RabbitMQ – Reliable Communication

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Failure Points

Message Broker

Publisher

1: Publishes (Msg)

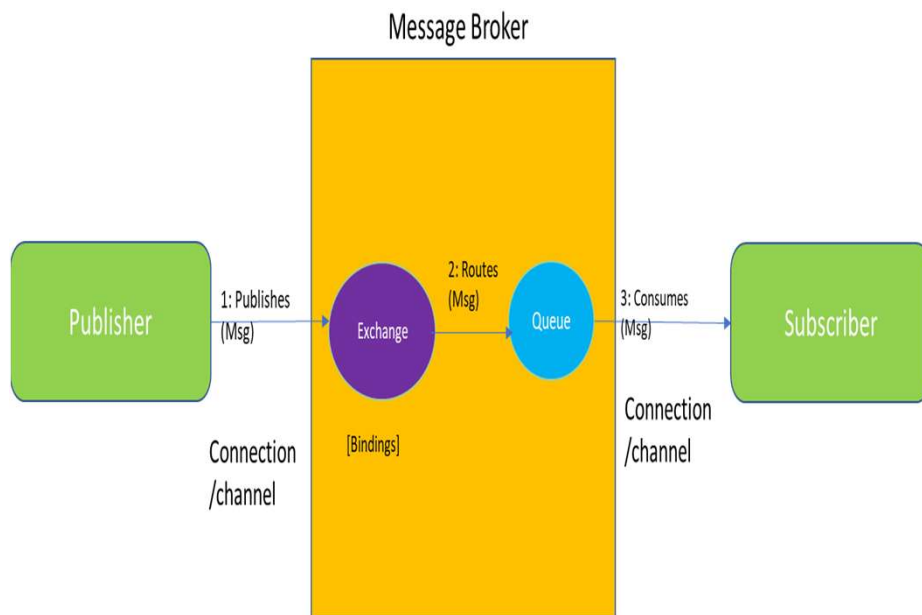Exchange

[Bindings]

2: Routes (Msg)

Queue

3: Consumes (Msg)

