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# **SERVICE LEVEL AGREEMENT IN VIRTUALIZED ENVIRONMENT**

**By**

**Steven Sanchez Fermin**

Project report submitted in partial fulfillment of the requirements for the  
Degree of Master of Science in  
Networking and Systems Administration

**Rochester Institute of Technology  
B. Thomas Golisano College  
Of Computing and Information Sciences**

**April 30, 2010**

**Rochester Institute of Technology  
B. Thomas Golisano College  
Of Computing and Information Sciences**

Master of Science in Networking and Systems Administration

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Project Title: **Service Level Agreement in Virtualized Environment**

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# **SERVICE LEVEL AGREEMENT IN VIRTUALIZED ENVIRONMENT**

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### **ABSTRACT**

The Service Level Agreement is a process of negotiation in which the bussiness (Managers, IT staff) and customers establish a common understanding about services, priorities and responsibilities. The purpose of this project is to analyze which metrics of physical environment can be used to recommend optimized Service Level Agreements for virtual environment. For the Analysis of this project, an enterprise-class hypervisor VMware ESXi and the tools VSphere Client, Solarwinds Engineer's Toolset and PRTG Network Monitor are used to make a virtual laboratory. The results showed the aspects to take into consideration to make and guaranty the most favorable Service Level Agreement in virtualized environment.

# 1. INTRODUCTION

For many years the IT department has used different mechanisms to establish their levels of services in order to be aligned with business needs and provide an efficient and cost effective service. On the other hand, customers require to be informed of service availability and performance of any of the provisions in their contracts. In order to determine the requirements of appropriate levels of service, the companies establish Service Level Agreements (SLA), in which an agreement is set between the business and its costumers quantifying the minimum acceptable service to the costumers. These SLAs are based on metrics which are useful to the business.

However, both the metric and its SLAs were developed in their efforts to meet the needs of corporations with physical environments, with the launch of virtualized environments this has to change. To ensure that these new environments meet the requirements of companies and costumers new metrics should be established and must redefine existing ones in order to stay in line with business expectations.

The Literature review of this project explains the SLAs, its metrics, how important they are and they can be used. Also, it talks about Virtualization, its benefits, the types of virtualization and an illustration of a virtualized environment.

Later, the problem statement is described; in which states if the tested metrics of availability, performance and quality of service, which are proper of physical environment, are suitable to virtual environments and which other new metrics should be used.

An experimental methodology was used to develop this project. A testing laboratory was made in order to prove the hypothesis.

The results of this research shows that it was successful because after testing the metrics , commonly used physical environment can be applied in the virtual environment. This is a very important finding to create more efficient Service Level Agreements in Virtualized Environments, which are as well more useful for the IT group, the owners and the costumers.

## 2. LITERATURE REVIEW

### Service Level Agreements

A Service Level Agreement is defined as an agreement between the services provider and its customers. Service level agreements emerged in the early 1990s as a way for Information Technology (IT) departments and service providers within private (usually corporate) computer networking environments to measure and manage the *quality of service (QoS)* they were delivering to their internal customers. Service level agreements are the contractual component of QoS and are usually implemented as part of a larger *service level management (SLM)* initiative (Lee and Ben-Natan). The goal of Service Level Agreements is to focus the needs of the companies and its customers more than in the technology used, identifying, prioritizing and documenting the real needs of the organization.

Most of the times, the implementation of the Service Level Agreements programs are difficult because they involve a mutual agreements between the service provider and customers. The creation of the SLA is a process of negotiation in which the service provider (Managers, IT staff) and customers establish a common understanding about services, priorities, responsibilities, etc...

Compliance with the QoS is one of the most important components of the SLA. The Quality of service is defined by the International Telecommunications Union (ITU-T) as "the collective effect of service performances, which determine the degree of satisfaction of a user of the service (Lee and Ben-Natan), which require an advanced planning for the date collections that are presented in the SLA reports.

Therefore they should be established as part of the implementation of the SLA. The SLA reports must provide a guarantee that the QoS is being proactively monitored and that the service provider is ready to respond to any contingency that may arise. Based on these reports the service provider may maintain a constant optimization of all processes that make up the SLA. When executed properly, the SLA provides the techniques and standards to ensure better decisions and ensure that IT departments are aligned with the Objective of the organization that they support.

The process for creating the SLA is shown in the illustration 1 which identifies the five main processes that involve the creation of the SLA



**Figure 1: Steps in the process of creating a new SLA (Desai)**

Identify business requirements is an important part of the process of creating a new SLA. In this step it is important to identify every aspect of a prospective product or service offering. Strong contract and entitlement development processes are more important for products covered by SLAs (Lee and Ben-Natan).

Another important step from the SLA creation process is the Service Level Goals, this define the targeted levels of services that are to be expected from IT departments (Desai).

### **SLA goals and metrics**

SLA Metrics are the main component of the SLAs and key part of the same. Metrics specify what specific data and statistics to be measured and analyzed to ensure compliance with the agreements established. The metrics are derived from the SLA and the contract itself. They reflect the commitments made in the contract and the SLAs, and they allow continuous tracking of the service being delivered and gauging whether service delivery conforms to the agreed-upon SLA (Lee and Ben-Natan).

The implementations of SLA are the operations and associated activities that are performed daily to ensure the service offered. This includes measurement of SLA entitlements on an ongoing basis. Extraordinary events such as circuit degradation, outage, maintenance downtime, and even failure of the capability to measure performance (Operations Support System (OSS) downtime) should be recorded and measured and the impact to the business assessed and reported (Lee and Ben-Natan).

Finally, the SLA performance monitoring let companies review current terms, metrics, and priorities and updates them based on current requirements.

## **Performance and Availability Metrics**

The main objective of performance metrics is to determine whether a service is performing up to standards.

Availability is defined as “a percentage measure of the degree to which machinery and equipment is in an operable and committable state at the point in time when it is needed.”

(Katukoori).

## **Virtualization**

Virtualization is a technique for hiding the physical characteristics of computing resources to simplify the way in which other systems, applications, or end users interact with those resources.

(Bolton)

Virtualization has gained a considerable amount of coverage in the trade media in recent years.

So it would be easy to make the assumption that the concept of virtualization is new. In fact, virtualization has been around since it was first introduced on IBM mainframe operating systems in the 1960s.

“Virtualization is a technology that everyone is talking about, and with the increased cost of energy, the server consolidation part of the value proposition has become even more compelling”. (ACM)

The popularity of virtualization can be attributed to a number of reasons:

Green computing - green computing refers to the recent trend to reduce the power consumption of computer systems. Whilst not a primary concern for individual users or small businesses,



companies with significant server operations can save considerable power usage levels by reducing the number of physical servers required using virtualization. An additional advantage involves the reduction in power used for cooling purposes, since fewer servers generate less heat.

**Increased computing power** - The overall power of computer systems has increased exponentially in recent decades to the extent that many computers, by running a single operating system instance, are using a fraction of the available memory and CPU power. Virtualization allows companies to maximize utilization of hardware by running multiple operating systems concurrently on single physical systems.

**Financial constraints** - Large enterprises are under increasing pressure to reduce overheads and maximize shareholder returns. A key technique for reducing IT overheads is to use virtualization to gain maximum return on investments in computer hardware.

**Web 2.0 & Cloud Computing** - The term Web 2.0 has primarily come to represent the gradual shift away from hosting applications and data on local computer systems to a web based approach. For example, many users and companies now use Google Apps for spreadsheet and word processing instead of installing office suite software on local desktop computers. Web services such as these require the creation of vast server farms running hundreds or even thousands of servers, consuming vast amounts of power and generating significant amounts of heat. Virtualization allows web services providers to consolidate physical server hardware, thereby cutting costs and reducing power usage.

Operating system market fragmentation - In recent years the operating system market has increasingly fragmented with Microsoft ceding territory to offerings such as Linux and Apple's Mac OS. Enterprises are now finding themselves managing heterogeneous environments where, for example, Linux is used for hosting web sites whilst Windows Server is used to email and file serving functions. In such environments, virtualization allows different operating systems to run side by side on the same computer systems.

Virtualization let a single physical resource (such as a server, an operating system, an application, or storage device) appear as multiple logical resources; or making multiple physical resources (such as storage devices or servers) appear as a single logical resource.

One of the most important objectives of virtualization is the server consolidation because it requires less hardware and less hardware managers which can help reduce other costs like maintenance, space, minimize cost, power consumption, physical rack space and others. In addition, servers are cheaper now that they were before; adding up that it is just one time expense.

The benefits of virtualization are that it offers better execution boundaries than an operating system; it means it provides security. Other benefits are fault isolation, high reliability, high availability and it provides easy management.

Virtualization technology has made great strides in allowing the creation of the next generation of efficient, easily manageable, highly available, and dynamic data centers. Future developments in virtualization as a technology, the processes involved and hardware technology employed will

be impressive and ground-breaking in the future. Virtualization means a refinement in the way people interact with technology and above all, better efficiency on all levels. (Shaw)

At the heart of system virtualization is another technology called a Virtual Machine Monitor (VMM). The VMM provides the underpinnings for virtualization management, which includes policy-based automation, virtual hard disk, life cycle management, live migration and real-time resource allocation. Its objective is to manage the system's processor, memory and other resources to allocate what each operating system requires. VMMs provide the means, through emulation, to divide a single, physical server or blade, allowing multiple operating systems to run securely on the same CPU and increase the CPU utilization. (Beal)

## **Incentives around Virtualization**

The IT group and the application owning group have many incentives around Virtualization. Still, it is a challenge for the IT group; but I think it is a blessing due to all the benefits it offers. One of them is that it offers the ability to host multiple guest Systems on a single physical server, it allows organizations to reclaim data center territory, thereby avoiding the expense of building out more data center space. This is an enormous benefit because data centers can cost millions of dollars to construct.

Another incentive the IT group has is that it makes the data center run more efficiently and it is also an excellent option to address the Increasing cost of system administration (operations personnel) and Last, but not least, is the reduction of power consumption. As well, the application owning group can enjoy a very highly effective optimized service.

All these things are the principal driving forces both, the IT group and the application owning groups have to develop good Service Level Agreements in virtualized environments.

There are three alternative techniques to virtualize the CPU and they are: Full virtualization using binary translation, OS assisted virtualization or paravirtualization and Hardware assisted virtualization (first generation).

### **Full Virtualization**

Full virtualization is when a complete operating system is installed on the physical server. Full virtualization provides total abstraction of the underlying physical system and creates a complete virtual system in which the guest operating system can execute. No modification is required in the guest operating system or application; the guest OS or application is not even aware that it is running within a virtualized environment. The guest OS executes on the VM just as they would on a physical system

Full virtualization offers the best isolation and security for virtual machines, and simplifies migration and portability as the same guest OS instance can run virtualized or on native hardware. VMware's virtualization products and Microsoft Virtual Server are examples of full virtualization.

### **OS Assisted Virtualization or Paravirtualization**

Paravirtualization presents each virtual machine with an abstraction of the hardware that is similar to but not identical to the underlying physical hardware. Paravirtualization attempts to

provide most services directly from the underlying hardware instead of abstracting it. Paravirtualization allows for near-native performance. (Chakraborty)

Paravirtualization has two advantages. First, it imposes less performance overhead because it is a very small amount of code. Hardware emulation, you'll recall, inserts an entire hardware emulation layer between the guest operating system and the physical hardware. By contrast, paravirtualization's thin software layer acts more like a traffic cop, allowing one guest OS access to the physical resources of the hardware while stopping all other guest OSs from accessing the same resources at the same time. The second advantage of the paravirtualization approach compared to hardware emulation is that paravirtualization does not limit the device drivers contained in the virtualization software; in fact, paravirtualization does not include any device drivers at all. Instead, it uses the device drivers contained in one of the guest operating systems, referred to as the privileged guest. Without going into too much detail about this architecture here, suffice it to say that this is a benefit, since it enables organizations to take advantage of all the capabilities of the hardware in the server, rather than being limited to hardware for which drivers are available in the virtualization software as in hardware emulation virtualization.

(Golden and Scheffy)

Paravirtualization requires modifications to the guest operating systems that are running on the VMs. As a result, the guest operating systems are aware that they are executing on a VM.

Paravirtualization is different from full virtualization, where the unmodified OS does not know it is virtualized and sensitive OS calls are trapped using binary translation. The value proposition

of paravirtualization is in lower virtualization overhead, but the performance advantage of paravirtualization over full virtualization can vary greatly depending on the workload.

There has been one significant drawback to this approach to virtualization: Because it is lightweight and multiplexes access to the underlying hardware, paravirtualization requires that the guest operating systems be modified in order to interact with the paravirtualization interfaces. This can only be accomplished by having access to the source code of the guest operating system. This access is possible for open source operating systems, such as Solaris and Linux. (Golden and Scheffy)

The Intel x86 architecture provides four levels of privilege modes. These modes, or *rings*, are numbered 0 to 3, with 0 being the most privileged. In a non-virtualized system, the OS executes at ring 0 and the applications at ring 3. Rings 1 and 2 are typically not used. Typically, the paravirtualization software takes advantage of the ring 0 and executes in it. For example, Xen execute the VMM at ring 0, the guest OS at ring 1, and the applications at ring 3. This approach helps to ensure that the VMM possesses the highest privilege, while the guest OS executes in a higher privileged mode than the applications and is isolated from the applications. Privileged instructions issued by the guest OS are verified and executed by the VMM.

Under paravirtualization the kernel of the guest operating system is modified specifically to run on the hypervisor. This typically involves replacing any privileged operations that will only run in ring 0 of the CPU with calls to the hypervisor (known as hypercalls). The hypervisor in turn performs the task on behalf of the guest kernel. This typically limits support to open source operating systems such as Linux which may be freely altered and proprietary operating systems

where the owners have agreed to make the necessary code modifications to target a specific hypervisor. These issues notwithstanding, the ability of the guest kernel to communicate directly with the hypervisor results in greater performance levels compared to other virtualization approaches. (Virtuatopia)

## **Hardware assisted virtualization**

Hardware-assisted virtualization changes the access to the operating system itself. x86 operating systems are designed to have direct access to system resources to run. With software virtualization the Virtual Machine Monitor (VMM) emulates the required hardware to the operating system. With hardware-assisted virtualization the operating system has direct access to resources without any emulation or OS modification. (Beal)

## **Virtual Machine (VM)**

A virtual machine is a software computer that, like a physical computer, runs an operating system and applications. An operating system installed on a virtual machine is called guest operating system.

Because every virtual machine is an isolated computing environment, it can be used as desktop or workstation environments, as testing environments, or to consolidate server applications.

Virtual machines run on hosts. The same host can run many virtual machines. A host is a computer that uses virtualization software to run virtual machines. They provide the CPU and memory resources that virtual machines use and give virtual machines access to storage and network connectivity. (VMware)

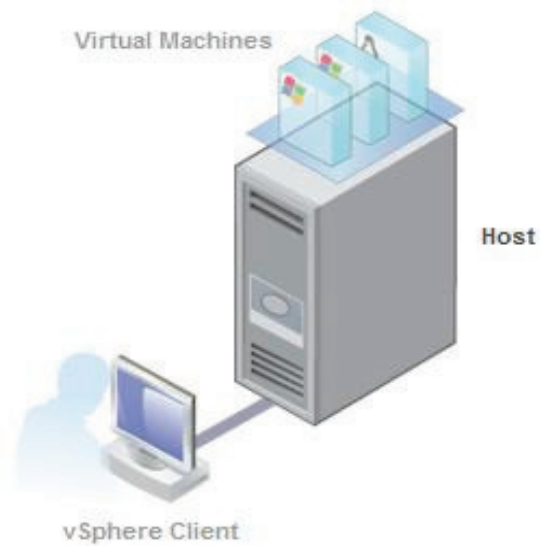


Figure 2: Host Virtual Machine

Virtual machines are bound to operate within the confines of the resources and abstractions that it has, and it cannot form any functions or process anything that are outside the confines of its virtual world. A system virtual machine would allow the host machine to support the execution of a complete operating system. A process virtual machine would only execute a single program that supports a single process.

## Guest Operating System Virtualization

Guest OS virtualization, also referred to as application based virtualization, is perhaps the easiest concept to understand. In this scenario the physical host computer system runs a standard unmodified operating system such as Windows, Linux, UNIX or Mac OS X. Running on this operating system is a virtualization application which executes in much the same way as any



other application such as a word processor or spreadsheet would run on the system. It is within this virtualization application that one or more virtual machines are created to run the guest operating systems on the host computer. The virtualization application is responsible for starting, stopping and managing each virtual machine and essentially controlling access to physical hardware resources on behalf of the individual virtual machines. The virtualization application also engages in a process known as binary rewriting which involves scanning the instruction stream of the executing guest system and replacing any privileged instructions with safe emulations. This has the effect of making the guest system think it is running directly on the system hardware, rather than in a virtual machine within an application.

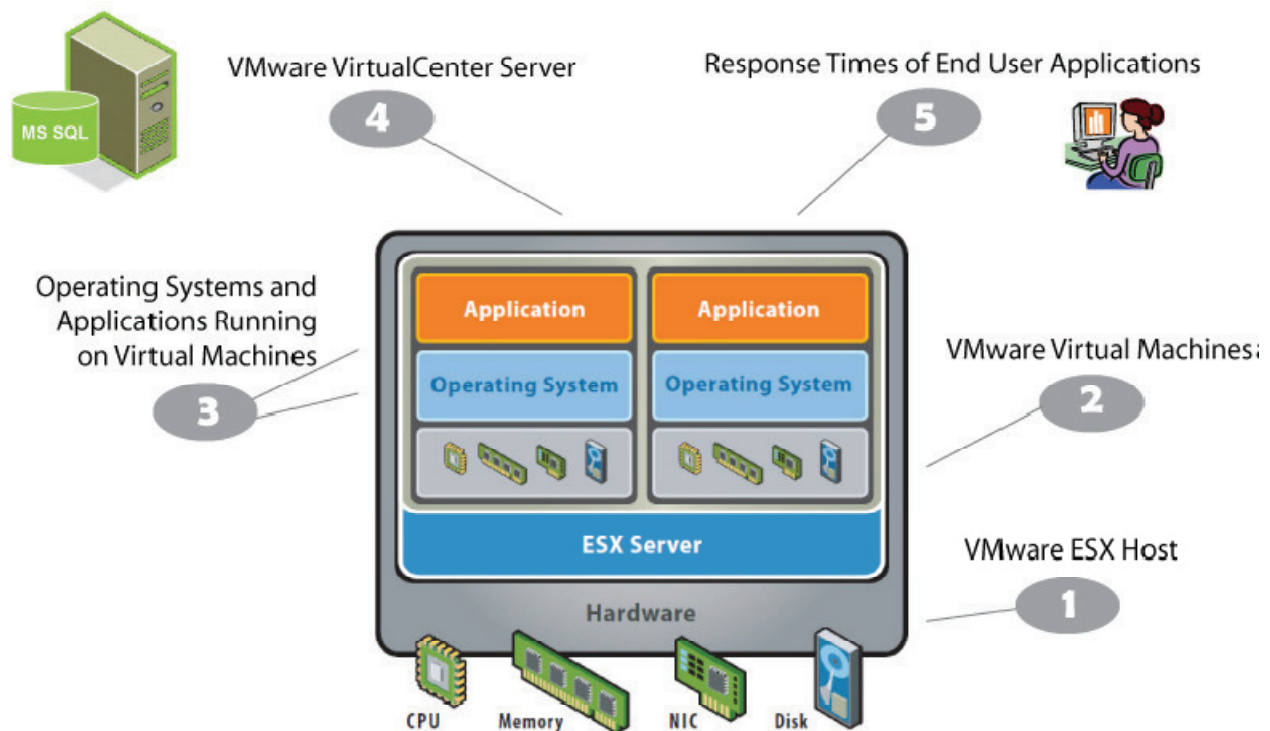


Figure 3: This illustration shows an example of a virtual environment (VMware)

## **Virtualized Environment**

In recent years the use of virtual machines are gone up in most companies. Both big and small businesses are increasing benefits in the implementation of virtual environments. One of the main reasons for the adoption of these platforms is the significant savings that companies get through a consolidation of multiple virtual machines on a single physical machine, providing greater business growth with minimal investment. Another factor are the costs associated with the process of running large Data Center, such as high energy costs, adequacy of physical space, air conditioning, among others.

To ensure business continuity and operate with minimal costs companies develop virtualization projects which allow them to meet these objectives. However, the companies that have been implementing these virtual environments saw the need to rethink the way in which SLAs are used, because the provisioning time for physical servers were approximately months (including time acquisition), new implementations of virtual servers can be provisioned in less than two hours. Also, companies that implemented virtualized environment were to able to improve its emergency server recovery time from a two-day SLA to a 2-hour SLA, but it can usually recover the server in 30 minutes.

Another Benefit of virtualization is the association of a Man-hours saved. A huge reduction in the number of man-hours it takes to manage virtual servers. This allowed the companies to increase their environment by approximately 25% to 60%, without having to hire more staff. The main areas where time can be saved are in provisioning, patching, migrating, and auditing configuration.

## PROBLEM STATEMENT

Virtualization is an trend that most organization are moving to, thanks to all its benefits in cost, risk and performance, but the main goal is to focus on what's important to business and to costumers. To achieve this, it is imperative to have the most favorable Service Level Agreement that satisfies both needs. The problem here is to find the right metrics that allow creating convenient SLAs for virtual environments. Can the metrics used for physical SLAs be used for virtual SLAs? And the most important, are there other metrics that can be used?

The purpose of this project is to demonstrate if the following metrics are the correct ones for an optimized Service Level Agreement in a Virtualized Environment. The metrics taken into consideration to be tested on the virtual laboratory are:

- Availability: Percent of Downtime
- Availability: Mean Time to Repair
- Availability: Response Time
- Availability: Percent of Uptime
- Performance: CPU Utilization
- Performance: Disk Performance
- Quality of Service: Latency

## Laboratory Goals

The major goals towards project completion are:

- Configure the virtual Hosts.
- Configure the vSphere Client
- Install, configure and deploy virtual machines.
- Test and analyze the metrics in the virtual environment.

### 3. TEST ENVIRONMENT

In order to identify the metrics needed for a Virtualized Environment; and to demonstrate these metrics, a virtual laboratory test was developed using two DELL DIMENSION 3100 PCs which functioned as servers Hosts, configured with VMware ESXi 4.0. On these hosts, some virtual machines were installed which simulated a production environment using Web and SQL servers.

A client PC (DELL Latitude D620) with Windows XP SP3 was used to install the software VMware vSphere Client, from which were administered and configured the different Host ESXi. Additionally, this Laptop was used to monitor the performance of the metrics chosen for its analysis in the different Hosts.

Both Virtualization Hosts and the vSphere client were connected through a Router Cisco SOHO 97, which provides 4 Ethernet connection ports that was used only to communicate all the devices of layer 2 of the OSI model, in addition to obtain the information of the Ethernet ports of the router.

Subsequently to the vSphere installation, some monitoring tools were installed in the client machine, which were used to identify the different response times, such as: Solarwinds Engineer's Toolset (Network Performance Monitor, Real-Time Interface Monitor and Bandwidth Gauges), PAESSLER (PRTG Network Monitor).

The lab test is presented in this figure, which was described above:

## Virtual Lab Configuration

Tuesday, March 02, 2010

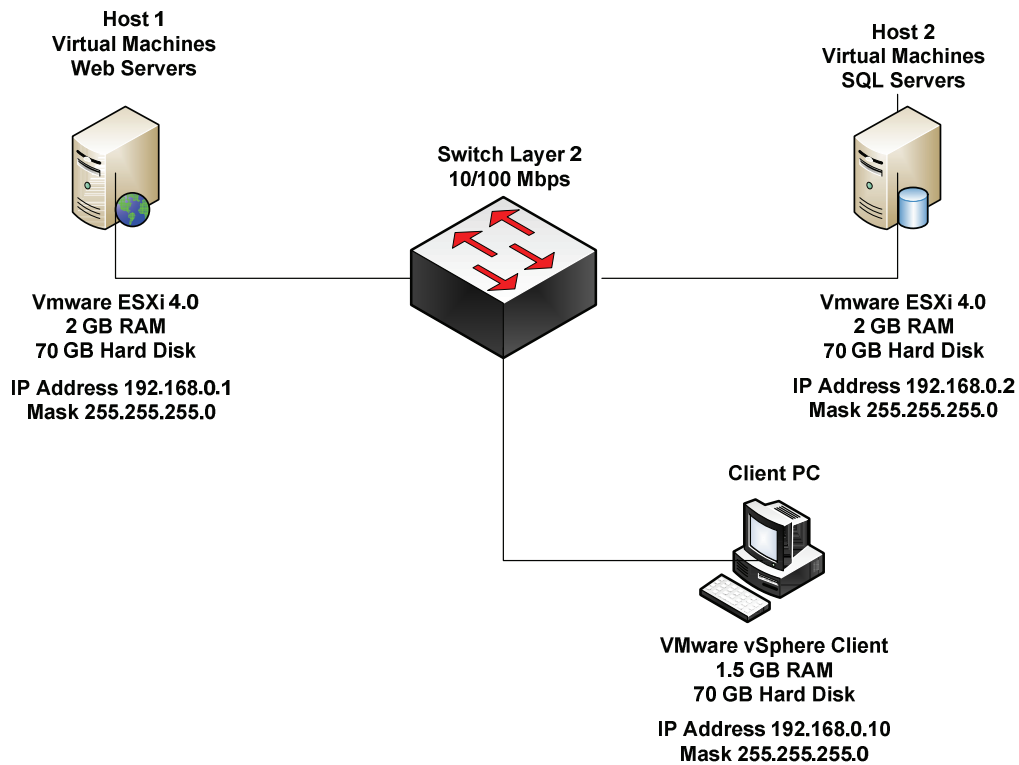


Figure 1

## **4. INSTALLATION AND CONFIGURATION**

Four primary components were required to be installed and configured to structure the test environment, the ESXi Hosts, the Virtual Machines, the vSphere Client, and the Monitoring Software.

Two Hosts were configured with VMware ESXi 4.0 to be used for the installation of the different Virtual Machines.

Thirteen Virtual Machines were configured in both Hosts, in which Windows Server 2003 Standard Edition was installed. Eight of these virtual machines were configured as WEB Servers (IIS) and five of them were configured as Database Servers (SQL).

One Laptop was configured as a vSphere client, additionally; the monitoring softwares were configured on it.

### **Hardware requirement and specifications**

- Two Hosts Computers, Dell Dimension 3100. Both Hosts had the same hardware configuration:
  - 1 Intel® Pentium® 4 CPU 2.80 GHz, with Hyperthreading technology.
  - 2 GB of RAM.
  - 70 GB in Hard Disk.
  - 1 Intel® PRO/1000 MT Dual Port NIC Server Adapter.

- One Client Laptop, Dell Latitude D620 with Windows XP SP3.
  - Intel® Centrino Duo® 2.0 GHz.
  - 1.5 GB RAM.
  - 70 GB Hard Disk.
- One Router Cisco SOHO 97.

### **Software requirement and specifications:**

- **VMware ESXi:** VMware ESXi is an enterprise-class hypervisor that offers a bare-metal architecture for near-native performance, features like memory de-duplication to increase consolidation ratios and a cluster file system for managing VM files on shared storage. This virtualization software will be used to configure the different hosts to create the virtual machines.
- **VMware vSphere Client:** vSphere is a VMware application that allows to manage the virtual environment objects, such as virtual machines, hosts, datacenters, resource pools, and clusters. Functional components of vSphere provide the best way to manage each of these objects in a virtual environment. vSphere work in two different approaches to managing virtual machines: Through an ESX/ESXi host directly, as a single or standalone host. Or through a vCenter Server system, which manages multiple virtual machines distributed over many ESX/ESXi hosts. vSphere has several client interfaces



and offers many optional components and modules, such as VMware HA, VMotion, and Update Manager. VMware vSphere Client will be used to access and configure the Host servers and to analyze the performance of Hosts and virtual machines.

- **VMware vCenter Converter Standalone:** this software converts physical machines to virtual machines. It was used to clone virtual machines on the Hosts.
- **Windows Server 2003:** this is the Operating System that was installed in virtual machines, in which ran the SQL server and IIS.
- **Windows XP SP3:** this is the Operating System used in client computer in which different softwares were installed to administer and monitor the Hosts.
- **SQL Server 2005:** SQL Server refers to a Microsoft database management system that can respond to queries from client machines formatted in the SQL language.
- **Internet Information Server:** IIS is the web server component of Microsoft Windows Server.
- **Solarwinds Engineer's Toolset:** this toolset delivers an advanced collection of monitoring, discovery, diagnostic, and Cisco tools.
- **PRTG Network Monitor:** This software covers all aspects of network monitoring: up-/downtime monitoring, traffic and usage monitoring, SNMP, NetFlow, packet sniffing and combined with concise reporting and analysis features.

## Step 1: Installation and configuration of Host 1.

The installation of Host 1 was performed using the default values of VMware ESXi 4.0. After installing the software, it was proceeded to set the administrative password as well as the IP address for the Host (192.168.0.1/24.).

Later, the Router Cisco SOHO 97 was configured with the IP address on interface Ethernet 0 192.168.0.100/24. In order to analyze the traffic between server virtualization and management console (vSphere) it was proceeded to activate the SNMP traffic on the router using the commands:

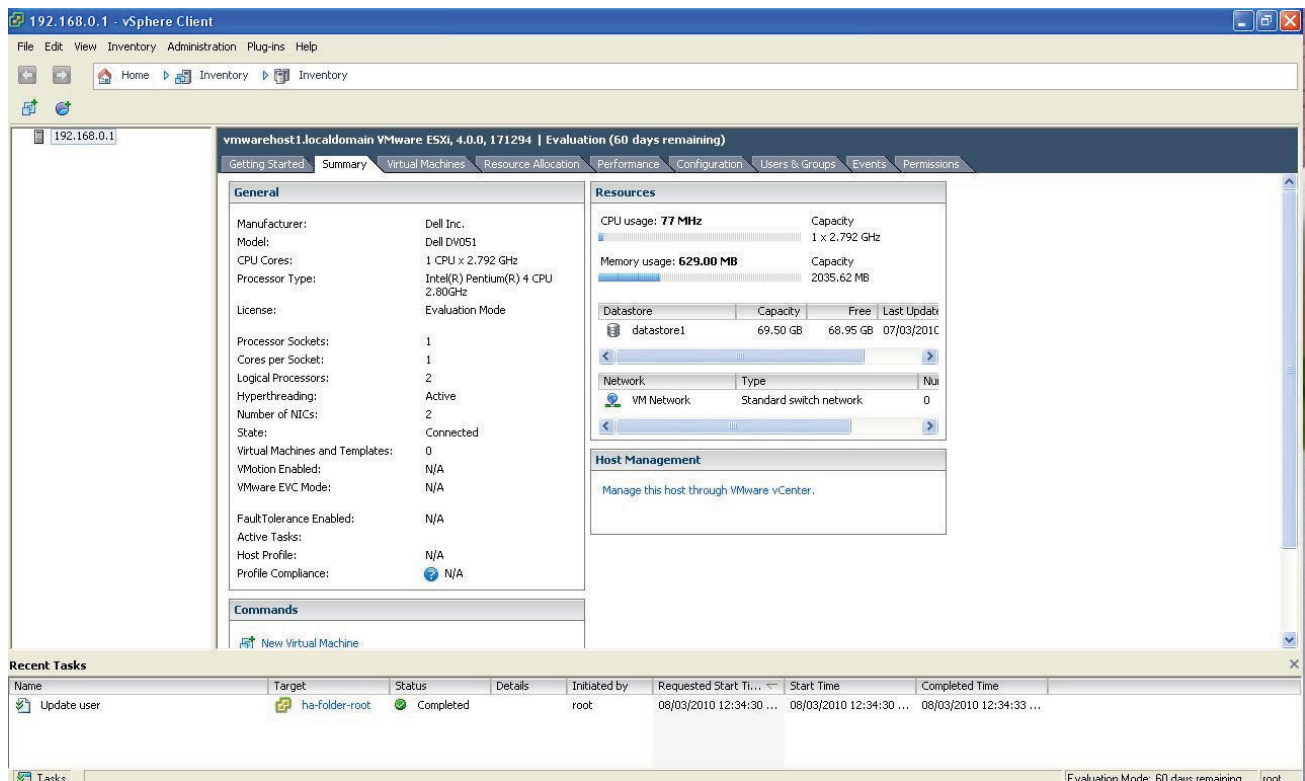
```
snmp-server community vmware RW
```

```
snmp-server enable traps snmp authentication linkdown linkup coldstart warmstart
```

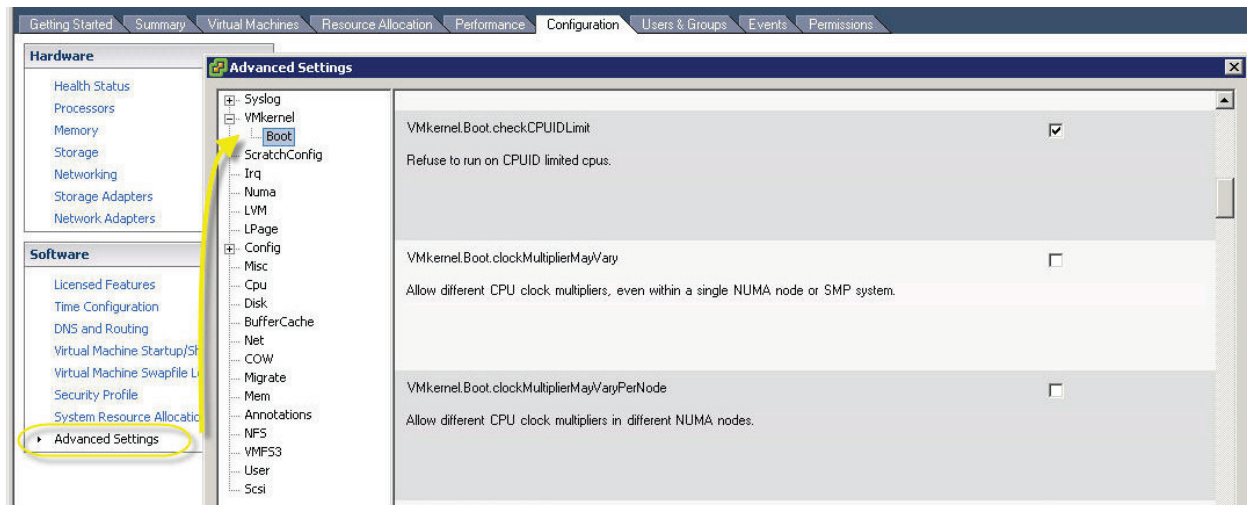
Once the router was configured and the different Hosts were connected to it, the Laptop was set up with the IP address 192.168.0.10/24. At the end of the configuration of the NIC, the vSphere was installed as well as the softwares, VMware vCenter Converter Standalone, Solarwinds Engineer's Toolset and PAESSLER.

Using the Solarwinds ToolSet "Netflow Realtime" application, all the incoming and outgoing traffic was captured from interface Ethernet 0 of the router, which permitted to analyze all the traffic that was sent from the virtual server (Host 1) to the management console (vSphere), also the response times of these machines were analyzed.

The final configurations of Host 1 was made running the application vSphere Client in the laptop, as it can be seen in this snapshot:



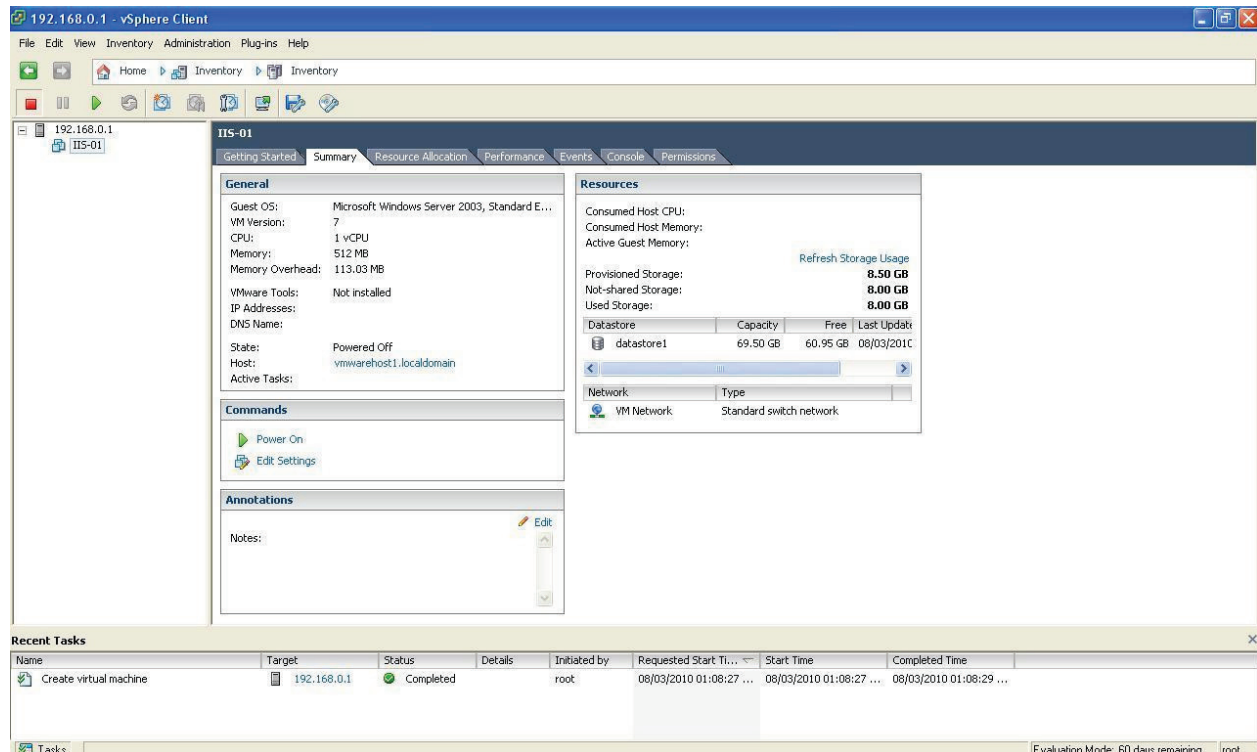
As VMware ESXi was designed to run in server environments and in authorized designed hardwares, it was necessary to unblock the option in VMware ESXi “VMkernel.Boot.checkCPUIDLimit”, since it was not supported for DELL Dimension 3100 computers.



