61A Lecture 33

Monday, November 25

Announcements

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- Homework 11 due Thursday 12/5 @ 11:59pm

Addition in Logic

(Demo)

Distributed Computing

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Distributed computing for **large-scale data processing:**

- Databases respond to queries over a network.
- Data sets can be partitioned across multiple machines (next lecture).

Network Messages

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- Protocols are designed to be implemented by many different programming languages on many different types of machines.

Internet Protocol

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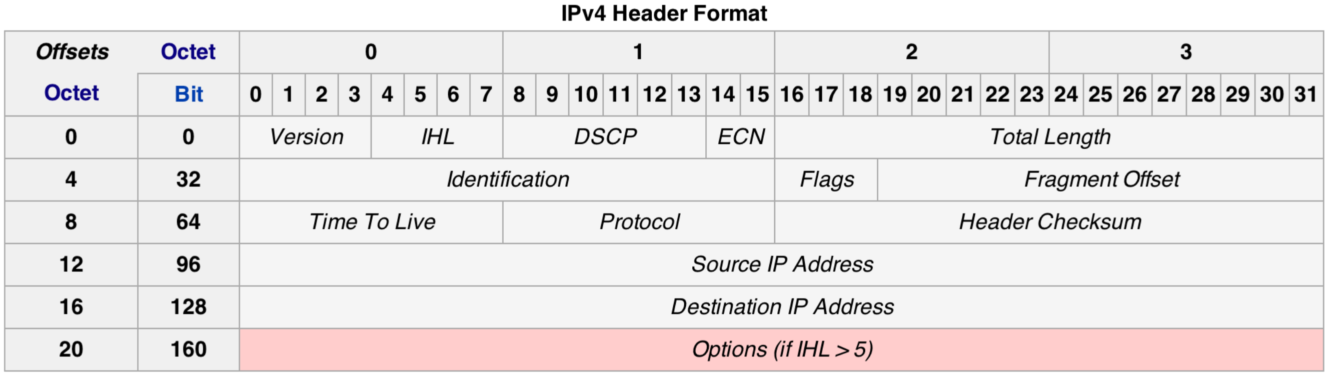

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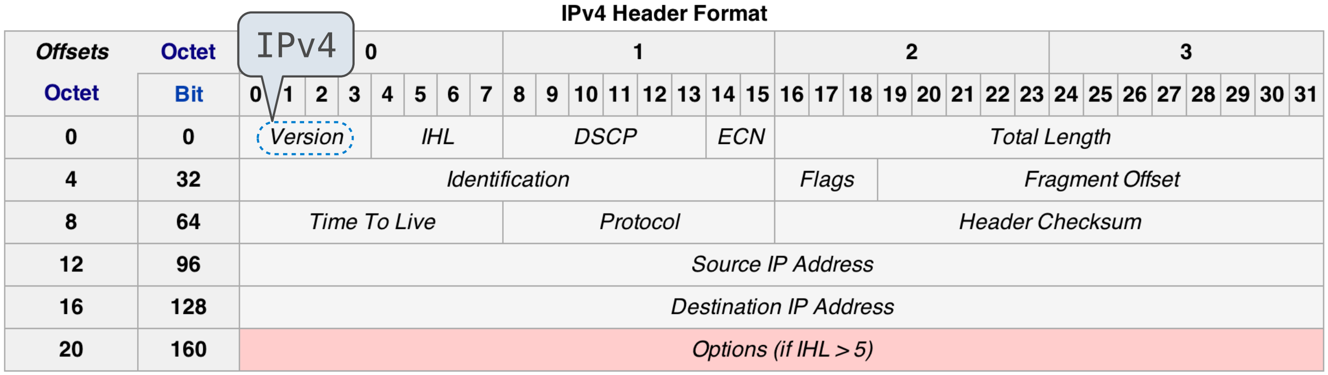

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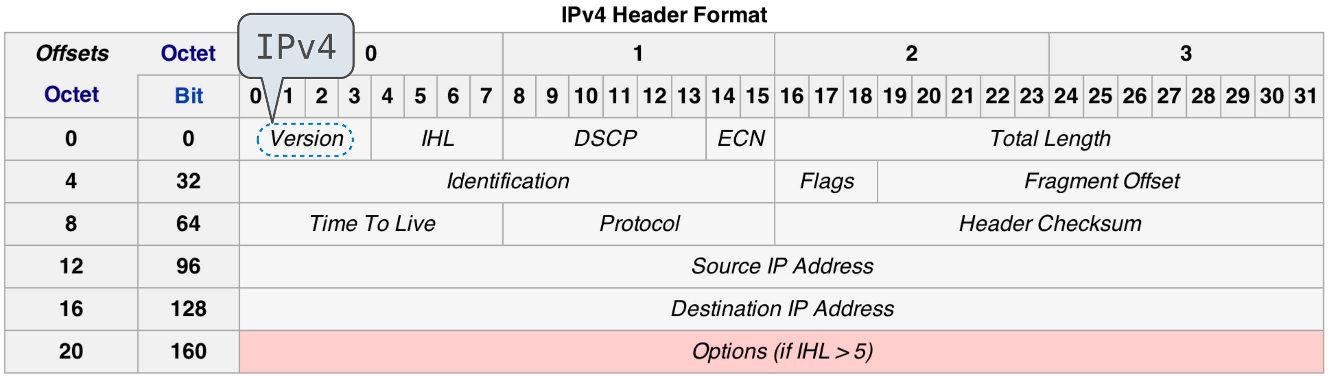

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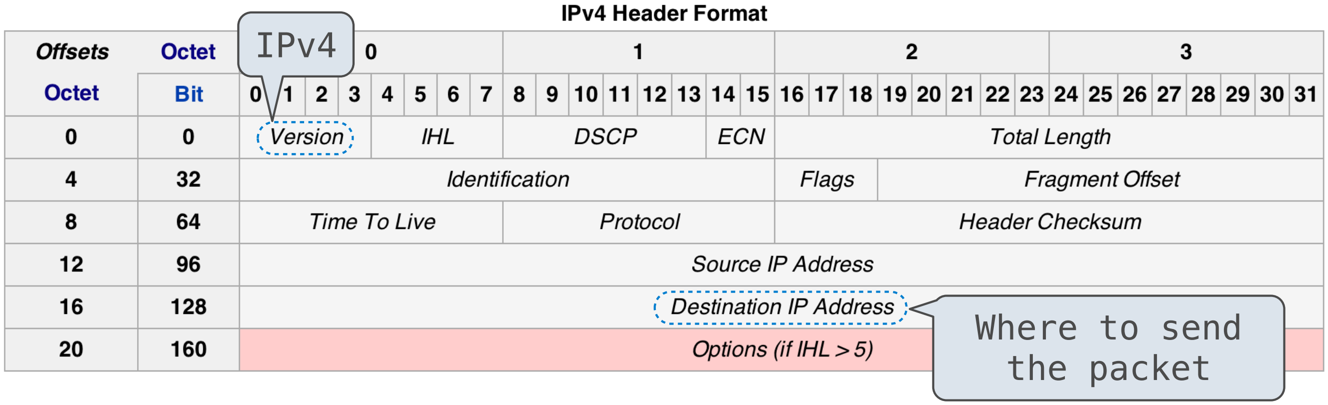

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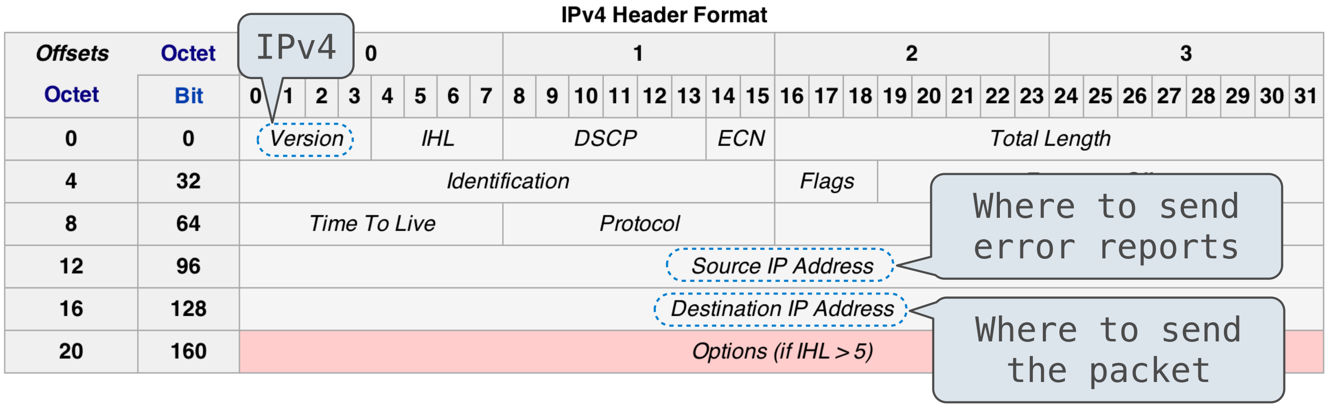

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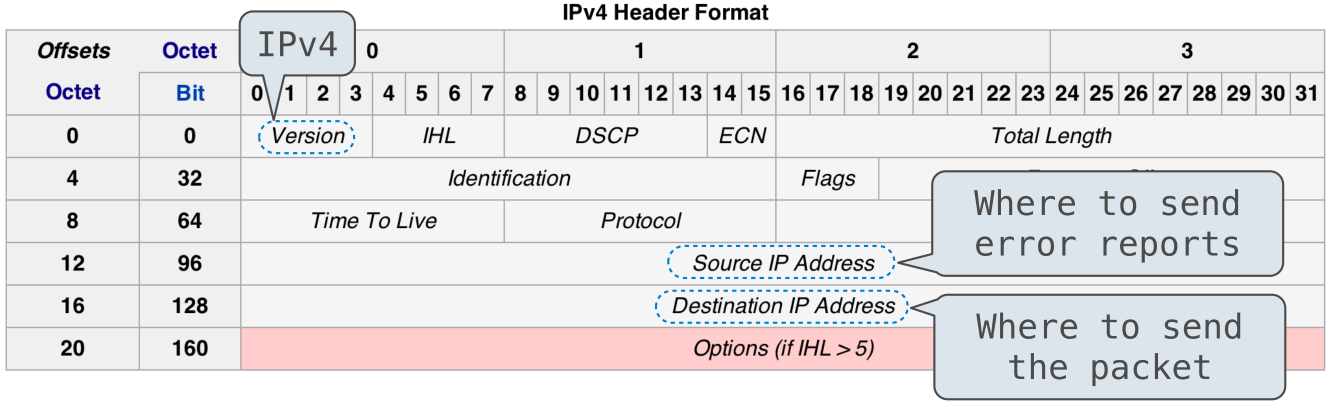

