

# Laboratorium z etcd

Kod (plik distributed\_cache.py):

```
import json

from etcd_client import EtcdClient

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)

    def prefix_callback(self, event):
        print(event)

    def get(self, key: str, use_cache: bool = True) -> str:
        if use_cache and self.cache.get(key):
            return self.cache.get(key)

        full_key = self.key_prefix + "/" + key

        data = self.etcd_client.get(full_key)[0]

        if data is not None:
            data = json.loads(data.decode("utf8"))
            self.cache[key] = data

        return data

    def put(self, key: str, value: str):
        full_key = self.key_prefix + "/" + key
        json_value = json.dumps(value)
        self.etcd_client.put(full_key, json_value)

    def delete(self, key: str):
        full_key = self.key_prefix + "/" + key
        self.etcd_client.delete(full_key)
```

Testowanie Kodu lokalnie:

Uruchomienie aplikacji

```
(venv) krzys@krzys-przystojniak:~/sem4/ibm-nosql/distributed-cache-python$ USER_KEY_PREFIX=/HardekKrzysztof/ python app.py
<etcd_client.EtcdClient object at 0x7f4a3af09a90> /HardekKrzysztof/ <bound method DistributedCache.prefix_callback of <distri
* Serving Flask app "app" (lazy loading)
* Environment: production
  WARNING: This is a development server. Do not use it in a production deployment.
  Use a production WSGI server instead.
* Debug mode: off
* Running on http://0.0.0.0:8080/ (Press CTRL+C to quit)
```

Uruchomienie aplikacji testującej

```
(venv) krzys@krzys-przystojniak:~/sem4/ibm-nosql/distributed-cache-python$ locust
[2020-05-26 23:24:03,828] krzys-przystojniak/INFO/locust.main: Starting web monitor at http://*:8089
[2020-05-26 23:24:03,828] krzys-przystojniak/INFO/locust.main: Starting Locust 0.14.6
```

Tworzę 40 użytkowników w tempie 10 na sekundę. Testy trwały około 3 minuty

Type	Name	# Requests	# Fails	Median (ms)	90%ile (ms)	Average (ms)	Min (ms)	Max (ms)	Average size (bytes)	Current RPS	Current Failures/s
DELETE	/config/load_tests/<key>	220	0	180	340	199	59	525	0	1.4	0
PUT	/config/load_tests/<key>	260	0	180	410	212	60	716	44	1.7	0
GET	/config/load_tests/<key>?use_cache=false	2265	0	160	340	183	56	744	44	13.2	0
GET	/config/load_tests/<key>?use_cache=true	2545	0	4	6	8	2	638	44	13	0
Aggregated		5290	0	99	280	101	2	744	42	29.3	0

Testowanie Kodu zdalnie:

Tworzę 40 użytkowników w tempie 10 na sekundę. Testy trwały około 3 minuty

Type	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>	118	0	190	6800	1807	34	15547	0	0.9	0
PUT	/config/performance_tests/<key>	153	0	220	4900	1374	39	13651	44	0.8	0
GET	/config/performance_tests/<key>?use_cache=false	1215	0	180	5700	1375	33	20079	44	4.5	0
GET	/config/performance_tests/<key>?use_cache=true	1463	0	150	2800	832	23	10719	44	8.5	0
Aggregated		2949	0	160	4300	1123	23	20079	42	14.7	0

Wyjaśnienie rozbieżności:

Testy pokazują, że aplikacja działa szybciej lokalnie. Jest to dosyć dziwne, ponieważ instancja na chmurze ma bezpośredni dostęp do bazy. Możliwe że był pewne opóźnienia związane z godzinami, w których wykonywałem testy

Odpowiedzi komend:

```
ibmcloud target
```

```
krzys@krzys-przystojniak:~/sem4/bazy/ibm-nosql/distributed-cache-python$ ibmcloud target

API endpoint:      https://cloud.ibm.com
Region:           eu-de
User:             hardek@student.agh.edu.pl
Account:          Krzysztof Hardek's Account (173e2df072da48edb6dc904dfaec1c84)
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:              hardek-org
Space:            hardek-space2
```

