IT -305
Data Communication

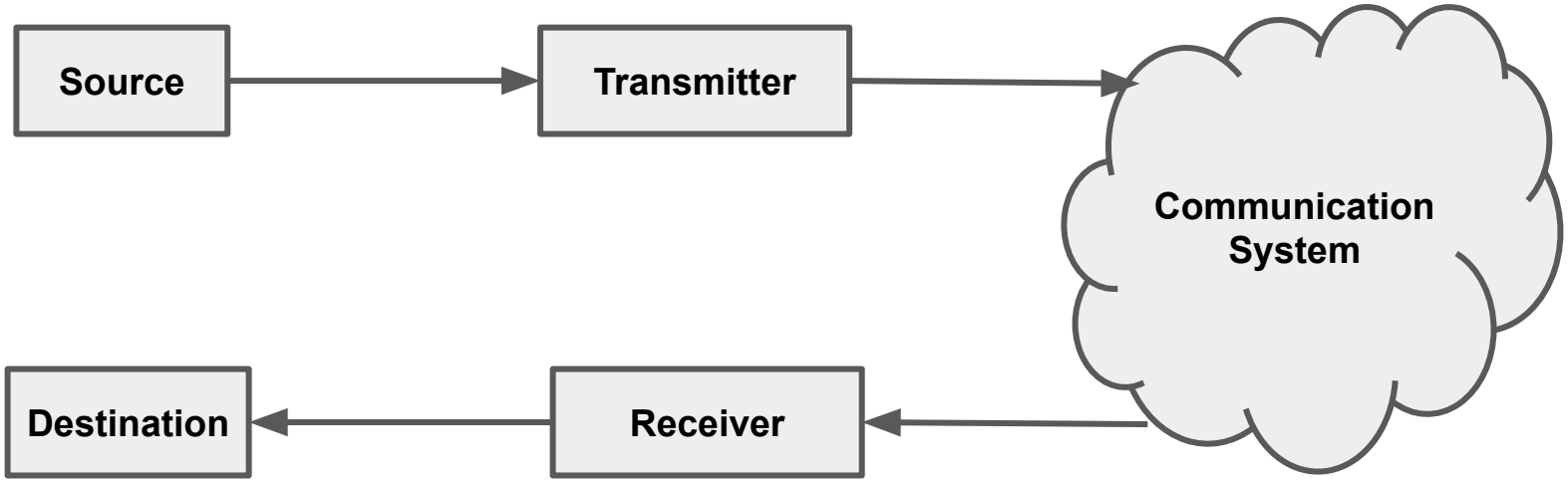
Bernard Nongpoh
Guest Faculty

(August 26, 2019)

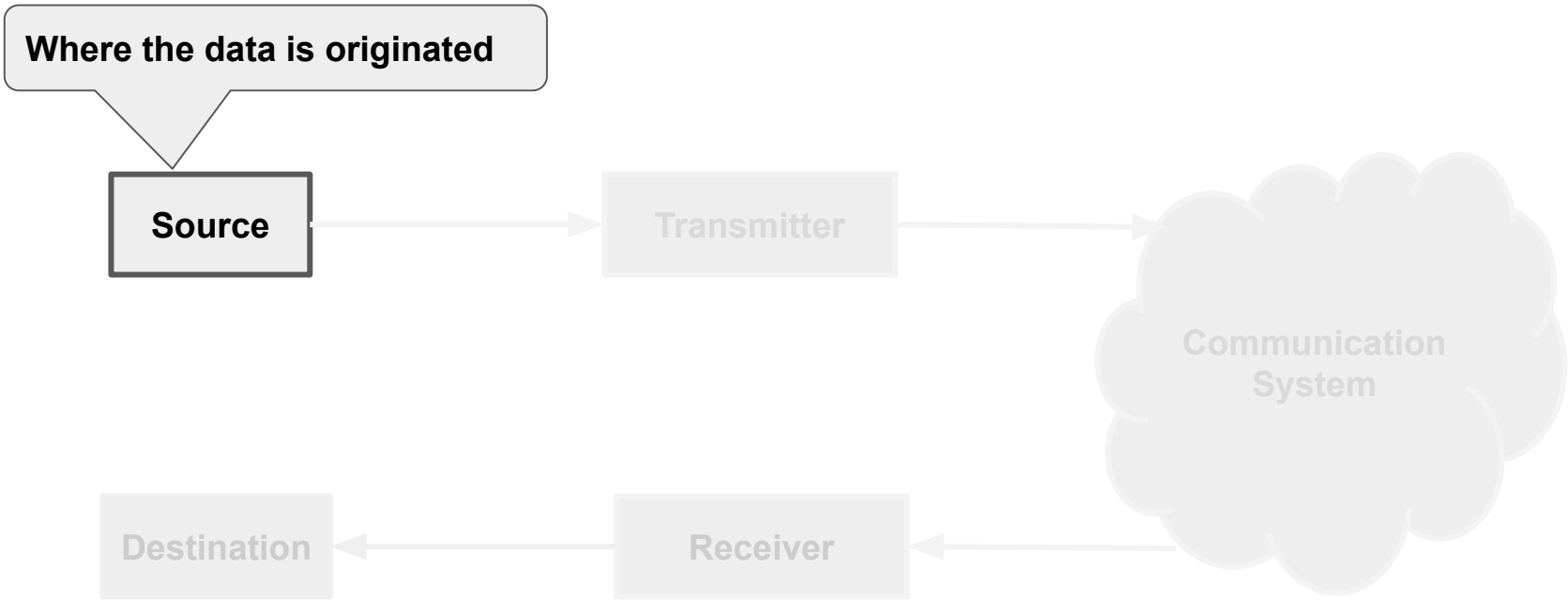
Course Logistics

- Subject Code : IT – 305 Data Communication
- 3 Credit course
- Marks Distribution
  - Internal Assessment : 30
    - Class Test : 15
    - Teachers Assessment : 15
      - Assignment -1 (5)
      - Assignment-2 (5)
      - Assignment-3 (5)
  - End Semester Examination : 45

