

Lab 5

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Github

https://github.com/Adeon18/MicroServices/tree/micro_consul

0. Запускаю HZ, запускаю consul, вручну скриптом записую необхідні key/value в consul

- HazelCast

The screenshot shows two terminal windows side-by-side. The left window displays HazelCast logs, and the right window displays Consul logs.

HazelCast Logs:

```
2023-05-12 11:13:47,083 [ INFO] [main] [c.h.s.security]: [172.17.0.2]:5701 [dev] [5.2.2] Enable DEBUG/FINE log level for log category com.hazelcast.system.security or use -Dhazelcast.security.recommendations system property to see 🔒 security recommendations and the status of current config.
2023-05-12 11:13:47,153 [ INFO] [main] [c.h.t.i.Node]: [172.17.0.2]:5701 [dev] [5.2.2] Using Multicast discovery
2023-05-12 11:13:47,156 [ WARN] [main] [c.h.c.CPSubsystem]: [172.17.0.2]:5701 [dev] [5.2.2] CP Subsystem is not enabled. CP data structures will operate in UNSAFE mode! Please note that UNSAFE mode will not provide strong consistency guarantees.
2023-05-12 11:13:47,497 [ INFO] [main] [c.h.j.i.JetServiceBackend]: [172.17.0.2]:5701 [dev] [5.2.2] Setting number of cooperative threads and default parallelism to 8
2023-05-12 11:13:47,550 [ INFO] [main] [c.h.i.d.Diagnostics]: [172.17.0.2]:5701 [dev] [5.2.2] Diagnostics disabled. To enable add -Dhazelcast.diagnostics.enabled=true to the JVM arguments.
2023-05-12 11:13:47,557 [ INFO] [main] [c.h.c.LifecycleService]: [172.17.0.2]:5701 [dev] [5.2.2] [172.17.0.2]:5701 is STARTING
2023-05-12 11:13:49,765 [ INFO] [main] [c.h.i.c.ClusterService]: [172.17.0.2]:5701 [dev] [5.2.2]

Members {size:1, ver:1} [
    Member [172.17.0.2]:5701 - ca9537f7-2b81-4fcc-a727-d8d2ce9afc49 this
]

2023-05-12 11:13:49,781 [ INFO] [main] [c.h.j.i.JobCoordinationService]: [172.17.0.2]:5701 [dev] [5.2.2] Jet started scanning for jobs
2023-05-12 11:13:49,803 [ INFO] [main] [c.h.c.LifecycleService]: [172.17.0.2]:5701 [dev] [5.2.2] [172.17.0.2]:5701 is STARTED
2023-05-12 11:13:57,115 [ INFO] [hz.goofy_mclean.IO.thread-in-0] [c.h.i.s.t.TcpServerConnection]: [172.17.0.2]:5701 [dev] [5.2.2] Initialized new cluster connection between /172.17.0.2:5701 and /172.17.0.3:43629
2023-05-12 11:14:01,991 [ INFO] [hz.goofy_mclean.IO.thread-in-1] [c.h.i.s.t.TcpServerConnection]: [172.17.0.2]:5701 [dev] [5.2.2] Initialized new cluster connection between /172.17.0.2:5701 and /172.17.0.4:60783
```

Consul Logs:

```
.3]:5701 [dev] [5.2.2] CP Subsystem is not enabled. CP data structures will operate in UNSAFE mode! Please note that UNSAFE mode will not provide strong consistency guarantees.
2023-05-12 11:13:56,786 [ INFO] [main] [c.h.j.i.JetServiceBackend]: [172.17.0.3]:5701 [dev] [5.2.2] Setting number of cooperative threads and default parallelism to 8
2023-05-12 11:13:56,842 [ INFO] [main] [c.h.i.d.Diagnostics]: [172.17.0.3]:5701 [dev] [5.2.2] Diagnostics disabled. To enable add -Dhazelcast.diagnostics.enabled=true to the JVM arguments.
2023-05-12 11:13:56,855 [ INFO] [main] [c.h.c.LifecycleService]: [172.17.0.3]:5701 [dev] [5.2.2] [172.17.0.3]:5701 is STARTING
2023-05-12 11:13:57,073 [ INFO] [main] [c.h.i.c.i.MulticastJoiner]: [172.17.0.2]:5701 [dev] [5.2.2] Trying to join to discovered node: [172.17.0.2]:5701
2023-05-12 11:13:57,118 [ INFO] [hz.wonderful_tesla.IO.thread-in-e] [c.h.i.s.t.TcpServerConnection]: [172.17.0.3]:5701 [dev] [5.2.2] Initialized new cluster connection between /172.17.0.3:43629 and /172.17.0.2:5701

provide strong consistency guarantees.
2023-05-12 11:14:01,640 [ INFO] [main] [c.h.j.i.JetServiceBackend]: [172.17.0.4]:5701 [dev] [5.2.2] Setting number of cooperative threads and default parallelism to 8
2023-05-12 11:14:01,757 [ INFO] [main] [c.h.i.d.Diagnostics]: [172.17.0.4]:5701 [dev] [5.2.2] Diagnostics disabled. To enable add -Dhazelcast.diagnostics.enabled=true to the JVM arguments.
2023-05-12 11:14:01,775 [ INFO] [main] [c.h.c.LifecycleService]: [172.17.0.4]:5701 [dev] [5.2.2] [172.17.0.4]:5701 is STARTING
2023-05-12 11:14:01,939 [ INFO] [main] [c.h.i.c.i.MulticastJoiner]: [172.17.0.4]:5701 [dev] [5.2.2] Trying to join to discovered node: [172.17.0.2]:5701
2023-05-12 11:14:01,993 [ INFO] [hz.determined_aryabhatta.IO.thread-in-e] [c.h.i.s.t.TcpServerConnection]: [172.17.0.4]:5701 [dev] [5.2.2] Initialized new cluster connection between /172.17.0.4:60783 and /172.17.0.2:5701
```

