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Data Communication CS601 Lecture No 7

Lecture Prepared By

Muhammad Abid Ali

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The Open System Interconnection (OSI) Model

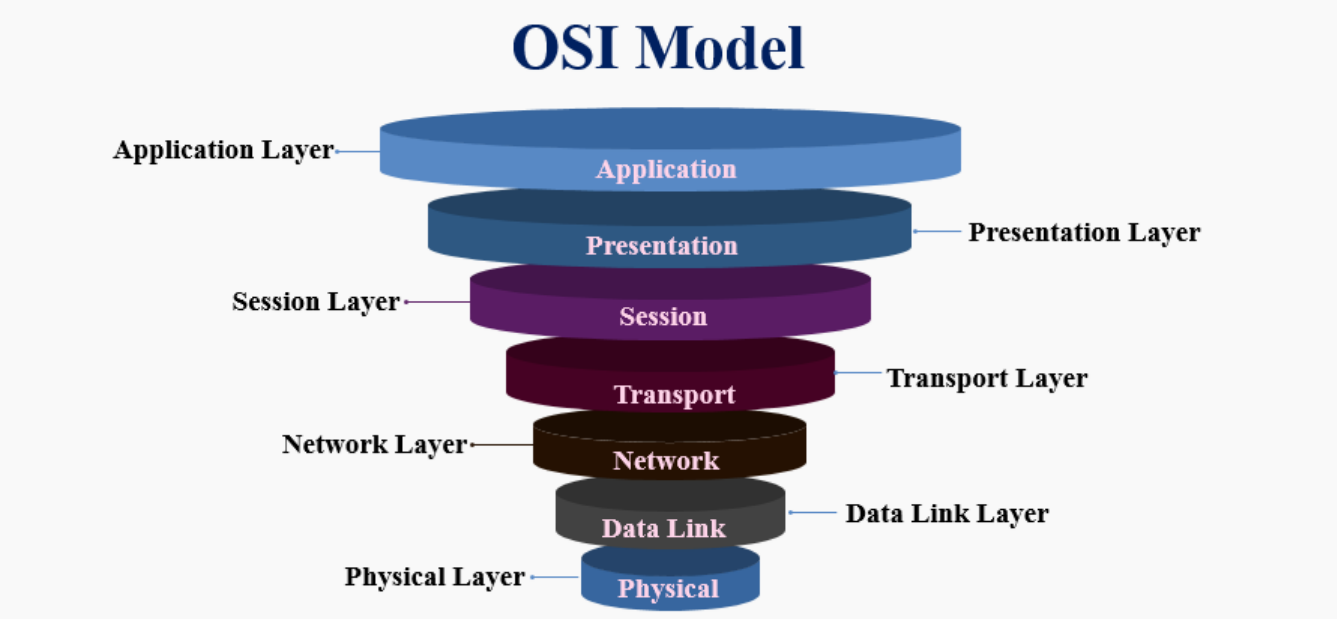
Open Systems Interconnection (OSI) – a framework for transmitting messages between any two entities in a network. It defines seven layers of functions: Physical Layer – is at the electrical and mechanical level; referring to the hardware and physical wires/devices required to transport the data.

