Are our users impacted by the loss of a function?

24 avril 2018

Abstract

While users query the Astre function, they should not be impacted if one instance goes down.

Contents

Summary

Status	completed
Tagged	kubernetes, openfaas, cloudnative
Executed From	sylvain-laptop
Platform	Linux-4.13.0-39-generic-x86_64-with-Ubuntu-17.10-artful
Started	Tue, 24 Apr 2018 14:52:27 GMT
Completed	Tue, 24 Apr 2018 14:52:58 GMT
Duration	31 secondes

Experiment

The experiment was made of 2 actions, to vary conditions in your system, and 2 probes, to collect objective data from your system during the experiment.

Steady State Hypothesis

The steady state hypothesis this experiment tried was "**Function is available**".

Before Run

The steady state was verified

Probe	Tolerance	Verified
there-should-be-only-one-running-function-pod	1	True
function-must-exist	200	True
function-must-respond	200	True

After Run

The steady state was verified

Probe	Tolerance	Verified
there-should-be-only-one-running-function-pod	1	True
function-must-exist	200	True
function-must-respond	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	simulate-user-traffic
action	terminate-one-function
probe	fetch-openfaas-gateway-logs
probe	query-total-function-invocation

Result

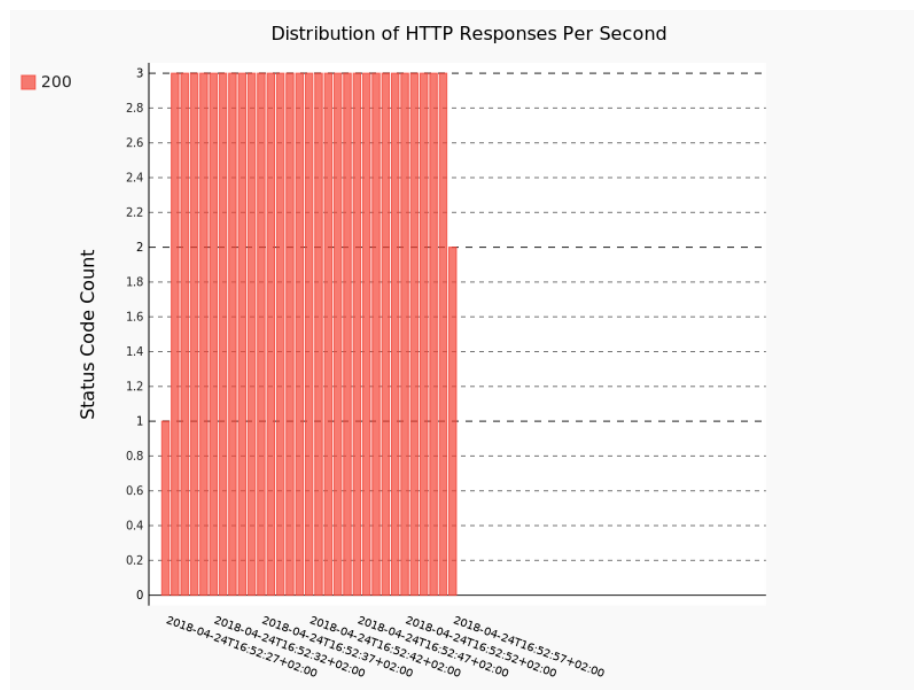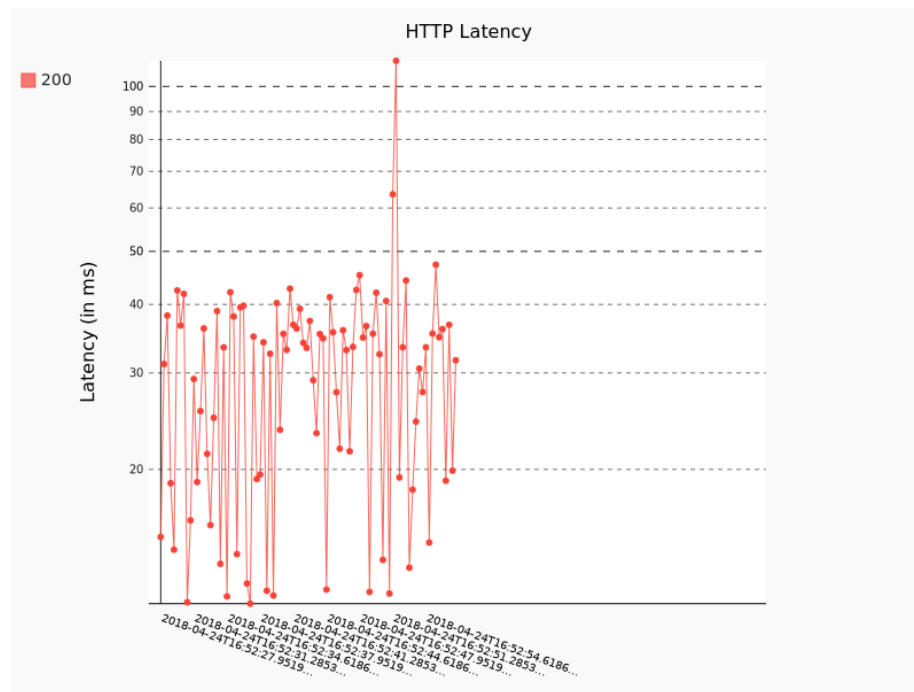The experiment was conducted on Tue, 24 Apr 2018 14:52:27 GMT and lasted roughly 31 secondes.