Subscriber

Connection /channel

Connection /channel
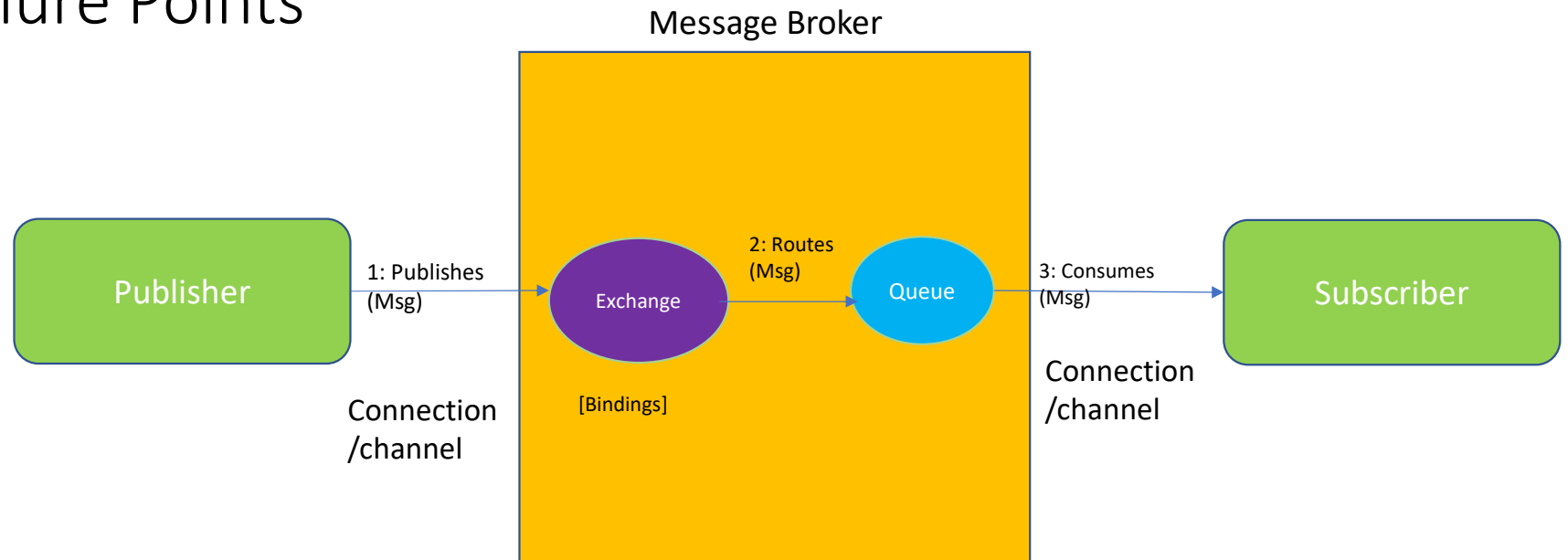
- Connection/Channel May go down
- Message Broker may go down or restart
  - Exchange may go down or restart
  - Queues may go down or restart
    - Undelivered messages may get lost
- Subscriber may go down before fully processing the message
- One subscriber may get overloaded
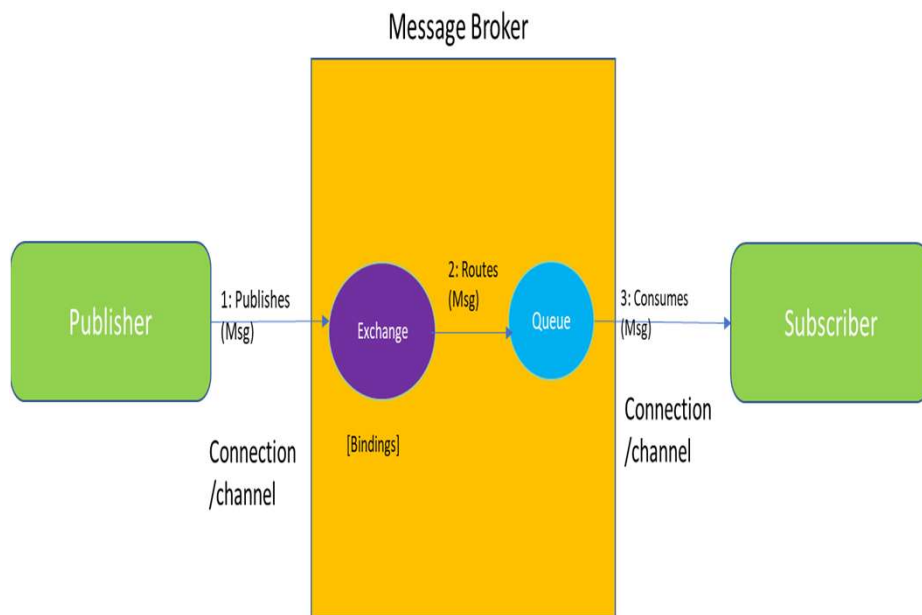
RabbitMQ Provision #1:

- Publisher can ask if the message was received by the broker
    - Ensures that the message is not lost
    - Gets to know why message could not be delivered –
        - Channel is closed
        - Connection is closed
        - etc.

