

Learning Unit 001

# SCO Linux Introduction



Version 1.2

# SCO Linux Introduction

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The SCO Group

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# Typographical Conventions

This Learning Unit presents commands, filenames, keystrokes, and other special elements as shown:

Element	Description
<b>format</b> or format	Command name
<i>/etc/passwd</i> or <i>/etc/passwd</i>	File or directory name
root, cron, or username	System user or individual user name
useradd -fm	Command line
useradd -fm <username>	Command line requiring user variable input
<b>Cancel</b>	Button name
<b>Edit</b>	Menu name
<b>Copy</b>	Menu items
<b>File   Find   Text</b>	Sequences of menus and menu items
<i>IP Network Address</i>	Screen field names
\$HOME	Environment or shell variables
\$SIGHUP	Named constants, signals, and kernel parameters
<i>Linux System Administration Guide</i>	Book names
<a href="http://www.sco.com">http://www.sco.com</a>	Uniform Resource Locator (URL)

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## Introduction

- Linux origins
- The Open Source movement
- Software and source code licensing
- Linux deployment
- Multitasking and multi-user features
- UnitedLinux, a standard
- SCO, a Linux technology leader
- SCO Linux, UNIX, and management products
- SCO Global Services

## Learning Unit description

This Learning Unit presents the origins of Linux and the architecture of the Linux operating system.

It positions The SCO Group and product strategies and includes a description of SCO Linux powered by UnitedLinux, UnixWare, SCO OpenServer, Volution products, and SCObiz. Also described are SCO's Global Services offerings that include Support, Education, Professional Services, and On-line Services.

# Learning Unit objectives

After completing this Learning Unit, you will be able to:

- Describe a brief history of Linux
- Explain the Linux architecture and kernel functions
- Describe popular Linux software packages
- Compare the advantages of Linux over other operating systems
- Define UnitedLinux and the role it plays in the Linux world
- Describe the SCO product line
- Describe and access the SCO Global Services offerings

# Prerequisite skills

None.

# Setup instructions

None.

# Suggested Learning Unit duration

This Learning Unit takes approximately one hour to complete.

This Learning Unit is divided into five modules. Each module begins with an overview and ends with a review. A Summary section appears at the end of the Learning Unit that contains review questions and answers.

## More SCO Linux education

SCO has a number of options for education for Linux. This education meets the needs of several audiences including system administrators and technicians. The training options include self-paced online and print-based training, and instructor-led courses. SCO also can create customized courses for special requirements.

SCO has created 31 Linux Learning Units. Each is designed to be self-contained and self-paced. As with this Learning Unit, each contains conceptual text, graphics, and review questions and answers. In addition, all of the other Learning Units contain screen grabs, guided exercises, a comprehensive lab, and a summary of the commands and files used in that Learning Unit.

Some topics covered are command-line interface, shell scripting, user and group management, process management, TCP/IP configuration, DNS configuration, Squid configuration, Samba configuration, software management, security basics, and intrusion detection. A list of these Learning Units can be found at the end of this Learning Unit.

These 31 Learning Units have also been chunked into five instructor-led courses. These courses are:

- Linux System Administration (5 days)
- Linux Network Infrastructure (2 days)
- Linux Network Services (3 days)
- Linux Enterprise Administration (2 days)
- Linux Enterprise Security (3 days)

SCO's Linux courseware has earned the LPI (Linux Professional Institute) Approved Training Materials (LATM) designation. LATM identifies quality courseware through testing by an independent company. Education materials must accommodate several quality requirements including 100 percent correlation to LPI certification objectives. Because LPI is vendor neutral, our SCO training materials can be used to effectively train on any number of Linux distributions.

For more information on SCO Linux education offerings, visit [www.sco.com/education/](http://www.sco.com/education/).

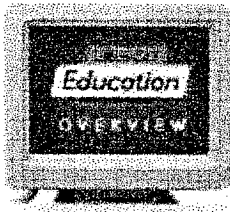


# Origins and Features

SCO  
Education

- Linus Torvalds
- GNU is Not UNIX and Open Source
- XFree86
- Licensing
- Commercialization of Linux
- Linux operating system architecture
- Multi-user and multitasking features

Overview



The Linux operating system stems from a rich history of collaborative development that has changed the face of software. SCO Linux, a descendant of Linux, brings this dynamic operating system to the mainstream user.

After completing this module, you will be able to describe:

- Origins of Linux
- Open Source movement
- Linux commercialization
- Linux kernel architecture
- Functions of the Linux kernel and kernel modules
- Difference between a program and a process
- Multi-user and multitasking capabilities of Linux

## In the beginning...

Linus Torvalds is the developer and keeper of the Linux kernel. While studying as an undergraduate student at the University of Helsinki, Torvalds held an interest in Minix, a small, freely available version of the UNIX® operating system. As a hobby, he set out to exceed its standards with a new operating system.

In 1991, he began developing the *kernel*, the foundation of Linux and released version 0.02 later that same year. Torvalds also began posting news of his project to Internet newsgroups, along with a call for volunteers to assist in his efforts.

With the Internet providing for a distributed collaboration, other programmers joined to create the huge patchwork of code making up the core operating system known as the Linux kernel. In 1994, Torvalds directed the collaboration to a version 1.0 release.

Development continues with the latest kernel, version 2.4.19, released in August of 2002

One of the most important decisions Torvalds made was to develop the Linux kernel under the GNU Public License (GPL) and keep the source code freely distributable so others could build upon, modify, and develop programs for the operating system.

This collaborative approach to developing and updating the Linux kernel is what makes Linux the most dynamic operating system available today.

### Did you know...

The most common logo and unofficial mascot of Linux is a small, apparently well-fed penguin known as Tux. An amusing explanation of how Tux was conceived comes from Linus Torvalds himself, who was bitten by a small penguin in an Australian zoo a number of years ago.

# The Open Source movement

Linux is Open Source software and Richard Stallman is considered the founder of the Open Source movement. In 1979, he developed a strong belief in cooperative programming while working in the The Massachusetts Institute of Technology (MIT) artificial intelligence lab. As more and more hackers joined the commercial software world, Stallman began a movement to maintain open access to source code.

Stallman believes software should be free. This is not to say software must be distributed without cost, but that the source code must be publicly available and users have the freedom to run, copy, distribute, study, adapt, and improve software as they see fit.

After leaving MIT in 1984, Stallman founded both the GNU (GNU's Not UNIX) Project and the Free Software Foundation (FSF) to promote the development of Open Source software.