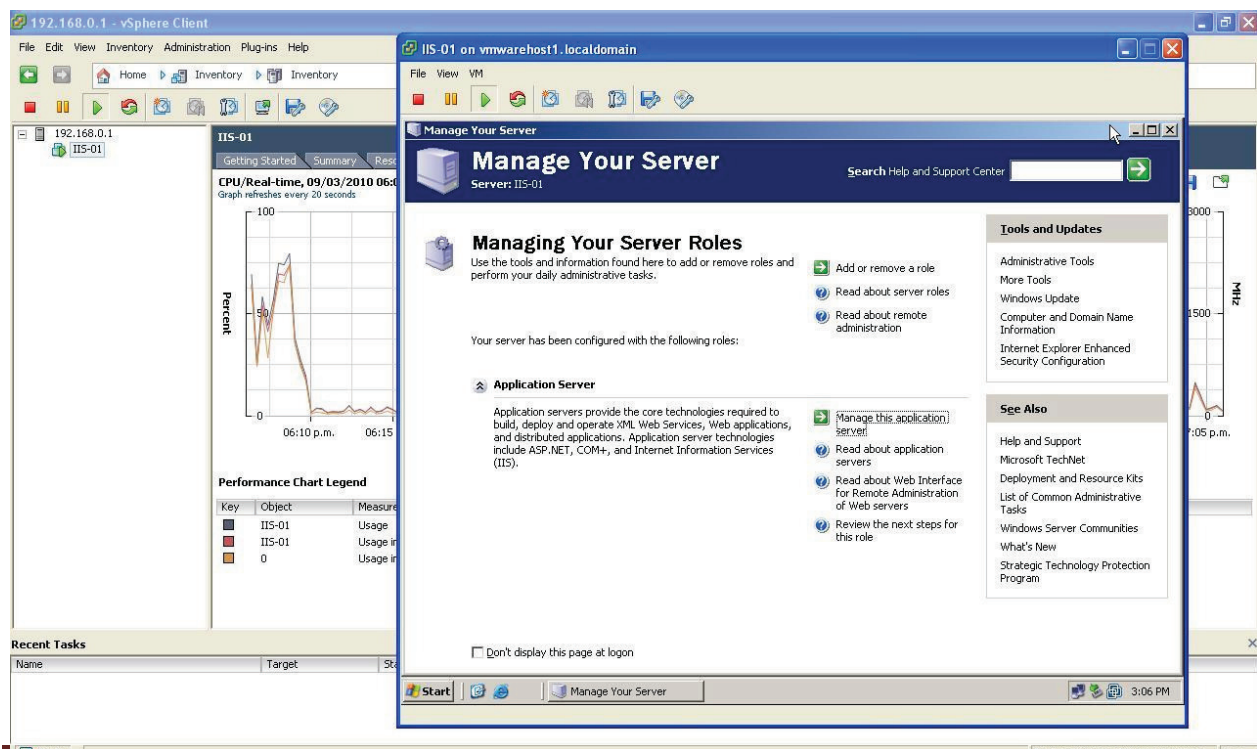
Once the Host was configured, a virtual machine with Windows Server 2003 Standard Edition in Host 1 was installed, and was configured as a web server (IIS). This new virtual machine was configured with the minimum advised parameters for the server installation of the Operating System (OS) Windows server 2003 Standard Edition. The configuration was:

- 1 Virtual Processor
- 512 MB Virtual RAM,
- 1 Virtual Disk 8.0 GB
- 1 Virtual NIC.

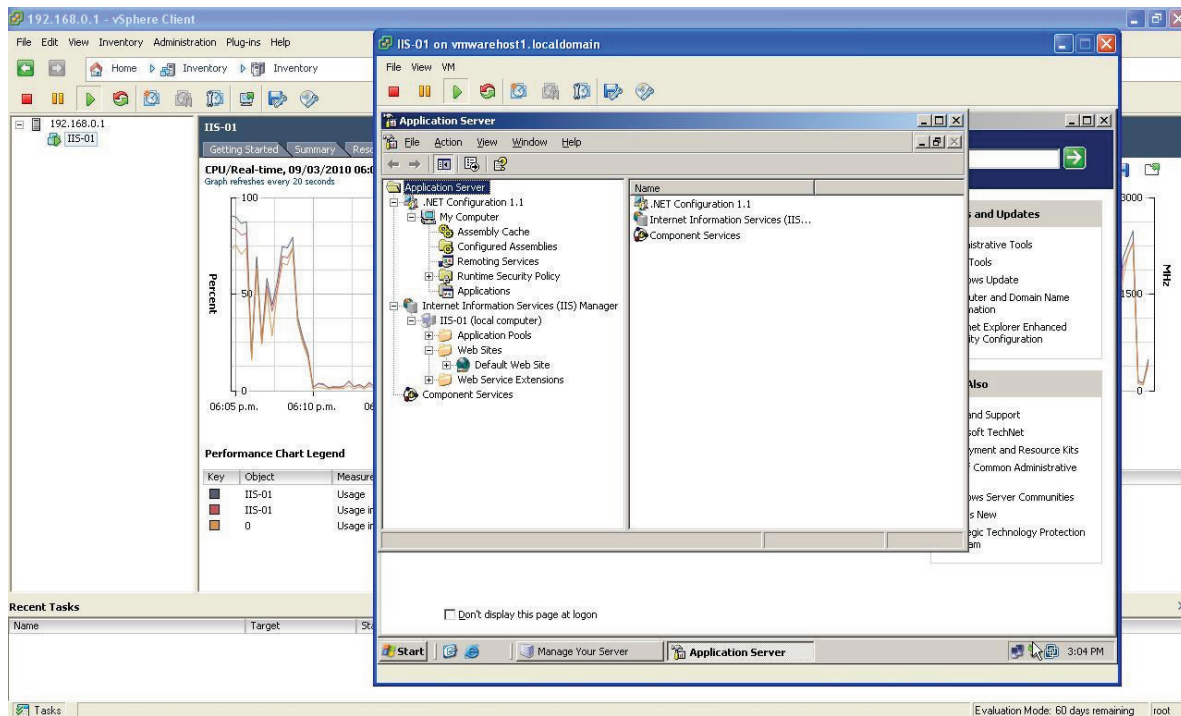
This figure shows the installation of the first virtual machine using the established configuration



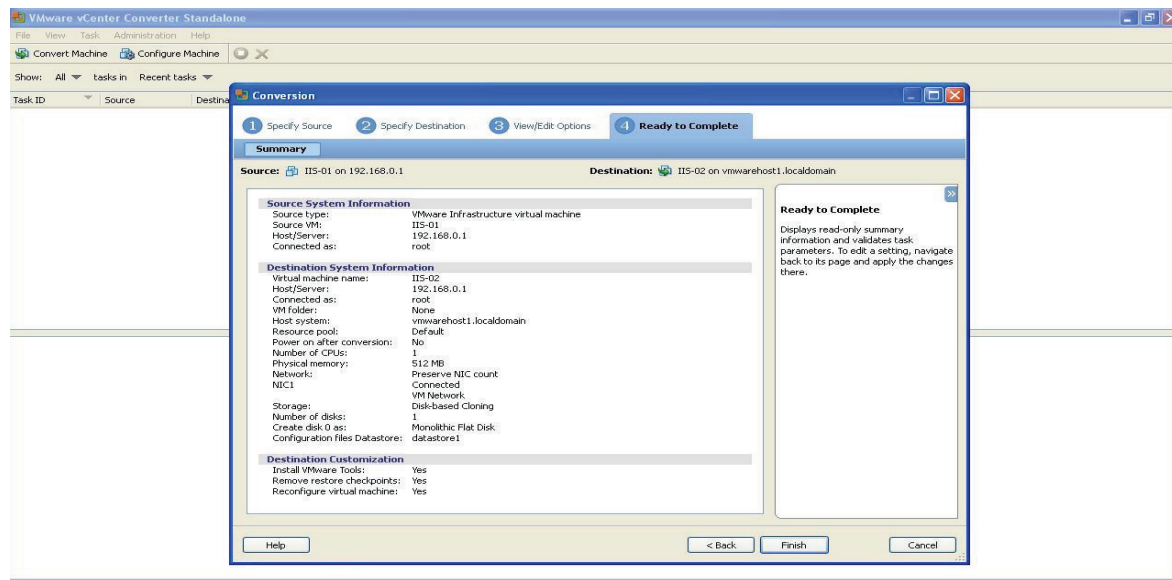
Once the first virtual machine was configured, the Operating System (OS) Windows 2003 Server 2003 Standard Edition was installed on it.



Once installed the Operating System on the new virtual machine, the IIS services were installed and configured on the server.



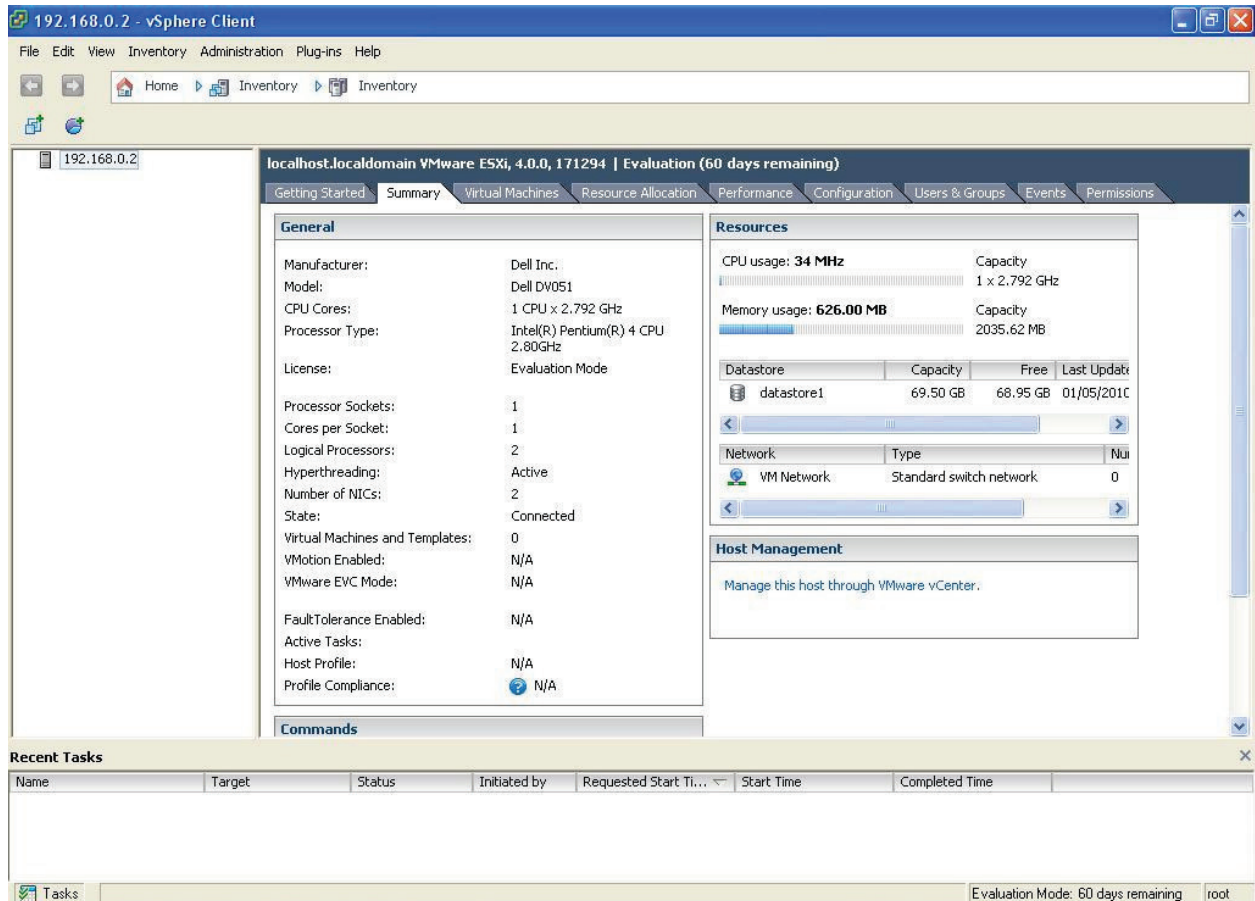
After completing the installation of the first Virtual Machine, it was cloned with the software VMware vCenter Converter Standalone in four additional virtual machines.



## Step 2: Installation and configuration of Host 2.

After the installation of Host 1, Host 2 was configured with the same procedure installation.

VMware ESXi 4.0 was installed on the Host 2 and was configured with the IP address (192.168.0.2/24).

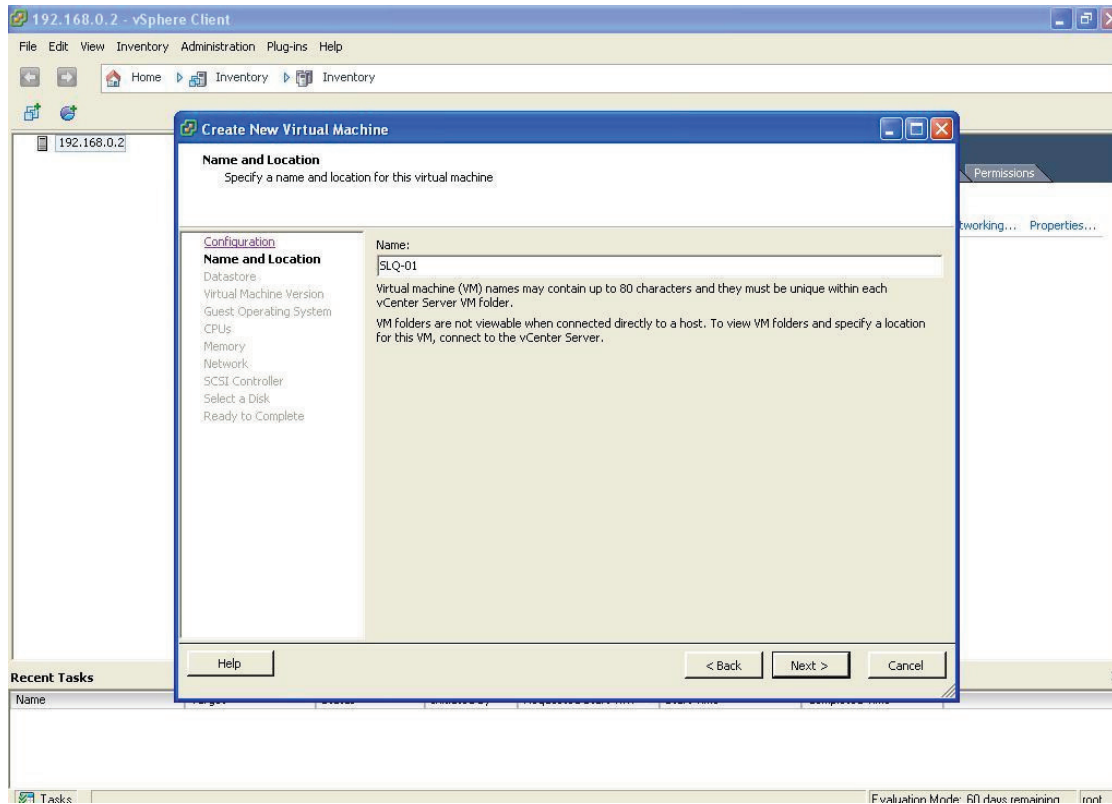


When Host 2 was configured and installed, the first virtual machine was set up with the same minimum requirements necessities for the Operating System Windows Server 2003 Standard Edition and SLQ Server. The configuration was:

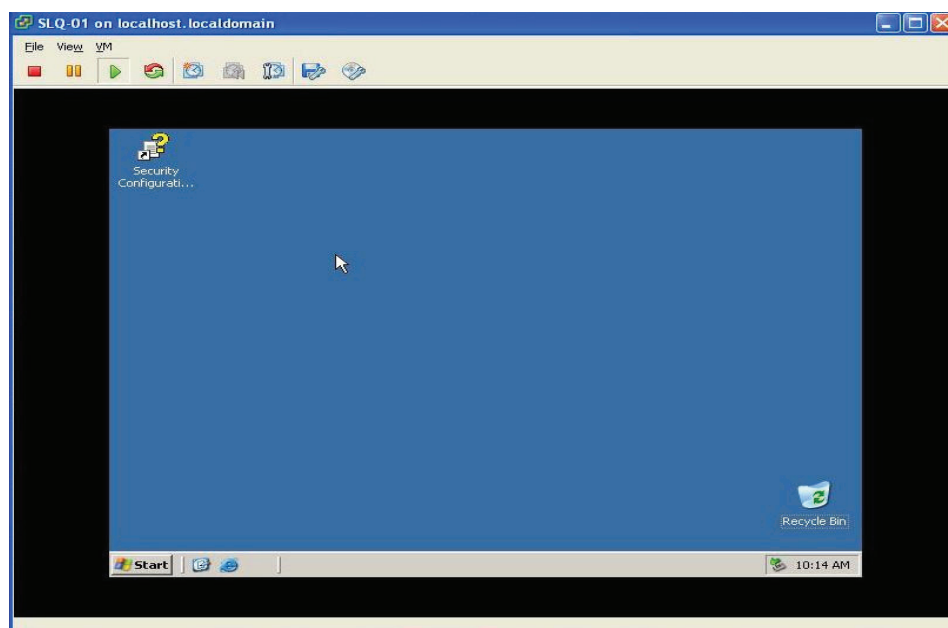
- 2 Virtual Processors
- 384 MB Virtual RAM
- 1 Virtual Disk 8.0 GB



- 1 Virtual NIC

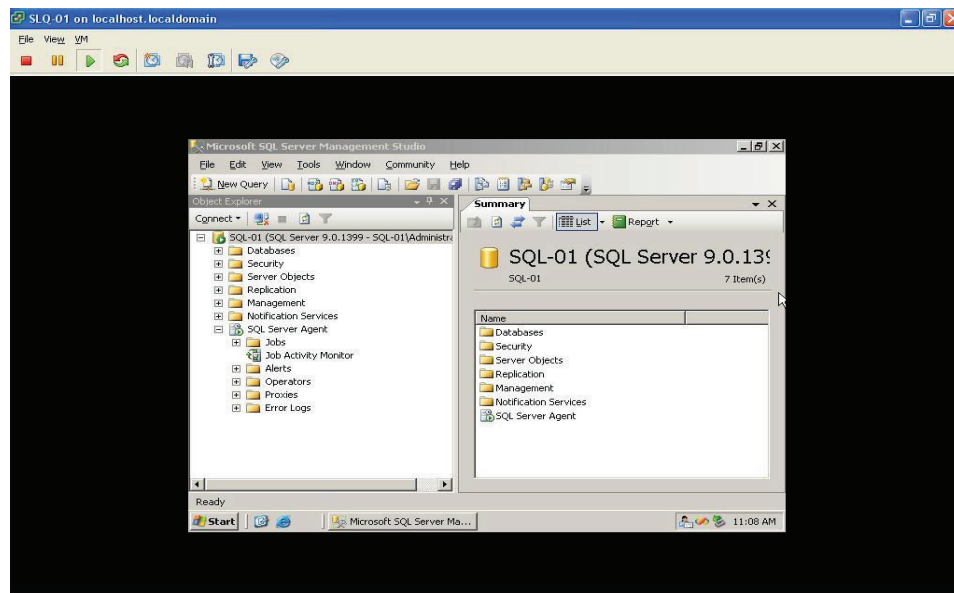


After the installation of the first Virtual Machine (SQL-01), the operating system Windows Server 2003 Standard Edition was installed.

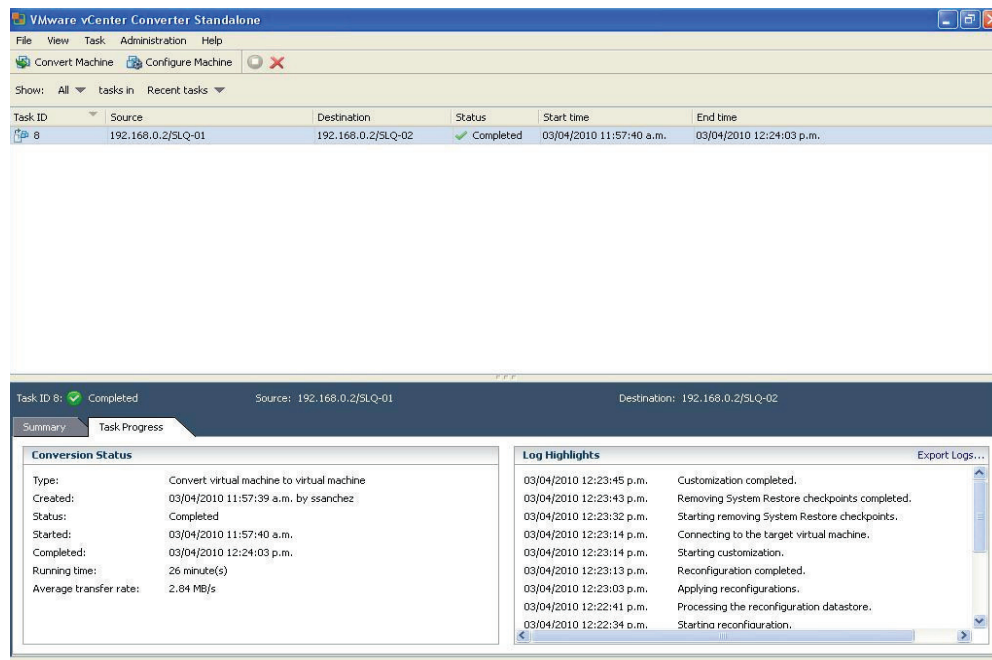




After installation and configuration of Windows Server 2003, SLQ Server 2005 was installed with default settings.



After the installation of SQL Server, the virtual machine was cloned using the software VMware vCenter Converter Standalone with which four additional virtual machines were created.



## 5. WORKING METHODOLOGY

In order to provide service agreements that meet the needs of business and its customers is imperative to choose appropriate metrics to ensure that service level agreements are being met and are aligned with business needs. However, since the metrics are derived from the SLA and the contract itself. For this project, the following metrics commonly used in physical environments, were chosen and tested under a virtualized environment. In addition, two new metrics were proposed which should be considered in the SLA for environments.

SLA Area	Metric	Description
Availability	Percent of Downtime	% of Infrastructure downtime.
Availability	Mean Time to Repair	Average time required to repair a failed component or device.
Availability	Response Time	Time a generic system takes to react to a given input.
Availability	Percent of Up time	% of Infrastructure uptime.
Performance	CPU Utilization	The amount of time not in the idle task.
Performance	Disk Performance	Total job completion time.
Quality of Service	Latency	Measure of time delay experienced in a system.
Configuration	New VM Basic Configuration	Time to deployment a pre-configured OS or applications.
Configuration	New VM Unapproved OS or Applications	Time to deployment a new OS or applications.

For the development of this methodology, several commercially available tools were used such as Client vSphere VMware, VMware Converter Standalone vCenter, Solarwinds Engineer's Toolset, PRTG Network Monitor which were used to measure and manage this metrics.

The three main points to consider were:

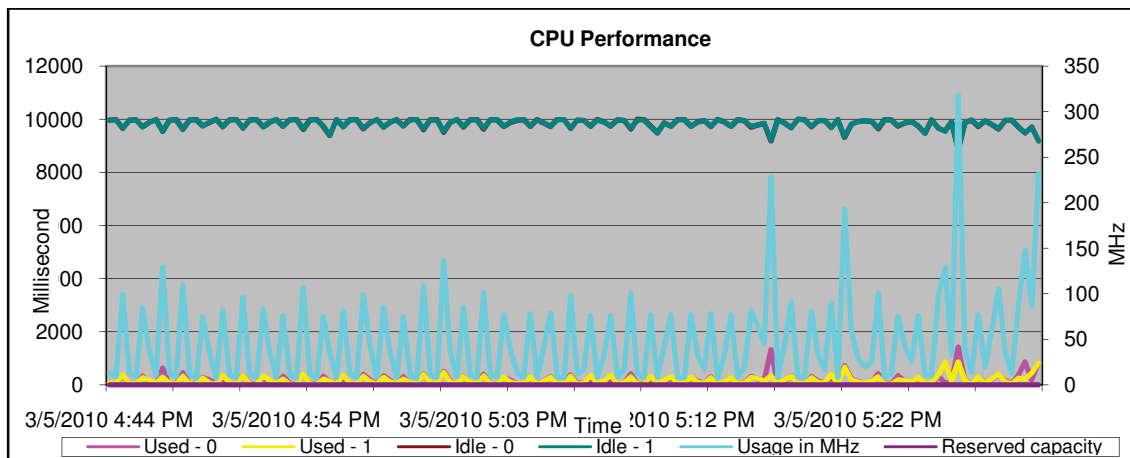
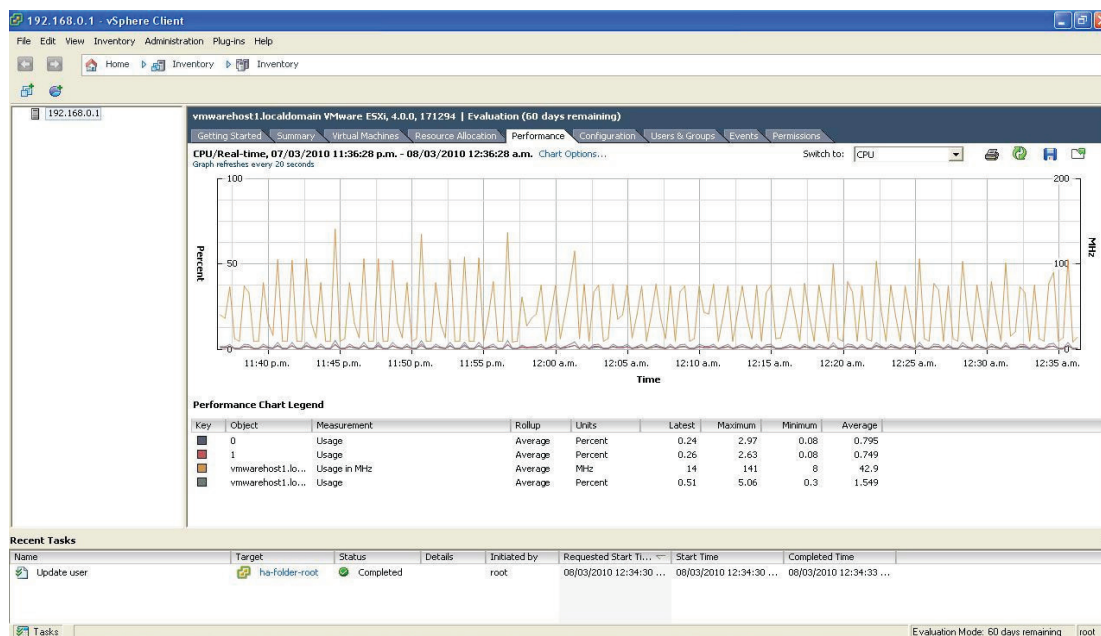
1. The creation of a virtual laboratory which was developed using the VMware ESXi virtualization platform.
2. The measurement of chosen metrics in different settings in each host virtualization (6 different scenarios for the host 1 and 7 different scenarios for the host 2).
3. The new metrics were measured for both a new Virtual Machine for a basic configuration and for Virtual Machine unapproved new operative system or applications.

## 6. OBSERVATION AND FINDINGS

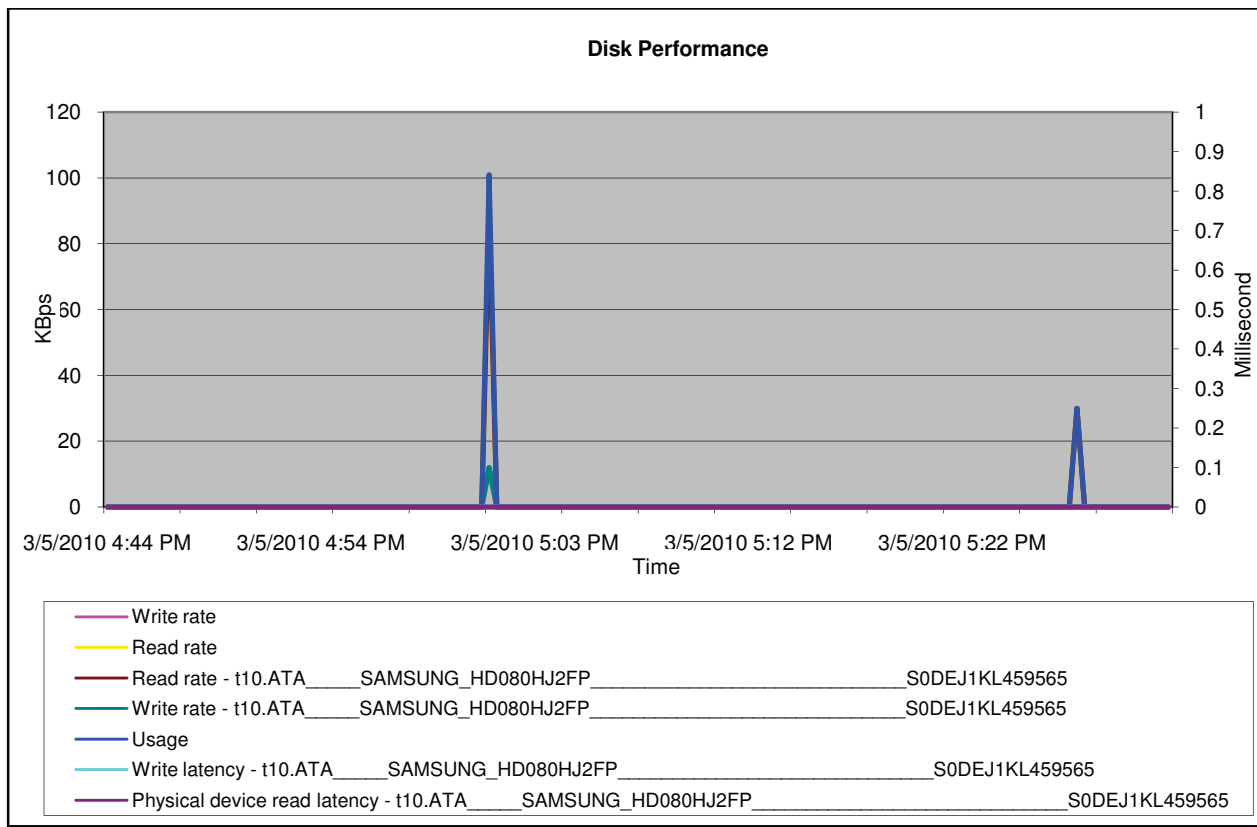
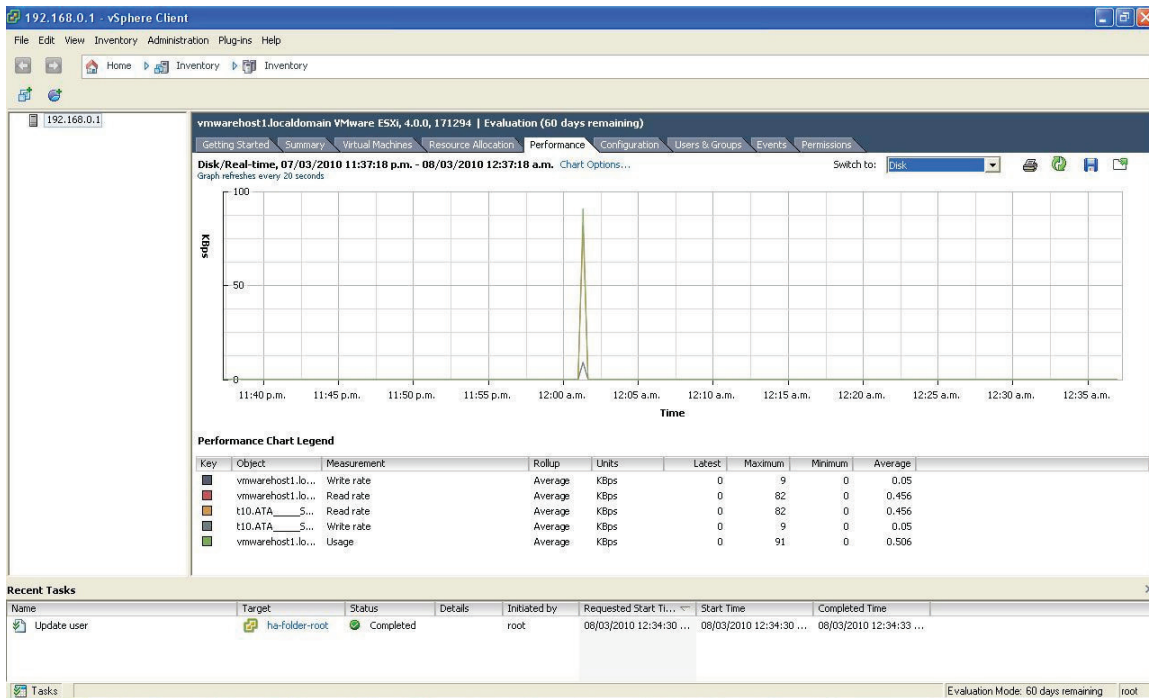
Based on the chosen metrics, it was proceeded to develop the testing laboratory and the necessary performance tests.

### Host 1 (IIS)

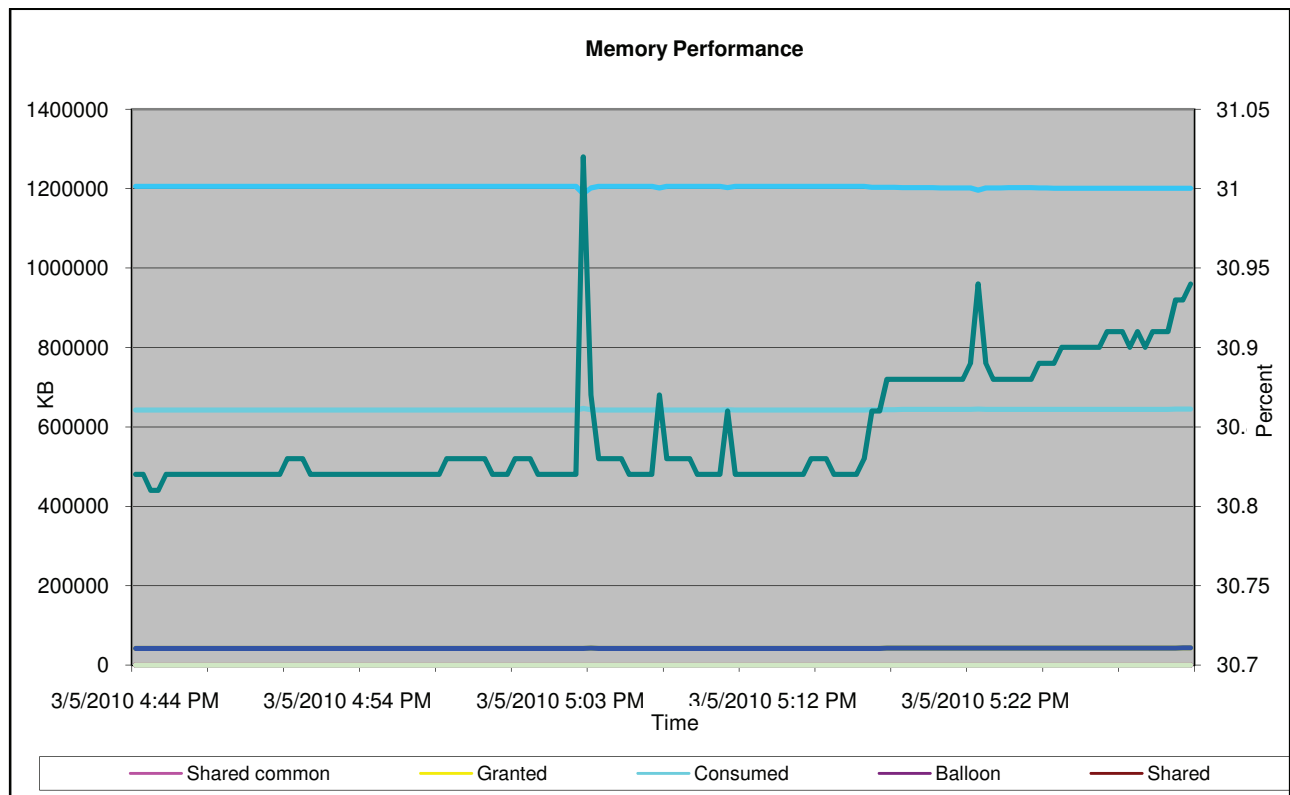
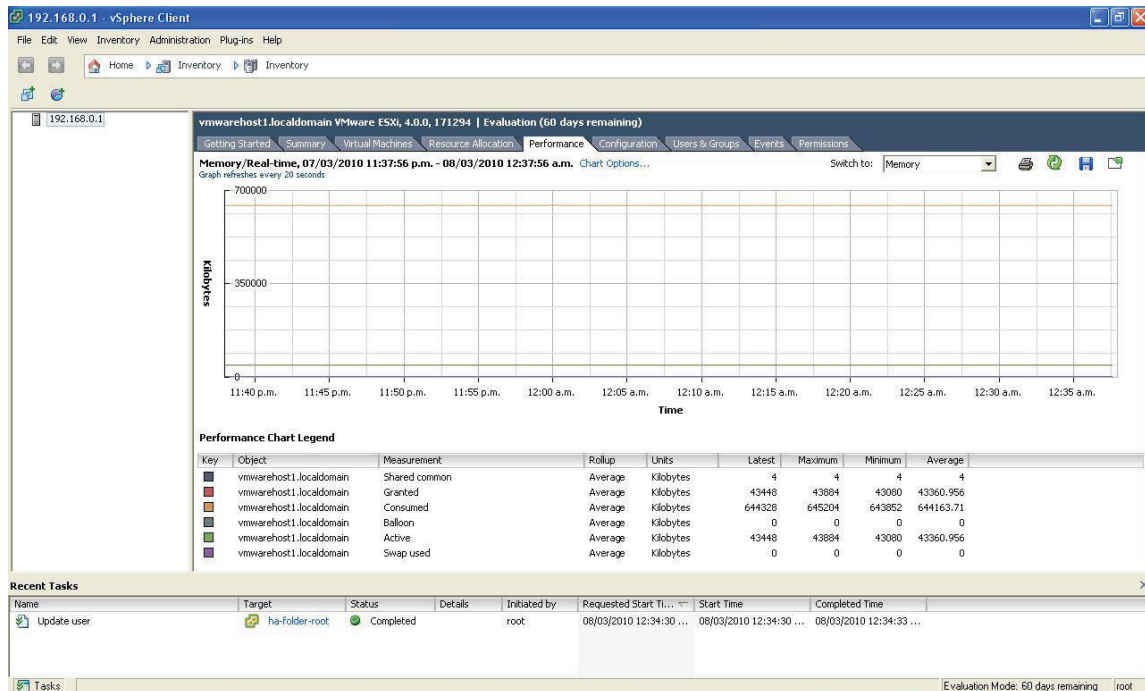
After being initialized and configured the Host virtualization and found this with the default configuration (without any virtual machine running) it was determined that the maximum processor usage was about 43 MHz, this represents only 2% of total processor utilization.



