KCC
The KCC is a built-in process that runs on all domain controllers and generates replication topology for the Active Directory forest. The KCC creates separate replication topologies depending on whether replication is occurring within a site (intrasite) or between sites (intersite). The KCC also dynamically adjusts the topology to accommodate new domain controllers, domain controllers moved to and from sites, changing costs and schedules, and domain controllers that are temporarily unavailable.

How do you view replication properties for AD?
By using Active Directory Replication Monitor.
Start→Run→Replmon

What are sites? What are they used for?
One or more well-connected (highly reliable and fast) TCP/IP subnets. A site allows administrators to configure Active Directory access and replication topology to take advantage of the physical network.

Name some OU design considerations?
OU design requires balancing requirements for delegating administrative rights – independent of Group Policy needs – and the need to scope the application of Group Policy. The following OU design recommendations address delegation and scope issues:
Applying Group Policy
An OU is the lowest-level Active Directory container to which you can assign Group Policy settings. Delegating administrative authority usually don’t go more than 3 OU levels

What are FMSO Roles? List them.
Fsmo roles are server roles in a Forest
There are five types of FMSO roles
1-Schema master
2-Domain naming master
3-Rid master
4-PDC Emulator
5-Infrastructure master

Logical Diagram of Active Directory? What is the difference between child domain & additional domain Server?
Well, if you know what a domain is then you have half the answer. Say you have the domain Microsoft.com. Now Microsoft has a server named server1 in that domain, which happens to the parent domain. So its FQDN is server1.microsoft.com. If you add an additional domain server and name it server2, then its FQDN is server2.microsoft.com.
Now Microsoft is big so it has offices in Europe and Asia. So they make child domains for them and their FQDN would look like this: europe.microsoft.com & asia.microsoft.com. Now let’s say each of them have a server in those child domains named server1. Their FQDN would then look like this: server1.europe.microsoft.com & server1.asia.microsoft.com..

What are Active Directory Groups?
Groups are containers that contain user and computer objects within them as members. When security permissions are set for a group in the Access Control List on a resource, all members of that group receive those permissions. Domain Groups enable centralized administration in a domain. All domain groups are created on a domain controller. In a domain, Active Directory provides support for different types of groups and group scopes. The group type
determines the type of task that you manage with the group. The group scope determines whether the group can have members from multiple domains or a single domain.

**Group Types**

* **Security groups**: Use Security groups for granting permissions to gain access to resources. Sending an e-mail message to a group sends the message to all members of the group. Therefore security groups share the capabilities of distribution groups.

* **Distribution groups**: Distribution groups are used for sending e-mail messages to groups of users. You cannot grant permissions to security groups. Even though security groups have all the capabilities of distribution groups, distribution groups still requires, because some applications can only read distribution groups.

**Group Scopes**

Group scope normally describe which type of users should be clubbed together in a way which is easy for there administration. Therefore, in domain, groups play an important part. One group can be a member of other group(s) which is normally known as Group nesting. One or more groups can be member of any group in the entire domain(s) within a forest.

* **Domain Local Group**: Use this scope to grant permissions to domain resources that are located in the same domain in which you created the domain local group. Domain local groups can exist in all mixed, native and interim functional level of domains and forests. Domain local group memberships are not limited as you can add members as user accounts, universal and global groups from any domain. Just to remember, nesting cannot be done in domain local group. A domain local group will not be a member of another Domain Local or any other groups in the same domain.

* **Global Group**: Users with similar function can be grouped under global scope and can be given permission to access a resource (like a printer or shared folder and files) available in local or another domain in same forest. To say in simple words, Global groups can be used to grant permissions to gain access to resources which are located in any domain but in a single forest as their memberships are limited. User accounts and global groups can be added only from the domain in which global group is created. Nesting is possible in Global groups within other groups as you can add a global group into another global group from any domain. Finally to provide permission to domain specific resources (like printers and published folder), they can be members of a Domain Local group. Global groups exist in all mixed, native and interim functional level of domains and forests.

* **Universal Group Scope**: these groups are precisely used for email distribution and can be granted access to resources in all trusted domain as these groups can only be used as a security principal (security group type) in a windows 2000 native or windows server 2003 domain functional level domain. Universal group memberships are not limited like global groups. All domain user accounts and groups can be a member of universal group. Universal groups can be nested under a global or Domain Local group in any domain.

**What are the types of backup? Explain each?**

Incremental

A “normal” incremental backup will only back up files that have been changed since the last backup of any type. This provides the quickest means of backup, since it only makes copies of files that have not yet been backed up. For instance, following our full backup on Friday, Monday’s tape will contain only those files changed since Friday. Tuesday’s tape contains only those files changed since Monday, and so on. The downside to this is obviously that in order to perform a full restore, you need to restore the last full backup first, followed by each of the subsequent
incremental backups to the present day in the correct order. Should any one of these backup copies be damaged (particularly the full backup), the restore will be incomplete.

Differential
A cumulative backup of all changes made after the last full backup. The advantage to this is the quicker recovery time, requiring only a full backup and the latest differential backup to restore the system. The disadvantage is that for each day elapsed since the last full backup; more data needs to be backed up, especially if a majority of the data has been changed.

What is the SYSVOL folder?
The Windows Server 2003 System Volume (SYSVOL) is a collection of folders and reparse points in the file systems that exist on each domain controller in a domain. SYSVOL provides a standard location to store important elements of Group Policy objects (GPOs) and scripts so that the File Replication service (FRS) can distribute them to other domain controllers within that domain.
You can go to SYSVOL folder by typing: %systemroot%/sysvol

What is the ISTG Who has that role by default?
The first server in the site becomes the ISTG for the site, the domain controller holding this role may not necessarily also be a bridgehead server.

What is the order in which GPOs are applied?
Local, Site, Domain, OU

1. Can a workstation computer be configured to browse the Internet and yet NOT have a default gateway?
If we are using public IP address, we can browse the internet. If it is having an intranet address a gateway is needed as a router or firewall to communicate with internet.

2. What is CIDR?
CIDR (Classless Inter-Domain Routing, sometimes known as supernetting) is a way to allocate and specify the Internet addresses used in inter-domain routing more flexibly than with the original system of Internet Protocol (IP) address classes. As a result, the number of available Internet addresses has been greatly increased. CIDR is now the routing system used by virtually all gateway hosts on the Internet’s backbone network. The Internet’s regulating authorities now expect every Internet service provider (ISP) to use it for routing.

