Redis streams final exam

Redis streams final exam

80%

You got 16 out of 20 points.

Submitted on December 31, 12:04 pm CST
Graded on December 31, 12:04 pm CST

Correct!

1 What benefits can Redis streams bring to a distributed application architecture?

Select all that apply.

- [x] A standard approach for managing communications between heterogeneous system components
- [x] The ability to provide buffers against surges in system activity
- [ ] A reduction in network latency
- [x] The ability to easily perform time-based range queries

Correct!

2 In a stream pipeline architecture, producers append new data to source streams. Data passes through a set of intermediate streams and consumers before arriving at one or more sinks.

Which of the following represents a sink in this architecture?

Select all that apply.

- [x] A data warehouse
- [ ] A temperature sensor
- [ ] A component processing messages from one stream in the pipeline and placing results on the next one
- [x] A notification mailbox

Correct!

3 You have a Redis stream where new messages are added faster than a single consumer is able to read and process them.

What could you change to speed up the overall rate of processing?

Choose one answer.

- ( ) Add more individual consumers
- ( ) Trim old messages from the stream to reduce its length
- (x) Introduce a consumer group containing multiple consumers
- ( ) Do nothing; the producer will slow as the stream's length increases, and the consumer will eventually catch up

Correct!

4 The default message ID format for Redis streams consists of a timestamp in milliseconds, a "-", and another number, for example:

```
1557357407821-0
```

In this case, the second number is 0. What purpose does this second number serve?

Choose **one** answer.

- ( ) It's a placeholder for new functionality in a future release of Redis
- ( ) It's used to track the number of times the message is delivered to consumers
- (x) It's a sequence number that ensures that more than one message can be added to the stream in the same millisecond
- ( ) It contains the size of the message payload in bytes

Correct!

5 Which of the following commands will create the stream "numbers" if it does not already exist?

Select all that apply.

- [x] XADD numbers * hello world
- [ ] XTRIM numbers MAXLEN 0
- [x] XGROUP CREATE numbers primes $ MKSTREAM
- [ ] XGROUP SETID numbers primes 0

Correct!

6 A stream message's payload consists of a set of field-value pairs, similar to a Redis hash. How does the message payload differ from a regular Redis hash?

Choose one answer.

- A message payload can exist with 0 field-value pairs in it, whereas a hash must contain at least 1
- Values in a message payload must be strings, whereas in a hash they can be any Redis type
- When reading a message payload, individual fields cannot be selected; the entire payload is returned to the client. A hash allows field-level selection
- Field names in a message payload are limited to 256 characters, whereas field names in a hash do not have this restriction

Incorrect

7 Suppose you've created a stream using these commands:

```
XADD numbers 1-0 n 0 XADD numbers 2-0 n 1
```

Right now, `XLEN` numbers returns `2`.

Using a single command, you next need to update the stream in a way that will make `XLEN numbers` return `0`.

Which of the following commands does **NOT** accomplish this goal?

Choose one answer.

- ✓ XREAD COUNT 2 STREAMS numbers 0
- XTRIM numbers MAXLEN 0
- ✗ XDEL numbers 1-0 2-0
- DEL numbers

Correct!

8 Suppose you've created a stream containing 4 messages using the following commands:

```
XADD numbers 1-0 n 0 XADD numbers 2-0 n 1 XADD numbers 3-0 n 2 XADD numbers 4-0 n 3
```

Which commands can you use to return only messages `2-0` and `3-0`, in any order? Select all that apply.

- [ ] XRANGE numbers 1-0 4-0
- [x] XRANGE numbers 1-1 + COUNT 2
- [ ] XREVRANGE numbers 4-0 - COUNT 2
- [x] XREVRANGE numbers 3-0 2-0

Correct!

9 Which two features distinguish the `XREAD` command from the `XRANGE` command? Select all that apply.

- [x] XREAD can read from multiple streams at once, whereas XRANGE is limited to one
- [ ] XREAD does not support the COUNT option to limit the number of messages returned; XRANGE does
- [ ] XREAD can be called using a partial message ID; XRANGE cannot
- [x] XREAD can retrieve new messages by providing the ID of the last message read from the stream; XRANGE cannot

Correct!

10 Suppose you've created a stream containing 4 messages using the following commands:

`XADD numbers 1-0 n 0 XADD numbers 2-0 n 1 XADD numbers 3-0 n 2 XADD numbers 4-0 n 3`

You then run the following command:

`XREAD BLOCK 5000 STREAMS numbers $`

And immediately, in a separate window, you run:

`XADD numbers 5-0 n 4 XADD numbers 6-0 n 5`

What will the `XREAD` command return?

Choose one answer.

- ○ Only message 1-0
- ✓ ○ Only message 5-0
- ○ Messages 5-0 and 6-0
- ○ All six messages

✗ Incorrect

11 You've created a consumer group called "primes" which reads from the stream "numbers". Each consumer in this group must have a unique name. What is the scope of this uniqueness?

Choose one answer.

