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Practices to Administration of Windows Server 2012 and 2012 R2

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Practices to Administration of Windows Server 2012 and 2012 R2

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Jan. 3, 2016

Windows Server 2012 and 2012 R2 is a new version from Microsoft, and provides many new features and improves storage, security, firewall, networking, remote access, BYOD, and server administration. I have worked with Windows Server 2012 and 2012 R2, and practices to Administration of Windows Server 2012 and 2012 R2. My work experiences about Windows Server 2012 and 2012 R2 included installation, basic configuration, Server Manager, Creating domain controller, Managing the Firewall, Internet Information Services (IIS 8, Web Server), and Virtual Desktop Infrastructure. I would like to provide the following information of Administration and work steps of Windows Server 2012 and 2012 R2 for your reference.

1. Introduce to Windows Server 2012 and 2012 R2


1.1 Different between Windows Server 2008 R2 and 2012

Microsoft Windows Server 2012 was available for download or purchase on September 4, 2012. Windows Server 2012 has both the Standard and Datacenter editions. Comparing with Windows Server 2008 R2, Windows server 2012 has developed in the features that included Processor and memory support, Network, Storage, and Manageability. The detail information is the following in detail.

### Processor and Memory Support

<table>
<thead>
<tr>
<th>Process/Memory</th>
<th>Windows Server 2008 R2</th>
<th>Windows Server 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logical processors on hardware</td>
<td>64</td>
<td>320</td>
</tr>
<tr>
<td>Physical memory</td>
<td>1 TB</td>
<td>4 TB</td>
</tr>
<tr>
<td>Virtual processors per host</td>
<td>512</td>
<td>2048</td>
</tr>
<tr>
<td>Virtual processors per virtual machine</td>
<td>4</td>
<td>64</td>
</tr>
<tr>
<td>Memory per virtual machine</td>
<td>64 GB</td>
<td>1 TB</td>
</tr>
<tr>
<td>Active virtual machines</td>
<td>384</td>
<td>1024</td>
</tr>
<tr>
<td>Maximum cluster nodes</td>
<td>16</td>
<td>64</td>
</tr>
<tr>
<td>Maximum cluster virtual machines</td>
<td>1,000</td>
<td>8,000</td>
</tr>
</tbody>
</table>
### Network

<table>
<thead>
<tr>
<th>Network Feature</th>
<th>Windows Server 2008 R2</th>
<th>Windows Server 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIC Teaming</td>
<td>Yes, through partners</td>
<td>Yes, Windows NIC Teaming in box</td>
</tr>
<tr>
<td>VLAN Tagging</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>MAC spoofing protection</td>
<td>Yes, with R2 SP1</td>
<td>Yes</td>
</tr>
<tr>
<td>ARP spoofing protection</td>
<td>Yes, with R2 SP1</td>
<td>Yes</td>
</tr>
<tr>
<td>SR-IOV networking</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Network QoS</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Network metering</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Network monitor modes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>IPsec task offload</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>VM Trunk Mode</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Storage

<table>
<thead>
<tr>
<th>Storage Feature</th>
<th>Windows Server 2008 R2</th>
<th>Windows Server 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live storage migration</td>
<td>No, quick storage migration through System Center Virtual Machine Manager</td>
<td>Yes, with no limits (as many as the hardware will allow)</td>
</tr>
<tr>
<td>Virtual machines on file storage</td>
<td>No</td>
<td>Yes, Server Message Block 3.0 (SMB3)</td>
</tr>
<tr>
<td>Guest Fibre Channel</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Virtual disk format</td>
<td>VHD up to 2 TB</td>
<td>VHD up to 2 TB, VHDX up to 64 TB</td>
</tr>
<tr>
<td>Virtual machine guest clustering</td>
<td>Yes, through iSCSI</td>
<td>Yes, through iSCSI, Fibre Channel, or Fibre Channel over Ethernet (FCoE)</td>
</tr>
<tr>
<td>Native 4 KB disk support</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Live virtual hard disk merge</td>
<td>No, offline</td>
<td>Yes</td>
</tr>
<tr>
<td>Live new parent</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Secure offloaded data transfer</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Manageability

<table>
<thead>
<tr>
<th>Manageability Feature</th>
<th>Windows Server 2008 R2</th>
<th>Windows Server 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyper-V PowerShell</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Network PowerShell</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Storage PowerShell</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>REST APIs</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>SCONFIG</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Enable/Disable shell</td>
<td>No, server core at operating system setup</td>
<td>Yes</td>
</tr>
</tbody>
</table>
VMConnect support for RemoteFX | No | Yes
---|---|---

Table 1 Windows Server 2008 R2 and 2012

Base on Windows Server 2008, Windows Server 2012 has been developed in Processor and memory support, Network, Storage, and Manageability.

1.2 Different between Windows Server 2012 and 2012 R2


Windows Server 2012 R2 eliminates many of the problems that plagued the previous versions of Windows Server, and it includes a much faster boot time and shutdown. It is also easier to install and configure.

New Features and Different in Windows Server 2012 and 2012 R2 included Network, Active Directory, Security, Certification Services, DiretAcess and Data Deduplication, DHCP and DNS, IP Address Management (IPAM), Storage Services, Group Policy, Hyper-V, Virtualization, iSCSI Target Server, SMB and so on. The New Features and Different in Windows Server 2012 and 2012 R2 have been listed as follows:

- 802.1X Authenticated Wired and Wireless Access
- Active Directory in Windows Server, Active Directory Domain Services (AD DS) and Active Directory Rights Management Services (AD RMS)
- BitLocker and BranchCache
- Certificate Services in Windows Server
- Data Deduplication in Windows Server
- DFS Replication and DFS Namespaces in Windows Server
- DHCP, DNS Server and DNS Client
- Failover Clustering in Windows Server
- New and changed functionality
- File Server Resource Manager in Windows Server
- Group Policy in Windows Server
- Hyper-V for Windows Server 2012 R2
- Hyper-V Network Virtualization
- Hyper-V Virtual Switch in Windows Server 2012 R2
- IP Address Management (IPAM)
- iSCSI Target Server in Windows Server
- Kerberos Authentication
- Managed Service Accounts
• New in Networking
• Print and Document Services in Windows Server
• New in Remote Access
• Remote Desktop Services in Windows Server
• Security and Protection
• Server Manager
• New in Smart Cards
• New in SMB in Windows Server
• Storage Spaces in Windows Server
• Transport Layer Security (TLS)/ Secure Sockets Layer (SSL), Security Support Provider (SSP)
• Windows Deployment Services in Windows Server
• New in Windows PowerShell
• New in Windows Server Essentials