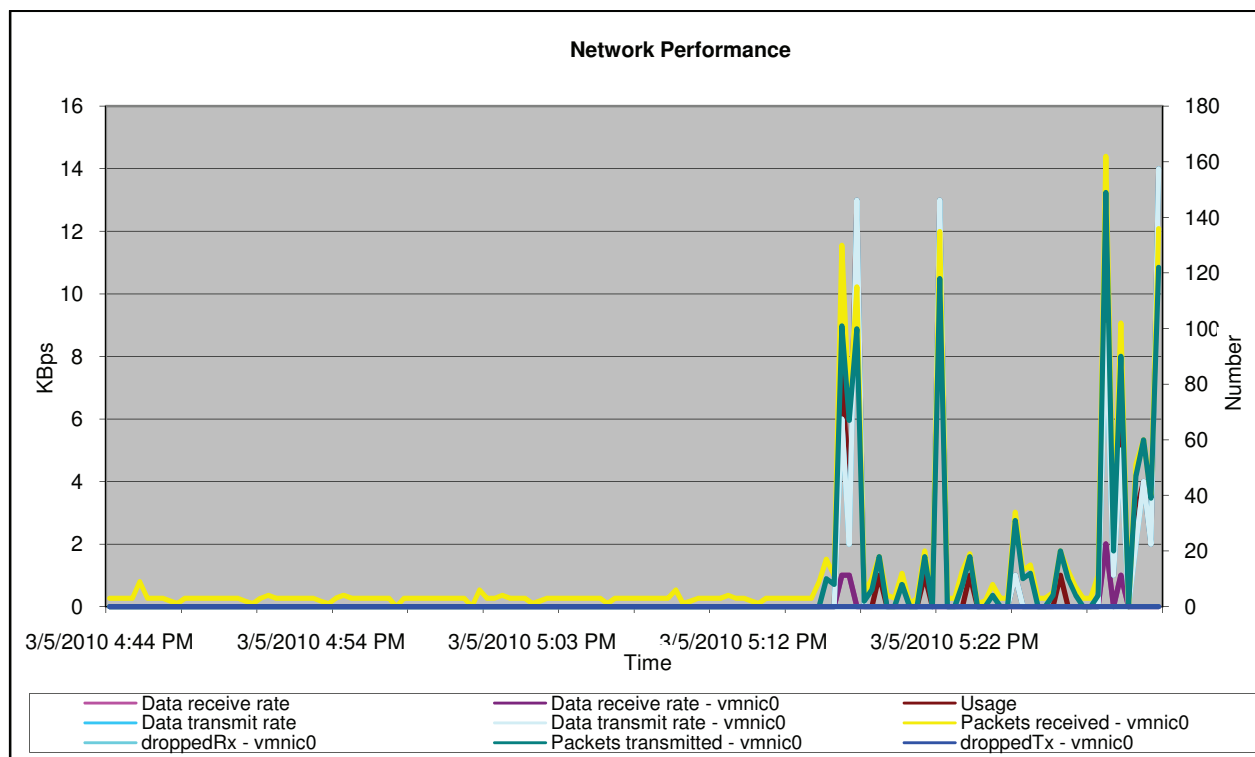
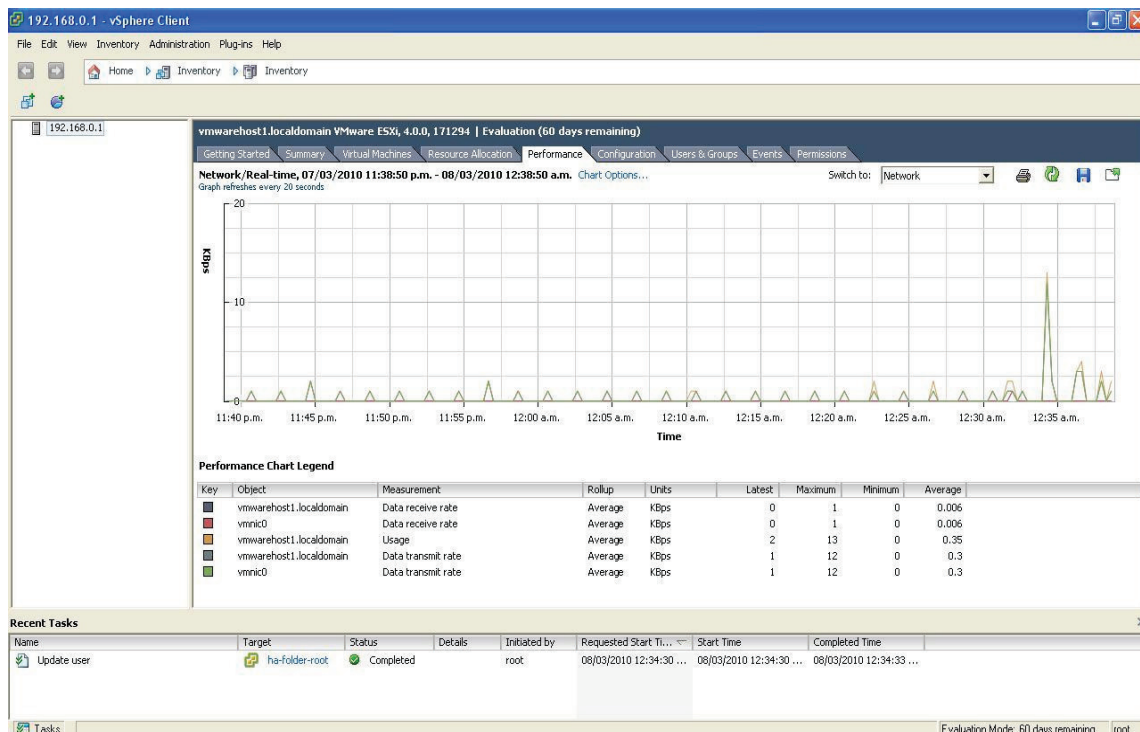
It was found that the average usage of read/write Hard Disk did not exceed 0.0506 KBps. As shown in the figure below.

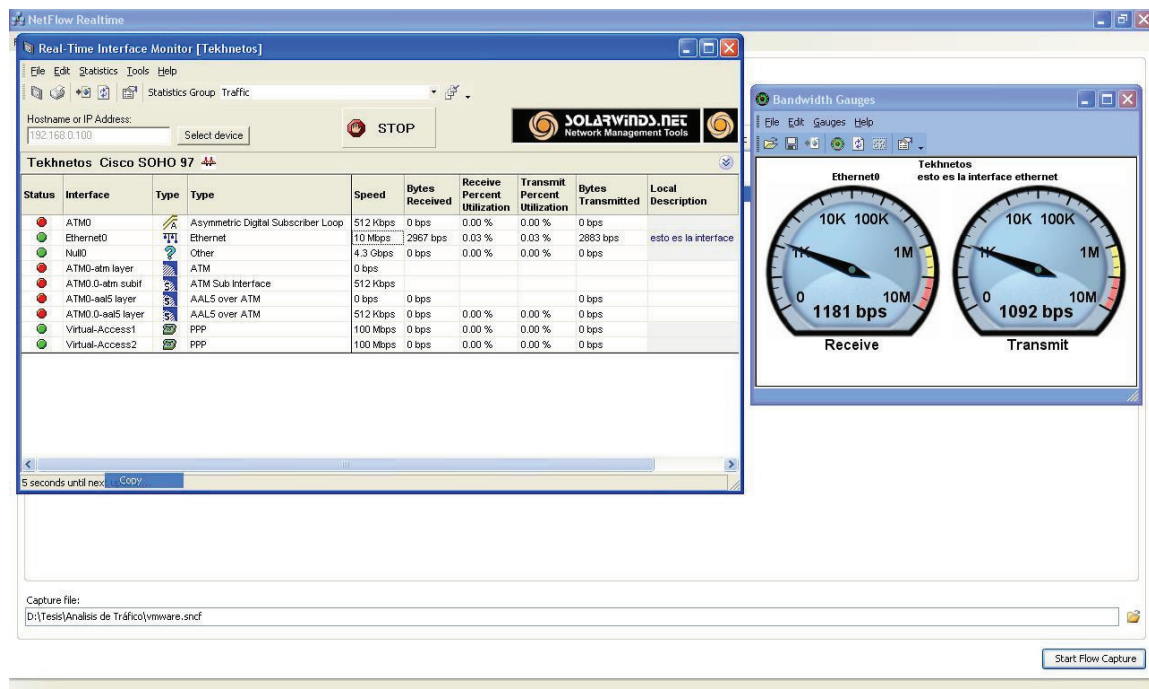


The average consumption of the memory in the Host 1 did not exceed 644,163.7 Kilobytes.

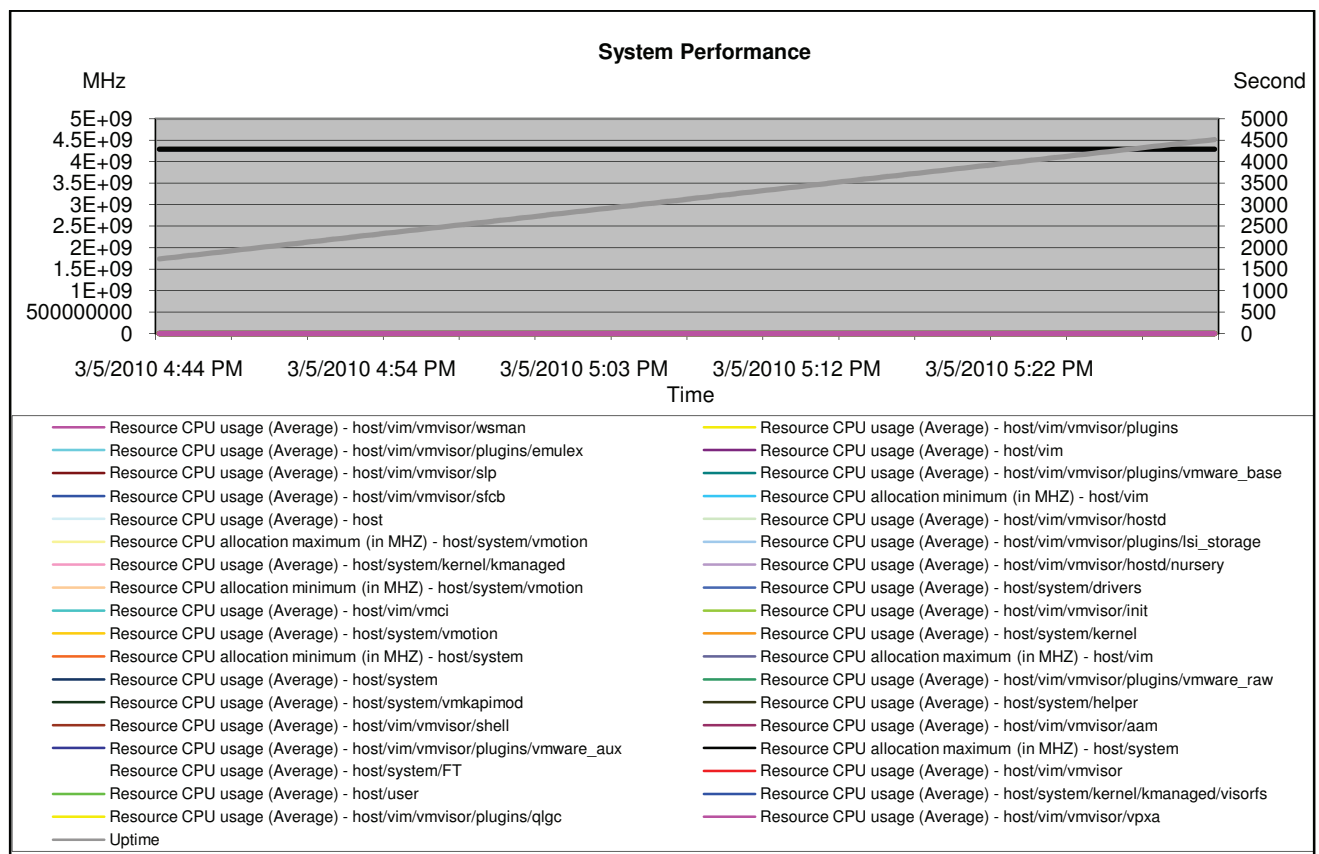


Finally, at power on the host 1 it was also observed that, both the bandwidth and response time of the equipment did not exceed 1 millisecond (on average 0 milliseconds) and the bandwidth did not exceed 2216 bps.





The Overall System Performance in the Host 0 with no active virtual machines was as follows:



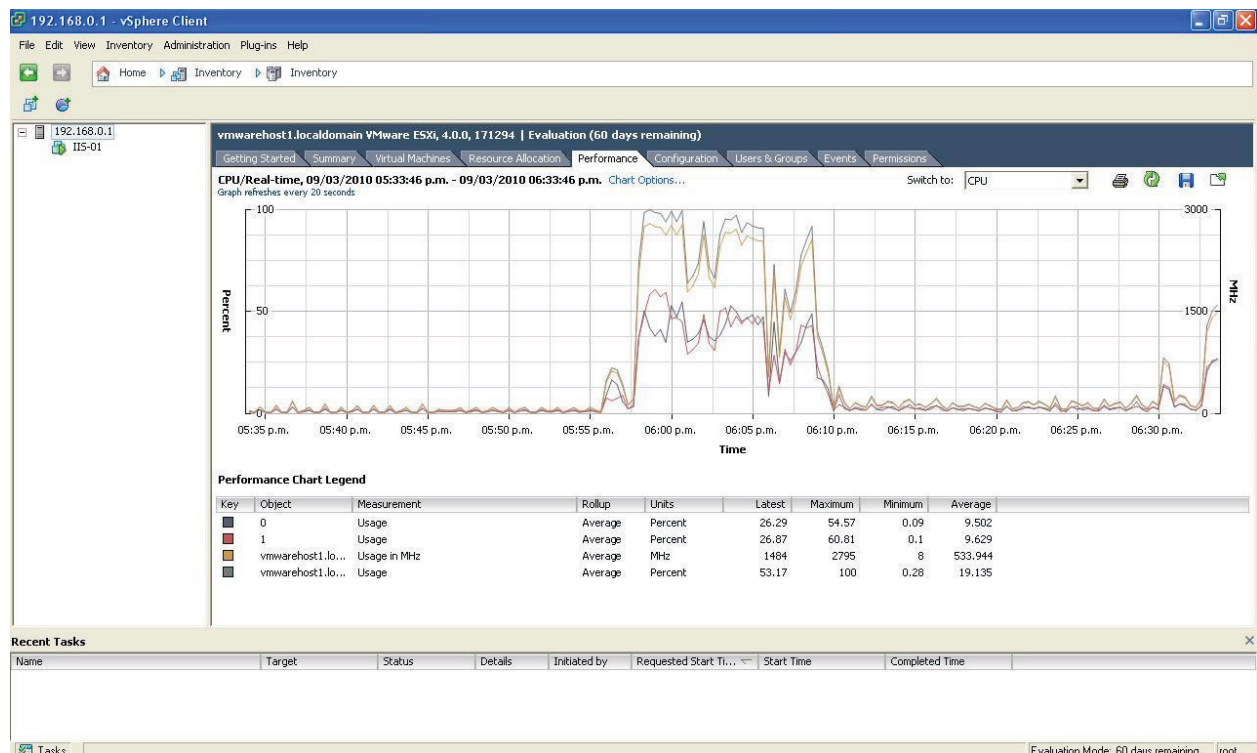


After testing the different metrics on Host 1, without any active Virtual Machine, it was proceeded to power on the first virtual machine to determine what changes in the values of the metrics could be found.

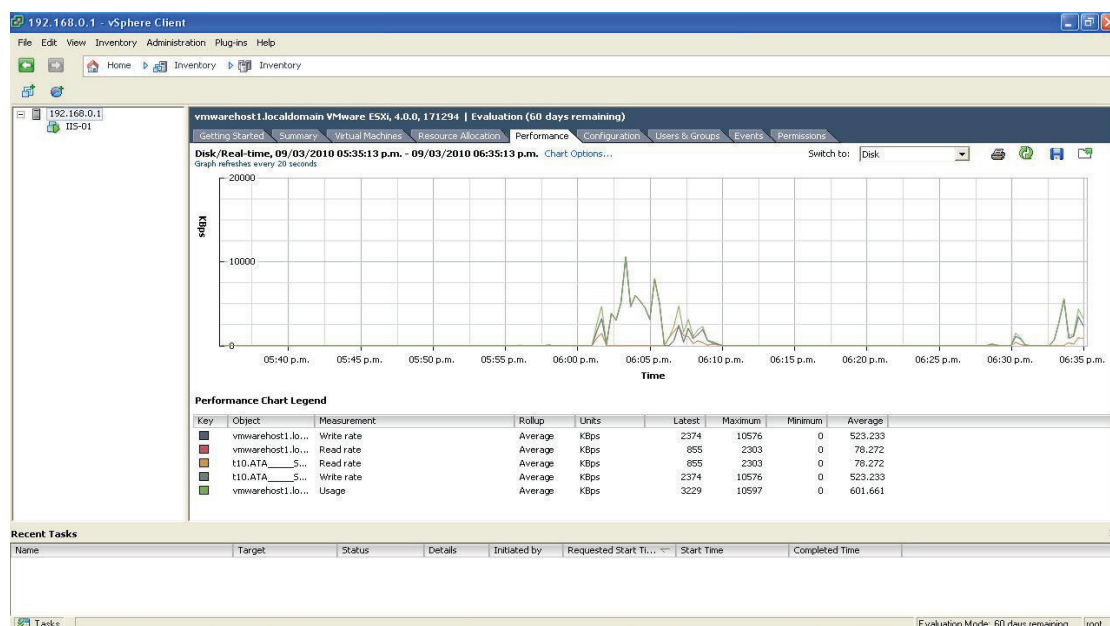
This first Virtual Machine was set up like an Unapproved OS or Applications in order to determine the Time to Deployment the new OS or Applications.

The estimated time of installation and power on, of the first virtual machine was: 1 hour, 6 minutes.

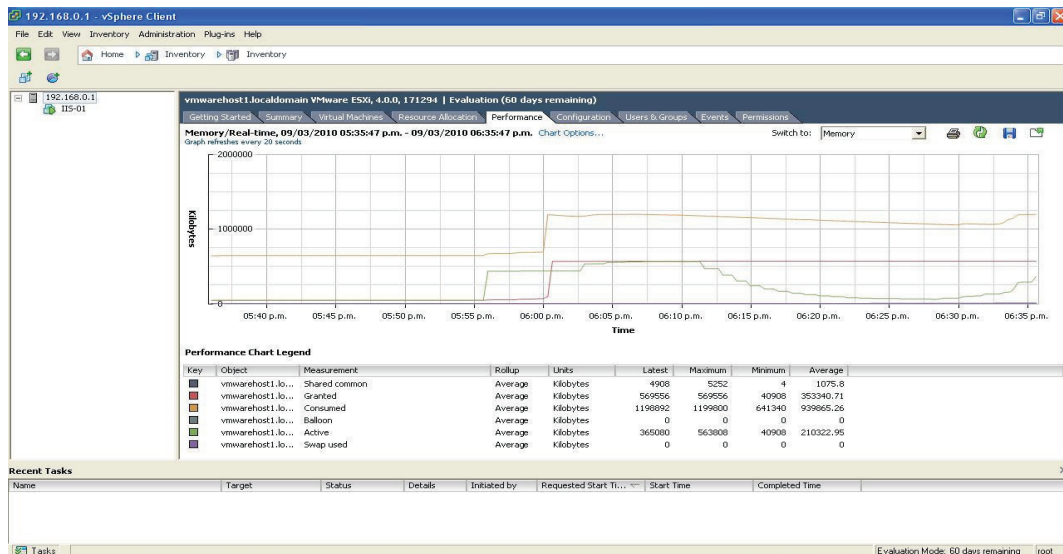
It is observed in the installation of the new virtual machine, that the CPU usage in the Host 1 did not exceed 25% of utilization during the installation process. However, during the startup of the Virtual Machine, it was observed a significant increase in the use of CPU, with peak values up to 81%, which remained just a few minutes, returning to their minimum values after the Operating Systems start all its services.



The Hard Disk utilization presented a maximum peak of 10,597 KBps during the startup of the virtual machine, returning to minimal values after all the components of the Operating System loaded.



It was observed that once the virtual machine was turned on, the physical memory consumption of Host 1 increased in the same proportion to the assigned virtual memory set for this virtual machine (512MB).

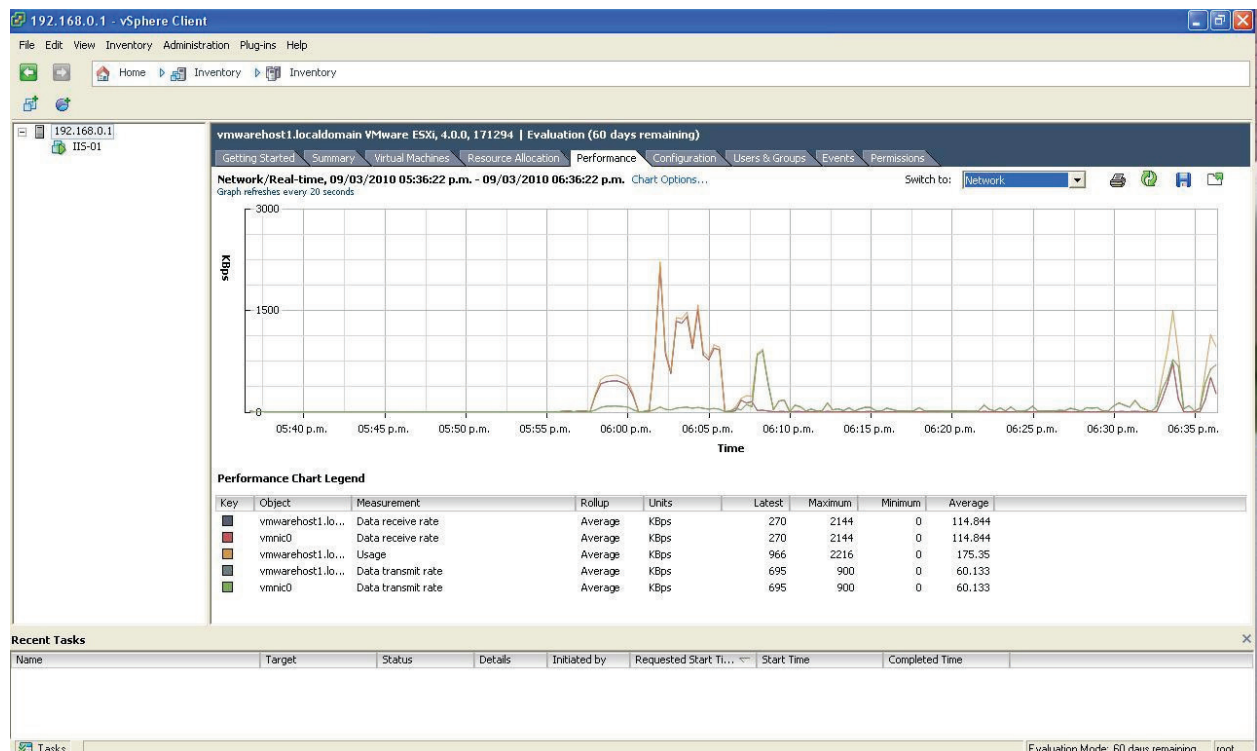


With the activation of the first virtual machine, it was observed that the bandwidth remained the same and the response time also remained the same as when there was no active virtual machine.

The use of the network card did not exceed 19% during the runtime.

Similarly, it was determined that the memory consumption during the installation period stood at an average consumption of 1, 113,930.0 Kilobytes (1.1 GB).

The Host response time throughout the installation process was approximately (1.22 ms.)

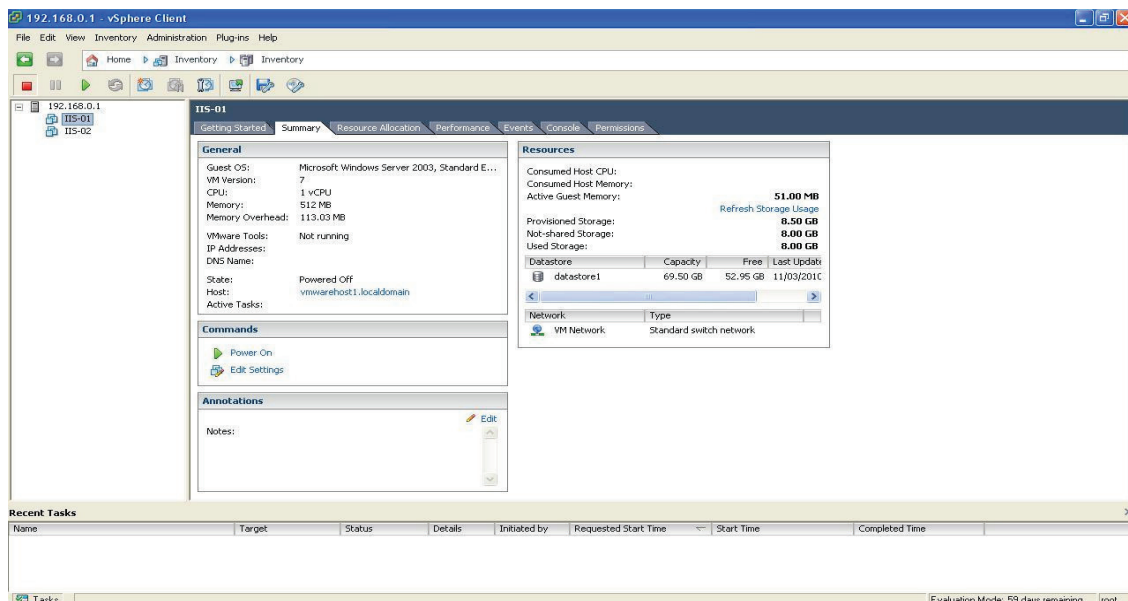


After testing the different metrics of the first Virtual Machine, it was preceded to power on the second virtual machine to determine which changes in the values of the metrics could be found.

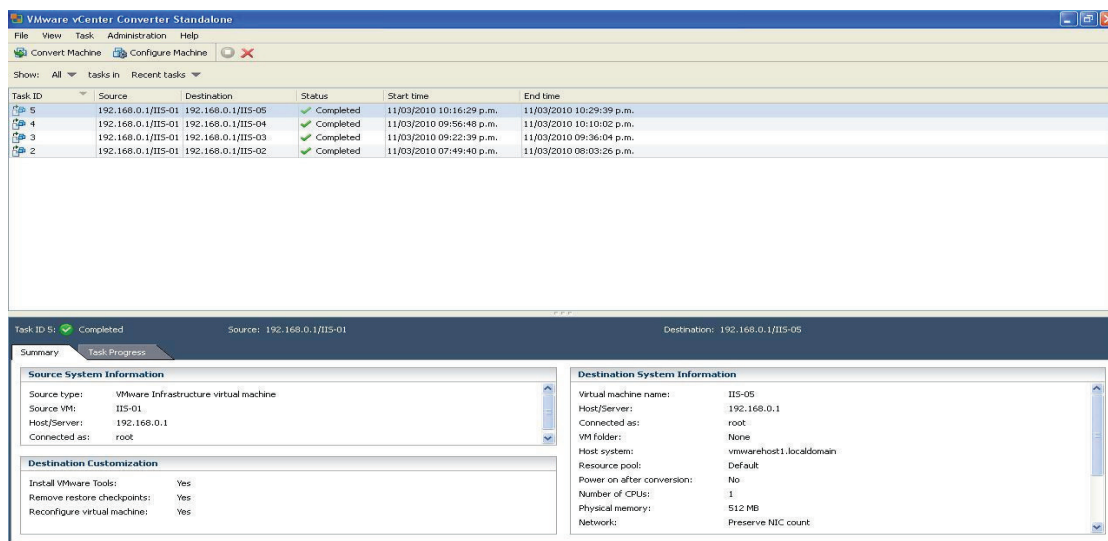
This second Virtual Machine was installed like a New VM Basic Configuration in order to determine the Time to Deployment to Pre-configure OS or Applications.

Using the VMWare vCenter Converter Standalone utility, a copy of the first virtual machine named IIS-02 was created.

Approximate time of cloning and power on, of the second virtual machine was 13 minutes and 46 seconds.



After completing the cloning of the second virtual machine, two additional copies of the same were created, presenting an average of cloning and executing of about 13 minutes and 25 seconds each.

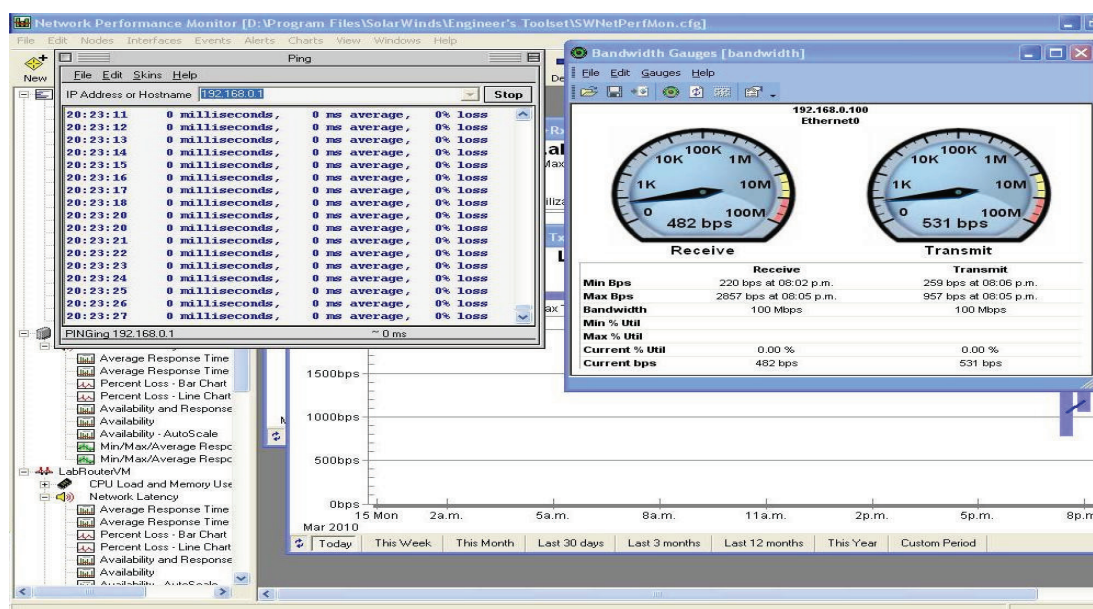
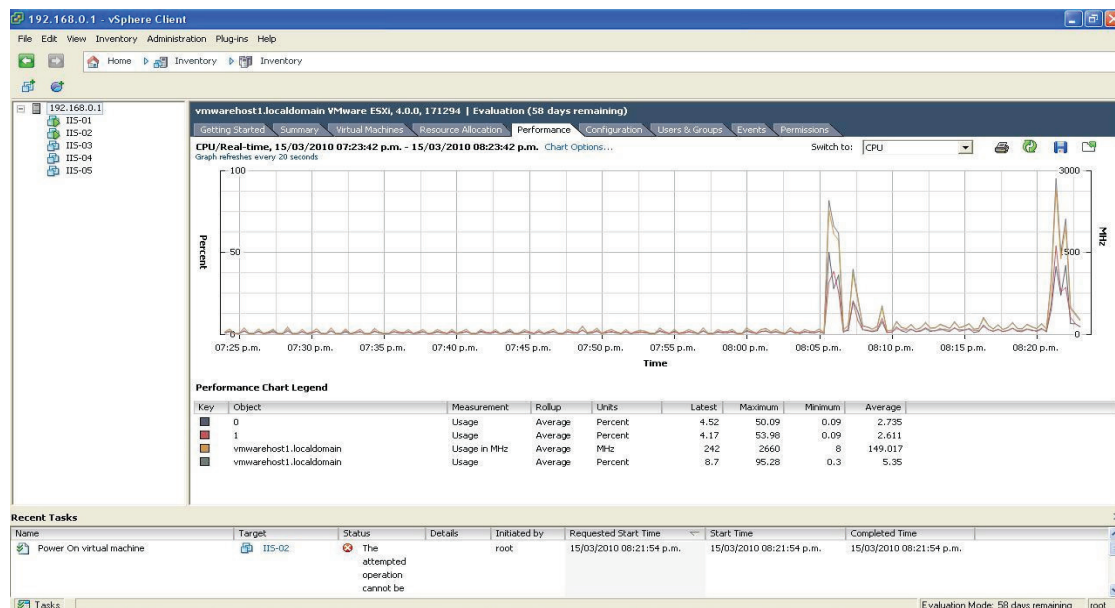


While executing the second virtual machine, we noticed that there was a peak in the use of the CPU of Host 1 that increased to 95% and remained for a time interval of about one minute, after this time, the CPU utilization returned to an average of 6%.

Also, the hard disk usage increased during the startup of the virtual machine. After the start up, the read/write process decreased when the OS started all its services.

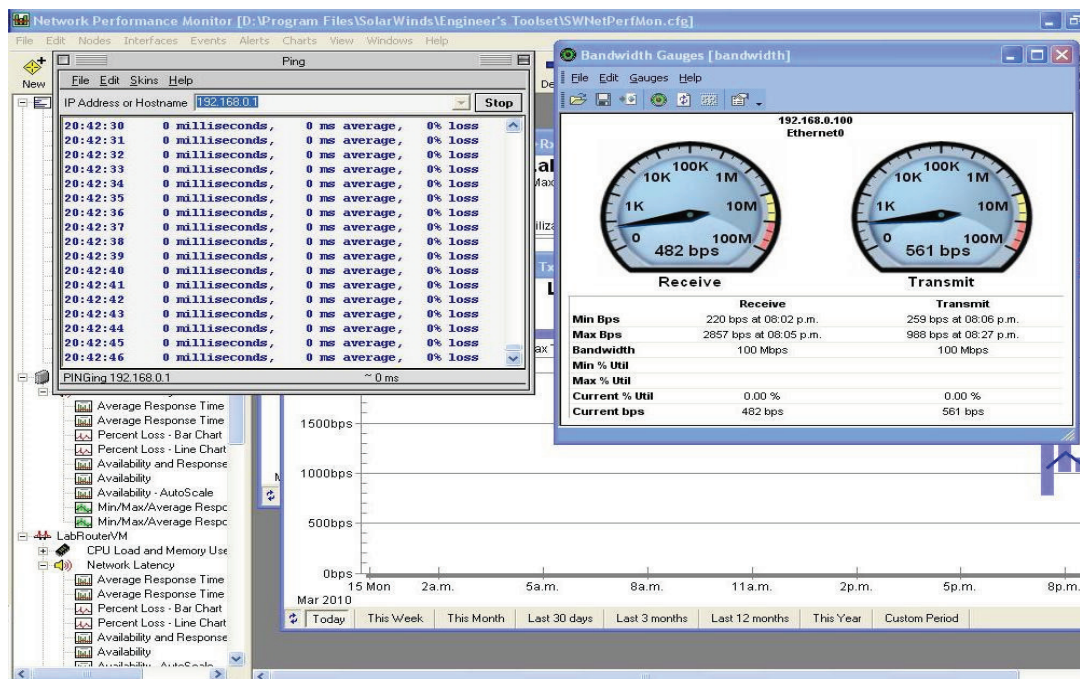
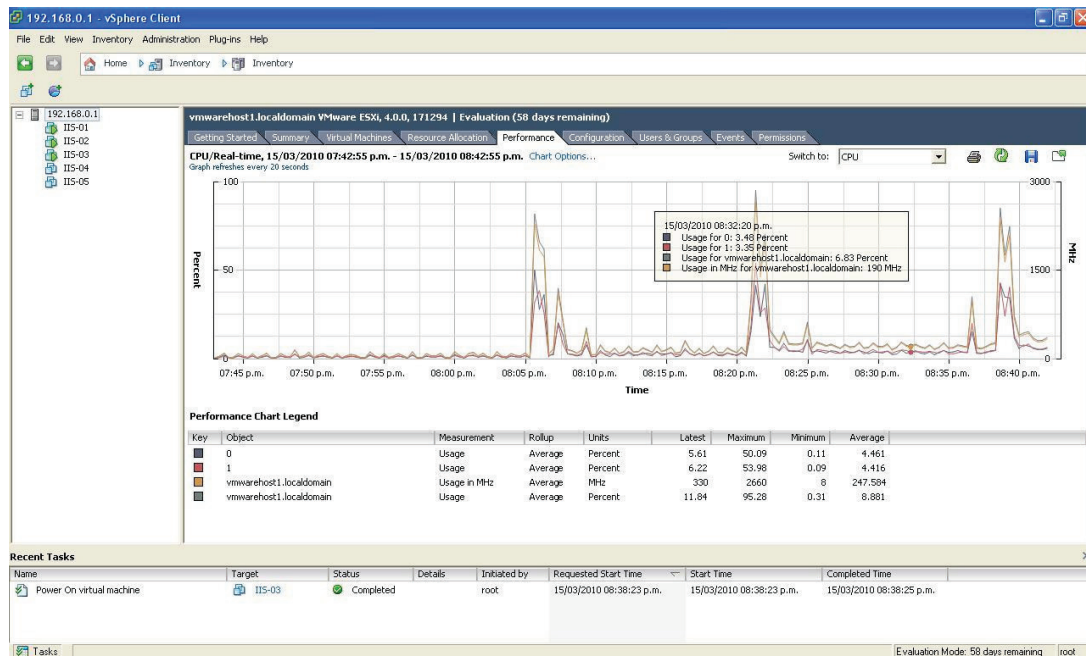
The use of physical memory increased to 1.4GB during the start up and then declined to 890MB in average.

The average bandwidth consumption remained at 1.5KB and the average response time was about 0 milliseconds.

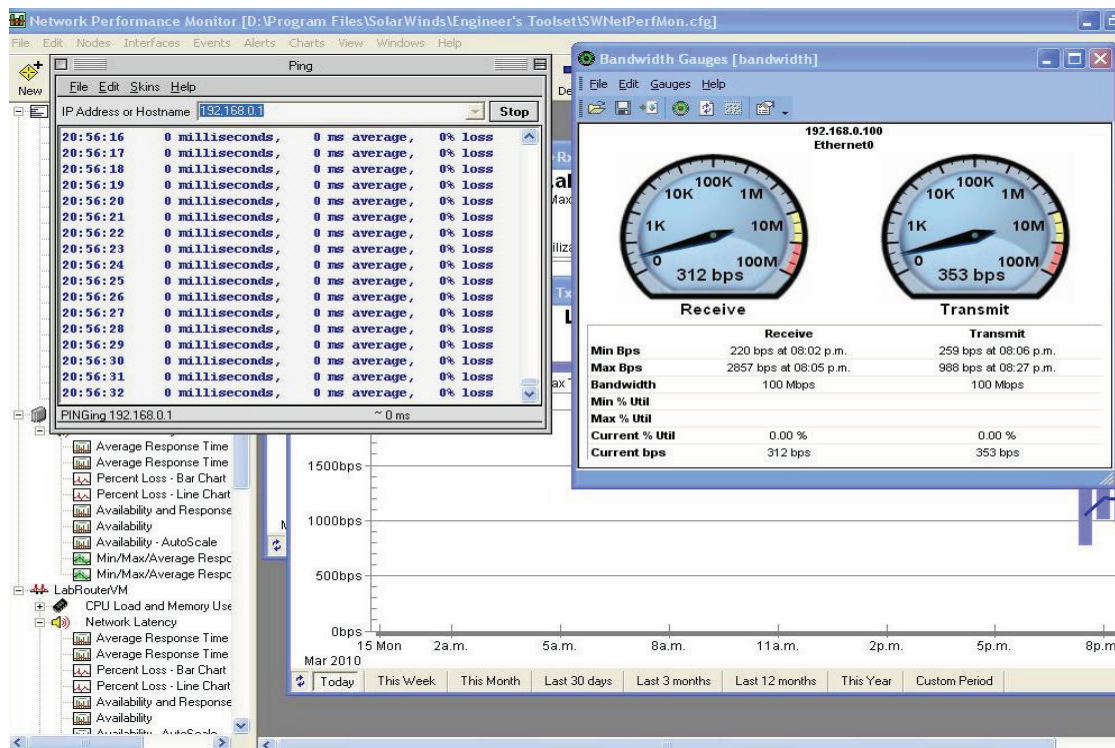
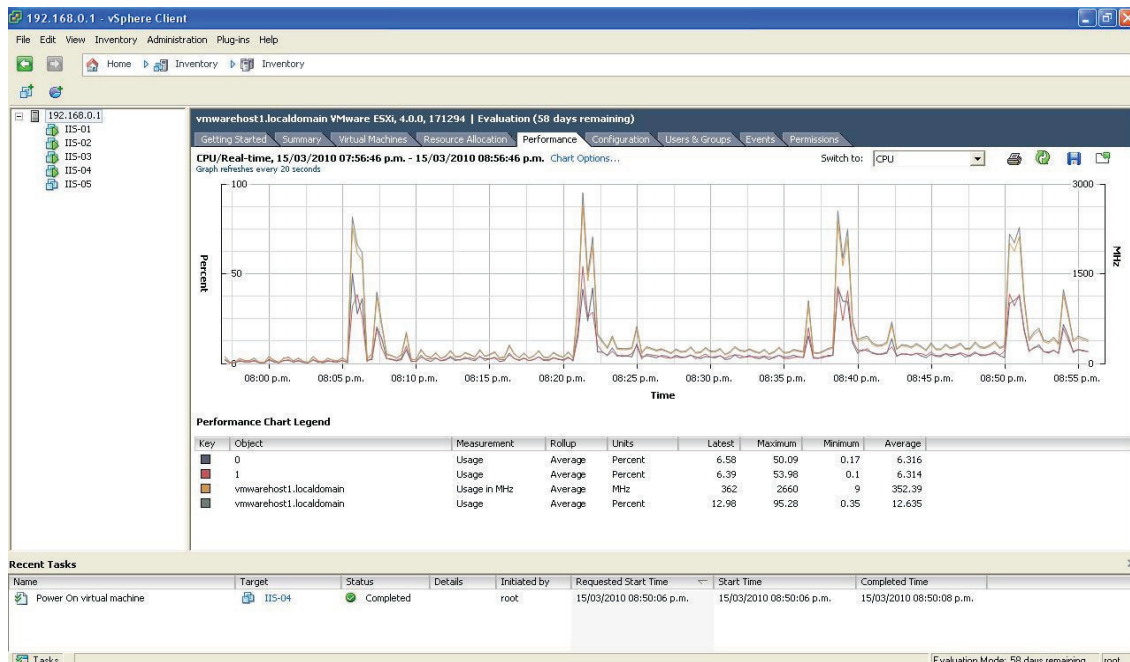




With three active virtual machines, it was observed that both the CPU and the hard drive kept the same behavior obtained in previous tests. Only the use of physical memory showed an increase keeping them in 1GB average. The use of the bandwidth showed a slight increase of 2.7 KBps. The average response times of Host 1 remained as in previous cases.