- Consul

```
adeonPC:~:% cd coding/APZ/labs/lab2/MicroServices/
adeonPC:MicroServices:% cd scripts
adeonPC:scripts:% ./run-consul.sh
==> Starting Consul agent...
      Version: '1.15.2'
      Build Date: '2023-03-30 17:51:19 +0000 UTC'
      Node ID: '67163b7c-a1b3-9bef-2ed3-559b0f77c915'
      Node name: 'server-1'
      Datacenter: 'dc1' (Segment: '<all>')
      Server: true (Bootstrap: true)
      Client Addr: [0.0.0.0] (HTTP: 8500, HTTPS: -1, gRPC: -1, gRPC-TL
: 8503, DNS: 8600)
      Cluster Addr: 172.20.0.2 (LAN: 8301, WAN: 8302)
      Gossip Encryption: false
      Auto-Encrypt-TLS: false
      HTTPS TLS: Verify Incoming: false, Verify Outgoing: false, Min
Version: TLSv1_2
      gRPC TLS: Verify Incoming: false, Min Version: TLSv1_2
      Internal RPC TLS: Verify Incoming: false, Verify Outgoing: false (Ver
fy Hostname: false), Min Version: TLSv1_2

==> Log data will now stream in as it occurs:

2023-05-12T11:14:38.797Z [WARN]  agent: BootstrapExpect is set to 1; thi
s is the same as Bootstrap mode.
2023-05-12T11:14:38.797Z [WARN]  agent: bootstrap = true: do not enable un
less necessary
2023-05-12T11:14:38.804Z [WARN]  agent.auto_config: BootstrapExpect is set
to 1; this is the same as Bootstrap mode.
```

- Додаю ключі (назва мапи та назва MQ)

```
adeonPC:~:% cd coding/APZ/labs/lab2/MicroServices
adeonPC:MicroServices:% cd scripts
adeonPC:scripts:% ./fill-data.sh
Success! Data written to: MQNAME
Success! Data written to: MAPNAME
adeonPC:scripts:%
```

1. Запускаю по 2 кожного мікросервіса

- FacadeService - 8081, 8082

```

adeonPC: ~% cd coding/APZ/labs/lab2/MicroServices/cmake-build-debug/FacadeService
adeonPC: FacadeService% ./FacadeService 8081 <micro_consul>
12/05/2023 14:17:29.642 INFO: [140384124974784] hz.client_1[dev] [5.1.0] (Fri Dec 30 14:45:20 202
2 +0300:6a22d8569) LifecycleService::LifecycleEvent Client (b667d5c6-7672-4468-8741-c369d6c64ebe)
is STARTING
12/05/2023 14:17:29.642 INFO: [140384124974784] hz.client_1[dev] [5.1.0] (Fri Dec 30 14:45:20 202
2 +0300:6a22d8569) LifecycleService::LifecycleEvent STARTING
12/05/2023 14:17:29.642 INFO: [140384124974784] hz.client_1[dev] [5.1.0] LifecycleService::LifecycleEvent
is STARTING
12/05/2023 14:17:29.642 INFO: [140384124974784] hz.client_1[dev] [5.1.0] Trying to connect to Address[127.0.0.1:5701].
12/05/2023 14:17:29.654 INFO: [140384124974784] hz.client_1[dev] [5.1.0] LifecycleService::LifecycleEvent
CLIENT_CONNECTED
12/05/2023 14:17:29.658 INFO: [140384124974784] hz.client_1[dev] [5.1.0] Authenticated with serv
r Address[172.17.0.1:5701];connection[alive=1, connection id=1, remote endpointAddress[172
.17.0.2:5701], last_read_time=2023-05-12 14:17:29.654, last_write_time=2023-05-12 14:17:29.654, c
losedTime=never, connected server version=5.2.2]
12/05/2023 14:17:29.658 INFO: [140384124974784] hz.client_1[dev] [5.1.0]
Members [3] {
    Member[172.17.0.4]:5701 - d6e0d7c9-9066-4e02-b1e3-b3dbf98914f8
    Member[172.17.0.3]:5701 - 2c39c832-c2c3-4f45-a5ea-936fa446e718
    Member[172.17.0.2]:5701 - ca95377f-2b81-4fcc-a727-d8d2ce9afc49
}
12/05/2023 14:17:29.658 INFO: [140384124974784] hz.client_1[dev] [5.1.0] Trying to connect to Add
ress[172.17.0.4:5701].
12/05/2023 14:17:29.669 INFO: [140384124974784] hz.client_1[dev] [5.1.0] Authenticated with serv
r Address[172.17.0.4:5701];d6e0d7c9-9066-4e02-b1e3-b3dbf98914f8, server version: 5.2.2, local ad
dress: Address[172.17.0.4:5701].Connection[alive=1, connection id=2, remote endpointAddress[172
