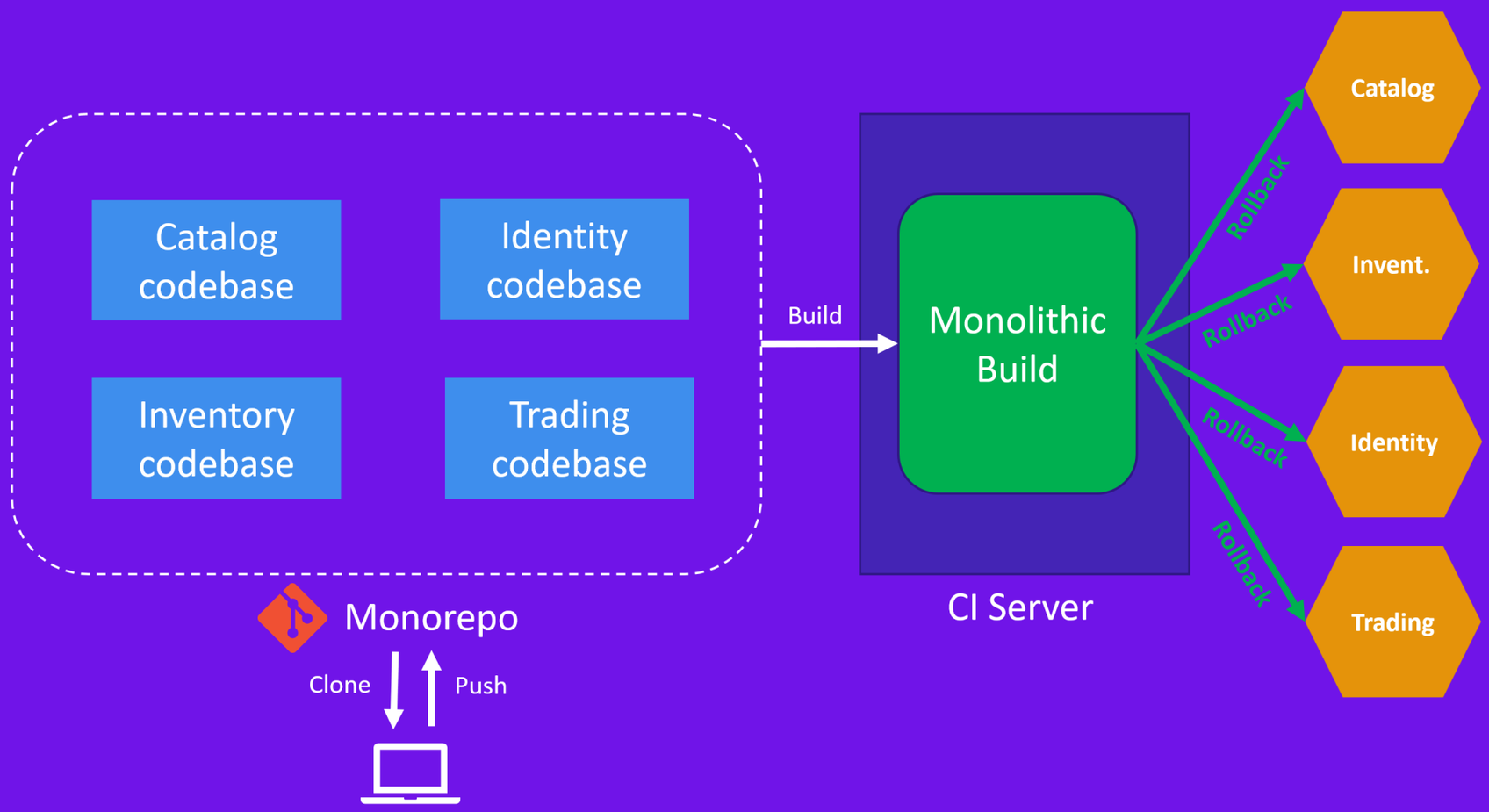
Organizing microservices source code

Single Repository (Monorepo)

Repository per Microservice (Multirepo)