### 1.3 Compare versions of Windows Server

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Directory Services</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Dynamic Access Control</td>
<td></td>
<td>Yes</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>AD virtualization support</td>
<td></td>
<td>Yes</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Shared-nothing live migration</td>
<td></td>
<td>Yes</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Hyper-V Replica</td>
<td></td>
<td>Yes</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Hyper-V clustering</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Virtual Desktop Infrastructure</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Storage Spaces with tie ring</td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Shared VHDX</td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Live storage migration</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Storage QoS</td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Cluster share volume</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feature</td>
<td>OS1</td>
<td>OS2</td>
<td>OS3</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td></td>
</tr>
<tr>
<td>Multi-tenant high density websites</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>NUMA aware scalability</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Dynamic IP restrictions</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Hyper-V Network Virtualization</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>NIC teaming</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>IP address management</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Server Core</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multi server management</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Windows PowerShell</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Windows PowerShell Workflow and Web Access</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

Table 2 Compare versions of Windows Server

2. Installation of Windows Server 2012

Before we begin to install Windows Server 2012, you should know the hardware requirement as follows:

Processor: **Minimum**: 1.4 GHz 64-bit processor  
Ram: **Minimum**: 512 MB  
Disk Space: **Minimum**: 32 GB

The detail work steps will be showed as follows:

2.1 Insert the Windows Server 2012 DVD, and boot from DVD.
2.2 Wait for loading all necessary files, it will take couple of minutes.

Fig. 1 waiting for loading necessary files

2.3 After loading all necessary files, the following screen will be showed.

Fig. 2 Language and Keyboard for Windows Server 2012 installations
2.4 Click Next, and you can start the installation, click "Install now"

Fig. 3 The screen of Installation of Windows Server 2012

2.5 You can see the following screen “Setup is starting”

Fig. 4 “Setup is starting”
2.6 You can choose Windows Server 2012 (Server with a GUI), and click Next

![Fig. 5 Choose Windows Server 2012 (Server with a GUI)](image)

2.7 After you click Next you need to read the License terms, and tick the "I accept the license terms" and click Next

![Fig. 6 reading the License terms](image)
2.8 You can choose a partition that you want to install Windows Server 2012

Fig. 7 Choose Partition for installing Windows Server 2012

2.9 Clicking on next from previous screen will start the setup after choosing Partition for installing Windows Server 2012

Fig. 8 installing Windows Server 2012
2.10 It will ask you to set up a password for the Administrator user when you finished the installation

![Fig. 9 setting up a password for the Administrator user](image1)

2.11 The setup will finalize your settings, might take a couple of minutes

![Fig. 10 finalize your settings](image2)
2.12 You can log in for the first time to your Windows Server, and press Ctrl+Alt+Delete to log in and use the password that you set in the setup process.

Fig. 11 Login for Windows Server 2012

2.13 Press Ctrl+Alt+Delete, type password.

Fig. 12 Login Administrator account
2.14 Windows Server 2012 will show the Server Manager after login

![Server Manager in Windows Server 2012](image)

Fig. 13 Server Manager in Windows Server 2012

3. Basic Configuration of Windows Server 2012

After installing Windows Server 2012, we need to configure the server. The basic configuration of Windows Server 2012 is included Changing Computer Name, Configuration of IP Address, Firewall configuration, Windows Update and Disable Internet Explorer Enhanced Security Configuration.

3.1 Changing Computer Name

When you install Windows Server 2012, Windows Server 2012 automatically assigns the server a name. You can change computer name.

You move the mouse pointer to the lower left portion of the screen to reveal the Start tile. Right click on this tile and select the System from the shortcut menu.
Windows Server 2012 will display the System dialog box as follows.
Click Change settings, the window of System Properties shows as follows:

Fig. 16 Changing Computer Server Name

Make sure that the Computer Name tab is selected and then click the Change button. Enter the new computer name and click OK. You will have to reboot the server in order for the change to take effect.

3.2 Configuration of IP Address

If you need to change the IP address, you need to access Network and Internet in Control Panel. Go to the lower left corner of the screen to reveal the Start, and right click to Start. The short menu will be showed, and choose the Control Panel.
Fig. 17 Accessing Control Panel by Start

Fig. 18 Network and Sharing Center in Control Panel
Fig. 19 Changes adapter settings in Network and Sharing Center

Fig. 20 Network connections
Windows showed the network adapters. Right click on the adapter, you will get Ethernet Properties command from the shortcut menu.

Fig. 21 Ethernet Properties

Click Internet Protocol Version 4 (TCP/IPV4) properties. Now you will be allowed you to enter an IP address for the adapter.
Fig. 22 Internet Protocol Version 4 (TCP/IPV4) properties

Click OK, you will finish changing IP Address.

3.3 Windows Firewall configuration with Advanced Security by using the Windows Firewall with Advanced Security MMC snap-in

Click Start, click All Programs
Fig. 23 Start: All Programs
Click **Administrative Tools**, and then click **Windows Firewall with Advanced Security**.

Fig. 24 Windows Firewall with Advanced Security in Administrative Tools
And then click Windows Firewall with Advanced Security.

Fig. 25 Windows Firewall with Advanced Security

Right-click Windows Firewall with Advanced Security on Local Computer, and then click Properties
On each of the Domain Profile, Private Profile, and Public Profile tabs, change the Firewall state option to Off (not recommended).
You can disable the firewall portion of Windows Firewall with Advanced Security.
3.4 Windows Update

We should update Windows Server 2012 in time to keep the server protected.