Action - simulate-user-traffic

Status	succeeded
Background	True
Started	Tue, 24 Apr 2018 14:52:27 GMT
Ended	Tue, 24 Apr 2018 14:52:57 GMT
Duration	30 secondes

The action provider that was executed:

Type	process
Path	vegeta
Timeout	N/A
Arguments	-cpus 2 attack -targets=data/scenario.txt -workers=2 -connections=1 -rate=3 -timeout=3s -duration=30s -output=result.bin

```
Requests      [total, rate]            90, 3.03
Duration      [total, attack, wait]    29.698305862s, 29.66666651s, 31.639352ms
Latencies     [mean, 50, 95, 99, max]  30.172609ms, 33.043245ms, 42.743074ms, 63.541924ms, 1
Bytes In      [total, mean]            17100, 190.00
Bytes Out     [total, mean]            2220, 24.67
Success       [ratio]                  100.00%
Status Codes  [code:count]             200:90
Error Set:
```

HTTP Latency

200

Latency (in ms)

100
90
80
70
60
50
40
30
20

2018-04-24T16:52:27.9519...
2018-04-24T16:52:31.2853...
2018-04-24T16:52:34.6186...
2018-04-24T16:52:37.9519...
2018-04-24T16:52:41.2853...
2018-04-24T16:52:44.6186...
2018-04-24T16:52:47.9519...
2018-04-24T16:52:51.2853...
2018-04-24T16:52:54.6186...

Distribution of HTTP Responses Per Second

200

Status Code Count

3
2.8
2.6
2.4
2.2
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0

2018-04-24T16:52:27+02:00
2018-04-24T16:52:32+02:00
2018-04-24T16:52:37+02:00
2018-04-24T16:52:42+02:00
2018-04-24T16:52:47+02:00
2018-04-24T16:52:52+02:00
2018-04-24T16:52:57+02:00

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Action - terminate-one-function

Status	succeeded
Background	False
Started	Tue, 24 Apr 2018 14:52:32 GMT
Ended	Tue, 24 Apr 2018 14:52:33 GMT
Duration	1 seconde
Paused Before	5s

The action provider that was executed:

Type	python
Module	chaosk8s.pod.actions
Function	terminate_pods
Arguments	{'ns': 'openfaas-fn', 'label_selector': 'faas_function=astre', 'rand': True}

Probe - fetch-openfaas-gateway-logs

Status	succeeded
Background	False
Started	Tue, 24 Apr 2018 14:52:33 GMT
Ended	Tue, 24 Apr 2018 14:52:34 GMT
Duration	1 seconde

The probe provider that was executed:

Type	python
Module	chaosk8s.pod.probes
Function	read_pod_logs
Arguments	{'label_selector': 'app=gateway', 'last': '35s', 'ns': 'openfaas'}

Probe - query-total-function-invocation

Status	succeeded
Background	False
Started	Tue, 24 Apr 2018 14:52:34 GMT
Ended	Tue, 24 Apr 2018 14:52:34 GMT
Duration	0 secondes

The probe provider that was executed:

Type	python
Module	chaosprometheus.probes
Function	query_interval
Arguments	{'query': "gateway_function_invocation_total{function_name='astre'}", 'start': '1 minute ago', 'end': 'now', 'step': 1}
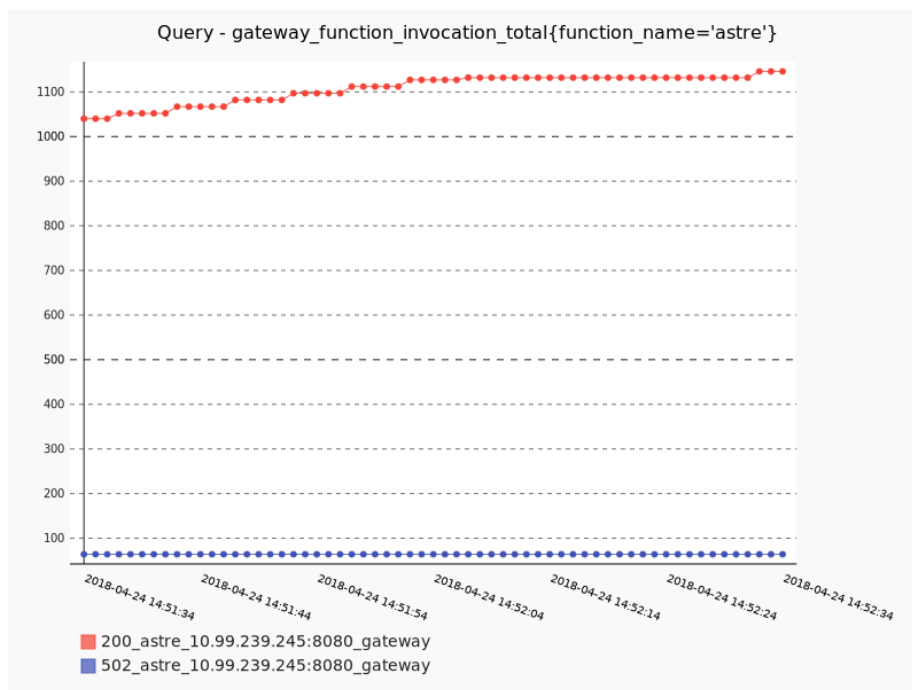
Appendix

Action - simulate-user-traffic

The *action* returned the following result:

```
{'status': 0, 'stderr': '', 'stdout': ''}
```

Action - terminate-one-function

The *action* returned the following result:

None

Probe - fetch-openfaas-gateway-logs

The *probe* returned the following result:

{'gateway-6444794955-rgl7s': ''}

Probe - query-total-function-invocation

The *probe* returned the following result:

{'data': {'result': [{'metric': {'__name__': 'gateway_function_invocation_total',
                                  'code': '200',
                                  'function_name': 'astre',
                                  'instance': '10.99.239.245:8080',
                                  'job': 'gateway'},
                      'values': [[1524581494.76, '1040'],
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                    'job': 'gateway'},
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```