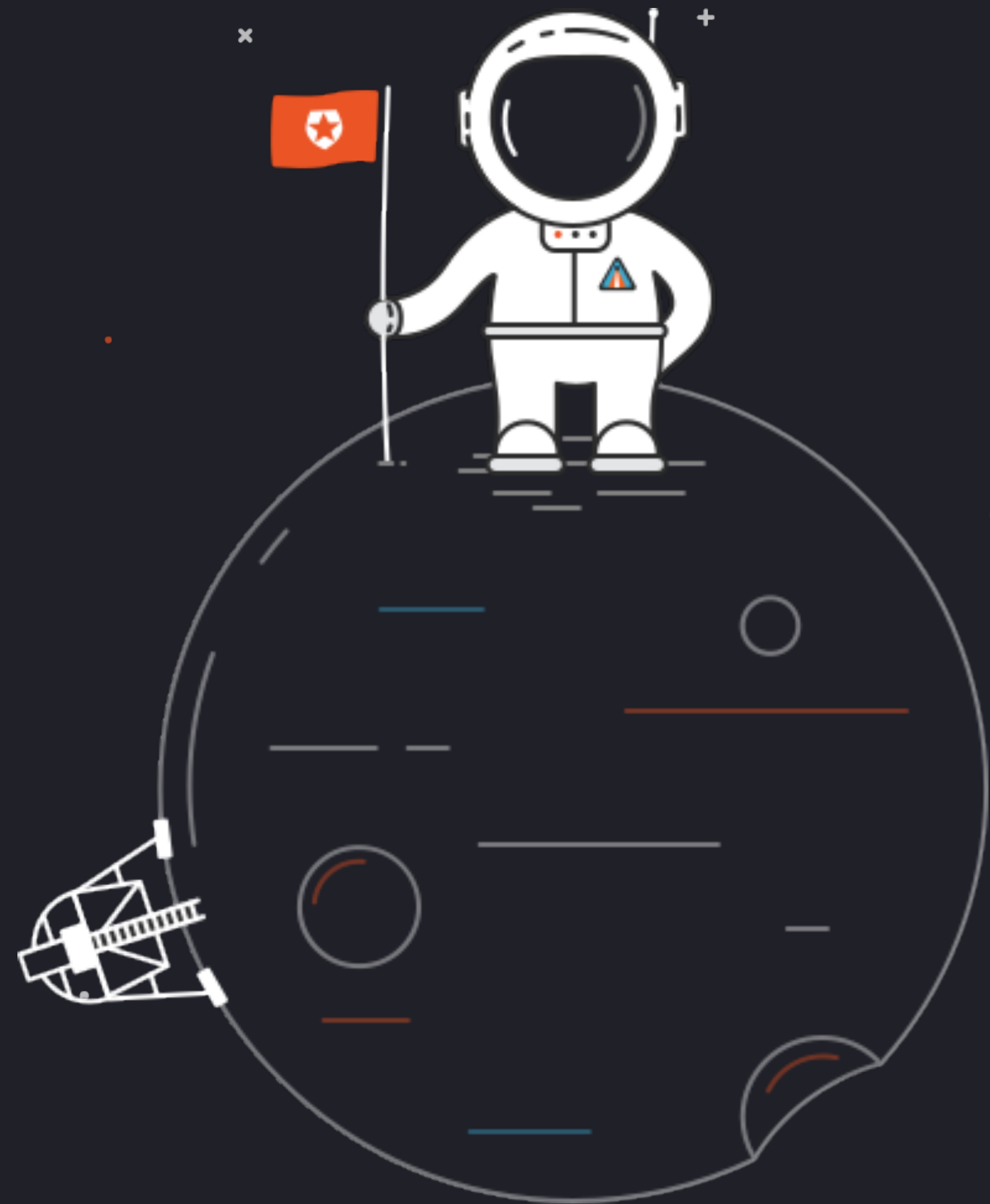


Serverless in Deep



JAVA DAY ISTANBUL





Mercedes Wyss
@itrjwyss



Community Leader
Devs+502 & JDuchess Chapter Guatemala

Ex-JUG Member
Guatemala Java Users Group (GuateJUG)

Chief Technology Officer (CTO) at Produactivity
Full Stack Developer

**Auth0 Ambassador &
Oracle Developer Champion**



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Developer
Champion



- **About Serverless**
- Function as a Service - FaaS
- Serverless Architecture
- Benefits and Drawbacks
- Design Patterns and Use Cases
- Demos
- FNProject

“**Serverless architectures** refer to applications that significantly **depend** on third-party services (known as Backend as a Services - **BaaS**) or on custom code that’s **run** in **ephemeral containers** (Function as a Service - **FaaS**)”

MartinFowler.com



Backend as a Service

- Applications that significantly or fully depend on 3rd party applications / services (“in the cloud”) to manage server-side logic and state.
- Cloud accessible databases (Parse, Firebase)
- Authentication Services (Oracle Identity Cloud Service, Auth0, Amazon Cognito)

Functions as a Service

- Run in stateless compute containers that are event-triggered
- Ephemeral
- Fully managed by a 3rd party
- AWS Lambda, Google Cloud Functions, Firebase Functions, Azure Functions, FNPProject



Key Characteristics of a Serverless Application

- No server management
- Flexible scaling
- High availability
- Never pay for idle
(Integrated Development Environment)



Servers are
fully-abstracted



Scaling is event-driven
not resource-driven



Pay only
for what you use



What is not Serverless?

