

Serverless in Deep

ORACLE CODE





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Chief Technology Officer (CTO) at Produactivity
Full Stack Developer

**Auth0 Ambassador &
Oracle 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

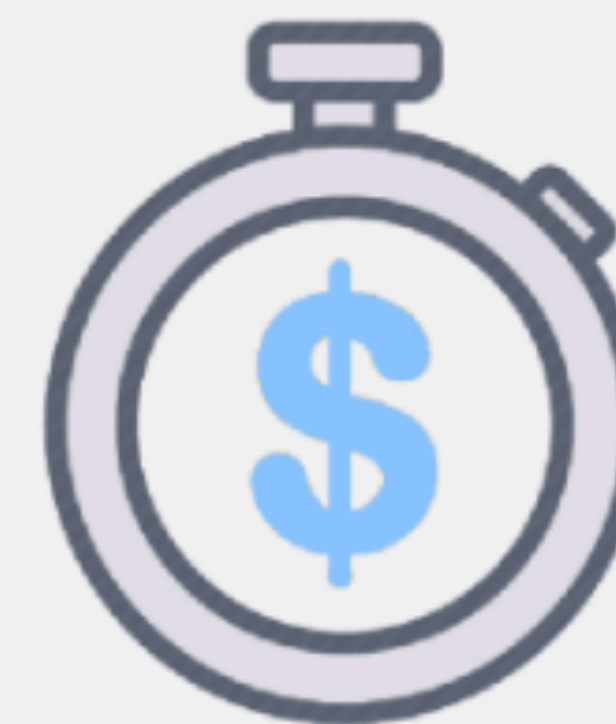
- No server management
- Flexible scaling
- High availability
- Never pay for idle
(Integrated Development Environment)



