COMMUNICATION MODELS

Communication Models

- Message-Passing
  - Send, receive, perhaps separate reply
  - We will assume message-passing
- Shared Memory
  - Reading/writing shared global variables
  - Distributed shared memory
    - Barrier synchronization

Blocking vs Non-blocking Message-Passing

- Synchronous/Blocking
  - Ex: RPC
  - Sender waits for ack
  - Pro: confirmation of receipt, flow control
  - Con: latency (especially over WAN)
- Asychronous/Nonblocking
  - Ex: UDP sockets
  - Sender does not wait for ack
    - Don't care if message received
    - Synchronize later with **promise/future**
    - More complicated programming

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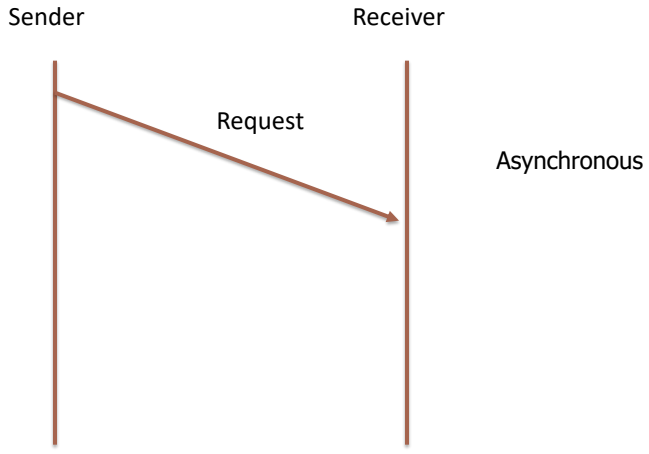
Message-passing



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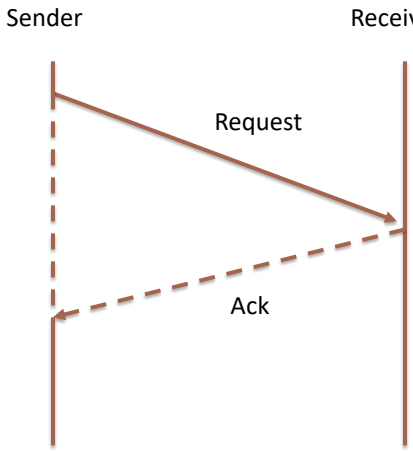
Message-passing



Asynchronous with implicit ack

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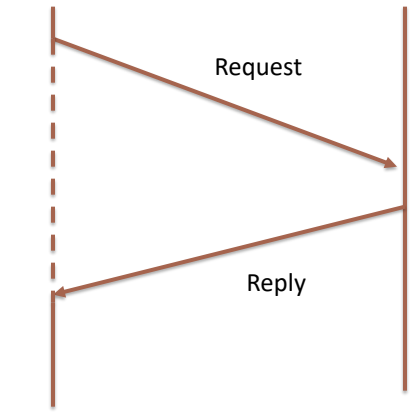
Message-passing



Synchronous with explicit reply

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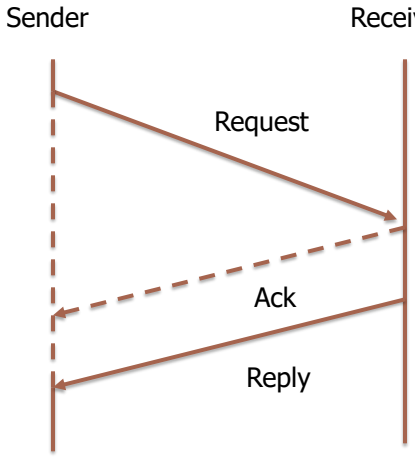
Message-passing



Synchronous with ack & reply

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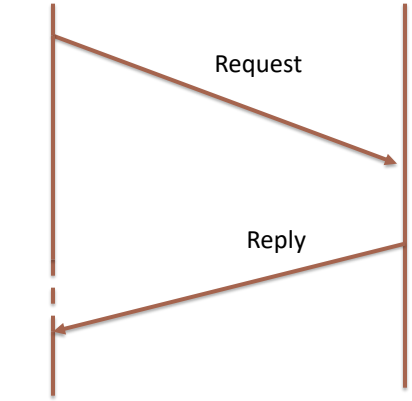
Message-passing



