Serverless in Deep

ORACLE CODE

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

Duke's Choice Award

2016 Winner

Java

AMBASSADOR

ORACLE Developer Champion

Devs +502

Comunidad Desarrolladores en Tecnologías < Google > en Guatemala

JDuchess Guatemala

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

ORACLE
Developer
Champion

“**Serverless architectures** refer to applications that significantly **depend** on third-party services (knows 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)

ORACLE
Developer
Champion

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, FNProject

Key Characteristics of a Serverless Application

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

Servers are
fully-abstracted

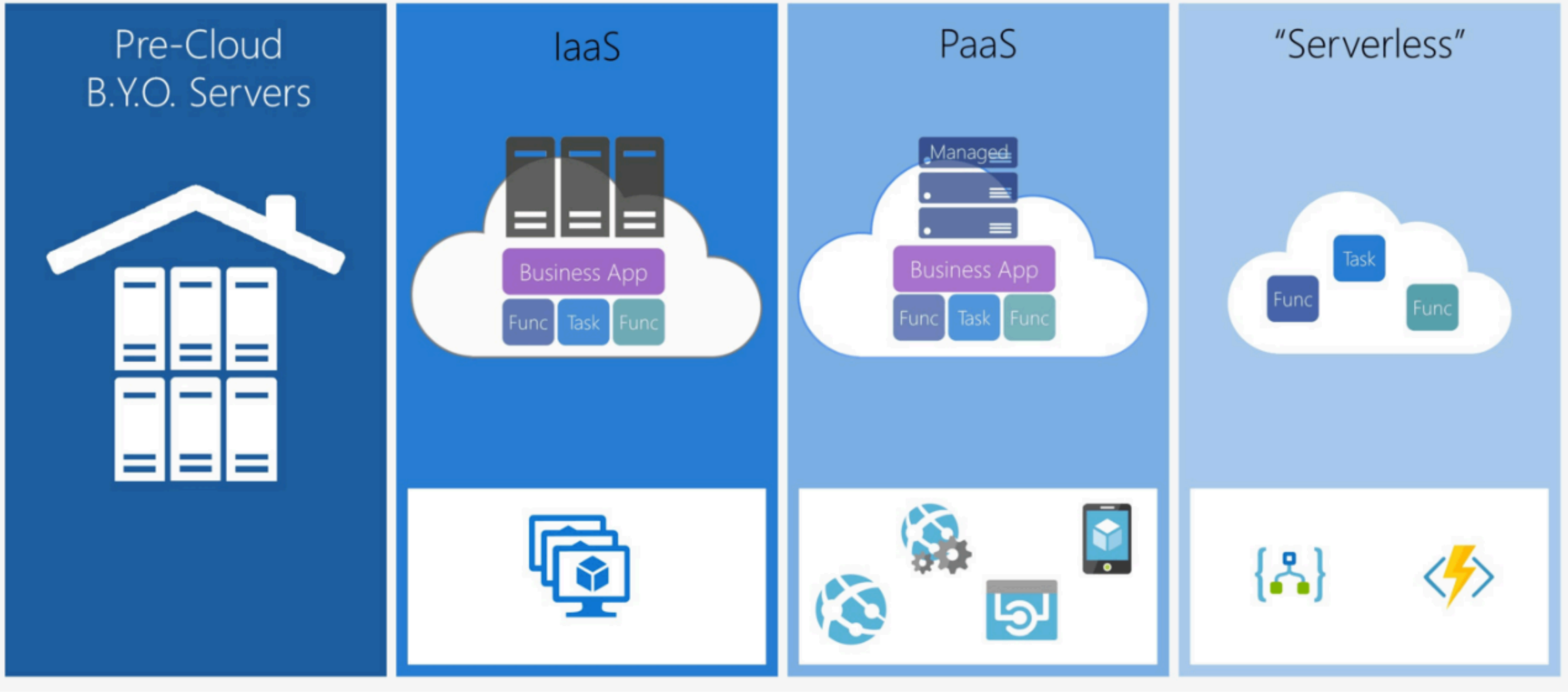
Scaling is event-driven
not resource-driven

