Serverless in Deep

Mercedes Wyss

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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

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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

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“**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)

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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

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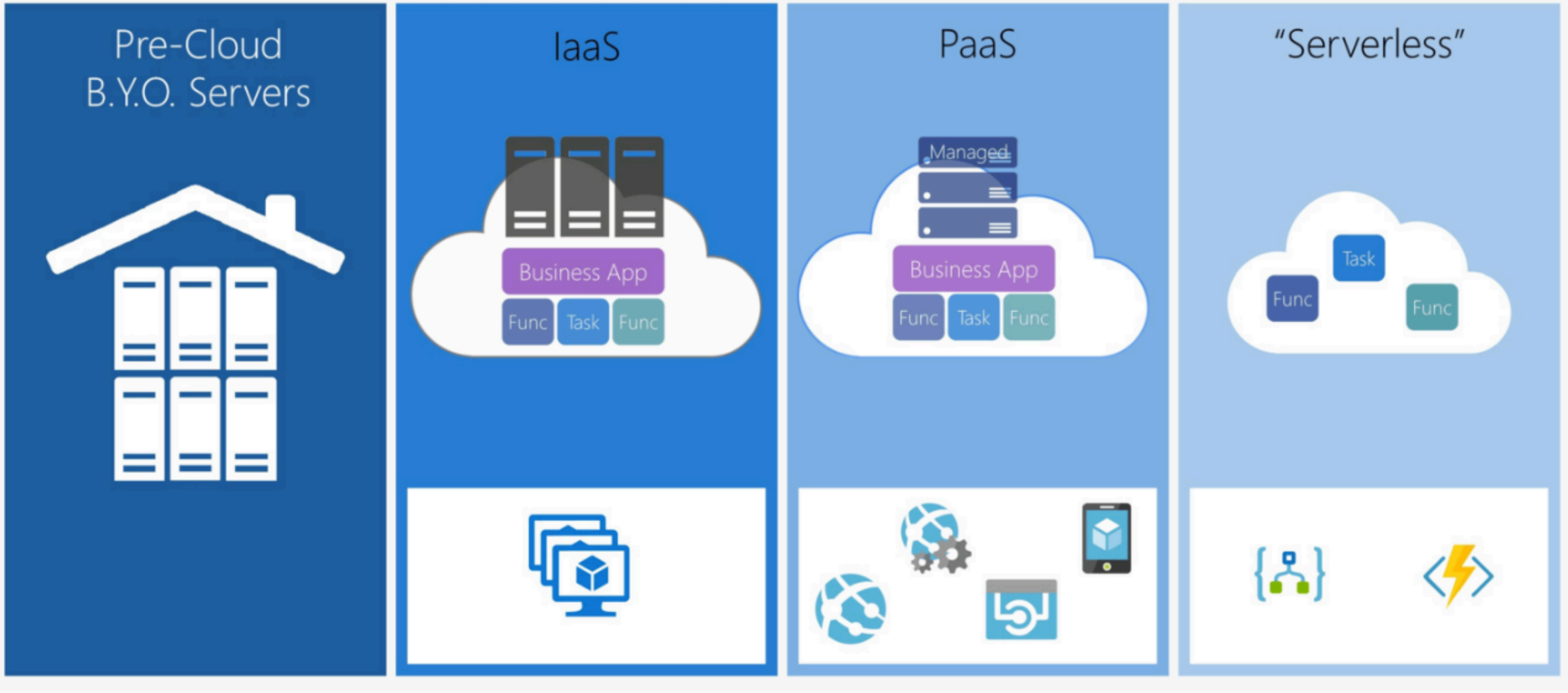
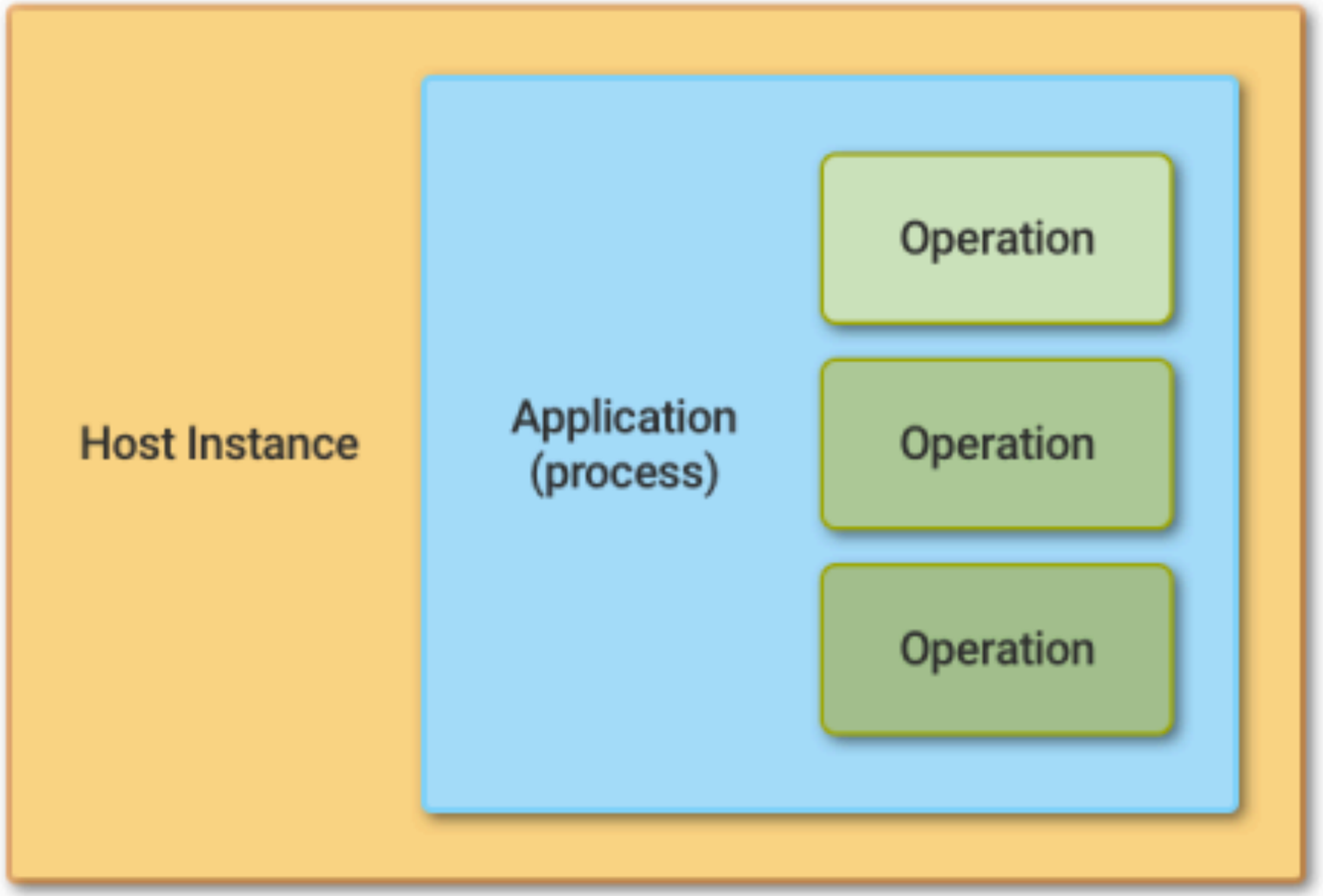
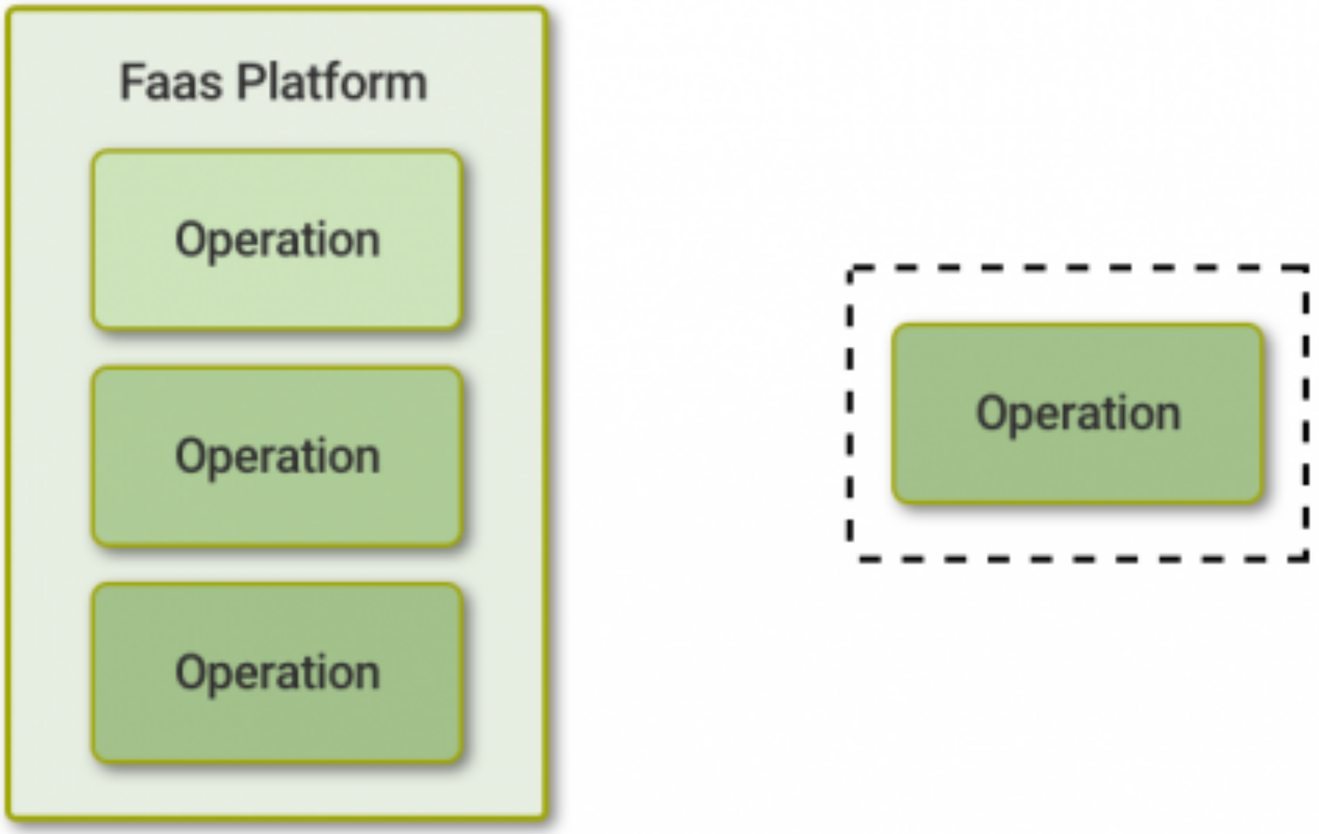

