**Module: 13 Networking with Windows Server**

**Name:- Ankush Bhoi**

* Installing and configure DNS server

1. **Describe DNS operation**

* The Domain Name System (DNS) translates domain names into IP addresses. DNS works like a phone book for the internet, with DNS servers acting as a database of public IP addresses associated with website names.

1. **DNS query Iterative and Recursive**

* A recursive DNS lookup is where one DNS server communicates with several other DNS servers to hunt down an IP address and return it to the client.

1. **what is forward lookup zone and its resource type**

* allow the DNS Server to resolve queries where the client sends a name to the DNS Server to request the IP address of the requested host.

1. **what is reverse lookup zone and its resource type**

* an authoritative DNS zone that is used primarily to resolve IP addresses to network resource names.

1. **what is conditional forwarder**

* Conditional forwarders are a DNS configuration setting that allows you to specify specific DNS servers to forward queries for specific domains.

1. **what is primary zone, secondary zone and stub zone**

* primary zones are read-write copies of zone data and hosted by primary DNS servers, secondary zones contain read-only copies of zone data and are used for load balancing and fault tolerance, and stub zones contain only resource records for the domain's name servers and are used for faster name resolution

1. **what is active directory integrated zone**

* a primary zone in the DNS services.

1. **primary server, secondary server, cache only server**

* Primary server

The primary server is the first source of Domain Name System (DNS) data and responds to queries.

* Secondary server

A secondary server is a backup server that serves additional services. It has the same features and capabilities as the primary server.

* Cache-only server

A cache-only server is a server that handles the same kind of queries from clients that authoritative name servers perform. It is not a master server for any zone other than the in-addr.arpa domain.

1. **what is aging and scavenging**

* DNS aging and scavenging are used to automatically clean up dynamic DNS records after a certain period of time.

1. **what is MX record**

* a DNS record that directs emails to mail servers.
* Practical

1. **install active directory integrated dns**

* Done.

1. **create secondary dns and zone transfer**

* Done.

1. **create “A” record**

* Done.

1. **create alias**

* Done.

1. **create reverse lookupzone**

* Done.

1. **make a pointer**

* Done.

1. **apply conditional forwareder betwwen two different domain**

* Done.

1. **nslookup command**

* Done.
* DHCP

1. **purpose of DHCP**

* to configure network devices to communicate on an IP network.

1. **what is DORA process?**

* The DORA process is a technique used by DHCP (Dynamic Host Configuration Protocol) to automatically assign IP addresses to devices.

1. **what is authorized DHCP server?**

* An authorized DHCP server is a server that is the sole authority for a network on the VRF.

1. **describe scope, lease duration, DHCP option, exclude address**

* DHCP scope

A group of IP addresses for computers on a subnet that a DHCP server can lease to clients.

* Lease duration

The amount of time for which a client device is allowed to use the assigned IP address before it needs to renew the lease.

* DHCP options

Scope options are applied to all DHCP clients regardless of which subnet they're on.

* Exclude address

A single IP address or a range of IP addresses can be excluded.

1. **what is reservation?**

* A DHCP reservation is a permanent IP address assignment.

1. **what is dhcp relay agent?**

* The DHCP relay agent operates as the interface between DHCP clients and the server.

1. **describe ipconfig command**

* The ipconfig command is a command-line utility in Windows that displays and manages network-related information.
* Practical

1. **install dhcp sever and make authorize**

* Done.

1. **create a scope and check on client by ipconfig**

* Done.

1. **dhcp database and take backup**

* Done.

1. **dhcp failover**

* Done.

1. **dhcp relay agent**

* Done.

1. **dhcp filter**

* Done.

1. **dhcp reservation**

* Done.
* IPAM

1. **what is IPAM and purpose of IPAM**

* administration of DNS and DHCP, which are the network services that assign and resolve IP addresses to machines in a TCP/IP network.

1. **why need dedicated server**

* Dedicated servers can be useful for businesses

1. **policy for ipam sever**

* Provisioning method, Server installation, Role assignment.

1. **which service monitor and manage by IPAM**

* IPAM monitors domain controllers and NPS servers for IP address tracking purposes.
* Practical

1. **Install IPAM**

* Done.

