

## **Documento de Diagramas de Ecuplot Web**

Julian Alejandro Cardenas Santiago, Carlos Mateo Cruz Ibarra

Universidad de Cundinamarca, Facultad de Ingeniería

Ingeniería de Sistemas y Computación

Ingeniería de Software 2

Ing. German Ortiz Diaz

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## **Introducción**

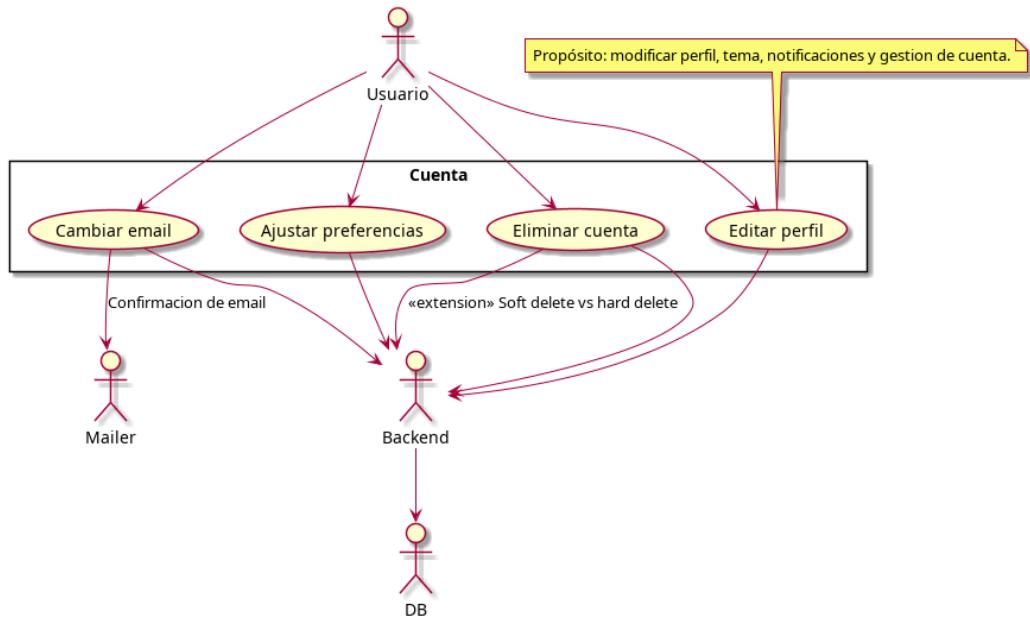
En el documento a continuación se podrán ver todos los diagramas requeridos de el software web Ecuplot, en el trabajo de diagramación es necesario siempre tener en cuenta todos los procesos que hace un sistema, cada uno de estos procesos debe estar descrito con su respectivo diagrama.

## **Contenido**

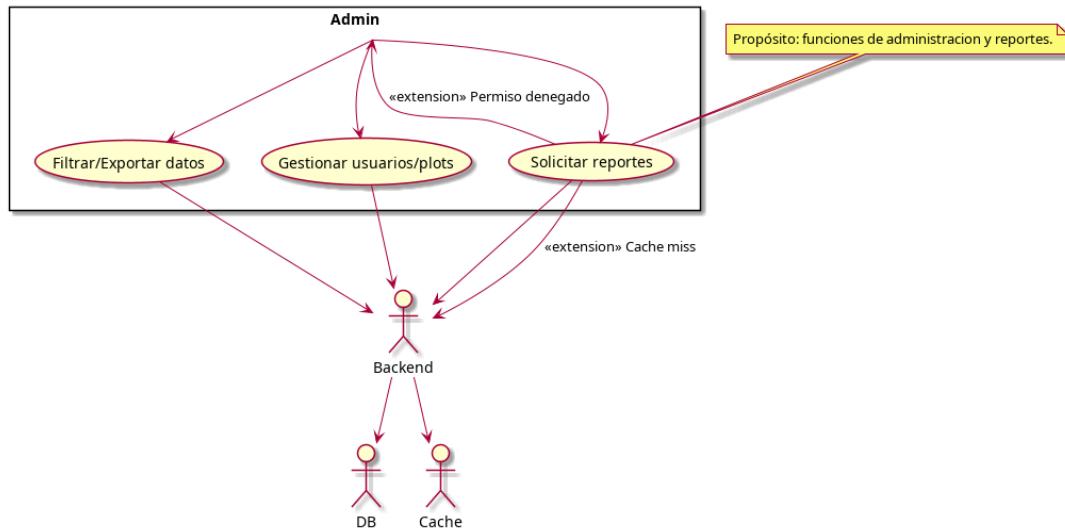
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## Casos de Uso

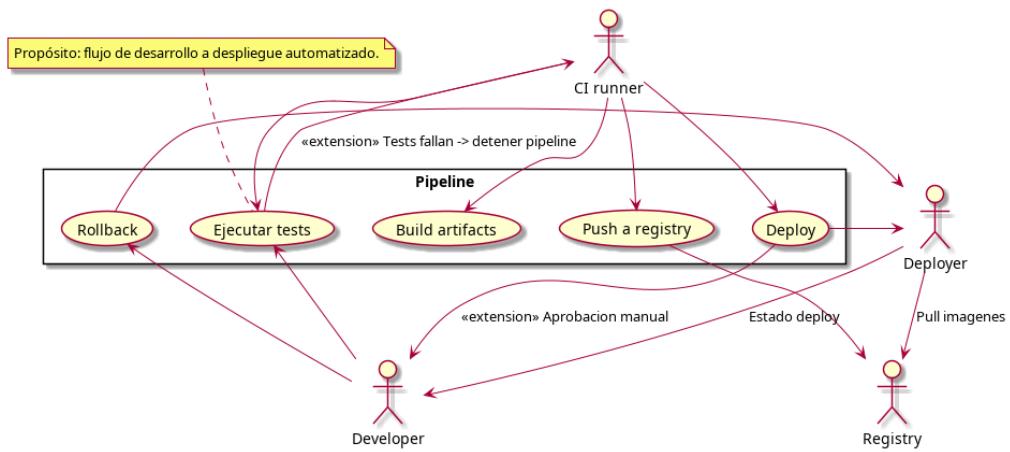
Caso de uso: Gestión de cuenta y preferencias



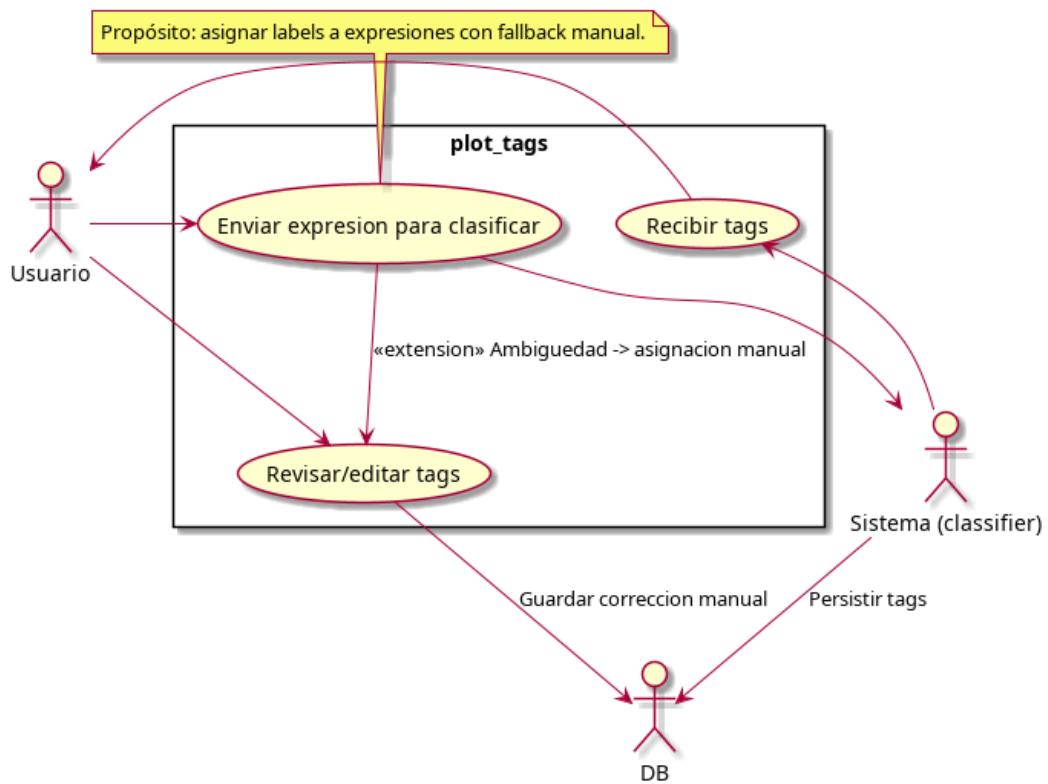
Caso de uso: Panel de administración — estadísticas y gestión



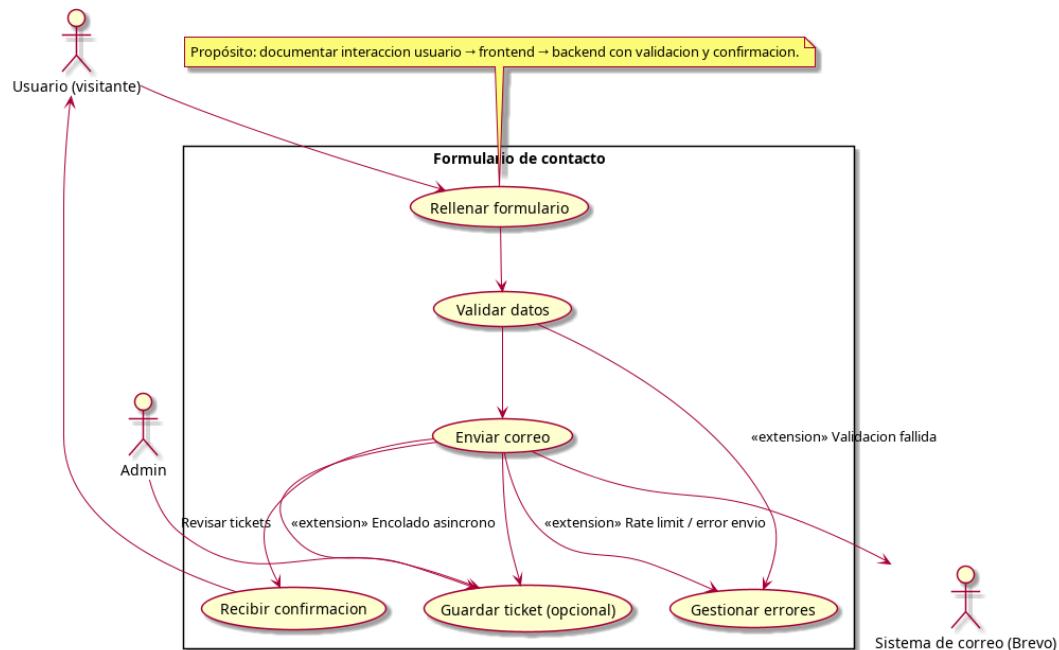
### Caso de uso: CI/CD — build, test y deploy



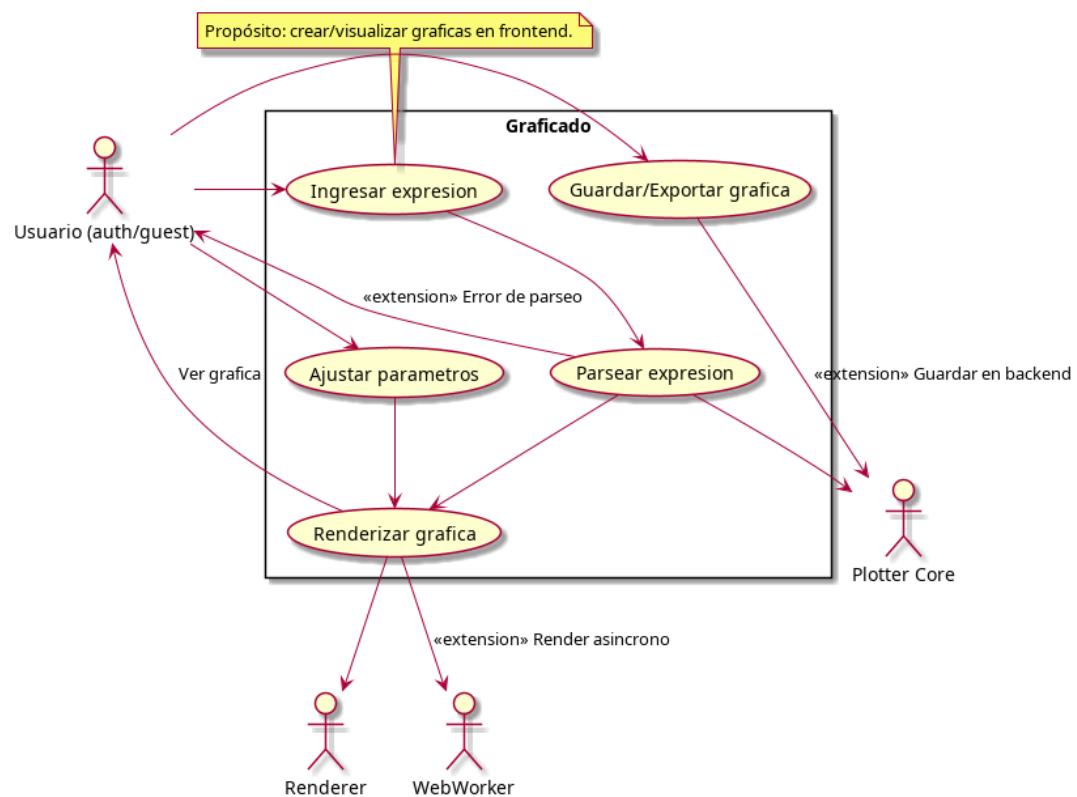
### Caso de uso: Clasificacion automatica de expresiones



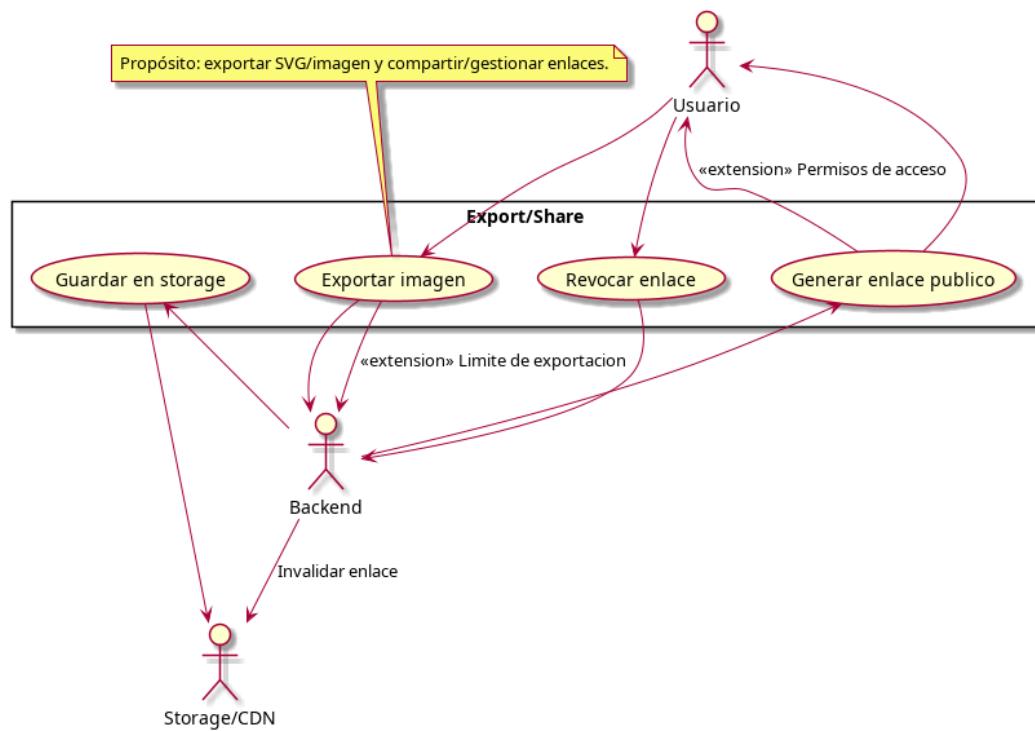
### Caso de uso: Envio de formulario de contacto



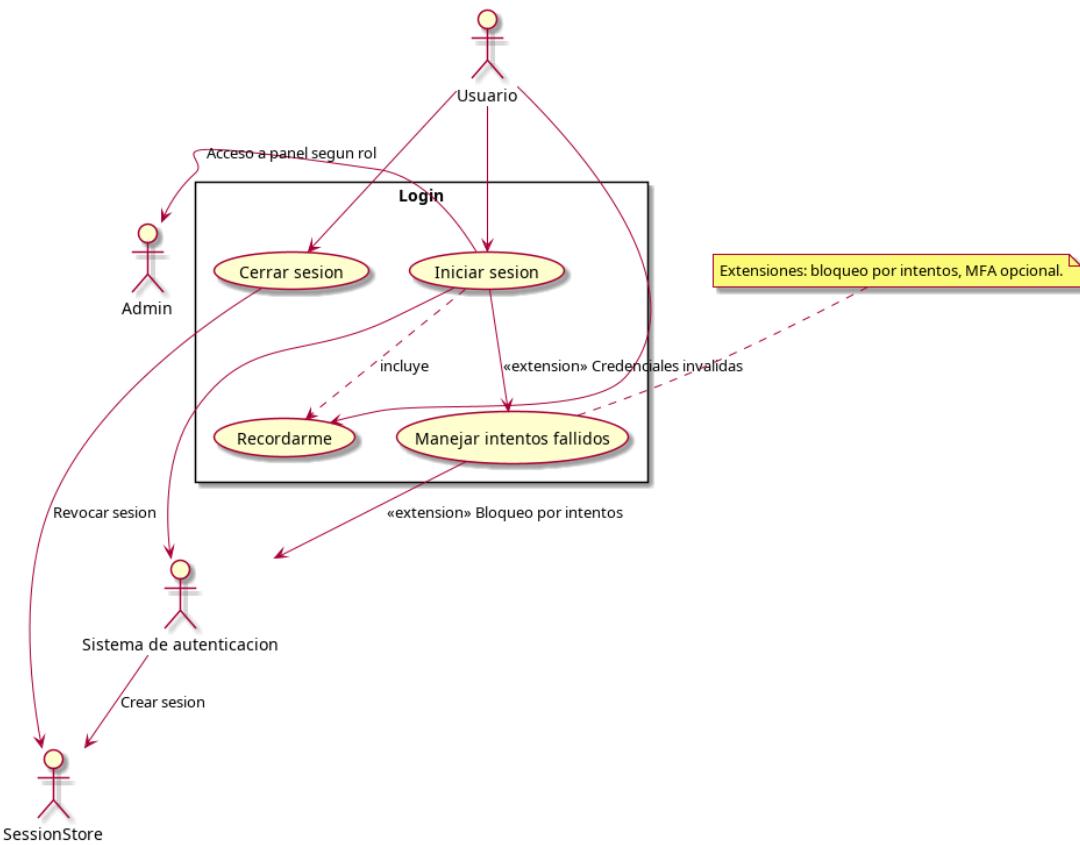
### Caso de uso: Crear y renderizar una gráfica



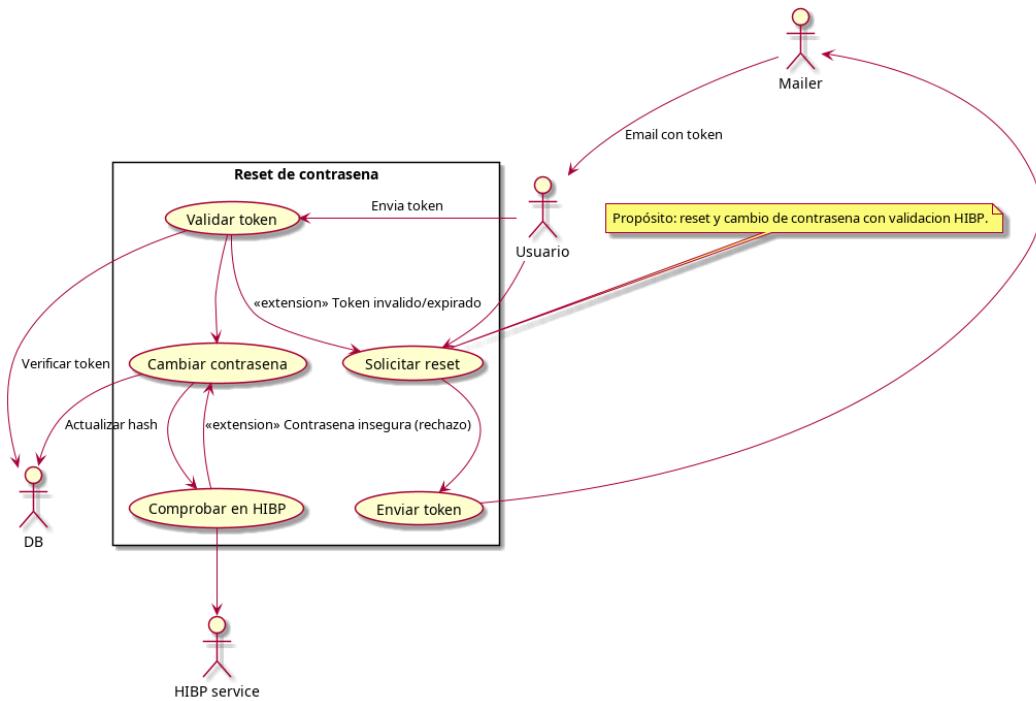
### Caso de uso: Exportar / compartir grafica



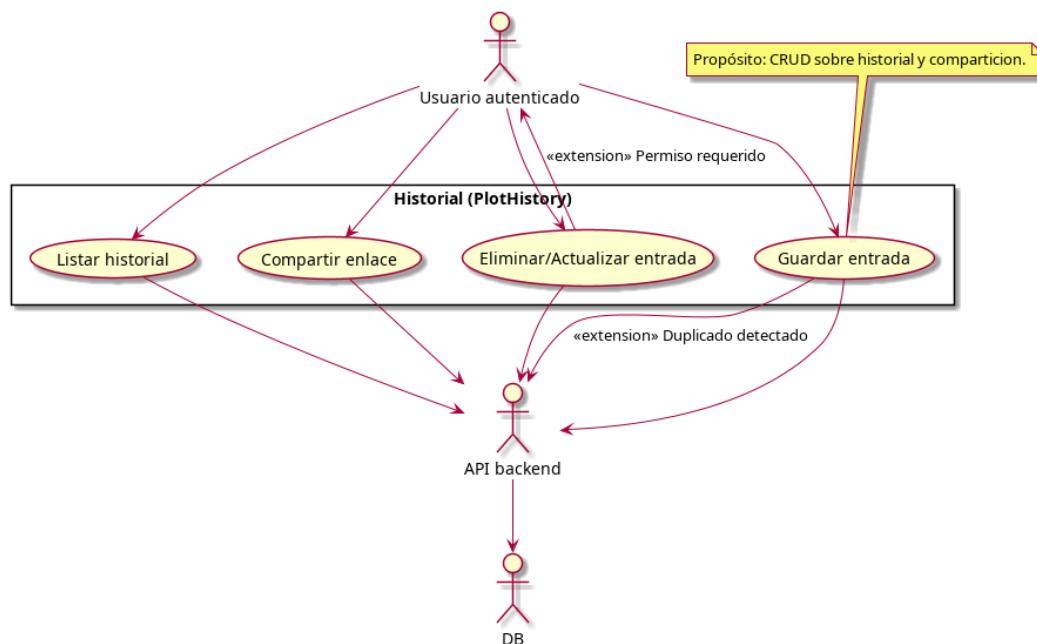
### Caso de uso: Autenticacion (Login)



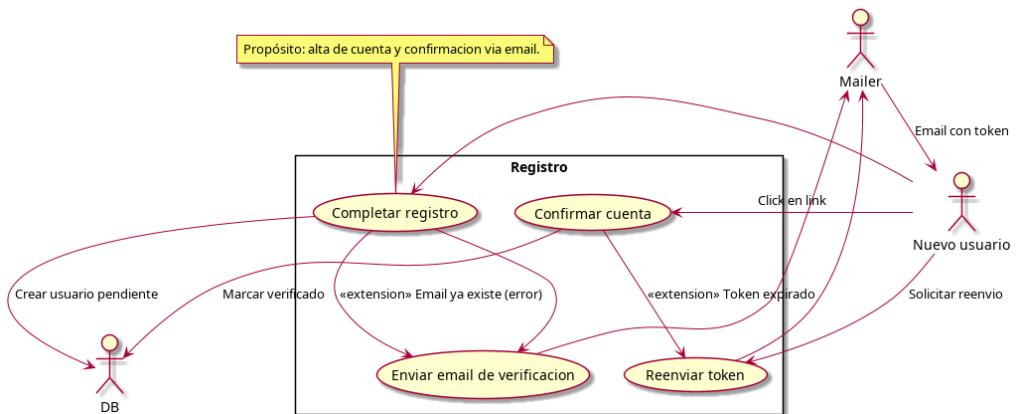
### Caso de uso: Recuperacion / cambio de contrasena



