ITFreeTraining

8000 Virtual Machines in the cluster

64 Nodes

Hyper-V Limitations

For the free video please see
http://itfreetraining.com/hyperv#/limitations

This video will look at the limitations of Hyper-V. These limitations will determine what you can do and cannot do in virtual machine.

Operating System Support

- 64 bit OS
- Windows Server 2008/R2
  - Standard/Enterprise/Datacenter
- Windows Server 2012/R2
  - Standard/Datacenter
- Windows 8/8.1
  - Pro/Enterprise
- Hyper-V Server 2012 R2

00:11 Operating System Support
Requires a 64bit operating system and a 64bit CPU. Windows Server 2008 and R2 require the Standard, Enterprise or Datacenter editions. Windows Server 2012 and R2 require Standard or Datacenter edition. Windows 8 or 8.1 requires the Professional or Enterprise edition. There is also a free standalone version of Hyper-V. This is a version of Windows Server 2012 R2 with less features and customized to run only Hyper-V. Even though the operating system is free, virtual machines that run on this server must be licensed correctly. The edition does support remote desktop but only supports the server core interface. For this reason only the command prompt is available from the console or using remote desktop services. Administration of the server however can happen from remote using administrative tools.

01:35 Hyper-V Hardware Limitation 2002/R2
Memory: 4 Terabytes except on Windows 8 which has a limit of 512Gigabytes.
Logical Processors: 320 (This is calculated by core. So two CPU's with 4 cores each would be 8 logical processors).
Virtual Processors: 2048 (Each virtual machine can be assigned a number of virtual processors. The virtual machines see these processors as real CPU's.)
Virtual Machines: 1024 (This is the maximum number of virtual machines that can be run.)
Memory per virtual machine: 1 Terabyte
Virtual processors per virtual machine: 64

Virtual Machines Limitations

- **64TB (VHDX) 2040GB (VHD)**

- **4 IDE disks. Start-up disk must be IDE**

- **4 SCSI controllers. 64 disks on each controller**

- **4 Fibre Channel adapters**

- **12 network adapters. (4 legacy adapters)**

02:55 Virtual Machines Limitations

Virtual Hard Disk (VHDX): 64Terabyte (New virtual hard disk format supported by Windows Server 2012 and Windows 8 and above)

Virtual Hard Disk (VHD): 2040GB (Old virtual hard disk format supported by all editions of Hyper-V)

IDE controllers: 2 IDE controllers meaning 4 IDE disks. (One disk must be the start up disk)

SCSI controllers: 4 controllers with 64 disks for each controller making 256 supported SCSI disks.

Fibre Channel Adapters: 4 (This will allow the virtual machine to directly link with a physical Fibre Adapter in the physical computer.)
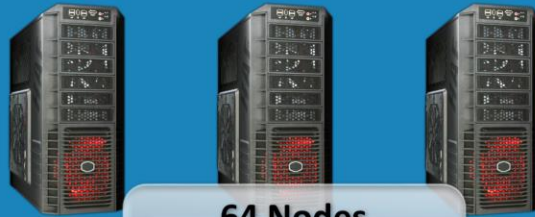
Legacy adapter: 4 (These support booting from the network.)

Network adapter: 8 (These adapters do not support booting from the network.)

04:42 Cluster Limitations
Nodes: 64 (This is the number of physical Hyper-V servers that are present in the one cluster.)
Virtual machines: 8000 (The maximum number of virtual machines in the cluster.)

See http://YouTube.com/ITFreeTraining or http://itfreetraining.com for our always free training videos. This is only one video from the many free courses available on YouTube.

References
"Installing and Configuring Windows Server 2012 Exam Ref 70-410" pg 136
"Hardware-assisted virtualization" http://en.wikipedia.org/wiki/Hardware-assisted_virtualization
"Window Server 2012 Products and Editions Comparison"
http://www.microsoft.com/en-au/download/details.aspx?id=38809
"Volume Licensing reference guide"
http://download.microsoft.com/download/E/6/4/E64F72BF-55E9-4D85-9EFE-39605D7CE272/WindowsServer2012R2_Licensing_Guide.pdf
"Second Level Address Translation"
http://en.wikipedia.org/wiki/Second_Level_Address_Translation
"SecurAble" https://www.grc.com/securable.htm
"Processors" http://www.intel.com/support/processors/sb/cs-030729.htm

"RemoteFX vGPU Setup and Configuration Guide for Windows Server 2012"
http://social.technet.microsoft.com/wiki/contents/articles/16652.remotefx-vgpu-setup-and-configuration-guide-for-windows-server-2012.aspx#SLAT_CPU_Support
"Hyper-V Server 2012 R2" http://technet.microsoft.com/en-us/evalcenter/dn205299.aspx