- Platform as a Service (PaaS)
- Containers
- #NoOps
- Stored Procedures as a Service

Pre-Cloud B.Y.O. Servers



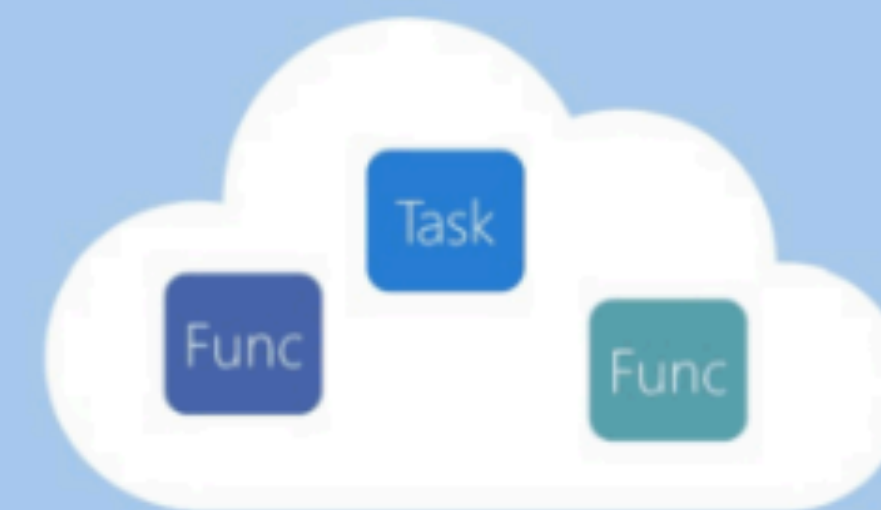
IaaS

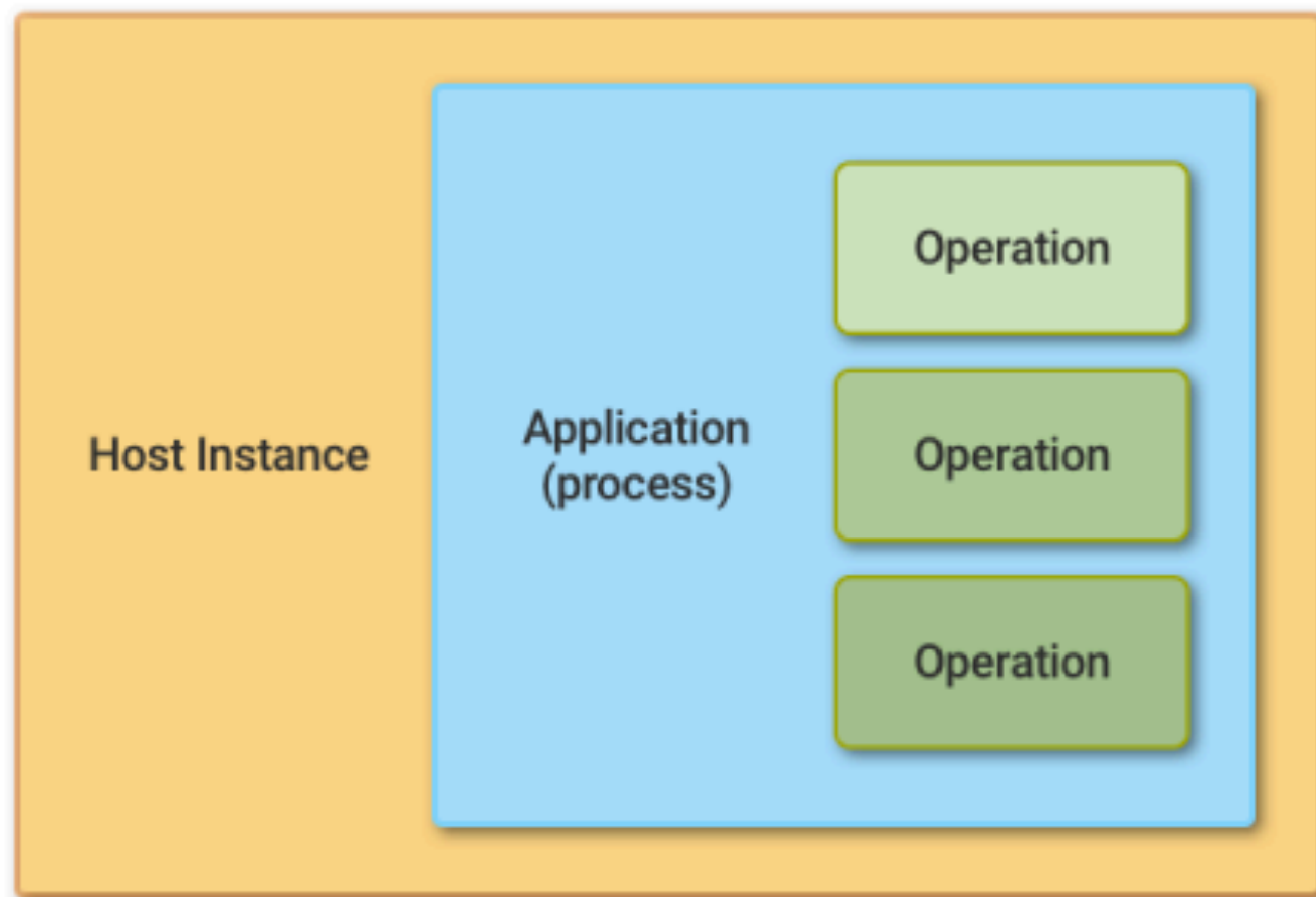


PaaS



"Serverless"





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Function as a Service

- Serverless computing via Serverless architectures.
- Deploy an individual “function”, action, or piece of business logic (nanoservice).
- Event-driven processing part of the serverless architecture.



• Principles of FaaS

- Complete abstraction of servers away from the developer.
- Billing based on consumption and executions, not server instance sizes.
- Services that are event-driven and instantaneously scalable.

FaaS in Terms of a Cloud Platform

- Run code without provisioning or managing servers.
- We can run code for virtually any type of application or backend service.
- Zero administration. Just upload the code, and we will run.
- And scale.
- Code with high availability, automatically trigger from other services.
- Can call it directly from any web or mobile app.