You can find Windows update from Control Panel.

Going to left of left corner, click right butter of mouse. You can see the list, and click Control Panel.

Fig. 30 Accessing the Control Panel

You can find the icon of Windows update in the Control Panel.
Click the Turn on Automatic Updates button in the Windows Update. Windows will immediately begin looking for any updates to be applied to the system.
Windows will be checking for updates.

Fig. 33 checking for updates

Install new Windows Update after checking for updates

Fig. 34 Installing Windows Update
Fig. 35 Downloading and installing updates

Fig. 36 Setting to automatically install updates
You can click Change settings in the left side of Windows Update, and change Windows Update settings.

![Change settings](image)

Fig. 37 change Windows Update settings.

You also can click View update history in the left side of Windows Update, and view update history.
3.5 Disable Internet Explorer Enhanced Security Configuration

Internet Explorer in Windows Server is configured with Enhanced Security enabled. You are as administrator, and you can disable this security setting. This work step will make you too easy to access the internet by Internet Explorer. The steps about Disable Internet Explorer Enhanced Security are the following:

a. Select Local Server
b. You can change this configuration to off, and just click On.

The window of Internet Explorer Enhanced Security Configuration will come as follows:
4. Server Manager in Windows Server 2012

Server Manager in Windows Server 2012 provides centralized management of roles and features. Server Manager is a management console in Windows Server 2012 that helps IT professionals’ provision and manage both local and remote Windows-based servers from their desktops. Server Manager has been completely redesigned for Windows Server 2012, to support remote, multi-server management, and help increase the number of servers an administrator can manage. Server Manager in Windows Server 2012 included Dashboard, adding roles and features, management tools, Local Server, Multi-server management and view event messages for these groups.

Click bottom left side of the Window to access Server Manage.

Fig. 41 Accessing Server Manager

You can see Server Manager screen after clicking Server Manager.
4.1 Installing server roles and Features with the appropriate servers

You can click Add Roles and Features in Manage Menu to install server roles and Features.
The Add Roles and Features Wizard comes after clicking Add Roles and Features.

Fig. 44 Add Roles and Features Wizard

Click Next, the screen of Installation Type will show as follows:
You can choose different installation type.

Click Next, select different server to install roles.
Click Next, list different roles and features that you can choose.
After selecting Roles and Features, the roles and features will be installed on the server that you selected.

4.2 Management tools in Server Manager
Server Manager lists management tools directly in the Tools menu.
You can use tool in the Sever Manager, and will be easy to access Active Directory Administrative Center, Computer Management, DNS, ODBC, Services, System information and Configuration, Windows PowerShell, Firewall with Advanced Security and son on.

4.3 Using Server Manager in Windows Server 2012 to connect to more servers

The Windows 2012 Server Manager provides easily manage multiple remote Windows Server systems. Clicking the Add other servers, and you can add other servers on the network.
4.4 You can see all Events in Local Server and All Servers in Dashboard
5. Creating first Domain Controller

Before creating first Domain Controller, we need to install ADDS (Active Directory Domain Services) role from the server manager on Windows Server 2012.

We also need to change the server name and static IP address that you wanted before creating domain controller.

![Fig. 51 Changing Server name](image)

Next step, you need to access the Server Manager. Click the Server Manager that located on the left side of the bottom in the Window.
Fig. 52 Dashboard in Server Manager

Going to Manage that located on the above right side, and add roles and features.

Fig. 53 Manage menu in Server Manager, Windows Server 2012
Click Add Roles and Features, you can see the Wizard as follows:

Fig. 54 Add Roles and Features Wizard

Click Next, the screen of Installation Type will show as follows:
You can choose different installation type.
Click Next, select different server to install roles.
After selecting Server, you can choose Active Directory Domain Services, DNS and File and Storage Service to installation.

Fig. 57 Selecting Server Roles for Domain Controller

Click Next, you marked Group Policy Management, Remote Server Administration Tools, User Interface and Infrastructure, Windows PowerShell and WoW64 Support in the Features to the installation.
Fig. 58 Choosing features to create Domain Controller
Click Next, and Add Features.

Fig. 59 Adding Features
Fig. 60 Installing Active Directory Domain Services

Fig. 61 Confirmation to install Active Directory Domain Services
Click install, the installation progress.
Fig. 62 Installation progress for Active Directory Domain Services

Fig. 63 Finished installing Active Directory Domain Services
After installing Active Directory Domain Services, we need to configure for Deployment to add a new forest.

**Fig. 64 Deployment Configuration**

Next step, we need to define the domain Controller options that included Operation system, DNS and password.
You also need to input the NetBIOS domain name, and confirm the paths for database, log files and SYSVOL folders.

Before the actual install of AD, all prerequisites are checked. If all prerequisite checks are passed successfully then click Install.

After the promotion of the server to a DC finished server restart automatically.
Once the server is booted and you logon to it, click on Server Manager | Tools, will notice that following have been installed:

- Active Directory Administrative Center
- Active Directory Domains and Trusts
- Active Directory Module for Windows PowerShell
- Active Directory Sites and Services
- Active Directory Users and Computers
- ADSI Edit
- DNS
- Group Policy Management

The first Domain Controller has been finished creating.
6. Managing Active Directory user and computer

Active Directory user and computer included user, computer, group, domains and Organizational units’ management.

- User management helps you to create and modify users, configure their general attributes, Exchange Server attributes and apply Exchange policies, Terminal Services attributes, and remote user logon permissions.

- Computer management solution allows you to manage all the computers in your environment from anywhere. You can create computer objects in bulk using CSV and templates, modify the group & general attributes of computers, move them between organizational units and enable/disable them.

- Group Management can create and modify groups, both security and distribution groups, using templates, add/remove bulk users to them and configure exchange attributes all at one instant.

- You can use Active Directory Users and Computers to connect to a specific domain or domain controller and view or manage the directory information for that domain or domain controller.

- You can use Active Directory Users and Computers to create new organizational units (OUs) and containers or manage existing OUs and containers.

