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Configuring ESX/ESXi

Module 3

You Are Here

vSphere Environment

Introduction to VMware Virtualization

Configuring VMware ESX and ESXi

Installing and Using VMware vCenter Server

Networking

Storage

Virtual Machines

Operations

Access Control

Resource Monitoring

Scalability

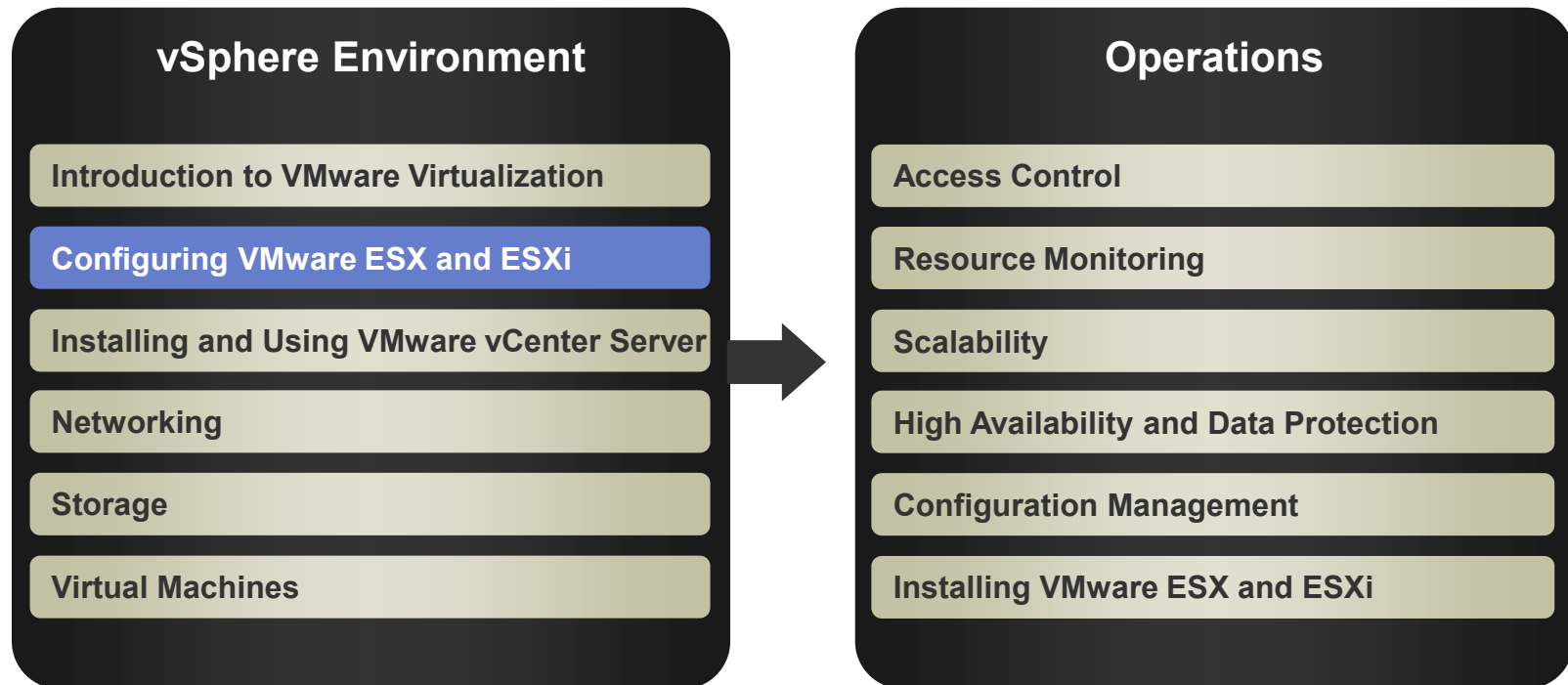High Availability and Data Protection

Configuration Management

Installing VMware ESX and ESXi

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Importance

> VMware® ESX™/ESXi hosts provide the physical resources used to run virtual machines. Failure to properly install and configure ESX/ESXi hosts can negatively affect the performance, operation, and administration of all virtual machines located on these hosts.

