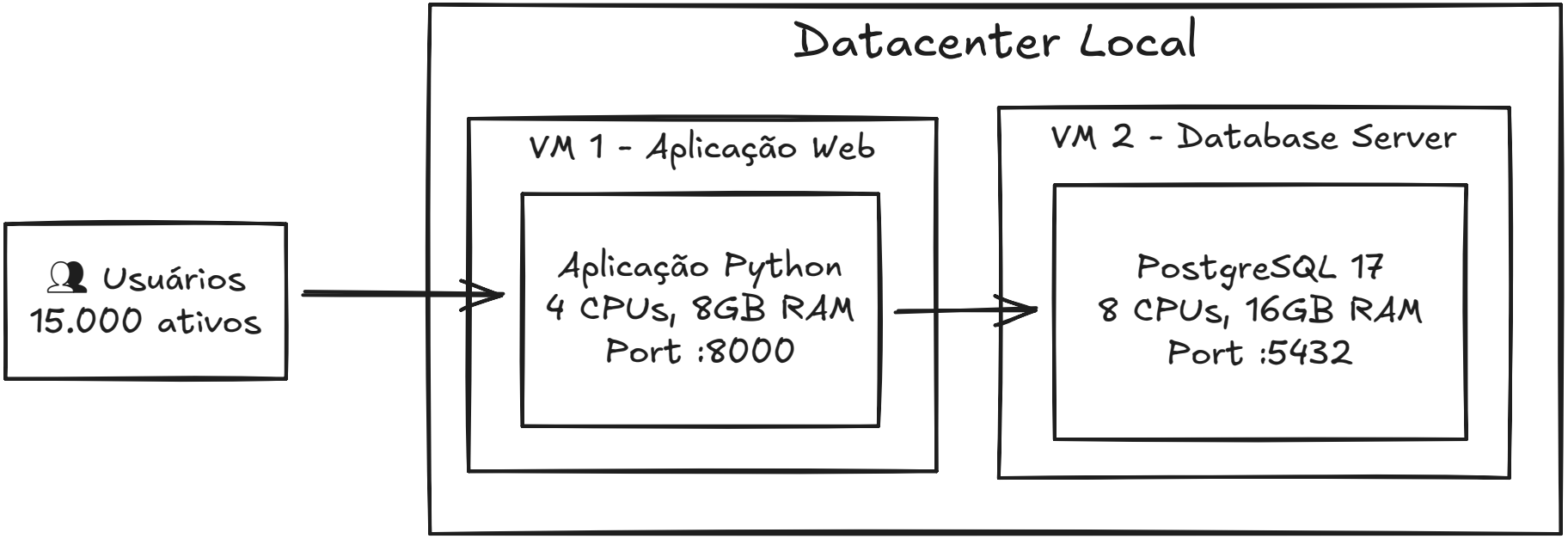
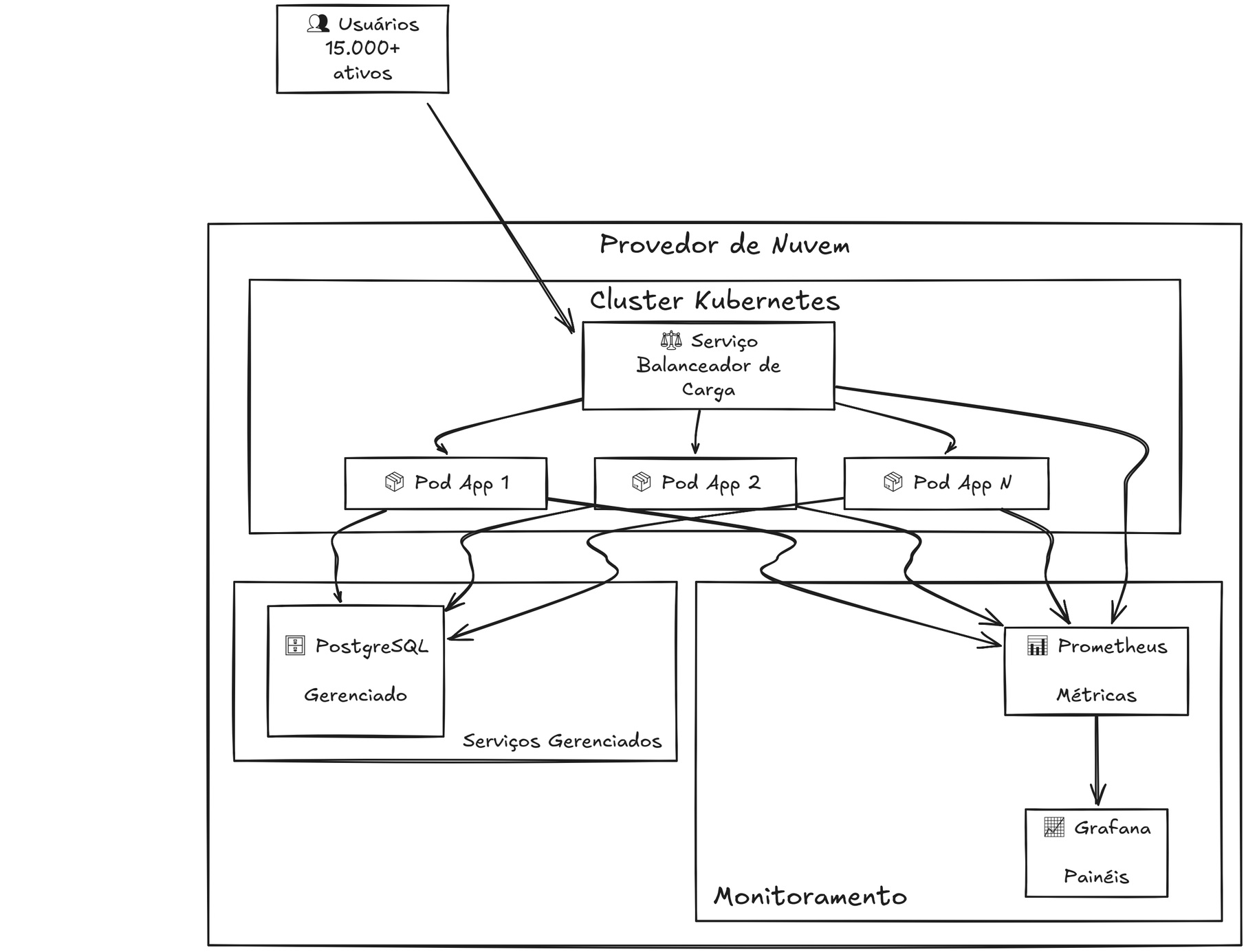