3. What is DHCP? What are the benefits and drawbacks of using it?
DHCP is Dynamic Host Configuration Protocol. In a networked environment it is a method to assign an ‘address’ to a computer when it boots up.

Advantages
All the IP configuration information gets automatically configured for your client machine by the DHCP server.
If you move your client machine to a different subnet, the client will send out its discover message at boot time and work as usual. However, when you first boot up there you will not be able to get back the IP address you had at your previous location regardless of how little time has passed.

**Disadvantage**

Your machine name does not change when you get a new IP address. The DNS (Domain Name System) name is associated with your IP address and therefore does change. This only presents a problem if other clients try to access your machine by its DNS name.

4. **How do you manually create SRV records in DNS?**

To create SRV records in DNS do below steps:

- Open DNS
- Click on Zone —— Select domain abc.local ——
- Right Click to domain and go to Other New Records——
- And choose service location (SRV)

5. **Name 3 benefits of using AD-integrated zones.**

**Benefits as follows**

a. you can give easy name resolution to your clients.

b. By creating AD-integrated zone you can also trace hacker and spammer by creating reverse zone.

c. AD integrated zoned all for incremental zone transfers which on transfer changes and not the entire zone. This reduces zone transfer traffic.

d. AD Integrated zones support both secure and dynamic updates.

e. AD integrated zones are stored as part of the active directory and support domain-wide or forest-wide replication through application partitions in AD.

6. **How do I clear the DNS cache on the DNS server?**

Go to cmd prompt and type “ipconfig/flushdns” without quotes

7. **What is NAT?**

NAT (Network Address Translation) is a technique for preserving scarce Internet IP addresses. For more details go to Microsoft link

8. **How do you configure NAT on Windows 2003?**
SysAdmin Cheet Sheet

Configure NAT

9. How to configure special ports to allow inbound connections?

a. Click Start, Administrative Tools, and then click Routing and Remote Access to open the Routing and Remote Access management console.

b. Locate the interface that you want to configure.

c. Right-click the interface and then select Properties from the shortcut menu.

d. Click the Special Ports tab.

e. Under Protocol, select TCP or UDP and then click the Add button.

f. Enter the port number of the incoming traffic in Incoming Port.

g. Select On This Address Pool Entry, and provide the public IP address of the incoming traffic.

h. Enter the port number of the private network resource in Outgoing Port.

i. Enter the private network resource’s private IP address in Private Address.

j. Click OK.

DNS Interview Questions and Answer

1. Secure services in your network require reverse name resolution to make it more difficult to launch successful attacks against the services. To set this up, you configure a reverse lookup zone and proceed to add records. Which record types do you need to create?

2. What is the main purpose of a DNS server?

3. SOA records must be included in every zone. What are they used for?

4. By default, if the name is not found in the cache or local hosts file, what is the first step the client takes to resolve the FQDN name into an IP address?

5. What is the main purpose of SRV records?

6. Before installing your first domain controller in the network, you installed a DNS server and created a zone, naming it as you would name your AD domain. However, after the installation of the domain controller, you are unable to locate infrastructure SRV records anywhere in the zone. What is the most likely cause of this failure?

7. Which of the following conditions must be satisfied to configure dynamic DNS updates for legacy clients?

8. At some point during the name resolution process, the requesting party received authoritative reply. Which further actions are likely to be taken after this reply?

9. Your company uses ten domain controllers, three of which are also used as DNS servers. You have one companywide AD-integrated zone, which contains several thousand resource records. This zone also allows dynamic updates, and it is critical to keep this zone up-to-date. Replication between domain controllers takes up a significant amount of bandwidth. You are looking to cut bandwidth usage for the purpose of replication. What should you do?
10. You are administering a network connected to the Internet. Your users complain that everything is slow. Preliminary research of the problem indicates that it takes a considerable amount of time to resolve names of resources on the Internet. What is the most likely reason for this?

Answers…………………………

1. PTR Records
2. DNS servers are used to resolve FQDN hostnames into IP addresses and vice versa
3. SOA records contain a TTL value, used by default in all resource records in the zone. SOA records contain the e-mail address of the person who is responsible for maintaining the zone. SOA records contain the current serial number of the zone, which is used in zone transfers.
4. Performs a recursive search through the primary DNS server based on the network interface configuration
5. SRV records are used in locating hosts that provide certain network services.
6. The zone you created was not configured to allow dynamic updates. The local interface on the DNS server was not configured to allow dynamic updates.
7. The zone to be used for dynamic updates must be configured to allow dynamic updates. The DHCP server must support, and be configured to allow, dynamic updates for legacy clients.
8. After receiving the authoritative reply, the resolution process is effectively over.
9. Change the replication scope to all DNS servers in the domain.
10. DNS servers are not caching replies.. Local client computers are not caching replies… The cache.dns file may have been corrupted on the server.

What is DHCP’s purpose?

DHCP’s purpose is to enable individual computers on an IP network to extract their configurations from a server (the ‘DHCP server’) or servers, in particular, servers that have no exact information about the individual computers until they request the information. The overall purpose of this is to reduce the work necessary to administer a large IP network. The most significant piece of information distributed in this manner is the IP address.

What protocol and port does DHCP use?

DHCP, like BOOTP runs over UDP, utilizing ports 67 and 68.

What is Global Catalog?
The Global Catalog authenticates network user logons and fields inquiries about objects across a forest or tree. Every domain has at least one GC that is hosted on a domain controller. In Windows 2000, there was typically one GC on every site in order to prevent user logon failures across the network.

What is Stub Zone in DNS Server?

A stub zone is a copy of a zone that contains only those resource records necessary to identify the authoritative Domain Name System (DNS) servers for that zone. A stub zone is used to resolve names between separate DNS namespaces. This type of resolution may be necessary when a corporate merger requires that the DNS servers for two separate DNS namespaces resolve names for clients in both namespaces.
A stub zone consists of:

- The start of authority (SOA) resource record, name server (NS) resource records, and the glue A resource records for the delegated zone.
- The IP address of one or more master servers that can be used to update the stub zone.

The master servers for a stub zone are one or more DNS servers authoritative for the child zone, usually the DNS server hosting the primary zone for the delegated domain name.