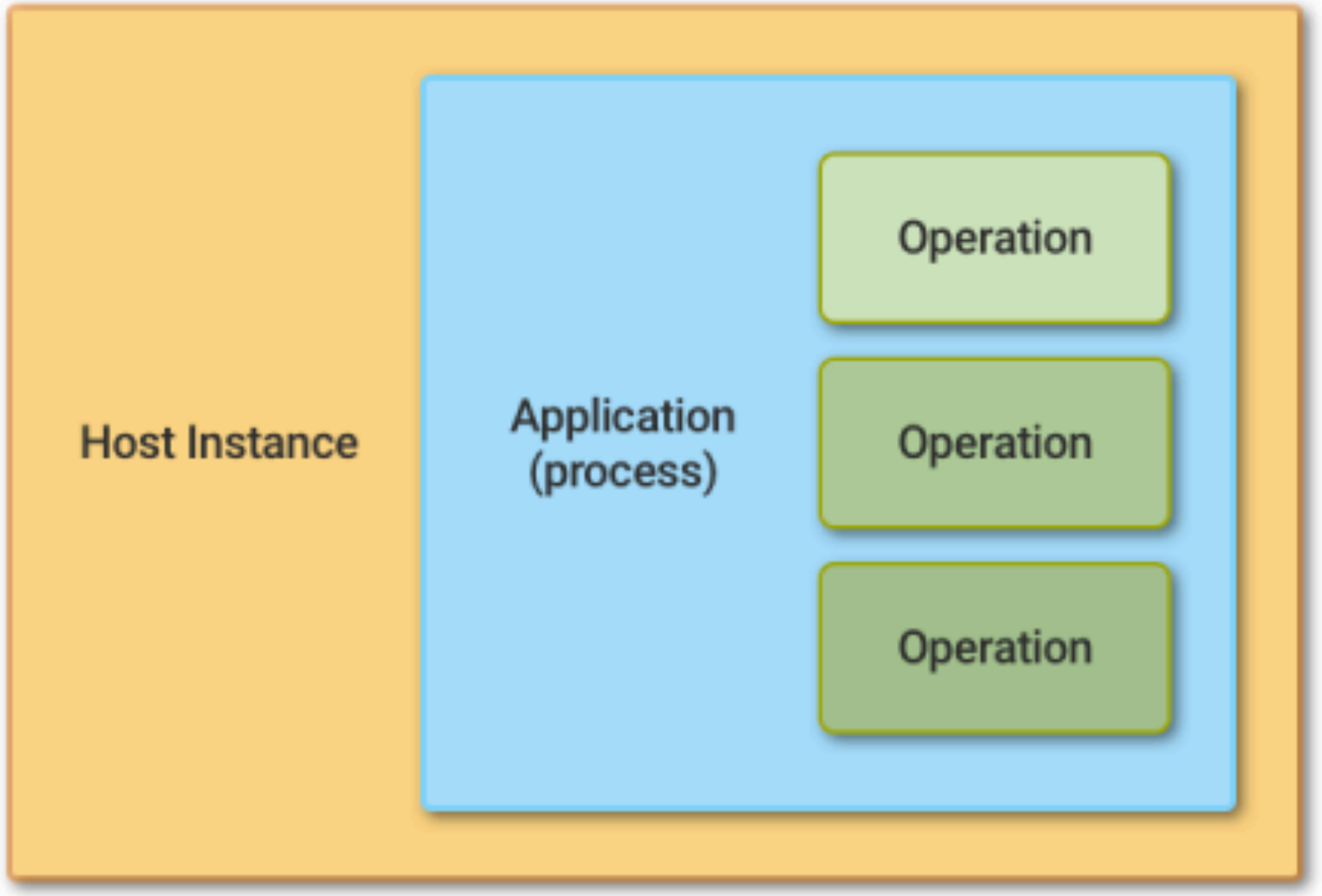
Pay only
for what you use

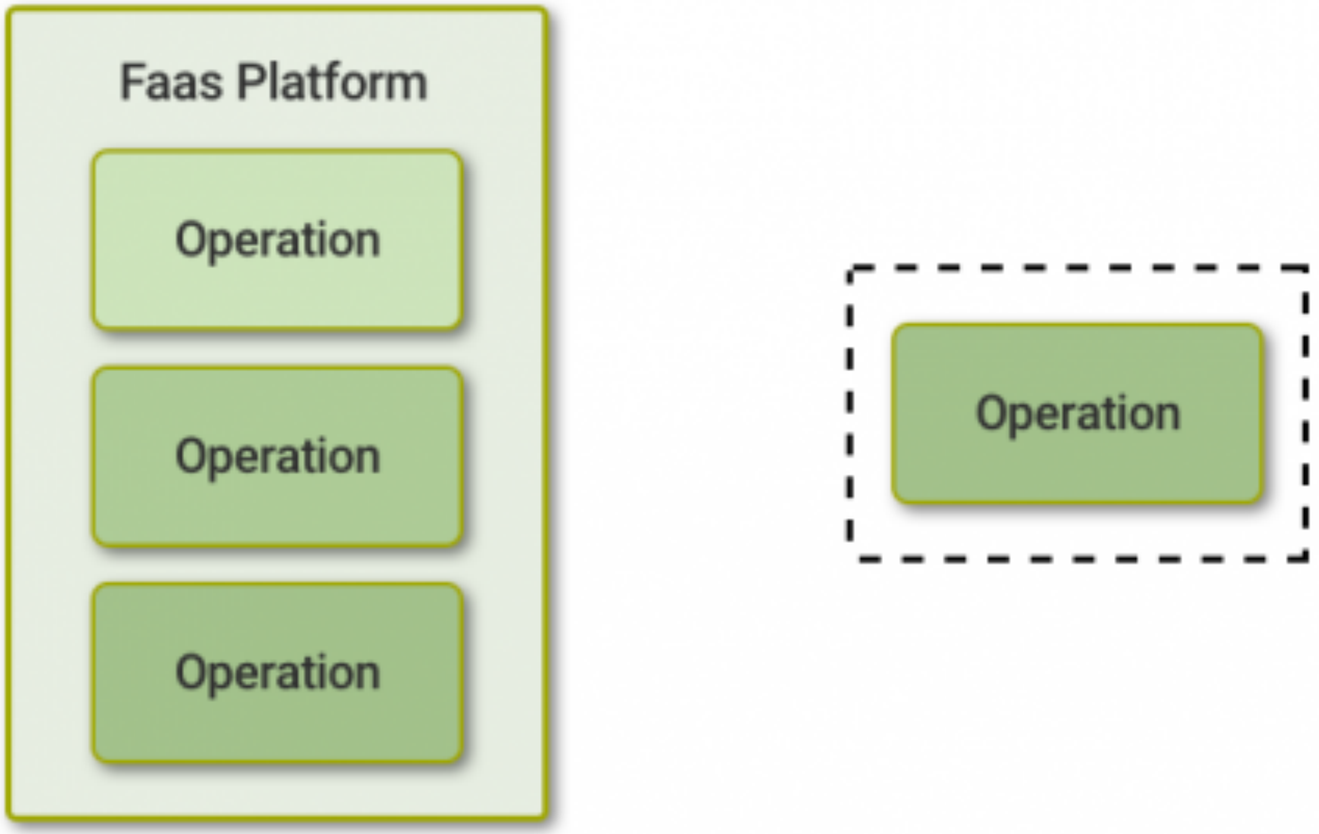
What is not Serverless?