FaaS State

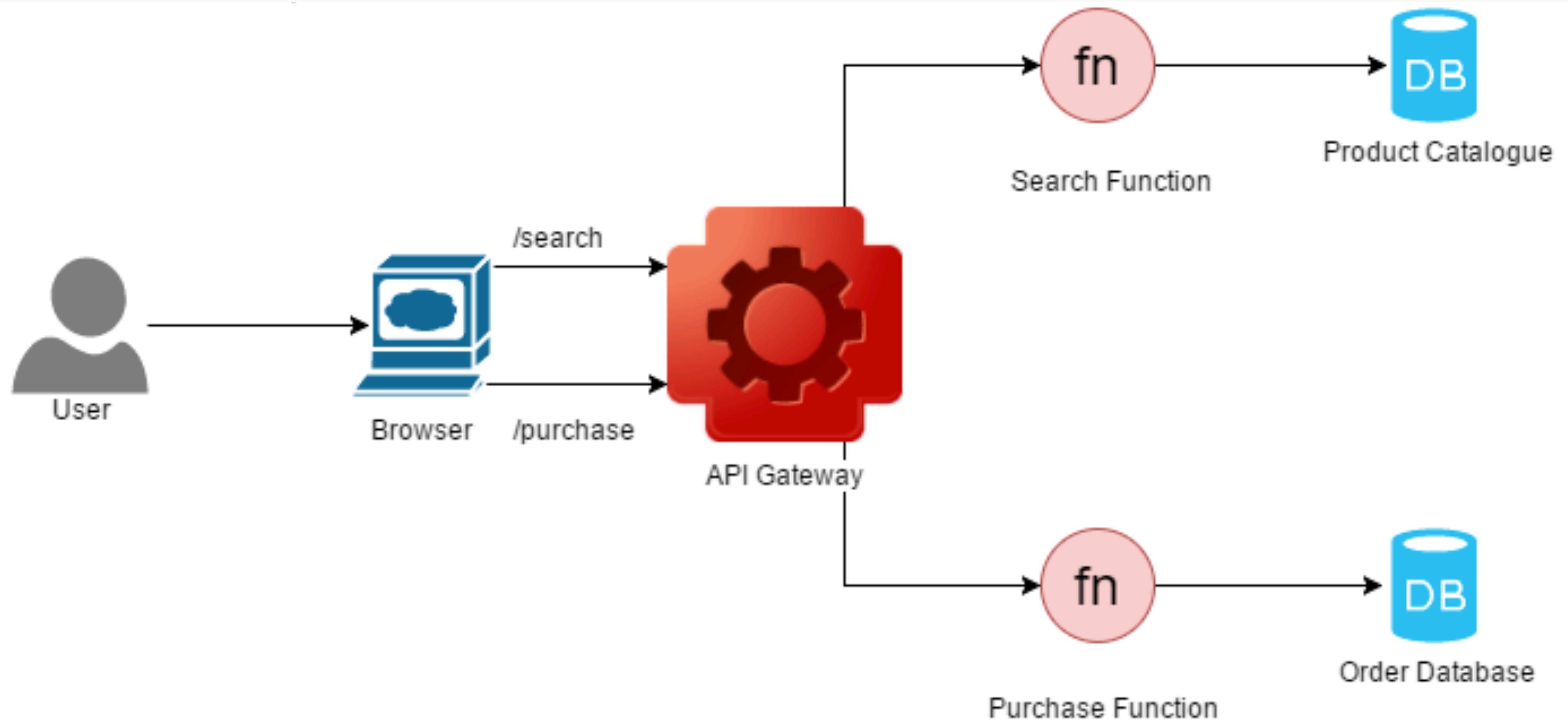
- Are Stateless.
- Provide pure functional transformations of their input.