**Where is the file of Active Directory data file stored?**

Active Directory data store in %SystemRoot%\ntds\NTDS.DIT. The ntds.dit file is the heart of Active Directory including user accounts.

**What are the types of records in DNS?**

To see the records of DNS Server checks this path - DNS Records.

**What is DHCP and at which port DHCP work?**

Dynamic Host Configuration Protocol (DHCP) is a network protocol that enables a server to automatically assign an IP address to a computer from a defined range of numbers (i.e., a scope) configured for a given network. DHCP assigns an IP address when a system is started.

DHCP client uses port 67 and the DHCP server uses port 68.

**What is DORA process in DHCP and How it works?**

DHCP (D)iscover
DHCP (O)ffer
DHCP (R)equest
DHCP (A)cknowledge

1) Client makes a UDP Broadcast to the server about the DHCP discovery.
2) DHCP offers to the client.
3) In response to the offer Client requests the server.
4) Server responds all the IP Add/mask/gty/dns/wins info along with the acknowledgement packet.
What is Super Scope in DHCP?

A superscope allows a DHCP server to provide leases from more than one scope to clients on a single physical network. Before you can create a superscope, you must use DHCP Manager to define all scopes to be included in the superscope. Scopes added to a superscope are called member scopes. Superscopes can resolve DHCP service issues in several different ways; these issues include situations in which:

- Support is needed for DHCP clients on a single physical network segment—such as a single Ethernet LAN segment—where multiple logical IP networks are used. When more than one logical IP network is used on a physical network, these configurations are also known as multinets.
- The available address pool for a currently active scope is nearly depleted and more computers need to be added to the physical network segment.
- Clients need to be migrated to a new scope.
- Support is needed for DHCP clients on the other side of BOOTP relay agents, where the network on the other side of the relay agent has multiple logical subnets on one physical network. For more information, see “Supporting BOOTP Clients” later in this chapter.
- A standard network with one DHCP server on a single physical subnet is limited to leasing addresses to clients on the physical subnet.

What is Stub zone DNS?

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What is Active Directory?

Active Directory is a network-based object store and service that locates and manages resources, and makes these resources available to authorized users and groups. An underlying principle of the Active Directory is that everything is considered an object—people, servers, workstations, printers, documents, and devices. Each object has certain attributes and its own security access control list (ACL).

What’s the difference between forward lookup zone and reverse lookup zone in DNS?

Forward lookup is name-to-IP address; the reverse lookup is IP address-to-name.
How to transfer roles in Active Directory?

Using Ntdsutil.exe we can transfer roles in Active Directory. To know more regarding role transfer click this [link](#).

How to backup Active Directory and which main file you take in backing of Active Directory?

We can take backup with Ntbackup utility.

Active Directory is backed up as part of system state, a collection of system components that depend on each other. You must backup and restore system state components together.

Components that comprise the system state on a domain controller include:

- **System Start-up Files (boot files).** These are the files required for Windows 2000 Server to start.
- **System registry.**
- **Class registration database of Component Services.** The Component Object Model (COM) is a binary standard for writing component software in a distributed systems environment.
- **SYSVOL.** The system volume provides a default Active Directory location for files that must be shared for common access throughout a domain. The SYSVOL folder on a domain controller contains:
  - NETLOGON shared folders. These usually host user logon scripts and Group Policy objects (GPOs) for non-Windows 2000 based network clients.
  - User logon scripts for Windows 2000 Professional based clients and clients that are running Windows 95, Windows 98, or Windows NT 4.0.
  - Windows 2000 GPOs.
  - File system junctions.
  - File Replication service (FRS) staging directories and files that are required to be available and synchronized between domain controllers.
- **Active Directory.** Active Directory includes:
  - Ntds.dit: The Active Directory database.
  - Edb.chk: The checkpoint file.
  - Edb*.log: The transaction logs, each 10 megabytes (MB) in size.
What is Active Directory Domain Services 2008?

Active Directory Domain Services (AD DS), formerly known as Active Directory Directory Services, is the central location for configuration information, authentication requests, and information about all of the objects that are stored within your forest. Using Active Directory, you can efficiently manage users, computers, groups, printers, applications, and other directory-disabled objects from one secure, centralized location.

What is the SYSVOL folder?

The Sysvol folder on a Windows domain controller is used to replicate file-based data among domain controllers. Because junctions are used within the Sysvol folder structure, Windows NT file system (NTFS) version 5.0 is required on domain controllers throughout a Windows distributed file system (DFS) forest.

This is a quote from Microsoft themselves, basically the domain controller info stored in files like your group policy stuff is replicated through this folder structure.

What's New in Windows Server 2008 Active Directory Domain Services?

Active Directory Domain Services in Windows Server 2008 provides a number of enhancements over previous versions, including these:

Auditing—AD DS auditing has been enhanced significantly in Windows Server 2008. The enhancements provide more granular auditing capabilities through four new auditing categories: Directory Services Access, Directory Services Changes, Directory Services Replication, and Detailed Directory Services Replication. Additionally, auditing now provides the capability to log old and new values of an attribute when a successful change is made to that attribute.

Fine-Grained Password Policies—AD DS in Windows Server 2008 now provides the capability to create different password and account lockout policies for different sets of users in a domain. User and group password and account lockout policies are defined and applied via a Password Setting Object (PSO). A PSO has attributes for all the settings that can be defined in the Default Domain Policy, except Kerberos settings. PSOs can be applied to both users and groups.

Read-Only Domain Controllers—AD DS in Windows Server 2008 introduces a new type of domain controller called a read-only domain controller (RODC). RODCs contain a read-only copy of the AD DS database. RODCs are covered in more detail in Chapter 6, “Manage Sites and Replication.”

Restartable Active Directory Domain Services—AD DS in Windows Server 2008 can now be stopped and restarted through MMC snap-ins and the command line. The restartable AD DS service reduces the time required to perform certain maintenance and restore operations. Additionally, other services running on the server remain available to satisfy client requests while AD DS is stopped.
**AD DS Database Mounting Tool**—AD DS in Windows Server 2008 comes with an AD DS database mounting tool, which provides a means to compare data as it exists in snapshots or backups taken at different times. The AD DS database mounting eliminates the need to restore multiple backups to compare the AD data that they contain and provides the capability to examine any change made to data stored in AD DS.