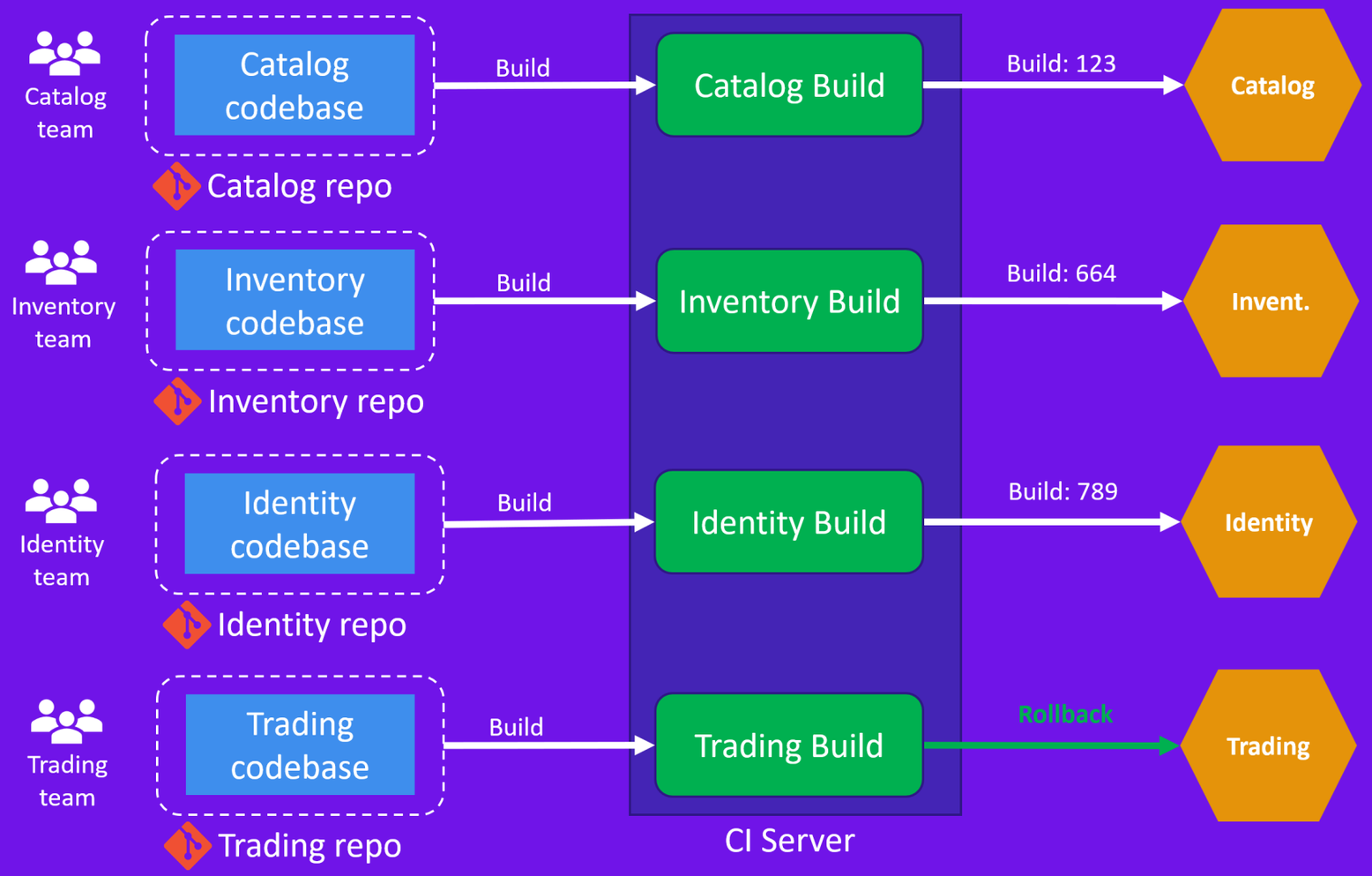
Single repository (Monorepo)



Monorepo Issues

- Allows dependencies between microservice codebases
- Build and verify all services for every change (slow)
- A build break in one service prevents builds of all services
- Rolling back one service may require rolling back all services

Repository per microservice (Multirepo)



Multirepo Benefits

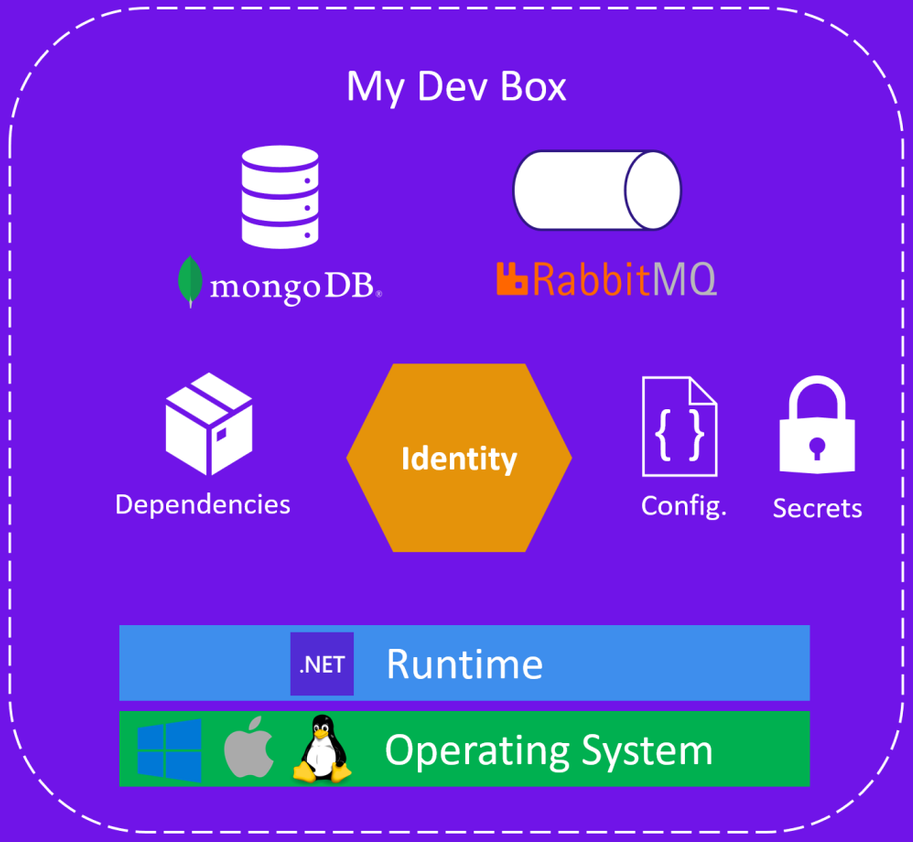
- Prevents dependencies between microservice codebases
- Only build and verify the service that changed (fast)
- A build break in one service won't impact another service builds
- Rolling back one service won't require rolling back other services
- Clear ownership

From the Dev Box to Production

How to prepare another box with the correct OS and .NET Runtime?

How to get the required dependencies?

How to take this box where others can reach it?

