

1. How does the buffer size affect the frequency and timing of message passing?

The buffer size determines how many messages can be temporarily stored before being delivered to customers. Large buffer allows queue up that smooth out bursts of messages and prevent data loss but it might also result in delay. Smaller buffers cause immediate processing of messages but has risk of dropping messages if the queue fills too quickly.

2. What happens when the buffer is full?

New messages cannot be stored until there is an available space and for systems like RabbitMQ and NATS, it results in backpressure meaning that the producer is blocked / message is dropped. This ensures that customers are not overwhelmed but there will also be delay of delivery(temporarily).

3. How does RabbitMQ handle load balancing between multiple consumers?

It uses round-robin or fair dispatch mechanism. The message is sent only to one consumer at a time balancing the workload and preventing a single consumer from being overloaded.

4. What happens when a consumer disconnects?

If consumer is disconnected, messages that were not acknowledged maybe re-queued and delivered to other active consumers depending on the message acknowledgment settings.

5. How does NATS handle different subjects?

NATS uses subjects for message categorization. Publisher sends message to a specific subject and subscriber receive message only from subjects they are interested in.

6. What advantages does this give in message organization?

Using subjects allows NATS to separate different types of messages cleanly while reducing unnecessary traffic to subscribers and improving efficiency. Also for scalability and maintenance.