

CT.CTA.Computer Technician Analyst (CTC)

Essential Discipline Goals:

- Develop and apply the technical competency and related academic skills that allow for economic independence and career satisfaction.
- Acquire the essential learnings and values that foster continued education throughout life.
- Demonstrate the ability to communicate, solve problems, work individually and in groups, and apply information effectively.
- Develop technological literacy and the ability to adapt to future change.

CT.CTA.IT Essentials I PC Hardware and Software

CT.CTA.20 **Information Technology Basics**

CT.CTA.20.10 **Getting Started in IT**

- CT.CTA.20.10.100 Computer systems and programs
- CT.CTA.20.10.102 Computer types
- CT.CTA.20.10.103 Connecting computer systems
- CT.CTA.20.10.104 Birth of the Internet
- CT.CTA.20.10.105 The cost of technology

CT.CTA.20.20 **Windows Desktop Environment**

- CT.CTA.20.20.100 Starting, shutting down, and restarting Microsoft Windows
- CT.CTA.20.20.102 Windows Explorer
- CT.CTA.20.20.104 The desktop
- CT.CTA.20.20.106 Working with icons
- CT.CTA.20.20.108 Recognizing an application window
- CT.CTA.20.20.110 Resizing a desktop window
- CT.CTA.20.20.112 Switching between windows

CT.CTA.20.30 **Basic Features of Windows**

- CT.CTA.20.30.100 Viewing the basic system information of a computer
- CT.CTA.20.30.102 Setting the clock and date
- CT.CTA.20.30.104 Minimizing, maximizing, and exiting
- CT.CTA.20.30.106 Adjusting the screen display
- CT.CTA.20.30.108 Desktop settings
- CT.CTA.20.30.110 Adjusting audio volume
- CT.CTA.20.30.112 Start menu options
- CT.CTA.20.30.114 Recycle Bin

CT.CTA.20.40 **Overview of Software Applications**

- CT.CTA.20.40.100 Word processors
- CT.CTA.20.40.102 Spreadsheets
- CT.CTA.20.40.104 Databases
- CT.CTA.20.40.106 Graphics applications
- CT.CTA.20.40.108 Presentation applications

CT.CTA.20.40.110 Web browser and e-mail

CT.CTA.20.50 Math for a Digital Age

- CT.CTA.20.50.100 Measurement-related terminology
- CT.CTA.20.50.102 Analog and digital systems
- CT.CTA.20.50.104 Boolean logic gates
- CT.CTA.20.50.106 Decimal and binary number systems
- CT.CTA.20.50.108 Decimal to binary conversion
- CT.CTA.20.50.110 The hexadecimal number system
- CT.CTA.20.50.112 Binary to hexadecimal conversion
- CT.CTA.20.50.114 Hexadecimal to binary conversion
- CT.CTA.20.50.116 Converting to any base
- CT.CTA.20.50.118 Introduction to algorithms

CT.CTA.20.60 Laboratory Safety and Tools

- CT.CTA.20.60.100 Basic lab safety principles
- CT.CTA.20.60.102 Workspace practices that help reduce ESD potential
- CT.CTA.20.60.104 Tools of the trade
- CT.CTA.20.60.106 Workspace cleaning supplies
- CT.CTA.20.60.108 Workplace testing equipment
- CT.CTA.20.60.110 Lab safety agreement

CT.CTA.30 How Computers Work

CT.CTA.30.10 System Overview

- CT.CTA.30.10.100 Input, process, output, and storage

CT.CTA.30.20 The Boot Process

- CT.CTA.30.20.100 Initializing the system hardware
- CT.CTA.30.20.102 Loading the operating system
- CT.CTA.30.20.104 The boot sequence

CT.CTA.30.30 Hardware Components

- CT.CTA.30.30.100 Computer case
- CT.CTA.30.30.102 Power supply
- CT.CTA.30.30.104 Cooling systems
- CT.CTA.30.30.106 The motherboard
- CT.CTA.30.30.108 Motherboard form factors
- CT.CTA.30.30.110 Motherboard components
- CT.CTA.30.30.112 CPUs
- CT.CTA.30.30.114 BIOS
- CT.CTA.30.30.116 Expansion slots
- CT.CTA.30.30.118 Riser cards
- CT.CTA.30.30.120 Bus types

CT.CTA.30.40 Memory Components

- CT.CTA.30.40.100 RAM

- CT.CTA.30.40.100 Identifying SIMMs and DIMMs
- CT.CTA.30.40.100 Cache/COAST memory
- CT.CTA.30.50 **Display Components**
 - CT.CTA.30.50.100 Monitors/display devices
 - CT.CTA.30.50.100 Video Cards

- CT.CTA.30.60 **Connector Components**
 - CT.CTA.30.60.100 Serial and parallel ports
 - CT.CTA.30.60.102 PS/2 ports/6-pin mini DIN, 5-Pin DIN
 - CT.CTA.30.60.104 Universal Serial Bus (USB) and FireWire
 - CT.CTA.30.60.106 IDE, EIDE, Ultra, and SCSI controllers
 - CT.CTA.30.60.108 SCSI disk types

- CT.CTA.30.70 **Storage Components**
 - CT.CTA.30.70.100 Floppy drives
 - CT.CTA.30.70.100 Hard drives
 - CT.CTA.30.70.100 CD-ROMs
 - CT.CTA.30.70.100 DVD formats and drives
 - CT.CTA.30.70.100 Backup hardware

- CT.CTA.30.80 **Network Components**
 - CT.CTA.30.80.100 Modems
 - CT.CTA.30.80.100 Network interface card (NIC)

- CT.CTA.30.90 **System Resources**
 - CT.CTA.30.90.100 What are system resources?
 - CT.CTA.30.90.102 Interrupt requests (IRQs)
 - CT.CTA.30.90.104 Direct memory access (DMA)
 - CT.CTA.30.90.106 Input/Output (I/O) addresses

- CT.CTA.30.100 **Portable Devices**
 - CT.CTA.30.100.100 Notebook computers
 - CT.CTA.30.100.102 Portable hardware
 - CT.CTA.30.100.104 PCMCIA cards
 - CT.CTA.30.100.106 Portable computer displays
 - CT.CTA.30.100.108 Docking station/port replicator
 - CT.CTA.30.100.110 Upgrading and troubleshooting notebooks
 - CT.CTA.30.100.112 Infrared devices
 - CT.CTA.30.100.114 Wireless access points

CT.CTA.40 **Assembling a Computer**

- CT.CTA.40.10 **Overview of the Assembly Process and Safety Issues**
 - CT.CTA.40.10.100 Overview of general safety issues
 - CT.CTA.40.10.102 Overview of general safety issues
 - CT.CTA.40.10.104 Process demonstration

CT.CTA.40.20 Creating a Computer Inventory

- CT.CTA.40.20.100 Importance of an inventory
- CT.CTA.40.20.100 Inventory checklist

CT.CTA.40.30 The Computer Case and Power Supply

- CT.CTA.40.30.100 Computer cases and system units
- CT.CTA.40.30.102 Desktops
- CT.CTA.40.30.104 Towers
- CT.CTA.40.30.106 Power supplies