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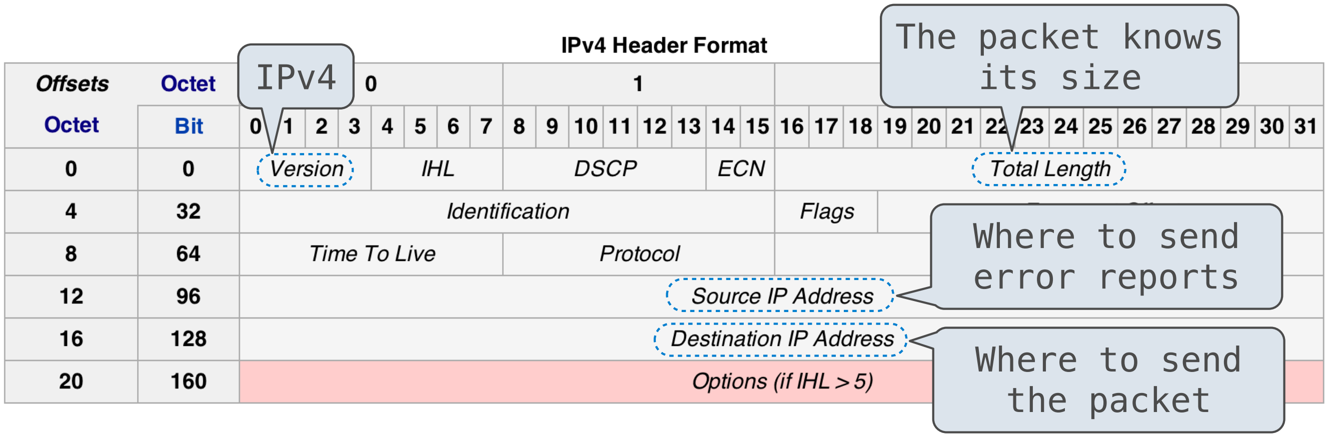

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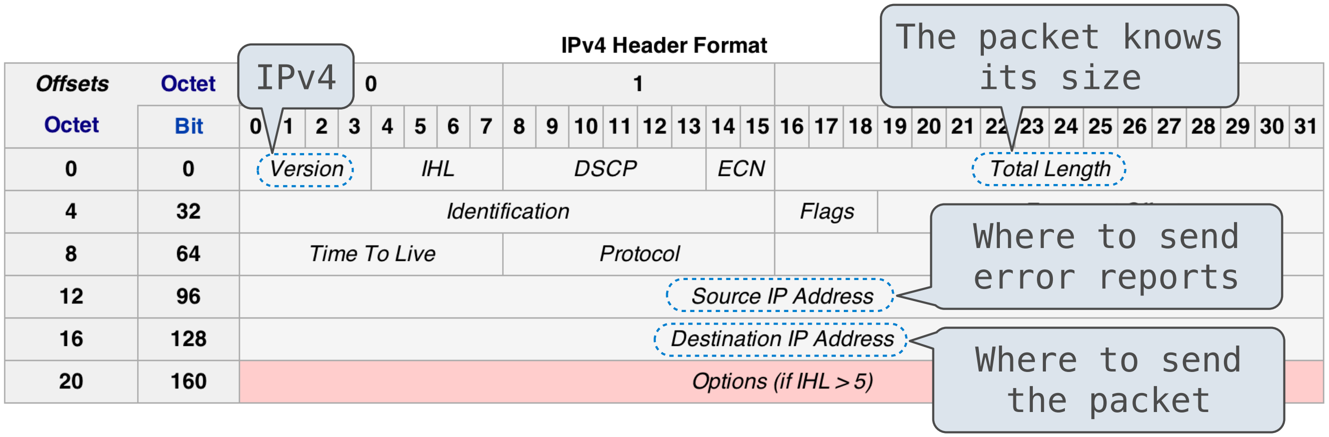

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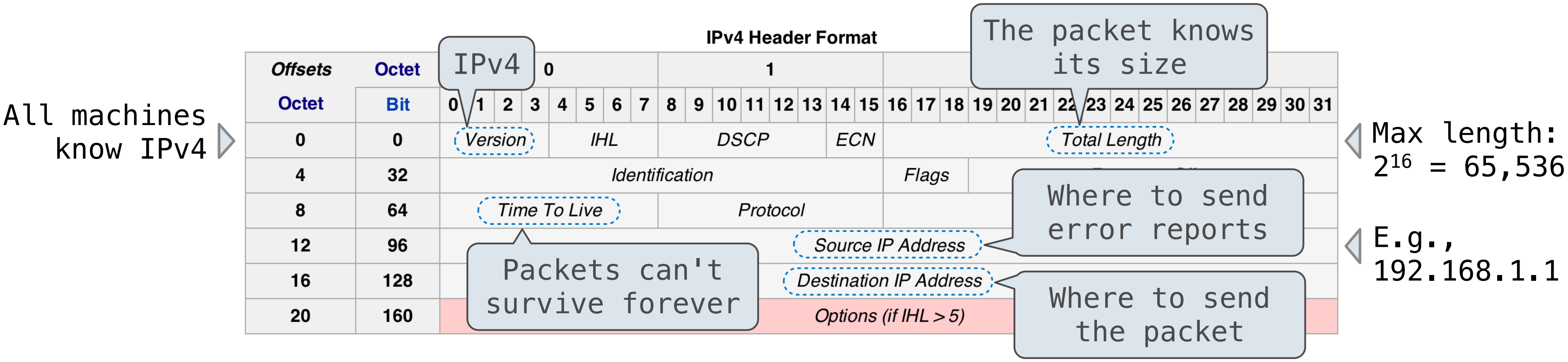

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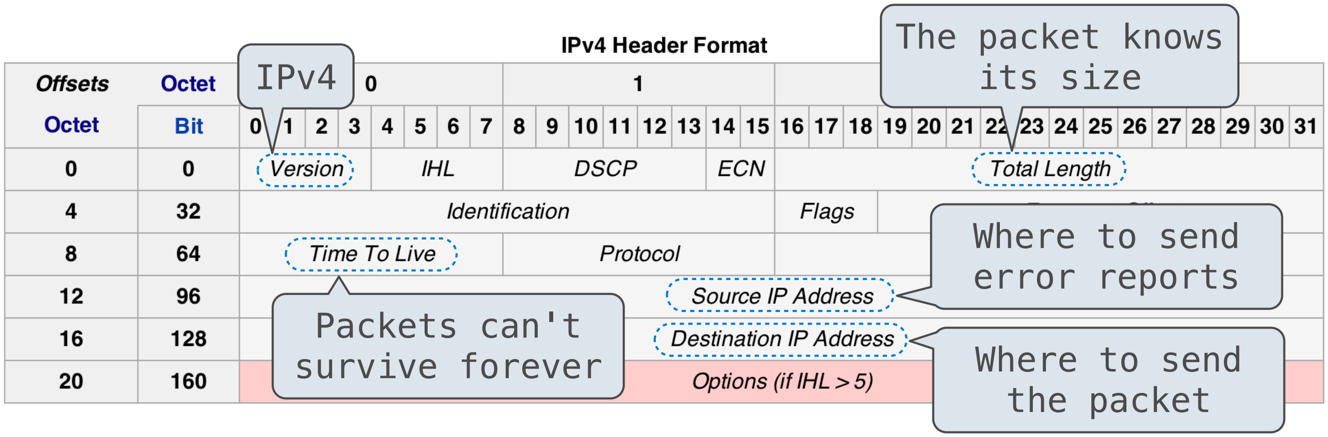

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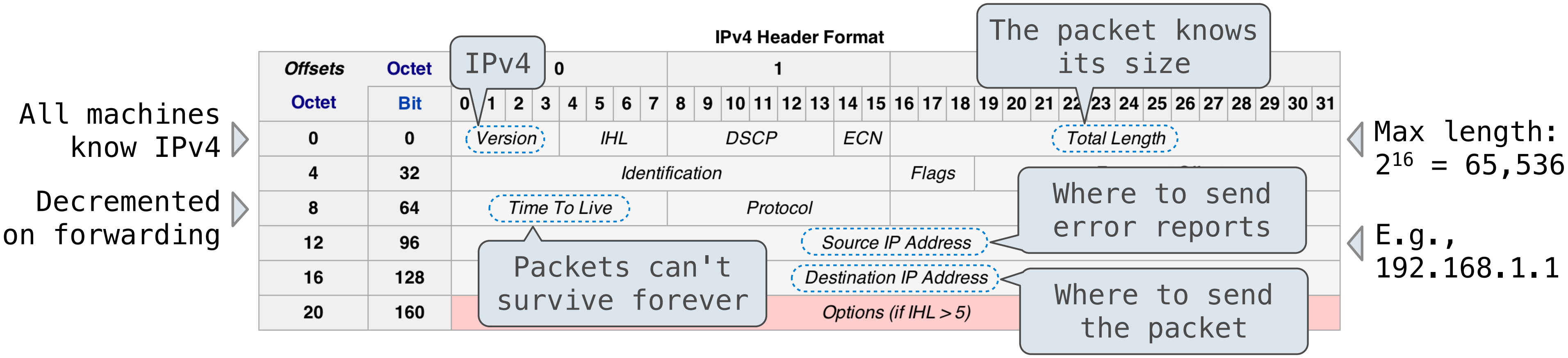

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Packets are forwarded toward their destination on a best effort basis.

Programs that use IP typically need a policy for handling lost packets.

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The **socket** module in Python implements the TCP.

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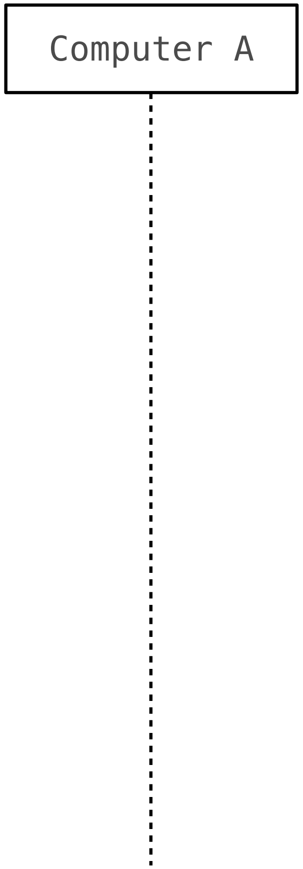