.17.0.4:5701], last_read_time=2023-05-12 14:17:29.669, last_write_time=2023-05-12 14:17:29.659,
closedTime=never, connected server version=5.2.2]
12/05/2023 14:17:29.669 INFO: [140384124974784] hz.client_1[dev] [5.1.0] Trying to connect to Add
ress[172.17.0.3:5701].
12/05/2023 14:17:29.681 INFO: [140384124974784] hz.client_1[dev] [5.1.0] Authenticated with serv
r Address[172.17.0.3:5701];2c39c832-c2c3-4f45-a5ea-936fa446e718, server version: 5.2.2, local ad
dress: Address[172.17.0.3:5701].Connection[alive=1, connection id=3, remote endpointAddress[172
.17.0.3:5701], last_read_time=2023-05-12 14:17:29.681, last_write_time=2023-05-12 14:17:29.669,
closedTime=never, connected server version=5.2.2]
[2023-05-12 14:17:29.739] [info] Service at /FacadeService started

adeonPC: ~% cd coding/APZ/labs/lab2/MicroServices/cmake-build-debug/FacadeService
adeonPC: FacadeService% ./FacadeService 8082 <micro_consul>
12/05/2023 14:18:00.338 INFO: [14043226519232] hz.client_1[dev] [5.1.0] (Fri Dec 30 14:45
20 2022 +0300:6a22d8569) LifecycleService::LifecycleEvent Client (a18347ae-c0ff-4ec1-9e46
b72a4b2d4f4) is STARTING
12/05/2023 14:18:00.338 INFO: [14043226519232] hz.client_1[dev] [5.1.0] (Fri Dec 30 14:45
20 2022 +0300:6a22d8569) LifecycleService::LifecycleEvent STARTING
12/05/2023 14:18:00.338 INFO: [14043226519232] hz.client_1[dev] [5.1.0] LifecycleService::LifecycleEvent
STARTED
12/05/2023 14:18:00.341 INFO: [14043226519232] hz.client_1[dev] [5.1.0] Trying to connect
to Address[127.0.0.1:5701].
12/05/2023 14:18:00.344 INFO: [14043226519232] hz.client_1[dev] [5.1.0] LifecycleService::LifecycleEvent
CLIENT_CONNECTED
12/05/2023 14:18:00.344 INFO: [14043226519232] hz.client_1[dev] [5.1.0] Authenticated wit
h server Address[172.17.0.2:5701], local address: Address[127.0.0.1:33340]. C
onnection[alive=1, connection id=1, remot
e endpointAddress[172.17.0.2:5701], last_read_time=2023-05-12 14:18:00.343, last_write_time=2023-05-12 14:18:00.342, closedTime=never, con
nected server version=5.2.2]
12/05/2023 14:18:00.344 INFO: [14043226519232] hz.client_1[dev] [5.1.0]
Members [3] {
    Member[172.17.0.4]:5701 - d6e0d7c9-9066-4e02-b1e3-b3dbf98914f8
    Member[172.17.0.3]:5701 - 2c39c832-c2c3-4f45-a5ea-936fa446e718
    Member[172.17.0.2]:5701 - ca95377f-2b81-4fcc-a727-d8d2ce9afc49
}

12/05/2023 14:18:00.344 INFO: [14043226519232] hz.client_1[dev] [5.1.0] Trying to connect
to Address[172.17.0.4:5701].
12/05/2023 14:18:00.346 INFO: [14043226519232] hz.client_1[dev] [5.1.0] Authenticated wit
h server Address[172.17.0.4:5701];d6e0d7c9-9066-4e02-b1e3-b3dbf98914f8, server version: 5
.2.2, local address: Address[172.17.0.4:55328]. Connection[alive=1, connection id=2, remot
e endpointAddress[172.17.0.4:5701], last_read_time=2023-05-12 14:18:00.346, last_write_time=2023-05-12 14:18:00.345, closedTime=never, connected server version=5.2.2]
12/05/2023 14:18:00.346 INFO: [14043226519232] hz.client_1[dev] [5.1.0] Trying to connect
to Address[172.17.0.3:5701].
12/05/2023 14:18:00.348 INFO: [14043226519232] hz.client_1[dev] [5.1.0] Authenticated wit
h server Address[172.17.0.3:5701];2c39c832-c2c3-4f45-a5ea-936fa446e718, server version: 5
.2.2, local address: Address[172.17.0.3:43670]. Connection[alive=1, connection id=3, remot
e endpointAddress[172.17.0.3:5701], last_read_time=2023-05-12 14:18:00.347, last_write_time=2023-05-12 14:18:00.348, closedTime=never, connected server version=5.2.2]
[2023-05-12 14:18:00.369] [info] Service at /FacadeService started