CT.CTA.40.40 Preparing the Motherboard for Installation

- CT.CTA.40.40.100 Motherboard location map
- CT.CTA.40.40.102 Motherboard configuration
- CT.CTA.40.40.104 Motherboard jumpers
- CT.CTA.40.40.106 Installing the CPU
- CT.CTA.40.40.108 Installing the heat sink and fan
- CT.CTA.40.40.110 Installing RAM

CT.CTA.40.50 Installing the Motherboard

- CT.CTA.40.50.100 Installing the motherboard into the case
- CT.CTA.40.50.100 Attaching the LEDs, keylock, and speaker
- CT.CTA.40.50.100 Connecting power supply cables to the motherboard

CT.CTA.40.60 Installing the Floppy Drive, Hard Drive, CD-ROM, and DVD

- CT.CTA.40.60.100 Attaching the floppy drive to the case
- CT.CTA.40.60.102 Attaching the hard drive and CD-ROM to the case
- CT.CTA.40.60.104 Connecting the floppy drive, hard drive, CD-ROM, and DVD to the system
- CT.CTA.40.60.106 Connecting power cables to the floppy drive, hard drive, and CD-ROM.

CT.CTA.40.70 Video Card Installation

- CT.CTA.40.70.100 Step-by-step installation of the video card

CT.CTA.40.80 Final Steps

- CT.CTA.40.80.100 Fitting the case together
- CT.CTA.40.80.100 Connecting the keyboard, mouse, monitor, and power cord

CT.CTA.40.90 Booting the System for the First Time

- CT.CTA.40.90.100 What is BIOS?
- CT.CTA.40.90.102 Entering the BIOS configuration
- CT.CTA.40.90.104 Standard CMOS setup screen
- CT.CTA.40.90.106 BIOS features and chipset features setup screens
- CT.CTA.40.90.108 Power management and Plug and Play screens
- CT.CTA.40.90.110 Integrated peripherals and fixed disk detection screens
- CT.CTA.40.90.112 Password screens and the load setup defaults screen
- CT.CTA.40.90.114 BIOS exit options
- CT.CTA.40.90.116 Startup sequence

CT.CTA.50 **Operating System Fundamentals**

CT.CTA.50.10 **The Operating System**

- CT.CTA.50.10.100 Components of an operating system
- CT.CTA.50.10.102 Operating system functions
- CT.CTA.50.10.104 Operating system types and basic terminology

CT.CTA.50.20 **Disk Operating System (DOS)**

- CT.CTA.50.20.100 What is DOS, and why learn about it?
- CT.CTA.50.20.102 DOS file structure
- CT.CTA.50.20.104 Overview of basic DOS commands
- CT.CTA.50.20.106 Creating a DOS boot disk
- CT.CTA.50.20.108 Booting the system with a DOS disk
- CT.CTA.50.20.110 DOS configuration files
- CT.CTA.50.20.112 Editing system configuration files

CT.CTA.50.30 **Memory Management**

- CT.CTA.50.30.100 Memory types
- CT.CTA.50.30.102 Memory management tools
- CT.CTA.50.30.104 Other types of memory
- CT.CTA.50.30.106 Memory conflicts
- CT.CTA.50.30.108 Real versus Protected mode memory addressing

CT.CTA.60 **Windows 9x Operating Systems**

CT.CTA.60.10 **The Windows 9x File Structure and File Management System**

- CT.CTA.60.10.100 Naming files in Windows
- CT.CTA.60.10.102 Directories and folders
- CT.CTA.60.10.104 Using a text editing application to create a file (document)
- CT.CTA.60.10.106 Copy, cut, or create shortcuts
- CT.CTA.60.10.108 Viewing document details
- CT.CTA.60.10.110 Recognizing file types in Windows
- CT.CTA.60.10.112 Selecting, copying, and moving files
- CT.CTA.60.10.114 Searching for a file, folder, or directory
- CT.CTA.60.10.116 Make backup copies of files onto a diskette
- CT.CTA.60.10.118 Using the Recycle Bin

CT.CTA.60.20 **Windows Management with Control Panel**

- CT.CTA.60.20.100 System applet
- CT.CTA.60.20.102 Printer
- CT.CTA.60.20.104 Add/Remove Programs
- CT.CTA.60.20.106 Add/Remove Hardware
- CT.CTA.60.20.108 Display and Sounds

CT.CTA.60.30 **System Tools**

- CT.CTA.60.30.100 The Registry

- CT.CTA.60.30.102 REGEDIT and SCANREG
- CT.CTA.60.30.104 MSCONFIG, Startup Menu, and Safe Mode
- CT.CTA.60.30.106 WSCRIPT.EXE, HWINFO.EXE, and ASD.EXE

CT.CTA.60.40 Preparing a Hard Drive for Operating System Installation

- CT.CTA.60.40.100 Partitioning a hard drive
- CT.CTA.60.40.100 Formatting a hard drive

CT.CTA.60.50 Installing Windows 9x

- CT.CTA.60.50.100 Windows 9x versions overview
- CT.CTA.60.50.100 Requirements for installing Windows 98
- CT.CTA.60.50.100 Understanding the steps in Windows 98 installation
- CT.CTA.60.50.100 Windows 98 setup options
- CT.CTA.60.50.100 Upgrade installation

CT.CTA.60.60 Troubleshooting the Installation Process

- CT.CTA.60.60.100 Systematic troubleshooting techniques and finding help
- CT.CTA.60.60.102 Windows 98 setup errors
- CT.CTA.60.60.104 System properties and identifying icon symbols
- CT.CTA.60.60.106 Adding software drivers
- CT.CTA.60.60.108 Making a backup Windows startup disk
- CT.CTA.60.60.110 Uninstalling Windows 98

CT.CTA.70 Windows NT/2000 Operating Systems

CT.CTA.70.10 Windows 9x Contrasts

- CT.CTA.70.10.100 NTFS versus FAT
- CT.CTA.70.10.102 Security and permissions
- CT.CTA.70.10.104 Windows 2000 boot process
- CT.CTA.70.10.106 Plug-and-Play and drivers

CT.CTA.70.20 System Tools

- CT.CTA.70.20.100 Administrative tools
- CT.CTA.70.20.100 Windows 2000 registry
- CT.CTA.70.20.100 Startup Menu and Safe Mode
- CT.CTA.70.20.100 The ERD and Recovery Console for Windows 2000

CT.CTA.70.30 Overview of the Installation Process

- CT.CTA.70.30.100 Differences between Windows 2000 and 9x installation
- CT.CTA.70.30.102 Hardware requirements
- CT.CTA.70.30.104 Windows 2000 features

CT.CTA.70.40 Installing the Windows 2000 OS

- CT.CTA.70.40.100 Requirements for installing Windows 2000
- CT.CTA.70.40.102 Understanding the steps in Windows 2000 installation
- CT.CTA.70.40.104 Windows 2000 setup options

CT.CTA.70.50 **Special Installations**

- CT.CTA.70.50.100 Upgrading from Windows NT Workstation 4 to Windows 2000
- CT.CTA.70.50.102 Upgrading Windows 9x with Windows 2000
- CT.CTA.70.50.104 Dual boot Windows 9x with Windows 2000