6.1 Creating users and Groups accounts

As computer server administrator, you need to provide the user account to the people, and let user access the domain for some applications. Managing users included Creating a new user account, reset a user password, copy a user account, move a user account, set logon hours, disable or enable a user account, map a certificate to a user account, change a user’s primary group and delete a user account.

6.1.1 To open Active Directory Users and Computers

Click Start, click Control Panel, double-click Administrative Tools, and then double-click Active Directory Users and Computers
6.1.2 **New user account**

Mouse right-click on **user** folder, and **New** to **User**.
6.1.3 User’s Initials
Typing information of user.

Fig. 69 Information of new user
Typing password

Fig. 70-a Typing password
Click Next, the new user account has been created.

Fig. 70-b New user has been created

Fig. 70-c New User account has been listed
Click user, and get user properties
6.1.4 To add user to the group

- In the details pane, right-click the user that you want to change, and then click **Properties**
- On the **Member Of** tab, click the **Add**
Fig. 72 Member Of tab
Click Advanced and Find Now. All groups will be showed.

Fig. 73 Choosing group
You can choose groups, and click OK.

Fig. 74 Selecting group
The member of Tab will show the group.

Fig. 75 The groups will be showed in the member of Ta
6.1.5 copy, move, disable, delete, and rename user account

Fig. 76 Managing user account

6.2 Computer accounts

Active Directory Users and Computers to create new computer accounts or manage existing computer accounts.

Managing computer included creating a new computer account, add a Computer Account to a Group, Delete a Computer Account, Manage a Remote Computer, Move a Computer Account, Reset a Computer Account and Disable or Enable a Computer Account.

6.2.1 Creating a new computer account
Mouse point to the Computer folder, and right click, and click New and Computer.
Fig. 77 Creating New Computer Account

Typing computer Name

Fig. 78 New Object-Computer

Click Change... in User or Group, you can see Select User or Group window
Fig. 79 Select User or Group

Click Advanced... and Find New, all users and groups listed. You can choose users or groups.

Fig. 80 Choosing users or Groups
After choosing, the user or group will be listed. This means the user or group will use this computer.

Fig. 81 Listing the user or group on this computer.

Fig. 82 Computer account showed user or group
6.2.2 Add a Computer Account to a Group

After creating the computer account, you should add computer account to a group, because we should know who can access and use the computer. Membership in Account Operators, Domain Admins, or Enterprise Admins is the minimum required to complete this procedure.

To open Active Directory Users and Computers, click Start, click Control Panel, double-click Administrative Tools, and then double-click Active Directory Users and Computers.

Mouse to the computer name that you want to add a group, and click right side of the mouse to get the menu of managing computer.
Then click **Properties**
Click **Add**, in Select Groups, and click **Advanced**...

![Fig. 86 Select Groups](image1)

Click **Find Now**, to search the groups

![Fig. 87 Search Groups](image2)
In groups list, you can choose a group for the computer

Fig. 88 Choose a group for the computer

The object name Domain Admins has been chosen.
Fig. 90 The object name Domain Admins has been chosen

Fig. 91 Domain Admins name has listed on **Member of**
6.2.3  You can Delete, move, reset, Disable or Enable a Computer Account from the menu of managing computer. The detail information can be Fig. Menu of managing computer

6.3 Managing a different domain

Active Directory Users and Computers provide a different domain management.

Right-click domain name in Active Directory Users and Computers. You can change Domain and Domain Controller.

Fig.92 Menu of Changing Domain and Domain Controller.

You can browse to find different domain or type different domain name.
We can use Active Directory Users and Computers to create new organizational units (OUs) and containers or manage existing OUs and containers.

6.4.1 Understanding Organizational Units (OU) and Subdomain

The organizational unit (OU) is a useful directory object. OU is contained within domain. OUs are Active Directory containers into which you can place users, groups, computers, and other OUs.

The OU is the smallest scope or unit to which we can assign Group Policy settings or delegate administrative authority. Using OUs, we can create containers within a domain that represent the hierarchical, logical structures in our organization. We can then manage the configuration and use of accounts and resources based on our organizational model.

OUs can contain other OUs. We can extend a hierarchy of OUs as necessary to model our organization's hierarchy within a domain. Using OUs helps us minimize the number of domains that are required in the network.

We can use OUs to create an administrative model that we can scale to any size. A user can have administrative authority for all OUs in a domain or for a single OU. An administrator of an OU does not have to have administrative authority for any other OUs in the domain.
The Subdomain and OU is different, OU is contained within domain. You can set subdomain-level policies. For examples, you can define password length, complexity, and so on in subdomain. OU's are associations visible only to the administrators of a domain. The OU is a way to associate the users, groups and computers in the domain so as to differentiate permissions.

The organizational unit (OU) is a useful directory object. OU is contained within domain. OUs are Active Directory containers into which you can place users, groups, computers, and other OUs.

The OU is the smallest scope or unit to which we can assign Group Policy settings or delegate administrative authority. Using OUs, we can create containers within a domain that represent the hierarchical, logical structures in our organization. We can then manage the configuration and use of accounts and resources based on our organizational model.

OUs can contain other OUs. We can extend a hierarchy of OUs as necessary to model our organization's hierarchy within a domain. Using OUs helps us minimize the number of domains that are required in the network.

We can use OUs to create an administrative model that we can scale to any size. A user can have administrative authority for all OUs in a domain or for a single OU. An administrator of an OU does not have to have administrative authority for any other OUs in the domain.

The Subdomain and OU is different, OU is contained within domain. You can set subdomain-level policies. For examples, you can define password length, complexity, and so on in subdomain. OU's are associations visible only to the administrators of a domain. The OU is a way to associate the users, groups and computers in the domain so as to differentiate permissions.

6.4.2 Create a New Organizational Unit (OU)

You want to create a new Organizational Unit (OU). You should be the members of Account Operators, Domain Admins, or Enterprise Admins, then you can complete this procedure.

