CS640

Encoding

https://pages.cs.wisc.edu/~mgliu/CS640/F22/

Ming Liu

mgliu@cs.wisc.edu

Today

Last lecture
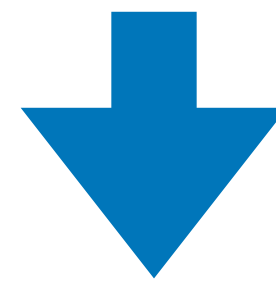
- How fast is the network?

Today

- How to transmit bits reliably across the link?

Announcements

- No office hour today
- Office hour this week: Tomorrow 1:30pm - 2:30pm

Q: How to transmit bits reliably across the link?

Q: How to transmit bits reliably across the link?

Q1: How to represent bits on the link?
Q2: How to propagate bits across the link reliably?

Q1: How to represent bits on the link?

Q1: How to represent bits on the link?

A: Two discrete signals based on the communication media represent low and high.

Q2: How to propagate bits across the link **reliably?**
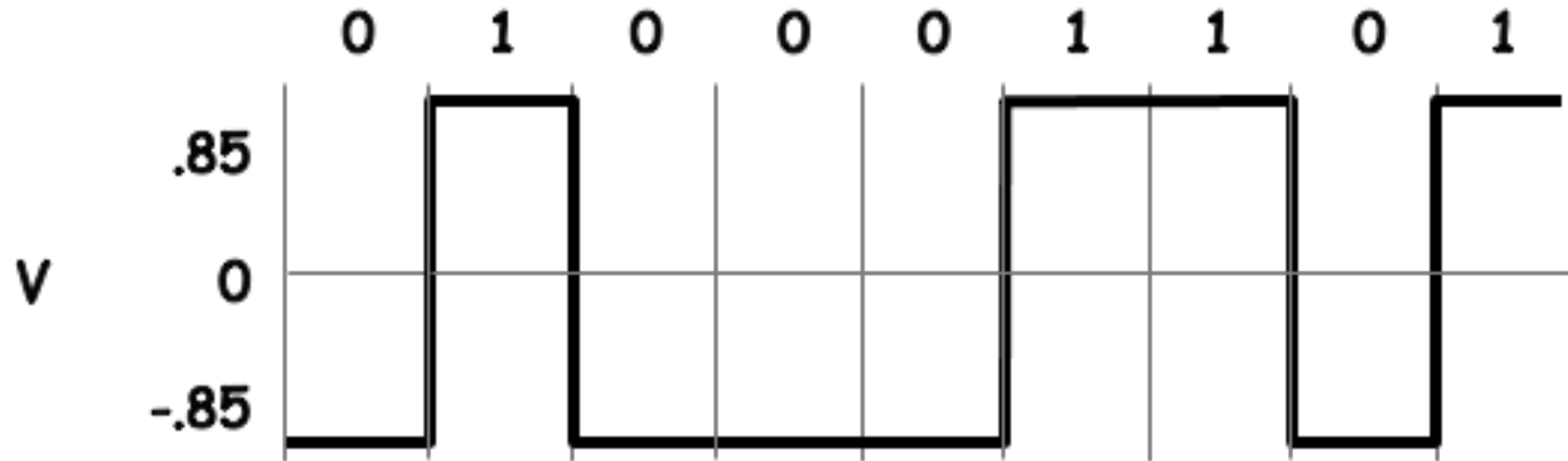
Q2: How to propagate bits across the link reliably?

Invariant: Bits (send) = Bits (receive)

Q2: How to propagate bits across the link **reliably?**

A: Non-Return to Zero (NRZ) scheme

Non-Return to Zero (NRZ)

Two issues:

- Baseline wander
- Clock synchronization

Terminology

1. Host
2. NIC
3. Multi-port I/O bridge
4. Protocol
5. RTT
6. Packet
7. Header
8. Payload
9. BDP

Principle

1. Layering

Technique

1. NRZ Encoding

Summary

Today's takeaways

#1: Bit representation

#2: NRZ encoding

Next lecture

• Better encoding

• Physical layer