CT.CTA.80 **Windows XP Operating System**

CT.CTA.80.10 **Windows XP Versions**

- CT.CTA.80.10.100 Windows XP Home Edition
- CT.CTA.80.10.102 Windows XP Professional
- CT.CTA.80.10.104 Windows XP Professional 64-bit
- CT.CTA.80.10.106 Windows XP Media Center Edition

CT.CTA.80.20 **Overview of the Installation Process**

- CT.CTA.80.20.100 Differences between Windows 2000/9x installation and XP
- CT.CTA.80.20.102 Hardware requirements
- CT.CTA.80.20.104 Windows XP features

CT.CTA.80.30 **Installing the Windows XP OS**

- CT.CTA.80.30.100 Requirements for installing Windows XP
- CT.CTA.80.30.102 Understanding the steps in Windows XP installation
- CT.CTA.80.30.104 Windows XP setup options

CT.CTA.80.40 **Special Installations**

- CT.CTA.80.40.100 Upgrading Windows NT Workstation 4/2000 to XP
- CT.CTA.80.40.102 Upgrading Windows 98 to Windows XP Professional
- CT.CTA.80.40.104 Dual boot Windows 9x, Windows NT 4, Windows 2000, and Windows XP

CT.CTA.80.50 **Windows XP and Windows NT/2000/ME/9x Contrasts**

- CT.CTA.80.50.100 Keeping user files private
- CT.CTA.80.50.102 Simple file sharing versus Windows 2000 sharing
- CT.CTA.80.50.104 Internet enhancements
- CT.CTA.80.50.106 System properties
- CT.CTA.80.50.108 Graphical User Interface (GUI)

CT.CTA.90 **Multimedia Capabilities**

CT.CTA.90.10 **Introduction to Multimedia**

- CT.CTA.90.10.100 Basic hardware required for multimedia upgrades
- CT.CTA.90.10.102 The video adapter
- CT.CTA.90.10.104 Characterizing computer displays
- CT.CTA.90.10.106 Sound cards and speaker systems
- CT.CTA.90.10.108 Common media file formats used in multimedia applications
- CT.CTA.90.10.110 MPEG hardware versus software

CT.CTA.90.20 Upgrading Video with a Video Acceleration Board

- CT.CTA.90.20.100 PCI and AGP types
- CT.CTA.90.20.102 All in one
- CT.CTA.90.20.104 Installing and configuring the video card driver and software
- CT.CTA.90.20.106 Understanding RAMDAC and video memory
- CT.CTA.90.20.108 Flashing the video board with BIOS updates

CT.CTA.90.30 Adding Audio Capabilities with a Sound Card

- CT.CTA.90.30.100 Sound card operation
- CT.CTA.90.30.102 USB, PCI, and built-in sound
- CT.CTA.90.30.104 Removing or disabling outdated sound cards
- CT.CTA.90.30.106 Physical installation of sound cards
- CT.CTA.90.30.108 Connecting the CD-ROM or DVD player to the sound card
- CT.CTA.90.30.110 Sound card driver and software installation
- CT.CTA.90.30.112 MIDI and external-audio source connection

CT.CTA.90.40 Overview of CD-RW and DVD

- CT.CTA.90.40.100 Drive
- CT.CTA.90.40.102 Recording CDs with CD-R and CD-RW
- CT.CTA.90.40.104 Digital audio extraction explained
- CT.CTA.90.40.106 DVD drives
- CT.CTA.90.40.108 Recordable DVD
- CT.CTA.90.40.110 CD recording formats
- CT.CTA.90.40.112 DVD layering and formats

CT.CTA.90.50 Digitizing Video

- CT.CTA.90.50.100 Digital cameras and video cameras
- CT.CTA.90.50.102 Hardware and software video capture
- CT.CTA.90.50.104 Installing and configuring a video capture board

CT.CTA.100 Advanced Hardware Fundamentals for Servers

CT.CTA.100.10 Network Server Overview

- CT.CTA.100.10.100 Network server
- CT.CTA.100.10.102 RAID
- CT.CTA.100.10.104 RAID controller
- CT.CTA.100.10.106 Hardware RAID versus software RAID

CT.CTA.100.20 Hardware-Based RAID Configuration

- CT.CTA.100.20.100 Hardware-based RAID configuration overview
- CT.CTA.100.20.102 RAID 0 configuration
- CT.CTA.100.20.104 RAID 1 configuration
- CT.CTA.100.20.106 RAID 5 configuration
- CT.CTA.100.20.108 RAID 0/1 configuration

CT.CTA.100.30 **Configuring External Peripherals**

CT.CTA.100.30.100 Overview of external disk subsystems

CT.CTA.100.30.102 Configuring an external disk subsystem

CT.CTA.100.30.104 Configuring an external CD-ROM system

CT.CTA.100.40 **Adding Hardware to a Server**

CT.CTA.100.40.100 Replacing a single processor with a faster processor

CT.CTA.100.40.102 Installing additional processors

CT.CTA.100.40.104 Upgrading the operating system for multiple processors

CT.CTA.100.40.106 Adding hard drives

CT.CTA.100.40.108 Adding memory

CT.CTA.100.50 **Upgrading Server Components**

CT.CTA.100.50.100 Upgrading adapter memory

CT.CTA.100.50.102 Upgrading adapter BIOS or firmware

CT.CTA.100.50.104 Replacing an adapter

CT.CTA.100.50.106 Upgrading peripheral devices

CT.CTA.100.50.108 Upgrading system monitoring agents

CT.CTA.100.50.110 Upgrading service tools

CT.CTA.100.50.112 Document the configuration

CT.CTA.110 **Networking Fundamentals**

CT.CTA.110.10 **Introduction to PC Networking**

CT.CTA.110.10.100 Defining a computer network

CT.CTA.110.10.102 File, print, and application services

CT.CTA.110.10.104 Mail services

CT.CTA.110.10.106 Directory and name services

CT.CTA.110.10.108 The Internet

CT.CTA.110.10.110 Network administration

CT.CTA.110.10.112 Simplex, half-duplex, and full-duplex transmission

CT.CTA.110.20 **Types of Networks**

CT.CTA.110.20.100 Overview

CT.CTA.110.20.102 Peer-to-peer networks

CT.CTA.110.20.104 Client/server networks

CT.CTA.110.20.106 Local-area networks (LANs)

CT.CTA.110.20.108 Wide-area networks (WANs)

CT.CTA.110.30 **Adding a Network Interface Card (NIC)**

CT.CTA.110.30.100 What is a NIC?

