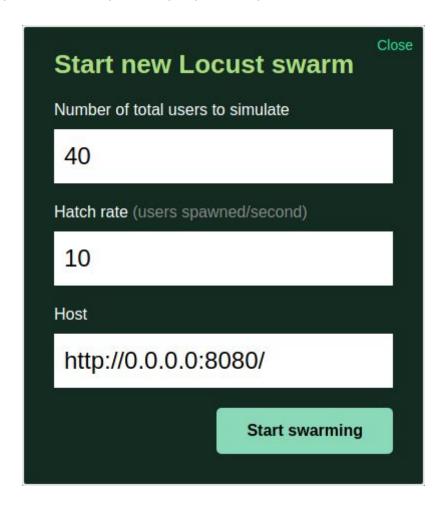
IBM NoSql ETCD

Jakub Solecki, Wtorek A 11:15

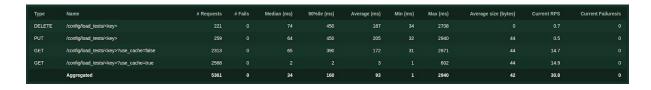
Poniżej prezentuję kod klasy DistributedCache wraz z zaimplementowanymi metodami get, put, delete oraz dodatkową, prefix_callback, niezbędną do użycia metody add watch prefix calback:

```
from etcd_client import EtcdClient
import json
class DistributedCache(object):
   def __init__(self, config_path, key_prefix, logger):
      self.etcd_client = EtcdClient(config_path, key_prefix,
logger, 240) # reconnect every 4 minutes
      self.logger = logger
       self.key_prefix = key_prefix
       self.cache = {}
       self.etcd_client.add_watch_prefix_callback(self.key_prefix,
self.prefix_callback)
   @staticmethod
  def prefix_callback(msg):
       print(msg)
   def get(self, key: str, use_cache: bool = True) -> str:
       if use_cache and self.cache.get(key):
           return self.cache.get(key)
      else:
           key_path = self.key_prefix + "/" + key
           value = self.etcd_client.get(key_path)[0]
           if not value:
               return value
           json_data = json.loads(value.decode('utf-8'))
           self.cache[key] = json_data
           return json_data
   def put(self, key: str, value: str):
       self.etcd_client.put(self.key_prefix + "/" + key,
json.dumps(value))
   def delete(self, key: str):
       self.etcd_client.delete(self.key_prefix + "/" + key)
```

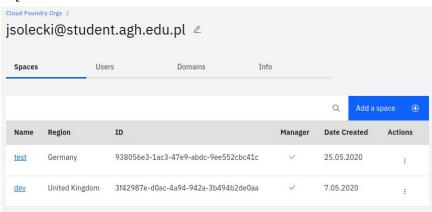
Następnie wykonałem lokalny test przy użyciu narzędzia locust:



Test trwał 3 minuty:



Następnie za pomocą klienta na stronie IBM stworzyłem nowy space, do którego następnie podłączyłem się w konsoli:



```
[jakubs@PC distributed-cache-python]$ ibmcloud cf create-space test -o 'jsolecki@student.agh.edu.pl'
Invoking 'cf create-space test -o jsolecki@student.agh.edu.pl'...

Creating space test in org jsolecki@student.agh.edu.pl as jsolecki@student.agh.edu.pl...

OK

Space test already exists

[jakubs@PC distributed-cache-python]$ ibmcloud target --cf
Targeted Cloud Foundry (https://api.eu-de.cf.cloud.ibm.com)

Targeted org jsolecki@student.agh.edu.pl

Targeted space test

API endpoint: https://cloud.ibm.com
Region: eu-de
User: jsolecki@student.agh.edu.pl
Account: Jakub Solecki's Account (6b073388e2b94f9a8b28853874bf85ea)

Resource group: No resource group targeted, use 'ibmcloud target -g RESOURCE_GROUP'
CF API endpoint: https://api.eu-de.cf.cloud.ibm.com (API version: 2.147.0)
Org: jsolecki@student.agh.edu.pl
Space: test

[jakubs@PC distributed-cache-python]$
```