The FSF developed many of the components on which Linux is built. Key contributions include:

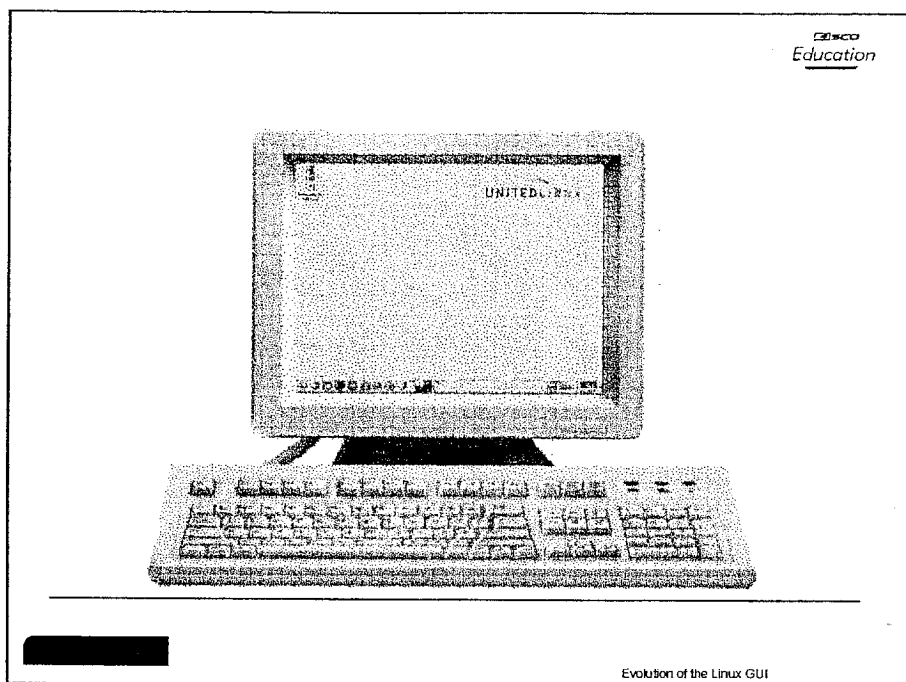
- The Editor MACros (Emacs) real-time text editor
- The GNU Compiler Collection (GCC)
- The standard C library
- Dozens of basic system utilities

All FSF contributions are Open Source software licensed under the GPL. Two additional examples of Open Source software, the X Window System and the K Desktop Environment (KDE) are described in the next section.

## Did you know...

Well before the rise of Linux, GNU software was in widespread use in the UNIX community. In fact, the compiler (GCC) and editor (Emacs) were often the very first items installed by system administrators.

## Evolution of the Linux GUI



The development of XFree86™ has had a major impact on the evolution of Linux. XFree86, originally developed at MIT, has been the standard graphical user interface (GUI) for UNIX-based systems since its release in 1986. As written, the X Window System did not support Intel-based architecture and graphics hardware, the platform on which Linux was initially based.

In 1994, the XFree86 Project undertook a major effort to adapt the X Window System to run on Intel hardware. The effort was successful and today, XFree86 is the standard windowing system on all Linux computers.

Although the X Window System provides a GUI to the user, this interface has long been recognized as unfriendly. A number of window managers has been released by different developers to address this problem. The most prominent is the KDE.

KDE was developed by the KDE Project. The KDE Project is an Open Source, free software project with the goal of providing a user-friendly graphical environment for Linux. Now in its third major release, KDE is the standard desktop environment for SCO Linux.

**Did you know...**

The X Window System can run an application on one computer while displaying it on another. The computer on which the application runs is called an *application server*.

## Software and source code licensing

SCO  
Education

- GPL
- Freeware
- Shareware
- Open Source
- Berkeley Software Distribution
- Closed source

Software and source code licensing

Traditional licenses reflect the legal limitations restricting the use and reproduction of original works. The Open Source community has taken a different approach to licensing in an effort to maintain the integrity and availability of source code.

Keeping the source code publicly available maximizes the development and evolution of the software while developers:

- Maintain control of their original work
- Ensure the original source code remains publicly available
- Guarantee any software derived from the original code remains publicly available
- Ensure all works derived from the original source carry the same licensing terms as the original

SCO Linux products encompass a range of software that uses over 30 different licensing schemes. Many of the more prominent licenses are described in the following sections.

## **General Public License (GPL)**

The GNU General Public License (GPL) is the original and most popular Open Source license available.

The GPL maintains that individuals and companies can distribute free software alone or packaged with their own software, whether gratis or for a fee, as long as the source code is available and the same rights are passed on to the recipients.

Licensing the Linux kernel under the GPL has been a great attribute to the development of Linux. Programmers from all over the world have added to and improved upon the operating system while adapting it to their own needs.

The number of Linux users has risen dramatically in recent years as several major computer manufacturers began endorsing Linux as an alternative to other operating systems.

Moreover, Linux's low cost and the rise of organizations dedicated to the distribution and support of it have combined to give Linux the critical mass necessary to gain mainstream adoption.

## **Freeware**

As the name implies, freeware is software offered at no cost. It might or might not include the source code. Although users can obtain this software for free, it is typically copyrighted so that the source code, if included, cannot be incorporated into any new software.

## **Shareware**

Unlike freeware, distribution of shareware is free on a trial-basis only.

After the trial period expires, the user must pay for the continued use of the program. It is common for shareware authors to include built-in expiration dates in the code to discontinue access to the program when the trial period ends.

Shareware might also have limited or disabled features in an attempt to entice users to pay for the full version of the program. Shareware is not usually distributed with the source code.

## Open Source

An Open Source program is software distributed with public access to the source code.

The Open Source community believes in the continuing evolution of software by those who use it. When programmers have access to the source code for a piece of software, they can adapt it, improve it, and even fix bugs at a much faster rate than the traditional closed model.

This is especially important with system components that affect the security of the overall system. In this case, Open Source also assures there are no hidden trapdoors or trojan entry points through which system security might be compromised.

SCO is committed to the Open Source community and makes its Linux products available for free download. ISO images (CD-ROM images) of SCO Linux are available for download on a single user, non-commercial license at [www.sco.com/products](http://www.sco.com/products).

## Berkeley Software Distribution

Over the years, one of the most popular versions of UNIX has been the Berkeley Software Distribution (BSD) developed at The University of California at Berkeley. FreeBSD, a project similar in focus to Linux, has its roots in the BSD source code.

The FreeBSD Project's goal is to provide software to anyone for any purpose without obligation and to achieve the widest possible use and benefit of the software rather than make a profit.

Although some of the components of the FreeBSD's source code tree fall under the GPL or GNU Library General Public License (LGPL), they do have their own, more relaxed, FreeBSD license and strive to replace the GPL and LGPL licenses whenever possible.



## Closed source

Closed source is the traditional, primary approach to commercial software development. Just the opposite of Open Source, closed source programming does not allow for the distribution of source code.

### Did you know...

In the early days of microcomputers, programs were often written using interpreted rather than compiled languages. For example, many applications were written in BASIC. A side effect of interpreted languages was leaving the source code exposed for all to see. This did not, however, provide any of the rights associated with Open Source software.