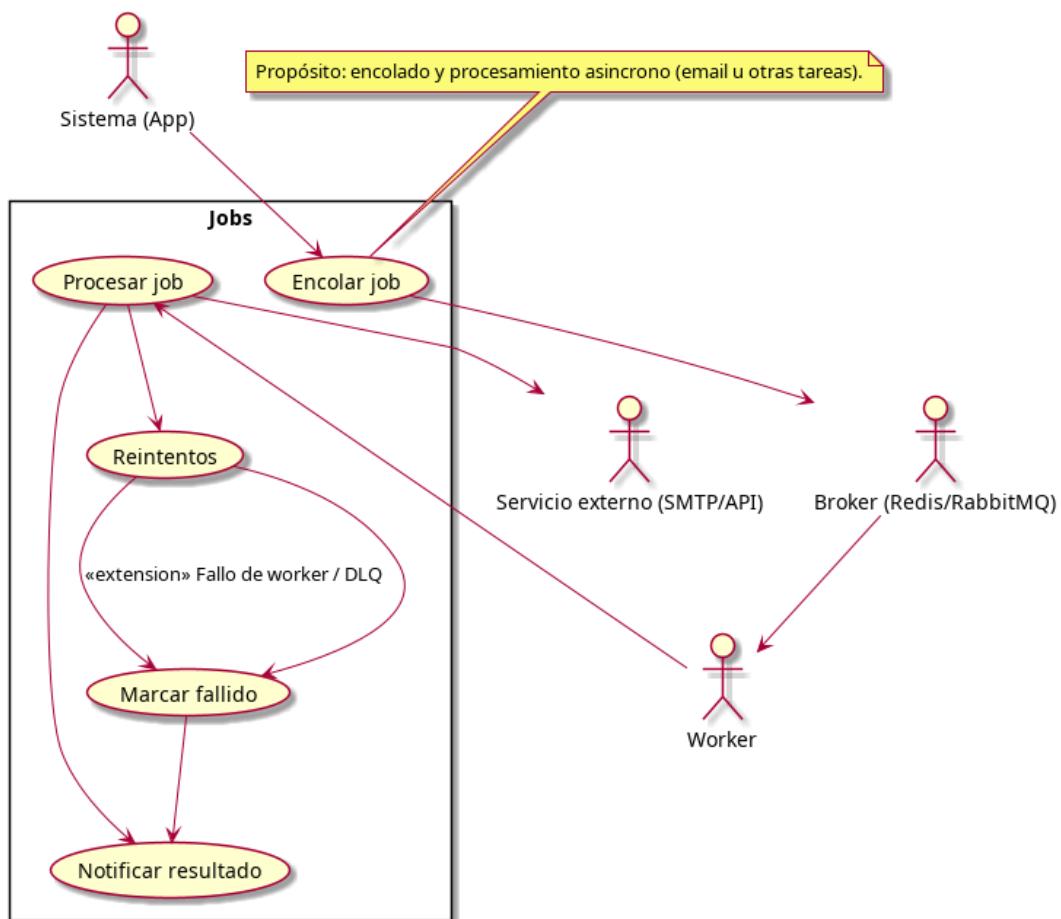
### Caso de uso: Guardar y gestionar historial de graficas



### Caso de uso: Registro y verificación de correo

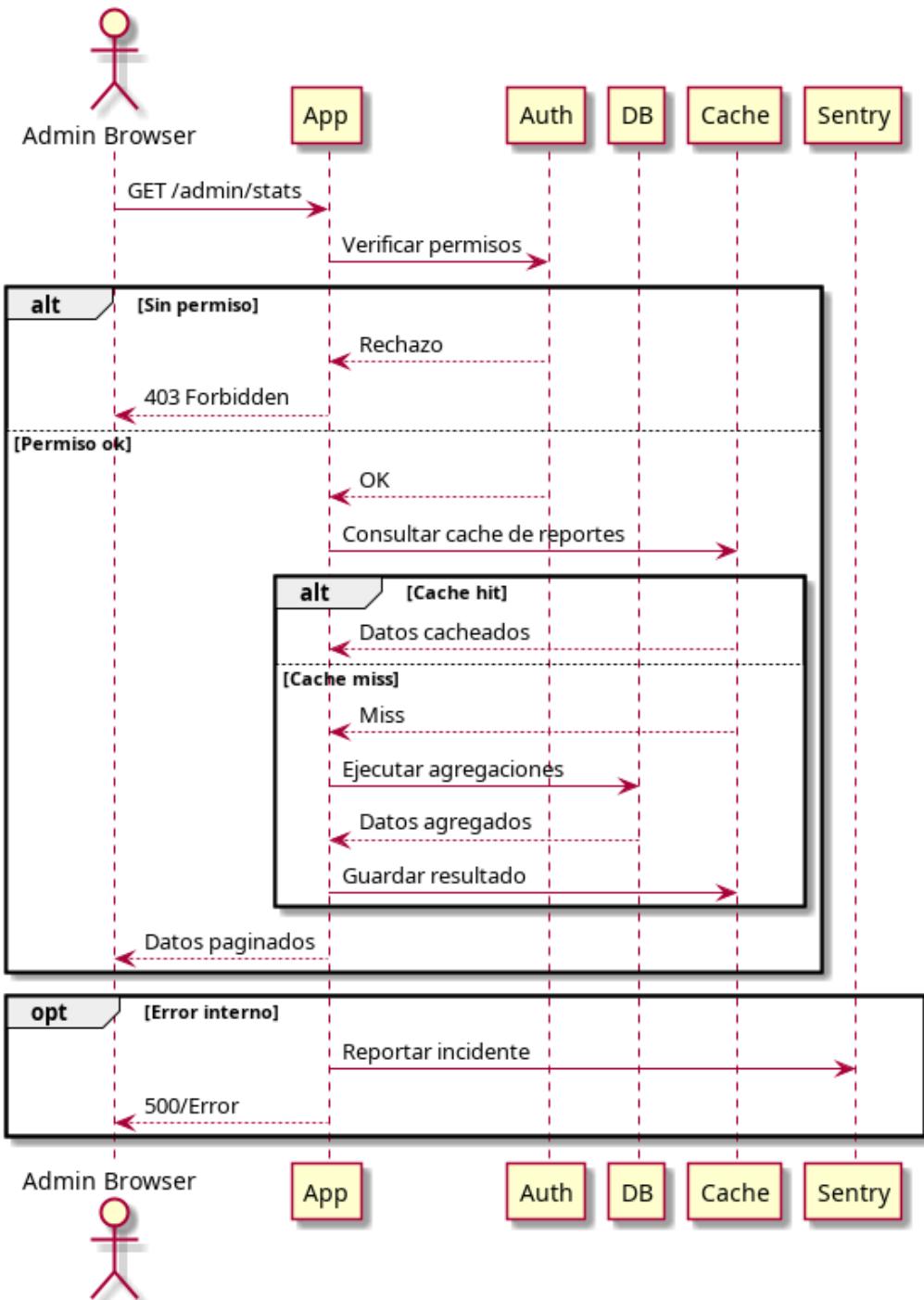


### Caso de uso: Encolado y procesamiento de trabajos

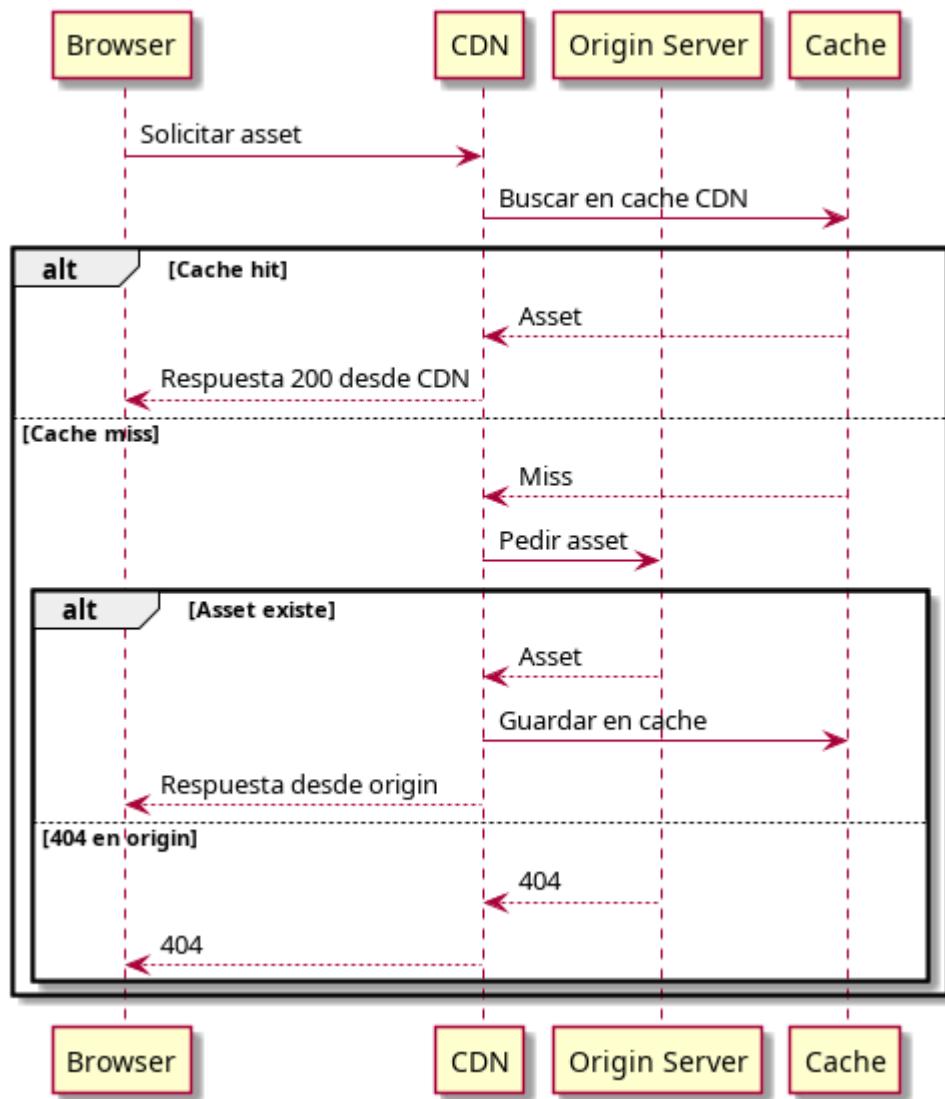


## Diagramas de Secuencia

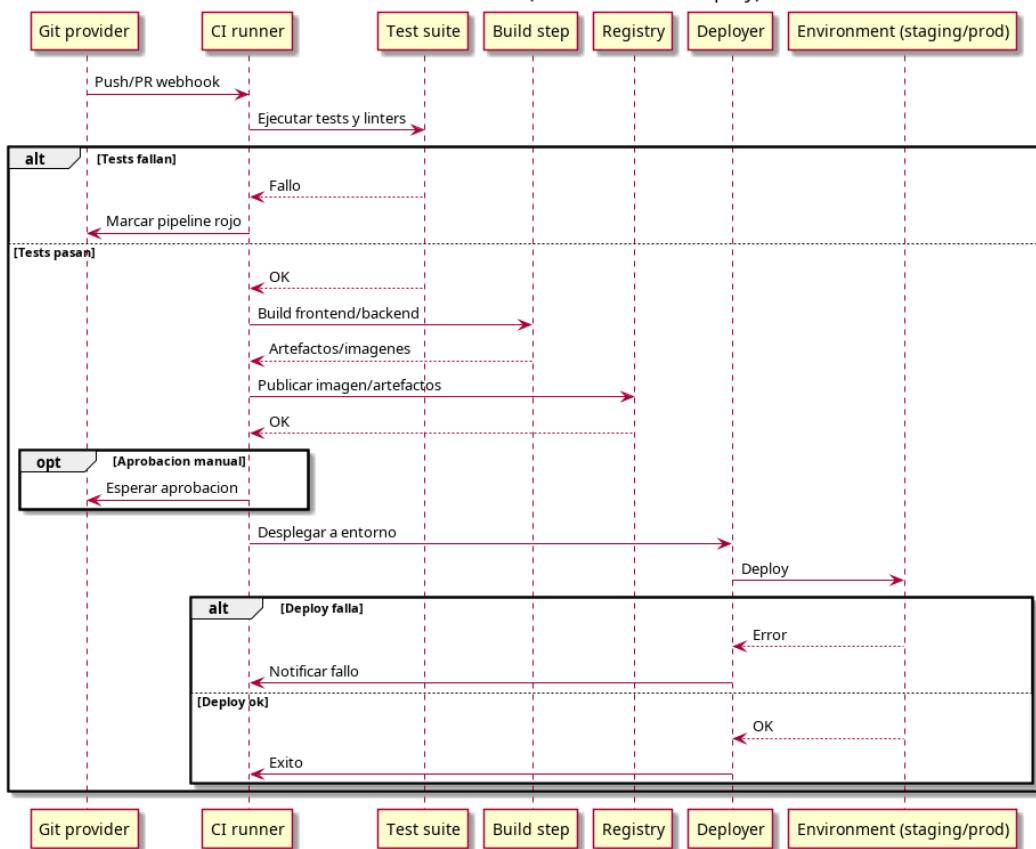
Secuencia: Solicitud de estadísticas de admin (admin\_stats\_plots)



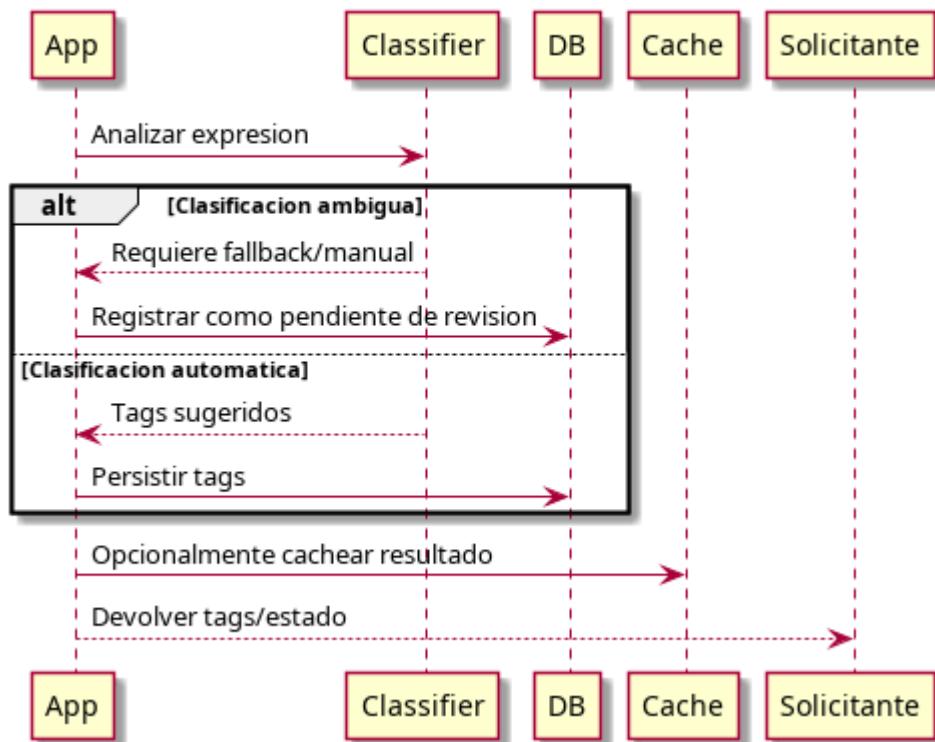
## Secuencia: Petición de assets estaticos / CDN



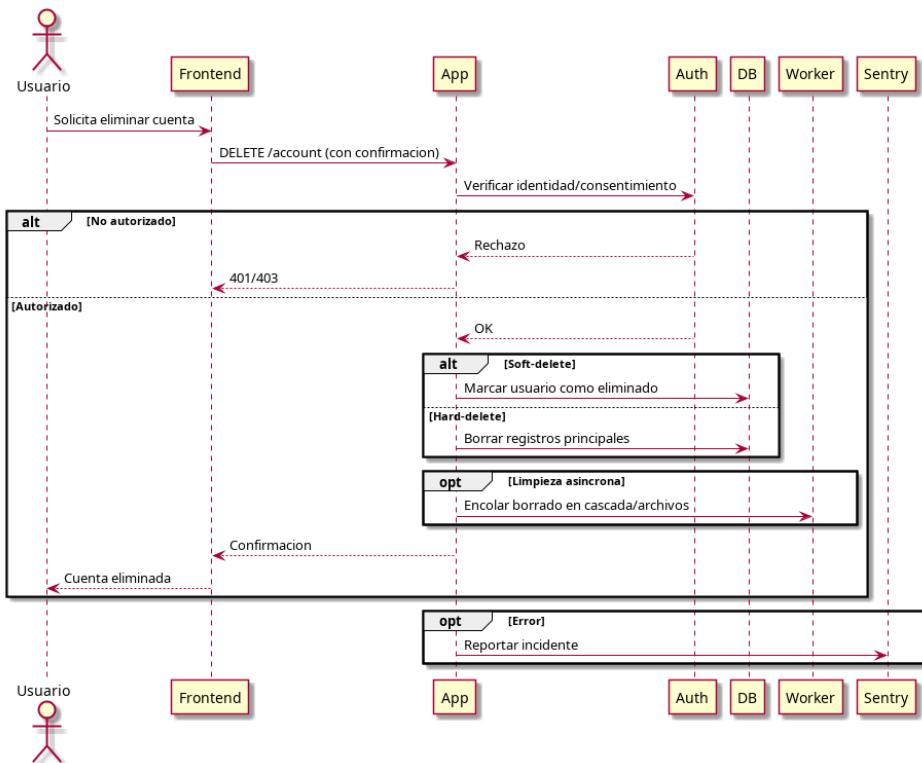
Secuencia: CI/CD basico (tests -> build -> deploy)



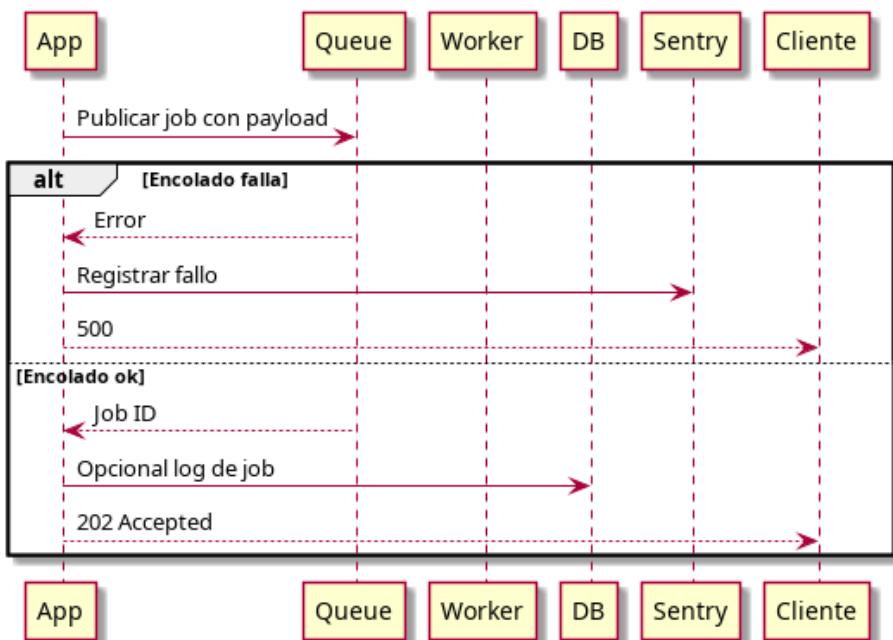
## Secuencia: Clasificación de expresiones



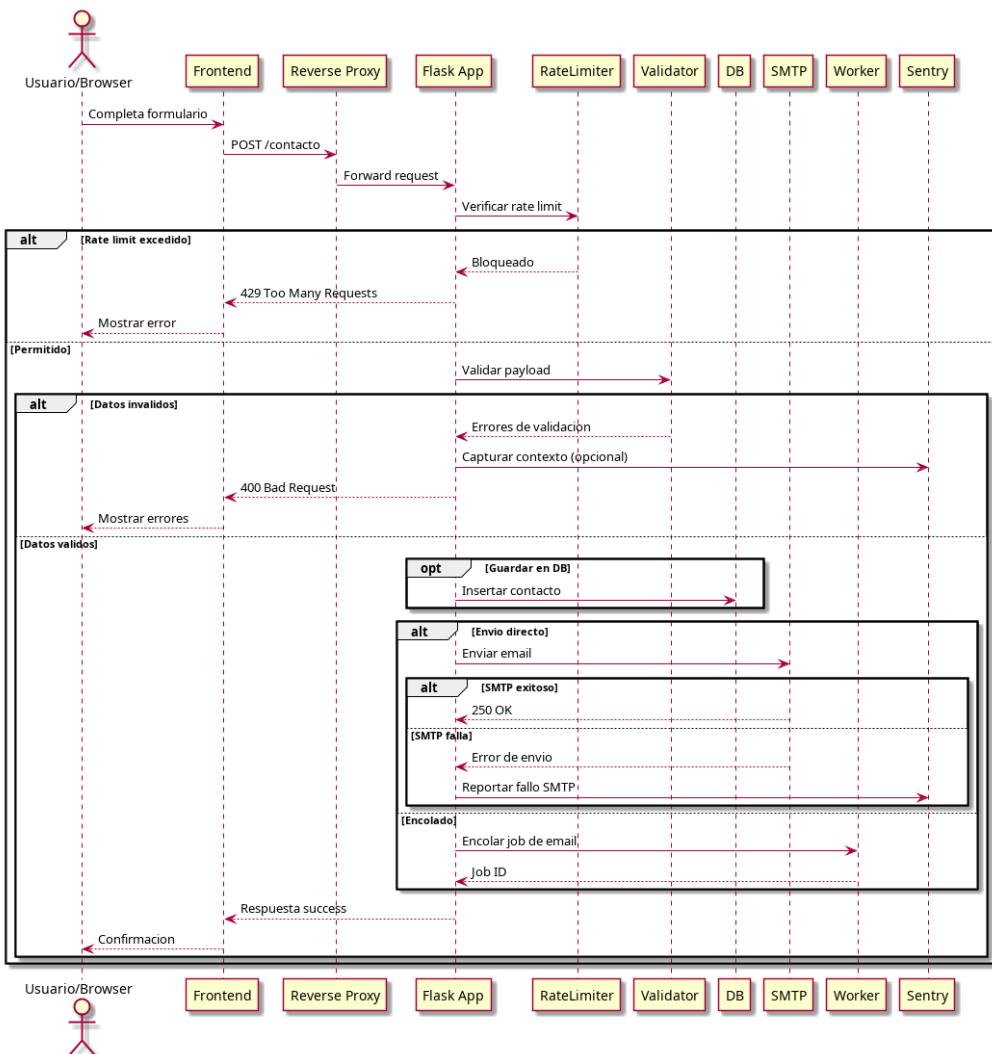
## Secuencia: Eliminación de cuenta



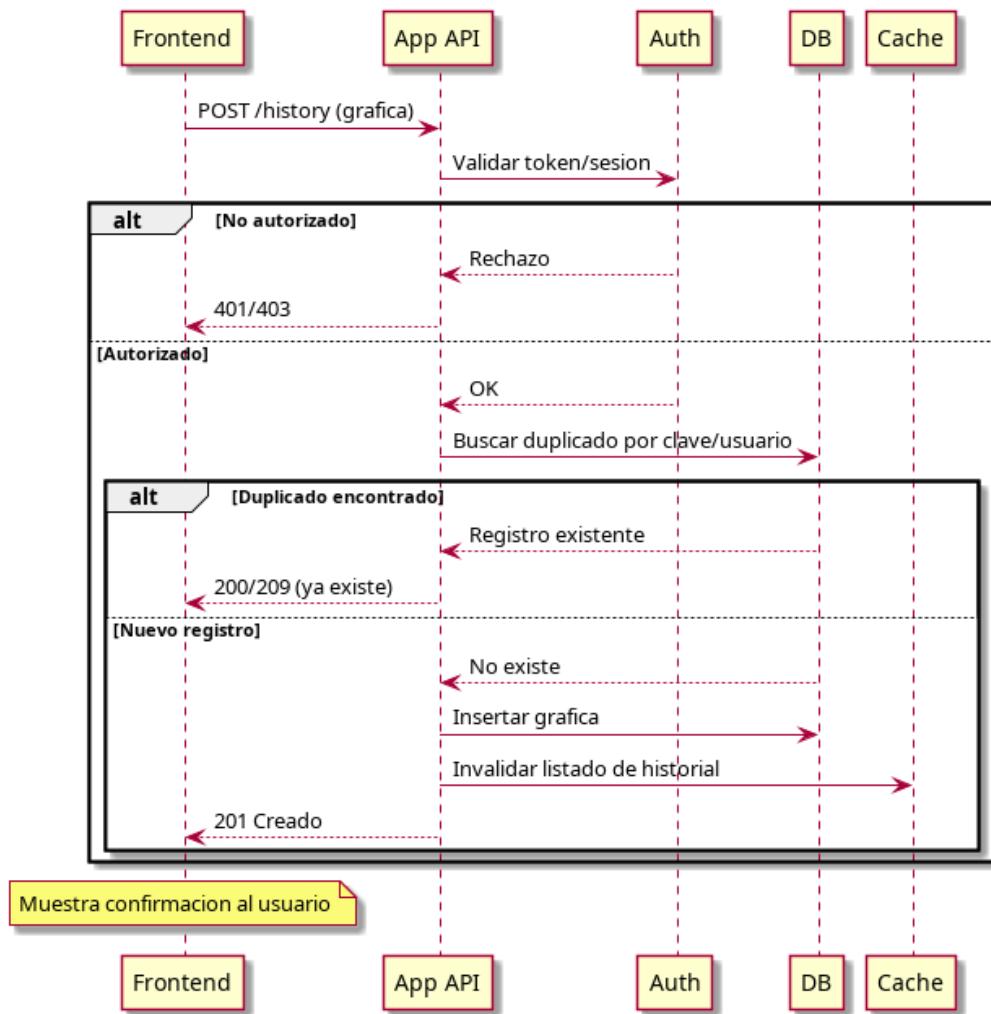
### Secuencia: Encolado de job (email u otras tareas)



