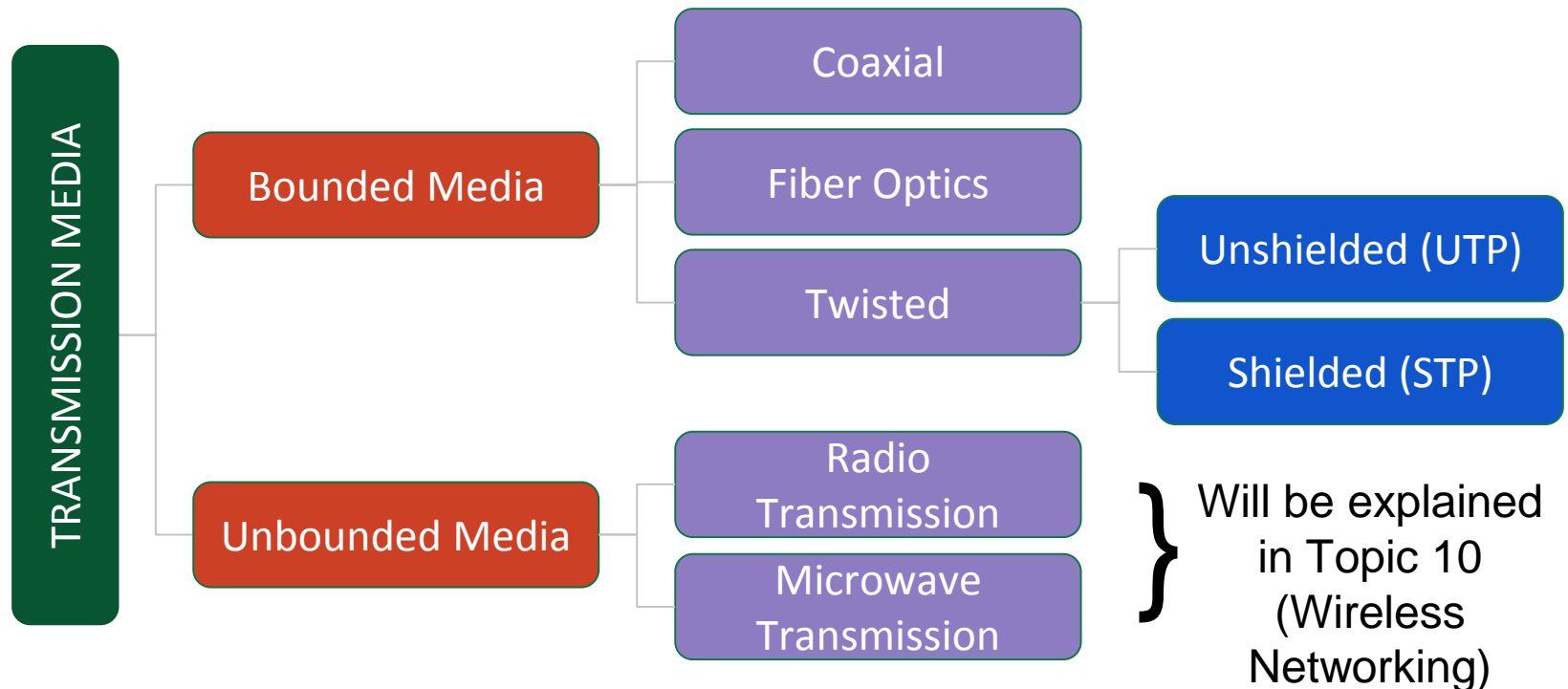


# Transmission Media

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Faculty of Education

# Introduction to Transmission Media

Transmission media uses bounded or unbounded media to send data from one place to another.