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

ORACLE
Developer
Champion


Pre-Cloud
B.Y.O. Servers
IaaS
Business App
Func
Task
Func
PaaS
Managed
Business App
Func
Task
Func
"Serverless"
Task
Func
Func




Faas Platform
Operation
Operation
Operation
Operation

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

ORACLE
Developer
Champion

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 instant 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

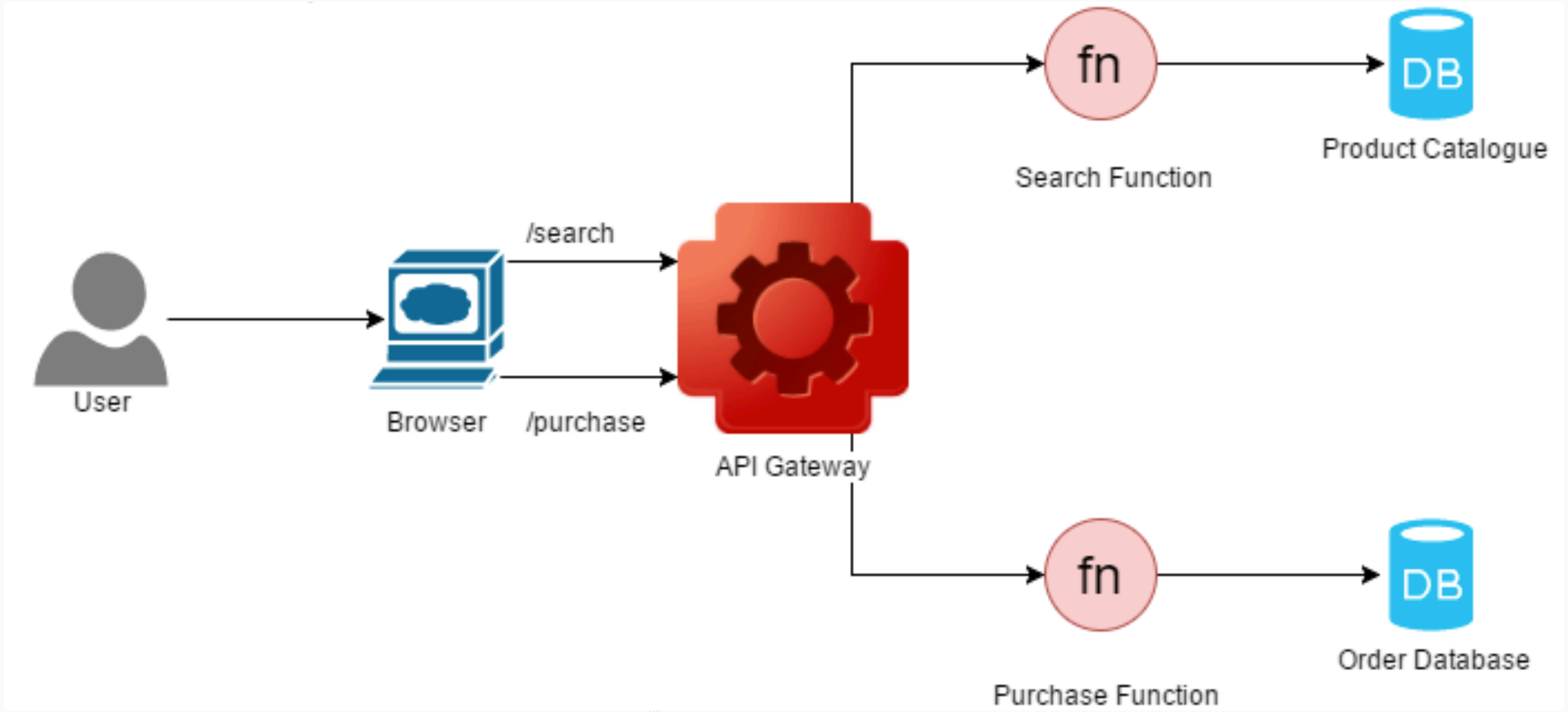
- Are Stateless.
- Provide pure functional transformations of their input.

