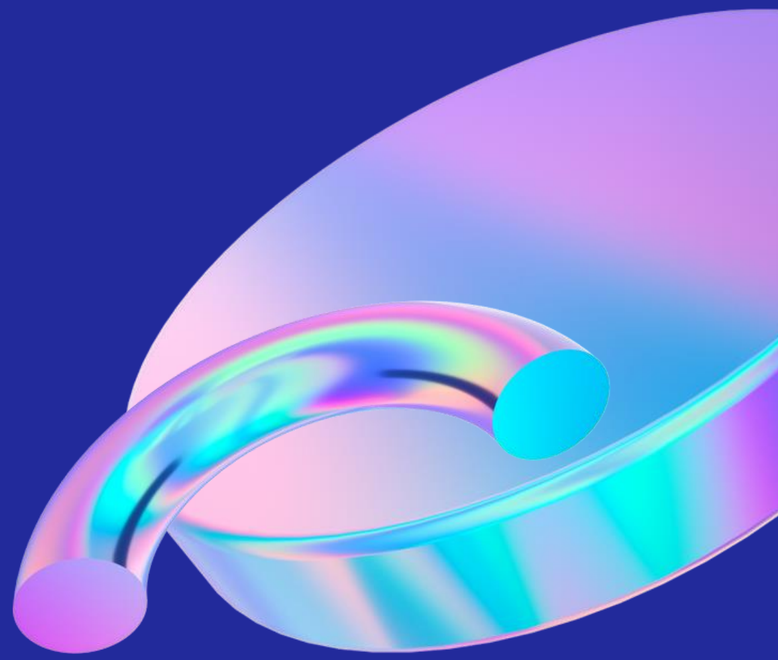
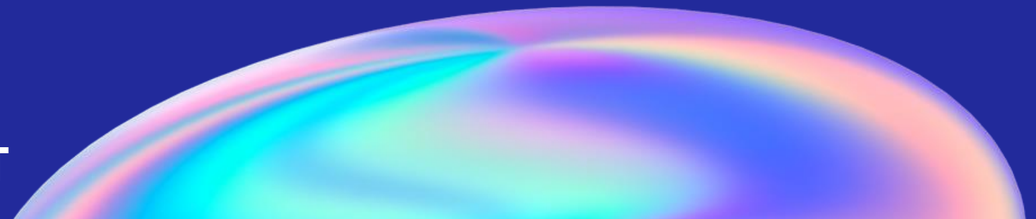
CONVERSION

DATA COMMUNICATION AND NETWORK





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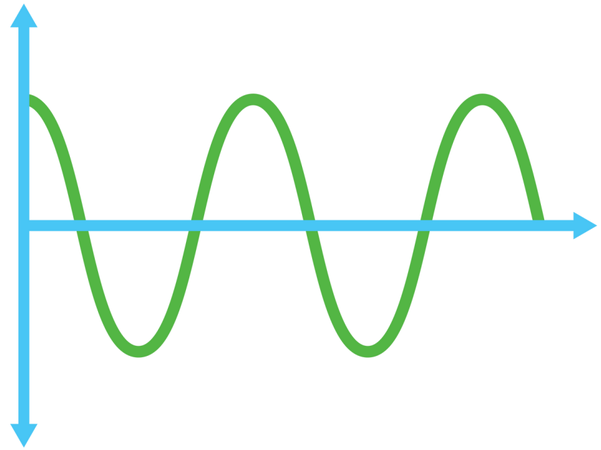
Key points we will be discussing:

Presentation Highlights

- DIGITAL VS ANALOG
- CONVERSION
- TYPES OF CONVERSION
- PURPOSE
- EXAMPLE

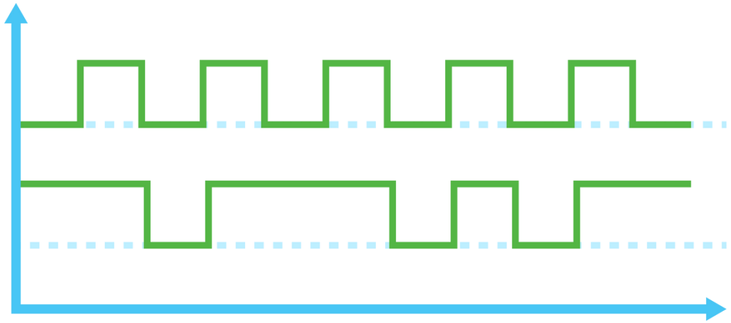
ANALOG

- Continuous in time and amplitude
- Accuracy Can represent a wider range of values, but are subject to quantization errors
- Immunity to noise More susceptible to noise