- ✓ ○ The set of consumers belonging to the group "primes"
- ✗ ○ The set of all consumers belonging to any consumer group on "numbers"
- ○ The set of all consumers belonging to any consumer group defined in the same Redis instance
- ○ The set of all consumers belonging to any consumer group defined in the same Redis Cluster

✓ Correct!

12 You have a stream named "numbers" containing 4 messages whose IDs are 1-0, 2-0, 3-0, and 4-0.

You then create a consumer group as follows:

`XGROUP CREATE numbers primes 0`

Two consumers join the group and read messages:

`XREADGROUP GROUP primes consumer1 COUNT 2 STREAMS numbers > XREADGROUP GROUP primes consumer2 COUNT 3 STREAMS numbers >`

Which messages did `consumer2` read?

Choose one answer.

- 1-0, 2-0 and 3-0
- 2-0, 3-0, and 4-0
- ✓ 3-0 and 4-0
- No messages were read by consumer2

Correct!

13 When consumers read a stream with `XREADGROUP`, Redis maintains a Pending Entries List. What is the purpose of this list?

Choose one answer.

- To ensure consumer groups process different subsets of the stream's messages
- To ensure each message is delivered to a consumer exactly once
- To track each consumer group's overall position in the stream
- ✓ To track messages which have been delivered to a consumer but not yet acknowledged by it

Correct!

14 Suppose you run the `XPENDING` command and see the following output:

```
XPENDING numbers primes 1) (integer) 4 2) "1-0" 3) "4-0" 4) 1) 1)
"consumer1" 2) "2" 2) 1) "consumer2" 2) "2"
```

You notice that `consumer2` has 2 pending messages. Which command will tell you the message IDs of those pending messages without also including the message payload?

Choose one answer.

- ✓ XPENDING numbers primes - + 2 consumer2
- XINFO CONSUMERS numbers primes
- XGROUP INFO numbers primes consumer2
- XREADGROUP GROUP primes consumer2 COUNT 2 STREAMS numbers 0

Correct!

15 Suppose that you are preparing to delete a consumer from one of your consumer groups using the XGROUP DELCONSUMER command. The XINFO CONSUMERS command shows that this particular consumer has 3 messages in its pending entries list. Before deleting the consumer, what should you do first to ensure that its pending messages are processed by the remaining members of the consumer group?
Choose one answer.

- ○ No further action is required as Redis automatically reassigns messages from deleted consumers.
- ○ Use XREADGROUP to reset the consumer group's position to 3 messages earlier in the stream.
- ○ Use XGROUP SETID to reset the consumer group's position to 3 messages earlier in the stream.
- ✓ ○ Use XPENDING and XCLAIM to identify messages that may need to be processed by other consumers and reassign them.

⊗ Incorrect

16 Why might you track the number of times you use XCLAIM to reassign a specific message from one consumer to another?
Choose one answer.

- ✓ ○ To detect an unprocessable message
- ○ To understand how many times the message has been read by a consumer
- ✗ ○ To determine if you should add more consumers to the group
- ○ To determine if the Redis server is running low on memory

Correct!

17 Redis Streams can be thought of as an append-only log even though the underlying implementation uses a radix tree data structure. Which are the benefits of using a radix tree to implement streams?
Select all that apply.

- [x] A smaller memory footprint than other data types
- [x] O(1) message lookup time
- [ ] Immutability of message IDs
- [ ] Distribution of data over members of a Redis cluster

Correct!

18 You have a stream with over 5000 messages in it. You then trim it with the following command:

```
XTRIM numbers MAXLEN ~ 1000
```

Why might `XLEN numbers` now return a number greater than 1000?

Choose one answer.

- [ ] Because Redis is still in the process of trimming the stream
- [ ] Because the command trims only the 1000 oldest messages from the stream
- [x] Because the command trims the stream to approximately 1000 messages
- [ ] Because over 1000 messages have not been read by consumers yet, so are not eligible for trimming

Correct!

19 You need to use Redis streams in a scenario where your message payload will contain hundreds of field-value pairs, some with relatively large values.

What benefits would you get by storing your data in regular Redis hashes, using only a reference to the hash in your stream message payloads?

Select all that apply.

- [x] Faster access to individual data fields without fetching the entire payload hash
- [ ] Increased performance when using the XDEL command
- [x] Data distribution across members of a Redis cluster
- [ ] Decreased memory usage

Incorrect

20 You are building a project that uses Redis Streams on a Redis 5 server. In what circumstances might it be better to split a dataset into multiple streams, rather than repre-

sent it as a single stream?

- [ ] When the length of a single stream causes XADD performance to degrade
- [x] When you need to introduce more than one consumer group to perform message processing
- [x] When you want to control the stream's memory usage by expiring messages older than a certain timestamp period of time
- [x] When you want to be able to spread the dataset over multiple members of a Redis cluster

← Previous Next →

Modules

Final exam

- [ ] Assessment

  Redis streams final exam

- [ ] Lesson

  Help us help you

Legal notices





Trust Terms of use Privacy policy