Efficient (re)naming in Conflict-free Replicated Data Types (CRDTs)

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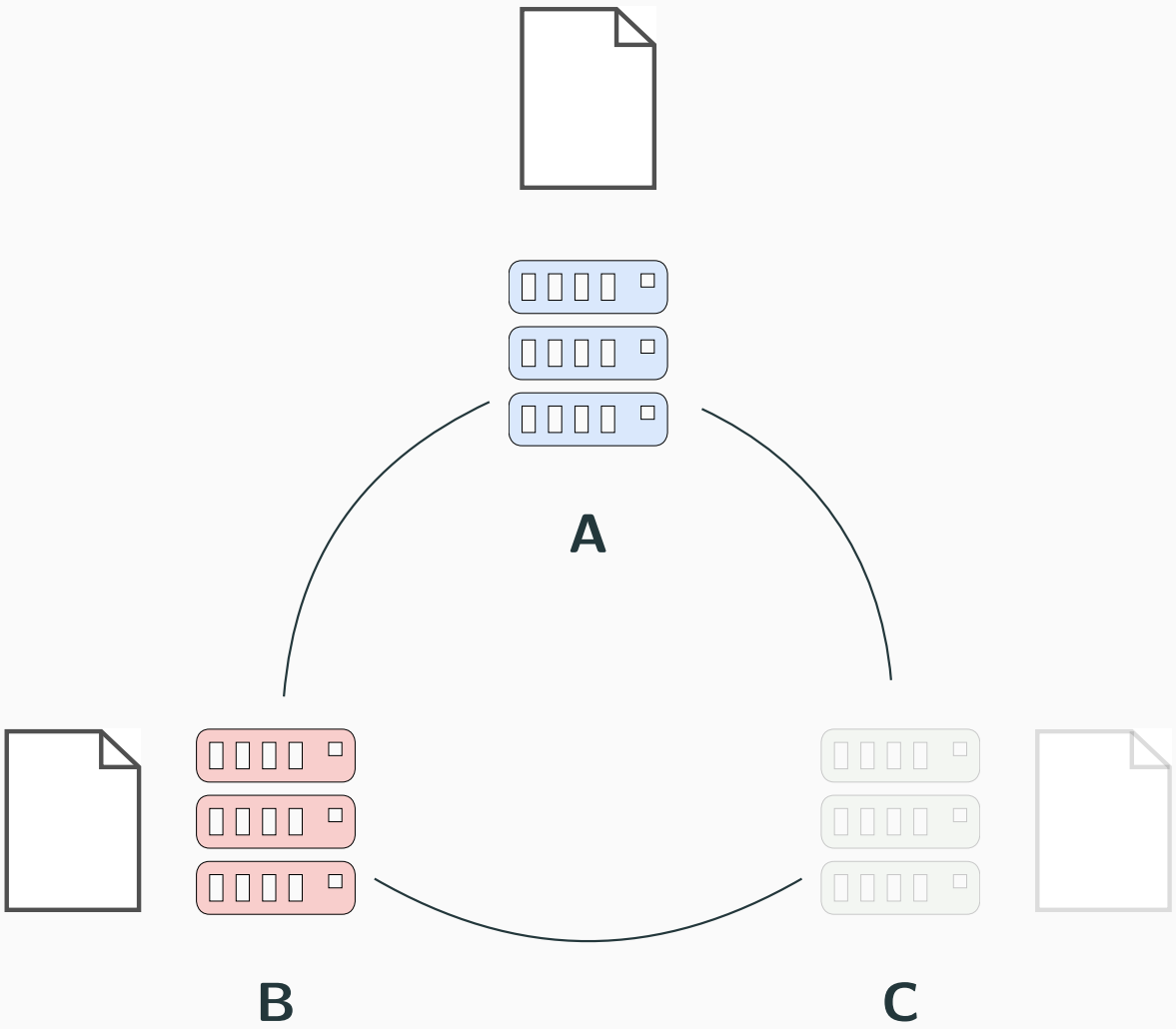
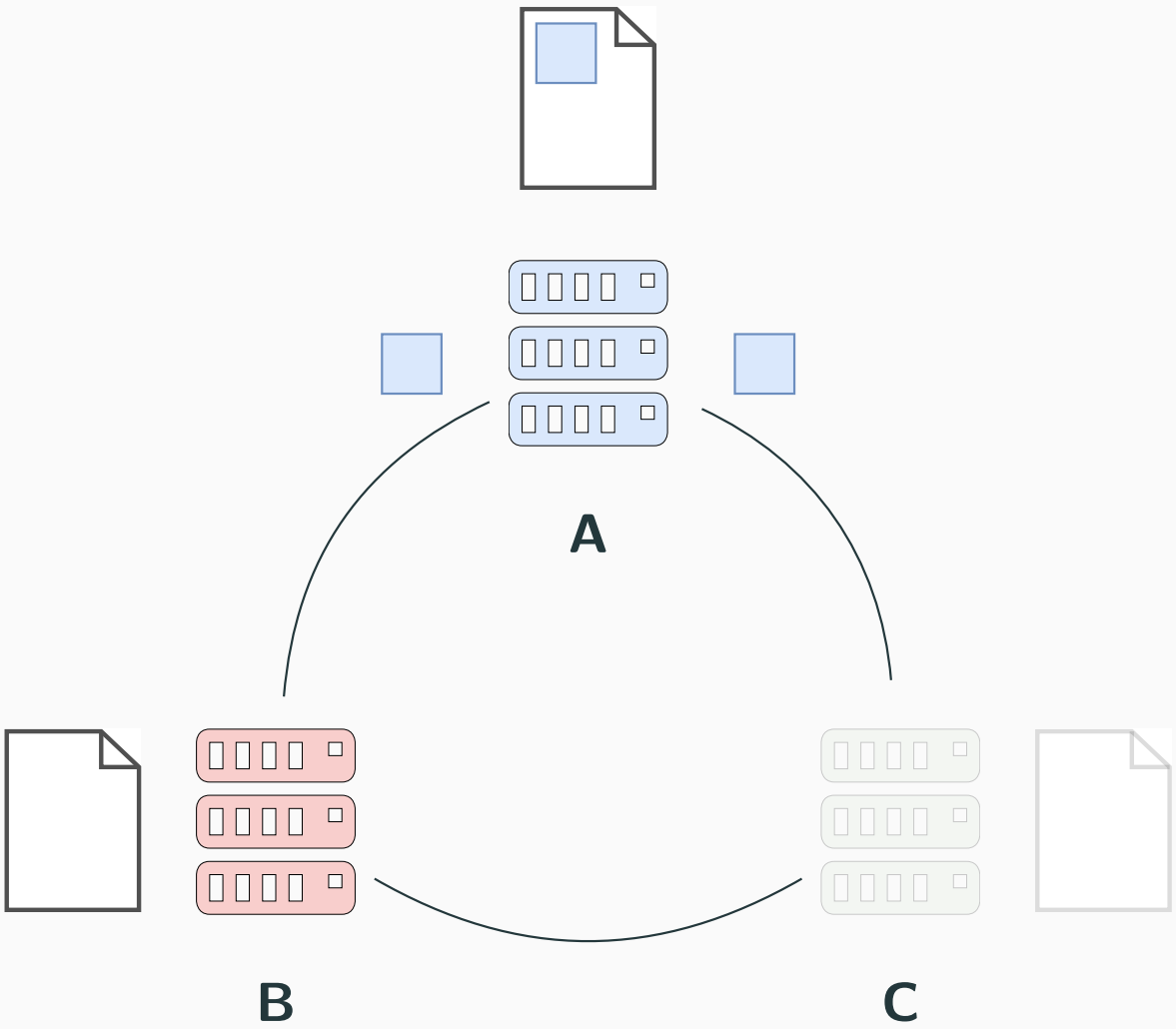
Conflict-free Replicated Data Types (CRDTs)



