

# TGI Pulsar

EP.006

Topic: Lifecycle of a Pulsar message

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Time: 1 PM PST

| Host: Sijie Guo

| Date: 04-17-2020



#TGIPulsar EP-006

# Lifecycle of a Pulsar Message

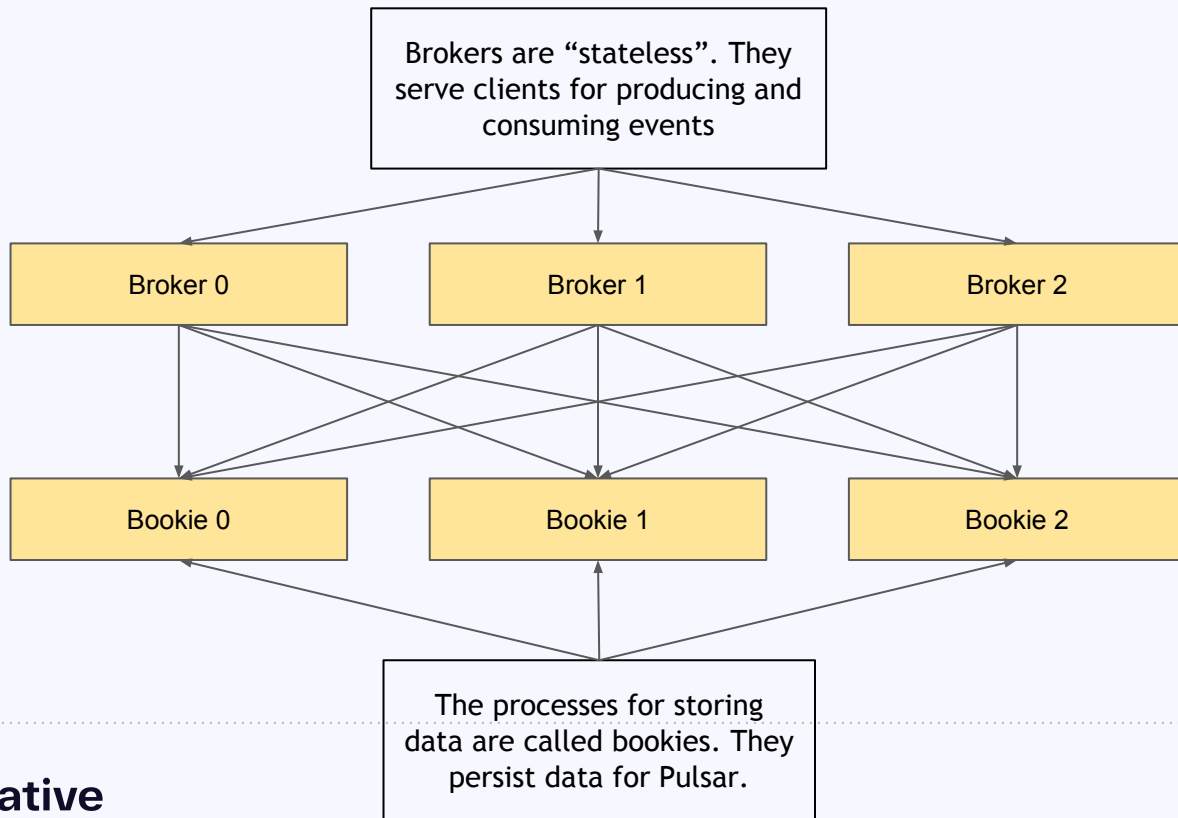


# Message Lifecycle

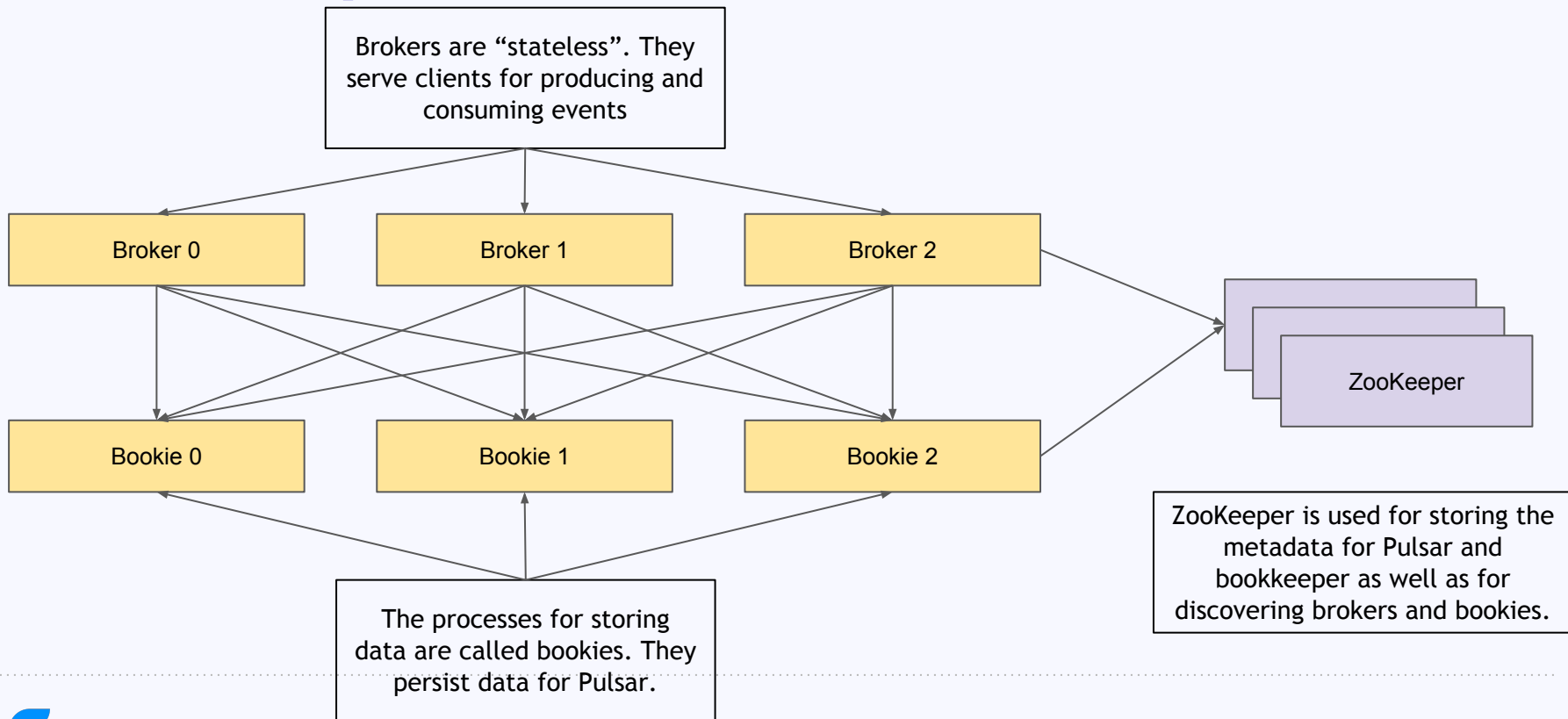