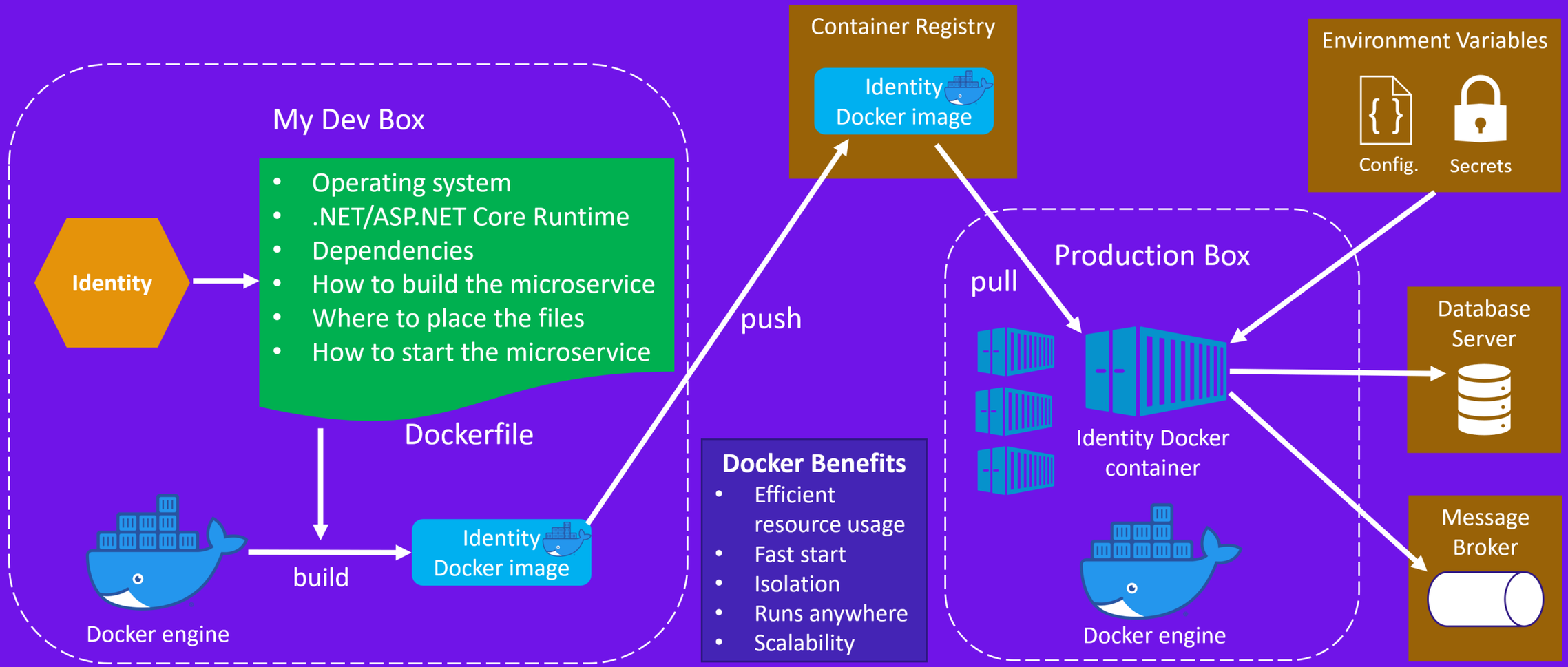


What database to use?

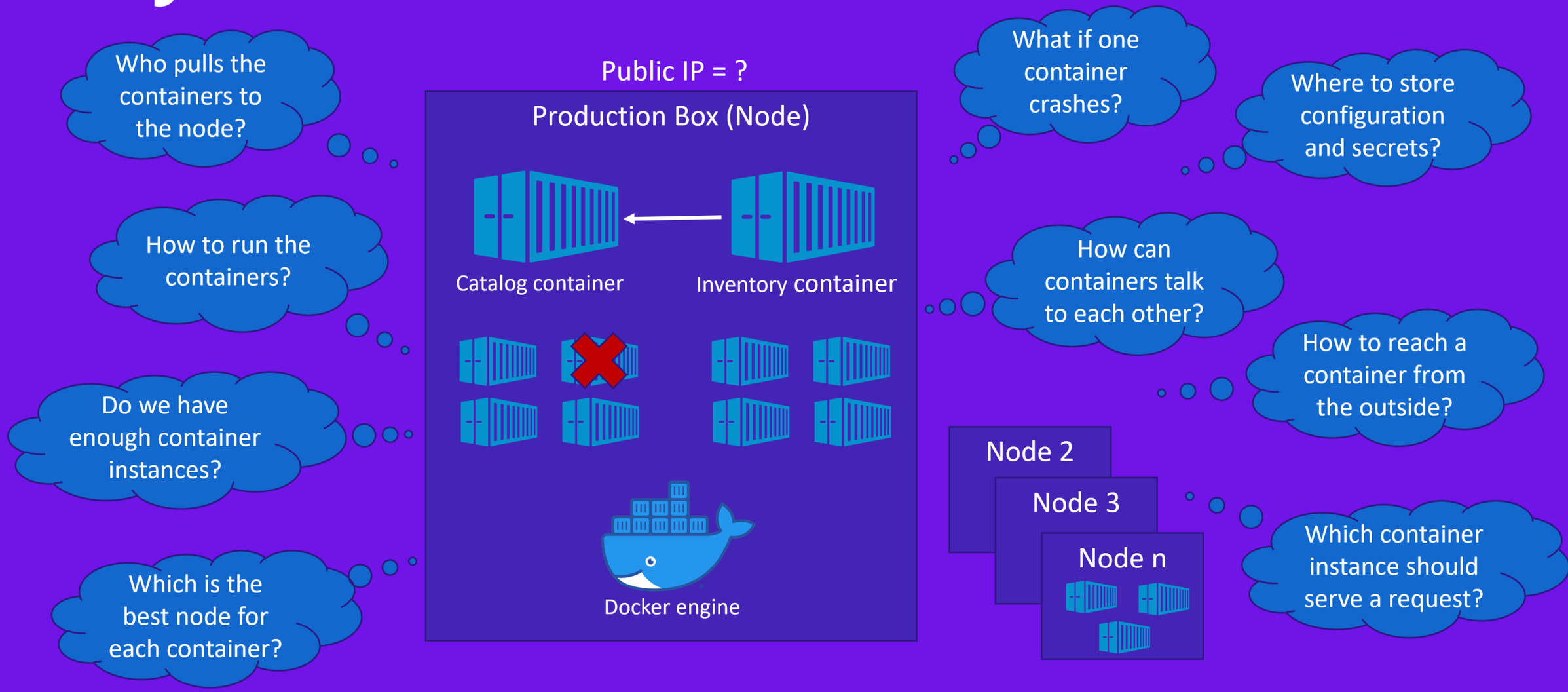
What message broker to use?