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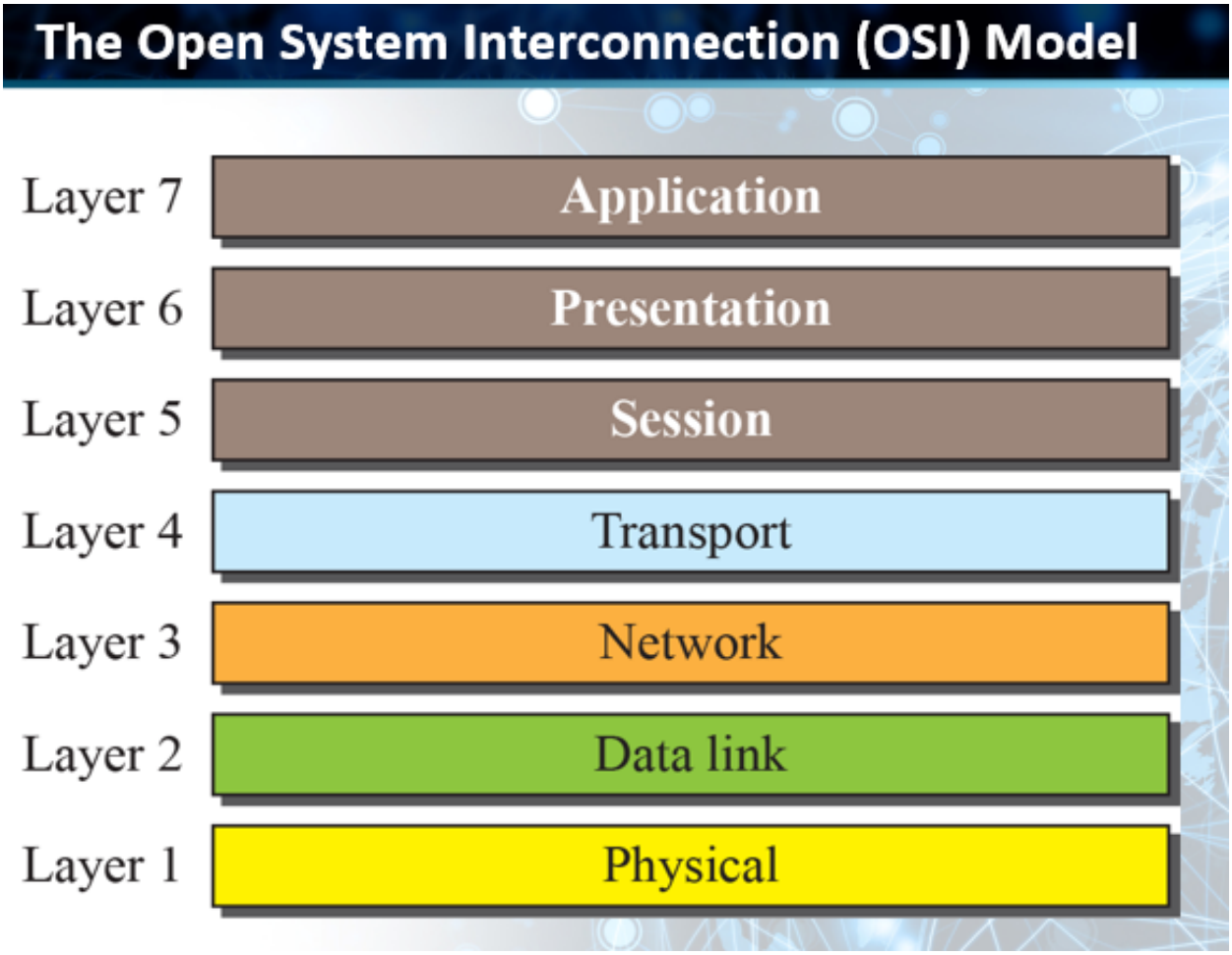
- **International Organization for Standardization (ISO)**
- **ISO established in 1947**
- **Close to three-fourths of countries represented**
- **Introduced OSI Model in late 1970s**
- **OSI: a 7-Layer Model**