To open Active Directory Users and Computers

Click Start, left bottom corner of the screen
Fig. 94 Start in Windows Server 2012
Click Active Directory Users and Computer icon

Fig.95 Active Directory Users and Computers
In the console tree, right-click the domain name to get the menu of managing domain
Fig. 96 Pop down menu for managing domain
Point to **New**, and then click **Organizational Unit**.

Fig. 97 New Organizational Unit.
Type the name of the organizational unit (OU).
Fig. 98 Typing the name of the organizational unit (OU)
The new Organizational Unit has been created.

Fig. 99 a new Organizational Unit has been created under domain.
6.4.3 Management for new Organizational Unit

You can Delete, Move, Rename and Delegate Control new Organizational Unit.

![Menu of managing new Organizational Unit](image)

**Fig. 100 Menu of managing new Organizational Unit**

6.4.4 Work on Organizational Unit

You can created and manage the Computer, Contact, Group, InetOrgPerson, msImaging-PSPs, MSMQ Queue Alias, Organizational Unit, printer User and Shared Folder in new Organizational Unit.
7. Managing the Firewall in Windows Server 2012

The managing windows firewall on Windows Server 2012 is important tasks to the server administrators. This tasks include managing the firewall settings and creating custom inbound and outbound firewall rules.

We apply for Windows Firewall with Advanced Security correctly, and will reduce the risk of network security threats, safeguard sensitive data and intellectual property and extend the value of existing investments.

7.1 Accessing Windows Firewall with Advanced Security managing console

The Windows Firewall with Advanced Security is a host-based firewall that runs on Windows Server 2012 and is turned on by default. Firewall settings within Windows Server 2012 are managed from within the Windows Firewall MMC (Microsoft Management Console). To review and set Firewall settings perform the following:

Step 1: Open the **Server Manager** from the task bar.

Step 2: **Tools menu** and select **Windows Firewall with Advanced Security**.
We need to review the current configuration settings by **Windows Firewall Properties** from the MMC landing page.

Click **Windows Firewall with Advanced Security** to get **Windows Firewall with Advanced Security** on local computer.
Right-click Windows Firewall with Advanced Security that located on above left side, to get Windows Firewall with Advanced Security on local computer.
There are three firewall profiles, **Domain**, **Private**, and **Public** and one **IPSec settings**.

7.2 Creating and configuring new rule in inbound

Click above left side **Inbound Rules**, all Inbound Rules will be listed on right window. Right-click the rule, the managing rules menu will be showed. The managing rules will included Enable Roles, Cut, Copy, Delete and Properties.
Fig. 105 Inbound rules list
Click right side **New Rule...** under **Inbound Rules.** New Inbound Rule Wizard comes.

Fig. 106 New Inbound Rule Wizard and Rule Type
Click **Custom** and **Next**

![Figure 107 Rule apply to all programs](image)

Click **Next**. Now you should choose protocol and ports

![Figure 108 Choose protocol and ports](image)
Click **Next**, and choose local IP addresses.

![Image](image1.png)

**Fig.109 Choose local IP addresses**

Click **Next**, and choose connection matches.

![Image](image2.png)

**Fig.110 Action for rule**
Click **Next**. And rule apply

![Windows Firewall with Advanced Security](image1)

Fig. 111 Rule apply

Click **Next**, Typing name and description

![New Inbound Rule Wizard](image2)

Fig. 112 Typing name and description of the rule
Click **Finish**, the new rule is listed in Inbound Rules

![Inbound Rules](image1.png)

**Fig. 113** New rule is listed in Inbound Rules

Click-right new rule name, click **Properties**. The rule properties will be showed.

![Rule Properties](image2.png)

**Fig. 114** New rule properties
Click Right on new rule, the managing menu will be showed. You can Disable Rule, Cut, Copy, and Delete.

![Image of Windows Firewall with Advanced Security](image)

Fig. 115 Disable Rule, cut, Copy, and Delete rule

7.3 Monitoring in the Windows Firewall with Advanced Security

The Monitoring in the Windows Firewall with Advanced Security allows us to monitor the active firewall rules and connection security rules on the computer.

The Monitoring included viewing active firewall rules, connection security rules and security association.

Click **Monitoring**, and get monitoring console.
Fig. 116 Monitoring console

Click **active firewall rules**, and will list active firewall rules

Fig. 117 Viewing active firewall rules

Click **connection security rules**, and list Connection security rules
Fig. 118 Viewing connection security rules
Click view security association, and will list security association

Fig. 119 Viewing security association
The security association lists active main mode and quick mode security associations (SAs). The main mode lists all of the main mode SAs with detailed information about their settings and endpoints. We also can use this folder to view the IP addresses of the endpoints and the methods and algorithms that were used for authentication. The quick mode lists all of the quick mode SAs with detailed information about their settings and endpoints. We can use this folder to view the IP addresses of the endpoints and the integrity and encryption algorithms in use to protect traffic exchanged between the two endpoints.

8. Internet Information Services (IIS 8, Web Server) in Windows Server 2012

Microsoft has provide Internet Information Services (IIS) for more than 15 years. IIS 8 has been released and installed in Windows Server 2012. IIS 8.0 is far more scalable, more appropriate for cloud and virtual systems, and more integral to Microsoft's application and programming environment.


8.1 Installing Web Server (IIS 8) in Windows Server 2012

Open **Server Manager**, and under Manage menu, select **Add Roles and Features**

![Fig. 120 Add Roles and Features](image)
Click Add Roles and Features

![Add Roles and Features Wizard](image1)

Fig. 121 Before installation of Web Server

Click Next, Select Role-based or Feature-based Installation

![Select installation type](image2)

Fig. 122 Select installation type

Select Server that you want to install Web Server
Select **Web Server (IIS)**, Add features that are required to Web Server (IIS)

Click **Add Features**
Fig. 125 Server Roles: Web Server (IIS)
Click Next, Select Features, **ASP.NET 4.5**

Fig. 126 Add ASP.NET 4.5 Feature
Click **Next**. Web Server Role (IIS)
Click Next, and select role services

Click Next, and confirmation
Click **Install**, begin to install Web Server (IIS)

When the IIS installation completes, the wizard reflects the installation status:
Fig. 131 IIS installation completes

Click **Close** to exit the wizard.