- ✓ Message Flow
- ✓ Message Retention

# Message Flow

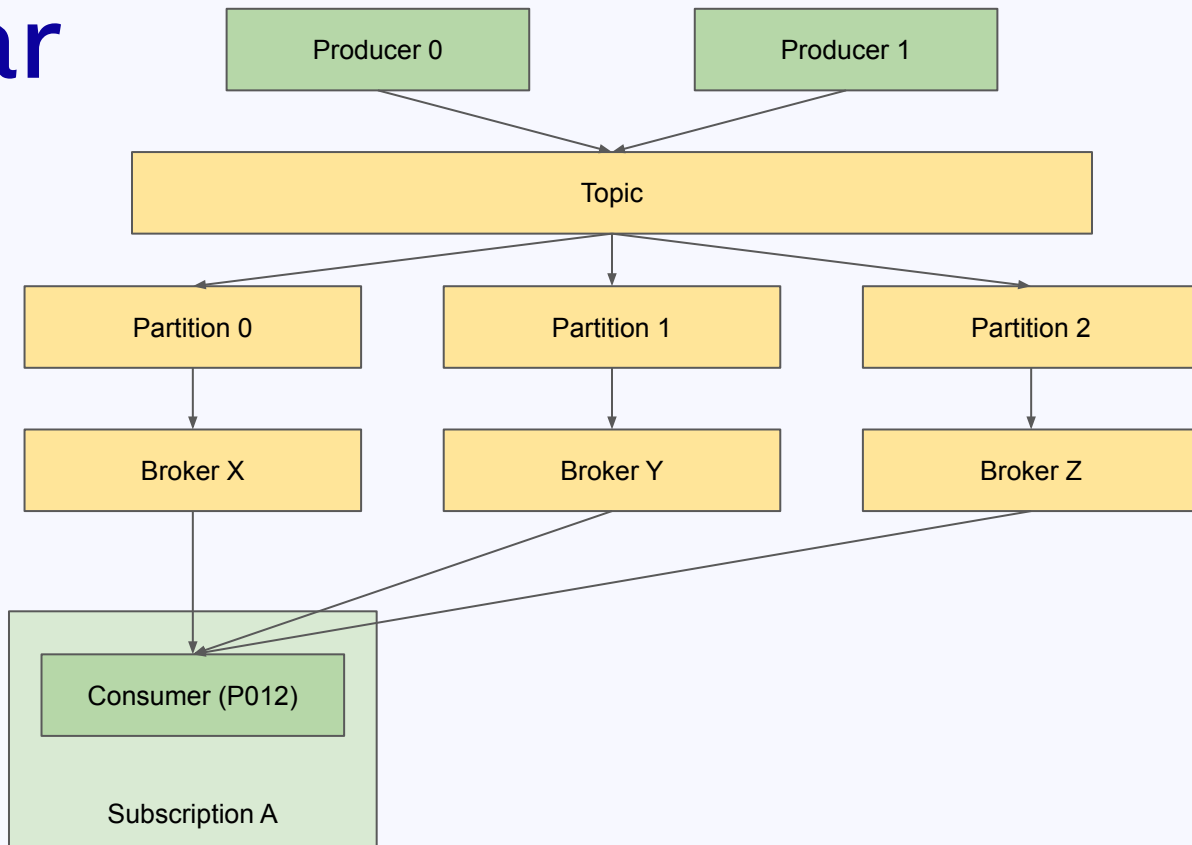
# Brokers + Bookies



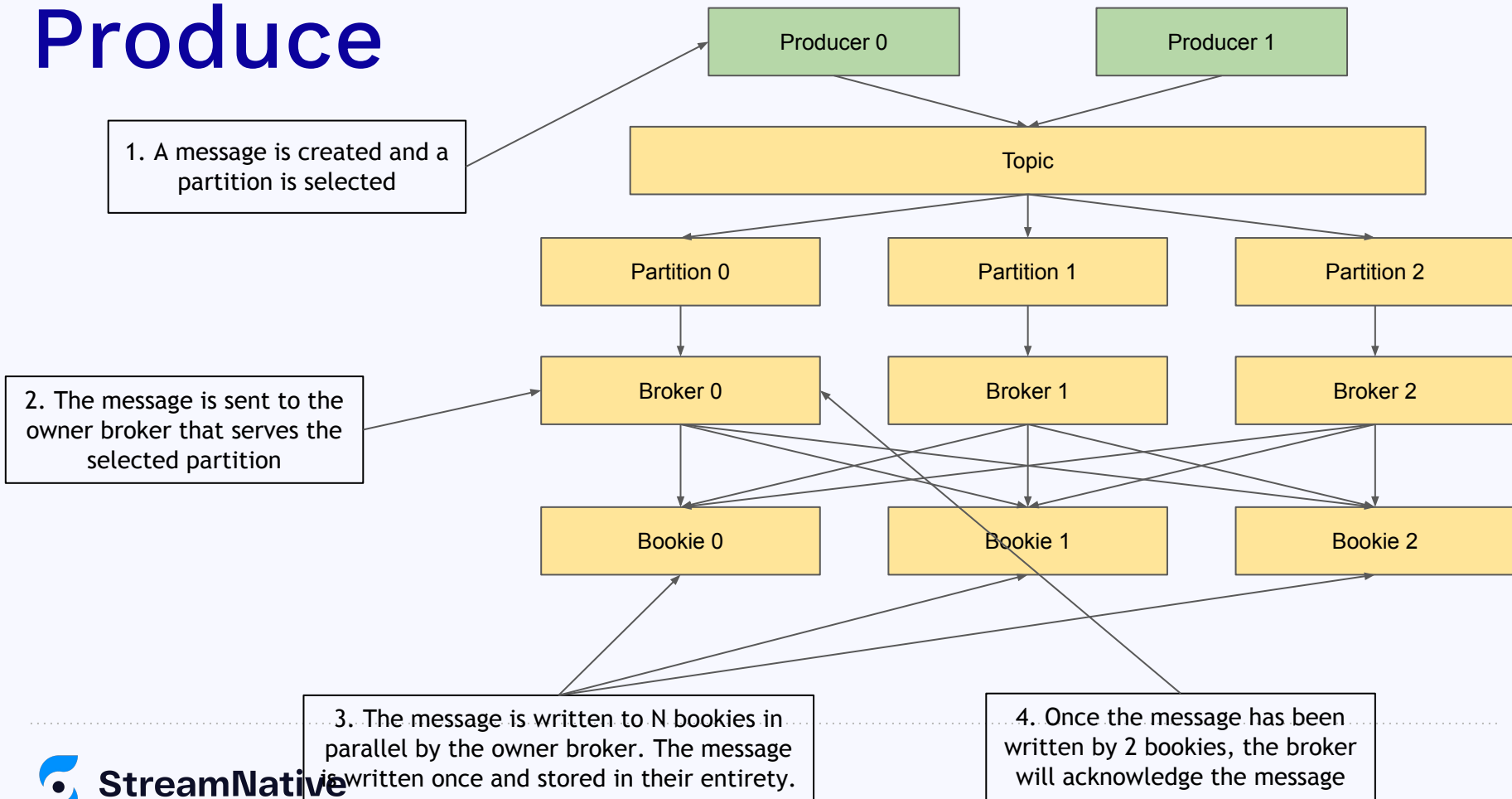
# ZooKeeper



# Pulsar

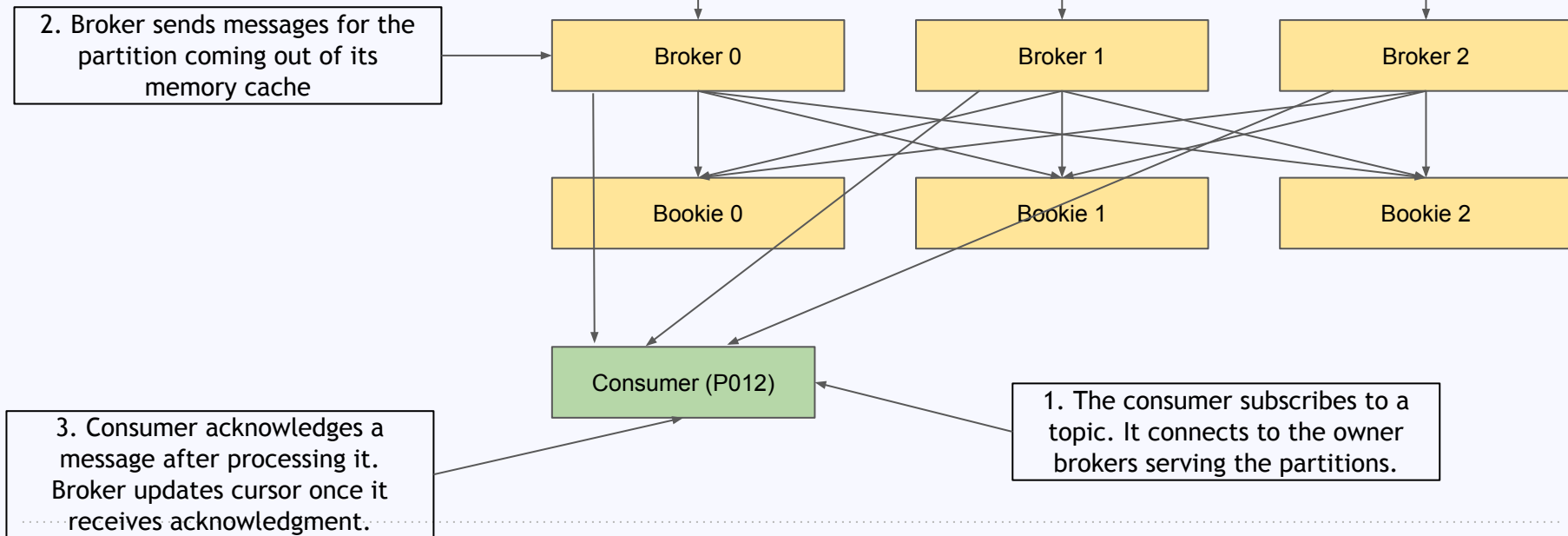


# Produce



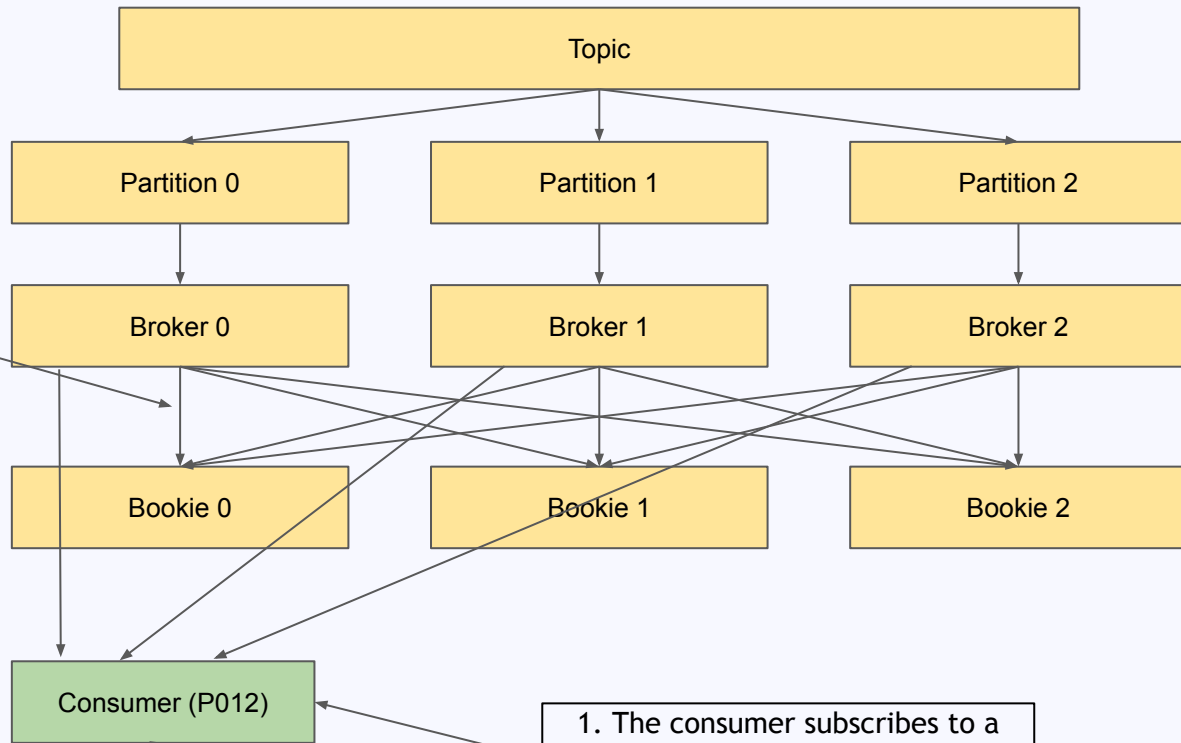