DIGITAL

- Discrete in time and amplitude
- Less accurate, but are not subject to quantization errors
- More immune to noise

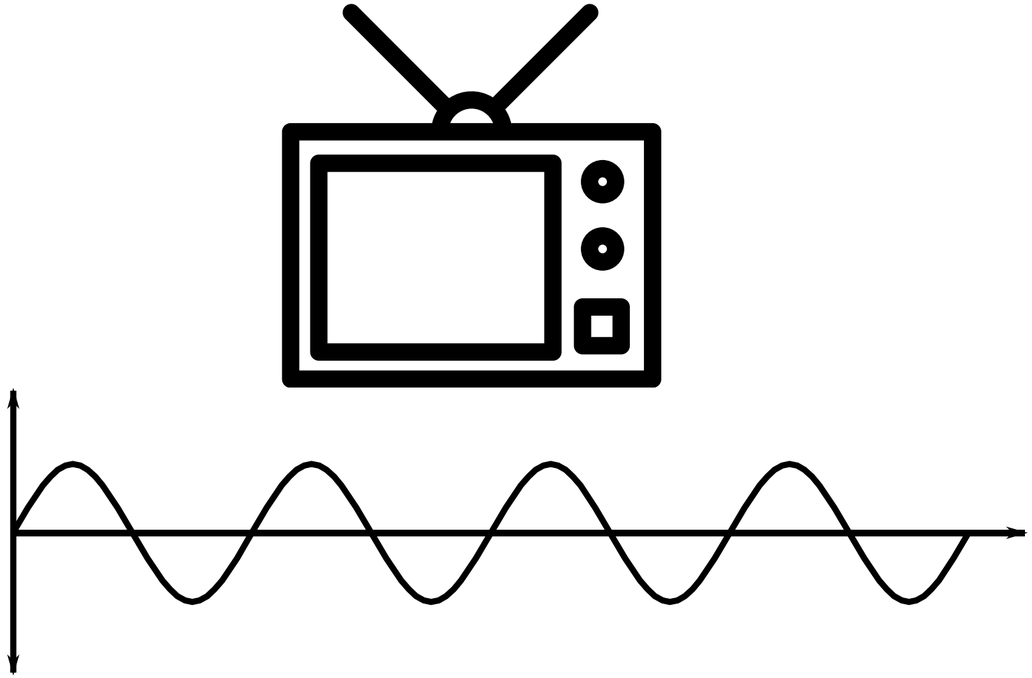


CONVERSION

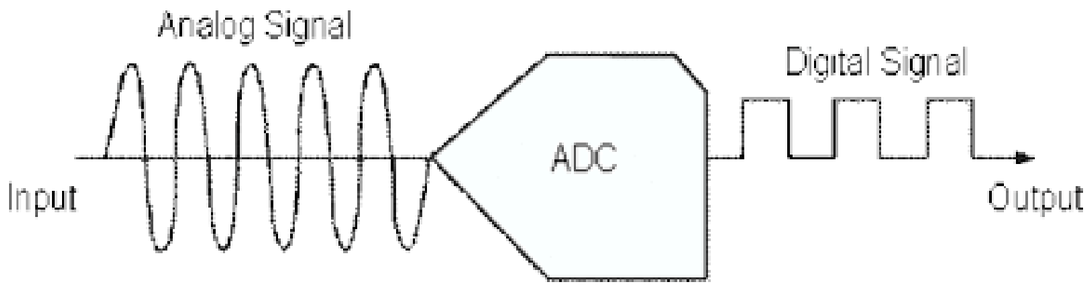
In data communication and networking, "conversion" involves changing data from one format, protocol, or encoding to another. It occurs at different network points and serves purposes like ensuring compatibility, enhancing security, and optimizing data transmission.

