

**IT3010**

**Network Design & Management**

**3rd Year, 1st Semester**

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**Declaration**

I certify that this report does not incorporate without acknowledgement, any material previously submitted for a degree or diploma in any university, and to the best of my knowledge and belief it does not contain any material previously published or written by another person, except where due reference is made in text.

Registration Number: IT17012584

Name: M. T. I. Mohotti

Registration Number: IT17003292

Name: P. M. D. N. Gunaratne

Registration Number: IT17035286

Name: T. M. M. D. Ariyarathna

1.VMWare Work Station(It17012584)

2. Oracle VM Virtual Box – IT17003292

3. Microsoft Virtual Pc – IT17035286

**VMWare Work Station – IT17012584**

**VMWare Work Station**

**VMware Workstation** is a hosted hypervisor runs on x64 versions of Windows and Linux operating systems. The VMware is used to manage functions such as motion, fault tolerance, network file system (NFS), Internet small computer system interface (iSCSI), etc. The VM network allows virtual machines running on ESX or ESXi hosts to connect to virtual and physical networks. The service console is used remotely.

**VMWare Work Station**

1. **SR-IOV passthrough - This** adapter is important for VMs which runs latency sensitive applications. Basically, this adapter can send and receive data via physical adapter without using VMware intermediary.

2. **E1000 -** Emulated version of Intel 82545EM Gigabit Ethernet network interface card (NIC) Since these NICs are supported by the guest operating system, you cannot choose to install VMware tools, but this adapter will still guarantee network connectivity.

3.**VMXNET – This is an old version.**

**Oracle VM Virtual Box – IT17003292**

**Oracle VM Virtual Box**

**Oracle VM Virtual Box** is a free and open source hosted hypervisor for x86 computers and is under development by Oracle Corporation. Developed initially by Innotek GmbH, it was acquired by Sun Microsystems in 2008, which was, in turn, acquired by Oracle in 2010.

Virtual Box may be installed on a number of host operating systems, including Linux, macOS, Windows, Solaris and OpenSolaris. There are also ports to FreeBSD and Genode.

It supports the creation and management of guest virtual machines running versions and derivations of Windows, Linux, BSD, OS/2, Solaris, Haiku, OSx86 and others, and limited virtualization of macOS guests on Apple hardware.

**Oracle VM Virtual Box Interface Cards**

1. AMD PCNet PCI II (Am79C970A)
2. AMD PCNet FAST III (Am79C973), the default setting
3. Intel PRO/1000 MT Desktop (82540EM)
4. Intel PRO/1000 T Server (82543GC)
5. Intel PRO/1000 MT Server (82545EM)
6. Paravirtualized network adapter (virtio-net)

PCNet FAST III is the default. It is supported by almost all operating systems and the GNU GRUB boot manager. As an exception, the Intel PRO / 1000 Family Adapter is suitable for some guest operating system types that drivers for PCNet cards such as Windows Vista are no longer shipped.

**Microsoft Virtual Pc – IT17035286**

**Microsoft Virtual Pc**

The Virtual PC host application emulates the Intel DEC 21140A network card. For each virtual machine (VM), you can install up to four such emulated network cards. WVPC's Create Virtual Machine Wizard connects to one wired and one wireless host network adapter by connecting one or two network adapters by default.

System requirements for Windows Virtual PC

* Computer running Windows 7 (all editions except Starter)
* 15 GB of hard disk space per virtual Windows environment

**Microsoft Virtual Pc**

1. [**IVMAccountant**](https://docs.microsoft.com/en-us/windows/desktop/vpc/ivmaccountant) **-** Provides enter to accounting related information of virtual machine (VM).
2. [**IVMDisplay**](https://docs.microsoft.com/en-us/windows/desktop/vpc/ivmdisplay) - Controls the display settings of a VM.
3. [**IVMDVDDrive**](https://docs.microsoft.com/en-us/windows/desktop/vpc/ivmdvddrive) **-** Controls a CD-ROM or DVD-ROM drive within a VM.

* **E1000:** this virtual NIC is a software emulation of a 1 GB network card.

The hardware card may be a long existing, ordinarily on the market Intel primarily based device and most in operation systems embody in-built support. thanks to that there's no special driver needed, or any exceptional effort required to form it operate in an exceedingly virtual environment. the matter is that the virtual device is simply as delineated, a bit of computer code acting as if it had been hardware. which will cause performance problems because the host’s process unit |CPU |C.P.U. |central processor |processor |mainframe |electronic equipment |hardware |computer hardware} is needed to require care of the processing usually done on a separate ASIC (Application-Specific Integrated Circuit).

Intel PRO/1000 MT: The Intel PRO/1000 MT desktop driver

works with operating systems such as Microsoft Vista

and later versions. For operating systems such as

Microsoft XP, the T Server variant of the Intel PRO/1000 card

works out of the box without additional driver installation.

The MT Server variant helps to import open virtualization

formats from other platforms.

[**IVMAccountant**](https://docs.microsoft.com/en-us/windows/desktop/vpc/ivmaccountant)**:** Provides access to accounting-related information for a

virtual machine (VM)

There are some properties in the interface card.

1.CPU Utilization: get the percentage of current CPU utilization for this virtual machine.

2.CPU Utilization history: The recent CPU utilization of this virtual machine (as an array of percentage values).

3.DiskBytesRead: The total number of bytes read by all storage controllers for this virtual machine.

4.DisksBytesWritten: The total number of bytes written by all storage controllers for this virtual machine.

5.NetworkBytesRecieved: The total number of bytes received by all virtual network adapters for this virtual machine.

6.NetworkBytesSent: The total number of bytes sent by all virtual network adapters for this virtual machine.

7.UpTime: The number of seconds that the virtual machine has been running.

**VMware (VMXNET Adapter)**

several VMs can work fine with the E1000 driver with no performance problems. however, if we would like to handle serious network utilization, VMXNET adapter is that the best. Therefor we are able to use this to require advantage of the exaggerated performance advantages. Optimized for performance in a very virtual machine and has no physical counterpart too.