```

● MessageService - 8083, 8084

```

adeonPC: ~% cd coding/APZ/labs/lab2/MicroServices/cmake-build-debug/FacadeService
adeonPC: FacadeService% cd .. <micro_consul>
adeonPC: cmake-build-debug% cd MessagesService <micro_consul>
adeonPC: MessagesService% ./MessagesService 8083 <micro_consul>
12/05/2023 14:18:58.336 INFO: [140065678956224] hz.client_1[dev] [5.1.0] (Fri Dec 30 14:45:20 202
2 +0300:6a22d8569) LifecycleService::LifecycleEvent Client (c6b918de-93b5-478f-b1ff-f936e17edeff)
is STARTING
12/05/2023 14:18:58.336 INFO: [140065678956224] hz.client_1[dev] [5.1.0] (Fri Dec 30 14:45:20 202
2 +0300:6a22d8569) LifecycleService::LifecycleEvent STARTING
12/05/2023 14:18:58.336 INFO: [140065678956224] hz.client_1[dev] [5.1.0] LifecycleService::LifecycleEvent
Event STARTED
12/05/2023 14:18:58.339 INFO: [140065678956224] hz.client_1[dev] [5.1.0] Trying to connect to Add
ress[127.0.0.1:5701].
12/05/2023 14:18:58.341 INFO: [140065678956224] hz.client_1[dev] [5.1.0] LifecycleService::LifecycleEvent
CLIENT_CONNECTED
12/05/2023 14:18:58.340 INFO: [140065678956224] hz.client_1[dev] [5.1.0] Authenticated with serv
r Address[172.17.0.2:5701];ca95377f-2b81-4fcc-a727-d8d2ce9afc49, server version: 5.2.2, local ad
dress: Address[127.0.0.1:52062].Connection[alive=1, connection id=1, remote endpointAddress[172
.17.0.2:5701], last_read_time=2023-05-12 14:18:58.341, last_write_time=2023-05-12 14:18:58.340, c
losedTime=never, connected server version=5.2.2]
12/05/2023 14:18:58.342 INFO: [140065443337920] hz.client_1[dev] [5.1.0]
Members [3] {
    Member[172.17.0.4]:5701 - d6e0d7c9-9066-4e02-b1e3-b3dbf98914f8
    Member[172.17.0.3]:5701 - 2c39c832-c2c3-4f45-a5ea-936fa446e718
    Member[172.17.0.2]:5701 - ca95377f-2b81-4fcc-a727-d8d2ce9afc49
}
12/05/2023 14:18:58.342 INFO: [140065678956224] hz.client_1[dev] [5.1.0] Trying to connect to Add
ress[172.17.0.4:5701].
12/05/2023 14:18:58.344 INFO: [140065678956224] hz.client_1[dev] [5.1.0] Authenticated with serv
r Address[172.17.0.4:5701];d6e0d7c9-9066-4e02-b1e3-b3dbf98914f8, server version: 5.2.2, local ad
dress: Address[172.17.0.4:55328].Connection[alive=1, connection id=2, remote endpointAddress[172
.17.0.4:5701], last_read_time=2023-05-12 14:18:58.344, last_write_time=2023-05-12 14:18:58.343, c
losedTime=never, connected server version=5.2.2]
12/05/2023 14:18:58.344 INFO: [140065678956224] hz.client_1[dev] [5.1.0] Trying to connect to Add
ress[172.17.0.3:5701].
12/05/2023 14:18:58.347 INFO: [140065678956224] hz.client_1[dev] [5.1.0] Authenticated with serv
r Address[172.17.0.3:5701];2c39c832-c2c3-4f45-a5ea-936fa446e718, server version: 5.2.2, local ad
dress: Address[172.17.0.3:52063].Connection[alive=1, connection id=3, remote endpointAddress[172
.17.0.3:5701], last_read_time=2023-05-12 14:18:58.347, last_write_time=2023-05-12 14:18:58.346, c
losedTime=never, connected server version=5.2.2]
[2023-05-12 14:18:58.368] [info] Service at /MessageService started

adeonPC: ~% cd coding/APZ/labs/lab2/MicroServices/cmake-build-debug/FacadeService
adeonPC: FacadeService% ./FacadeService 8084 <micro_consul>
12/05/2023 14:19:04.296 INFO: [140426060961472] hz.client_1[dev] [5.1.0] (Fri Dec 30 14:45
20 2022 +0300:6a22d8569) LifecycleService::LifecycleEvent Client (7a1c6643-2536-423e-b713
e8812e4b8544b) is STARTING
12/05/2023 14:19:04.296 INFO: [140426060961472] hz.client_1[dev] [5.1.0] (Fri Dec 30 14:45
20 2022 +0300:6a22d8569) LifecycleService::LifecycleEvent STARTING
12/05/2023 14:19:04.296 INFO: [140426060961472] hz.client_1[dev] [5.1.0] LifecycleService::LifecycleEvent
Event STARTED
12/05/2023 14:19:04.298 INFO: [140426060961472] hz.client_1[dev] [5.1.0] Trying to connect
to Address[127.0.0.1:5701].
12/05/2023 14:19:04.301 INFO: [140426060961472] hz.client_1[dev] [5.1.0] LifecycleService::LifecycleEvent
CLIENT_CONNECTED
12/05/2023 14:19:04.301 INFO: [140426060961472] hz.client_1[dev] [5.1.0] Authenticated wit
h server Address[172.17.0.3:5701];ca95377f-2b81-4fcc-a727-d8d2ce9afc49, server version: 5
.2.2, local address: Address[127.0.0.1:48330]. C
onnection[alive=1, connection id=1, remote endpointAddress[172.17.0.2:5701], last_read_time=2023-05-12 14:19:04.301, last_write_time=2023-05-12 14:19:04.299, closedTime=never, connected server version:5.2.2]
12/05/2023 14:19:04.302 INFO: [140426060961472] hz.client_1[dev] [5.1.0]
Members [3] {
    Member[172.17.0.4]:5701 - d6e0d7c9-9066-4e02-b1e3-b3dbf98914f8
    Member[172.17.0.3]:5701 - 2c39c832-c2c3-4f45-a5ea-936fa446e718
    Member[172.17.0.2]:5701 - ca95377f-2b81-4fcc-a727-d8d2ce9afc49
}
12/05/2023 14:19:04.302 INFO: [140426060961472] hz.client_1[dev] [5.1.0] Trying to connect
to Address[172.17.0.4:5701].
12/05/2023 14:19:04.304 INFO: [140426060961472] hz.client_1[dev] [5.1.0] Authenticated wit
h server Address[172.17.0.4:5701];d6e0d7c9-9066-4e02-b1e3-b3dbf98914f8, server version: 5
.2.2, local address: Address[172.17.0.4:55328].Connection[alive=1, connection id=2, remot
e endpointAddress[172.17.0.4:5701], last_read_time=2023-05-12 14:19:04.304, last_write_time=2023-05-12 14:19:04.302, closedTime=never, connected server version:5.2.2]
12/05/2023 14:19:04.304 INFO: [140426060961472] hz.client_1[dev] [5.1.0] Trying to connect
to Address[172.17.0.3:5701].
12/05/2023 14:19:04.306 INFO: [140426060961472] hz.client_1[dev] [5.1.0] Authenticated wit
h server Address[172.17.0.3:5701];2c39c832-c2c3-4f45-a5ea-936fa446e718, server version: 5
.2.2, local address: Address[172.17.0.3:52063].Connection[alive=1, connection id=3, remot
e endpointAddress[172.17.0.3:5701], last_read_time=2023-05-12 14:19:04.306, last_write_time=2023-05-12 14:19:04.305, closedTime=never, connected server version:5.2.2]
[2023-05-12 14:19:04.321] [info] Service at /MessageService started