With the activation of the fourth virtual machine, the result was that the use of CPU and disk kept the same behavior. The physical memory consumption increased to 1.2 GB. The bandwidth use increased to 3.7 Kbps and the response time remained at 0 milliseconds.

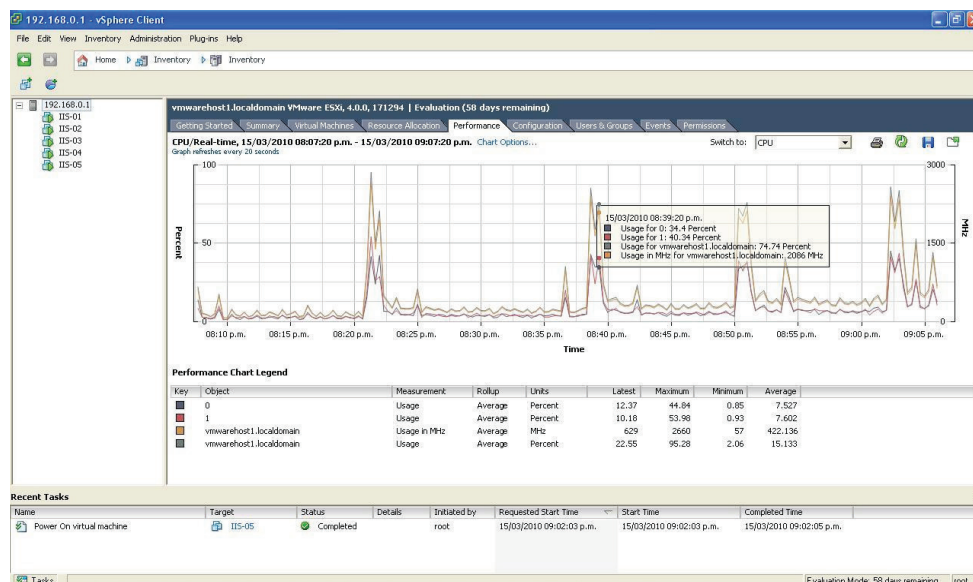


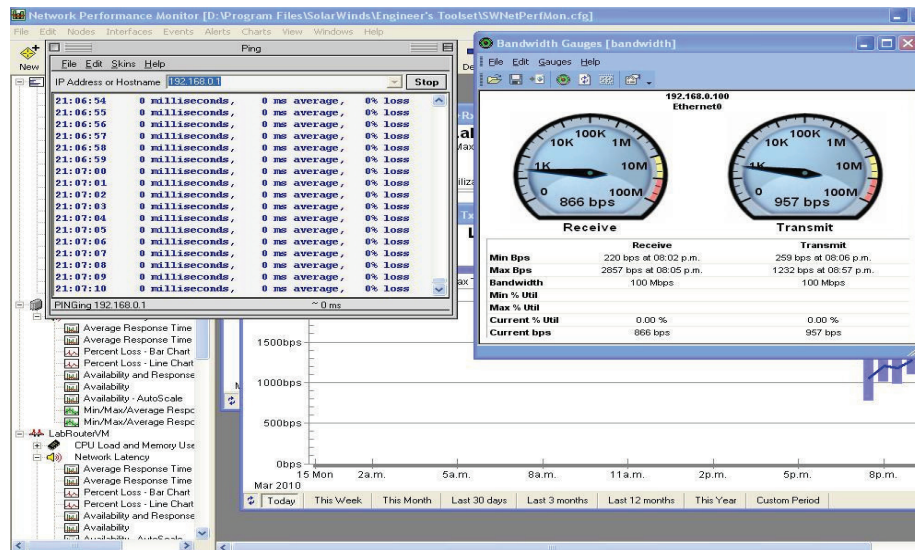


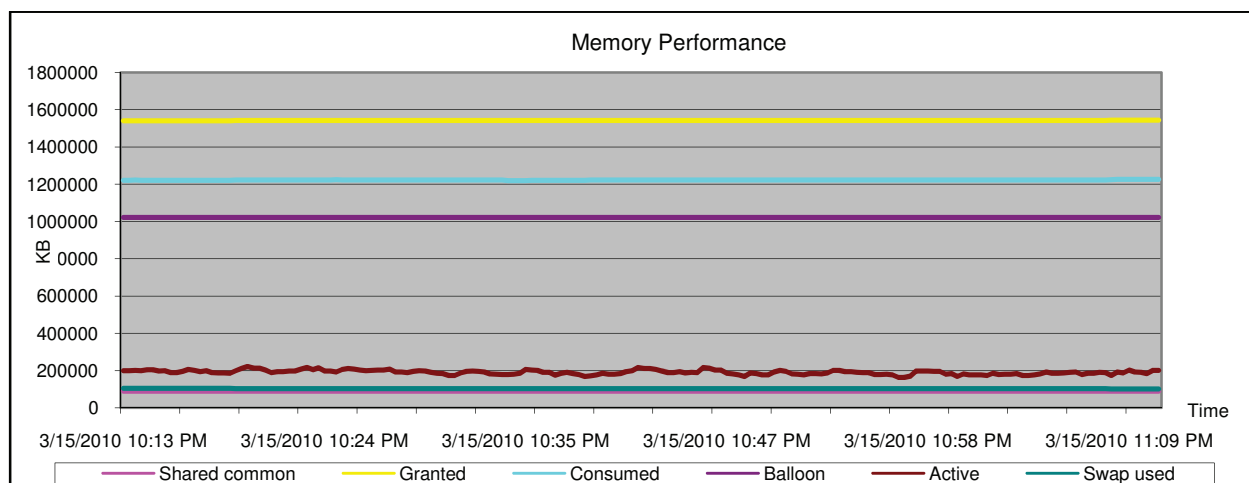
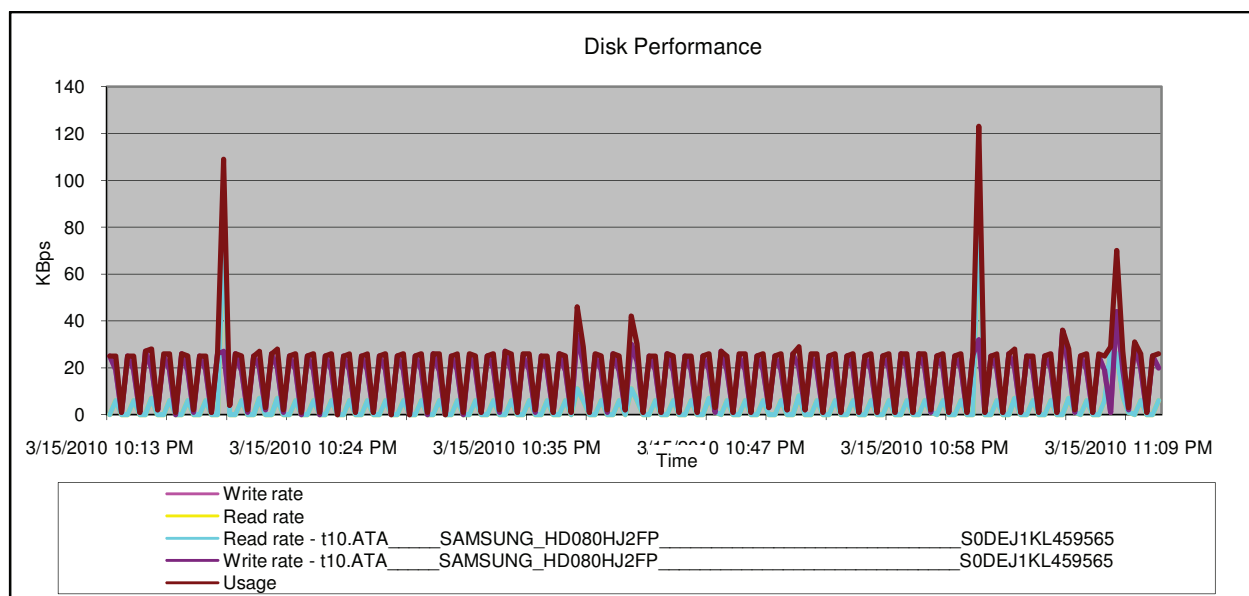
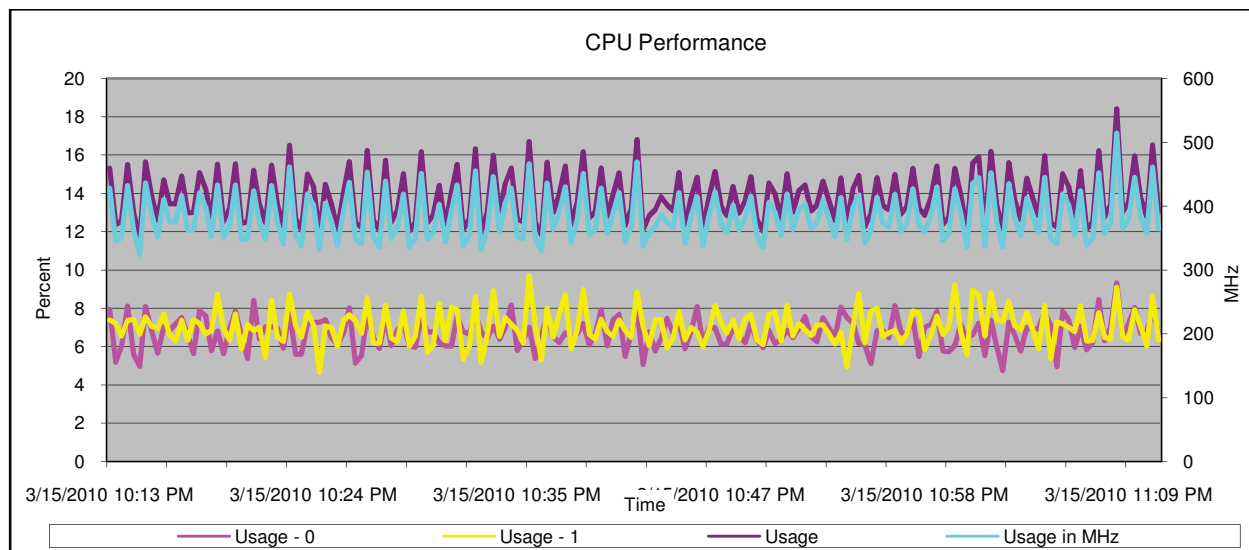
With the activation of the fifth virtual machine, it was observed that the CPU usage kept the same behavior as in the four previous cases; it caused a spike in CPU usage of 85% when turning on the virtual machine, but once this loaded all Operating System components, the CPU usage declined to 15% of its average capacity. The hard disk use had the same behavior as in previous cases holding on average use of 216 KBps.

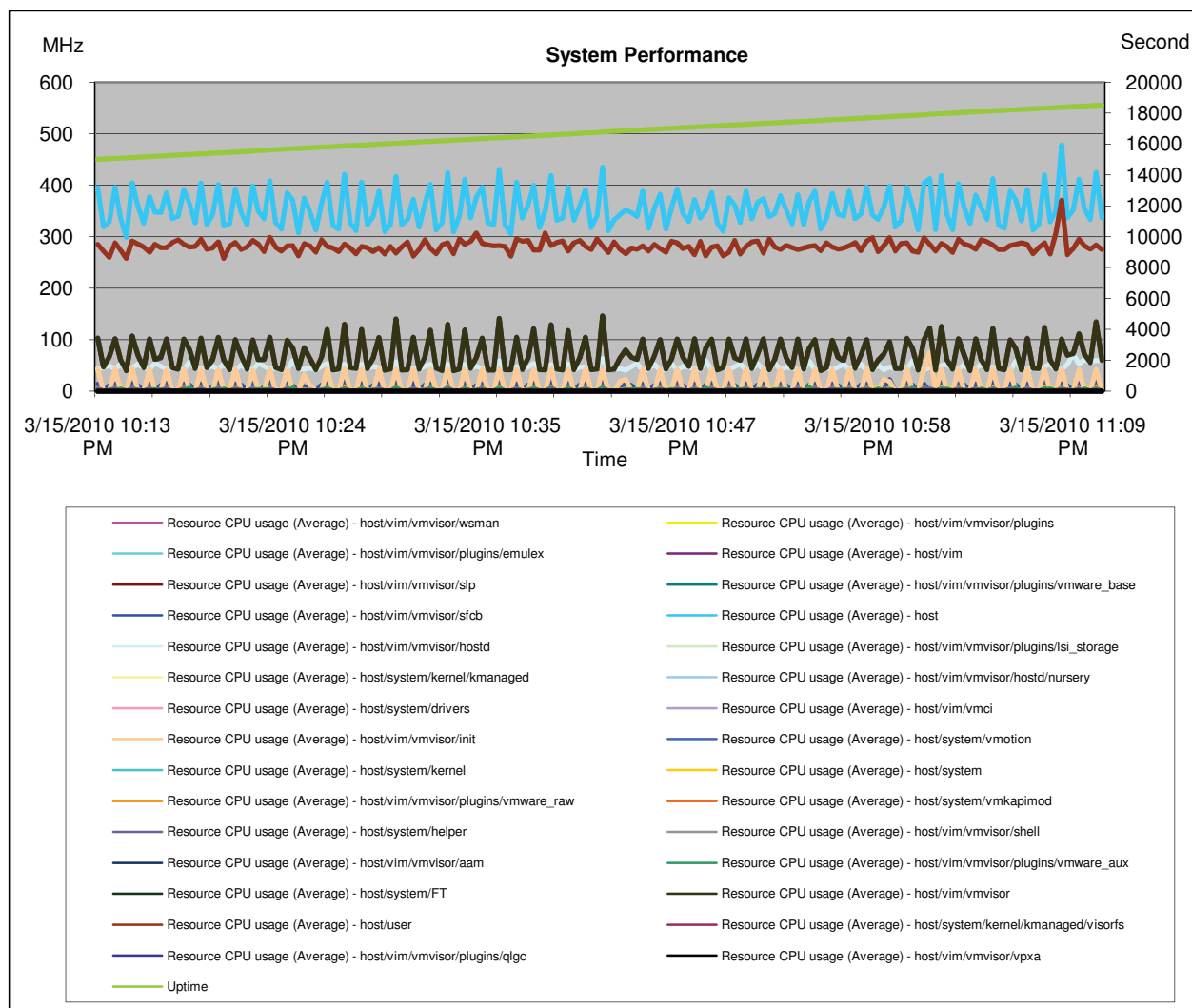
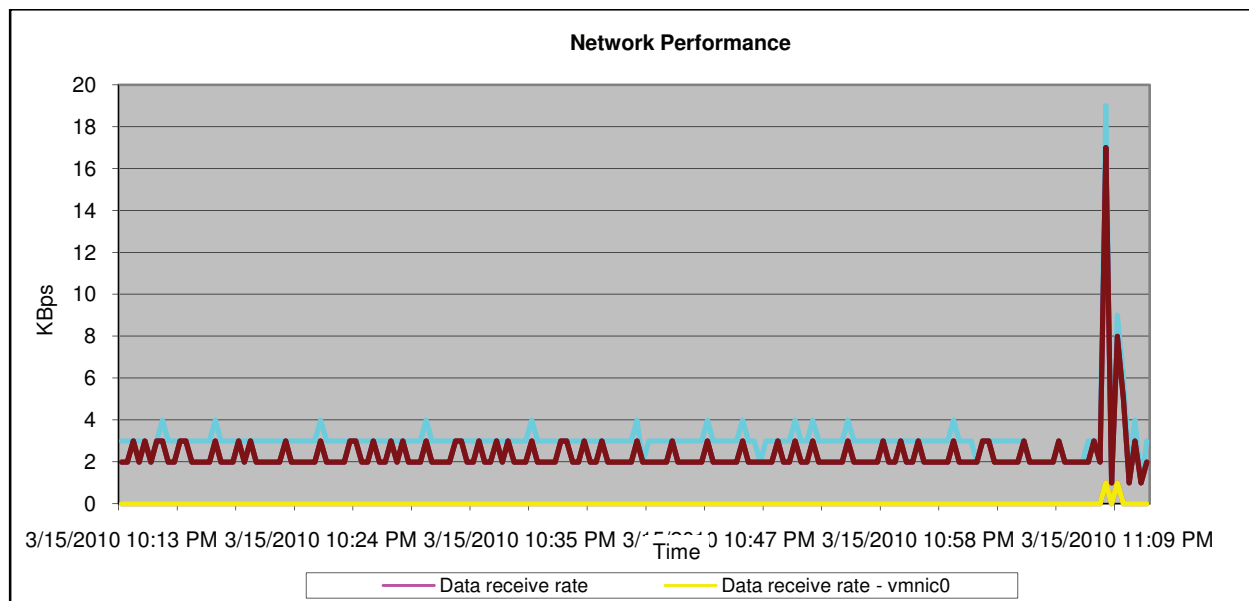
In the case of memory use, although it was assigned to each virtual machine 512MB of Virtual Memory, which represents that with the total memory installed on Host 1 (2 GB) only 4 virtual machines should be able to run concurrently. It was seen that the fifth virtual machine ran without any problem, showing an average consumption of physical memory with this fifth virtual machine of 1.4GB of memory consumed.

The bandwidth consumption increased to 4.3 Kbps and the response time remained at 0 milliseconds.



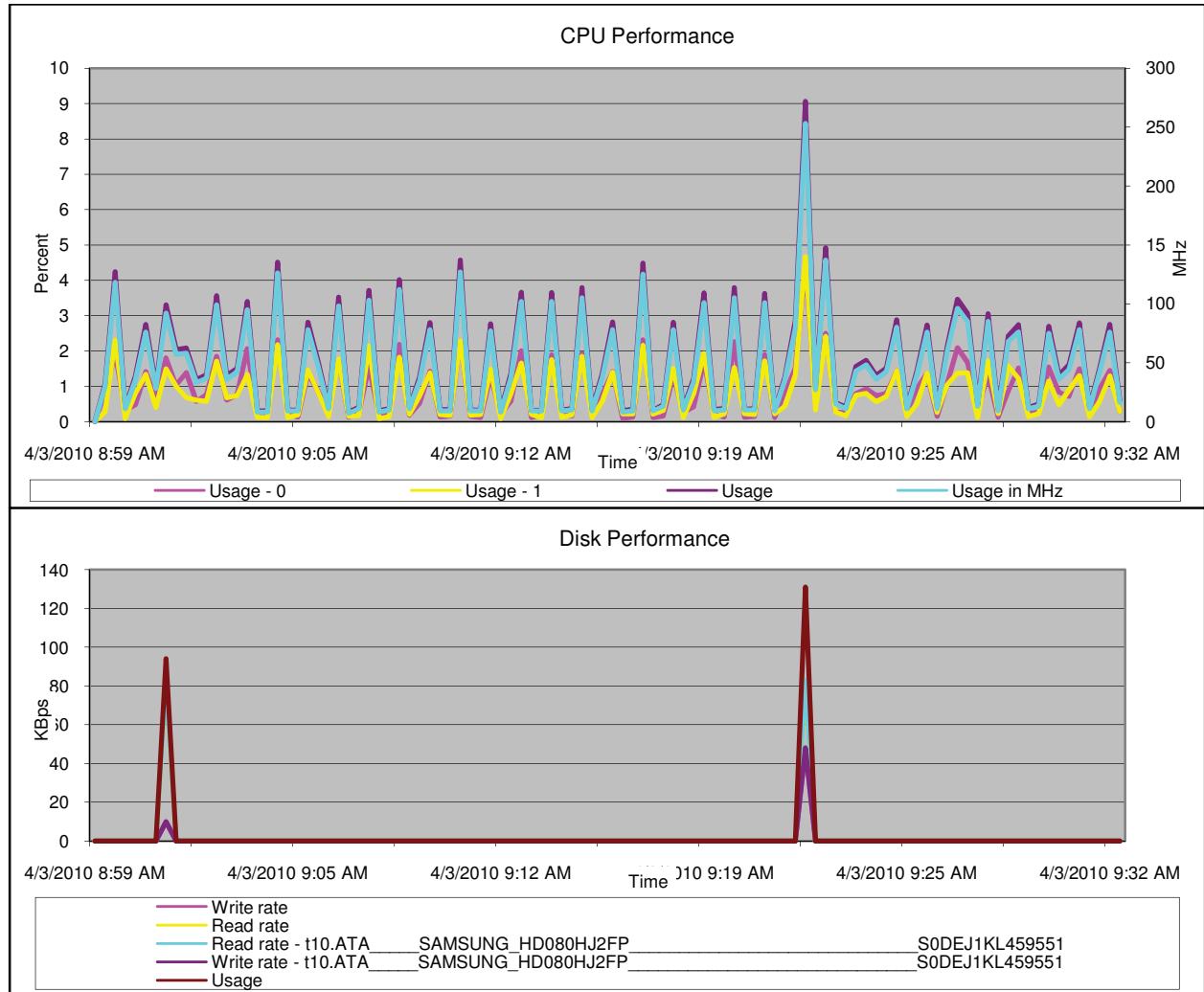


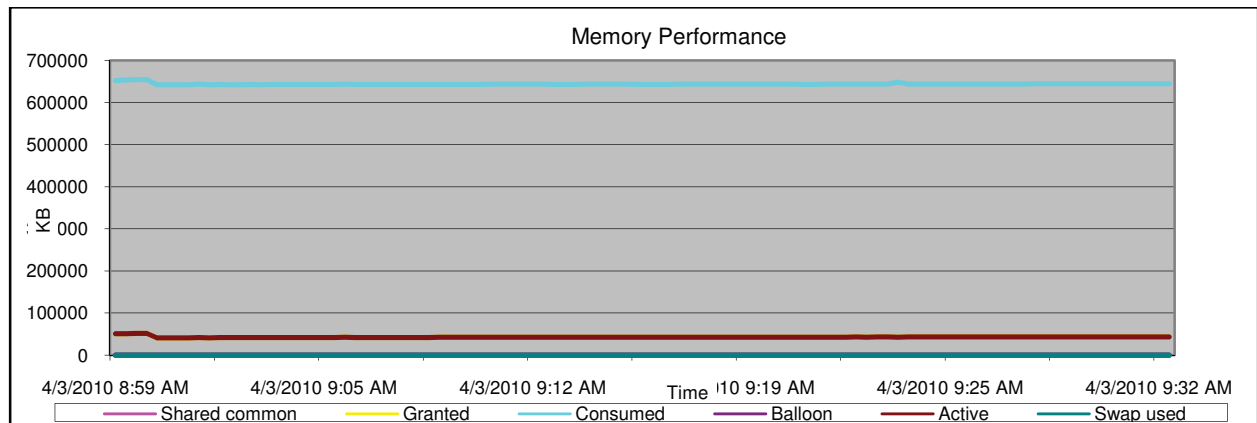




## Host 2 (SQL)

After Host 2 was started up and configured with the default configuration (without any virtual machine running) it was determined that the maximum processor usage was about 2% of its capacity. The average physical memory consumption remained 643,185.6 Kilobytes (643 MB). The network utilization stood at 1,447 KBps.



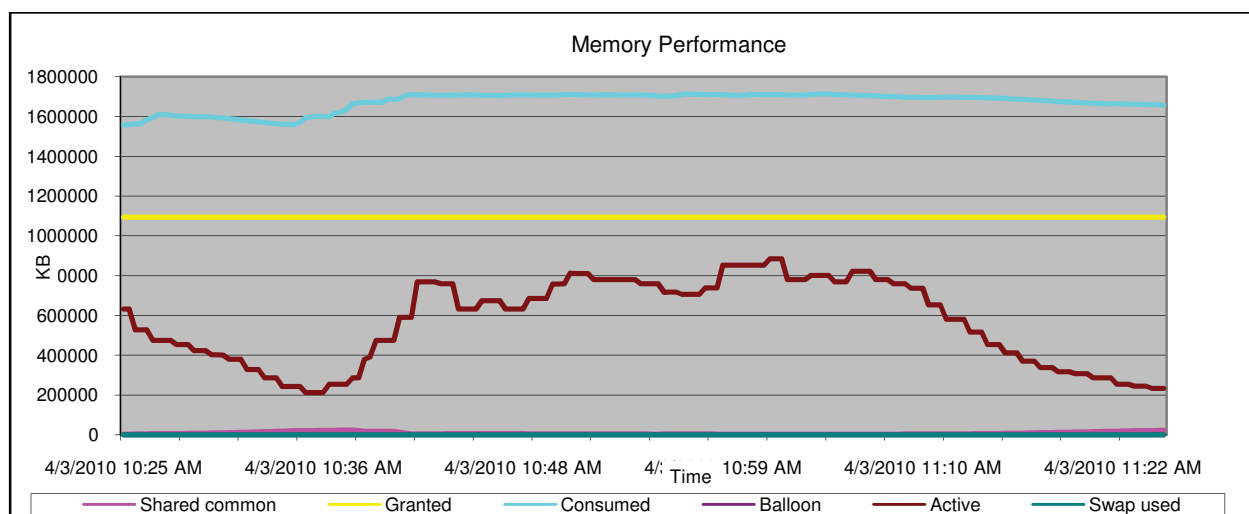
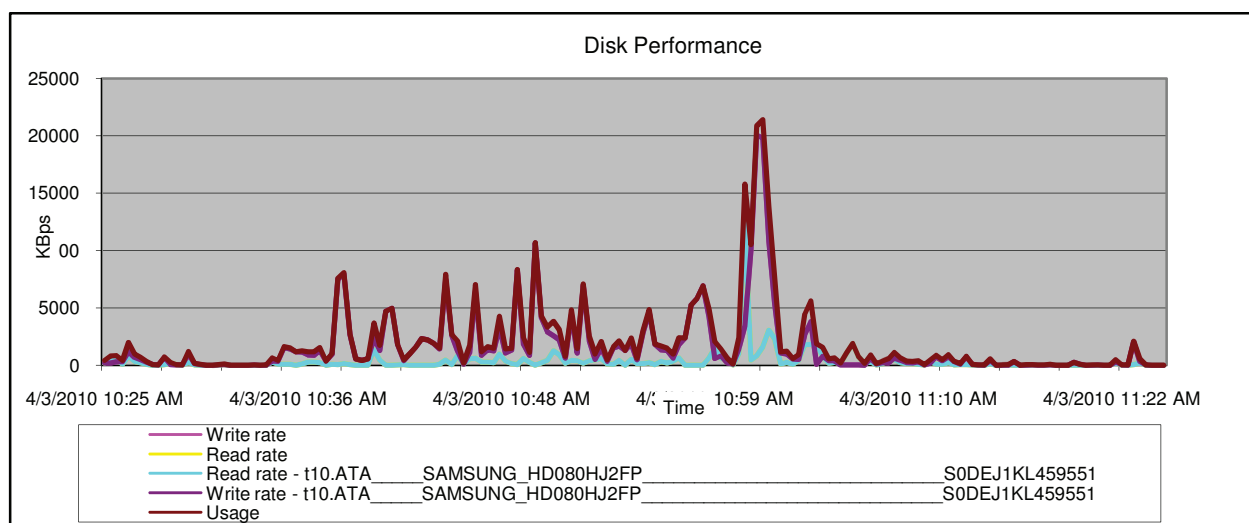
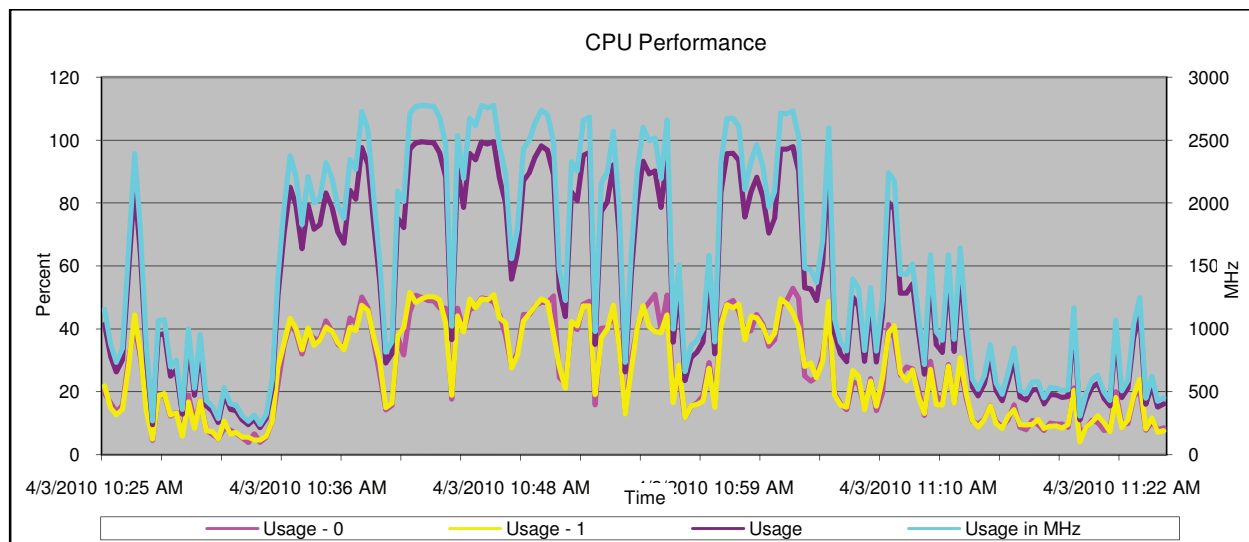


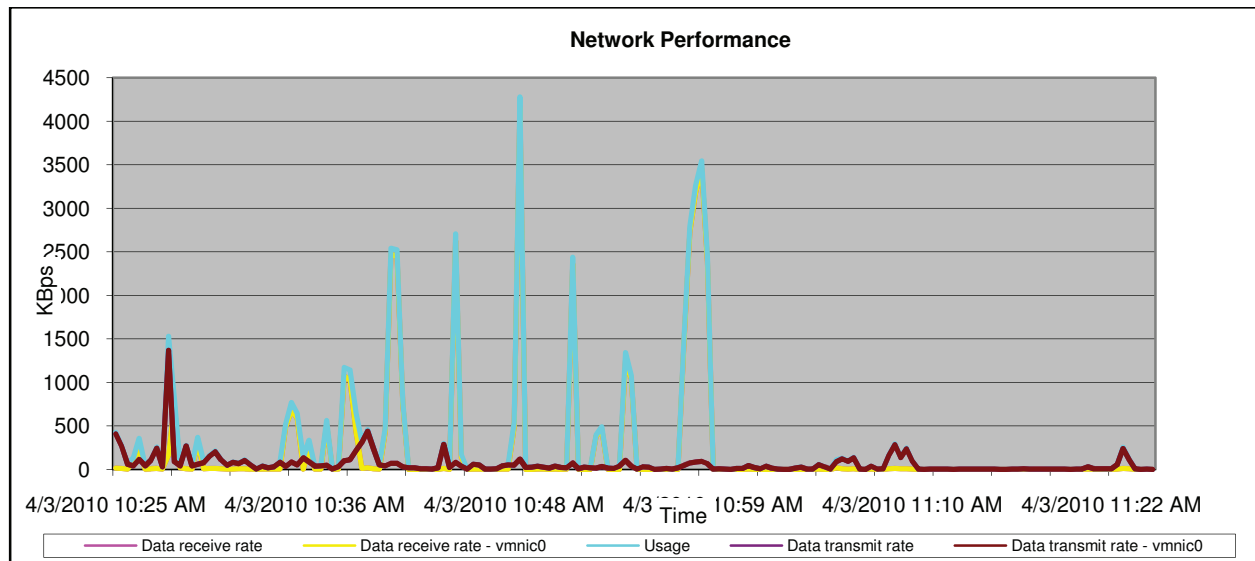
Once tested the different metrics on Host 2, without any active Virtual Machine, it was proceeded to initialize the first virtual machine to determine what changes in the values of the metrics could be found.

This first Virtual Machine was set up like an Unapproved OS or Application in order to determine the Time to Deployment the new OS or Applications. The estimated time of installation and power on, of the first virtual machine was: 1 hour, 32 minutes.

During the installation of the first virtual machine with Windows 2003, it was determined that the response time to server virtualization "host 2" did not exceed 2 ms. Also, the CPU usage came to 99% of its capacity at time intervals that never exceeded 2 minutes of continuous use. The average use during the installation remained at 80%, declining to 25% average after the installation of SQL.

The memory use did not exceed the 800 Mbytes. The maximum bandwidth used during installation was about 4 Mbytes.





After being tested the different metrics in the first Virtual Machine, we proceeded to initialize the second virtual machine to determine what changes in the values of the metrics could be found.

This second Virtual Machine was installed like a New VM Basic Configuration in order to determine the Time to Deployment to Pre-configure OS or Applications.

Using VMWare vCenter Converter Standalone we proceeded to create a copy of the first virtual machine with SQL-02 name.

Approximate time of cloning and implementation of the second virtual machine was 26 minutes, 23 seconds.

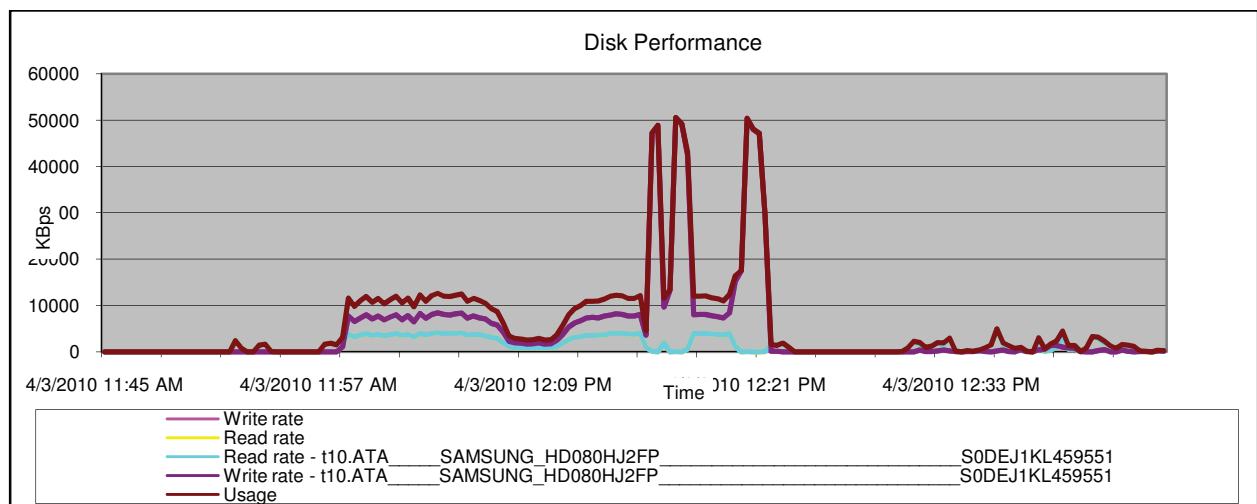
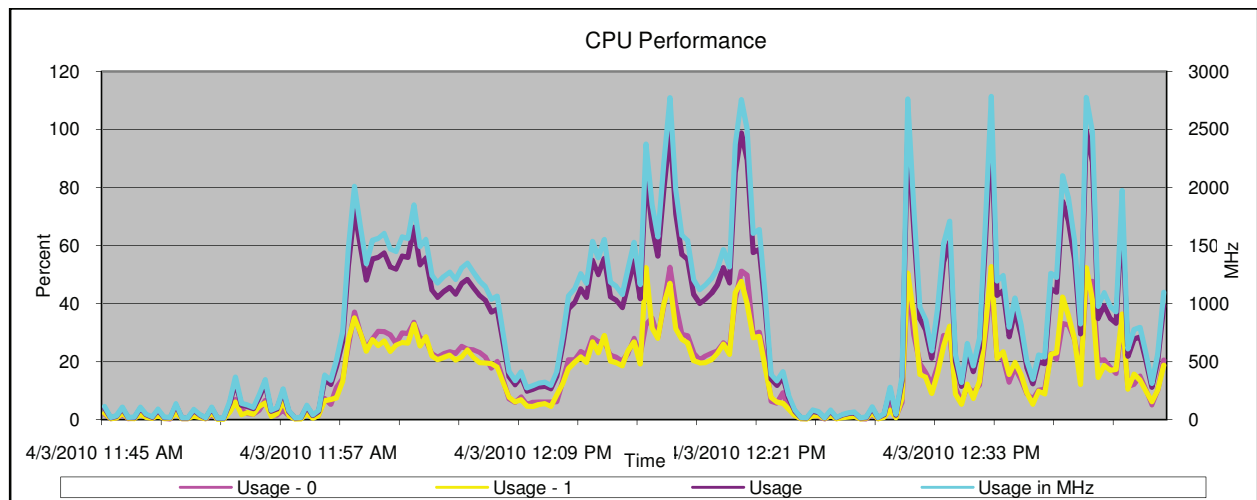
The average time of cloning and turning on of the third, fourth and fifth virtual machine was 31 minutes, 4 seconds.

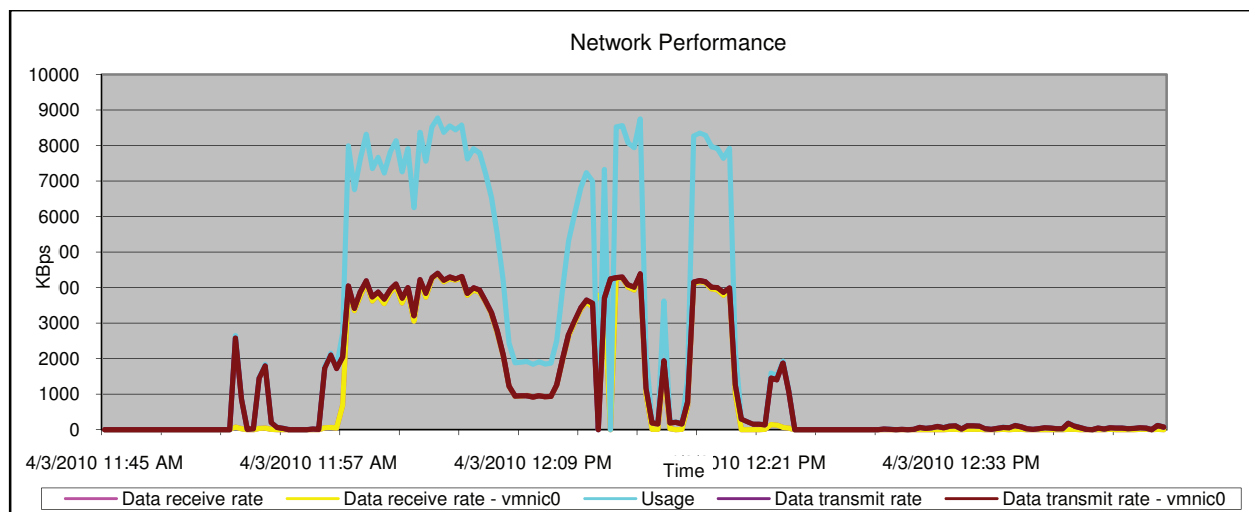
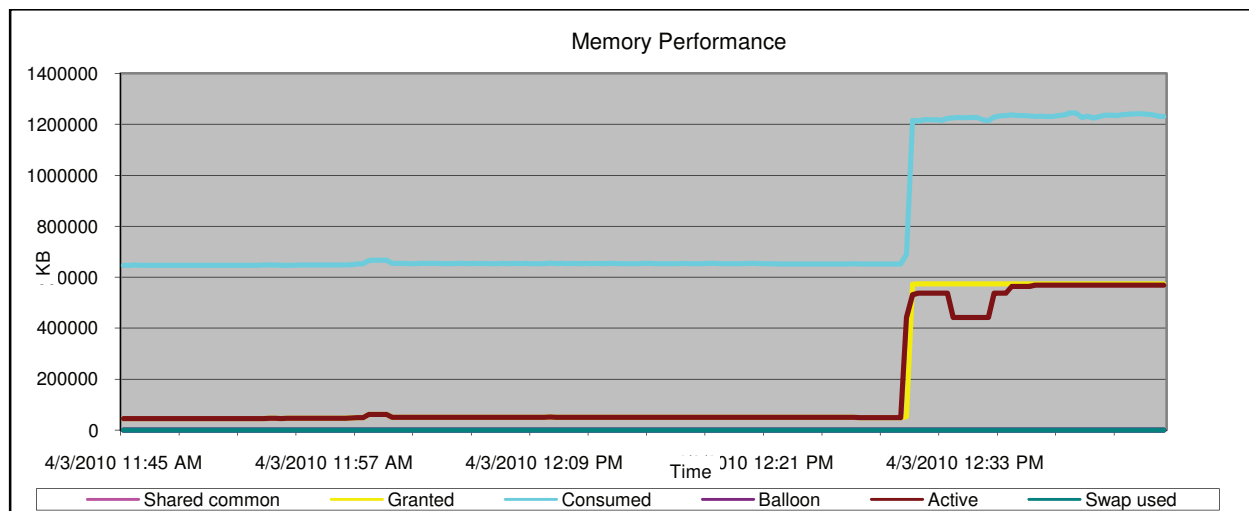


In the startup of the second virtual machine (SQL-02), it was observed that the response times of the equipment did not exceed 1 millisecond (on average 0 milliseconds) and the bandwidth did not exceed 1% of a 100Mbps link.