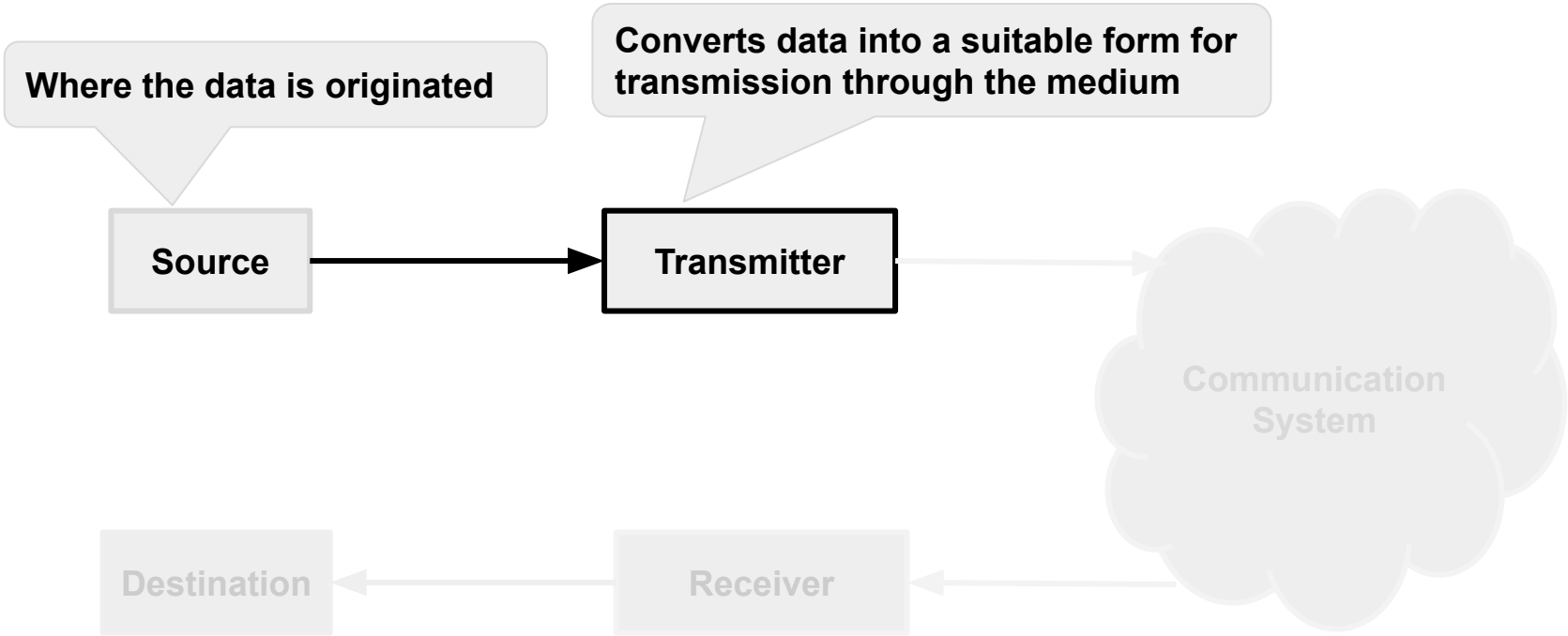
Simple Data Communication Model



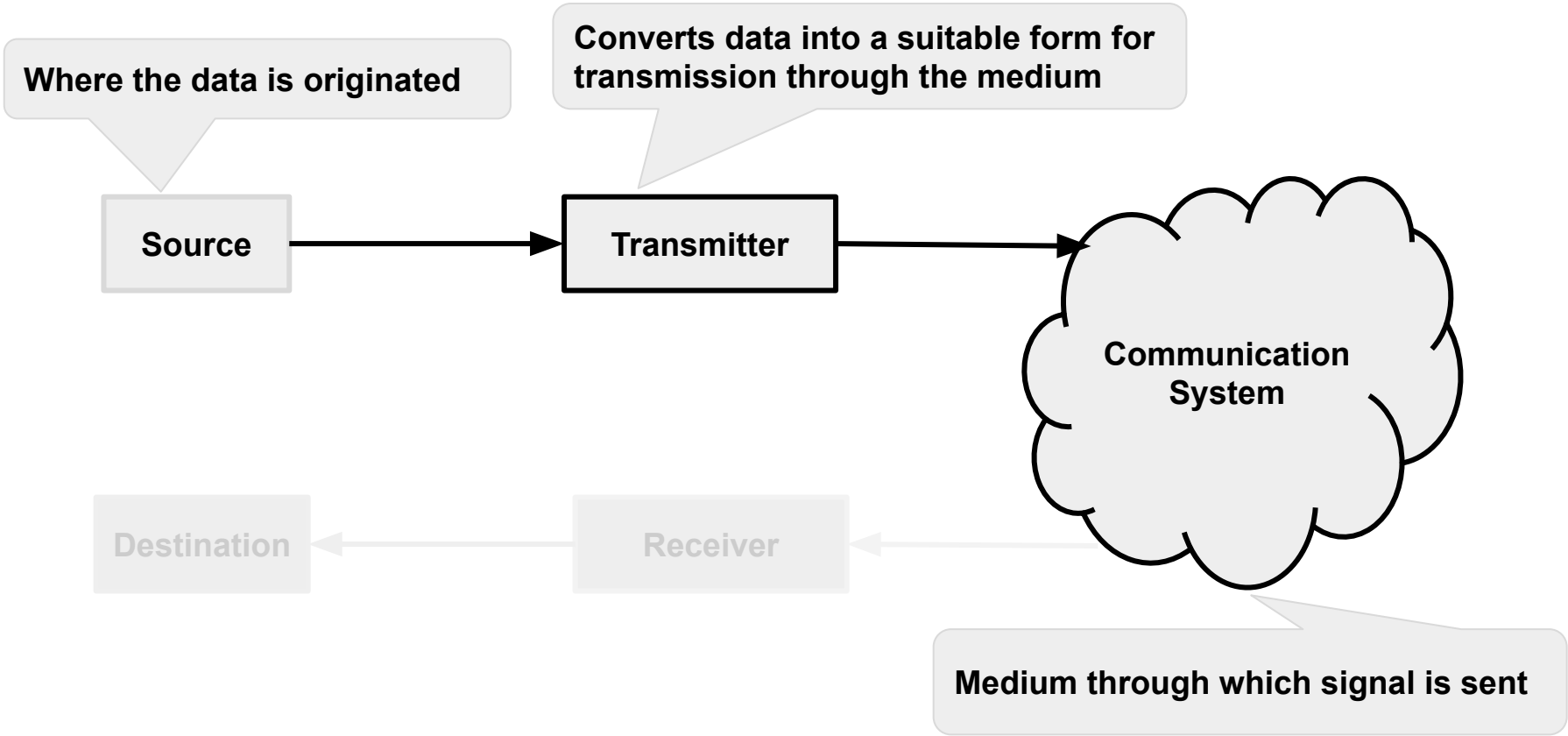
Simple Data Communication Model



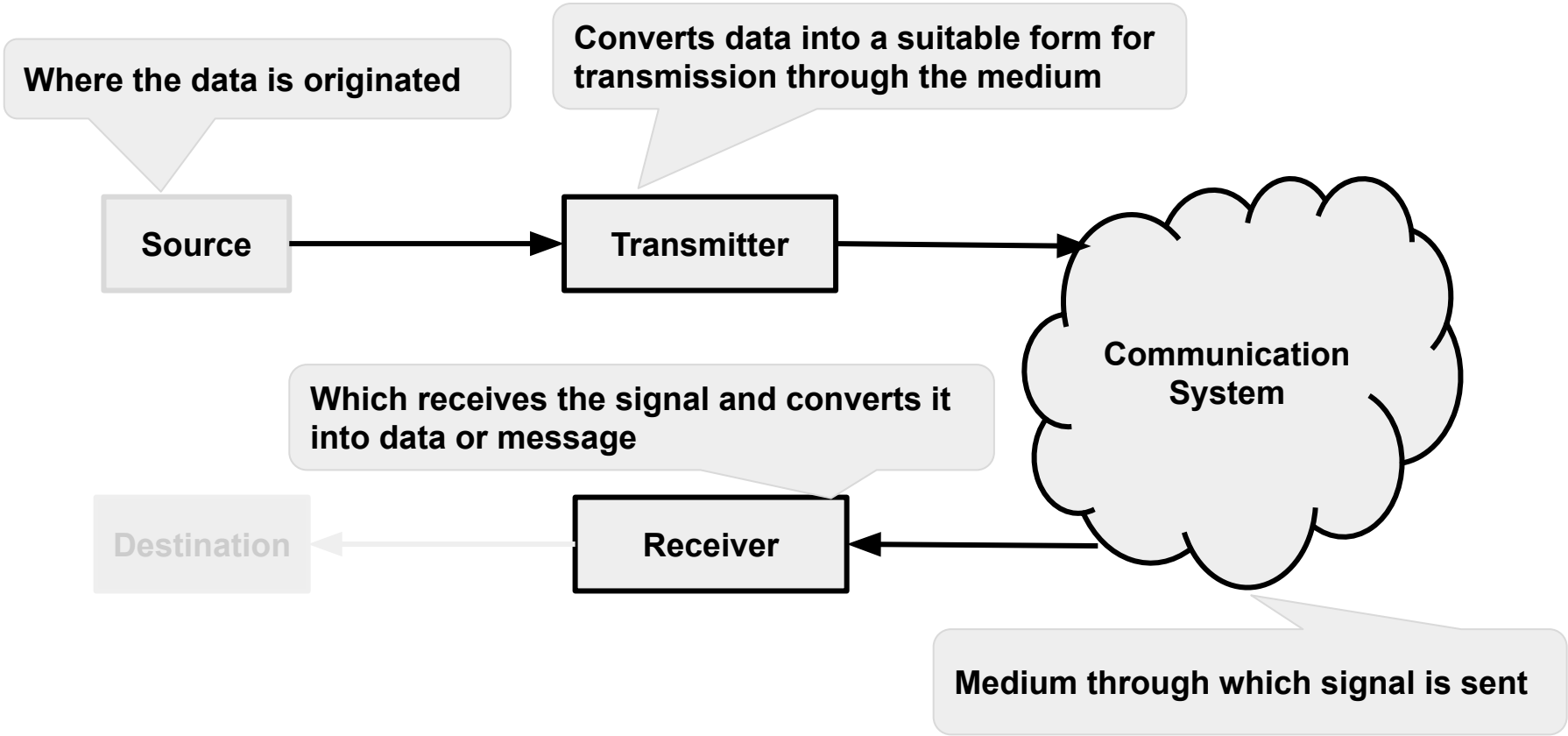
Simple Data Communication Model



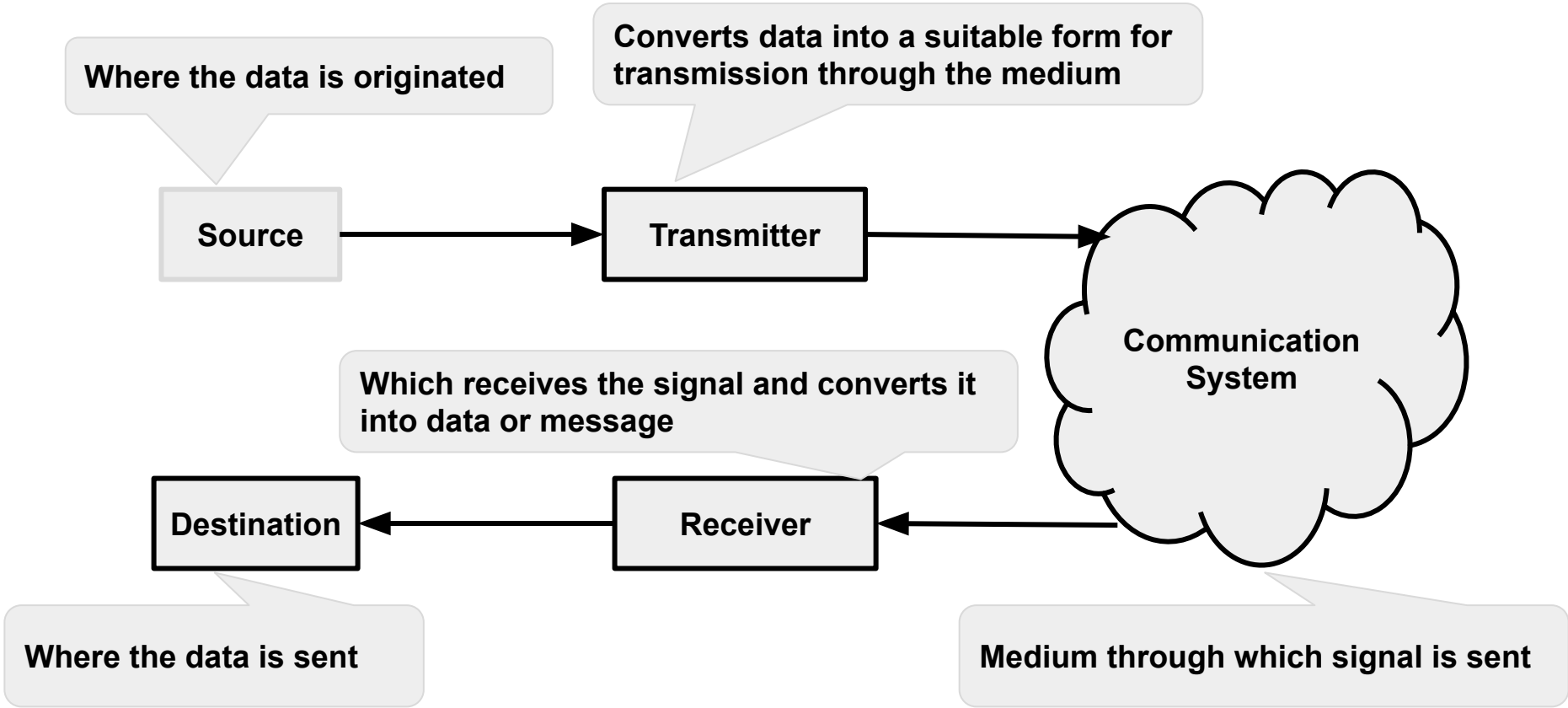
Simple Data Communication Model