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Computer A
Computer B

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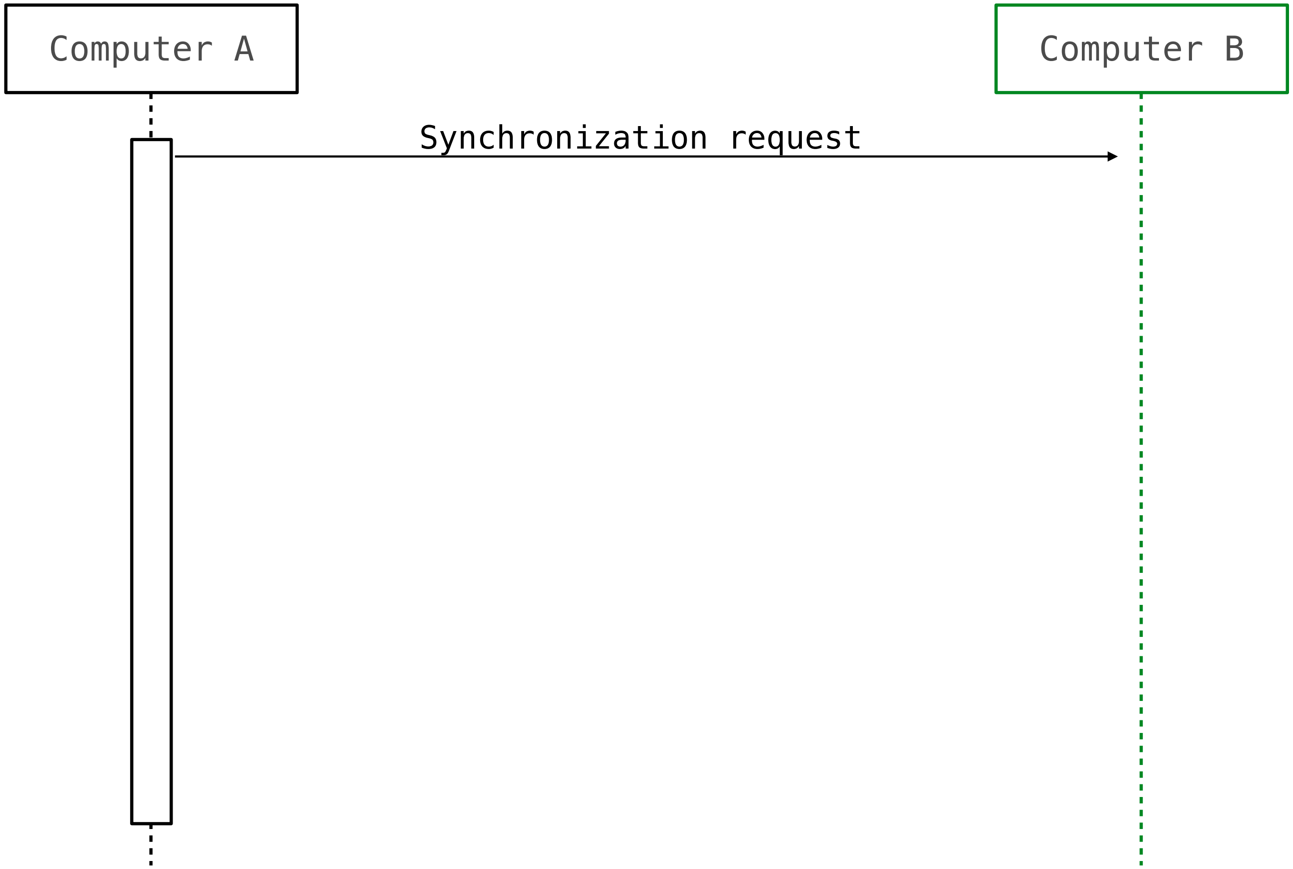

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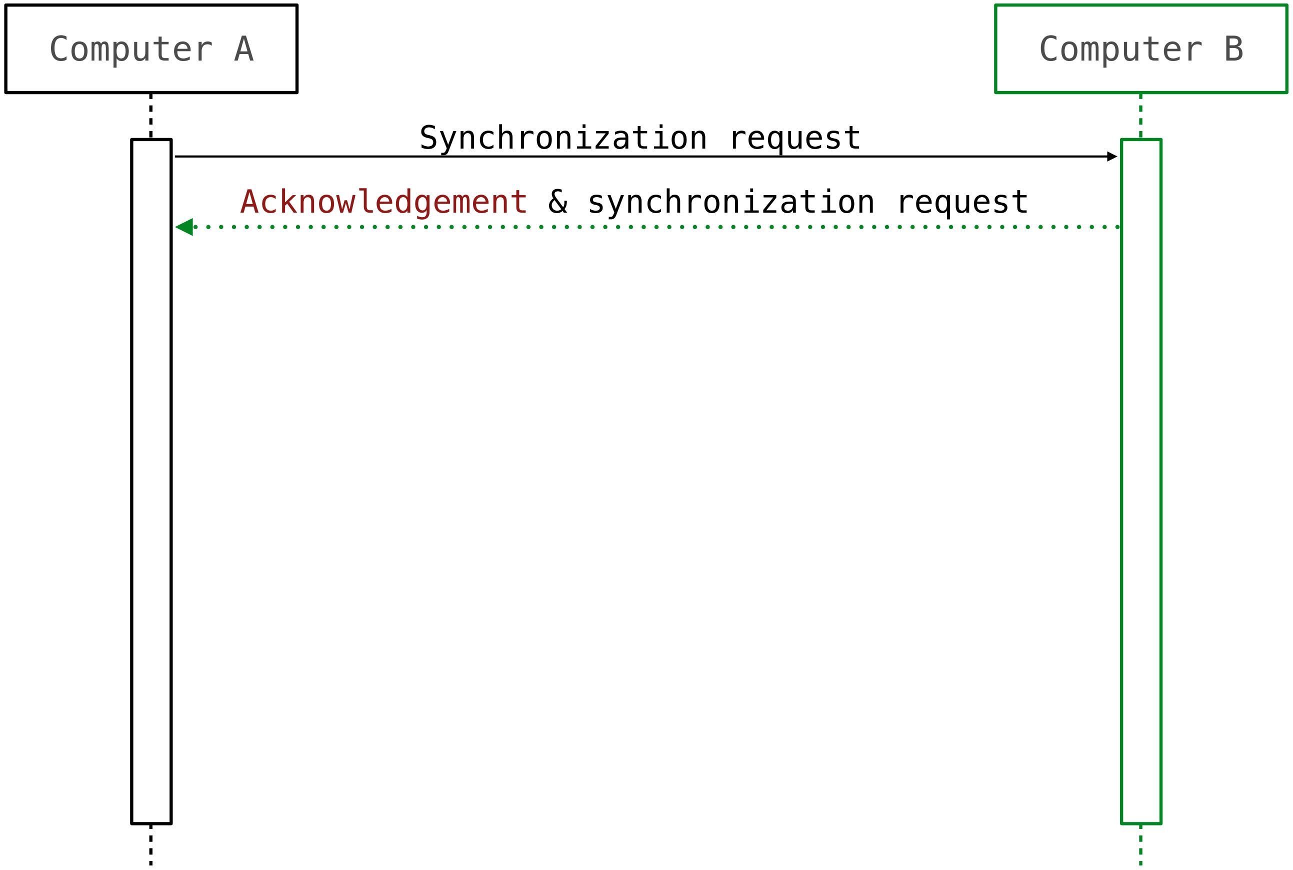

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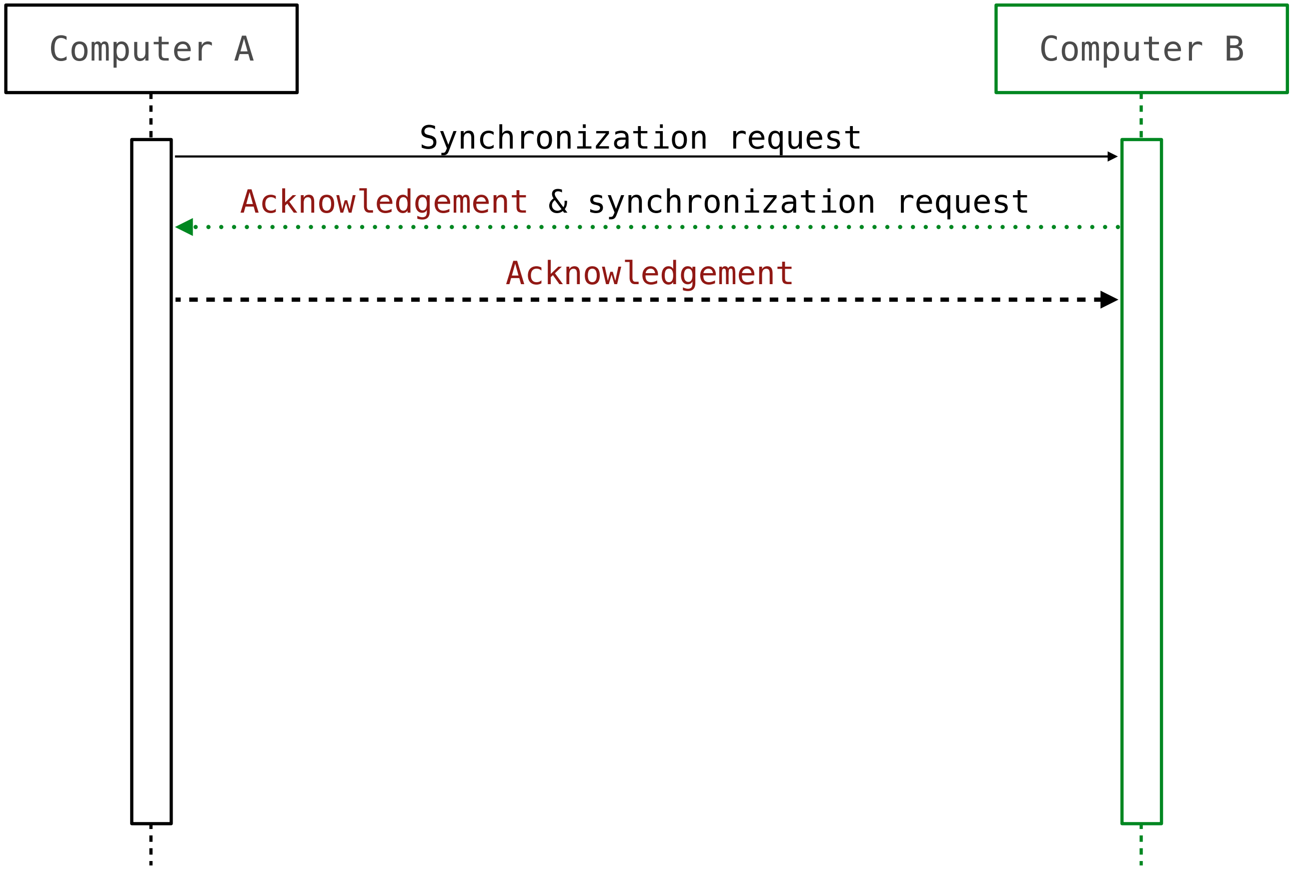

