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 16:50:52 GMT
Completed	Tue, 24 Apr 2018 16:51:25 GMT
Duration	33 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 16:50:52 GMT and lasted roughly 33 secondes.

Action - simulate-user-traffic

Status	succeeded
Background	True
Started	Tue, 24 Apr 2018 16:50:54 GMT
Ended	Tue, 24 Apr 2018 16:51:23 GMT
Duration	29 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]    29.829327856s, 29.666666558s, 162.661298ms
Latencies     [mean, 50, 95, 99, max]  1.064899187s, 173.069399ms, 3.149369005s, 3.1496301119
Bytes In      [total, mean]            11970, 133.00
Bytes Out     [total, mean]            1554, 17.27
Success       [ratio]                  70.00%
Status Codes  [code:count]             200:63  0:27
Error Set:
Get http://demo.foo.bar/function/astre: net/http: timeout awaiting response headers
```

HTTP Latency

Distribution of HTTP Responses Per Second

4
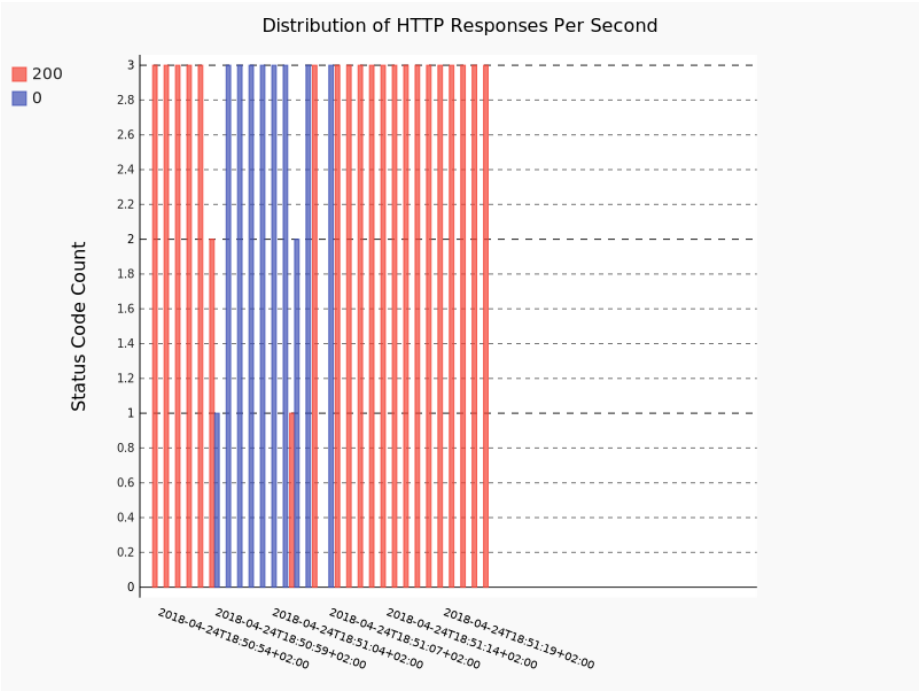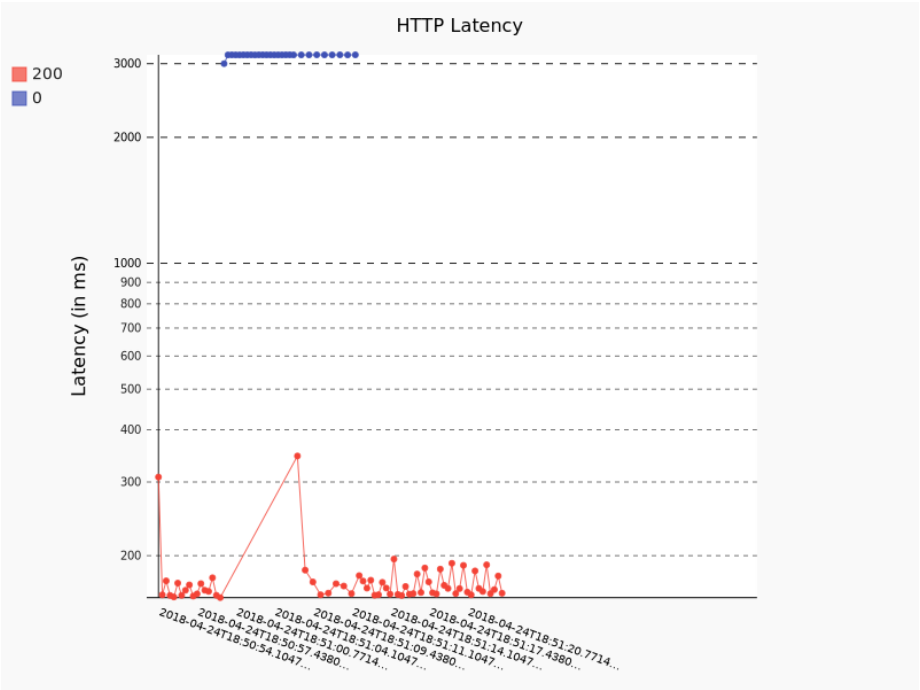
Action - terminate-one-function

Status	succeeded
Background	False
Started	Tue, 24 Apr 2018 16:50:59 GMT
Ended	Tue, 24 Apr 2018 16:50:59 GMT
Duration	0 secondes
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 16:50:59 GMT
Ended	Tue, 24 Apr 2018 16:51:00 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 16:51:00 GMT
Ended	Tue, 24 Apr 2018 16:51:01 GMT
Duration	1 seconde

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}
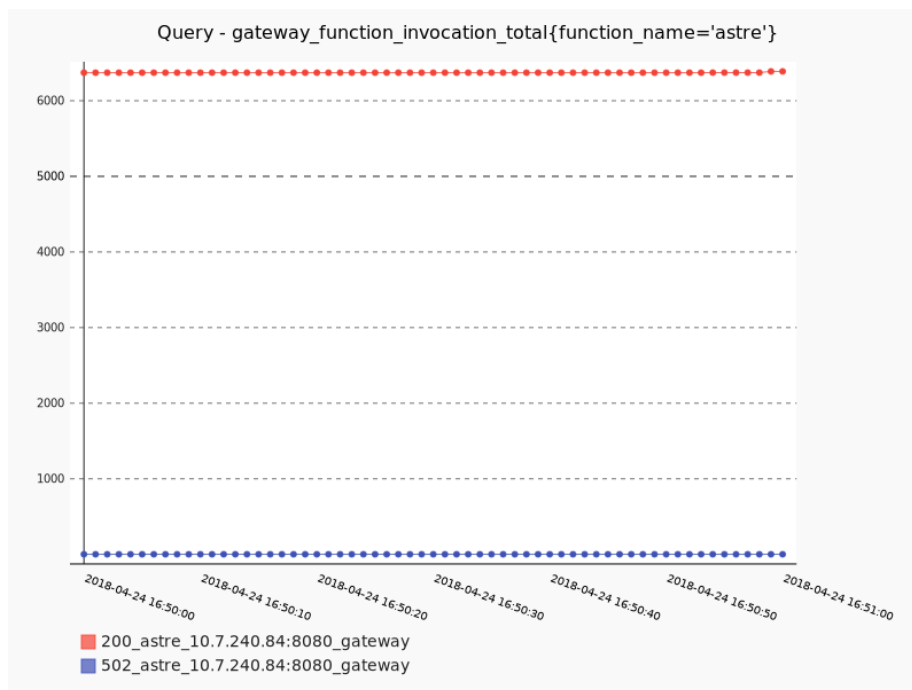
Appendix

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': '2018-04-24T16:50:53.688149242Z 2018/04/24 '
                             '16:50:53 Forwarded [GET] to '
                             '/system/function/astre - [200] - 0.007708 '
                             'seconds\n'
                             '2018-04-24T16:50:54.015397831Z 2018/04/24 '
                             '16:50:54 Forwarded [POST] to /function/astre - '
                             '[200] - 0.030341 seconds\n'
                             '2018-04-24T16:50:54.336020386Z 2018/04/24 '
                             '16:50:54 Forwarded [GET] to /function/astre - '
                             '[200] - 0.012571 seconds\n'
                             '2018-04-24T16:50:54.522019462Z 2018/04/24 '
                             '16:50:54 Forwarded [GET] to /function/astre - '
                             '[200] - 0.014679 seconds\n'
                             '2018-04-24T16:50:54.866783711Z 2018/04/24 '