Module Lessons

Lesson 1:   **Overview of ESX/ESXi**
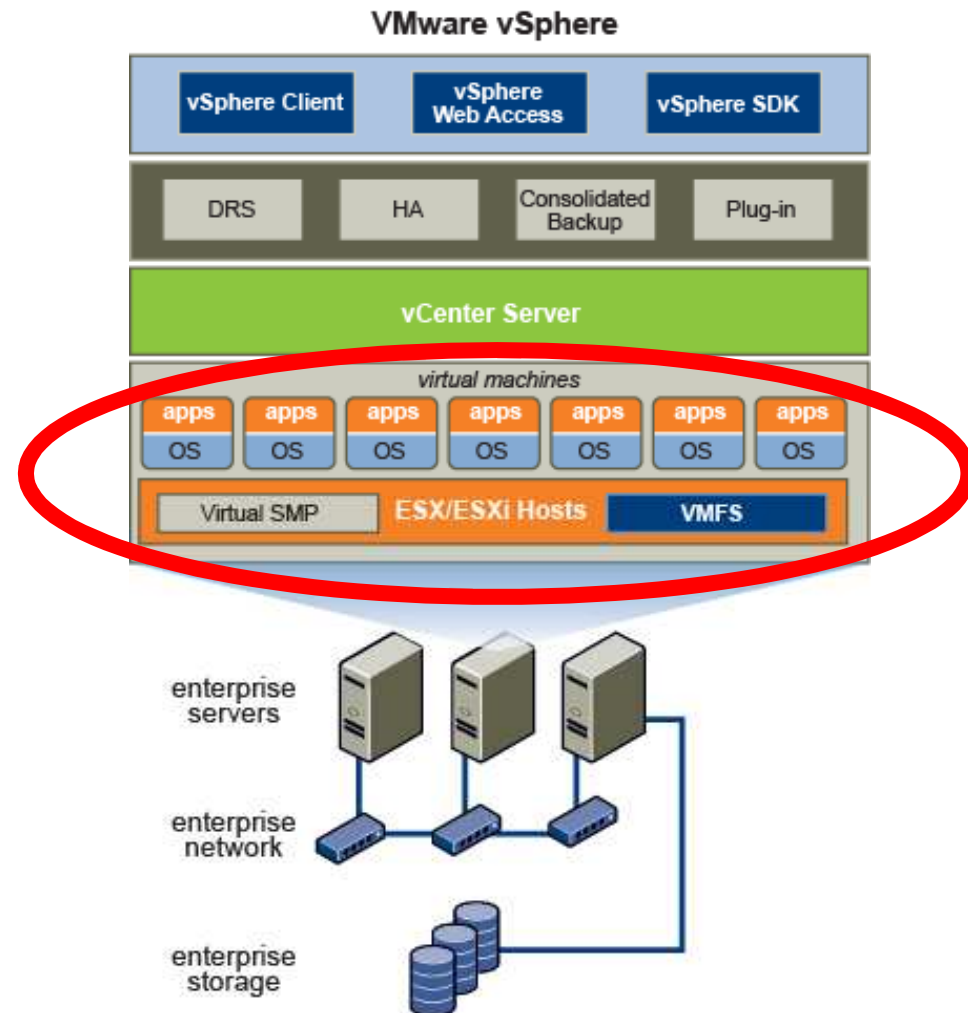
Lesson 2:   **Configuring ESX/ESXi**

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Lesson 1:
Overview of ESX/ESXi

Module Number 3-5

Lesson Objectives

> Describe the features of ESX/ESXi

> Identify the different versions of ESX

> Describe the architecture of ESX/ESXi

ESX/ESXi: Virtualization Platform

> ESX and ESXi are bare-metal, efficient, and reliable hypervisors running directly on server.

> ESX and ESXi abstract CPU, memory, storage, and networking into multiple virtual machines.