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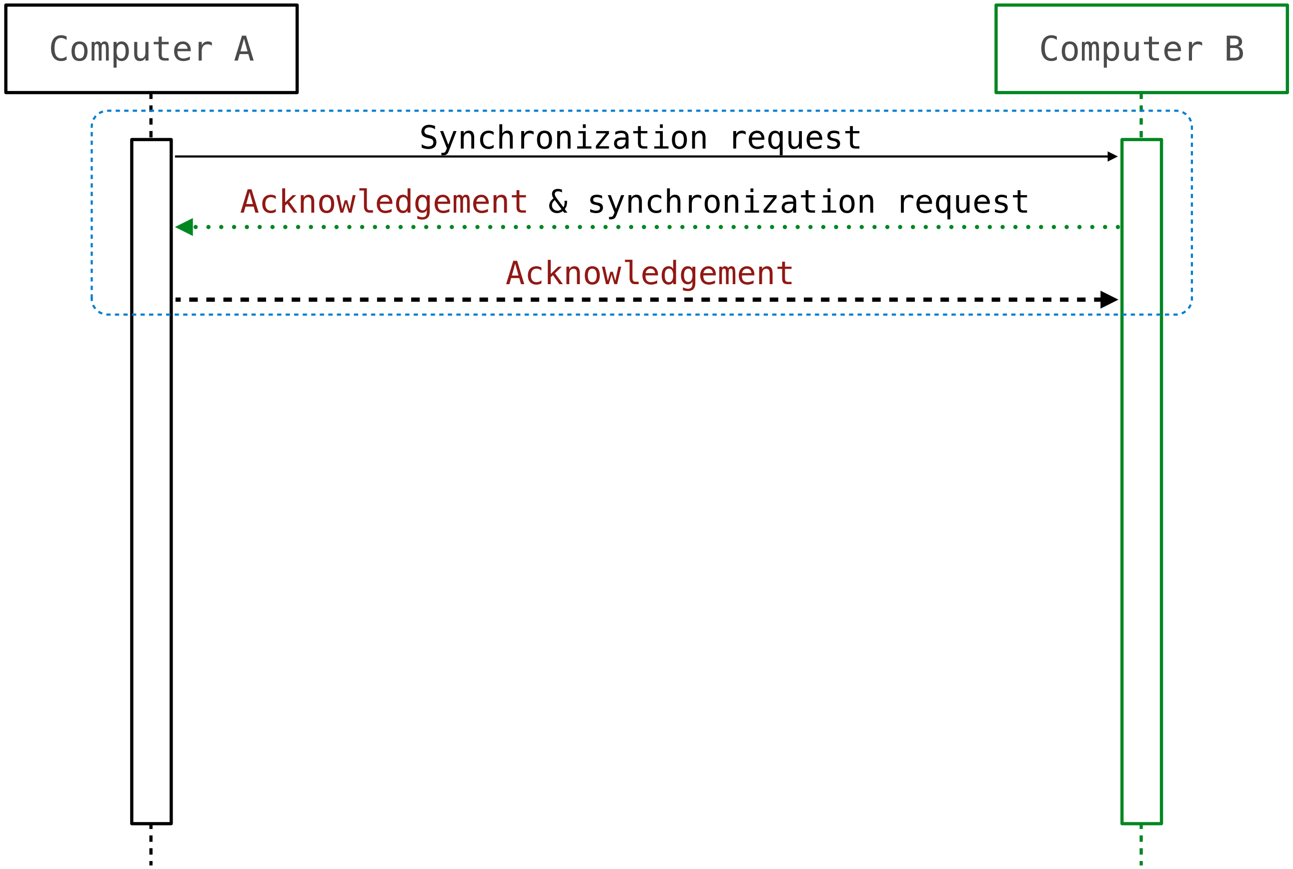

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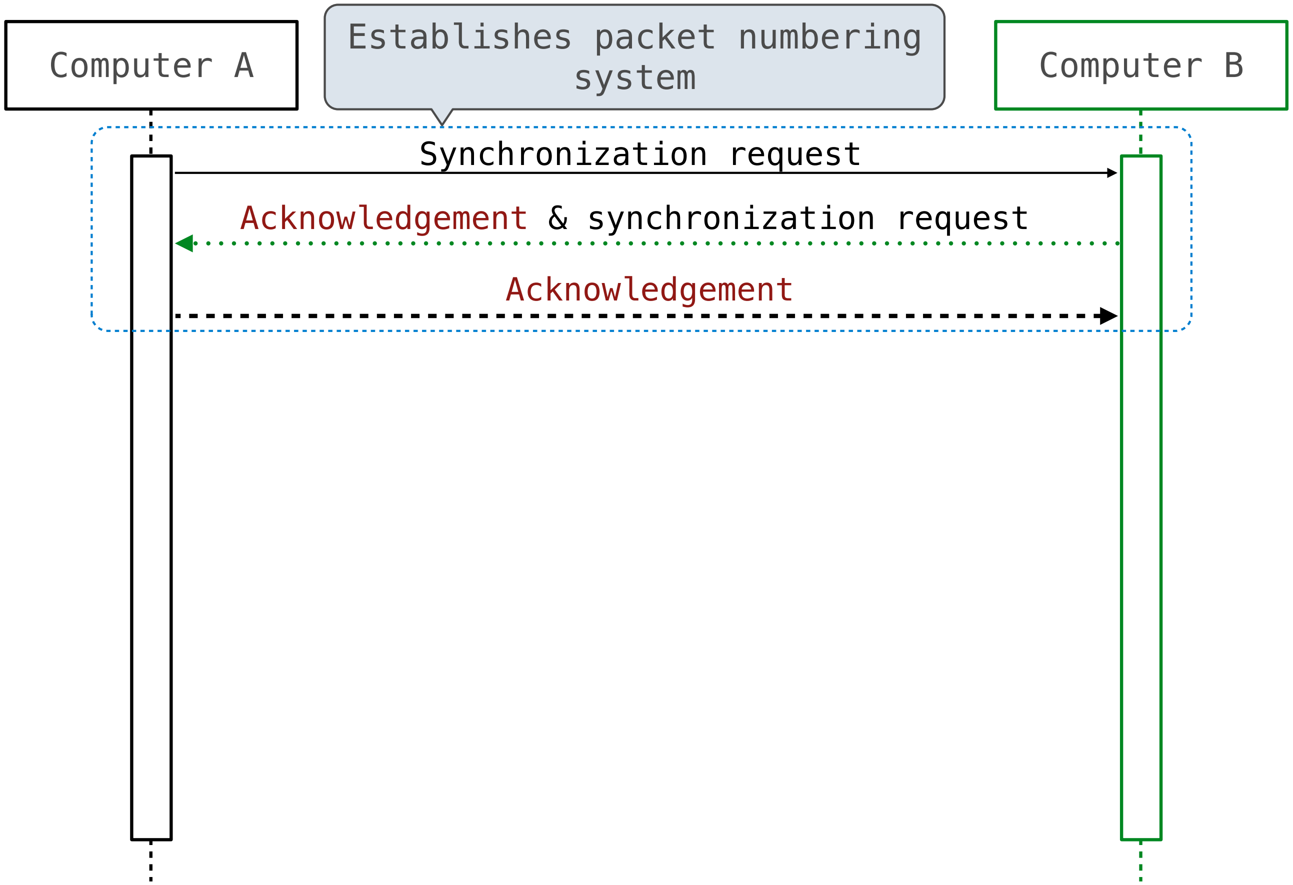
Computer A
Establishes packet numbering system
Computer B
Synchronization request
Acknowledgement & synchronization request
Acknowledgement

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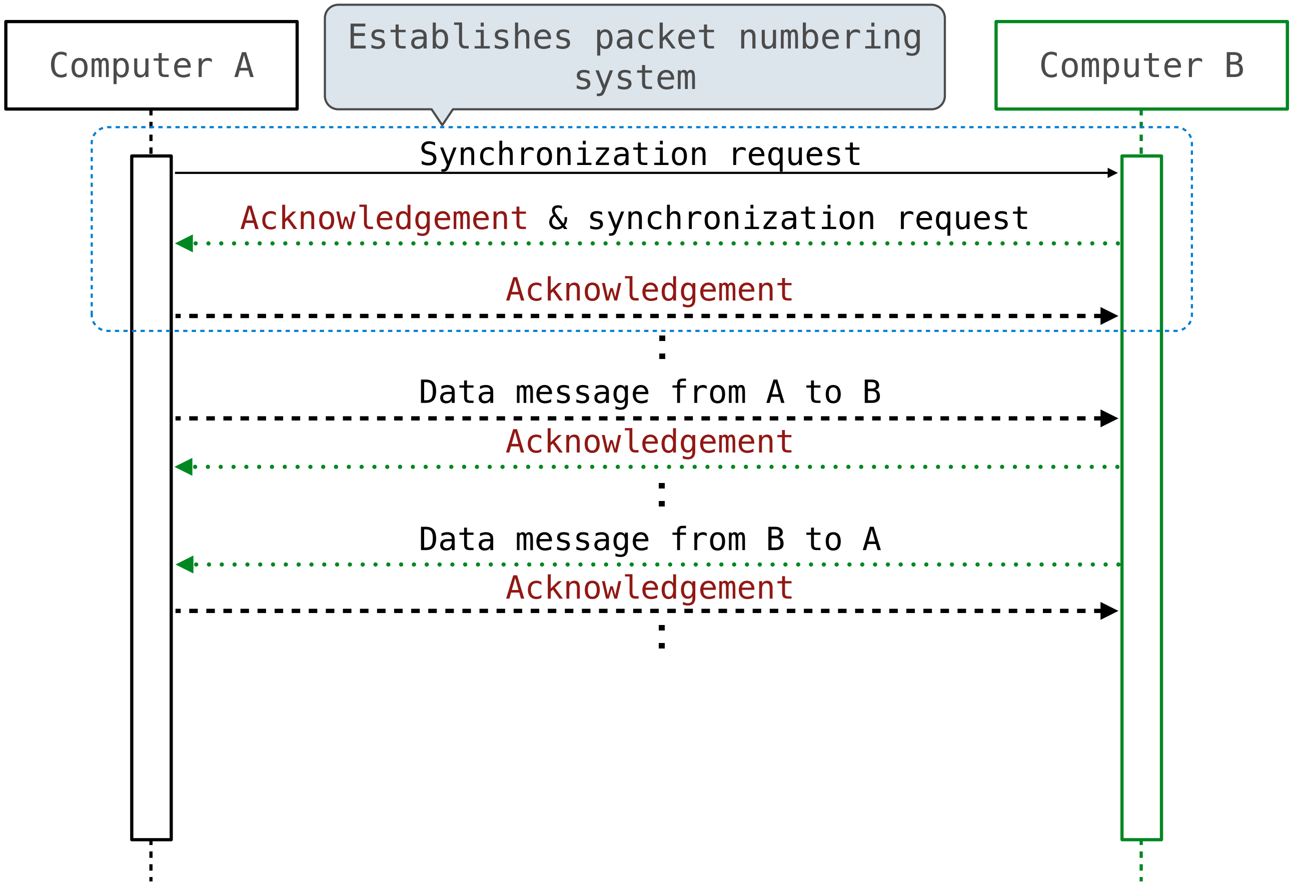

