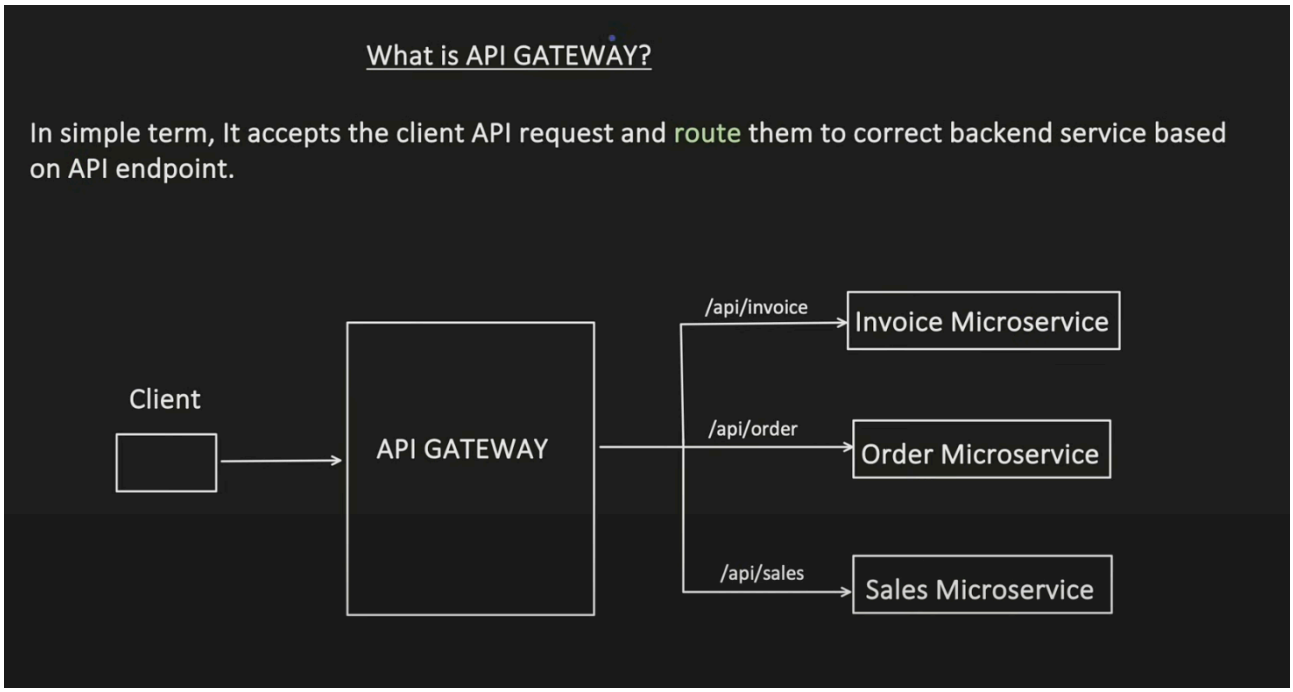
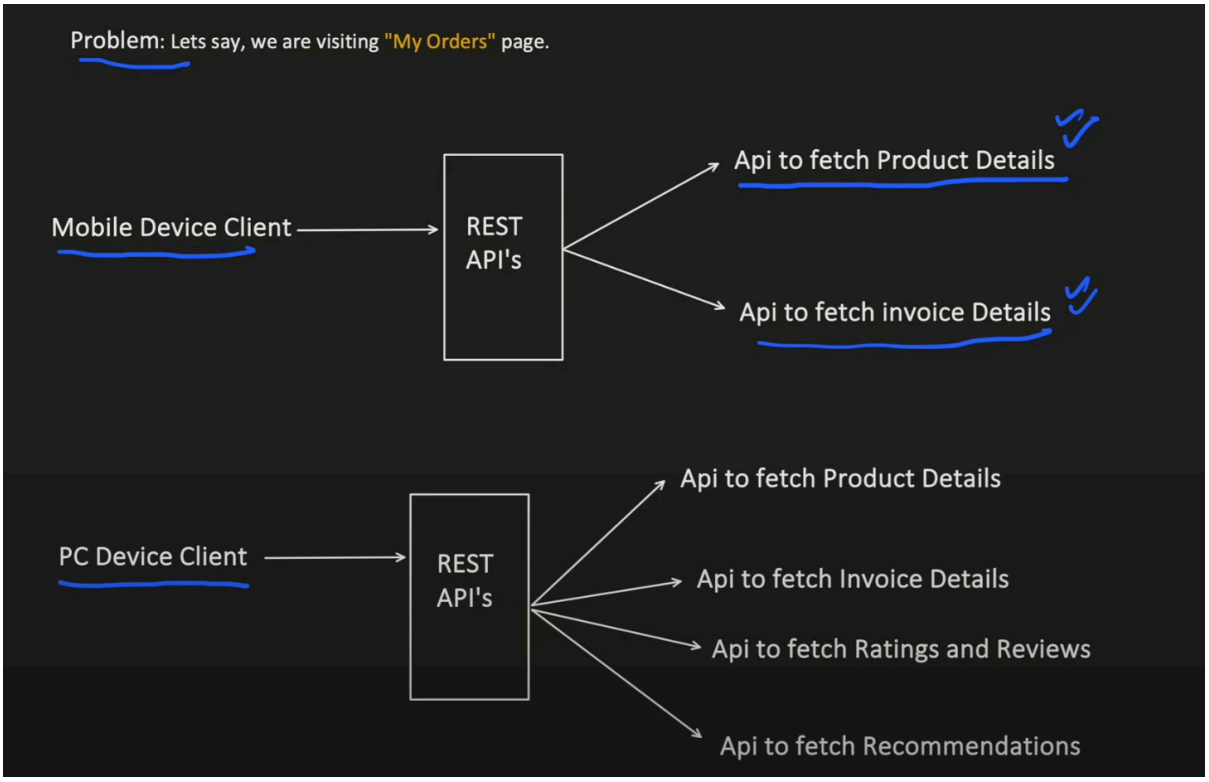
API Gateway