VMware vSphere

| vSphere Client | vSphere Web Access | vSphere SDK |

| DRS | HA | Consolidated Backup | Plug-in |

vCenter Server

virtual machines

| apps | apps | apps | apps | apps | apps | apps |
| OS | OS | OS | OS | OS | OS | OS |

| Virtual SMP | ESX/ESXi Hosts | VMFS |

enterprise servers

enterprise network

enterprise storage

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ESX/ESXi Features

> Can use standard and distributed virtual switches, NIC teaming, and VLANs

> Can use the VMware vStorage VMFS for storing virtual machines

> Can be managed by VMware vCenter™ Server

> Can take advantage of various VMware vSphere™ features, such as VMware VMotion™

> Can be accessed using the VMware vSphere Client
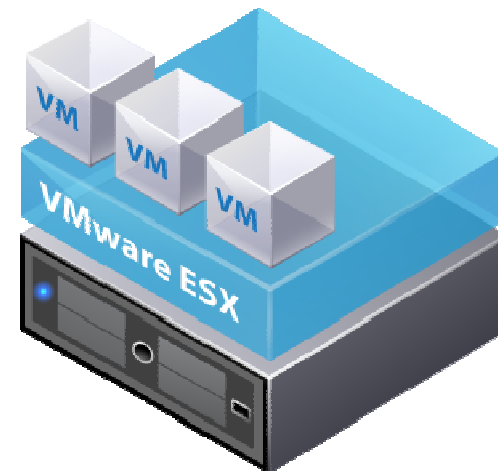
# ESX, ESXi Installable, and ESXi Embedded

ESX comes in two main versions:

> ESX

- Managed with a built-in service console or the vSphere Command-Line Interface (vCLI)

- Available as an installable DVD boot image

> ESXi

- Managed with a BIOS-like direct console or vCLI

- A high-security, 32MB footprint

- ESXi Installable – Available as an installable CD-ROM boot image

- ESXi Embedded – ESX image preinstalled as firmware or burned onto an external USB key by the hardware vendor

