

Day8 CSE实战之负载均衡

1 打卡任务

作业：

- 1、启动edge、consumer、provider实例各一个，通过edge调用consumer。然后启动另一个provider，观察consumer日志中刷新provider实例列表的日志。
- 2、连续调用consumer，退出一个provider，观察调用consumer的结果情况。

打卡：

- 1、截图consumer中刷新provider实例列表的特征日志
- 2、截图provider服务的一个实例退出并且连续调用consumer服务时，edge服务的日志

打卡任务基于Day7的demo项目：



2 准备工作

- 1、正常运行Day7的demo

3 观察 consumer 刷新 provider 实例列表的日志

- 1、启动edge、consumer、provider服务的实例各一个，通过edge调用consumer服务成功：



- 2、启动第二个provider实例，此时sc中有1个edge实例、1个consumer实例、2个provider实



例:

应用列表 微服务列表 实例列表

创建微服务

删除

Training21Days-Hello...

微服务名称

Q

C

| <input type="checkbox"/> | 微服务名称 | 所属应用 | 版本号 | 实例数 | 创建时间 | 操作 |
|--------------------------|----------|---------------------------|-----|-----|-------------------------------|----|
| <input type="checkbox"/> | provider | Training21Days-HelloWorld | 1 | 2 | 2019/03/02 10:05:40 GMT+08:00 | 删除 |
| <input type="checkbox"/> | consumer | Training21Days-HelloWorld | 1 | 1 | 2019/03/02 10:05:37 GMT+08:00 | 删除 |
| <input type="checkbox"/> | edge | Training21Days-HelloWorld | 1 | 1 | 2019/03/02 10:05:33 GMT+08:00 | 删除 |

3、当consumer的定时查询微服务实例任务从sc查询到provider的新实例时，会打印如下日志:

```
[INFO] find instances[2] from service center success. service=Training21Days-HelloWorld/provider/0.0.0, old revision=90131437abf15221a355628215105f8f85bc05c9, new revision=bb751686ea4772b0c92a012e7404de46c6d6b2f1 org.a
[INFO] service id=8a3eefaca25baeb05ebf98737d678b68bf50c92, instance id=adb613e83c8f11e9900e0255ac105166, endpoints=[rest://192.168.0.45:8080] org.apache.servicecomb.serviceregistry.registry.AbstractServiceRegistry.find
[INFO] service id=8a3eefaca25baeb05ebf98737d678b68bf50c92, instance id=bcc3fbbac3c8f11e9900e0255ac105166, endpoints=[rest://192.168.0.45:8081] org.apache.servicecomb.serviceregistry.registry.AbstractServiceRegistry.find
```

TIPS: 启动第一个provider实例后，一定要先调用一次consumer，让它去查询provider服务，再启动第二个provider服务的实例。

由于consumer服务查询provider服务信息是懒加载的，如果一直不触发consumer调用provider的话，则consumer一直不会去sc查询和刷新provider服务信息。

4 观察重试和实例隔离

1、完成上一步的操作后，现在应该有1个edge实例、1个consumer实例、2个provider实例在线。我们一边连续调用consumer服务，一边停止一个provider服务的实例，观察edge服务的日志:

```
2019-03-02 10:36:18,318 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:18 CST /rest/consumer/v0/hello?name=Alice 200 13 9 5c79ec22aa832fb6 org...
2019-03-02 10:36:18,458 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:18 CST /rest/consumer/v0/hello?name=Alice 200 13 8 5c79ec22efdd3294 org...
2019-03-02 10:36:18,595 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:18 CST /rest/consumer/v0/hello?name=Alice 200 13 9 5c79ec22efdd3294 org...
2019-03-02 10:36:18,734 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:18 CST /rest/consumer/v0/hello?name=Alice 200 13 9 5c79ec2281824229 org...
2019-03-02 10:36:18,874 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:18 CST /rest/consumer/v0/hello?name=Alice 200 13 11 5c79ec221e738369 org...
2019-03-02 10:36:19,009 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:19 CST /rest/consumer/v0/hello?name=Alice 200 13 7 5c79ec233926822f org...
2019-03-02 10:36:19,151 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:19 CST /rest/consumer/v0/hello?name=Alice 200 13 14 5c79ec233926822f org...
2019-03-02 10:36:20,328 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:20 CST /rest/consumer/v0/hello?name=Alice 200 13 1043 5c79ec23c02dc5d6 org...
2019-03-02 10:36:21,486 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:21 CST /rest/consumer/v0/hello?name=Alice 200 13 1030 5c79ec24700e3b61 org...
2019-03-02 10:36:22,635 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:22 CST /rest/consumer/v0/hello?name=Alice 200 13 1022 5c79ec256f8b1837 org...
2019-03-02 10:36:23,814 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:23 CST /rest/consumer/v0/hello?name=Alice 200 13 1039 5c79ec26ac3b7395 org...
2019-03-02 10:36:24,992 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:24 CST /rest/consumer/v0/hello?name=Alice 200 13 1041 5c79ec272a4e9918 org...
2019-03-02 10:36:25,145 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:25 CST /rest/consumer/v0/hello?name=Alice 200 13 13 5c79ec2904c87588 org...
2019-03-02 10:36:25,281 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:25 CST /rest/consumer/v0/hello?name=Alice 200 13 8 5c79ec292aebc0b6 org...
2019-03-02 10:36:25,500 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:25 CST /rest/consumer/v0/hello?name=Alice 200 13 8 5c79ec292aebc0b6 org...
2019-03-02 10:36:25,638 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:25 CST /rest/consumer/v0/hello?name=Alice 200 13 8 5c79ec29b55cea60 org...
2019-03-02 10:36:25,778 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:25 CST /rest/consumer/v0/hello?name=Alice 200 13 8 5c79ec29b0847ee22 org...
2019-03-02 10:36:25,922 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:25 CST /rest/consumer/v0/hello?name=Alice 200 13 8 5c79ec29e9ca2e2a org...
2019-03-02 10:36:26,061 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:26 CST /rest/consumer/v0/hello?name=Alice 200 13 8 5c79ec2af7117725 org...
2019-03-02 10:36:26,212 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:26 CST /rest/consumer/v0/hello?name=Alice 200 13 20 5c79ec2a3fed1295 org...
2019-03-02 10:36:26,364 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:26 CST /rest/consumer/v0/hello?name=Alice 200 13 10 5c79ec2ae2a46f44 org...
```