CT.CTA.110.30.102 Setting the IP address

CT.CTA.110.30.104 DHCP servers

CT.CTA.110.30.106 Default gateway

CT.CTA.110.30.108 Domain Name System

CT.CTA.110.40 Physical Components of a Network

- CT.CTA.110.40.100 Network topologies
- CT.CTA.110.40.102 Physical versus logical topology
- CT.CTA.110.40.104 Networking media
- CT.CTA.110.40.106 Common networking devices
- CT.CTA.110.40.108 Server components

CT.CTA.110.50 LAN Architectures

- CT.CTA.110.50.100 Ethernet
- CT.CTA.110.50.102 Token Ring
- CT.CTA.110.50.104 Fiber Distributed Data Interface (FDDI)

CT.CTA.110.60 Networking Protocols and the OSI Model

- CT.CTA.110.60.100 OSI model overview
- CT.CTA.110.60.102 What is a protocol?
- CT.CTA.110.60.104 Transmission Control Protocol/Internet Protocol
- CT.CTA.110.60.106 Internetwork Packet Exchange/Sequenced Packet Exchange
- CT.CTA.110.60.108 NetBEUI
- CT.CTA.110.60.110 AppleTalk

CT.CTA.110.70 TCP/IP Utilities

- CT.CTA.110.70.100 Overview
- CT.CTA.110.70.102 Ping
- CT.CTA.110.70.104 ARP, RARP, and NSLOOKUP
- CT.CTA.110.70.106 Netstat and tpcon
- CT.CTA.110.70.108 Nbtstat
- CT.CTA.110.70.110 Ipconfig, winipcfg, config, and ifconfig
- CT.CTA.110.70.112 Tracert, iptrace, and traceroute

CT.CTA.110.80 Connecting to the Internet

- CT.CTA.110.80.100 Synchronous and asynchronous serial lines
- CT.CTA.110.80.102 Modems
- CT.CTA.110.80.104 Dial-up networking, modem standards, and AT commands
- CT.CTA.110.80.106 ISPs and Internet backbone providers
- CT.CTA.110.80.108 Digital subscriber line (DSL)
- CT.CTA.110.80.110 Cable modems
- CT.CTA.110.80.112 Cable modem versus DSL Internet technologies
- CT.CTA.110.80.114 ISDN
- CT.CTA.110.80.116 Satellite Internet

CT.CTA.120 Printers and Printing

CT.CTA.120.10 Understanding Printers and Printing

- CT.CTA.120.10.100 Printer overview

- CT.CTA.120.10.102 Understanding dot matrix printer operation
- CT.CTA.120.10.104 Understanding inkjet printer operation
- CT.CTA.120.10.106 Understanding laser printer operation

CT.CTA.120.20 Buying a Printer

- CT.CTA.120.20.100 Print capacity and speed
- CT.CTA.120.20.102 Printer quality and resolution
- CT.CTA.120.20.104 Reliability
- CT.CTA.120.20.106 Cost of ownership
- CT.CTA.120.20.108 Laser versus Inkjet printers

CT.CTA.120.30 Connecting a Printer

- CT.CTA.120.30.100 Serial, parallel, USB, SCSI, and network communication types
- CT.CTA.120.30.102 Page description languages
- CT.CTA.120.30.104 Installing and updating printer drivers
- CT.CTA.120.30.106 Ink and toner installation and replacement
- CT.CTA.120.30.108 Print media installation and adjustment
- CT.CTA.120.30.110 Installing additional printer memory
- CT.CTA.120.30.112 Adding a local printer in Windows 2000
- CT.CTA.120.30.114 Printing a test page

CT.CTA.120.40 Sharing a Printer

- CT.CTA.120.40.100 Host-based printing technology
- CT.CTA.120.40.102 Printer switches
- CT.CTA.120.40.104 Printer built-in fonts and font cards
- CT.CTA.120.40.106 Configuring printer sharing
- CT.CTA.120.40.108 Adding a network printer
- CT.CTA.120.40.110 Installing print services
- CT.CTA.120.40.112 The network print server
- CT.CTA.120.40.114 Printer network interface cards (NICs)

CT.CTA.120.50 Managing a Printer

- CT.CTA.120.50.100 Using the printer queue to manage print jobs
- CT.CTA.120.50.102 Setting print times for large or less important documents
- CT.CTA.120.50.104 Selecting a default printer
- CT.CTA.120.50.106 Configuring individual printer options
- CT.CTA.120.50.108 Printer accessories

CT.CTA.120.60 Dealing with Paper Problems

- CT.CTA.120.60.100 Obstructions in the paper path
- CT.CTA.120.60.102 Stripped and broken drive gears
- CT.CTA.120.60.104 Stepper motor problems
- CT.CTA.120.60.106 Defective registration roller and other feed rollers
- CT.CTA.120.60.108 Wrong type of paper
- CT.CTA.120.60.110 High humidity
- CT.CTA.120.60.112 Paper dusting

CT.CTA.130 **Preventive Maintenance and Upgrading**

CT.CTA.130.10 **Preventive Maintenance and the Technician**

- CT.CTA.130.10.100 Elements of a preventive maintenance program
- CT.CTA.130.10.102 Tools and equipment
- CT.CTA.130.10.104 Environmental guidelines
- CT.CTA.130.10.106 Environmental guidelines for a server room
- CT.CTA.130.10.108 Proper disposal of hazardous materials
- CT.CTA.130.10.110 Using Material Safety and Data Sheets (MSDS)

CT.CTA.130.20 **Preventive Maintenance and Electrostatic Discharge (ESD)**

- CT.CTA.130.20.100 Electrostatic discharge (ESD) overview
- CT.CTA.130.20.102 Antistatic bags
- CT.CTA.130.20.104 Grounding wrist straps
- CT.CTA.130.20.106 Compressed air
- CT.CTA.130.20.108 Grounded workbench

CT.CTA.130.30 **Preventive Maintenance for Computer Peripherals**

- CT.CTA.130.30.100 Monitor
- CT.CTA.130.30.102 Mice
- CT.CTA.130.30.104 Keyboard
- CT.CTA.130.30.106 Cleaning printers
- CT.CTA.130.30.108 Scanners

CT.CTA.130.40 **Preventive Maintenance for Computer Software**

- CT.CTA.130.40.100 Software utilities
- CT.CTA.130.40.102 User responsibilities
- CT.CTA.130.40.104 Anti-virus
- CT.CTA.130.40.106 Firewall
- CT.CTA.130.40.108 Power issues
- CT.CTA.130.40.110 Surge suppressor and power supplies
- CT.CTA.130.40.112 UPS in a server environment

CT.CTA.140 **Troubleshooting PC Hardware**

CT.CTA.140.10 **Troubleshooting Basics**

- CT.CTA.140.10.100 What is troubleshooting?
- CT.CTA.140.10.102 Identify the problem
- CT.CTA.140.10.104 Gathering information
- CT.CTA.140.10.106 Developing a solution
- CT.CTA.140.10.108 Implementing the solution
- CT.CTA.140.10.110 Is the problem solved?
- CT.CTA.140.10.112 Documenting the solution
- CT.CTA.140.10.114 Troubleshooting tools
- CT.CTA.140.10.116 Diagnostic software

CT.CTA.140.10.118 Disposal actions

CT.CTA.140.20 Troubleshooting the Hardware Box

CT.CTA.140.20.100 Overview of field replaceable units (FRUs)