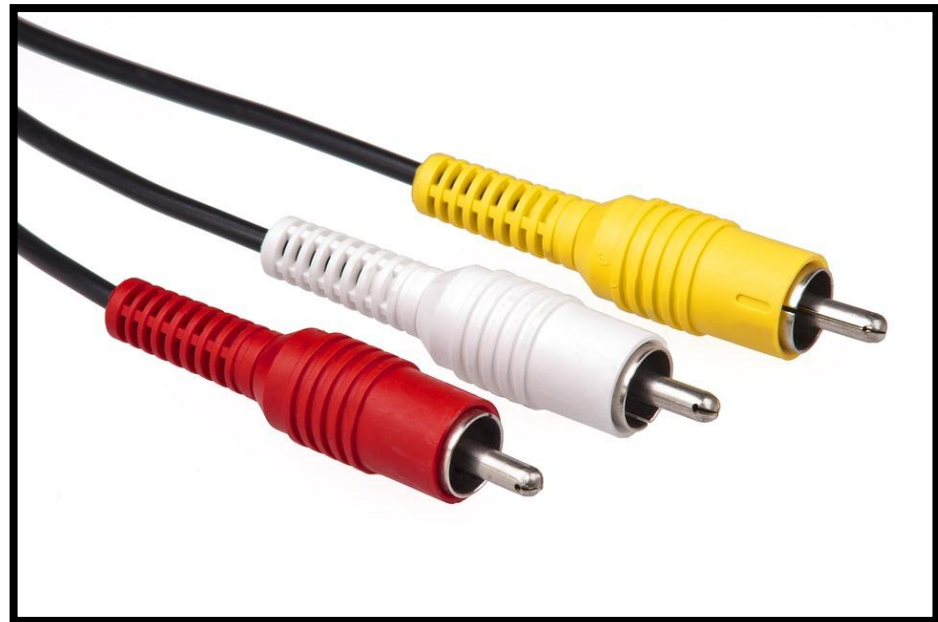
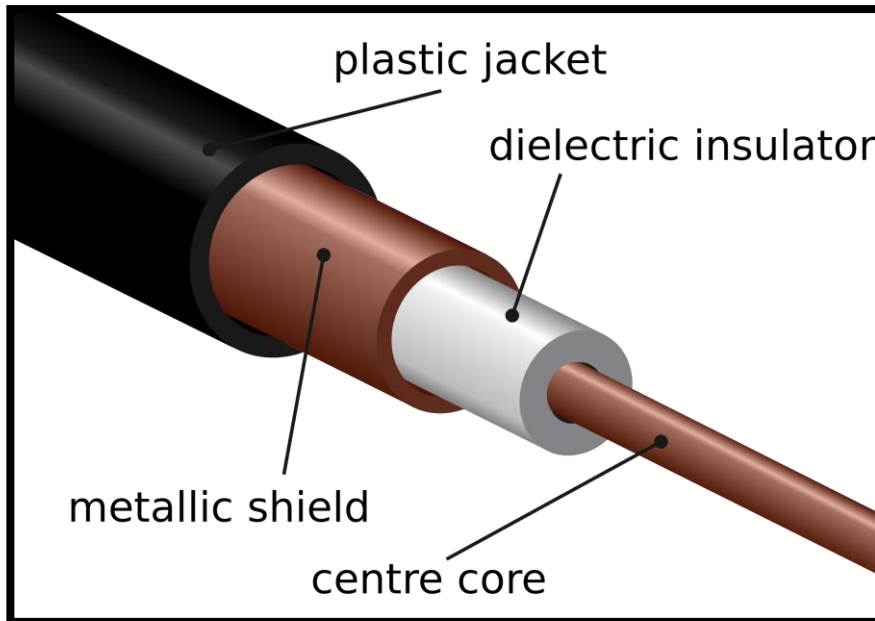


# Coaxial Cables

- Coaxial = same axis = parallel because it has two conductors that are parallel to each other
- A standard for 10 Mbps Ethernet cables
- Two types of coaxial cable:
  - Thinnet (10BASE2) - standard
  - Thicknet (10BASE5)