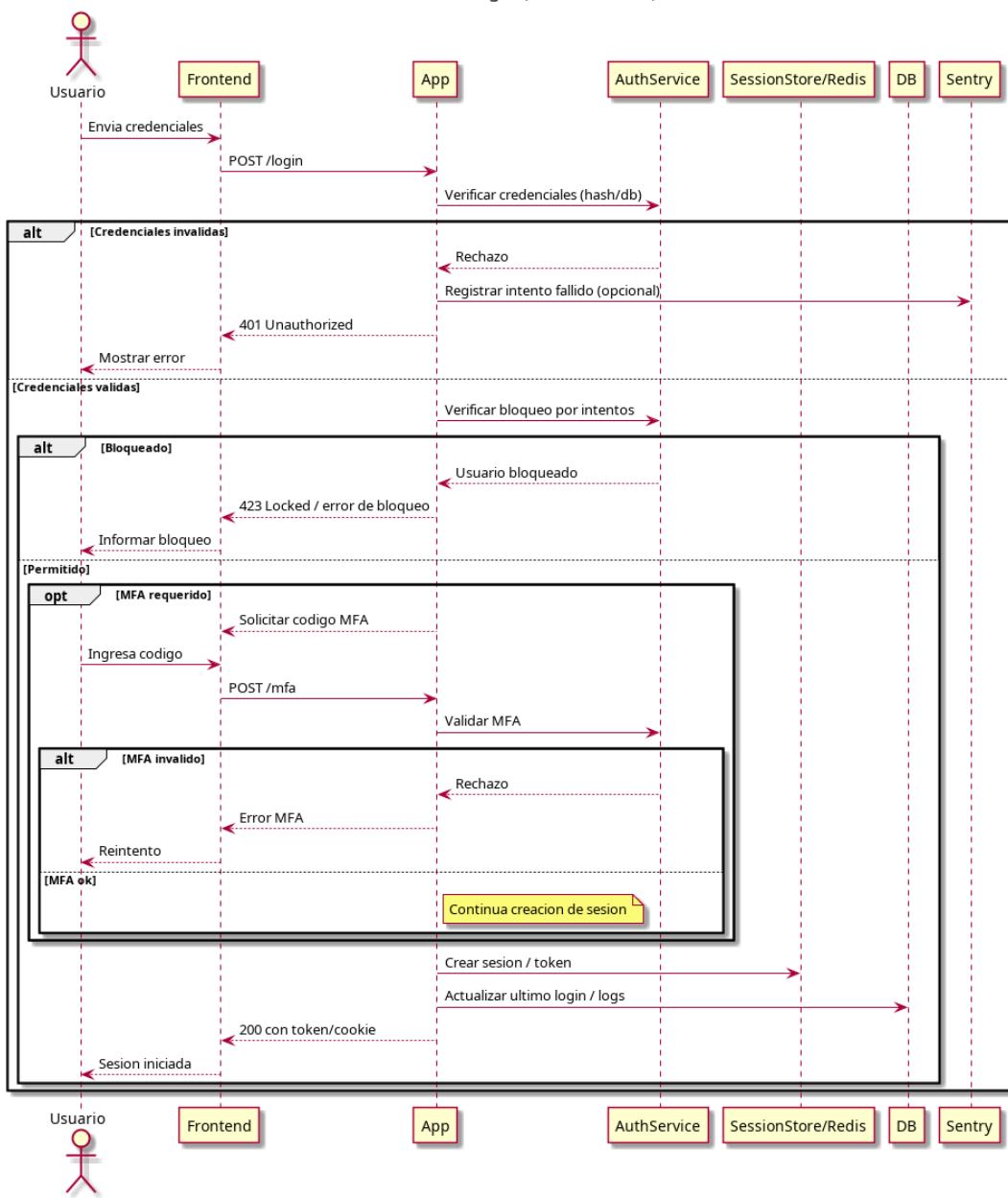
Secuencia: Envío de formulario de contacto



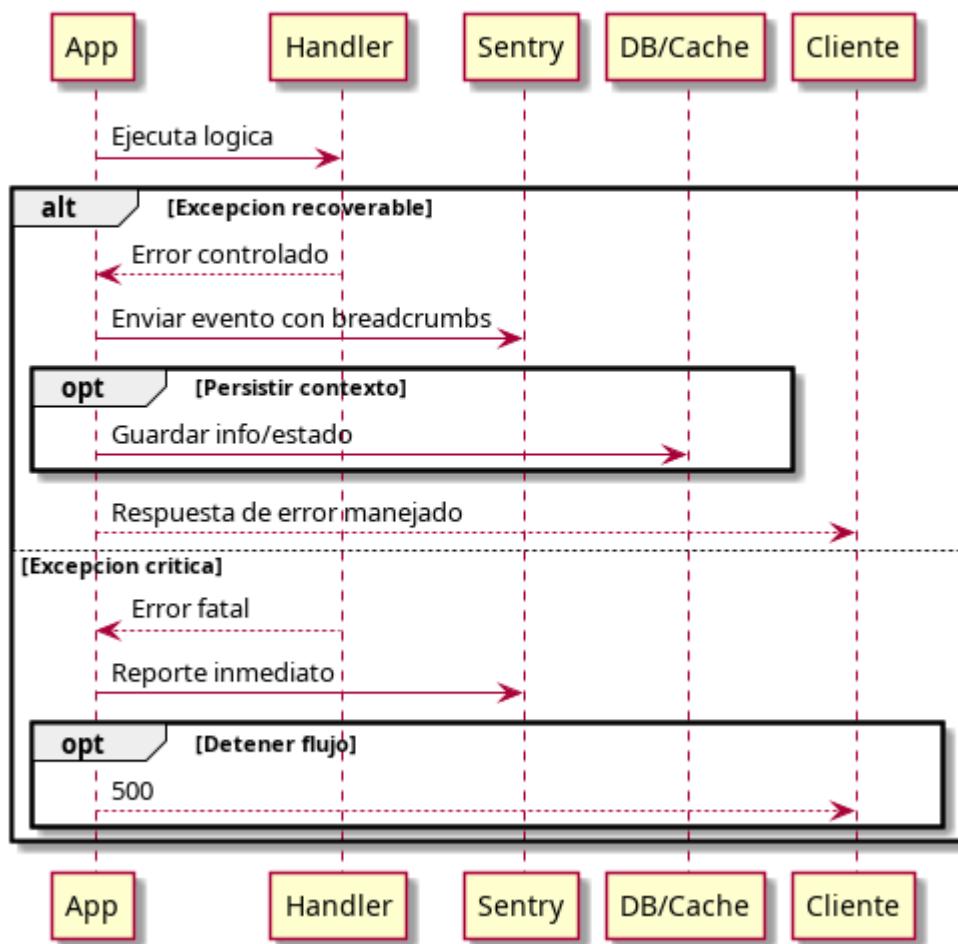
### Secuencia: Guardado de grafica en historial (PlotHistory)



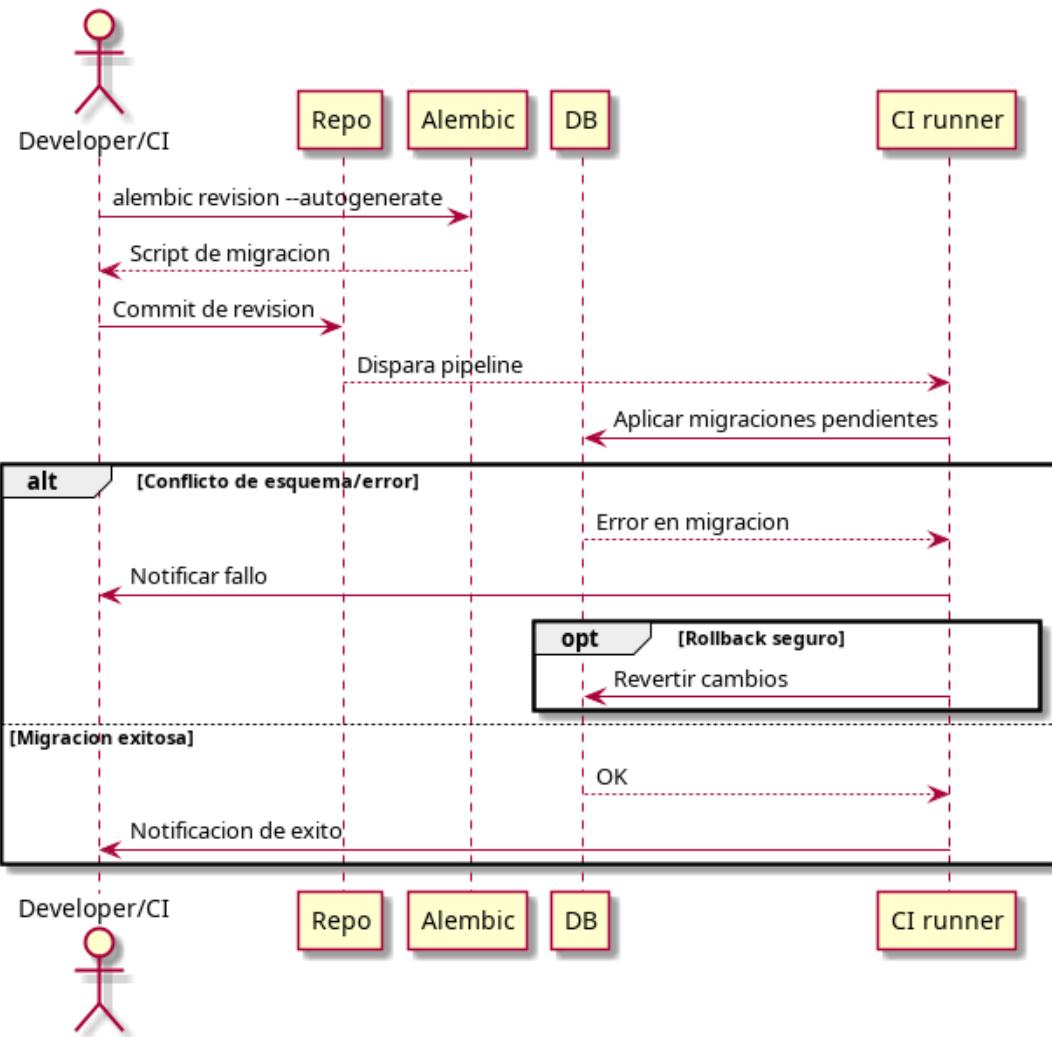
### Secuencia: Login (autenticacion)



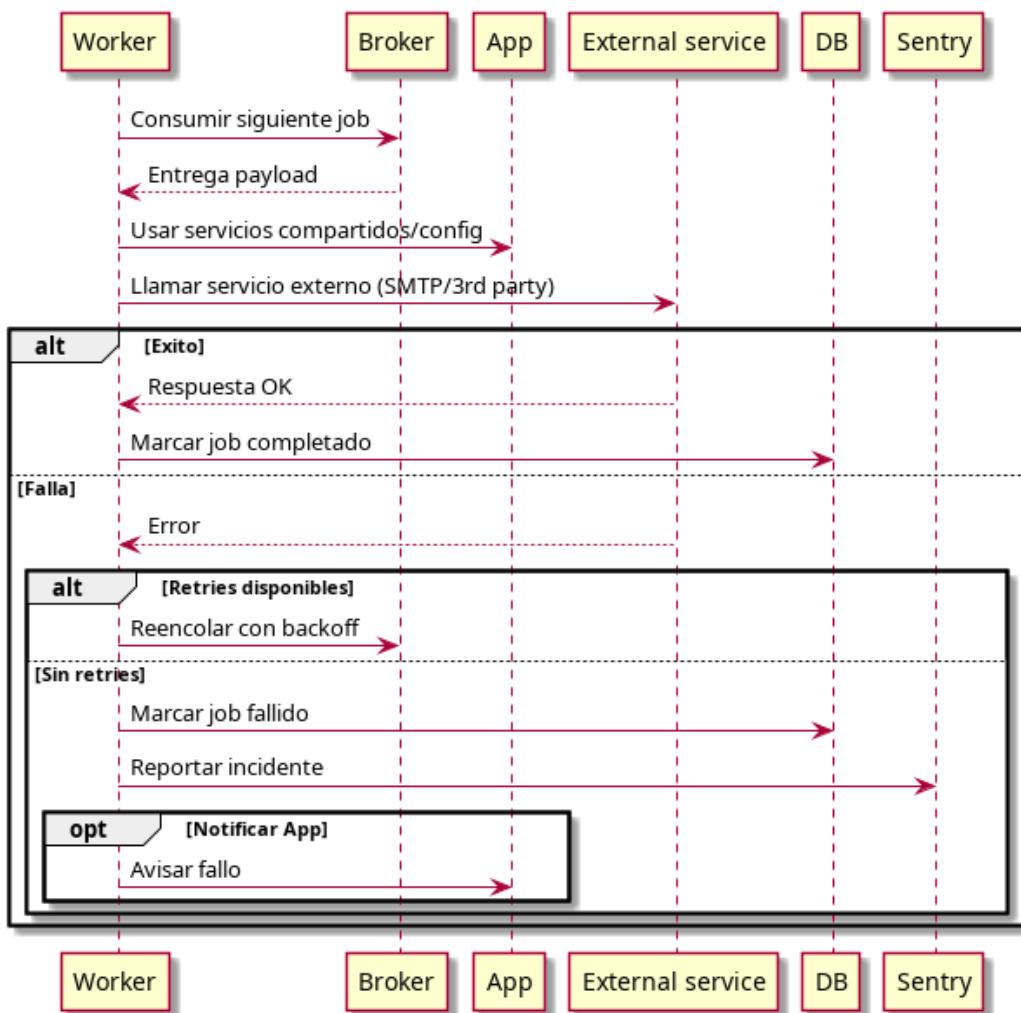
## Secuencia: Manejo de errores y reporte a Sentry



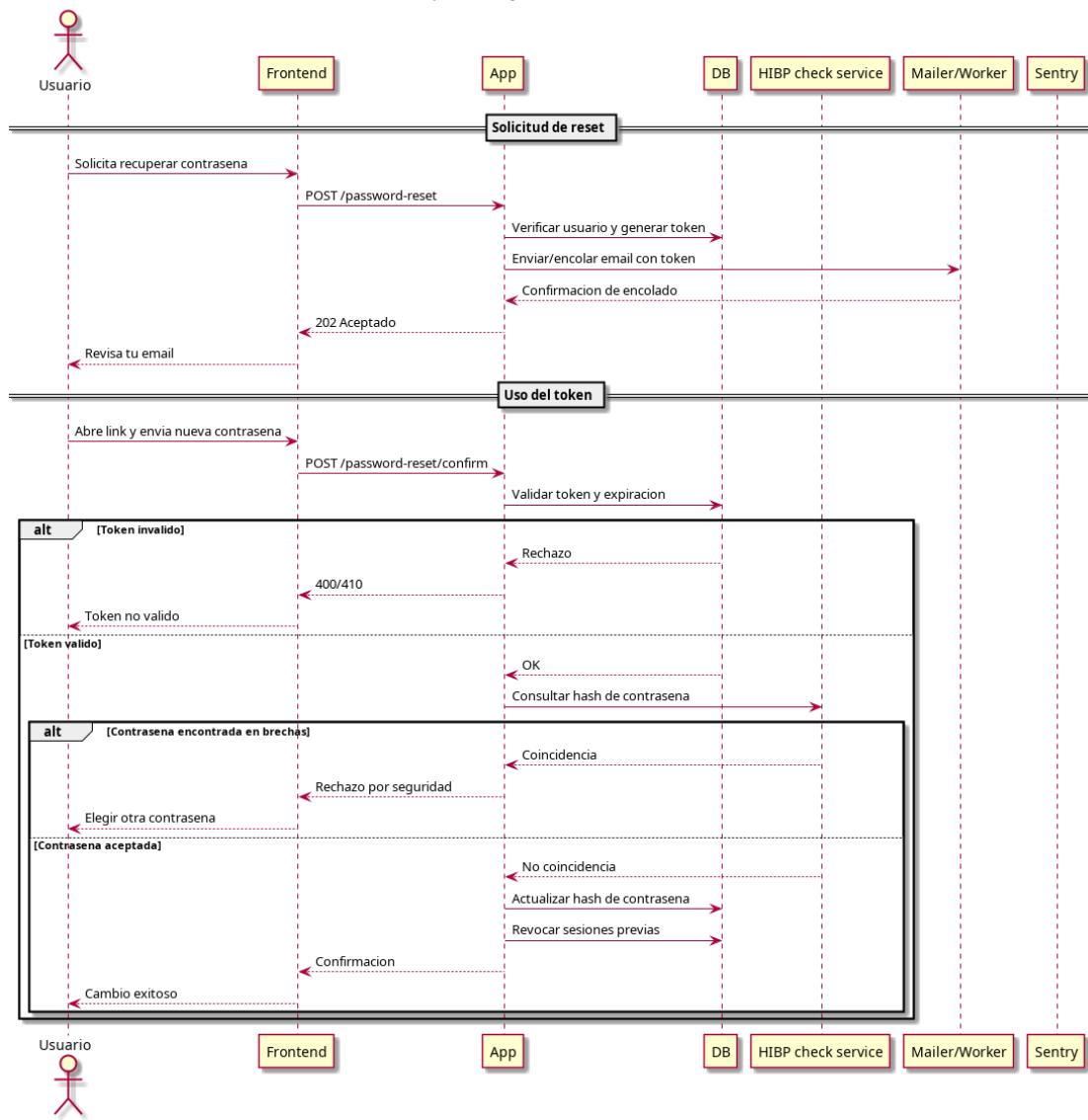
## Secuencia: Proceso de migracion de DB (dev workflow)



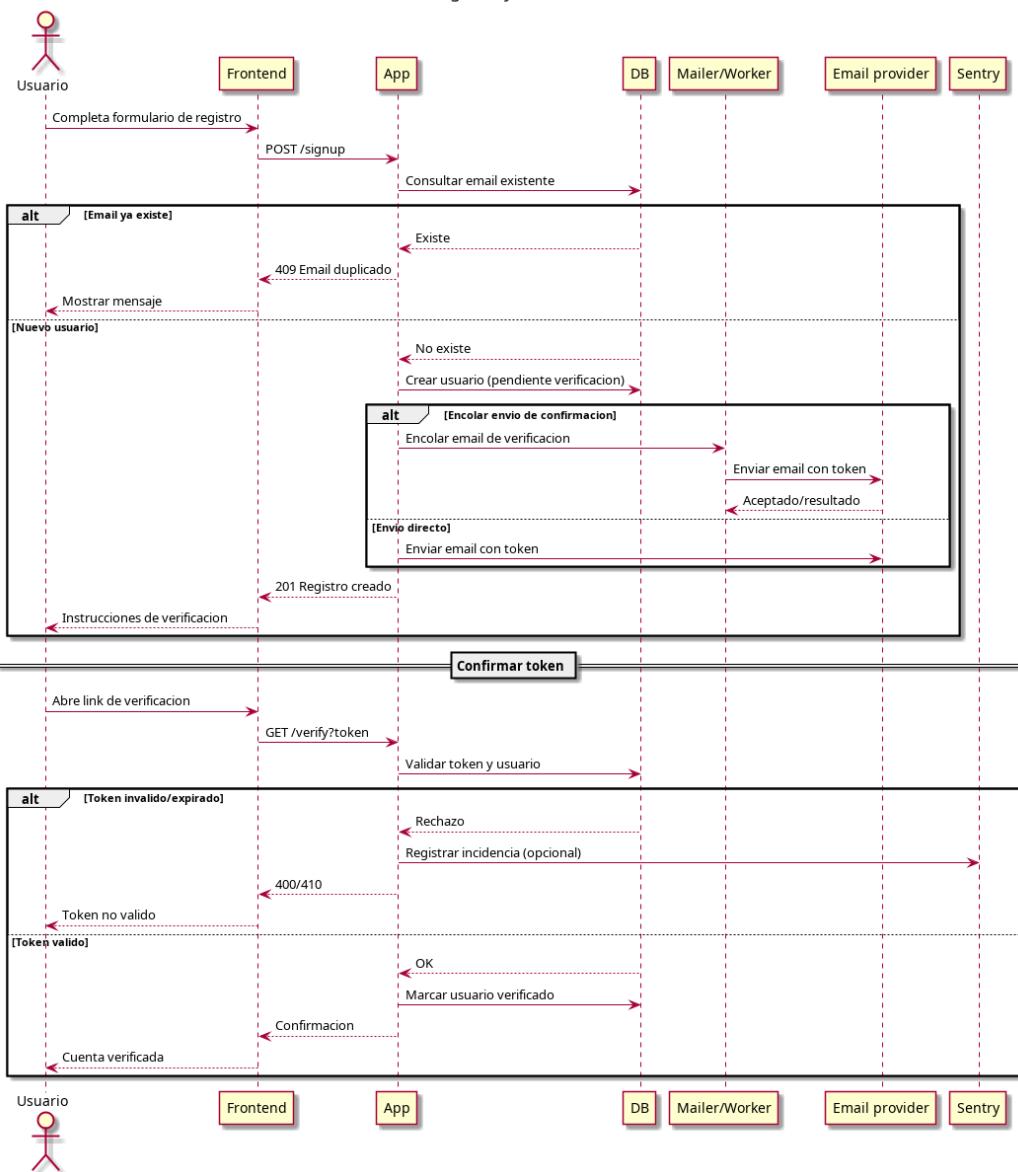
### Secuencia: Procesamiento de job por worker



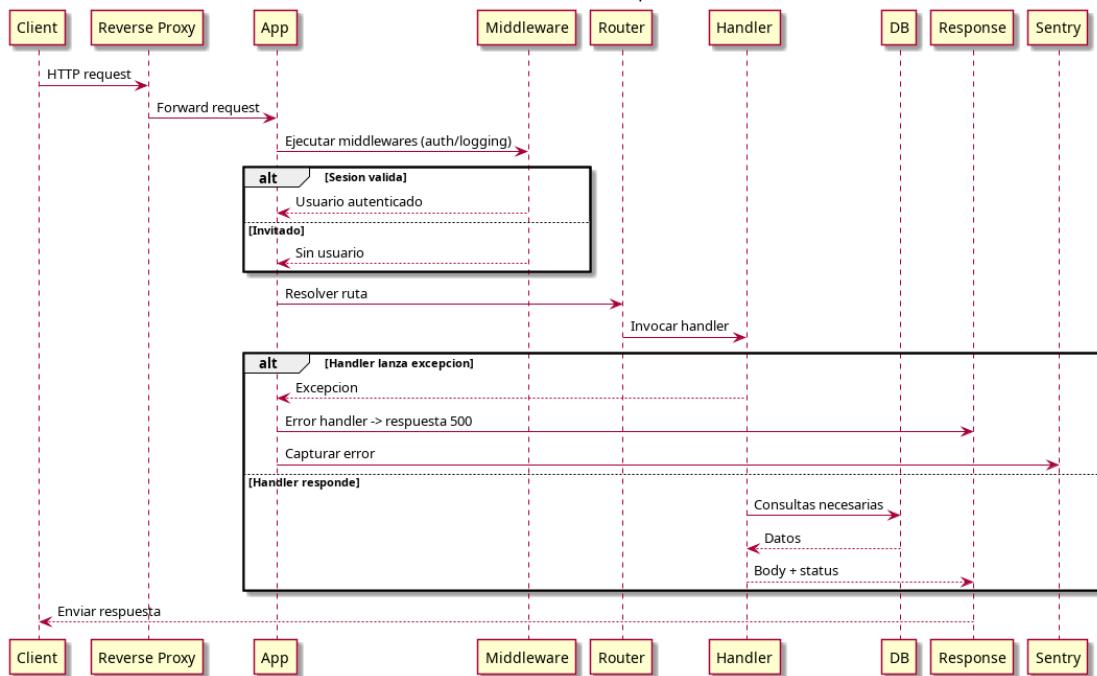
Secuencia: Recuperacion y cambio de contrasena (con HIBP)