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



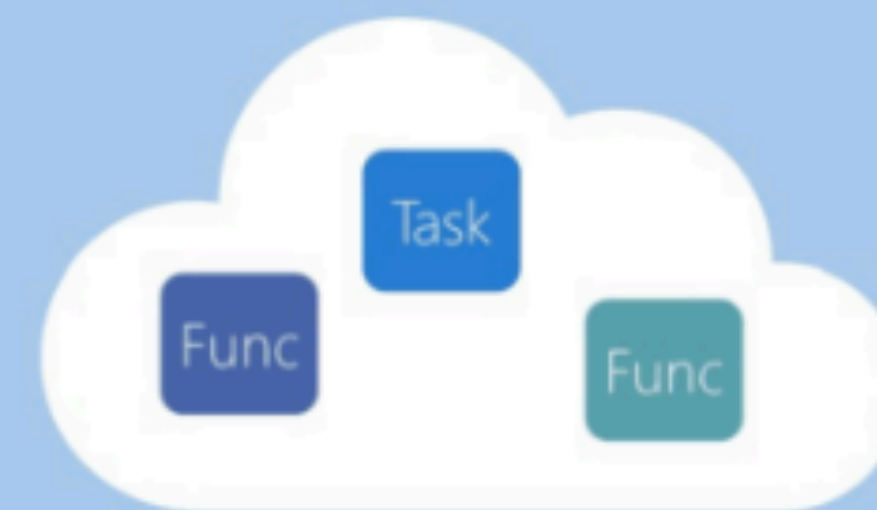
IaaS

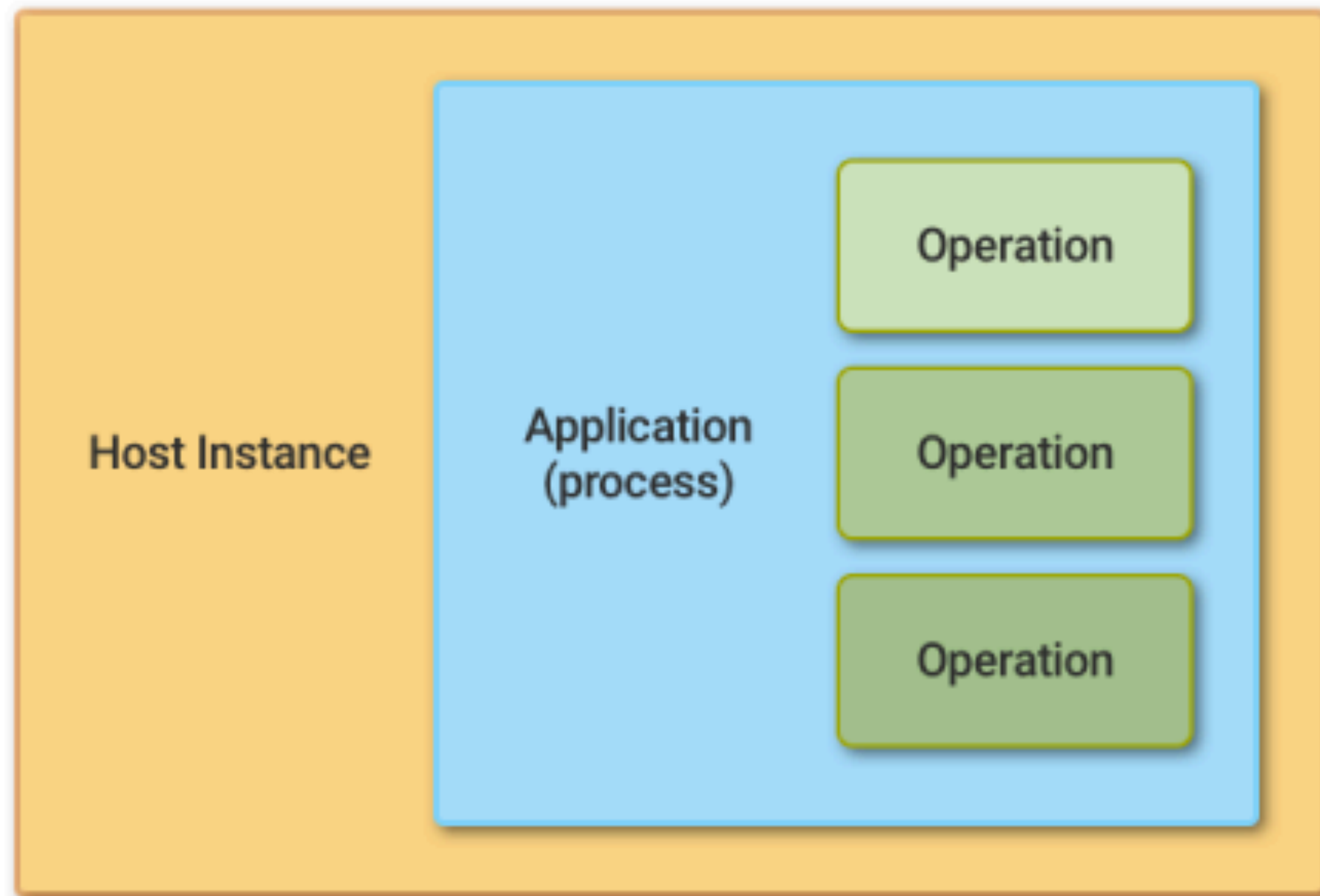


PaaS



"Serverless"





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Champion



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Function as a Service