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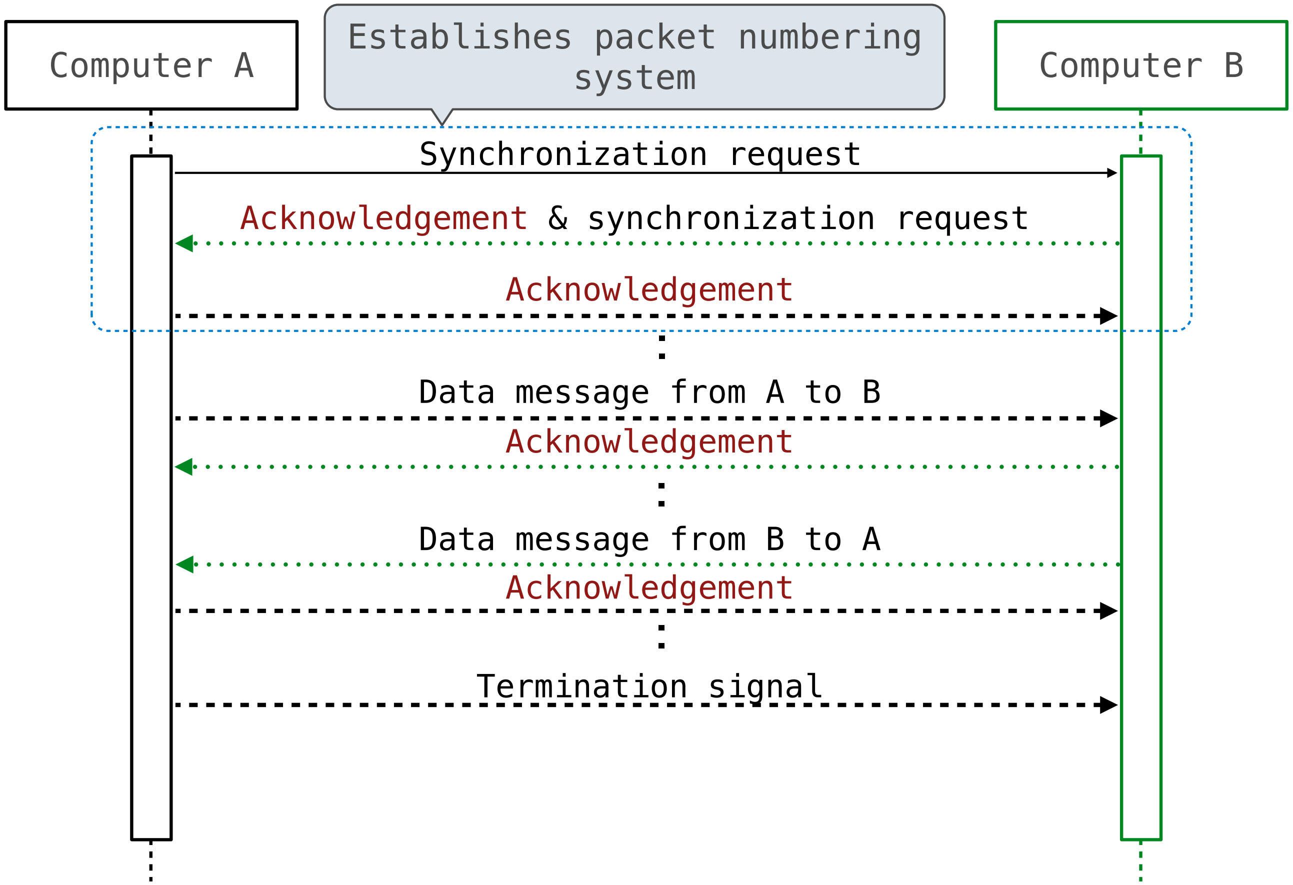

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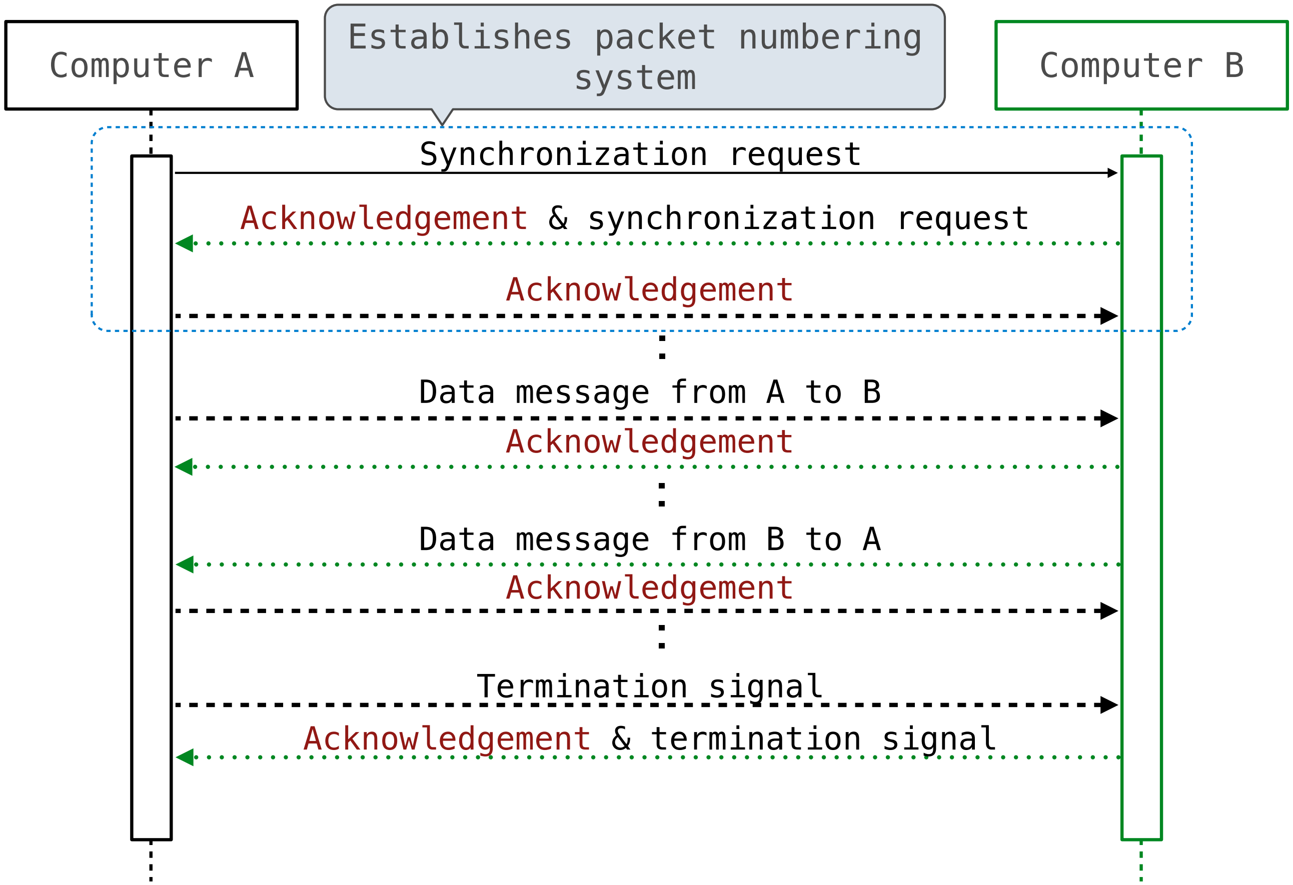

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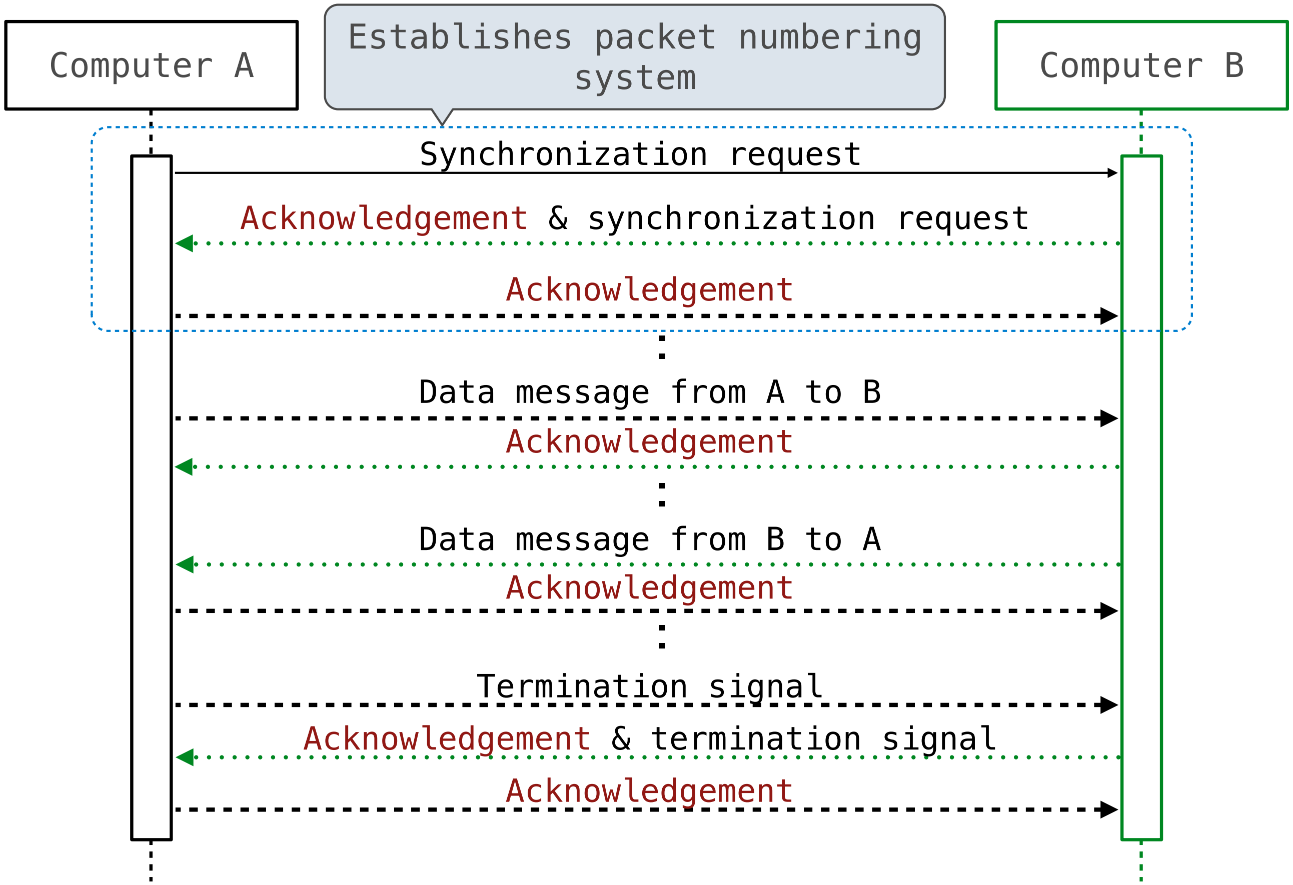