Kolejnym krokiem było dostarczenie aplikacji do chmury:

```
[jakubs@PC distributed-cache-python]$ ibmcloud cf apps
Invoking 'cf apps'...

Getting apps in org jsolecki@student.agh.edu.pl / space test as jsolecki@student.agh.edu.pl...

OK

name requested state instances memory disk urls
locust started 1/1 256M 16 locust-thankful-kob-um.eu-de.mybluemix.net
distributed-cache started 4/4 256M 16 distributed-cache-daring-gazelle-ry.eu-de.mybluemix
.net
[jakubs@PC distributed-cache-python]$ [
```

Oraz uruchomienie test na locuście w chmurze (dla tych samych parametrów co lokalnie):

Туре	Name	# Requests	# Fails	Median (ms)	90%ile (ms)	Average (ms)	Min (ms)	Max (ms)	Average size (bytes)	Current RPS	Current Failures/s
DELETE	/config/performance_tests/ <key></key>	248						1047			0
PUT	/config/performance_tests/ <key></key>	285		56	110	90		1219		0.9	0
GET	/config/performance_tests/ <key>?use_cache=false</key>	2691			110			2042		14.2	0
GET	/config/performance_tests/ <key>?use_cache=true</key>	2704		38		68		2295			0
	Aggregated	5928		45	98	76	16	2295	42	30.6	0

Jak widać powyżej instancja w chmurze jest szybsza od lokalnej. Wynika to z jej bezpośredniego dostępu do bazy Etcd. Sądzę również, że konfiguracja sprzętowa także może mieć wpływ na poprawę wydajności chmurowej instancji.