### Secuencia: Registro y verificación de email

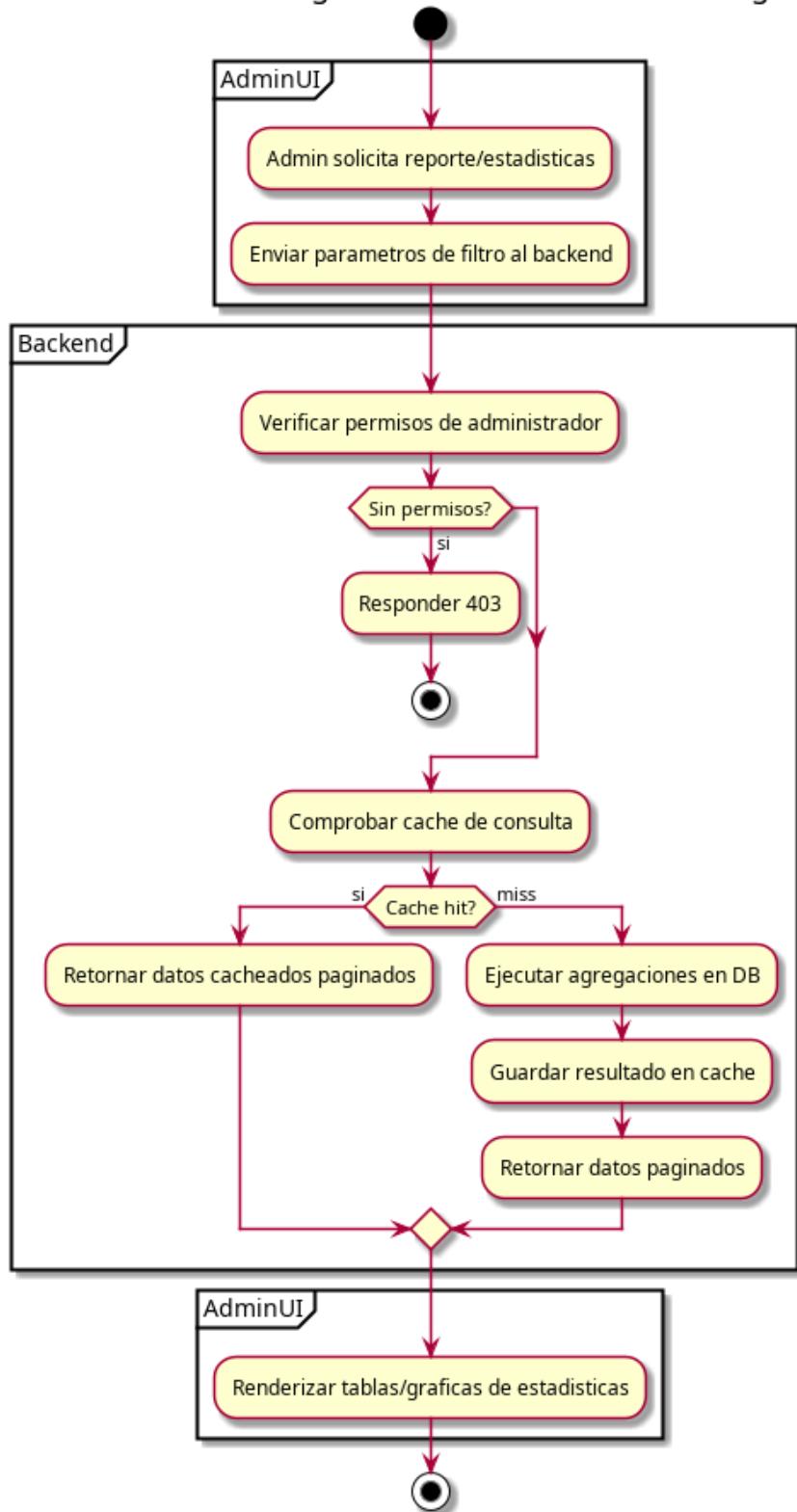


Secuencia: Ciclo de vida de una petición HTTP

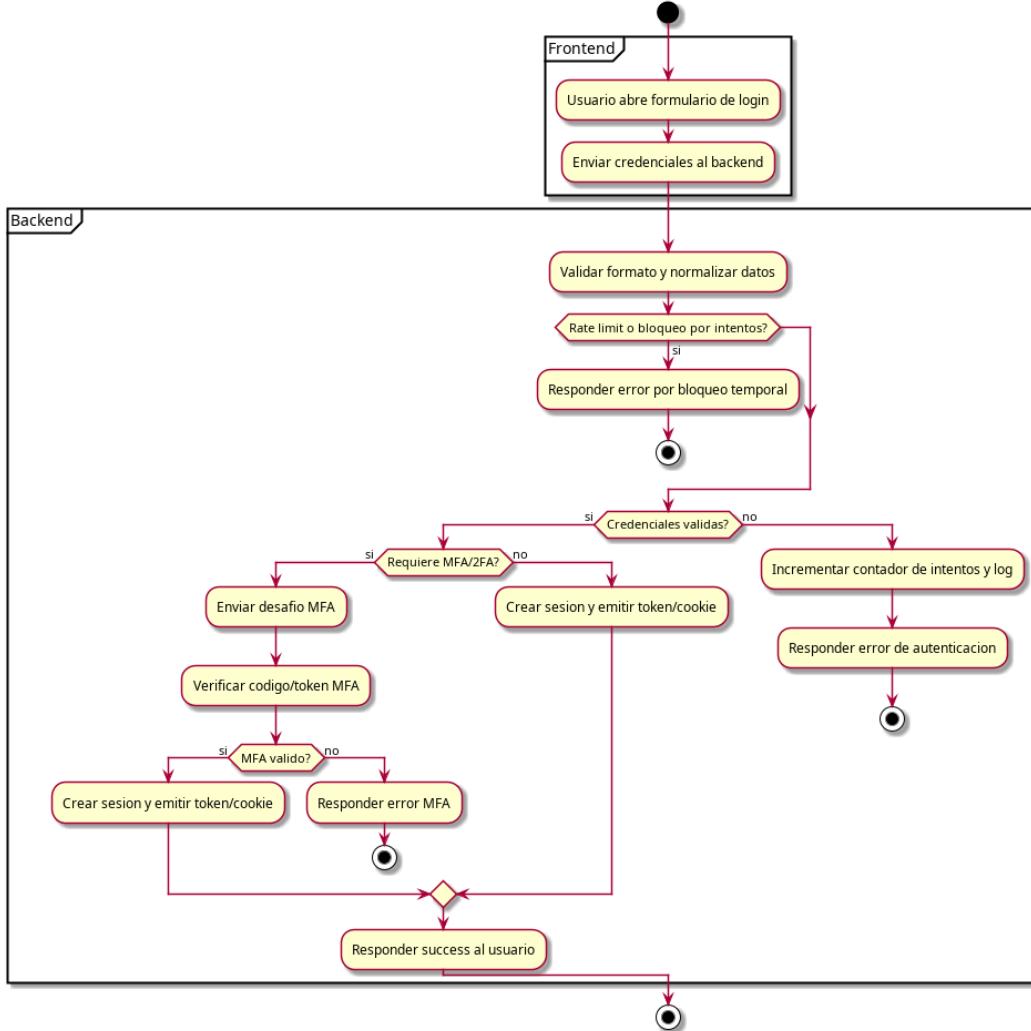


## Diagramas de Actividades

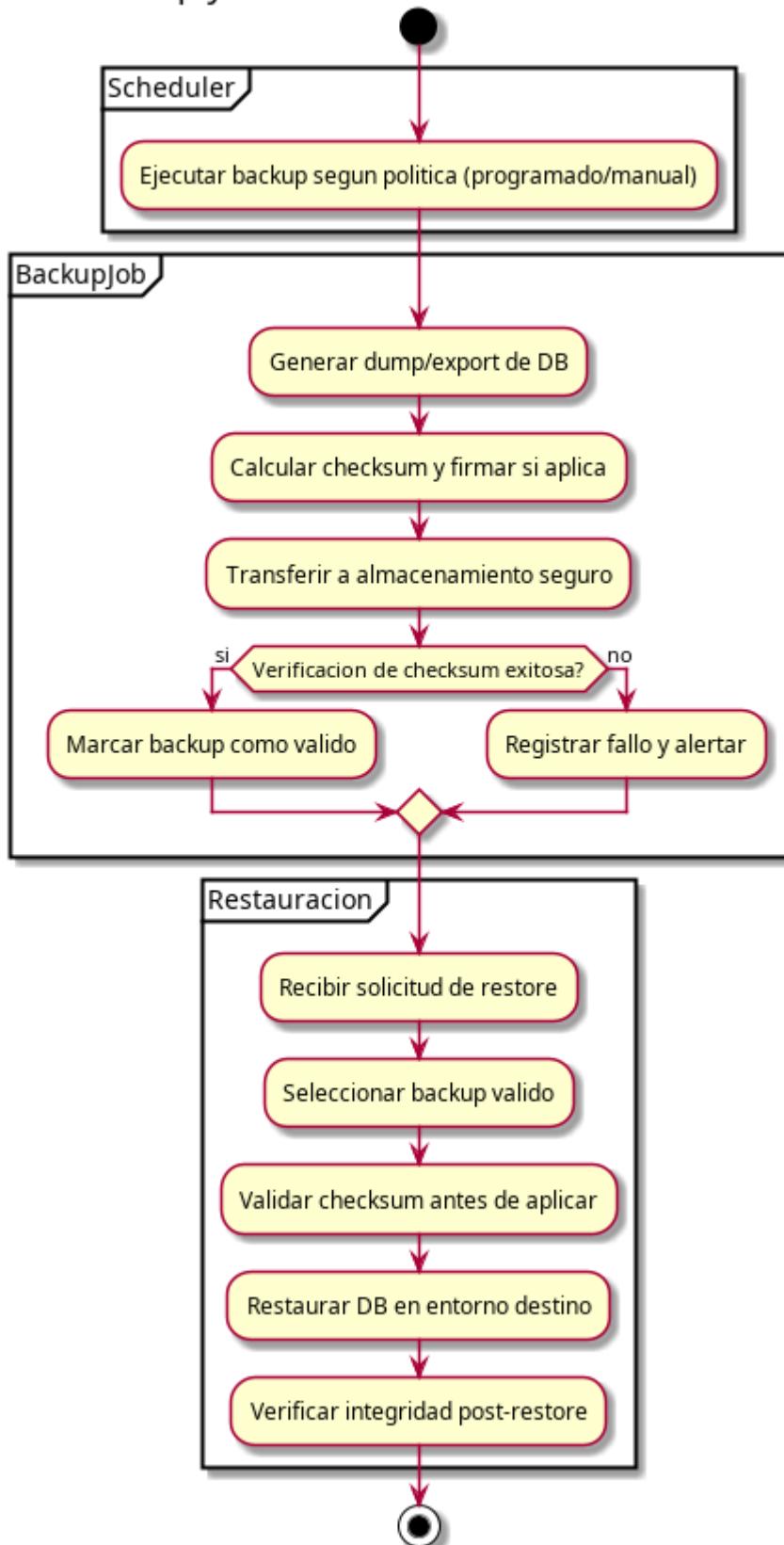
Panel de administracion: generacion de estadisticas de graficas



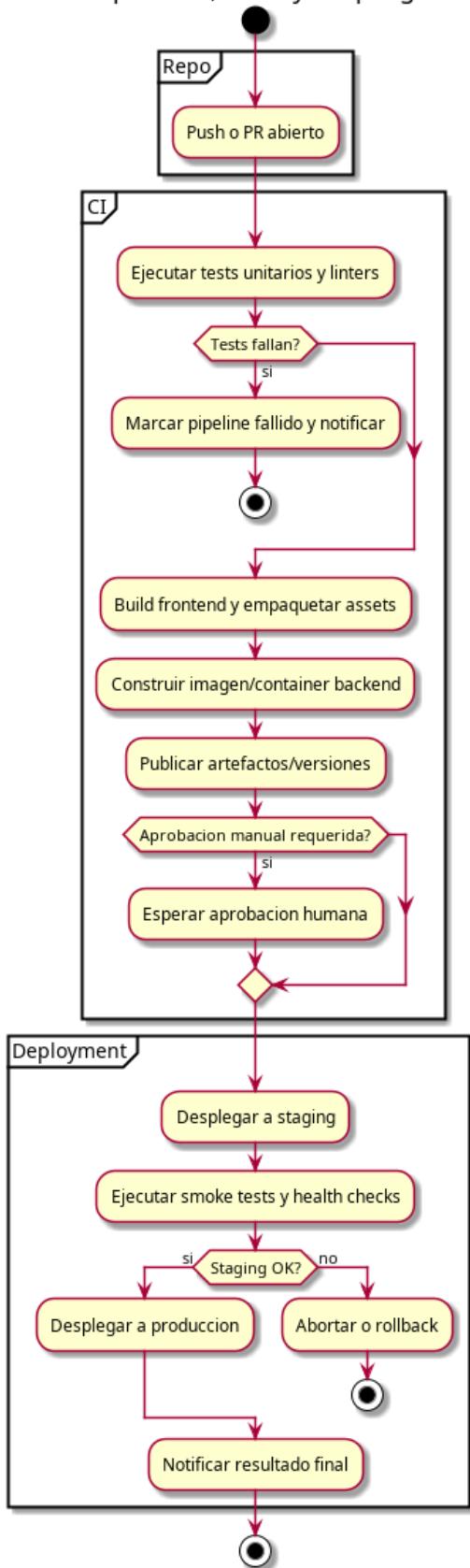
### Autenticacion de usuario (login)



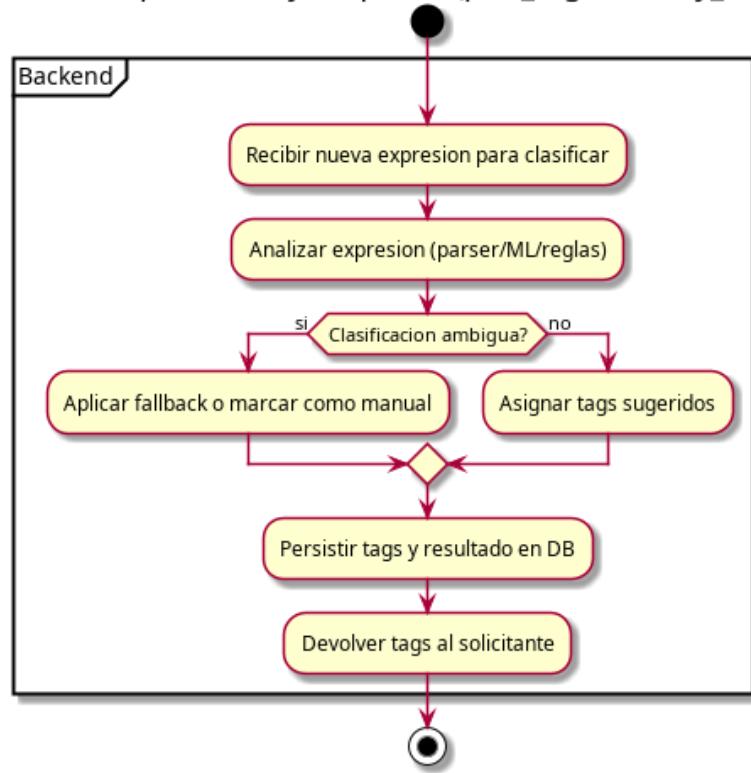
## Backup y restauracion de base de datos



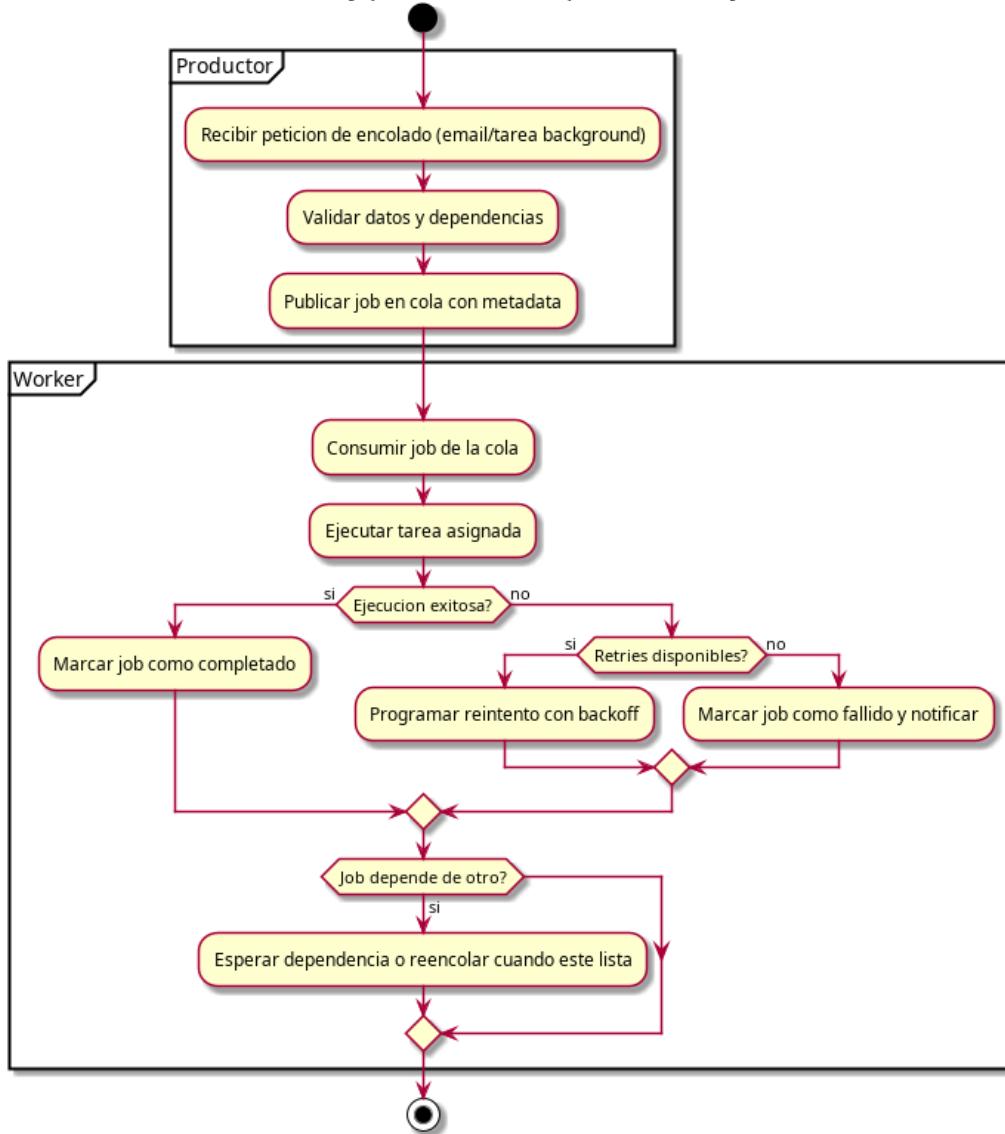
## CI/CD: pruebas, build y despliegue



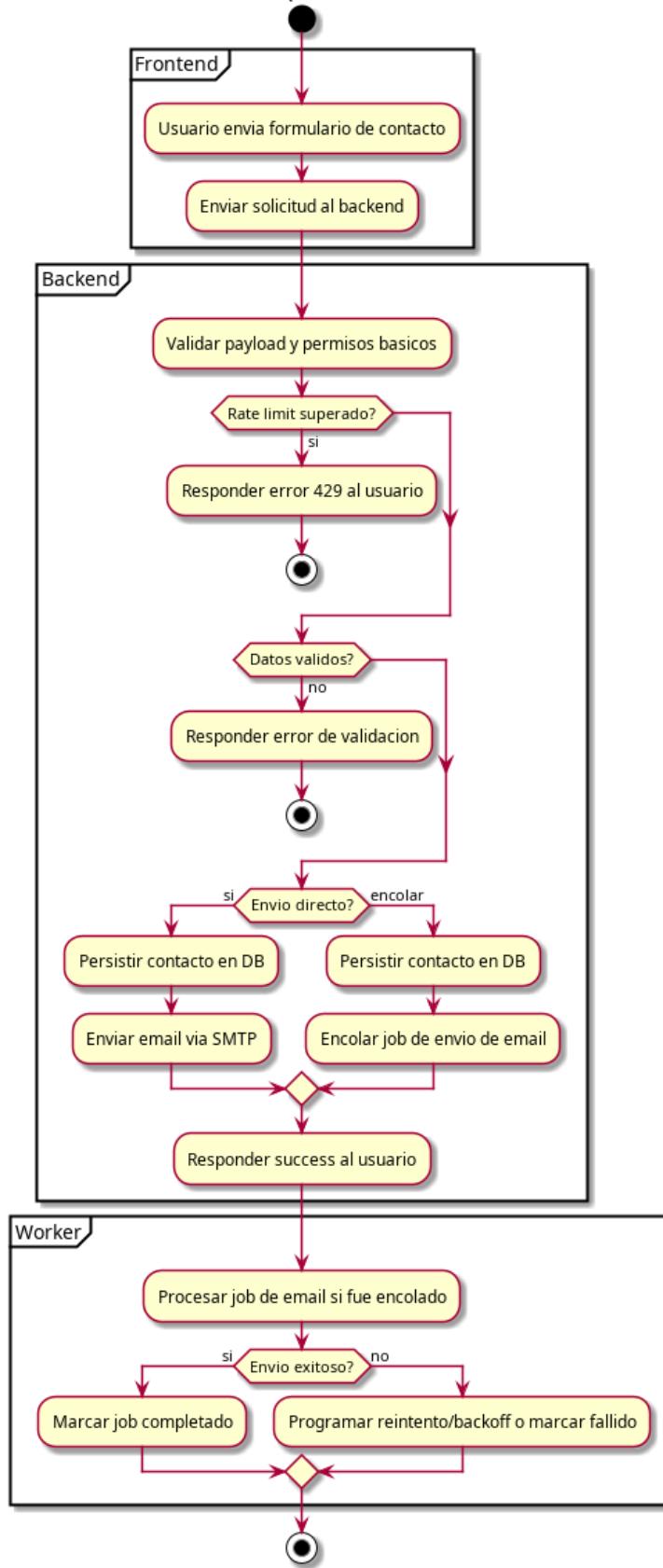
## Clasificación de expresiones y etiquetas (plot\_tags.classify\_expression)



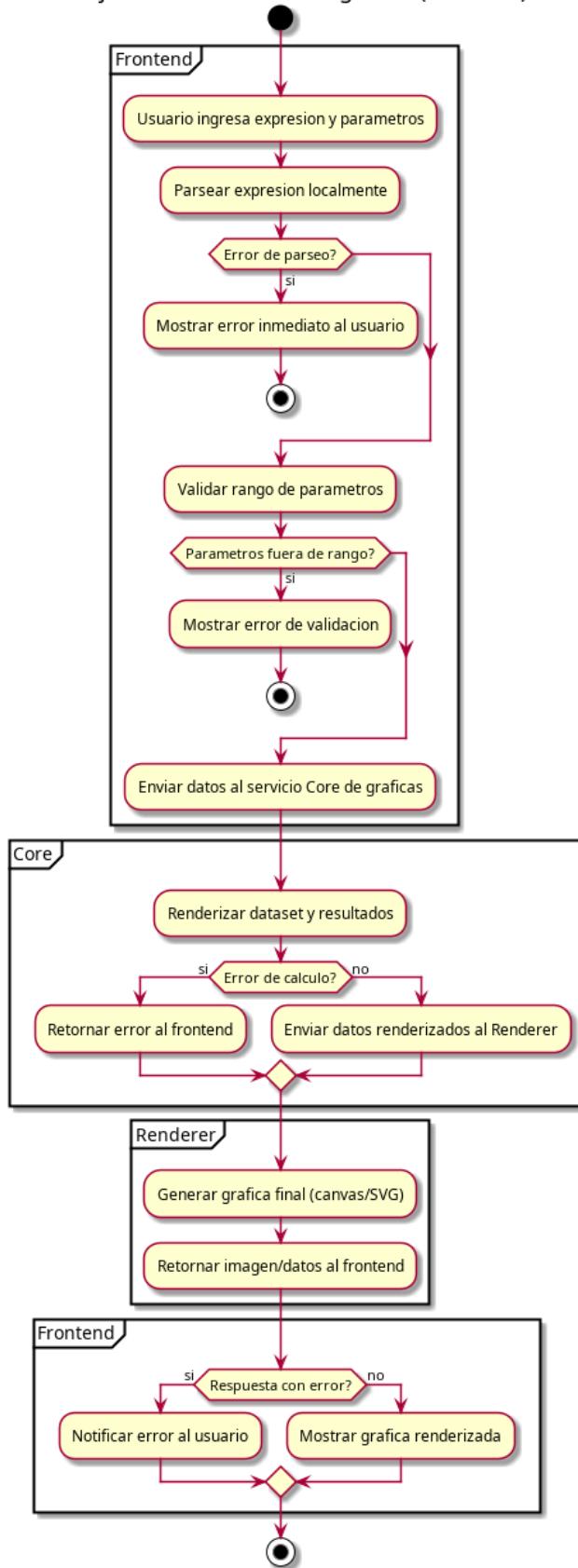
## Encolado y procesamiento por workers (jobs)



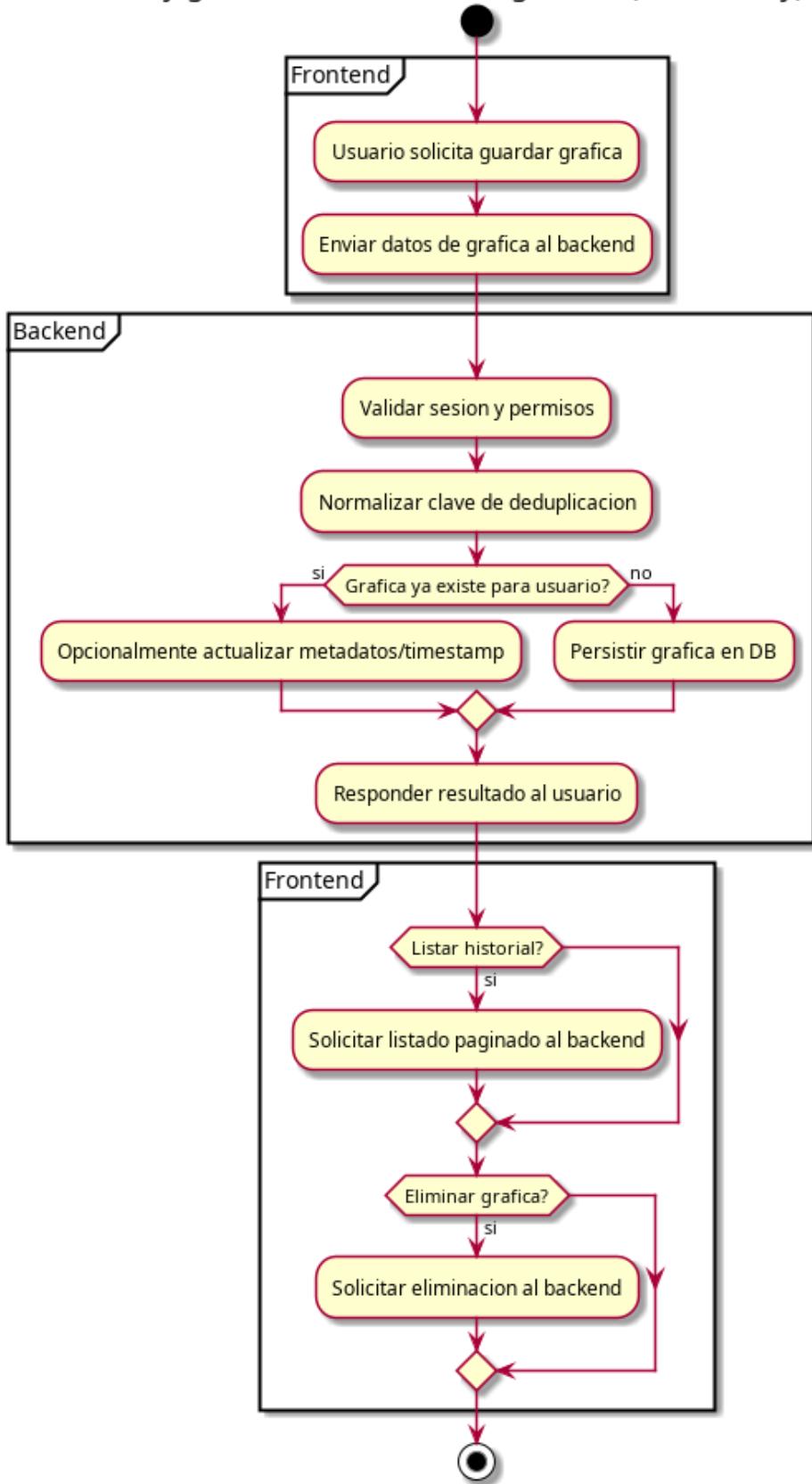
### Envio de formulario de contacto (frontend -> backend -> SMTP/DB/worker)