## Linux commercialized

SCO  
Education

- High demand
- Technical preference
- Available support
- Easy to install
- Application development
- Stable and reliable

Linux commercialized

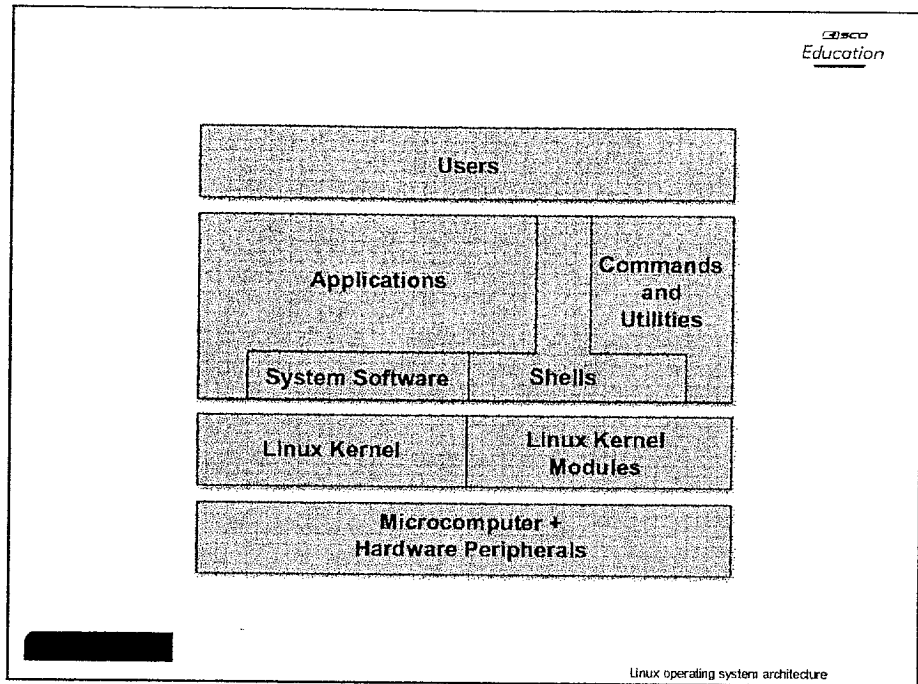
Linux is the operating system of choice, particularly when it comes to network servers. The demand and technical preference for Linux is driving the commercialization and helping to create an operating system that is:

- Easy to install
- Commercially supported
- A driving force in application development
- One of the most stable and reliable operating systems currently available

### Did you know...

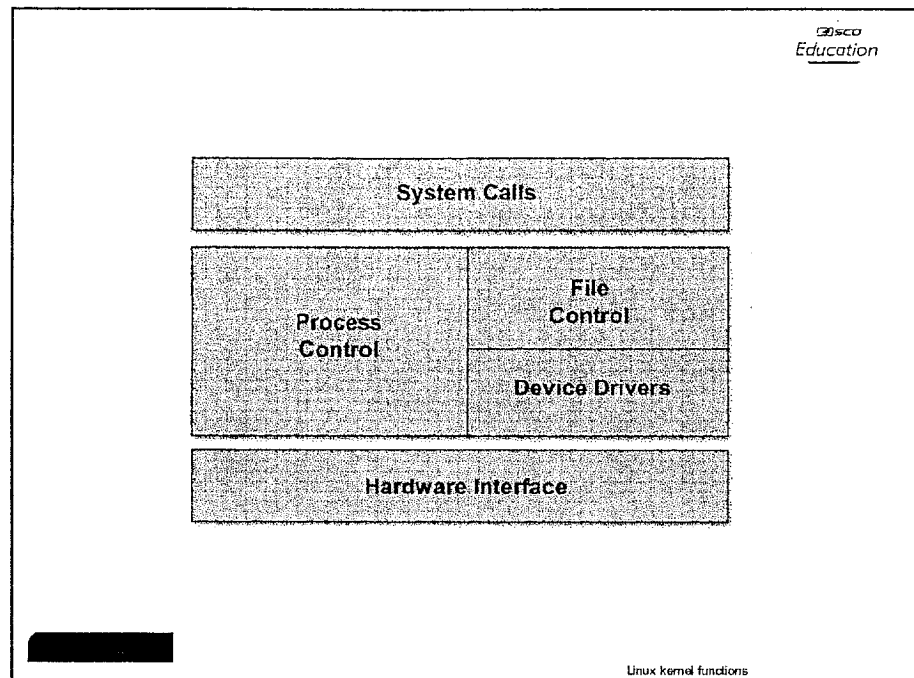
During the early days of Linux development, CD-ROM drives had not yet become standard equipment on personal computers. To distribute Linux to users without CD-ROM drives, vendors had to provide Linux on floppy diskette. The distributed product sometimes exceeded 30 floppies.

# Linux operating system architecture



Hardware is accessed through layers of application, system, and kernel software. The kernel represents the core of the operating system and is responsible for the computer's basic behavior.

## Linux kernel functions



Hundreds, sometimes thousands, of individual components comprise modern operating systems. Among these, the single most important component is the system's kernel. The kernel is responsible for controlling every aspect of system operation including:

- Launching and scheduling the priorities of system and user programs
- Controlling and maintaining access to all system devices, such as memory and disk drives

Because the kernel always remains active in the main memory, it is important for the kernel to be as small as possible. The small size of the Linux kernel supports this ideal and helps to conserve CPU resources.

In addition, the kernel supports a modular architecture that can load and unload blocks of code, or *modules*, on-demand without a reboot. This flexibility adds functionality to a busy system without interrupting the user's work.

Important kernel functions include:

System call interface	All system and user programs communicate with the kernel through a well-defined set of <i>system calls</i> . A program invokes these calls whenever it wants to gain access to a service or resource controlled by the kernel.
Process control	Any given program, when running, is referred to as a process. The kernel controls the Linux environment by creating the processes and associated environments in which programs execute. These processes run for a small amount of time, or time slice, and are then paused briefly to give another process a chance to use the central processing unit (CPU). In time, each process receives enough time slices to finish its job.
Memory management	The kernel allocates and frees the computer's memory so processes have the resources they require to execute.
File system management	The kernel manages the overall storage environment by maintaining the organization, integrity, security, and access to each individual storage device.
Device drivers	This portion of the kernel is responsible for communicating with, and controlling access to, all system devices such as hard disks, printers, and modems. Every device available in the system has a device driver. This is the sole means through which system and user programs interact with these devices.

## Processes and programs

Linux systems must share the computer's resources among many users and programs performing many different tasks. To accomplish this, the operating system allocates memory to each program. While a program is executing in memory it is called a process. Note the following distinctions in these terms:

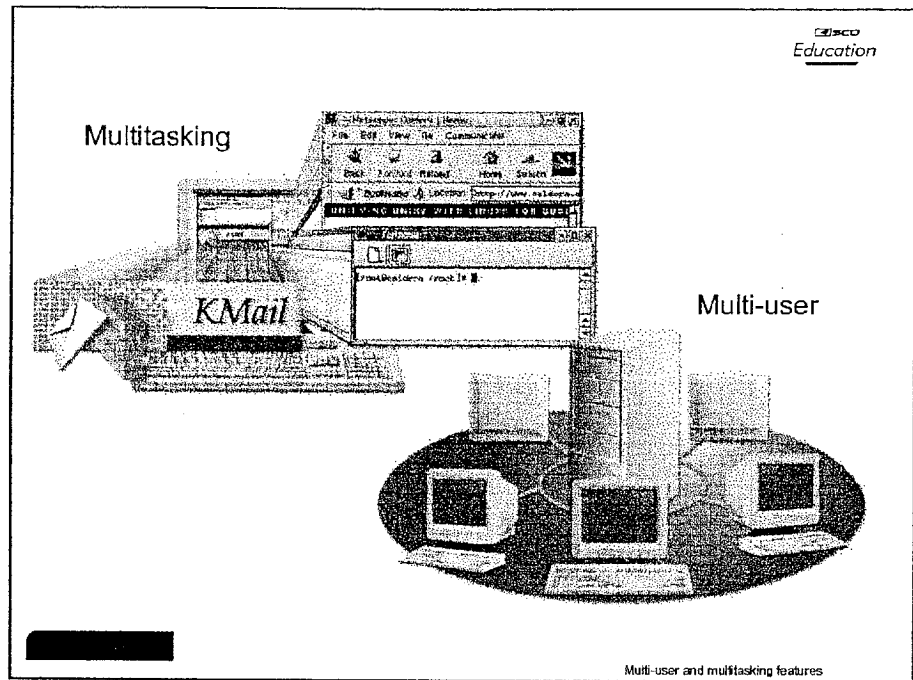
- A program is a file that contains instructions and data to perform a specific task.
- A process is an instance of a program that is in a state of execution. Processes are the active, working entities of the operating system.