Poniżej przedstawiam pozostałe wymagane w sprawozdaniu informacje:

```
2020-05-25T20:46:31.74+0200 [APP/PROC/WEB/2] ERR 10.244.147.2 - - [25/May/2020 18:46:31] "GET /config/performance_
e_tests/cdszPLNeWyxGWKHHNNcmsQHCSdqOGDoXONymEzLdBJSZGbTJrlplAtRFcTszjRRa?use_cache=true_HTTP/1.1" 200 -
2020-05-25T20:46:31.79+0200 [RTR/3] OUT distributed-cache-daring-gazelle-ry.eu-de.mybluemix.net - [2020-05-25T18:4:31.754916137Z] "GET /config/performance_tests/cdszPLNeWyxGWKHHNNcmsQHCSdqOGDoXONymEzLdBJSZGbTJrlplAtRFcTszjRRa?use_
     :31,7549161372] "GET /config/performance_tests/cdszPLNeWyxGWKHHNNcmsQHCSdq06DoXNymEzLdBJ3zGblJrIplAtHFc1sz]RRa7use_
:ache=true HTTP/1.1" 200 0 44 "-" "python-requests/2.23.0" "10.85.78.50:47219" "169.50.39.154:61010" x_forwarded_for:
149.81.69.231, 10.85.78.50" x_forwarded_proto: "https" vcap_request_id: "02d3cf73-88e3-4dc7-4ff7-804a3c94dc41" respons
2_time:0.044442 gorouter_time:0.000523 app_id: "2414b7ae-cf3d-4d10-a6ac-a924354035fb" app_index: "1" x_global_transacti
.n_id: "78f8097c5ecc12878be4b0c7" true_client_ip: "-" x_b3_traceid: "06d5c45bad193250" x_b3_spanid: "06d5c45bad193250" x_
.03_parentspanid: "-" b3: "06d5c45bad193250-06d5c45bad193250"
2020-05-25T20:46:31.79+0200 [RTR/3] OUT
2020-05-25T20:46:31.80+0200 [APP/PROC/WEB/1] ERR 10.244.203.241 - [25/May/2020 18:46:31] "GET /config/performanc
   e_tests/orqMkNXDczqlldaLXhCfJqascXbyZhCWCWjPPOgEIARsaolMpNYzPzQxdkLHArhL?use_cache=false HTTP/1.1" 200
     2020-05-25T20:46:31.81+0200 [APP/PROC/WEB/2] OUT <etcd_client.EtcdClient object at 0x7f68b4a33160> jakubsolecki/pe
formance_tests/evLZtZfjXoAUjdndLRhLRGpPDyKtPvzkRVBXGndNWnPcJMBuoOCeANJgGyNpFwLB
                                                                                                                                                                                                                                                                                               y/2020 18:46:31] "DELETE /config/performan
    e_tests/evLZtZfjXoAUjdndLRhLRGpPDyKtPvzkRVBXGndNWnPcJMBuoOCeANJgGyNpFwLB HTTP/1.1" 204
    .e_tests/evtztzfjxoAu]dnatkntkspPDyktrvzkkyBxGndNwnPcJMBuoOCeANJgoyNpFwLB HTTP/1.1" 204 -
2020-05-25T20:46:31.82+0200 [RTR/0] OUT distributed-cache-daring-gazelle-ry.eu-de.mybluemix.net - [2020-05-25T18:4
5:31.752396723Z] "GET /config/performance_tests/orqMkNXDczqlldatXhCfJqascXbyZhCWCWjPPOgEIARsaolMpNYZPZQxdktHArht?use_
cache=false HTTP/1.1" 200 0 44 "-" "python-requests/2.23.0" "10.85.78.50:10755" "169.50.39.154:61010" x_forwarded_for
"149.81.69.231, 10.85.78.50" x_forwarded_proto:"https" vcap_request_id:"f055897a-ae3b-4244-5178-3990318ce71b" respon
se_time:0.067959 gorouter_time:0.000755 app_id:"2414b7ae-cf3d-4d10-a6ac-a924354035fb" app_index:"1" x_global_transact
ton_id:"78f8097c5ecc12878be4aff7" true_client_ip:"-" x_b3_traceid:"c9c86d32ce2b98f3" x_b3_spanid:"c9c86d32ce2b98f3" x
b3_parentspanid:"-" b3:"c9c86d32ce2b98f3-c9c86d32ce2b98f3"

2020-05-25T30:46-31.82+0200 [RTR/01.0UT]
     2020-05-25T20:46:31.82+0200 [RTR/2] OUT distributed-cache-daring-gazelle-ry.eu-de.mybluemix.net - [2020-05-25T18:46:31.7742641092] "DELETE /config/performance_tests/evLZtZfjXoAUjdndLRhLRGpPDyKtPvzkRVBXGndNMnPcJMBuoOCeANJgGyNpFwLB H
TP/1.1" 204 0 0 "-" "python-requests/2.23.0" "10.85.78.50:27902" "161.156.72.105:61196" x_forwarded_for:"149.81.69.2
11, 10.85.78.50" x_forwarded_proto:"https" vcap_request_id:"6e2ebf32-5da6-428b-7d9d-70dffdf9e7ac" response_time:0.049
10.85.78.50" x_forwarded_proto:"https" vcap_request_id:"6e2ebf32-5da6-428b-7d9d-70dffdf9e7ac" response_time:0.049
10.85.78.50" x_forwarded_proto:"https" vcap_request_id:"6e2ebf32-5da6-428b-7d9d-70dffdf9e7ac" response_time:0.049
10.85.78.50" x_forwarded_proto:"https" vcap_request_id:"6e2ebf32-5da6-428b-7d9d-70dffdf9e7ac" response_time:0.049
10.85.78.50" x_forwarded_proto:"https://doi.org/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.0007/10.00
      formance_tests/gHNsCibmATZZzoreRqFdlxpyDgWRMu0zyMD5PMJRAWQgZnSowdUUasGqfHUeFtV
2020-05-25T20:46:31.86+0200 [APP/PROC/WEB/1] ERR 10.244.203.241 - - [25/May/20
                                                                                                                                                                                                                                                                                [25/May/2020 18:46:31] "GET /config/performanc
   e_tests/gHNsCibmATZZzoreRqFdlxpyDgWRMuOzyMDSPMJdRAwQgZnSowdUUasGqfHUeFtV?use_cache=false HTTP/1.1" 200
      jakubs@PC distributed-cache-python]$
```