1. **configure IPAM with six step**

* Done.

1. **create dhcp scope using IPAM 4 create DNS zone**

* Done.

1. **check monitoring of sevices**

* Done.
* Remote connectivity and VPN

1. **what is VPN?**

* a cybersecurity tool that encrypts your internet connection.

1. **type of VPN**

* There are four main types of VPNs:

Remote access VPNs

Site-to-site VPNs

Extranet-based site-to-site VPNs

Personal VPNs

1. **tunneling protocol**

* A tunneling protocol is a communication protocol that allows data to move between networks.

1. **authentication protocol**

* industry standard ways of confirming the identity of a user when accessing network resources.

1. **what is routing**

* Routing is the process of selecting a path for traffic in a network.
* Practical

1. **install routing and remote access**

* Done.

1. **configure LAN routing**

* Done.

1. **configure vpn connection (VPN client)**

* Done.
* Network policy server

1. **what is Radius server**

* a central server that authenticates users who access a network.

1. **what is authentication authorization and accounting**

* a security framework that controls access to computer resources.

1. **RADIUS server operation method and radius client**

* Remote Authentication Dial-In User Service (radius) is a client-server protocol that authenticates users to a dial-in access server. It uses an open standard protocol outlined in RFC documents.

1. **RADIUS port number**

* UDP port 1645 or 1812 for authentication and UDP port 1646 or 1813 for accounting.

1. **what is network policies (NPS)?**

* Network policies (NPS) are a set of conditions, constraints, and settings in Network Policy Server (NPS).
* Practical

1. **P1 configure RADIUS for wireless client**

* Done.

1. **confiure NPS for remote access**

* Done.
* IPv4 addressing and IPv6 addressing

1. **what is ip address?And type of ip address**

* a unique number that identifies a computer or network.

1. **class of ip address**

* IP addresses are divided into five classes

1. **public ip address and private ip address**

* Public IP addresses identify you to the internet, while private IP addresses are used to connect securely to other devices within a private network.

1. **what is static ip address, dhcp and APIPA**

* APIPA serves as a DHCP server failover mechanism and makes it easier to configure and support small LANs.

1. **what is ipv6 address?**

* An IPv6 address is a 128-bit alphanumeric value that identifies a device in an Internet Protocol Version 6 (IPv6) network.

1. **ipv6 dhcp process**

* 1. Solicit - sent by a DHCPv6 Client to locate DHCPv6 Servers. 2. Advertise - sent by a DHCPv6 server to a DHCPv6 Client in answer to the solicit message as an affirmative message that DHCPv6 Server services are available to a DHCPv6 Client.

1. **what is NAT?**

* Network Address Translation (NAT) is a service that connects private networks to public networks.

1. **what id gateway address?**

* A gateway address is the address of a router that sends packets to another network.

1. **what is loopback address?**

* A loopback address is an IP address that routes data packets back to the same device where they originated.

1. **different type of ipv6 address**

* The three types of IPv6 addresses are: unicast, anycast, and multicast.

1. **ipv6 tunnelling**

* IPv6 tunneling is a mechanism that encapsulates IPv4 and IPv6 packets within a site-to-site IPv6 VPN.
* Practical

1. **configure ipv6 address manually and test with ping**

* Done.

1. **IPv6 address automatically**

* Done.

1. **ping utility**

* Done.

1. **ipconfig**

* Done.

1. **tracert / traceroute**

* Done.

1. **dhcpv6**

* Done.
* DFS

1. **what is DFS? And purpose of DFS**

* a data storage and management scheme that allows users to access data files from shared storage across multiple servers.

1. **Define DFS namespace and DFS replication**

* role services in the File and Storage Services role.

1. **what is folder target?**

* A folder target is the Universal Naming Convention (UNC) path of a shared folder or another namespace that is associated with a folder in a namespace.
* Practical

1. **install DFS namespace and replication**

* Done.

1. **configure common namespace**

* Done.

1. **configure replication and check**

* Done.

1. **configure branch cache**

* Done.
* Advance Network

1. **what is SDN?**

* a network architecture approach that uses software applications to manage and control a network.

1. **what is SCVMM?**

* a paid tool from Microsoft that helps manage virtualized environments.