                             '16:50:54 Forwarded [GET] to /function/astre - '
                             '[200] - 0.025344 seconds\n'
                             '2018-04-24T16:50:55.18769485Z 2018/04/24 '
                             '16:50:55 Forwarded [GET] to /function/astre - '
                             '[200] - 0.012404 seconds\n'
                             '2018-04-24T16:50:55.520385936Z 2018/04/24 '
                             '16:50:55 Forwarded [GET] to /function/astre - '
                             '[200] - 0.013080 seconds\n'
                             '2018-04-24T16:50:55.867639611Z 2018/04/24 '
                             '16:50:55 Forwarded [GET] to /function/astre - '
                             '[200] - 0.024366 seconds\n'
                             '2018-04-24T16:50:56.188307542Z 2018/04/24 '
                             '16:50:56 Forwarded [GET] to /function/astre - '
                             '[200] - 0.013953 seconds\n'
                             '2018-04-24T16:50:56.526183842Z 2018/04/24 '
                             '16:50:56 Forwarded [GET] to /function/astre - '
                             '[200] - 0.016759 seconds\n'
                             '2018-04-24T16:50:56.866234346Z 2018/04/24 '
                             '16:50:56 Forwarded [GET] to /function/astre - '
                             '[200] - 0.023433 seconds\n'
                             '2018-04-24T16:50:57.1875362Z 2018/04/24 16:50:57 '
                             'Forwarded [GET] to /function/astre - [200] - '
                             '0.013194 seconds\n'
                             '2018-04-24T16:50:57.522944258Z 2018/04/24 '
                             '16:50:57 Forwarded [GET] to /function/astre - '
```

```
                                  '[200] - 0.013432 seconds\n'
                                  '2018-04-24T16:50:57.870093163Z 2018/04/24 '
                                  '16:50:57 Forwarded [GET] to /function/astre - '
                                  '[200] - 0.024726 seconds\n'
                                  '2018-04-24T16:50:58.19023024Z 2018/04/24 '
                                  '16:50:58 Forwarded [GET] to /function/astre - '
                                  '[200] - 0.013673 seconds\n'
                                  '2018-04-24T16:50:58.525259049Z 2018/04/24 '
                                  '16:50:58 Forwarded [GET] to /function/astre - '
                                  '[200] - 0.016954 seconds\n'