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NOTE: The kernel is not a process because it is the controlling and initiating authority of every process in the system.

---

## Multi-user and multitasking features



Linux systems are able to share the computer's memory and other resources because of its multi-user and multitasking capabilities.

The Linux operating system supports a multi-user environment that allows users to access the system simultaneously.

The Linux operating system also relies on preemptive multitasking where the operating system parcels out CPU time as *time slices* to each process. The CPU switches between programs so quickly that it appears as if all programs are running at the same time.

Sharing the computer's CPU, memory resources, and expensive peripheral devices between several users and processes:

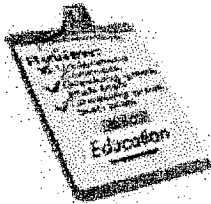
- Is cost-effective
- Decreases maintenance
- Improves user and system efficiency and productivity

**Did you know...**

Linux has its roots in the UNIX operating system, a system first conceived and designed in 1969. While much has been added since then, the basic principles of operation and organization have remained largely unchanged. The design of UNIX, and by extension Linux, is the most successful and long-lived of any operating system in the history of computing.

- Linus Torvalds developed Linux
- Richard Stallman promoted GNU, FSF, and GPL
- The kernel is the core of the operating system
- Operating systems control a computer's actions
- A process is a program in execution
- The kernel is not a process
- Linux has both multitasking and multi-user capabilities

Review



Linus Torvalds developed the Linux kernel under the GPL as Open Source software. The Open Source movement continues to be a driving force in software development for Linux.

The Linux kernel is the core of the operating system. The modular design and function of the kernel helps to conserve CPU resources while it performs all functions that control a computer's basic actions. Linux is a multi-user, multitasking operating system, which makes it a versatile, cost-effective way to meet users' computing needs.

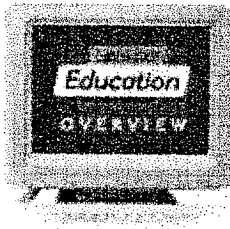


# Linux Functionality

ESCO  
Education

- Server functions
- Workstation functions
- Linux software packages
- Linux compared to other operating systems

Overview




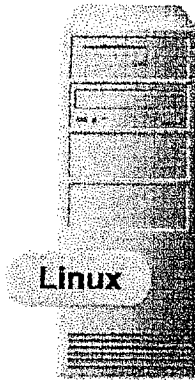
Linux systems provide support for many services and features. The functionality and adaptability of Linux promotes its use in networks and as an end-user platform.

After completing this module, you will be able to describe:

- The functions of Linux within the server and workstation roles
- Common Linux software packages
- Key features that set Linux apart from other operating systems

# Server functions





- Web servers
- File and print servers
- Network infrastructure servers
  - Mail
  - Firewall
  - Network router
  - Database

Server functions

Linux servers sustain a variety of hardware platforms over networks while supporting local and remote clients. The term *server* is often used to describe the hardware servicing network requests, however, the server is actually the software running on the computer.

Server functions include:

- Management of network resources
- Distribution of information to other computers on the network

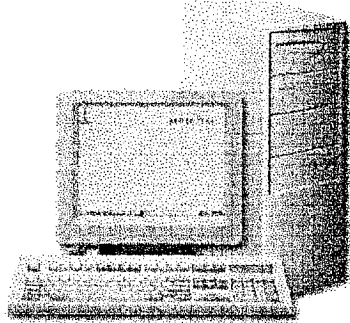
Common Linux servers include:

- Web servers
- File and print servers
- General network infrastructure servers such as mail, firewall, network router, and database servers

# Workstation functions

SCO  
Education

- Engineering
- Software development
- High-end desktop publishing
- High-end graphics
- Word processing, spreadsheets, and databases



Workstation functions

Linux workstations are used in business or professional settings and are supported by servers. Historically, Linux workstations have functioned as software development environments, but increasingly, end-users are adopting Linux for general office productivity. Common Linux workstation services include:

- Engineering
- Software development
- High-end desktop publishing
- High-end graphics
- Word processing, spreadsheets, and databases

---

NOTE: Although Linux computers are often used primarily as servers or workstations, it is important to remember there is no reason why, in non-critical situations, Linux cannot perform both tasks simultaneously. For example, Web developers often maintain Apache™ Web servers on their own local workstations.

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## Popular Linux software packages

Because of widespread use, principal vendors including Sun, Corel, Borland, and Oracle have released office and server applications:

- OpenOffice from OpenOffice.org. is a free, Open Source office product similar to Microsoft® Office™.
- The GNU Image Manipulation Program (GIMP) is an Adobe© Photoshop® work-alike.
- Oracle®, a popular database, runs on Linux.
- Borland® Kylix™ is a version of Delphi for Linux Server.
- ARCserve™ for Linux, from Computer Associates®, is an end-to-end data protection program for Linux environments.

### Did you know...

Linux has been adapted to run on a variety of CPU architectures and devices including network routers, handheld devices, and digital recorders.

# Linux in comparison

CISCO  
Education

- Multi-user
- Open Source
- Reliable
- Choice of vendors and support
- Variety of CPU architectures supported
- Tools, GUI interfaces, and applications are resolving common complaints

Linux in comparison

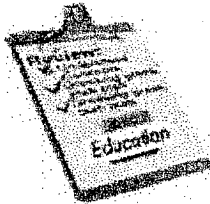
Linux systems are legendary for their stability and reliability. It is not uncommon for Linux servers and workstations to run for months between reboots. When reboots are required, they are usually due to hardware upgrade installations and not system failures.

Linux strengths include:

- Reliability
- Open Source
- Wide variety of CPU architectures
- Multi-user and multitasking capabilities
- Choice of vendors and support organizations

- Linux servers
  - Variety of hardware platforms
  - Variety of server functions
- Linux workstations
  - High-end development
  - Transition to general office productivity
- Major vendors enter the Linux market
  - Server application development
  - Office productivity development
- Linux moves to the front of the business arena


Review



Linux has historically been used as a server and high-end workstation, however end-users are beginning to adopt it for general office productivity.

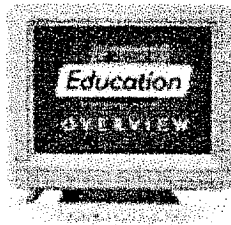
Although traditional Linux products were not designed specifically for business purposes or to bring Linux and UNIX together, Linux has evolved to this level. Linux is a powerful and reliable operating system that competes and wins in the business arena.

# UnitedLinux, a Standard



- Founded by four companies:
  - The SCO Group
  - Conectiva
  - SuSE
  - TurboLinux
- Provides a standard base
- Consists of the Linux kernel plus other core components

Overview




UnitedLinux defines a common base on which all participating Linux companies build their product. The participating companies then rebrand with their own *look and feel* and other value added extensions. UnitedLinux is developed to unify rather than fragment Linux offerings. UnitedLinux focuses more resources on the advancement of Linux, thus creating a much higher quality, and more functional product than could be developed by individual companies.