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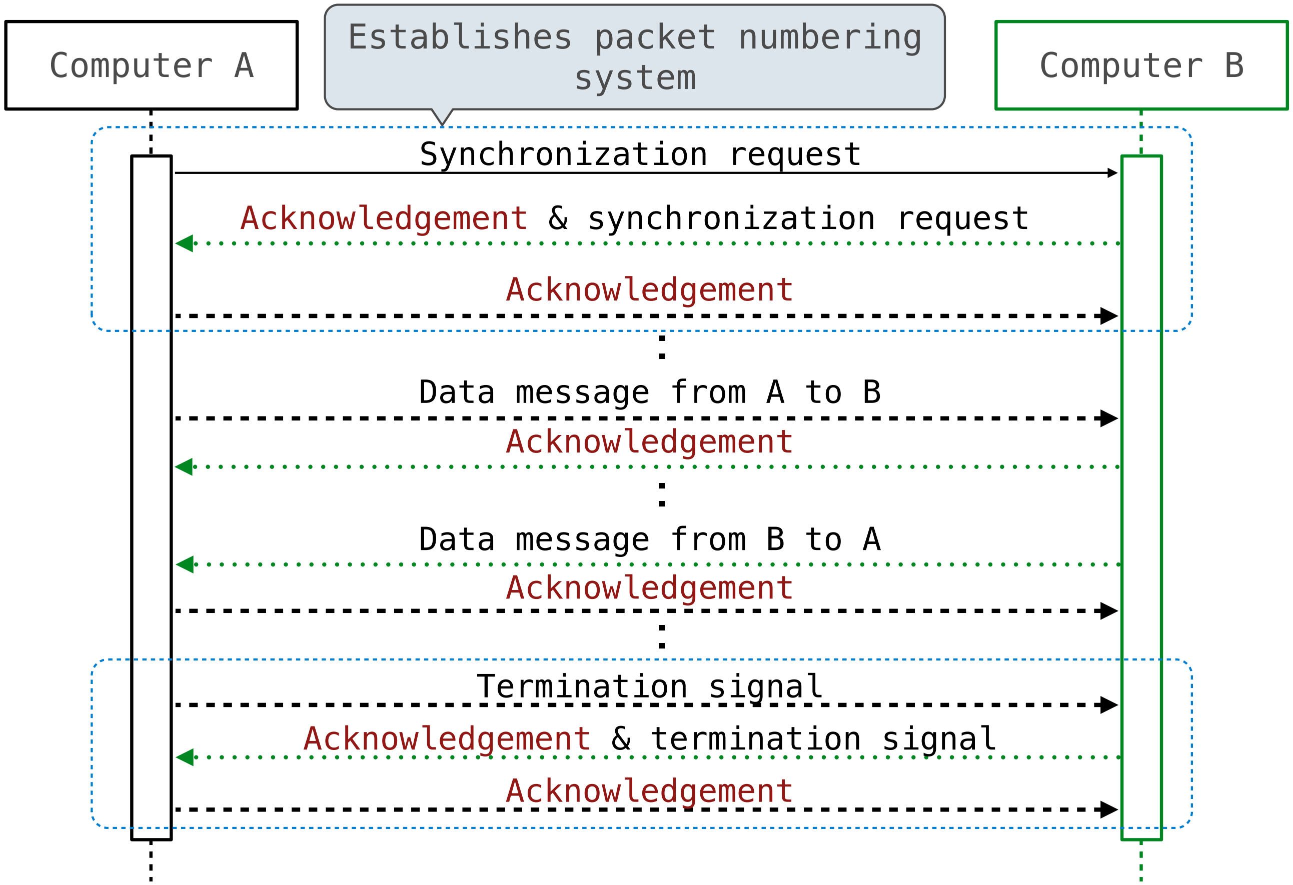

Client/Server Architecture

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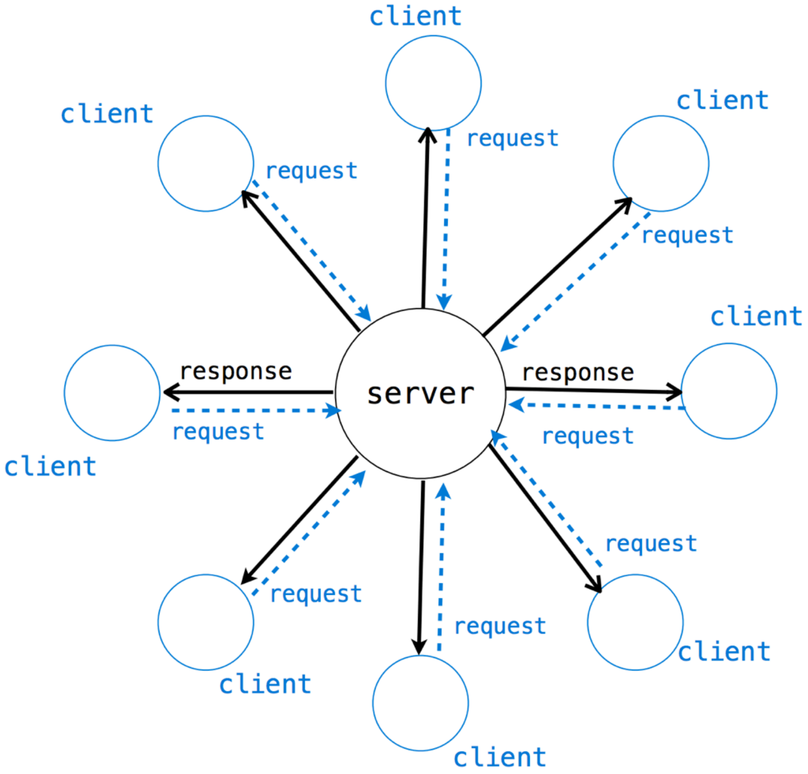

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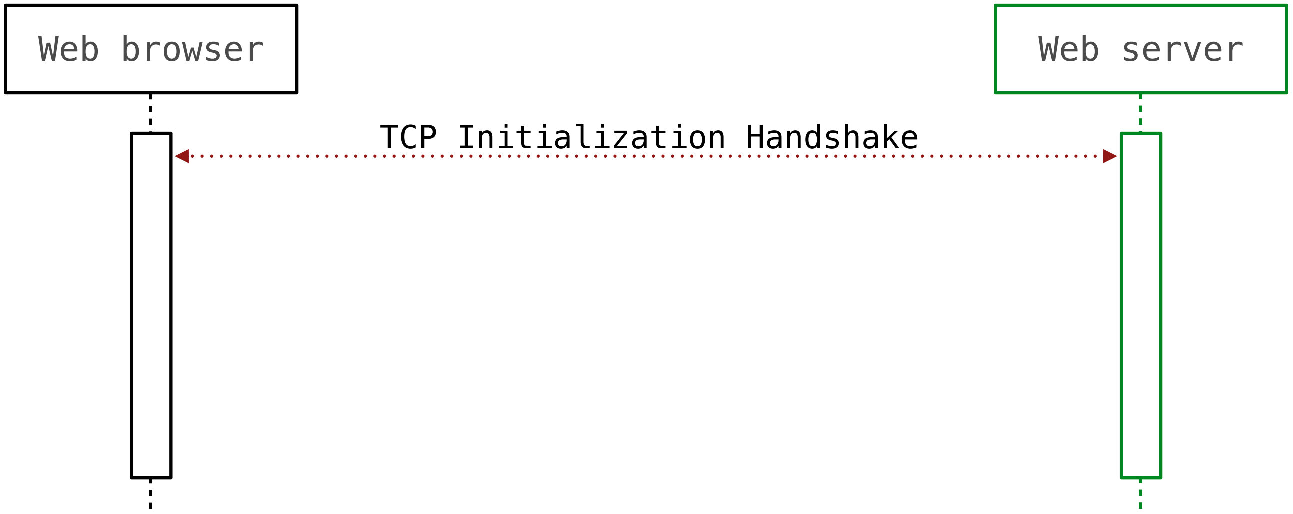

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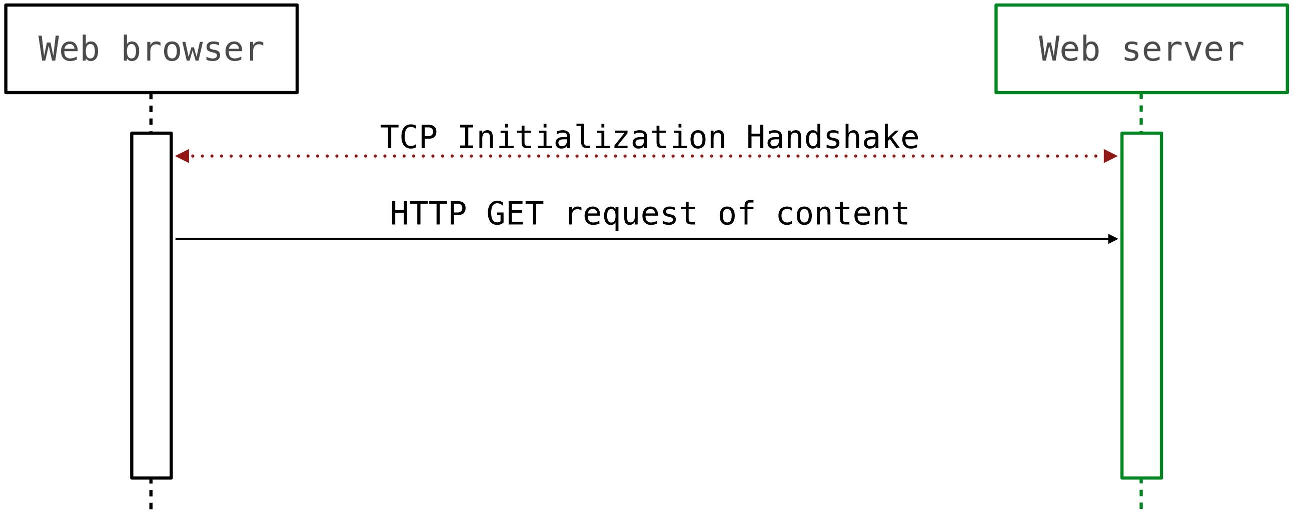

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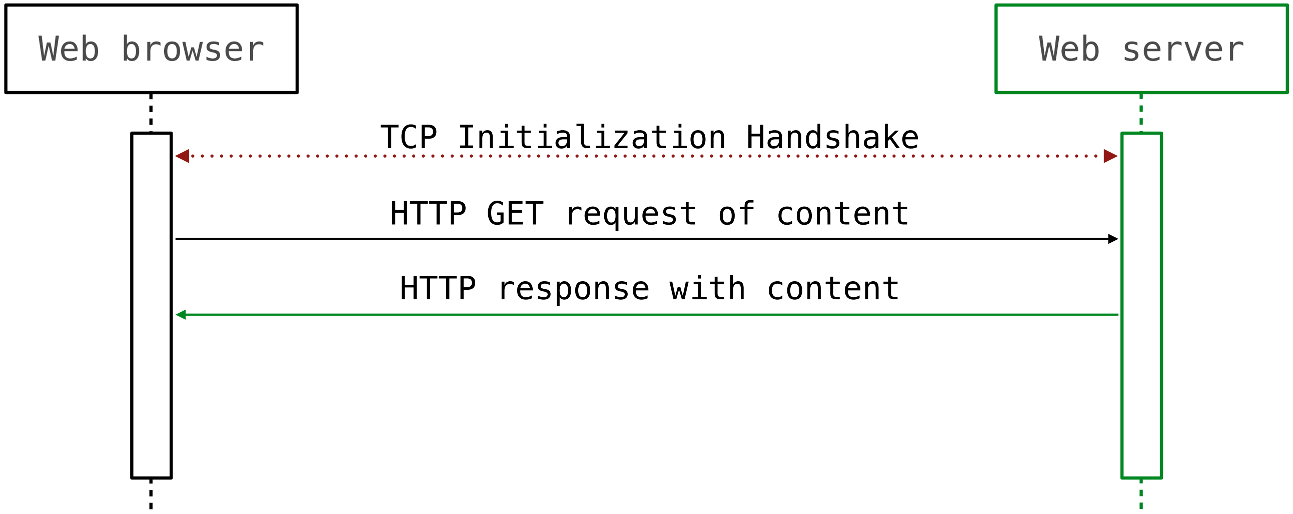
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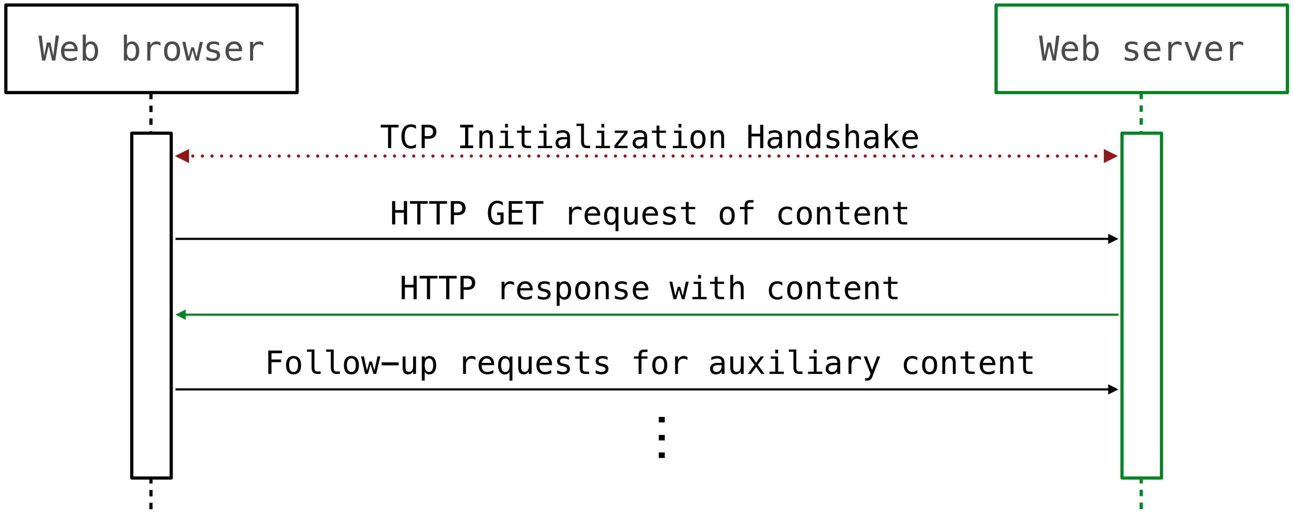
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⋮