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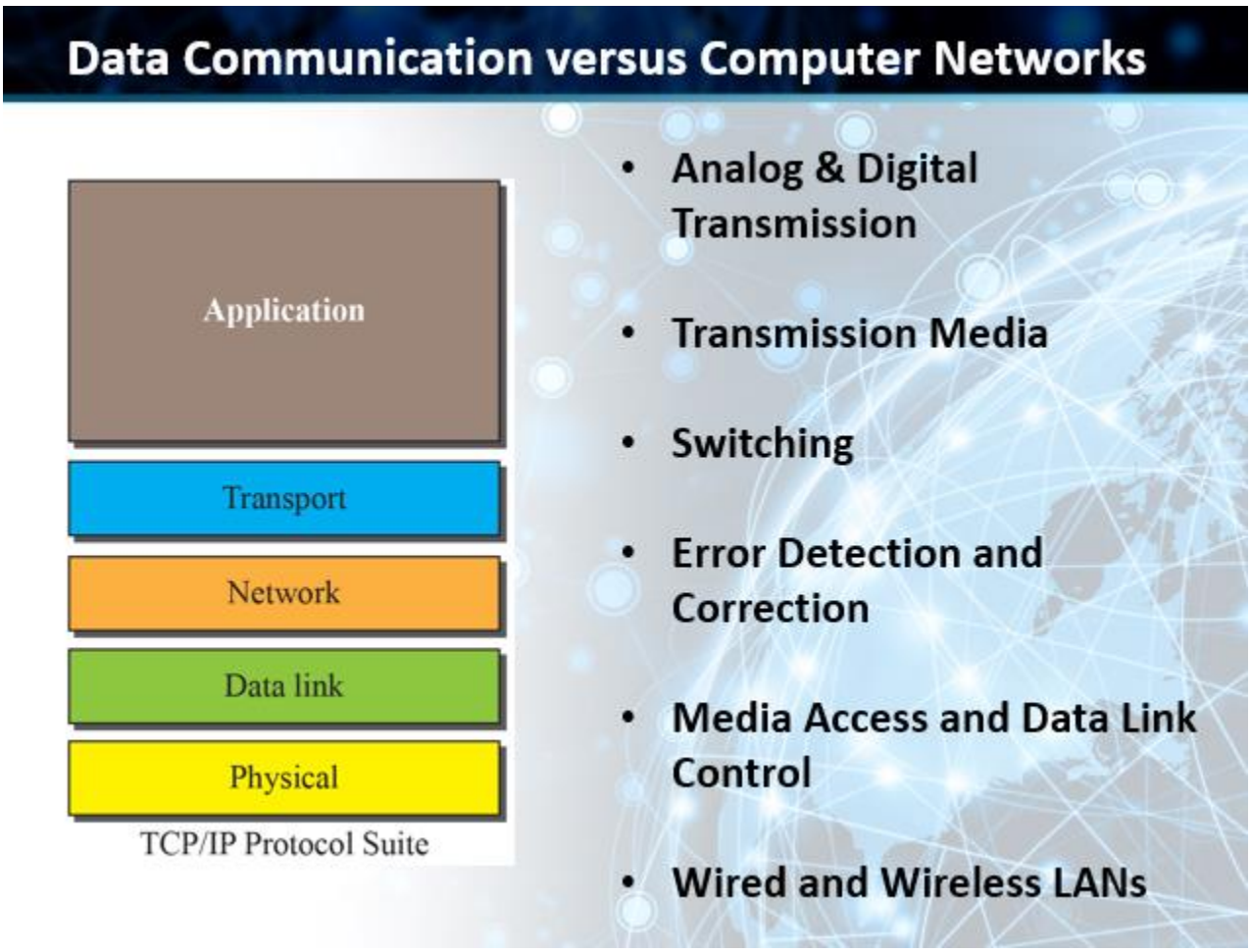
Lack of OSI Model's Success

- **Three reasons OSI did not replace TCP/IP:**
  - ✓ **OSI was completed when TCP/IP was fully in place**
  - ✓ **Some layers in OSI not fully defined**
  - ✓ **Performance of TCP/IP better than that of OSI**

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Physical Layers

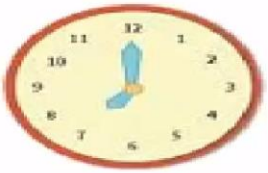
The data is travel from one network to another network through Physical Layer in the Form of Analog & Digital Data.