**What is the Global Catalog?**

A global catalog server is a domain controller. It is a master searchable database that contains information about every object in every domain in a forest. The global catalog contains a complete replica of all objects in Active Directory for its host domain, and contains a partial replica of all objects in Active Directory for every other domain in the forest.

It has two important functions:

- Provides group membership information during logon and authentication
- Helps users locate resources in Active Directory

**What are RODCs? And what are the major benefits of using RODCs?**

A read-only domain controller (RODC) is a new type of domain controller in the Windows Server® 2008 operating system. With an RODC, organizations can easily deploy a domain controller in locations where physical security cannot be guaranteed. An RODC hosts read-only partitions of the Active Directory® Domain Services (AD DS) database.

Before the release of Windows Server 2008, if users had to authenticate with a domain controller over a wide area network (WAN), there was no real alternative. In many cases, this was not an efficient solution. Branch offices often cannot provide the adequate physical security that is required for a writable domain controller. Furthermore, branch offices often have poor network bandwidth when they are connected to a hub site. This can increase the amount of time that is required to log on. It can also hamper access to network resources.

Beginning with Windows Server 2008, an organization can deploy an RODC to address these problems. As a result, users in this situation can receive the following benefits:

- Improved security
- Faster logon times
- More efficient access to resources on the network

**What does an RODC do?**

Inadequate physical security is the most common reason to consider deploying an RODC. An RODC provides a way to deploy a domain controller more securely in locations that require fast and reliable authentication services but cannot ensure physical security for a writable domain controller.
SysAdmin Cheet Sheet
as compiled by Eddie Jackson

However, your organization may also choose to deploy an RODC for special administrative requirements. For example, a line-of-business (LOB) application may run successfully only if it is installed on a domain controller. Or, the domain controller might be the only server in the branch office, and it may have to host server applications.

In such cases, the LOB application owner must often log on to the domain controller interactively or use Terminal Services to configure and manage the application. This situation creates a security risk that may be unacceptable on a writable domain controller.

An RODC provides a more secure mechanism for deploying a domain controller in this scenario. You can grant a nonadministrative domain user the right to log on to an RODC while minimizing the security risk to the Active Directory forest.

You might also deploy an RODC in other scenarios where local storage of all domain user passwords is a primary threat, for example, in an extranet or application-facing role.

What is REPADMIN?

Repadmin.exe: Replication Diagnostics Tool

This command-line tool assists administrators in diagnosing replication problems between Windows domain controllers.

Administrators can use Repadmin to view the replication topology (sometimes referred to as RepsFrom and RepsTo) as seen from the perspective of each domain controller. In addition, Repadmin can be used to manually create the replication topology (although in normal practice this should not be necessary), to force replication events between domain controllers, and to view both the replication metadata and up-to-dateness vectors.

Repadmin.exe can also be used for monitoring the relative health of an Active Directory forest. The operations replsummary, showrepl, showrepl /csv, and showvector /latency can be used to check for replication problems.

What is NETDOM?

NETDOM is a command-line tool that allows management of Windows domains and trust relationships. It is used for batch management of trusts, joining computers to domains, verifying trusts, and secure channels.

What is Exchange Server 2007?

Microsoft Exchange Server 2007 is the next version of Microsoft Exchange. Microsoft Exchange is the industry’s leading e-mail, calendaring, and unified messaging server. The release of Exchange Server 2007 is closely aligned with the 2007 Microsoft Office release. Together, these products deliver a best-in-class enterprise messaging and collaboration solution.
What is new in Exchange Server 2007?

Exchange 2007 provides built-in protection to keep the e-mail system up and running and protected from outside threats and lets employees work more productively from wherever they are by using a variety of clients. These clients include Microsoft Office Outlook 2007, Microsoft Office Outlook Web Access, and mobile devices. Exchange Server 2007 makes it easier for IT departments to deliver these new capabilities to their organizations by making the messaging environment easier to manage and more cost-efficient. For more information about Exchange Server 2007.

How does Exchange Server 2007 integrate with Microsoft Office Outlook 2007?

Outlook 2007 provides the most complete e-mail, calendaring, contacts, and tasks functionality available in an e-mail client that is compatible with Exchange. When Outlook 2007 is used with Exchange Server 2007, users benefit from the new Scheduling Assistant that automates time-consuming meeting and resource scheduling, the ability to plan and customize out-of-office communications, and managed e-mail folders that facilitate compliance with internal and regulatory policies. Outlook 2007 and Exchange Server 2007 also combine to enhance security by offering features that are easy to use and let users confidently send and receive sensitive business communications through e-mail. By enabling the Autodiscover service, you can reduce the complexity of client configuration and reduce administrative costs that are associated with troubleshooting connectivity issues for users.

What are the different editions of Exchange Server 2007?


How can I upgrade my current Exchange 2000 Server or Exchange Server 2003 environment?

When you upgrade to Exchange Server 2007, you cannot perform an in-place server upgrade on an existing Exchange server. Instead, you must install a new Exchange 2007 server into the existing organization, and then move the required data to the new Exchange server. Exchange Server 2007 supports mixed environments that include Exchange 2000 Server, Exchange Server 2003, or both. This allows for an easier and more gradual transition. For more information about how to plan and deploy Exchange Server 2007.

Should I map my current routing groups to my current Active Directory sites?

Exchange 2007 is based on Active Directory sites. If your current Microsoft Exchange environment maps as closely as possible to Active Directory sites, your interoperability and migration story will be easier. Additionally, the recommended upgrade path is to upgrade all the Exchange 2000 Server or Exchange Server 2003 servers in a single routing group before you upgrade the next routing group. This lets you fully decommission a routing group as you upgrade and reduces the complexity of your current routing topology. Mapping the Exchange 2000 Server or Exchange Server 2003 routing groups to the Exchange 2007 physical topology also makes it easier to plan for an
upgrade to Exchange 2007 because the two environments are similarly organized and generally correlate to Active Directory sites.

**What are some of the new tools and features provided by Windows Server 2008?**

Windows Server 2008 now provides a desktop environment similar to Microsoft Windows Vista and includes tools also found in Vista, such as the new backup snap-in and the BitLocker drive encryption feature. Windows Server 2008 also provides the new IIS7 web server and the Windows Deployment Service.