After completing this module, you will be able to:

- List the advantages of UnitedLinux
- List the major standards upon which UnitedLinux is built
- Describe the basic components of UnitedLinux

# Advantages of UnitedLinux



- Combined expertise of top Linux vendors
- Stability
- Quality assurance
- Certification
- World wide presence


Advantages of UnitedLinux

UnitedLinux provides many advantages. Here are five of the most important advantages:

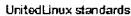

Combined expertise of top Linux vendors	Four major Linux vendors, through a joint effort, provide users their combined expertise in the Linux industry.
Stability	UnitedLinux is built on a solid and tested foundation delivering an enterprise-class operating system.
Quality assurance	UnitedLinux is tested by quality assurance teams and certification labs worldwide. This brings an unsurpassed quality level to Open Source operating systems.
Certification	UnitedLinux is certified by major software and hardware vendors. It offers a perfect environment for applications and for complete compatibility with hardware platforms and peripherals.
Worldwide presence	UnitedLinux is available on virtually all continents providing better support offerings and a worldwide presence of support representatives.



# UnitedLinux standards



- Linux Standards Base (LSB)
- Filesystem Hierarchy Standard (FHS)
- The Linux Internationalization specification (LI18NIX)
- Extensible Markup Language (XML)
- Simple Object Access Protocol (SOAP)
- Web-Based Enterprise Management (WBEM)



UnitedLinux is built upon several Linux industry standards. These standards are developed by a group of participating companies, the World Wide Web Consortium, or the Open Standards Group with the support of several companies.

LSB	The Linux Standards Base (LSB) is a set of standards that increase compatibility among Linux distributions and lets software applications to run on any compliant Linux system.
FHS	The Filesystem Hierarchy Standard (FHS) consists of a set of requirements and guidelines for file and directory placement under UNIX-like operating systems.
LI18NIX	The Linux Internationalization specification includes the best of globalization functionality that commercial UNIX systems have successfully implemented. It compliments this functionality with extensions that make Linux internationalizations comprehensive for all local requirements.

XML	The Extensible Markup Language (XML) is the universal format for structured documents and data on the Web.
SOAP	The Simple Object Access Protocol (SOAP) is an XML-based lightweight protocol for exchange of information in a decentralized distributed environment.
WBEM	Web-Based Enterprise Management (WBEM) is a set of management and Internet standard technologies developed to unify the management of enterprise computing environments.

# Core components of UnitedLinux

EDSCO  
Education

- Companies build on the core components of UnitedLinux
- Several services are available
  - Apache Web server
  - File and print server
  - Mail and news server
  - SQL server
  - Authentication server

Core components of UnitedLinux

UnitedLinux contains basic components, which make up the core of UnitedLinux. The participating companies then build upon these core components to brand UnitedLinux. Here is a list of most of the core components.

- The Linux kernel version 2.4.18 or higher
- LSB 1.1 runtime environment (all libraries, all commands, all interfaces)
- The GNU C library version 2.2.5 or higher
- Standard Linux and UNIX shells: sh, bash, csh, and ksh
- System V init scripts
- All text, file, shell, and shar utilities
- Remote shells tools including ssh and scp
- Networking tools such as ping, traceroute, and nslookup
- IPv6 networking tools
- Firewalling tools
- Scripting languages such as: python, perl, PHP, TCL/TK, and ruby
- Java runtime
- XFree86 version 4.2 or higher (libraries and server)

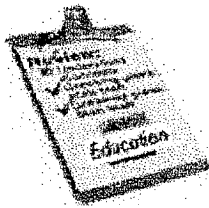
- KDE 3.0 libraries
- Konqueror browser
- Gnome 2.0 libraries
- Postgresql SQL database server
- Simple Network Management Protocol (SNMP)
- Common Unix Printing System (CUPS)
- Wireless device support
- RedHat Linux compatibility, so that a majority of 3rd party Linux applications can run without modification

In addition to the above core components, several services are available. These services include:

- Apache Web server
- File and print services for Windows, Mac, and UNIX
- Name server and internet/intranet connection server
- Mail and news server
- Proxy server
- SQL database server
- Authentication server

# UNITED LINUX

Review



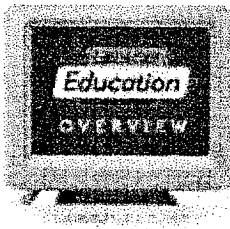
By building a distribution of Linux based on the UnitedLinux standard, companies reach a much larger audience. Customers know that their particular application runs reliably on any distribution which displays the *Powered by UnitedLinux* logo.

# SCO, a Technology Leader

SCO  
Education

- In August of 2002 Caldera International, Inc. became The SCO Group
- SCO is a leader in marketing and deploying Linux and UNIX solutions

Overview



In August of 2002 Caldera International, Inc. changed its name to The SCO Group. The new name draws upon the company's significant brand recognition in its SCO OpenServer and SCO UnixWare product lines.

The SCO Group is a technology leader in developing and marketing successful Linux and UNIX solutions. SCO develops, deploys, and manages Linux and UNIX Internet solutions through its award-winning services and product lines.

After completing this module, you will be able to describe:

- Describe SCO Linux and UnixWare products
- Describe SCO management products and SCObiz

# The SCO Group product line

SCO  
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- SCO® Linux™ powered by UnitedLinux®
- SCO® UnixWare™
- SCO® OpenServer™
- The Volution™ product family which includes:
  - SCO® Volution™ Manager
  - SCO® Volution™ Online
  - SCO® Volution™ Messaging Server
- SCObiz™

The SCO Group product line

SCO offers a complete line of operating system, management products, and an eBusiness platform for the small business market including:

- SCO® Linux™ powered by UnitedLinux
- SCO® UnixWare™
- SCO® OpenServer™
- The Volution™ product family which includes:
  - SCO® Volution™ Manager
  - SCO® Volution™ Online
  - SCO® Volution™ Messaging Server
- SCObiz™

## SCO Linux powered by UnitedLinux



SCO Linux powered by UnitedLinux is an optimized, stable, and secure Linux operating system designed for fast setup and easy management. It is based on UnitedLinux with several value add-ons for SCO partners and customers.

SCO Linux can be easily installed and contains a secure version of Webmin that allows an administrator to remotely configure and manage the server.

### What's new

Because SCO Linux is based on UnitedLinux, all the features of UnitedLinux are available. In addition to the UnitedLinux features, SCO has added several valuable add-ons. Many of these add-ons include OpenSource software that has been optimized to run on UnitedLinux but is not part of United Linux.



Some of the add-ons include:

- Supplemental localization support
- Additional administration and monitoring tools
- File and Web server facilities
- Remote access and communications tools
- Supplemental hardware support

Refer to [www.sco.com/products](http://www.sco.com/products) for a complete listing of SCO Linux features and services

# SCO UnixWare



SCO® UnixWare® is the most advanced deployment platform for industry standard Intel and AMD processor systems. UnixWare is the trusted foundation for solutions where proven scalability, reliability, and affordability are critical. UnixWare delivers the complete flexibility of Linux, with the same scalability and reliability that is synonymous with UNIX Systems.

UnixWare consists of a comprehensive family of pre-configured Editions and optional products to build and deploy UNIX and Linux applications that comply with the Linux Standard Base (LSB) specification.