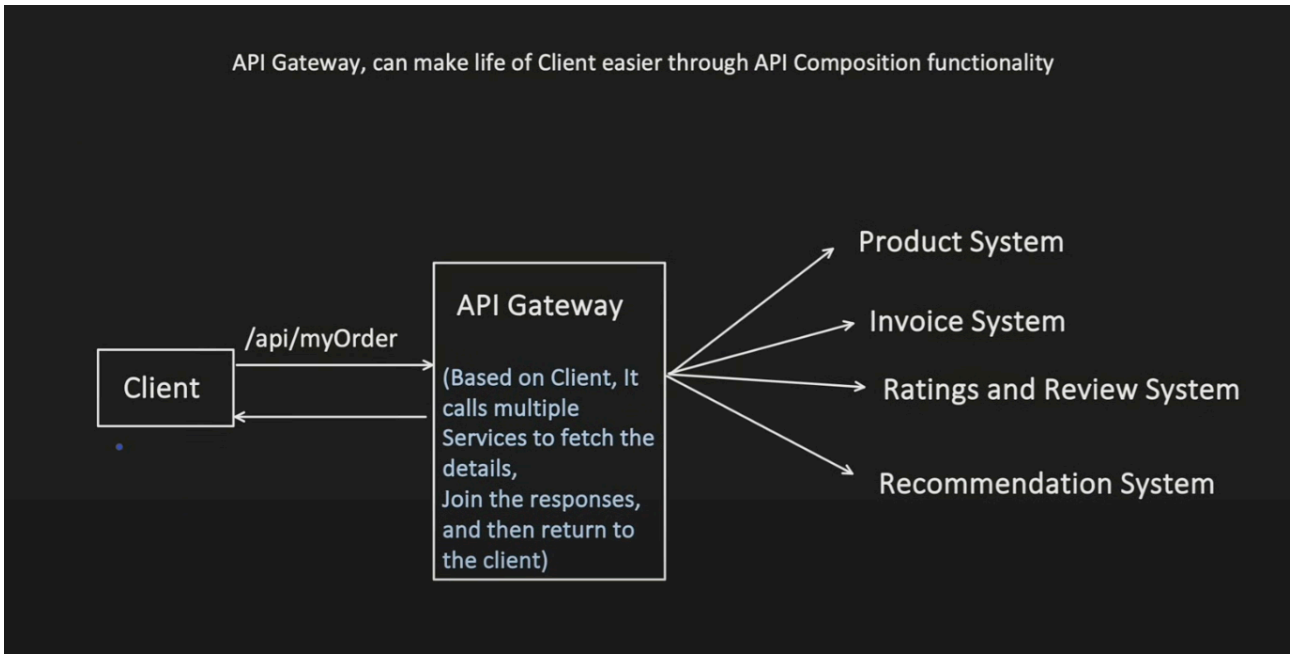
API gateway routes to different incoming requests to microservices, microservices have Load Balancers which sends the request to the instances of a microservice.



