Lab 05: Microservices with Consul

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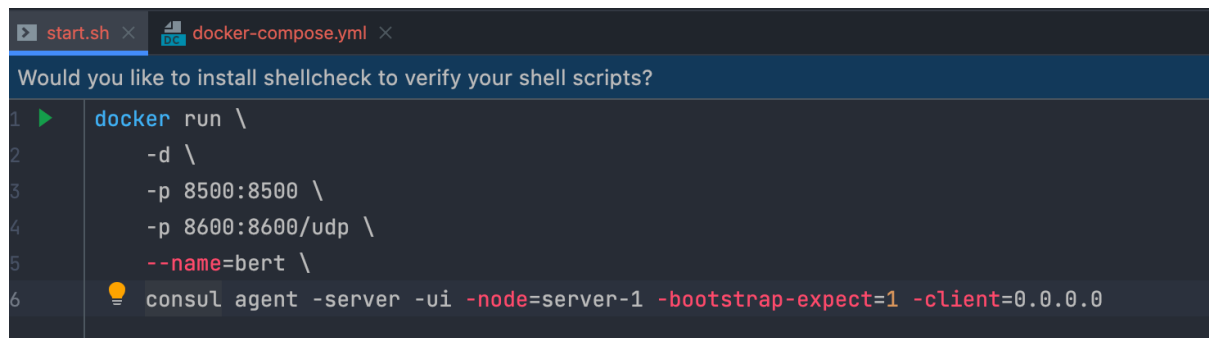
Code (branch): *micro_consul*

Starting the hazelcast on 3 distributed nodes

```
Members {size:1, ver:1} [
        Member [172.18.3.57]:5701 - d5ac9981-d327-4fc8-893d-559a94af6e5b this
]
```

```
Members {size:1, ver:1} [
        Member [172.18.3.57]:5702 - 82433fec-aa09-484c-8f5d-11b494089eed this
]
```

```
Members {size:1, ver:1} [
        Member [172.18.3.57]:5703 - 8f8bfbd8-09ba-4c72-a05c-87569e85641d this
]
```
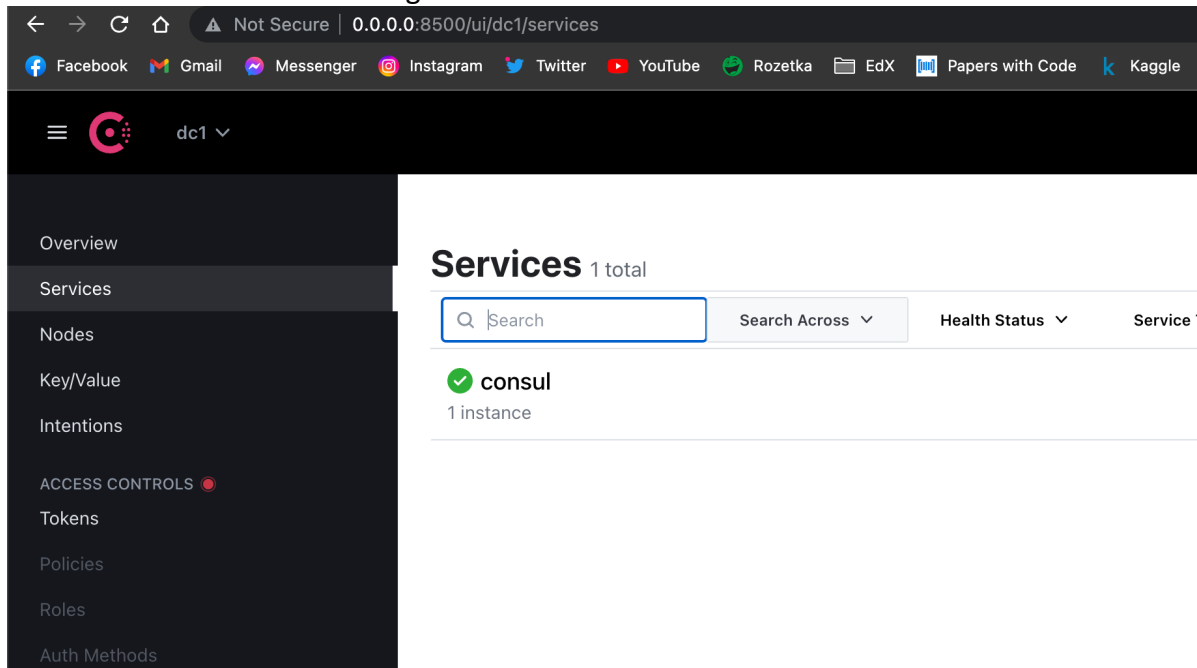
Starting Consul

```
> start.sh ×    docker-compose.yml ×
Would you like to install shellcheck to verify your shell scripts?
1 ▶    docker run \
2          -d \
3          -p 8500:8500 \
4          -p 8600:8600/udp \
5          --name=bert \
6  💡     consul agent -server -ui -node=server-1 -bootstrap-expect=1 -client=0.0.0.0
```