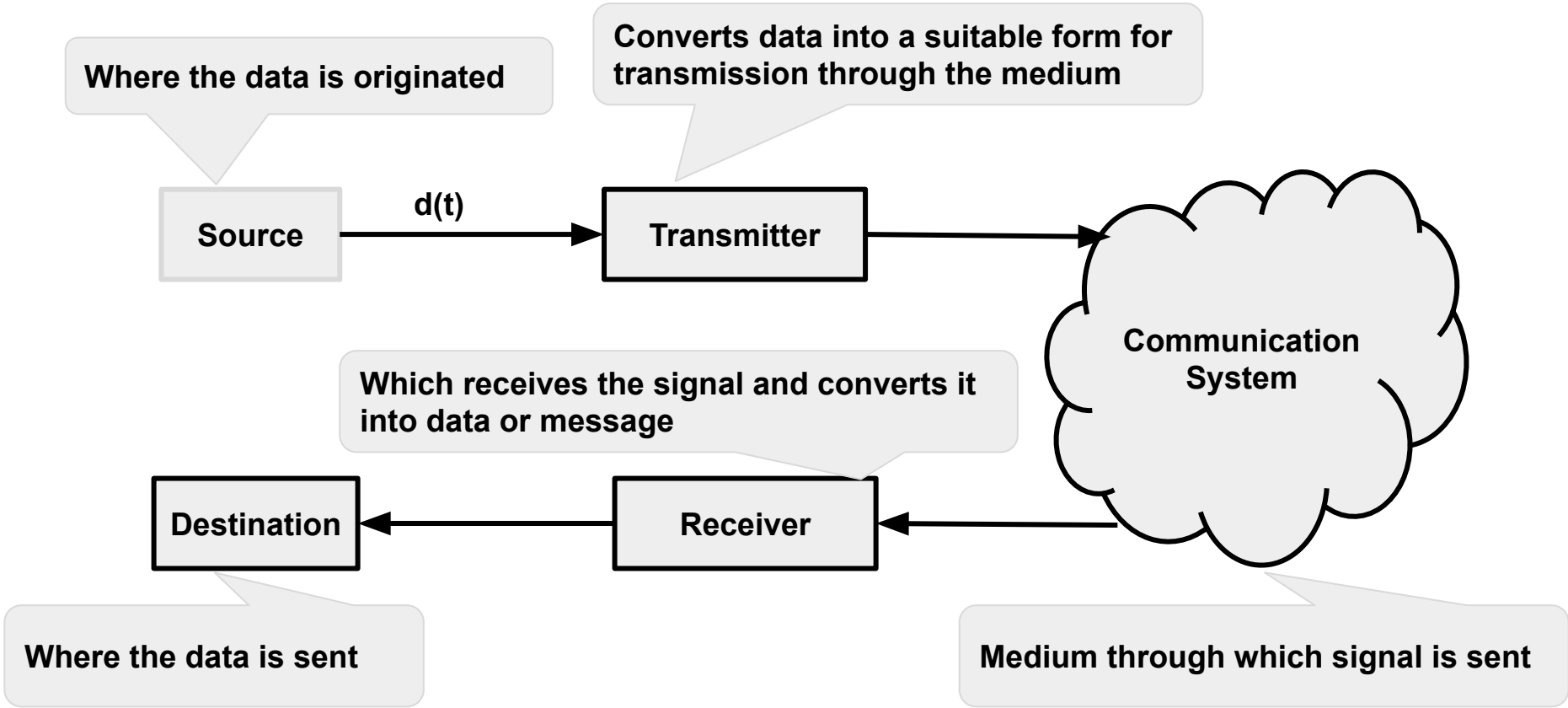
Simple Data Communication Model



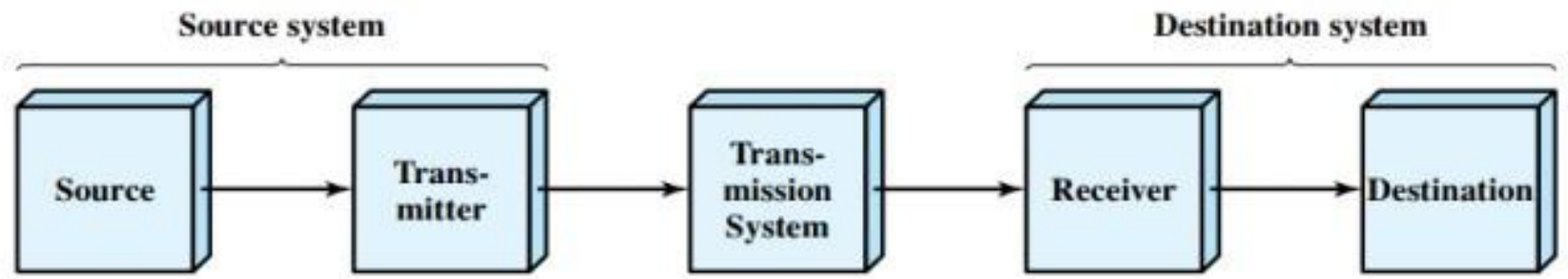
Simple Data Communication Model



Simple Data Communication Model



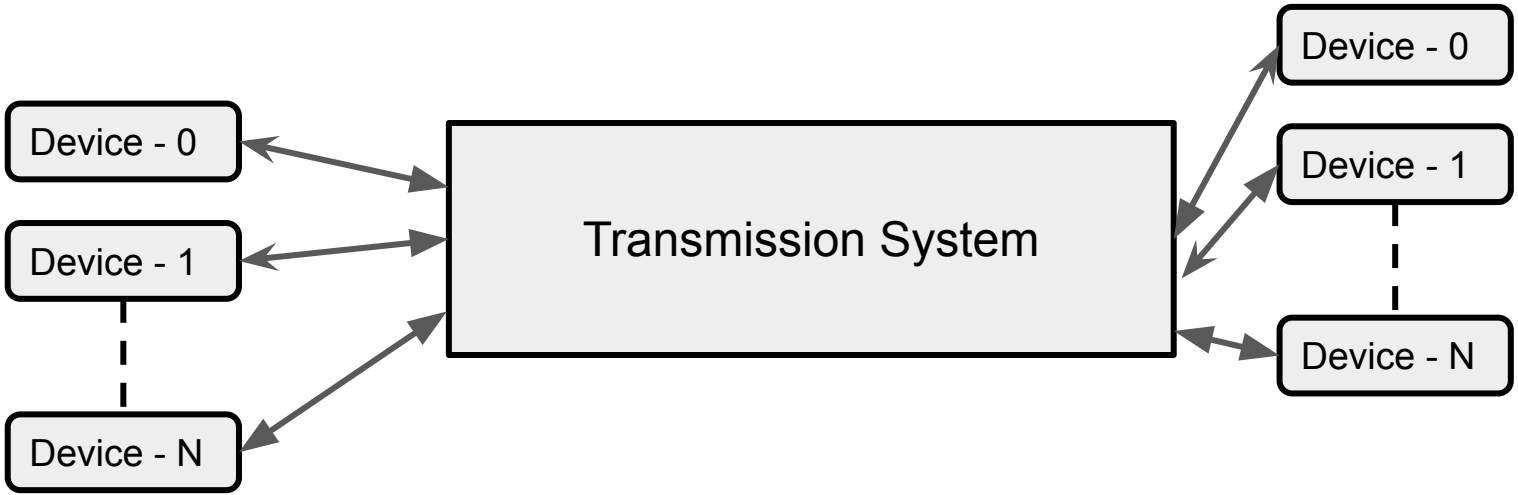
General Block Diagram