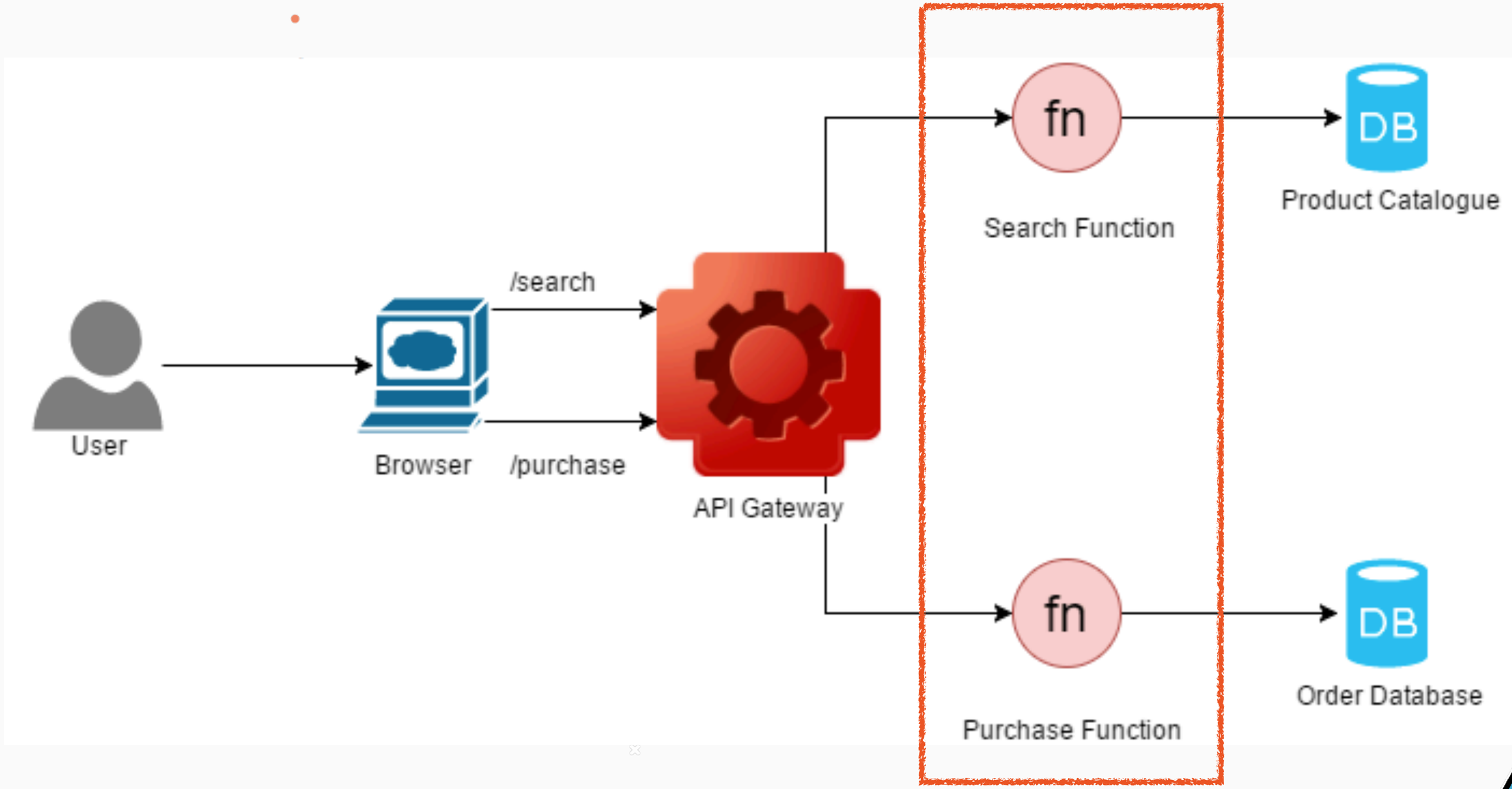
FaaS Some Restrictions

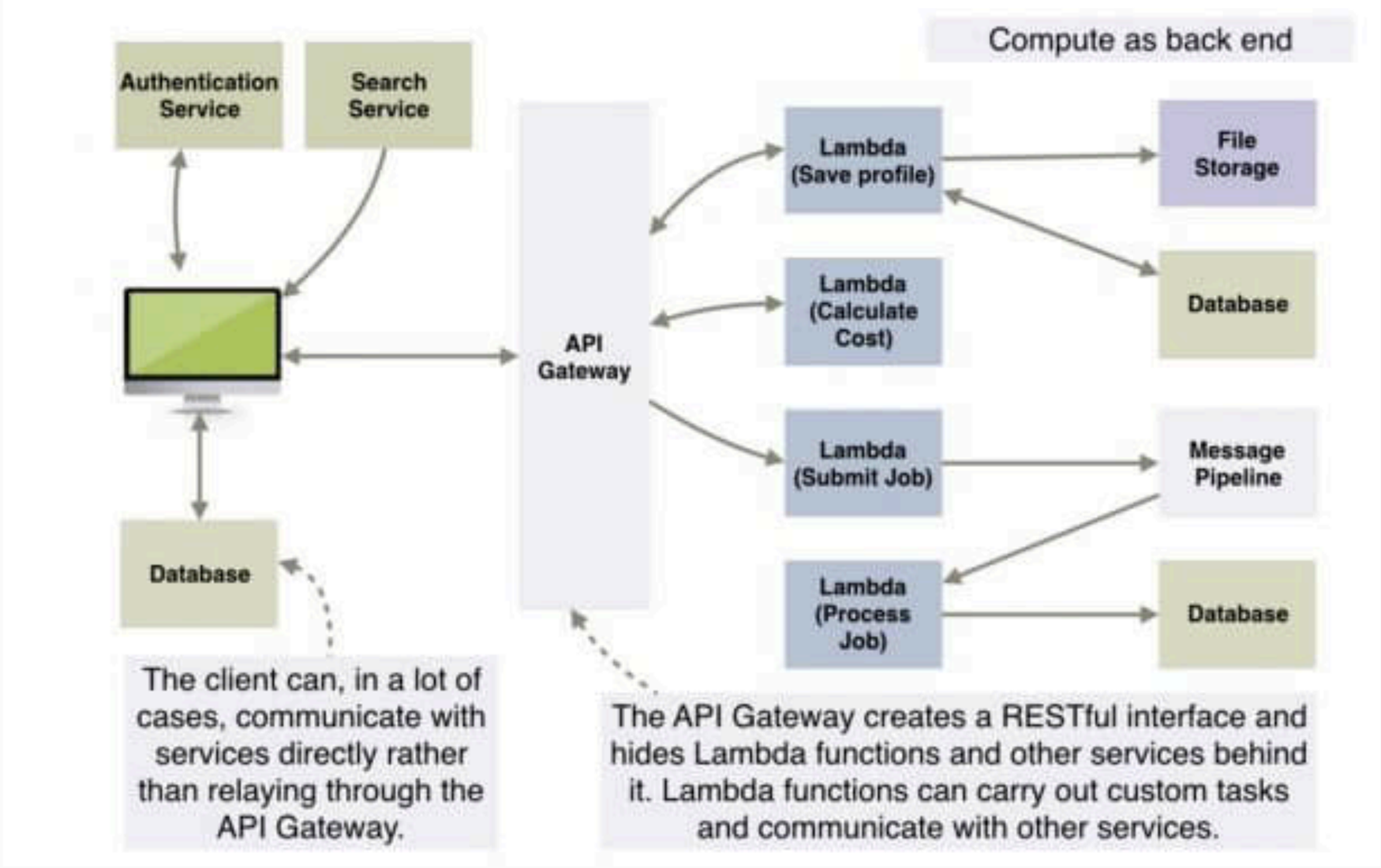
- FaaS functions are typically limited in how long each invocation is allowed to run.
- Which programming languages can be used.
- All the architecture need to be in the same cloud.

