ACIT 3855 – Service Oriented Architectures – Winter 2024

Lesson 6 Pre-Reading

Reading

In Lessons 6 and 7 we will transition the communication between the Receiver and Storage services from a RESTful API to **Messaging** using the **Kafka** Message Broker. This represents a switch from synchronous communication to asynchronous communication between those two services.

> **Synchronous Communication** – Happens when messages can only be exchanged in real-time. It requires that both the client and server be present. Therefore, the client must wait for the server to fulfill the request and return the response before it can perform other tasks. Both client and server processes are blocked until the request is fulfilled.
>
> *An HTTP call to a RESTful service is considered synchronous communication.*

> **Asynchronous Communication** – Happens when information can be exchanged independent of time. A client application can send in a request and not wait for it to be fulfilled before moving on to other tasks. Likewise, the server can process and fulfill the request when it has resources available (i.e., at a later time)
>
> *Messaging using a Message Broker (like Kafka or RabbitMQ) is considered asynchronous communication.*

Please read the following article on the benefits of using Messaging with Microservices and make sure you know the 5 benefits of messaging:

- https://solace.com/blog/messaging-between-microservices/

In addition, read the following article on the Kafka Message Broker. Make sure you understand the sections What is Apache Kafka, Kafka Use Cases and Kafka Concepts around Producers, Consumers, Topics and Brokers.

- https://towardsdatascience.com/getting-started-with-apache-kafka-in-python-604b3250aa05