Asynchronous with future/promise

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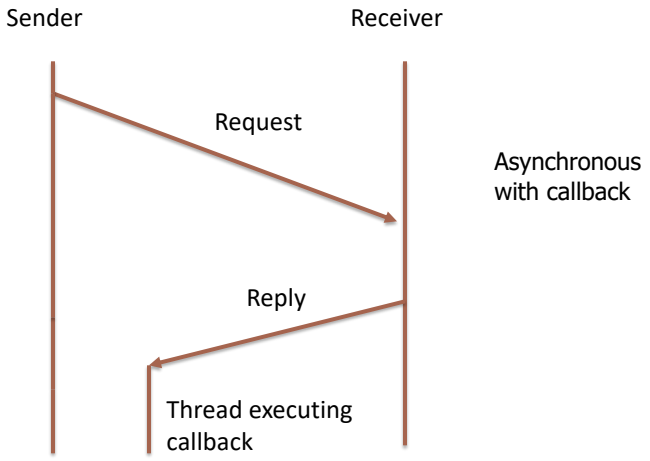
Message-passing



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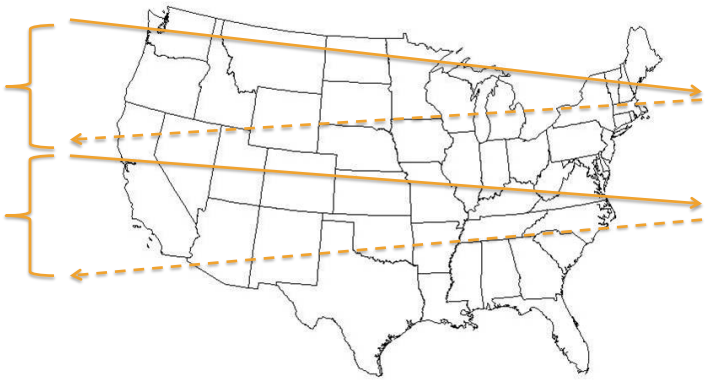
Latency



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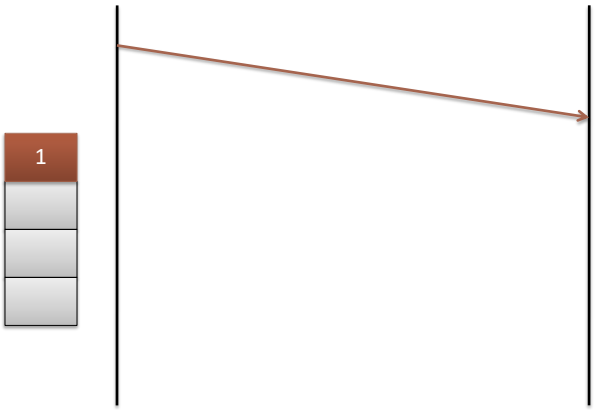
Pipelining



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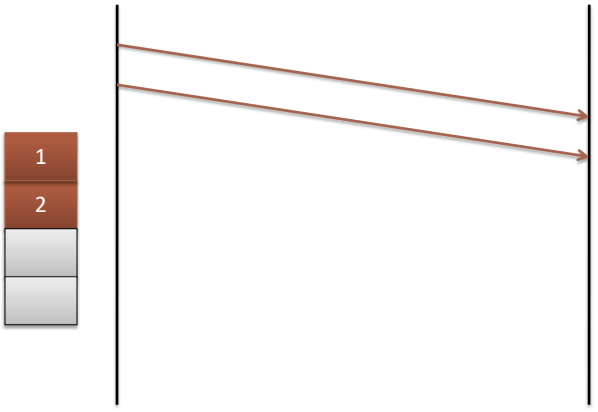
Pipelining



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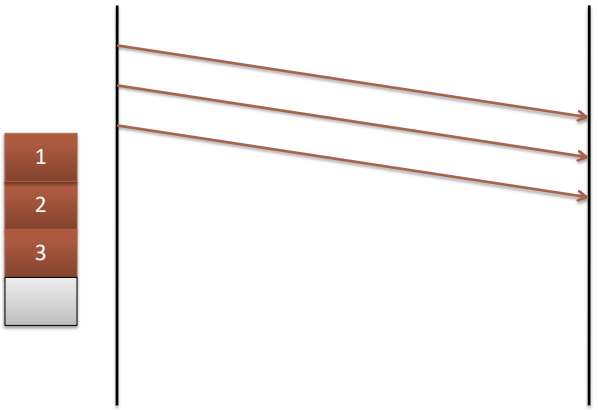
Pipelining



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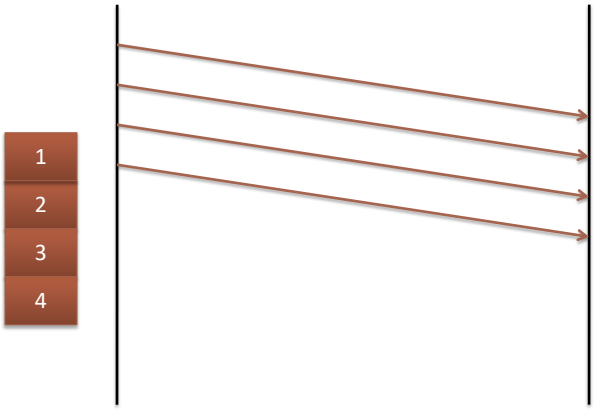
Pipelining