```

● LoggingService - 8085, 8086

```

RAM: 12.05 GIB CPU 8% ..... 62°C ..... I II III IV V ..... 585 0 0S % muted 100% 14:20 | 12/05/23 Keenetic2023

adeonPC:~% cd coding/AP2/Labs/lab2/MicroServices/cmake-build-debug/FacadeService
adeonPC:FacadeService% cd ..
adeonPC:cmake-build-debug% cd LoggingService
adeonPC:LoggingService% ./LoggingService
<micro_consul>
<micro_consul>
12/05/2023 14:20:08.755 INFO: [140026869425856] hz.client_1[dev] [5.1.0] (Fri Dec 30 14:45:20 202
2 +0000) LifecycleService::LifecycleEvent Client [5a7f0e53-9b0b-400e-9d34-5d71ee274586]
is STARTING
12/05/2023 14:20:08.755 INFO: [140026869425856] hz.client_1[dev] [5.1.0] (Fri Dec 30 14:45:20 202
2 +0000) LifecycleService::LifecycleEvent STARTING
12/05/2023 14:20:08.755 INFO: [140026869425856] hz.client_1[dev] [5.1.0] Li
ifecycleService::LifecycleEvent STARTED
12/05/2023 14:20:08.757 INFO: [140026869425856] hz.client_1[dev] [5.1.0] Trying to connect to Add
ress:[127.0.0.1:5701].
12/05/2023 14:20:08.759 INFO: [140026869425856] hz.client_1[dev] [5.1.0] LifecycleService::LifecycleEvent
CLIENT CONNECTED
12/05/2023 14:20:08.760 INFO: [140026869425856] hz.client_1[dev] [5.1.0] Authenticated with serve
r Address:[172.17.0.2:5701];ca9537f7-2b81-4fcc-a727-d8d2ce9afc49, server version: 5.2.2, local ad
dress: Address[127.0.0.1:43098]. Connection(alive=1, connection id=1, remote endpointAddress[172
.17.0.2:5701], last_read_time=2023-05-12 14:20:08.759, last_write_time=2023-05-12 14:20:08.758, c
losedTime=never, connected server version:5.2.2)
12/05/2023 14:20:08.760 INFO: [140026869425856] hz.client_1[dev] [5.1.0]

Members [3] {
    Member[172.17.0.4]:5701 - d6e0d7c9-9066-4e02-b1e3-b3dbf8914f8
    Member[172.17.0.3]:5701 - 2c39c832-c2c3-4f45-a5ea-936fa446e18
    Member[172.17.0.2]:5701 - ca9537f7-2b81-4fcc-a727-d8d2ce9afc49
}

12/05/2023 14:20:08.760 INFO: [140026869425856] hz.client_1[dev] [5.1.0] Trying to connect to Add
ress:[172.17.0.4:5701].
12/05/2023 14:20:08.762 INFO: [140026869425856] hz.client_1[dev] [5.1.0] Authenticated with serve
r Address:[172.17.0.4:5701];d6e0d7c9-9066-4e02-b1e3-b3dbf8914f8, server version: 5.2.2, local ad
dress: Address[127.0.0.1:44416]. Connection(alive=1, connection id=2, remote endpointAddress[172
.17.0.4:5701], last_read_time=2023-05-12 14:20:08.762, last_write_time=2023-05-12 14:20:08.760,
closedTime=never, connected server version:5.2.2)
12/05/2023 14:20:08.762 INFO: [140026869425856] hz.client_1[dev] [5.1.0] Trying to connect to Add
ress:[172.17.0.3:5701].
12/05/2023 14:20:08.763 INFO: [140026869425856] hz.client_1[dev] [5.1.0] Authenticated with serve
r Address:[172.17.0.3:5701];2c39c832-c2c3-4f45-a5ea-936fa446e18, server version: 5.2.2, local ad
dress: Address[127.0.0.1:49176]. Connection(alive=1, connection id=3, remote endpointAddress[172
.17.0.3:5701], last_read_time=2023-05-12 14:20:08.763, last_write_time=2023-05-12 14:20:08.762,
closedTime=never, connected server version:5.2.2)
[2023-05-12 14:20:08.776] [info] Service at /LoggingService started

adeonPC:~% cd coding/AP2/Labs/lab2/MicroServices/cmake-build-debug/LoggingService
adeonPC:LoggingService% ./LoggingService
<micro_consul>
12/05/2023 14:20:13.335 INFO: [140348534040256] hz.client_1[dev] [5.1.0] (Fri Dec 30 14:45:20 202
2 +0000) LifecycleService::LifecycleEvent Client [c70b5064-75c0-4e23-80b6
-7c7979fa4d41] is STARTING
12/05/2023 14:20:13.335 INFO: [140348534040256] hz.client_1[dev] [5.1.0] (Fri Dec 30 14:45:20 202
2 +0000) LifecycleService::LifecycleEvent STARTING
12/05/2023 14:20:13.335 INFO: [140348534040256] hz.client_1[dev] [5.1.0] LifecycleService::LifecycleEvent
STARTED
12/05/2023 14:20:13.343 INFO: [140348534040256] hz.client_1[dev] [5.1.0] Trying to connect to Add
ress:[127.0.0.1:5701].
12/05/2023 14:20:13.343 INFO: [140348534040256] hz.client_1[dev] [5.1.0] LifecycleService::LifecycleEvent
CLIENT CONNECTED
12/05/2023 14:20:13.343 INFO: [140348534040256] hz.client_1[dev] [5.1.0] Authenticated wit
h server Address[172.17.0.2:5701];ca9537f7-2b81
-4fcc-a727-d8d2ce9afc49, server version: 5.2.2, local address: Address[127.0.0.1:51294]. C
onnection(alive=1, connection id=1, remote endpointAddress[172.17.0.2:5701], last_read_t
ime=2023-05-12 14:20:13.343, last_write_time=2023-05-12 14:20:13.342, closedTime=never, con
nected server version:5.2.2)
12/05/2023 14:20:13.343 INFO: [140348534040256] hz.client_1[dev] [5.1.0]

Members [3] {
    Member[172.17.0.4]:5701 - d6e0d7c9-9066-4e02-b1e3-b3dbf8914f8
    Member[172.17.0.3]:5701 - 2c39c832-c2c3-4f45-a5ea-936fa446e18
    Member[172.17.0.2]:5701 - ca9537f7-2b81-4fcc-a727-d8d2ce9afc49
}

12/05/2023 14:20:13.344 INFO: [140348534040256] hz.client_1[dev] [5.1.0] Trying to connect to Add
ress:[172.17.0.4:5701].
12/05/2023 14:20:13.345 INFO: [140348534040256] hz.client_1[dev] [5.1.0] Authenticated wit
h server Address[172.17.0.4:5701];d6e0d7c9-9066-4e02-b1e3-b3dbf8914f8, server version: 5
.2.2, local address: Address[172.17.0.1:32768]. Connection(alive=1, connection id=2, remot
e endpointAddress[172.17.0.4:5701], last_read_time=2023-05-12 14:20:13.345, last_write_t
ime=2023-05-12 14:20:13.344, closedTime=never, connected server version:5.2.2)
12/05/2023 14:20:13.345 INFO: [140348534040256] hz.client_1[dev] [5.1.0] Trying to connect to Add
ress:[172.17.0.3:5701].
12/05/2023 14:20:13.347 INFO: [140348534040256] hz.client_1[dev] [5.1.0] Authenticated wit
h server Address[172.17.0.3:5701];2c39c832-c2c3-4f45-a5ea-936fa446e718, server version: 5
.2.2, local address: Address[172.17.0.1:34346]. Connection(alive=1, connection id=3, remot
e endpointAddress[172.17.0.3:5701], last_read_time=2023-05-12 14:20:13.347, last_write_t
ime=2023-05-12 14:20:13.345, closedTime=never, connected server version:5.2.2)
[2023-05-12 14:20:13.380] [info] Service at /LoggingService started

```

- Бачимо що в `consul` вони себе зареєстрували:

The screenshot shows the Consul UI interface. On the left, there's a sidebar with navigation links: Overview, Services, Nodes, Key/Value, Intentions, ACCESS CONTROLS (with a red dot), Tokens, Policies, Roles, Auth Methods, ORGANIZATION, and Peers. The main area is titled "Services 4 total". It lists four services with green checkmarks:

- FacadeService**: 2 instances
- LoggingService**: 2 instances
- MessageService**: 2 instances
- consul**: 1 instance

 Below each service entry, there are "Search Across" and "Health Status" buttons.

