CCNA: Introduction to Network

**Module 3 – 3.6: Data Encapsulation (Đóng Gói Dữ Liệu)**

A diagram of a computer network

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**A. Segmenting Messages (Phân Đoạn Tin Nhắn)**

- *Data segmentation (Phân đoạn dữ liệu)* is crucial for efficient and reliable network communication.

- Sending data as a single, large stream is inefficient and prone to problems.

- Segmentation breaks data *into smaller, manageable units (packets) for transmission*.

- This improves speed through multiplexing and efficiency through selective retransmission.

- In simpler terms:

+ *Segmentation*: Like cutting a cake into slices to make it easier to eat and share.

+ *Multiplexing* (Ghép Kênh): Like having one bus that picks up passengers from different locations instead of each person having their own car.

**B. Sequencing (Đánh Số Thú Tự)**

Segmentation and multiplexing add complexity to network transmissions. Like sending a 100-page letter one page per envelope, segments can arrive out of order. Therefore, each segment needs a sequence number (like numbering the pages) so TCP can reassemble the message correctly at the destination.

+ Multiple pieces are labeled for easy direction and re-assembly.

+ Labeling provides for ordering and assembling the pieces when they arrive.

**C. Protocols Data Unit**

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**D. Encapsulation and De-encapsulation Example:**

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