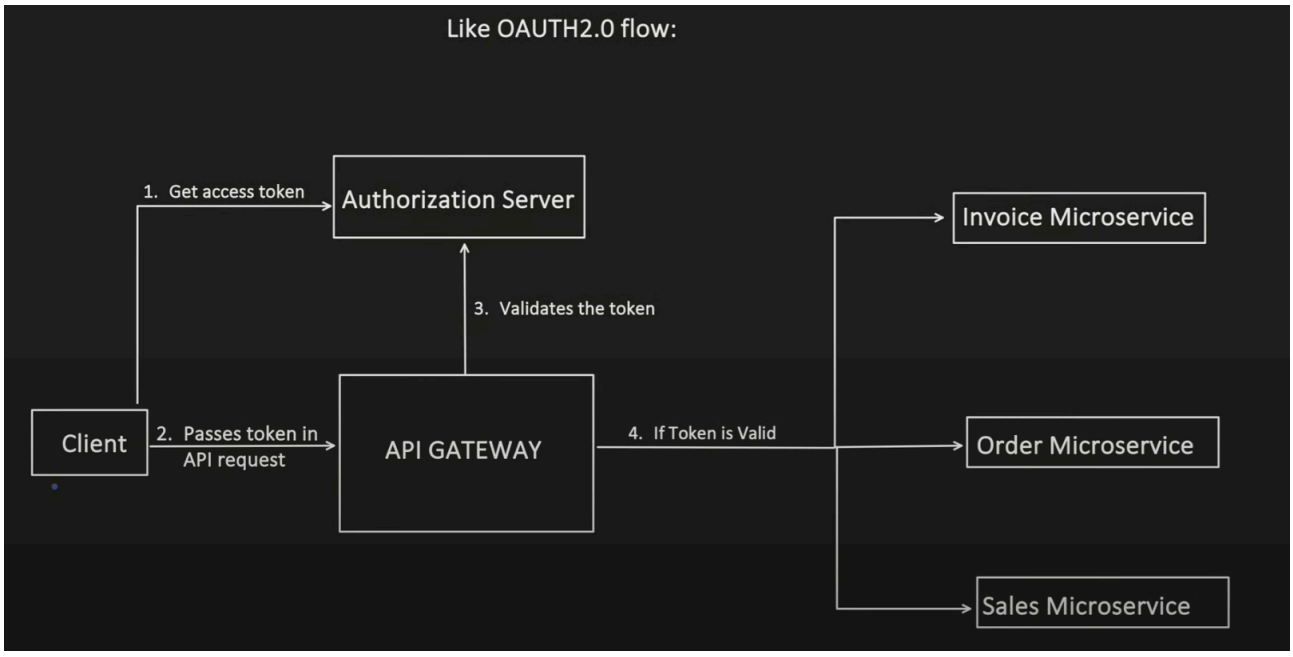
Apart from Routing, API Gateway have other Capabilities

- **API Composition :** in this the API Gateway helps the different client to gather data as per the request, here a mobile and a PC device can get additional data, depending on the client source.





- **Authentication :**



- **Rate Limiting :**

We can set rules like:

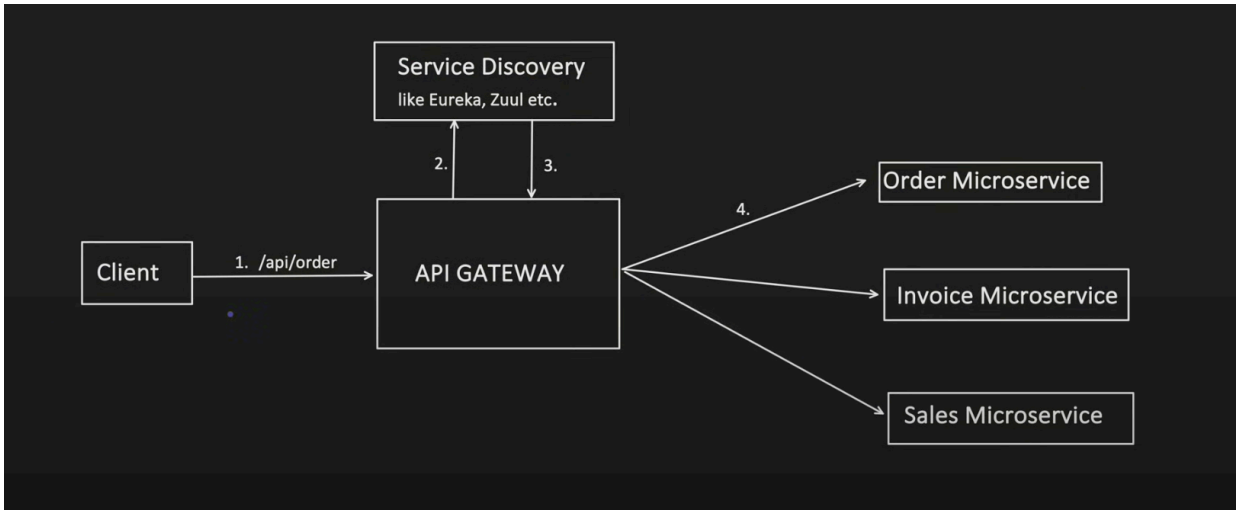
- Manage Burst limit:
  Use to limit the Burst traffic, means max no. of concurrent request that API Gateway can handle before it return 429 (Too Many Requests).

- API Throttling:
  Limiting the number of requests from an individual or an application by temp blocking the request, once they crossed the allowed request rate.

- Ip based blocking

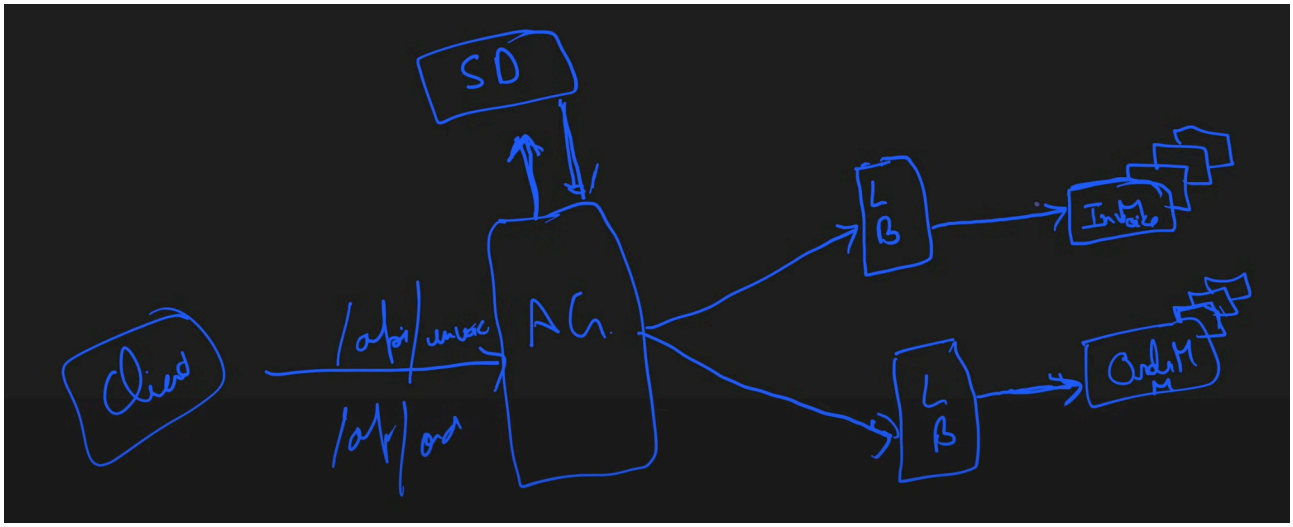
- API Queues:
  Hold requests to an API, which can not be processed immediately. It helps to handle the Thundering herd issue.