How to provide configuration and secrets?

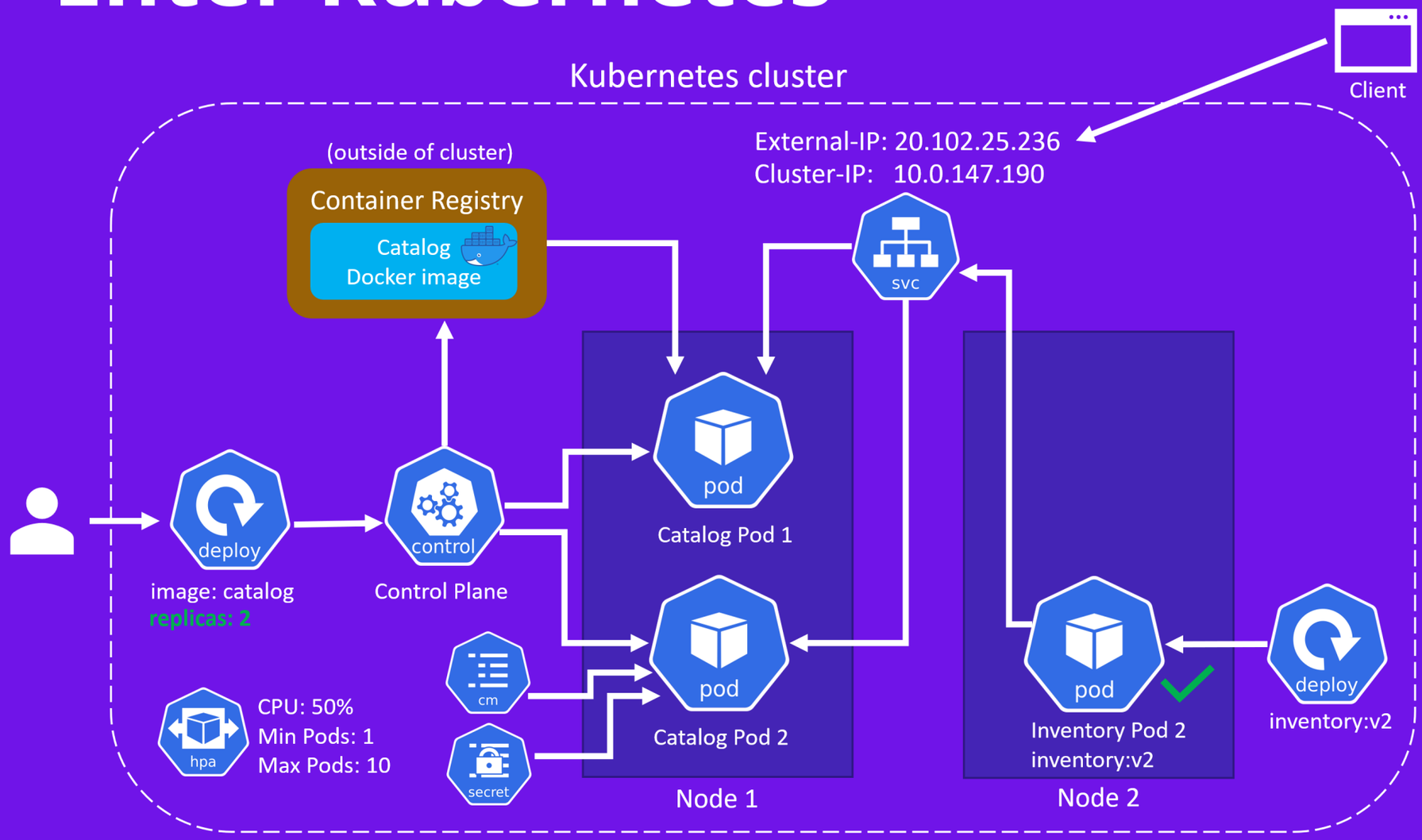
Docker to the rescue



Why container orchestration?