- Serverless computing via Serverless architectures.
- Deploy an individual “function”, action, or piece of business logic.
- 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

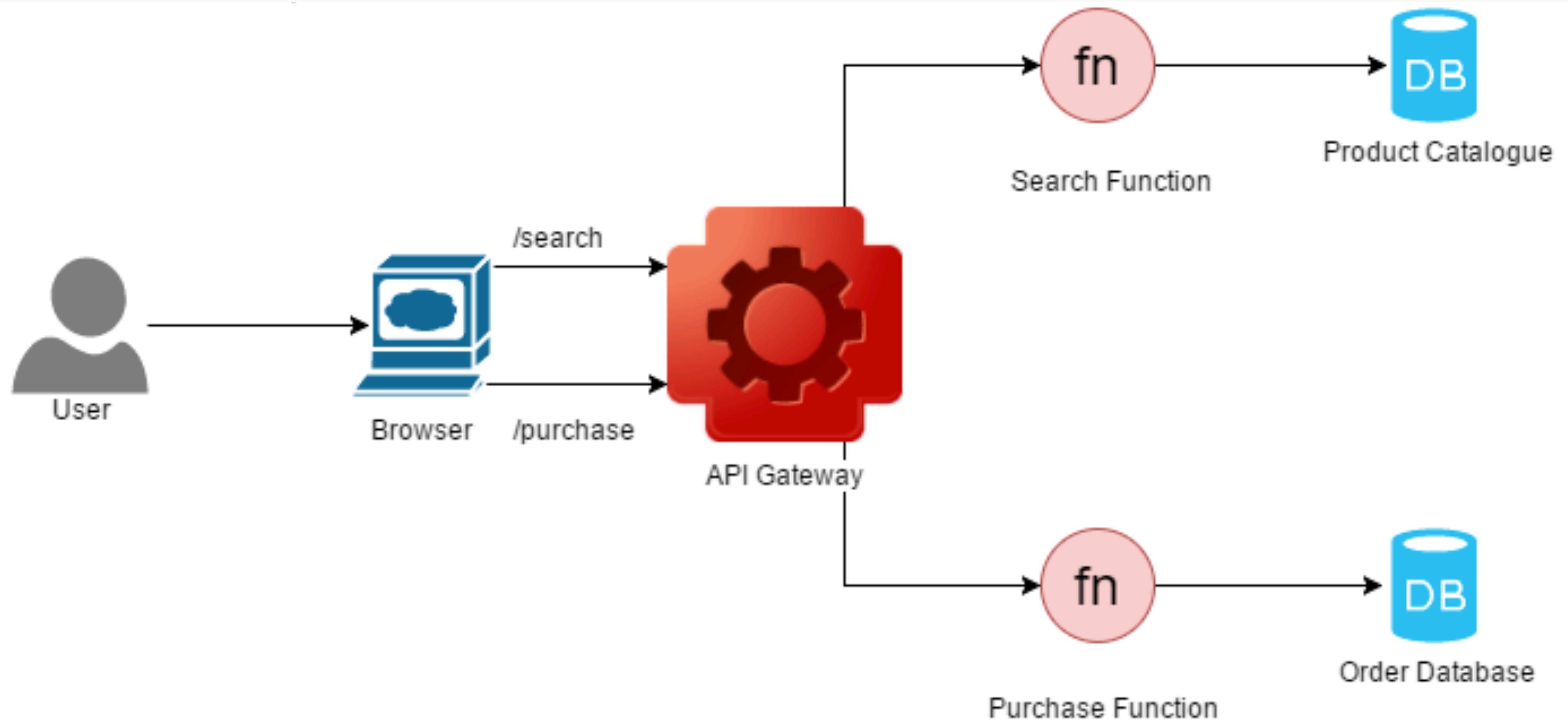
- Are Stateless.
- Provide pure functional transformations of their input.

