



Episode Introduction to Structured Cabling

title:

Objective: 1.3 Summarize the types of cables and

connectors and explain which is the appropriate

type for a solution

- Structured cabling
- Telecommunication closet/equipment room
- Horizontal run
- Work area
- Patch panel
- Patch cable
- TIA standards



- Structured cabling defines how we install cabling
- TIA standards specify wiring standards for structured cabling
- Patch panels terminate one end of horizontal runs
- Patch cables connect switches to patch panels and computers to wall outlets



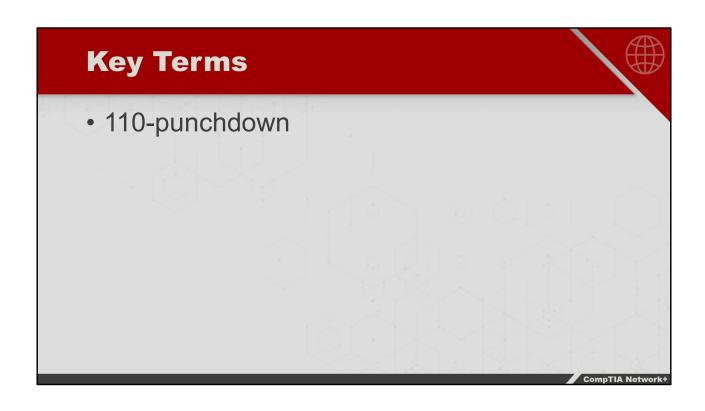
Episode Terminating Structured Cabling

title:

Objective: 1.3 Summarize the types of cables and

connectors and explain which is the appropriate

type for a solution





- RJ-45 crimps are used only on patch cables
- Horizontal runs are terminated with 110punchdowns
- Patch panels and RJ-45 connectors also have Cat ratings



Episode **Equipment Room**

title:

1.2 Explain the characteristics of network topologies and network types Objective:

3.2 Explain the purpose of organizational documents and policies



- Main distribution frame (MDF)
- Intermediate distribution frame (IDF)
- U (or unit) is a standard height for components in a rack
- Demarc
- Demarc extension



- The primary equipment room is called the main distribution frame (MDF)
- Rack-mounted equipment is standardized at 19" wide and a multiple of 1 ¾" tall (called a U or unit)
- The demarc separates the telecom company's property from your responsibility



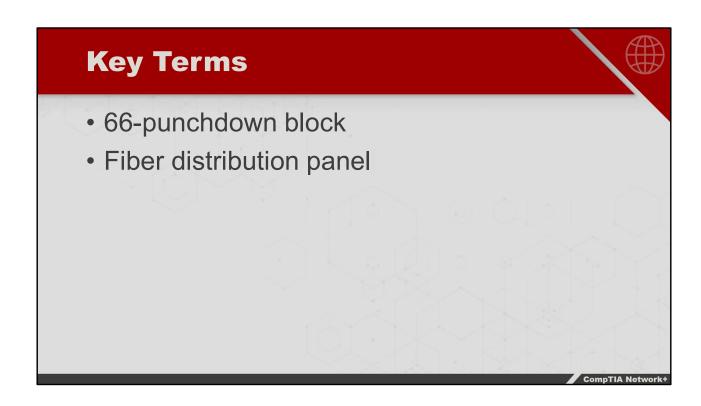
Episode Alternative Distribution Panels

title:

Objective: 1.3 Summarize the types of cables and

connectors and explain which is the appropriate

type for a solution





- A 66-punchdown block is a very old patch panel, typically used in non-VOIP telephone systems
- A 110-punchdown block patch panel is the way to distribute copper wired networks
- A fiber distribution patch panel is used to distribute fiber-optic networks



Episode Testing Cable

title:

Objective: **5.2 Given a scenario, troubleshoot common**

cable connectivity issues and select the

appropriate tools



- Wiremap
- Continuity
- Distance
- Time domain reflectometer (TDR)
- EIA/TIA -> horizontal runs less than 90m
- Optical TDR (OTDR)
- Near-end crosstalk (NEXT), far-end crosstalk (FEXT)
- Crosstalk