# Consume (Cached)



# Consume (BK)

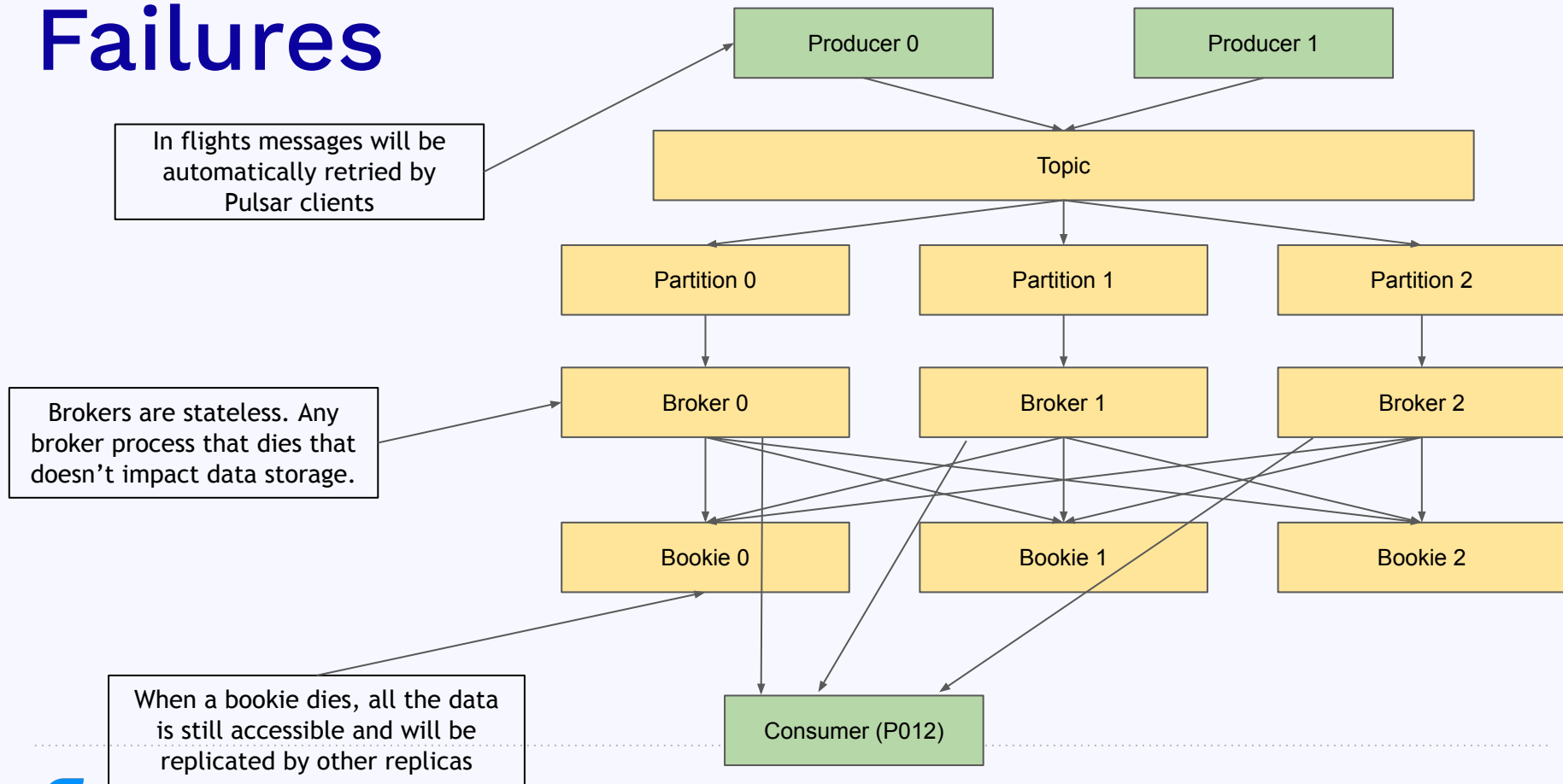
2. Broker does not have the data in the memory and will read from one of the Bookies that have the data.



1. The consumer subscribes to a topic. It connects to the owner brokers serving the partitions.

3. Consumer acknowledges a message after processing it. Broker updates cursor once it receives acknowledgment.