Pre-Cloud
B.Y.O. Servers
IaaS
Business App
Func
Task
Func
PaaS
Managed
Business App
Func
Task
Func
"Serverless"
Task
Func
Func




Faas Platform
Operation
Operation
Operation
Operation

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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 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.

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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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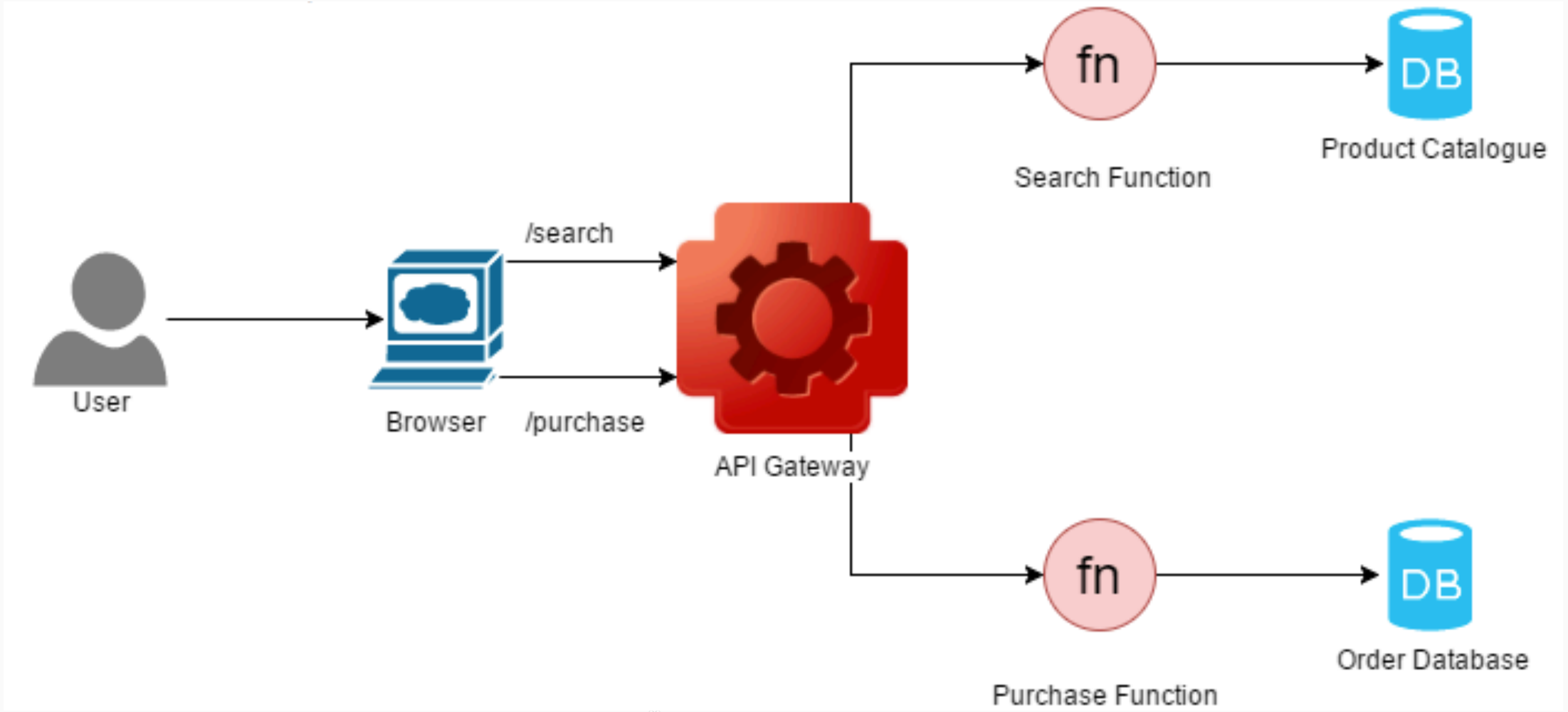
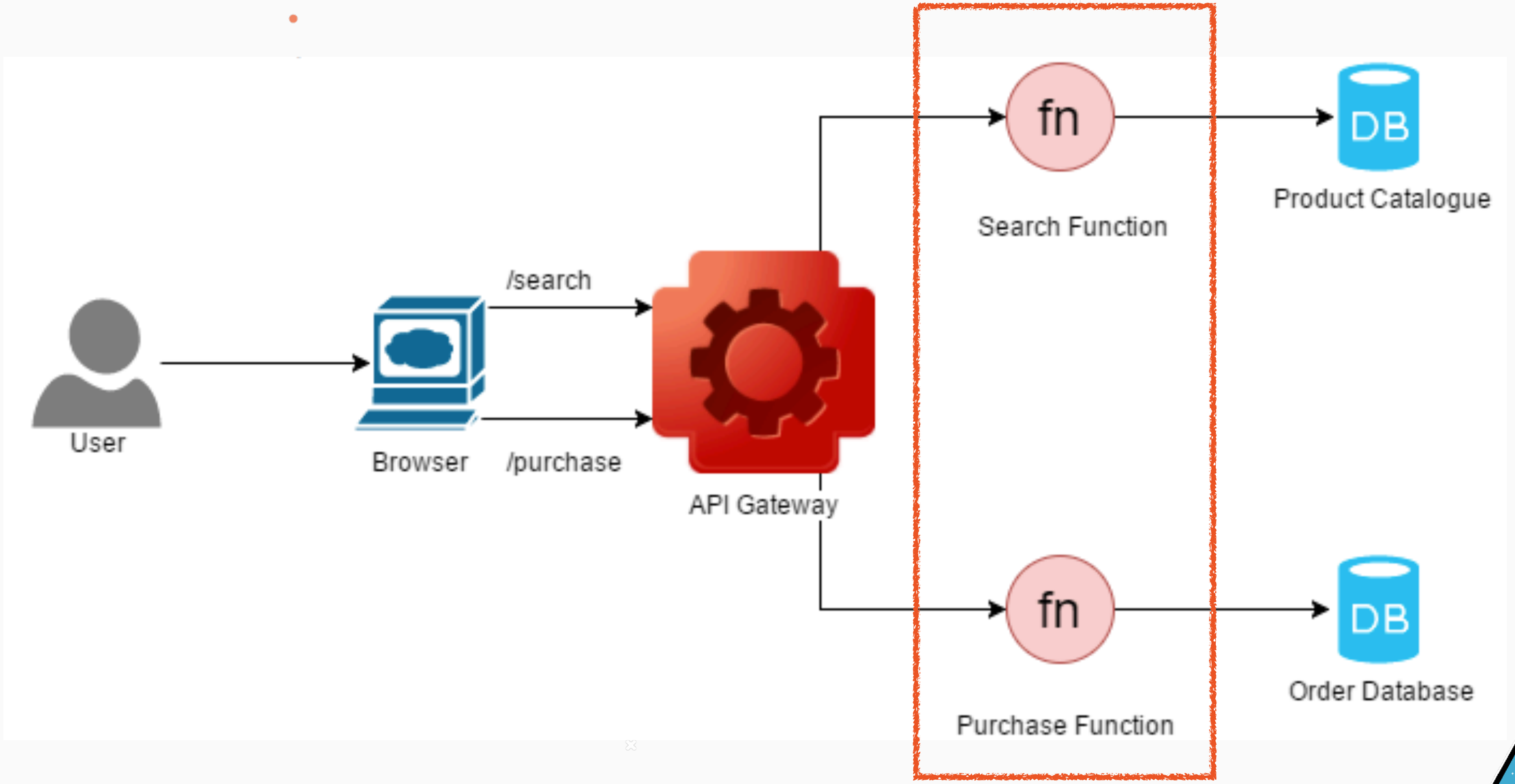

fn
DB
Product Catalogue
Search Function
/search
User
Browser
/purchase
API Gateway
fn
DB
Order Database
Purchase Function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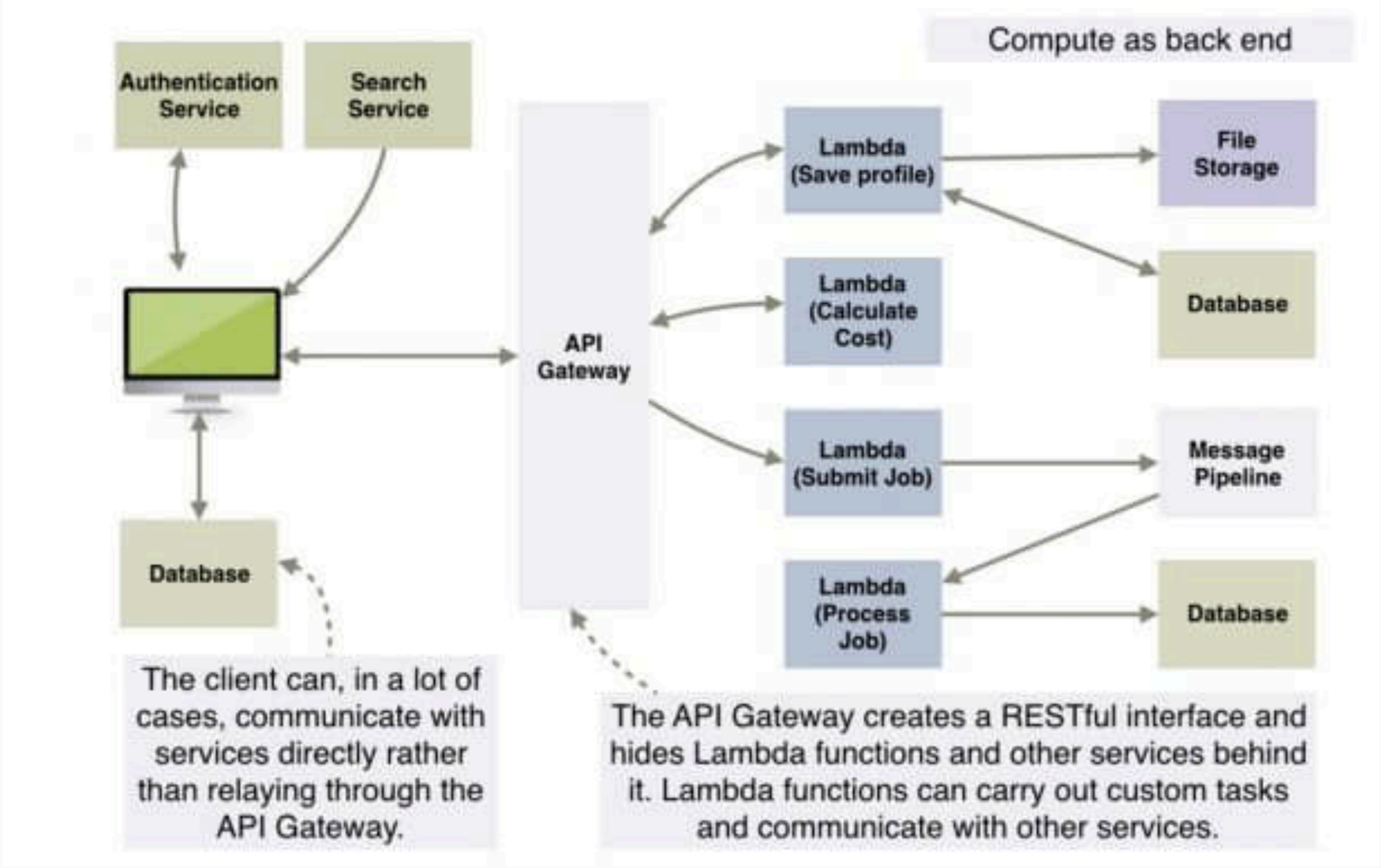

