

Messaging Queues - Azure Service Bus

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Messaging Queue is an asynchronous way of communication between two entities, for example kiosk that takes order from customer at pizza store need to communicate to the machine/display located in the kitchen where actually pizza are being prepared.

So it's more of two way communication technique that we use these days for the communication across the microservices.

Features of Queue/Topics

1. Resilience.
2. De-duplication.
3. Durable queue.
4. Decoupling.
5. Load Balancing.

Queues

Queues offer First In, First Out (FIFO) message delivery to one or more competing consumers. That is, receivers typically receive and process messages in the order in which they were added to the queue. and, only one message consumer receives and processes each message.

Queue help decouple both sender and receiver of the messages, it's job of the sender to just send an message to the durable queue and it's responsibility of the queue is to make sure that individual message is received by the one and only one receiver (out of many receivers) and processed so that message is enqueued from the queue.

A key benefit of using queues is to achieve temporal decoupling of application components. In other words, the producers (senders) and consumers (receivers) don't have to send and receive messages at the same time, because messages are stored durably in the queue. Furthermore, the producer doesn't have to wait for a reply from the consumer to continue to process and send messages.



Receive Modes

Receive and delete - At most once processing

Receive and delete mode is basic mode of receiving of message from queue by the consumer. That means when a message is received by the consumer, queue will mark that message as received and will enqueue from the queue, now there is possibility of that message getting delivered but processing of that message never happens by the worker, as worker is getting crashed.

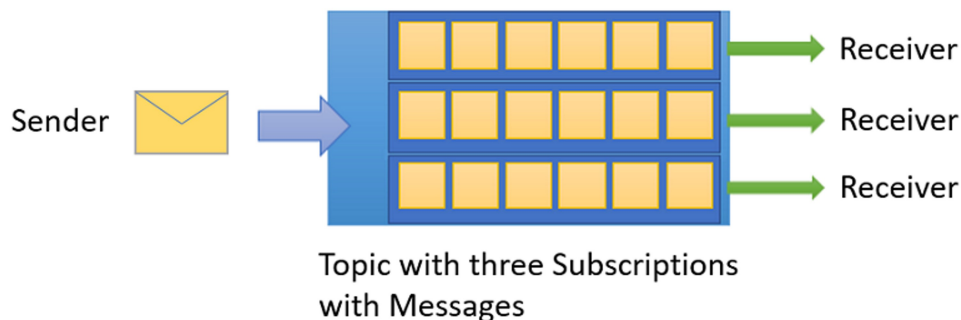
Peek Lock - At least once processing

This is a two step process making sure, every message is getting processed with zero tolerance to an error.

By achieving this, it means that the message is first marked as consumed by the queue by putting a lock to it and made sure that message is not delivered again once the message is processed by the worker thread it is marked as deleted. That makes that message getting process at any cost, now for example if worker system crashes the one supposed to process that message, then after some time, the lock will be released so that that message can be processed again by different worker process.

Topics and subscriptions

A queue allows processing of a message by a single consumer. In contrast to queues, topics and subscriptions provide a one-to-many form of communication in a publish and subscribe pattern



Azure Service Bus Advanced Features

Examples

Rabbit MQ, Azure Service Bus, Aws SQS and SNS combined together can be used as good an example of Queues.

References

<https://learn.microsoft.com/en-us/azure/service-bus-messaging/service-bus-queues-topics-subscriptions>

What is a MESSAGE QUEUE and Where is it used?