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

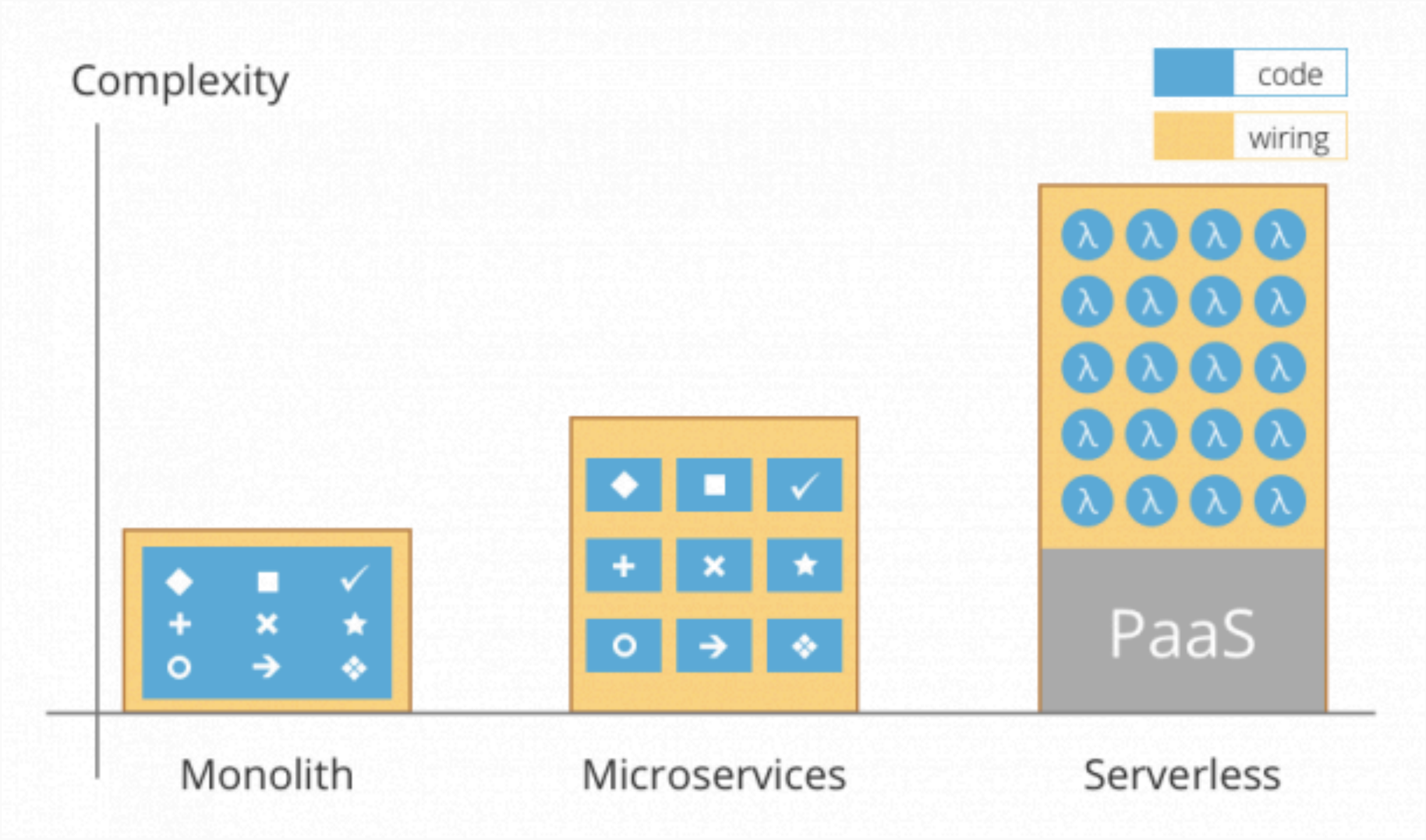
ORACLE
Developer
Champion


fn
DB
Product Catalogue
Search Function
/search
User
Browser
/purchase
API Gateway
fn
DB
Order Database
Purchase Function


fn
DB
Product Catalogue
Search Function
/search
User
Browser
/purchase
API Gateway
fn
DB
Order Database
Purchase Function