**What are the different editions of Windows Server 2008?**


**What two hardware considerations should be an important part of the planning process for a Windows Server 2008 deployment?**

Any server on which you will install Windows Server 2008 should have at least the minimum hardware requirement for running the network operating system. Server hardware should also be on the Windows Server 2008 Hardware Compatibility List to avoid the possibility of hardware and network operating system incompatibility.

**What are the options for installing Windows Server 2008?**

You can install Windows Server 2008 on a server not currently configured with NOS, or you can upgrade existing servers running Windows 2000 Server and Windows Server 2003.

**How do you configure and manage a Windows Server 2008 core installation?**

This stripped-down version of Windows Server 2008 is managed from the command line.

**Which Control Panel tool enables you to automate the running of server utilities and other applications?**

The Task Scheduler enables you to schedule the launching of tools such as Windows Backup and Disk Defragmenter.

**What are some of the items that can be accessed via the System Properties dialog box?**

You can access virtual memory settings and the Device Manager via the System Properties dialog box.
When a child domain is created in the domain tree, what type of trust relationship exists between the new child domain and the tree's root domain?

Child domains and the root domain of a tree are assigned transitive trusts. This means that the root domain and child domain trust each other and allow resources in any domain in the tree to be accessed by users in any domain in the tree.

What is the primary function of domain controllers?

The primary function of domain controllers is to validate users to the network. However, domain controllers also provide the catalog of Active Directory objects to users on the network.

What are some of the other roles that a server running Windows Server 2008 could fill on the network?

A server running Windows Server 2008 can be configured as a domain controller, a file server, a print server, a web server, or an application server. Windows servers can also have roles and features that provide services such as DNS, DHCP, and Routing and Remote Access.

Which Windows Server 2008 tools make it easy to manage and configure a server's roles and features?

The Server Manager window enables you to view the roles and features installed on a server and also to quickly access the tools used to manage these various roles and features. The Server Manager can be used to add and remove roles and features as needed.

What Windows Server 2008 service is used to install client operating systems over the network?

Windows Deployment Services (WDS) enables you to install client and server operating systems over the network to any computer with a PXE-enabled network interface.

What domain services are necessary for you to deploy the Windows Deployment Services on your network?

Windows Deployment Services requires that a DHCP server and a DNS server be installed in the domain.

How is WDS configured and managed on a server running Windows Server 2008?

The Windows Deployment Services snap-in enables you to configure the WDS server and add boot and install images to the server.

What is the difference between a basic and dynamic drive in the Windows Server 2008 environment?

A basic disk embraces the MS-DOS disk structure; a basic disk can be divided into partitions (simple volumes). Dynamic disks consist of a single partition that can be divided into any number of volumes. Dynamic disks also support Windows Server 2008 RAID implementations.
What is RAID in Windows Server 2008?

RAID, or Redundant Array of Independent Disks, is a strategy for building fault tolerance into your file servers. RAID enables you to combine one or more volumes on separate drives so that they are accessed by a single drive letter. Windows Server 2008 enables you to configure RAID 0 (a striped set), RAID 1 (a mirror set), and RAID 5 (disk striping with parity).

What conceptual model helps provide an understanding of how network protocol stacks such as TCP/IP work?

The OSI model, consisting of the application, presentation, session, transport, network, data link, and physical layers, helps describe how data is sent and received on the network by protocol stacks.

What protocol stack is installed by default when you install Windows Server 2008 on a network server?

TCP/IP (v4 and v6) is the default protocol for Windows Server 2008. It is required for Active Directory implementations and provides for connectivity on heterogeneous networks.

How is a server running Windows Server 2008 configured as a domain controller, such as the domain controller for the root domain or a child domain?

Installing the Active Directory on a server running Windows Server 2008 provides you with the option of creating a root domain for a domain tree or of creating child domains in an existing tree. Installing Active Directory on the server makes the server a domain controller.

What are some of the tools used to manage Active Directory objects in a Windows Server 2008 domain?

When the Active Directory is installed on a server (making it a domain controller), a set of Active Directory snap-ins is provided. The Active Directory Users and Computers snap-in is used to manage Active Directory objects such as user accounts, computers, and groups. The Active Directory Domains and Trusts snap-in enables you to manage the trusts that are defined between domains. The Active Directory Sites and Services snap-in provides for the management of domain sites and subnets.

How are domain user accounts created and managed?

The Active Directory Users and Computers snap-in provides the tools necessary for creating user accounts and managing account properties. Properties for user accounts include settings related to logon hours, the computers to which a user can log on, and the settings related to the user’s password.

What type of Active Directory objects can be contained in a group?

A group can contain users, computers, contacts, and other nested groups.
What type of group is not available in a domain that is running at the mixed-mode functional level?

Universal groups are not available in a mixed-mode domain. The functional level must be raised to Windows 2003 or Windows 2008 to make these groups available.

What types of Active Directory objects can be contained in an Organizational Unit?

Organizational Units can hold users, groups, computers, contacts, and other OUs. The Organizational Unit provides you with a container directly below the domain level that enables you to refine the logical hierarchy of how your users and other resources are arranged in the Active Directory.

What are Active Directory sites in Windows Server 2008?

Active Directory sites are physical locations on the network’s physical topology. Each regional domain that you create is assigned to a site. Sites typically represent one or more IP subnets that are connected by IP routers. Because sites are separated from each other by a router, the domain controllers on each site periodically replicate the Active Directory to update the Global Catalog on each site segment.

Can servers running Windows Server 2008 provide services to clients when they are not part of a domain?

Servers running Windows Server 2008 can be configured to participate in a workgroup. The server can provide some services to the workgroup peers but does not provide the security and management tools provided to domain controllers.

What does the use of Group Policy provide you as a network administrator?

Group Policy provides a method of controlling user and computer configuration settings for Active Directory containers such as sites, domains, and OUs. GPOs are linked to a particular container, and then individual policies and administrative templates are enabled to control the environment for the users or computers within that particular container.

What tools are involved in managing and deploying Group Policy?

GPOs and their settings, links, and other information such as permissions can be viewed in the Group Policy Management snap-in.

How do you deal with Group Policy inheritance issues?

