Chaos Engineering Report

20 May 2019

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Summary

This report aggregates 4 experiments spanning over the following subjects: $service1,\ service2$

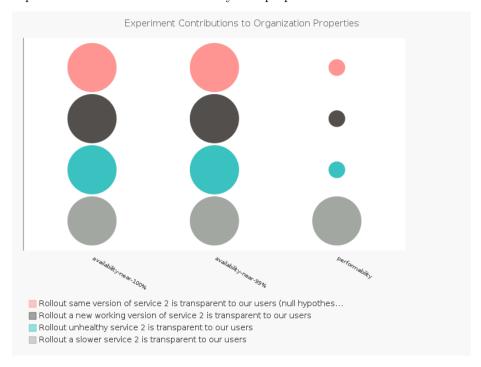
Contributions

Contributions surface the properties this collection of experiments target in order to improve the confidence and trust in the system.

The aggregated 4 experiments cover 3 distinct contributions:



Experiment Contributions Breakdown The breakdown of impacts each experiment contributes to for these system properties¹:

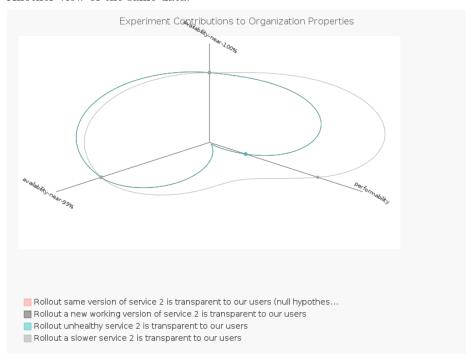


Sparse lines indicate a given experiment focused on a specific subset of contributions.

Sparse columns indicate that a given contribution was seldom impacted by this collection of experiments.

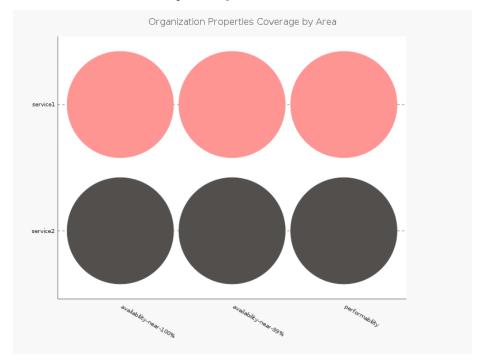
 $^{^{1}}$ Empty dots indicate an experiment is explicitely not addressing a given contribution while missing dots indicate no data for a given contribution.

Another view of the same data:



Areas Contributions Breakdown

The distribution of areas impacted by these contributions²:



Sparse lines indicate a given tag contributes only to a specific subset of system property.

Sparse columns indicate that a given contribution impacts moderately areas covered by the experiments.

 $^{^2}$ Empty dots indicate a tag is explicitely not addressing a given contribution while missing dots indicate no data for a given contribution.

Experiments

Rollout same version of service 2 is transparent to our users (null hypothesis)

Rolling out a backend service should not impact the service our users rely on

Summary

Status	completed
Tagged	service1, service2
Executed From	sylvain-work
Platform	$Linux-5.0.0-15-generic-x86_64-with-Ubuntu-19.04-disco$
Started	Mon, 20 May 2019 11:58:24 GMT
Completed	Mon, 20 May 2019 11:58:52 GMT
Duration	28 seconds

Definition

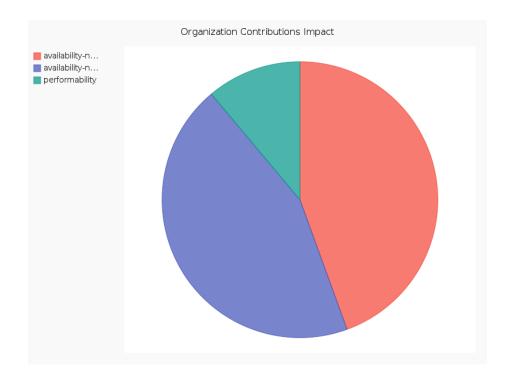
The experiment was made of 2 actions, to vary conditions in your system, and 2 probes, to collect objective data from your system during the experiment.