CT.CTA.140.20.102 POST errors

CT.CTA.140.20.104 CMOS/BIOS errors

CT.CTA.140.20.106 Motherboard-related errors

CT.CTA.140.20.108 CPUs

CT.CTA.140.20.110 RAM

CT.CTA.140.20.112 Cable issues

CT.CTA.140.20.114 Ports

CT.CTA.140.20.116 The video system

CT.CTA.140.20.118 Secondary storage devices

CT.CTA.140.20.120 Sound cards

CT.CTA.140.20.122 Power supply issues

CT.CTA.140.20.124 Box cooling issues

CT.CTA.140.30 Troubleshooting Peripheral Devices

CT.CTA.140.30.100 Input devices

CT.CTA.140.30.102 Output devices

CT.CTA.140.30.104 SCSI interface issues

CT.CTA.140.30.106 Internet/network access devices

CT.CTA.150 Troubleshooting Software

CT.CTA.150.10 Role of the End User

CT.CTA.150.10.100 Overview of the troubleshooting process

CT.CTA.150.10.102 Eliciting information from the end user regarding the problem

CT.CTA.150.10.104 Reproducing the error symptoms

CT.CTA.150.10.106 Identify recent user changes to the software environment

CT.CTA.150.10.108 Determining whether the problem is hardware or software related

CT.CTA.150.10.110 Fixing the software

CT.CTA.150.20 DOS Troubleshooting Issues

CT.CTA.150.20.100 System boot problems

CT.CTA.150.20.102 DOS error messages

CT.CTA.150.20.104 Invalid directory errors

CT.CTA.150.30 Common Windows Operating System Problems

CT.CTA.150.30.100 Troubleshooting setup (installation) problems

CT.CTA.150.30.102 Troubleshooting startup (booting) problems

CT.CTA.150.30.104 Windows memory usage problems

CT.CTA.150.30.106 Windows OS missing/corrupt .DLL or .VxD files

CT.CTA.150.30.108 System lockup errors

CT.CTA.150.30.110 Troubleshooting shutdown problems

CT.CTA.150.40 Window 9x Troubleshooting Problems

- CT.CTA.150.40.100 Upgrade issues
- CT.CTA.150.40.102 Error codes and startup messages
- CT.CTA.150.40.104 Windows 9x Startup Modes
- CT.CTA.150.40.106 Windows 9x error log files
- CT.CTA.150.40.108 Windows virtual memory errors

CT.CTA.150.50 Using System Tools and System Editors to Troubleshoot Windows9x/2000/XP

- CT.CTA.150.50.100 Using System Tools
- CT.CTA.150.50.102 Using Windows Device Manager to troubleshoot
- CT.CTA.150.50.104 Using Windows system editors

CT.CTA.150.60 Windows 9x/2000/XP Registry Problems

- CT.CTA.150.60.100 The Registry files
- CT.CTA.150.60.102 The Registry structure
- CT.CTA.150.60.104 Editing the Registry
- CT.CTA.150.60.106 Cleaning the Registry

CT.CTA.150.70 Windows NT4/2000 Troubleshooting Problems

- CT.CTA.150.70.100 Windows NT/2000 installation problems (Review)
- CT.CTA.150.70.102 Windows NT/2000 upgrade issues
- CT.CTA.150.70.104 Windows NT Startup Modes
- CT.CTA.150.70.106 Windows 2000 Startup Modes
- CT.CTA.150.70.108 Windows 2000 Recovery Console

CT.CTA.150.80 Troubleshooting Windows XP

- CT.CTA.150.80.100 Windows XP installation problems
- CT.CTA.150.80.102 Windows XP upgrade issues
- CT.CTA.150.80.104 Windows XP startup modes
- CT.CTA.150.80.106 Windows XP recovery console

CT.CTA.150.90 Troubleshooting Applications

- CT.CTA.150.90.100 Troubleshooting DOS applications
- CT.CTA.150.90.102 Troubleshooting NT/2000 applications

CT.CTA.150.100 Windows Data Backup and Recovery

- CT.CTA.150.100.100 Windows Registry backup and recovery tools
- CT.CTA.150.100.102 Windows data and application backup and recovery tools
- CT.CTA.150.100.104 Types of data backup procedures

CT.CTA.150.110 Windows-Specific Printer Software Problem Troubleshooting

- CT.CTA.150.110.100 Print spoolers
- CT.CTA.150.110.102 Print queues
- CT.CTA.150.110.104 Incorrect/incompatible printer drivers

CT.CTA.150.120 Windows-Specific Networking Software Connection Troubleshooting

- CT.CTA.150.120.100 Error messages
- CT.CTA.150.120.102 Incorrect parameter setting/switches
- CT.CTA.150.120.104 Incorrect protocols or protocol properties
- CT.CTA.150.120.106 Incorrect client or client properties
- CT.CTA.150.120.108 Missing or incorrect bindings
- CT.CTA.150.120.110 Incorrect service selection
- CT.CTA.150.120.112 Incorrect primary network logon settings
- CT.CTA.150.120.114 Incorrect computer name or workgroup name
- CT.CTA.150.120.116 Network troubleshooting software utilities

CT.CTA.150.130 Windows 9x, NT, 2000, and XP Help

- CT.CTA.150.130.100 Help and troubleshooting files
- CT.CTA.150.130.102 Troubleshooting and information resources

CT.CTA.IT Essentials II: Network Operating systems

CT.CTA.220 **Operating System Fundamentals**

CT.CTA.220.10 Operating System Basics

- CT.CTA.220.10.100 Overview of PC Operating Systems
- CT.CTA.220.10.102 PCs and computer networks
- CT.CTA.220.10.104 The kernel
- CT.CTA.220.10.106 The file system
- CT.CTA.220.10.108 Common desktop operating systems

CT.CTA.220.20 Microsoft Windows

- CT.CTA.220.20.100 MS-DOS
- CT.CTA.220.20.102 Microsoft Windows 3.1
- CT.CTA.220.20.104 Windows 9x
- CT.CTA.220.20.106 Windows NT and Windows 2000
- CT.CTA.220.20.108 Windows XP
- CT.CTA.220.20.110 Windows GUI
- CT.CTA.220.20.112 Windows CLI
- CT.CTA.220.20.114 Windows Control Panel

CT.CTA.220.30 UNIX and Linux on the Desktop

- CT.CTA.220.30.100 Origins of UNIX
- CT.CTA.220.30.102 Origins of Linux
- CT.CTA.220.30.104 Linux/UNIX GUI
- CT.CTA.220.30.106 Linux/UNIX CLI
- CT.CTA.220.30.108 Linux and UNIX system configuration tools

CT.CTA.220.40 Network Operating Systems Overview

- CT.CTA.220.40.100 Common network operating systems
- CT.CTA.220.40.102 The client-server model
- CT.CTA.220.40.104 Evaluating customer resources and requirements

CT.CTA.230 Introduction to Networking

CT.CTA.230.10 Benefits of Networking

- CT.CTA.230.10.100 File, print, and application services
- CT.CTA.230.10.102 Mail services
- CT.CTA.230.10.104 Directory and name services
- CT.CTA.230.10.106 The Internet
- CT.CTA.230.10.108 Network administration

CT.CTA.230.20 Types of Networks

- CT.CTA.230.20.100 Overview
- CT.CTA.230.20.102 Local-Area Networks (LANs)
- CT.CTA.230.20.104 Wide-Area Networks (WANs)
- CT.CTA.230.20.106 Peer-to-peer networks
- CT.CTA.230.20.108 Client/server networks

