



SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution

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Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai



DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

16EET304/ IOT for Electrical Sciences
III YEAR VI SEM

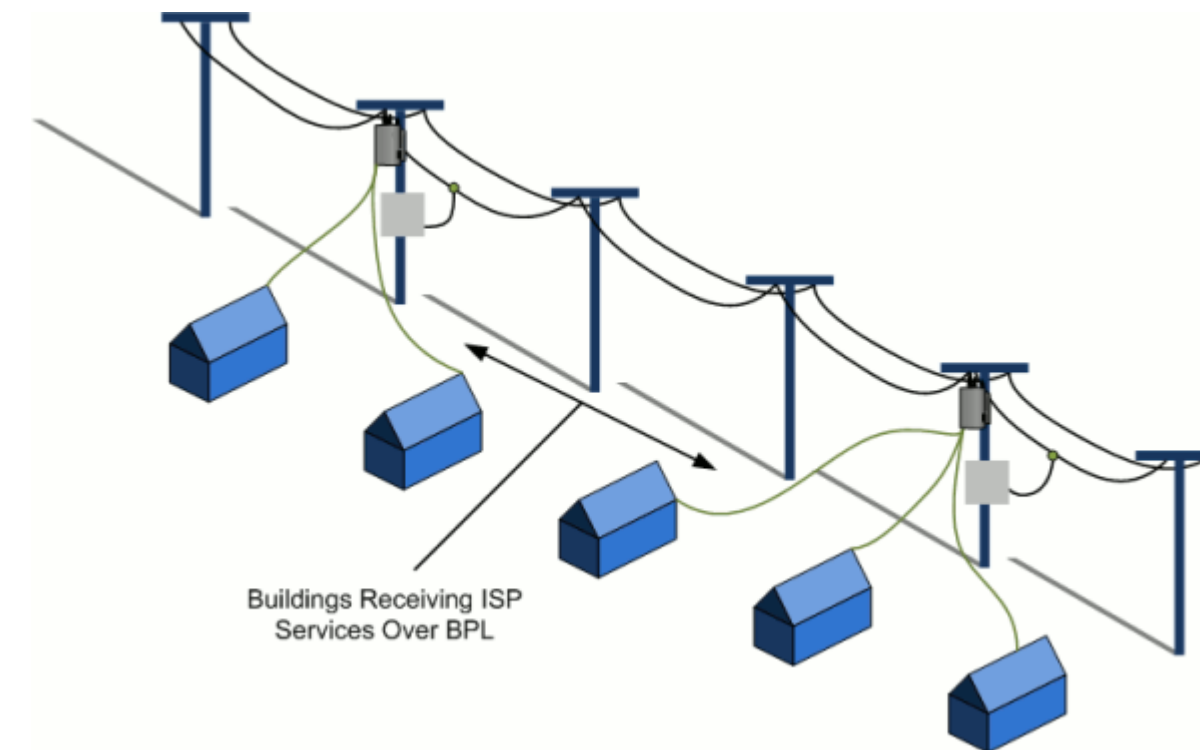
UNIT 3 COMMUNICATION INTERFACE

**TOPIC 4 – BROADBAND OVER POWER LINE (BPL), IP BASED
PROTOCOLS**



WHAT IS BROADBAND OVER POWER LINES BPL?