TYPES

- Analog to Digital conversion
- Digital to Analog Conversion
- Digital to digital Conversion
- Analog to Analog Conversion



ANALOG TO DIGITAL

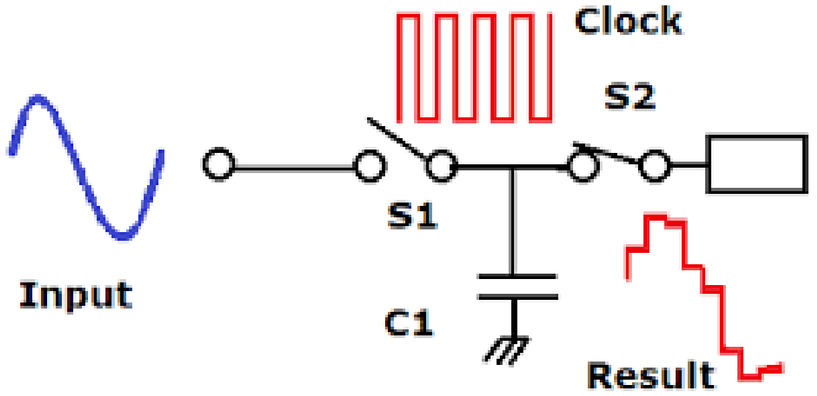


PURPOSE

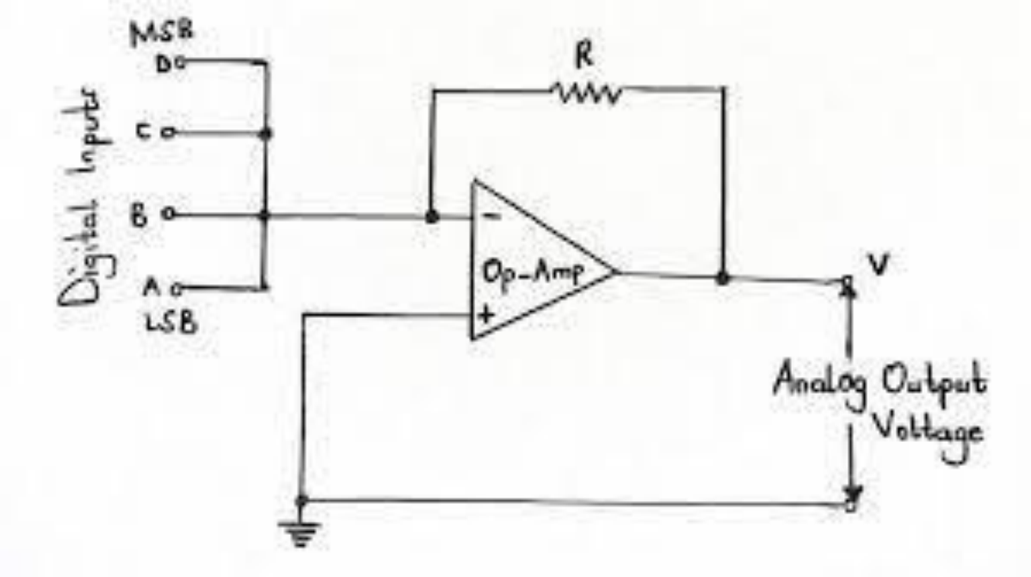
To convert continuous analog signals into discrete digital signals.

EXAMPLE

In voice communication, analog audio signals (e.g., from a microphone) are converted into digital format (e.g., pulse code modulation) before transmission over digital networks.