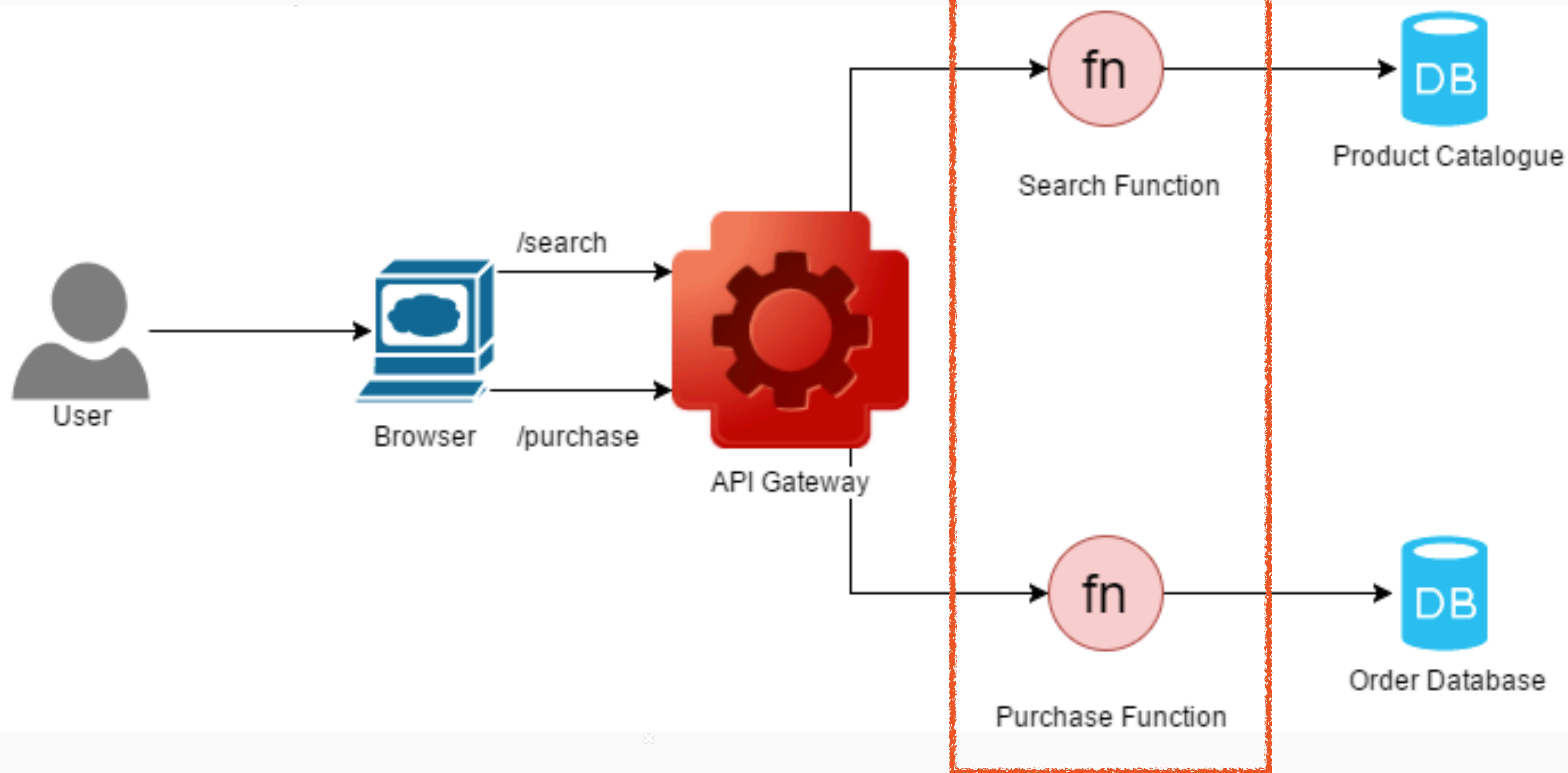
FaaS Execution Duration

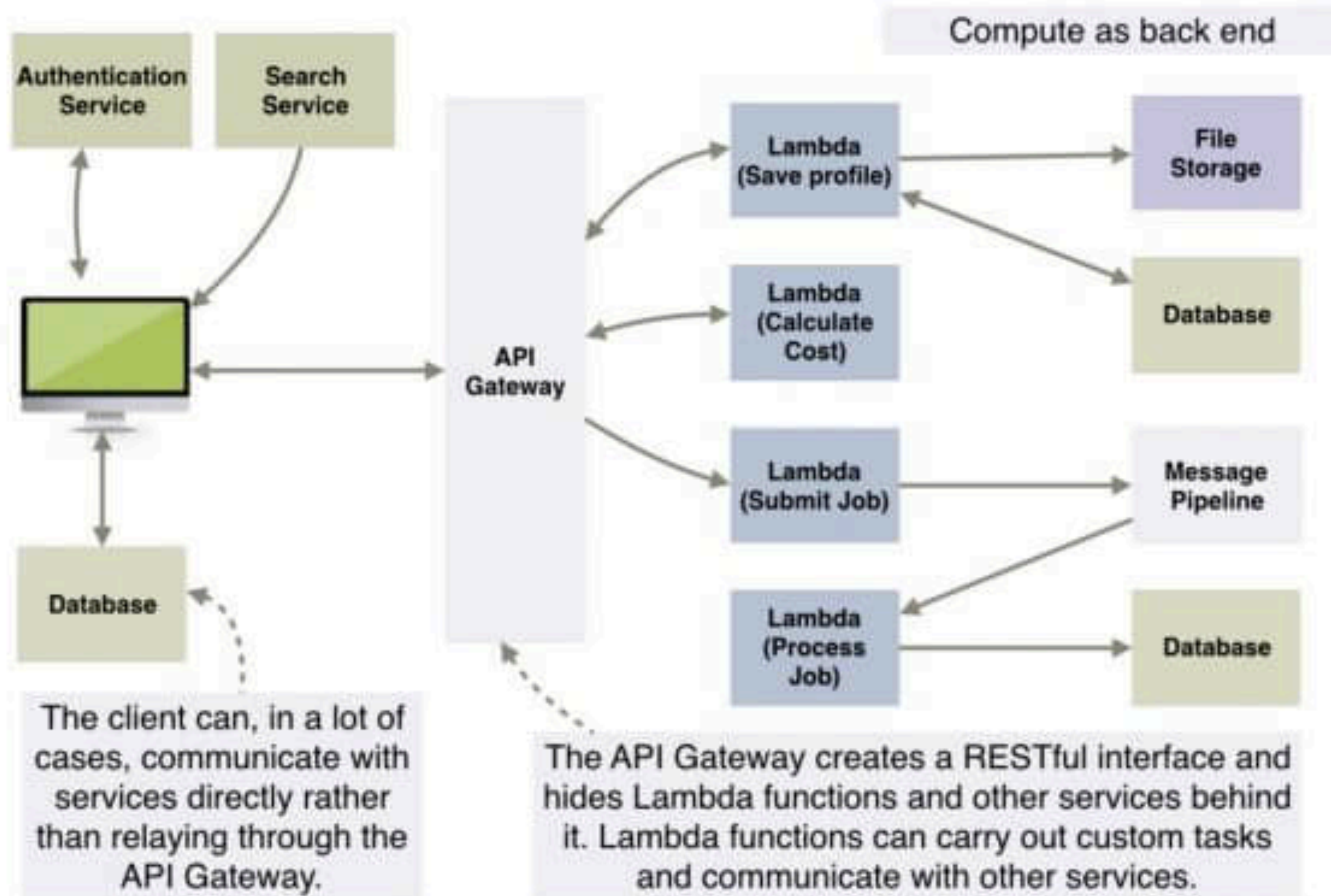
- FaaS functions are typically limited in how long each invocation is allowed to run.