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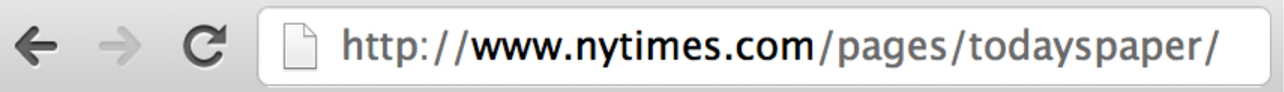

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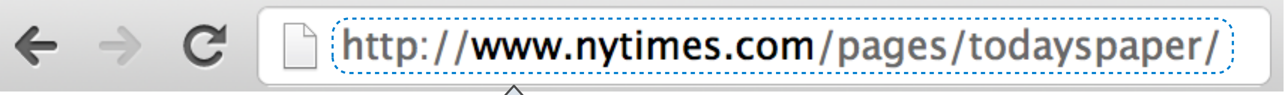

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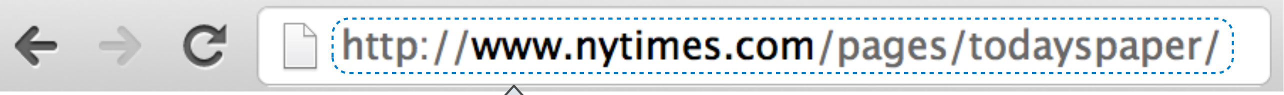

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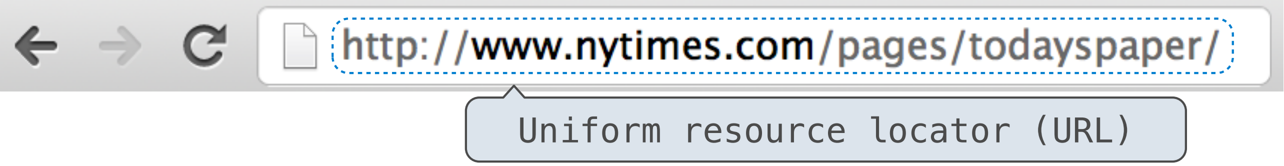

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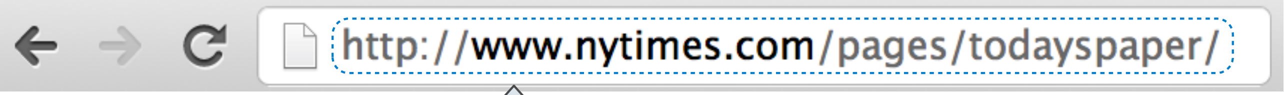

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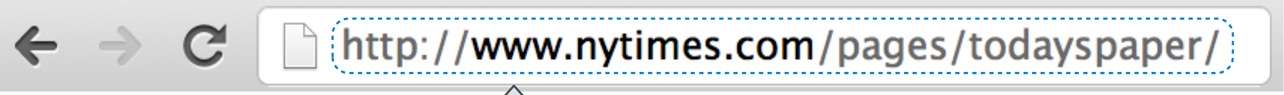

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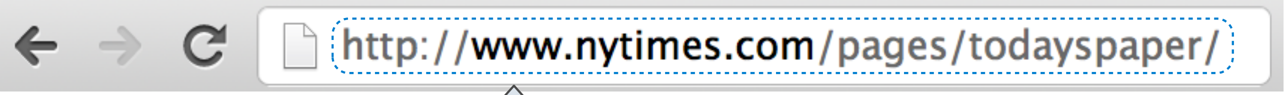

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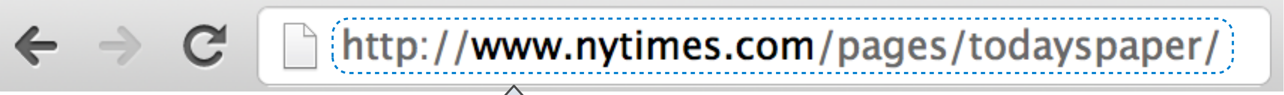

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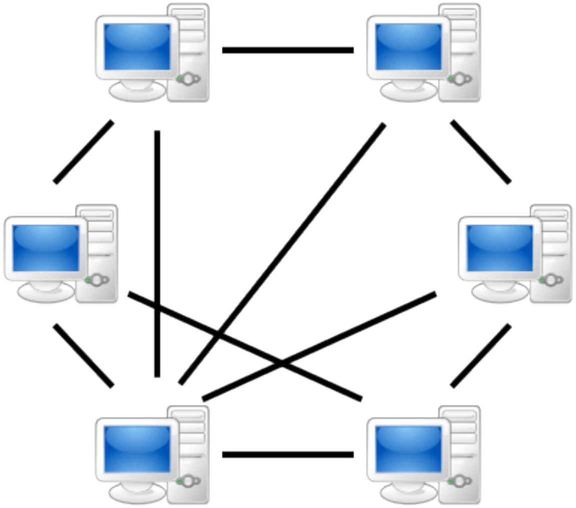

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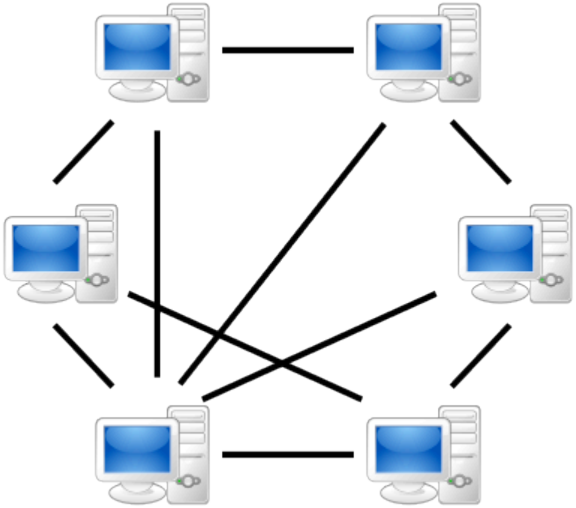
Network Structure Concerns



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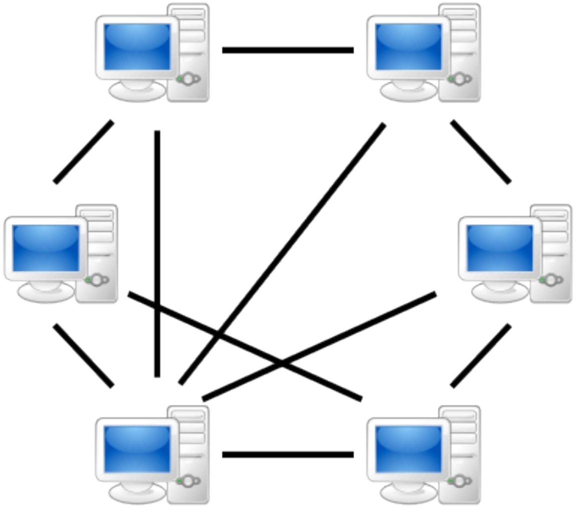

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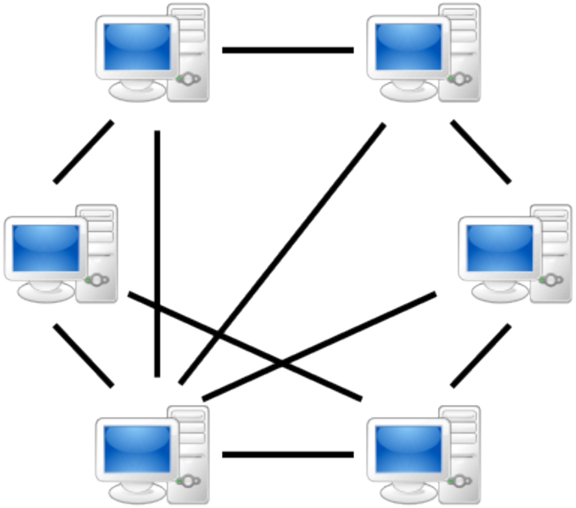

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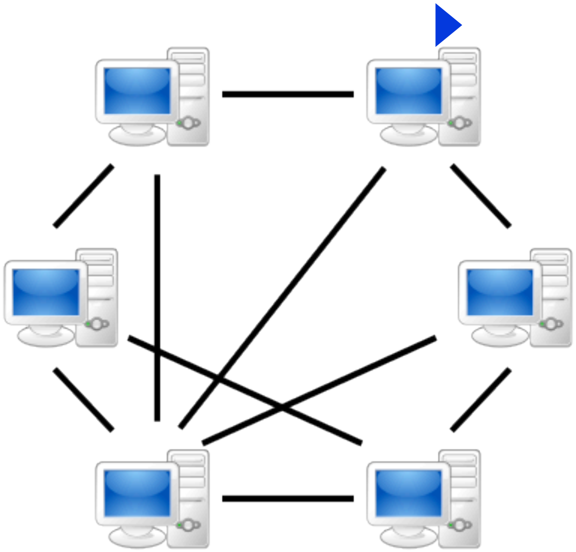