Enter Kubernetes



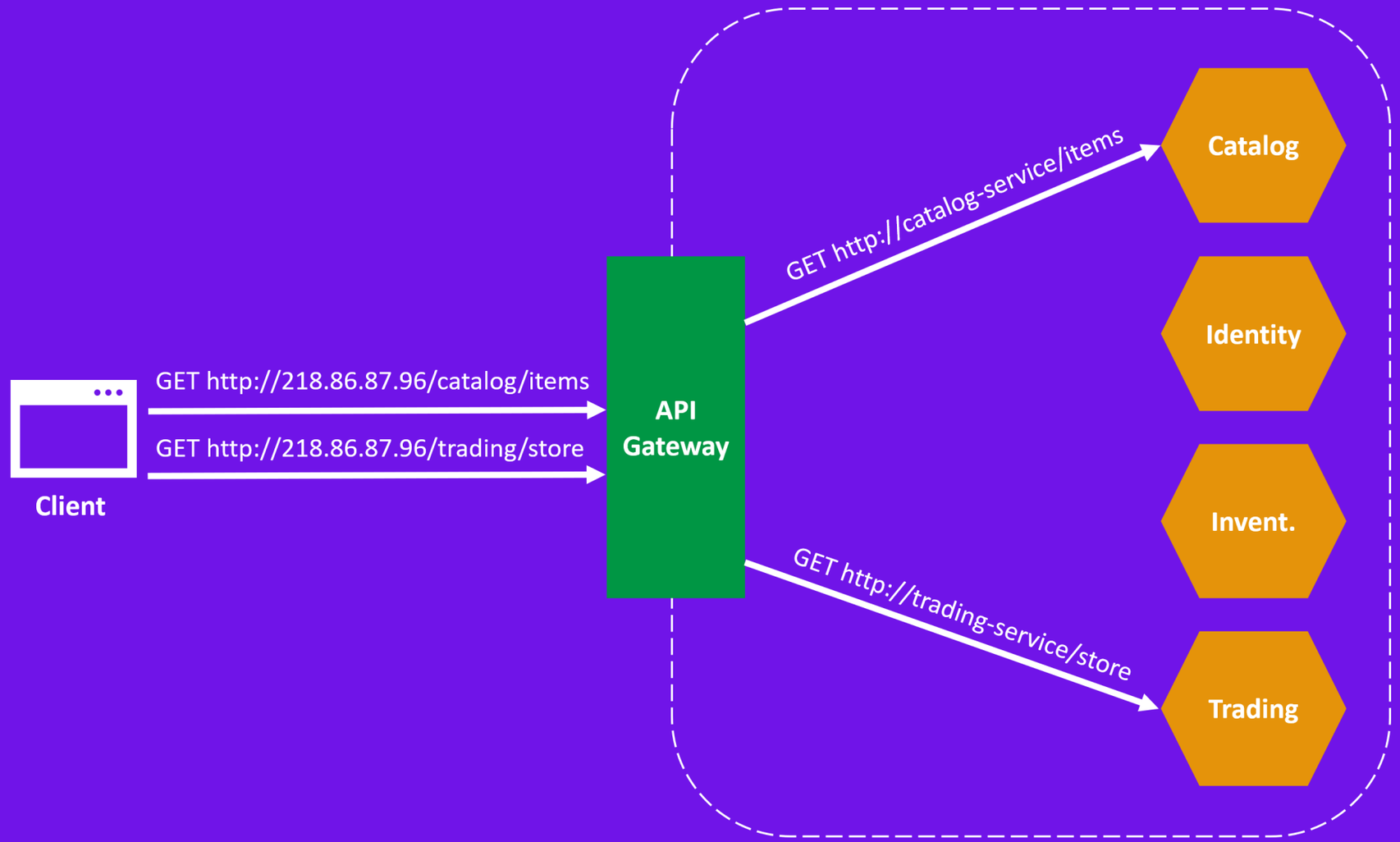
Kubernetes Features

- Turns desired state into actual state
- Selects nodes to run pods
- Can auto scale
- Self-heals
- Stores configuration and secrets
- Provides service discovery and load balancing
- Provides gradual rollout and rollback with no downtime

What is an API Gateway?

An API gateway is a service that's the entry point into the application REST API from the outside world.