You are successful to install Web Server (IIS8) in the Windows Server 2012.

8.2 Testing Web Server (IIS 8)

After you are successful to install IIS 8, you can try to test the Web Server IIS 8. You type [http://localhost/](http://localhost/) in the Internet Explorer, you can see the webpage as follows:
8.3 Internet Information Services (IIS) Manager

Internet Information Services (IIS) Manager is a useful tool for Web Server Management.

8.3.1 Accessing Internet Information Services (IIS 8) Manager

- On the Start screen, click **Control Panel**. Click **System and Security**, and then click **Administrative Tools**. In the **Administrative Tools** window, double-click **Internet Information Services (IIS) Manager**.

- Another way to access Internet Information Services (IIS 8) Manager from Server Manager.

Click **Tools** in Dashboard of Server Manager, Click **Internet Information Services (IIS) Manager** in Pop down menu.
Fig. 133 Access Internet Information Services (IIS 8) Manager from Server Manager

Fig. 134 Internet Information Services (IIS) Manager Administration Interface
8.3.2 Introduction to Internet Information Services (IIS) Manager Administration Interface

The Introduction to Internet Information Services (IIS) Manager included Connection, Connection tasks and Online resources.

In Connection section, you can see Start Page and Web Server.

![Fig. 135 Web Server Home](image)

Click Web Server, you can see Server Home that included Features View and Content View. In Action window, you can manage server, and view Application Pools and Sites.

8.3.3 File, View and Help menu in IIS 8 Manager

Click **File**, you can see Connect to a Server, Site and Application menu.
Fig. 136 File Pop down menu
Click **View**, you can view Web Server, Application Pools and Site by Group and Sort.

Fig. 137 View Web Server Home
Fig. 138 View Web Site
Click **Help**, you can get IIS Help, TechNet, MSDN, .NET and KBs online.

Fig. 139 Help Pop down menu
8.4 Working with classic ASP Web Homepage

We can load classic ASP sources codes to IIS 8 in Microsoft Windows Server 2012 or 2012 R2. The work steps are the following:

8.4.1 Installing Classic ASP
The classic version of ASP is not installed by default. The classic ASP page could not display in the browser, and got HTTP 404 errors.

To support and configure ASP applications on the Web server, you must install the classic ASP module, and use the following steps in Windows server 2012 and 2012 R2.

Click **Server Manager**

![Server Manager](image)

Fig. 140 Server Manager

In **Server Manager**, click the **Manage** menu, and then click **Add Roles and Features**.

In the **Add Roles and Features** wizard, click **Next**. Select the installation type and click **Next**. Select the destination server and click **Next**.
On the **Server Roles page**, expand **Web Server (IIS)**, expand **Web Server**, and then expand **Application Development**, select **ASP**
Fig. 142 Select ASP on the Server Roles

On the Server Roles page, ASP and ISAPI Extensions should be selected. Click Next.

On the Features page, click Next.

On the Confirmation page, click Install.
8.4.2 Adding a classic ASP Website

After installing classic ASP, you need to create a Website. The work steps are the following:

Open IIS Manager.

On the Server Manager Dashboard, click the Tools menu, and then click Internet Information Services (IIS) Manager

Click right-side mouse on Web Server, and click Add Website
Fig.144 Add Website

You need to type Site name, physical path, IP address and port number, and mark Start Website immediately. Click **OK**.
Fig. 145 Input the information of Website

The new website has been created. You can see new Website testasp under Site.
8.4.3 Working with classic ASP Web page

Now you can load ASP sources codes in the new Website.

Copying all ASP files to the folder of the new Website.
Fig. 147 All ASP sources codes to the folder of the new Website

In the IIS manager, all ASP files in the new Website
Fig. 148 ASP file in the new Website Classic ASP Web page was displayed by Internet Explorer

Fig. 149 Classic ASP Webpage displayed on IIS 8
9. Virtual Desktop Infrastructure in Microsoft Server 2012

Microsoft has provided the Successful Solution to Virtual Desktop Infrastructure. Microsoft Windows Server 2008 and Windows 2012 has become more powerful for the solution of Virtual Desktop Infrastructure. The Remote Desktop Services (RDS) deliver delivering virtual desktop infrastructure (VDI). We can use multiple servers, and manage VDI role services by using Server Manager and Windows PowerShell. We can enable secure remote access with Remote Desktop Gateway (RD Gateway) and publish selected applications that you want to Remote Desktop Web Access (RD Web Access).

Hyper-V in Windows Server 2008 and Windows Server 2012 is an important section to enables creating a virtualized server computing environment. Hyper-V can create and manage virtual machines and their resources. Each virtual machine is in an isolated execution environment and allows users to run multiple operating systems simultaneously on one physical computer.

9.1 Basic Characteristics of Microsoft solution for VDI from Windows Server 2012 and 2012 R2

The Windows Server 2012 operating system has provided a single platform from which to deliver any type of hosted desktop that included virtual desktops. The Windows Server 2012 VDI environment aimed at supporting 2,500 users. Remote Desktop Services (RDS) in the Windows Server 2012 provides to configure RemoteApp programs and manage virtual desktops.

Using Remote Desktop Services (RDS) is same like to use physical desktop for users. Remote Desktop Protocol is available to both session and virtual desktops. The network protocol in RDP v. 8 performs well. RDP can display bandwidth-intensive content, and reduce networking overhead.

The users can connect the virtual desktops in the personal collection. User profile disks allow users to preserve personalization settings across session collections and pooled virtual desktop collections.

RDS in Windows server 2012 supports USB devices, printers, scanners, biometric readers, webcams, or Voice over IP headsets. User can use touchscreens and tablets when connecting to a session or Virtual desktops.

Windows server 2012 supports Web access for virtual desktops. Windows Server 2008 R2 also supported web-based single sign-on for RemoteApp programs.