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ESXi Architecture

VMkernel
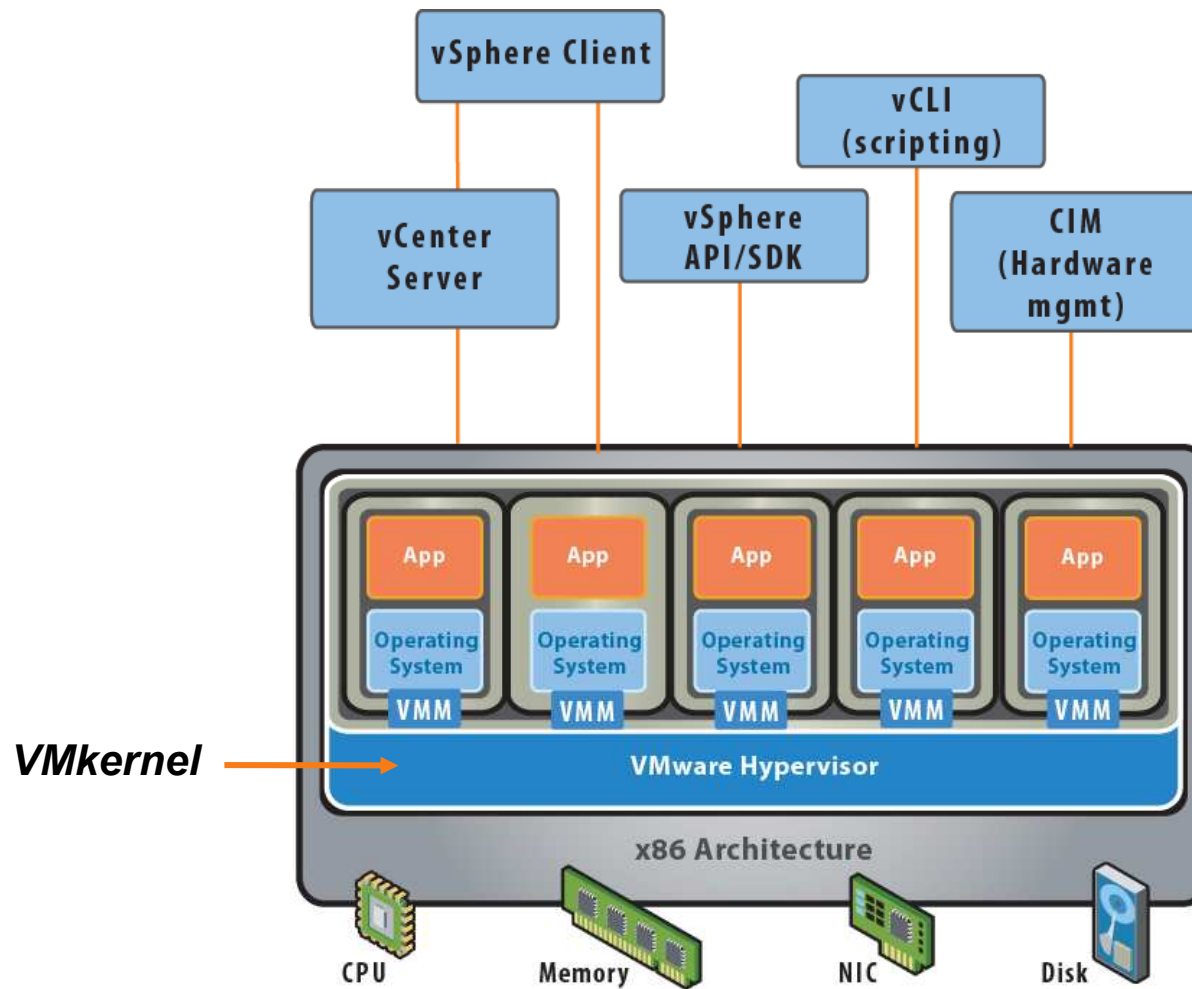
ESX Architecture
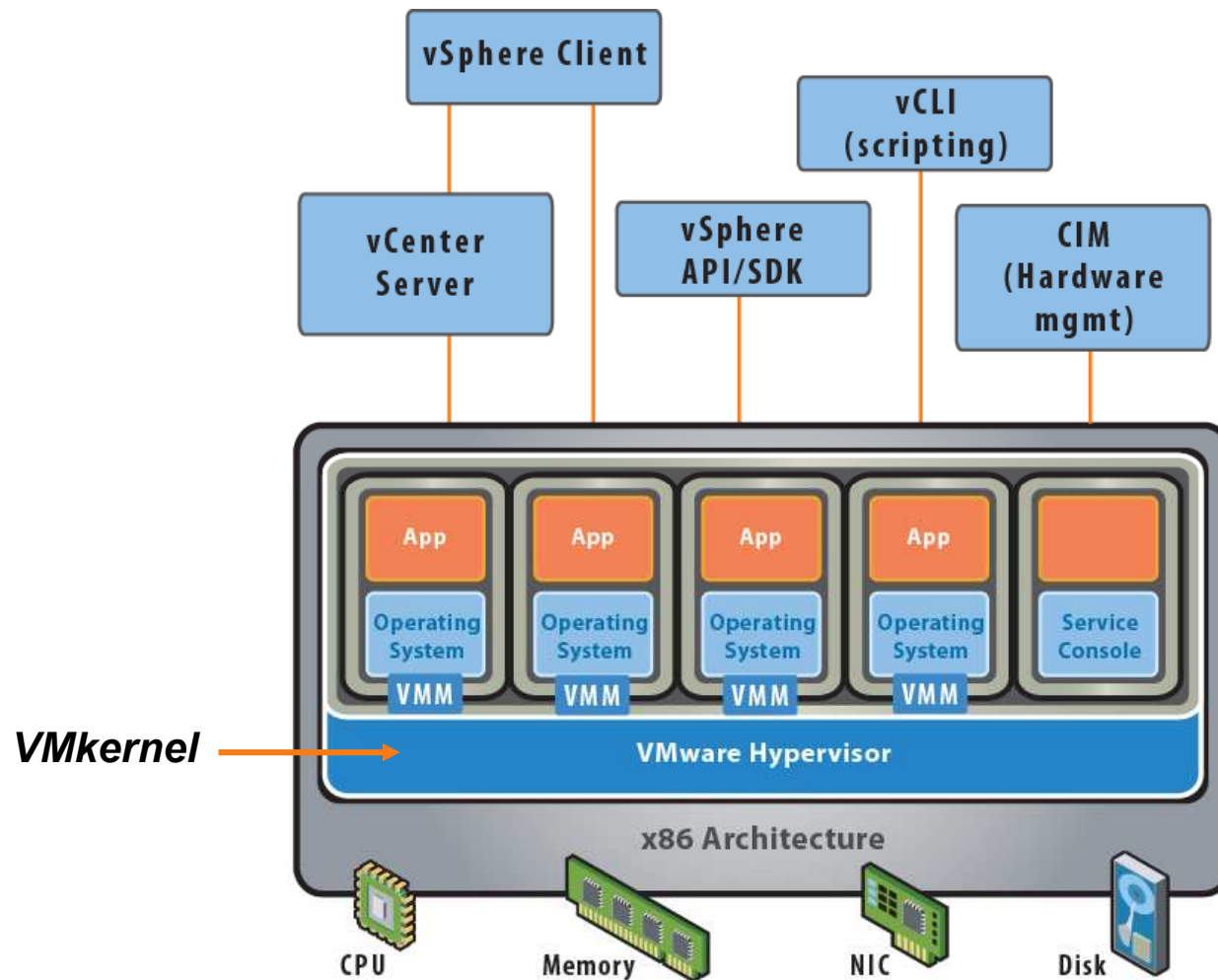
Lesson Summary

