Test Project

Module D - Troubleshooting

IT Networks Systems Administration

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Introduction

Welcome to Module D!

- The competition has a fixed start and finish time. You must decide how to best divide your time.
- It is strongly recommended that you **read the entire Test Project before beginning any work**, so you understand the objectives and how the tasks relate to one another.

Description of project and tasks

1. Each Competitor will log into a helpdesk ticketing system to view the troubleshooting tickets.
2. Each ticket describes a situation from a user perspective.
3. There will be a total of 15 troubleshooting tickets to solve
4. The system faults are contained within Cisco CML.
5. Each ticket is independent of each other; you can choose to solve the tickets in any order.
6. In order to complete the task, you are required to add a comment to the helpdesk ticket with a written description of **"What is the cause of the problem"** and **"What is the recommended solutions to fix the problem"** for each individual troubleshooting ticket.
7. You are NOT required to **"close"** the ticket, all tickets must be left **"open"**
8. You are NOT required to physically fix the problem.

Logins

- All password is: **Skill39@Shanghai**

Restricted Devices

- Both the Internet and MPLS routers belong to the Telecommunication providers and are pre-configured.
- You are NOT allowed to login and configure these devices.

Test Project Language

- Competitors with an English Test Project complete the helpdesk tickets in English.
- Competitors with a translated Test Project complete the helpdesk tickets in their language of choice (native language or English).
- At the conclusion of the task the Interpreter will enter the translated answers into the ticket system as an additional comment leaving the original answer intact.

Marking Notes

- If you wish to complete additional work on a ticket or change an answer to a ticket leave the original response intact and create a new response on the ticket.
- The last reply on each ticket should reflect your final answer so ensure all relevant details are included.
- The marking teams will only assess the final reply to each ticket.
- For answers translated by the Interpreter the marking teams will only assess the English answer.
- For all answers submitted, the marking teams will NOT judge your spelling, grammar, or language, you are only assessed on the technical aspects of the solutions.

