



VoIP & Telephony

CTP Prep Course

Our comprehensive course will get you ready for the CTP exam.

In this three-part, lecture-only course, you will learn the fundamentals of data networking, telephony networking, and convergence technologies while preparing for the Convergence Technologies Professional (CTP) certification exam. CTP certification is the largest vendor-neutral convergence certification program. It is recognized as the official convergence program of the Telecommunications Industry Association (TIA) and approved by top communications technology manufacturers, including Cisco, Avaya, Nortel, Toshiba, and Mitel.

Using official CTP courseware, our CTP-certified instructors will help you learn the vendor-independent networking skills and concepts necessary for entry-level IT and telecommunications professionals.

To ensure that you're exam-ready, this course includes:

- Official CTP Study Guide
- Official CTP online assessments
- Voucher for the TT0-201 CTP exam

Our classes are taught using Official CTP training materials.

What You'll Learn

- Networking models and topologies
- Network operating systems
- Key networking protocols
- The basics of LANs and WANs
- Wireless network technologies
- Internet addressing
- TCP/IP troubleshooting
- Common telephony standards
- Analog and digital signaling
- Standards agencies in the telecommunications industry
- Functions of gatekeepers and gateways
- QoS technologies used in converged networks

Course Outline

Part 1: Data Networking

1. **Introduction to Data Networking**
 - Networks Defined
 - Bluetooth and Radio Frequency Identification (RFID)
 - Networking Models and Evolution
 - Next-Generation Technologies
 - Network Topologies
 - Network Operating Systems
 - Microsoft Windows Servers
 - UNIX
 - Novell Netware
 - Operating System Error Logs
 - Embedded Operating Systems
 - Case Study

Course Code: 3260

Classroom Learning

5 Day Course

\$3295 USD

Who Needs to Attend

Field technicians, voice and telephony technicians, networking administrators, systems engineers, data communications technicians, technical sales and marketing professionals, telephony professionals who need data, individuals interested in pursuing or advancing a data or convergence technologies career, and anyone interested in preparing for CTP certification.

Prerequisites

18-24 months of experience in data networking, telephony networking, and convergence is recommended.

Follow-On Courses

There are no follow-ons for this course.

Certification Programs and Certificate Tracks

This course is part of the following programs or tracks:

CTP – Convergence Technologies Professional

2. Networking Protocols

- Basics of Networking Protocols
- OSI Reference Model
- Major Networking Protocols
- TCP/IP
- IPX/SPX
- NetBIOS and NetBEUI
- Protocols and the NIC
- Choosing and Combining Protocols
- Case Study

3. LANs and WANs

- Basics of Local Area Networks (LANs) and Wide Area Networks (WANs)
- LANs
- WANs
- Common Network Components
- Common Peripheral Ports
- Transmission Media
- Transmission Types
- IEEE LAN Standards
- WAN Standards
- T-Carrier System
- E-Carrier System
- SONET/SDH
- Wireless Network Technologies
- Wireless Standards
- Wireless Security
- Attaching a WAP to a Wired Network
- Case Study

4. TCP/IP Suite and Internet Addressing

- A TCP/IP Refresher
- Internet Architecture
- Request for Comments (RFCs)
- Internet Protocols
- Demultiplexing
- Introduction to Routing
- Routing Protocols
- Port Numbers
- Internet Addressing
- Internet Address Classes
- IP Addressing Rules
- Private IP Addressing
- Subnetworks
- Customer Subnet Masks
- IP Address Conservation
- Normal TCP/IP Desktop Configurations
- Internet Protocol version 6 (IPv6) Addressing Essentials
- Case Study

5. TCP/IP Troubleshooting

- TCP/IP Troubleshooting Tools
- Useful Network Files
- Internet Control Message Protocol (ICMP)
- General Network Commands
- Maximum Transmission Unit (MTU)
- Name and Address Commands
- Network Analyzers
- Troubleshooting Considerations
- Planning Data Networks
- Case Study

Part 2: Telephony Networking

1. Telephony Essentials

- Telephony Basics
- Industry Standards and Protocols
- The Central Office
- CO Connections
- Trunks and Signaling
- Digital Trunks and the Digital Signal Hierarchy
- Synchronous Optical Network (SONET) and Synchronous Digital Hierarchy (SDH)
- The Primary Reference Source
- Cabling and Wiring
- Call-Processing Steps
- Case Study

2. Investigating the Local Loop

- Inside the Demarcation Point



- Signaling Types
- RJ-11 Connectors and Wiring
- RJ-12 Connectors and Wiring
- BT-431A and BT-631A Connectors and Wiring
- Case Study

3. Infrastructure Issues and Standards

- Common Telephony Issues
- Network Equipment Building System
- Standards Bodies
- Proper Cabling Procedures
- Securing Equipment
- Case Study

4. Troubleshooting

- Terms and Tools
- Troubleshooting Analog Lines
- Troubleshooting Digital Lines
- Case Study

5. Analog and Digital Signaling

- Signaling Categories
- In-Band and Out-of-Band Signaling
- Analog Signaling
- Digital Signaling
- Private Integrated Service Network (PISN)
- Signaling System Seven (SS7)
- Computer-Telephone Integration
- Case Study

Part 3: Convergence Technology

1. Convergence Industry Standards and Protocols

- Convergence Defined
- Common VoIP Protocols
- Governing Organizations in Convergence Technologies
- Institute of Electrical and Electronics Engineers (IEEE)
- International Telecommunication Union (ITU)
- VoIP and Interoperability
- Internet Engineering Task Force (IETF)
- Electronic Industries Alliance (EIA)
- Telecommunications Industry Association (TIA)
- American National Standards Institute (ANSI)
- Telcordia (Formerly Bellcore)
- The OSI/RM and Convergence Protocols
- Case Study

2. Enabling Voice over IP (VoIP)

- Investigating VoIP
- Investigating Gatekeepers and Gateways
- Troubleshooting VoIP
- Large Data Frames and Delay Budgets
- Quality of Service (QoS) Issues
- Voice Compression and Decompression
- Comparing and Contrasting Transmission Media
- Bandwidth Limitations for Voice Traffic
- VoIP Software and Hardware
- Case Study

3. Network Convergence

- Characteristics of Convergent Networks
- Circuit-Based vs. Convergence Calling
- Selecting Codecs
- Convergence Signaling Protocols
- H-Series Protocols
- Session Initiation Protocol (SIP)
- Media Gateway Control Protocol (MGCP)
- Network Call Signaling (NCS)
- Bandwidth Concerns
- VoIP Service Providers
- VoIP and Firewalls
- Planning a Convergent Network
- Case Study