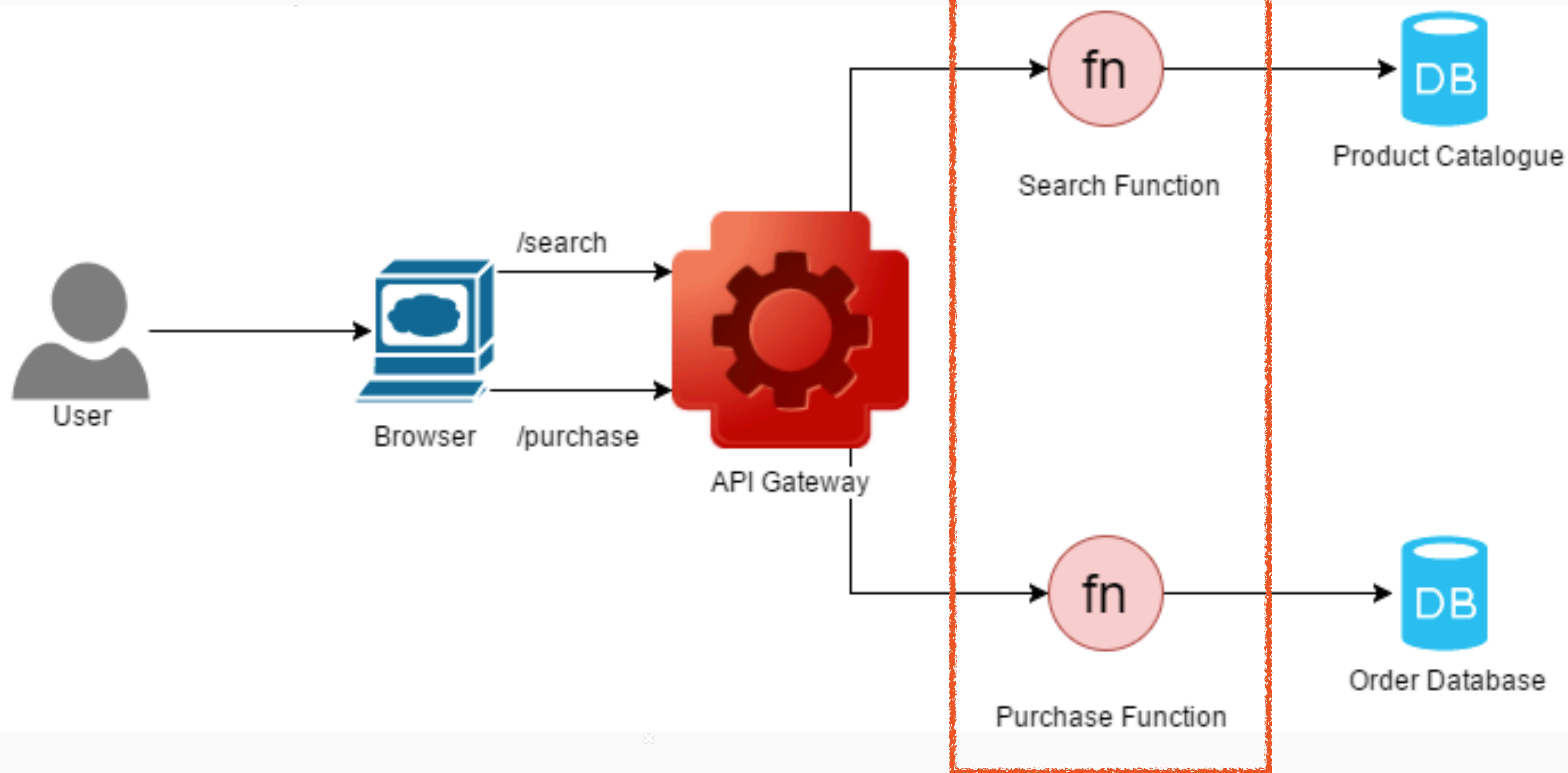
FaaS Some Restrictions

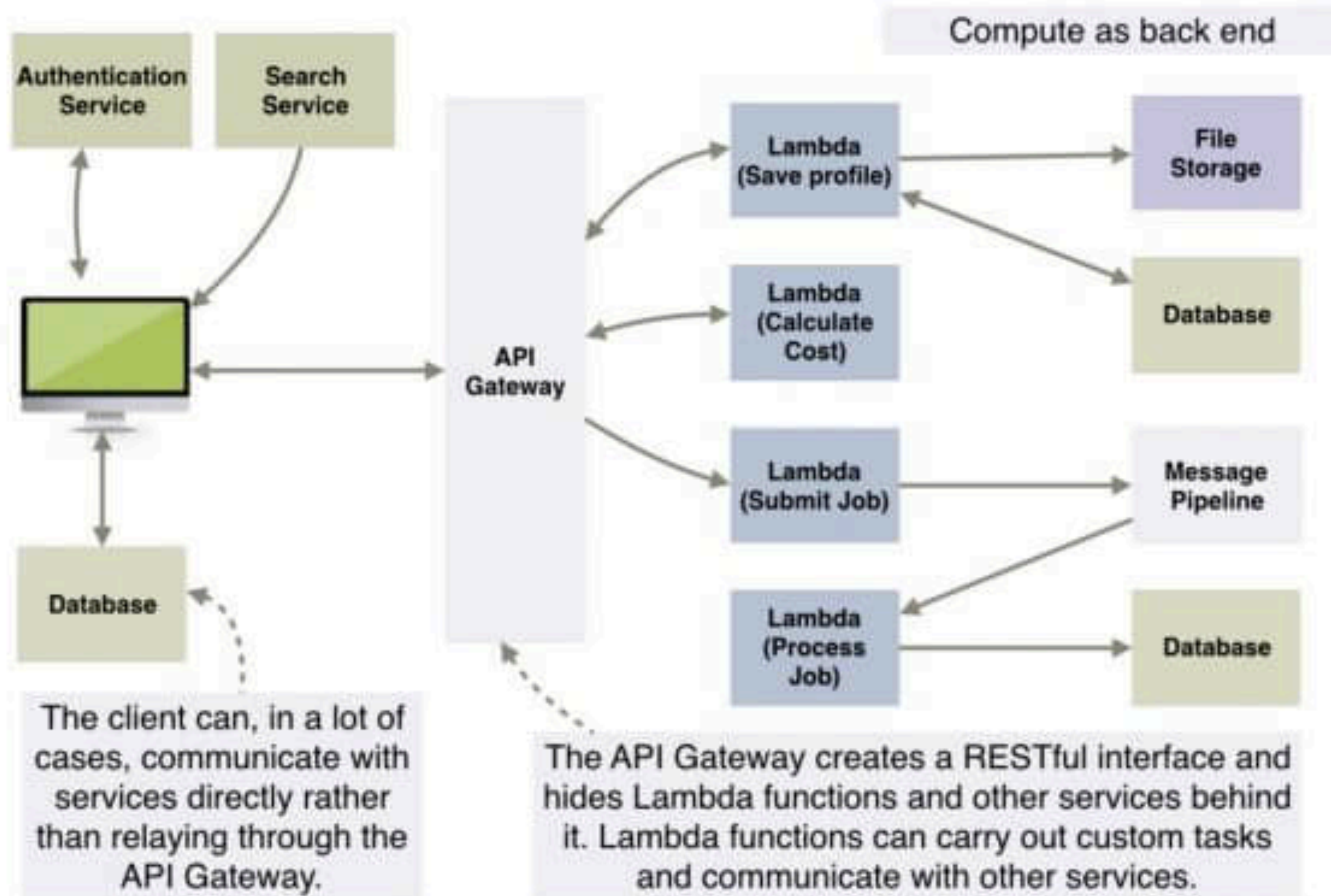
- FaaS functions are typically limited in how long each invocation is allowed to run.
- Which programming languages can be used.
- All the architecture need to be in the same cloud.