# Failures

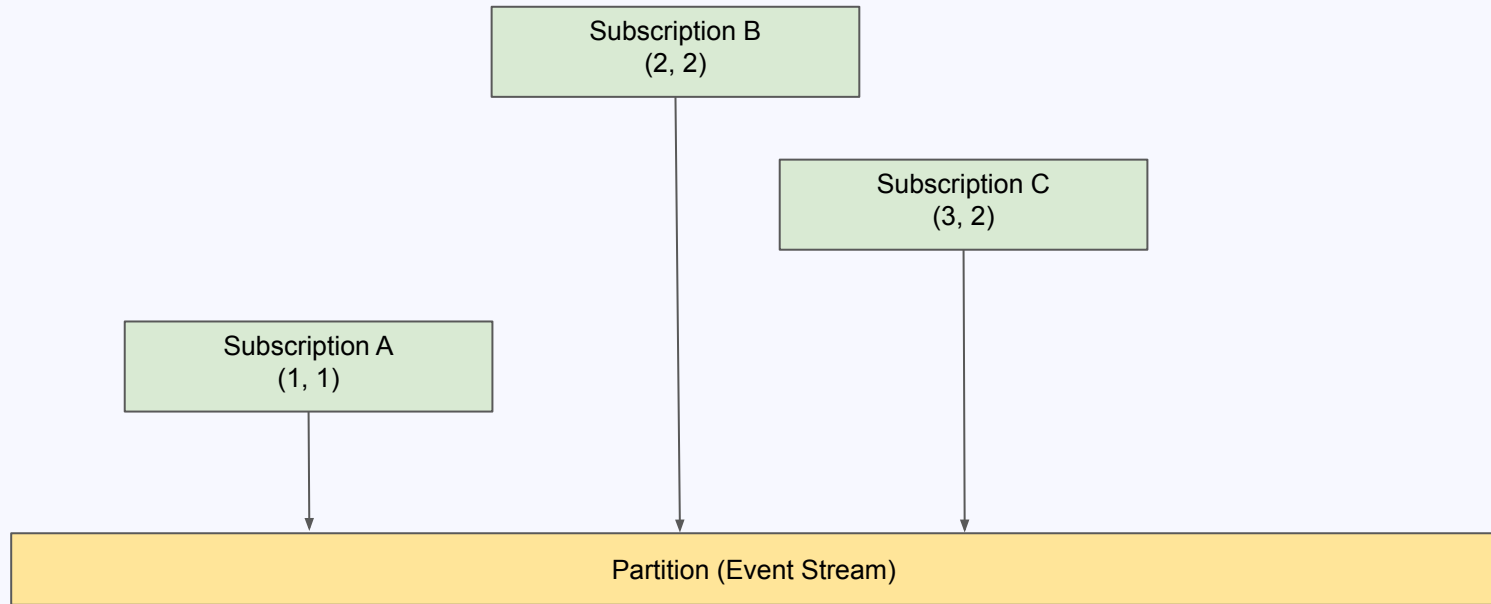


# Message Retention

# Message retention

- ✓ Retention
- ✓ TTL
- ✓ Message backlog
- ✓ Storage size

# Subscription & Cursor



# Subscription Initial Position



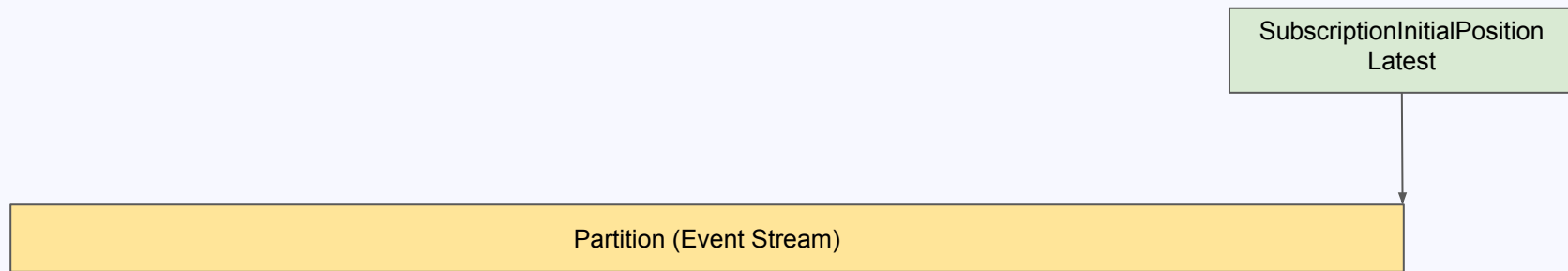
Partition (Event Stream)