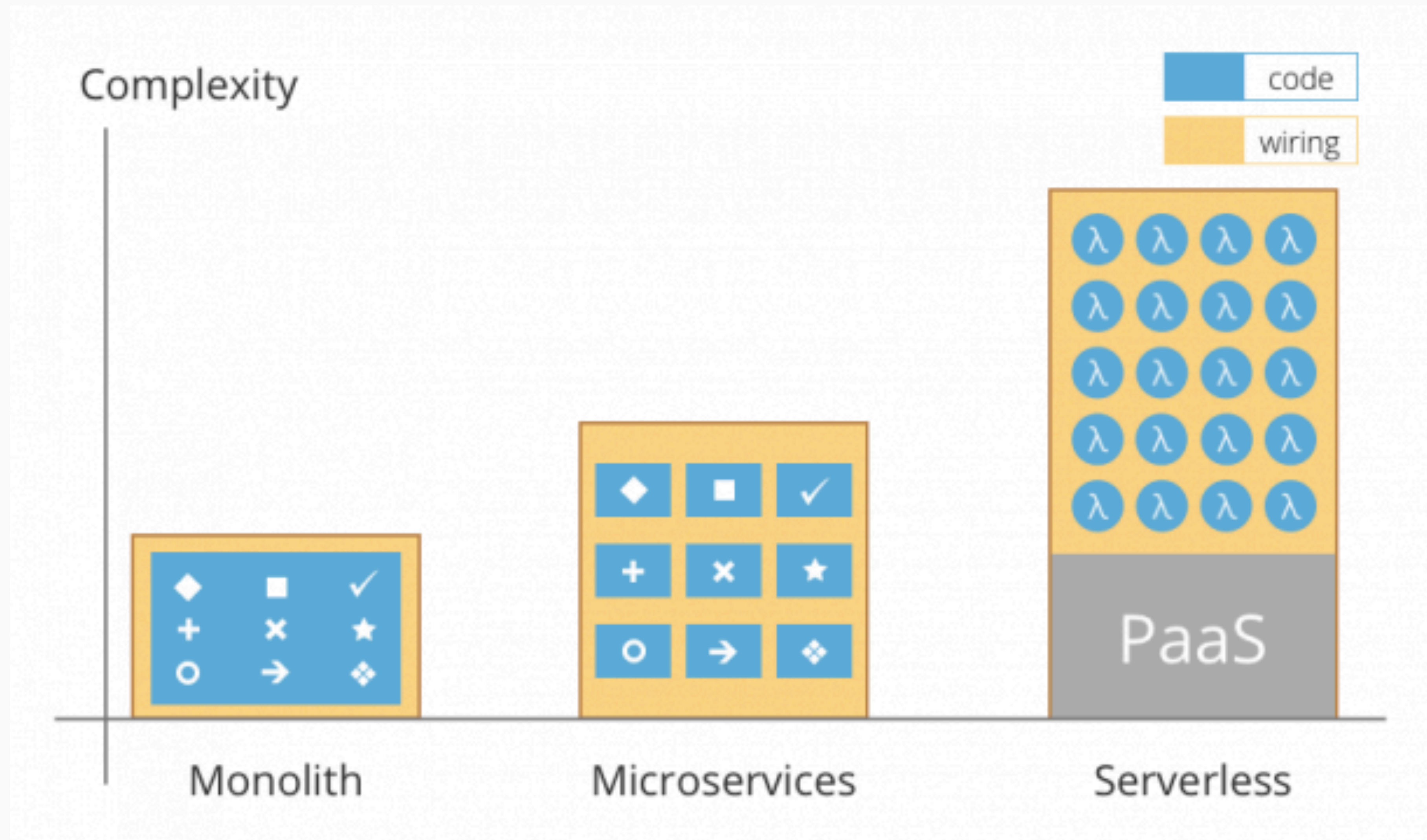


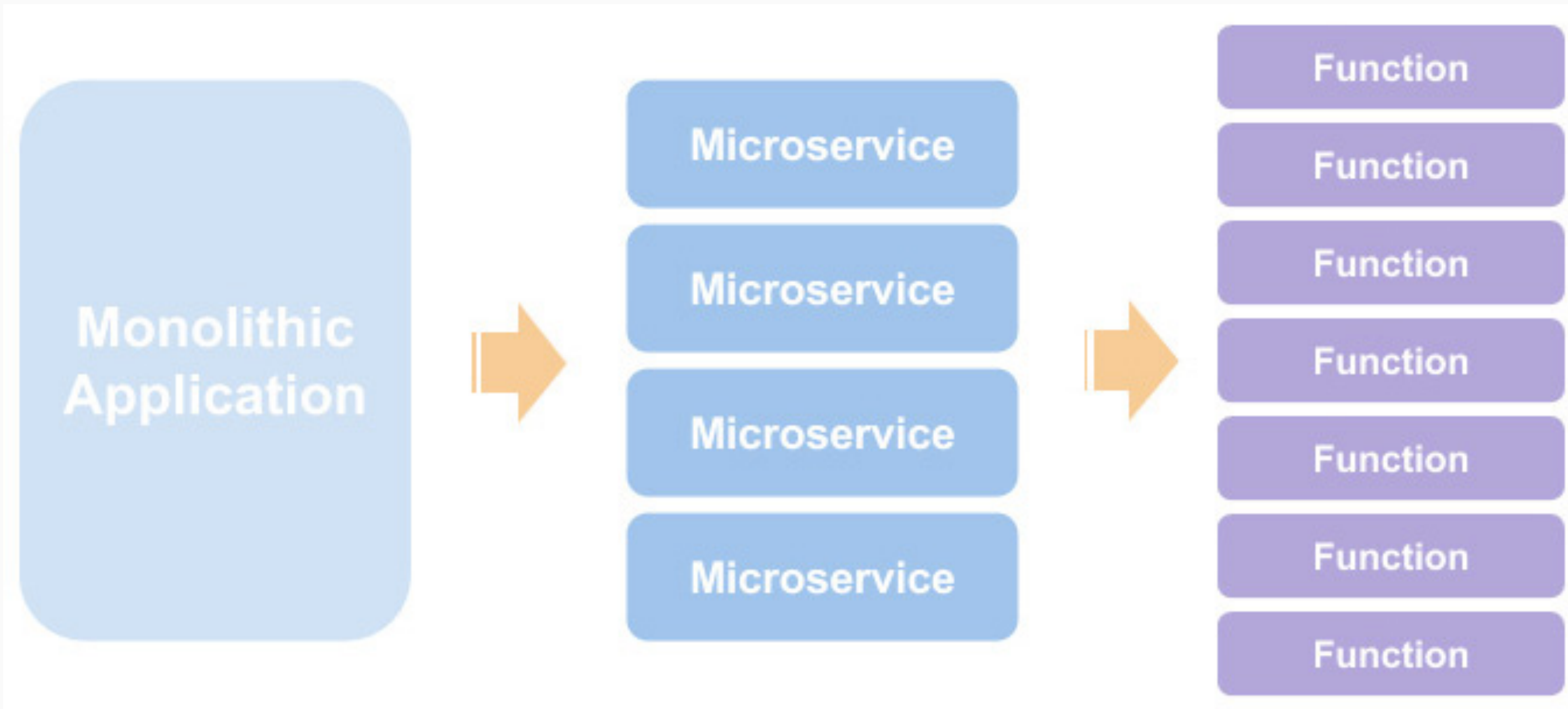
- About Serverless
- Function as a Service - FaaS
- **Serverless Architecture**
- Benefits and Drawbacks
- Design Patterns and Use Cases
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- About Serverless
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- Serverless Architecture
- **Benefits and Drawbacks**
- Design Patterns and Use Cases
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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
- Lack of operational tools
- Architectural complexity
- Monitoring Challenges
- Implementation drawbacks