2. Надсилаю пару POST та GET

Надсилаю `POST` на обидва `FacadeService`

```

adeonPC:scripts:% curl -XPOST -v http://localhost:8082/FacadeService -d "msg3" | cat
Note: Unnecessary use of -X or --request, POST is already inferred. service=Message
* Trying 127.0.0.1:8082...
* Connected to localhost (127.0.0.1) port 8082 (#0)
> POST /FacadeService HTTP/1.1
> Host: localhost:8082
> User-Agent: curl/8.0.1
> Accept: */*
> Content-Length: 4
> Content-Type: application/x-www-form-urlencoded
>
< HTTP/1.1 200 OK
< Date: Fri, 12 May 2023 11:22:27 GMT
< Content-Type: text/plain
< Content-Length: 38
<
* Connection #0 to host localhost left intact
Posted to Message and Logging services%

```

```

adeonPC:scripts:% curl -XPOST -v http://localhost:8081/FacadeService -d "msg1" | cat
Note: Unnecessary use of -X or --request, POST is already inferred. service=Logging
* Trying 127.0.0.1:8081...
* Connected to localhost (127.0.0.1) port 8081 (#0)
> POST /FacadeService HTTP/1.1
> Host: localhost:8081
> User-Agent: curl/8.0.1
> Accept: */*
> Content-Length: 4
> Content-Type: application/x-www-form-urlencoded
>
< HTTP/1.1 200 OK
< Date: Fri, 12 May 2023 11:21:43 GMT
< Content-Type: text/plain
< Content-Length: 38
<
* Connection #0 to host localhost left intact
Posted to Message and Logging services%

```

MessageService С розподілили дані між собою

```

12/05/2023 14:19:04.305 INFO: [140626060961472] hz.client_1[dev] [5.1.0] Authenticated with server Address[172.17.0.3:5701];c239c832-c2c3-4f45-a5ea-936fa446e718, server version: 5.2.2, local address: Address[172.17.0.1:57792]. Connection(alive=1, connection_id=3, remote endpoint=Address[172.17.0.3:5701], last read time=2023-05-12 14:18:58.347, last write time=2023-05-12 14:18:58.344, closedTime=never, connected server version=5.2.2)
[2023-05-12 14:18:58.368] [info] Service at /MessageService started
[2023-05-12 14:21:43.827] [info] Service: Pulled element from MQ: msg1
[2023-05-12 14:22:27.381] [info] Service: Pulled element from MQ: msg3
12/05/2023 14:19:04.305 INFO: [140626060961472] hz.client_1[dev] [5.1.0] Authentication successful. Address[172.17.0.3:5701];c239c832-c2c3-4f45-a5ea-936fa446e718, server version: 5.2.2, local address: Address[172.17.0.1:52836]. Connection(alive=1, connect endpoint=Address[172.17.0.3:5701], last read time=2023-05-12 14:19:04.305 ms=2023-05-12 14:19:04.304, closedTime=never, connected server version=5.2.2)
[2023-05-12 14:19:04.321] [info] Service at /MessageService started
[2023-05-12 14:21:50.653] [info] Service: Pulled element from MQ: msg2
[2023-05-12 14:22:32.717] [info] Service: Pulled element from MQ: msg4

```

LoggingService С прийняли меседжі теж

```

[2023-05-12 14:22:27.381] [info] Service: Pulled element from MQ: msg3
[2023-05-12 14:24:41.925] [info] Controller: Received GET from: 127.0.0.1:47314
^C
adeonPC:MessagesService:% | <micro_consul>

```

Дeregistrovemo:

```
adeonPC:scripts:% ./deregister-service.sh MessageService8083
Deregistered service: MessageService8083
adeonPC:scripts:% ./deregister-service.sh LoggingService8086
Deregistered service: LoggingService8086
adeonPC:scripts:%
```

Consul є “побачив” та дереєстрував їх:

```
2023-05-12T11:14:44.732Z [INFO] agent.server: federation state anti-entropy synced
Content-Type: text/plain
Content-Length: 32
2023-05-12T11:14:51.136Z [INFO] agent: Synced node info
2023-05-12T11:17:29.729Z [INFO] agent: Synced service: service=FacadeService8081
2023-05-12T11:18:00.367Z [INFO] agent: Synced service: service=FacadeService8082
2023-05-12T11:18:58.363Z [INFO] agent: Synced service: service=MessageService8083
2023-05-12T11:19:04.319Z [INFO] agent: Synced service: service=MessageService8084
2023-05-12T11:20:08.776Z [INFO] agent: Synced service: service=LoggingService8085
2023-05-12T11:20:13.379Z [INFO] agent: Synced service: service=LoggingService8086
2023-05-12T11:26:48.794Z [INFO] agent: Deregistered service: service=MessageService8083
2023-05-12T11:27:13.161Z [INFO] agent: Deregistered service: service=LoggingService8086
```

Services 4 total

Search	Search Across
<input checked="" type="checkbox"/> FacadeService	2 instances
<input checked="" type="checkbox"/> LoggingService	1 instance
<input checked="" type="checkbox"/> MessageService	1 instance
<input checked="" type="checkbox"/> consul	1 instance

4. Знову виконуємо POST та GET на сервіси щоб подивитися на які сервіси підуть реквести