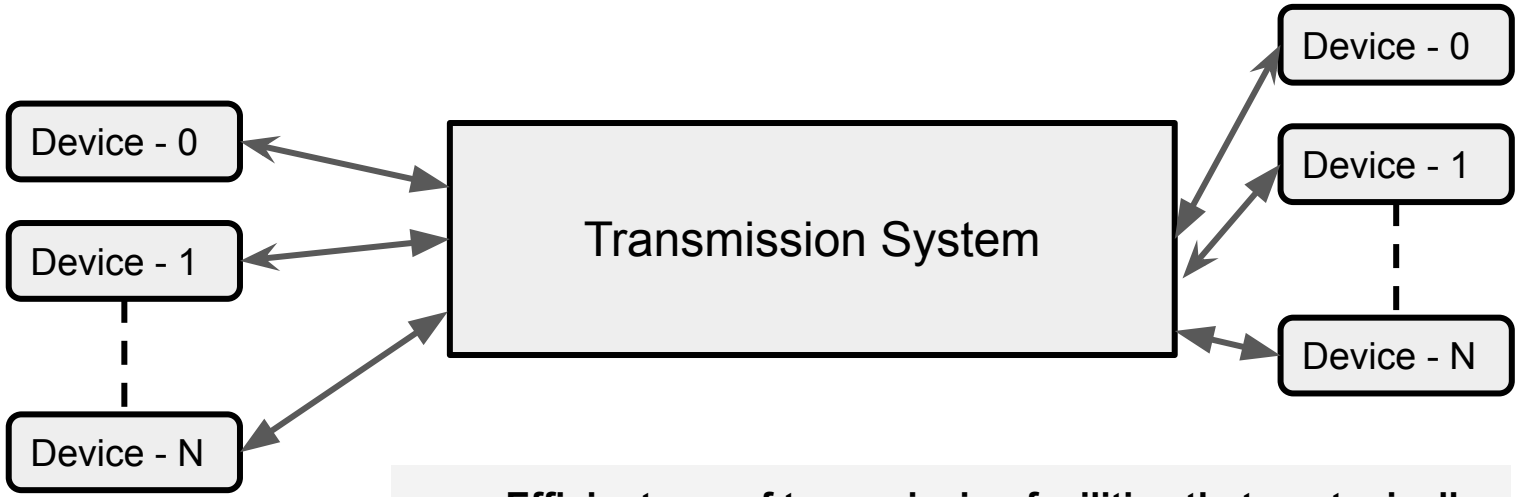
Communications Tasks

Transmission system utilization	**Flow control**
Interfacing	**Addressing and Routing**
Signal generation	**Recovery**
Synchronization	**Message formatting**
Exchange management	**Security**
Error detection and correction	**Network Management**