Check the running service
- We see that it is running

Additionally, the hazelcast nodes are registered

```
INFO: [172.18.3.57]:5701 [dev] [4.2.5] [172.18.3.57]:5701 is STARTED

INFO: [172.18.3.57]:5702 [dev] [4.2.5] [172.18.3.57]:5702 is STARTED

INFO: [172.18.3.57]:5703 [dev] [4.2.5] [172.18.3.57]:5703 is STARTED
```

Now we start up all the microservices

Facade

```
(Labs) slavkoprytula@Slavkos-MacBook-Pro Lab_06 % python facade-service/main.py --port=8080
Connected to the hz clusters
 * Serving Flask app "main" (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://localhost:8080/ (Press CTRL+C to quit)
```

Logging

```
(Labs) slavkoprytula@Slavkos-MacBook-Pro Lab_06 % python logging-service/main.py --port=8081
Connected to the hz clusters
 * Serving Flask app "main" (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://localhost:8081/ (Press CTRL+C to quit)
```

```
(Labs) slavkoprytula@Slavkos-MacBook-Pro Lab_06 % python logging-service/main.py --port=8082
Connected to the hz clusters
 * Serving Flask app "main" (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://localhost:8082/ (Press CTRL+C to quit)

(Labs) slavkoprytula@Slavkos-MacBook-Pro Lab_06 % python logging-service/main.py --port=8083
Connected to the hz clusters
 * Serving Flask app "main" (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://localhost:8083/ (Press CTRL+C to quit)
```

Messaging

```
(Labs) slavkoprytula@Slavkos-MacBook-Pro Lab_06 % python messages-service/main.py --port=8084
Connected to the hz clusters
 * Serving Flask app "main" (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://localhost:8084/ (Press CTRL+C to quit)

(Labs) slavkoprytula@Slavkos-MacBook-Pro Lab_06 % python messages-service/main.py --port=8085
Connected to the hz clusters
 * Serving Flask app "main" (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://localhost:8085/ (Press CTRL+C to quit)
```

Now check and confirm the running services on the cluster

< All Nodes

server-1

Health Checks   **Service Instances**   Lock Sessions   Metadata

| 🔍 Search | Search Across ∨ | Health Status ∨ |

consul
⊟ No service checks   🌐 172.17.0.2:8300

facade-98a01a2f-042f-4549-9655-1d254c94806b
⊟ No service checks   🌐 172.17.0.2:8080

facade-d024b332-d0a7-4d1c-95df-f47cff76e32a
⊟ No service checks   🌐 172.17.0.2:8080

logging-0e592ec7-eb60-4821-a9c8-7c36b8edb547
⊟ No service checks   🌐 172.17.0.2:8081

logging-2010ad9b-4c85-4c73-91ae-f27026fb46fd
⊟ No service checks   🌐 172.17.0.2:8083

logging-5fe0c676-91c1-46c0-9528-40dfd57fbcc3
⊟ No service checks   🌐 172.17.0.2:8081

logging-c2f762db-39c9-4070-b95a-d6e7ac0c5dd3
⊟ No service checks   🌐 172.17.0.2:8082

< All Nodes

server-1

Health Checks   **Service Instances**   Lock Sessions   Metadata

| 🔍 Search | Search Across ∨ | Health Status ∨ |

logging-0e592ec7-eb60-4821-a9c8-7c36b8edb547
⊟ No service checks   🌐 172.17.0.2:8081

logging-2010ad9b-4c85-4c73-91ae-f27026fb46fd
⊟ No service checks   🌐 172.17.0.2:8083

logging-5fe0c676-91c1-46c0-9528-40dfd57fbcc3
⊟ No service checks   🌐 172.17.0.2:8081

logging-c2f762db-39c9-4070-b95a-d6e7ac0c5dd3
⊟ No service checks   🌐 172.17.0.2:8082

logging-e5c652d9-f0f6-4f0b-ba1f-5b68757f45b5
⊟ No service checks   🌐 172.17.0.2:8081

messages-90c6ba2f-04a5-4b14-820e-0c133cf9d66c
⊟ No service checks   🌐 172.17.0.2:8085

messages-a8feb79f-451a-473a-9a85-8397ca166678
⊟ No service checks   🌐 172.17.0.2:8084