- Replicated data structure

Conflict-free Replicated Data Types (CRDTs)



- Replicated data structure
- Updates performed without coordination

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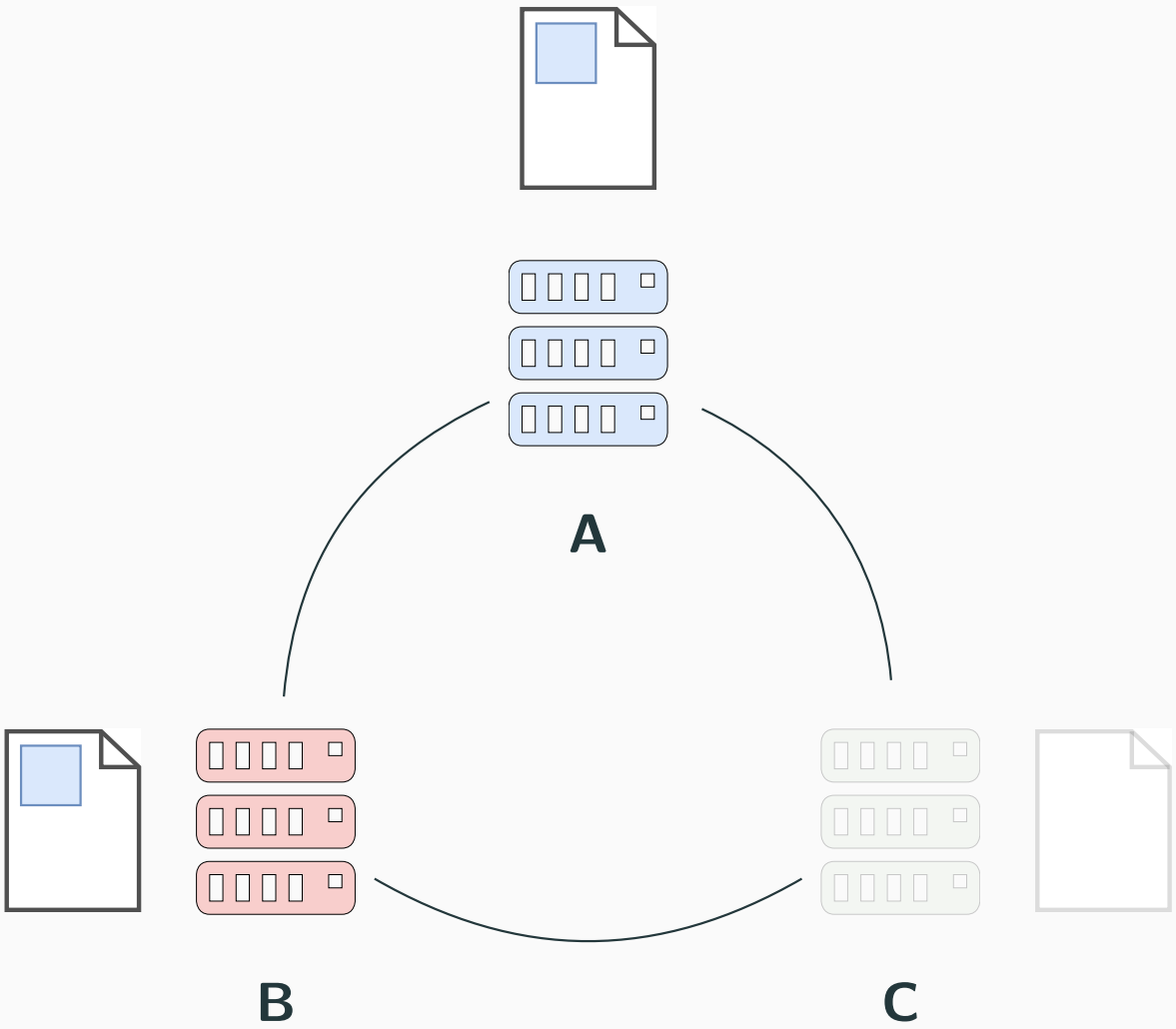