Organization Contributions

An estimate of relative system properties this experiment contributes to:

Contribution	Impact
availability-near-100%	high
availability-near-99%	high
performability	low

The "none" value for an impact indicates that this experiment explicitely does not address that specific property.



Steady State Hypothesis

The steady state hypothesis this experiment tried was "If users see errors, it may be due to a rollout breaking the link between services".

Before Run

The steady state was verified

Probe	Tolerance	Verified
no-http-errors-returned-from-service	{'type': 'jsonpath', 'path': '\$.data.result.*[?(@.va')count': 0}	True alue[1]!="0")]'

After Run

The steady state was verified

Probe	Tolerance	Verified
no-http-errors-returned-from-service	{'type': 'jsonpath', 'path': '\$.data.result.*[?(@.va')count': 0}	True alue[1]!="0")]

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	initiate-rollout-v1-of-service2
action	pretend-users-in-background
probe	read-deployment-status
probe	read-counter-for-the-past-30-seconds

Result

The experiment was conducted on Mon, 20 May 2019 11:58:24 GMT and lasted roughly 28 seconds.

Action - initiate-rollout-v1-of-service2

Status	succeeded
Background	False
Started	Mon, 20 May 2019 11:58:25 GMT
Ended	Mon, 20 May 2019 11:58:25 GMT
Duration	0 seconds

The action provider that was executed:

\mathbf{Type}	python
Module	chaosk8s.deployment.actions
Function	$set_deployment_image$
Arguments	{'deployment_name': 'service2', 'container_name':
	'service2', 'image': 'lawouach/service2:v1'}

${\bf Action\,-\,pretend\hbox{-}users\hbox{-}in\hbox{-}background}$

Status	succeeded
Background	False
Started	Mon, 20 May 2019 11:58:25 GMT
Ended	Mon, 20 May 2019 11:58:25 GMT
Duration	0 seconds

The action provider that was executed:

Type	python
Module	load
Function	single
Arguments	$ \{ `url': `\$\{counter_service_url\}', `duration': 20 \} $

${\bf Probe\ -\ read-deployment\text{-}status}$

Status	succeeded
Background	False
Started	Mon, 20 May 2019 11:58:25 GMT
Ended	Mon, 20 May 2019 11:58:50 GMT
Duration	25 seconds

The probe provider that was executed:

Type	python
Module	chaosk8s.deployment.probes
Function	collect_deployment_status
Arguments	{'deployment_name': 'service2', 'duration': 25}

${\bf Probe - read\text{-}counter\text{-}for\text{-}the\text{-}past\text{-}30\text{-}seconds}$

Status	succeeded
Background	False
Started	Mon, 20 May 2019 11:58:50 GMT
Ended	Mon, 20 May 2019 11:58:50 GMT
Duration	0 seconds

The probe provider that was executed:

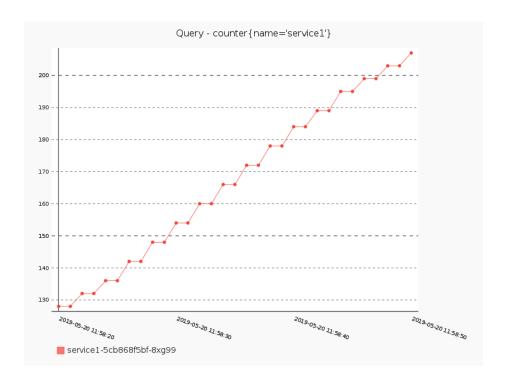
 $\mathbf{Type} \qquad \qquad \mathrm{python} \\$