Analog Data → Continuous

Analog Clock, Human Voice



Analog Signal



Analog clock

Digital Data → Discrete

Digital Clock, Data Store in Computer



Digital Signal

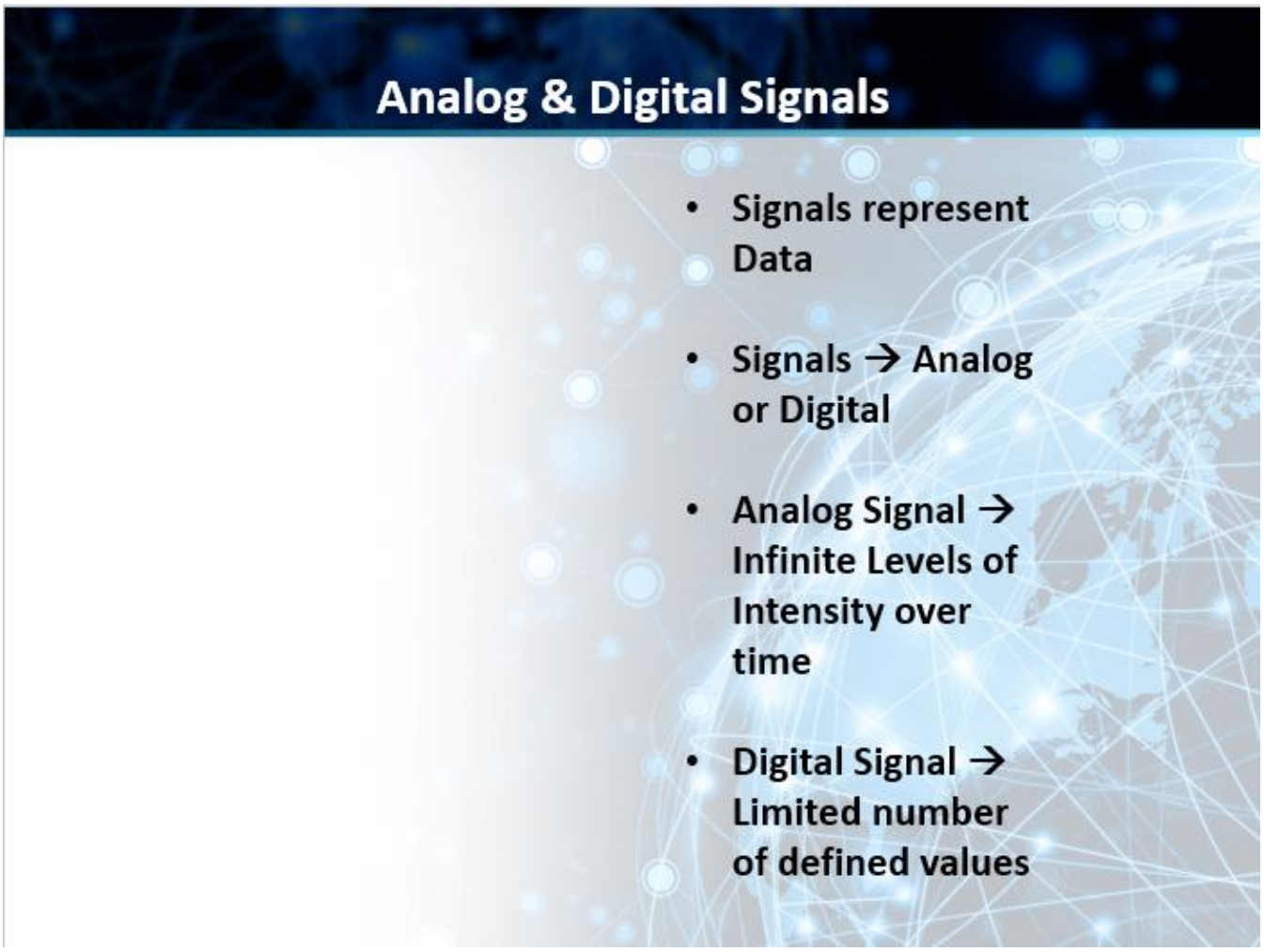


Digital clock

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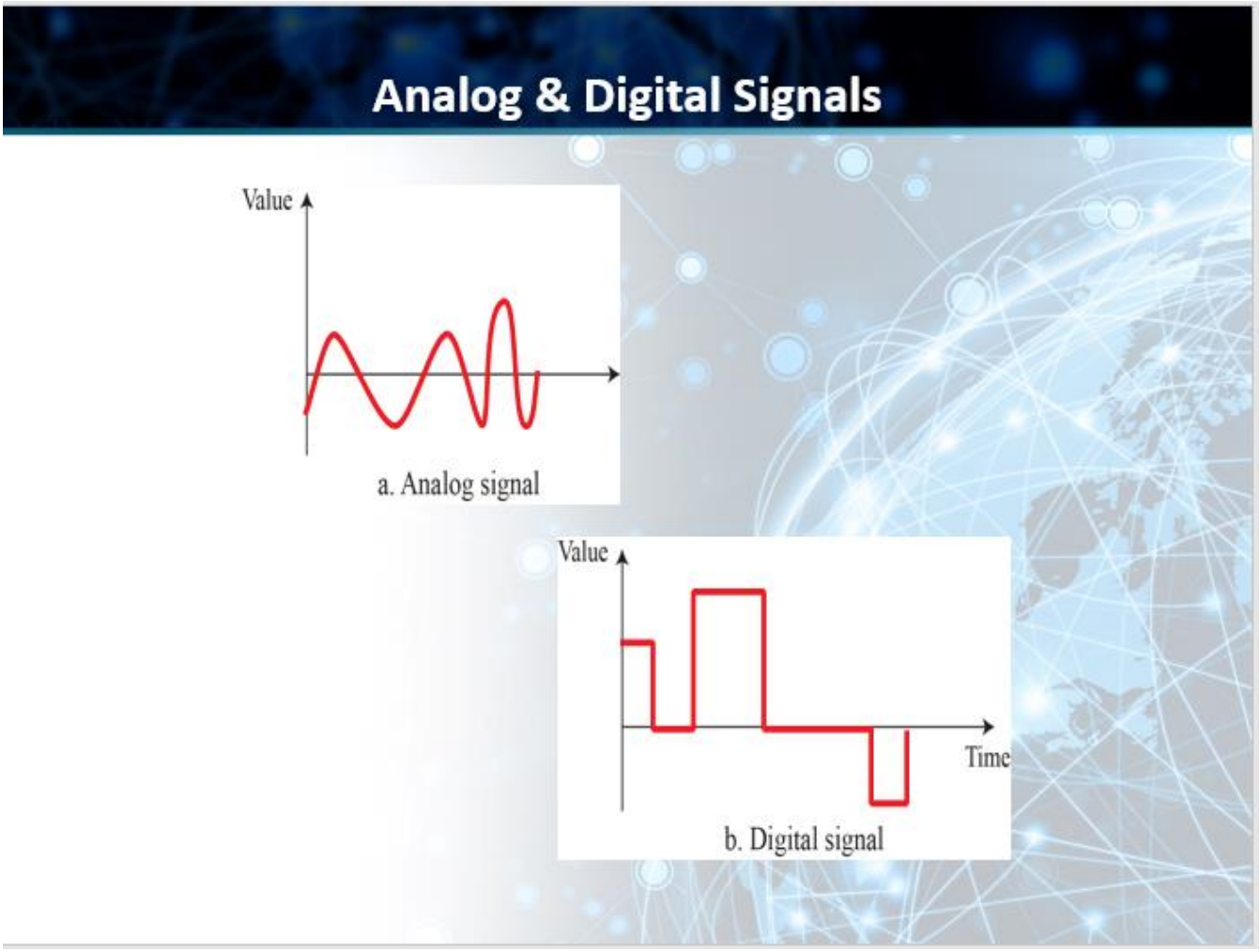