GPOs are inherited down through the Active Directory tree by default. You can block the inheritance of settings from upline GPOs (for a particular container such as an OU or a local computer) by selecting Block Inheritance for that particular object. If you want to enforce a higher-level GPO so that it overrides directly linked GPOs, you can use the Enforce command on the inherited (or upline) GPO.

How can you make sure that network clients have the most recent Windows updates installed and have other important security features such as the Windows Firewall enabled before they can gain full network access?
You can configure a Network Policy Server (a service available in the Network Policy and Access Services role). The Network Policy Server can be configured to compare desktop client settings with health validators to determine the level of network access afforded to the client.

**What is the purpose of deploying local DNS servers?**

A domain DNS server provides for the local mapping of fully qualified domain names to IP addresses. Because the DNS is a distributed database, the local DNS servers can provide record information to remote DNS servers to help resolve remote requests related to fully qualified domain names on your network.

**In terms of DNS, what is a caching-only server?**

A caching-only DNS server supplies information related to queries based on the data it contains in its DNS cache. Caching-only servers are often used as DNS forwarders. Because they are not configured with any zones, they do not generate network traffic related to zone transfers.

**How the range of IP addresses is defined for a Windows Server 2008 DHCP server?**

The IP addresses supplied by the DHCP server are held in a scope. A scope that contains more than one subnet of IP addresses is called a superscope. IP addresses in a scope that you do not want to lease can be included in an exclusion range.
# Common Ports TCP

<table>
<thead>
<tr>
<th>Port</th>
<th>Service</th>
<th>Protocol</th>
<th>Transport</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
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<td>(136)</td>
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<td>TCP</td>
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<td>(20)(21)</td>
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<tr>
<td>22</td>
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<td>63</td>
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<td>Pro</td>
<td>(80)</td>
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<td>88</td>
<td>Kerberos</td>
<td>TCP</td>
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<td>110</td>
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<td>113</td>
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<td>119</td>
<td>NNTP (Usenet)</td>
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<tr>
<td>123</td>
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<td>TCP</td>
<td>TCP/UDP</td>
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</tr>
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<td>133</td>
<td>Microsoft RPC</td>
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<tr>
<td>137-139</td>
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<td>201</td>
<td>AppleTalk</td>
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<tr>
<td>264</td>
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<td>TCP</td>
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<td>Pro</td>
<td>(264)</td>
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<td>318</td>
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<td>TCP</td>
<td>TCP/UDP</td>
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<tr>
<td>381-383</td>
<td>HP Openview</td>
<td>TCP</td>
<td>TCP/UDP</td>
<td>Pro</td>
<td>(381)-(383)</td>
</tr>
<tr>
<td>389</td>
<td>LDAP</td>
<td>TCP</td>
<td>TCP/UDP</td>
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<td>(389)</td>
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<tr>
<td>411-412</td>
<td>Direct Connect</td>
<td>TCP</td>
<td>TCP/UDP</td>
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<td>(411)-(412)</td>
</tr>
<tr>
<td>443</td>
<td>HTTP over SSL</td>
<td>TCP</td>
<td>TCP/UDP</td>
<td>Pro</td>
<td>(443)</td>
</tr>
<tr>
<td>445</td>
<td>Microsoft DS</td>
<td>TCP</td>
<td>TCP/UDP</td>
<td>Pro</td>
<td>(445)</td>
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<tr>
<td>464</td>
<td>Kerberos</td>
<td>TCP</td>
<td>TCP/UDP</td>
<td>Pro</td>
<td>(464)</td>
</tr>
<tr>
<td>465</td>
<td>SMTP over SSL</td>
<td>TCP</td>
<td>TCP/UDP</td>
<td>Pro</td>
<td>(465)</td>
</tr>
<tr>
<td>497</td>
<td>Retrospect</td>
<td>TCP</td>
<td>TCP/UDP</td>
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<tr>
<td>500</td>
<td>LAKMP</td>
<td>TCP</td>
<td>TCP/UDP</td>
<td>Pro</td>
<td>(500)</td>
</tr>
<tr>
<td>512</td>
<td>rexec</td>
<td>TCP</td>
<td>TCP/UDP</td>
<td>Pro</td>
<td>(512)</td>
</tr>
<tr>
<td>513</td>
<td>rlogin</td>
<td>TCP</td>
<td>TCP/UDP</td>
<td>Pro</td>
<td>(513)</td>
</tr>
<tr>
<td>514</td>
<td>syslog</td>
<td>TCP</td>
<td>TCP/UDP</td>
<td>Pro</td>
<td>(514)</td>
</tr>
<tr>
<td>515</td>
<td>LPR/LPR</td>
<td>TCP</td>
<td>TCP/UDP</td>
<td>Pro</td>
<td>(515)</td>
</tr>
<tr>
<td>520</td>
<td>RIPv2</td>
<td>TCP</td>
<td>TCP/UDP</td>
<td>Pro</td>
<td>(520)</td>
</tr>
<tr>
<td>521</td>
<td>RIPng (IPv6)</td>
<td>TCP</td>
<td>TCP/UDP</td>
<td>Pro</td>
<td>(521)</td>
</tr>
<tr>
<td>540</td>
<td>UUUCP</td>
<td>TCP</td>
<td>TCP/UDP</td>
<td>Pro</td>
<td>(540)</td>
</tr>
</tbody>
</table>

Legend:
- Chat
- Encrypted
- Gaming
- Malicious
- Peer to Peer
- Streaming

IANA port assignments published at [http://www.iana.org/assignments/port-numbers](http://www.iana.org/assignments/port-numbers)

1/3/2011
SysAdmin Cheet Sheet.doc v1
Software Packaging Engineer
Protocol Family – OSI Model

Layer 7 Application
Provides standard services to applications and end-user interfaces.

Layer 6 Presentation
Performs data format conversion. Provides compression, encoding, and encryption of data.

Layer 5 Session
Establishes sessions between services. Synchronizes and performs translations for naming services.

Layer 4 Transport
Manages connections and provides reliable packet delivery. Operates in units of messages.

Layer 3 Network
Addresses and routes datagrams. Performs fragmentation and reassembly (IP). Operates in units of packets.

Layer 2 Logical Link
Provides hardware addressing and error detection/correction. Operates in units of frames.