 ${\bf Module} \qquad \qquad {\bf chaos prometheus. probes}$

Function query_interval

Arguments {'query': "counter{name='service1'}", 'start': '30 seconds

ago', 'end': 'now'}



Appendix

${\bf Action - initiate\text{-}rollout\text{-}v1\text{-}of\text{-}service2}$

The action returned the following result:

None

Action - pretend-users-in-background

The action returned the following result:

None

Probe - read-deployment-status

```
[[['Available', 'True', 'MinimumReplicasAvailable'],
  ['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'NewReplicaSetAvailable']],
 [['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'NewReplicaSetAvailable']],
 [['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
```

```
['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
['Progressing', 'True', 'NewReplicaSetAvailable']],
['Progressing', 'True', 'NewReplicasAvailable']]]
```

Probe - read-counter-for-the-past-30-seconds

```
{'data': {'result': [{'metric': {'__name__': 'counter',
                                  'endpoint': 'http',
                                  'host': 'service1-5cb868f5bf-8xg99',
                                  'instance': '10.1.1.132:8000',
                                  'job': 'service1',
                                  'name': 'service1',
                                  'namespace': 'default',
                                  'path': '/',
                                  'pod': 'service1-5cb868f5bf-8xg99',
                                  'service': 'service1',
                                  'version': '2'},
                       'values': [[1558353500.9, '128'],
                                  [1558353501.9, '128'],
                                  [1558353502.9, '132'],
                                  [1558353503.9, '132'],
                                  [1558353504.9, '136'],
                                  [1558353505.9, '136'],
                                  [1558353506.9, '142'],
                                  [1558353507.9, '142'],
                                  [1558353508.9, '148'],
                                  [1558353509.9, '148'],
                                  [1558353510.9, '154'],
                                  [1558353511.9, '154'],
                                  [1558353512.9, '160'],
                                  [1558353513.9, '160'],
                                  [1558353514.9, '166'],
                                  [1558353515.9, '166'],
                                  [1558353516.9, '172'],
                                  [1558353517.9, '172'],
                                  [1558353518.9, '178'].
                                  [1558353519.9, '178'],
                                  [1558353520.9, '184'],
                                  [1558353521.9, '184'],
                                  [1558353522.9, '189'],
```

Rollout a new working version of service 2 is transparent to our users

Rolling out a backend service should not impact the service our users rely on

Summary

Status	completed
Tagged	service1, service2
Executed From	sylvain-work
Platform	$Linux-5.0.0-15-generic-x86_64-with-Ubuntu-19.04-disco$
Started	Mon, 20 May 2019 11:56:37 GMT
Completed	Mon, 20 May 2019 11:57:04 GMT
Duration	27 seconds

Definition

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.

Organization Contributions

An estimate of relative system properties this experiment contributes to:

Contribution	Impact
availability-near-100%	high
availability-near-99%	high
performability	low

The "none" value for an impact indicates that this experiment explicitely does

Organization Contributions Impact

availability-n...
performability

availability-n...

not address that specific property.

Steady State Hypothesis

The steady state hypothesis this experiment tried was "If users see errors, it may be due to a rollout breaking the link between services".

Before Run

The steady state was verified

Probe	Tolerance	Verified
no-http-errors-returned-from-service	{'type': 'jsonpath', 'path': '\$.data.result.*[?(@.va')count': 0}	True alue[1]!="0"]

After Run

The steady state was verified

Probe	Tolerance	Verified
no-http-errors-returned-from-service	{'type': 'jsonpath', 'path': '\$.data.result.*[?(@.va')count': 0}	True alue[1]!="0")]

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	initiate-rollout-v2-of-service2
action	pretend-users-in-background
probe	read-deployment-status
probe	read-counter-for-the-past-30-seconds

Result

The experiment was conducted on Mon, 20 May 2019 11:56:37 GMT and lasted roughly 27 seconds.