Transmission system utilization

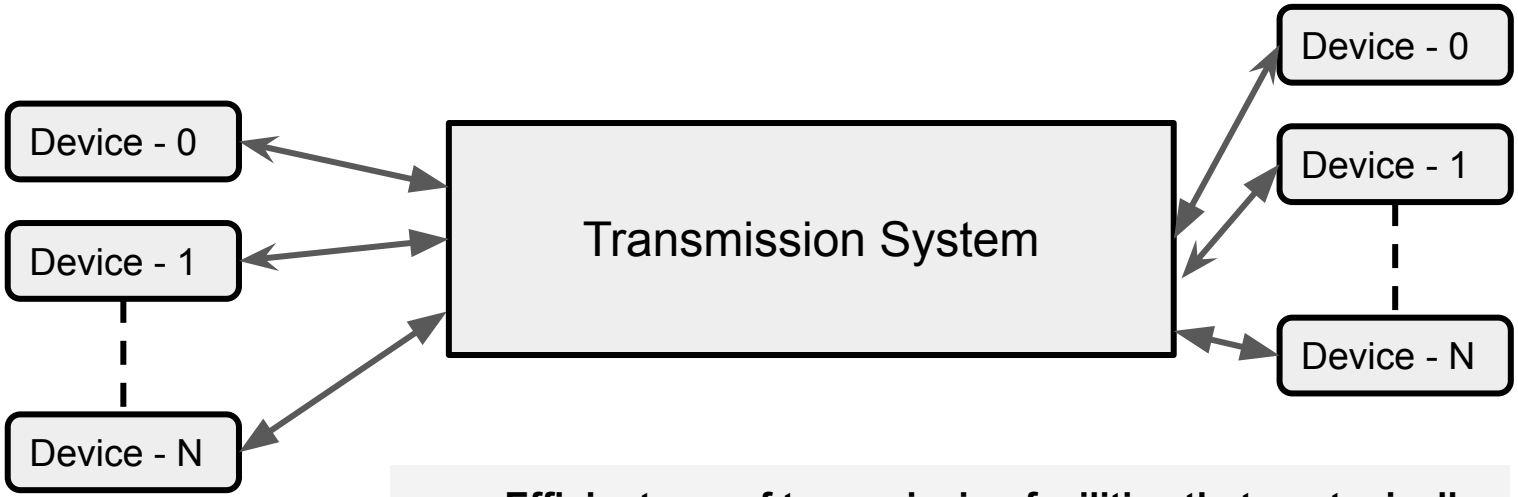


Transmission system utilization



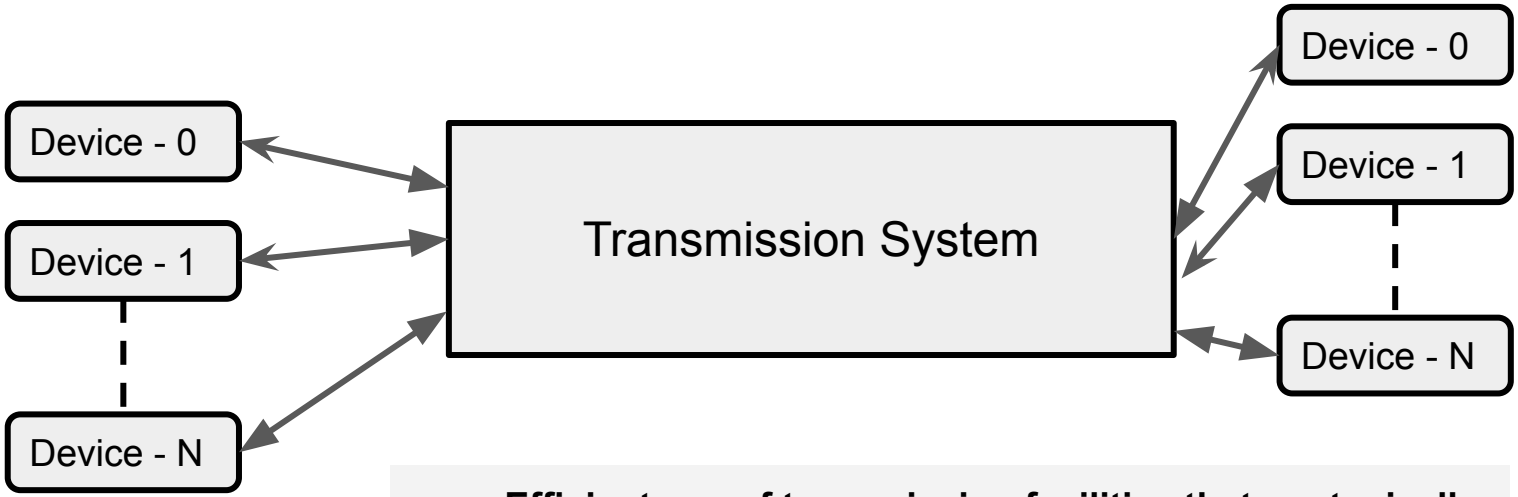
- **Efficient use of transmission facilities that are typically shared among number of communicating devices**

Transmission system utilization



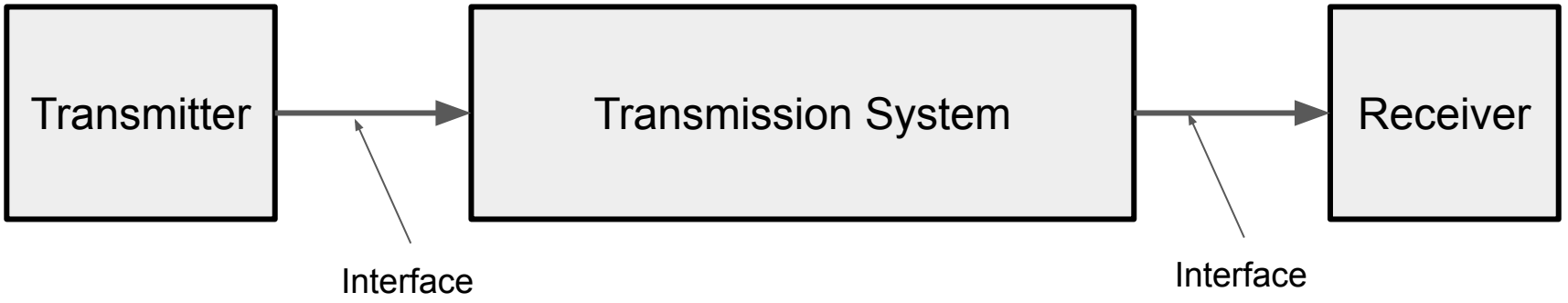
- **Efficient use of transmission facilities that are typically shared among number of communicating devices**
- **Techniques to allocate the total capacity of a transmission medium among a number of users.**

Transmission system utilization

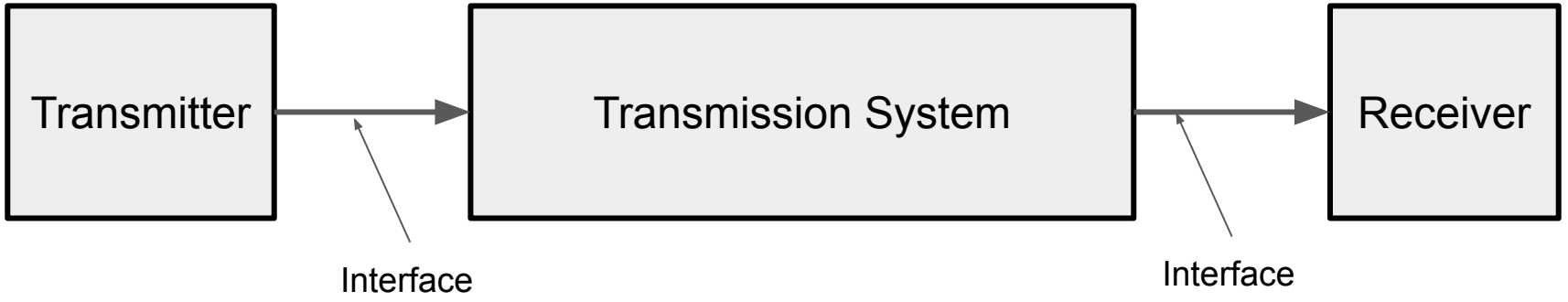


- **Efficient use of transmission facilities that are typically shared among number of communicating devices**
- **Techniques to allocate the total capacity of a transmission medium among a number of users.**
- **Congestion control techniques : Assure that the system is not overwhelmed by excessive demand for transmission services.**