## Editions

UnixWare includes the following operating system Editions:

- Data Center Edition is for the highest-end multi-purpose servers demanding 24x7 availability.
- Enterprise Edition is for medium-to-high-end enterprise servers to run large-scale business applications and databases.
- Departmental Edition is for departmental servers in medium or large organizations to run applications and reliably share business critical information.

- Business Edition is for small businesses or workgroups requiring file and print services, access to diverse applications, and the ability to expand system capability as your organizations grows.
- Base Edition is a solid foundation for building dedicated or specialized server environments, such as telecommunications equipment and other embedded systems.

## Optional services

The following optional services are a series of enhancement products that extend and compliment the built-in functionality provided in the UnixWare Edition products:

- Merge 5.1.1 provides users the capability of running Microsoft Windows sessions on UnixWare.
- Advanced File and Print Server 4.0.1 enables enterprise-wide, scalable file and print sharing with Microsoft products.
- Reliant® HA 1.1 provides high-availability clustering solutions for enterprises requiring high levels of application, system, and data availability.
- Online Data Manager 3.2 is a cost-effective, enterprise-class storage management solution for online volume management.
- Disk Mirroring 3.2 offers increased data availability by providing fault tolerance against disk failures.

## What's new

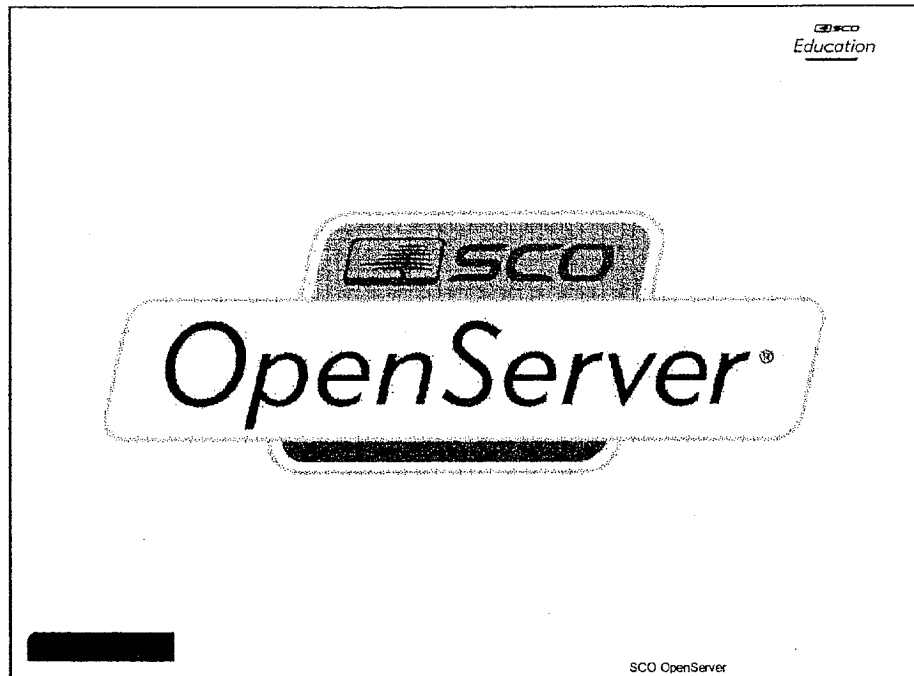
With the addition of the Linux Kernel Personality (LKP), customers can run Linux applications on UnixWare systems.

The LKP offers:

Application compatibility	Linux applications install and run without modification. UnixWare customers have access to a broad range of Linux applications.
UnixWare feature availability	Linux applications can benefit from the features and options available for UnixWare, including a journaling filesystem, RAID support, and increased scalability and reliability.
Versatility	Users can choose either Linux or UnixWare, or combine both.

To learn more about UnixWare, visit <http://www.sco.com/products>.

# SCO OpenServer



SCO OpenServer systems have been the de facto operating system platform for small and medium sized businesses for over a decade. SCO OpenServer systems provide integrated support for electronic mail, Internet services, and built-in support for Windows file and print services.

SCO OpenServer consists of a comprehensive product family that includes the following:

- The Enterprise System runs critical business applications and reliably provides a variety of network services including file and print services for both UNIX and Windows systems, email services, Web services, Internet connectivity, and calendar services.
- The Host System is an excellent platform for delivering highly reliable, non-networked multi-user solutions.
- The Development System is comprised of a core set of development tools that can be easily augmented with over 200 third-party products creating a robust and efficient development environment.
- The Desktop System excels at running client-side, transaction-based applications as well as accessing databases and networked information. It can also provide file and resource sharing and communications across a range of peer, server, and host environments.

Additional SCO OpenServer Enterprise System features provide support for the following:

- A large base of business critical applications including accounting, health care, manufacturing, human resources, and many others. Many DOS/Windows applications can be run through the use of optional add-on products.
- A wide range of hardware platforms and peripherals
- Reliability, Availability, and Scalability (RAS) services including RAID and SMP
- A wide range of networking technologies including TCP/IP, DHCP, IPX/SPX, SNMP, NetBEUI, SMTP, POP3, IMAP4, HTTP, FTP, telnet, ping, NAT, DNS, NFS, NIS, Web browsers, and mail readers
- Computers installed with multiprocessors
- Graphical administration tools, graphical desktop, and a browser-based online help system

To learn more about SCO OpenServer Enterprise, Host, Development and Desktop System features, visit <http://www.sco.com/products>.

# SCO Volution Manager



SCO Volution Manager is a secure, Web-based, systems management solution that reduces the cost of managing and maintaining established versions of Linux and SCO Unix.

Volution Manager enables secure, remote management of multiple systems through a browser. It lets administrators collectively or individually manage their systems locally or remotely through directory-based actions known as policies.

Volution Manager provides the capabilities that administrators need to effectively manage their systems. Key features include:

- Asset management
- Software distribution
- Health monitoring
- Printer configuration
- A scripting distribution engine

SCO Volution Manager is built on open standards and uses the power of Lightweight Directory Access Protocol (LDAP) for data storage and policy implementation.

## What's new

Diagnostic Information	New self-diagnostic capabilities makes Volution Manager easier to use.
GUI Changes	No longer an exclusive HTML interface, Volution Manager now provides for Java interface capabilities such as menus and pop-ups.
GUI Scalability	The Volution Manager interface provides for three frames rather than the two frames previously available.
Extended Platform Support	In addition to Linux, Volution Manager provides for the installation and removal of applications on UnixWare and OpenServer.
Integration with Volution Online	Volution Online simplifies Linux management by tracking changes in Open Source software (Linux neutral) and proactively advising administrators of changes that directly impact their systems.
Installation	A new, quick installation option is ideal for evaluations, pilots, and technical reviews.
Security	Volution Manager uses certificates and SSL to secure all communications.
Wizards	Volution Manager includes several wizards to further simplify and speed up administration.

To learn more about Volution Manager, visit <http://www.sco.com/products>.



# SCO Volution Messaging Server



SCO Volution Messaging Server is a robust, secure, easy to install and manage collaboration server that provides the vital messaging services for today's small to medium businesses. It is the newest member of the award winning Volution family of products and services.

The Volution Messaging Server supports open and de facto standards for complete interoperability with Microsoft Outlook®, Outlook® Express and other popular mail clients on almost any platform.