CPU utilization remained at 14% with a peak at the beginning of the operating system of 99%.

The memory consumption remained on average in 1,153,984.9 KB (1.1 GB).

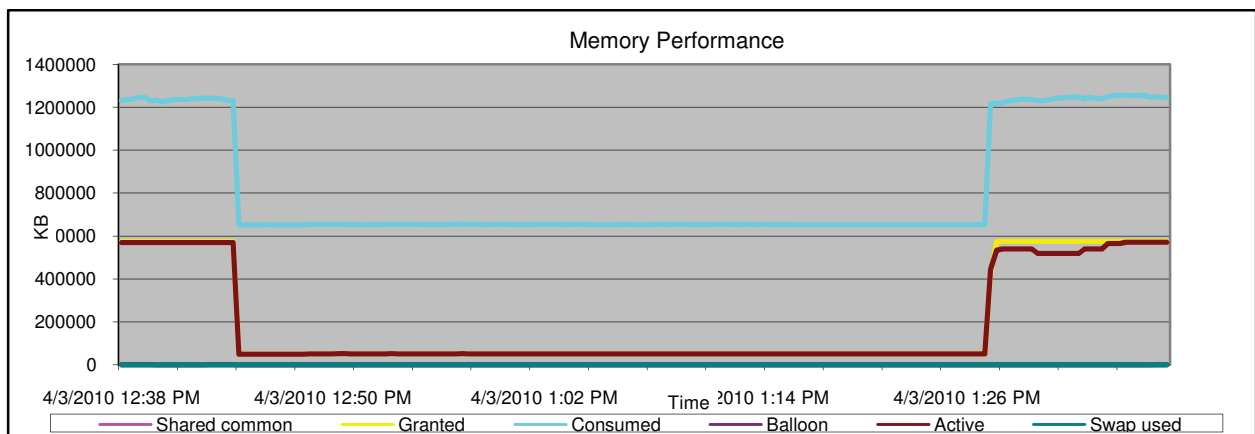
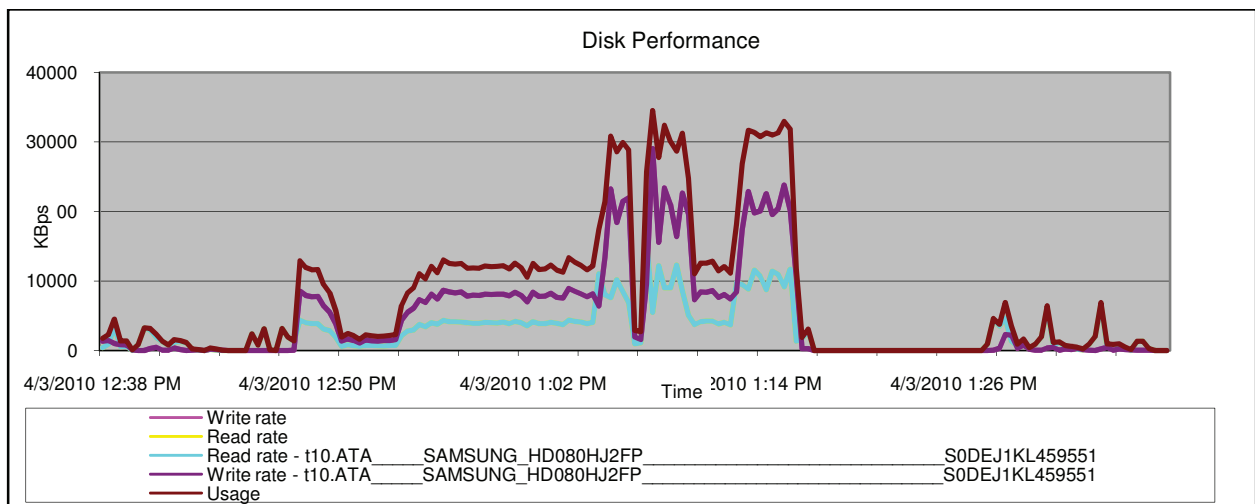
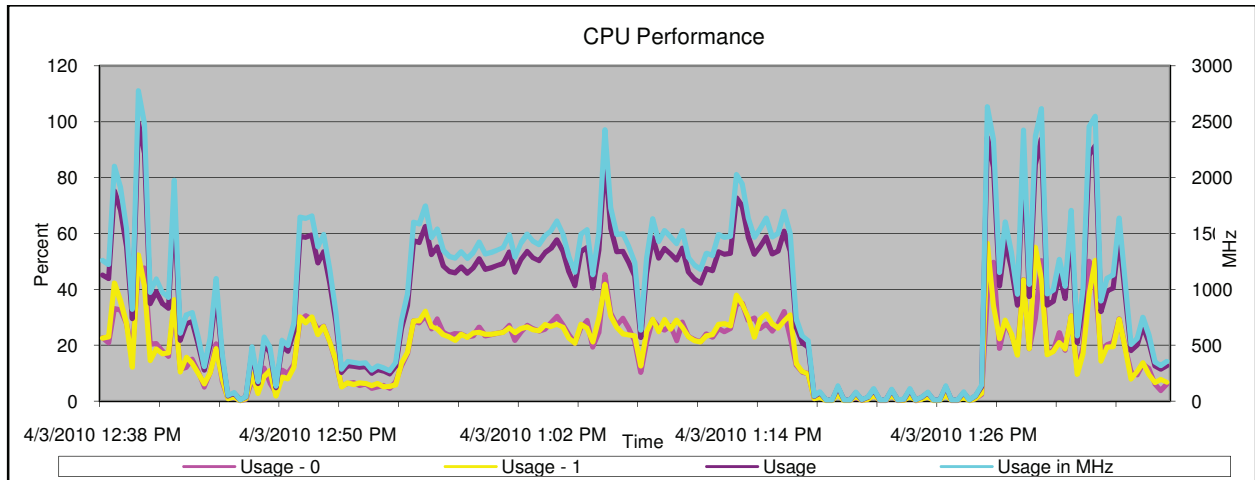


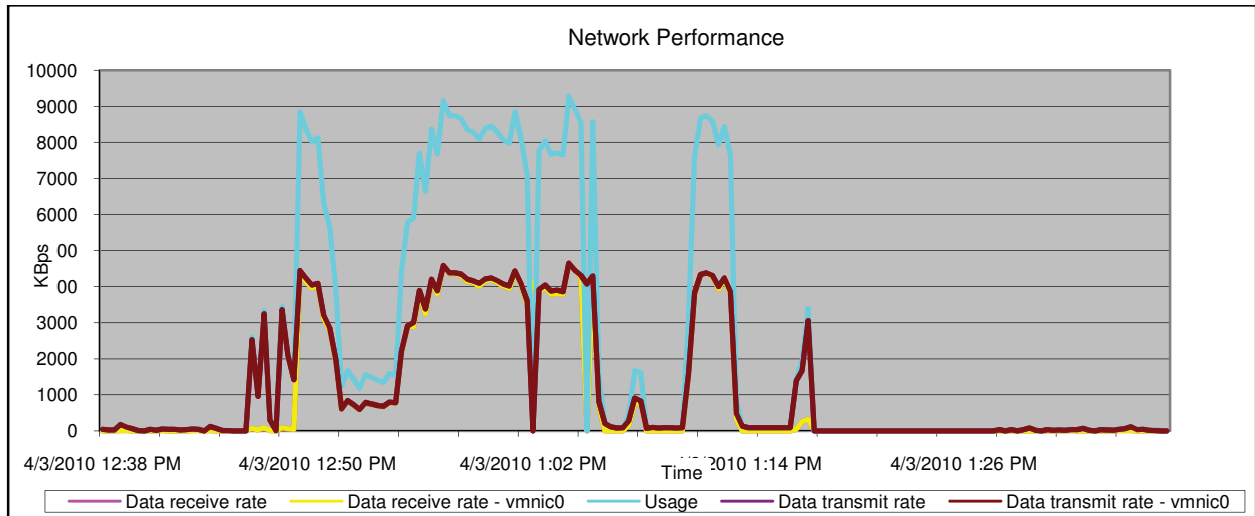


Since the third virtual machine (SQL-03) powered on, it was observed that the computer's response time did not exceed of 1 millisecond and the bandwidth did not exceed 1%.

CPU utilization rose to 45% with a peak at the beginning of the operating system of 99%.

The memory consumption remained on average in 1,730,432.5 KB (1.7 GB).

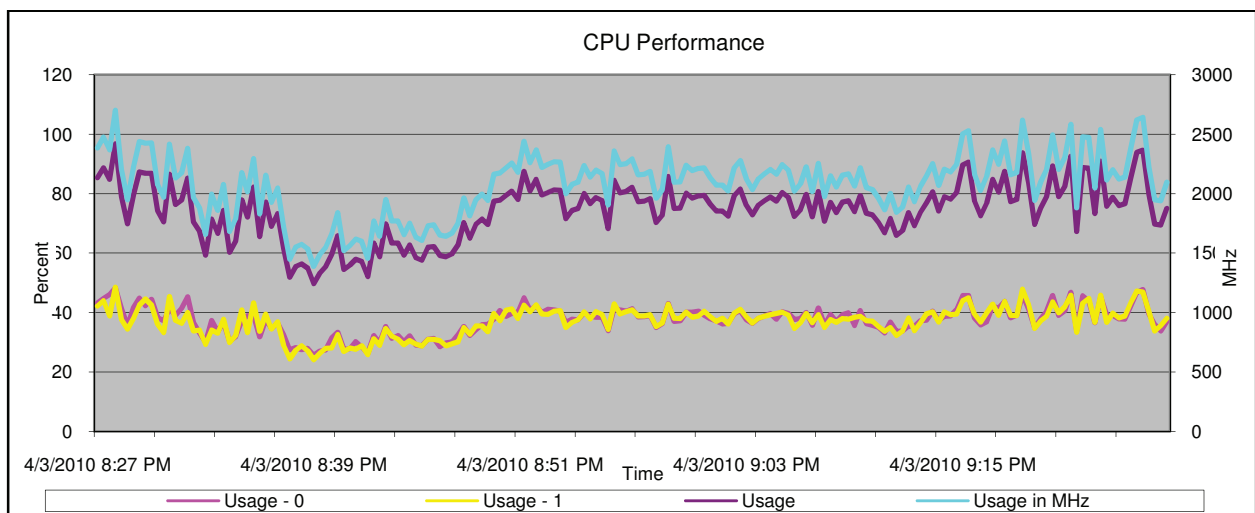


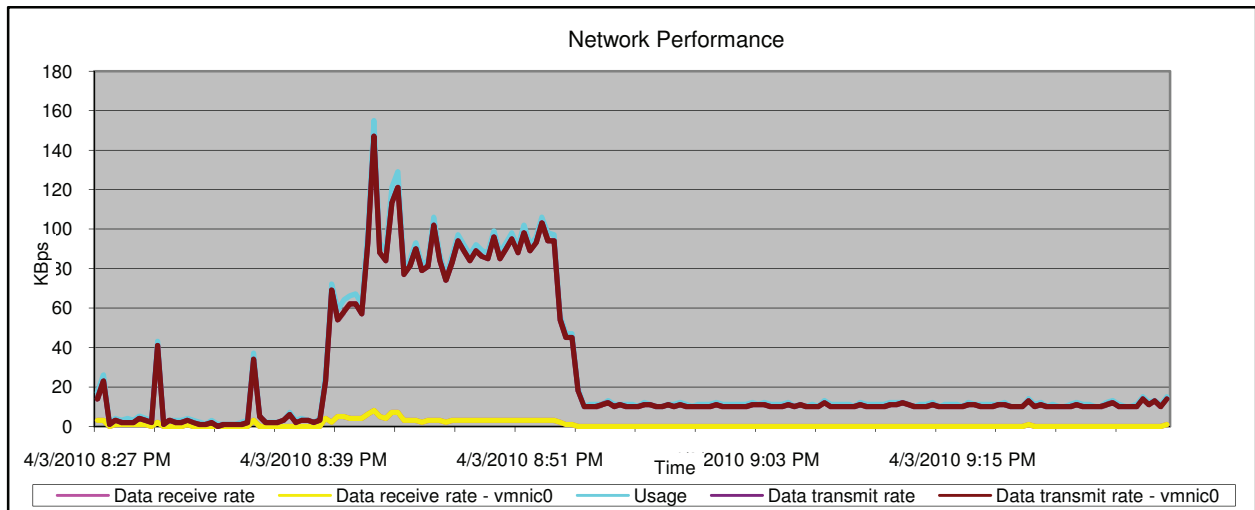
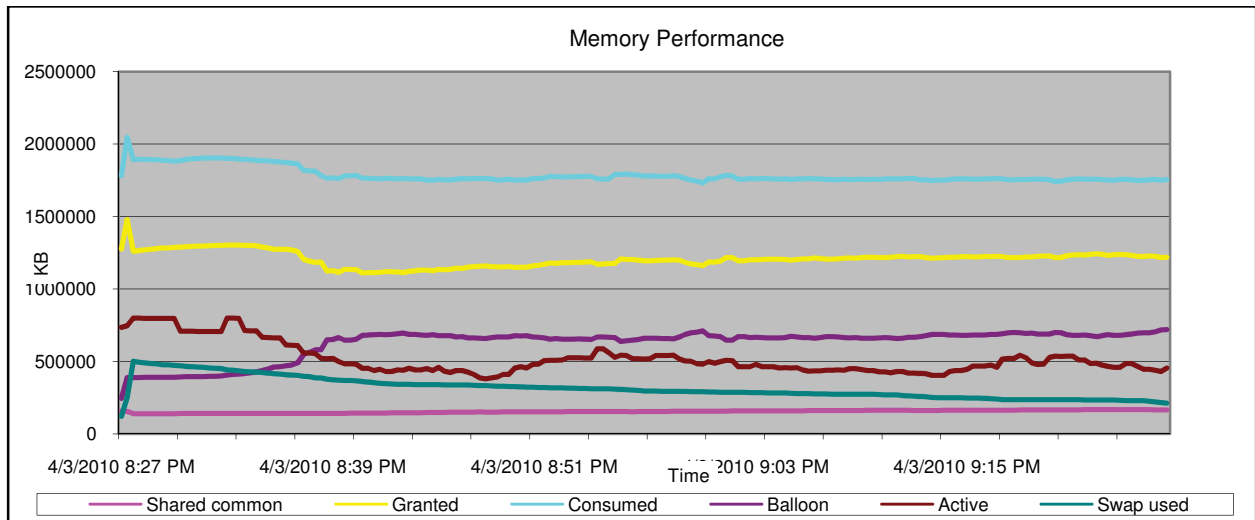
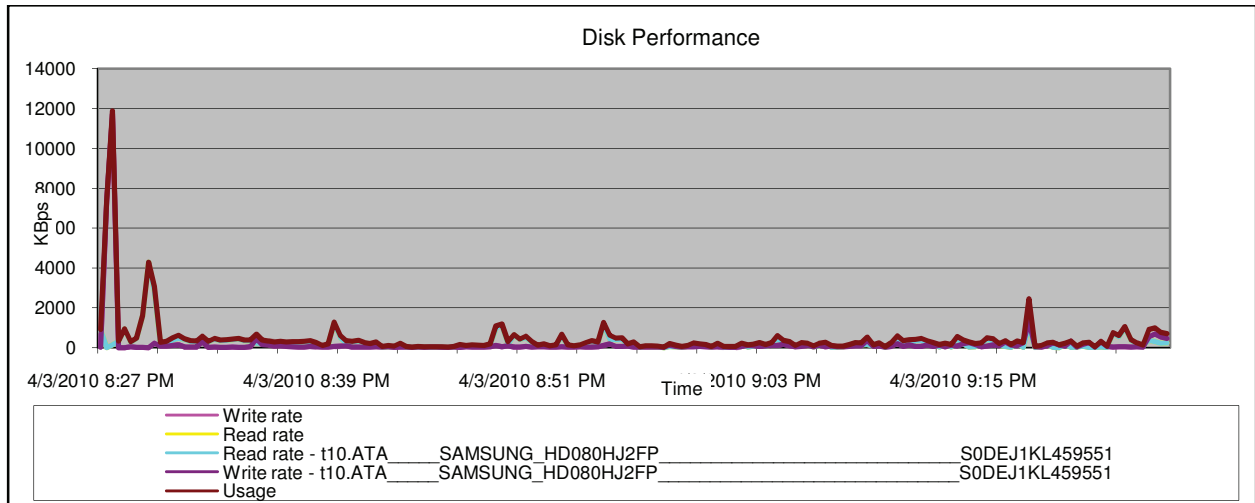


Since fourth virtual machine (SQL-04) powered on, it was observed that the response time of the equipment did not exceed 1 millisecond and the bandwidth did not exceed 1%.

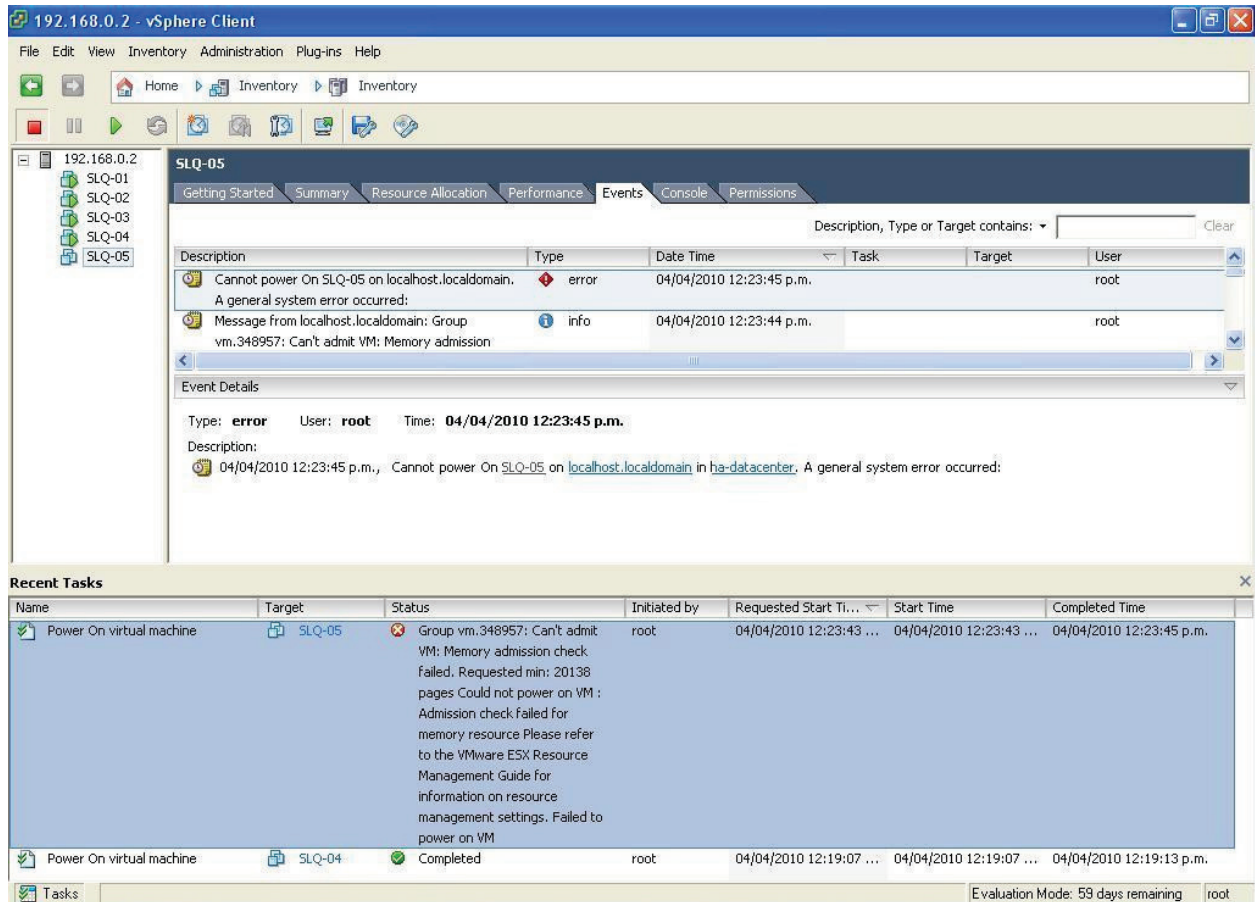
CPU utilization rose to 54% with a peak at the beginning of the operating system of 99%.

The memory consumption remained on average in 1,785,033.8 KB (1.7 GB).





The fifth virtual machine (SQL-05) could not be initialized because the available memory resources on Host 2 were not enough.



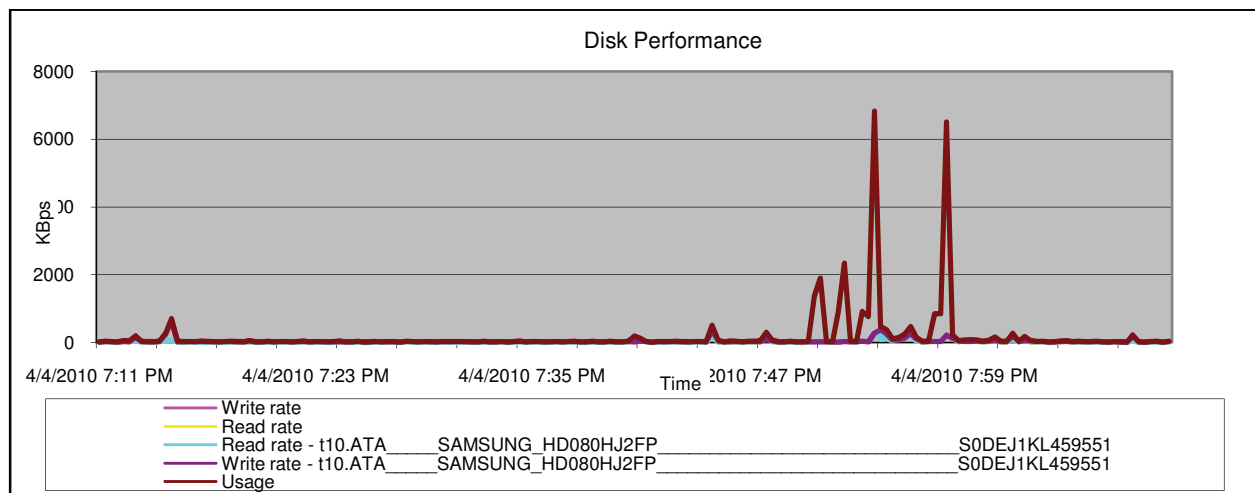
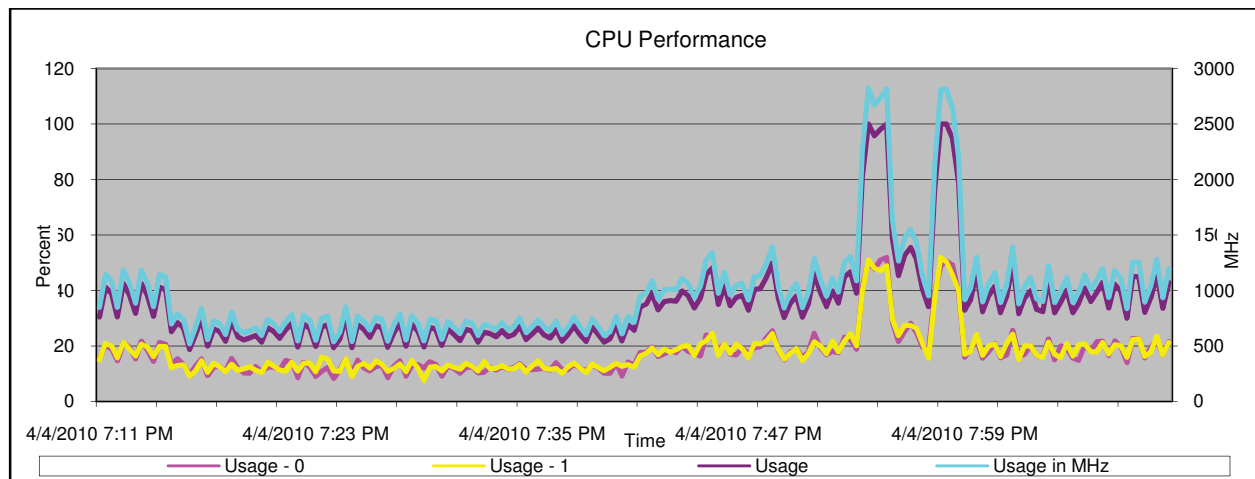
In order to optimize the use of virtualization servers (hosts), several tests were made by mixing different types of services (SQL, IIS) in a same host.

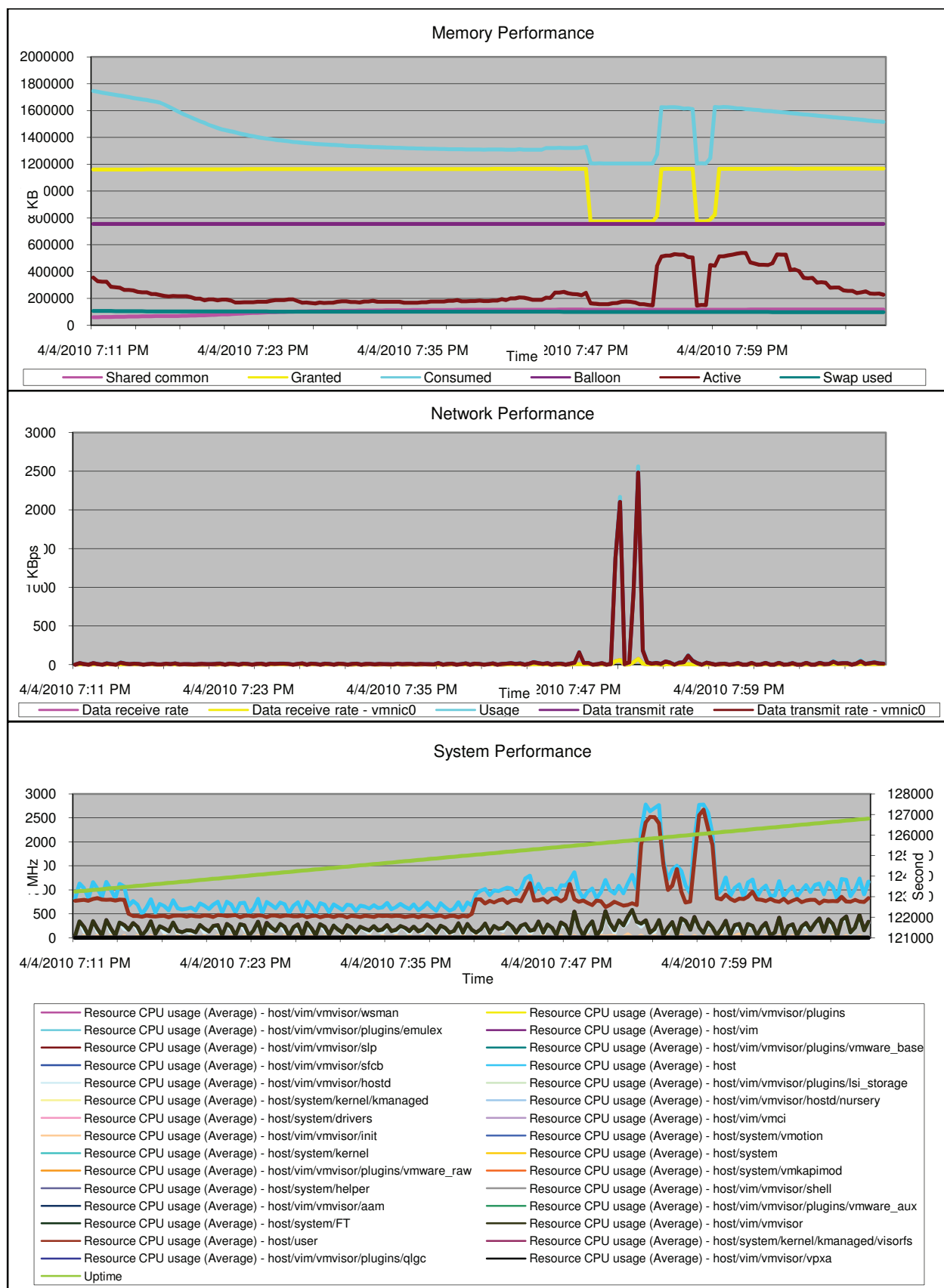
In these tests we could demonstrate that using three virtual machines running IIS service and two virtual machines running the SQL on the same Host, the performance of the Host was not seriously affected and could keep up to 5 instances of virtual machines at the same time.

During this test we found that the average CPU usage remained at 35%. The average use of physical memory was 1.5GB.

It was verified that the response time of the equipment did not exceed 1 millisecond and the bandwidth did not exceed 1%.

The memory consumption on average remained at 1.5 GB.

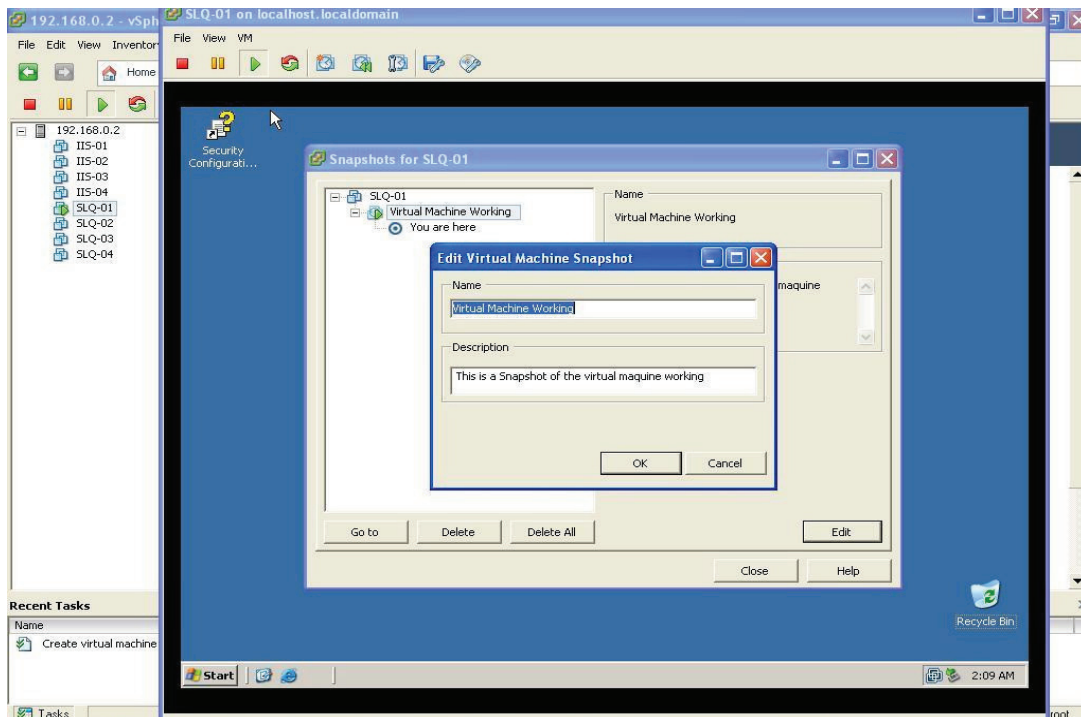
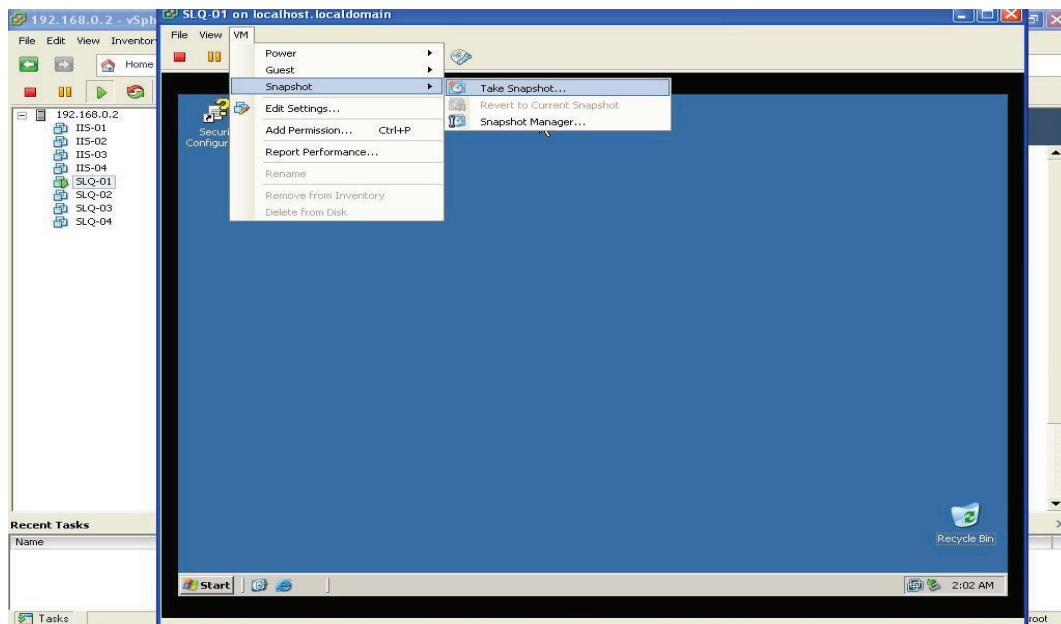




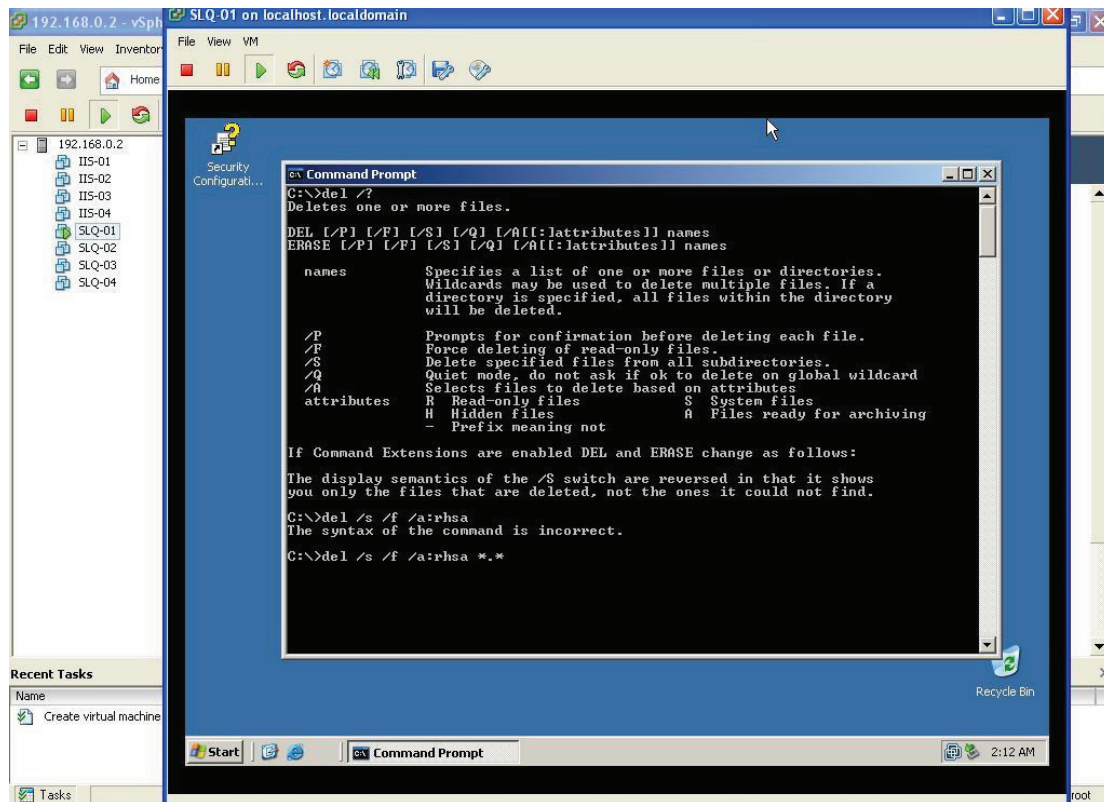


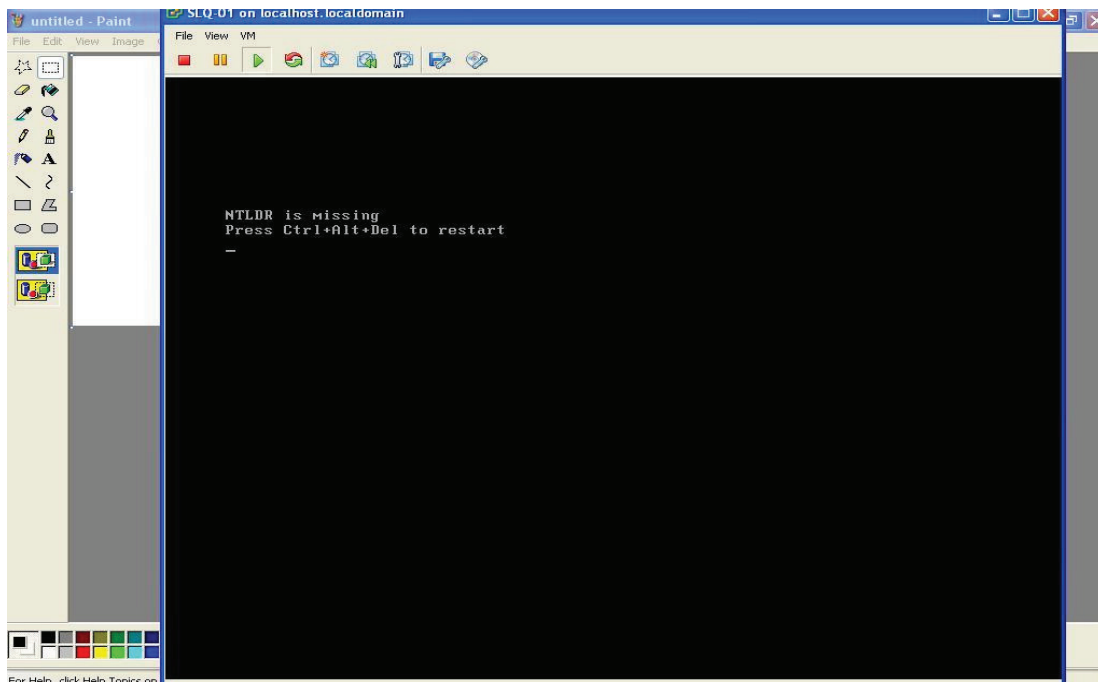
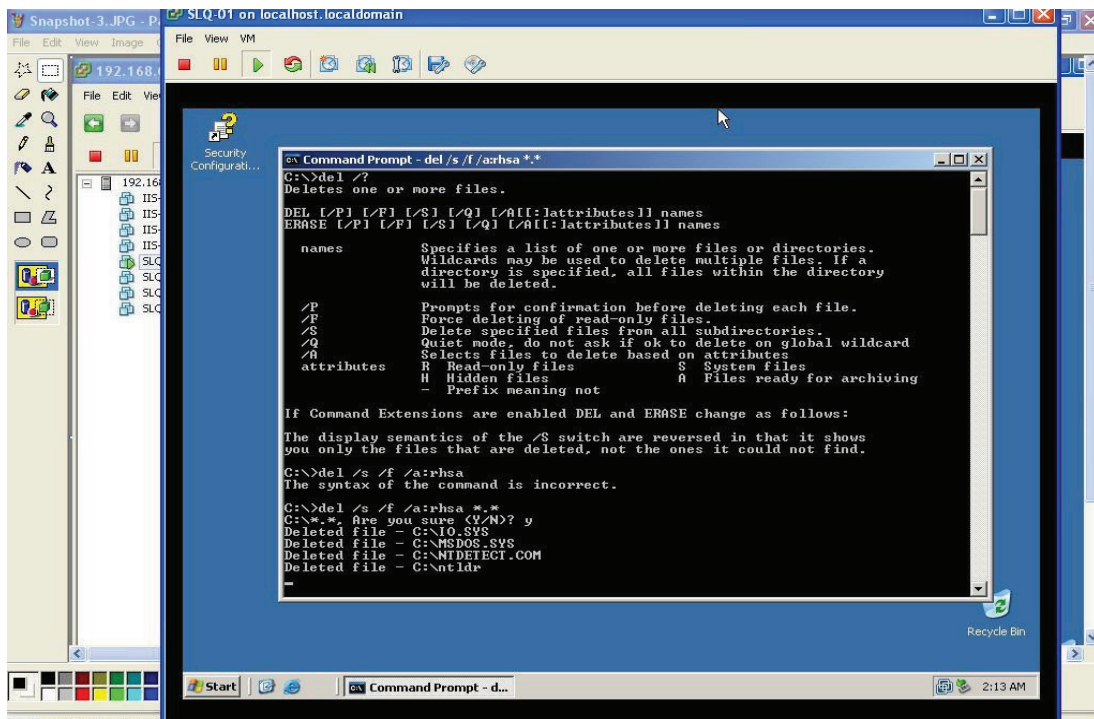
## Mean Time to Repair.