ORACLE Developer Champion

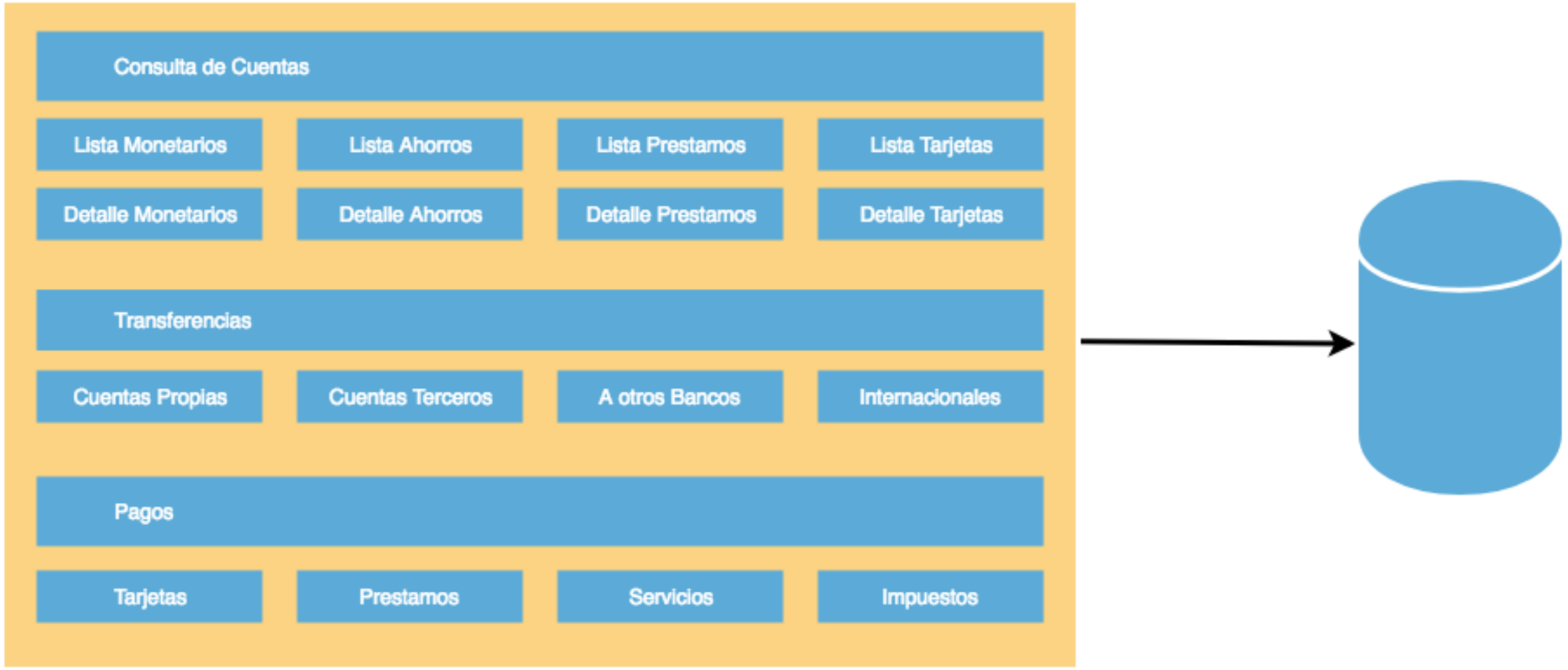

Complexity
code
wiring
PaaS
Monolith
Microservices
Serverless

Implementación Bancaria

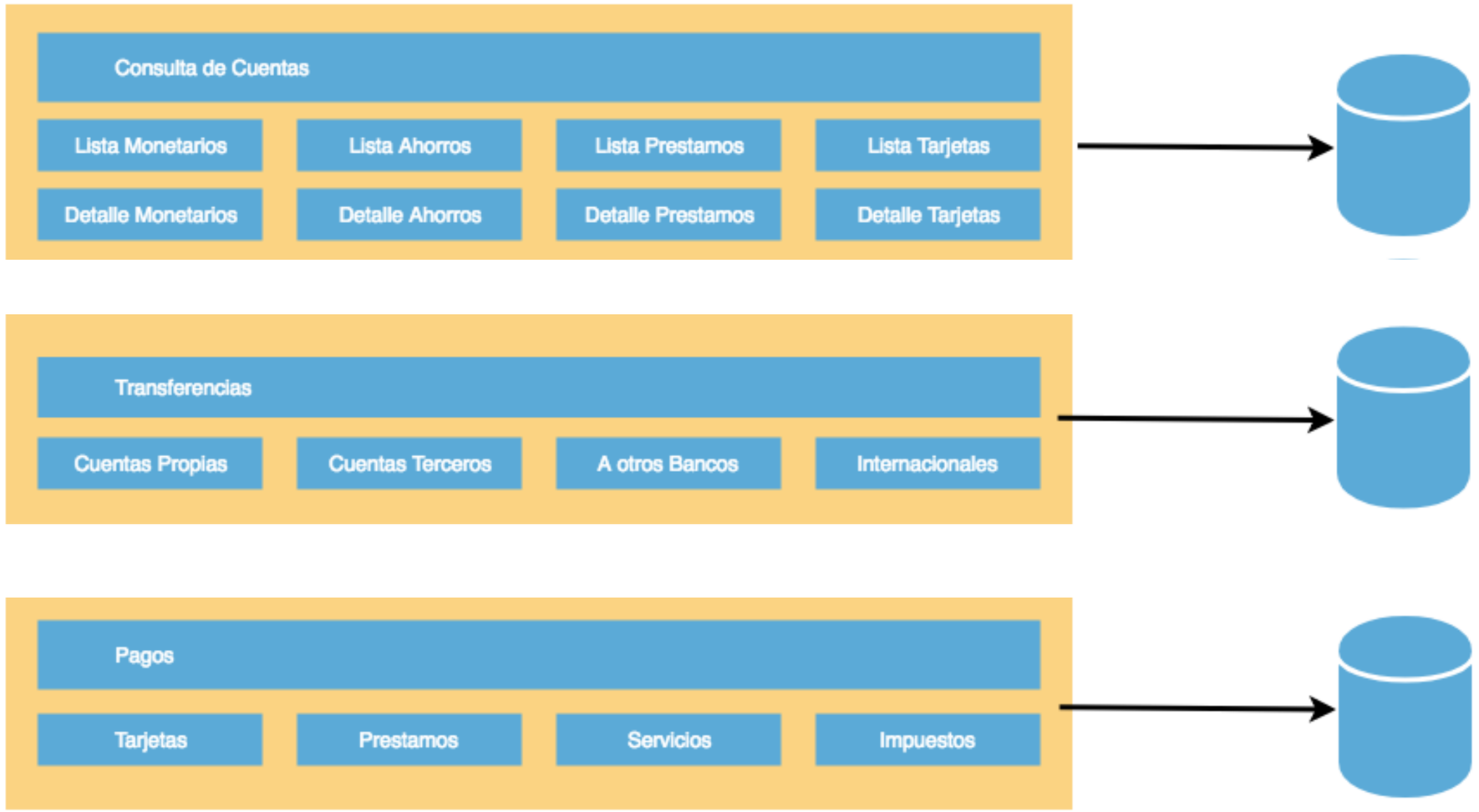
Este caso es solo para ejemplificar la diferencia entre Monolitos, Arquitectura de Microservicios y Serverless. No es una sugerencia de implementación.

ORACLE
Developer
Champion

Monolito


Consulta de Cuentas
Lista Monetarios
Lista Ahorros
Lista Prestamos
Lista Tarjetas
Detalle Monetarios
Detalle Ahorros
Detalle Prestamos
Detalle Tarjetas
Transferencias
Cuentas Propias
Cuentas Terceros
A otros Bancos
Internacionales
Pagos
Tarjetas
Prestamos
Servicios
Impuestos