Layer 1 Physical
Defines connection, electrical, and wiring specifications. Operates in units of bits.
SysAdmin Cheet Sheet
as compiled by Eddie Jackson
PowerShell

Windows PowerShell Quick Reference

How to Access Arguments
To access command-line arguments used when starting a script, use the automatic variable $args. You can cycle through the individual arguments in the $args collection by using a command similar to this:

```
ForEach ($i in $args) {
    ...
}
```

How to Access a particular argument use the collection index number, represented by the index in the collection, representing the second item, etc:

```
$arg[1]
```

You can reference the last item in a collection by using the index number -1:

```
$arg[-1]
```

How to Solicit Input
To solicit input from a user, use the Read-Host cmdlet, followed by the prompt to be displayed.

```
$prompt = Read-Host "Please enter your name"
```

How to Insert Line Breaks
To insert a line break into a Windows PowerShell script, use the backslash (\n).

```
Write-Host "This is a continuation of the line."
```

You can also insert a line at the pipe separator (|) character (assuming your line is used in the pipeline):

```
Get-ChildItem C:\Scripts | Sort-Object Length -Descending
```

How to Create Multi-Command Lines
To combine multiple commands on a single line, separate those commands using a semicolon.

```
$arg = "arg1", "arg2")
Write-Host $arg
```

How to Use Colored Text
To display text in a different color use the Write-Host cmdlet and specify a foreground color.

Write-Host "text" -ForegroundColor "green"

You can also specify a different background color:

Write-Host "text" -ForegroundColor "green" -BackgroundColor "blue"

How to Insert a Paragraph Return
To insert a paragraph return in your output use the newline character 
.

```
Write-Host "Line 1
Line 2"
```

How to Write in Reverse Video
To echo a message inverse video use the Write-Warning cmdlet.

```
Write-Warning "An error has occurred."
```

How to Insert Comments
To insert a comment, use the pound sign (#).

```
# This is a comment, not a line to be run.
```

How to Read a Text File
To read the contents of a text file into a variable, call the Get-Content cmdlet followed by the path to the text file:

```
$content = Get-Content C:\Scripts\Test.txt
```

Each line in the file ends up as an item in the array. So, if you want to access a single line in the file you can simply specify the index number corresponding to that line:

```
Get-Content C:\Scripts\Test.txt | Select-Object [-1] # last line
```

This command outputs the last line in $content:

```
Get-Content C:\Scripts\Test.txt
```

Remove To determine the number of lines, words, and characters in a file use the command:

```
get-content c:\scripts\test.txt | measure-object -line -word -character
```

Windows PowerShell and Do-While...Where-Object uses a special set of comparison operators, including those shown in the following table:

<table>
<thead>
<tr>
<th>Operator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-lt</td>
<td>Less than</td>
</tr>
<tr>
<td>-le</td>
<td>Less than or equal to</td>
</tr>
<tr>
<td>-gt</td>
<td>Greater than</td>
</tr>
<tr>
<td>-ge</td>
<td>Greater than or equal to</td>
</tr>
<tr>
<td>-eq</td>
<td>Equal to</td>
</tr>
<tr>
<td>-ne</td>
<td>Not equal to</td>
</tr>
<tr>
<td>-like</td>
<td>Like (uses wildcards for matching)</td>
</tr>
<tr>
<td>-notlike</td>
<td>Not like (uses wildcards for matching)</td>
</tr>
</tbody>
</table>

How to Write Conditional Statements
To write if statements use code similar to this:

```
if ($arg -eq "test") {
    "The color is red."
} elseif ($arg -eq "blue") {
    "The color is blue."
} elseif ($arg -eq "green") {
    "The color is green."
} else {
    "The color is blue."
}
```

Instead of writing a series of if statements you can use a Switch statement, which is equivalent to the above code:

```
Select-Case $arg
```

```
   Select-Case $arg
   {
       1 {"The color is red."}
       2 {"The color is blue."}
       3 {"The color is green."}
       4 {"The color is yellow."}
   }
```

How to Write For and For Each Loops
To write a For loop use code similar to this:

```
for ($i = 1; $i <= 10; $i++) {
    $i
}
```

By comparison, a ForEach statement might look like this:

```
foreach ($item in get-childitem c:\scripts) {
    $item
}
```

How to Write Do Loops
To write a Do loop use code similar to the following, replacing the code between the curly braces with the code to be executed at each iteration of the loop. On and replacing the code inside the foreach with the loop condition:

```
$i = 1
do { $i++ } until ($i = 10)
```

How to Write Do While Loops
To write a Do While loop use code similar to the following, replacing the code between the curly braces with the code to be executed at each iteration of the loop. On and replacing the code inside the foreach with the loop condition:

```
$i = 1
while ($i <= 10) {
    ...
    $i
}
```

How to Write Do Until Loops
To write a Do Until loop use code similar to the following, replacing the code between the curly braces with the code to be executed at each iteration of the loop. On and replacing the code inside the foreach with the loop condition:

```
$i = 1
do { $i++ } until ($i = 10)
```

How to Print Data
To print data to the default printer use the Out-Printer cmdlet.

```
Get-Process | Out-Printer
```

Software Packaging Engineer
VMWare

1. VMWare Kernel is a Proprietary Kernel and is not based on any of the UNIX operating systems, it’s a kernel developed by VMWare Company.

2. The VMKernel can't boot it by itself, so that it takes the help of the 3rd party operating system. In VMWare case the kernel is booted by RedHat Linux operating system which is known as service console.

3. The service console is developed based up on Redhat Linux Operating system; it is used to manage the VMKernel

4. To restart webaccess service on VMWare
   service vmware-webaccess restart – this will restart apache tomcat app

5. To restart ssh service on vmware
   service sshd restart

6. To restart host agent (vmware-hostd) on vmware esx server
   service mgmt-vmware restart

7. Path for the struts-config.xml
   /usr/lib/vmware/webAccess/tomcat/apache-tomcat-5.5.17/webapps/ui/WEB-INF/

8. To start the scripted install the command is
   esx ks=nfs:111.222.333.444:/data/KS.config ksdevice=eth0
   location device name

9. Virtual Network in Simple…………………
   Virtual Nic(s) on Virtual Machine(s) ----->
   Physical Nic on the ESX Server (Virtual Switch - 56 Ports) ----->
   Physical Switch Port Should be trunked with all the VLANS to which the VM's need access
   All the ESX servers should be configured with Same number of Physical Nics (vSwitches) and Connectivity also should be same,
   So that vMotion succeeds
   All the Virtual Machines are connected to one vSwitch with Different VLANS, this means the Physical Nic(vSwitch) needs to be
   trunked with the same VLANS on the Physical Switch Port

