IIT Roorkee

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IntelliPaat

Advanced Certification in Cloud Computing & DevOps

Live Migration Demonstration
Using VMware and Hyper-V

VM Migration: A DEMO

Stepwise VM Migration

- **Step1: Download VMware Workstation Pro** (https://www.vmware.com/in/products/workstation-pro.html)
- **Step 2: Install** the VMware Workstation Pro
- **Step 3: Download Windows Server** (https://www.microsoft.com/en-in/evalcenter/evaluate-windows-server)

Step 4: Create a SERVER on VMware Workstation

- Choose the path of ISO file(Windows Server)
- Enter the windows server key
- Rename the default machine name as per your connivance (**Server1**)
- Browse the location where you want to install the Window server and create a folder with same of windows server (Server1)

Stepwise VM Migration (STEP 4 Continue…)

- **Configure disk** (size, single /split virtual disk etc.)
- **Uncheck the option of automatically Power on** as we need to customize the Hardware such as, Memory, processors etc.
- **Edit Virtual machine settings** (configuration) before powering on the machine:
- 1. **Remove the Floppy option** (allow to boots from the given path of ISO rather than neither from the floppy)
- 2. **Go to the processors settings** to check all the Virtualization Engine option and save it.

Stepwise VM Migration (STEP 4 Continue…)

- **Power on the created machine** (takes some time)
- **Choose the operating system variant**.
- **Read and Accept the license terms**.
- Perform Disk partition **(Optional).**
- Let the window setup completed.
- **Create login password**. ->**Server is ready**
- Follow the same procedure **to create another machine (Client 1)**
- Now, task is to transfer the VM from Server 1 to Client 1

Stepwise VM Migration

- **Step 5: Open the Server Manager Dashboard to Add Roles and Features** like AD DC(Active Directory Domain Services), DNS Server and Hyper-V.
- By **adding the roles and features restart the system** to reflect the feature on machine.
- **Step 6: Go to the Local Server Option** to **Power off the Windows Firewall and Set the time** as per your zone (UTC +5:30).
- **Step 7: Open the Windows PowerShell to create the Domain Name** as:
- 1. GET-WindowsFeature -Name "AD-Domain"
- 2. Install-WindowsFeature -Name AD-Domain-Services - IncludeManagementtools
- 3. Import-Module ADDSDeployment
- 4. Install-ADDSForest -CreateDnsDelegation:$false -DatabasePath "c:\Windows\NTDS" -DomainMode "Win2008" -DomainName **“server1.com"** -DomainNetbiosname “**Server1**" -ForestMode "Win2008" -InstallDns:$ture –Logpath "c:\Windows\NTDS" -NoRebootOnCompletion:$false -Sysvolpath "c:\Windows\Sysvol" -Force:$true

Argument	Description
Install-WindowsFeature	This cmdlet will **allow to install windows role, role services or windows feature** in local server or remote server. It is similar to using windows server manager to install those.
IncludeManagementTools	This will **install the management tools** for the selected role service.
Install-ADDSForest	This cmdlet will allow **to setup new active directory forest**.
-DomainName	This parameter **defines the FQDN for the active directory domain**.
-CreateDnsDelegation	Using this parameter can define **whether to create DNS delegation that reference active directory integrated DNS.**
-DatabasePath	This parameter will use **to define the folder path to store active directory database** file (Ntds.dit)
-DomainMode	This parameter will **specify the active directory domain functional level.**
-DomainNetbiosName	This defines the **NetBIOS name for the forest root domain.**
-ForestMode	This parameter will **specify the active directory forest functional level.**
-InstallDns	Using this can **specify whether DNS role need to install with active directory domain controller**. For new forest, default is $true.
-LogPath	Log path can use **to specify the location to save domain log files.**
-SysvolPath	This is to **define the SYSVOL folder path.** Default location for it will be C:\Windows
–NoRebootOnCompletion	By default, system will restart the server after domain controller configuration. using this command **can prevent the automatic system restart.**
-Force	This parameter will force command **to execute by ignoring the warning**. It is typical for the system to pass the warning about best practices and recommendations.

Stepwise VM Migration

Step 8: Open **Server Manager->Local Server ->Ethernet0** tab to set the Internet protocol Version 4(TCP/IPv4)

- For example: Server1 uses the following IPv4 settings:
  - IP address: 10.0.0.10
  - Subnet mask: 255.0.0.0
  - Default gateway: 10.0.0.50
  - Preferred DNS Server:
  - Alternate DNS Server:
- **Step 9: Create Virtual Switch :** Server Manager-> Hyper-V ->Hyper-V manager->Virtual Switch Manager
- **Step 10: Create** VM (child partition) **in the Hyper-V using Hyper-V manager and configure it to the New Virtual Switch**. Turn ON to change the status from OFF to Running.

Stepwise VM Migration

- **Step 11: Open then Server Manager ->Local Server ->vEthernet(New Virtual Switch) tab** to set the Internet protocol Version 4(TCP/IPv4)
- For example, **New Virtual Switch IPv4 can be set to**:
  - IP address: 10.0.0.40
  - Subnet mask: 255.0.0.0
  - Default gateway: 10.0.0.30
  - Preferred DNS Server:
  - Alternate DNS Server:
- **Server1 is configured.**

Stepwise VM Migration (Client 1)

- **Step 12: Open machine (Client1)** (as created in parallel).
- **Server Manager-> Local Server ->Power off the Windows Firewall and Set the time** as per your zone (UTC +5:30).
- **Step 13:** Server Manager ->the Local Server ->Ethernet0 tab to set the Internet protocol Version 4(TCP/IPv4)
- For example: Client 1 Ethernet0 can be set to :
  - IP address: 10.0.0.20
  - Subnet mask: 255.0.0.0
  - Default gateway: 10.0.0.10
  - Preferred DNS Server:
  - Alternate DNS Server:

Stepwise VM Migration (Client 1)

- **Step 14:** Create the **Virtual switch for Client 1**, and do the IP settings similarly.
- **Step 15 (optional): To verify the connection, ping** the Server 1 IP on Client1 or vice-versa.
- **Step 16 : Change the Client 1 domain name** as Server Manager-> Local Server->WORKGROUP then change the domain by Server1 domain name.
- *If the connection and credentials are correct the a message will popup saying "Welcome to the …….. domain"*

Stepwise VM Migration (Live Migration Server 1 to Client 1)

- **Step 17: Refresh/Restart** the Client1 to reflect the changes.
- **Step 18: Go to Client1's Server Manager Dashboard->Add Roles and Features** (Hyper-V and other features as per your need).
- **Step 19: Connect both Machines:** Go to the Hyper-V (Server1)->Hyper-V manager-> Connect to the server-> Browse/Add my computer name of Client1. **Both machines will be visible on** Server1.
- **Step 20: Enable the option of migration in both the machines** (Client 1 and Server 1): Client 1/Server 1->Hyper-V-> Hyper-V Manager -> Hyper-V settings -> live Migrations -> mark the following options
  - Enable Incoming and outgoing live migrations
  - Use any available network for the live migration/use these IP addresses for live migration
  - Use Kerberos (live Migrations ->go to advance features)

Stepwise VM Migration (Live Migration Server 1 to Client 1)

- **Step 21: Live Migration:** Go to Server1->Hyper-V->Hyper-V manger (see both machines on same domain)->right click on the “New Virtual Machine” (created in server1) and choose the **Move** option ->browse the appropriate location on Client 1 and perform Migration.
- **Step 22: Check the Live VM status** on Client 1 moved from Server 1.

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