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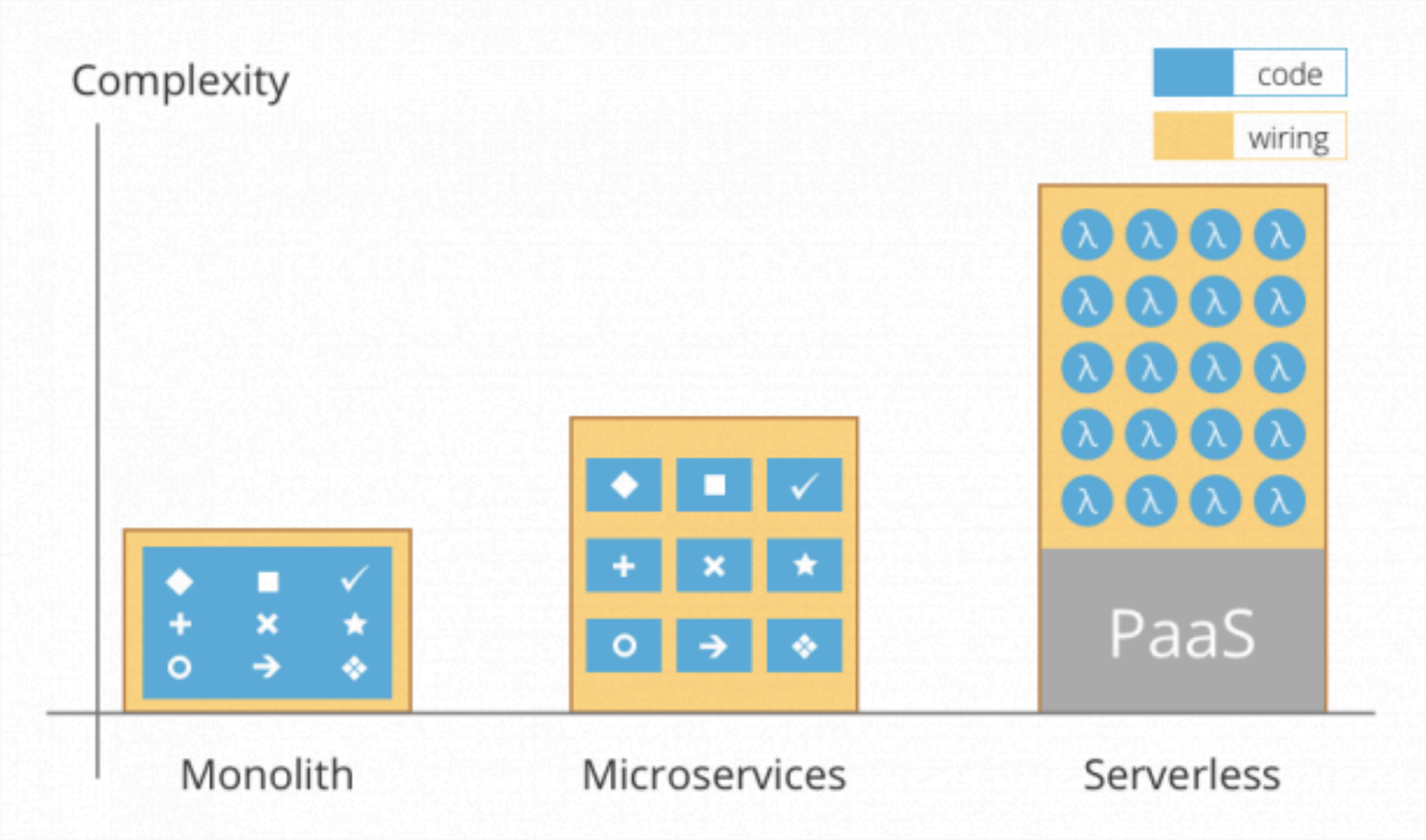
Complexity
code
wiring
PaaS
Monolith
Microservices
Serverless