# Earliest

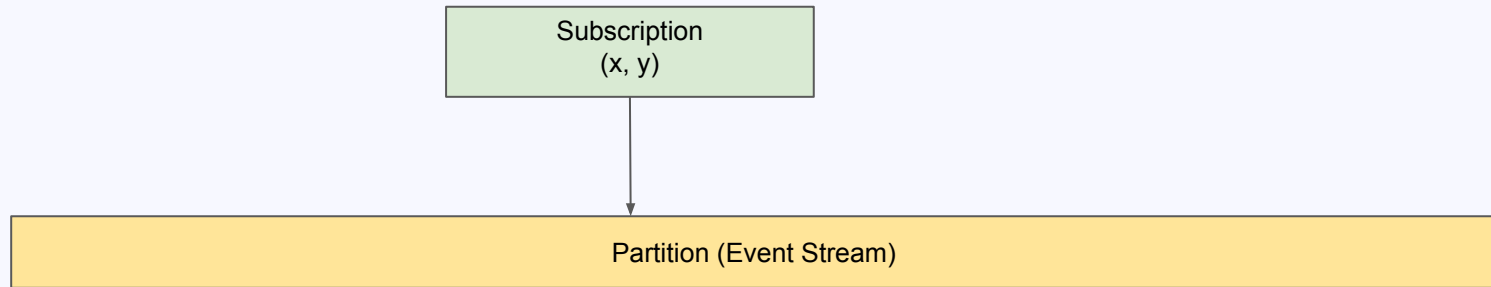




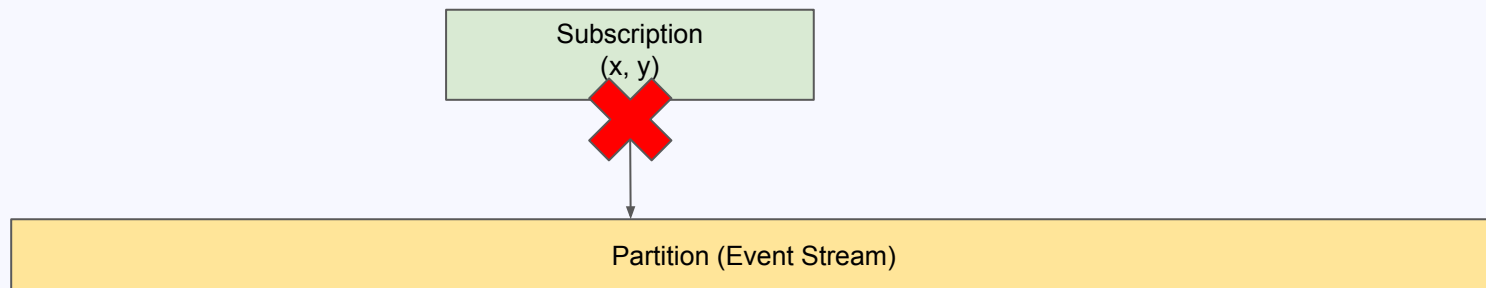
# Latest



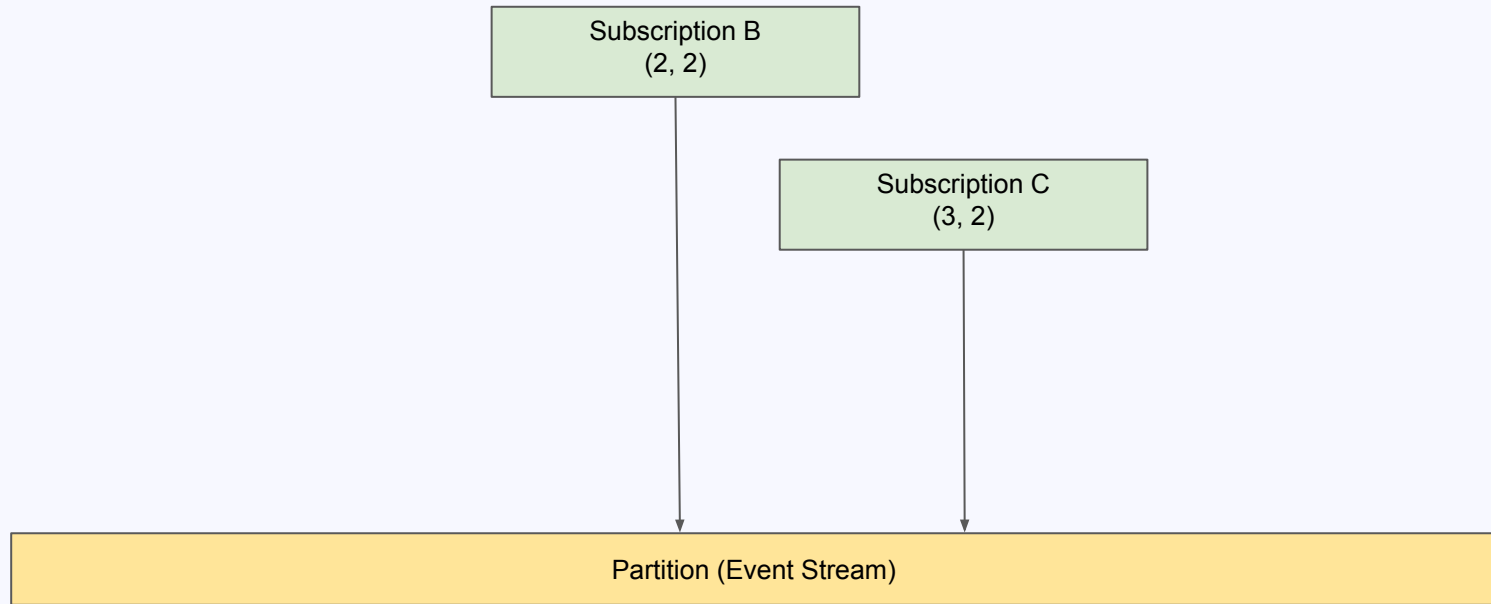
# Seek



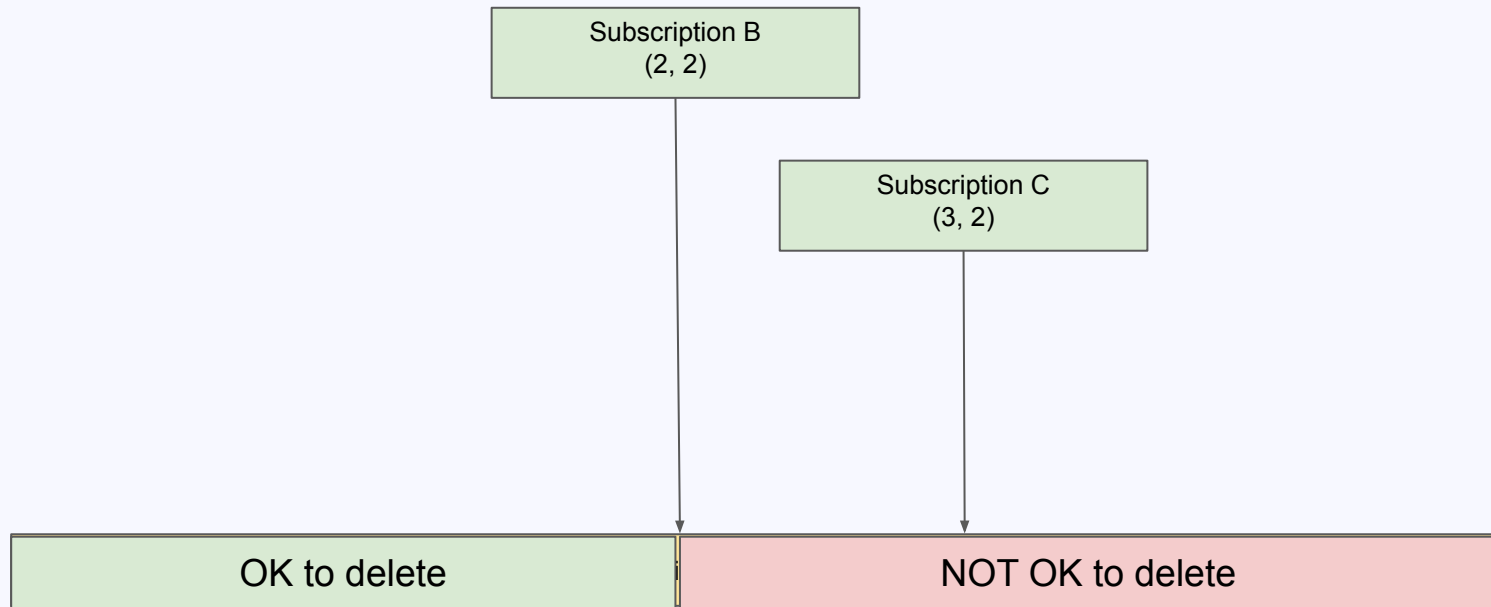