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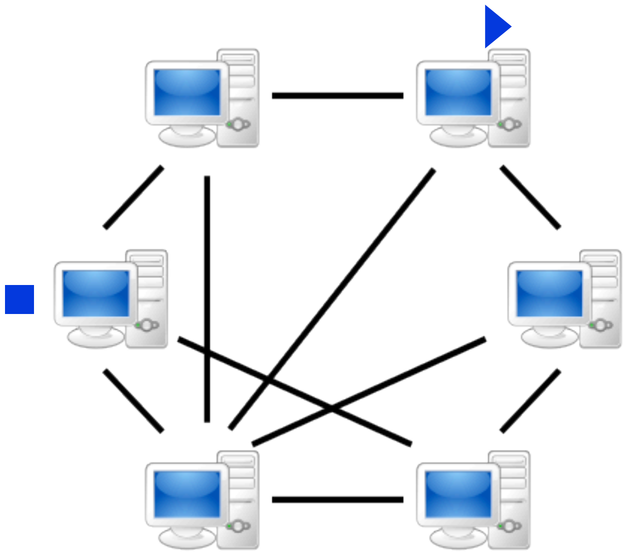

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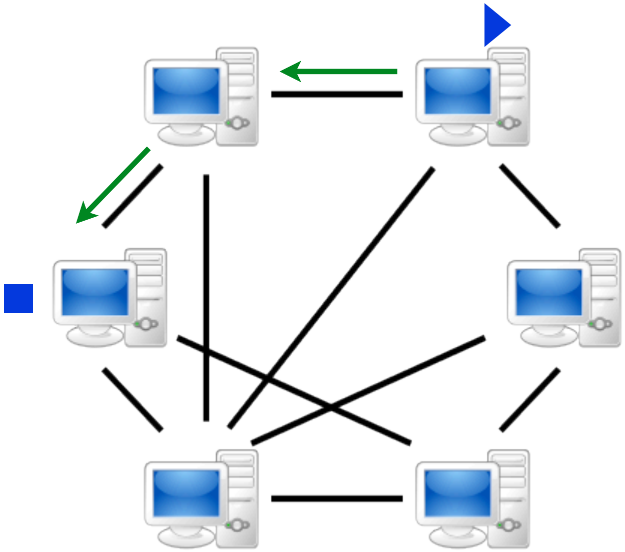

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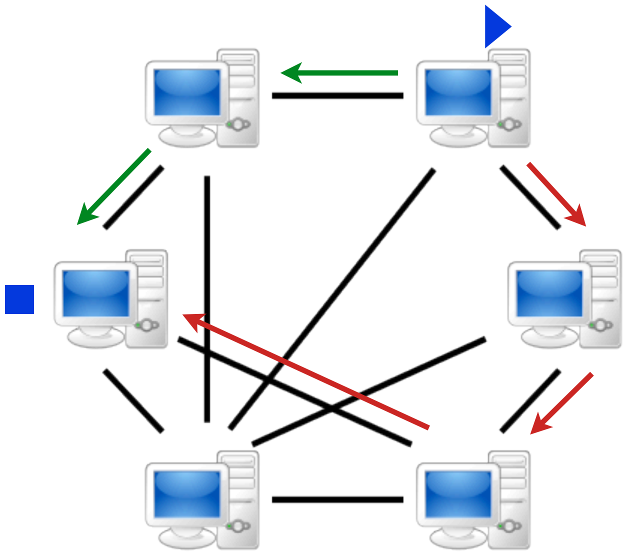

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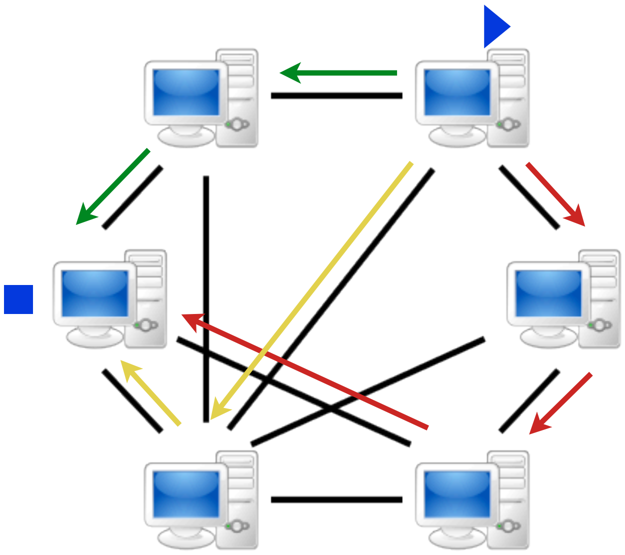

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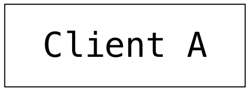

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Client A

Client B

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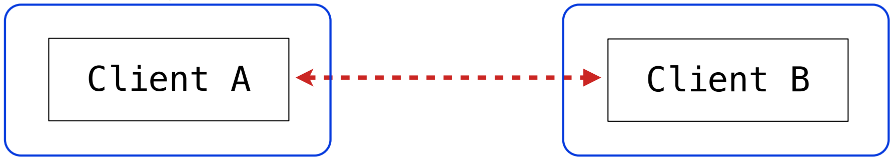

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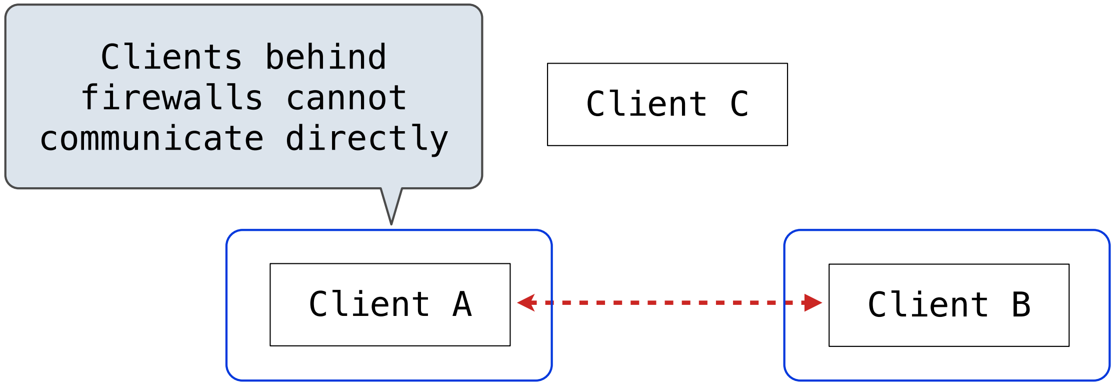
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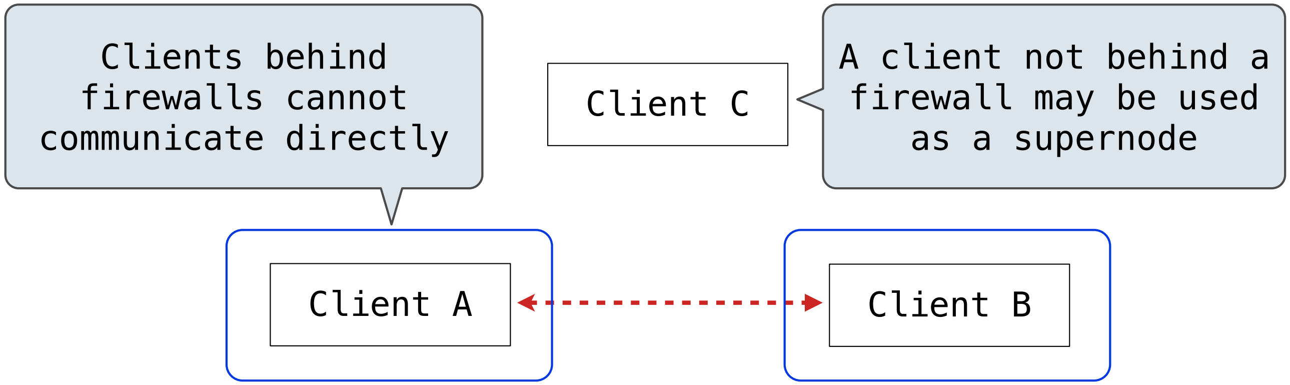

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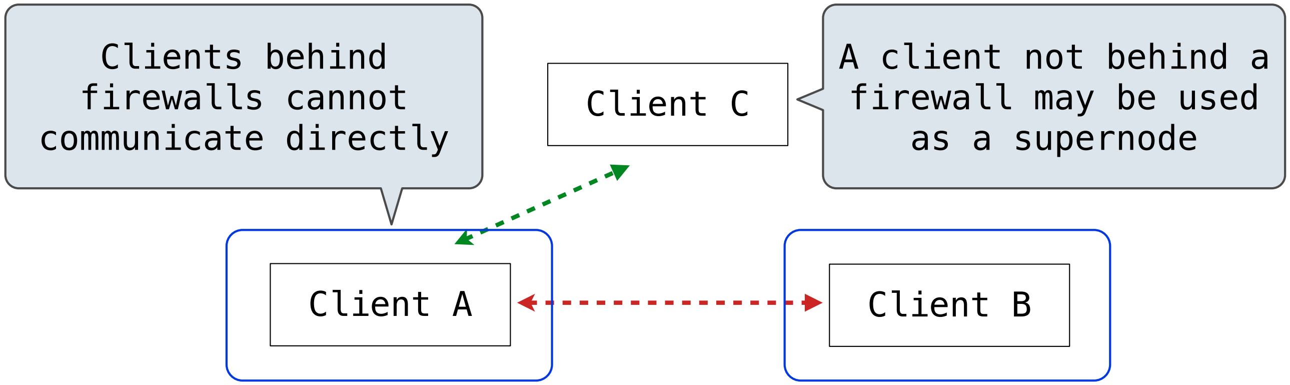
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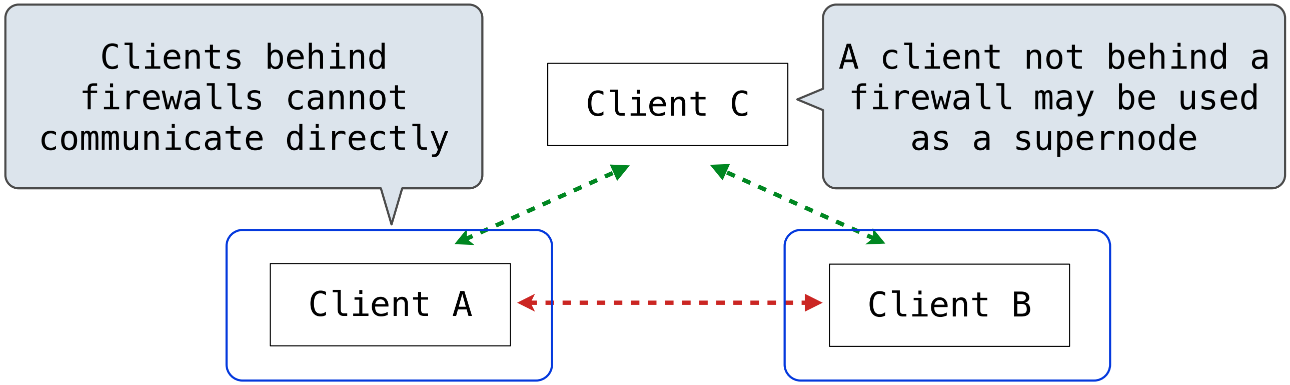
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