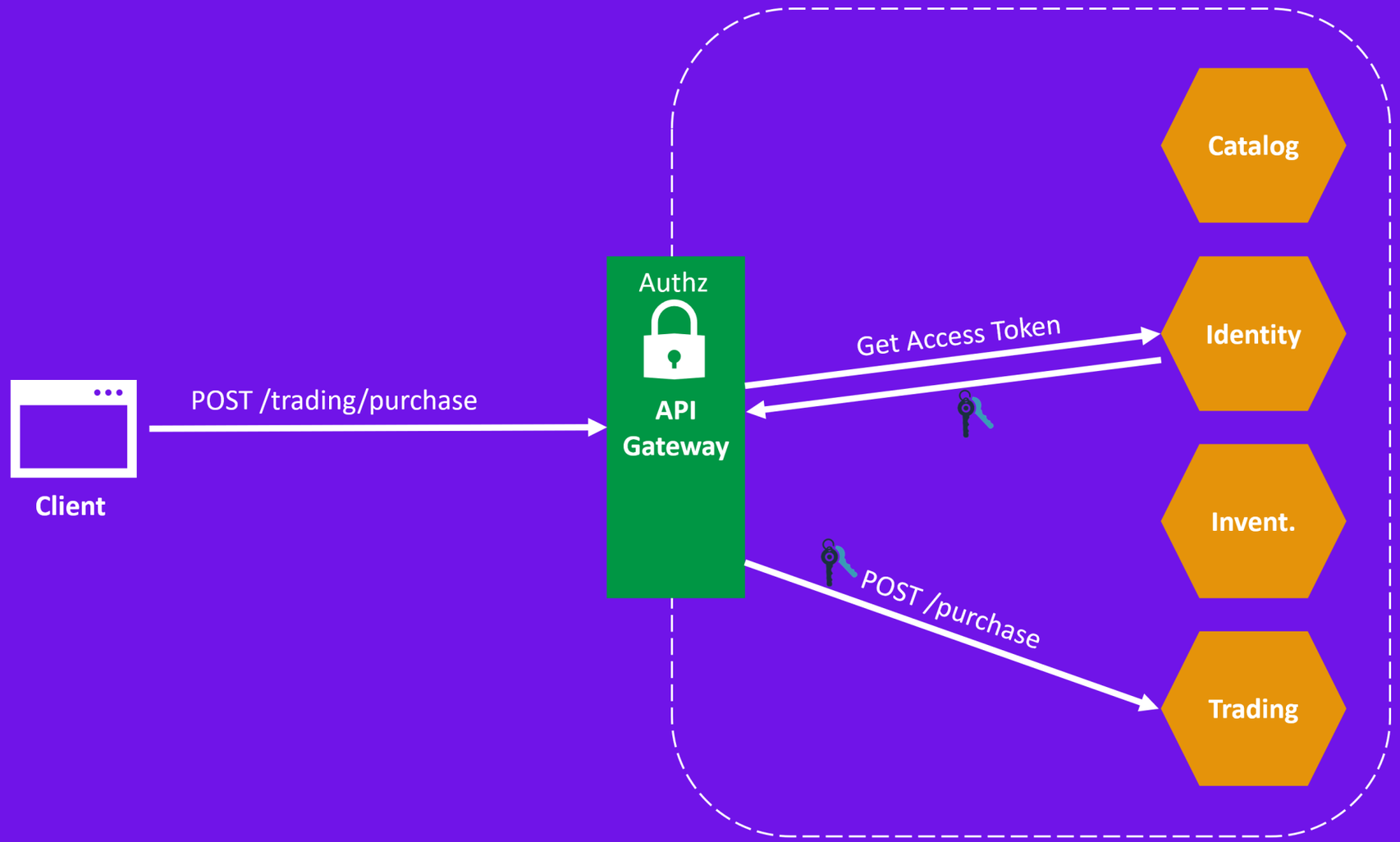
Using an API Gateway



Benefits

- Enables request routing
- Needs single public IP

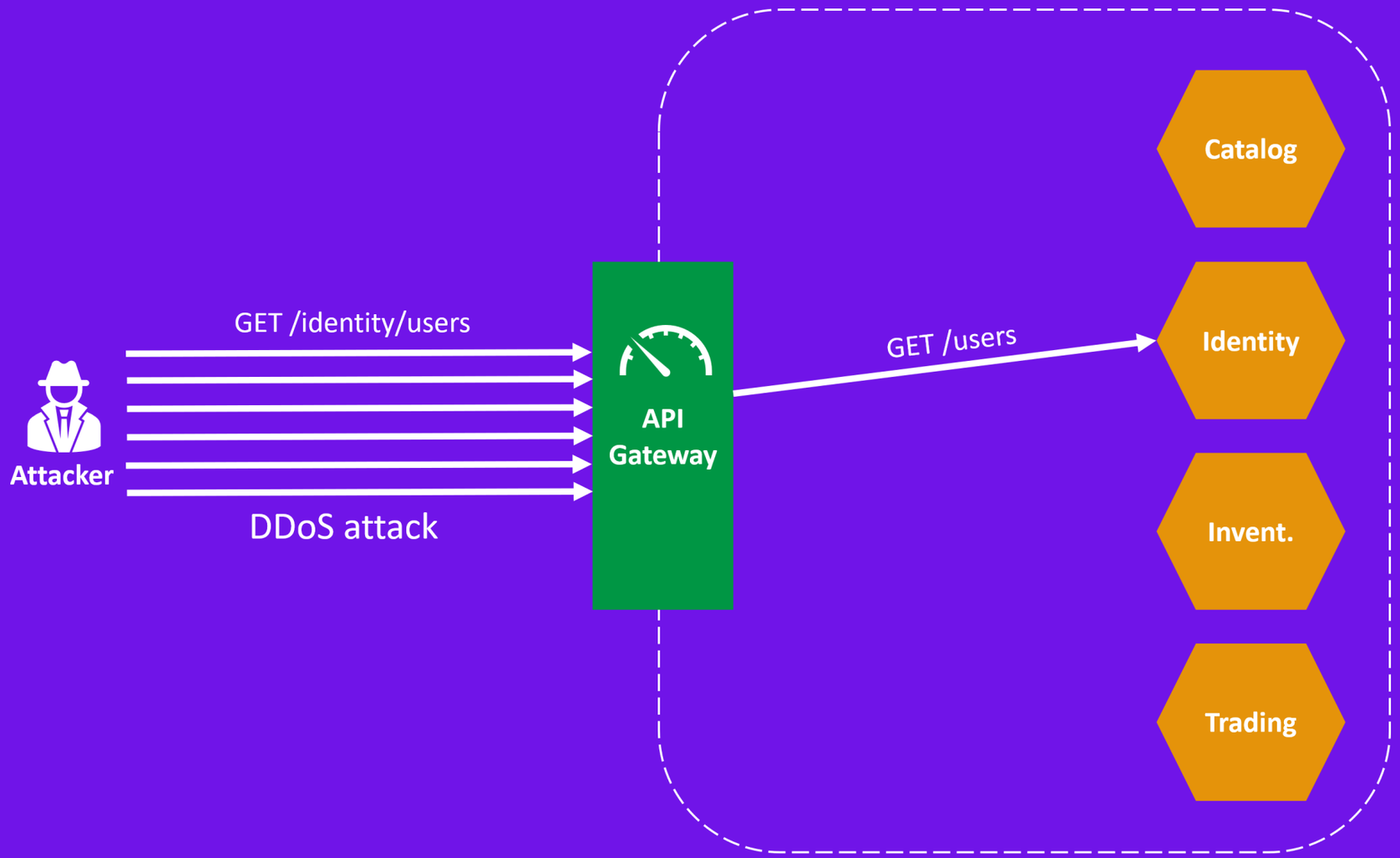
Using an API Gateway



Benefits

- Enables request routing