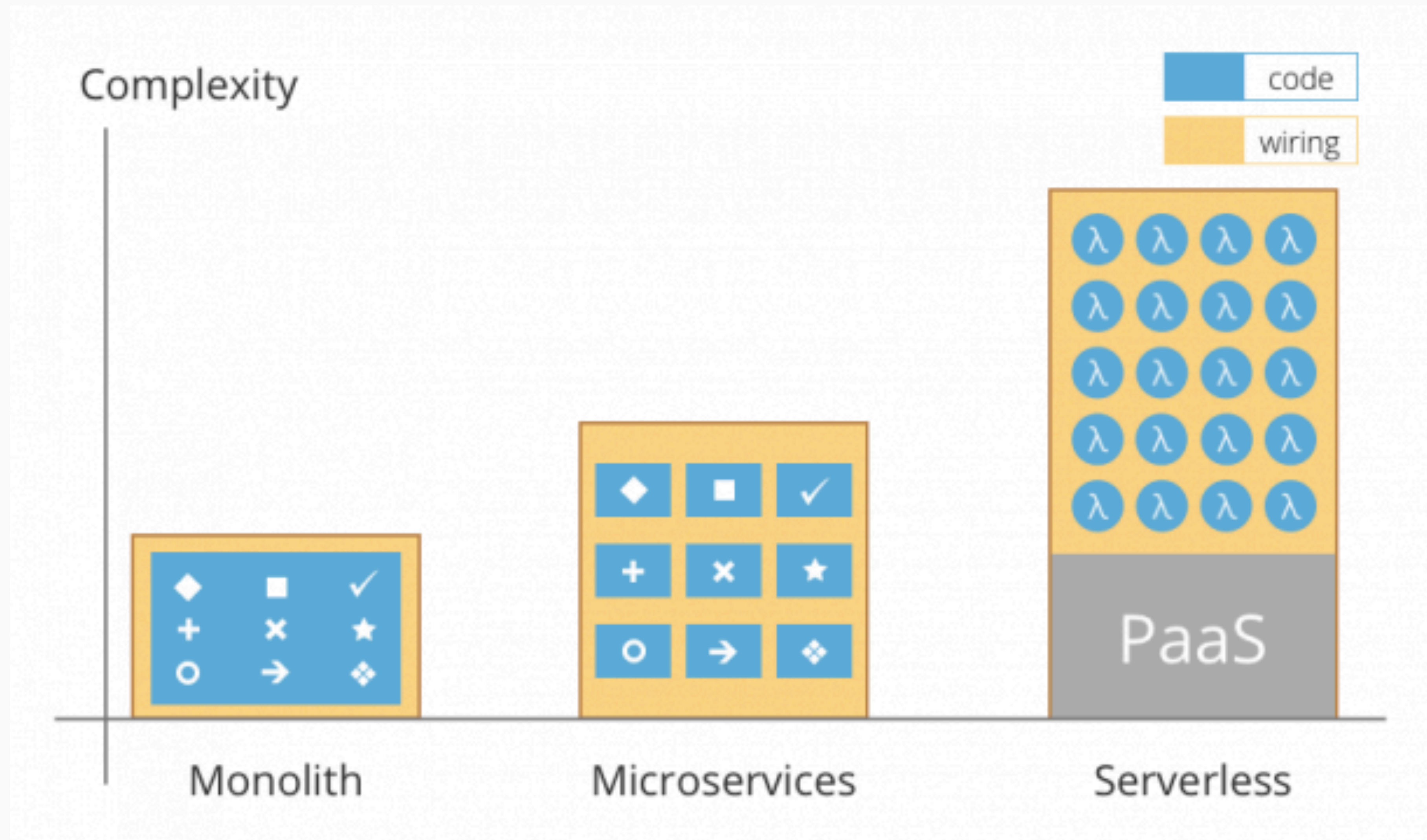


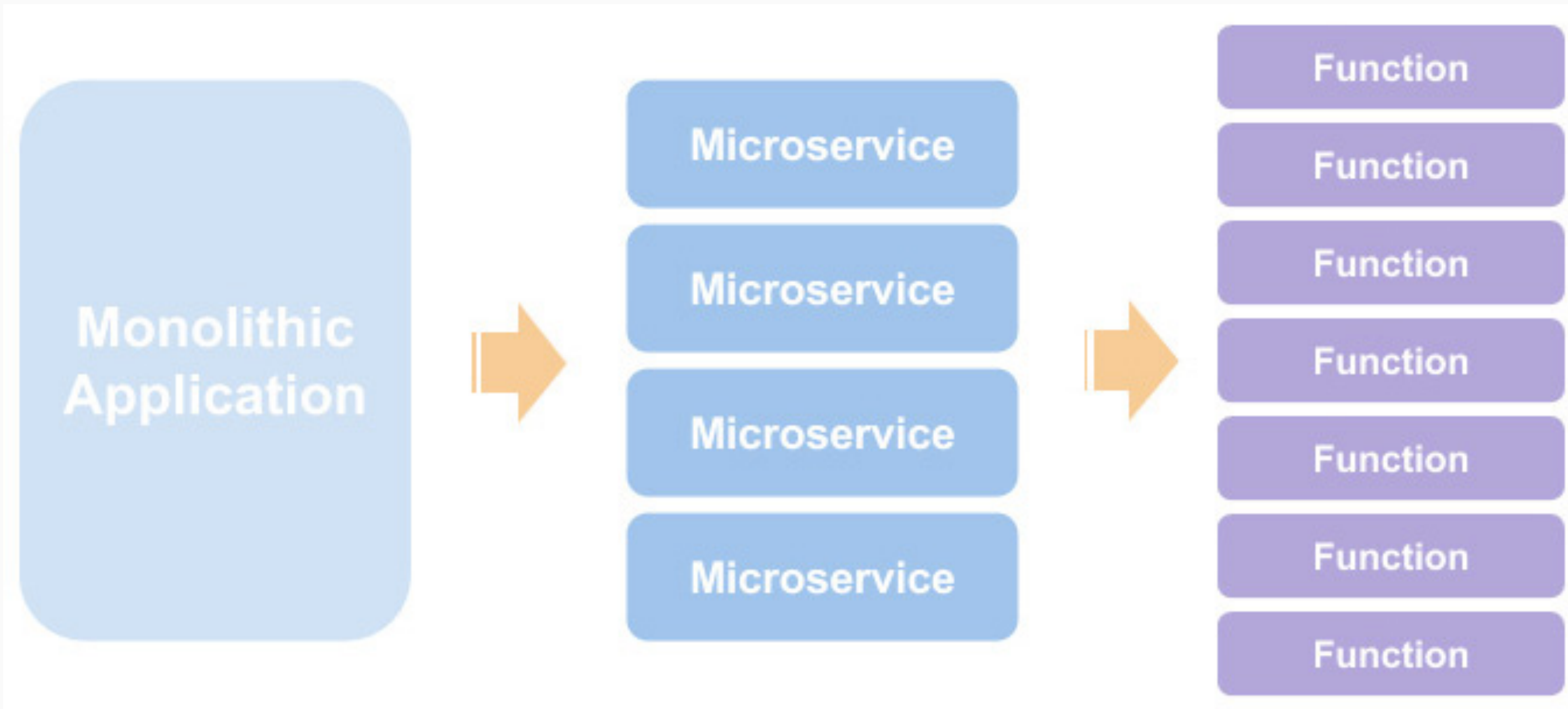
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- **Serverless Architecture**
- Benefits and Drawbacks
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- About Serverless
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- Serverless Architecture
- **Benefits and Drawbacks**
- Design Patterns and Use Cases
- Demos
- FNProject