10 What are the three port groups present in ESX server networking
1. Virtual Machine Port Group - Used for Virtual Machine Network
2. Service Console Port Group - Used for Service Console Communications
3. VMKernel Port Group - Used for VMotion, iSCSI, NFS Communications

11. What is the use of a Port Group?
The port group segregates the type of communication.

12. What are the type of communications which requires an IP address for sure?
Service Console and VMKernel (VMotion and iSCSI), these communications does not happen without an ip address (Whether it is a single or dedicated)

13. In the ESX Server licensing features VMotion License is showing as Not used, why?
Even though the license box is selected, it shows as "License Not Used" until, you enable the VMotion option for specific vSwitch

14. How the Virtual Machine Port group communication works?
All the vm's which are configured in VM Port Group are able to connect to the physical machines on the network. So this port group enables communication between vSwitch and Physical Switch to connect vm's to Physical Machine's

15. What is a VLAN?
A VLAN is a logical configuration on the switch port to segment the IP Traffic. For this to happen, the port must be trunked with the correct VLAN ID.

16. Does the vSwitches support VLAN Tagging? Why?
Yes, The vSwitches support VLAN Tagging, otherwise if the virtual machines in an esx host are connected to different VLANS, we need to install a separate physical nic (vSwitch) for every VLAN. That is the reason vmware included the VLAN tagging for vSwitches. So every vSwitch supports up to 1016 ports, and BTW they can support 1016 VLANS if needed, but an ESX server doesn't support that many VM's. :)

17. What is Promiscuous Mode on vSwitch? What happens if it sets to Accept?
If the promiscuous mode set to Accept, all the communication is visible to all the virtual machines, in other words all the packets are sent to all the ports on vSwitch.
If the promiscuous mode set to Reject, the packets are sent to intended port, so that the intended virtual machine was able to see the communication.

18. What is MAC address Changes? What happens if it is set to Accept?
When we create a virtual machine the configuration wizard generates a MAC address for that machine, you can see it in the .vmx (VM Config) file. If it doesn't matches with the MAC address in the OS this setting does not allow incoming traffic to the VM. So by setting Reject Option both MAC addresses will be remains same and the incoming traffic will be allowed to the VM.

19. What is Forged Transmits? What happens if it is set to Accept?
When we create a virtual machine the configuration wizard generates a MAC address for that machine, you can see it in the .vmx (VM Config) file. If it doesn't matches with the MAC address in the OS this setting does not allow outgoing traffic from the VM. So by setting Reject Option both MAC addresses will be remains same and the outgoing traffic will be allowed from the VM.

20. What are the core services of VC?
VM provisioning, Task Scheduling and Event Logging
SysAdmin Cheat Sheet

21. Can we do vMotion between two datacenters? If possible how it will be?
Yes we can do vMotion between two datacenters, but the mandatory requirement is the VM should be powered off.

22. What is VC agent? And what service it is corresponded to? What are the minimum req's for VC agent installation?
VC agent is an agent installed on ESX server which enables communication between VC and ESX server.
The daemon associated with it is called vmware-hostd, and the service which corresponds to it is called as mgmt-vmware, in the event of VC agent failure just restart the service by typing the following command at the service console
" service mgmt-vmware restart 
VC agent installed on the ESX server when we add it to the VC, so at the time of installation if you are getting an error like " VC Agent service failed to install ", check the /Opt size whether it is sufficient or not.

23. How can you edit VI Client Settings and VC Server Settings?
Click Edit Menu on VC and Select Client Settings to change VI settings
Click Administration Menu on VC and Select VC Management Server Configuration to Change VC Settings

24. What are the files that make a Virtual Machine?
- .vmx - Virtual Machine Configuration File
- .nvram - Virtual Machine BIOS
- .vmdk - Virtual Machine Disk file
- .vswp - Virtual Machine Swap File
- .vmsd - Virtual Machine Snapshot Database
- .vmsn - Virtual Machine Snapshot file
- .vmss - Virtual Machine Suspended State file
- .vmware.log - Current Log File
- .vmware-.#log - Old Log file

25. What are the devices that can be added while the virtual Machine running
In VI 3.5 we can add Hard Disk and NIC’s while the machine running.
In vSphere 4.0 we can add Memory and Processor along with HDD and NIC’s while the machine running

26. How to set the time delay for BIOS screen for a Virtual Machine?
Right Click on VM, select edit settings, choose options tab and select boot option, set the delay how much you want.

27. What is a template?
We can convert a VM into Template, and it cannot be powered on once its changed to template. This is used to quick provisioning of VM’s.

23. What to do to customize the windows virtual machine clone?
copy the sysprep files to Virtual center directory on the server, so that the wizard will take the advantage of it.

24. What to do to customize the linux/unix virtual machine clone?
VC itself includes the customization tools, as these operating systems are available as open source.

25. Does cloning from template happen between two datacenters?
Yes…it can, if the template in one datacenter, we can deploy the VM from that template in another datacenter without any problem.

26. What are the common issues with snapshots? What stops from taking a snapshot and how to fix it?
If you configure the VM with Mapped LUN’s, then the snapshot failed. If it is mapped as virtual then we can take a snapshot of it.
If you configure the VM with Mapped LUN’s as physical, you need to remove it to take a snapshot.

27. What are the settings that are taken into consideration when we initiate a snapshot?
Virtual Machine Configuration (What hardware is attached to it)
State of the Virtual Machine Hard Disk file (To revert back if needed)
State of the Virtual Machine Memory (if it is powered on)

28. What are the requirements for Converting a Physical machine to VM?
An agent needs to be installed on the Physical machine
VI client needs to be installed with Converter Plug-in
A server to import/export virtual machines

29. What is VMWare consolidated backup?
It is a backup framework that supports 3rd party utilities to take backups of ESX servers and Virtual Machines. It's not a backup service.

30. To open the guided consolidation tool, what are the user requirements?
The user must be member of administrator. The user should have "Logon as service" privileges - To give a user these privileges, open local sec policy, select Logon as service policy and add the user the user should have read access to AD to send queries