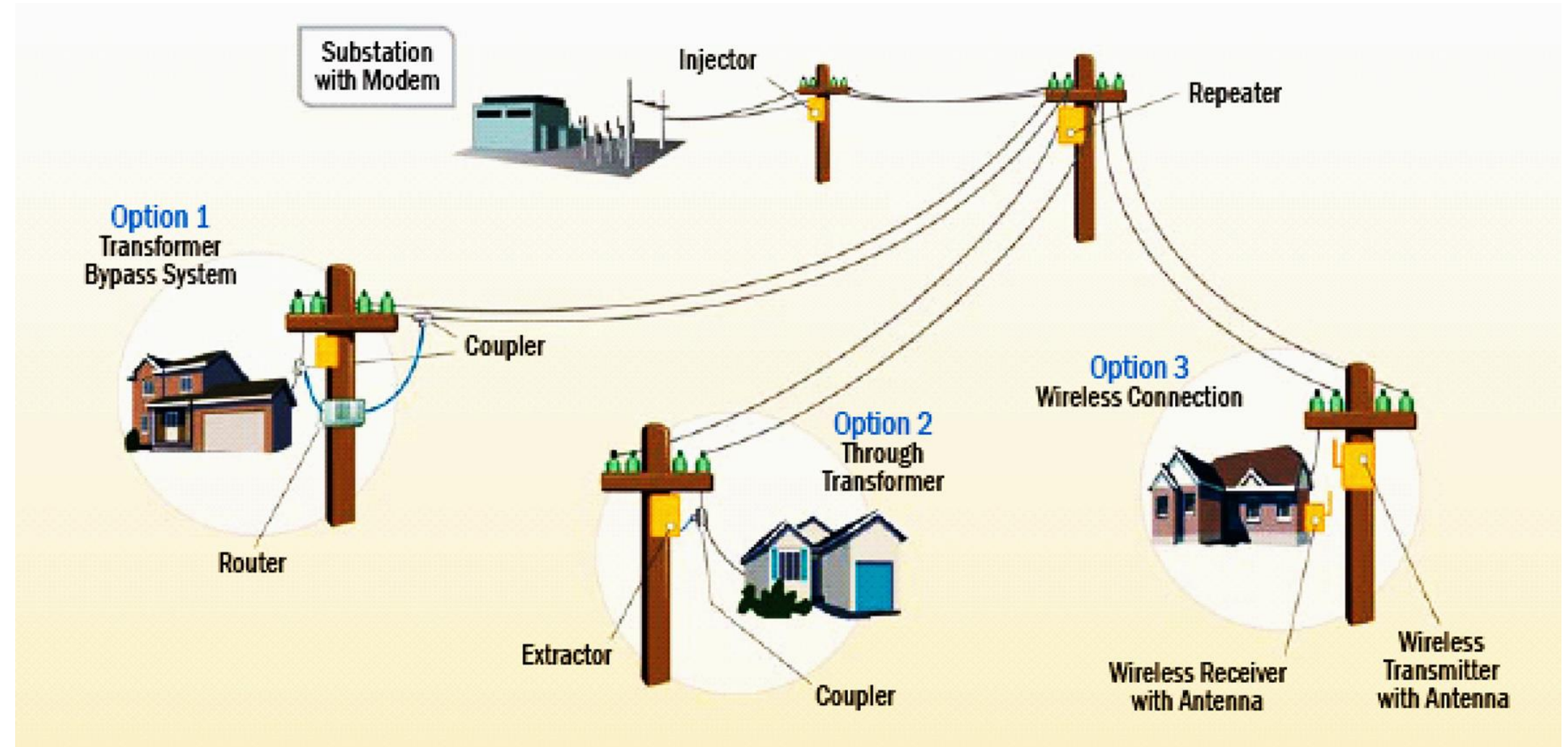
Broadband over power lines (BPL) is a method of power-line communication (PLC) that allows relatively high-speed digital data transmission over the public electric power distribution wiring.





TYPES OF BPL

- 1. Access BPL
- 2. In-house BPL





ADVANTAGES OF BROADBAND OVER POWER LINES

- BPL technology has been prolific and widespread in most developed countries.
- Access BPL may be quicker, cheaper, and simpler to deploy in rural areas.
- In-house BPL is perfectly compatible with Wi-Fi and helps to overcome distance and reliability limitations in existing wireless networks.



DISADVANTAGES OF BROADBAND OVER POWER LINES



- With signal interference and repeater issues, Access BPL failed to gain momentum in countries such as the US, UK and Australia.
- Only low and medium voltage power cables can be used for Access BPL.
- Signals need booster equipment to make them travel long distances.