${\bf Action - initiate\text{-}rollout\text{-}v2\text{-}of\text{-}service2}$

Status	succeeded
Background	False
Started	Mon, 20 May 2019 11:56:38 GMT
Ended	Mon, 20 May 2019 11:56:38 GMT
Duration	0 seconds

The action provider that was executed:

\mathbf{Type}	python
Module	chaosk8s.deployment.actions
Function	set_deployment_image
Arguments	{'deployment_name': 'service2', 'container_name':
	'service2', 'image': 'lawouach/service2:v2'}

${\bf Action\,-\,pretend\hbox{-}users\hbox{-}in\hbox{-}background}$

Status	succeeded
Background	False
Started	Mon, 20 May 2019 11:56:38 GMT
Ended	Mon, 20 May 2019 11:56:38 GMT
Duration	0 seconds

The action provider that was executed:

Type	python
Module	load
Function	single
Arguments	$ \{ `url': `\$\{counter_service_url\}', `duration': 20 \} $

${\bf Probe\ -\ read-deployment\text{-}status}$

Status	succeeded
Background	False
Started	Mon, 20 May 2019 11:56:38 GMT
Ended	Mon, 20 May 2019 11:57:03 GMT
Duration	25 seconds

The probe provider that was executed:

Type	python
Module	chaosk8s.deployment.probes
Function	collect_deployment_status
Arguments	{'deployment_name': 'service2', 'duration': 25}

${\bf Probe - read\text{-}counter\text{-}for\text{-}the\text{-}past\text{-}30\text{-}seconds}$

Status	succeeded
Background	False
Started	Mon, 20 May 2019 11:57:03 GMT
Ended	Mon, 20 May 2019 11:57:03 GMT
Duration	0 seconds

The probe provider that was executed:

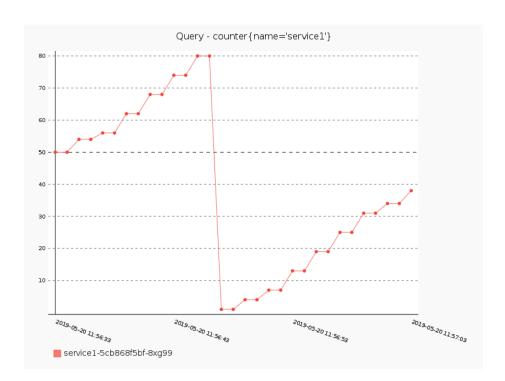
Type python

 ${\bf Module} \qquad \qquad {\bf chaos prometheus. probes}$

 ${\bf Function} \qquad \quad {\rm query_interval}$

Arguments {'query': "counter{name='service1'}", 'start': '30 seconds

ago', 'end': 'now'}



Appendix

${\bf Action - initiate\text{-}rollout\text{-}v2\text{-}of\text{-}service2}$

The action returned the following result:

None

${\bf Action\,-\,pretend\hbox{-}users\hbox{-}in\hbox{-}background}$

The action returned the following result:

None

Probe - read-deployment-status

```
[[['Available', 'True', 'MinimumReplicasAvailable'],
  ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
 [['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
 [['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
```

```
['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
['Progressing', 'True', 'NewReplicaSetAvailable']],
['Progressing', 'True', 'NewReplicaSetAvailable']]]
```