Benefits

- Time-to-market Improvement
- Reduced Operational Cost
- Infrastructure Cost Reduction
(FaaS scaling cost)
- BaaS - reduced development cost
- ✕ • Easier Operational Management



Drawbacks

- Problems due to Third-party API system
- Architectural complexity
- Lack of operational tools
- Monitoring Challenges
- Implementation drawbacks

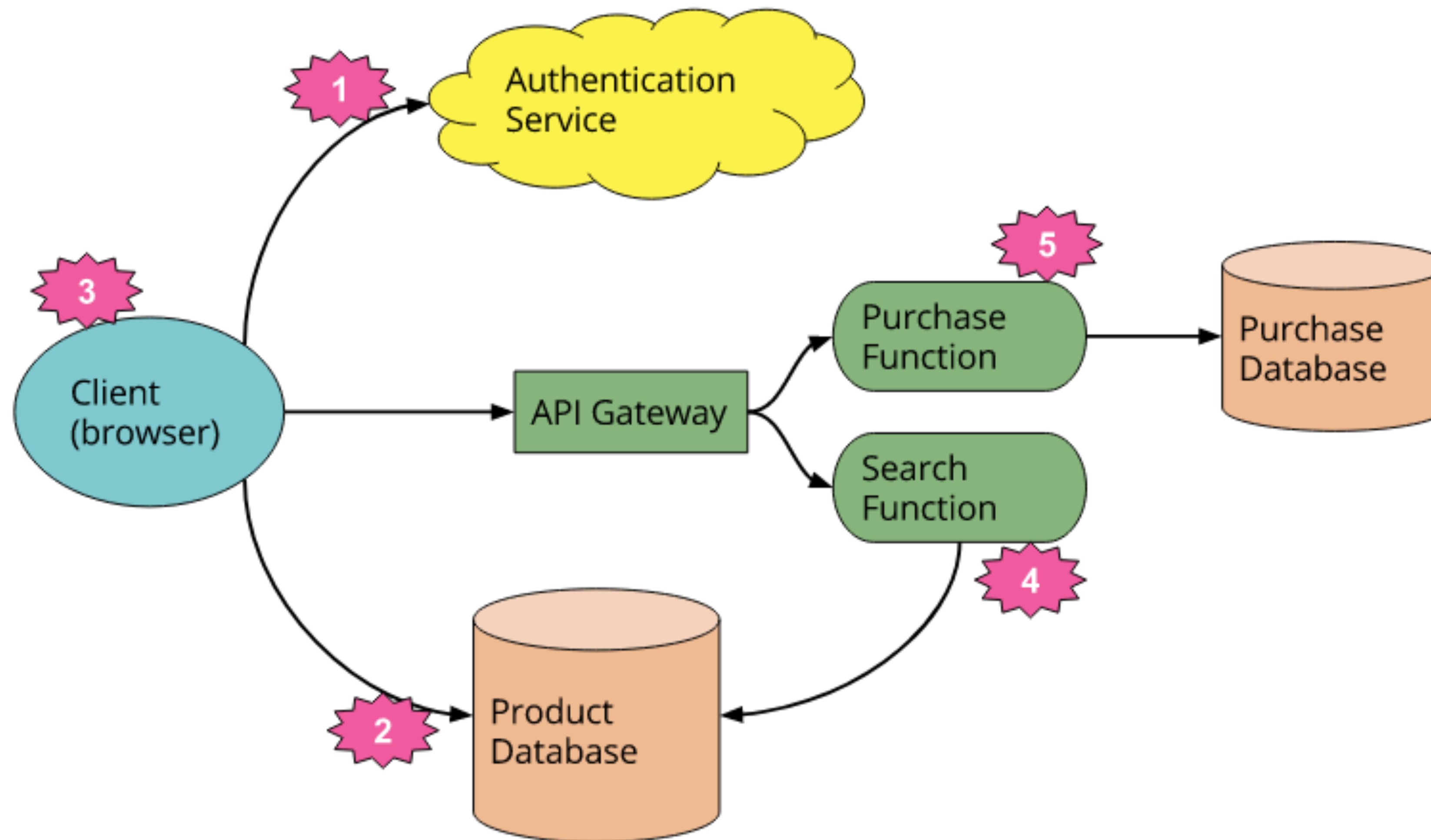
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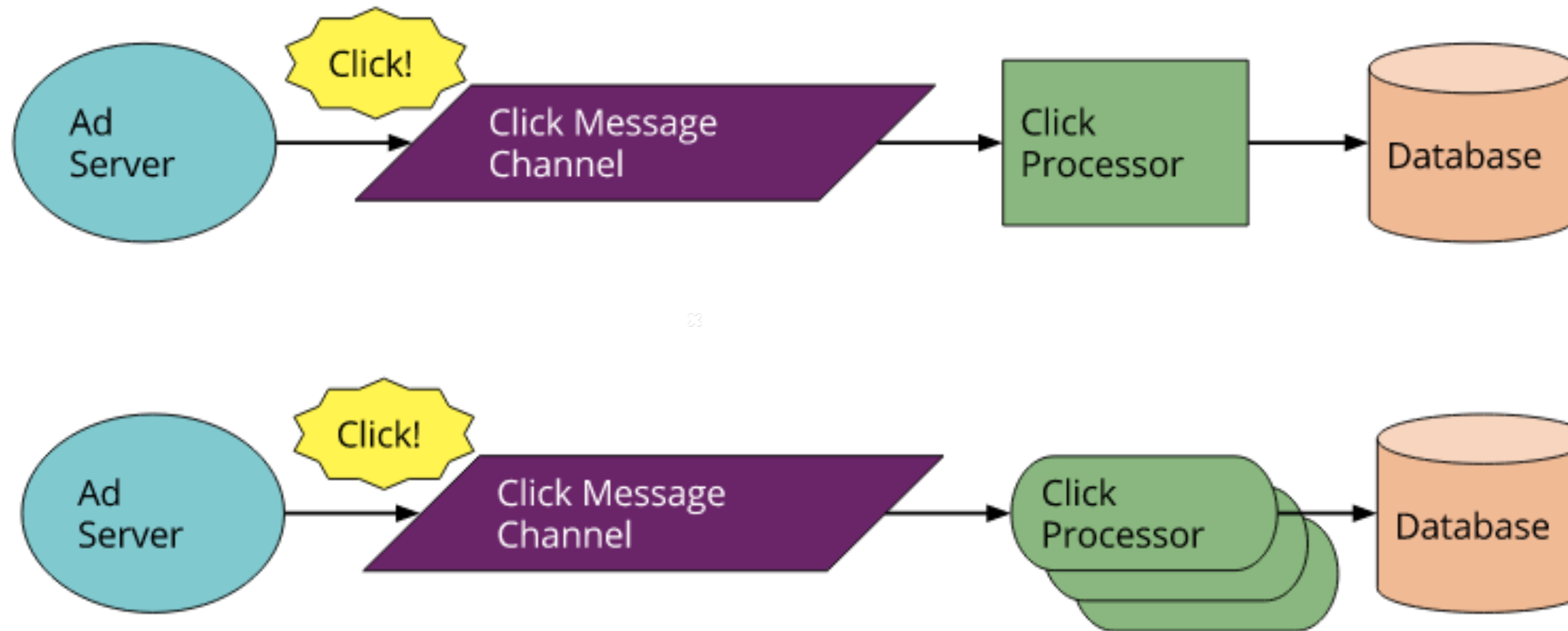
Example 1: UI-driven applications