Interfacing

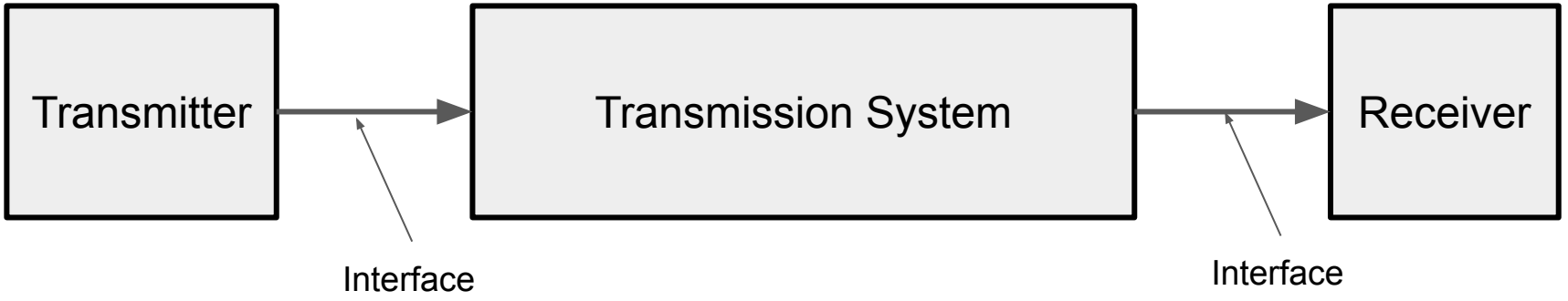


Interfacing



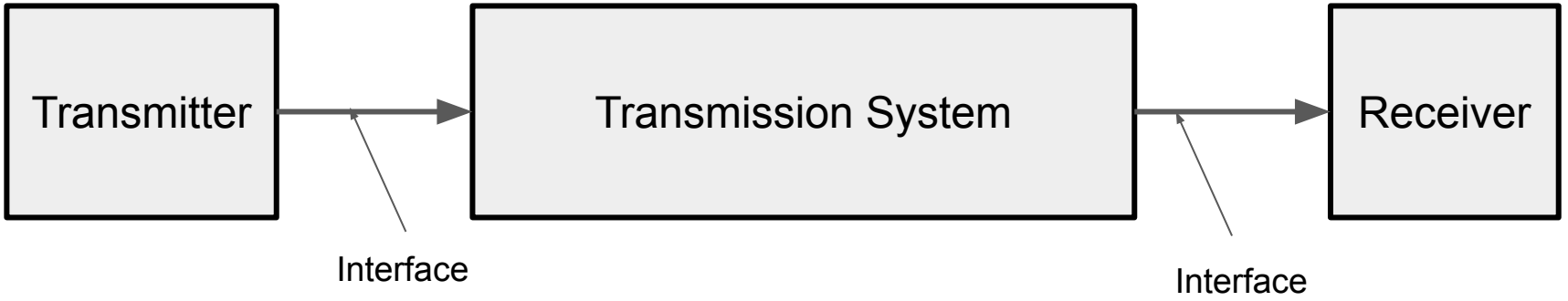
- **Use of electromagnetic signals to propagate over a transmission medium.**

Interfacing



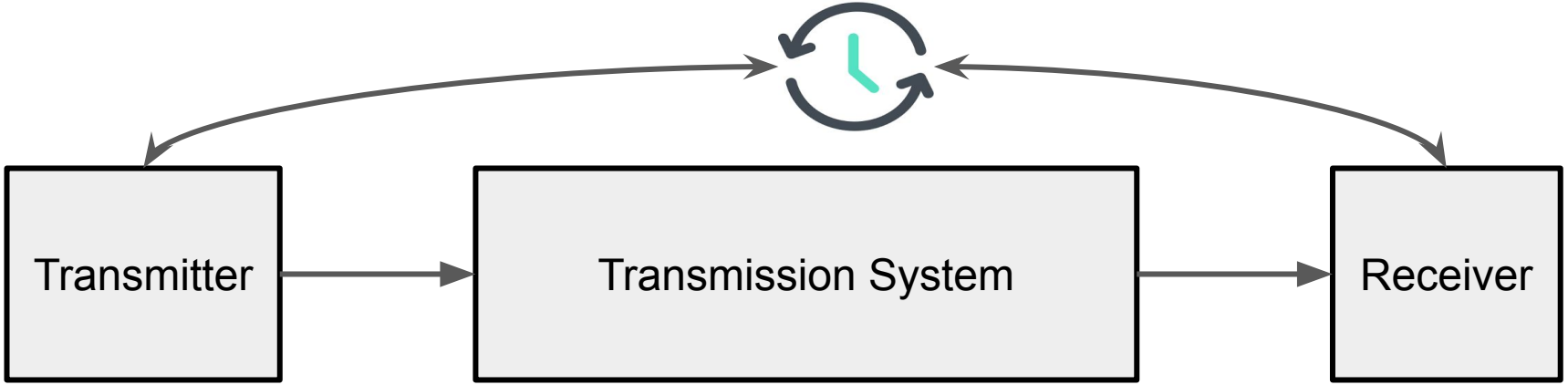
- **Use of electromagnetic signals to propagate over a transmission medium.**
- **The signal generation is required for communication**

Interfacing



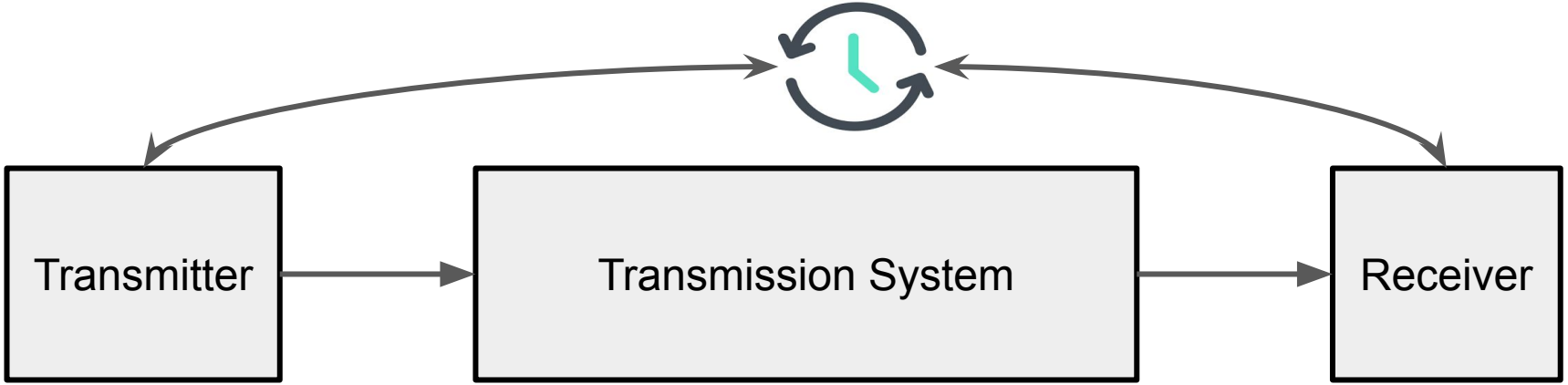
- **Use of electromagnetic signals to propagate over a transmission medium.**
- **The signal generation is required for communication**
- **The properties of the signal must be such that**
  - **Capable of being propagated through the transmission medium.**
  - **Interpretable as data at the receiver**