Requests

After executing the requests we have the following output to each running service

Facade

```
   Use a production WSGI server instead.
 * Debug mode: off
 * Running on http://localhost:8080/ (Press CTRL+C to quit)
127.0.0.1 - - [09/Jun/2022 20:03:44] "POST /facade HTTP/1.1" 200 -
127.0.0.1 - - [09/Jun/2022 20:03:45] "POST /facade HTTP/1.1" 200 -
127.0.0.1 - - [09/Jun/2022 20:03:46] "POST /facade HTTP/1.1" 200 -
127.0.0.1 - - [09/Jun/2022 20:03:48] "POST /facade HTTP/1.1" 200 -
127.0.0.1 - - [09/Jun/2022 20:03:50] "POST /facade HTTP/1.1" 200 -
127.0.0.1 - - [09/Jun/2022 20:03:51] "POST /facade HTTP/1.1" 200 -
127.0.0.1 - - [09/Jun/2022 20:03:52] "POST /facade HTTP/1.1" 200 -
127.0.0.1 - - [09/Jun/2022 20:03:53] "POST /facade HTTP/1.1" 200 -
127.0.0.1 - - [09/Jun/2022 20:03:54] "POST /facade HTTP/1.1" 200 -
127.0.0.1 - - [09/Jun/2022 20:03:56] "POST /facade HTTP/1.1" 200 -
```

Logging

```
   Use a production WSGI server instead.
 * Debug mode: off
 * Running on http://localhost:8083/ (Press CTRL+C to quit)
------ msg5
Logging Service: [uuid: bb882771-bdd6-4bc9-8f28-aace851dbd3c, msg: msg5]
127.0.0.1 - - [09/Jun/2022 19:53:51] "POST /logging HTTP/1.1" 200 -
------ msg7
Logging Service: [uuid: 743724a6-2889-41e1-841e-04f894bee9e0, msg: msg7]
127.0.0.1 - - [09/Jun/2022 19:53:56] "POST /logging HTTP/1.1" 200 -
------ msg10
Logging Service: [uuid: 04d28348-8893-4b20-ab09-baa8e6804529, msg: msg10]
127.0.0.1 - - [09/Jun/2022 19:54:00] "POST /logging HTTP/1.1" 200 -
```

```
   Use a production WSGI server instead.
 * Debug mode: off
 * Running on http://localhost:8082/ (Press CTRL+C to quit)
------ msg1
Logging Service: [uuid: aa371510-5294-4bb3-a4d1-b69848ad3d0c, msg: msg1]
127.0.0.1 - - [09/Jun/2022 19:53:29] "POST /logging HTTP/1.1" 200 -
------ msg2
Logging Service: [uuid: 5d114744-188d-4422-81fc-392131041019, msg: msg2]
127.0.0.1 - - [09/Jun/2022 19:53:44] "POST /logging HTTP/1.1" 200 -
------ msg8
Logging Service: [uuid: 994a7a75-6fab-4855-a346-e7b8ea6305ee, msg: msg8]
127.0.0.1 - - [09/Jun/2022 19:53:57] "POST /logging HTTP/1.1" 200 -
```

```
 * Running on http://localhost:8081/ (Press CTRL+C to quit)
------ msg3
Logging Service: [uuid: 07e98709-e19c-4f10-92a4-5c827e98fee2, msg: msg3]
127.0.0.1 - - [09/Jun/2022 19:53:47] "POST /logging HTTP/1.1" 200 -
------ msg4
Logging Service: [uuid: f3c32401-f372-4090-82f7-570862799546, msg: msg4]
127.0.0.1 - - [09/Jun/2022 19:53:49] "POST /logging HTTP/1.1" 200 -
------ msg6
Logging Service: [uuid: a5452d9c-60f0-42a8-ae94-50b930a0031f, msg: msg6]
127.0.0.1 - - [09/Jun/2022 19:53:54] "POST /logging HTTP/1.1" 200 -
------ msg9
Logging Service: [uuid: e4eb875a-7412-4780-9d7c-5bd44ff957f4, msg: msg9]
127.0.0.1 - - [09/Jun/2022 19:53:59] "POST /logging HTTP/1.1" 200 -
```

We see that random logging service choice

Messaging

```
Messages Service:  msg1
Messages Service:  msg2
Messages Service:  msg3
Messages Service:  msg4
Messages Service:  msg5
Messages Service:  msg6
Messages Service:  msg7
Messages Service:  msg8
Messages Service:  msg9
Messages Service:  msg10
127.0.0.1 - - [09/Jun/2022 20:24:19] "GET /messages HTTP/1.1" 200 -
```