Review

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COMP nologies

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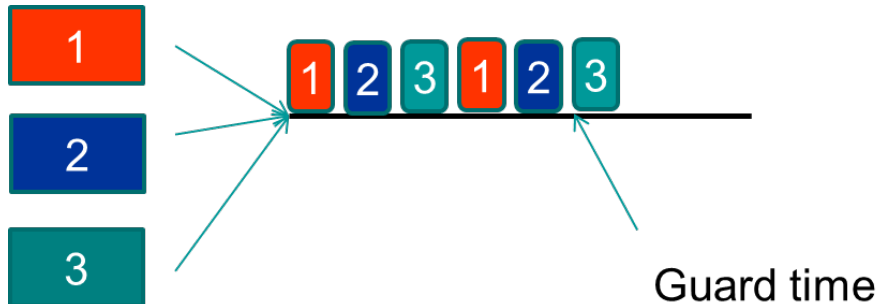Lecturer: Ling Luo

Semester 2, 2021

Medium Access Control (1)

- **MAC sub-layer is used to assist in resolving transmission conflicts**

- **Static channel allocation**
  - Time divisi
  - Frequency

Guard time

Medium Access Control (2)

- Contention
  - ALOHA, Slotted ALOHA
  - Carrier Sense Multiple Access: 1-persistent, non-persistent, p   n detection
- Collision Free: wn
- Limited Contention: adaptive
- Wireless LANs: MACA

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Data Link Layer

- **Reliable**, **efficient** communication of "**frames**" between two adjacent machines.

- Functions of the data link layer:
  - Provide a well-defined service interface to network layer
  - Handling transmission erro
  - Data flow regulation

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Framing

- Methods:
  - Character (Byte) count
  - Flag bytes with byte stuffing
  - Start and end flags with bit stuffing

- Most data li https://eduassistpro.github.io/ bination of character count and one thod

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Error Control

- Error Control
  - **Detecting** errors
    - Parity
    - Checksums
    - Cyclical R   C)
  - **Correcting**
    - Hamming Code

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Flow Control

❑ The **fast senders** vs **slow receivers** problem requires a solution

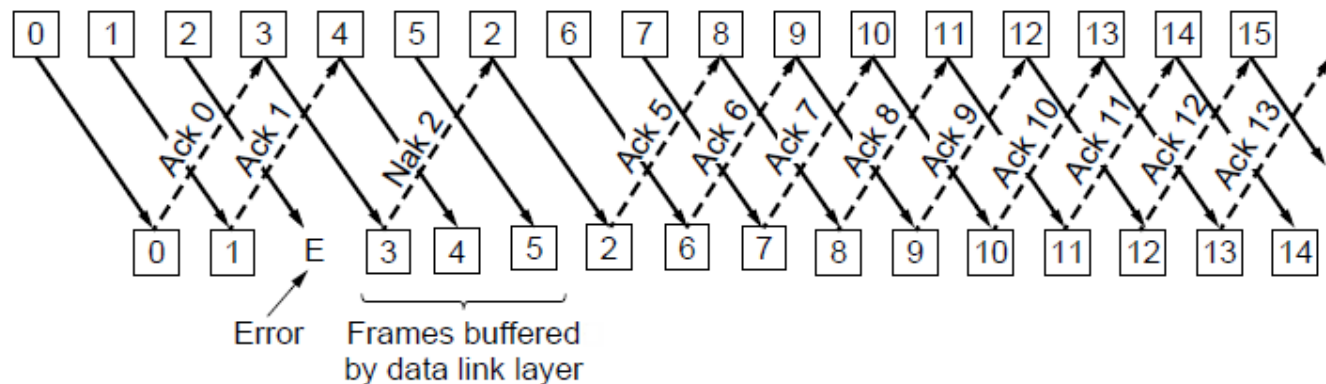■ **Feedback based flow control: ack**

❑ Stop and w

❑ Sliding win ecti
repeat

Go-Back-N vs. Selective Repeat

■ Trade-off between efficient use of bandwidth and data link layer buffer space

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Error   Frames buffered by data link layer

Physical Layer

- The physical layer is concerned with the electrical, timing and mechanical interfaces of the network

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  - **Timing**: data rate, latency

  - **Mechanica**https://eduassistpro.github.io/

  - **Electrical**: modulations, v   ls, signal strength …

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Network Protocol Hierarchies (1)

- Layers, protocols and interfaces

Consider the network as a stack of **layers**

ach layer offers

layers above

ough **interface**

tocol is an agreement between the communicating parties on how communication is to proceed

Network Protocol Hierarchies (2)

- Information flow supporting virtual communication in layer 5

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