Synchronization



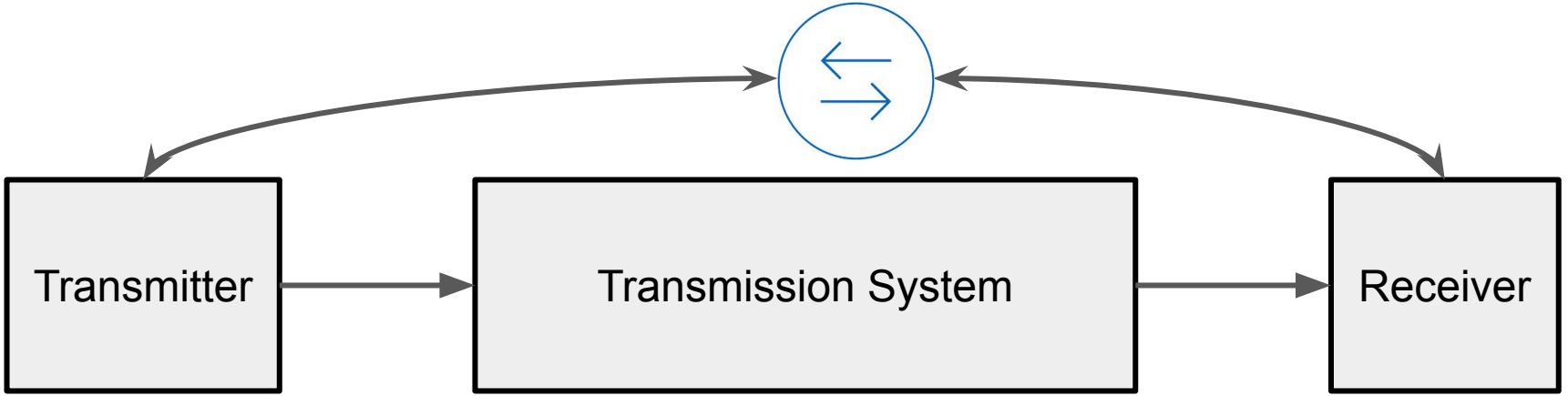
- **The receiver must be able to determine when a signal begins to arrive and when its ends.**

Synchronization



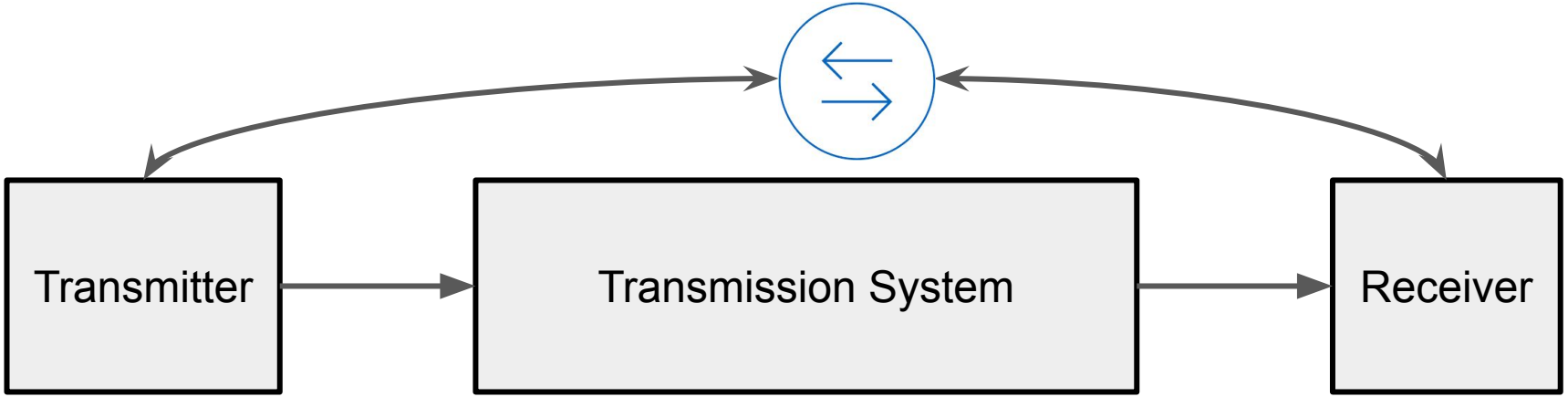
- **The receiver must be able to determine when a signal begins to arrive and when its ends.**
- **The receiver must also know the duration of each signal element**

Exchange Management



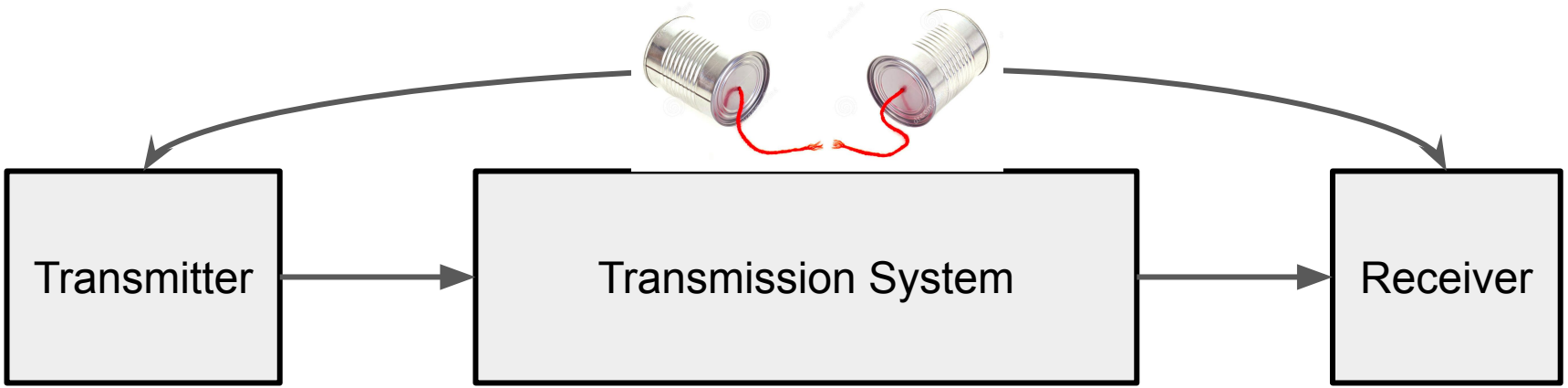
- **If data are to be exchanged in both directions over a period of time, the two parties must cooperate (For example : Telephone Conversation)**

Exchange Management



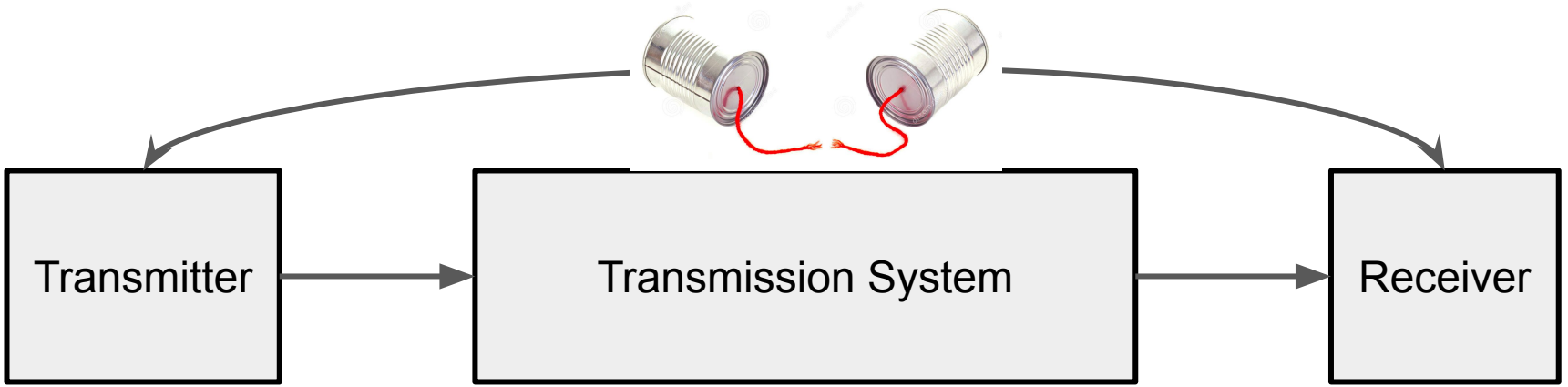
- **If data are to be exchanged in both directions over a period of time, the two parties must cooperate (For example : Telephone Conversation)**
- **For Data communication, certain conventions must be decided on**