# Coaxial Cables

- Coaxial cables consist of an inner copper cable

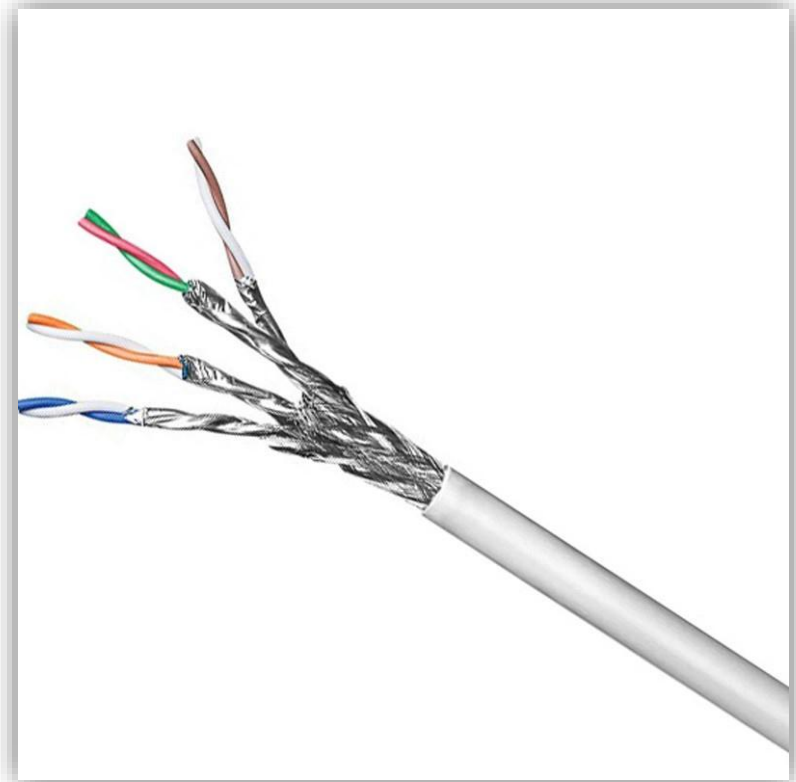
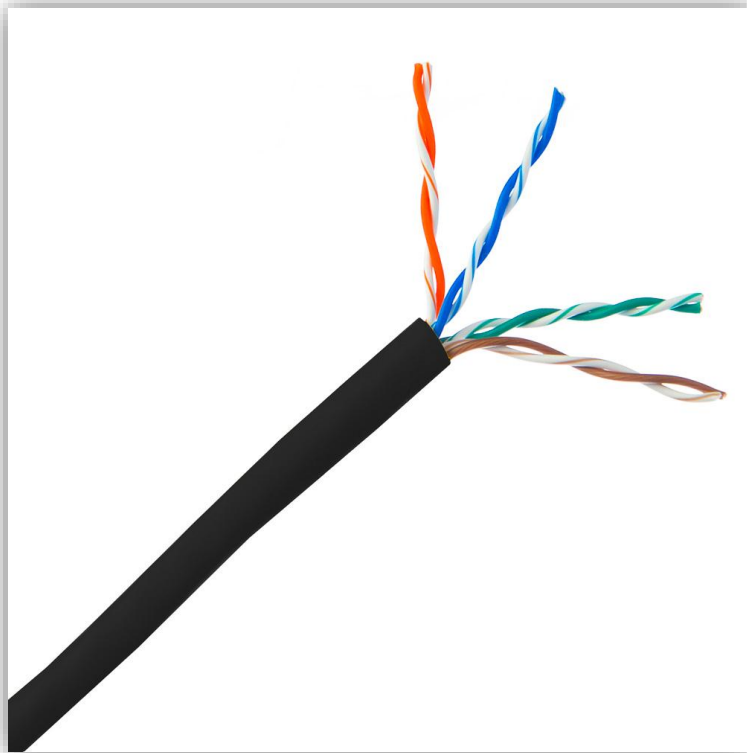


# Twisted Pair Cables

- Emerging of twisted pair cables:
  1. 10 Mbps (10BASE-T or Cat3)
  2. 100 Mbps (100BASE-TX or Cat5/Cat5e)
  3. 10 Gbps (10GBASE-T)
- Twisted pair cables contain up to eight (8) wires
- Two types of twisted cables:
  1. Unshielded Twisted Pair (UTP)
  2. Shielded Twisted Pair (STP)