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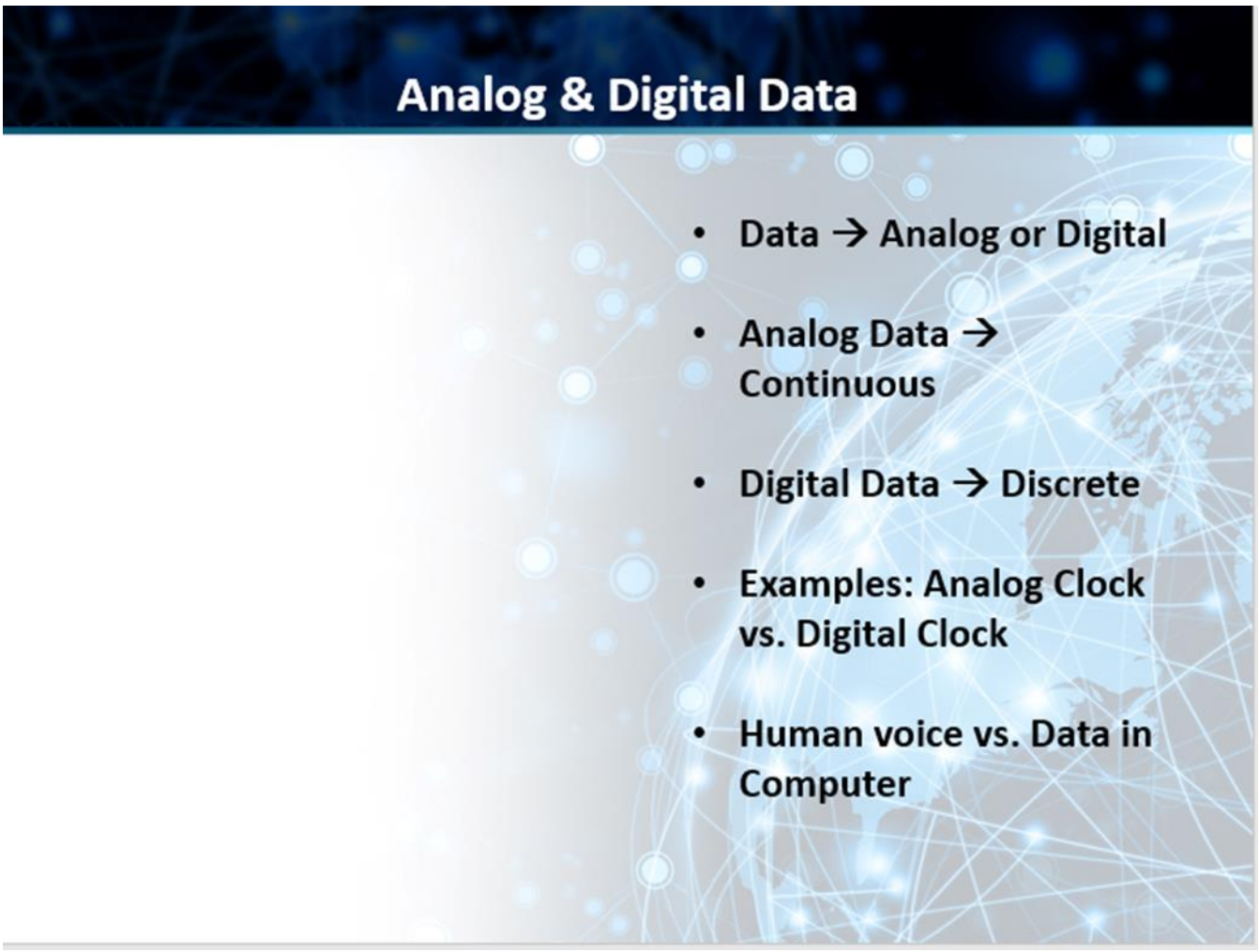
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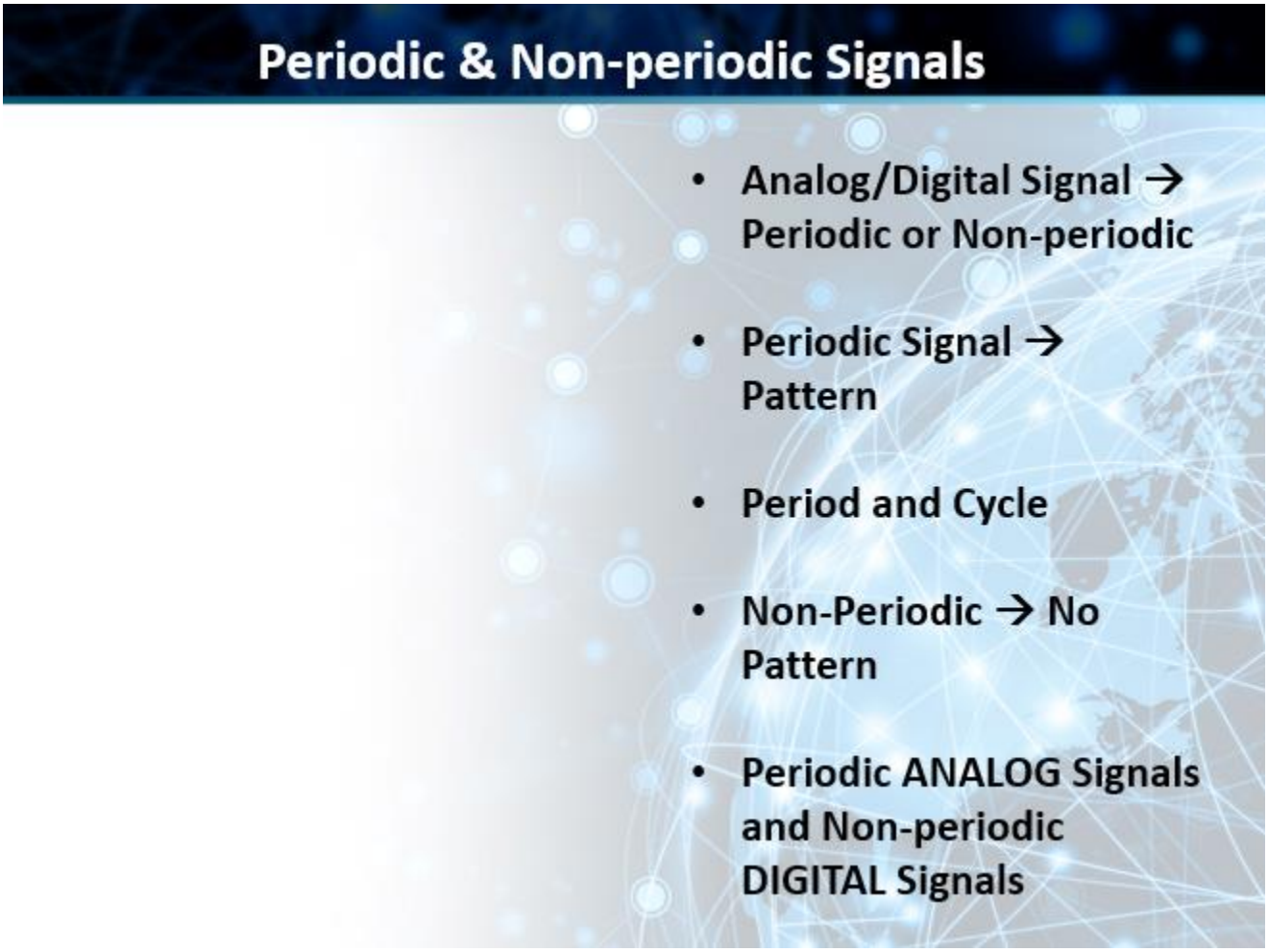
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Periodic & Non-periodic Signals

A signal is said to be periodic signal if it has a definite pattern and repeats itself at a regular interval of time. Whereas, the signal which does not at the regular interval of time is known as an aperiodic signal or non-periodic signal

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Periodic Signals

A Periodic Signals is a signal that complete pattern in a certain period of time. (Cycle).

Simple Periodic Analog Signal - Sine Wave

Composite Periodic Analog Signal - Multiple Sine Wave

Non-Periodic Signals

A Non-Periodic Signals is a signal that changes its pattern in each cycle.