RabbitMQ Provision #2:
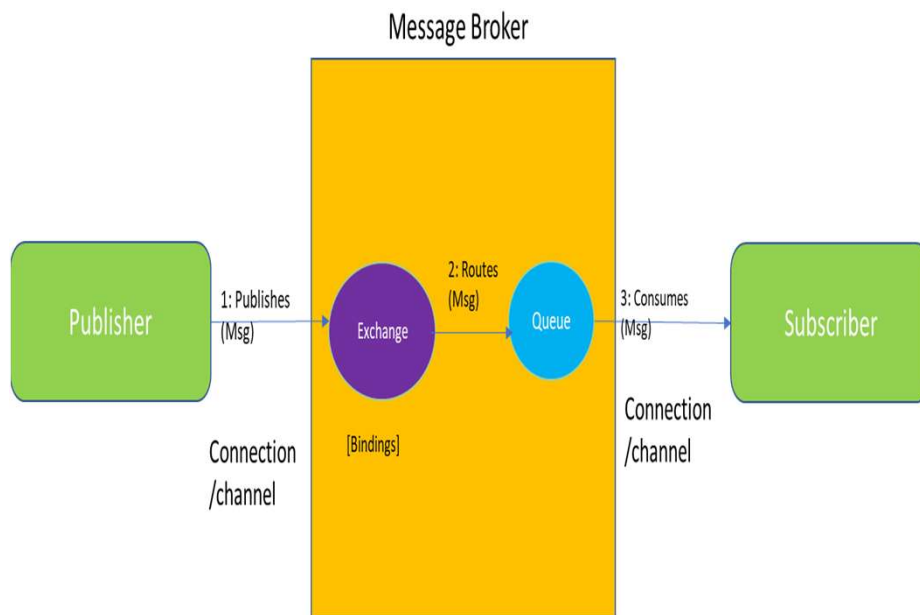
- Exchange can be marked as durable.
  - Durable exchange survives the Message Broker restart

RabbitMQ Provision #3:

Message Broker

Publisher — 1: Publishes (Msg) → Exchange — 2: Routes (Msg) → Queue — 3: Consumes (Msg) → Subscriber

Connection /channel

[Bindings]

Connection /channel

- Message Queue can be marked as durable
  - It survives the Message Broker restarts
  - Stores the undelivered and unacknowledged messages to the disk.
  - Not all the messages are persisted.
  - Little bit of performance loss
  - Still a possibility of message loss.

RabbitMQ Provision #4:
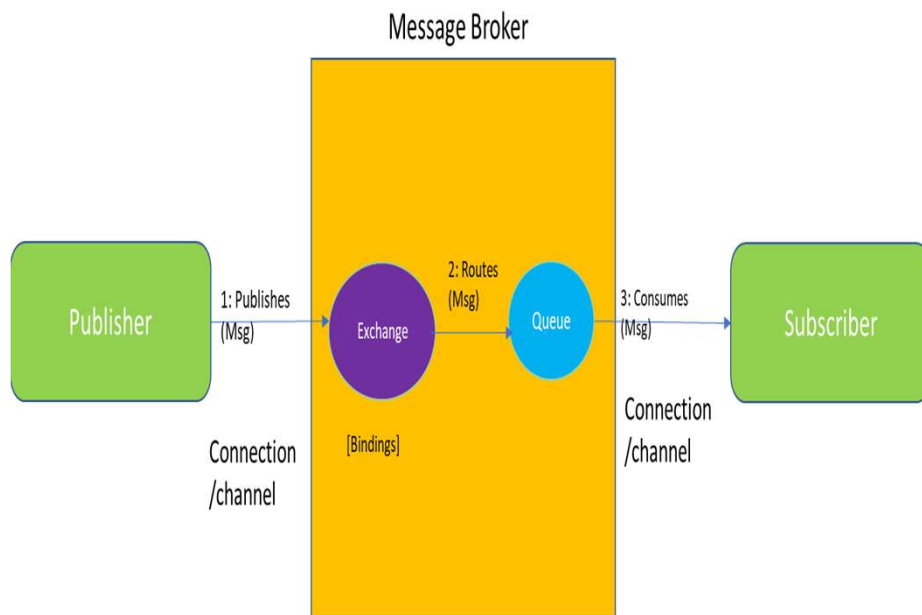
- Incomplete message handling by subscriber
  - Provision of sending the acknowledgement after completion of work
  - Requires the queues not be exclusive to the channel

- Subscriber gets overloaded with the messages
  - Provision of selecting how many messages can be sent to it before getting the acknowledgement

Disclaimer

- There can be many other points of failures in the RabbitMQ and its configuration.

- It is not possible to discuss each and every configuration, failure and its handling in this course.