Part 2 — Practical implementation of VTG network as per POE Task 1 design (Marks:60)

This part has 4 activities and at the end of this part, you should be able to implement the design using the network blueprints from Part 1 as an implementation guideline.

The configurations in this part can get complex and ideally your lecturer will explain and guide you through the process. However, you as part of discovery Learning you are expected to do some research on the configurations and YouTube is a good resource for many of the configurations here.

Activity 1	Install and configure Windows Server 2016 routing	20 marks
Activity 2	Active Directory Installation and Configuration	15 marks
Activity 3	DHCP Implementation and configuration	15 marks
Activity 4	Windows 10 Client Domain Join	10 marks
TASK TOTAL		**60 marks**

Activity 1

Install and configure Windows Server 2016 Virtual machines to be used for VTG Active Directory Forest in Activity 2.

Server Name	Server Location	Server IP Address
VTG-PTA-DC01	Pretoria	2nd IP address in the Pretoria Server subnet
VTG-PTA-DC01	Johannesburg	2nd IP address in the Johannesburg Server subnet

Since VTG-PTA-DC01 and VTG-JHB-01 are on different subnets you will need to simulate routing functionality for the two servers to communicate. This can be achieved by adding static routes to the Windows Server routing table or by enabling Routing and Remote access on both Servers.

NB* For Lecturers and Students

Your Hyper-V environment will need to be configured with 3 Virtual Switches one to simulate the WAN and two to simulate the LAN as shown below.

Your Hyper-V Server machines will have to be configured with 2 network adapters, one connecting to the WAN virtual switch to simulate a WAN connection and to be assigned a Public IP address for communication between the Pretoria and Johannesburg, and another to be assigned a Private IP address for the local site LAN.

Marking Rubric for VTG Server setup and IP address and routing configuration

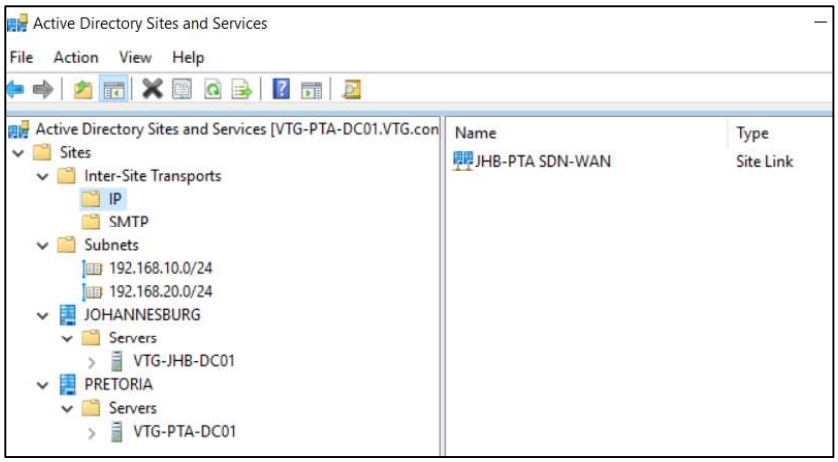
Criteria	Mark allocation
Servers successfully configured and named correctly	4
Server LAN IP addresses assigned according to IP address plan	4
Server WAN IP address assigned using Public IP address (simulated)	4
Routing between two servers successfully configured	4
Two Servers can successfully communicate	4
TOTAL	**20 marks**

Activity 2

Install and configure Active Directory on both Servers using the domain name **VTG.com** with the Pretoria server being the parent root domain server and the Johannesburg server being the second writable server in the domain. (No child domains are to be used but replication of Active Directory will take place between the Pretoria and Johannesburg servers).

NB* For successful configuration routing must be configured correctly from Activity 1 and test connectivity between the two servers using the ping command. Additionally ensure that DNS parameters are correctly set to ensure successful installation of Active Directory.

Configure Active Directory Sites and Services as shown below, but using subnets based on your IP address plan and test replication between VTG-PTA-DC01 and VTG-JHB-DC01.



Marking Rubric for VTG Active Directory installation and configuration.

Criteria	Mark allocation
Active Directory Forest Root Domain configured on VTG-PTA-DC01	3
Active Directory additional domain configured on VTG-JHB-DC01	3
Active Directory Sites configured correctly	3
Active Directory Subnets configured correctly	3
Replication working between VTG-PTA-DC01 and VTG-JHB-DC01	3
TOTAL	**15 marks**

Activity 3

Configure a DHCP solution based on the IP address plan designed in Part 1 Task 1.

Hint*

Implement multiple scopes based on the POE Part 1 Activity 1 IP address plan. Note that you need only activate the Server subnet and the rest can remain inactive.

Note that all scopes need not be activated except the server Scopes that your VTG-PTA-DC01 and VTG-JHB-DC01 are configured on.

Create a Super Scope on both VTG-PTA-DC01 and VTG-JHB-DC01 using the resident subnets on each server.

Marking Rubric for VTG DHCP installation and configuration.

Criteria	Mark allocation
VTG DHCP subnets successfully configured on VTG-PTA-DC01	3
VTG DHCP subnets successfully configured on VTG-JHB-DC01	3
Superscope successfully created on VTG-PTA-DC01	3
Superscope successfully created on VTG-JHB-DC01	3
DHCP Implementation mirrors IP Address plan from **POE Task1 Activity 1**	3
TOTAL	**15 marks**

Activity 4

Install and configure a Windows 10 Client to join the VTG domain on the Pretoria site using a DHCP issued address from the Server subnet.

Ensure and provide evidence that the Windows client has successfully joined the domain and obtained its IP configuration via DHCP.

Server Name	Client Location	Server IP Address
VTG-PTA-CLT01	Pretoria	DHCP Assigned IP address in the Pretoria Server subnet

VTG-PTA-CLT01 will be later used to test user logon and shared folder drive access.

Marking Rubric for Windows 10 VTG.com Domain Join

IP Address Criteria for Johannesburg	Mark allocation
Windows 10 Client successfully installed and named correctly	2
Windows 10 Client IP configuration received via DHCP	4
Windows 10 Client successfully joined to VTG.com domain	4
TOTAL	**10 marks**

END OF PART 2