In order to determine the approximate time to recover from a disaster of a virtual machine caused by a failure in the operating system or installed applications, we proceeded to take a snapshot of the virtual machine (SQL-01), which was working in perfect condition.

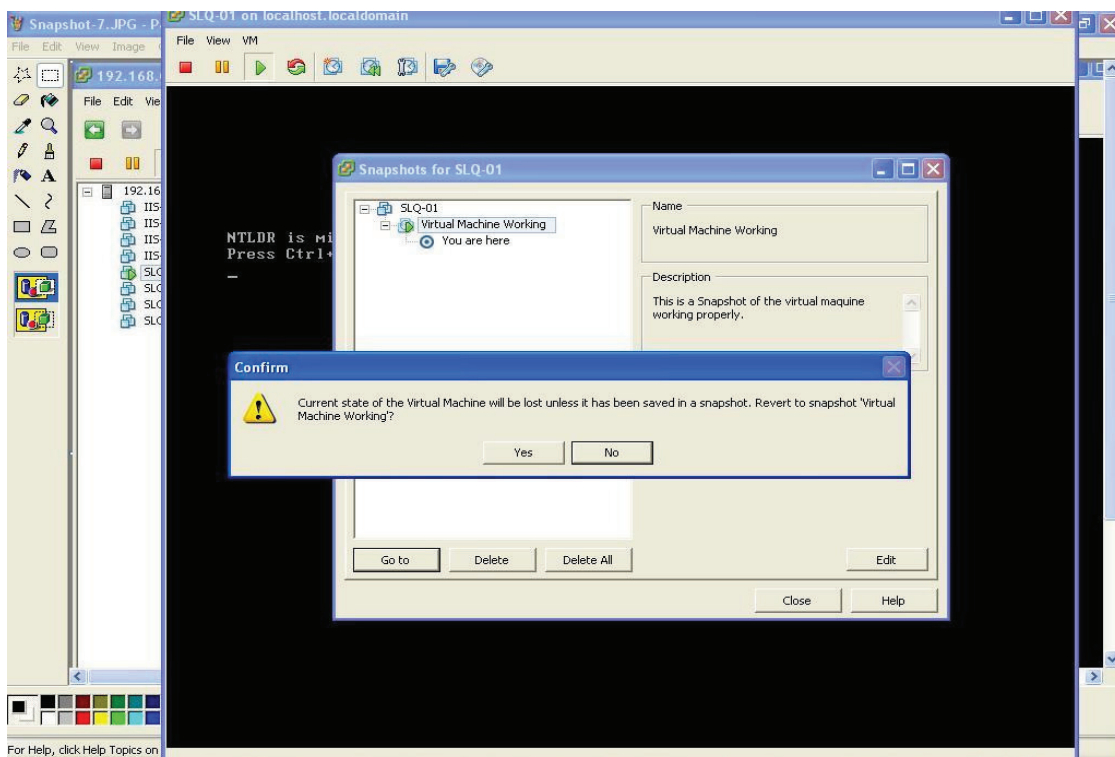
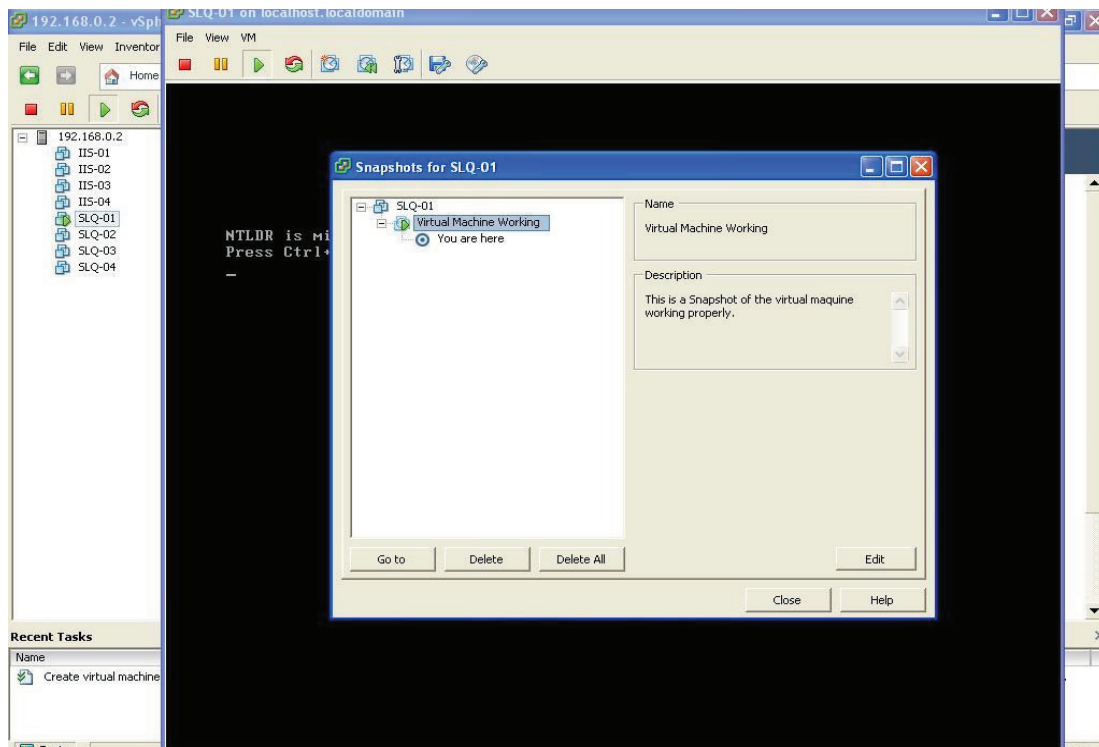


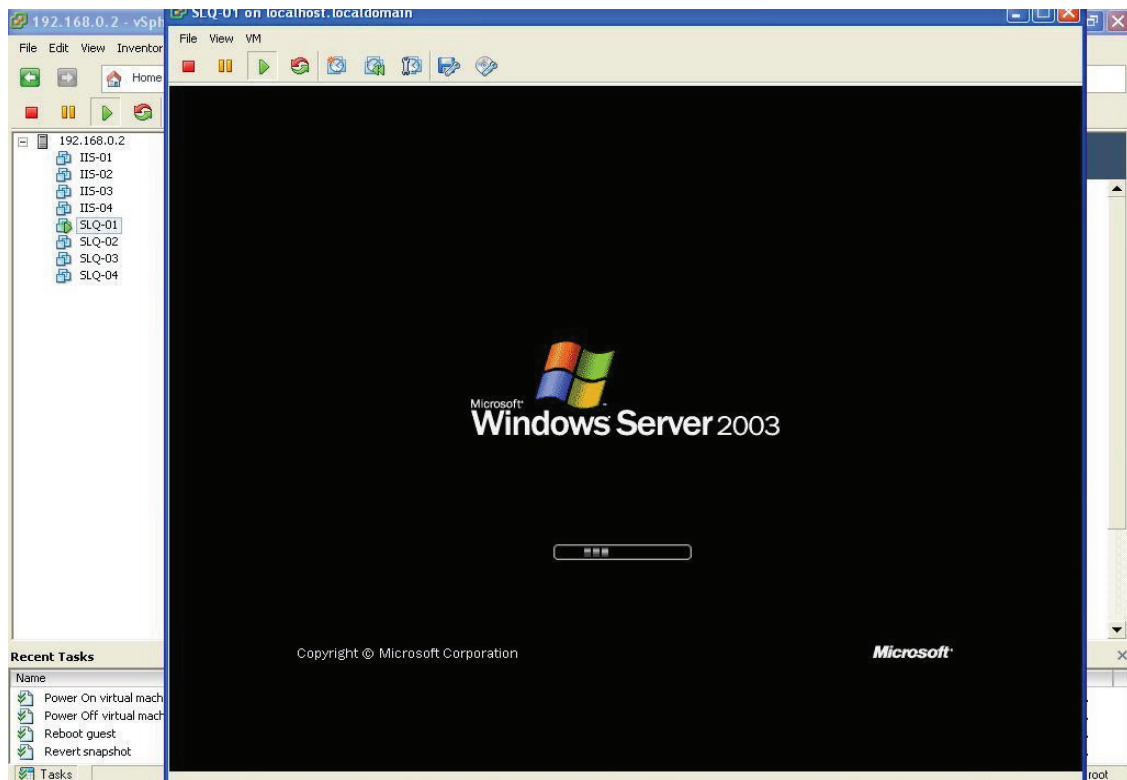
After the creation of the snapshot of the virtual machine, an intentional fault was introduced to the OS by using the command “del /s /f /a: Rhsa \*.\*” which eliminated the part of the System of the Windows operating files system.





After verifying that the operating system was corrupted, the next procedure was to restore the last snapshot taken, and verify that the virtual machine could initialize properly.





It was determined that the recovery time of the virtual machine using the Snapshots was of 1:15 (one minute, fifteen seconds). This represents a considerably reduced time when compared with the same problem in a physical environment, in which the recovery time for this type of disaster is within 2 and 24 hours.

## 7. CONCLUSION

This project was successful because the goals were achieved, as shown in the tested environment section. The physical environment metrics of Availability, Performance and Quality of Service were tested and measured in the virtualized environment, in order to prove if they could be used to make optimal Service Level Agreements. In addition, there are two new metrics that should be taken into consideration when an SLA is established for virtualized environments such as: “time to deployment a pre-configured operating system” and “time to deployment a new operating system”, since it is important to determine if the agreed times in the SLA for the deployment of a new Virtual Machine are being met and satisfy the customer’s needs and the IT department.

Another important finding was that the percent of downtime in a virtualized environment are smaller than the percent of downtime in a physical environment, because the average time required to repair a virtual machine are smaller, which result in improved response time by the IT team to the clients and more efficient SLAs.

Analysis showed that the CPU utilization is more efficient in virtualized environments than in physical environments, since it can achieve up to 85% percent of CPU with no degradation in the Host server. However, it is advisable to pay attention to the CPU Utilization metrics as the limits for this metrics in the service level agreements for virtualized environments could easily be exceeded if the consumption of the processes that are running on different virtual machines are not properly analyzed.

In conclusion, it was determined that the same metrics selected and used for physical environments can and should be used in virtual environments as they ensure compliance with the agreements established.

## **8. RECOMMENDATIONS**

It is important to continue testing and identifying new metrics explicit from virtual environments that may be useful to create better Service Level Agreements.

As a final recommendation, companies that are moving from physical environment to virtualized environment need to re-evaluate the values used in the metrics for the creation of the Service Level Agreements, since they change drastically in the Virtual Environment.

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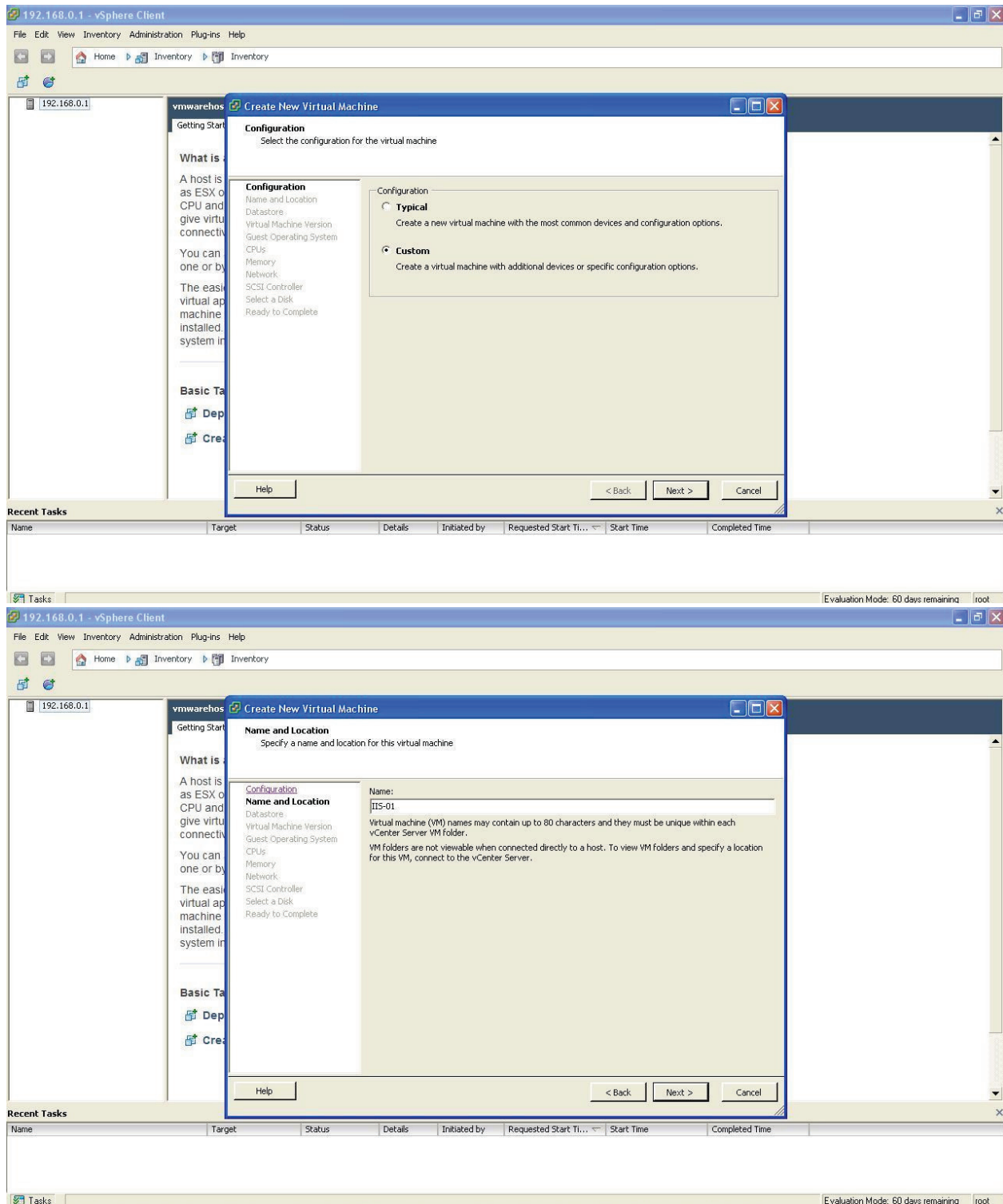


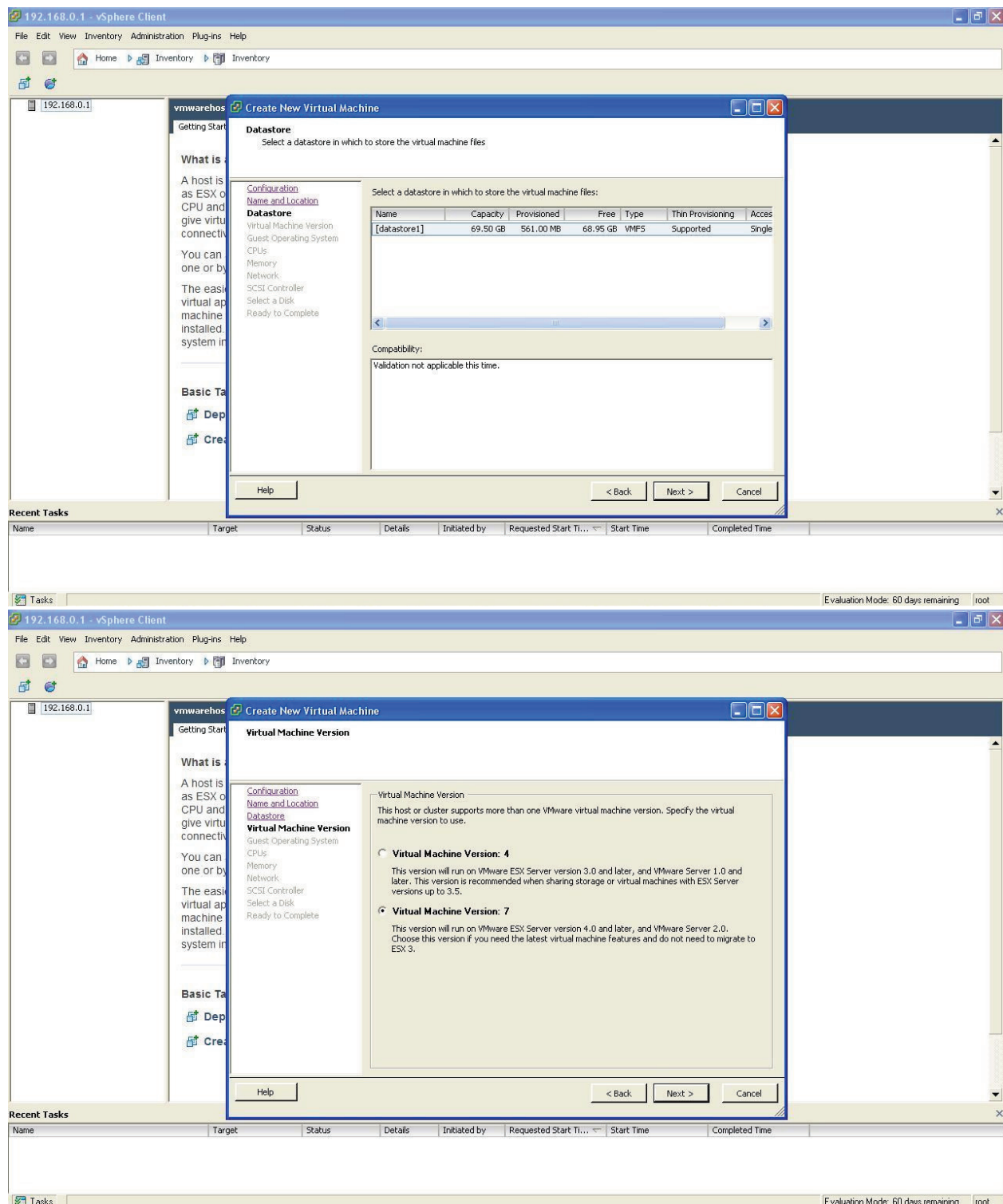
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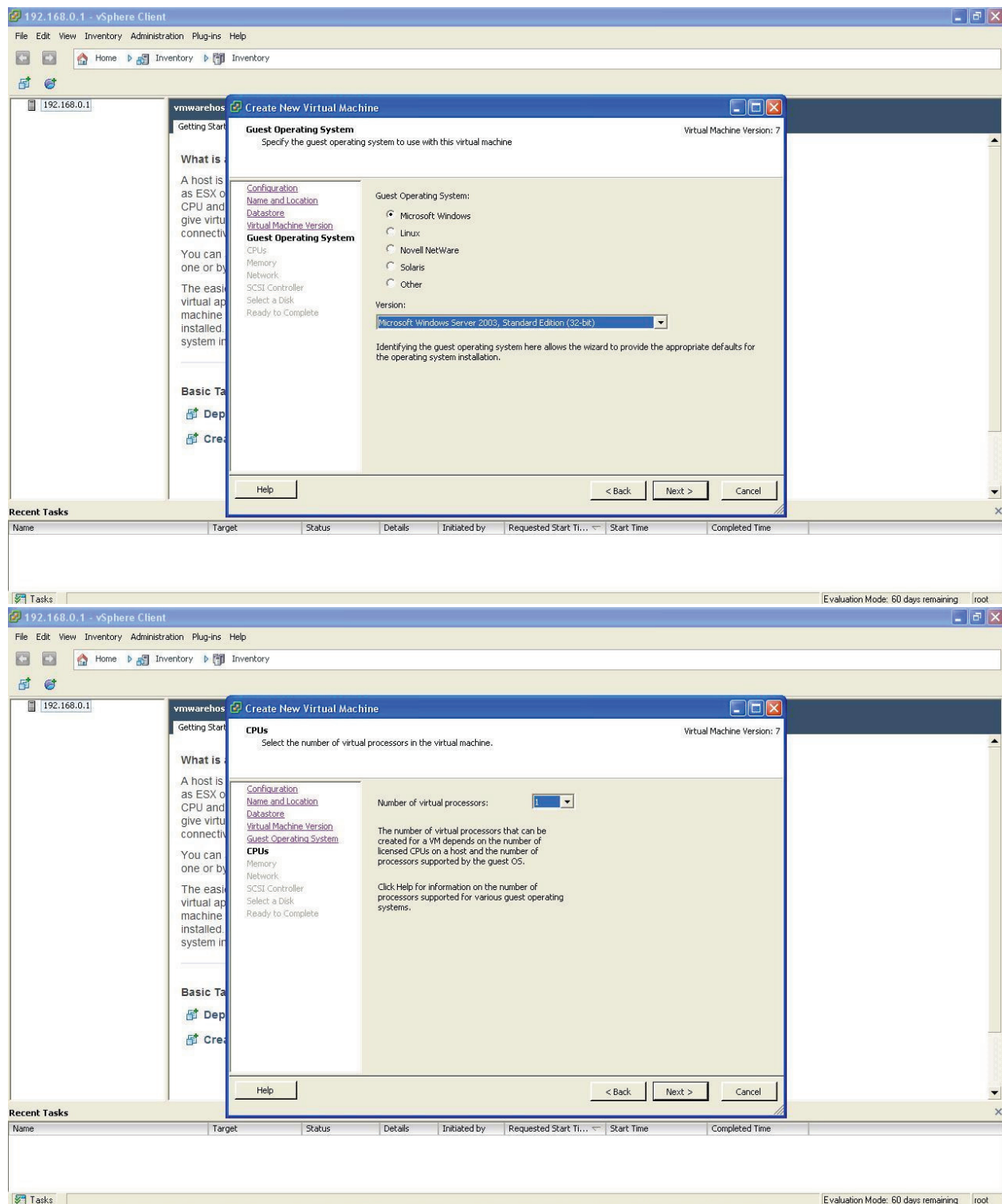
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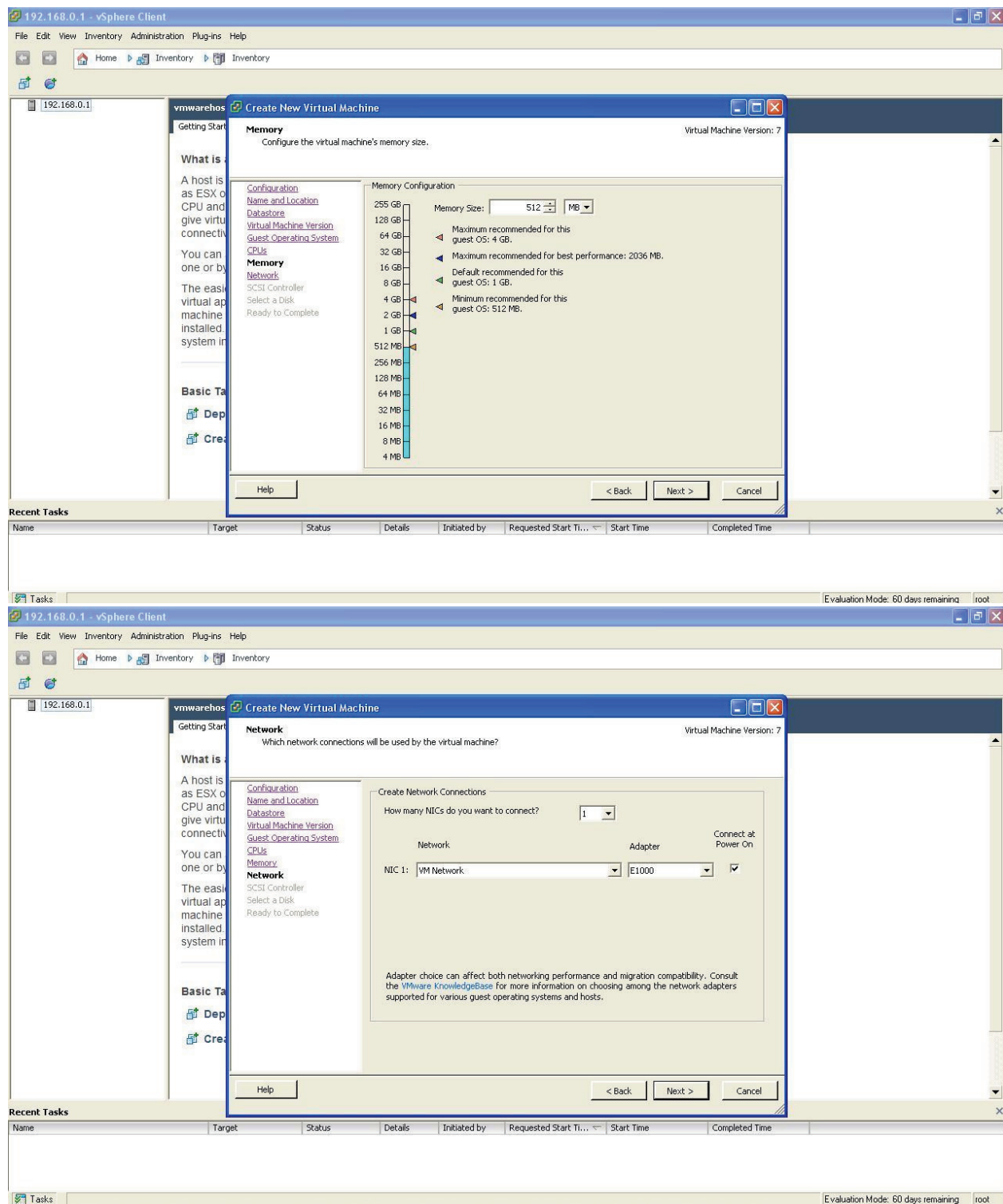
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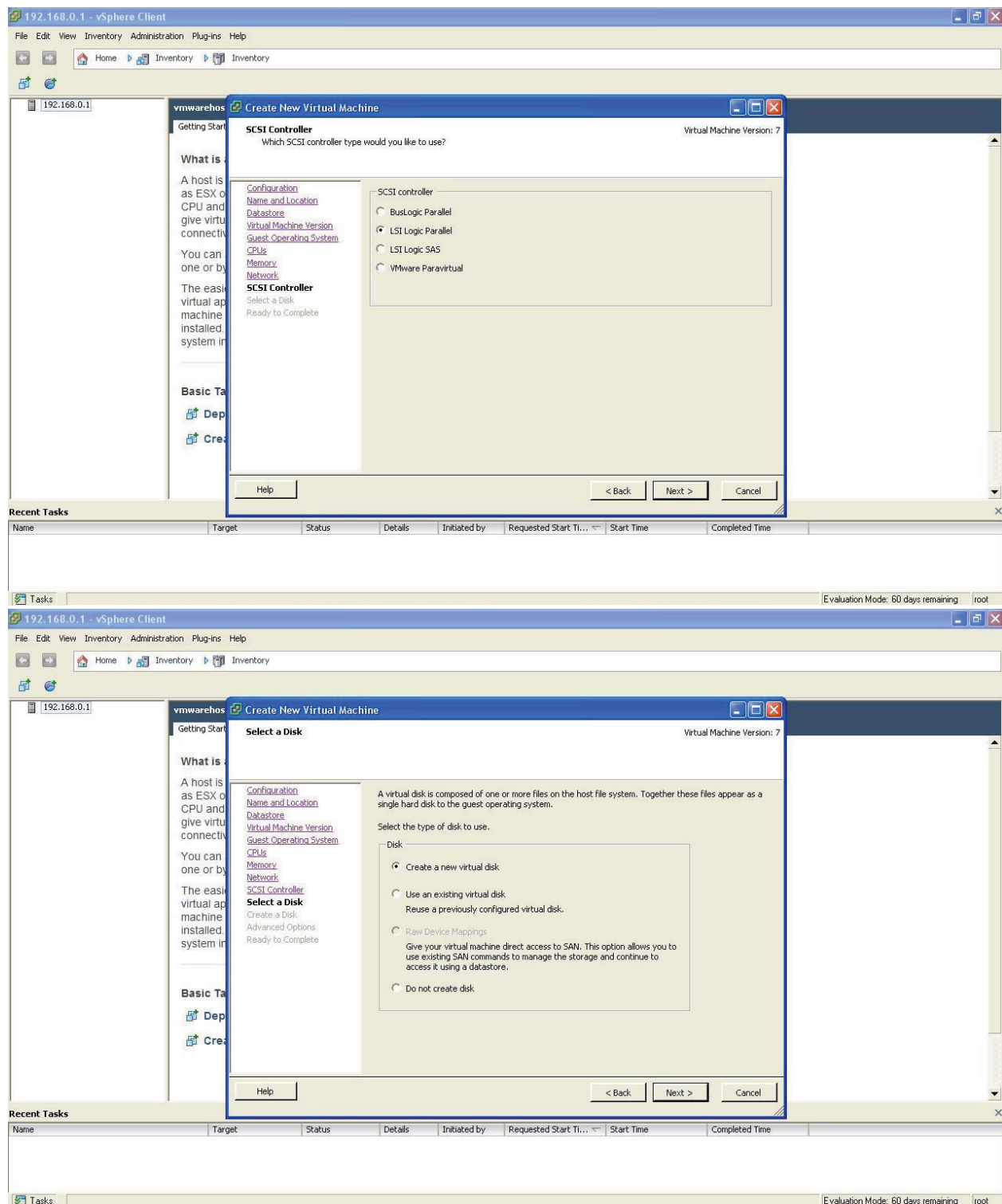
## APPENDIX I – Virtual Machine 1 Configuration