# Unsubscribe



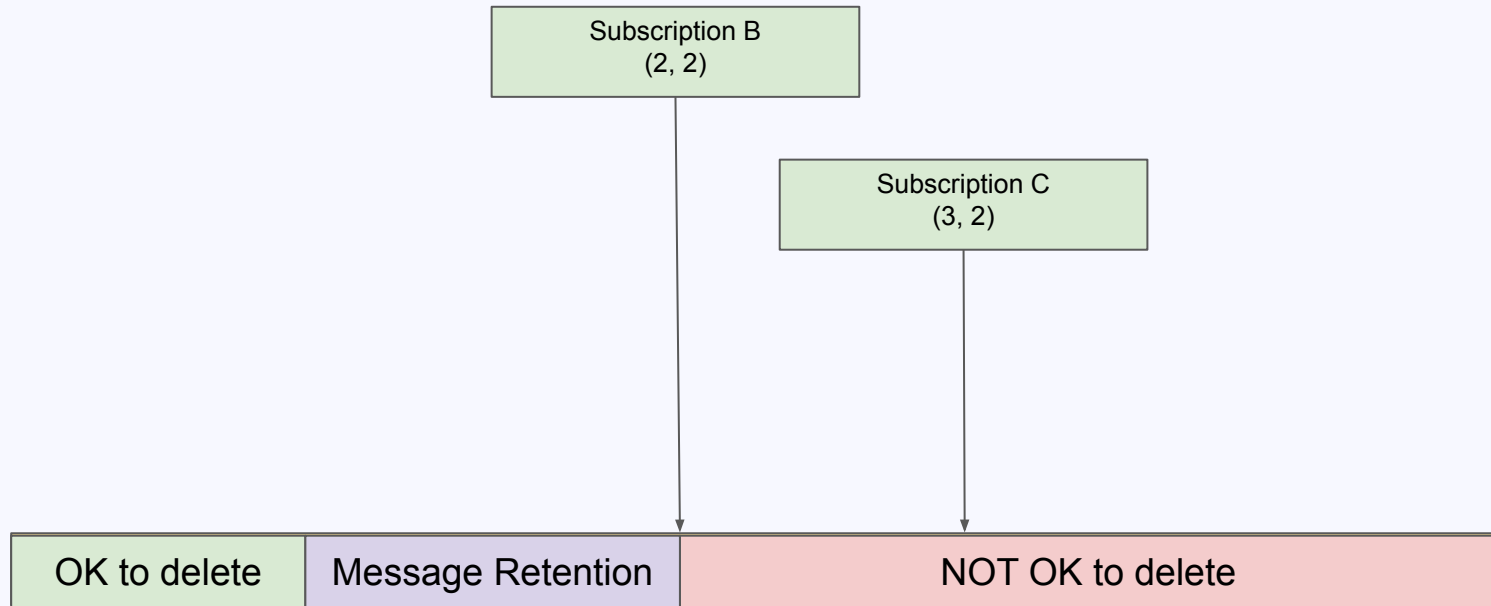
# Message retention (1)



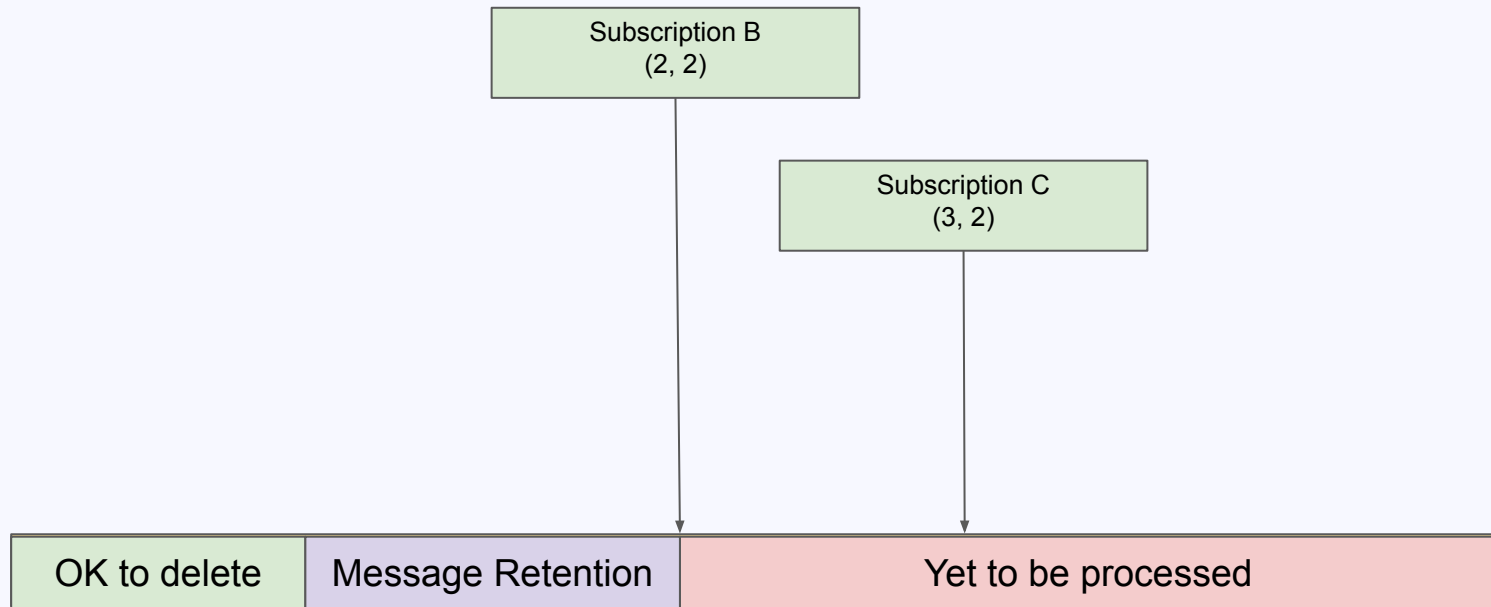
# Message retention (2)



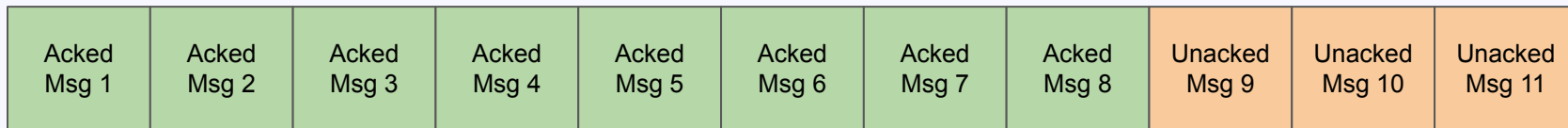
# Message retention (3)



