

CABLING CISCO DEVICES

Mark E. Donaldson

Unshielded Twisted Pair (UTP) is a cable that has four pairs of wires twisted inside it to eliminate electrical interference. UTP cables are connected using RJ-45 connectors that have eight connector pins. The data equipment that is used for internetworking is classified as Data Terminal Equipment (DTE e.g. router interfaces) and Data Communication Equipment (DCE e.g. A WAN connects DTEs through DCE network). UTP cables are used in many configurations and for different purposes, to form an internetwork including:

- Straight-through
- Crossover
- Rollover

Applications of UTP include:

- Serial transmission
- Integrated Service Digital Network (ISDN) connections
- Console connections
- Modular and fixed interfaces

Straight-through Cable

A straight-through cable is the standard network cable connection and is used to connect the source and destination computers through an internetworking device. Specifically, you can use it to connect a host to a hub or switch.

Crossover Cable

In a crossover cable, the standard RJ-45 cable between the source and destination computers is cross-connected. A crossover cable can be used to connect:

- Two computers
- Two hubs
- A hub to a switch
- A cable modem to a router
- Two router interfaces

Rollover Cable

These Cisco proprietary cables used to connect to a router or switch console port. In a rollover cable (8 pins), RJ-45 connectors are usually present at each ends and are used to connect router and computer ports. Pin 1 on one end of cable connects to Pin 8 at the other end of the cable, similarly, Pin 2 connects Pin 7, and so on.

Serial Transmission

All WANs use serial transmission, which can pass one bit at a time over a single channel. Cisco provides a 60-pin serial connector for one end of the cable while other end of the cable may be EIA/TIA-232, V.35, EIA/TIA-449, X.21 or others.

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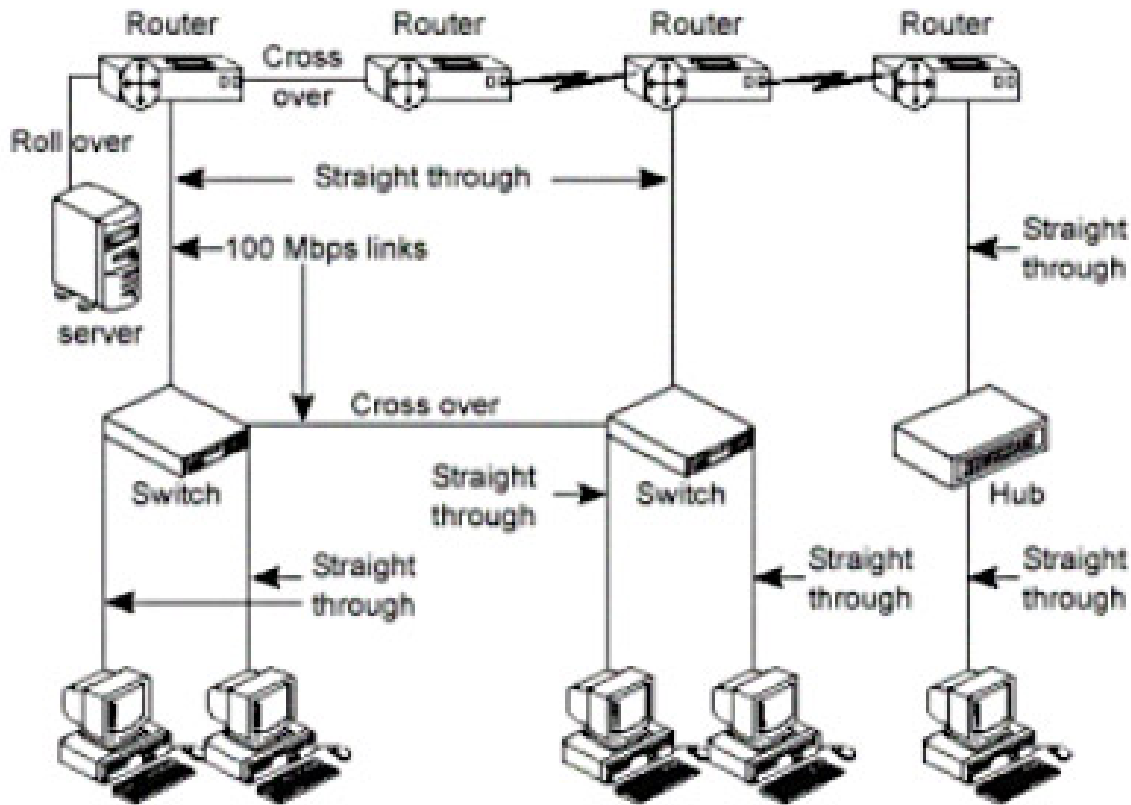
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ISDN connections

ISDN refers to a collection of standards that define a digital architecture that can carry integrated voice and data, using the public-switched network. ISDN BRI (Basic Rate Interface) is a two 64 kbps Bearer channels (2B) plus one 16 kbps Data channel (D) service. ISDN BRI terminates at the customer premise with the U interface.

Console connections

A console is a type of DTE through which commands are entered into the host device. Most Cisco devices support the RJ-45 console connection. A rollover cable with an RJ-45 connector is used to connect the PC or terminal to the console port of the Cisco device.



Modular and Fixed Interfaces

Unlike a fixed interface router, a modular interface router allows you to add new interface cards without buying a new router. In the fixed interface series, you refer to the interfaces as: interface_type interface_number. For example, the first serial interface on a Cisco 2503 router would be referred to as serial 0. Higher routers have modular interfaces that allow you to change the interfaces as and when required. Here, the interfaces are referred to as: interface_type module_number/interface_number.