By supporting popular anti-virus, backup, and fax server software, the Volution Messaging Server is the foundation for a comprehensive, yet affordable and manageable, office collaboration solution.

As part of SCO's overall Volution architecture, the Volution Messaging Server can be installed on SCO Linux and SCO UnixWare and supports SCO's ReliantHA and Volution Manager products.

Additional features include:

- An office messaging foundation that performs standard message routing, prioritizing, queuing, and calendaring. The Volution Messaging Server can be used as the core of a comprehensive office collaboration solution that includes a wide range of telecommunication and computing services, including electronic mail, networks, directories, paging, groupware, and unified messaging.
- An easy installation using simple graphical tools designed for administrators who are not experts with operating systems, email, or the Internet
- Compatibility with Microsoft Outlook and other mail clients. It comes pre-configured to support mail, address book, and busy-free calendar features. Major components include an advanced mail agent, proven IMAP server, support for OpenLDAP, and built-in security.
- Postfix mail transport agent. Originally known as the IBM® Secure Mailer, the postfixmail transport agent provides the mechanism for delivering mail both to and from the Volution Messaging Server.
- OpenLDAP default directory services. These directory services provide flexibility in user and alias management.
- Built-in security using OpenSSL. OpenSSL is the Open Source implementation of the Secure Socket Layer that provides the default secure transport mechanism for the Volution Messaging Server.

The following describes integration with Volution Manager and the Volution Online service:

- Volution Messaging Server administrators can easily apply updates and receive notifications of system problems with Volution Manager.
- Volution Manager email alerts can be delivered by the Volution Messaging Server.
- Volution Messaging Server and Volution Manager share the same LDAP directory providing centralization of management information.
- The Volution Messaging Server can be updated remotely with Volution Online.

To learn more about the SCO Volution Messaging Server's features and benefits, visit: <http://www.sco.com/products>.

# SCObiz



Over the past several years, small business owners have begun to view a Web presence as an essential component for a competitive advantage in their business. This Web presence must extend beyond simple information Web sites, to Web sites that work to educate, build communities, generate leads, and conduct eCommerce. SCObiz extends this opportunity to small business owners.

SCObiz, the newest SCO product, was launched in August, 2002. This eBusiness platform is a win-win product for all involved. SCO partners receive an extension to their customer reach and business offering and SCO customers get online with a top quality Web site fully enable with eCommerce offerings.

SCObiz is a turnkey solution for integration, deployment, and management of Web-based applications. SCObiz provides a comprehensive Web site service that includes:

- Centralized site administration-management console
- Integrated eCommerce
  - Shopping cart
  - Merchant account
  - Inventory management
  - Integrated shipping / tax

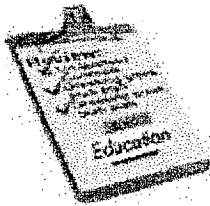
- Content management
- Marketing and promotions
- Customer services such as chat and message boards
- Business and site analysis
- Reservations, scheduling, and event calendar

SCObiz is a simple tool for the management of Web site building and hosting solution. It provides for easy customizing, snap-in core applications, automated deployment, and central management.

For the end-user customer, SCObiz provides for enhancing customer relationships and expanding customer service at a low cost of ownership. It is easy to use and requires very low maintenance. Because SCObiz is Internet-based, it does not require any special software or hardware. The end-user customer can manager their operations from anyplace, at anytime.

- SCO emphasis placed on stability
- Security decreases risk
- Enterprise management reduces overall cost of ownership
- SCO provides a complete line of Linux and UNIX products and services

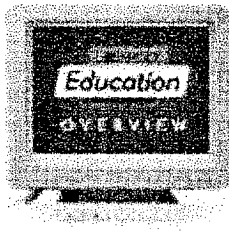
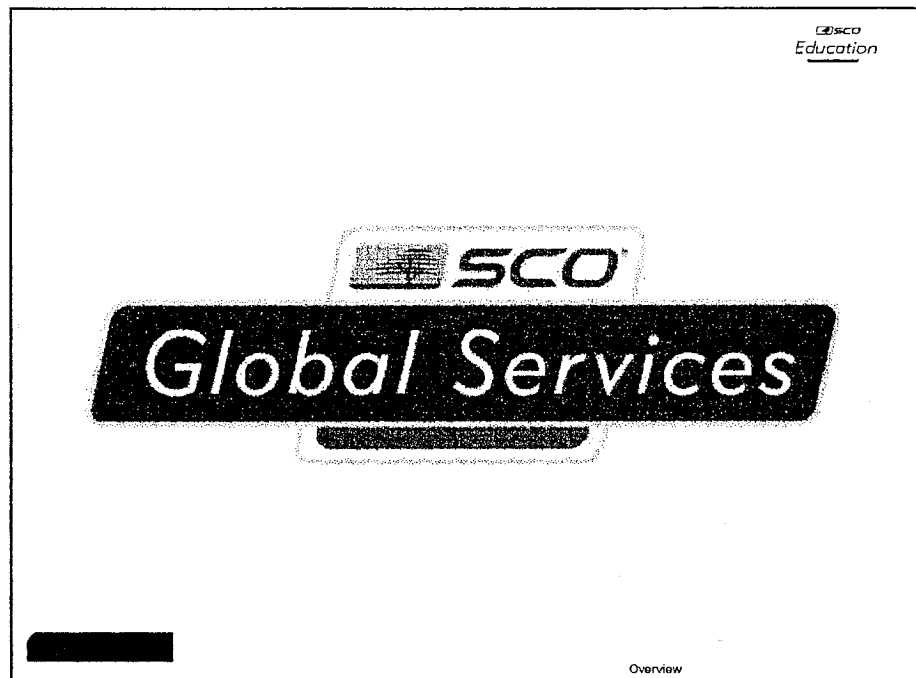
Review



SCO enables the development, deployment, and management of Linux and UNIX Internet solutions for business through its product lines and services. SCO's solutions combine the performance, scalability, and confidence of UNIX with the momentum of Linux, providing a true enterprise-level solution.

By placing emphasis on careful design and security, SCO is the superior choice for the enterprise environment and SCObiz is the superior choice for providing a turnkey solution for Web site building and hosting and Web-based applications.

# SCO Global Services



SCO Global Services provides traditional and Web-delivered services worldwide including:

- Support Services
- Online Services
- Education
- Professional Services

SCO Global Services works in combination with SCO channel partners to deliver services to SCO customers, as well as to provide our unique services direct to corporate accounts and small to medium business.

With over 20 years of experience, SCO has developed skills and expertise enabling us to deliver enterprise class support and services to all our partners and customers, including both standard and customized offerings.

SCO Global Services are available for all SCO products and all major Linux operating system distributions.

SCO offers a broad choice of operating systems and added-value software technologies. SCO Global Services matches these choices with unrivalled services that ensure successful development, integration, rollout, and maintenance of complete solutions. SCO, in conjunction with its partners, services over two million installed systems.

## Support Services

SCO's award-winning Technical Support Services delivers service, 24 hours a day and seven days a week, from its support centers around the world. It is industry-renowned for quality and professionalism.

Technical support is available in a range of convenient standard offerings spanning from incident call packs, annual unlimited contracts, through to dedicated and single point-of-contact. A range of response times, on site reviews, remote dial-in problem analysis, technical account management, and 24x7 options are available as integrated or add-ons to the standard offerings.