请求返回的状态码始终是200，说明调用都成功了

有五次请求的时延明显大于其他请求，这是consumer调用到已退出的provider实例，导致报错，在重试一次请求后才调用成功的，因此花费时间更长一些

后续调用的时延又恢复到较短的水平，此时consumer已经将有问题的provider实例隔离了，不会再调用它

2、观察consumer服务的日志

当已下线的provider实例还没有被consumer隔离时，consumer会调用到有问题的provider实例上出错，然后在另一个provider实例上重试才成功，有类似于下面的日志内容:

```
2019-03-02 10:36:24,974 [ERROR] Invoke server failed. Operation CONSUMER rest provider.hello.sayHello; server rest://192.168.0.45:8080; 0-0 msg cause:InvocationException,message:InvocationException: code=490;msg=CommonExceptionData [message=C
You can add fallback logic by catching this exception.
info: operation-provider.hello.sayHello;cause:InvocationException,message:InvocationException: code=490;msg=CommonExceptionData [message=Cse Internal Bad Request];cause:AnnotatedConnectException,message:Connection refused: no further inform
2019-03-02 10:36:24,989 [ERROR] Invoke server success. Operation CONSUMER rest provider.hello.sayHello; server rest://192.168.0.45:8080; org.apache.servicecomb.loadbalancer.LoadBalancerHandler$3.onExecutionSuccess(LoadBalancerHandler.java:306)
```

之后consumer将provider问题实例隔离时会打印如下日志:



```
[INFO] 192.168.0.45 - - Sat, 02 Mar 2019 10:36:23 CST /consumer/v0/hello?name=Alice 200 13 1037 5c79ec27a2a4a910
[WARN] Isolate service provider's instance bcc3fbbba3c8f11e9900e0255ac105166. org.apache.servicecomb.loadbalance.f
[INFO] 192.168.0.45 - - Sat, 02 Mar 2019 10:36:25 CST /consumer/v0/hello?name=Alice 200 13 9 5c79ec2904c87588 org
[INFO] 192.168.0.45 - - Sat, 02 Mar 2019 10:36:25 CST /consumer/v0/hello?name=Alice 200 13 5 5c79ec29db32e07d org
[INFO] 192.168.0.45 - - Sat, 02 Mar 2019 10:36:25 CST /consumer/v0/hello?name=Alice 200 13 5 5c79ec292aecb0b6 org
```

5 打卡截图

1、Consumer刷新provider实例记录的日志：

```
[INFO] 261ATC6 IQ=8936649C952D9602401D081319E18D00D120C45' IURZ9UC6 IQ=90013903C91176A00605229C702100' 6uqhotuF2=[1621:\J05'108'0'42:0001] 018'9b9C6'261ATC6COMP'261ATC6L68721L'168721L'WPR19C261ATC668721L'17UQ
[INFO] 261ATC6 IQ=8936649C952D9602401D081319E18D00D120C45' IURZ9UC6 IQ=90013903C91176A00605229C702100' 6uqhotuF2=[1621:\J05'108'0'42:0000] 018'9b9C6'261ATC6COMP'261ATC6L68721L'168721L'WPR19C261ATC668721L'17UQ
[INFO] 17UQ IURZ9UC62[S] 17UQ 261ATC6 6U616 2NCC622' 261ATC6=1497U7U83J0912-H6Jf0M01q,b10ATq610'0'0+' 01q 16ATZ2OU=001317319D12331932253831270210482P002C0' u6M 16ATZ2OU=001317319D12331932253831270210482P002C0' 018'9
```

2、通过edge连续调用consumer，并且下线一个provider实例时，edge服务的日志：

```
2019-03-02 10:36:18,318 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:18 CST /rest/consumer/v0/hello?name=Alice 200 13 9 5c79ec22aa832fb6 org..
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2019-03-02 10:36:25,778 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:25 CST /rest/consumer/v0/hello?name=Alice 200 13 8 5c79ec29b847ee22 org..
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2019-03-02 10:36:26,212 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:26 CST /rest/consumer/v0/hello?name=Alice 200 13 20 5c79ec2a3fed1295 org..
2019-03-02 10:36:26,364 [INFO] 127.0.0.1 - - Sat, 02 Mar 2019 10:36:26 CST /rest/consumer/v0/hello?name=Alice 200 13 10 5c79ec2ae2a46fe4 org..
```