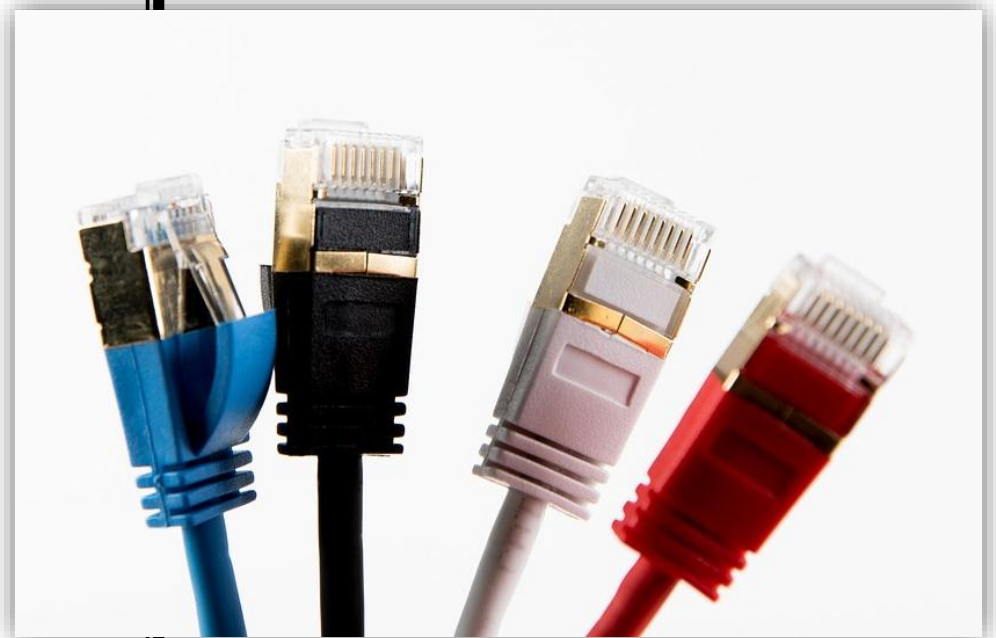
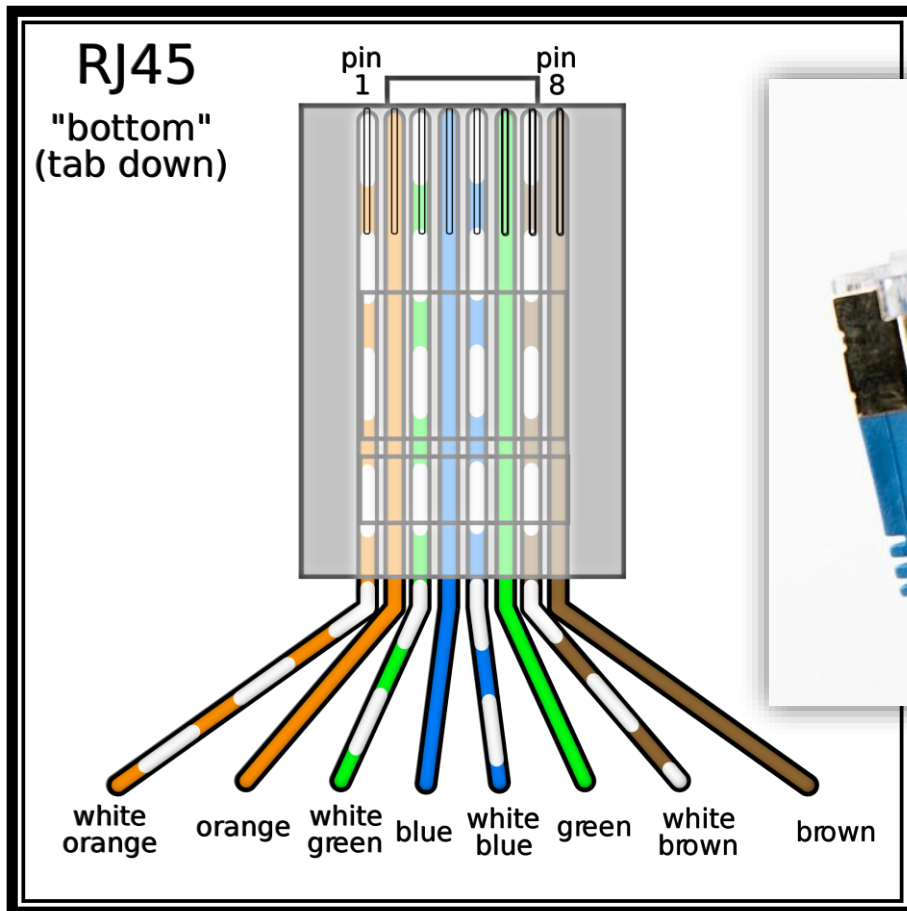
# Twisted Pair Cables

Unshielded Twisted  
Pair Cable (UTP)



Shielded Twisted  
Pair Cable (STP)

