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## **Creation and Deployment of Virtual Machine on Cloud**

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### ABSTRACT

The desire to run multiple operating systems was the initial motive for virtual machines, so as to allow timesharing among several single-tasking operating systems. In some respects, a system virtual machine can be considered a generalization of the concept of virtual memory that historically preceded it. Multiple OS environments can exist simultaneously on the same machine, isolated from each other. Virtual machine can offer an instruction set architecture that differs from real computers. In this paper we are presenting an innovative method of creating a virtual machine on Microsoft Azure Portal and its deployment to cater the needs of Easy maintenance, application provisioning, availability and convenient recovery.

Keywords - Azure, Deployment, Ubuntu , Virtual Machine.

### I. INTRODUCTION

**Virtual Machine** is a completely separate individual operating system installation on your usual operating system. It is implemented by software emulation and hardware virtualization.

Virtual machine is a software implementation of a physical machine - computer - that works and executes analogically to it. Virtual machines are divided in two categories based on their use and correspondence to real machine: system virtual machines and process virtual machines. First category provides a complete system platform that executes complete operating system; second one will run a single program.

Frequently multiple virtual machines with their own OS's are used in server consolidation, where different services are run in separate virtual environments, but on the same physical machine.

Virtualization - A technology that has an enormous effect in today's IT world. It is a technique that divides a physical computer into several partly or completely isolated machines commonly known as virtual machines (VM) or guest machines. Multiple of these virtual machines can run on a host computer, each possessing its own operating system and applications. This gives an illusion to the processes on these virtual machines as if they are running on a physical computer, but in reality they are sharing the physical hardware of the host machine. The software that allows multiple operating systems to use the hardware of the physical machine is called a hypervisor or a control program. Hypervisors sit between the operating system of the host machine and the virtual environment. There are various virtualization technologies available in the market, having their own merits and demerits.

In non-virtual environment, the applications running on the machine can see each other, and in some cases can even communicate with each other, whereas in virtual environment [1] the programs running in one guest machine are isolated from the programs running in another guest machine, in other words guest machines "provide what appear to be independent coexisting computers" [1] to their running pro- grams. The degree of isolation should be strong enough that the vulnerabilities in one virtual machine should not affect either the virtual machines or the underlying host machine.

The computer that is being virtualized is of no difference from the computer that is not virtualized. The virtualized environment is vulnerable to all the traditional attacks and exploits that are common to the normal environment. The case is even worse in the virtualized environment, where there are several virtual computers running. The security expectations are higher in here because "there are more systems to protect" [2], more possible points of entry, more holes to patch and there are more interconnection points in the virtualized environment [2]. Attackers and Hackers are already been actively developing new malware programs for virtual machine environment. "Root kit infections, malware that detects a virtual environment and modifies itself accordingly" [2, 3] are some of them. "Low-level hypervisor attacks, and deployment of malicious virtual systems" [2] are few possible attacks that are unique to this environment.

**Microsoft Azure** (formerly **Windows Azure**) is a cloud computing service created by Microsoft for building, testing, deploying, and managing web applications and virtual machine applications and services through a global network of Microsoftmanaged data centers. It provides software as a service (SaaS), platform as a service and infrastructure as a service and supports many different programming languages, tools and frameworks, including both Microsoft-specific and third-party software and systems..

### I. CREATING VIRTUAL MACHINE

Log in to the Azure portal at <u>http://portal.azure.com</u>.Click the New button found on the upper left-hand corner of the Azure portal.Select Compute from the Marketplace screen, select Ubuntu Server 16.04 LTS from the featured apps screen, and then click the Create button. Fill out the virtual machine basics form. For Authentication type, SSH is recommended. When pasting in your SSH public key, take care to remove any leading or trailing white space or if you don't want to enter SSH public key then simply enter password for Ubuntu machine.

For **Resource group**, create a new one. A resource group is a logical container into which Azure resources are created and collectively managed. On the settings pane, select **Yes** under **Use managed disks**, keep the defaults for the rest of the settings, and click **OK**.

On the summary page, click **Ok** to start the virtual machine deployment



Fig.1Azure Portal



Fig.2 Create Virtual Machine

On the settings pane, select **Yes** under **Use managed disks**, keep the defaults for the rest of the settings, and click **OK**. On the summary page, click **Ok** to start the virtual machine deployment.

### II. CONNECT TO VM

After the deployment has completed, create an SSH connection with the virtual machine. Click the virtual machine. The VM can be found on the home screen of the Azure portal, or by selecting **Virtual Machines** from the left-hand menu.

Click the **connect** button. The connect button displays an SSH connection string that can be used to connect to the virtual machine.



Fig. 3 My VM Section

Run the following command to create an SSH session. Replace the connection string with the one you copied from the Azure portal on Putty software. Open Putty as shown below.





Copy the IP address of your Virtual Machine created on Azure in the host Name field of Putty as shown below.

E Session	Basic options for your PuTTY session	
<ul> <li>Logging</li> <li>Terminal</li> <li>Sel</li> <li>Festures</li> <li>Window</li> <li>Appearance</li> <li>Behaviour</li> <li>Transistion</li> <li>Selection</li> <li>Connection</li> <li>Data</li> <li>Prony</li> <li>Tehnet</li> <li>Rogin</li> <li>SSH</li> <li>Sertal</li> </ul>	Specify the destination you want to connect to Host Name (or IP address) Port 52.172.207.112 22 Connection type: Raw Brief Tenet Riogn SSH Sets Load, save or delete a stored session Saved Sessions	
	Default Settings	Load
	Oose window on est: O Always O Never @ Only on clean ext	

Fig. 4 Putty Configuration

Check the connection type as SSH and then click on ok button. After doing this a putty terminal will be openedIn this Terminal we need to login the username provided during creation of Virtual Machine as shown below.

### Login as: azureuser 1

Next it will ask password for azureuser 1, so enter the password as shown below.

# azureuser1@52.172.207.112's password: password

After entering password you will get connected to your ubuntu server machine with a message saying Welcome to Ubuntu 16.04.2LTS as shown below.





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### **III. DELETING VIRTUAL MACHINE**

When no longer needed, delete the resource group, virtual machine, and all related resources. To do so, select the resource group from the virtual machine blade and click Delete.

### **IV. CONCLUSION**

A conclusion section must be included and should indicate clearly the advantages, limitations, and possible applications of the paper. Although a conclusion may review the main points of the paper, do not replicate the abstract as the conclusion. A conclusion might elaborate on the importance of the work or suggest applications and extensions.

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