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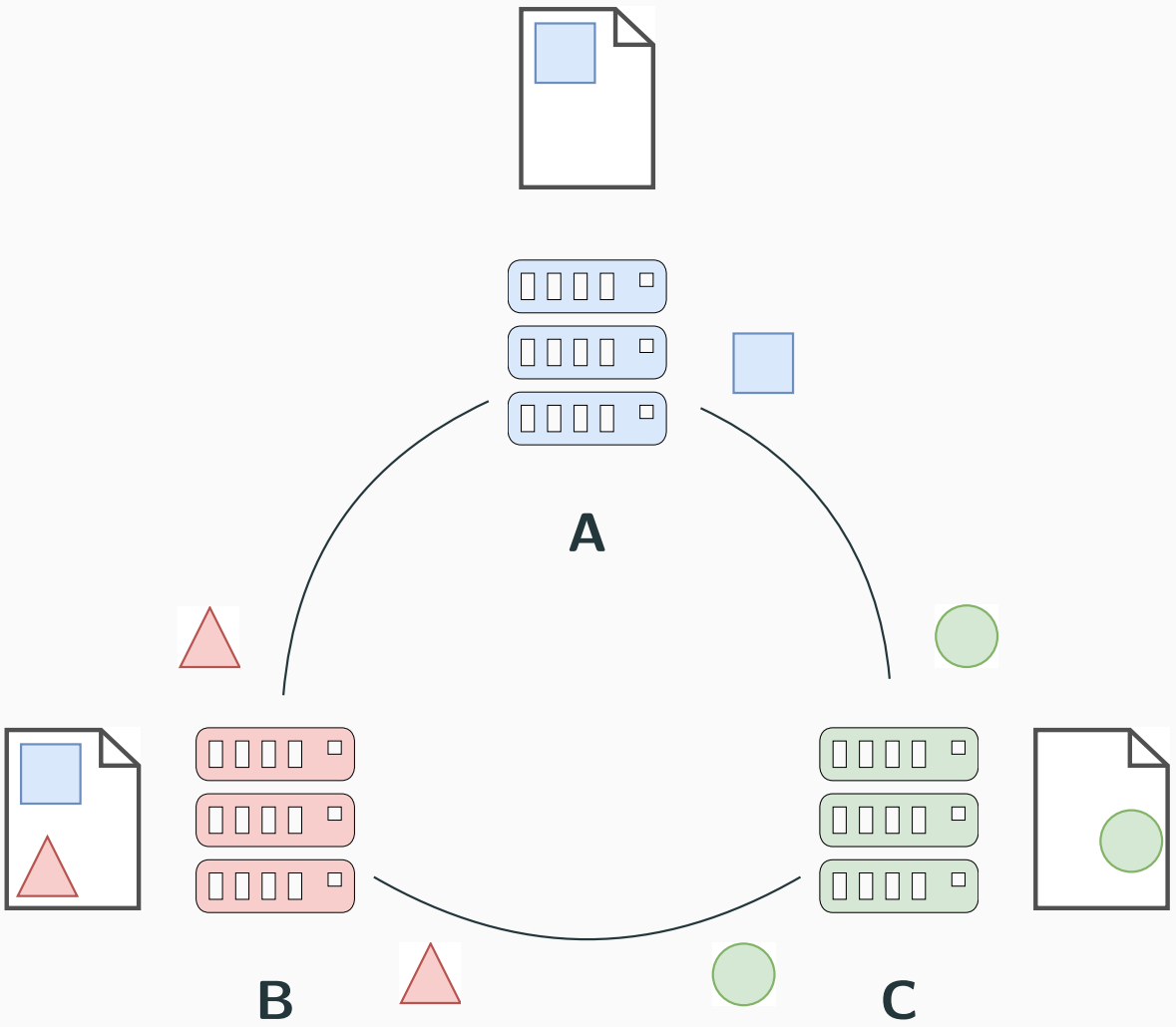