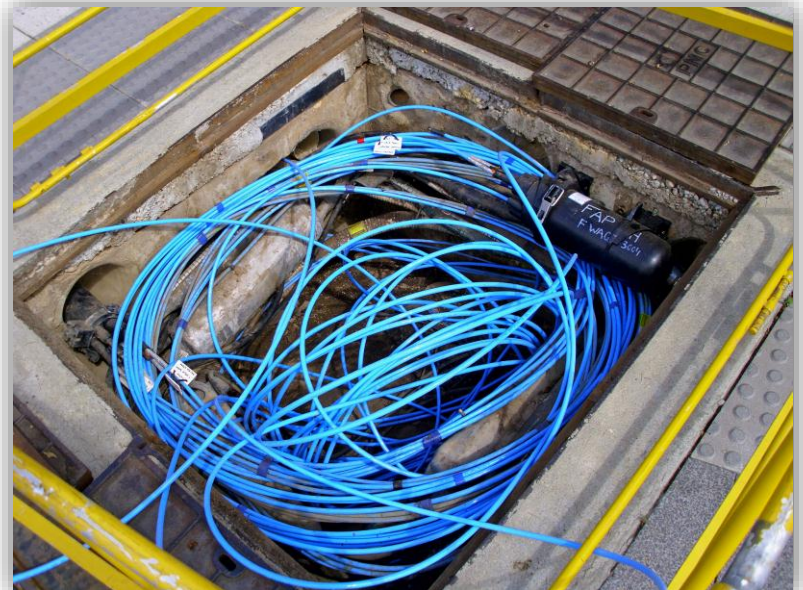
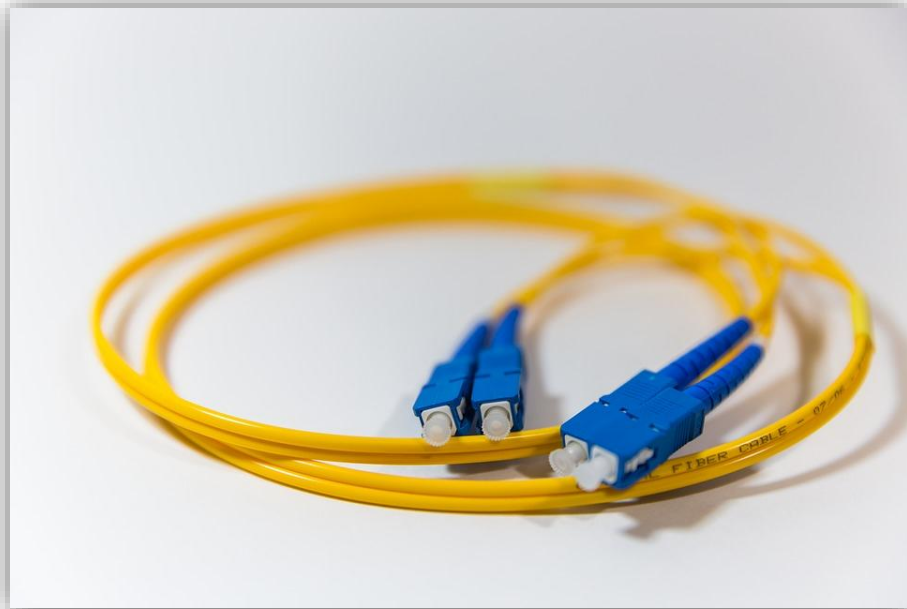
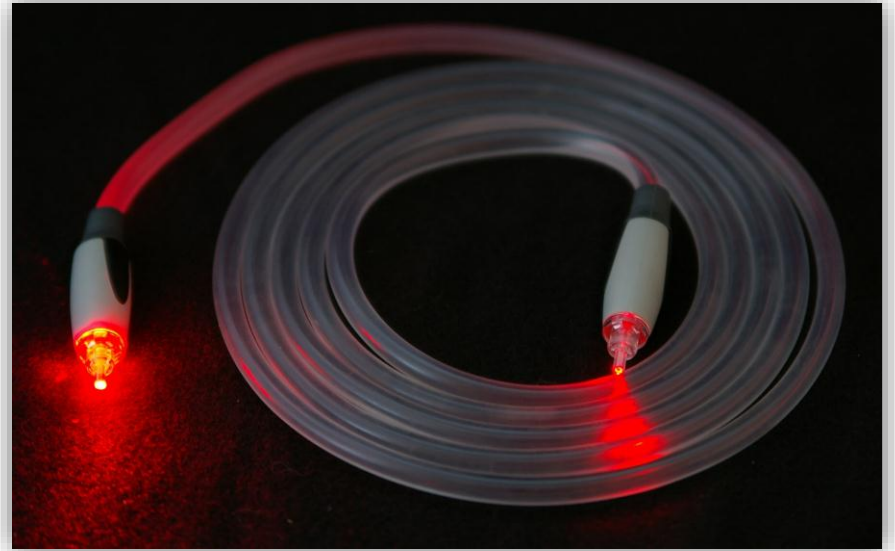
# Twisted Pair Cables



