Oregon State University
Ecampus

CS361: Assignment 5: Microservices Case Study & Pipe Spike

Overview

Learn how microservices work in the real world by (1) researching a software product that uses the microservices architecture and (2) implementing a microservices communication pipe that is NOT text files.

Instructions

Complete each item below by replacing the highlighted text (**Usability note**: double-click the text to select it).

1. **PART 1: Microservices Case Study**

   Find **well-known software** that uses the **microservices** architecture (e.g., Netflix, Amazon, etc.). **Research** the software and answer the following **questions**.

   a. What is the **name of the software** and **what is it for**? (1+ sentences)

   Netflix
   Netflix is a software which streams movies and dramas to the user.

   b. **Why** was the microservices architecture used for this software? (2+ sentences)

   In the case of Netflix, there are millions of users. If Netflix handles their users with one whole program, it will take delay and potential dangers to restart the software. In order to distribute the potential dangers and reducing the delay which may happen if Netflix is a one whole software, Netflix used the microservices architecture.

   c. How does **communication** happen between the software's microservices? (2+ sentences)

   The communication between Netflix's microservices uses inter-service communication protocols such as HTTP. By using the inter-service communication protocols, one microservice sends a request to another microservice, and the receiver microservice sends a response to the microservice which sent the request.

   d. Name and **describe a few microservices** that are part of the software. (3+ microservices, 3+ sentences)

   The first microservice of Netflix is receiving the user's request, and playing the video which the user requested.
   The second microservice of Netflix is bringing the video data from the database.
   The third microservice of Netflix is controlling the cache which stores the video data from the database.

Reference:
https://www.techaheadcorp.com/blog/design-of-microservices-architecture-at-netflix/

2. **PART 2: Pipe Spike**

Spike one microservices communication approach that is NOT communication via text file (since you already tried that). Example approaches:

- RabbitMQ
- Subprocess calls
- Sockets
- PyZMQ Messaging
- RPyC: Remote Python Call library
- HTTP Request
- os library: system calls
- ZeroMQ
- FTP

You are NOT limited to the approaches above.

Requirements for the approaches:

- Can be used to communicate between processes
- Can be used to request and provide data
- Not text files, CSV files, or other similar approaches involving file reads/writes

Complete the following:

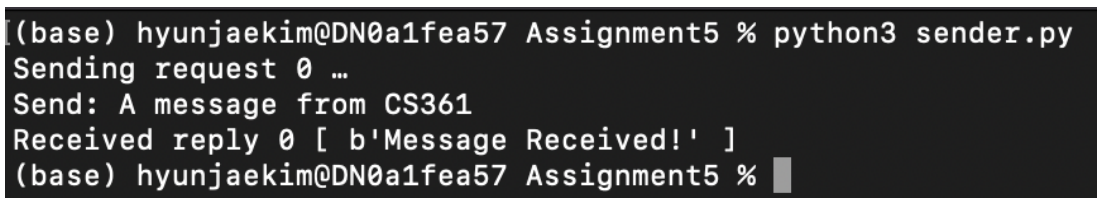
a. **Which approach** did you spike?

ZeroMQ

b. Get the approach working. Upload **screenshots** that show the approach being used to **send and receive this message: ``A message from CS361"**

(Reference: https://zeromq.org/get-started/?language=python&library=pyzmq#)

Sending:



Receiving:

```
(base) hyunjaekim@DN0a1fea57 Assignment5 % python3 receiver.py
Received request: b'A message from CS361'
(base) hyunjaekim@DN0a1fea57 Assignment5 %
```

Submission

PDF or Word format via Canvas.

Grading

You are responsible for satisfying all criteria listed in the Canvas rubric for this assignment. You will be able to revise this assignment if you miss points.

Questions?

Please ask via Ed so that others can benefit from the answers.