Роблю пост 4 повідомлень `msgN`, `msgN1`, `msgN2`, `msgN3`.

```
adeonPC:scripts:% curl -XPOST -v http://localhost:8082/FacadeService -d "msgN"
Note: Unnecessary use of -X or --request, POST is already inferred.
* Trying 127.0.0.1:8082...
* Connected to localhost (127.0.0.1) port 8082 (#0)
> POST /FacadeService HTTP/1.1
> Host: localhost:8082
> User-Agent: curl/8.0.1
> Accept: */*
> Content-Length: 4
> Content-Type: application/x-www-form-urlencoded
>
< HTTP/1.1 200 OK
< Date: Fri, 12 May 2023 11:29:21 GMT
< Content-Type: text/plain
< Content-Length: 38
<
* Connection #0 to host localhost left intact
Posted to Message and Logging services
adeonPC:scripts:% curl -XPOST -v http://localhost:8082/FacadeService -d "msgN1"
Note: Unnecessary use of -X or --request, POST is already inferred.
* Trying 127.0.0.1:8082...
* Connected to localhost (127.0.0.1) port 8082 (#0)
> POST /FacadeService HTTP/1.1
> Host: localhost:8082
> User-Agent: curl/8.0.1
> Accept: */*
> Content-Length: 5
> Content-Type: application/x-www-form-urlencoded
>
< HTTP/1.1 200 OK
< Date: Fri, 12 May 2023 11:29:24 GMT
< Content-Type: text/plain
< Content-Length: 38
<
* Connection #0 to host localhost left intact
Posted to Message and Logging services
adeonPC:scripts:% curl -XPOST -v http://localhost:8082/FacadeService -d "msgN2"
Note: Unnecessary use of -X or --request, POST is already inferred.
* Trying 127.0.0.1:8082...
* Connected to localhost (127.0.0.1) port 8082 (#0)
> POST /FacadeService HTTP/1.1
> Host: localhost:8082
> User-Agent: curl/8.0.1
> Accept: */*
> Content-Length: 5
> Content-Type: application/x-www-form-urlencoded
>
< HTTP/1.1 200 OK
< Date: Fri, 12 May 2023 11:29:26 GMT
< Content-Type: text/plain
< Content-Length: 38
<
* Connection #0 to host localhost left intact
Posted to Message and Logging services
adeonPC:scripts:% curl -XPOST -v http://localhost:8082/FacadeService -d "msgN3"
Note: Unnecessary use of -X or --request, POST is already inferred.
* Trying 127.0.0.1:8082...
* Connected to localhost (127.0.0.1) port 8082 (#0)
> POST /FacadeService HTTP/1.1
> Host: localhost:8082
> User-Agent: curl/8.0.1
> Accept: */*
> Content-Length: 5
> Content-Type: application/x-www-form-urlencoded
>
< HTTP/1.1 200 OK
< Date: Fri, 12 May 2023 11:29:28 GMT
< Content-Type: text/plain
< Content-Length: 38
<
* Connection #0 to host localhost left intact
Posted to Message and Logging services
```

```
adeonPC:scripts:% curl -XPOST -v http://localhost:8082/FacadeService -d "msgN2"
Note: Unnecessary use of -X or --request, POST is already inferred.
* Trying 127.0.0.1:8082...
* Connected to localhost (127.0.0.1) port 8082 (#0)
> POST /FacadeService HTTP/1.1
> Host: localhost:8082
> User-Agent: curl/8.0.1
> Accept: */*
> Content-Length: 5
> Content-Type: application/x-www-form-urlencoded
>
< HTTP/1.1 200 OK
< Date: Fri, 12 May 2023 11:29:26 GMT
< Content-Type: text/plain
< Content-Length: 38
<
* Connection #0 to host localhost left intact
Posted to Message and Logging services
adeonPC:scripts:% curl -XPOST -v http://localhost:8082/FacadeService -d "msgN3"
Note: Unnecessary use of -X or --request, POST is already inferred.
* Trying 127.0.0.1:8082...
* Connected to localhost (127.0.0.1) port 8082 (#0)
> POST /FacadeService HTTP/1.1
> Host: localhost:8082
> User-Agent: curl/8.0.1
> Accept: */*
> Content-Length: 5
> Content-Type: application/x-www-form-urlencoded
>
< HTTP/1.1 200 OK
< Date: Fri, 12 May 2023 11:29:28 GMT
< Content-Type: text/plain
< Content-Length: 38
<
* Connection #0 to host localhost left intact
Posted to Message and Logging services
adeonPC:scripts:% curl -XPOST -v http://localhost:8082/FacadeService -d "msgN3"
Note: Unnecessary use of -X or --request, POST is already inferred.
* Trying 127.0.0.1:8082...
* Connected to localhost (127.0.0.1) port 8082 (#0)
> POST /FacadeService HTTP/1.1
> Host: localhost:8082
> User-Agent: curl/8.0.1
> Accept: */*
> Content-Length: 5
> Content-Type: application/x-www-form-urlencoded
>
< HTTP/1.1 200 OK
< Date: Fri, 12 May 2023 11:29:29 GMT
< Content-Type: text/plain
< Content-Length: 38
<
* Connection #0 to host localhost left intact
Posted to Message and Logging services
```