# Message retention (4)

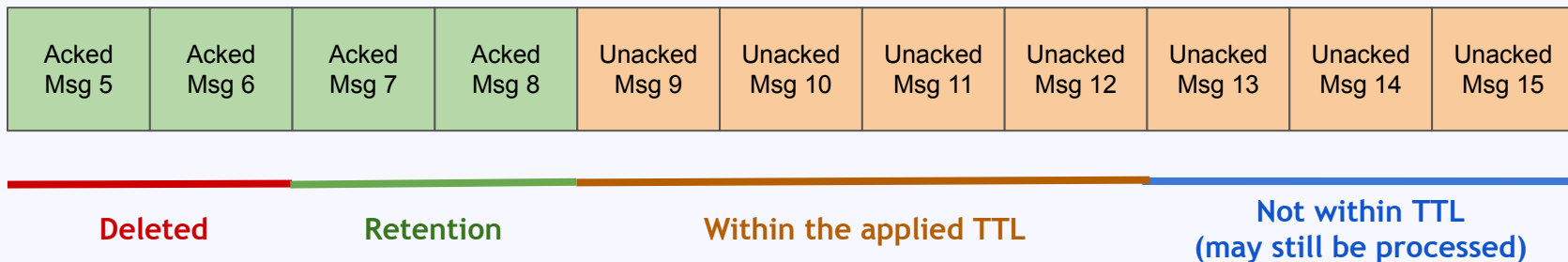


# Message retention (5)

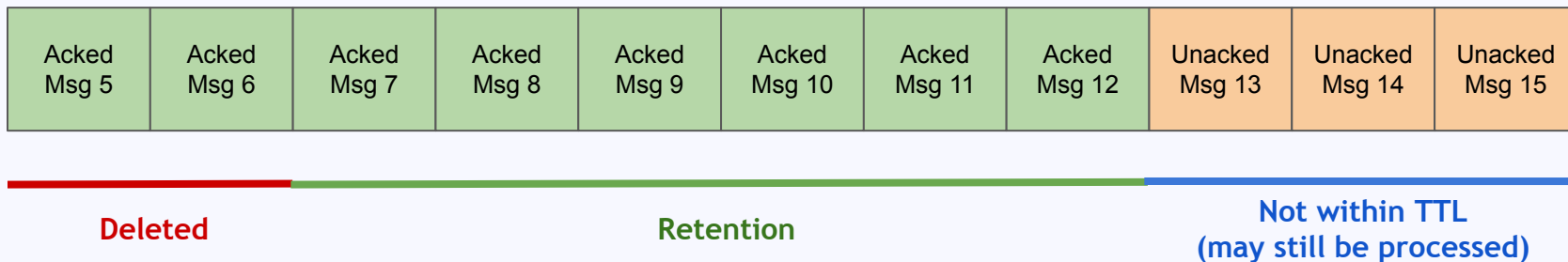




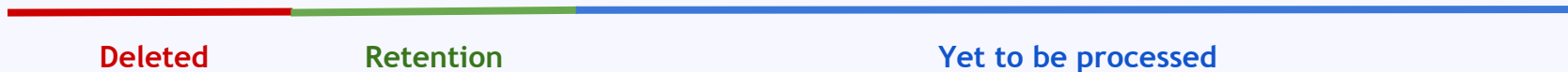
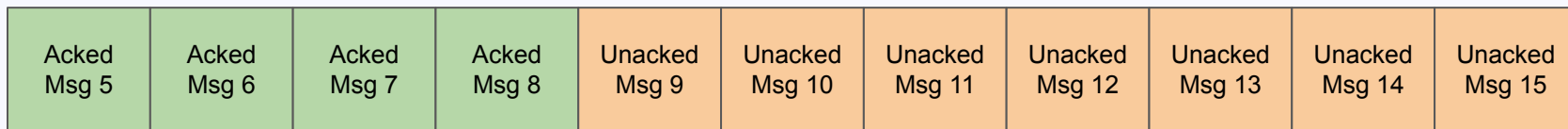
# Message expiry (1)



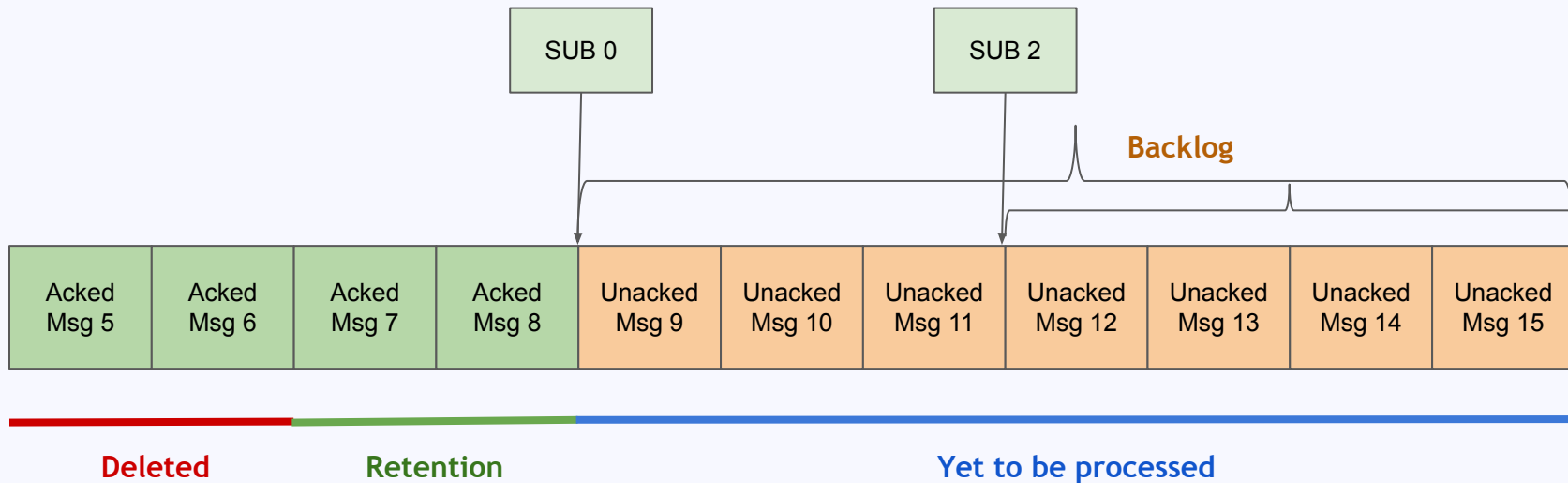
# Message expiry (2)



# Backlog (1)



# Backlog (2)



# Message deletion (1)

Acked Msg 5	Acked Msg 6	Acked Msg 7	Acked Msg 8	Acked Msg 9	Acked Msg 10	Acked Msg 11	Acked Msg 12	Acked Msg 13	Acked Msg 14	Acked Msg 15
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Deleted