# Fiber Optic Cables

- Fiber optic cables work using strand of glass (but bendable) and pulses of light, instead of insulated metal wired
- Two types of fiber optic cable:
  - single-mode (100BaseBX) - standard
  - multimode (100BaseSX) - standard





# Cabling Architecture

- The most important part in network cabling
- Cabling architecture includes:
  - Structured wiring
  - Cable facilities hardware
  - Cable installation
  - Cable tests

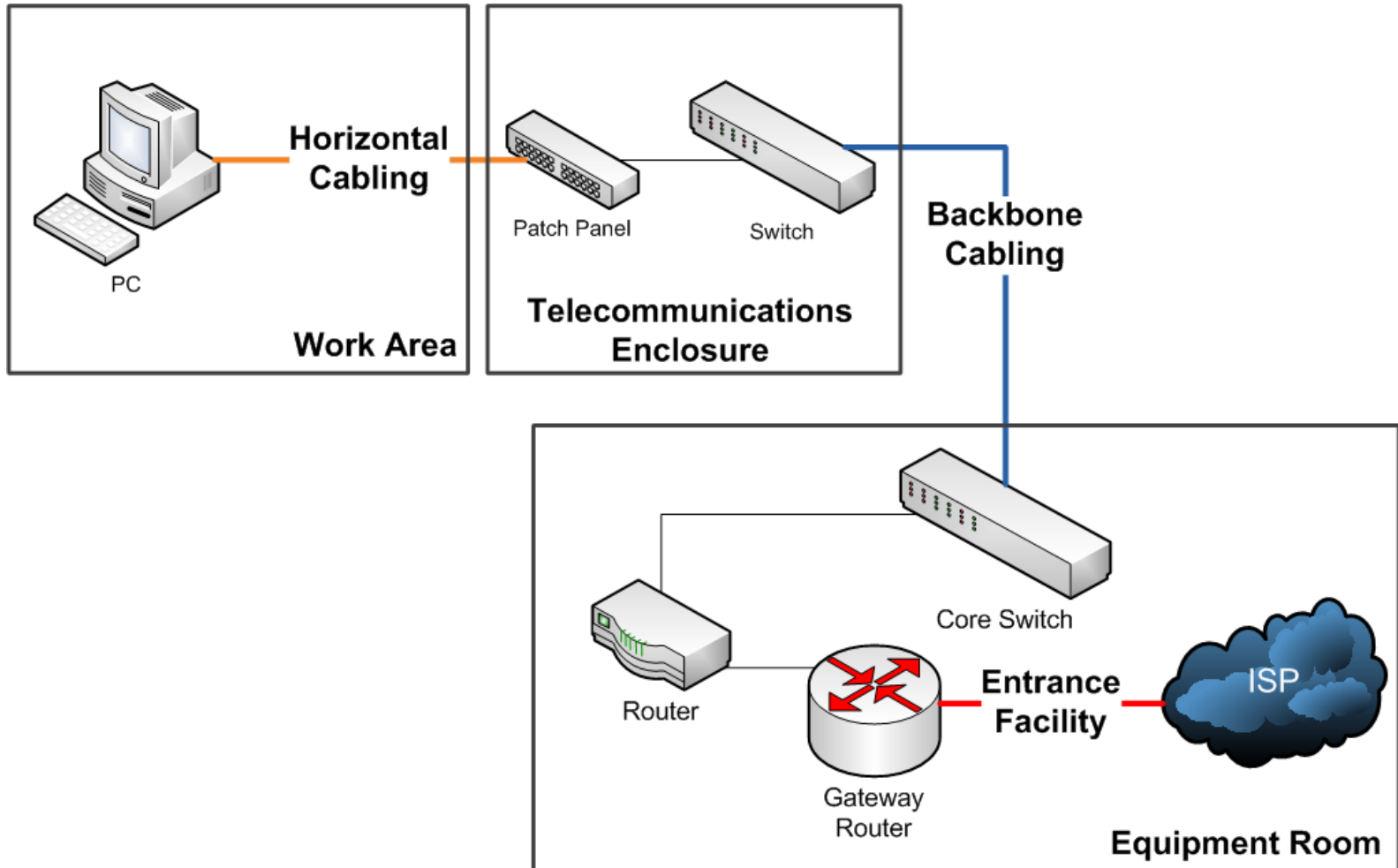
# Structured Wiring

- Important to meet installation standards to protect the cabling system integrity and reduce potential recabling
- Advantages of structured wiring over unstructured wiring:
  - Economic
  - Easy to detect problems
  - Ensures compatibility with future equipments/applications