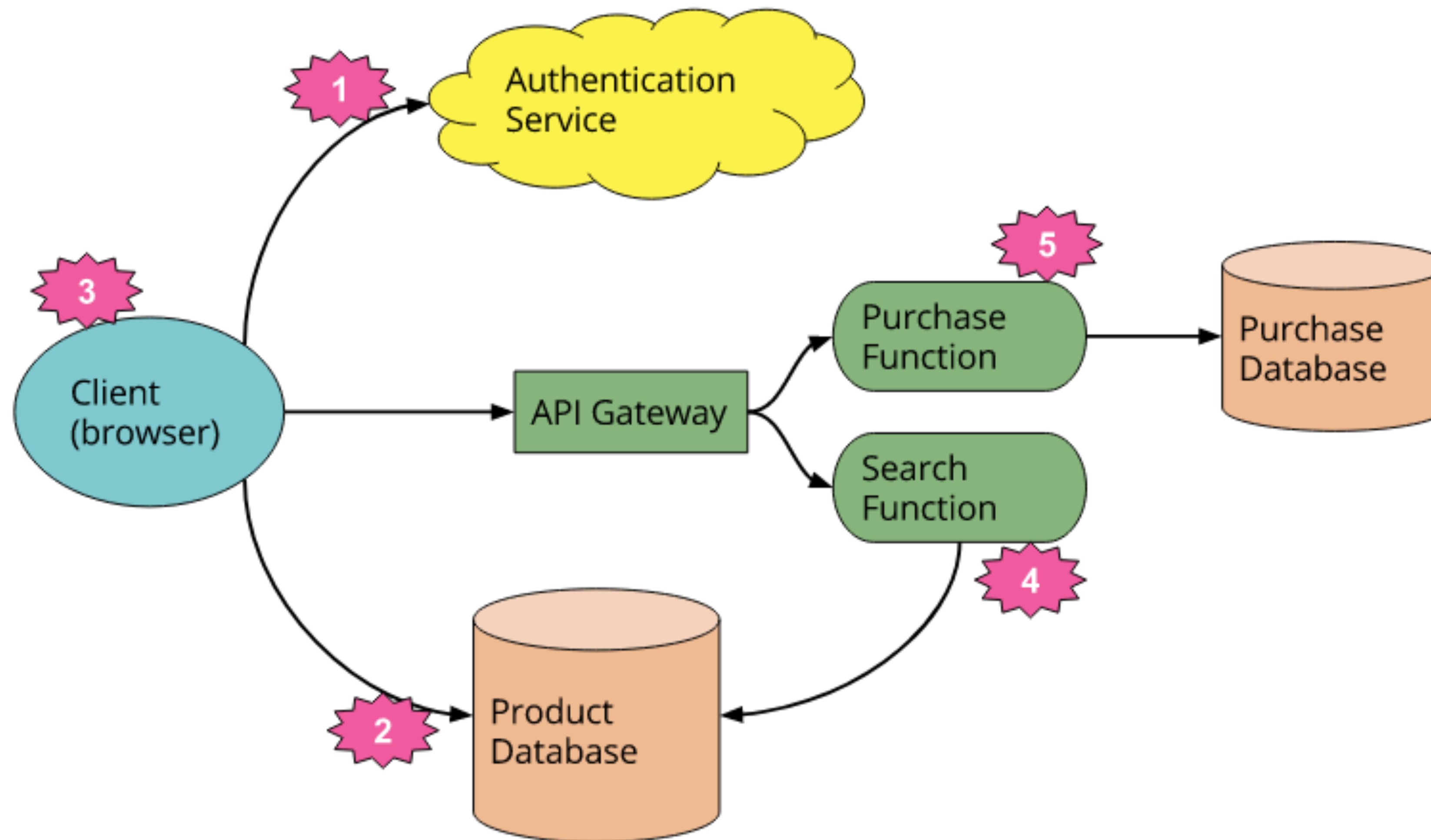
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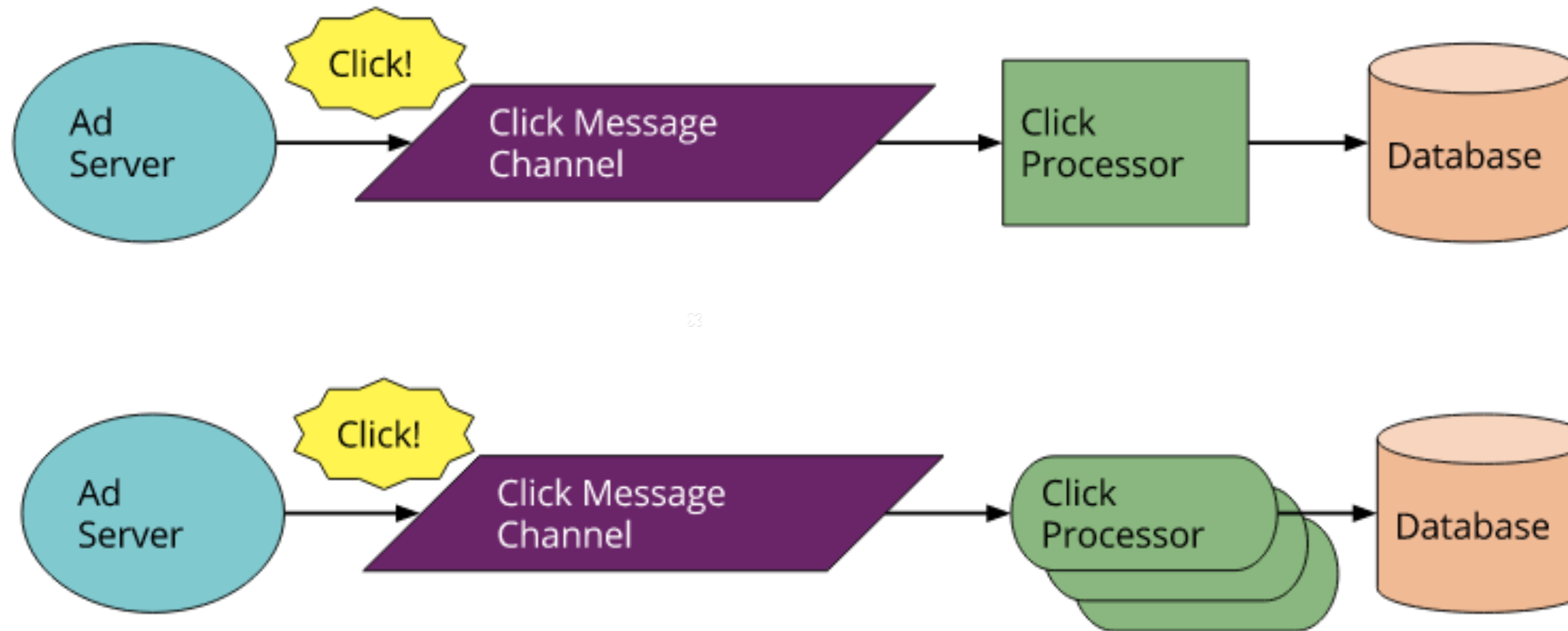
Example 1: UI-driven applications