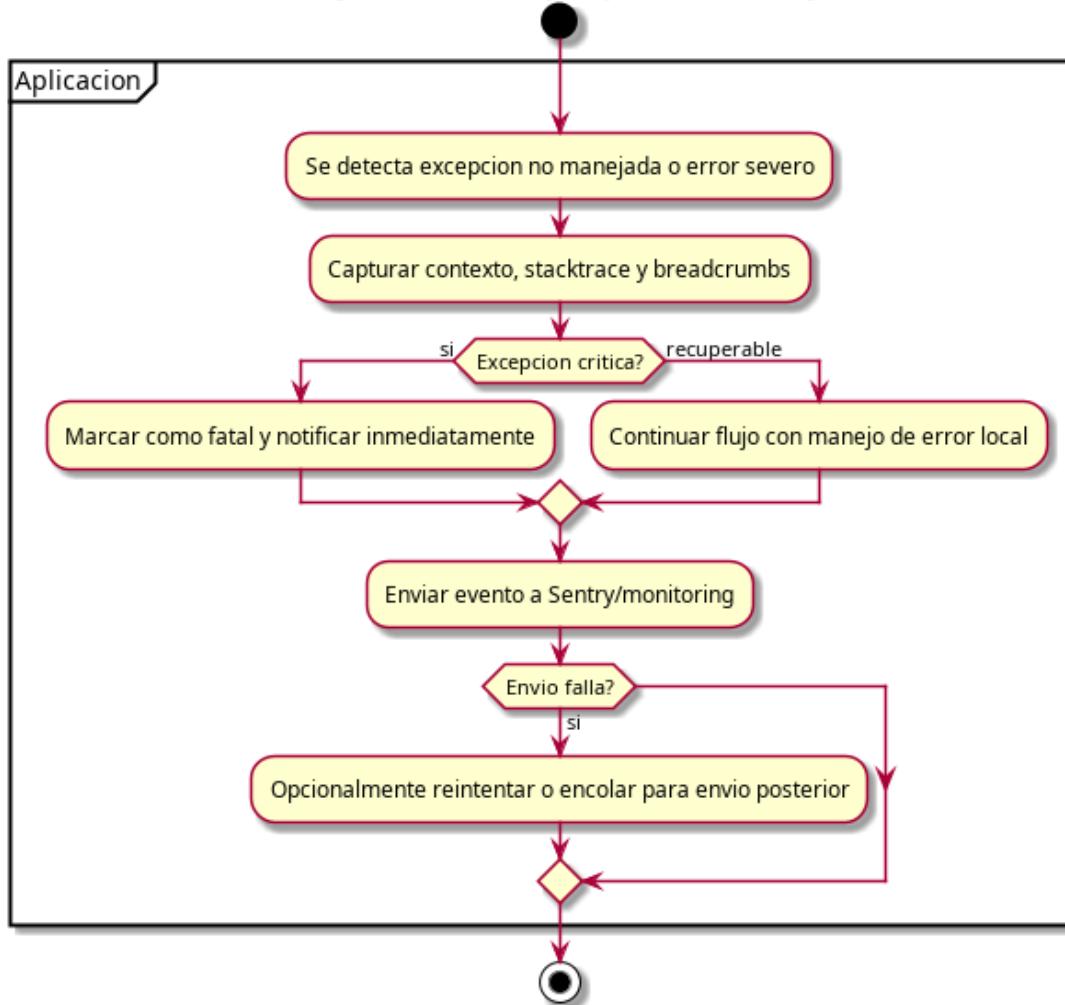
## Flujo de creacion de una grafica (frontend)



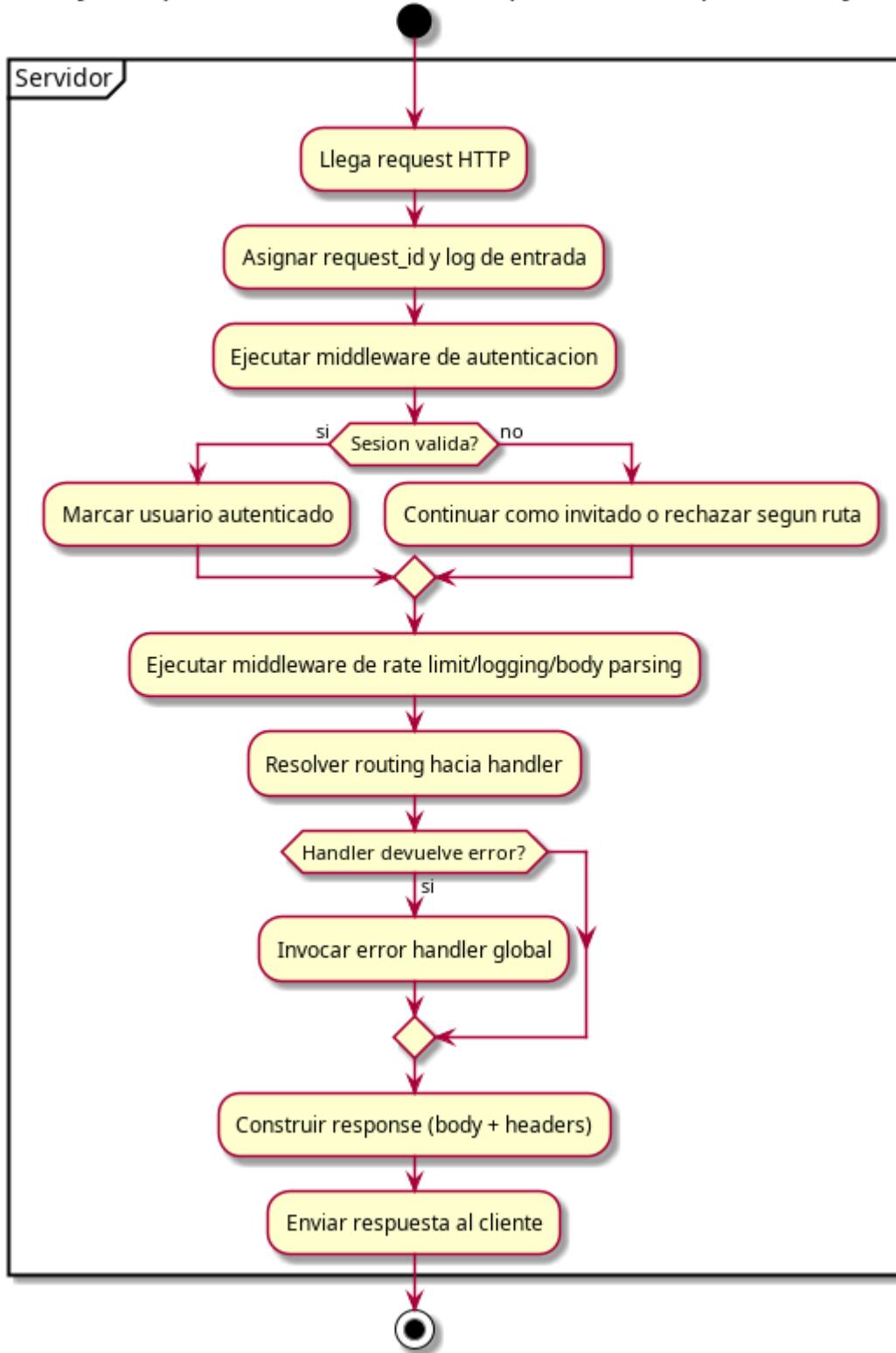
## Guardado y gestion de historial de graficas (PlotHistory)



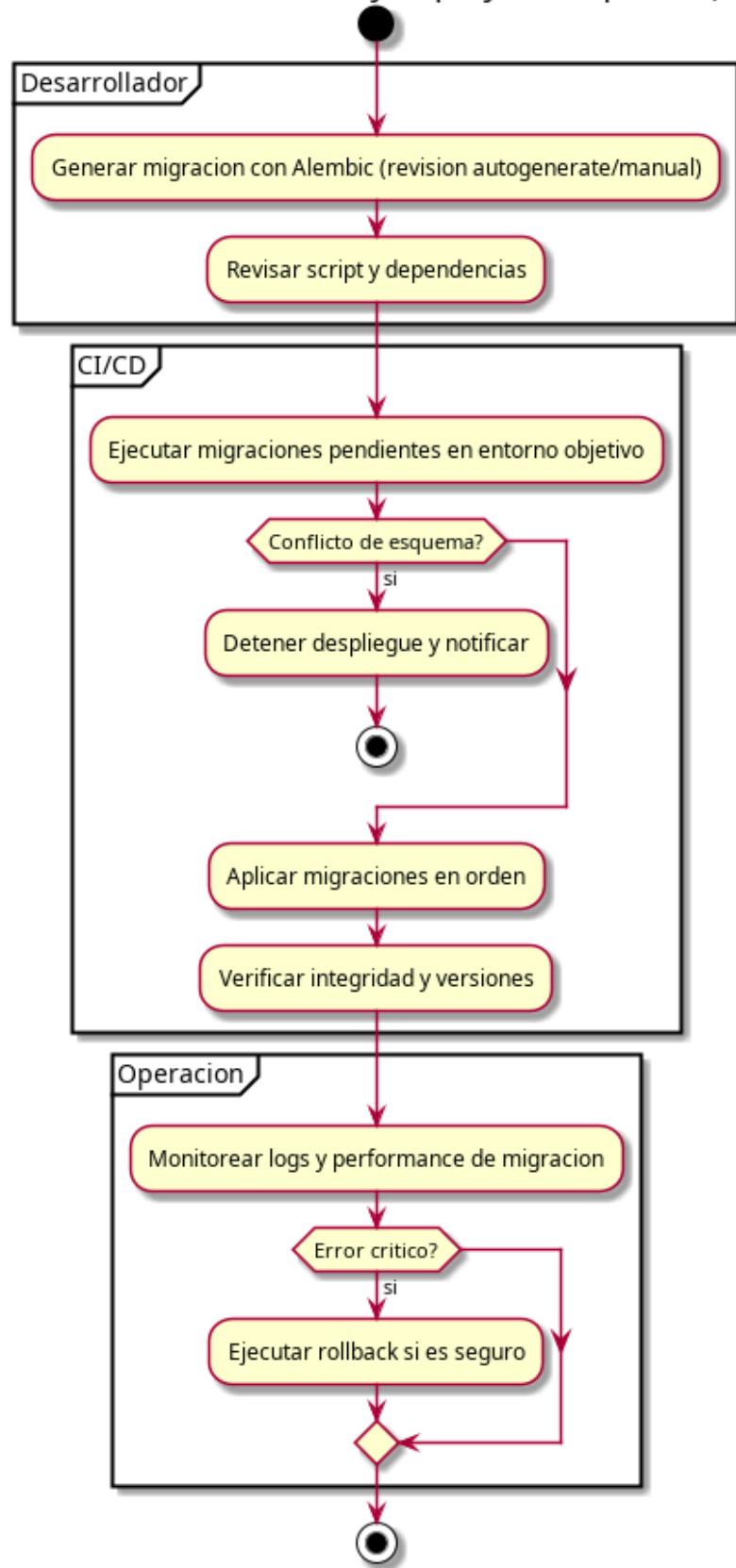
## Manejo de errores y reporte a Sentry



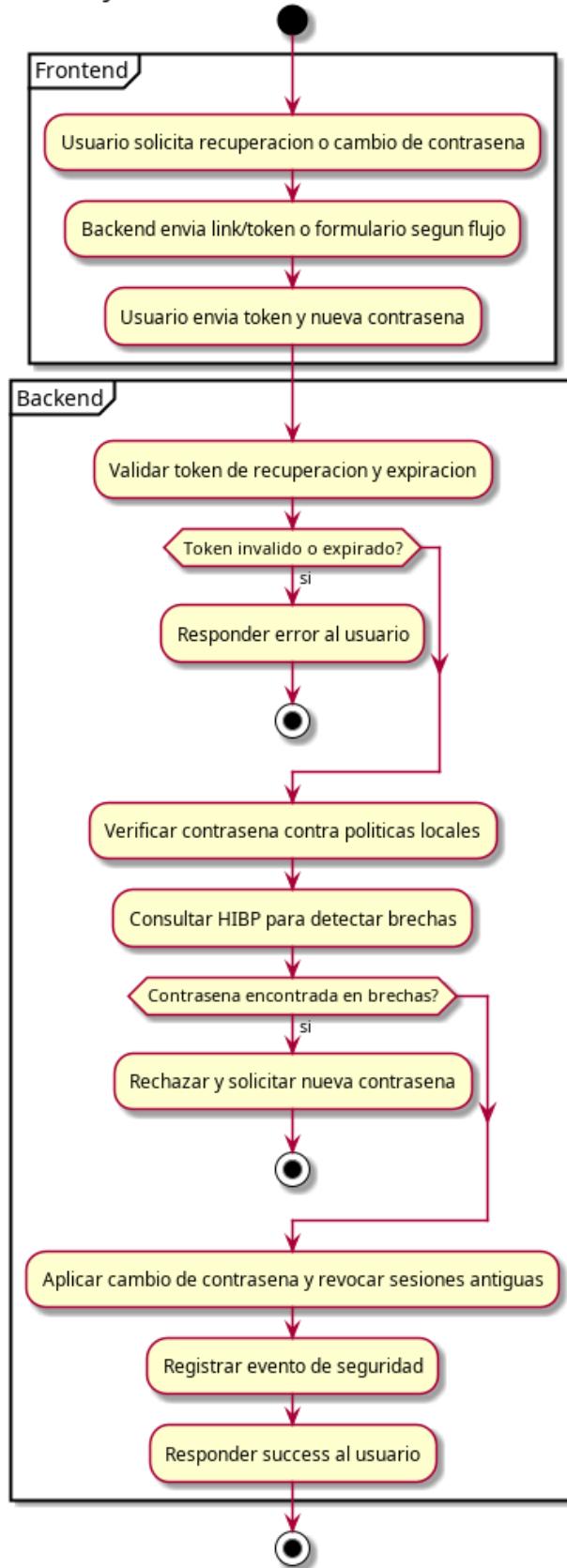
## Manejo de peticiones HTTP en la aplicacion (request lifecycle)



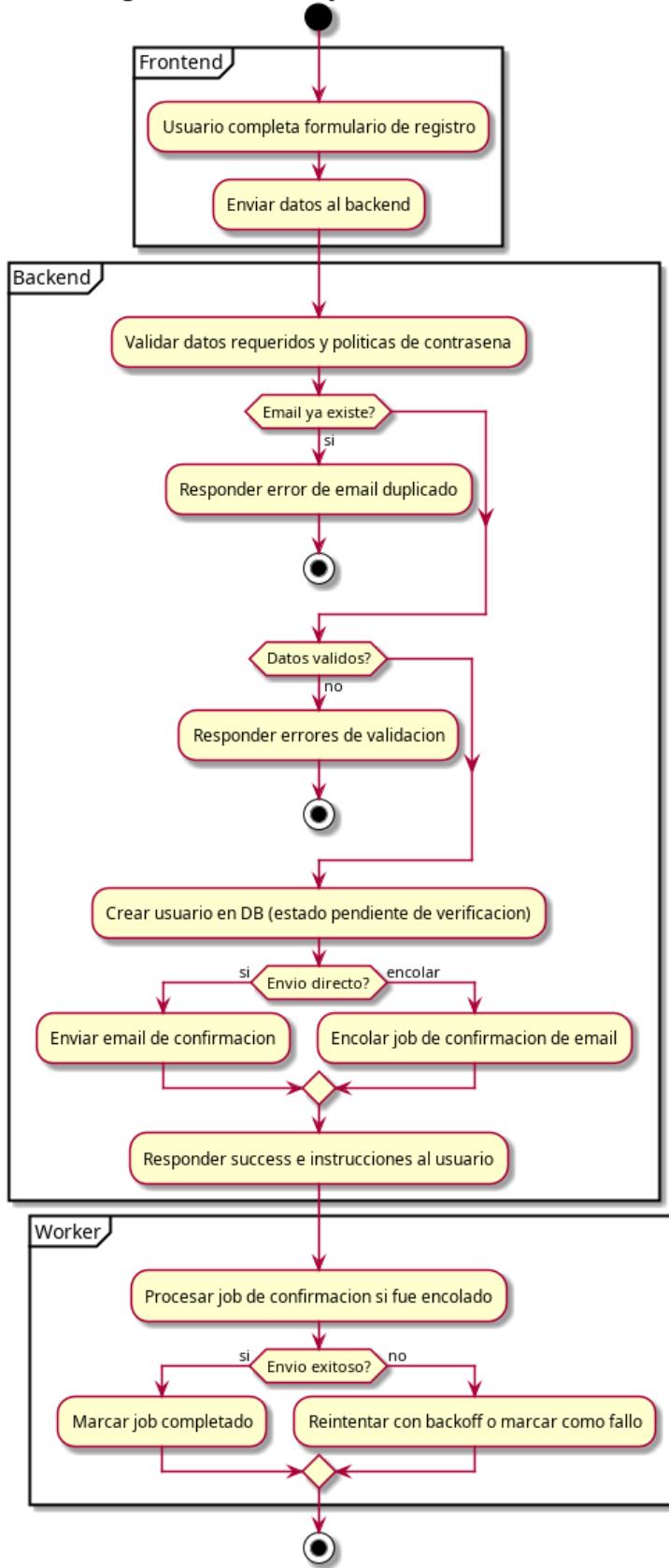
## Migraciones de base de datos y deploy de esquema (Alembic)



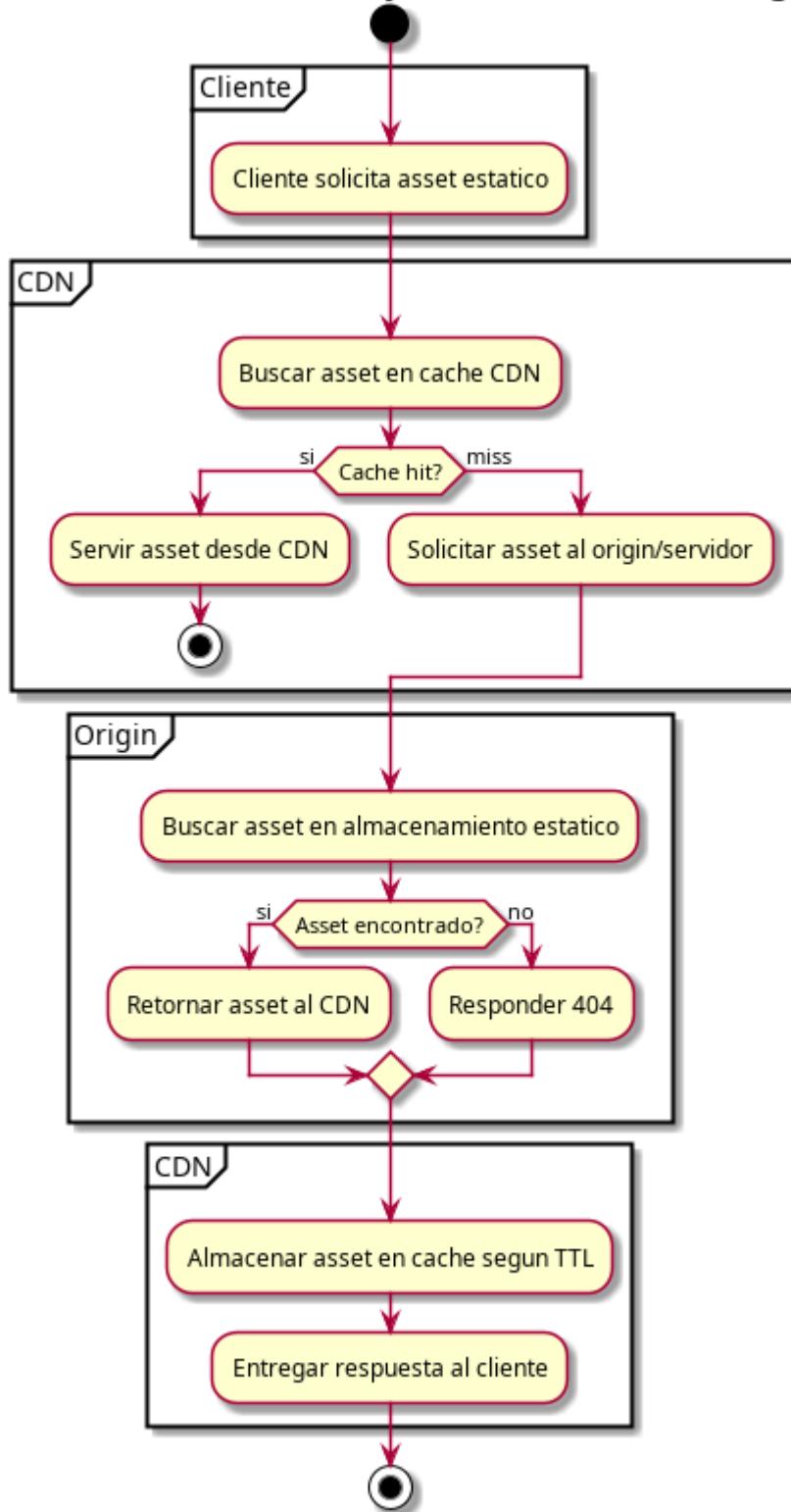
## Recuperacion y cambio de contrasena con consulta HIBP



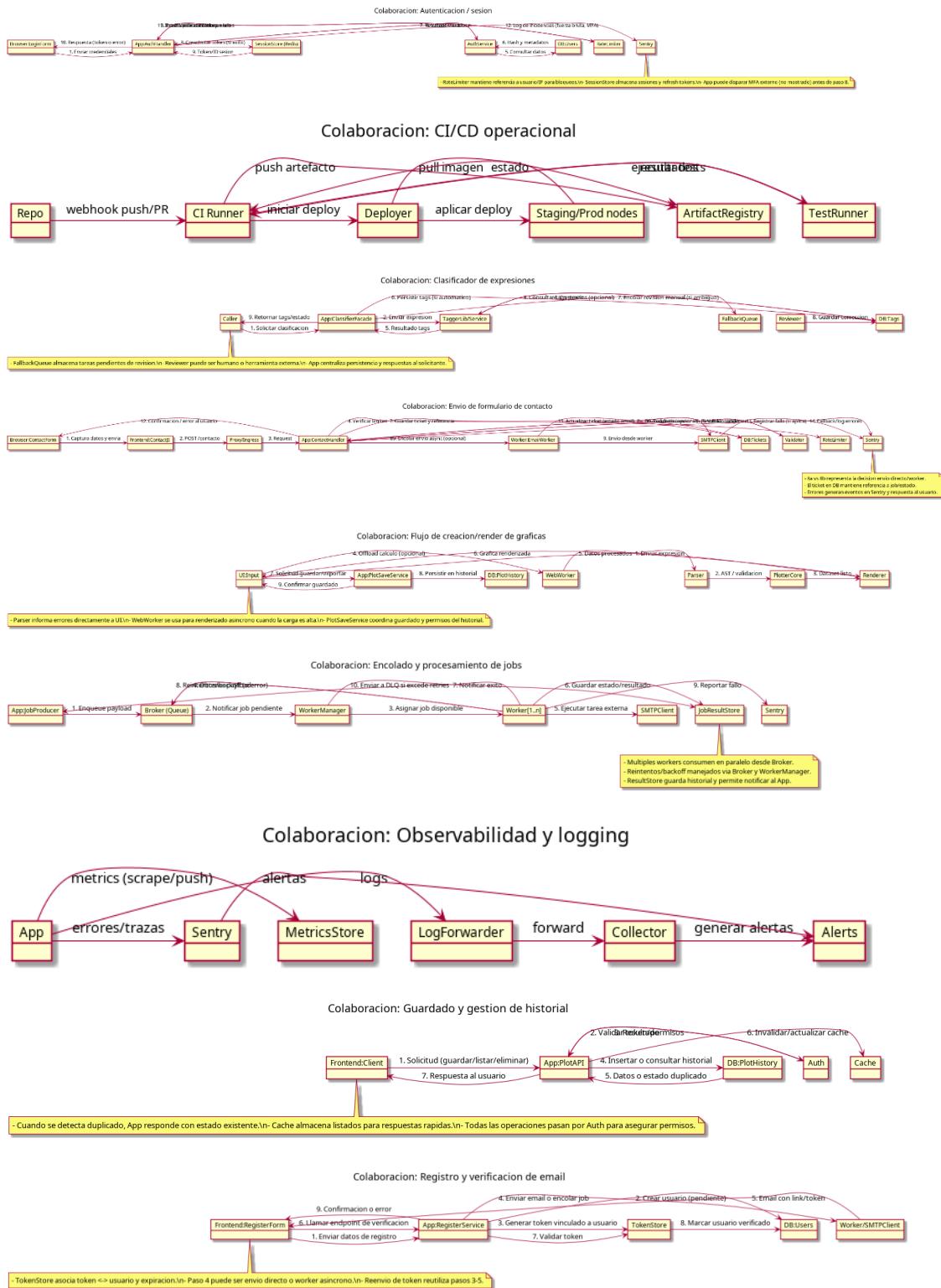
## Registro de usuario y verificacion de email