Кілька разів виконую `GET`:

```
adeonPC:scripts:% curl -XGET -v http://localhost:8082/FacadeService
Note: Unnecessary use of -X or --request, GET is already inferred.
* Trying 127.0.0.1:8082...
* Connected to localhost (127.0.0.1) port 8082 (#0)
> GET /FacadeService HTTP/1.1
> Host: localhost:8082
> User-Agent: curl/8.0.1
> Accept: */*
>
< HTTP/1.1 200 OK
< Date: Fri, 12 May 2023 11:29:40 GMT
< Content-Type: text/plain
< Content-Length: 78
<
* Connection #0 to host localhost left intact
msgN2 msg1 msgN3 msg4 msg2 msg3 msgN msgN1 |msg2 msg4 msgN msgN1 msgN2 msgN3 |
adeonPC:scripts:% curl -XGET -v http://localhost:8082/FacadeService
Note: Unnecessary use of -X or --request, GET is already inferred.
* Trying 127.0.0.1:8082...
* Connected to localhost (127.0.0.1) port 8082 (#0)
> GET /FacadeService HTTP/1.1
> Host: localhost:8082
> User-Agent: curl/8.0.1
> Accept: */*
>
< HTTP/1.1 200 OK
< Date: Fri, 12 May 2023 11:29:42 GMT
< Content-Type: text/plain
< Content-Length: 78
<
* Connection #0 to host localhost left intact
msgN2 msg1 msgN3 msg4 msg2 msg3 msgN msgN1 |msg2 msg4 msgN msgN1 msgN2 msgN3 |
adeonPC:scripts:% curl -XGET -v http://localhost:8082/FacadeService
Note: Unnecessary use of -X or --request, GET is already inferred.
* Trying 127.0.0.1:8082...
* Connected to localhost (127.0.0.1) port 8082 (#0)
> GET /FacadeService HTTP/1.1
> Host: localhost:8082
> User-Agent: curl/8.0.1
> Accept: */*
>
< HTTP/1.1 200 OK
< Date: Fri, 12 May 2023 11:29:44 GMT
< Content-Type: text/plain
< Content-Length: 78
<
* Connection #0 to host localhost left intact
msgN2 msg1 msgN3 msg4 msg2 msg3 msgN msgN1 |msg2 msg4 msgN msgN1 msgN2 msgN3 |
```

```
adeonPC:scripts:% curl -XGET -v http://localhost:8082/FacadeService
Note: Unnecessary use of -X or --request, GET is already inferred.
* Trying 127.0.0.1:8082...
* Connected to localhost (127.0.0.1) port 8082 (#0)
> GET /FacadeService HTTP/1.1
> Host: localhost:8082
> User-Agent: curl/8.0.1
> Accept: */*
>
< HTTP/1.1 200 OK
< Date: Fri, 12 May 2023 11:29:37 GMT
< Content-Type: text/plain
< Content-Length: 78
<
* Connection #0 to host localhost left intact
msgN2 msg1 msgN3 msg4 msg2 msg3 msgN msgN1 |msg2 msg4 msgN msgN1 msgN2 msgN3 |
adeonPC:scripts:% curl -XGET -v http://localhost:8082/FacadeService
Note: Unnecessary use of -X or --request, GET is already inferred.
* Trying 127.0.0.1:8082...
* Connected to localhost (127.0.0.1) port 8082 (#0)
> GET /FacadeService HTTP/1.1
> Host: localhost:8082
> User-Agent: curl/8.0.1
> Accept: */*
>
< HTTP/1.1 200 OK
< Date: Fri, 12 May 2023 11:29:40 GMT
< Content-Type: text/plain
< Content-Length: 78
<
* Connection #0 to host localhost left intact
msgN2 msg1 msgN3 msg4 msg2 msg3 msgN msgN1 |msg2 msg4 msgN msgN1 msgN2 msgN3 |
adeonPC:scripts:% curl -XGET -v http://localhost:8082/FacadeService
Note: Unnecessary use of -X or --request, GET is already inferred.
* Trying 127.0.0.1:8082...
* Connected to localhost (127.0.0.1) port 8082 (#0)
> GET /FacadeService HTTP/1.1
> Host: localhost:8082
> User-Agent: curl/8.0.1
> Accept: */*
>
< HTTP/1.1 200 OK
< Date: Fri, 12 May 2023 11:29:42 GMT
< Content-Type: text/plain
< Content-Length: 78
<
* Connection #0 to host localhost left intact
msgN2 msg1 msgN3 msg4 msg2 msg3 msgN msgN1 |msg2 msg4 msgN msgN1 msgN2 msgN3 |
```

Як бачимо результати беруться тільки з тих сервісів що існують, логи це підтверджують:

```
service
[2023-05-12 14:24:41.925] [info] Service: GET STATUS: 200
[2023-05-12 14:29:21.842] [info] Controller: Received POST from: 127.0.0.1:42161
[2023-05-12 14:29:21.842] [info] Service: Generated UUID pair: [af0fe7b2-62d3-415f-8130-17be21457e7b, msgN]
[2023-05-12 14:29:21.843] [info] Service: Sending POST to: http://127.0.0.1:8085/LoggingService
[2023-05-12 14:29:21.845] [info] Service: POST STATUS: 200
[2023-05-12 14:29:24.445] [info] Controller: Received POST from: 127.0.0.1:45745
[2023-05-12 14:29:24.445] [info] Service: Generated UUID pair: [35c8d0f6-b48f-4492-97cf-e96e06ffffdd9, msgN1]
[2023-05-12 14:29:24.448] [info] Service: Sending POST to: http://127.0.0.1:8085/LoggingService
[2023-05-12 14:29:24.453] [info] Service: POST STATUS: 200
[2023-05-12 14:29:26.687] [info] Controller: Received POST from: 127.0.0.1:49841
[2023-05-12 14:29:26.687] [info] Service: Generated UUID pair: [d3bf1a2c-67fd-4e3c-8333-820b592e811b, msgN2]
[2023-05-12 14:29:26.689] [info] Service: Sending POST to: http://127.0.0.1:8085/LoggingService
[2023-05-12 14:29:26.696] [info] Service: POST STATUS: 200
[2023-05-12 14:29:29.383] [info] Controller: Received POST from: 127.0.0.1:53937
[2023-05-12 14:29:29.383] [info] Service: Generated UUID pair: [f32849f8-027b-499b-a971-b325f9e11d2f, msgN3]
[2023-05-12 14:29:29.387] [info] Service: Sending POST to: http://127.0.0.1:8085/LoggingService
[2023-05-12 14:29:29.391] [info] Service: POST STATUS: 200
[2023-05-12 14:29:37.979] [info] Controller: Received GET from: 127.0.0.1:62676
[2023-05-12 14:29:37.980] [info] Service: Sending GET to: http://127.0.0.1:8085/LoggingService
[2023-05-12 14:29:37.984] [info] Service: GET STATUS: 200
[2023-05-12 14:29:37.986] [info] Service: Sending GET to: http://127.0.0.1:8084/MessageService
[2023-05-12 14:29:37.986] [info] Service: GET STATUS: 200
[2023-05-12 14:29:40.207] [info] Controller: Received GET from: 127.0.0.1:42699
[2023-05-12 14:29:40.208] [info] Service: Sending GET to: http://127.0.0.1:8085/LoggingService
[2023-05-12 14:29:40.218] [info] Service: GET STATUS: 200
[2023-05-12 14:29:40.219] [info] Service: Sending GET to: http://127.0.0.1:8084/MessageService
[2023-05-12 14:29:40.219] [info] Service: GET STATUS: 200
[2023-05-12 14:29:42.022] [info] Controller: Received GET from: 127.0.0.1:44235
[2023-05-12 14:29:42.023] [info] Service: Sending GET to: http://127.0.0.1:8085/LoggingService
[2023-05-12 14:29:42.027] [info] Service: GET STATUS: 200
[2023-05-12 14:29:42.028] [info] Service: Sending GET to: http://127.0.0.1:8084/MessageService
[2023-05-12 14:29:42.028] [info] Service: GET STATUS: 200
```

3 `FacadeService` Йдуть реквести лише до живих сервісів.

5. Зупинка всього

Потрібно заранити скрипт `stop-consul.sh` щоб той зупинив та почистив consul контейнер:

```
2023-05-12T11:34:29.739Z [INFO] agent
adeonPC:scripts:% ./stop-consul.sh
service-manager
service-manager
adeonPC:scripts:% |
```