Each virtual desktop is isolated from each other in Windows Server 2012. This isolation allows users to run multiple operating systems simultaneously on one physical computer.

RDS provides users the ability to disconnect from their workspaces, and then reconnect from a different location. The users can save time, and still work on previously applications.

The Remote Desktop Services (VDS) and Virtual Desktop Infrastructure (VDI) components that included RD Virtualization Host, RD Session Host, RD Connection Broker [RDCB], and Windows PowerShell management application programming interfaces in Windows Server 2012 support tens of thousands of VDI guest VMs or server-hosted RD sessions.
The Remote Desktop Connection Broker (RDCB) configuration in two Windows Servers 2012 configurations can be supported for up to 5,000 users. The connection broker can scale out farther by adding additional RDCB servers. The virtual desktops and remote desktop services, Windows Server 2012 can be running Windows 8 operating system, the Windows 7 with Service Pack (SP) 1 operating system with the RDP8 update.

9.2 Main role services of Remote Desktop (RD) Virtualization Host Server and Hyper-V

The Remote Desktop (RD) Virtualization Host Server consists of several main role services as follows:

**RD Connection Broker**

The RD Connection Broker allows users to reconnect to their existing virtual desktops, RemoteApp programs, and session-based desktops, and enables users to evenly distribute the load among RD Session Host servers in a session collection or pooled virtual desktops in a pooled virtual desktop collection.

The RD Connection Broker provides access to virtual desktops in a virtual desktop collection.

**RD Web Access**

Remote Desktop Web Access (RD Web Access) enables users to access RemoteApp and Desktop Connection through the Start menu on a computer that is running Windows 8, Windows 7, or through a web browser. RemoteApp and Desktop Connection provides a customized view of RemoteApp programs and session-based desktops in a session collection, and RemoteApp programs and virtual desktops in a virtual desktop collection.

**RD Virtualization Host**

Remote Desktop Virtualization Host (RD Virtualization Host) integrates with Hyper-V to deploy pooled or personal virtual desktop collections within the organization.

**RD Session Host**

Remote Desktop Session Host (RD Session Host) enables a server to host RemoteApp programs or session-based desktops. Users can connect to RD Session Host servers in a session collection to run programs, save files, and use resources on those servers.

**RD Gateway**

Remote Desktop Gateway (RD Gateway) enables authorized users to connect to virtual desktops, RemoteApp programs, and session-based desktops on an internal corporate network from any Internet-connected device.

**RD Licensing**

Remote Desktop Licensing (RD Licensing) manages the licenses required to connect to a Remote Desktop Session Host server or a virtual desktop. You can use RD Licensing to install, issue, and track the availability of licenses.
Fig. 150 Installing RD Connection Broker, RD Web Access and RD Virtualization Host in Windows Server 2012

**Hyper-V**

The Hyper-V role enables users to create and manage a virtualized computing environment by using virtualization technology that is built in to Windows Server 2012. The required components include Windows hypervisor, Hyper-V Virtual Machine Management Service, the virtualization WMI provider, and other virtualization components such as the virtual machine bus (VMbus), virtualization service provider (VSP) and virtual infrastructure driver (VID).
The management tools for the Hyper-V role consist of:

GUI-based management tools: Hyper-V Manager, a Microsoft Management Console (MMC) snap-in, and Virtual Machine Connection, which provides access to the video output of a virtual machine so you can interact with the virtual machine.

Hyper-V-specific cmdlets for Windows PowerShell. Windows Server 2012 includes a Hyper-V module, which provides command-line access to all the functionality available in the GUI, as well functionality not available through the GUI.
If users use Server Manager to install the Hyper-V role, the management tools are included unless you specifically exclude them. If you use Windows PowerShell to install the Hyper-V role, the management tools are not included by default. To install the tools, use the parameter –IncludeManagementTools. For instructions about installing the Hyper-V role.

9.3 Work Steps of Microsoft solution for VDI in Windows Server 2012

There are two deployment types, Microsoft Virtual Desktop Infrastructure (VDI) Quick Start and Microsoft Virtual Desktop Infrastructure (VDI) standard deployment in Microsoft Virtual Desktop Infrastructure (VDI) deployment, Microsoft Server 2012.

Here we can begin through a VDI Quick Start deployment. We will install all the necessary Remote Desktop Services role services on one computer to let user install and configure them in a test environment. The VDI Quick Start deployment will complete to install the Remote Desktop Connection Broker (RD Connection Broker), Remote Desktop Virtualization Host (RD Virtualization Host), and Remote Desktop Web Access (RD Web Access) role services on a single computer, and create a pooled virtual desktop collection that is based on a virtual hard disk of the virtual desktop template. We will also create a Hyper-V network switch named RDS Virtual and assign the pooled virtual desktop to that switch.

This experiment of Microsoft solution for VDI will be consist of three computers. One computer is running Windows Server 2012 for domain controller, DNS, DHCP and an enterprise root.
certification authority (CA). Second intranet member server is running Windows Server 2012. This server is configured as the VDI Quick Start deployment server. The third computer is running Windows 8 as client that is used to connect to the VDI Quick Start deployment.

Physical Connection for Test of VDI Solution from Microsoft Server 2012

**Work Step1: Complete the base configurations for Domain Controller**

Domain Controller Configuration: Creating and installing DNS, DHCP, and Active Directory. Creating a user account.
Work Step 2: configurations for member server

Member Server: Joined Domain Controller

Step 2.1 On the Select installation type page, click Remote Desktop Services installation, and then click Next.
Fig. 155 Remote Desktop Services installation

Step 2.2 On the Select deployment type page, click Quick Start or standard deployment, and then click Next.
Step 2.3 On the Select deployment scenario page, click Virtual machine-based desktop deployment, and then click Next.
Step 2.4 On the Review role services page, click Next.
Fig. 158 Review role services page

Step 2.5 On the Specify RD Connection Broker server page, select the server that will act as the RD Connection Broker server, and then click Next
Step 2.6 On the Specify RD Web Access server page, select the server that will act as the RD Web Access server, and then click Next.
Step 2.7 On the Specify RD Virtualization Host server page, select the machine that will be the RD Virtualization Host, and then click Next.
Fig. 161 Specify RD Virtualization Host server page

Step 2.8 On the Specify RD Virtualization Host server page, select the machine that will be the RD Virtualization Host, and then click Next.
Fig. 162 Specify RD Virtualization Host server page

Step 2.9 On the Confirm selections page, make sure you are happy with your choices. If you are, select the Restart the destination server automatically if required check box, and then click Deploy.
Fig. 163 Confirm selections page

Step 2.10 Installing RD Connection Broker role service, RD Web Access role services and RD Virtualization Host role services
Fig. 164 Installing RD Connection Broker role service, RD Web Access role services and RD Virtualization Host role services

After successfully completing this process, the RD Connection Broker, RD Web Access, and RD Virtualization Host are installed.