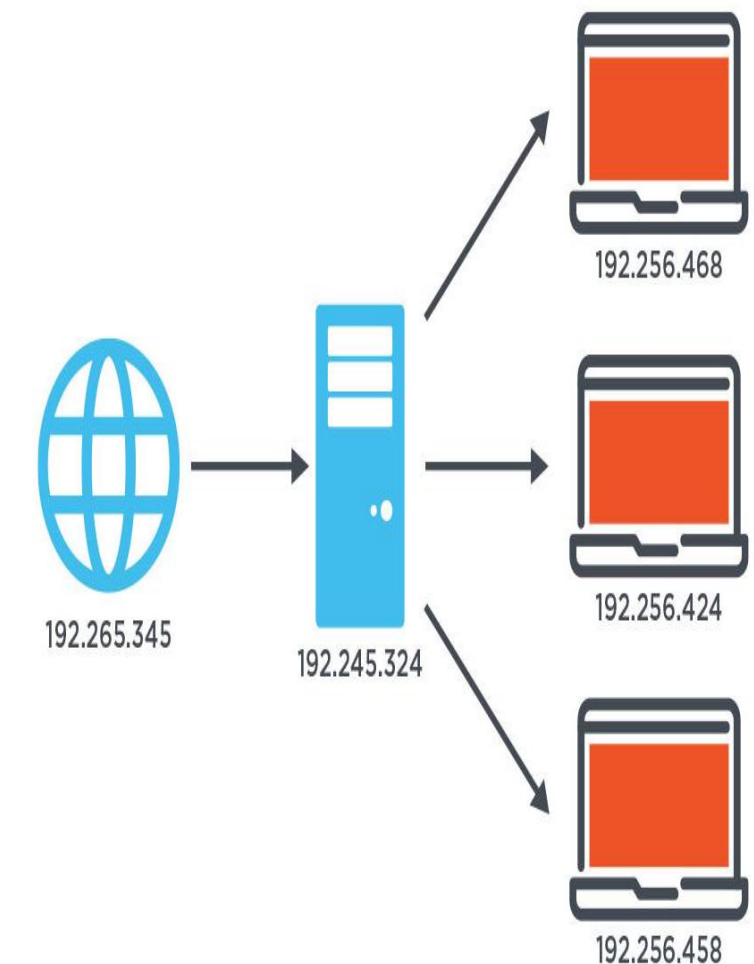
WHAT IS THE INTERNET PROTOCOL (IP)?

IP stands for **internet protocol**. It is a protocol defined in the TCP/IP model used for sending the packets from source to destination.

The main task of IP is to deliver the packets from source to the destination based on the IP addresses available in the packet headers.

IP defines the packet structure that hides the data which is to be delivered as well as the addressing method that labels the datagram with a source and destination information.

WHAT IS THE
INTERNET PROTOCOL?





INTERNET PROTOCOL (IP)

4	8	16	32 bits
VER	HLEN	D.S. type of service	Total length of 16 bits
Identification of 16 bits		Flags 3 bits	Fragmentation Offset (13 bits)
Time to live	Protocol		Header checksum (16 bits)
Source IP address			
Destination IP address			
Option + Padding			