> ESX and ESXi allow virtual machine networking and shared storage using VMFS. They can be managed by vCenter Server and accessed by the vSphere Client.

> ESX is available in two main versions: ESX and ESXi (which includes ESXi Embedded and ESXi Installable).

> ESX has a built-in, Linux-based service console that can be used to configure, manage, and troubleshoot the ESX host.

> ESXi has a compact, 32MB footprint for increased security and reliability.

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Lesson 2:
Configuring ESX/ESXi

Module Number 3-13

Lesson Objectives

> Understand how to access the ESXi direct console user interface

> Access an ESX/ESXi host using the vSphere Client

> View or configure ESX/ESXi settings:

  ■ Processor and memory configuration

  ■ Licensing

  ■ NTP client

  ■ DNS and routing

> Understand user account best practices

> View ESX/ESXi system logs

Installing ESX/ESXi

> ESX must first be installed on supported hardware.

> ESXi Installable must first be installed on supported hardware.

> ESXi Embedded is preinstalled in the firmware of a supported vendor's hardware.

> In all cases, ESX or ESXi must be configured.

This lesson assumes that ESX/ESXi has already been installed.
(Installation is covered in a later module.)

Configuring ESXi

> The direct console user interface is similar to the BIOS of a computer with a keyboard-only user interface.

```
VMware ESXi 4.0.0 Releasebuild-162903

HP ProLiant BL460c G1

2 x Intel(R) Xeon(R) CPU L5410 @ 2.33GHz
4 GB Memory


Download tools to manage this host from:
http://172.17.12.57/ (DHCP)




<F2> Customize System                          <F12> Shut Down/Restart
```

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Configuring ESXi: root Access

```
System Customization                    Configure Password
─────────────────────────────────      ─────────────────────────────

Configure Password                      Set
Configure Lockdown Mode
                                        To prevent unauthorized access to
Configure Management Network            this system, set the password for
Restart Management Network              the user.
Test Management Network
Disable Management Network
Restore Standard Switch

Configure Keyboard
View Support Information
View System Logs

Restart Management Agents

Reset System Configuration
Remove Custom Extensions

<Up/Down> Select              <Enter> Change        <Esc> Log Out
```