Error Detection and Correction



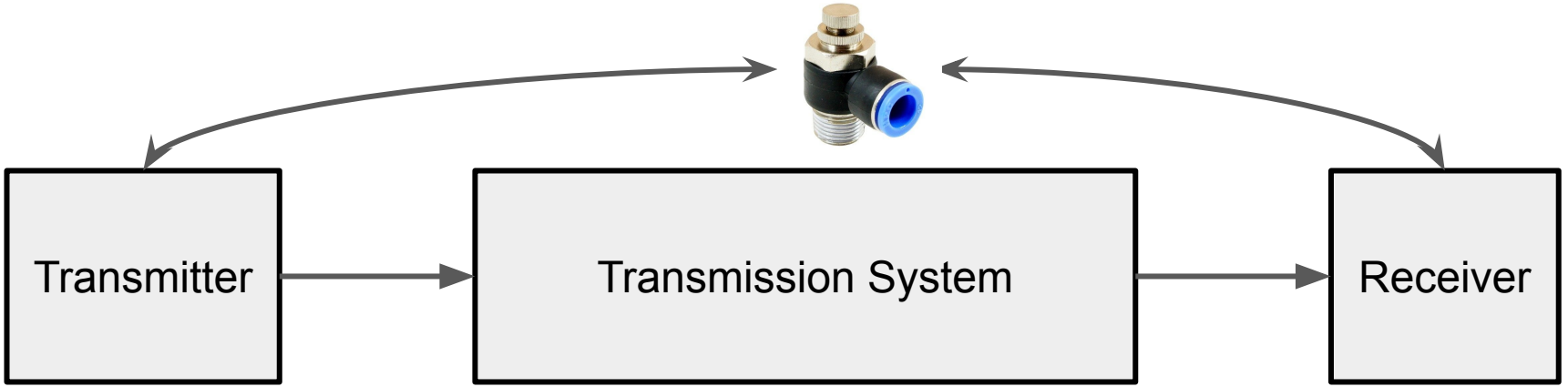
- **Transmitted signals are distorted to some extent before reaching destination**

Error Detection and Correction



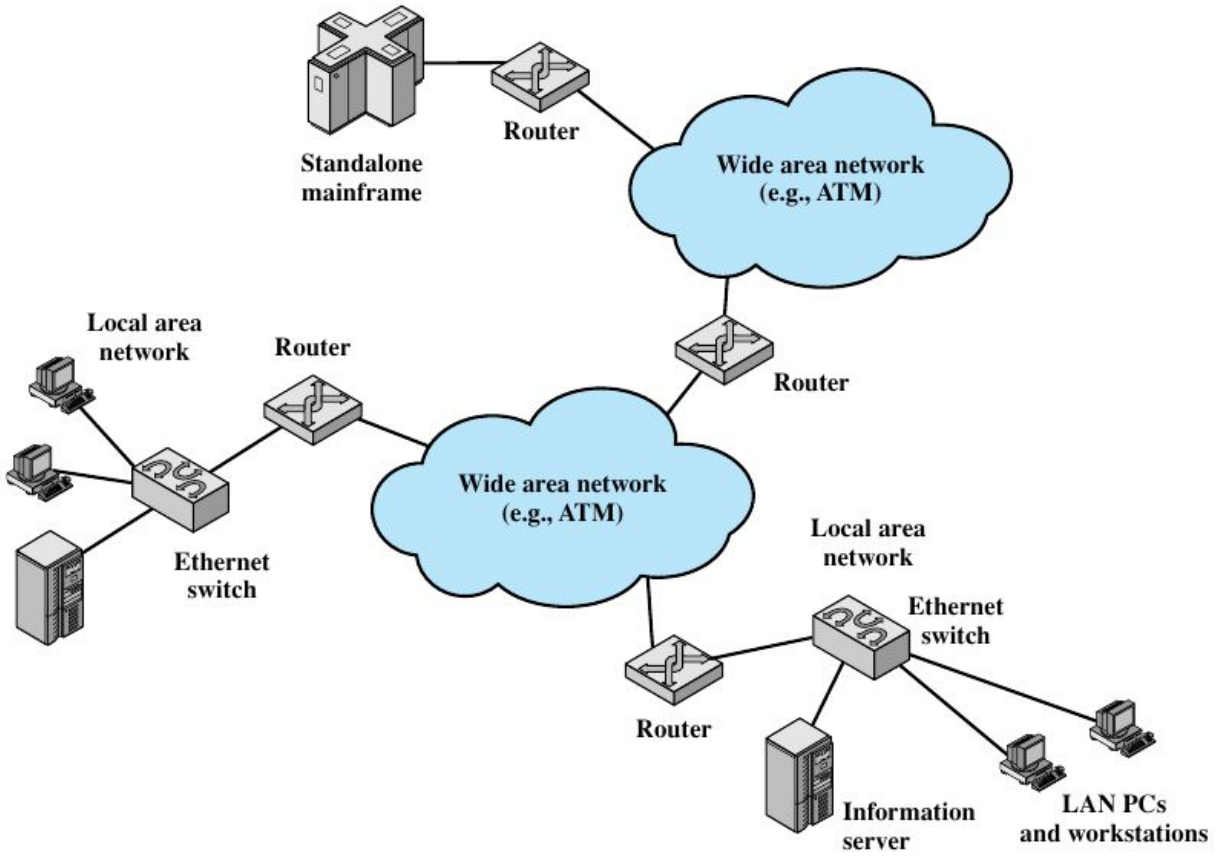
- **Transmitted signals are distorted to some extent before reaching destination**
- **For example**
  - **In transferring a file from one computer to another, it is simply not acceptable for the contents of the file to be accidentally altered.**

Flow Control

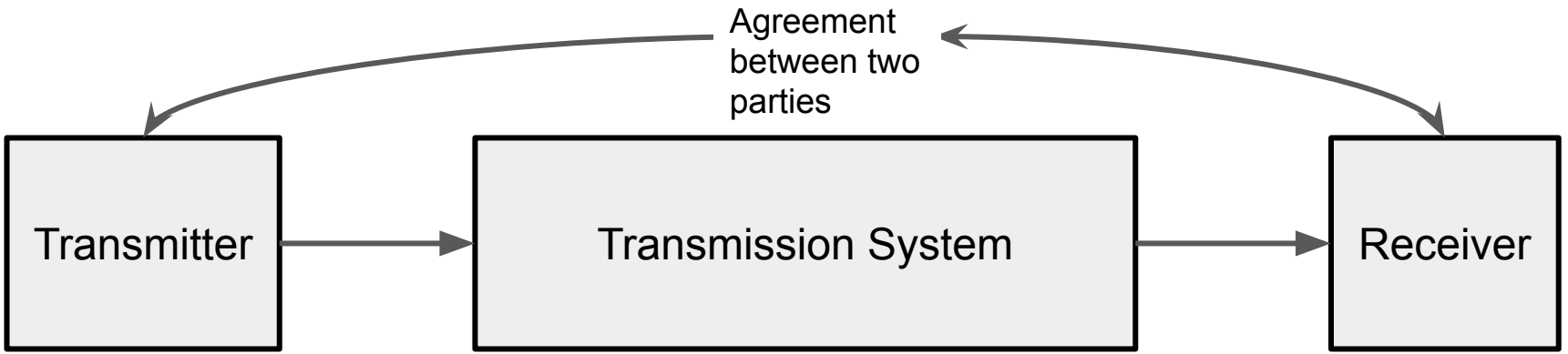


- **Required to assure that the source does not overwhelm the destination by sending data faster than they can be processed and absorbed.**

Addressing and Routing



Message Passing



- Message formatting has to do with an agreement between two parties as to the form of the data to be exchanged or transmitted, such as the binary code for characters.

Data Communications Model