Example 1: UI-driven applications



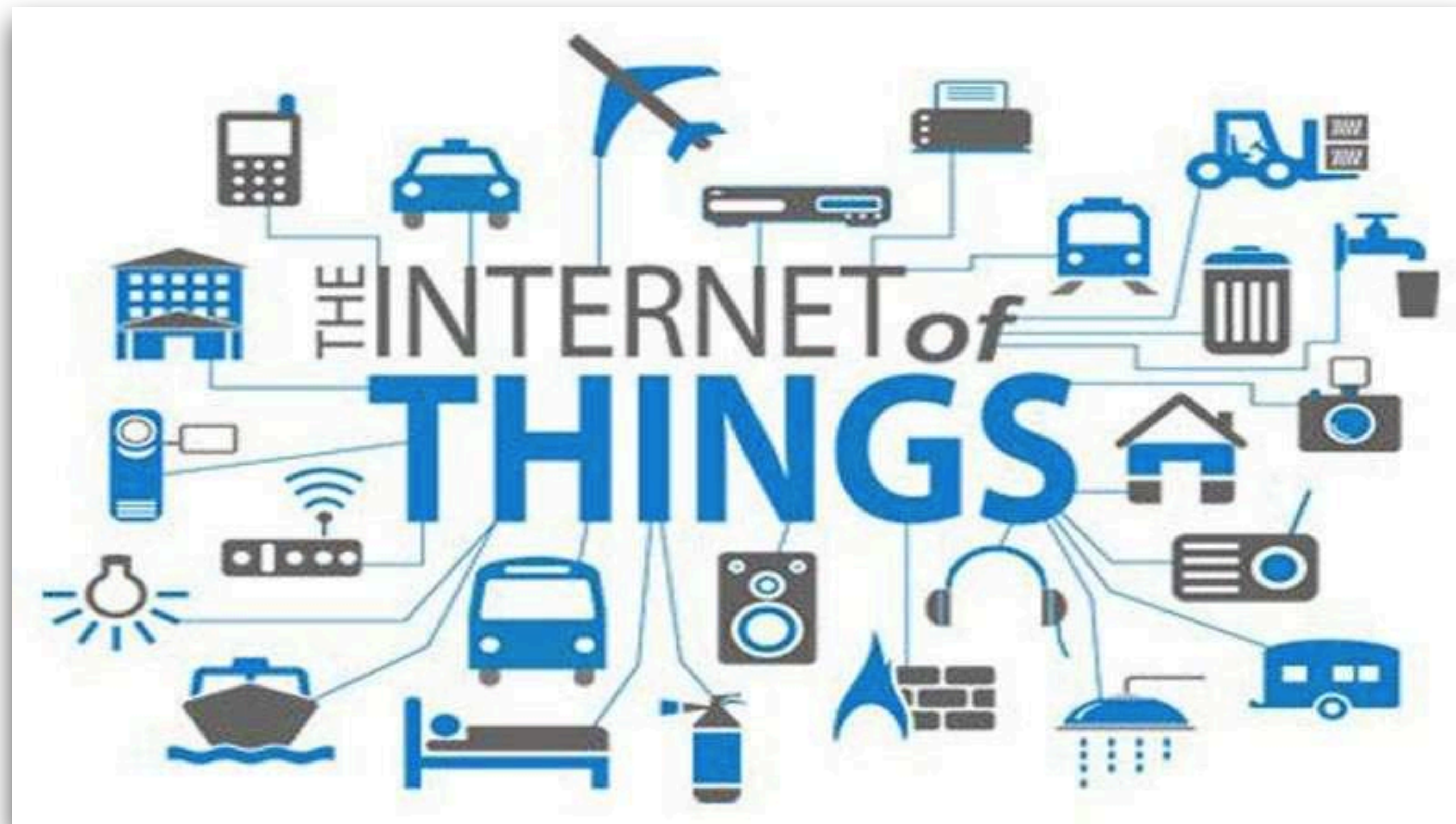
Example 2: Message-driven applications



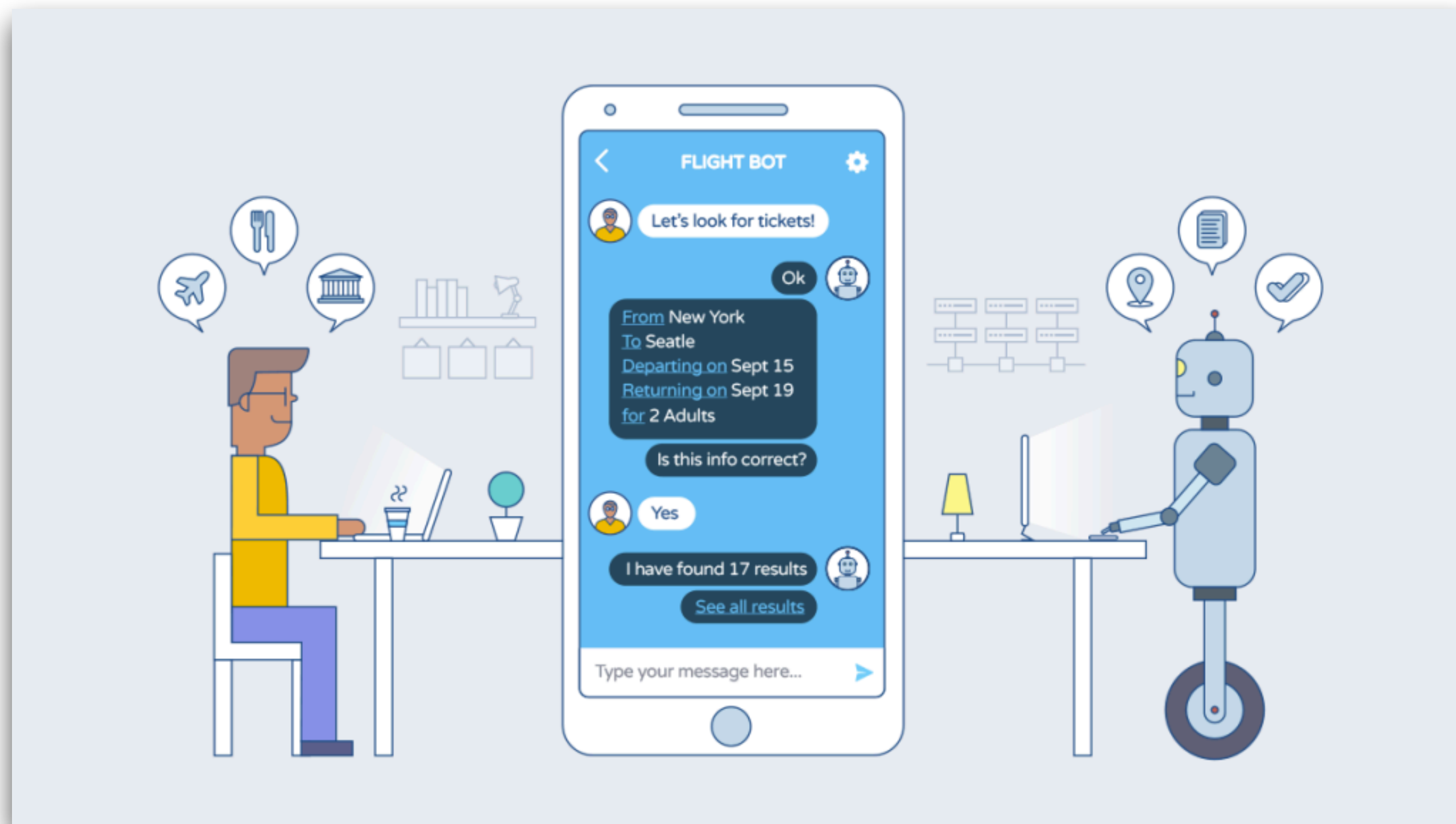
Example 3: Data Processing



Example 4: Internet of Things



Example 5: Chatbots





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Serverless Function



webtask



MySQL®



Look at the video DBCreation.mp4

Guided Journey

Explore what you can do with Oracle Cloud services

Create Instance

Provision a new service in minutes

Account Management

Administer and manage your account and orders

Customize Dashboard

Specify which services appear on the dashboard

Cloud Services

0 Important Notifications

Promotion

4,945.42 of 5,000 USD
Remaining (306 days left)



You currently have no services shown

Services with instances are automatically shown. Click on Create Instance to add an instance to a service. Otherwise, click on Customize Dashboard to view the list of all services you have access to, and to update shown services.

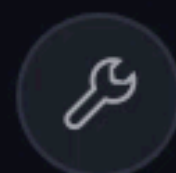
Look at the video ReadDB.mov



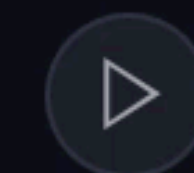
