subnet Mask	Connects
1	195.1.4.0	.1 -.2	255.255.255.0	HI and MD
2	195.1.5.0	.1 -.2	255.255.255.0	HI and TX
3	195.1.6.0	.1 -.2	255.255.255.0	TX and MD



**Scenario:** You are a Network Operations Center (NOC) Tier 3 administrator. You typically operate on servers, routers and switches. The NOC has recently hired two new Tier 3 administrators who were assigned the night-shift in order to learn the ropes and conduct maintenance during off-peak hours. You come into work to find seven tickets escalated from Tier one and two technicians to you. Your task is to resolve these issues.

**Reported Outages:**

<b>Ticket #</b>	<b>PRI</b>	<b>Description of Problem</b>	<b>Escalated by</b>	<b>Associated Tickets</b>
<b>1</b>	High	Loss of connectivity between HI users, admins, and techs to MD sites.	Tier 2 Field Technician For 10 customers (HI/MD)	12 tickets
<b>2</b>	High	HI customers can communicate internally but unable to talk to TX customers.	Tier 1 Helpdesk Technician For 8 HI customers	8 tickets
<b>3</b>	Med	Can ping MD printer and gateway with IP address but unable to ping MD printer or gateway using DNS name.	Tier 1 Helpdesk Technician	1 ticket
<b>4</b>	High	Loss of connectivity between all users, admins and techs between MD and TX sites.	Tier 2 Field Technician For 18 customers (MD/TX)	20 tickets
<b>5</b>	Low	Can't video chat with anyone on or off site.	Tier 1 Helpdesk Technician For 1 customer	none
<b>6</b>	High	I don't know, just fix it.	Tier 2 Field Technician for 1 VIP customer	none
<b>7</b>	Low	Microsoft Outlook says it can't connect to a mail server.	Tier 1 Helpdesk Technician For 1 customer	none

**Helpful hints (common pitfalls):**

1. Track your interfaces (write them down)
2. Don't forget to employ DHCP
3. Verify your RIP routes
4. Remember to cable all devices
5. Turn on your interfaces
6. **Each end** of the devices in the diagram below indicates a different network
7. Use **Straight-through** cables for unlike devices (switch to router or PC to switch)
8. Use **Crossover** cables for like devices (routers)

Here's another way to look at it. Basically, for each interface there will be a separate IP address/network. Each Router below has three interfaces and requires three separate IP addresses.