CT.CTA.230.30 Networking Standards

- CT.CTA.230.30.100 Proprietary versus open standards
- CT.CTA.230.30.102 The OSI reference model
- CT.CTA.230.30.104 The DoD model
- CT.CTA.230.30.106 The IEEE
- CT.CTA.230.30.108 The ITU
- CT.CTA.230.30.110 Other standards

CT.CTA.230.40 Networking Protocols

- CT.CTA.230.40.100 Protocol suite
- CT.CTA.230.40.102 TCP/IP
- CT.CTA.230.40.104 IPX/SPX
- CT.CTA.230.40.106 AppleTalk

CT.CTA.230.50 LAN Architectures

- CT.CTA.230.50.100 Ethernet
- CT.CTA.230.50.102 Token Ring
- CT.CTA.230.50.104 Fiber Distributed Data Interface (FDDI)

CT.CTA.240 Physical Components of a Network

CT.CTA.240.10 Configuring a Network Interface Card

- CT.CTA.240.10.100 What is a NIC?
- CT.CTA.240.10.102 Setting the IP address

- CT.CTA.240.10.104 DHCP servers
- CT.CTA.240.10.106 Domain Name System
- CT.CTA.240.10.108 Default gateway

CT.CTA.240.20 **Topologies**

- CT.CTA.240.20.100 The network topology
- CT.CTA.240.20.102 Physical versus logical topology
- CT.CTA.240.20.104 Bus topology
- CT.CTA.240.20.106 Star topology
- CT.CTA.240.20.108 Ring topology
- CT.CTA.240.20.110 Mesh topology
- CT.CTA.240.20.112 Hybrid topology

CT.CTA.240.30 **Media Types**

- CT.CTA.240.30.100 Networking media
- CT.CTA.240.30.102 Coaxial cable
- CT.CTA.240.30.104 Twisted-pair cable
- CT.CTA.240.30.106 Fiber-optic cable
- CT.CTA.240.30.108 Wireless

CT.CTA.240.40 **Devices**

- CT.CTA.240.40.100 Hubs and repeaters
- CT.CTA.240.40.102 Bridges and switches
- CT.CTA.240.40.104 Routers

CT.CTA.240.50 **Connecting to the Internet (WANs)**

- CT.CTA.240.50.100 Synchronous and asynchronous serial lines
- CT.CTA.240.50.102 Modems
- CT.CTA.240.50.104 Dialup networking, modem standards, AT commands
- CT.CTA.240.50.106 ISPs and Internet backbone providers
- CT.CTA.240.50.108 DSL
- CT.CTA.240.50.110 Cable modems
- CT.CTA.240.50.112 Cable modem versus DSL Internet technologies

CT.CTA.250 **TCP/IP Networking**

CT.CTA.250.10 **History of TCP/IP**

- CT.CTA.250.10.100 Origins and growth of TCP/IP
- CT.CTA.250.10.102 The TCP/IP network model
- CT.CTA.250.10.104 TCP/IP and network operating systems

CT.CTA.250.20 **IP Addressing**

- CT.CTA.250.20.100 IPv4 addressing
- CT.CTA.250.20.102 IPv4 addressing overview
- CT.CTA.250.20.104 Class A addresses
- CT.CTA.250.20.106 Class B addresses

- CT.CTA.250.20.108 Class C addresses
- CT.CTA.250.20.110 Class D and E addresses
- CT.CTA.250.20.112 The IPv4 address crisis
- CT.CTA.250.20.114 Subnetting

CT.CTA.250.30 **Name Resolution**

- CT.CTA.250.30.100 Overview of name resolution
- CT.CTA.250.30.102 Hostnames and host tables
- CT.CTA.250.30.104 The domain name system
- CT.CTA.250.30.106 Name services and the NOS
- CT.CTA.250.30.108 WINS

CT.CTA.250.40 **TCP/IP Protocols**

- CT.CTA.250.40.100 Overview of TCP/IP protocols
- CT.CTA.250.40.102 Address Resolution Protocol (ARP)
- CT.CTA.250.40.104 Internet Control Message Protocol (ICMP)
- CT.CTA.250.40.106 Transmission Control Protocol (TCP)
- CT.CTA.250.40.108 User Datagram Protocol (UDP)
- CT.CTA.250.40.110 DHCP services
- CT.CTA.250.40.112 Hypertext Transport Protocol (HTTP)
- CT.CTA.250.40.114 File Transfer Protocol (FTP)
- CT.CTA.250.40.116 Telnet
- CT.CTA.250.40.118 SMTP
- CT.CTA.250.40.120 POP3
- CT.CTA.250.40.122 IMAP

CT.CTA.260 **Overview of Network Services**

CT.CTA.260.10 **Network Services**

- CT.CTA.260.10.100 An introduction to network/NOS services

CT.CTA.260.20 **Remote Administration and Access Services**

- CT.CTA.260.20.100 What is remote access?
- CT.CTA.260.20.102 Telecommuting
- CT.CTA.260.20.104 Mobile users
- CT.CTA.260.20.106 Terminal emulation services
- CT.CTA.260.20.108 Telnet services
- CT.CTA.260.20.110 Configuring remote access for a client
- CT.CTA.260.20.112 Controlling remote access rights
- CT.CTA.260.20.114 Remote administration to Linux system

CT.CTA.260.30 **Directory Services**

- CT.CTA.260.30.100 What is a directory service?
- CT.CTA.260.30.102 Directory service standards
- CT.CTA.260.30.104 Windows 2000 Active Directory
- CT.CTA.260.30.106 The Novell Network Directory Service (NDS)

CT.CTA.260.30.108 Network Information Service (NIS)

CT.CTA.260.40 Other NOS Services

- CT.CTA.260.40.100 Mail
- CT.CTA.260.40.100 Printing
- CT.CTA.260.40.100 File sharing
- CT.CTA.260.40.100 FTP (File Transfer) web services
- CT.CTA.260.40.100 Web services
- CT.CTA.260.40.100 Intranets
- CT.CTA.260.40.100 Extranet
- CT.CTA.260.40.100 Automating tasks with scripts services
- CT.CTA.260.40.100 Domain Name Service (DNS)
- CT.CTA.260.40.100 DHCP
- CT.CTA.260.40.100 Domains

CT.CTA.270 Introduction to Network Operating Systems

CT.CTA.270.10 Characteristics of a Network Operating System

- CT.CTA.270.10.100 Overview of NOS characteristics
- CT.CTA.270.10.102 Differences between PCs and a NOS
- CT.CTA.270.10.104 Multiuser, multitasking, and multiprocessor systems
- CT.CTA.270.10.106 NOS server hardware
- CT.CTA.270.10.108 Choosing a NOS
- CT.CTA.270.10.110 Types of NOSs

CT.CTA.270.20 Windows NT and Windows 2000

- CT.CTA.270.20.100 Windows terminology
- CT.CTA.270.20.102 Windows NT 4.0
- CT.CTA.270.20.104 Windows 2000 Operating Systems
- CT.CTA.270.20.106 Windows 2000's family of Operating Systems

CT.CTA.270.30 Linux

- CT.CTA.270.30.100 History of Linux
- CT.CTA.270.30.102 What is UNIX?
- CT.CTA.270.30.104 Linux Operating Systems
- CT.CTA.270.30.106 Linux clients