General Configuration

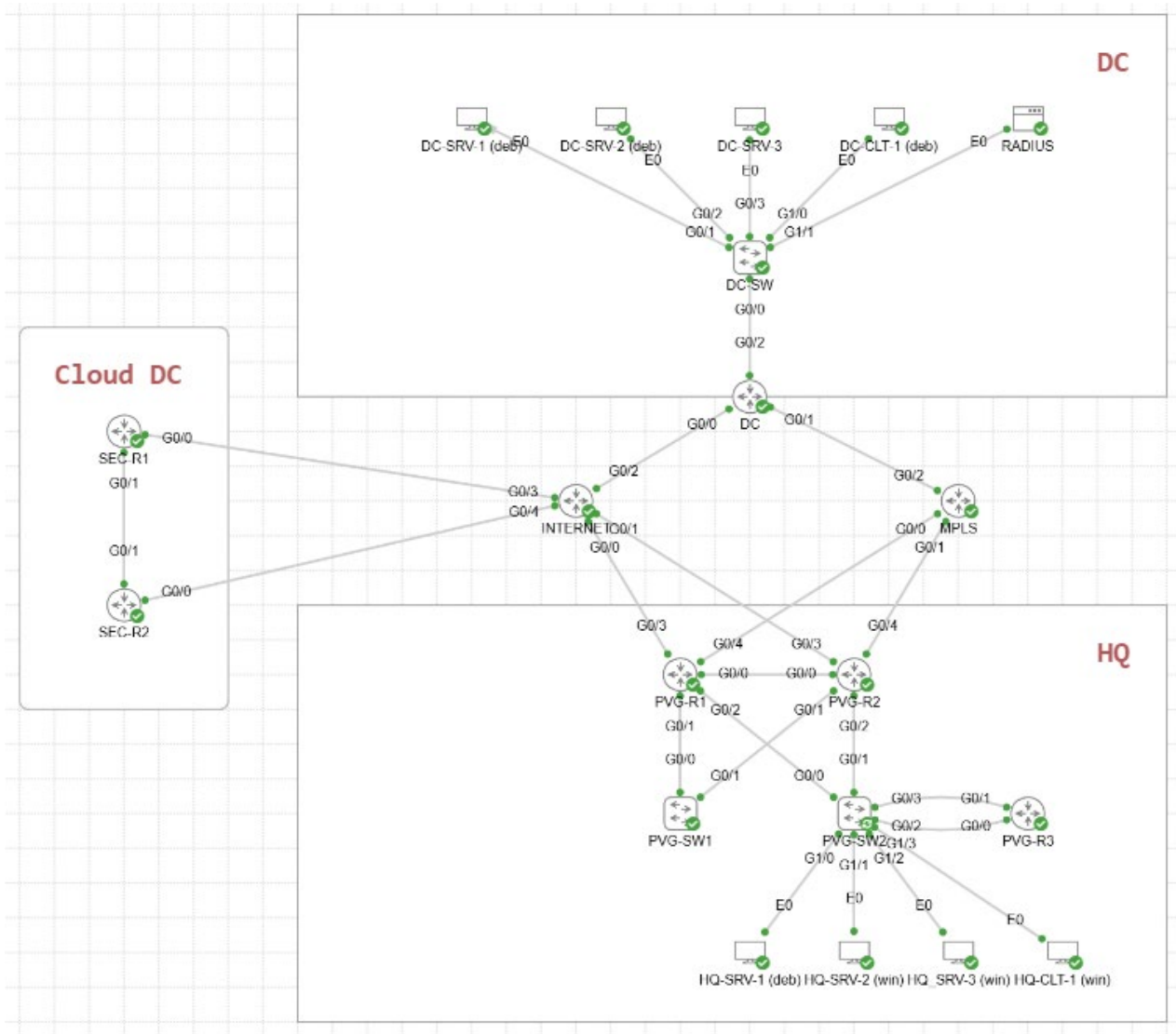
Network Information

Segment	Device	OS	Interface	IP Address	Services
HQ	PVG-R1	Cisco IOS	GigabitEthernet0/0	10.88.1.1	
			GigabitEthernet0/1	10.88.2.1	
			GigabitEthernet0/2	10.88.5.1	
			GigabitEthernet0/3	183.100.101.2	
			GigabitEthernet0/4	172.18.17.2	
			Loopback0	10.88.255.1	
			Loopback1	183.100.101.6	
HQ	PVG-R2	Cisco IOS	GigabitEthernet0/0	10.88.1.2	
			GigabitEthernet0/1	10.88.4.1	
			GigabitEthernet0/2	10.88.3.1	
			GigabitEthernet0/3	131.100.101.2	
			GigabitEthernet0/4	172.18.16.2	
			Loopback0	10.88.255.2	
			Loopback1	10.88.255.100	
HQ	PVG-R3	Cisco IOS	GigabitEthernet0/0	10.88.6.2	
HQ	PVG-SW1	Cisco IOS	GigabitEthernet0/0	10.88.2.2	
			GigabitEthernet0/1	10.88.4.2	
HQ	PVG-SW2	Cisco IOS	GigabitEthernet0/0	10.88.5.2	
			GigabitEthernet0/1	10.88.3.2	
			Vlan101	10.88.6.1	
HQ	HQ-SRV-1	Debian 13.3	Eth0	10.88.66.10	File Share metrics-agent
HQ	HQ-SRV-2	Win Server 2025	Eth0	10.88.66.11	AD DNS
HQ	HQ-SRV-3	Win Server 2025	Eth0	10.88.66.12	-
HQ	HQ-CLT-1	Win 11 Ent.	Eth0	10.88.66.13	-
Cloud DC	SEC-R1	Cisco IOS	GigabitEthernet0/0	129.110.11.2	
			GigabitEthernet0/1	129.110.12.1	
			Loopback0	129.110.255.1	
Cloud DC	SEC-R2	Cisco IOS	GigabitEthernet0/0	129.110.13.2	
			GigabitEthernet0/1	129.110.12.2	

Segment	Device	OS	Interface	IP Address	Services
DC	DC	Cisco IOS	GigabitEthernet0/0	27.100.101.2	
			GigabitEthernet0/1	172.18.12.2	
			GigabitEthernet0/2	10.80.1.1	
			Loopback2	100.100.100.1	
DC	DC-SW	Cisco IOS	Vlan1	10.80.1.2	
DC	DC-SRV-1	Debian 13.3	Eth0	10.80.1.108	Proxy Load Balancer DNS
DC	DC-SRV-2	Debian 13.3	Eth0	10.80.1.109	Web Apps
DC	DC-SRV-3	Win Server 2025	Eth0	10.80.1.110	IIS
DC	DC-CLT-1	Debian 13.3	Eth0	10.80.1.111	-
DC	RADIUS	Free Radius	Eth0	10.80.1.112	Radius
Internet	INTERNET	Cisco IOS	GigabitEthernet0/0	183.100.101.1	
			GigabitEthernet0/1	131.100.101.1	
			GigabitEthernet0/2	27.100.101.1	
			GigabitEthernet0/3	129.110.11.1	
			GigabitEthernet0/4	129.110.13.1	
MPLS	MPLS	Cisco IOS	GigabitEthernet0/0	172.18.17.1	
			GigabitEthernet0/1	172.18.16.1	
			GigabitEthernet0/2	172.18.12.1	

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Topology



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Troubleshooting Ticket 1

Problem

The company plans to use NTP as the time protocol and ensure all devices synchronize the time with the **SEC-R1** loopback0 interface.

The engineer decided to the use PVG-R2 out of band port loopback1, but it cannot sync up the time. Please help to identify this issue.

What is the cause of the problem?

Recommended solution:

Troubleshooting Ticket 2

Problem

Hey! Something's gone wrong on **hq-srv-1** after one of our sysadmins was reconfiguring the network yesterday and left it in a bad state.