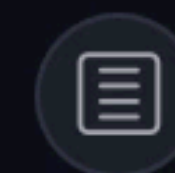
There is no open Webtask

⌘ P to Quick Search in your webtasks
or you can [Create a new one](#)


Look at the video WriteDB.mov



addRecipe >



```
2
3  /**
4   * @param context {WebtaskContext}
5   */
6  module.exports = function(context, callback) {
7    connection = mysql.createConnection({
8      host      : context.secrets.HOST,
9      user      : context.secrets.USER,
10     password   : context.secrets.PASSWORD,
11     database   : context.secrets.DB
12   });
13
14   connection.connect();
15
16   connection.query(
17     'SELECT * FROM recipes ORDER BY recipe_id LIMIT 100',
18     callback);
19  };
```

Powered by  Extend



0.43 Kb out of 100 kb

<https://wt-5284972561f7f3b5d409c4fc3df66c71-0.sandbox.auth0-extend.com/addRecipe>



In 7, col 3

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FNProject

- Multi Cloud
- Developer Experience
- Container Native
- Vision and Deep
- Many Languages
- Open Source



FNProject

- Fn Server (FaaS)
- Fn Load Balancer
- Fn FDK's
- Fn Flow





<https://github.com/itrjwyss/Journey18>

<https://www.facebook.com/itrjwyss>

@itrjwyss