- Needs single public IP
- Ensure authorized access

Using an API Gateway



Benefits

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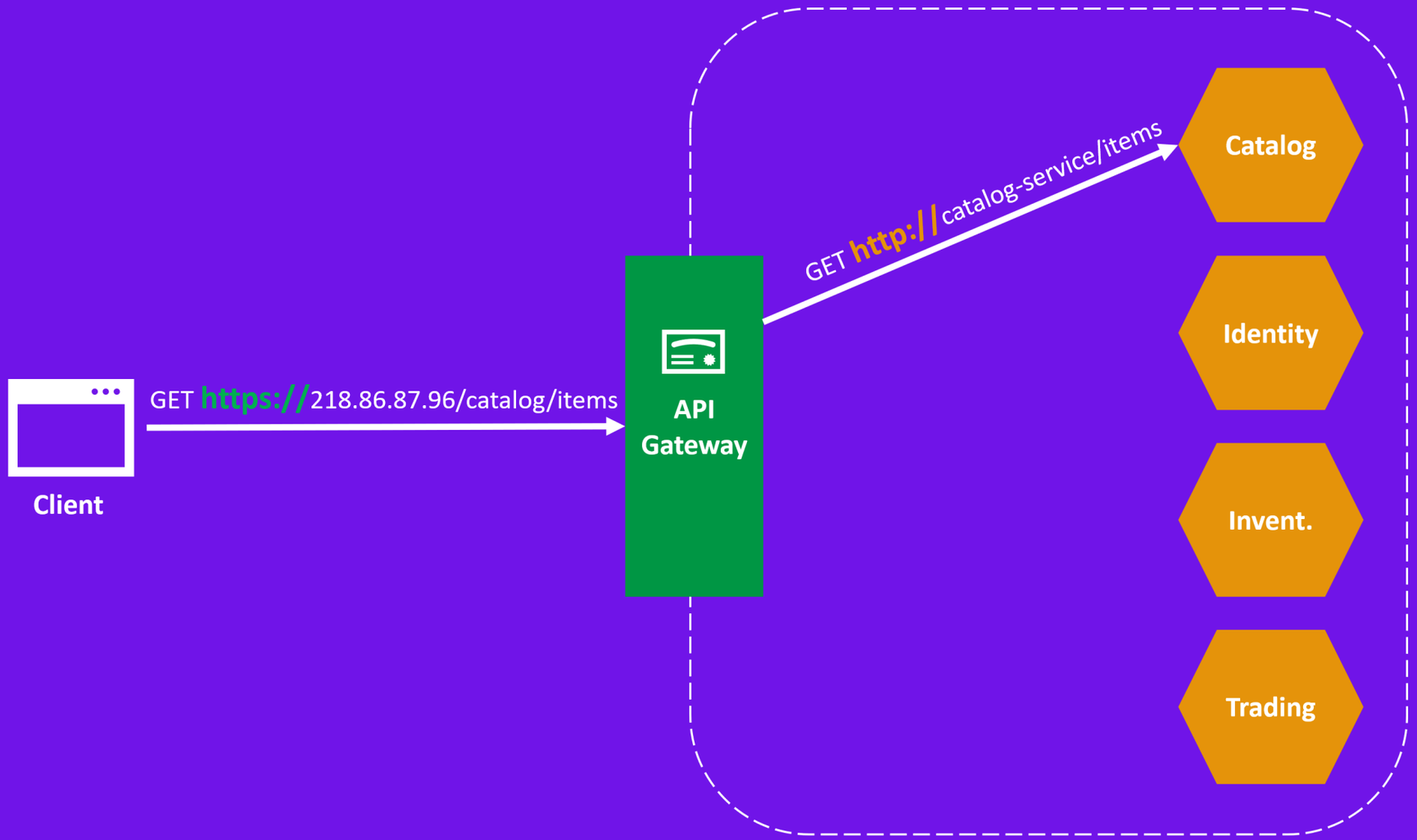
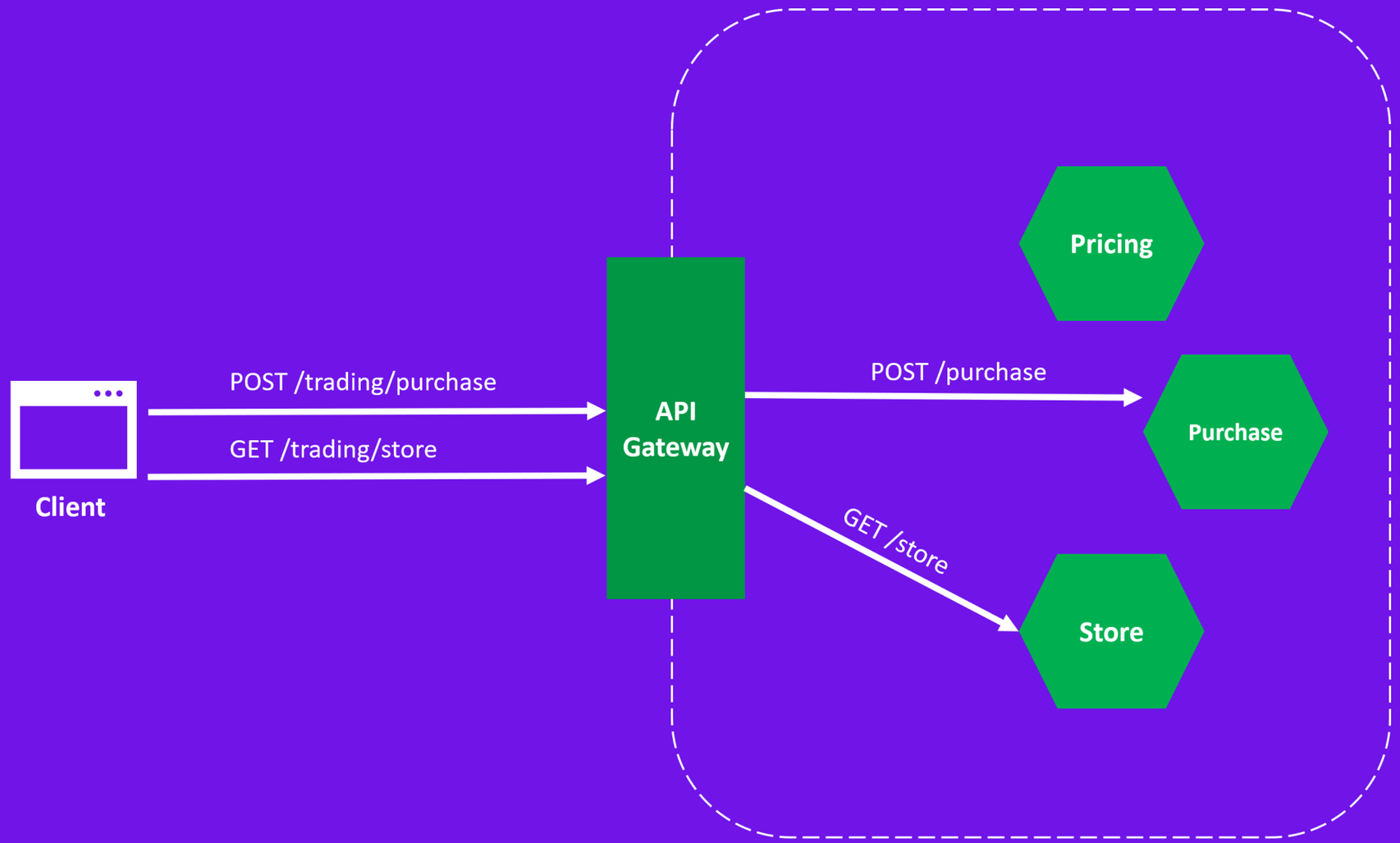
Using an API Gateway