CT.CTA.270.40 Determining Software Requirements for a Linux NOS

- CT.CTA.270.40.100 Workstation software and programs
- CT.CTA.270.40.102 Server software and programs
- CT.CTA.270.40.104 Additional software and programs
- CT.CTA.270.40.106 Verifying software compatibility

CT.CTA.280 Installation and Boot Process Overview

CT.CTA.280.10 Preparing for the Installation

- CT.CTA.280.10.100 Installing NOS
- CT.CTA.280.10.102 Planning the system
- CT.CTA.280.10.104 Planning hardware installation
- CT.CTA.280.10.106 Server hardware components
- CT.CTA.280.10.108 Hardware requirements
- CT.CTA.280.10.110 Creating a hardware inventory
- CT.CTA.280.10.112 Identifying hardware using Device Manager
- CT.CTA.280.10.114 Checking hardware compatibility lists
- CT.CTA.280.10.116 Verifying the network

CT.CTA.280.20 **The Installation Process**

- CT.CTA.280.20.100 Installation media
- CT.CTA.280.20.102 BIOS settings
- CT.CTA.280.20.104 The installation program
- CT.CTA.280.20.106 Disk partitions
- CT.CTA.280.20.108 Partitioning a disk
- CT.CTA.280.20.110 Swap files
- CT.CTA.280.20.112 Formatting the disk
- CT.CTA.280.20.114 Creating initial administrative accounts
- CT.CTA.280.20.116 Completing the installation

CT.CTA.280.30 **The Boot Process**

- CT.CTA.280.30.100 The steps of the boot process
- CT.CTA.280.30.102 Basic files required
- CT.CTA.280.30.104 BIOS interaction
- CT.CTA.280.30.106 Detailed steps of the boot process
- CT.CTA.280.30.108 Linux boot process

CT.CTA.280.40 **Troubleshooting NOS Installation**

- CT.CTA.280.40.100 Unable to boot from installation media
- CT.CTA.280.40.102 Problems during the installation process
- CT.CTA.280.40.104 Post-installation problems

CT.CTA.290 **Windows 2000 Professional**

CT.CTA.290.10 **Installation**

- CT.CTA.290.10.100 Installing the OS
- CT.CTA.290.10.102 Installation of OS add-on options

CT.CTA.290.20 **Administrator/User Interface**

- CT.CTA.290.20.100 Log in procedures
- CT.CTA.290.20.102 Graphical user interface (GUI)
- CT.CTA.290.20.104 Command-line interface (CLI)
- CT.CTA.290.20.106 Windows Explorer navigation

CT.CTA.290.30 **User Accounts**

- CT.CTA.290.30.100 Adding users

CT.CTA.290.30.102 Managing user accounts

CT.CTA.290.40 Managing the File System

CT.CTA.290.40.100 Creating and sharing folders

CT.CTA.290.40.102 Creating groups and adding users

CT.CTA.290.40.104 Passwords and permissions

CT.CTA.290.50 Services

CT.CTA.290.50.100 Hypertext Transfer Protocol (HTTP)

CT.CTA.290.50.102 File Transfer Protocol (FTP)

CT.CTA.290.50.104 Telnet

CT.CTA.290.50.106 E-mail server/client relationship

CT.CTA.290.50.108 Printing in Windows 2000

CT.CTA.290.50.110 Scripts

CT.CTA.300 Linux Installation Procedures

CT.CTA.300.10 Pre-Installation Tasks

CT.CTA.300.10.100 The boot method

CT.CTA.300.10.102 Installation media

CT.CTA.300.10.104 Selecting the appropriate parameters for installation

CT.CTA.300.10.106 Creating the Linux file system

CT.CTA.300.10.108 Selecting packages to install

CT.CTA.300.20 Installing and Configuring Linux

CT.CTA.300.20.100 Linux hardware requirements

CT.CTA.300.20.102 Starting the installation

CT.CTA.300.20.104 Configuring appropriate security settings

CT.CTA.300.20.106 Configuring network settings

CT.CTA.300.20.108 Other configurations and settings

CT.CTA.300.30 X Server

CT.CTA.300.30.100 Video card chipset

CT.CTA.300.30.102 X server options

CT.CTA.300.30.104 Installing X server

CT.CTA.300.30.106 Configuring X server

CT.CTA.300.30.108 Hardware configurations

CT.CTA.300.30.110 Window managers

CT.CTA.300.30.112 Desktop environments

CT.CTA.300.40 Post-Installation Configuration and Tasks

CT.CTA.300.40.100 Post-installation of applications and programs

CT.CTA.300.40.102 Installing and reconfiguring the boot loader

CT.CTA.300.40.104 Kernel issues

CT.CTA.300.40.106 Environment variables

CT.CTA.300.40.108 Verifying proper application functioning and performance

CT.CTA.310 **Linux Administration**

CT.CTA.310.10 **User Interface Administration**

- CT.CTA.310.10.100 Log in procedures
- CT.CTA.310.10.102 GUI interface
- CT.CTA.310.10.104 CLI interface
- CT.CTA.310.10.106 The Linux shells
- CT.CTA.310.10.108 vi Editor

CT.CTA.310.20 **User Accounts and Group Accounts**

- CT.CTA.310.20.100 User and group accounts in a Linux environment
- CT.CTA.310.20.102 Adding users
- CT.CTA.310.20.104 Managing user accounts
- CT.CTA.310.20.106 Creating groups and adding users to groups

CT.CTA.310.30 **Files System and Services Management**

- CT.CTA.310.30.100 Creating/sharing directories
- CT.CTA.310.30.102 Passwords and permissions
- CT.CTA.310.30.104 Mounting and managing files systems
- CT.CTA.310.30.106 File system configuration files
- CT.CTA.310.30.110 Managing runlevels
- CT.CTA.310.30.112 Documenting a Linux system configuration

CT.CTA.310.40 **Daemons**

- CT.CTA.310.40.100 Introduction to Linux daemons
- CT.CTA.310.40.102 Starting, stopping, and restarting daemons
- CT.CTA.310.40.104 HTTP
- CT.CTA.310.40.106 FTP
- CT.CTA.310.40.108 Telnet
- CT.CTA.310.40.110 Server Message Block (SMB) protocol
- CT.CTA.310.40.112 NFS
- CT.CTA.310.40.114 Mail client
- CT.CTA.310.40.116 Printing in a Linux environment
- CT.CTA.310.40.118 Scripts

CT.CTA.320 **Advanced NOS Administration**

CT.CTA.320.10 **Backups**

- CT.CTA.320.10.100 Overview of backup methods
- CT.CTA.320.10.102 Installing backup software
- CT.CTA.320.10.104 Backup hardware
- CT.CTA.320.10.106 Backup strategies
- CT.CTA.320.10.108 Automating backups

CT.CTA.320.20 **Drive Mapping**

- CT.CTA.320.20.100 What is drive mapping?