## ibmcloud cf app distributed-cache

```
krzys@krzys-przystojniak:~/sem4/bazy/ibm-nosql/distributed-cache-python$ ibmcloud cf app distributed-cache
Invoking 'cf app distributed-cache'...

Showing health and status for app distributed-cache in org hardek-org / space hardek-space2 as hardek@student.agh.edu.pl...

name:           distributed-cache
requested state: started
routes:         distributed-cache-reliable-gorilla-ry.eu-de.mybluemix.net
last uploaded:  Wed 03 Jun 18:26:35 CEST 2020
stack:          cflinuxfs3
buildpacks:     python

type:           web
instances:      4/4
memory usage:   256M

   state   since                cpu    memory       disk          details
#0  running  2020-06-03T16:26:57Z  0.3%   36.7M of 256M  253.1M of 16
#1  running  2020-06-03T16:27:10Z  0.2%   33.4M of 256M  253.1M of 16
#2  running  2020-06-03T16:27:02Z  0.3%   37.9M of 256M  253.1M of 16
#3  running  2020-06-03T16:27:20Z  0.3%   41.9M of 256M  253.1M of 16
```

## ibmcloud cf logs distributed-cache --recent | head -n 20

```
krzys@krzys-przystojniak:~/sem4/bazy/ibm-nosql/distributed-cache-python$ ibmcloud cf logs distributed-cache --recent | head -n 20
Invoking 'cf logs distributed-cache --recent'...

Retrieving logs for app distributed-cache in org hardek-org / space hardek-space2 as hardek@student.agh.edu.pl...

2020-06-04T14:07:34.31+0200 [APP/PROC/WEB/3] ERR 10.246.167.20 - - [04/Jun/2020 12:07:34] "GET /config/performance_tests/WpabHbKadPgrZtUQwIVxmJfPoReExxuSnToZqpHqalJhNkGcjyJmUbuWuItUjUse.cache?true HTTP/1.1" 200 -
2020-06-04T14:07:34.32+0200 [RTR/0] OUT distributed-cache-reliable-gorilla-ry.eu-de.mybluemix.net - [2020-06-04T12:07:33.980975428Z] "GET /config/performance_tests/WpabHbKadPgrZtUQwIVxmJfPoReExxuSnToZqpHqalJhNkGcjyJmUbuWuItUjUse.cache?true HTTP/1.1" 200 0 44 -- "python-requests/2.23.0" "10.85.78.58:31648" "169.58.44.103:61166" x_forwarded_for:"161.156.72.117, 10.85.78.58" x_forwarded_proto:"https" vcap_request_id:"247abf83-014d-45f3-2f4-Bfdfffc131538" response_time:0.412175 gorouter_time:0.080581 app_id:"98aaa8ae-b248-4308-9f8b-de51f886df5c" app_index:"3" x_global_transaction_id:"78f8897c5ed8e4861228a4b9" true_client_ip:"" x_b3_traceid:"2af8a99d8894e8d4" x_b3_spanid:"2af8a99d8894e8d4" x_b3_parentspanid:"" b3:"2af8a99d8894e8d4-2af8a99d8894e8d4"
2020-06-04T14:07:34.32+0200 [RTR/0] OUT
2020-06-04T14:07:34.41+0200 [APP/PROC/WEB/1] OUT <etcd_client.EtcdClient object at 0x7fe2f05e0280> /HardekKrzysztof2//performance_tests/KltuX0toUhgUqLIketVznpz2WRxxbxWdovqfbpET35rZCPuLuhSLJNhkhHmB
2020-06-04T14:07:34.41+0200 [APP/PROC/WEB/1] ERR 10.246.191.45 - - [04/Jun/2020 12:07:34] "GET /config/performance_tests/KltuX0toUhgUqLIketVznpz2WRxxbxWdovqfbpET35rZCPuLuhSLJNhkhHmBUse.cache?false HTTP/1.1" 200 -
2020-06-04T14:07:34.43+0200 [APP/PROC/WEB/1] OUT <etcd_client.EtcdClient object at 0x7fe2f05e0280> /HardekKrzysztof2//performance_tests/IghIauXupaA2FQJbbJ5CJbtMkaJmVgmUssdrcrooPttVvGIzantThvcPLAauZfUse.cache?false HTTP/1.1" 200 -