Retention

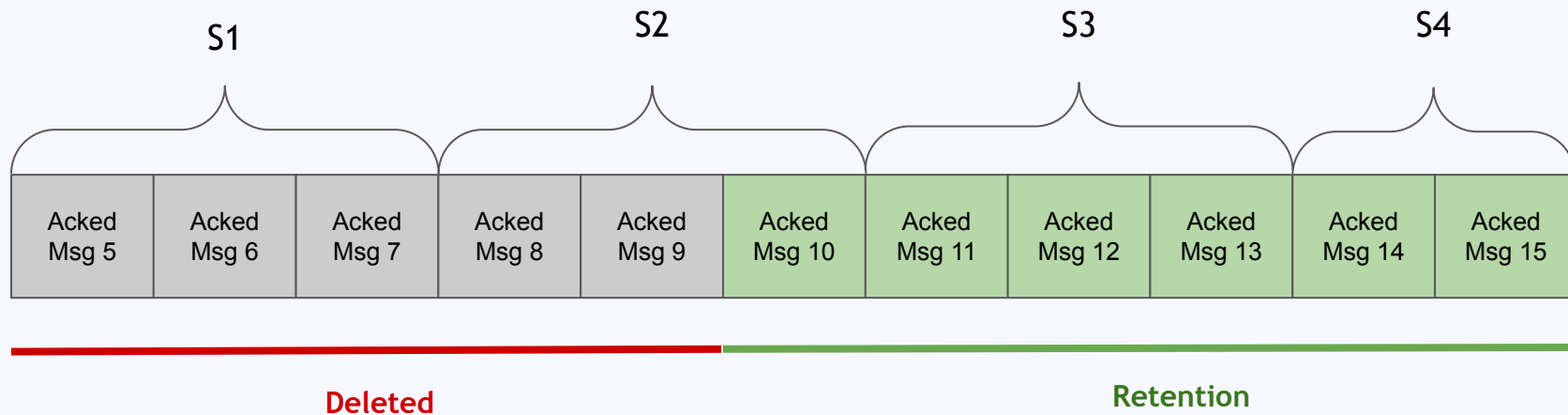
# Message deletion (2)

Acked Msg 5	Acked Msg 6	Acked Msg 7	Acked Msg 8	Acked Msg 9	Acked Msg 10	Acked Msg 11	Acked Msg 12	Acked Msg 13	Acked Msg 14	Acked Msg 15
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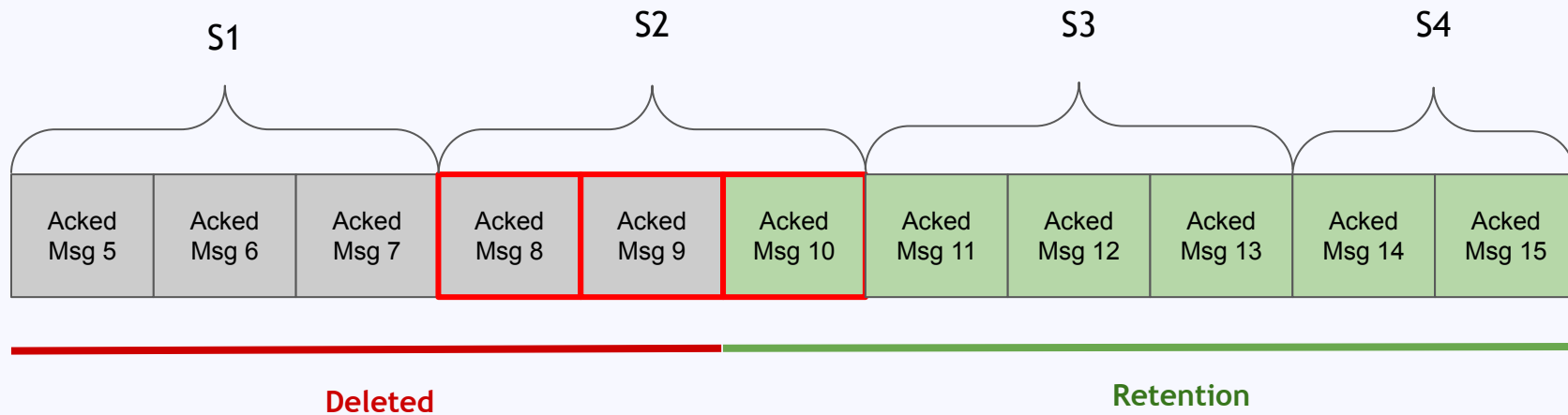
Deleted

Retention

# Message deletion (3)

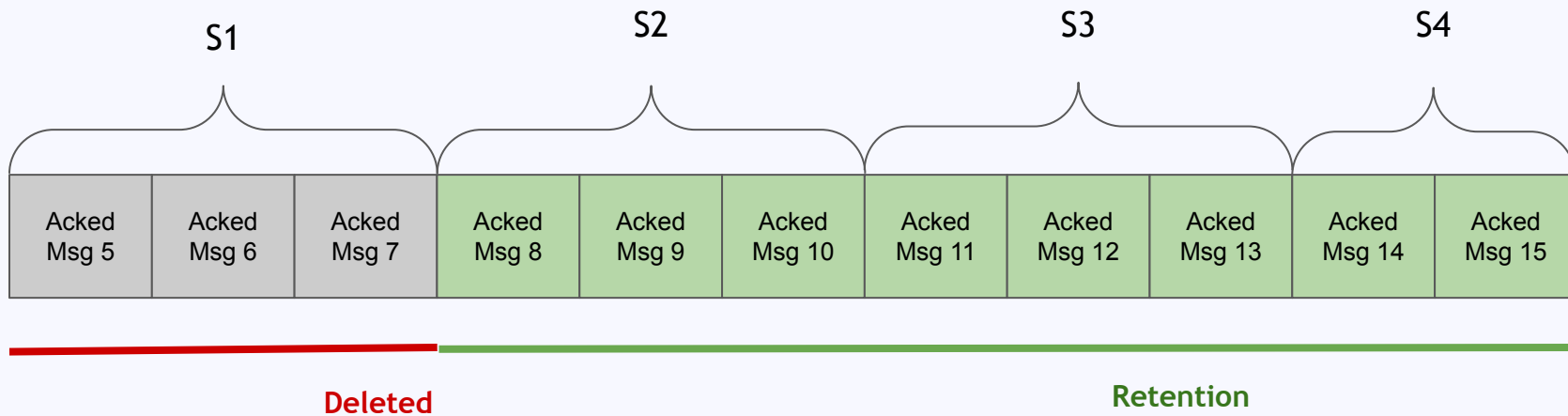


# Message deletion (4)





# Message deletion (5)



# Storage size

- ✓ All the storage occupied by the “undeleted” segments, in bytes

# Message deletion

- ✓ Messages are deleted segment by segment
- ✓ The disk space of a segment is reclaimed by a garbage collector thread after it is deleted
- ✓ The garbage collector is running periodically
  - gcWaitTime

# Retention settings

- ✓ Retention (broker / namespace)
  - `defaultRetentionTimeInMinutes`
  - `defaultRetentionSizeInMB`
- ✓ TTL (broker / namespace)
  - `ttlDurationDefaultInSeconds`

# Trigger retention

## ✓ Ledger Rollover

- `managedLedgerMinLedgerRolloverTimeMinutes`
- `managedLedgerMaxLedgerRolloverTimeMinutes`
- `managedLedgerMaxEntriesPerLedger`

# Garbage collection settings

## ✓ Bookie settings

- gcWaitTime
- majorCompactionThreshold
- majorCompactionInterval
- minorCompactionThreshold
- minorCompactionInterval