

Networking with Windows Server 2016

Course outline (70-741)

Please note that the questions may test on, but will not be limited to, the topics described in the bulleted text.

[Implement Domain Name System \(DNS\) \(15–20%\)](#)

- Install and configure DNS servers
 - Determine DNS installation requirements, determine supported DNS deployment scenarios on Nano Server, install DNS, configure forwarders, configure Root Hints, configure delegation, implement DNS policies, implement DNS global settings using Windows PowerShell, configure Domain Name System Security Extensions (DNSSEC), configure DNS Socket Pool, configure cache locking, enable Response Rate Limiting, configure DNS-based Authentication of Named Entities (DANE), configure DNS logging, configure delegated administration, configure recursion settings, implement DNS performance tuning, configure global settings using Windows PowerShell
- Create and configure DNS zones and records
 - Create primary zones; configure Active Directory integration of primary zones; create and configure secondary zones; create and configure stub zones; configure a GlobalNames zone; analyze zone-level statistics; create and configure DNS Resource Records (RR), including A, AAAA, PTR, SOA, NS, SRV, CNAME, and MX records; configure zone scavenging; configure record options, including Time To Live (TTL) and weight; configure round robin; configure secure dynamic updates; configure unknown record support; use DNS audit events and analytical (query) events for auditing and troubleshooting; configure Zone Scopes; configure records in Zone Scopes; configure policies for zones

[Implement DHCP \(15–20%\)](#)

- Install and configure DHCP
 - Install and configure DHCP servers, authorize a DHCP server, create and configure scopes, create and configure superscopes and multicast scopes, configure a DHCP reservation, configure DHCP options, configure DNS options from within DHCP, configure policies, configure client and server for PXE boot, configure DHCP Relay Agent, implement IPv6 addressing using DHCPv6, perform export and import of a DHCP server, perform DHCP server migration
- Manage and maintain DHCP
 - Configure a lease period, back up and restore the DHCP database, configure high availability using DHCP failover, configure DHCP name protection, troubleshoot DHCP

Implement IP Address Management (IPAM) (15–20%)

- Install and configure IP Address Management (IPAM)
 - Provision IPAM manually or by using Group Policy, configure server discovery, create and manage IP blocks and ranges, monitor utilization of IP address space, migrate existing workloads to IPAM, configure IPAM database storage using SQL Server, determine scenarios for using IPAM with System Center Virtual Machine Manager for physical and virtual IP address space management
- Manage DNS and DHCP using IPAM
 - Manage DHCP server properties using IPAM, configure DHCP scopes and options, configure DHCP policies and failover, manage DNS server properties using IPAM, manage DNS zones and records, manage DNS and DHCP servers in multiple Active Directory forests, delegate administration for DNS and DHCP using role-based access control (RBAC)
- Audit IPAM
 - Audit the changes performed on the DNS and DHCP servers, audit the IPAM address usage trail, audit DHCP lease events and user logon events

Implement network connectivity and remote access solutions (25–30%)

- Implement network connectivity solutions
 - Implement Network Address Translation (NAT), configure routing
- Implement virtual private network (VPN) and DirectAccess solutions
 - Implement remote access and site-to-site (S2S) VPN solutions using remote access gateway, configure different VPN protocol options, configure authentication options, configure VPN reconnect, create and configure connection profiles, determine when to use remote access VPN and site-to-site VPN and configure appropriate protocols, install and configure DirectAccess, implement server requirements, implement client configuration, troubleshoot DirectAccess
- Implement Network Policy Server (NPS)
 - Configure a RADIUS server including RADIUS proxy, configure RADIUS clients, configure NPS templates, configure RADIUS accounting, configure certificates, configure Connection Request Policies, configure network policies for VPN and wireless and wired clients, import and export NPS policies

Implement core and distributed network solutions (10–15%)

- Implement IPv4 and IPv6 addressing
 - Configure IPv4 addresses and options; determine and configure appropriate IPv6 addresses; configure IPv4 or IPv6 subnetting; implement IPv6 stateless addressing; configure interoperability between IPv4 and

- IPv6 by using ISATAP, 6to4, and Teredo scenarios; configure Border Gateway Protocol (BGP); configure IPv4 and IPv6 routing
- Implement Distributed File System (DFS) and Branch Office solutions
 - Install and configure DFS namespaces; configure DFS replication targets; configure replication scheduling; configure Remote Differential Compression (RDC) settings; configure staging; configure fault tolerance; clone a Distributed File System Replication (DFSR) database; recover DFSR databases; optimize DFS Replication; install and configure BranchCache; implement distributed and hosted cache modes; implement BranchCache for web, file, and application servers; troubleshoot BranchCache

Implement an advanced network infrastructure (10–15%)

- Implement high performance network solutions
 - Implement NIC Teaming or the Switch Embedded Teaming (SET) solution, and identify when to use each; enable and configure Receive Side Scaling (RSS); enable and configure network Quality of Service (QoS) with Data Center Bridging (DCB); enable and configure SMB Direct on Remote Direct Memory Access (RDMA) enabled network adapters; enable and configure SMB Multichannel; enable and configure virtual Receive Side Scaling (vRSS) on a Virtual Machine Queue (VMQ) capable network adapter; enable and configure Virtual Machine Multi-Queue (VMMQ); enable and configure Single-Root I/O Virtualization (SR-IOV) on a supported network adapter
- Determine scenarios and requirements for implementing software-defined networking (SDN)
 - Determine deployment scenarios and network requirements for deploying SDN; determine requirements and scenarios for implementing Hyper-V Network Virtualization (HNV) using Network Virtualization Generic Route Encapsulation (NVGRE) encapsulation or Virtual Extensible LAN (VXLAN) encapsulation; determine scenarios for implementation of Software Load Balancer (SLB) for North-South and East-West load balancing; determine implementation scenarios for various types of Windows Server Gateways, including L3, GRE, and S2S, and their use; determine requirements and scenarios for distributed firewall policies and network security groups