Microservicios



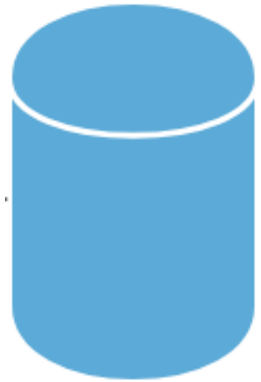
ORACLE Developer Champion

FaaS

Lista Monetarios

Lista Ahorros

Detalle Monetarios



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

ORACLE
Developer
Champion

Benefits

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

Drawbacks

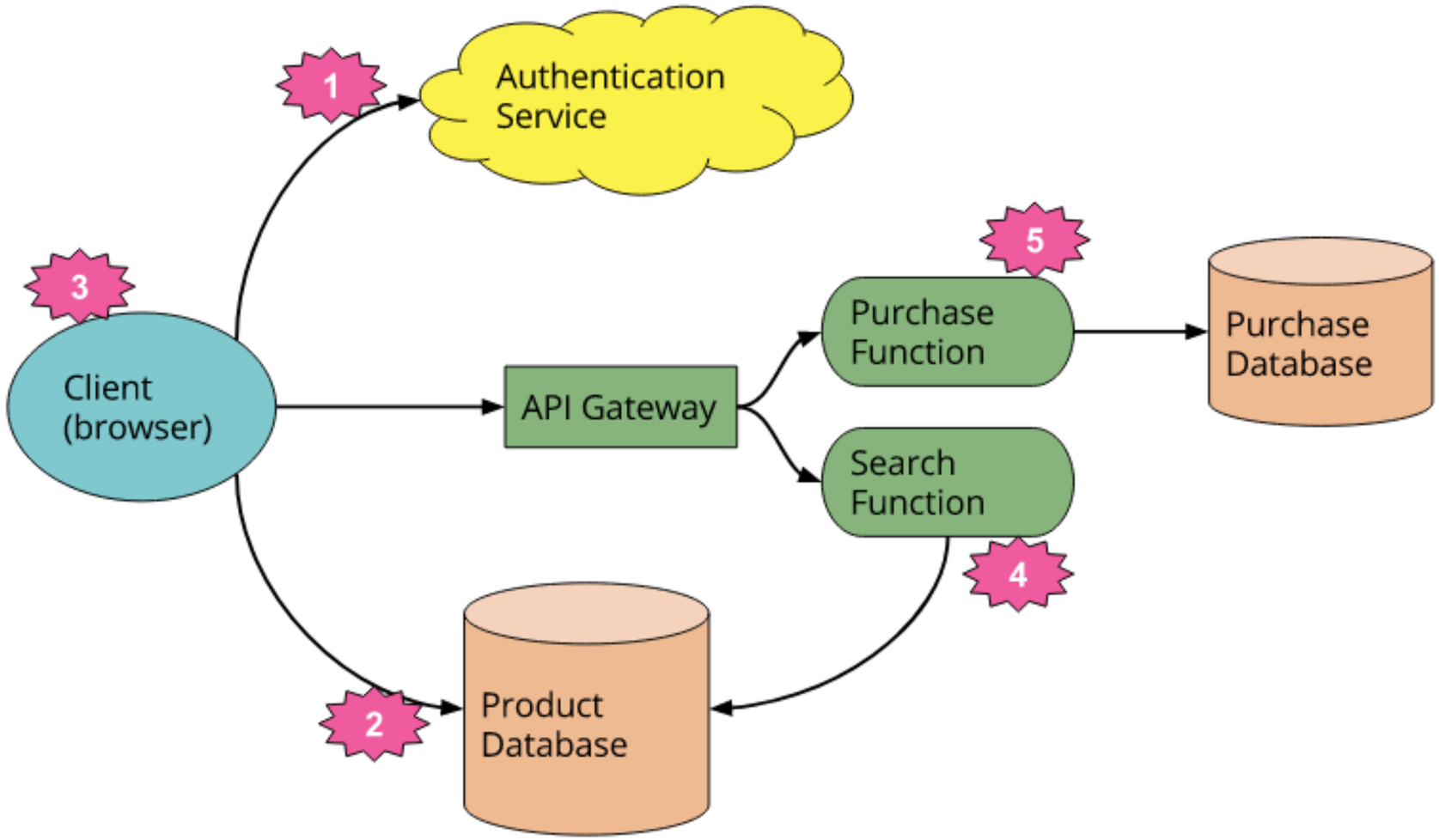
- Problems due to Third-party API system
- Lack of operational tools
- Architectural complexity
- Monitoring Challenges
- Implementation drawbacks

