***Please note that these are not necessarily comprehensive, and that the questions on the exam will be worded differently.***Random terms and facts:

VMBus: mechanism in Hyper-V architecture that enables logical communication in partitions.

Application servers: servers that run applications, tends to be machines  
Database servers, mail servers and collaboration servers are applications servers

Tattoo: GPO goes out of scope, preference remains in registry unless removed

Hypervisor needs to run on actual hardware.

Service: application/OS component that provides some service to local machine or networked devices

Common services: DHCP, DNS, email, etc

Service troubleshooting: if turning on and off doesn’t work…

Check three possible issues:

Service relationships

Configuration issues

Permissions

Service relationships: some services depend on others

Ex) MS office apps can be used together, excel graph goes into PowerPoint

**What is LDAP? What is Active Directory (AD)? Describe a key difference between AD and LDAP.**

LDAP is Lightweight Directory Access Protocol. It is an open and cross platform protocol used for directory services authentication. It’s used for querying directory services.

AD is a directory services database. It’s roughly built on LDAP.

Difference between AD and LDAP is AD is a directory services database. LDAP is one of many protocols you can use to “talk” to it. AD requires Windows and LDAP is open source.

**What is a distinguished name? Give an example of one.**

A distinguished name is a composition of relative distinguished name components that establish the location of the entry in the directory information tree.

Ex) cn=user1, ou=people, dc=oakland, dc=edu

**Why would we want to have multiple domain controllers, within a single domain, in an AD setup?**

Backups, fault tolerance, redundancy

They replicate the AD info between them and can provide services if the other is not available.

**What are the purposes of guest tools, such as VMware Tools?**

Main purpose of guest tools is to enhance the performance of VM’s guest OS. VMWare tools is one that can provide the ability to use a mouse among other things.

**What is a Group Policy Object?**

GPO is a collection of settings applied to a workstation, usually for security reasons.

**What is the concept of trust within an AD forest?**

The forest acts as a default trust boundary. All domains within the tree trust each other, pass through authentication.

Ex) Domain 2 honors the logins for Domain 1

**What is the purpose of a functional level in AD?**

Functional level is to determine available AD DS domain/forest capabilities.

**What is the difference between a Group Policy Setting and a Group Policy Preference?**

Group policy setting is a single setting in a GPO.

Will not tattoo

GPO goes out of scope

Supercede application setting

Application aware

Recognized by application

Grayed out

GP preference

Will tattoo

Preference remains in registry unless removed

Overwrite application setting

Not to be recognized by application

Changeable

**How would you handle different versions of Windows on a network that you wish to apply a group policy to?**

Use a management machine which is running the newest version of Windows and has Remote Server Administration Tools. This management machine will be able to create GPOs for all versions up to its own.

**What are two purposes of virtualization?**

Virtualization is cost-effective, uses less hardware and easy to deploy and configure.

Think of an enterprise data center

-Always needs more servers

-Easier to virtualize workstations/servers

Protects hardware from most attacks

**Assume we want to perform a live migration (move from one physical host to another) in Xen (though also applies to other virtualization technologies). What are the two requirements for doing so?**

Storage must be shared

Disk image files must be accessible by both hosts

Must be on the same IP subnet

IP and Mac preserved

Network hardware “discovers” new location after IP traffic starts moving again

**How would you share files on a Windows network that does not use Active Directory (emailing / Dropbox not allowed)? On one that does?**

-Bluetooth

-Workgroups

-On one that does:

-Set up a shared folder through OU

-Domain join (this one primarily)

**What is something we need to consider when selecting a version of Windows Server?**

**Describe, in detail, two server roles.**

What is the scale of your server? (datacenter, small company, individual)

What is your budget? ( Costs goes up per core)

Print server – a server that connects printers to client computers, it accepts print jobs from computers and sends those jobs to the appropriate printer to complete their job

File server – a server that allows sharing of file across a network of devices and computers (NADA has a famous fast one)

**What is the Principle of Least Privilege?**

Service should have no greater access than is required

Determine what actions service needs to take

Define permissions required for those actions

Create account with those permissions

Configure service to run in that account’s context

Operate with just enough privileges for the task

Don’t give users more privilege than they need

**What is an Active Directory:**

**Active Directory:**

**a) Forest:**A collection of domain trees sharing global catalog/schema, may or may not share root namespace  
**b) Domain Tree:**A group of domains sharing root namespace

All domains within the tree “trust” each other  
**c) Domain:** logical container for administrationA logical object containing:  
User accounts: network login

Groups: manage users/group centrally

Computers: real/virtual machines

Servers: computer objects with server OS

organizational units: hierarchy of above objects

built-in-containers: group of above objects

**Given the following LDAP tree, what is the distinguished name, starting with the user’s ID?**

dc=edu

dc=oakland

ou=people

uid=user1

objectClass=inetOrgPerson,posixAccount

cn=CSI3670 User

uid=user1

mail=user1@csi3670.local

Distinguished name: uid=user1, ou=people, dc=oakland, dc=edu

**If we are performing an LDAP bind, what are we actually doing?**

Authenticating to the server

**How does PowerShell send data between cmdlets? What is a cmdlet?**

Data is packaged as an object in powershell. This means the object has all the properites and methods sent with it.

A cmdlet is powershell’s core unit of execution.

**What is one difference between full virtualization (i.e., bare-metal virtualization) and paravirtualization (i.e., OS-assisted virtualization)?**

Virtualization is that it allows guests OSes to execute independently and guest doesn’t know it’s being virtualized.

Paravirtualization allows guests OSes to communicate with the hypervisor. Guest know it is being virtualized (enlightened guests).

**Describe three types of servers that could be virtualized and why.**

Web Servers: computer that stores web server software and website component files(HTML, CSS, etc)

Easy scaling

Build Servers

Allows easy version control

Standalone application servers

They are hardly used thus it is far more cost effective

**In terms of virtualization, what is an 'enlightened guest?'**

General

Works with VMBus

Specific

Kernel based

If kernel knows about hypervisor 🡪 Enlightened Kernel

**Why do we use application servers?**

Improved security

-Can’t really hack client application

-All data access centrally controlled

Improved data integrity

-Easy backup of user data

-Application can be fixed for all users centrally

-Don’t need to distribute patches to clients

**What is the difference between a local, single-tier (client/server), and n-tier application?**

Local:

-Uses a local installation

-Uses a shared memory for connection

Client/Server

-Communicates directly (only one level of communication)

N-Tier:

-Multiple levels of communication

**Be able to write a PowerShell script for adding and removing a list of users to a specific AD domain.**

**Names.txt:**

**UserName, LastName, FirstName, Group**

**efredericks, Fredericks, Erik, FDEV**

**script.ps1:**