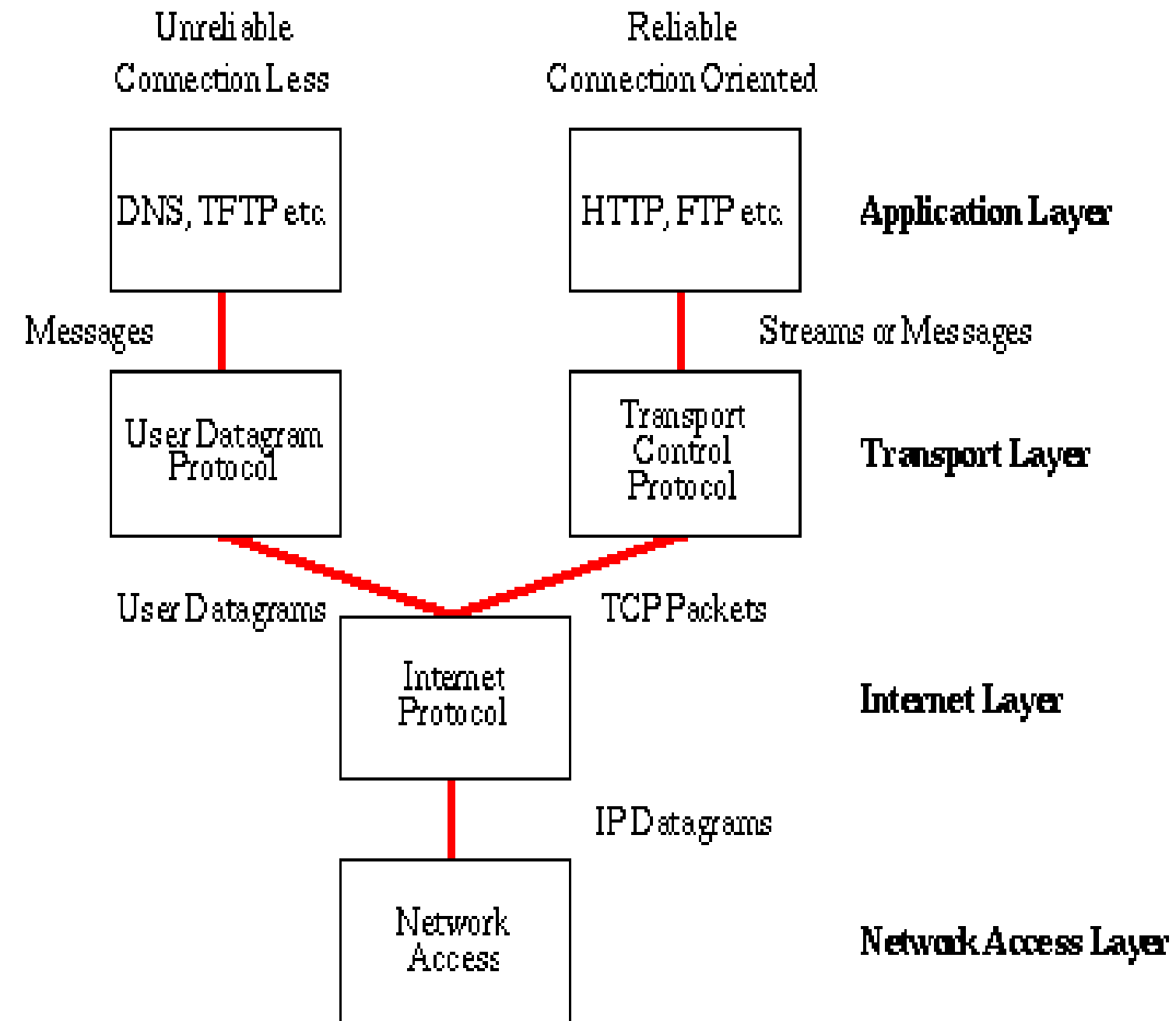
TYPES OF INTERNET PROTOCOL

Internet Protocols are of different types having different uses

1. TCP/IP(Transmission Control Protocol/ Internet Protocol)
2. SMTP(Simple Mail Transfer Protocol)
3. PPP(Point-to-Point Protocol)
4. FTP (File Transfer Protocol)
5. SFTP(Secure File Transfer Protocol)
6. HTTP(Hyper Text Transfer Protocol)
7. HTTPS(HyperText Transfer Protocol Secure)
8. TELNET(Terminal Network)
9. POP3(Post Office Protocol 3)
- 10.IPv4
- 11.IPv6
- 12.ICMP
- 13.UDP
- 14.IMAP
- 15.SSH
- 16.Gopher