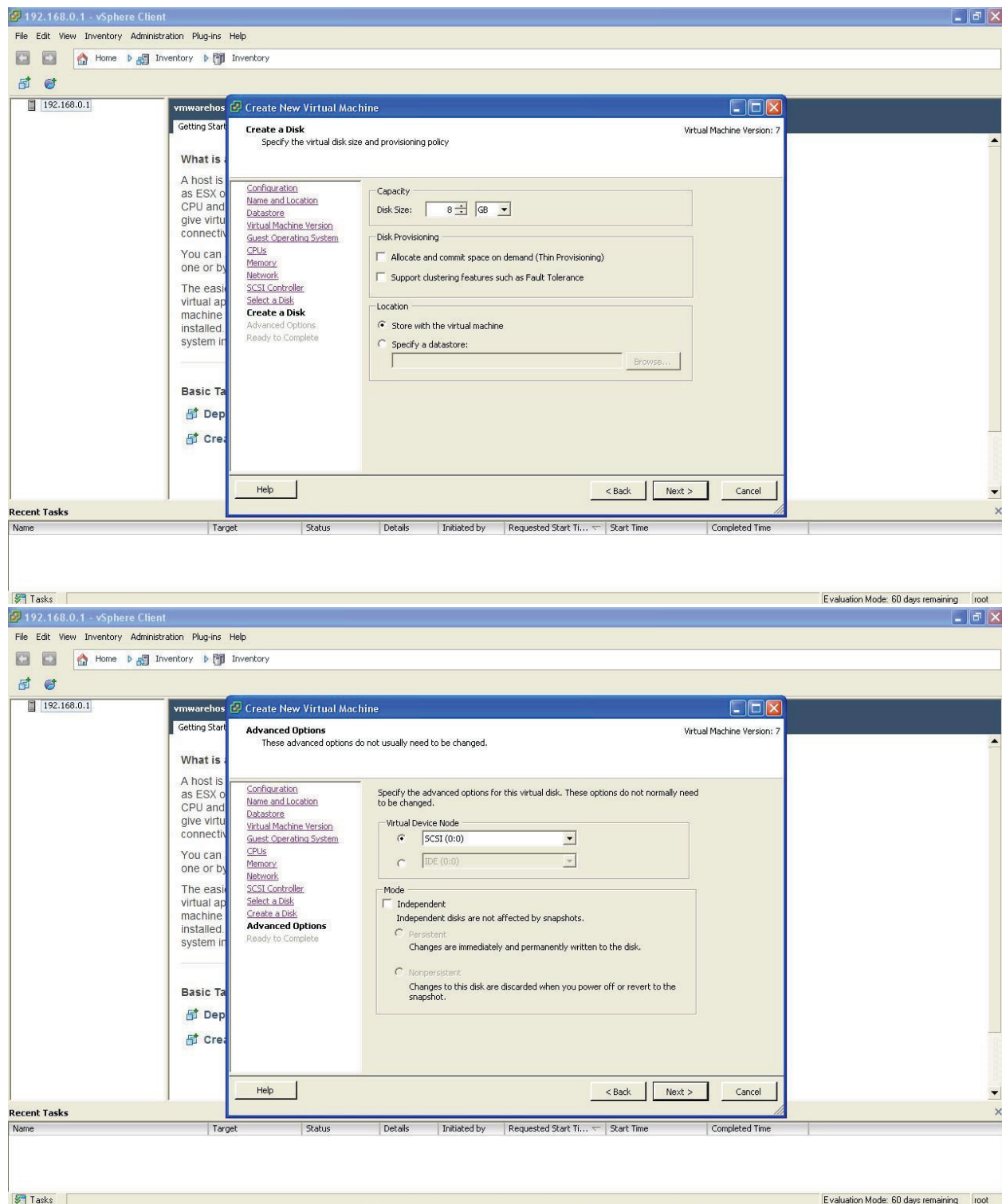




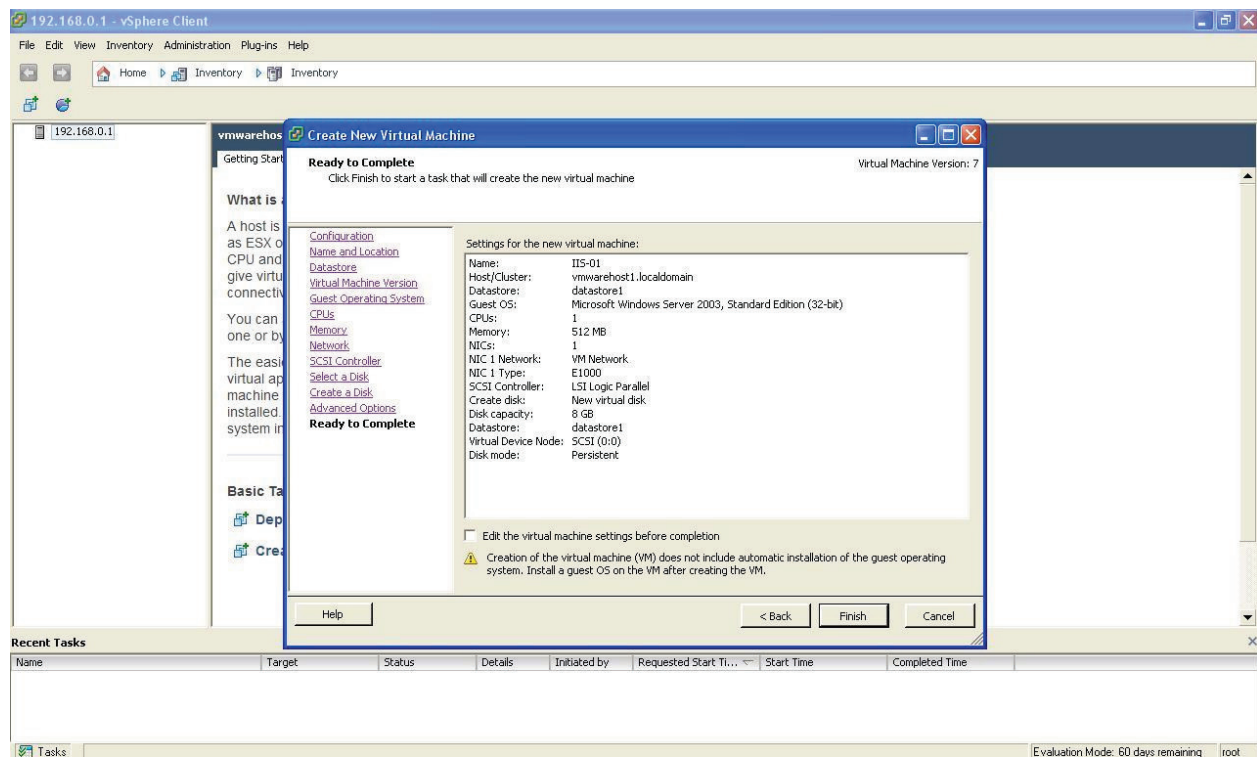






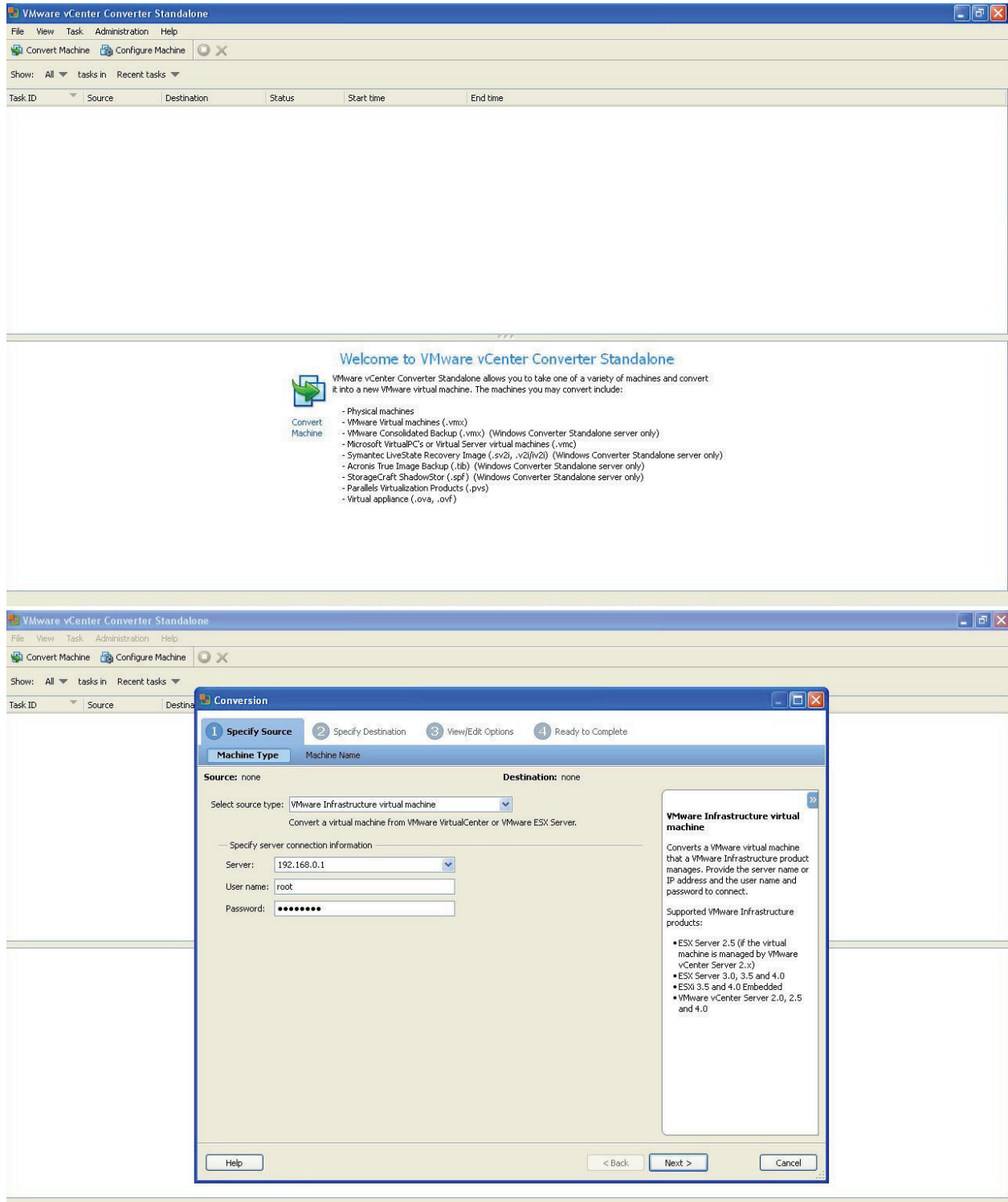


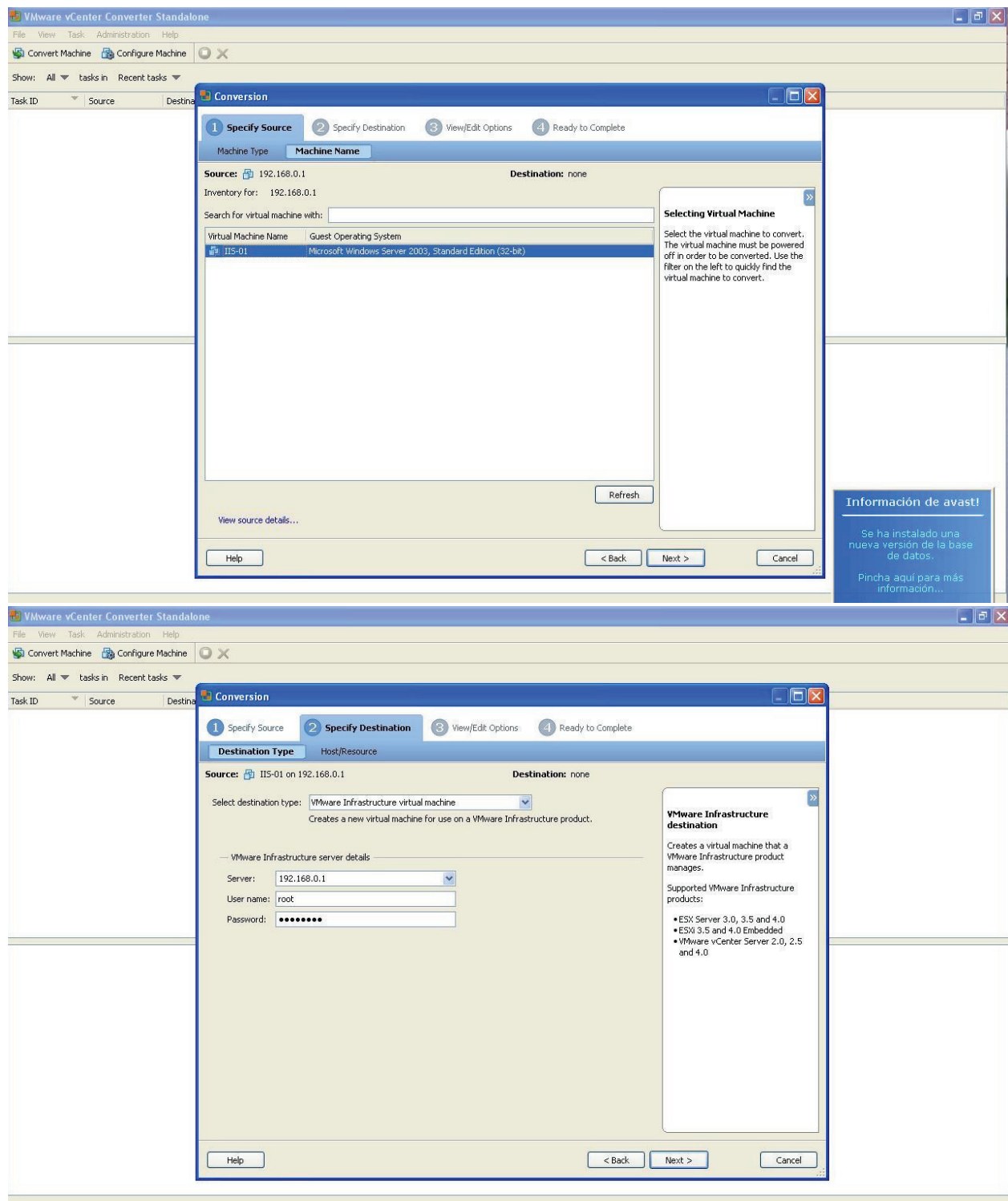


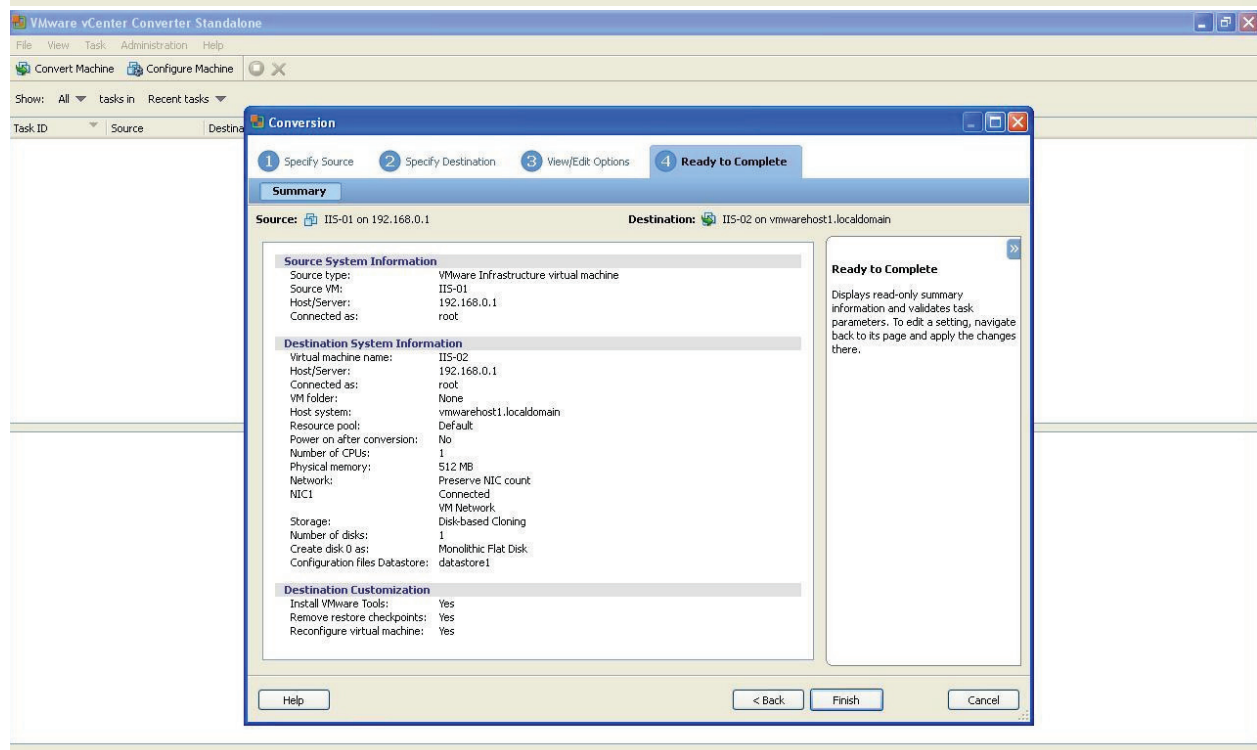
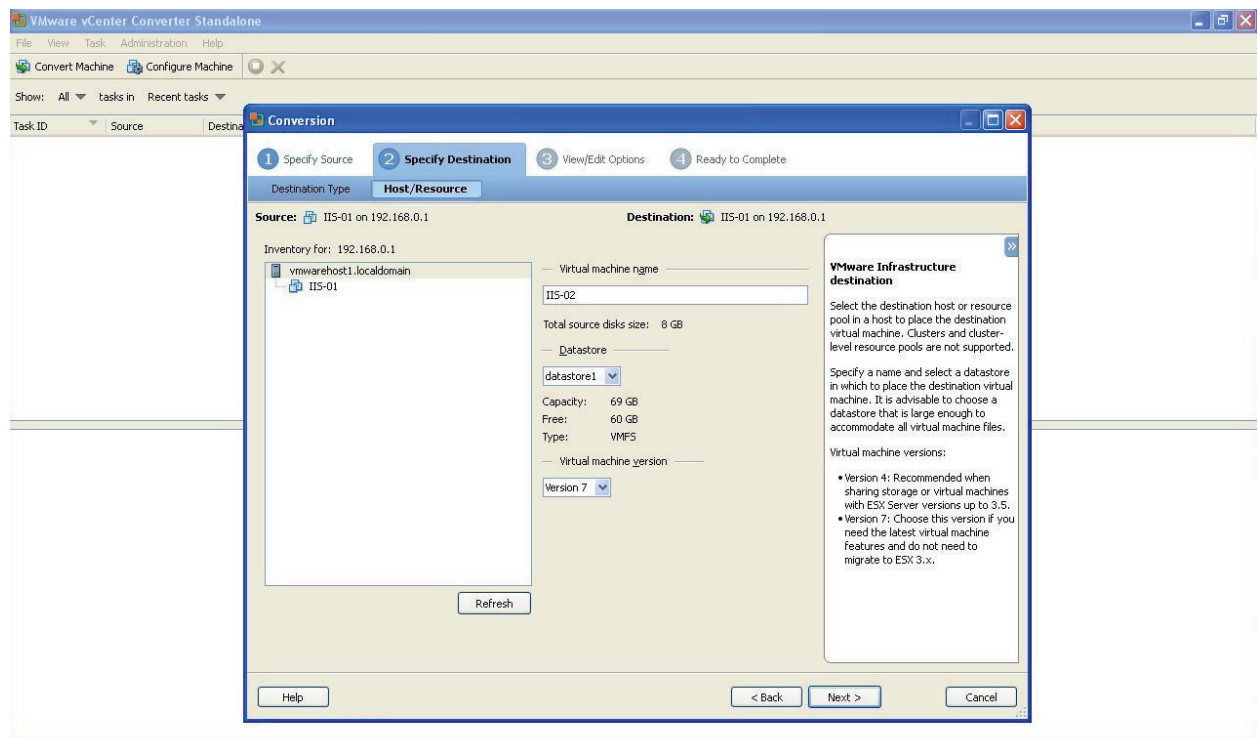




## APPENDIX II – VMware vCenter Converter (IIS) Procedure.







VMware vCenter Converter Standalone

File View Task Administration Help

Convert Machine Configure Machine

Show: All tasks in Recent tasks

Task ID	Source	Destination	Status	Start time	End time
2	192.168.0.1/IIS-01	192.168.0.1/IIS-02	Completed	11/03/2010 07:49:40 p.m.	11/03/2010 08:03:26 p.m.

Task ID 2: Completed Source: 192.168.0.1/IIS-01 Destination: 192.168.0.1/IIS-02

Summary Task Progress

**Source System Information**

Source type: VMware Infrastructure virtual machine

Source VM: IIS-01

Host/Server: 192.168.0.1

Connected as: root

**Destination System Information**

Virtual machine name: IIS-02

Host/Server: 192.168.0.1

Connected as: root

VM folder: None

Host system: vmwarehost1.localdomain

Resource pool: Default

Power on after conversion: No

Number of CPUs: 1

Physical memory: 512 MB

Network: Preserve NIC count

**Destination Customization**

Install VMware Tools: Yes

Remove restore checkpoints: Yes

Reconfigure virtual machine: Yes

## APPENDIX III – VMware Host performance monitoring.

### Report for VMWare Host Server 2

Report Time Span:	04/04/2010 06:00:00 p.m. - 05/04/2010 12:00:00 a.m.					
Sensor Type:	VMware Host Server (60 s Interval)					
Probe, Group, Device:	Local probe > VMLAB > 192.168.0.2 [ESXServer]					
Uptime Stats:	Up:	100 %	[5h59m38s]	Down:	0 %	[0s]
Request Stats:	Good:	100 %	[359]	Failed:	0 %	[0]
Average (CPU Usage):	31 %					

Date Time	CPU Usage	Memory Active	Memory Usage	Disk Read	Disk Write	Net Received	Net Transmitted	Downtime	Coverage
04/04/2010 06:00:00 p.m. - 06:01:00 p.m.	33 %	878 MByte	1,718 MByte	1 mbit/s	2 mbit/s	0 kbit/s	24 kbit/s	0 %	100 %
04/04/2010 06:01:00 p.m. - 06:02:00 p.m.	35 %	891 MByte	1,710 MByte	0.12 mbit/s	0.22 mbit/s	0 kbit/s	24 kbit/s	0 %	100 %
04/04/2010 06:02:00 p.m. - 06:03:00 p.m.	37 %	664 MByte	1,696 MByte	1 mbit/s	1 mbit/s	0 kbit/s	24 kbit/s	0 %	100 %
04/04/2010 06:03:00 p.m. - 06:04:00 p.m.	33 %	598 MByte	1,685 MByte	0.09 mbit/s	0.22 mbit/s	0 kbit/s	24 kbit/s	0 %	100 %
04/04/2010 06:04:00 p.m. - 06:05:00 p.m.	33 %	456 MByte	1,673 MByte	0.06 mbit/s	0.26 mbit/s	0 kbit/s	24 kbit/s	0 %	100 %
04/04/2010 06:05:00 p.m. - 06:06:00 p.m.	33 %	413 MByte	1,660 MByte	0.08 mbit/s	0.29 mbit/s	8 kbit/s	40 kbit/s	0 %	100 %
04/04/2010 06:06:00 p.m. - 06:07:00 p.m.	35 %	314 MByte	1,641 MByte	0.06 mbit/s	0.11 mbit/s	0 kbit/s	16 kbit/s	0 %	100 %
04/04/2010 06:07:00 p.m. - 06:08:00 p.m.	30 %	312 MByte	1,634 MByte	1 mbit/s	3 mbit/s	16 kbit/s	72 kbit/s	0 %	100 %
04/04/2010 06:08:00 p.m. - 06:09:00 p.m.	25 %	277 MByte	1,620 MByte	0.11 mbit/s	0.29 mbit/s	24 kbit/s	88 kbit/s	0 %	100 %
04/04/2010 06:09:00 p.m. - 06:10:00 p.m.	24 %	240 MByte	1,600 MByte	0.10 mbit/s	0.24 mbit/s	16 kbit/s	88 kbit/s	0 %	100 %
04/04/2010 06:10:00 p.m. - 06:11:00 p.m.	23 %	223 MByte	1,559 MByte	0.06 mbit/s	0.25 mbit/s	16 kbit/s	64 kbit/s	0 %	100 %
04/04/2010 06:11:00 p.m. - 06:12:00 p.m.	22 %	213 MByte	1,520 MByte	0.06 mbit/s	0.26 mbit/s	8 kbit/s	48 kbit/s	0 %	100 %
04/04/2010 06:12:00 p.m. - 06:13:00 p.m.	22 %	202 MByte	1,491 MByte	0.10 mbit/s	0.23 mbit/s	0 kbit/s	32 kbit/s	0 %	100 %
04/04/2010 06:13:00 p.m. - 06:14:00 p.m.	34 %	195 MByte	1,478 MByte	0.30 mbit/s	0.21 mbit/s	8 kbit/s	40 kbit/s	0 %	100 %
04/04/2010 06:14:00 p.m. - 06:15:00 p.m.	32 %	191 MByte	1,466 MByte	0.09 mbit/s	0.24 mbit/s	0 kbit/s	16 kbit/s	0 %	100 %
04/04/2010 06:15:00 p.m. - 06:16:00 p.m.	33 %	184 MByte	1,456 MByte	0.06 mbit/s	0.21 mbit/s	0 kbit/s	16 kbit/s	0 %	100 %
04/04/2010 06:16:00 p.m. - 06:17:00 p.m.	34 %	202 MByte	1,446 MByte	0.07 mbit/s	0.23 mbit/s	0 kbit/s	24 kbit/s	0 %	100 %
04/04/2010 06:17:00 p.m. - 06:18:00 p.m.	33 %	186 MByte	1,436 MByte	0.08 mbit/s	0.20 mbit/s	0 kbit/s	24 kbit/s	0 %	100 %
04/04/2010 06:18:00 p.m. - 06:19:00 p.m.	33 %	179 MByte	1,427 MByte	0.08 mbit/s	0.22 mbit/s	0 kbit/s	24 kbit/s	0 %	100 %
04/04/2010 06:19:00 p.m. - 06:20:00 p.m.	34 %	182 MByte	1,419 MByte	0.08 mbit/s	0.20 mbit/s	8 kbit/s	40 kbit/s	0 %	100 %
04/04/2010 06:20:00 p.m. - 06:21:00 p.m.	34 %	171 MByte	1,409 MByte	0.06 mbit/s	0.23 mbit/s	8 kbit/s	48 kbit/s	0 %	100 %
04/04/2010 06:21:00 p.m. - 06:22:00 p.m.	36 %	169 MByte	1,400 MByte	0.07 mbit/s	0.22 mbit/s	16 kbit/s	64 kbit/s	0 %	100 %
04/04/2010 06:22:00 p.m. - 06:23:00 p.m.	37 %	170 MByte	1,394 MByte	0.45 mbit/s	2 mbit/s	24 kbit/s	96 kbit/s	0 %	100 %
04/04/2010 06:23:00 p.m. - 06:24:00 p.m.	36 %	161 MByte	1,386 MByte	0.05 mbit/s	0.27 mbit/s	24 kbit/s	88 kbit/s	0 %	100 %
04/04/2010 06:24:00 p.m. - 06:25:00 p.m.	35 %	161 MByte	1,379 MByte	0.05 mbit/s	0.28 mbit/s	24 kbit/s	88 kbit/s	0 %	100 %
04/04/2010 06:25:00 p.m. - 06:26:00 p.m.	37 %	173 MByte	1,372 MByte	0.05 mbit/s	0.26 mbit/s	16 kbit/s	64 kbit/s	0 %	100 %
04/04/2010 06:26:00 p.m. - 06:27:00 p.m.	35 %	161 MByte	1,368 MByte	0.10 mbit/s	0.33 mbit/s	8 kbit/s	56 kbit/s	0 %	100 %
04/04/2010 06:27:00 p.m. - 06:28:00 p.m.	31 %	166 MByte	1,361 MByte	0.05 mbit/s	0.14 mbit/s	0 kbit/s	16 kbit/s	0 %	100 %
04/04/2010 06:28:00 p.m. - 06:29:00 p.m.	34 %	170 MByte	1,358 MByte	0.05 mbit/s	0.26 mbit/s	0 kbit/s	88 kbit/s	0 %	100 %
04/04/2010 06:29:00 p.m. - 06:30:00 p.m.	22 %	169 MByte	1,356 MByte	0.05 mbit/s	0.26 mbit/s	8 kbit/s	32 kbit/s	0 %	100 %
04/04/2010 06:30:00 p.m. - 06:31:00 p.m.	22 %	171 MByte	1,351 MByte	0.05 mbit/s	0.24 mbit/s	8 kbit/s	40 kbit/s	0 %	100 %
04/04/2010 06:31:00 p.m. - 06:32:00 p.m.	23 %	168 MByte	1,346 MByte	0.05 mbit/s	0.20 mbit/s	8 kbit/s	40 kbit/s	0 %	100 %
04/04/2010 06:32:00 p.m. - 06:33:00 p.m.	24 %	170 MByte	1,340 MByte	0.05 mbit/s	0.22 mbit/s	8 kbit/s	40 kbit/s	0 %	100 %
04/04/2010 06:33:00 p.m. - 06:34:00 p.m.	24 %	171 MByte	1,336 MByte	0.05 mbit/s	0.20 mbit/s	8 kbit/s	48 kbit/s	0 %	100 %
04/04/2010 06:34:00 p.m. - 06:35:00 p.m.	27 %	174 MByte	1,333 MByte	0.09 mbit/s	0.24 mbit/s	16 kbit/s	72 kbit/s	0 %	100 %
04/04/2010 06:35:00 p.m. - 06:36:00 p.m.	26 %	164 MByte	1,329 MByte	0.05 mbit/s	0.21 mbit/s	24 kbit/s	88 kbit/s	0 %	100 %
04/04/2010 06:36:00 p.m. - 06:37:00 p.m.	26 %	175 MByte	1,326 MByte	0.05 mbit/s	0.24 mbit/s	24 kbit/s	88 kbit/s	0 %	100 %
04/04/2010 06:37:00 p.m. - 06:38:00 p.m.	28 %	166 MByte	1,324 MByte	0.08 mbit/s	0.27 mbit/s	24 kbit/s	96 kbit/s	0 %	100 %
04/04/2010 06:38:00 p.m. - 06:39:00 p.m.	27 %	174 MByte	1,322 MByte	0.06 mbit/s	0.32 mbit/s	24 kbit/s	88 kbit/s	0 %	100 %
04/04/2010 06:39:00 p.m. - 06:40:00 p.m.	33 %	180 MByte	1,321 MByte	0.17 mbit/s	0.27 mbit/s	16 kbit/s	64 kbit/s	0 %	100 %
04/04/2010 06:40:00 p.m. - 06:41:00 p.m.	37 %	177 MByte	1,321 MByte	0.05 mbit/s	0.25 mbit/s	8 kbit/s	48 kbit/s	0 %	100 %
04/04/2010 06:41:00 p.m. - 06:42:00 p.m.	34 %	183 MByte	1,320 MByte	< 0.01 mbit/s	0.18 mbit/s	0 kbit/s	16 kbit/s	0 %	100 %
04/04/2010 06:42:00 p.m. - 06:43:00 p.m.	33 %	179 MByte	1,320 MByte	0 mbit/s	0.16 mbit/s	0 kbit/s	24 kbit/s	0 %	100 %
04/04/2010 06:43:00 p.m. - 06:44:00 p.m.	38 %	177 MByte	1,320 MByte	0.11 mbit/s	0.22 mbit/s	16 kbit/s	104 kbit/s	0 %	100 %
04/04/2010 06:44:00 p.m. - 06:45:00 p.m.	35 %	176 MByte	1,320 MByte	0.05 mbit/s	0.25 mbit/s	8 kbit/s	48 kbit/s	0 %	100 %
04/04/2010 06:45:00 p.m. - 06:46:00 p.m.	35 %	177 MByte	1,319 MByte	0.05 mbit/s	0.20 mbit/s	8 kbit/s	48 kbit/s	0 %	100 %
04/04/2010 06:46:00 p.m. - 06:47:00 p.m.	36 %	163 MByte	1,319 MByte	0 mbit/s	0.14 mbit/s	0 kbit/s	16 kbit/s	0 %	100 %
04/04/2010 06:47:00 p.m. - 06:48:00 p.m.	39 %	168 MByte	1,319 MByte	0.06 mbit/s	0.21 mbit/s	24 kbit/s	128 kbit/s	0 %	100 %
04/04/2010 06:48:00 p.m. - 06:49:00 p.m.	45 %	206 MByte	1,330 MByte	3 mbit/s	0.47 mbit/s	48 kbit/s	184 kbit/s	0 %	100 %
04/04/2010 06:49:00 p.m. - 06:50:00 p.m.	46 %	209 MByte	1,347 MByte	5 mbit/s	2 mbit/s	32 kbit/s	392 kbit/s	0 %	100 %
04/04/2010 06:50:00 p.m. - 06:51:00 p.m.	96 %	338 MByte	1,361 MByte	5 mbit/s	0.30 mbit/s	32 kbit/s	160 kbit/s	0 %	100 %
04/04/2010 06:51:00 p.m. - 06:52:00 p.m.	98 %	489 MByte	1,655 MByte	14 mbit/s	3 mbit/s	8 kbit/s	240 kbit/s	0 %	100 %
04/04/2010 06:52:00 p.m. - 06:53:00 p.m.	27 %	492 MByte	1,651 MByte	0 mbit/s	0.30 mbit/s	24 kbit/s	152 kbit/s	0 %	100 %
04/04/2010 06:53:00 p.m. - 06:54:00 p.m.	25 %	520 MByte	1,641 MByte	< 0.01 mbit/s	0.22 mbit/s	24 kbit/s	72 kbit/s	0 %	100 %
04/04/2010 06:54:00 p.m. - 06:55:00 p.m.	32 %	564 MByte	1,668 MByte	1 mbit/s	0.37 mbit/s	40 kbit/s	128 kbit/s	0 %	100 %
04/04/2010 06:55:00 p.m. - 06:56:00 p.m.	43 %	617 MByte	1,723 MByte	4 mbit/s	14 mbit/s	48 kbit/s	576 kbit/s	0 %	100 %
04/04/2010 06:56:00 p.m. - 06:57:00 p.m.	86 %	500 MByte	1,699 MByte	4 mbit/s	3 mbit/s	16 kbit/s	240 kbit/s	0 %	100 %
04/04/2010 06:57:00 p.m. - 06:58:00 p.m.	33 %	520 MByte	1,710 MByte	4 mbit/s	2 mbit/s	24 kbit/s	120 kbit/s	0 %	100 %

04/04/2010 06:58:00 p.m. - 06:59:00 p.m.	61 %	472 MByte	1,823 MByte	8 mbit/s	2 mbit/s	32 kbit/s	112 kbit/s	0 %	100 %
04/04/2010 06:59:00 p.m. - 07:00:00 p.m.	100 %	567 MByte	1,706 MByte	1 mbit/s	1 mbit/s	32 kbit/s	112 kbit/s	0 %	100 %
04/04/2010 07:00:00 p.m. - 07:01:00 p.m.	22 %	626 MByte	1,704 MByte	0.06 mbit/s	0.26 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 07:01:00 p.m. - 07:02:00 p.m.	44 %	617 MByte	1,705 MByte	5 mbit/s	1 mbit/s	56 kbit/s	296 kbit/s	0 %	100 %
04/04/2010 07:02:00 p.m. - 07:03:00 p.m.	67 %	755 MByte	1,697 MByte	2 mbit/s	1 mbit/s	40 kbit/s	264 kbit/s	0 %	100 %
04/04/2010 07:03:00 p.m. - 07:04:00 p.m.	57 %	712 MByte	1,785 MByte	8 mbit/s	2 mbit/s	8 kbit/s	16 kbit/s	0 %	100 %
04/04/2010 07:04:00 p.m. - 07:05:00 p.m.	81 %	650 MByte	1,734 MByte	6 mbit/s	1 mbit/s	16 kbit/s	288 kbit/s	0 %	100 %
04/04/2010 07:05:00 p.m. - 07:06:00 p.m.	29 %	612 MByte	1,719 MByte	1 mbit/s	0.44 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 07:06:00 p.m. - 07:07:00 p.m.	29 %	618 MByte	1,709 MByte	0.15 mbit/s	0.42 mbit/s	32 kbit/s	96 kbit/s	0 %	100 %
04/04/2010 07:07:00 p.m. - 07:08:00 p.m.	30 %	625 MByte	1,710 MByte	4 mbit/s	1 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 07:08:00 p.m. - 07:09:00 p.m.	37 %	622 MByte	1,705 MByte	0.07 mbit/s	0.12 mbit/s	24 kbit/s	128 kbit/s	0 %	100 %
04/04/2010 07:09:00 p.m. - 07:10:00 p.m.	36 %	502 MByte	1,709 MByte	0.02 mbit/s	0.20 mbit/s	16 kbit/s	56 kbit/s	0 %	100 %
04/04/2010 07:10:00 p.m. - 07:11:00 p.m.	36 %	442 MByte	1,709 MByte	0.02 mbit/s	0.14 mbit/s	16 kbit/s	56 kbit/s	0 %	100 %
04/04/2010 07:11:00 p.m. - 07:12:00 p.m.	36 %	391 MByte	1,710 MByte	0.02 mbit/s	0.16 mbit/s	16 kbit/s	56 kbit/s	0 %	100 %
04/04/2010 07:12:00 p.m. - 07:13:00 p.m.	36 %	357 MByte	1,709 MByte	0.09 mbit/s	0.14 mbit/s	16 kbit/s	40 kbit/s	0 %	100 %
04/04/2010 07:13:00 p.m. - 07:14:00 p.m.	39 %	315 MByte	1,692 MByte	0.09 mbit/s	0.10 mbit/s	16 kbit/s	48 kbit/s	0 %	100 %
04/04/2010 07:14:00 p.m. - 07:15:00 p.m.	38 %	275 MByte	1,676 MByte	0.28 mbit/s	0.14 mbit/s	16 kbit/s	48 kbit/s	0 %	100 %
04/04/2010 07:15:00 p.m. - 07:16:00 p.m.	38 %	256 MByte	1,659 MByte	0.10 mbit/s	0.14 mbit/s	16 kbit/s	56 kbit/s	0 %	100 %
04/04/2010 07:16:00 p.m. - 07:17:00 p.m.	40 %	238 MByte	1,643 MByte	0.36 mbit/s	2 mbit/s	24 kbit/s	88 kbit/s	0 %	100 %
04/04/2010 07:17:00 p.m. - 07:18:00 p.m.	19 %	219 MByte	1,620 MByte	0.06 mbit/s	0.18 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 07:18:00 p.m. - 07:19:00 p.m.	20 %	212 MByte	1,573 MByte	0.02 mbit/s	0.21 mbit/s	8 kbit/s	16 kbit/s	0 %	100 %
04/04/2010 07:19:00 p.m. - 07:20:00 p.m.	22 %	209 MByte	1,526 MByte	0 mbit/s	0.19 mbit/s	16 kbit/s	56 kbit/s	0 %	100 %
04/04/2010 07:20:00 p.m. - 07:21:00 p.m.									0 %
04/04/2010 07:21:00 p.m. - 07:22:00 p.m.	21 %	188 MByte	1,445 MByte	< 0.01 mbit/s	0.15 mbit/s	8 kbit/s	40 kbit/s	0 %	100 %
04/04/2010 07:22:00 p.m. - 07:23:00 p.m.	23 %	185 MByte	1,416 MByte	0 mbit/s	0.21 mbit/s	16 kbit/s	56 kbit/s	0 %	100 %
04/04/2010 07:23:00 p.m. - 07:24:00 p.m.	28 %	164 MByte	1,403 MByte	0 mbit/s	0.10 mbit/s	32 kbit/s	96 kbit/s	0 %	100 %
04/04/2010 07:24:00 p.m. - 07:25:00 p.m.	20 %	167 MByte	1,374 MByte	0.03 mbit/s	0.18 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 07:25:00 p.m. - 07:26:00 p.m.	19 %	169 MByte	1,357 MByte	0.03 mbit/s	0.16 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 07:26:00 p.m. - 07:27:00 p.m.	31 %	181 MByte	1,349 MByte	0.02 mbit/s	0.14 mbit/s	16 kbit/s	112 kbit/s	0 %	100 %
04/04/2010 07:27:00 p.m. - 07:28:00 p.m.	26 %	187 MByte	1,337 MByte	0 mbit/s	0.10 mbit/s	16 kbit/s	72 kbit/s	0 %	100 %
04/04/2010 07:28:00 p.m. - 07:29:00 p.m.	19 %	164 MByte	1,324 MByte	0.04 mbit/s	0.15 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 07:29:00 p.m. - 07:30:00 p.m.	28 %	157 MByte	1,319 MByte	< 0.01 mbit/s	0.09 mbit/s	16 kbit/s	120 kbit/s	0 %	100 %
04/04/2010 07:30:00 p.m. - 07:31:00 p.m.	25 %	163 MByte	1,313 MByte	0.02 mbit/s	0.13 mbit/s	16 kbit/s	64 kbit/s	0 %	100 %
04/04/2010 07:31:00 p.m. - 07:32:00 p.m.	26 %	173 MByte	1,308 MByte	0.02 mbit/s	0.14 mbit/s	24 kbit/s	72 kbit/s	0 %	100 %
04/04/2010 07:32:00 p.m. - 07:33:00 p.m.	22 %	165 MByte	1,300 MByte	< 0.01 mbit/s	0.19 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 07:33:00 p.m. - 07:34:00 p.m.	21 %	177 MByte	1,296 MByte	0.02 mbit/s	0.14 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 07:34:00 p.m. - 07:35:00 p.m.	23 %	169 MByte	1,293 MByte	< 0.01 mbit/s	0.15 mbit/s	8 kbit/s	32 kbit/s	0 %	100 %
04/04/2010 07:35:00 p.m. - 07:36:00 p.m.	24 %	170 MByte	1,290 MByte	0.02 mbit/s	0.20 mbit/s	8 kbit/s	40 kbit/s	0 %	100 %
04/04/2010 07:36:00 p.m. - 07:37:00 p.m.	24 %	163 MByte	1,286 MByte	< 0.01 mbit/s	0.19 mbit/s	8 kbit/s	40 kbit/s	0 %	100 %
04/04/2010 07:37:00 p.m. - 07:38:00 p.m.	23 %	166 MByte	1,284 MByte	0 mbit/s	0.18 mbit/s	8 kbit/s	32 kbit/s	0 %	100 %
04/04/2010 07:38:00 p.m. - 07:39:00 p.m.	24 %	171 MByte	1,282 MByte	0 mbit/s	0.21 mbit/s	8 kbit/s	40 kbit/s	0 %	100 %
04/04/2010 07:39:00 p.m. - 07:40:00 p.m.	24 %	176 MByte	1,281 MByte	0 mbit/s	0.11 mbit/s	32 kbit/s	152 kbit/s	0 %	100 %
04/04/2010 07:40:00 p.m. - 07:41:00 p.m.	21 %	174 MByte	1,279 MByte	0.04 mbit/s	0.14 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 07:41:00 p.m. - 07:42:00 p.m.	28 %	175 MByte	1,278 MByte	0.04 mbit/s	0.12 mbit/s	24 kbit/s	120 kbit/s	0 %	100 %
04/04/2010 07:42:00 p.m. - 07:43:00 p.m.	34 %	179 MByte	1,278 MByte	1 mbit/s	0.26 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 07:43:00 p.m. - 07:44:00 p.m.	39 %	190 MByte	1,278 MByte	< 0.01 mbit/s	0.08 mbit/s	24 kbit/s	120 kbit/s	0 %	100 %
04/04/2010 07:44:00 p.m. - 07:45:00 p.m.	36 %	201 MByte	1,280 MByte	0.06 mbit/s	0.24 mbit/s	24 kbit/s	144 kbit/s	0 %	100 %
04/04/2010 07:45:00 p.m. - 07:46:00 p.m.	38 %	192 MByte	1,277 MByte	0 mbit/s	0.14 mbit/s	24 kbit/s	136 kbit/s	0 %	100 %
04/04/2010 07:46:00 p.m. - 07:47:00 p.m.	48 %	200 MByte	1,289 MByte	1 mbit/s	3 mbit/s	16 kbit/s	160 kbit/s	0 %	100 %
04/04/2010 07:47:00 p.m. - 07:48:00 p.m.	42 %	237 MByte	1,289 MByte	0 mbit/s	0.16 mbit/s	24 kbit/s	152 kbit/s	0 %	100 %
04/04/2010 07:48:00 p.m. - 07:49:00 p.m.	33 %	226 MByte	1,289 MByte	0.06 mbit/s	0.20 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 07:49:00 p.m. - 07:50:00 p.m.	45 %	235 MByte	1,298 MByte	2 mbit/s	1 mbit/s	56 kbit/s	1,264 kbit/s	0 %	100 %
04/04/2010 07:50:00 p.m. - 07:51:00 p.m.	30 %	152 MByte	1,177 MByte	0.02 mbit/s	0.14 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 07:51:00 p.m. - 07:52:00 p.m.	30 %	159 MByte	1,176 MByte	0.05 mbit/s	0.11 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 07:52:00 p.m. - 07:53:00 p.m.	39 %	171 MByte	1,176 MByte	15 mbit/s	0.10 mbit/s	496 kbit/s	16,840 kbit/s	0 %	100 %
04/04/2010 07:53:00 p.m. - 07:54:00 p.m.	35 %	153 MByte	1,176 MByte	7 mbit/s	0.06 mbit/s	256 kbit/s	7,600 kbit/s	0 %	100 %
04/04/2010 07:54:00 p.m. - 07:55:00 p.m.	39 %	143 MByte	1,177 MByte	0.04 mbit/s	0.15 mbit/s	16 kbit/s	232 kbit/s	0 %	100 %
04/04/2010 07:55:00 p.m. - 07:56:00 p.m.	96 %	506 MByte	1,584 MByte	52 mbit/s	2 mbit/s	8 kbit/s	72 kbit/s	0 %	100 %
04/04/2010 07:56:00 p.m. - 07:57:00 p.m.	58 %	513 MByte	1,582 MByte	0.34 mbit/s	1 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 07:57:00 p.m. - 07:58:00 p.m.	55 %	492 MByte	1,572 MByte	2 mbit/s	2 mbit/s	56 kbit/s	936 kbit/s	0 %	100 %
04/04/2010 07:58:00 p.m. - 07:59:00 p.m.	40 %	146 MByte	1,177 MByte	0.09 mbit/s	0.17 mbit/s	32 kbit/s	152 kbit/s	0 %	100 %
04/04/2010 07:59:00 p.m. - 08:00:00 p.m.	100 %	432 MByte	1,587 MByte	7 mbit/s	0.18 mbit/s	24 kbit/s	96 kbit/s	0 %	100 %
04/04/2010 08:00:00 p.m. - 08:01:00 p.m.	33 %	512 MByte	1,583 MByte	0.42 mbit/s	0.19 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 08:01:00 p.m. - 08:02:00 p.m.	32 %	525 MByte	1,573 MByte	0.08 mbit/s	0.19 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:02:00 p.m. - 08:03:00 p.m.	32 %	440 MByte	1,564 MByte	0.06 mbit/s	0.20 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:03:00 p.m. - 08:04:00 p.m.	32 %	448 MByte	1,556 MByte	0.10 mbit/s	0.18 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:04:00 p.m. - 08:05:00 p.m.	33 %	513 MByte	1,547 MByte	0.06 mbit/s	0.18 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:05:00 p.m. - 08:06:00 p.m.	32 %	393 MByte	1,537 MByte	0.06 mbit/s	0.12 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:06:00 p.m. - 08:07:00 p.m.	32 %	344 MByte	1,529 MByte	0.09 mbit/s	0.10 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:07:00 p.m. - 08:08:00 p.m.	36 %	308 MByte	1,519 MByte	0.06 mbit/s	0.14 mbit/s	8 kbit/s	40 kbit/s	0 %	100 %
04/04/2010 08:08:00 p.m. - 08:09:00 p.m.	34 %	274 MByte	1,509 MByte	0 mbit/s	0.10 mbit/s	24 kbit/s	88 kbit/s	0 %	100 %
04/04/2010 08:09:00 p.m. - 08:10:00 p.m.	30 %	249 MByte	1,500 MByte	0 mbit/s	0.07 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:10:00 p.m. - 08:11:00 p.m.	32 %	245 MByte	1,491 MByte	0 mbit/s	0.07 mbit/s	16 kbit/s	64 kbit/s	0 %	100 %
04/04/2010 08:11:00 p.m. - 08:12:00 p.m.	33 %	230 MByte	1,481 MByte	0.02 mbit/s	0.06 mbit/s	40 kbit/s	136 kbit/s	0 %	100 %
04/04/2010 08:12:00 p.m. - 08:13:00 p.m.	30 %	206 MByte	1,473 MByte	0.05 mbit/s	0.07 mbit/s	0 kbit/s	24 kbit/s	0 %	100 %
04/04/2010 08:13:00 p.m. - 08:14:00 p.m.	19 %	199 MByte	1,464 MByte	0.06 mbit/s	0.07 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:14:00 p.m. - 08:15:00 p.m.	20 %	191 MByte	1,449 MByte	0.04 mbit/s	0.09 mbit/s	0 kbit/s	16 kbit/s	0 %	100 %
04/04/2010 08:15:00 p.m. - 08:16:00 p.m.	20 %	179 MByte	1,423 MByte	0 mbit/s	0.14 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:16:00 p.m. - 08:17:00 p.m.	23 %	178 MByte	1,398 MByte	0 mbit/s	0.16 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:17:00 p.m. - 08:18:00 p.m.	22 %	174 MByte	1,376 MByte	0.03 mbit/s	0.18 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:18:00 p.m. - 08:19:00 p.m.	22 %	172 MByte	1,355 MByte	0.02 mbit/s	0.18 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %



04/04/2010 08:19:00 p.m. - 08:20:00 p.m.	25 %	165 MByte	1,342 MByte	< 0.01 mbit/s	0.14 mbit/s	8 kbit/s	40 kbit/s	0 %	100 %
04/04/2010 08:20:00 p.m. - 08:21:00 p.m.	24 %	169 MByte	1,330 MByte	0 mbit/s	0.15 mbit/s	8 kbit/s	48 kbit/s	0 %	100 %
04/04/2010 08:21:00 p.m. - 08:22:00 p.m.	23 %	193 MByte	1,320 MByte	0 mbit/s	0.08 mbit/s	8 kbit/s	24 kbit/s	0 %	100 %
04/04/2010 08:22:00 p.m. - 08:23:00 p.m.	23 %	166 MByte	1,313 MByte	< 0.01 mbit/s	0.09 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:23:00 p.m. - 08:24:00 p.m.	45 %	166 MByte	1,305 MByte	1 mbit/s	0.10 mbit/s	24 kbit/s	272 kbit/s	0 %	100 %
04/04/2010 08:24:00 p.m. - 08:25:00 p.m.	32 %	152 MByte	1,179 MByte	0.37 mbit/s	0.12 mbit/s	24 kbit/s	128 kbit/s	0 %	100 %
04/04/2010 08:25:00 p.m. - 08:26:00 p.m.	74 %	517 MByte	1,602 MByte	60 mbit/s	2 mbit/s	0 kbit/s	16 kbit/s	0 %	100 %
04/04/2010 08:26:00 p.m. - 08:27:00 p.m.	63 %	522 MByte	1,608 MByte	8 mbit/s	0.25 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 08:27:00 p.m. - 08:28:00 p.m.	39 %	445 MByte	1,604 MByte	0.04 mbit/s	0.13 mbit/s	8 kbit/s	40 kbit/s	0 %	100 %
04/04/2010 08:28:00 p.m. - 08:29:00 p.m.	54 %	516 MByte	1,620 MByte	2 mbit/s	1 mbit/s	64 kbit/s	1,160 kbit/s	0 %	100 %
04/04/2010 08:29:00 p.m. - 08:30:00 p.m.	41 %	512 MByte	1,462 MByte	0.07 mbit/s	0.14 mbit/s	24 kbit/s	176 kbit/s	0 %	100 %
04/04/2010 08:30:00 p.m. - 08:31:00 p.m.	39 %	507 MByte	1,457 MByte	0.09 mbit/s	0.22 mbit/s	16 kbit/s	64 kbit/s	0 %	100 %
04/04/2010 08:31:00 p.m. - 08:32:00 p.m.	46 %	414 MByte	1,456 MByte	1 mbit/s	2 mbit/s	16 kbit/s	88 kbit/s	0 %	100 %
04/04/2010 08:32:00 p.m. - 08:33:00 p.m.	32 %	376 MByte	1,453 MByte	< 0.01 mbit/s	0.22 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 08:33:00 p.m. - 08:34:00 p.m.	33 %	334 MByte	1,450 MByte	0 mbit/s	0.16 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 08:34:00 p.m. - 08:35:00 p.m.	34 %	322 MByte	1,448 MByte	0 mbit/s	0.15 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 08:35:00 p.m. - 08:36:00 p.m.	34 %	297 MByte	1,446 MByte	0.46 mbit/s	0.11 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 08:36:00 p.m. - 08:37:00 p.m.	32 %	271 MByte	1,443 MByte	0.07 mbit/s	0.12 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 08:37:00 p.m. - 08:38:00 p.m.	35 %	259 MByte	1,440 MByte	0 mbit/s	0.13 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 08:38:00 p.m. - 08:39:00 p.m.	34 %	243 MByte	1,436 MByte	0 mbit/s	0.16 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 08:39:00 p.m. - 08:40:00 p.m.	34 %	224 MByte	1,434 MByte	0 mbit/s	0.14 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 08:40:00 p.m. - 08:41:00 p.m.	35 %	214 MByte	1,431 MByte	0 mbit/s	0.16 mbit/s	0 kbit/s	24 kbit/s	0 %	100 %
04/04/2010 08:41:00 p.m. - 08:42:00 p.m.	52 %	444 MByte	1,069 MByte	0.19 mbit/s	0.26 mbit/s	16 kbit/s	96 kbit/s	0 %	100 %
04/04/2010 08:42:00 p.m. - 08:43:00 p.m.	94 %	869 MByte	1,706 MByte	12 mbit/s	22 mbit/s	8 kbit/s	80 kbit/s	0 %	100 %
04/04/2010 08:43:00 p.m. - 08:44:00 p.m.	43 %	860 MByte	1,708 MByte	12 mbit/s	1 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 08:44:00 p.m. - 08:45:00 p.m.	73 %	864 MByte	1,717 MByte	17 mbit/s	2 mbit/s	56 kbit/s	144 kbit/s	0 %	100 %
04/04/2010 08:45:00 p.m. - 08:46:00 p.m.	89 %	864 MByte	1,735 MByte	2 mbit/s	1 mbit/s	0 kbit/s	24 kbit/s	0 %	100 %
04/04/2010 08:46:00 p.m. - 08:47:00 p.m.	42 %	718 MByte	1,723 MByte	1 mbit/s	2 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:47:00 p.m. - 08:48:00 p.m.	32 %	736 MByte	1,709 MByte	0.23 mbit/s	0.42 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:48:00 p.m. - 08:49:00 p.m.	45 %	871 MByte	1,692 MByte	0.18 mbit/s	0.15 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:49:00 p.m. - 08:50:00 p.m.	35 %	687 MByte	1,678 MByte	1 mbit/s	1 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:50:00 p.m. - 08:51:00 p.m.	32 %	571 MByte	1,664 MByte	0.15 mbit/s	0.14 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:51:00 p.m. - 08:52:00 p.m.	32 %	473 MByte	1,650 MByte	0.12 mbit/s	0.18 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:52:00 p.m. - 08:53:00 p.m.	31 %	394 MByte	1,636 MByte	0.13 mbit/s	0.07 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:53:00 p.m. - 08:54:00 p.m.	30 %	345 MByte	1,622 MByte	0.12 mbit/s	0.06 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:54:00 p.m. - 08:55:00 p.m.	31 %	306 MByte	1,608 MByte	0.08 mbit/s	0.10 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:55:00 p.m. - 08:56:00 p.m.	33 %	272 MByte	1,592 MByte	0.05 mbit/s	0.11 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:56:00 p.m. - 08:57:00 p.m.	33 %	257 MByte	1,578 MByte	0.06 mbit/s	0.10 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:57:00 p.m. - 08:58:00 p.m.	35 %	229 MByte	1,564 MByte	0.06 mbit/s	0.11 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:58:00 p.m. - 08:59:00 p.m.	23 %	227 MByte	1,553 MByte	0.09 mbit/s	0.15 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 08:59:00 p.m. - 09:00:00 p.m.	34 %	235 MByte	1,551 MByte	0.02 mbit/s	0.15 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:00:00 p.m. - 09:01:00 p.m.	34 %	210 MByte	1,524 MByte	0.07 mbit/s	0.21 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:01:00 p.m. - 09:02:00 p.m.	35 %	191 MByte	1,510 MByte	0.07 mbit/s	0.19 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:02:00 p.m. - 09:03:00 p.m.	33 %	177 MByte	1,496 MByte	0.09 mbit/s	0.20 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:03:00 p.m. - 09:04:00 p.m.	33 %	191 MByte	1,482 MByte	0.11 mbit/s	0.18 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:04:00 p.m. - 09:05:00 p.m.	34 %	180 MByte	1,467 MByte	0.10 mbit/s	0.17 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:05:00 p.m. - 09:06:00 p.m.	32 %	191 MByte	1,453 MByte	0.08 mbit/s	0.08 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:06:00 p.m. - 09:07:00 p.m.	33 %	199 MByte	1,438 MByte	0.06 mbit/s	0.10 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:07:00 p.m. - 09:08:00 p.m.	33 %	185 MByte	1,424 MByte	0.06 mbit/s	0.09 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:08:00 p.m. - 09:09:00 p.m.	33 %	172 MByte	1,409 MByte	0.06 mbit/s	0.10 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:09:00 p.m. - 09:10:00 p.m.	33 %	172 MByte	1,395 MByte	0.13 mbit/s	0.09 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:10:00 p.m. - 09:11:00 p.m.	34 %	183 MByte	1,382 MByte	0.10 mbit/s	0.10 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:11:00 p.m. - 09:12:00 p.m.	32 %	165 MByte	1,369 MByte	0.09 mbit/s	0.10 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:12:00 p.m. - 09:13:00 p.m.	31 %	185 MByte	1,357 MByte	0.12 mbit/s	0.10 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:13:00 p.m. - 09:14:00 p.m.	33 %	173 MByte	1,345 MByte	0.03 mbit/s	0.14 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:14:00 p.m. - 09:15:00 p.m.	32 %	148 MByte	1,334 MByte	0.08 mbit/s	0.15 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:15:00 p.m. - 09:16:00 p.m.	31 %	177 MByte	1,325 MByte	0.05 mbit/s	0.12 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:16:00 p.m. - 09:17:00 p.m.	31 %	173 MByte	1,317 MByte	0.04 mbit/s	0.15 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:17:00 p.m. - 09:18:00 p.m.	18 %	177 MByte	1,316 MByte	0.06 mbit/s	0.11 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:18:00 p.m. - 09:19:00 p.m.	19 %	177 MByte	1,308 MByte	0 mbit/s	0.11 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:19:00 p.m. - 09:20:00 p.m.	21 %	177 MByte	1,300 MByte	< 0.01 mbit/s	0.08 mbit/s	8 kbit/s	48 kbit/s	0 %	100 %
04/04/2010 09:20:00 p.m. - 09:21:00 p.m.	19 %	197 MByte	1,293 MByte	0.07 mbit/s	0.16 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:21:00 p.m. - 09:22:00 p.m.	19 %	187 MByte	1,288 MByte	0.02 mbit/s	0.14 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:22:00 p.m. - 09:23:00 p.m.	23 %	183 MByte	1,283 MByte	0 mbit/s	0.14 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:23:00 p.m. - 09:24:00 p.m.	25 %	182 MByte	1,281 MByte	2 mbit/s	0.19 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:24:00 p.m. - 09:25:00 p.m.	23 %	189 MByte	1,277 MByte	0.03 mbit/s	0.16 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:25:00 p.m. - 09:26:00 p.m.	28 %	180 MByte	1,274 MByte	0.09 mbit/s	0.12 mbit/s	16 kbit/s	80 kbit/s	0 %	100 %
04/04/2010 09:26:00 p.m. - 09:27:00 p.m.	19 %	178 MByte	1,273 MByte	0.04 mbit/s	0.14 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 09:27:00 p.m. - 09:28:00 p.m.	19 %	170 MByte	1,270 MByte	0 mbit/s	0.14 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:28:00 p.m. - 09:29:00 p.m.	25 %	165 MByte	1,268 MByte	0.06 mbit/s	0.22 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 09:29:00 p.m. - 09:30:00 p.m.	19 %	172 MByte	1,267 MByte	0.03 mbit/s	0.14 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:30:00 p.m. - 09:31:00 p.m.	20 %	164 MByte	1,266 MByte	0.12 mbit/s	0.11 mbit/s	8 kbit/s	32 kbit/s	0 %	100 %
04/04/2010 09:31:00 p.m. - 09:32:00 p.m.	21 %	163 MByte	1,265 MByte	0 mbit/s	0.08 mbit/s	0 kbit/s	16 kbit/s	0 %	100 %
04/04/2010 09:32:00 p.m. - 09:33:00 p.m.	19 %	164 MByte	1,264 MByte	0 mbit/s	0.11 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:33:00 p.m. - 09:34:00 p.m.	22 %	173 MByte	1,263 MByte	0.10 mbit/s	0.10 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:34:00 p.m. - 09:35:00 p.m.	23 %	160 MByte	1,263 MByte	0 mbit/s	0.09 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:35:00 p.m. - 09:36:00 p.m.	24 %	177 MByte	1,263 MByte	0.09 mbit/s	0.13 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:36:00 p.m. - 09:37:00 p.m.	21 %	157 MByte	1,263 MByte	0 mbit/s	0.13 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:37:00 p.m. - 09:38:00 p.m.	20 %	173 MByte	1,262 MByte	0.02 mbit/s	0.15 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:38:00 p.m. - 09:39:00 p.m.	18 %	161 MByte	1,262 MByte	0 mbit/s	0.10 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:39:00 p.m. - 09:40:00 p.m.	18 %	173 MByte	1,261 MByte	0 mbit/s	0.14 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %

04/04/2010 09:40:00 p.m. - 09:41:00 p.m.	19 %	175 MByte	1,261 MByte	0 mbit/s	0.14 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:41:00 p.m. - 09:42:00 p.m.	18 %	170 MByte	1,260 MByte	< 0.01 mbit/s	0.14 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:42:00 p.m. - 09:43:00 p.m.	19 %	174 MByte	1,261 MByte	0 mbit/s	0.18 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:43:00 p.m. - 09:44:00 p.m.	19 %	184 MByte	1,260 MByte	0.14 mbit/s	0.22 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:44:00 p.m. - 09:45:00 p.m.	23 %	172 MByte	1,260 MByte	0.02 mbit/s	0.15 mbit/s	0 kbit/s	16 kbit/s	0 %	100 %
04/04/2010 09:45:00 p.m. - 09:46:00 p.m.	26 %	177 MByte	1,260 MByte	< 0.01 mbit/s	0.14 mbit/s	8 kbit/s	32 kbit/s	0 %	100 %
04/04/2010 09:46:00 p.m. - 09:47:00 p.m.	25 %	167 MByte	1,260 MByte	0 mbit/s	0.10 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:47:00 p.m. - 09:48:00 p.m.	24 %	164 MByte	1,260 MByte	0 mbit/s	0.08 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:48:00 p.m. - 09:49:00 p.m.	21 %	182 MByte	1,260 MByte	0 mbit/s	0.08 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:49:00 p.m. - 09:50:00 p.m.	21 %	191 MByte	1,260 MByte	< 0.01 mbit/s	0.10 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:50:00 p.m. - 09:51:00 p.m.	20 %	174 MByte	1,260 MByte	0 mbit/s	0.10 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:51:00 p.m. - 09:52:00 p.m.	21 %	176 MByte	1,259 MByte	< 0.01 mbit/s	0.10 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:52:00 p.m. - 09:53:00 p.m.	22 %	170 MByte	1,260 MByte	0 mbit/s	0.14 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:53:00 p.m. - 09:54:00 p.m.	22 %	161 MByte	1,260 MByte	0 mbit/s	0.14 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:54:00 p.m. - 09:55:00 p.m.	22 %	149 MByte	1,260 MByte	< 0.01 mbit/s	0.14 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:55:00 p.m. - 09:56:00 p.m.	24 %	164 MByte	1,260 MByte	< 0.01 mbit/s	0.18 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:56:00 p.m. - 09:57:00 p.m.	25 %	151 MByte	1,260 MByte	0 mbit/s	0.14 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 09:57:00 p.m. - 09:58:00 p.m.	27 %	148 MByte	1,261 MByte	0 mbit/s	0.14 mbit/s	0 kbit/s	24 kbit/s	0 %	100 %
04/04/2010 09:58:00 p.m. - 09:59:00 p.m.	26 %	152 MByte	1,262 MByte	0 mbit/s	0.15 mbit/s	8 kbit/s	32 kbit/s	0 %	100 %
04/04/2010 09:59:00 p.m. - 10:00:00 p.m.	20 %	165 MByte	1,261 MByte	0 mbit/s	0.14 mbit/s	0 kbit/s	16 kbit/s	0 %	100 %
04/04/2010 10:00:00 p.m. - 10:01:00 p.m.	20 %	164 MByte	1,262 MByte	0 mbit/s	0.15 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 10:01:00 p.m. - 10:02:00 p.m.	33 %	162 MByte	1,267 MByte	0.07 mbit/s	0.13 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 10:02:00 p.m. - 10:03:00 p.m.	32 %	188 MByte	1,267 MByte	0 mbit/s	0.14 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 10:03:00 p.m. - 10:04:00 p.m.	31 %	188 MByte	1,267 MByte	< 0.01 mbit/s	0.10 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 10:04:00 p.m. - 10:05:00 p.m.	33 %	216 MByte	1,267 MByte	0 mbit/s	0.10 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 10:05:00 p.m. - 10:06:00 p.m.	32 %	195 MByte	1,268 MByte	0.02 mbit/s	0.10 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 10:06:00 p.m. - 10:07:00 p.m.	31 %	185 MByte	1,268 MByte	0 mbit/s	0.15 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 10:07:00 p.m. - 10:08:00 p.m.	33 %	186 MByte	1,268 MByte	< 0.01 mbit/s	0.14 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 10:08:00 p.m. - 10:09:00 p.m.	32 %	180 MByte	1,268 MByte	0 mbit/s	0.15 mbit/s	0 kbit/s	16 kbit/s	0 %	100 %
04/04/2010 10:09:00 p.m. - 10:10:00 p.m.	31 %	181 MByte	1,268 MByte	< 0.01 mbit/s	0.13 mbit/s	8 kbit/s	24 kbit/s	0 %	100 %
04/04/2010 10:10:00 p.m. - 10:11:00 p.m.	33 %	173 MByte	1,268 MByte	0 mbit/s	0.10 mbit/s	16 kbit/s	56 kbit/s	0 %	100 %
04/04/2010 10:11:00 p.m. - 10:12:00 p.m.	33 %	176 MByte	1,268 MByte	0 mbit/s	0.08 mbit/s	16 kbit/s	56 kbit/s	0 %	100 %
04/04/2010 10:12:00 p.m. - 10:13:00 p.m.	32 %	161 MByte	1,268 MByte	0 mbit/s	0.09 mbit/s	8 kbit/s	40 kbit/s	0 %	100 %
04/04/2010 10:13:00 p.m. - 10:14:00 p.m.	33 %	174 MByte	1,268 MByte	0 mbit/s	0.08 mbit/s	16 kbit/s	56 kbit/s	0 %	100 %
04/04/2010 10:14:00 p.m. - 10:15:00 p.m.	31 %	162 MByte	1,268 MByte	< 0.01 mbit/s	0.10 mbit/s	8 kbit/s	32 kbit/s	0 %	100 %
04/04/2010 10:15:00 p.m. - 10:16:00 p.m.	31 %	153 MByte	1,268 MByte	< 0.01 mbit/s	0.08 mbit/s	0 kbit/s	16 kbit/s	0 %	100 %
04/04/2010 10:16:00 p.m. - 10:17:00 p.m.	31 %	168 MByte	1,268 MByte	< 0.01 mbit/s	0.14 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 10:17:00 p.m. - 10:18:00 p.m.	32 %	170 MByte	1,268 MByte	0.02 mbit/s	0.14 mbit/s	0 kbit/s	16 kbit/s	0 %	100 %
04/04/2010 10:18:00 p.m. - 10:19:00 p.m.	30 %	173 MByte	1,269 MByte	0 mbit/s	0.17 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 10:19:00 p.m. - 10:20:00 p.m.	32 %	160 MByte	1,269 MByte	0 mbit/s	0.19 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 10:20:00 p.m. - 10:21:00 p.m.	32 %	160 MByte	1,269 MByte	0.05 mbit/s	0.22 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 10:21:00 p.m. - 10:22:00 p.m.	31 %	160 MByte	1,269 MByte	0 mbit/s	0.13 mbit/s	0 kbit/s	64 kbit/s	0 %	100 %
04/04/2010 10:22:00 p.m. - 10:23:00 p.m.	20 %	168 MByte	1,270 MByte	0 mbit/s	0.14 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 10:23:00 p.m. - 10:24:00 p.m.	19 %	174 MByte	1,269 MByte	0.02 mbit/s	0.08 mbit/s	0 kbit/s	16 kbit/s	0 %	100 %
04/04/2010 10:24:00 p.m. - 10:25:00 p.m.	20 %	182 MByte	1,269 MByte	< 0.01 mbit/s	0.10 mbit/s	8 kbit/s	32 kbit/s	0 %	100 %
04/04/2010 10:25:00 p.m. - 10:26:00 p.m.	20 %	159 MByte	1,269 MByte	0.05 mbit/s	0.17 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 10:26:00 p.m. - 10:27:00 p.m.	21 %	159 MByte	1,269 MByte	0 mbit/s	0.09 mbit/s	8 kbit/s	40 kbit/s	0 %	100 %
04/04/2010 10:27:00 p.m. - 10:28:00 p.m.	21 %	162 MByte	1,269 MByte	0 mbit/s	0.08 mbit/s	16 kbit/s	56 kbit/s	0 %	100 %
04/04/2010 10:28:00 p.m. - 10:29:00 p.m.	26 %	174 MByte	1,270 MByte	0 mbit/s	0.18 mbit/s	16 kbit/s	56 kbit/s	0 %	100 %
04/04/2010 10:29:00 p.m. - 10:30:00 p.m.	19 %	179 MByte	1,269 MByte	0.06 mbit/s	0.14 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 10:30:00 p.m. - 10:31:00 p.m.	27 %	178 MByte	1,270 MByte	0 mbit/s	0.14 mbit/s	8 kbit/s	80 kbit/s	0 %	100 %
04/04/2010 10:31:00 p.m. - 10:32:00 p.m.	24 %	179 MByte	1,272 MByte	0.37 mbit/s	0.16 mbit/s	0 kbit/s	16 kbit/s	0 %	100 %
04/04/2010 10:32:00 p.m. - 10:33:00 p.m.	23 %	186 MByte	1,271 MByte	0 mbit/s	0.15 mbit/s	0 kbit/s	16 kbit/s	0 %	100 %
04/04/2010 10:33:00 p.m. - 10:34:00 p.m.	23 %	186 MByte	1,272 MByte	< 0.01 mbit/s	0.16 mbit/s	8 kbit/s	24 kbit/s	0 %	100 %
04/04/2010 10:34:00 p.m. - 10:35:00 p.m.	23 %	179 MByte	1,272 MByte	0 mbit/s	0.15 mbit/s	8 kbit/s	24 kbit/s	0 %	100 %
04/04/2010 10:35:00 p.m. - 10:36:00 p.m.	23 %	173 MByte	1,272 MByte	0 mbit/s	0.14 mbit/s	8 kbit/s	24 kbit/s	0 %	100 %
04/04/2010 10:36:00 p.m. - 10:37:00 p.m.	20 %	177 MByte	1,273 MByte	0.06 mbit/s	0.21 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 10:37:00 p.m. - 10:38:00 p.m.	26 %	178 MByte	1,273 MByte	0.07 mbit/s	0.09 mbit/s	8 kbit/s	80 kbit/s	0 %	100 %
04/04/2010 10:38:00 p.m. - 10:39:00 p.m.	24 %	184 MByte	1,273 MByte	< 0.01 mbit/s	0.10 mbit/s	8 kbit/s	32 kbit/s	0 %	100 %
04/04/2010 10:39:00 p.m. - 10:40:00 p.m.	26 %	174 MByte	1,272 MByte	0 mbit/s	0.09 mbit/s	8 kbit/s	48 kbit/s	0 %	100 %
04/04/2010 10:40:00 p.m. - 10:41:00 p.m.	27 %	165 MByte	1,272 MByte	0 mbit/s	0.11 mbit/s	8 kbit/s	48 kbit/s	0 %	100 %
04/04/2010 10:41:00 p.m. - 10:42:00 p.m.	29 %	165 MByte	1,272 MByte	< 0.01 mbit/s	0.09 mbit/s	16 kbit/s	56 kbit/s	0 %	100 %
04/04/2010 10:42:00 p.m. - 10:43:00 p.m.	31 %	189 MByte	1,277 MByte	4 mbit/s	1 mbit/s	16 kbit/s	56 kbit/s	0 %	100 %
04/04/2010 10:43:00 p.m. - 10:44:00 p.m.	25 %	262 MByte	1,350 MByte	0.17 mbit/s	0.14 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 10:44:00 p.m. - 10:45:00 p.m.	29 %	380 MByte	1,517 MByte	0.13 mbit/s	0.14 mbit/s	16 kbit/s	112 kbit/s	0 %	100 %
04/04/2010 10:45:00 p.m. - 10:46:00 p.m.	25 %	375 MByte	1,505 MByte	0.18 mbit/s	0.17 mbit/s	8 kbit/s	48 kbit/s	0 %	100 %
04/04/2010 10:46:00 p.m. - 10:47:00 p.m.	23 %	374 MByte	1,488 MByte	0.06 mbit/s	0.15 mbit/s	8 kbit/s	32 kbit/s	0 %	100 %
04/04/2010 10:47:00 p.m. - 10:48:00 p.m.	26 %	300 MByte	1,462 MByte	2 mbit/s	0.17 mbit/s	8 kbit/s	40 kbit/s	0 %	100 %
04/04/2010 10:48:00 p.m. - 10:49:00 p.m.	21 %	270 MByte	1,453 MByte	0.02 mbit/s	0.16 mbit/s	8 kbit/s	40 kbit/s	0 %	100 %
04/04/2010 10:49:00 p.m. - 10:50:00 p.m.	24 %	238 MByte	1,434 MByte	0.06 mbit/s	0.14 mbit/s	8 kbit/s	32 kbit/s	0 %	100 %
04/04/2010 10:50:00 p.m. - 10:51:00 p.m.	22 %	231 MByte	1,402 MByte	0.06 mbit/s	0.22 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 10:51:00 p.m. - 10:52:00 p.m.	30 %	235 MByte	1,387 MByte	0 mbit/s	0.14 mbit/s	8 kbit/s	80 kbit/s	0 %	100 %
04/04/2010 10:52:00 p.m. - 10:53:00 p.m.	22 %	209 MByte	1,370 MByte	0.08 mbit/s	0.10 mbit/s	8 kbit/s	48 kbit/s	0 %	100 %
04/04/2010 10:53:00 p.m. - 10:54:00 p.m.	23 %	204 MByte	1,353 MByte	0.02 mbit/s	0.09 mbit/s	16 kbit/s	56 kbit/s	0 %	100 %
04/04/2010 10:54:00 p.m. - 10:55:00 p.m.	23 %	195 MByte	1,340 MByte	0 mbit/s	0.10 mbit/s	16 kbit/s	56 kbit/s	0 %	100 %
04/04/2010 10:55:00 p.m. - 10:56:00 p.m.	24 %	206 MByte	1,331 MByte	0 mbit/s	0.12 mbit/s	16 kbit/s	72 kbit/s	0 %	100 %
04/04/2010 10:56:00 p.m. - 10:57:00 p.m.	22 %	210 MByte	1,326 MByte	0 mbit/s	0.10 mbit/s	16 kbit/s	64 kbit/s	0 %	100 %
04/04/2010 10:57:00 p.m. - 10:58:00 p.m.	23 %	195 MByte	1,321 MByte	0.26 mbit/s	0.19 mbit/s	16 kbit/s	56 kbit/s	0 %	100 %
04/04/2010 10:58:00 p.m. - 10:59:00 p.m.	22 %	192 MByte	1,316 MByte	0.02 mbit/s	0.14 mbit/s	16 kbit/s	56 kbit/s	0 %	100 %
04/04/2010 10:59:00 p.m. - 11:00:00 p.m.	25 %	191 MByte	1,313 MByte	0.02 mbit/s	0.18 mbit/s	16 kbit/s	48 kbit/s	0 %	100 %
04/04/2010 11:00:00 p.m. - 11:01:00 p.m.	26 %	194 MByte	1,309 MByte	0.05 mbit/s	0.16 mbit/s	16 kbit/s	56 kbit/s	0 %	100 %



04/04/2010 11:01:00 p.m. - 11:02:00 p.m.	22 %	189 MByte	1,307 MByte	0.05 mbit/s	0.21 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 11:02:00 p.m. - 11:03:00 p.m.	21 %	190 MByte	1,305 MByte	0 mbit/s	0.14 mbit/s	8 kbit/s	96 kbit/s	0 %	100 %
04/04/2010 11:03:00 p.m. - 11:04:00 p.m.	23 %	171 MByte	1,303 MByte	0 mbit/s	0.13 mbit/s	16 kbit/s	56 kbit/s	0 %	100 %
04/04/2010 11:04:00 p.m. - 11:05:00 p.m.	22 %	160 MByte	1,301 MByte	0 mbit/s	0.14 mbit/s	16 kbit/s	56 kbit/s	0 %	100 %
04/04/2010 11:05:00 p.m. - 11:06:00 p.m.	23 %	192 MByte	1,299 MByte	< 0.01 mbit/s	0.07 mbit/s	16 kbit/s	72 kbit/s	0 %	100 %
04/04/2010 11:06:00 p.m. - 11:07:00 p.m.	23 %	168 MByte	1,298 MByte	0 mbit/s	0.10 mbit/s	24 kbit/s	72 kbit/s	0 %	100 %
04/04/2010 11:07:00 p.m. - 11:08:00 p.m.	24 %	167 MByte	1,297 MByte	0 mbit/s	0.06 mbit/s	24 kbit/s	88 kbit/s	0 %	100 %
04/04/2010 11:08:00 p.m. - 11:09:00 p.m.	23 %	175 MByte	1,295 MByte	0 mbit/s	0.11 mbit/s	24 kbit/s	80 kbit/s	0 %	100 %
04/04/2010 11:09:00 p.m. - 11:10:00 p.m.	27 %	166 MByte	1,294 MByte	0 mbit/s	0.10 mbit/s	24 kbit/s	72 kbit/s	0 %	100 %
04/04/2010 11:10:00 p.m. - 11:11:00 p.m.	26 %	164 MByte	1,294 MByte	0.02 mbit/s	0.13 mbit/s	16 kbit/s	72 kbit/s	0 %	100 %
04/04/2010 11:11:00 p.m. - 11:12:00 p.m.	18 %	188 MByte	1,294 MByte	0.06 mbit/s	0.16 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 11:12:00 p.m. - 11:13:00 p.m.	27 %	161 MByte	1,293 MByte	0.08 mbit/s	0.15 mbit/s	16 kbit/s	96 kbit/s	0 %	100 %
04/04/2010 11:13:00 p.m. - 11:14:00 p.m.	23 %	165 MByte	1,293 MByte	0.03 mbit/s	0.17 mbit/s	16 kbit/s	64 kbit/s	0 %	100 %
04/04/2010 11:14:00 p.m. - 11:15:00 p.m.	23 %	156 MByte	1,293 MByte	0.06 mbit/s	0.21 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 11:15:00 p.m. - 11:16:00 p.m.	19 %	167 MByte	1,293 MByte	0.02 mbit/s	0.22 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 11:16:00 p.m. - 11:17:00 p.m.	24 %	154 MByte	1,293 MByte	0.04 mbit/s	0.15 mbit/s	16 kbit/s	120 kbit/s	0 %	100 %
04/04/2010 11:17:00 p.m. - 11:18:00 p.m.	19 %	166 MByte	1,293 MByte	0.09 mbit/s	0.21 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 11:18:00 p.m. - 11:19:00 p.m.	28 %	163 MByte	1,293 MByte	< 0.01 mbit/s	0.11 mbit/s	24 kbit/s	120 kbit/s	0 %	100 %
04/04/2010 11:19:00 p.m. - 11:20:00 p.m.	27 %	168 MByte	1,293 MByte	0 mbit/s	0.09 mbit/s	24 kbit/s	88 kbit/s	0 %	100 %
04/04/2010 11:20:00 p.m. - 11:21:00 p.m.	19 %	153 MByte	1,293 MByte	0.05 mbit/s	0.16 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 11:21:00 p.m. - 11:22:00 p.m.	19 %	164 MByte	1,293 MByte	0.05 mbit/s	0.25 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 11:22:00 p.m. - 11:23:00 p.m.	28 %	168 MByte	1,293 MByte	0 mbit/s	0.10 mbit/s	24 kbit/s	136 kbit/s	0 %	100 %
04/04/2010 11:23:00 p.m. - 11:24:00 p.m.	23 %	179 MByte	1,293 MByte	0.05 mbit/s	0.15 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 11:24:00 p.m. - 11:25:00 p.m.	23 %	162 MByte	1,293 MByte	0 mbit/s	0.14 mbit/s	24 kbit/s	152 kbit/s	0 %	100 %
04/04/2010 11:25:00 p.m. - 11:26:00 p.m.	26 %	168 MByte	1,293 MByte	0 mbit/s	0.15 mbit/s	16 kbit/s	72 kbit/s	0 %	100 %
04/04/2010 11:26:00 p.m. - 11:27:00 p.m.	24 %	164 MByte	1,293 MByte	0 mbit/s	0.14 mbit/s	16 kbit/s	72 kbit/s	0 %	100 %
04/04/2010 11:27:00 p.m. - 11:28:00 p.m.	20 %	155 MByte	1,293 MByte	0.05 mbit/s	0.17 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 11:28:00 p.m. - 11:29:00 p.m.	28 %	164 MByte	1,293 MByte	0 mbit/s	0.14 mbit/s	16 kbit/s	120 kbit/s	0 %	100 %
04/04/2010 11:29:00 p.m. - 11:30:00 p.m.	19 %	167 MByte	1,294 MByte	0.05 mbit/s	0.22 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 11:30:00 p.m. - 11:31:00 p.m.	20 %	171 MByte	1,294 MByte	0.05 mbit/s	0.21 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 11:31:00 p.m. - 11:32:00 p.m.	35 %	167 MByte	1,294 MByte	0 mbit/s	0.08 mbit/s	24 kbit/s	136 kbit/s	0 %	100 %
04/04/2010 11:32:00 p.m. - 11:33:00 p.m.	26 %	179 MByte	1,294 MByte	0 mbit/s	0.10 mbit/s	24 kbit/s	88 kbit/s	0 %	100 %
04/04/2010 11:33:00 p.m. - 11:34:00 p.m.	23 %	171 MByte	1,294 MByte	0.05 mbit/s	0.16 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 11:34:00 p.m. - 11:35:00 p.m.	29 %	159 MByte	1,294 MByte	0 mbit/s	0.09 mbit/s	24 kbit/s	136 kbit/s	0 %	100 %
04/04/2010 11:35:00 p.m. - 11:36:00 p.m.								0 %	
04/04/2010 11:36:00 p.m. - 11:37:00 p.m.	19 %	173 MByte	1,294 MByte	0.08 mbit/s	0.15 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 11:37:00 p.m. - 11:38:00 p.m.	25 %	161 MByte	1,294 MByte	0.02 mbit/s	0.14 mbit/s	12 kbit/s	72 kbit/s	0 %	100 %
04/04/2010 11:38:00 p.m. - 11:39:00 p.m.	24 %	169 MByte	1,296 MByte	0 mbit/s	0.15 mbit/s	24 kbit/s	88 kbit/s	0 %	100 %
04/04/2010 11:39:00 p.m. - 11:40:00 p.m.	22 %	151 MByte	1,295 MByte	0.22 mbit/s	0.18 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 11:40:00 p.m. - 11:41:00 p.m.	23 %	177 MByte	1,295 MByte	0.06 mbit/s	0.17 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 11:41:00 p.m. - 11:42:00 p.m.	33 %	155 MByte	1,295 MByte	< 0.01 mbit/s	0.15 mbit/s	24 kbit/s	136 kbit/s	0 %	100 %
04/04/2010 11:42:00 p.m. - 11:43:00 p.m.	25 %	172 MByte	1,295 MByte	0 mbit/s	0.15 mbit/s	24 kbit/s	96 kbit/s	0 %	100 %
04/04/2010 11:43:00 p.m. - 11:44:00 p.m.	25 %	155 MByte	1,296 MByte	0 mbit/s	0.15 mbit/s	24 kbit/s	96 kbit/s	0 %	100 %
04/04/2010 11:44:00 p.m. - 11:45:00 p.m.								0 %	
04/04/2010 11:45:00 p.m. - 11:46:00 p.m.	24 %	155 MByte	1,296 MByte	0.05 mbit/s	0.22 mbit/s	0 kbit/s	4 kbit/s	0 %	100 %
04/04/2010 11:46:00 p.m. - 11:47:00 p.m.								0 %	
04/04/2010 11:47:00 p.m. - 11:48:00 p.m.	22 %	162 MByte	1,297 MByte	0.05 mbit/s	0.18 mbit/s	0 kbit/s	4 kbit/s	0 %	100 %
04/04/2010 11:48:00 p.m. - 11:49:00 p.m.	23 %	169 MByte	1,297 MByte	0.05 mbit/s	0.15 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 11:49:00 p.m. - 11:50:00 p.m.	23 %	150 MByte	1,297 MByte	0.05 mbit/s	0.15 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 11:50:00 p.m. - 11:51:00 p.m.	29 %	164 MByte	1,297 MByte	0 mbit/s	0.14 mbit/s	32 kbit/s	176 kbit/s	0 %	100 %
04/04/2010 11:51:00 p.m. - 11:52:00 p.m.	29 %	166 MByte	1,297 MByte	< 0.01 mbit/s	0.14 mbit/s	24 kbit/s	104 kbit/s	0 %	100 %
04/04/2010 11:52:00 p.m. - 11:53:00 p.m.	25 %	146 MByte	1,297 MByte	0.02 mbit/s	0.15 mbit/s	24 kbit/s	96 kbit/s	0 %	100 %
04/04/2010 11:53:00 p.m. - 11:54:00 p.m.	27 %	173 MByte	1,301 MByte	1 mbit/s	0.29 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %
04/04/2010 11:54:00 p.m. - 11:55:00 p.m.	25 %	195 MByte	1,301 MByte	0.09 mbit/s	0.22 mbit/s	0 kbit/s	8 kbit/s	0 %	100 %
04/04/2010 11:55:00 p.m. - 11:56:00 p.m.	24 %	204 MByte	1,301 MByte	0 mbit/s	0.15 mbit/s	24 kbit/s	96 kbit/s	0 %	100 %
04/04/2010 11:56:00 p.m. - 11:57:00 p.m.	24 %	189 MByte	1,301 MByte	0 mbit/s	0.14 mbit/s	24 kbit/s	96 kbit/s	0 %	100 %
04/04/2010 11:57:00 p.m. - 11:58:00 p.m.								0 %	
04/04/2010 11:58:00 p.m. - 11:59:00 p.m.	32 %	202 MByte	1,308 MByte	0.05 mbit/s	0.23 mbit/s	0 kbit/s	4 kbit/s	0 %	100 %
04/04/2010 11:59:00 p.m. - 12:00:00 a.m.	19 %	210 MByte	1,315 MByte	0.05 mbit/s	0.17 mbit/s	0 kbit/s	0 kbit/s	0 %	100 %