The direct console allows an administrator to:

> Set a root password (complex passwords only)

> Enable or disable lockdown mode (to prevent user access to host as root)

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Configuring ESXi: Management Network

```
System Customization                    Configure Management Network

Configure Password                      Hostname:
Configure Lockdown Mode                 sc-goose07

Configure Management Network            IP Address:
Restart Management Network              172.17.12.57
Test Management Network
Disable Management Network              Network identity acquired from DHCP
Restore Standard Switch                 server 192.168.2.30

Configure Keyboard                      To view or modify this host's
View Support Information                management network settings in
View System Logs                        detail, press <Enter>.
```

The direct console allows you to modify network settings like the host name, IP configuration (IP address, subnet mask, default gateway), and DNS servers.

```
<Up/Down> Select            <Enter> More            <Esc> Log Out
```

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Configuring ESXi: Other Settings

```
System Customization                    Configure Keyboard


Configure Password                      Default
Configure Lockdown Mode
                                        To select the layout type for the
Configure Management Network            keyboard of this host, press
Restart Management Network              <Enter>.
Test Management Network
Disable Management Network
Restore Standard Switch


Configure Keyboard
View Support Information
View System Logs


Restart Management Agents


Reset System Configuration
Remove Custom Extensions


<Up/Down> Select                        <Enter> More          <Esc> Log Out
```

The direct console allows an administrator:

> To configure the keyboard layout (default is English)

> To view support information

> To view system logs

Using the vSphere Client

> The vSphere Client is an interface used to connect remotely to ESX/ESXi or vCenter Server from any Windows PC.

> Download software from the main page of ESX/ESXi.

Logging In to ESX/ESXi

At the vSphere Client login screen, enter:

> Host name or IP address of ESX/ESXi host

> User name `root`

> Password for user root

vSphere Client: Configuration Tab

Viewing Processor and Memory Configuration

ESX/ESXi Licensing

Before purchasing and activating licenses, you can install ESX/ESXi in evaluation mode.

Evaluation mode

> Is intended for demonstration and evaluation purposes

> Allows software to be completely operational immediately after installation

> Does not require any licensing configuration

> Provides full functionality of ESX/ESXi for 60 days from the time you install it

> Allows the software to notify you of the time remaining in the evaluation period

License Assignment Procedure

The license key is a multicharacter string provided by VMware.

Synchronizing Host Time Using NTP

Network Time Protocol is a client-server protocol used to synchronize a computer's clock to a time reference.

NTP is important:

> For accurate performance graphs

> For accurate time stamps in log messages

> So that virtual machines have a source to synchronize with

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ESX/ESXi as an NTP Client

NTP server

NTP server

NTP server

UDP port 123

NTP client
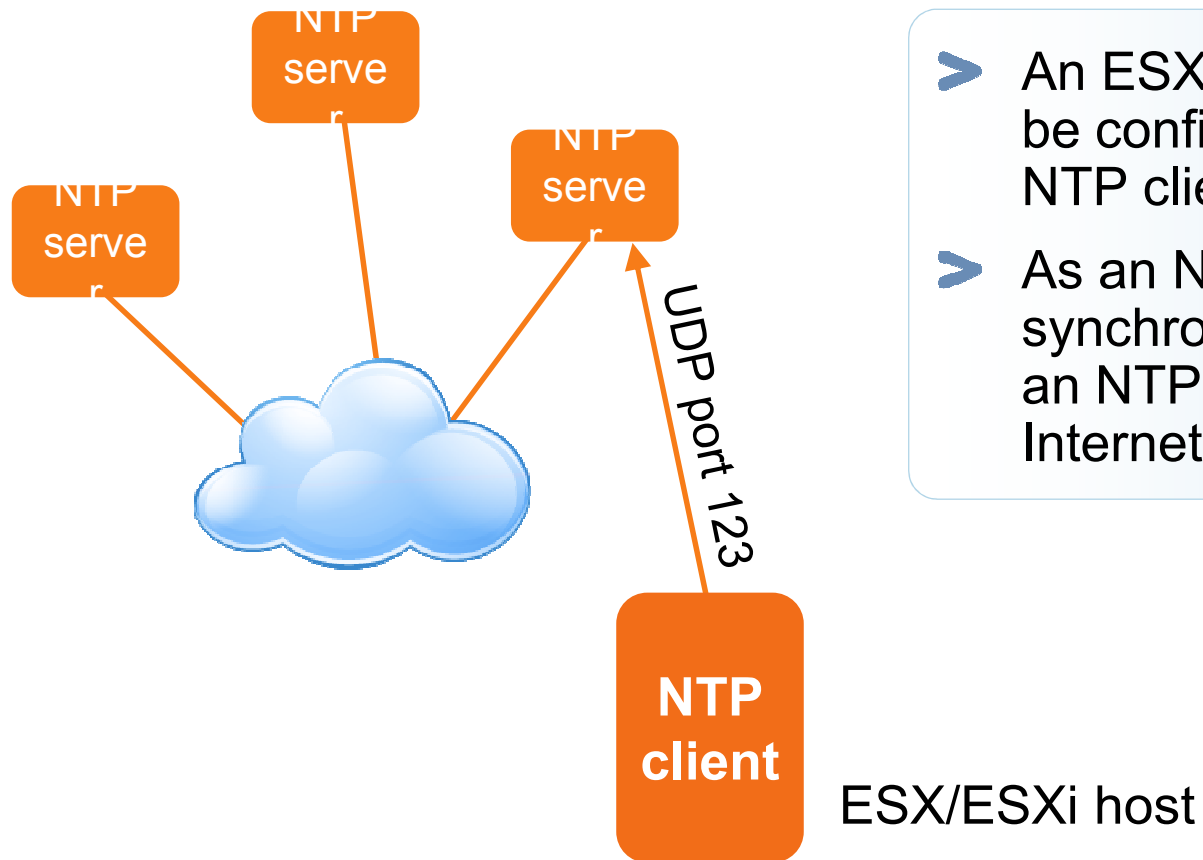
ESX/ESXi host

> An ESX/ESXi host can be configured as an NTP client.

> As an NTP client, it can synchronize time with an NTP server on the Internet.

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Configuring ESX/ESXi as an NTP Client

The Time Configuration **link allows you:**

> To set the date and time

> To configure your host as an NTP client

Network Settings: DNS and Routing

The DNS and Routing **link allows you to change:**

> Host name and domain

> DNS server addresses and search domains

> Service console and VMkernel gateways

DNS and Routing

Host Identification

Name	sc-goose07
Domain	vmeduc.com

DNS Servers

Method	Static
Preferred DNS Server	192.168.2.30
Alternate DNS Server	192.168.100.30

Search Domains

vmeduc.com

Default Gateways

Service Console	172.17.12.1
VMkernel	

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ESX Service Console Firewall