Implementación Bancaria

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

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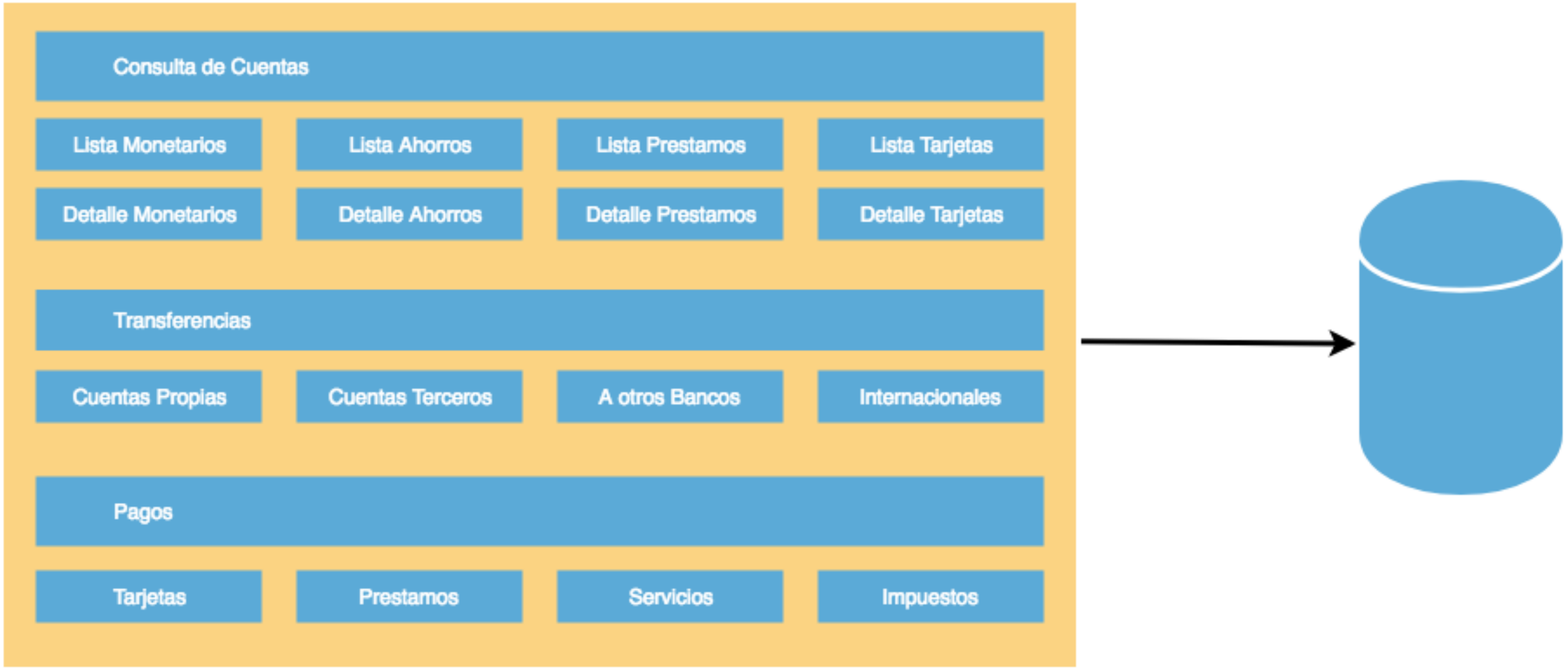
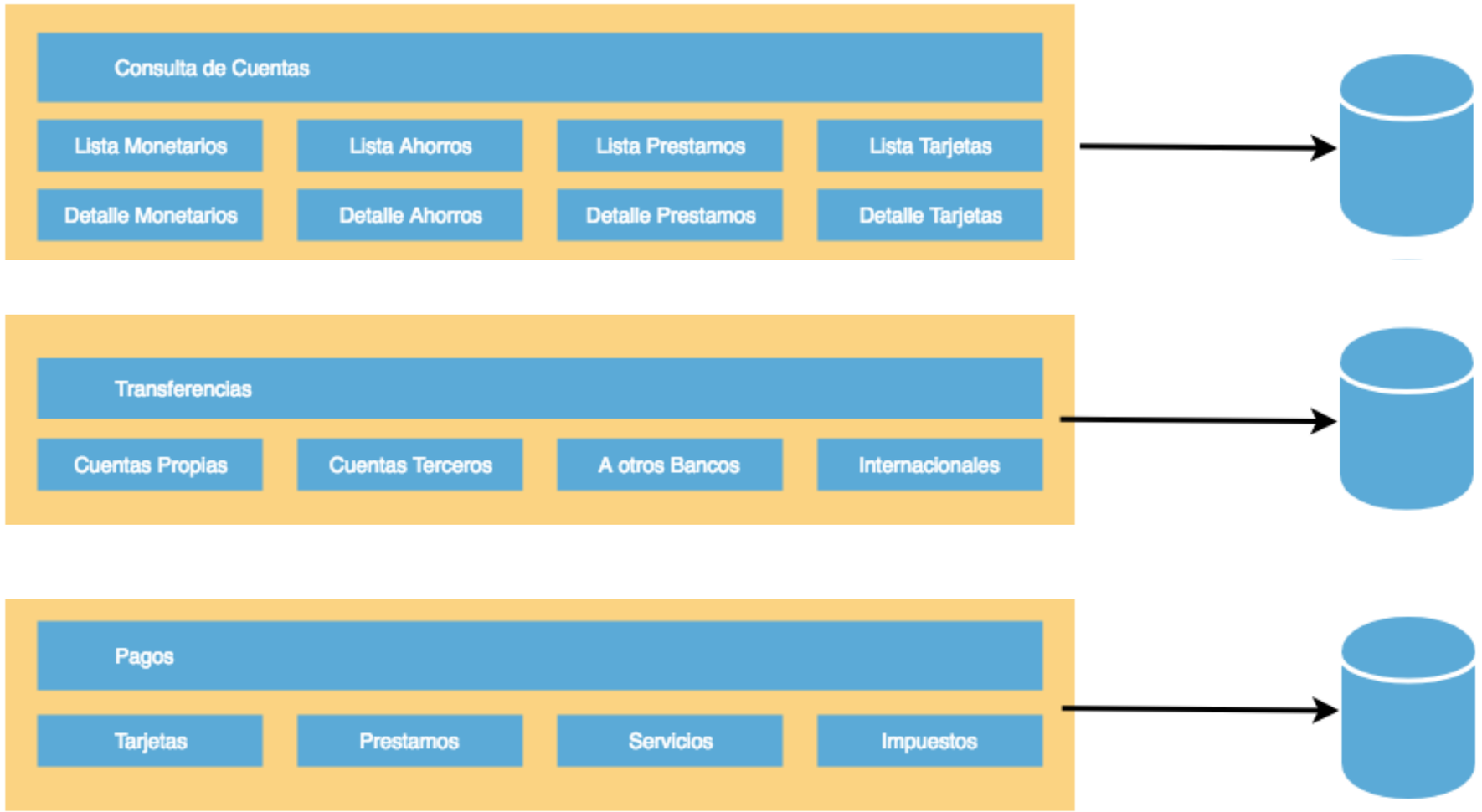
Monolito


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



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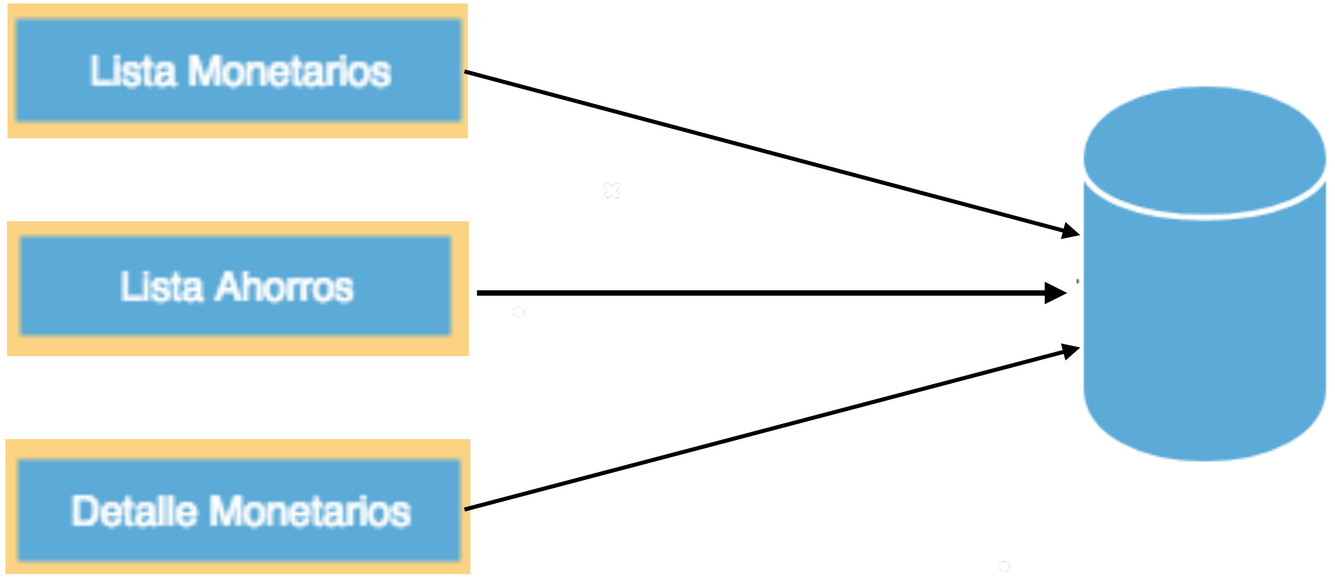
FaaS