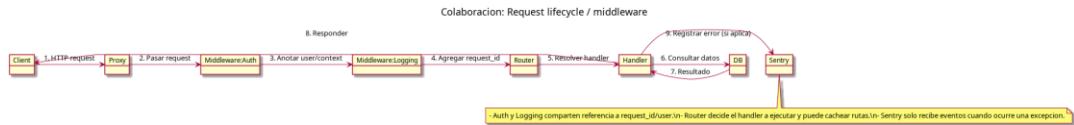


## Servir assets estaticos y CDN (frontend hosting)



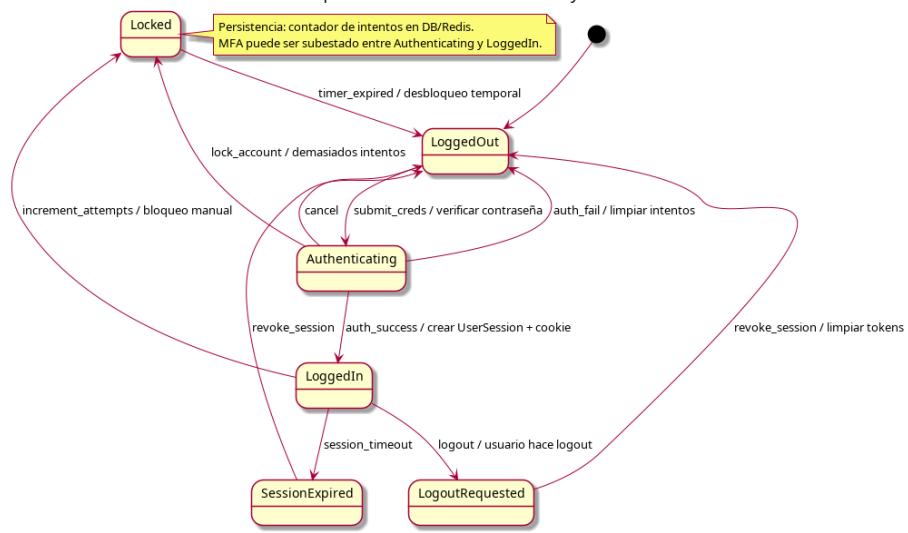
## Colaboración



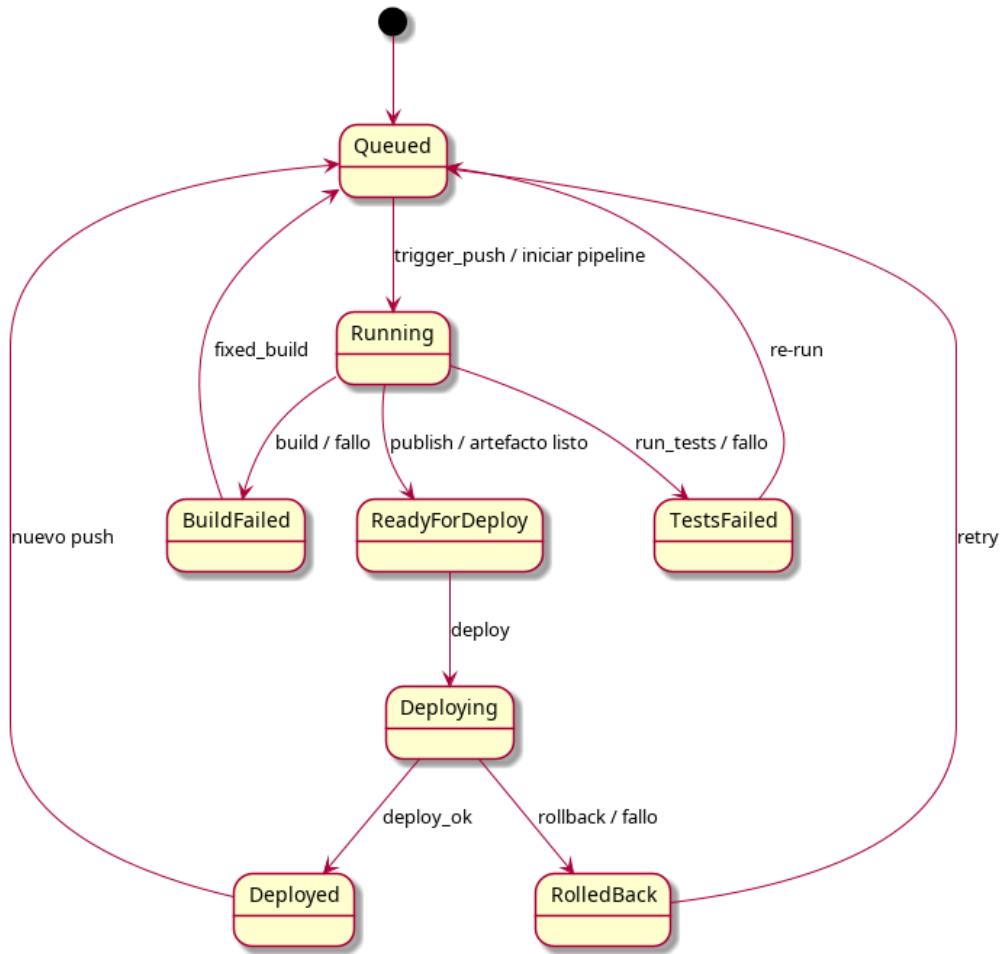


## Diagramas Maquina de Estado

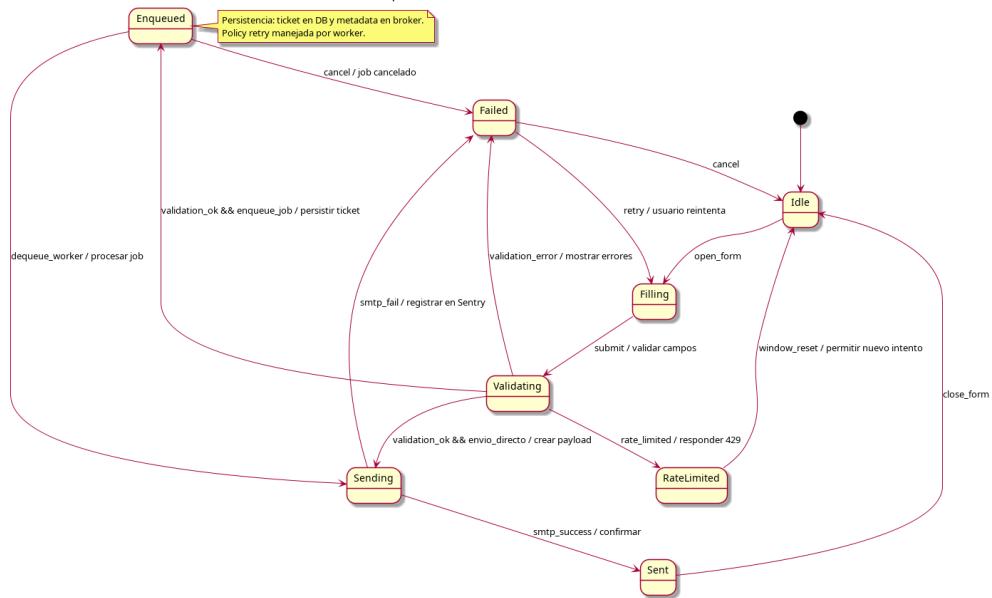
Maquina de estados: Autenticacion y sesion



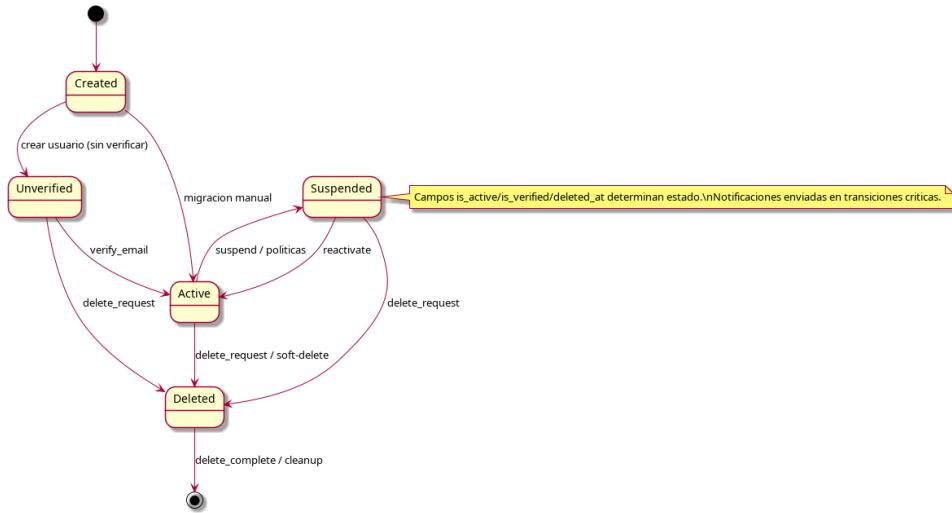
Maquina de estados: CI/CD pipeline



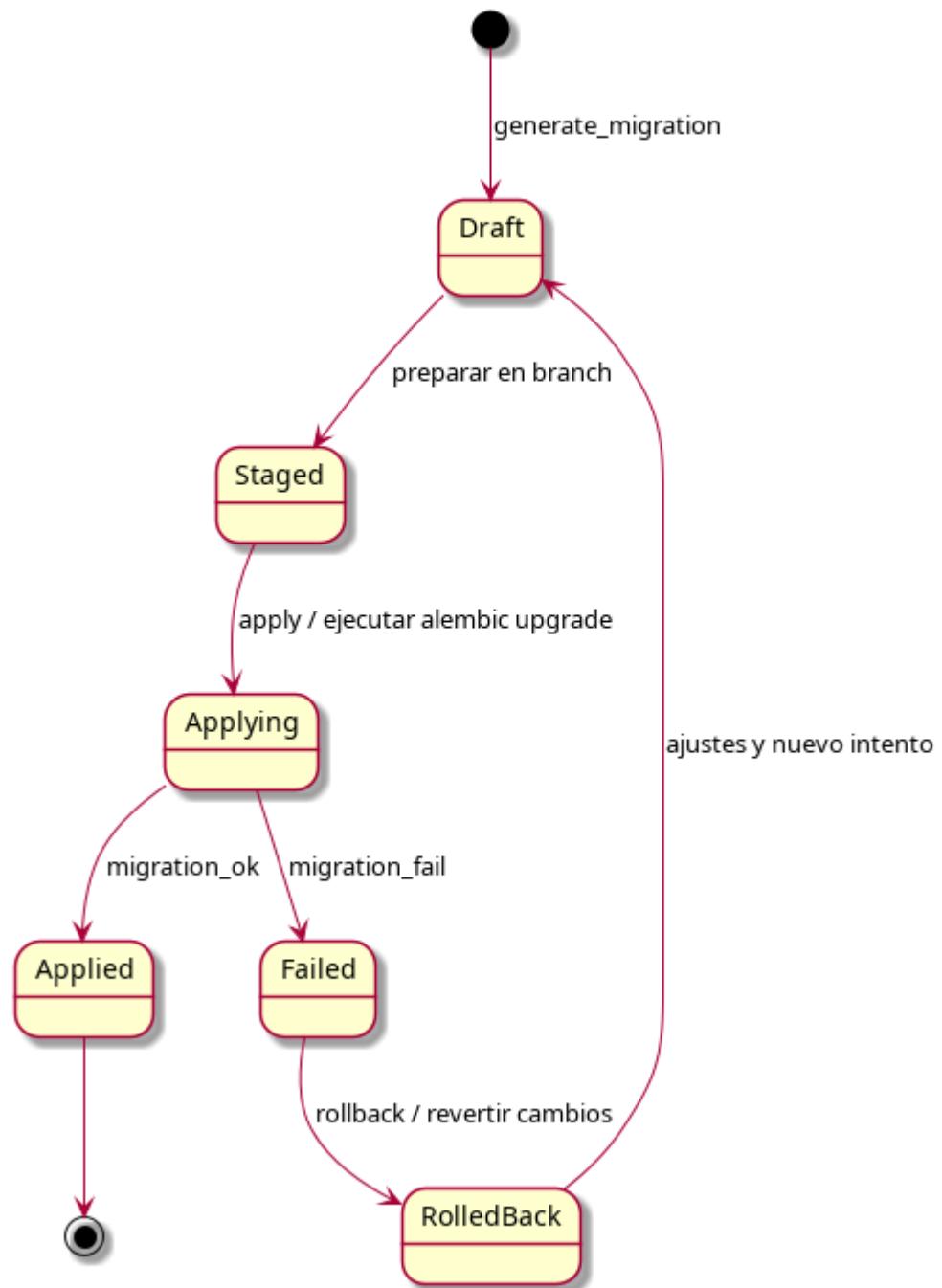
Maquina de estados: Formulario de contacto



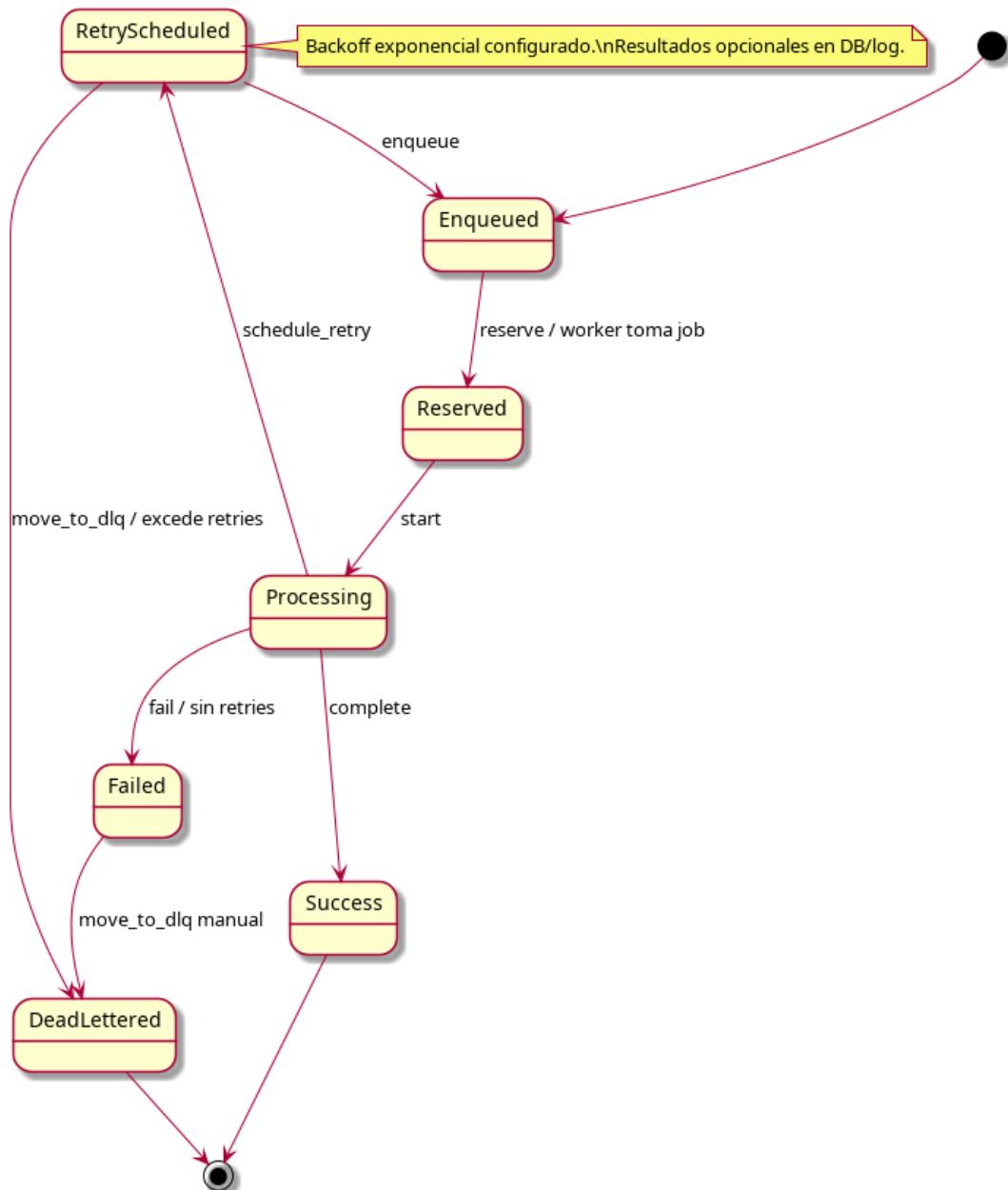
Maquina de estados: Cuenta de usuario



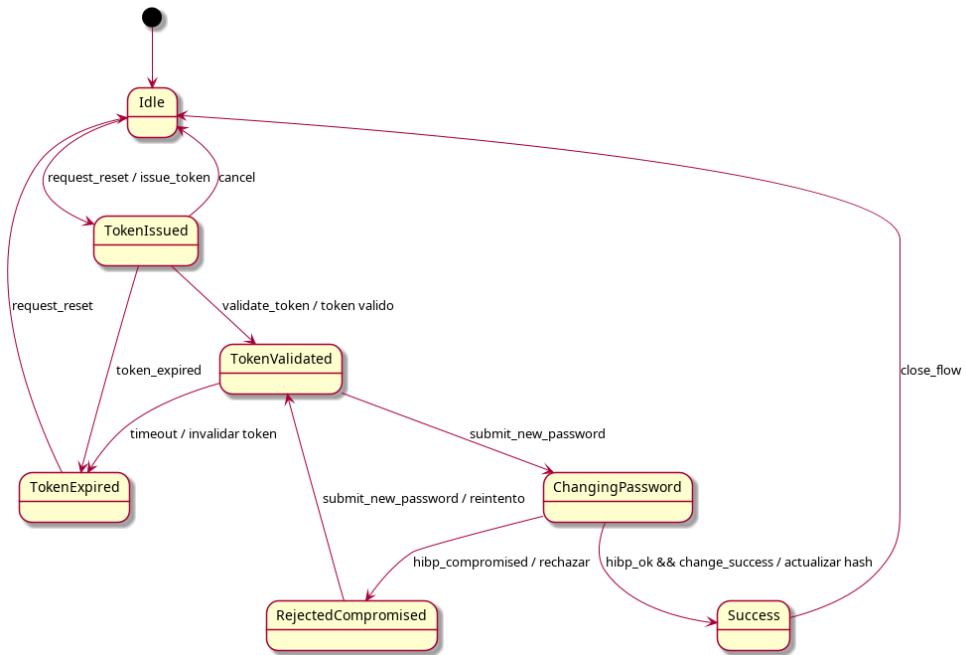
## Maquina de estados: Migracion de base de datos (Alembic)



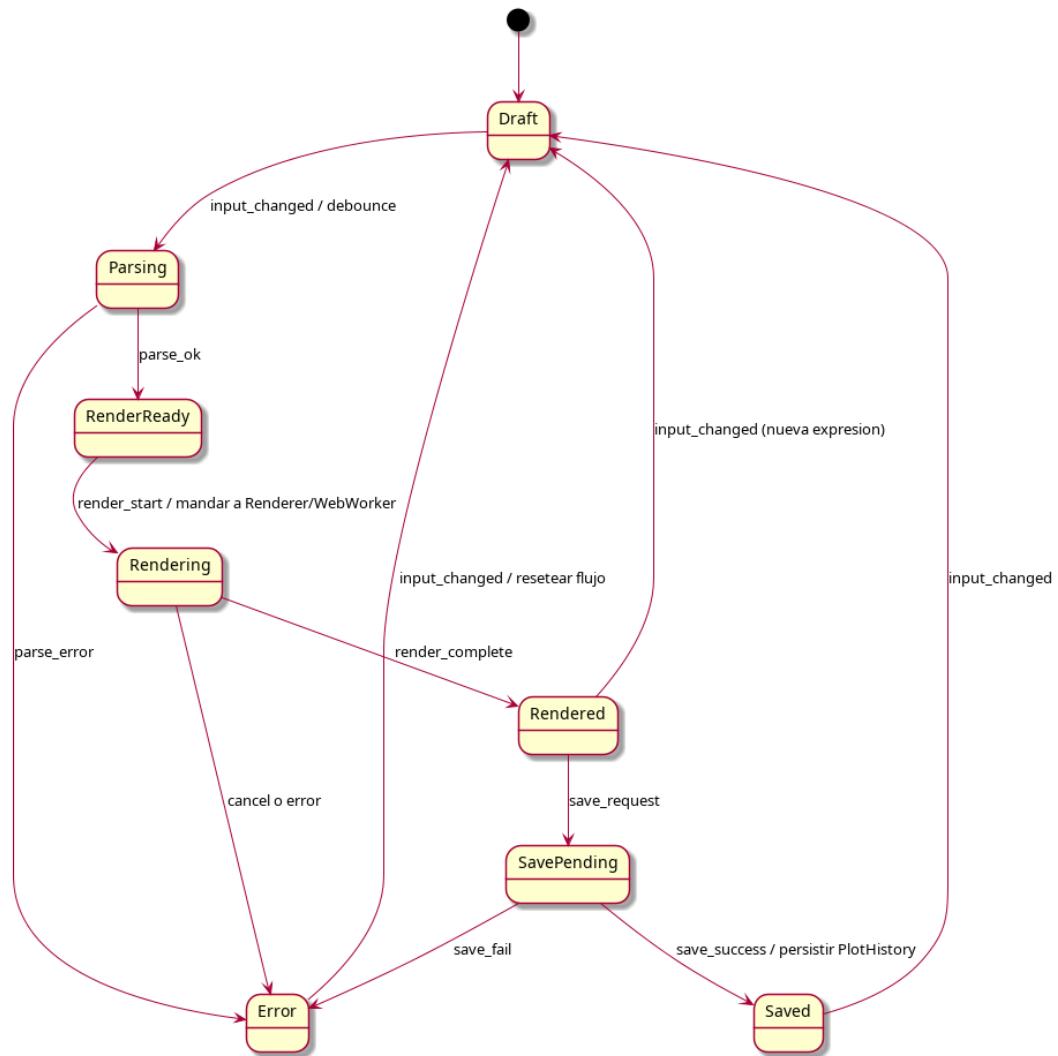
## Maquina de estados: Job / Worker asincrono



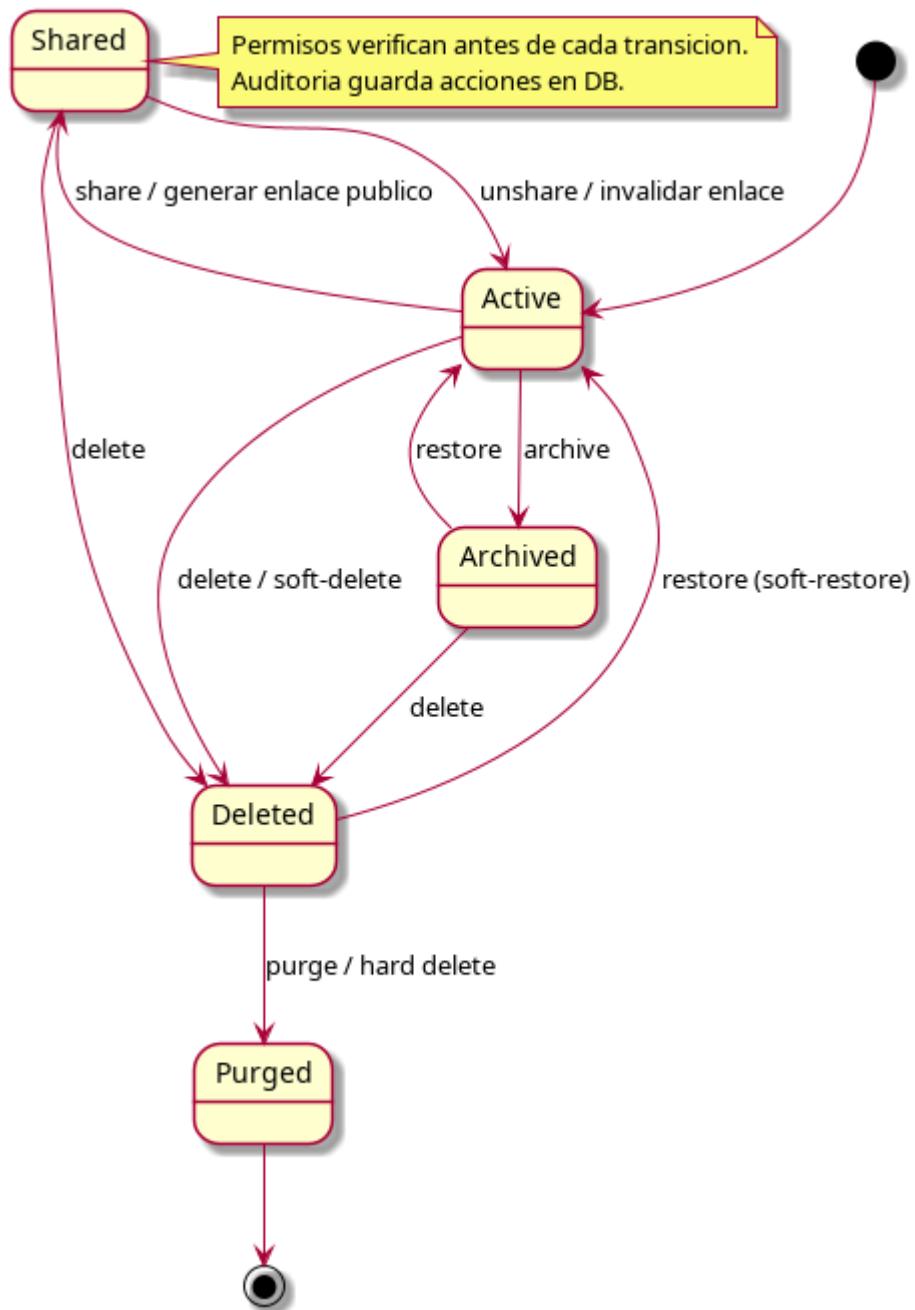
Maquina de estados: Recuperacion / cambio de contrasena



