Chaos Engineering Report

22 September 2025

Contents

Summary

This report aggregates 1 experiments spanning over the following subjects:

Experiment

RabbitMQ bandwidth toxic via chaostoxi

This experiment injects a bandwidth degradation toxic into the RabbitMQ proxy using chaostoxi to simulate reduced database throughput and observe the impact on the microservices.

Summary

Status	completed
Tagged	
Executed From	338331afb042
Platform	Linux-6.15.11-orbstack-00539-g9885ebd8e3f4-x86_64-with-glibc2.41
Started	Mon, 22 Sep 2025 09:10:45 GMT
Completed	Mon, 22 Sep 2025 09:10:46 GMT
Duration	1 second

Definition

The experiment was made of 3 actions, to vary conditions in your system, and 0 probes, to collect objective data from your system during the experiment.

Steady State Hypothesis   The steady state hypothesis this experiment tried was "**Services healthy**".

Before Run   The steady state was verified

Probe	Tolerance	Verified
order-api-200	200	True
notifier-200	200	True

After Run   The steady state was verified

Probe	Tolerance	Verified
order-api-200	200	True
notifier-200	200	True

Method   The experiment method defines the sequence of activities that help gathering evidence towards, or against, the hypothesis.

The following activities were conducted as part of the experimental's method:

Type	Name
action	add-bw-rabbitmq
action	create-order
action	remove-bw-rabbitmq

Result

The experiment was conducted on Mon, 22 Sep 2025 09:10:45 GMT and lasted roughly 1 second.

Action - add-bw-rabbitmq

Status	succeeded
Background	False
Started	Mon, 22 Sep 2025 09:10:45 GMT
Ended	Mon, 22 Sep 2025 09:10:45 GMT
Duration	0 seconds
Paused After	1s

The action provider that was executed:

Type	python
Module	chaostoxi.toxic.actions
Function	create_bandwith_degradation_toxic
Arguments	{'for_proxy': 'rabbitmq_proxy', 'toxic_name': 'rabbitmq_bw', 'rate': 1}

Action - create-order

Status	succeeded
Background	False
Started	Mon, 22 Sep 2025 09:10:46 GMT
Ended	Mon, 22 Sep 2025 09:10:46 GMT
Duration	0 seconds

The action provider that was executed:

Type	http
URL	http://order-api:8081/orders
Method	POST
Timeout	20
Arguments	{'customer': 'rabbitmq-bandwidth-degradation', 'item': 'kopi', 'qty': 1}

Action - remove-bw-rabbitmq

Status	succeeded
Background	False
Started	Mon, 22 Sep 2025 09:10:46 GMT
Ended	Mon, 22 Sep 2025 09:10:46 GMT
Duration	0 seconds

The action provider that was executed:

Type	python
Module	chaostoxi.toxic.actions
Function	delete_toxic
Arguments	{'for_proxy': 'rabbitmq_proxy', 'toxic_name': 'rabbitmq_bw'}

Appendix

Action - add-bw-rabbitmq   The *action* returned the following result:

```
True
```

Action - create-order   The *action* returned the following result:

```
{'body': '{"status":"created","id":16}',
 'headers': {'Content-Length': '28',
             'Content-Type': 'text/plain; charset=utf-8',
             'Date': 'Mon, 22 Sep 2025 09:10:46 GMT'},
 'status': 201}
```

Action - remove-bw-rabbitmq   The *action* returned the following result:

```
True
```