Benefits

- Enables request routing
- Needs single public IP
- Ensure authorized access
- Can enforce rate limits
- Can perform TLS Termination

Using an API Gateway



Benefits

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- Needs single public IP
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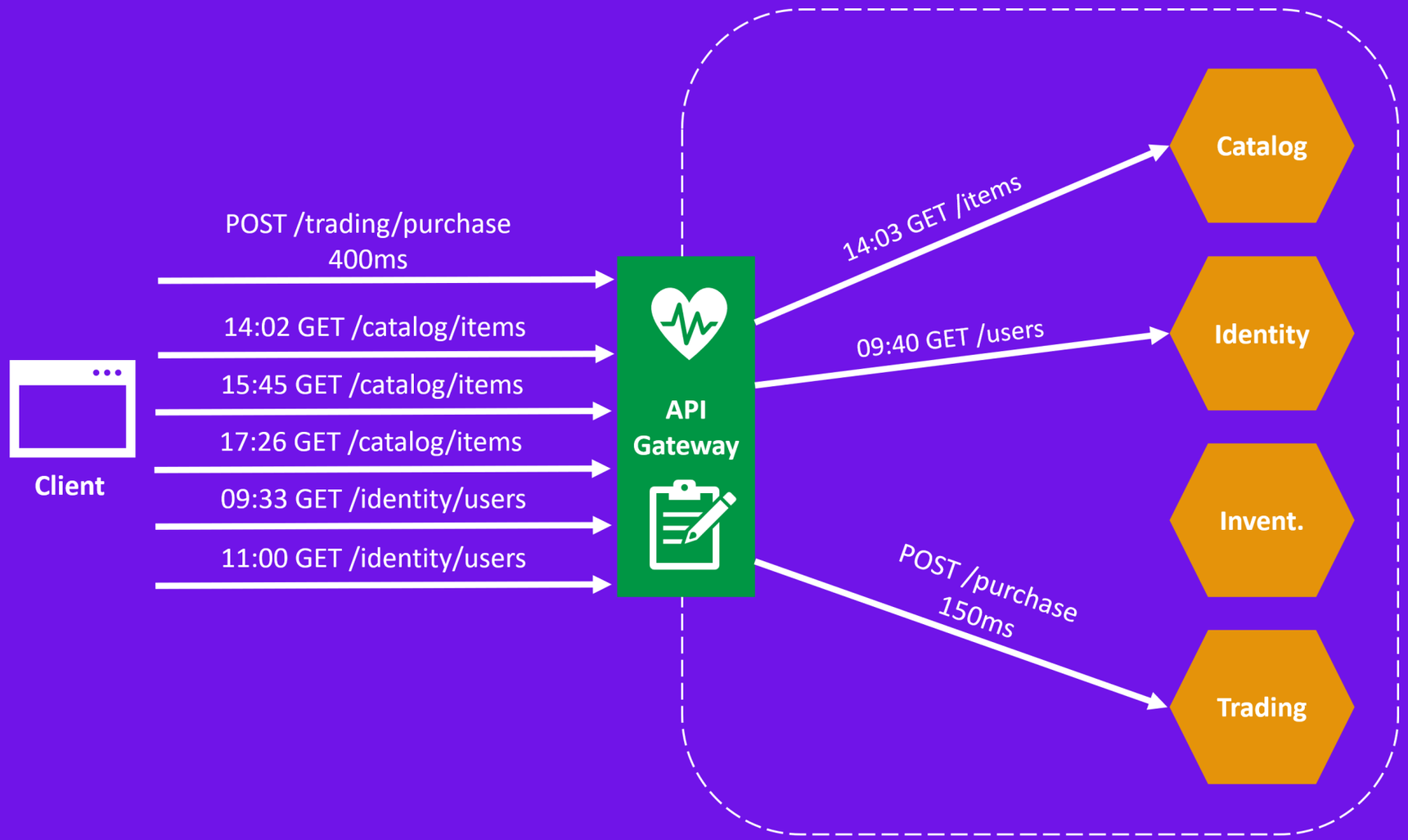
- Can enforce rate limits
- Can perform TLS Termination
- No client to microservices coupling

Using an API Gateway



Benefits

- Enables request routing
- Needs single public IP
- Ensure authorized access
- Can enforce rate limits
- Can perform TLS Termination
- No client to microservices coupling
- Can enable request monitoring and logging