Lista Monetarios
Lista Ahorros
Detalle Monetarios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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

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Example 1: UI-driven applications

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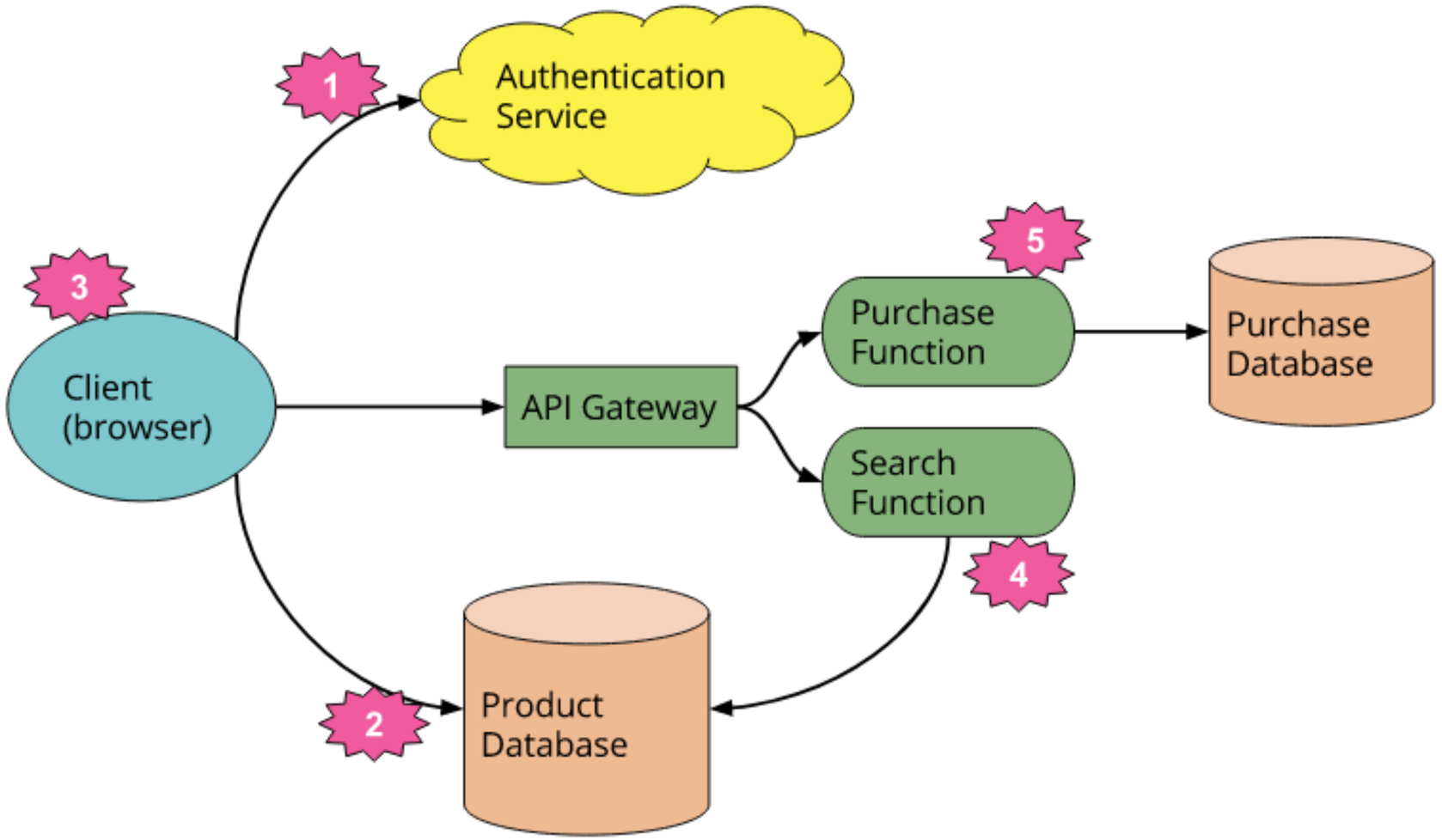
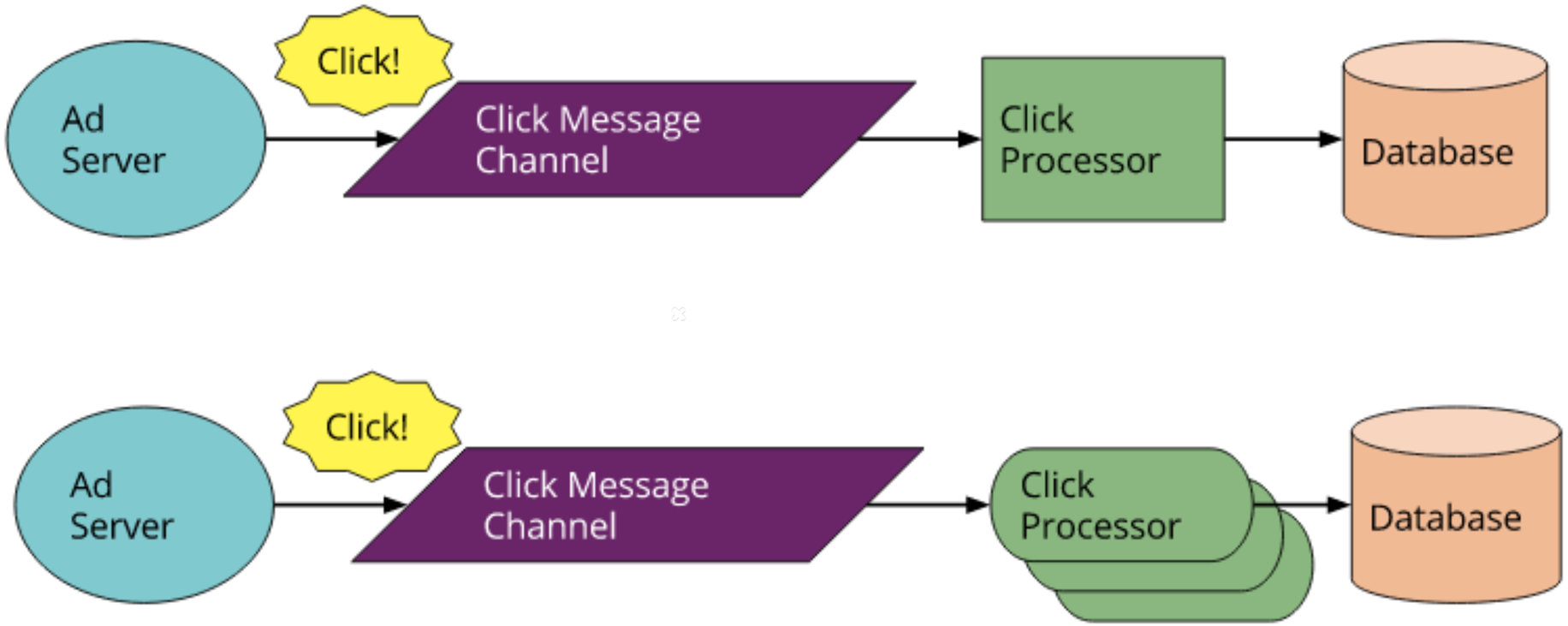