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

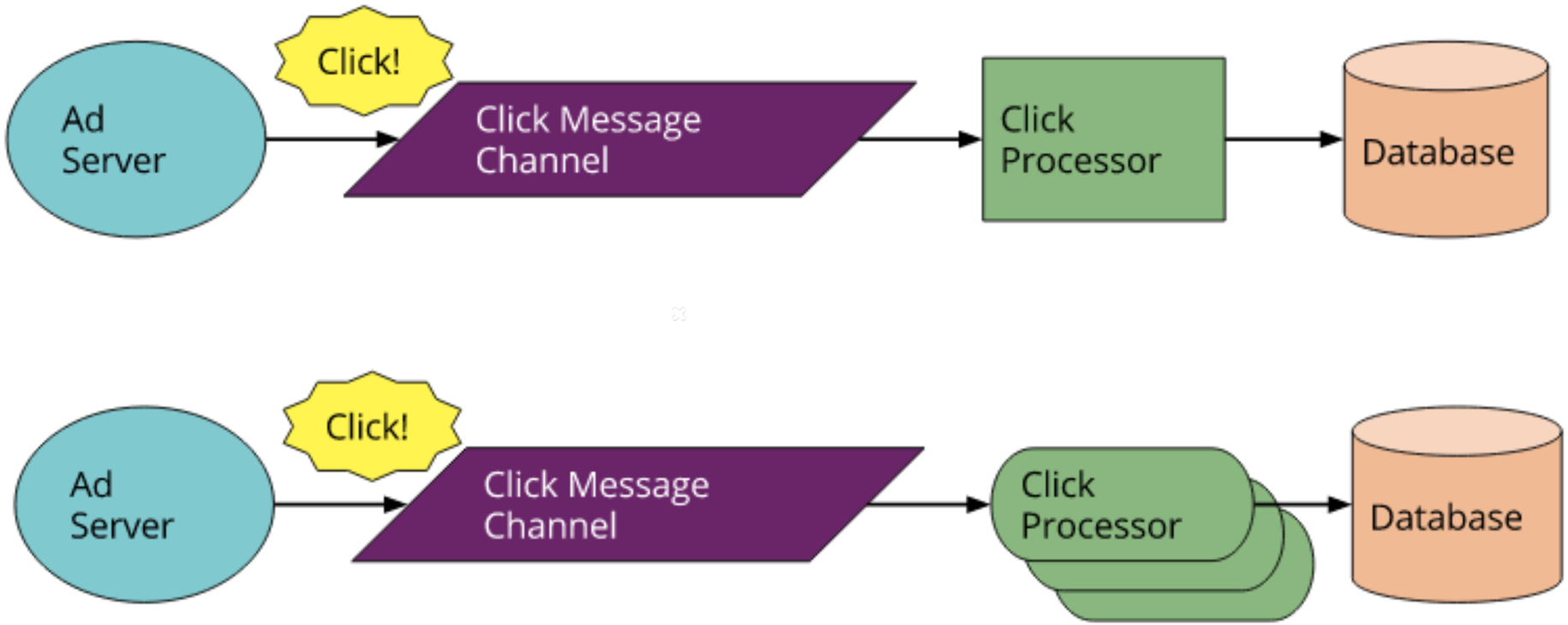
Example 1: UI-driven applications

ORACLE Developer Champion

Example 1: UI-driven applications



Example 2: Message-driven applications



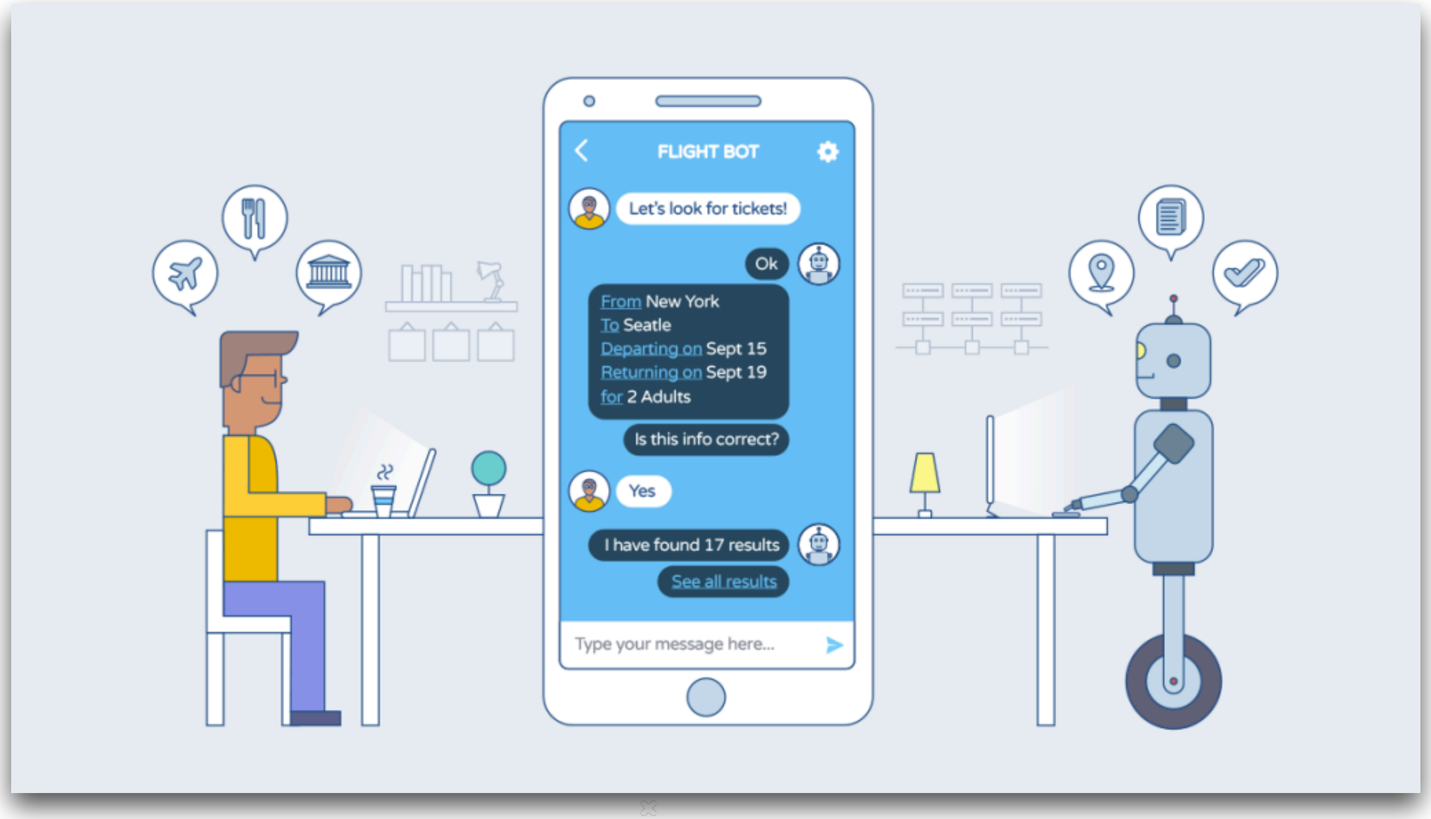
ORACLE Developer Champion

Example 3: Data Processing

Example 4: Internet of Things

ORACLE Developer Champion

Example 5: Chatbots



AMBASSADOR

ORACLE
Developer
Champion

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

Serverless Function

webtask

MySQL®

ORACLE
Developer
Champion

Es seguro | https://myservices-mmwyss.console.oraclecloud.com/mycloud/cloudportal/dashboard

ORACLE Cloud My Services

Dashboard Users

Dashboard

Look at the video DBCreation.mp4

Identity Domain: mmwyss - North America

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

ervices 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.

Es seguro | https://webtask.io/make

webtask

Auth0 Extend Pricing Documentation

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

Powered by Extend

Es seguro | https://webtask.io/make

webtask

Auth0 Extend Pricing Documentation

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 ln 7, col 3

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

fn Project

ORACLE Developer Champion

FNProject

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

FNProject

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

ORACLE
Developer
Champion

https://github.com/itrjwyss/Journey18

https://www.facebook.com/itrjwyss

@itrjwyss