Probe - read-counter-for-the-past-30-seconds

```
{'data': {'result': [{'metric': {'__name__': 'counter',
                                  'endpoint': 'http',
                                  'host': 'service1-5cb868f5bf-8xg99',
                                  'instance': '10.1.1.132:8000',
                                  'job': 'service1',
                                  'name': 'service1',
                                  'namespace': 'default',
                                  'path': '/',
                                  'pod': 'service1-5cb868f5bf-8xg99',
                                  'service': 'service1',
                                  'version': '2'},
                       'values': [[1558353393.7, '50'],
                                  [1558353394.7, '50'],
                                  [1558353395.7, '54'],
                                  [1558353396.7, '54'],
                                  [1558353397.7, '56'],
                                  [1558353398.7, '56'],
                                  [1558353399.7, '62'],
                                  [1558353400.7, '62'],
                                  [1558353401.7, '68'],
                                  [1558353402.7, '68'],
                                  [1558353403.7, '74'],
                                  [1558353404.7, '74'],
                                  [1558353405.7, '80'],
                                  [1558353406.7, '80'],
                                  [1558353407.7, '1'],
                                  [1558353408.7, '1'],
                                  [1558353409.7, '4'],
                                  [1558353410.7, '4'],
                                  [1558353411.7, '7'],
                                  [1558353412.7, '7'],
                                  [1558353413.7, '13'],
                                  [1558353414.7, '13'],
                                  [1558353415.7, '19'],
```

Rollout unhealthy service 2 is transparent to our users

Rolling out a backend service should not impact the service our users rely on

Summary

Status	completed
Tagged	service1, service2
Executed From	sylvain-work
Platform	Linux-5.0.0-15-generic-x86_64-with-Ubuntu-19.04-disco
Started	Mon, 20 May 2019 11:51:13 GMT
Completed	Mon, 20 May 2019 11:51:40 GMT
Duration	27 seconds

Definition

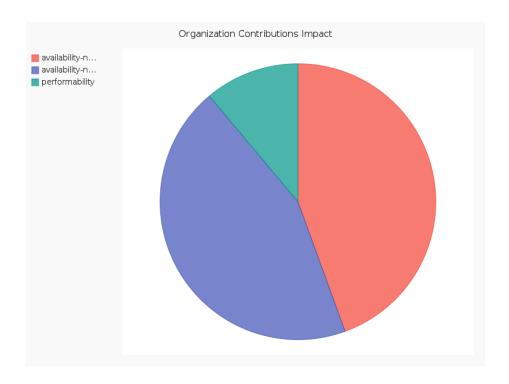
The experiment was made of 2 actions, to vary conditions in your system, and 2 probes, to collect objective data from your system during the experiment.

Organization Contributions

An estimate of relative system properties this experiment contributes to:

Contribution	Impact
availability-near-100%	high
availability-near-99%	high
performability	low

The "none" value for an impact indicates that this experiment explicitely does not address that specific property.



Steady State Hypothesis

The steady state hypothesis this experiment tried was "If users see errors, it may be due to a rollout breaking the link between services".

Before Run

The steady state was verified

Probe	Tolerance	Verified
no-http-errors-returned-from-service	{'type': 'jsonpath', 'path': '\$.data.result.*[?(@.va')count': 0}	True alue[1]!="0")

After Run

The steady state was verified

Probe	Tolerance	Verified
no-http-errors-returned-from-service	{'type': 'jsonpath', 'path': '\$.data.result.*[?(@.va')count': 0}	True alue[1]!="0")]

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	initiate-rollout-v3-of-service2
action	pretend-users-in-background
probe	read-deployment-status
probe	read-counter-for-the-past-30-seconds

Result

The experiment was conducted on Mon, 20 May 2019 11:51:13 GMT and lasted roughly 27 seconds.

${\bf Action - initiate\text{-}rollout\text{-}v3\text{-}of\text{-}service2}$

Status	succeeded
Background	False
Started	Mon, 20 May 2019 11:51:13 GMT
Ended	Mon, 20 May 2019 11:51:13 GMT
Duration	0 seconds

The action provider that was executed:

\mathbf{Type}	python
Module	chaosk8s.deployment.actions
Function	set_deployment_image
Arguments	{'deployment_name': 'service2', 'container_name':
	'service2', 'image': 'lawouach/service2:v3'}

${\bf Action\,-\,pretend\hbox{-}users\hbox{-}in\hbox{-}background}$

Status	succeeded
Background	False
Started	Mon, 20 May 2019 11:51:13 GMT
Ended	Mon, 20 May 2019 11:51:13 GMT
Duration	0 seconds