THE INTERNET PROTOCOL STACK





ASSESSMENT - 1



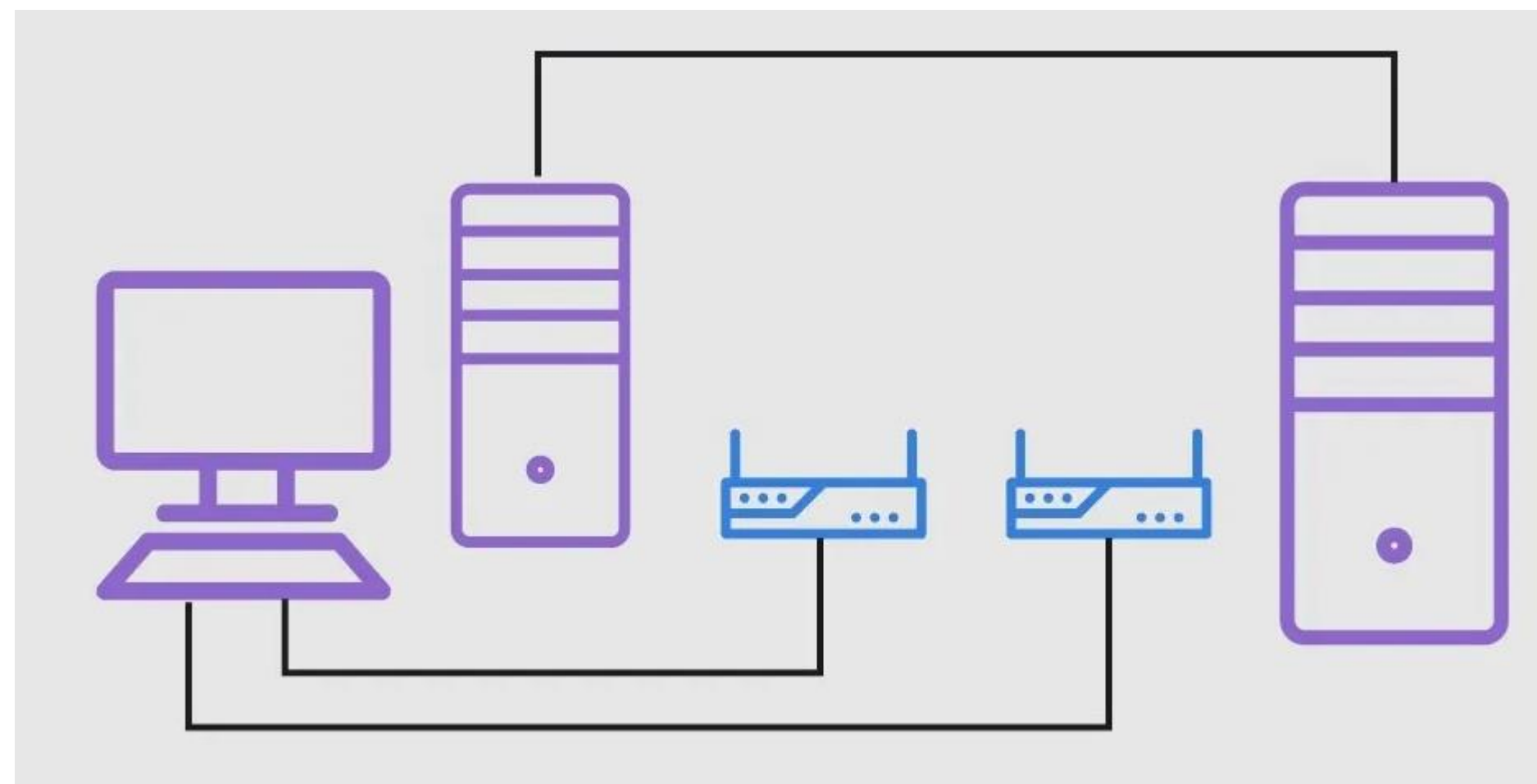
CAN FIBER RUN ON POWER LINES?





ASSESSMENT - 2

CAN YOU GUESS THIS TYPE OF PROTOCOL?





References



- <https://www.javatpoint.com/ip>
- <https://electricway.com/blog/broadband-over-power-lines-bpl/>
- <https://www.geeksforgeeks.org/types-of-internet-protocols/>
- <https://www.w3.org/People/Frystyk/thesis/TcpIp.html>

Thank You