Example 1: UI-driven applications



Example 2: Message-driven applications

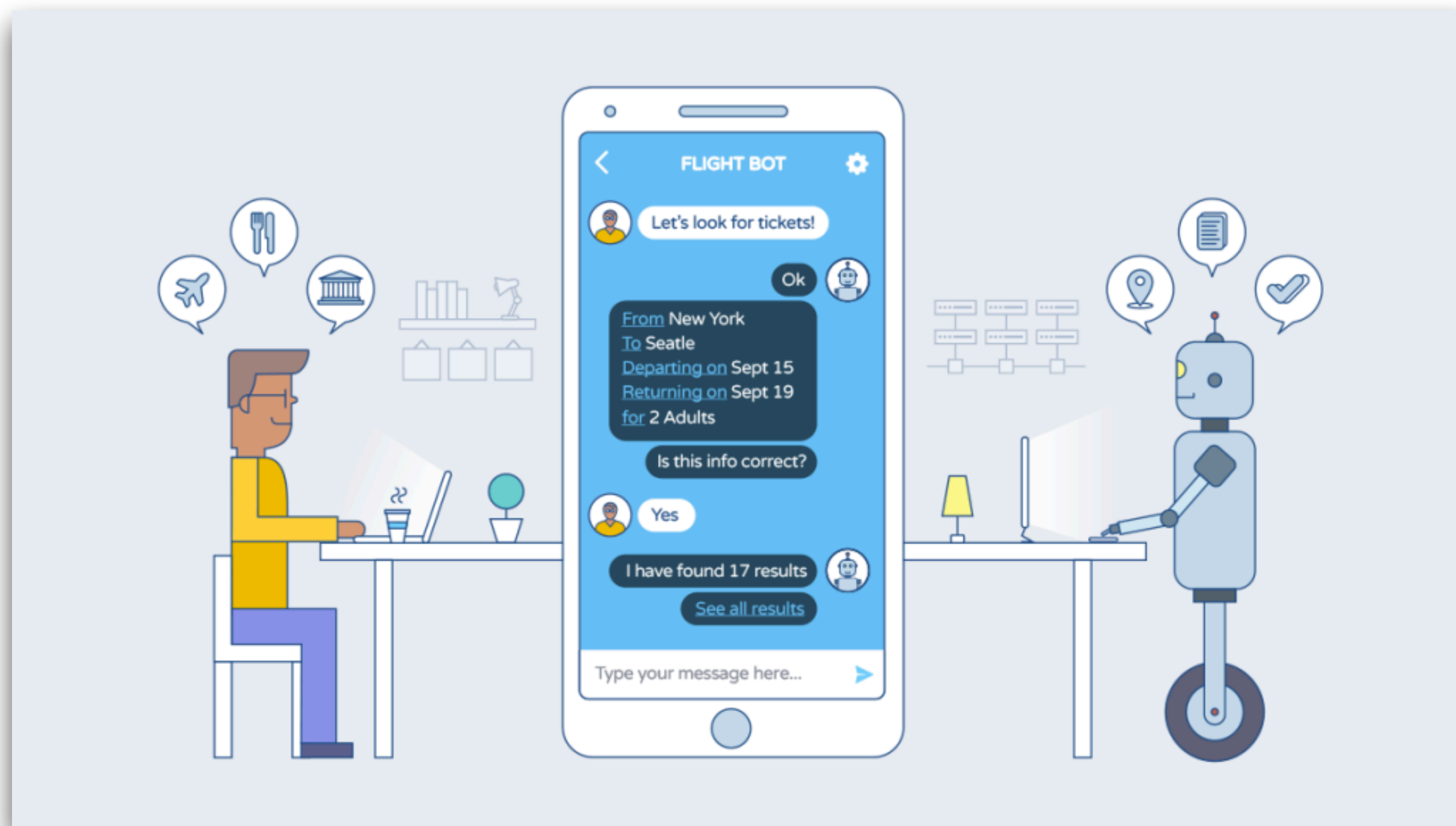


Example 3: Data Processing





Example 5: Chatbots



The Coca-Cola Company



iRobot®

 **Localytics**



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Serverless Function



webtask

MySQL Connection

What would you like to do with Oracle Cloud Services?



Develop and Deploy
Applications



Create
Infrastructure



Migrate
Application Environments



Store and Analyze
Data



Integrate Applications
and Manage Business Processes



MySQL Connection

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




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MySQL Connection


Create Instance

QuickStart Services


All Services

 **Compute**
Subscription ID: 1751045


Create

 **Storage Classic**
Subscription ID: 1751045


Create

 **Database**
Subscription ID: 1751045


Create

 **Integration Cloud**
Subscription ID: 1751045


Create

 **Compute Classic**
[Upgrade to Dedicated Compute](#)


Create

 **Java**
Subscription ID: 1751045

Create

 **Container Classic**
Subscription ID: 1751045

Create

The Ambassador logo is a triangular shield with a blue border. Inside, there's a stylized orange and white rocket or flame shape pointing upwards, with a white star at the top. Below the shield, the word "AMBASSADOR" is written in a small, black, sans-serif font.

MySQL Connection


Create Instance

QuickStart Services

All Services

Filter...


Data Management



Database

Subscription ID: 1751045


Create



Big Data - Comput...

Subscription ID: 1751045


Create



Event Hub - Dedic...

Subscription ID: 1751045


Create



MySQL

Subscription ID: 1751045


Create



Database (OCI)

Subscription ID: 1751045


Create



Event Hub

Subscription ID: 1751045


Create



Data Hub Cloud Se...

Subscription ID: 1751045

Create

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MySQL Connection

ORACLE[®] CLOUD My Services

Oracle MySQL Cloud Service

QuickStarts Welcome!

Instances Activity

As of Mar 16, 2018 5:24:16 PM UTC

Instances

[Create Instance](#)

You don't have any instances. After meeting the [prerequisites](#), use this button to create an instance.






Need help creating the instance?
[- Watch a video](#)

[▶ Instance Create and Delete History](#)



MySQL Connection

ORACLE[®] MySQL Cloud Service



Create New Instance

Cancel

InstanceDetailsConfirm

Next >

Instance

Provide basic service instance information

* Instance Name

DataBaseTest