DIGITAL TO ANALOG

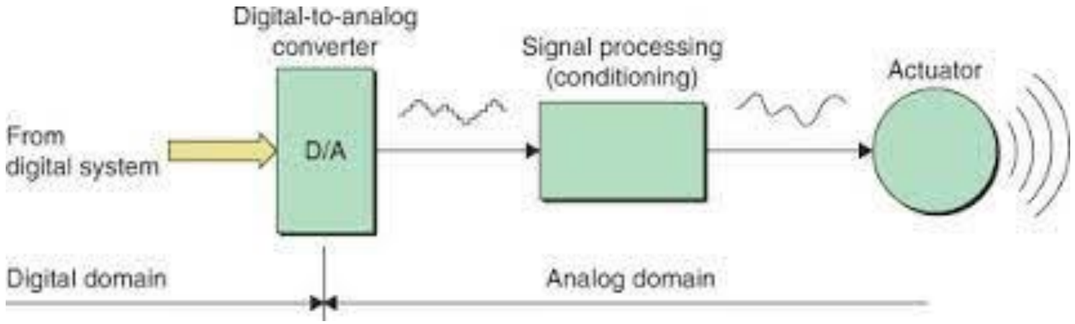


PURPOSE

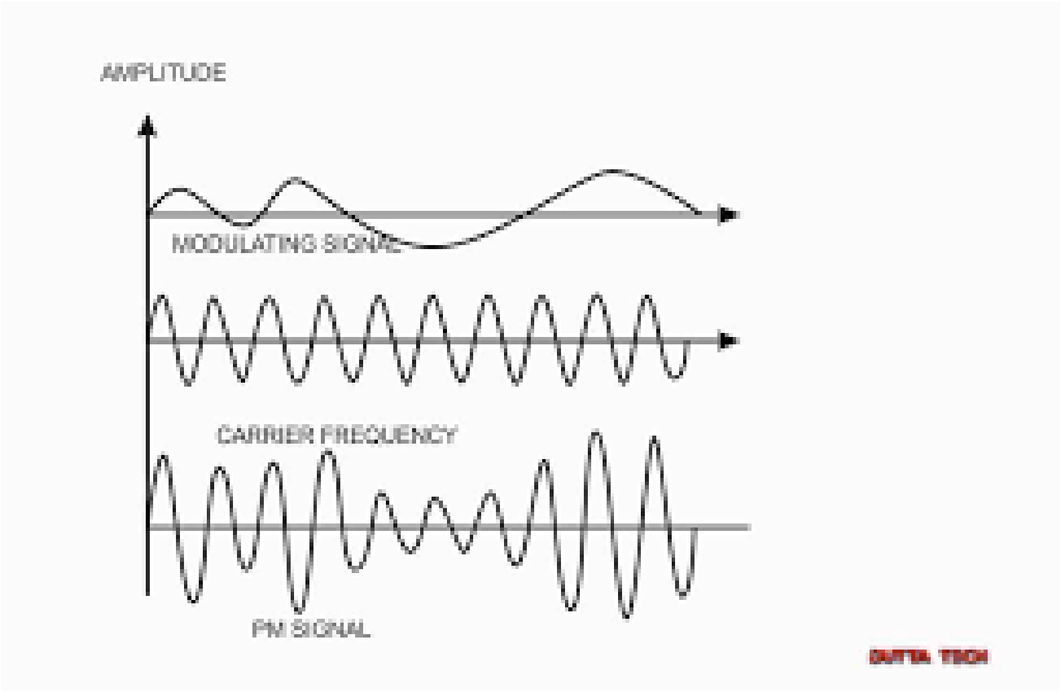
To convert discrete digital signals into continuous analog signals.

EXAMPLE

In audio playback, digital audio data (e.g., from a music file) is converted into analog audio signals by a Digital-to-Analog Converter (DAC) for speakers or headphones.