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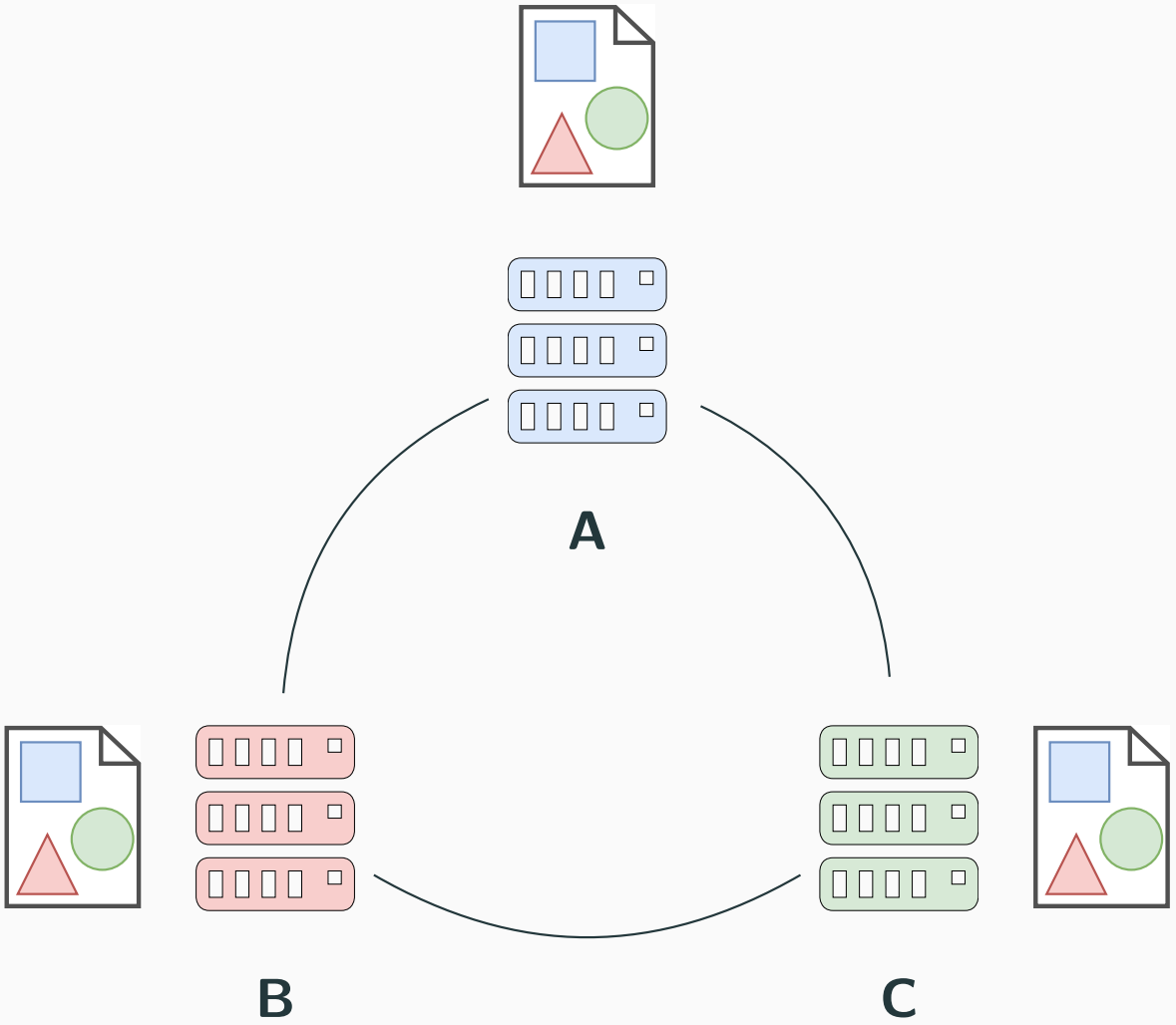
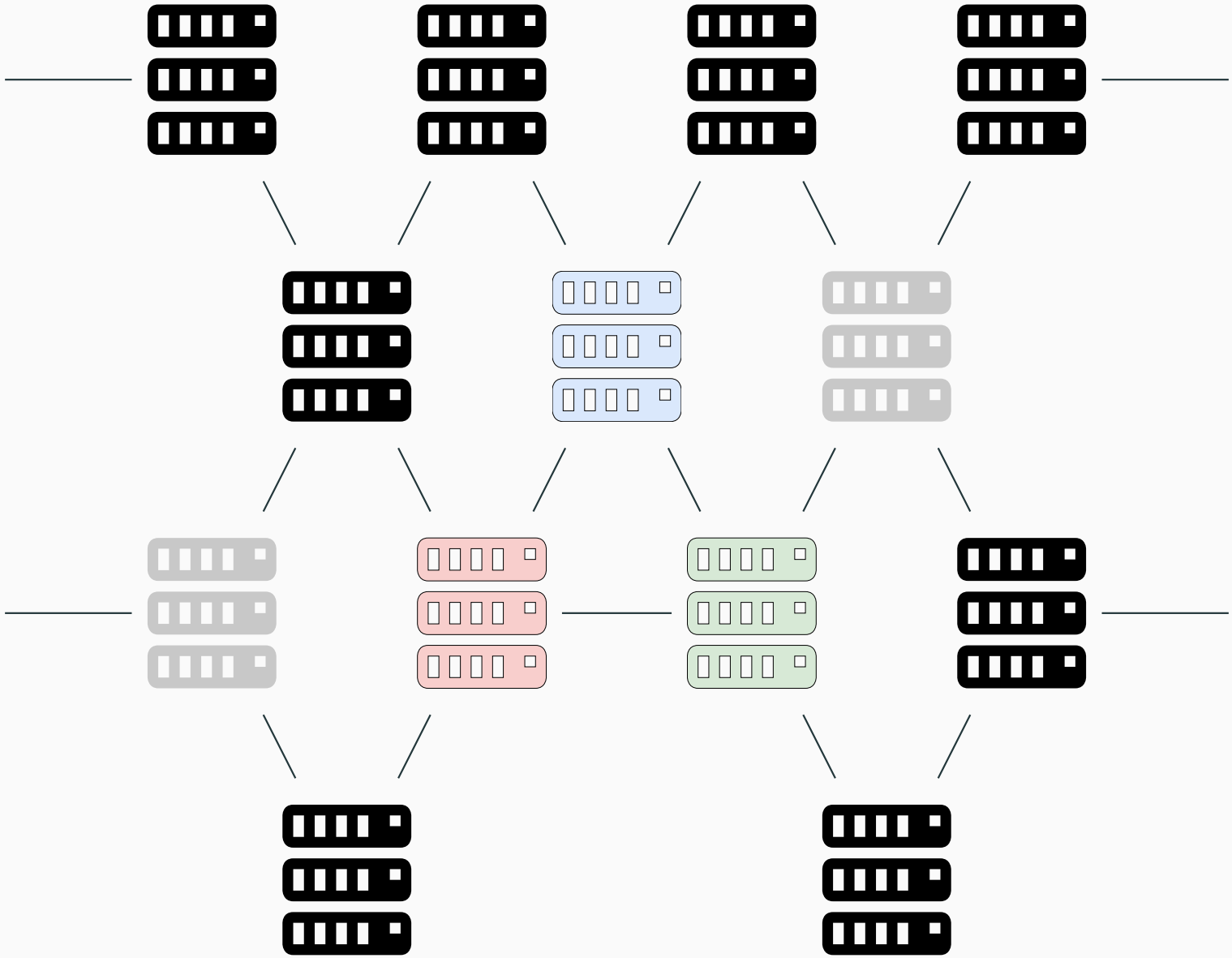


- Replicated data structure
- Updates performed without coordination
- Eventual consistency

Large-scale system



Identifier-based CRDTs

Identifiers

- Attached to elements and updates
- Have to comply to several constraints
  - Unique
  - Immutable
  - Order relation
  - Many others
- Achieve transaction-less and commutative updates

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Limits

- Unbounded size of identifiers
- Efficiency decreasing over time

Research problem

Reduce size of identifiers

- Renaming problem

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Reduce size of identifiers

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Make identifiers mutable again

- Is it a good idea?

Thanks for your attention, any questions?

References i