SCO Support Services includes access to your personalized Online Services Manager giving you access to SCO's Support Knowledge Center, account information and support activity, and proactive notification services.

With our enterprise level of service, SCO can construct a complete customized service offering tailored to your business needs. This can include defined engineering escalation response times for high severity issues.

## Online Services

SCO provides extensive 24x7 Self-Help technical support services on SCO products including installation and configuration support through an easy-to-use, single Web view. The Self-Help Web site is located at [www.sco.com/support/self\\_help.html](http://www.sco.com/support/self_help.html).

Other key Online Services features include access to

- Frequently Asked Questions (FAQs)
- SCO Certified Hardware
- Licensing and registration information
- Download support for supplements to SCO products

## Professional Services

SCO Professional Services provides expert advice for designing and deploying IT solutions based on Linux and UNIX technologies. After more the 20 years of planning and implementing complex IT solutions, SCO has gained a reputation as industry-leading consultants with professionalism, problem-solving skills, innovative solutions, and attention to detail.

With custom engineering and small footprint system development, SCO Professional Services can accelerate the production of your solution. With our experience, SCO has built a set of methodologies and techniques that speed up and reduce the risks of such projects.

SCO Professional Services expertise includes:

- Server design and deployment
- Server replication
- Application and server migration
- Clustering planning and deployment
- Network and systems management
- Custom engineering
- Drivers
- Linux distributions
- Embedded devices
- Small Footprint
- Network architecture design and infrastructure



# Education

SCO Education provides courseware and programs that meet the demands of busy IT professionals.

SCO Education provides courseware for UNIX, Linux, and SCO management products. Courses and self-study materials prepare you to set up, manage, and maintain SCO UNIX and Linux networks. From basic system administration to network infrastructure and services, to enterprise administration and security, you can find the courseware you need to gain the skills required for your success.

SCO Education is available in a number of formats:

- Instructor-led training available in two to five day courses  
All instructor-led courses are offered through a global channel of SCO Authorized Education Partners. Their instructors are experienced with a variety of platforms and bring real-world expertise to the classroom.
- eLearning, with mentoring, over the Internet
- Self-study through individual Learning Units available online  
For a complete listing of Linux Learning Units, see *Expand Your Knowledge* at the end of this Learning Unit.
- Customized courses developed and delivered to meet business needs

SCO Education provides full professional certification programs for UNIX and Linux tracks leveraging industry certifications.

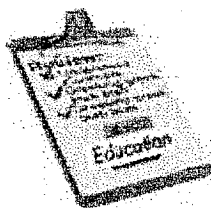
- Certified Systems Administrator (CSA)
- Advanced Certified Engineer (ACE)
- SCO Master ACE
- LPI certification (Linux Professional Institute)
- Linux+ by CompTIA

Visit [www.sco.com/education](http://www.sco.com/education) for information on SCO Education products and services.

## **SCO Global Services access**

For more information on SCO Global Services, visit <http://www.sco.com/services>.  
To reach SCO Global Services by telephone, use:

- In North America, 1-800-726-8649
- In Europe, the Middle East, India, Africa, and the Pacific Rim, +44(0) 1923 816344



Education offers self-paced and instructor-led training. You can receive training through our SCO Authorized Education Partners or directly from SCO.

# Learning Unit Summary

SCO  
Education

- Linus Torvalds developed Linux
- Open Source licenses maintain public availability of source code
- The kernel is the core of the Linux operating system
- Linux supports both multitasking and multi-user capabilities
- Linux software packages are readily available
- UnitedLinux provides an industry standard
- SCO provides a complete solution for business through its products and Global Services

Summary

Linux is an Open Source, multi-user, multitasking operating system developed by Linus Torvalds. Since its inception, Linux has become a versatile, cost-effective way to meet users' computing needs.

Linux is used as a stand-alone system supporting many terminals, a network server providing resources to local and remote clients, and as a graphical workstation engaged in distributed computing on a network.

SCO's Global Services offerings include Support Services, Online Services, Education, and Professional Services.

# Review questions

1. List four goals of the General Public License (GPL).
2. Describe the differences between the terms multitasking and multi-user environments.
3. What are the most common server roles for Linux computers?
4. How is commercial application development affecting Linux?
5. What are the major strengths of Linux?
6. List four features that administrators need to manage their systems effectively with SCO Volution Manager.
7. List the five major advantages of UnitedLinux
8. Which OpenServer platform is an excellent platform for delivering highly reliable, non-networked multi-user solutions?
9. List two popular mail clients the SCO Volution Messaging Server supports.

## Review question answers

1. The following represents four goals of the GPL:
  - Maintain that individuals and companies can distribute free software alone or packaged with their own software
  - Allow companies that distribute free software to charge a fee for their services
  - Assure the source code to all licensed software and its derivatives is publicly available
  - Pass the same rights on to the recipients or users of the licensed software
2. The differences between a multitasking and multi-user environment are:
  - Multitasking environments execute several processes concurrently. These processes share the computer's CPU and memory resources.
  - Multi-user environments allow any number of users to access to the system simultaneously. This type of environment shares a computer's resources and peripheral devices between users.
3. Linux computers commonly serve as:
  - Web servers
  - File and print servers
  - General network infrastructure servers such as mail, firewall, network router, and database servers
4. Commercial application development by principle vendors is helping push Linux into mainstream use.
5. Strengths of Linux include:
  - Multi-user and multitasking capabilities
  - Open Source
  - Reliability
  - Choice of vendors and support organizations
  - Wide variety of CPU architectures
6. Features that administrators need to effectively manage their systems with SCO Volution Manager include:
  - Asset management
  - Software distribution
  - Health monitoring
  - Printer configuration
  - A scripting distribution engine
7. The five major advantages of UnitedLinux are:

- Combined expertise of top Linux vendors
  - Stability
  - Quality assurance
  - Certification
  - Worldwide presence
8. The OpenServer Host System platform is an excellent platform for delivering highly reliable, non-networked multi-user solutions.
  9. Two popular mail clients the Volution Messaging Server supports are Microsoft Outlook® and Outlook® Express.

# Expand Your Knowledge

Refer to the SCO Education Web site, [www.sco.com/education](http://www.sco.com/education) and check the availability of the following Linux Learning Units:

Learning Unit Number	Learning Unit Name
LU001	SCO Linux Introduction
LU002	SCO Linux Installation
LU003	Boot Processes
LU004	KDE Desktop
LU005	Documentation
LU006	Command-line Interface
LU007	Shell Scripting Basics
LU008	Process Management
LU009	User and Group Management
LU010	File and Directory Basics
LU011	Filesystem Management
LU012	Backup Administration
LU013	Printer Administration
LU014	X Configuration and Use
LU015	Samba Configuration I
LU016	Samba Configuration II
LU017	Software Management
LU019	Kernel Management
LU020	Apache Configuration
LU021	FTP Configuration
LU022	Mail Configuration
LU023	Squid Configuration
LU024	TCP/IP Configuration
LU025	DNS Configuration
LU026	DHCP Configuration
LU027	PPP Configuration

SCO Linux Learning Units



Learning Unit Number	Learning Unit Name
LU028	NFS Administration
LU029	Security Overview
LU030	Intrusion Prevention
LU031	Firewall Configuration
LU032	Intrusion Detection

#### SCO Linux Learning Units