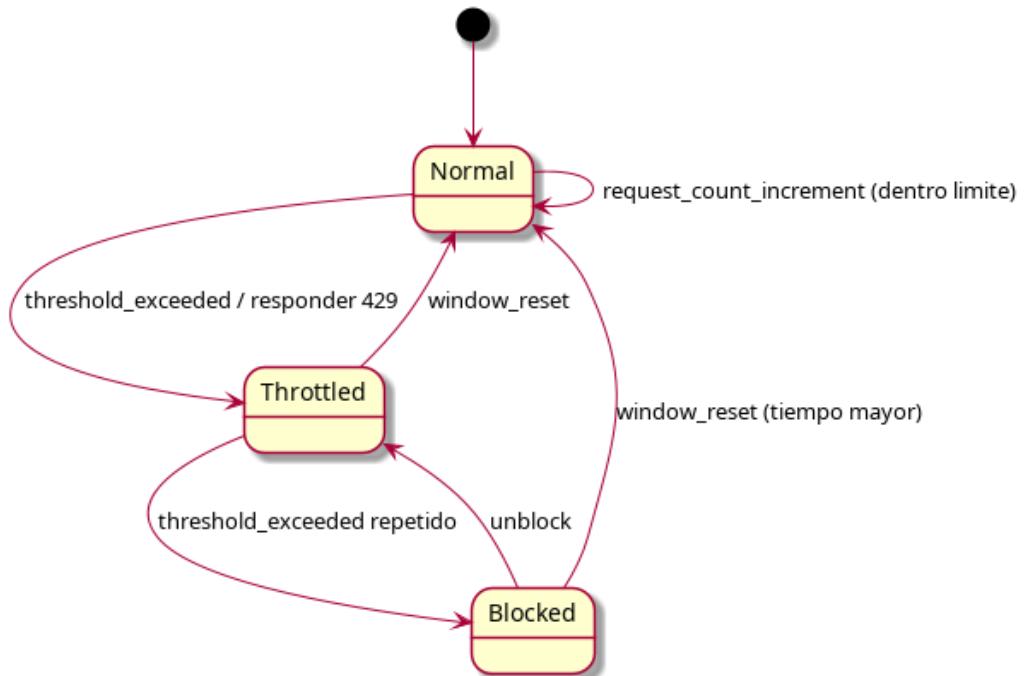
Maquina de estados: Ciclo de una grafica



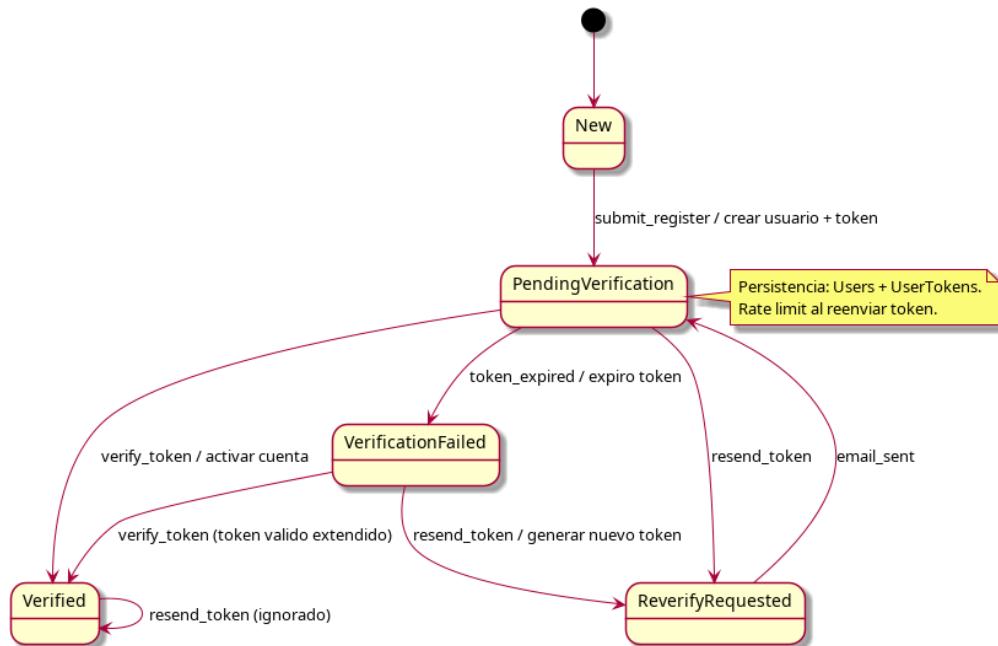
## Maquina de estados: PlotHistory (gestion CRUD)



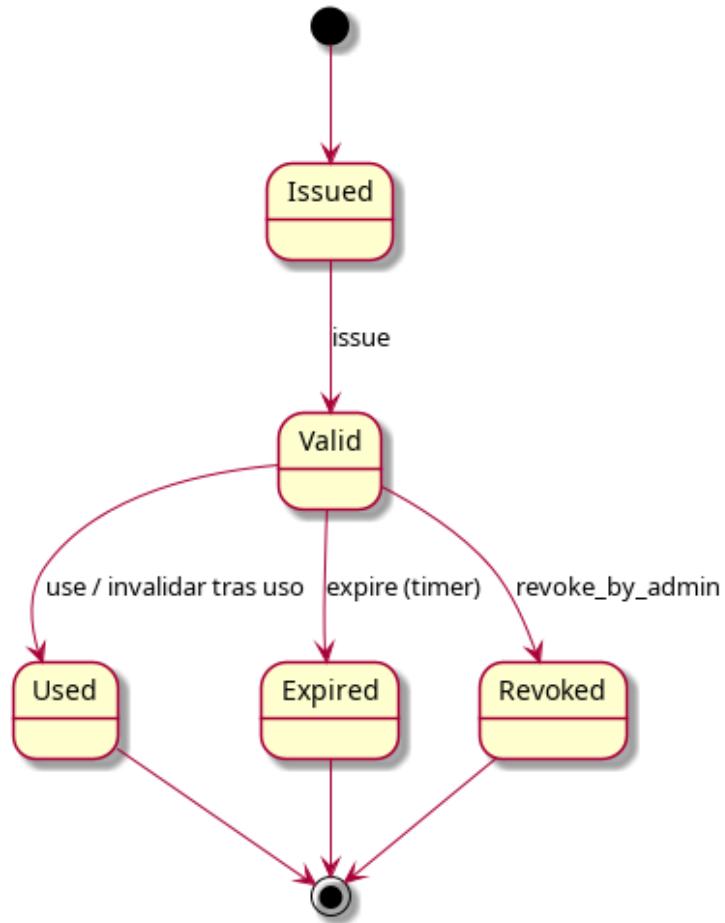
Maquina de estados: Rate limiter por clave



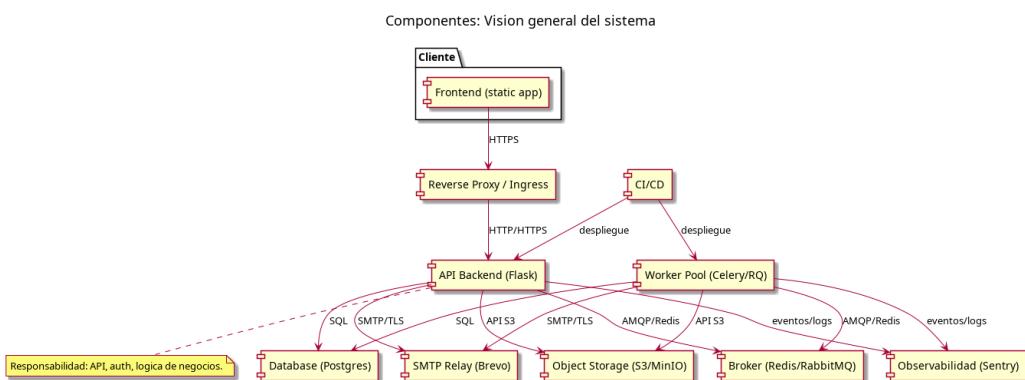
Maquina de estados: Registro y verificacion de email

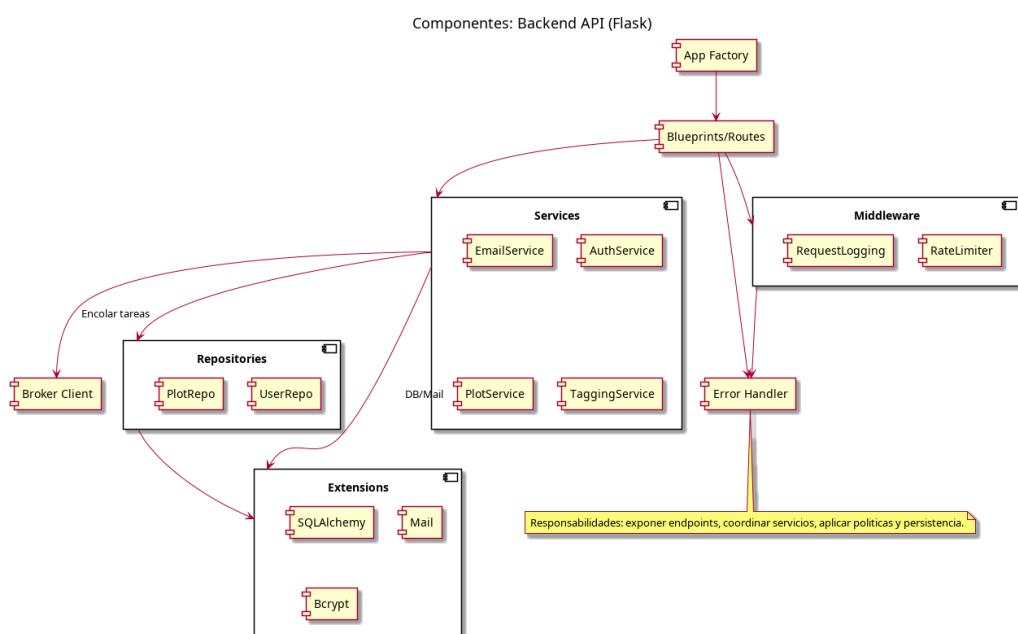
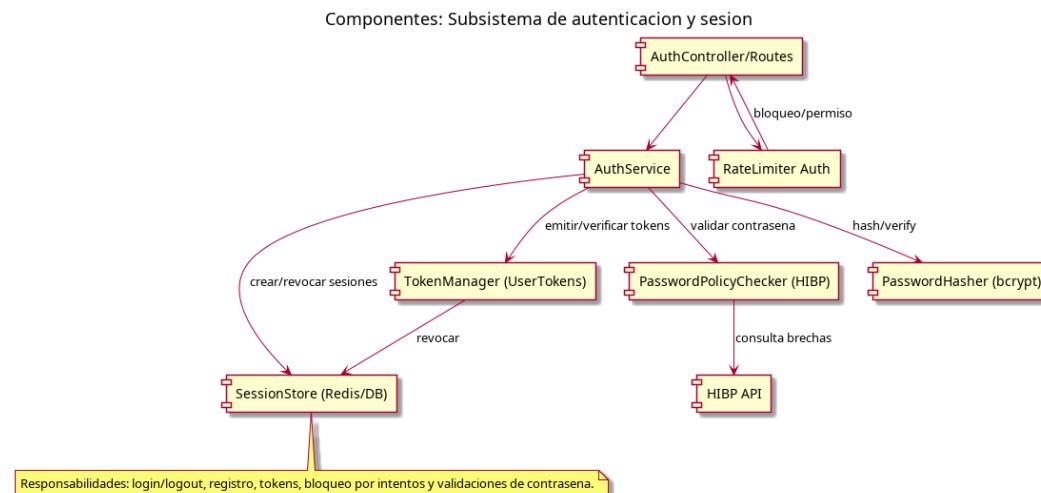
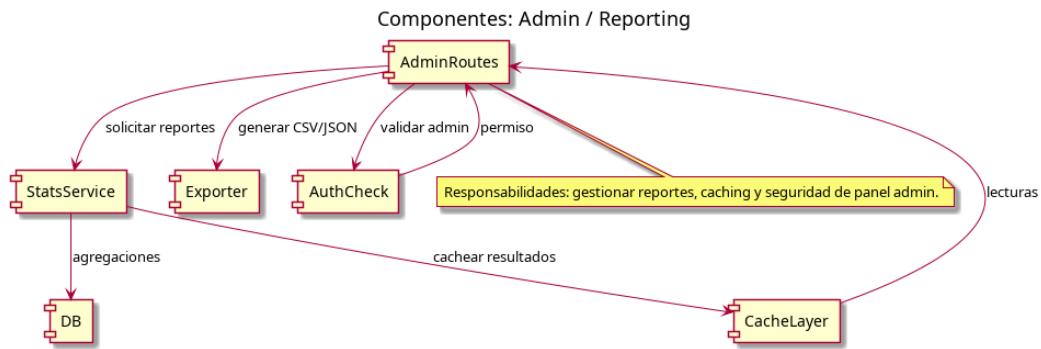


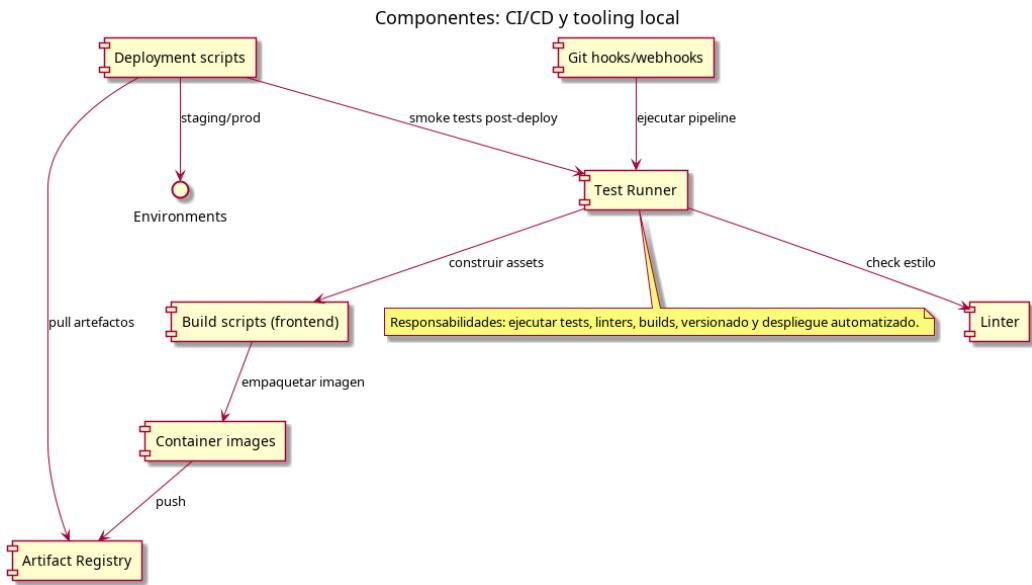
## Maquina de estados: Token (UserTokens)



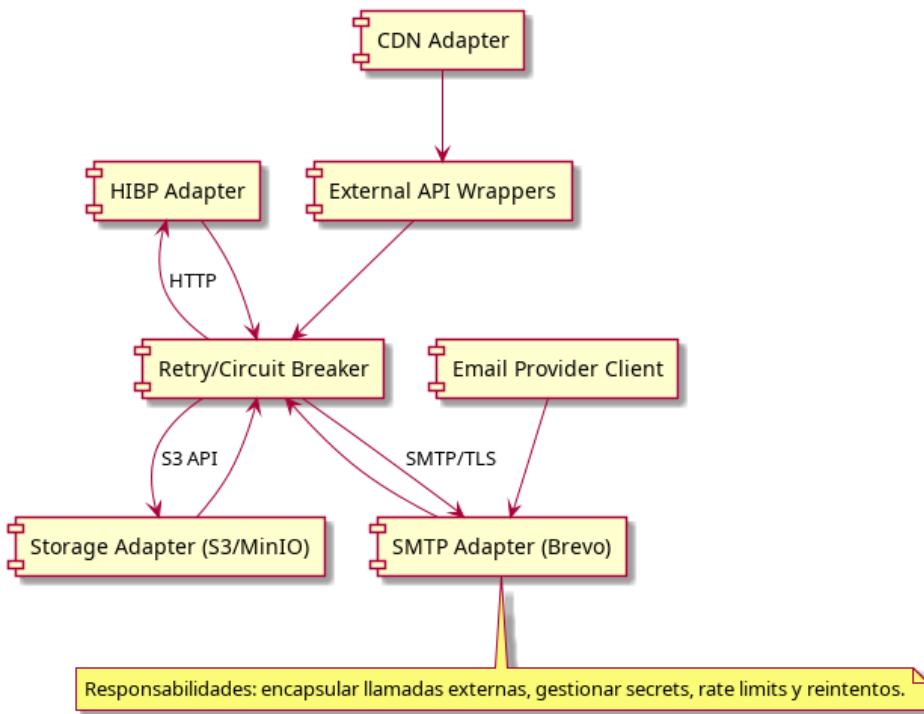
## Diagramas de Componentes



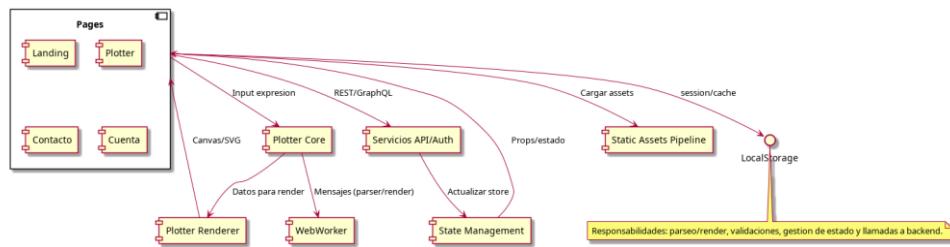




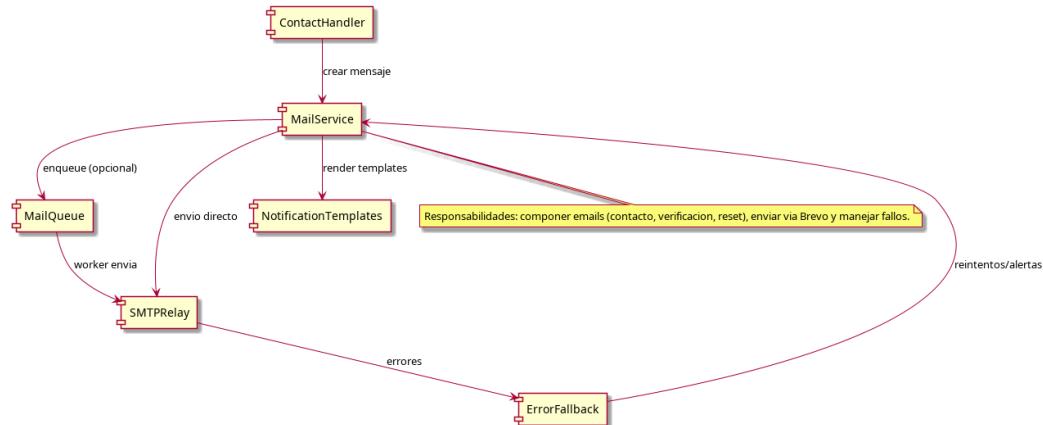
### Componentes: Integraciones externas y adaptadores



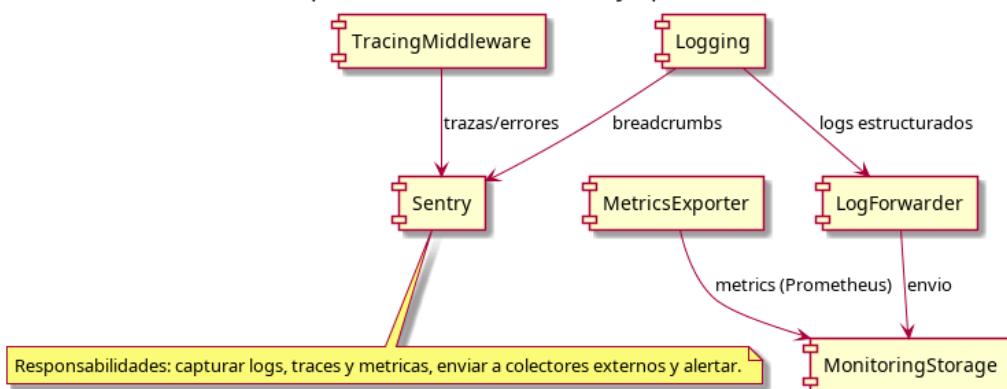
#### Componentes: Frontend / cliente



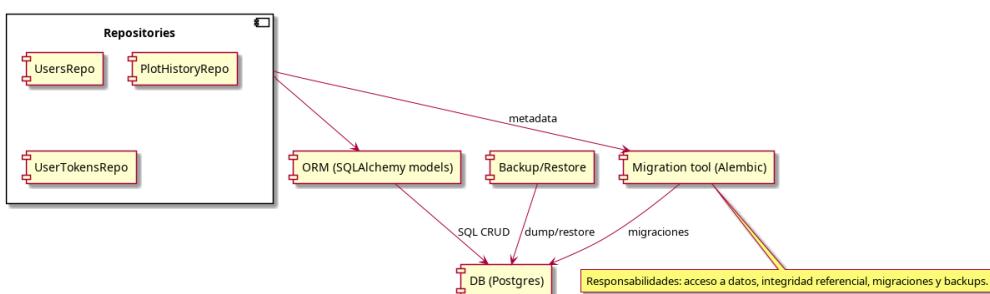
#### Componentes: Correo y notificaciones



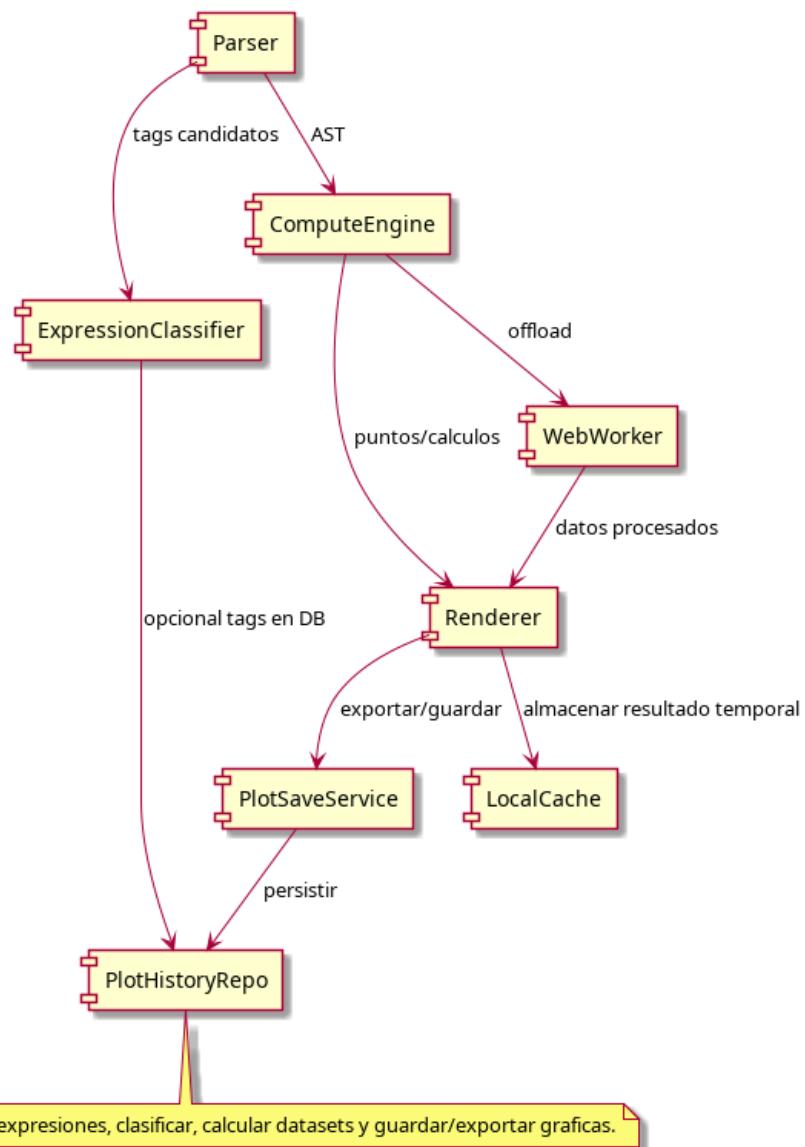
#### Componentes: Observabilidad y operaciones



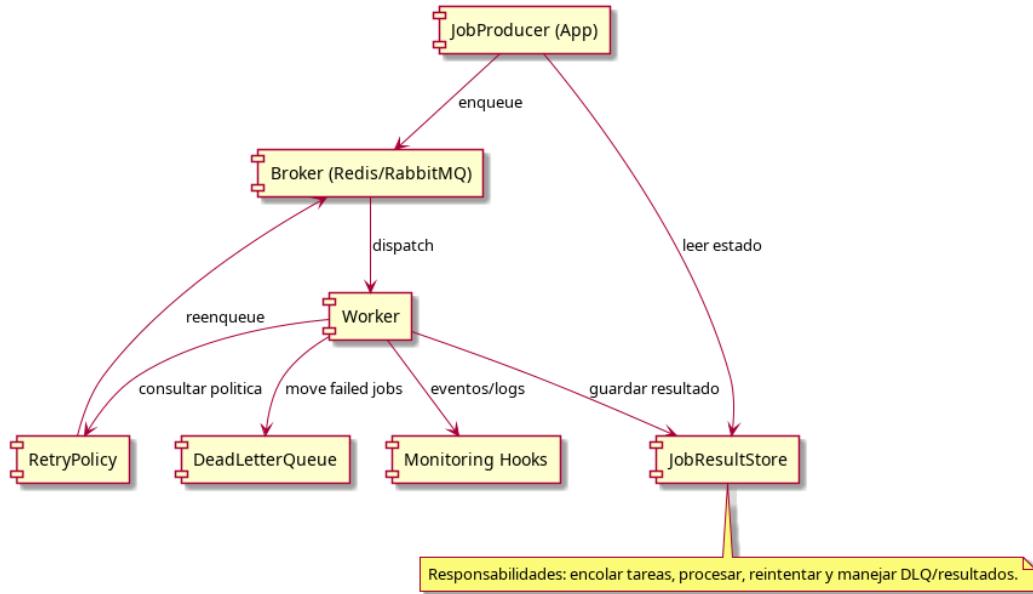
#### Componentes: Persistencia y repositorios