ANALOG TO ANALOG

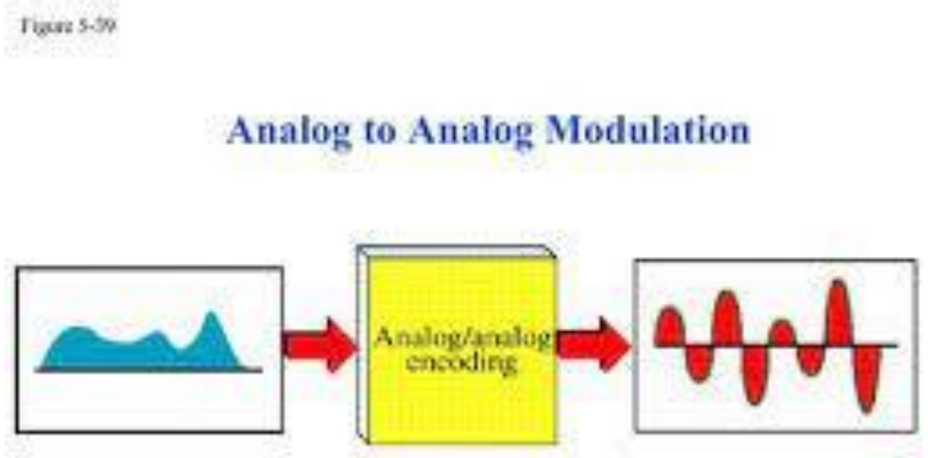


PURPOSE

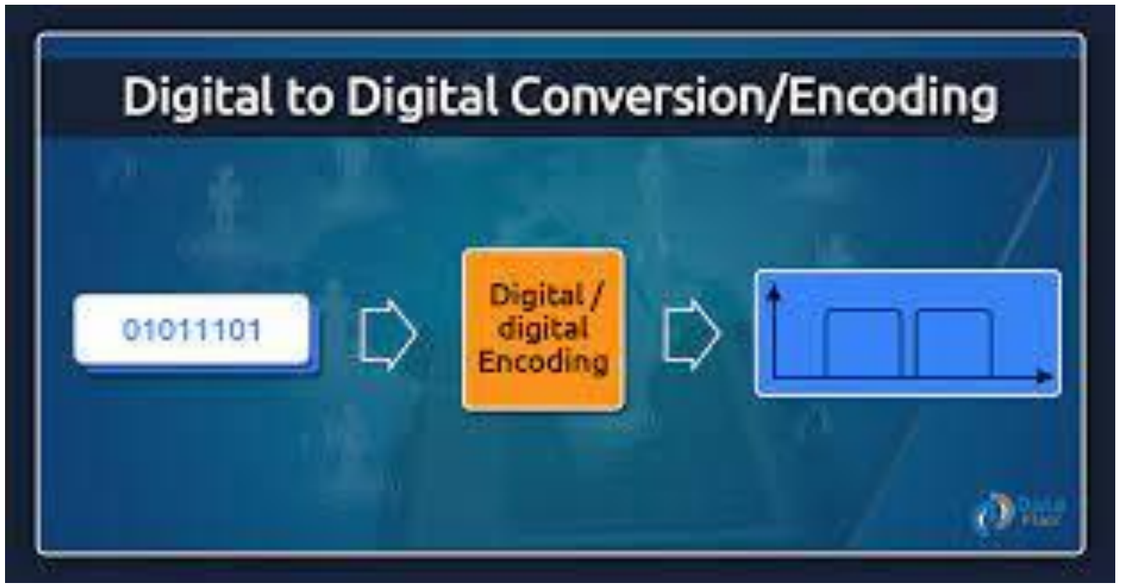
To amplify, modulate, or process analog signals without converting to digital.

EXAMPLE

With just a few clicks, consumers can buy everything they want and need in the comforts of their own home.



DIGITAL TO DIGITAL

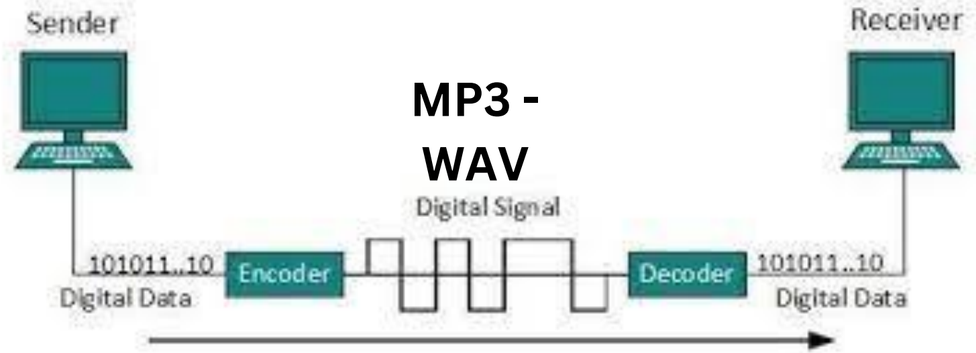


PURPOSE

To change the digital format, encoding, or protocol of data while remaining in the digital domain.

EXAMPLE

Data protocol conversion, such as translating data from Ethernet to Wi-Fi, or from one network protocol to another (e.g., TCP/IP to UDP).



THESE EXAMPLES SHOWS HOW ALL FOUR TYPES OF DATA CONVERSION ARE USED IN A REAL WORLD APPLICATION