# Structured Wiring

- Three elements of wiring system:
  - Backbone wiring
  - Horizontal wiring
  - Work area wiring

# Structured Wiring



# Cable Facilities Hardware

- Important in cable installation and maintenance

## Conduit

- Plastic/metal pipe to ease cable installation
- Should contain pull strings

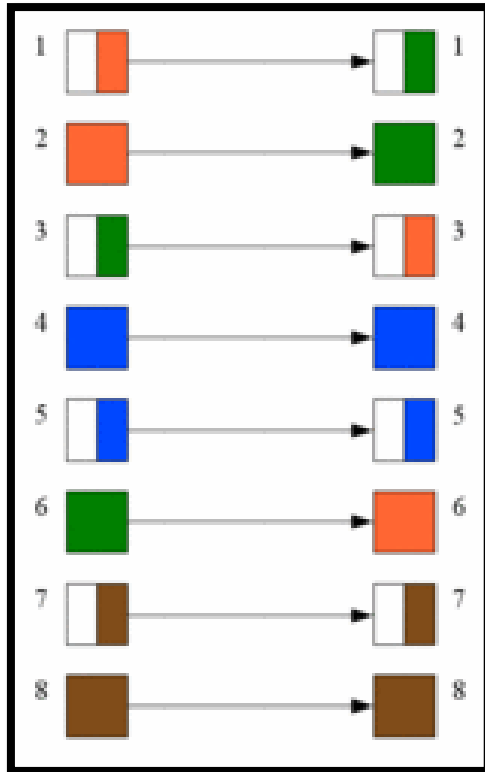
## Relay Rack

- Metal frame to support and secure networking equipment

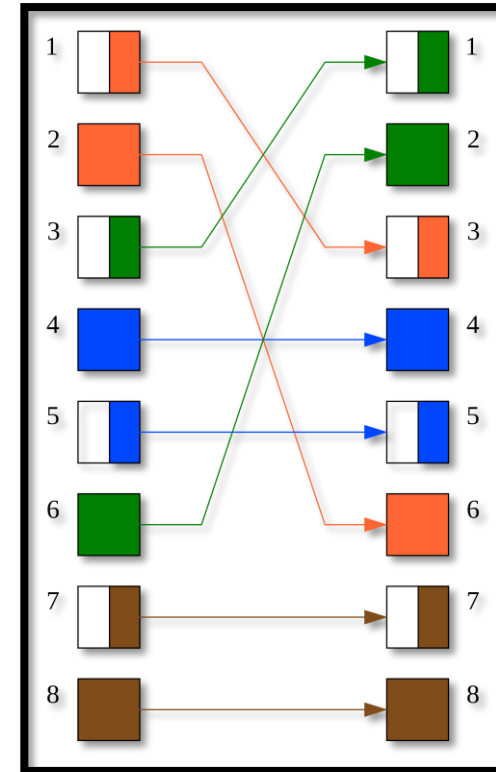
## Patch Panel

- Cable termination equipment that connects cables to ports/connectors

# Cable Installation



Patch/straight-through cable



Crossover cable  
(connect two Ethernet devices directly without a hub)

# Cable Tests

- After the cable installation finished, the testing must be run to ensure the network works properly



THANK YOU