The action provider that was executed:

Type	python
Module	load
Function	single
Arguments	{'url': '\${counter_service_url}', 'duration': 20}

${\bf Probe\ -\ read-deployment\text{-}status}$

Status	succeeded
Background	False
Started	Mon, 20 May 2019 11:51:14 GMT
Ended	Mon, 20 May 2019 11:51:39 GMT
Duration	25 seconds

The probe provider that was executed:

Type	python
Module	chaosk8s.deployment.probes
Function	collect_deployment_status
Arguments	{'deployment_name': 'service2', 'duration': 25}

${\bf Probe - read\text{-}counter\text{-}for\text{-}the\text{-}past\text{-}30\text{-}seconds}$

Status	succeeded
Background	False
Started	Mon, 20 May 2019 11:51:39 GMT
Ended	Mon, 20 May 2019 11:51:39 GMT
Duration	0 seconds

The probe provider that was executed:

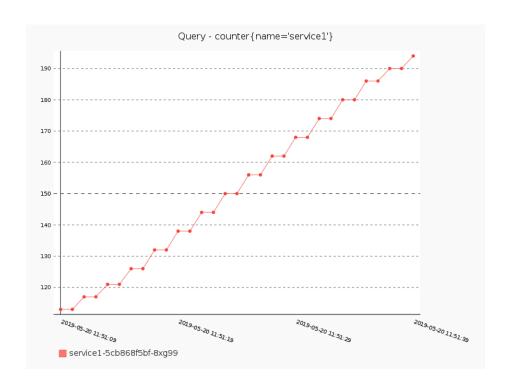
 $\mathbf{Type} \qquad \qquad \mathrm{python} \\$

 ${\bf Module} \qquad \qquad {\bf chaos prometheus. probes}$

Function query_interval

Arguments {'query': "counter{name='service1'}", 'start': '30 seconds

ago', 'end': 'now'}



Appendix

${\bf Action - initiate\text{-}rollout\text{-}v3\text{-}of\text{-}service2}$

The action returned the following result:

None

Action - pretend-users-in-background

The action returned the following result:

None

Probe - read-deployment-status

```
[[['Available', 'True', 'MinimumReplicasAvailable'],
  ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
 [['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
 [['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'False', 'ProgressDeadlineExceeded']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'False', 'ProgressDeadlineExceeded']],
[['Available', 'True', 'MinimumReplicasAvailable'],
```

```
['Progressing', 'False', 'ProgressDeadlineExceeded']],
[['Available', 'True', 'MinimumReplicasAvailable'],
  ['Progressing', 'False', 'ProgressDeadlineExceeded']],
[['Available', 'True', 'MinimumReplicasAvailable'],
  ['Progressing', 'False', 'ProgressDeadlineExceeded']],
[['Available', 'True', 'MinimumReplicasAvailable'],
  ['Progressing', 'False', 'ProgressDeadlineExceeded']]]
```

Probe - read-counter-for-the-past-30-seconds

```
{'data': {'result': [{'metric': {'__name__': 'counter',
                                  'endpoint': 'http',
                                  'host': 'service1-5cb868f5bf-8xg99',
                                  'instance': '10.1.1.132:8000',
                                  'job': 'service1',
                                  'name': 'service1',
                                  'namespace': 'default',
                                  'path': '/',
                                  'pod': 'service1-5cb868f5bf-8xg99',
                                  'service': 'service1',
                                  'version': '2'},
                       'values': [[1558353069.3, '113'],
                                  [1558353070.3, '113'],
                                  [1558353071.3, '117'],
                                  [1558353072.3, '117'],
                                  [1558353073.3, '121'],
                                  [1558353074.3, '121'],
                                  [1558353075.3, '126'],
                                  [1558353076.3, '126'],
                                  [1558353077.3, '132'],
                                  [1558353078.3, '132'],
                                  [1558353079.3, '138'],
                                  [1558353080.3, '138'],
                                  [1558353081.3, '144'],
                                  [1558353082.3, '144'],
                                  [1558353083.3, '150'],
                                  [1558353084.3, '150'],
                                  [1558353085.3, '156'],
                                  [1558353086.3, '156'],
                                  [1558353087.3, '162'].
                                  [1558353088.3, '162'],
                                  [1558353089.3, '168'],
                                  [1558353090.3, '168'],
                                  [1558353091.3, '174'],
```

