TMP: Time Modulation Protocol

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NGI ZERO

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The big picture

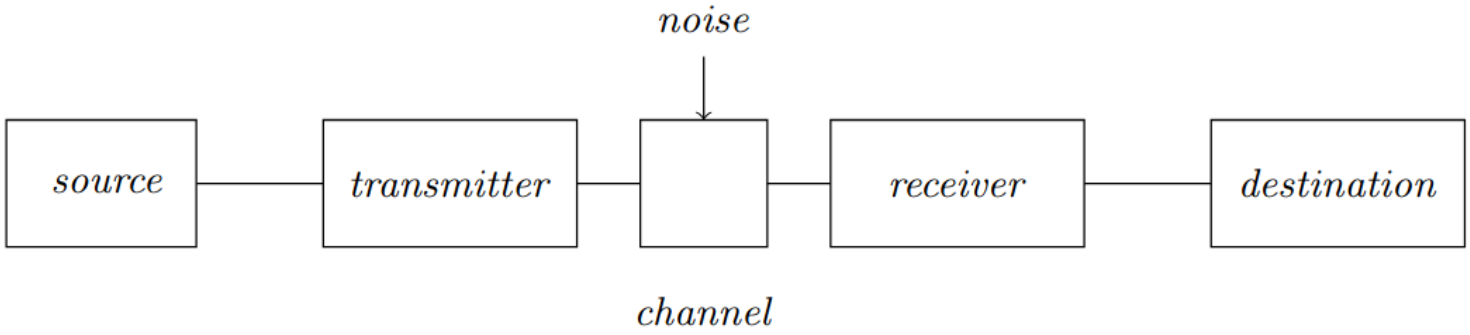

Fig. 1. Diagram representing the different components involved during communication.

- Foundation: Shannon's **Information Theory** (1948)
- Capacity of a channel: **bits/second**
- **Time insensitive** measure

Side channel: time

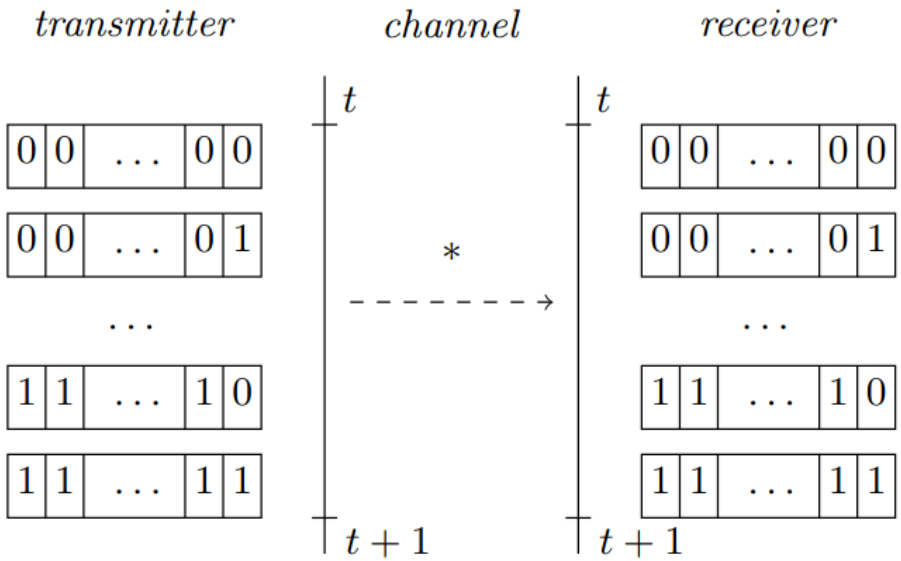

Fig. 4. Alternatively, with a time-sensitive transmitter and receiver, the capacity of a channel is the number of signals that can be sent within a second, and the effective capacity of a transmission system is given by the number of bits that a transmitter and receiver can encode per signal.

- Effective capacity (bits/second)

Theorem. Effective capacity > capacity

- Jitter (seconds): **unpredictable variation in delay**

Time Modulation Protocol

Requirement: **high-precision clocks**

Potential benefits:

- Increase effective capacity
- Increase confidentiality (**hiding data in time**)

Looking to **standardize** new Internet protocol: TMP.

Looking for **collaboration** on:

- Prototype implementations
- Better models for predicting delays