2020-06-04T14:07:34.44+0200 [APP/PROC/WEB/1] ERR 10.244.191.45 - - [04/Jun/2020 12:07:34] "GET /config/performance_tests/IghIauXupaA2FQJbbJ5CJbtMkaJmVgmUssdrcrooPttVvGIzantThvcPLAauZfUse.cache?false HTTP/1.1" 200 -
2020-06-04T14:07:34.44+0200 [RTR/1] OUT distributed-cache-reliable-gorilla-ry.eu-de.mybluemix.net - [2020-06-04T12:07:34.388978343Z] "GET /config/performance_tests/KltuX0toUhgUqLIketVznpz2WRxxbxWdovqfbpET35rZCPuLuhSLJNhkhHmBUse.cache?false HTTP/1.1" 200 0 44 -- "python-requests/2.23.0" "10.85.78.58:18253" "149.01.49.225:61238" x_forwarded_for:"161.156.72.117, 10.85.78.58" x_forwarded_proto:"https" vcap_request_id:"e0288025-5422-49de-513b-13ea27b04416" response_time:0.054932 gorouter_time:0.001113 app_id:"98aaa8ae-b248-4308-9f8b-de51f886df5c" app_index:"1" x_global_transaction_id:"78f8897c5ed8e486a2d0e891" true_client_ip:"" x_b3_traceid:"75d97c2f351b8298" x_b3_spanid:"75d97c2f351b8298" x_b3_parentspanid:"" b3:"75d97c2f351b8298-75d97c2f351b8298"
2020-06-04T14:07:34.44+0200 [RTR/1] OUT
2020-06-04T14:07:34.44+0200 [RTR/2] OUT distributed-cache-reliable-gorilla-ry.eu-de.mybluemix.net - [2020-06-04T12:07:34.368920352Z] "GET /config/performance_tests/IghIauXupaA2FQJbbJ5CJbtMkaJmVgmUssdrcrooPttVvGIzantThvcPLAauZfUse.cache?false HTTP/1.1" 200 0 44 -- "python-requests/2.23.0" "10.85.78.51:23989" "169.58.44.107:61086" x_forwarded_for:"161.156.72.117, 10.85.78.51" x_forwarded_proto:"https" vcap_request_id:"77866128-8791-4bda-7583-38d458ce0377" response_time:0.071912 gorouter_time:0.007786 app_id:"98aaa8ae-b248-4308-9f8b-de51f886df5c" app_index:"2" x_global_transaction_id:"78f8897c5ed8e486a2d0e891" true_client_ip:"" x_b3_traceid:"c636987d7bd08461" x_b3_spanid:"c636987d7bd08461" x_b3_parentspanid:"" b3:"c636987d7bd08461-c636987d7bd08461"
2020-06-04T14:07:34.44+0200 [RTR/2] OUT
2020-06-04T14:07:34.45+0200 [APP/PROC/WEB/2] ERR 10.245.237.226 - - [04/Jun/2020 12:07:34] "GET /config/performance_tests/twtsLxVvrlXQsmgtBthgQwXIASDQvYHuCoZyA1ppgdVoJCKpYbZBhVhztJMAUse.cache?true HTTP/1.1" 200 -
2020-06-04T14:07:34.52+0200 [APP/PROC/WEB/3] ERR 10.244.167.28 - - [04/Jun/2020 12:07:34] "GET /config/performance_tests/RatAoutIvNDtIVskDSYEdAbVjhdEjSLhvkfMgphVcczhfDcwgJZ0PtEAs0Use.cache?true HTTP/1.1" 200 -
2020-06-04T14:07:34.57+0200 [RTR/9] OUT distributed-cache-reliable-gorilla-ry.eu-de.mybluemix.net - [2020-06-04T12:07:34.527724155Z] "GET /config/performance_tests/HZnzBRRNVLcSILzaLhVAUJcqr0MaqJJKmLZigvEHKFFNwEXYFmws01ZKs1aUse.cache?true HTTP/1.1" 200 0 44 -- "python-requests/2.23.0" "10.85.78.58:48839" "169.58.44.107:61086" x_forwarded_for:"161.156.72.117, 10.85.78.58" x_forwarded_proto:"https" vcap_request_id:"1697a191-fb48-4afe-245-3819c48ce935" response_time:0.080258 app_id:"98aaa8ae-b248-4308-9f8b-de51f886df5c" app_index:"2" x_global_transaction_id:"78f8897c5ed8e4861228a599" true_client_ip:"" x_b3_traceid:"24fc3a48d876d8ff" x_b3_spanid:"24fc3a48d876d8ff" x_b3_parentspanid:"" b3:"24fc3a48d876d8ff-24fc3a48d876d8ff"
```