- Understand how to read and interpret the wiremap feature of a cable tester
- Continuity testing will show if the cable has any breaks
- A time domain reflectometer (TDR) will show the length of the cable and help pinpoint mid-cable breaks



Episode Troubleshooting Structured Cabling,

title: Part 1

Objective: 5.2 Given a scenario, troubleshoot common

cable connectivity issues and select the

appropriate tools

- Check link light on the network card and switch
- Loopback address
- The loopback address is 127.0.0.1
- Loopback adapter



- Patch cables and wall outlets are the most common part of structured cabling to fail
- Loopback adapters test the network card's ability to send and receive
- The loopback address is 127.0.0.1



Episode Troubleshooting Structured Cabling,

title: Part 2

Objective: **5.2 Given a scenario, troubleshoot common**

cable connectivity issues and select the

appropriate tools



- Multimeter
- Voltage monitor
- Rack-mounted uninterruptible power supply (UPS)
- Time domain reflectometer (TDR)
- Interference



- Multimeters test a variety of metrics such as voltage, current, resistance, and frequency
- Voltage monitors track and record drops in voltage which can show problems with power
- Time domain reflectometers (TDRs) are great tools to check for breaks in horizontal runs



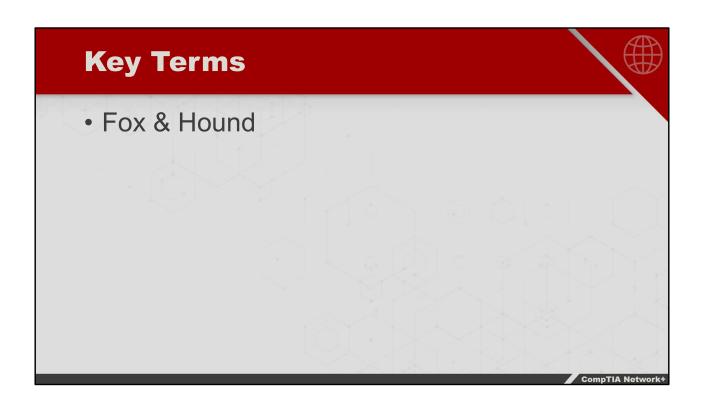
Episode Using a Toner and Probe

title:

Objective: **5.2 Given a scenario, troubleshoot common**

cable connectivity issues and select the

appropriate tools





- Tone generators and tone probes are used to locate cables and connections
- Tone generators create the signal for the probe
- Tone probes translate the signal into an audible tone



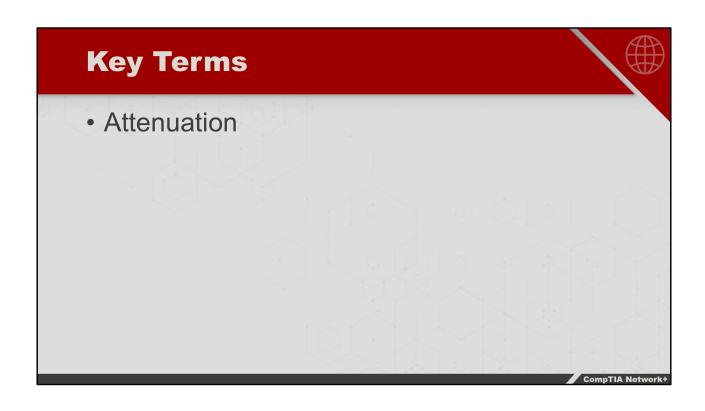
Episode Wired Connection Scenarios

title:

Objective: 5.2 Given a scenario, troubleshoot common

cable connectivity issues and select the

appropriate tools





- For jitters in VOIP and video streaming, consider buffering or increasing speed
- Make sure the patch cable specification is up-to-date with the network speed
- If switch lights are not blinking, try different ports or check if it's an uplink port