**2. Background**

**2.1 Context**

Virtualization technology has become a crucial tool for IT professionals, developers, and students seeking to run multiple operating systems on a single machine. One widely used application for virtualization is VMware Workstation, which enables users to create and manage virtual machines (VMs) efficiently. Ubuntu, a popular Linux distribution, is commonly installed on virtual machines for testing, development, and system administration purposes. Setting up an Ubuntu VM on a Windows 10 or 11 system using VMware Workstation provides users with a sandbox environment to explore Linux without modifying their primary operating system.

**2.2 Overview of the Virtual Machine Setup Process**

The process of setting up an Ubuntu Linux virtual machine involves several steps, including acquiring the necessary software, configuring virtual hardware, and installing the operating system. Users must first download VMware Workstation and the Ubuntu ISO file. Once installed, VMware Workstation allows for the creation of a new virtual machine, where users allocate system resources such as CPU, RAM, and disk space. The final step involves booting the VM from the Ubuntu ISO and completing the installation process, which includes setting up user credentials, selecting installation options, and configuring system settings.

**3. Description and Function**

**3.1 Overview**

Setting up an Ubuntu virtual machine using VMware Workstation follows a structured process that ensures the smooth installation and operation of the Linux operating system within a Windows environment. The following subsections provide a step-by-step explanation of each phase of the setup process.

**3.2 Downloading and Installing VMware Workstation**

Before creating a virtual machine, users must install VMware Workstation on their Windows 10/11 system. VMware Workstation is a widely used hypervisor that allows multiple operating systems to run simultaneously. The installation process involves:

1. Downloading the VMware Workstation installer from the official VMware website.
2. Running the installer and following the guided setup.
3. Restarting the system if required after installation.

**3.3 Creating a New Virtual Machine**

Once VMware Workstation is installed, the next step is to create a new virtual machine. This process includes:

1. Launching VMware Workstation and selecting "Create a New Virtual Machine."
2. Choosing "Typical" installation for ease of setup.
3. Selecting the Ubuntu ISO file as the installation source.
4. Configuring system resources (CPU, RAM, storage) to meet the requirements of Ubuntu.
5. Naming the virtual machine and setting up the location for its files.

**3.4 Installing Ubuntu on the Virtual Machine**

After configuring the virtual hardware, users proceed with installing Ubuntu:

1. Booting the VM from the Ubuntu ISO image.
2. Selecting "Install Ubuntu" and choosing language preferences.
3. Configuring keyboard layout and network settings.
4. Allocating disk space and confirming installation settings.
5. Creating a user account and setting a secure password.
6. Completing the installation process and restarting the VM.

**3.5 Post-Installation Configuration**

Once Ubuntu is successfully installed, additional configurations enhance usability:

1. Installing VMware Tools to improve performance and enable features such as clipboard sharing.
2. Updating the system by running sudo apt update && sudo apt upgrade.
3. Configuring shared folders and display settings for seamless integration with Windows.

**Figure 1: Ubuntu Virtual Machine Setup Process**

(*Placeholder for an illustration showing the setup steps*)

This structured approach ensures that users can effectively deploy and manage an Ubuntu VM within a Windows 10/11 environment. Proper configuration enables efficient performance and integration, making it a valuable tool for IT professionals and learners.