                                  '2018-04-24T16:50:58.876558203Z 2018/04/24 '
                                  '16:50:58 Forwarded [GET] to /function/astre - '
                                  '[200] - 0.030397 seconds\n'
                                  '2018-04-24T16:50:59.188340948Z 2018/04/24 '
                                  '16:50:59 Forwarded [GET] to /function/astre - '
                                  '[200] - 0.013003 seconds\n'
                                  '2018-04-24T16:50:59.519910954Z 2018/04/24 '
                                  '16:50:59 Forwarded [GET] to /function/astre - '
                                  '[200] - 0.012633 seconds\n'}
```

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': '10.7.240.84:8080',
                                 'job': 'gateway'},
                      'values': [[1524588600.94, '6371'],
                                 [1524588601.94, '6371'],
                                 [1524588602.94, '6371'],
                                 [1524588603.94, '6371'],
                                 [1524588604.94, '6371'],
                                 [1524588605.94, '6371'],
                                 [1524588606.94, '6371'],
                                 [1524588607.94, '6371'],
                                 [1524588608.94, '6371'],
                                 [1524588609.94, '6371'],
                                 [1524588610.94, '6371'],
                                 [1524588611.94, '6371'],
                                 [1524588612.94, '6371'],
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```

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                [1524588657.94, '6372'],
                [1524588658.94, '6372'],
                [1524588659.94, '6388'],
                [1524588660.94, '6388']]},
      {'metric': {'__name__': 'gateway_function_invocation_total',
```

```
                    'code': '502',
                    'function_name': 'astre',
                    'instance': '10.7.240.84:8080',
                    'job': 'gateway'},
        'values': [[1524588600.94, '2'],
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```

```
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                                    [1524588658.94, '2'],
                                    [1524588659.94, '2'],
                                    [1524588660.94, '2']]}],
              'resultType': 'matrix'},
  'status': 'success'}
```