The ESX service console has a firewall through which you can enable or disable incoming or outgoing connections for a range of services.
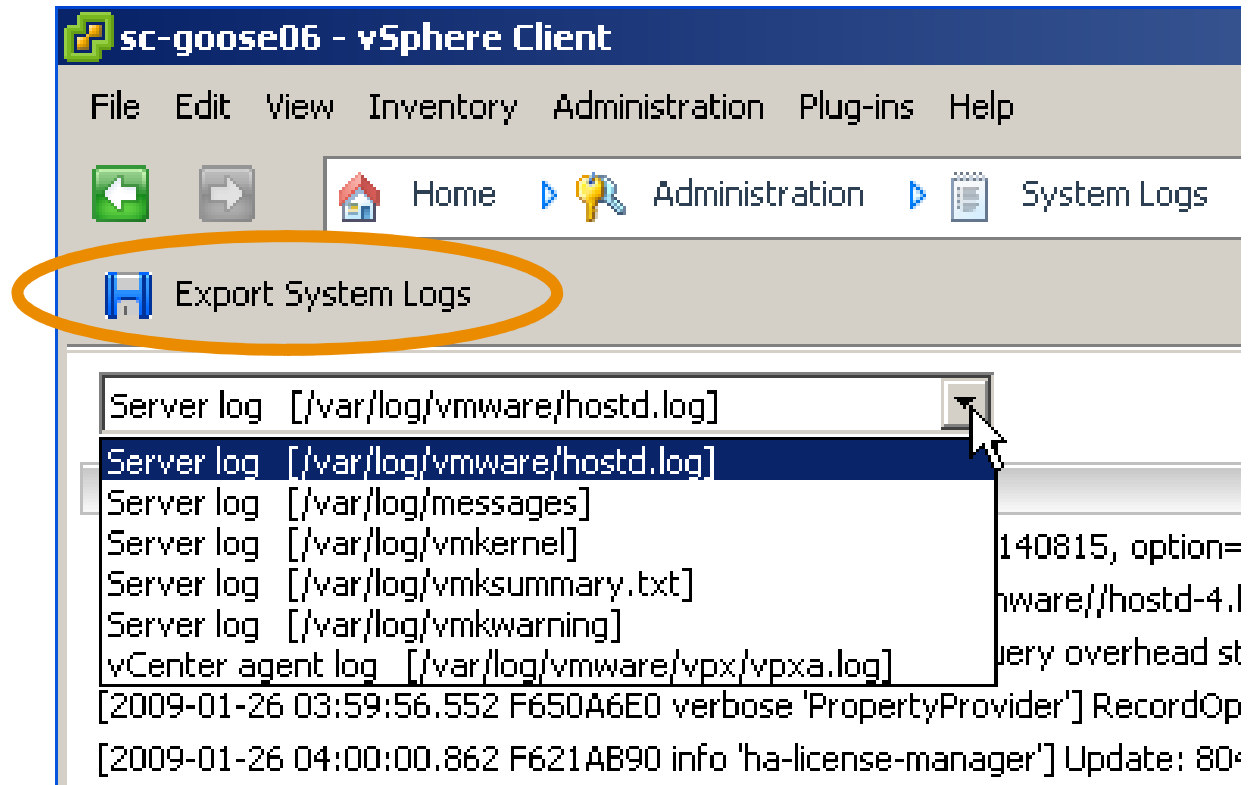
ESX/ESXi User Account Best Practices

> Strictly control root privileges to the ESX/ESXi host.

> Use the vSphere Client to manage the ESX/ESXi host.

> Ideally, use vCenter Server – and thus vCenter Server user accounts – to manage hosts.

Viewing ESX/ESXi System Logs

View using the vSphere Client.

Export system logs to an archive file.

> Send in to VMware Support.

Lab 1 and eLearning Activity

In this lab, you will work to configure an ESX host.

1. Log in to the ESX host using the vSphere Client.

2. View information about your host's hardware.

3. View information about your virtual machine.

4. Configure the ESX host as an NTP client.

5. Add DNS server and default gateway information to an ESX host.

6. Export the host's system logs.

In this eLearning activity, you will view a self-paced demonstration on how to install and configure an ESXi host.

> Ask your instructor for access to the eLearning module.

Lesson Summary

> ESXi Installable and ESXi Embedded have a direct console user interface from which you can configure a few settings.

> Use the vSphere Client to configure most of an ESX/ESXi host's settings.

> Instead of accessing a host directly, whenever possible, manage and configure your ESX/ESXi hosts using vCenter Server.

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Key Points

> There are two main versions of ESX available: ESX and ESXi (which includes ESXi Installable and ESXi Embedded).

> ESXi hosts have a direct console user interface to configure items like the host name, IP settings, and keyboard layout.

> The vSphere Client is used to configure ESX/ESXi hosts.