Example 2: Message-driven applications



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Example 3: Data Processing

Example 4: Internet of Things

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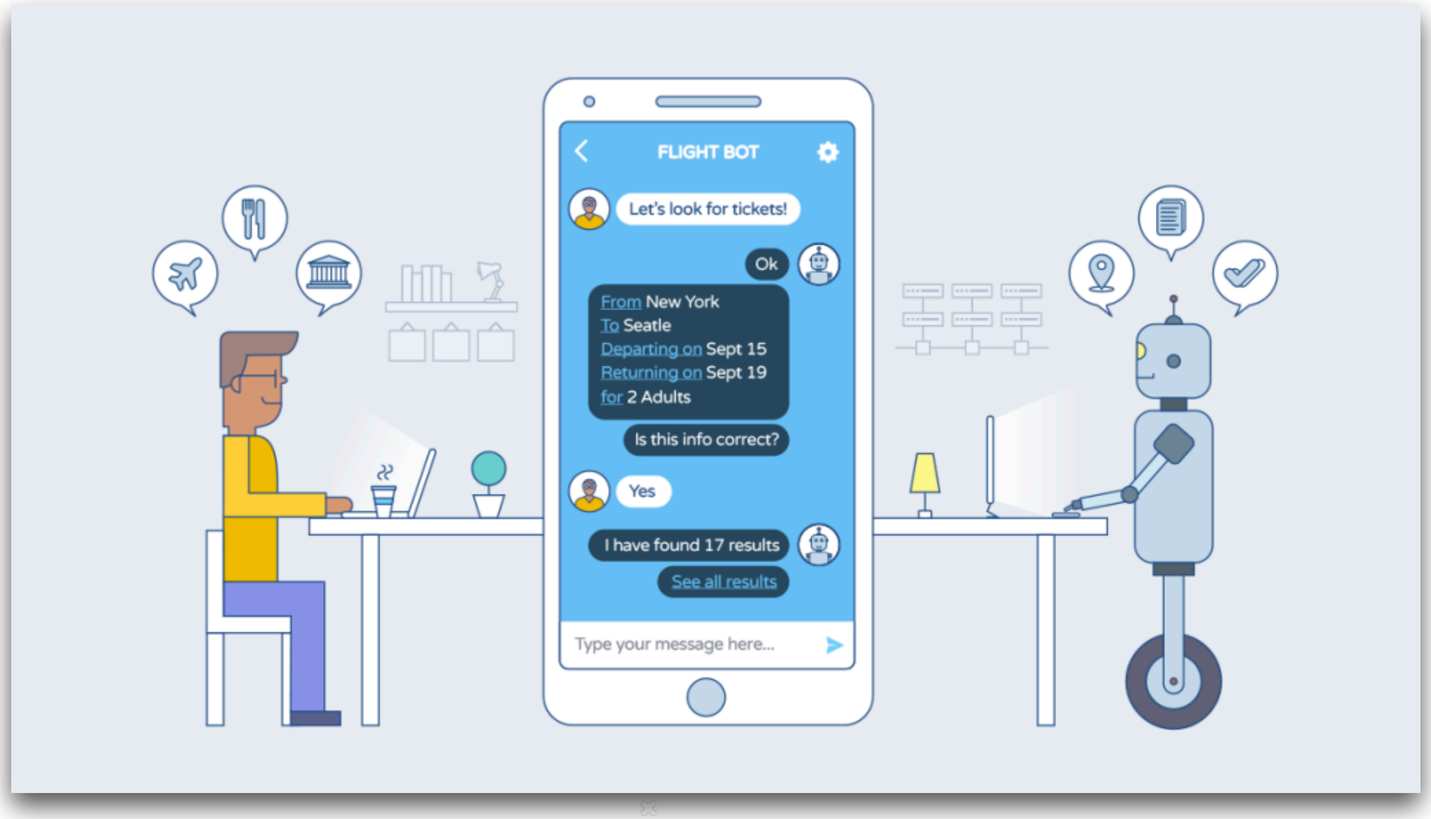
Example 5: Chatbots