?

Description

For Testing Serverless

?

Notification Email

mercedes.wyss@powerwtechnol

?

* Region

No Preference

?

Tags

+ ?

MySQL Connection

Service Details

Provide details for this Oracle MySQL Cloud Service [Enterprise Edition] instance.

 Selection Summary

Configuration

* Compute Shape ?

* SSH Public Key [Edit](#) ?

Use High Performance Storage ☐ ?

MySQL Configuration

* Usable Database Storage (GB) ?

* Administration Username ?

* Password ?

* Confirm Password ?

* Database Schema Name ?

Server Character Set ?

Timezone ?

* MySQL Port ?

Configure MySQL ?

Backup and Recovery Configuration

Backup Destination ?

Initialize Data From Backup

* Create Instance from Existing Backup ?



MySQL Connection

[< Previous](#) [Cancel](#)

Instance

Details

Confirm

[Create >](#)

Confirmation

Confirm your responses and create service instance.

Service

Instance Name:	DataBaseTest
Description:	For Testing Serverless
Notification Email:	mercedes.wyss@powerwtechnol...
Service Level:	Oracle MySQL Cloud Service
Software Release:	MySQL Server Release 5.7.21
Software Edition:	Enterprise Edition
Region:	No Preference
Compute Shape:	OC3 - 1.0 OCPU, 7.5GB RAM
SSH Public Key:	ssh-rsa AAAAB3NzaC1yc2EAAA...
Use High Performance Storage:	false

Backup and Recovery Configuration

Backup Destination:	None
---------------------	------

Instantiate from Backup

Create Instance from Existing Backup:	No
---------------------------------------	----

MySQL Configuration

Software Edition:	Enterprise Edition
Usable Database Storage (GB):	25



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Ver Video Adjunto (LecturaDB.mov)



There is no open Webtask

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

saveRecipe* >

Ver Video Adjunto (EscrituraDB.mov)

```
1 var mysql = require('mysql');
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(function(err){
15    if(err){
16      console.err('error connecting: ' + err.stack);
17      return;
18    }
19
20    console.log('connected as id: ' + connection.threadId);
21  });
22
23  connection.query('SELECT * FROM recipes ORDER BY recipe_id limit 100', callback);
```


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FNProject

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



FNProject

- Multi Cloud
- Developer Experience
- Container Native
- Vision and Deep

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

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

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