**Work Step3: Working on Hyper-V manager to create a new virtual machine**

Step 3.1 Configure Network for creating new virtual machine
Fig. 165 Configure Network for creating new virtual machine

Step 3.2 Connect Virtual Hard Disk for creating new virtual machine
Fig. 166 Connect Virtual Hard Disk for creating new virtual machine

Step 3.3 Installation Options for new virtual Machine
Fig. 167 Installation Options for new virtual machine

Step 3.4 Completing the new virtual machine
Fig. 168 completing the new virtual machine

Step 3.5 Virtual machine on Hyper-V Manager
Fig. 169 Virtual machine on Hyper-V Manager

Step 3.6 Power on Virtual Machine, and insert Windows 8 installation CD to CD drive, Boot from CD.
Fig. 170 Begin to install Windows 8 virtual desktop

Step 3.7 Work steps to install Windows 8 virtual desktop is same with installing Windows 8 on physical desktop, continue to install Windows 8
Fig. 171 Continue to install Windows 8 virtual desktop

Step 3.8 Continue to install Windows 8 virtual desktop
Fig. 172 Continue to install Windows 8 virtual desktop

Step 3.9 Finished installing Windows 8 virtual desktop
Fig. 173 Finished installing Windows 8 virtual desktop

Step 3.10 Working on sysprep.exe on Windows 8 virtual desktop for generalize

Typing the command as follows:

%windir%\system32\sysprep\sysprep.exe /generalize /00be /shutdown /mode:m
Fig. 174 Working on sysprep.exe in virtual desktop

Work Step 4: Adding RD Licensing Server
Fig. 175 Success to add Remote Desktop Licensing role server

**Work Step 5: Configure the deployment**

Step 5.1 No configure for RD Gateway
Fig. 176 No configure for RD Gateway

Step 5.2 Active Directory configuration
Work Step 6: Creating Virtual Desktop Collection

Step 6.1 Click Create Virtual Desktop Collection
Step 6.2 Requirements to create a virtual desktop collection
Fig. 179 Requirements to create a virtual desktop collection

Step 6.3 Name Collection
Step 6.4 Pooled virtual desktop collection
Fig. 181 Pooled virtual desktop collection

Step 6.5 Specify the virtual desktop template
Fig. 182 Specify the virtual desktop template

Step 6.6 Specify the virtual desktop setting
Fig. 183 Specify the virtual desktop setting (1)
Specifying the virtual desktop setting (2)

6.7 Specify users and user groups
Fig. 185 Specify users and user groups

Step 6.8 Specify virtual desktop allocation
Fig. 186 Specify virtual desktop allocation

Step 6.9 Specify virtual desktop storage
Fig. 187 Specify virtual desktop storage

Step 6.10 Specify user profile disks
Fig. 188 Specify user profile disks

Step 6.11 Confirm selections to create collection
Fig. 189 Confirm selections to create collection

Step 6.12 Creating Collection
Fig. 190 Creating Collection

Step 6.13 Creating Collection in Server Manager
Fig. 191 Creating Collection in Server Manager
Step 6.14 Virtual Machine Collection

Fig. 192 Virtual Machine Collection
Work Step 7: Connection to the virtual desktop collection

Step 7.1 In the Internet Explorer address bar, type https://vdistest.edu/RDWeb, and then press ENTER.

Fig. 193 Web Accessing

Step 7.2 Login Work Resources
This work steps of Microsoft solution for VDI in Windows Server 2012 evaluation version has proved that Microsoft provided good solution for VDI by using Windows Server 2012. We can use Windows Server 2012 that included domain controller, DNS, DHCP, Hyper-V, Remote Desktop Connection Broker (RD Connection Broker), Remote Desktop Virtualization Host (RD Virtualization Host), and Remote Desktop Web Access (RD Web Access) role services to the solution for VDI.

Microsoft Virtual Desktop Infrastructure (VDI) lets us to use Windows Server 2012 or 2012 R2 to deploy remote desktop services architectures that provide users the flexibility to work anywhere accessing their windows desktop or application environment running in the datacenter.

Microsoft solution for VDI enables access to multiple Windows environments from the same client device. This VDI solution also enable users to pursue “Bring Your Own Device Programs” where they use their personally owned hardware for personal, work and study. Windows Thin PC is another technology that leverages VDI technology by enabling users to reuse existing PCs as thin clients.

10. Conclusion

As Microsoft Certified System Engineer and Information Technology Consultant (Expert), I had worked with different version Microsoft Windows NT Server, Windows Server 2000, 2003, and 2008. I also have practiced to Administration of Windows Server 2012 and 2012 R2 that included
installation, basic configuration, Server Manager, Creating domain controller, Managing the Firewall, Internet Information Services (IIS 8, Web Server), and Virtual Desktop Infrastructure in Microsoft Server 2012. I think that Microsoft Windows Server 2012 and 2012 R2 are better server comparing with other server versions, because they provided excellent new features in Windows Server 2012 and 2012 R2. The new features included Hyper-V, Address management, Active Directory, and Storage migration, and improved storage, security, firewall, networking, remote access, BYOD, and server administration. Let’s continue to use Microsoft Windows Server 2012 and 2012 R2, and apply for Information Technology Applications.