Rollout a slower service 2 is transparent to our users

Rolling out a backend service should not impact the service our users rely on

Summary

Status	failed
Tagged	service1, service2
Executed From	sylvain-work
Platform	Linux-5.0.0-15-generic-x86_64-with-Ubuntu-19.04-disco
Started	Mon, 20 May 2019 11:52:59 GMT
Completed	Mon, 20 May 2019 11:53:26 GMT
Duration	27 seconds

Definition

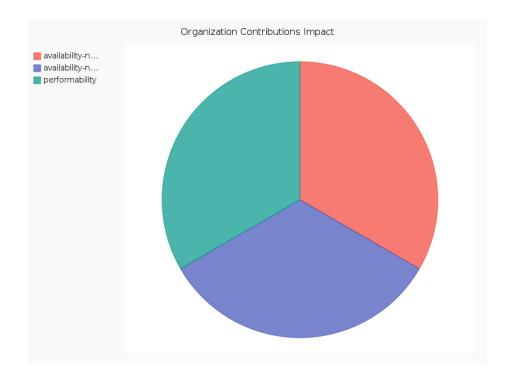
The experiment was made of 2 actions, to vary conditions in your system, and 2 probes, to collect objective data from your system during the experiment.

Organization Contributions

An estimate of relative system properties this experiment contributes to:

Contribution	Impact
availability-near-100%	high
availability-near-99%	high
performability	high

The "none" value for an impact indicates that this experiment explicitely does not address that specific property.



Steady State Hypothesis

The steady state hypothesis this experiment tried was "If users see errors, it may be due to a rollout breaking the link between services".

Before Run

The steady state was verified

Probe	Tolerance	Verified
no-http-errors-returned-from-service	{'type': 'jsonpath', 'path': '\$.data.result.*[?(@.va')count': 0}	True alue[1]!="0")

After Run

The steady state was not verified.

Probe	Tolerance	Verified
no-http-errors-returned-from-service	{'type': 'jsonpath', 'path': '\$.data.result.*[?(@.va')count': 0}	False alue[1]!="0")]

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	initiate-rollout-v4-of-service2
action	pretend-users-in-background
probe	read-deployment-status
probe	read-counter-for-the-past-30-seconds

Result

The experiment was conducted on Mon, 20 May 2019 11:52:59 GMT and lasted roughly 27 seconds.

Action - initiate-rollout-v4-of-service2

Status	succeeded
Background	False
Started	Mon, 20 May 2019 11:52:59 GMT
Ended	Mon, 20 May 2019 11:52:59 GMT
Duration	0 seconds

The action provider that was executed:

\mathbf{Type}	python
Module	chaosk8s.deployment.actions
Function	set_deployment_image
Arguments	{'deployment_name': 'service2', 'container_name':
	'service2', 'image': 'lawouach/service2:v4'}

${\bf Action\,-\,pretend\hbox{-}users\hbox{-}in\hbox{-}background}$

Status	succeeded
Background	False
Started	Mon, 20 May 2019 11:52:59 GMT
Ended	Mon, 20 May 2019 11:52:59 GMT
Duration	0 seconds

The action provider that was executed:

Type	python
Module	load
Function	single
Arguments	{'url': '\${counter_service_url}', 'duration': 20}