It looks like the server's outgoing traffic is completely broken and it can't reach any external networks at all anymore. The ISP have confirmed they are unable to see any traffic flowing through to their device

I can't spot anything obviously wrong; can you identify the cause of the issue?

What is the cause of the problem?

Recommended solution:

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Troubleshooting Ticket 3

Problem

Hello, I am trying to access the website **payroll.tshoot.local** but it is returning an error that the connection is refused, can you please investigate the cause? If I can't access this website no one can get paid this week.

What is the cause of the problem?

Recommended solution:

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Troubleshooting Ticket 4

Problem

Recently management decided to implement a network packet capture appliance connected to **PVG-SW1 G0/2** and **G0/3**. When the engineer implemented the network configuration, the network is not working anymore.

The users are complaining about a network outage.

What is the cause of the problem?

Recommended solution:

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Troubleshooting Ticket 5

Problem

My name is **Timon**, when I try to log into my computer **HQ-CLT-1** I receive an error "We can't sign into your account" and my desktop looks really strange there is a very important document missing from the desktop

What is the cause of the problem?

Recommended solution:

Troubleshooting Ticket 6

Problem

Management wants to enhance cyber security and require all the devices to authenticate logins through AAA services. The engineer configured an account **user1** with the password **Skill39@Shanghai** on the **DC-SW** switch.

Upon testing the AAA login the engineer cannot be authenticated by the RADIUS server. Can you assist him to identify the issue?

What is the cause of the problem?

Recommended solution:

Troubleshooting Ticket 7

Problem

Hey mate! The HQ team is running into a problem with our file share **\\hq-srv-1\hqshare**.

Everyone can open it and read everything fine, but nobody can save or create files in it; Windows says "access denied" and saving from apps fails. It's supposed to be read-write for the **hqteam** group

I asked IT to give us a credential so we could test and investigate the issue ourselves, and here's the info they sent back: **hquser** (a member of the hqteam group) / **Skill39@Shanghai**

What is the cause of the problem?

Recommended solution:

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Troubleshooting Ticket 8

Problem

I am trying to join the server **HQ-SRV-3** to the **tshoot.local** domain but I am getting an error that prevents the server from joining the domain, can you please investigate?

What is the cause of the problem?

Recommended solution:

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Troubleshooting Ticket 9

Problem

The HQ IT manager realized that the **PVG-SW2** and **PVG-R3** only have a single link between them and worried about the single point of failure. He asked the engineer if they can make the link more redundant and avoid the single point of failure.

The engineer suggested to have a link bundle for **g0/0** and **g0/1** on **PVG-R3**. Unfortunately, it is not working. Can you identify the issue?

What is the cause of the problem?

Recommended solution:

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Troubleshooting Ticket 10

Problem

Hey! I could use a hand with a service on **hq-srv-1** that refuses to stay up.

Our **metrics-agent** service won't stay running: systemctl start metrics-agent looks like it works, but a second later the service is dead again, and now when I try to start it again I just get an error saying the start request "repeated too quickly."

I didn't change the unit file, could you please look into and get it and keep it running? Thanks!

What is the cause of the problem?

Recommended solution:

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Troubleshooting Ticket 11

Problem

Hi this is **Fabian**, I was browsing the web on **HQ-CLT-1** and clicked on a link that said I would get some free Bitcoin, now whenever I log into the PC the screen is stuck on a weird Window and I can't access my desktop, it doesn't seem to happen when other user's login to the computer.

What is the cause of the problem?

Recommended solution:

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Troubleshooting Ticket 12

Problem

Hello team! John Doe here from the HR department.

IT told me that to access the internal HR web portal hosted at **hr-portal.dczone.wsc**, I have to go through the company proxy using my user account and with my personal password.

I'm on the **dc-clt-1** machine, and I tried to set **proxy.dczone.wsc:3128** and sign in as **john.doe** with the **Skill39@Shanghai** password, but it seems like my credentials are wrong. I'm certain my password is correct, and my colleagues use the proxy just fine, am I missing something?

What is the cause of the problem?

Recommended solution:

Troubleshooting Ticket 13

Problem

After power maintenance, the HQ network has flapping and there are intermittent issues for the users connecting to cloud and DC. Can you quickly check it out the root cause?

What is the cause of the problem?

Recommended solution:

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Troubleshooting Ticket 14

Problem

I need your help! Seems like we're having an outage since this morning's maintenance. Our reporting site **reporting.dczone.wsc**, which we publish through the load balancer on **dc-srv-1**, has been returning 503 Service Unavailable to every request.

From what I investigated, the web backend on **dc-srv-2** seems fine, but the HAProxy stats page shows the backend server DOWN (red). Could you please look into it this?

What is the cause of the problem?

Recommended solution:

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Troubleshooting Ticket 15

Problem

Hi, this is **Wang QI** from the Help Desk team. I logged into to **HQ-SRV-2** to do an AD password reset for a user but whenever I try to run any of the administration tools I receive an error. Can you please investigate this for me?

What is the cause of the problem?

Recommended solution:

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