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Serverless Function

webtask

MySQL®

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

ORACLE Cloud My Services

Dashboard Users

Dashboard

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**

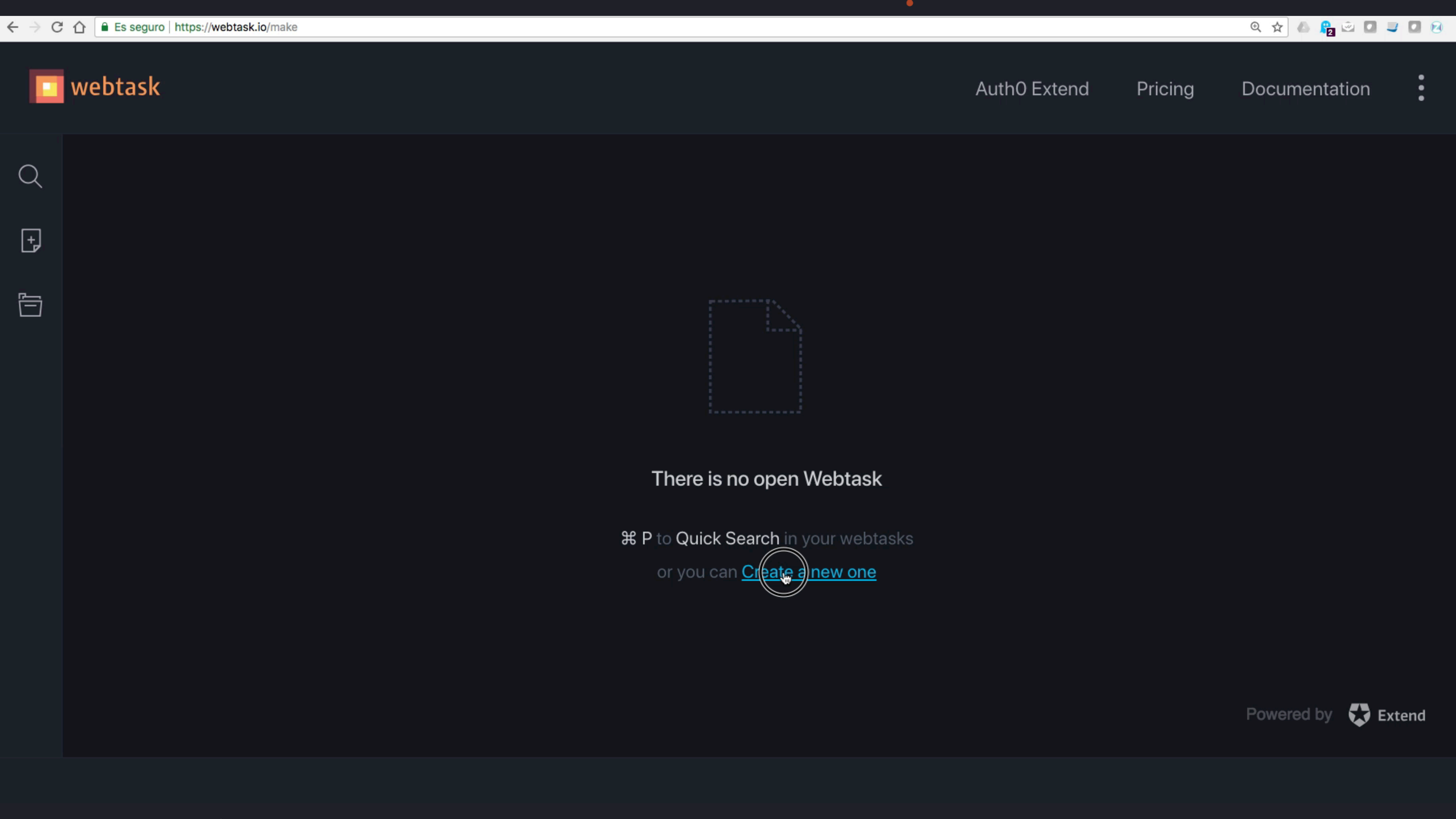
Promotion

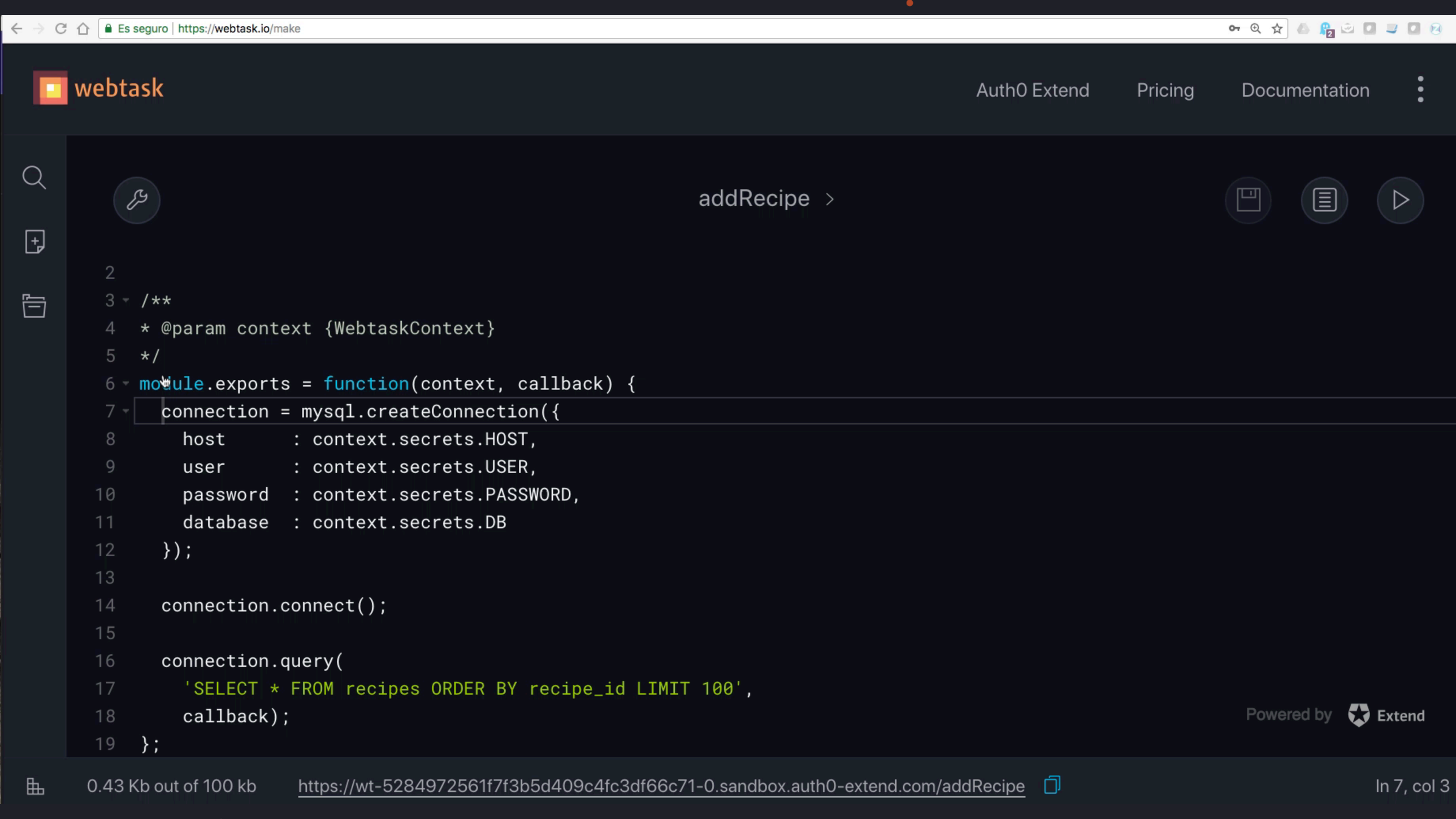
4,945.42 of 5,000 USD

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
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
addRecipe
/**
* @param context {WebtaskContext}
*/
module.exports = function(context, callback) {
connection = mysql.createConnection({
host : context.secrets.HOST,
user : context.secrets.USER,
password : context.secrets.PASSWORD,
database : context.secrets.DB
});
connection.connect();
connection.query(
'SELECT * FROM recipes ORDER BY recipe_id LIMIT 100',
callback);
};
Powered by Extend
0.43 Kb out of 100 kb
https://wt-5284972561f7f3b5d409c4fc3df66c71-0.sandbox.auth0-extend.com/addRecipe
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FNProject

- Multi Cloud
- Developer Experience
- Container Native (Docker, Kubernetes)
- Vision and Deep

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FNProject

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

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https://github.com/itrjwyss/Journey18

https://www.facebook.com/itrjwyss

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