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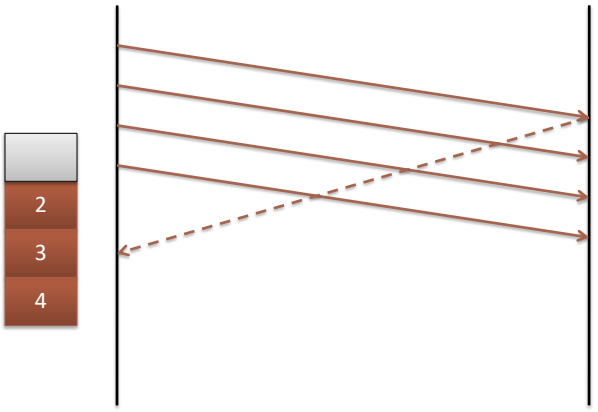
Pipelining



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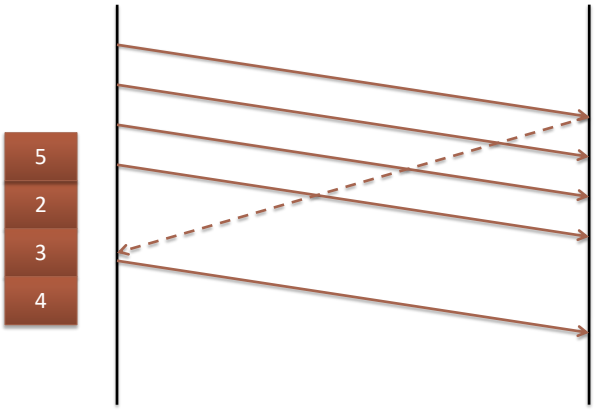

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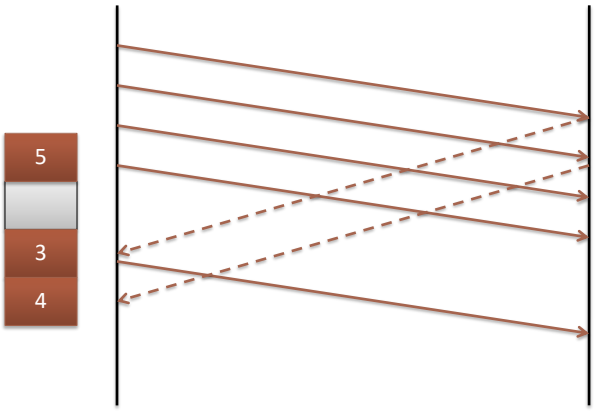
Pipelining



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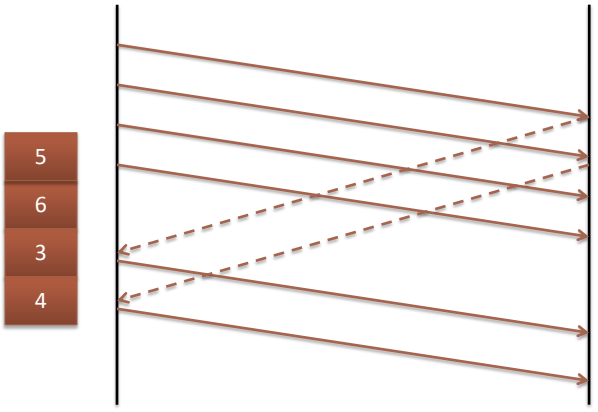

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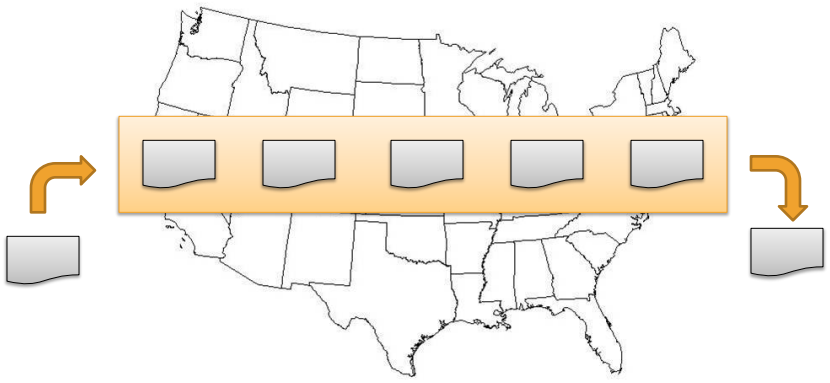
Pipelining



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