- CT.CTA.320.20.102 Mapping drives in Windows networks
- CT.CTA.320.20.104 Mapping drives in Linux networks
- CT.CTA.320.20.106 Mapping drives in Novell networks

CT.CTA.320.30 Partition and Processes Management

- CT.CTA.320.30.100 Using fdisk, mkfs, and fsck
- CT.CTA.320.30.102 Managing system processes with Cron jobs
- CT.CTA.320.30.104 Core dumps
- CT.CTA.320.30.106 Assigning permissions for processes

CT.CTA.320.40 Monitoring Resources

- CT.CTA.320.40.100 Disk management
- CT.CTA.320.40.102 Memory usage
- CT.CTA.320.40.104 CPU usage
- CT.CTA.320.40.106 Reviewing daily logs
- CT.CTA.320.40.108 Checking resource usage on Windows 2000 and Windows XP
- CT.CTA.320.40.110 Checking resource usage on Linux

CT.CTA.320.50 Analyzing and Optimizing Network Performance

- CT.CTA.320.50.100 Key concepts in analyzing and optimizing network performance
- CT.CTA.320.50.102 Bottlenecks
- CT.CTA.320.50.104 Baselines
- CT.CTA.320.50.106 Determining Internet connection speed
- CT.CTA.320.50.108 Network monitoring software
- CT.CTA.320.50.110 Network management software
- CT.CTA.320.50.112 Management software for small and medium-sized networks
- CT.CTA.320.50.114 Management Service Provider (MSP)
- CT.CTA.320.50.116 SNMP concepts and components
- CT.CTA.320.50.118 SNMP structure and functions

CT.CTA.330 Installing and Maintaining Hardware in Linux

CT.CTA.330.10 Hardware Terms, Concepts, and Components

- CT.CTA.330.10.100 Overview of hardware components
- CT.CTA.330.10.102 Central Processing Unit (CPU)
- CT.CTA.330.10.104 Video hardware
- CT.CTA.330.10.106 Miscellaneous hardware and components
- CT.CTA.330.10.108 Hardware monitoring devices

CT.CTA.330.20 Hardware Installation, Configuration, and Maintenance

- CT.CTA.330.20.100 Locating hardware drivers for Linux
- CT.CTA.330.20.102 Configuring hardware in a Linux system
- CT.CTA.330.20.104 Linux kernel modules

CT.CTA.330.30 **Checking and Confirming Hardware Configuration**

- CT.CTA.330.30.100 Power cables
- CT.CTA.330.30.102 IRQ, DMA, and I/O settings
- CT.CTA.330.30.104 EIDE devices
- CT.CTA.330.30.106 SCSI devices
- CT.CTA.330.30.108 BIOS settings
- CT.CTA.330.30.110 Diagnosing and troubleshooting devices
- CT.CTA.330.30.112 SCSI devices
- CT.CTA.330.30.114 Peripheral devices
- CT.CTA.330.30.116 Core system hardware

CT.CTA.330.40 **Laptop and Mobile Devices**

- CT.CTA.330.40.100 Power management
- CT.CTA.330.40.102 PC card devices

CT.CTA.340 **Troubleshooting the Operating System**

CT.CTA.340.10 **Identifying and Locating Symptoms and Problems**

- CT.CTA.340.10.100 Hardware problems
- CT.CTA.340.10.102 Kernel problems
- CT.CTA.340.10.104 Application software
- CT.CTA.340.10.106 Configuration
- CT.CTA.340.10.108 User error
- CT.CTA.340.10.110 Using system utilities and system status tools
- CT.CTA.340.10.112 Unresponsive programs and processes
- CT.CTA.340.10.114 When to start, stop, or restart a process
- CT.CTA.340.10.116 Troubleshooting persistent problems
- CT.CTA.340.10.118 Examining log files
- CT.CTA.340.10.120 The dmesg command
- CT.CTA.340.10.122 Troubleshooting problems based on user feedback

CT.CTA.340.20 **LILO Boot Errors**

- CT.CTA.340.20.100 Error codes
- CT.CTA.340.20.102 Booting a Linux system without LILO
- CT.CTA.340.20.104 Emergency boot system
- CT.CTA.340.20.106 Using an emergency boot disk in Linux

CT.CTA.340.30 **Recognizing Common Errors**

- CT.CTA.340.30.100 Various reasons for package dependency problems
- CT.CTA.340.30.102 Solutions to package dependency problems
- CT.CTA.340.30.104 Backup and restore errors
- CT.CTA.340.30.106 Application failure on Linux servers

CT.CTA.340.40 **Troubleshooting Network Problems**

- CT.CTA.340.40.100 Loss of connectivity
- CT.CTA.340.40.102 Operator error

- CT.CTA.340.40.104 Using TCP/IP utilities
- CT.CTA.340.40.106 Problem-solving guidelines
- CT.CTA.340.40.108 Windows 2000 diagnostic tools
- CT.CTA.340.40.110 Wake-on-LAN

CT.CTA.340.50 Disaster Recovery

- CT.CTA.340.50.100 Risk analysis
- CT.CTA.340.50.102 Understanding redundancy, clustering, scalability, and High availability
- CT.CTA.340.50.104 Clustering
- CT.CTA.340.50.106 Scalability
- CT.CTA.340.50.108 High availability
- CT.CTA.340.50.110 Hot swapping, warm swapping, and hot spares
- CT.CTA.340.50.112 Creating a disaster recovery plan based on fault tolerance/recovery
- CT.CTA.340.50.114 Testing the plan
- CT.CTA.340.50.116 Hot and cold sites

CT.CTA.350 Network Security

CT.CTA.350.10 Developing a Network Security Policy

- CT.CTA.350.10.100 Accessing security needs
- CT.CTA.350.10.102 Acceptable use policy
- CT.CTA.350.10.104 Username and password standards
- CT.CTA.350.10.106 Rules for network access
- CT.CTA.350.10.108 Policy for disposal of materials
- CT.CTA.350.10.110 Virus protection standards
- CT.CTA.350.10.112 Online security resources
- CT.CTA.350.10.114 Server room security
- CT.CTA.350.10.116 Anti-theft devices for server hardware
- CT.CTA.350.10.118 Securing removable media

CT.CTA.350.20 Threats to Network Security

- CT.CTA.350.20.100 Overview: Internal/external security
- CT.CTA.350.20.102 Outside threats
- CT.CTA.350.20.104 Denial of Service (DoS)
- CT.CTA.350.20.108 Distributed Denial of Service (DDoS)
- CT.CTA.350.20.110 Well known exploits
- CT.CTA.350.20.112 Inside threats

CT.CTA.350.30 Implementing Security Measures

- CT.CTA.350.30.100 File encryption
- CT.CTA.350.30.102 IP security
- CT.CTA.350.30.104 Secure Sockets Layer (SSL)
- CT.CTA.350.30.106 E-mail security
- CT.CTA.350.30.108 Public/private key encryption

CT.CTA.350.40 Applying Patches and Upgrades

- CT.CTA.350.40.100 Finding patches and upgrades
- CT.CTA.350.40.102 Selecting patches and upgrades
- CT.CTA.350.40.104 Applying patches and upgrades

CT.CTA.350.50 Firewalls

- CT.CTA.350.50.100 Introduction to firewalls and proxies
- CT.CTA.350.50.102 Packet filtering
- CT.CTA.350.50.104 Firewall placement
- CT.CTA.350.50.106 Common firewall solutions
- CT.CTA.350.50.108 Using an NOS as a firewall