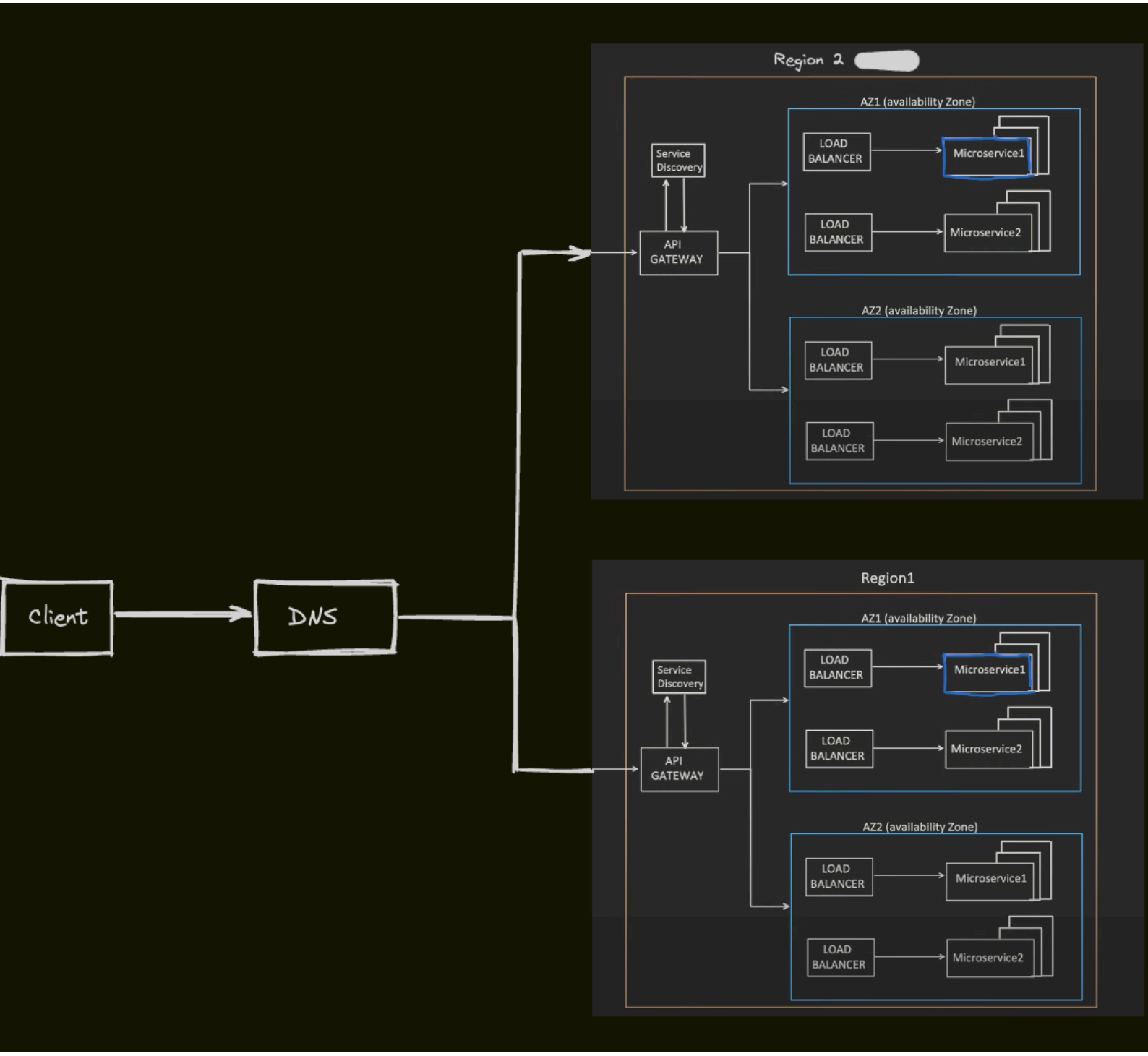
- **Service Discovery :** As Microservice can scale up and down, it is necessary to know the IP address and Port. Service discovery keeps track of this.
  - **Approach 1 :** When ever any scale up/down happens, each Microservice registers or de-registers.
  - **Approach 2 :** Service discovery, keeps health check of all the Microservices and keep only of the active Microservice locations.



- **Request Response Transformation**
- **Response Caching**
- **Logging**

If API Gateway is. single entry point, how it handle millions of request per second ?





How a Request Flow towards different API Gateway as per the Region of the Client