${\bf Probe\ -\ read-deployment\text{-}status}$

Status	succeeded
Background	False
Started	Mon, 20 May 2019 11:53:00 GMT
Ended	Mon, 20 May 2019 11:53:25 GMT
Duration	25 seconds

The probe provider that was executed:

Type	python
Module	chaosk8s.deployment.probes
Function	collect_deployment_status
Arguments	{'deployment_name': 'service2', 'duration': 25}

${\bf Probe - read\text{-}counter\text{-}for\text{-}the\text{-}past\text{-}30\text{-}seconds}$

Status	succeeded
Background	False
Started	Mon, 20 May 2019 11:53:25 GMT
Ended	Mon, 20 May 2019 11:53:25 GMT
Duration	0 seconds

The probe provider that was executed:

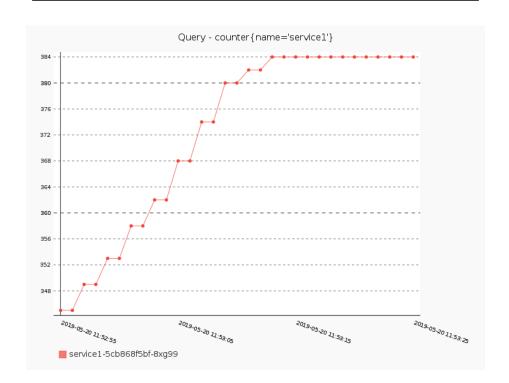
 $\mathbf{Type} \qquad \qquad \mathrm{python} \\$

 ${\bf Module} \qquad \qquad {\bf chaos prometheus. probes}$

Function query_interval

Arguments {'query': "counter{name='service1'}", 'start': '30 seconds

ago', 'end': 'now'}



Appendix

${\bf Action - initiate\text{-}rollout\text{-}v4\text{-}of\text{-}service2}$

The action returned the following result:

None

Action - pretend-users-in-background

The action returned the following result:

None

Probe - read-deployment-status

```
[[['Available', 'True', 'MinimumReplicasAvailable'],
  ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
 [['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
[['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'ReplicaSetUpdated']],
 [['Available', 'True', 'MinimumReplicasAvailable'],
 ['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
```

```
['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
['Progressing', 'True', 'NewReplicaSetAvailable']],
[['Available', 'True', 'MinimumReplicasAvailable'],
['Progressing', 'True', 'NewReplicaSetAvailable']]]
```

Probe - read-counter-for-the-past-30-seconds

```
{'data': {'result': [{'metric': {'__name__': 'counter',
                                  'endpoint': 'http',
                                  'host': 'service1-5cb868f5bf-8xg99',
                                  'instance': '10.1.1.132:8000',
                                  'job': 'service1',
                                  'name': 'service1',
                                  'namespace': 'default',
                                  'path': '/',
                                  'pod': 'service1-5cb868f5bf-8xg99',
                                  'service': 'service1',
                                  'version': '2'},
                       'values': [[1558353175.4, '345'],
                                  [1558353176.4, '345'],
                                  [1558353177.4, '349'],
                                  [1558353178.4, '349'],
                                  [1558353179.4, '353'],
                                  [1558353180.4, '353'],
                                  [1558353181.4, '358'],
                                  [1558353182.4, '358'],
                                  [1558353183.4, '362'],
                                  [1558353184.4, '362'],
                                  [1558353185.4, '368'],
                                  [1558353186.4, '368'],
                                  [1558353187.4, '374'],
                                  [1558353188.4, '374'],
                                  [1558353189.4, '380'],
                                  [1558353190.4, '380'],
                                  [1558353191.4, '382'],
                                  [1558353192.4, '382'],
                                  [1558353193.4, '384'].
                                  [1558353194.4, '384'],
                                  [1558353195.4, '384'],
                                  [1558353196.4, '384'],
                                  [1558353197.4, '384'],
```