## Componentes: Plotter / pipeline de render

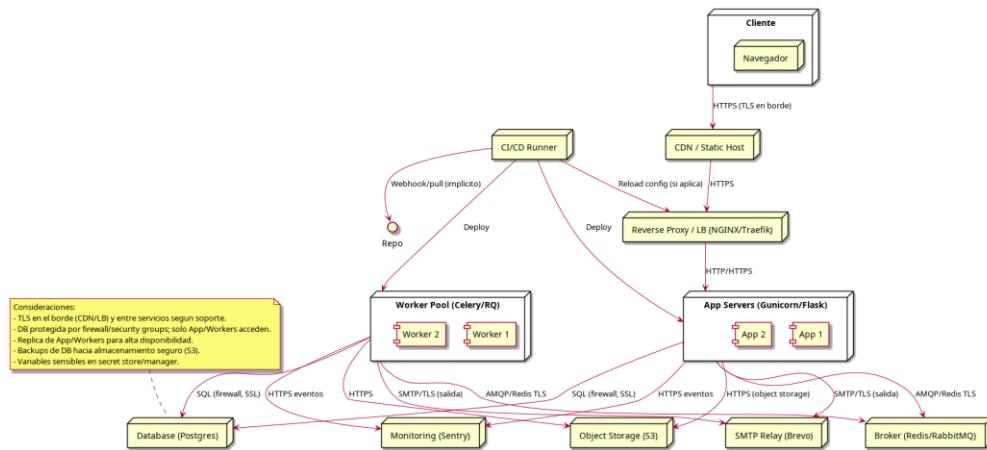


### Componentes: Jobs / Workers

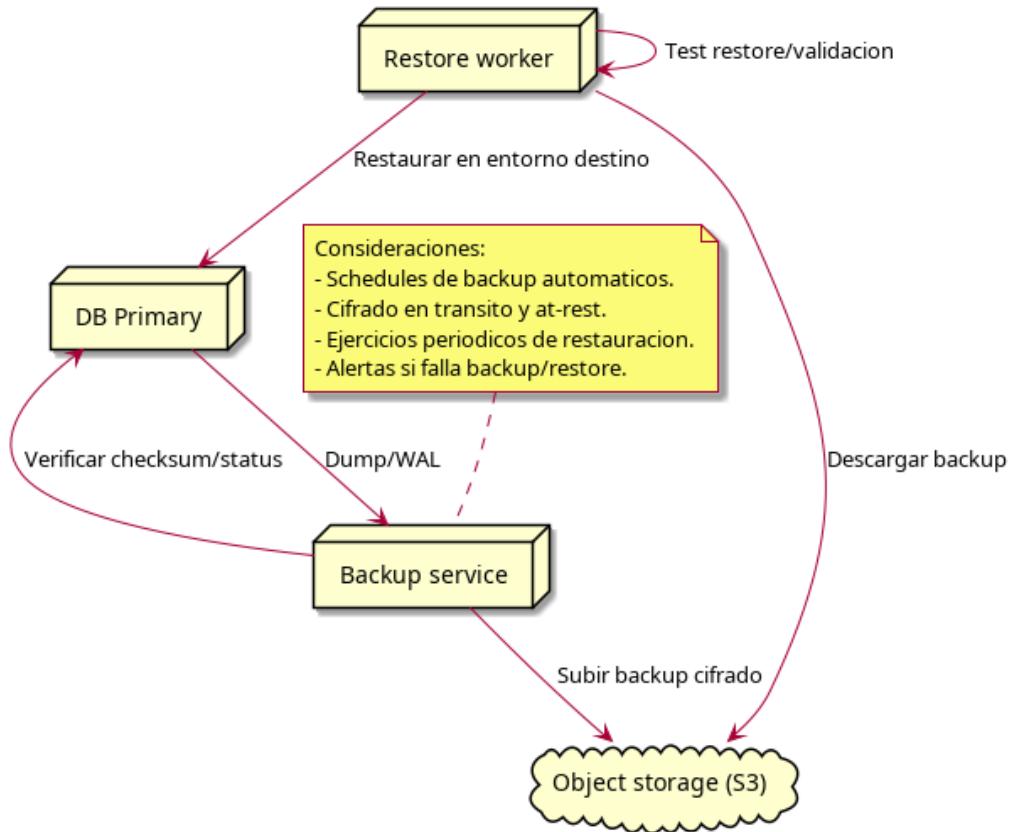


### Diagramas de Despliegue

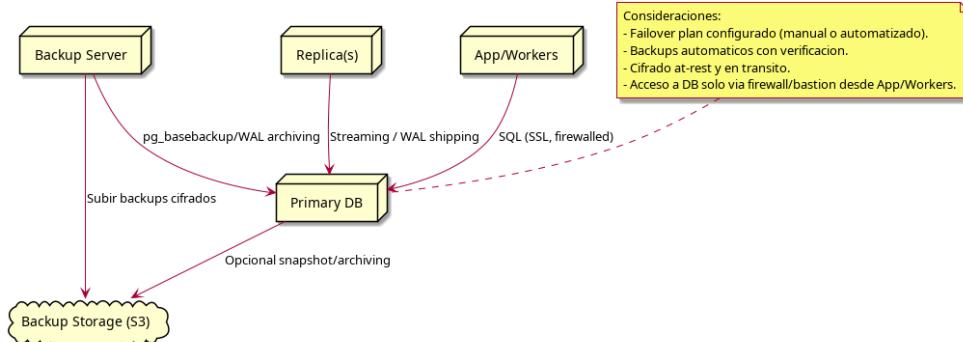
Despliegue: Arquitectura general (overview)



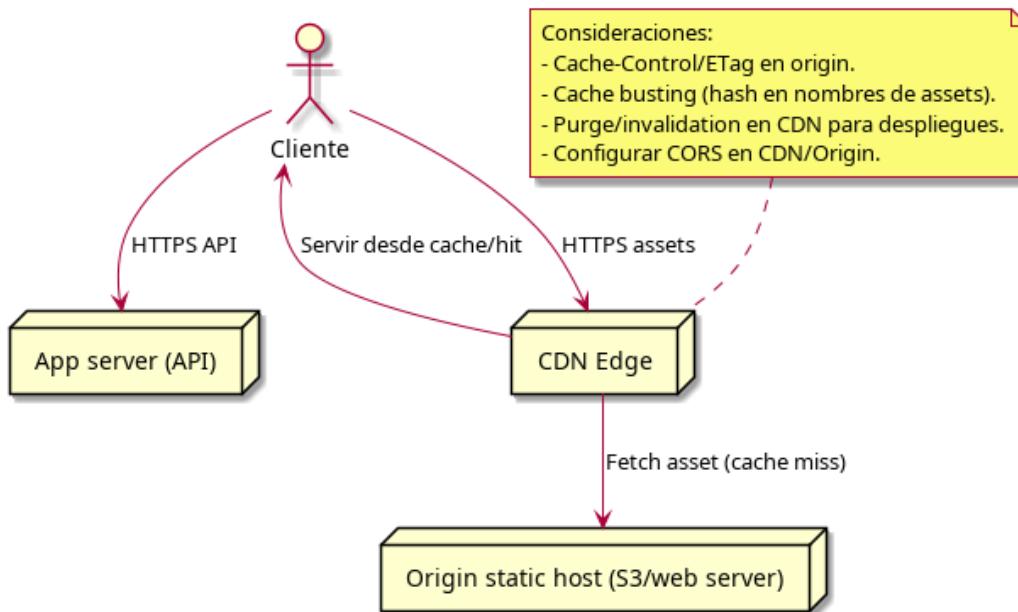
## Despliegue: Backup y recuperacion



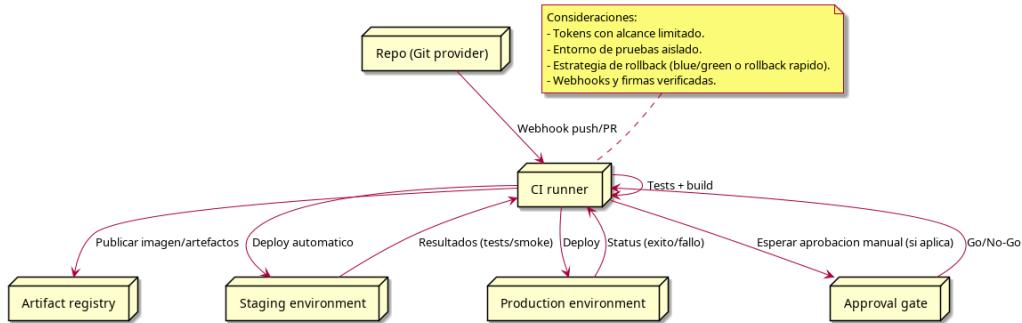
## Despliegue: Base de datos y replicacion (Postgres)



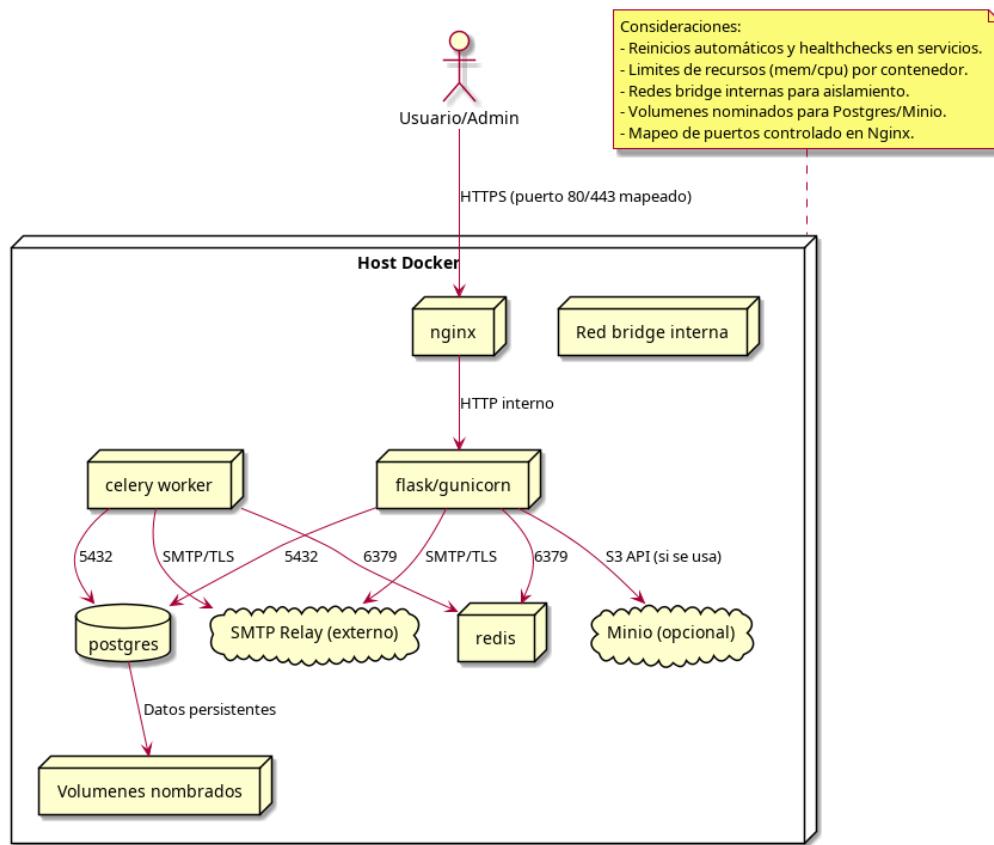
## Despliegue: CDN / Static Hosting y Cache



## Despliegue: CI/CD y despliegue automatizado



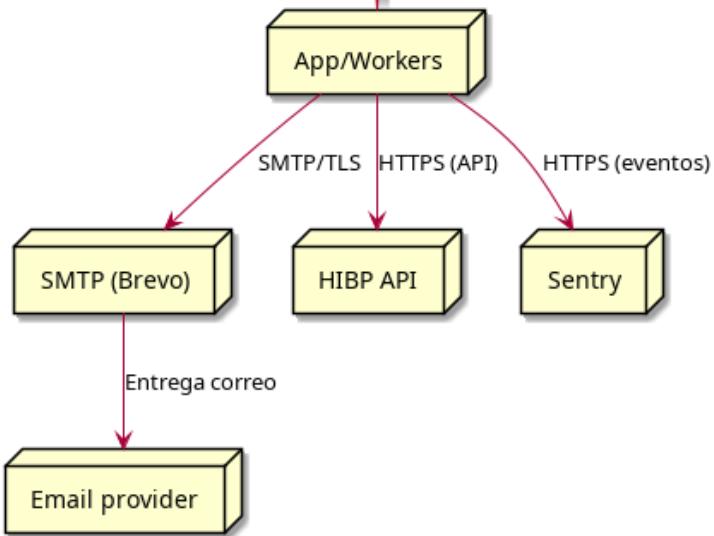
### Despliegue: Docker Compose (staging)



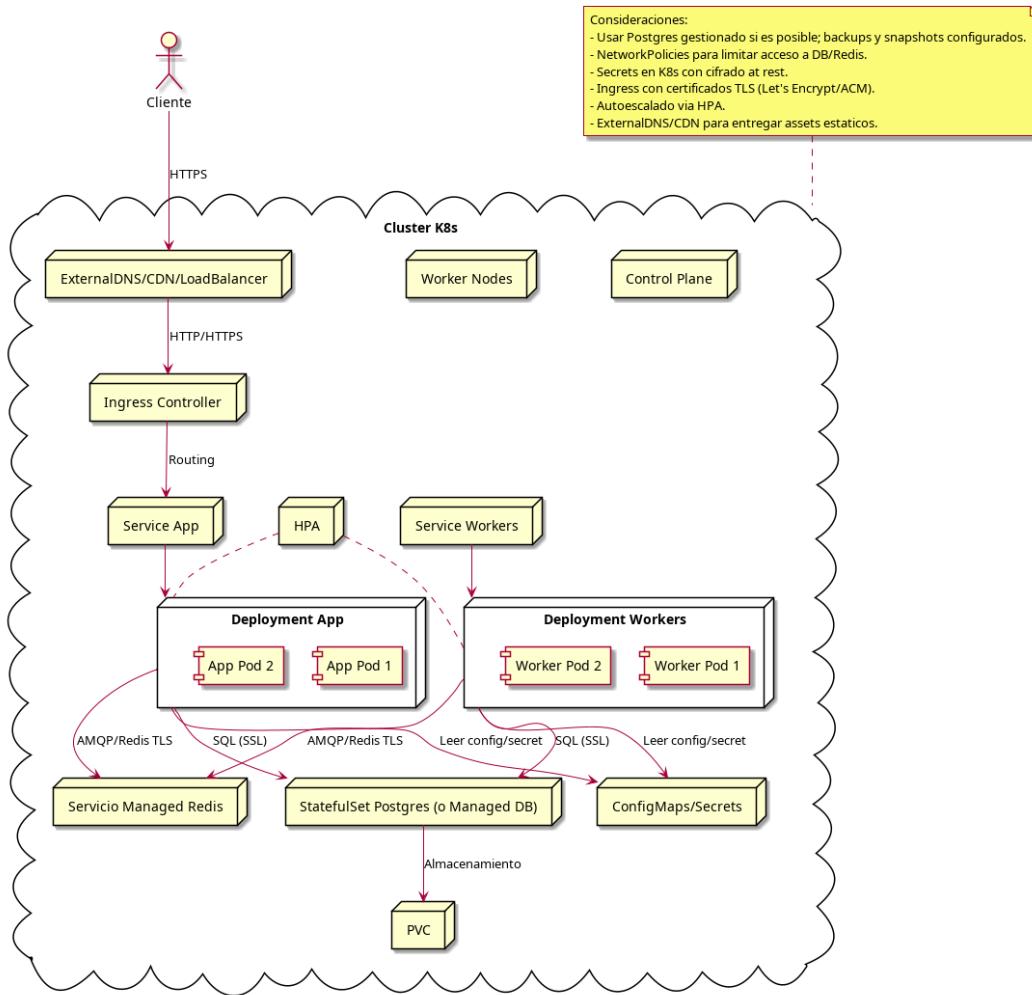
## Despliegue: Integracion con servicios externos (SMTP, HIBP, Sentry)

Consideraciones:

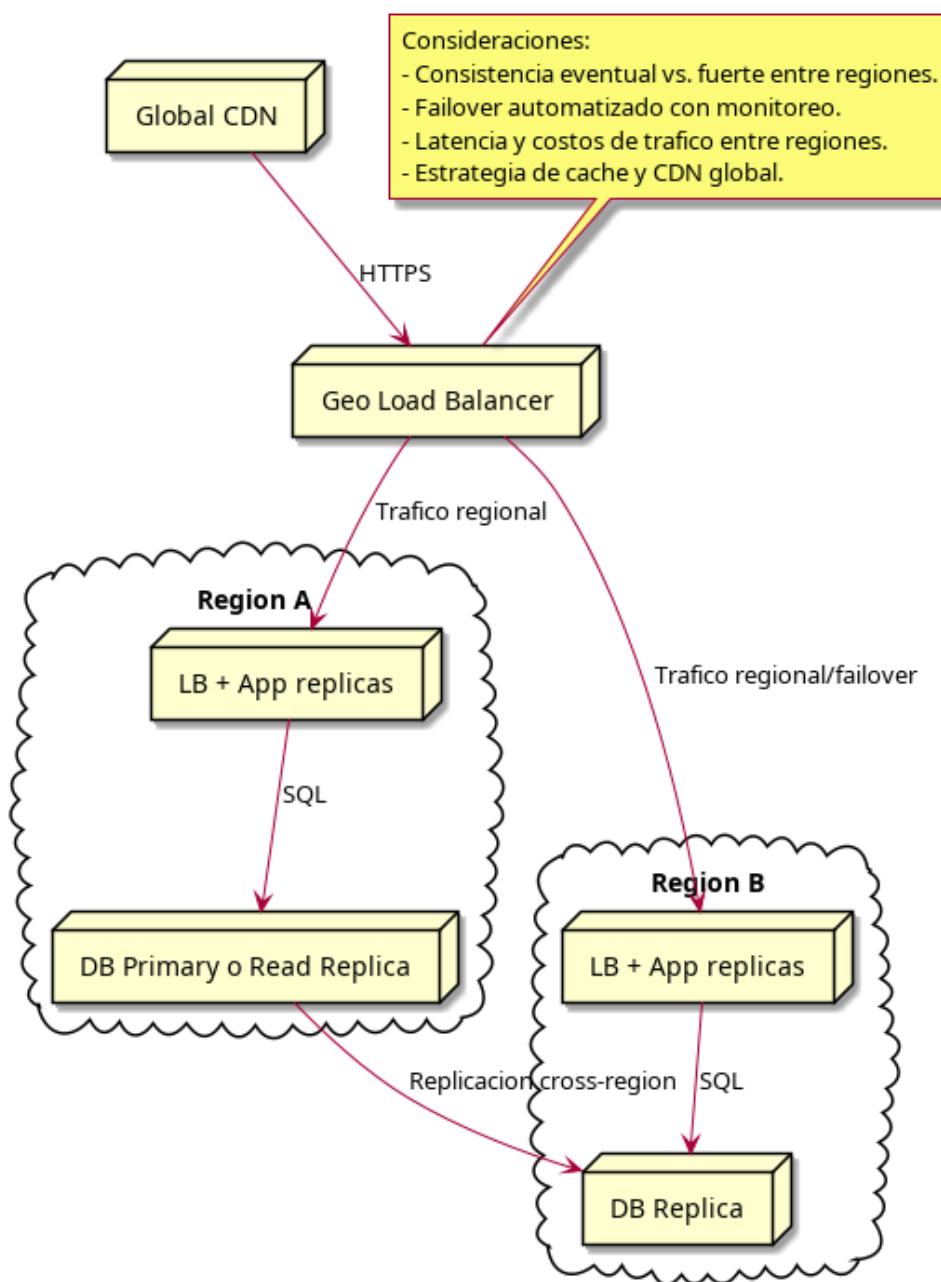
- Manejar secretos (API keys) via secret store.
- Respetar rate limits; implementar retries/backoff y circuit breaker.
- Fallback offline o colas si fallo externo.



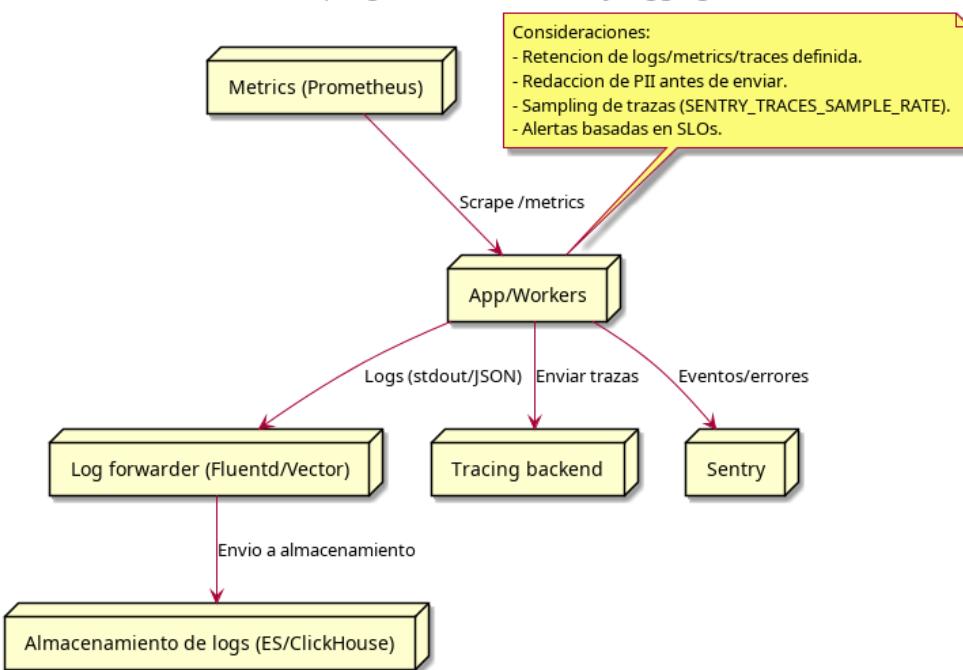
### Despliegue: Kubernetes (producción)



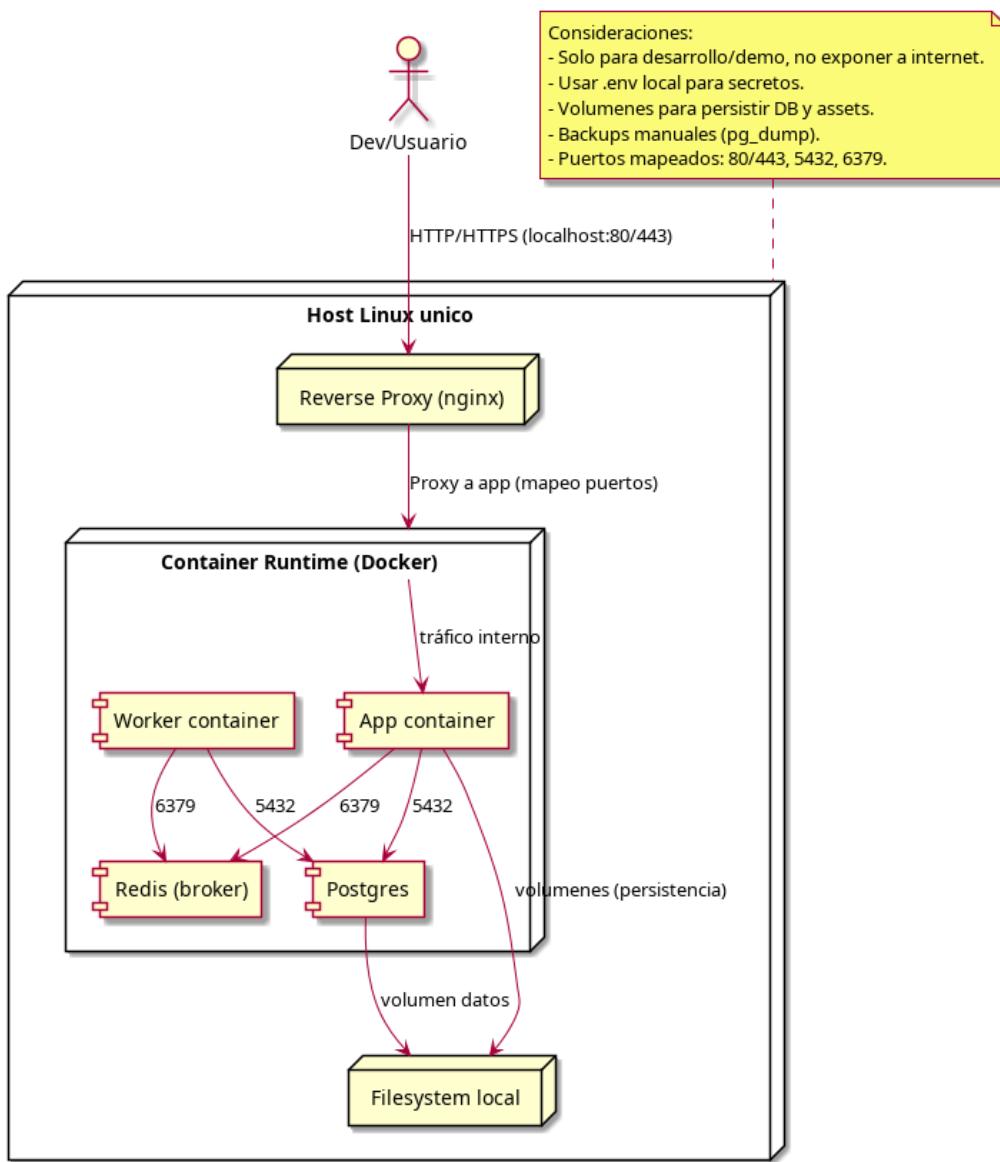
## Despliegue: Multi-region / Alta disponibilidad



## Despliegue: Observabilidad y logging



## Despliegue: Entorno single-host (desarrollo/demo)



# Diagrama Entidad Relación