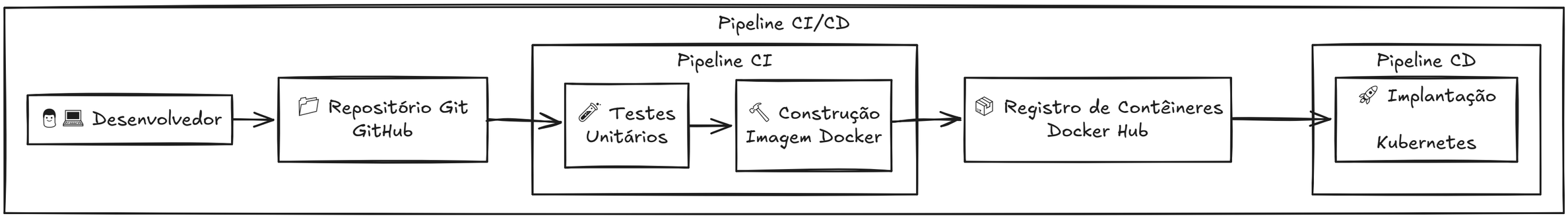
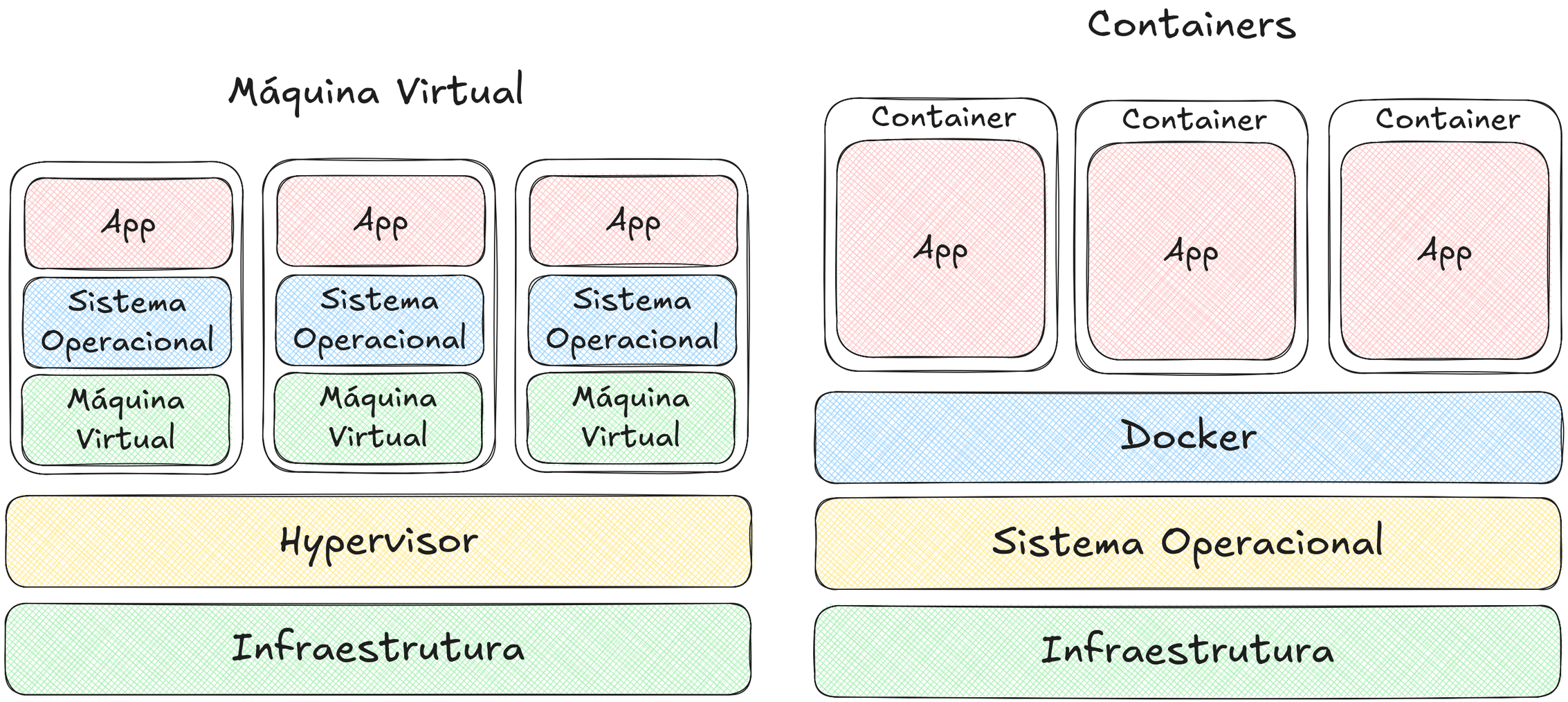
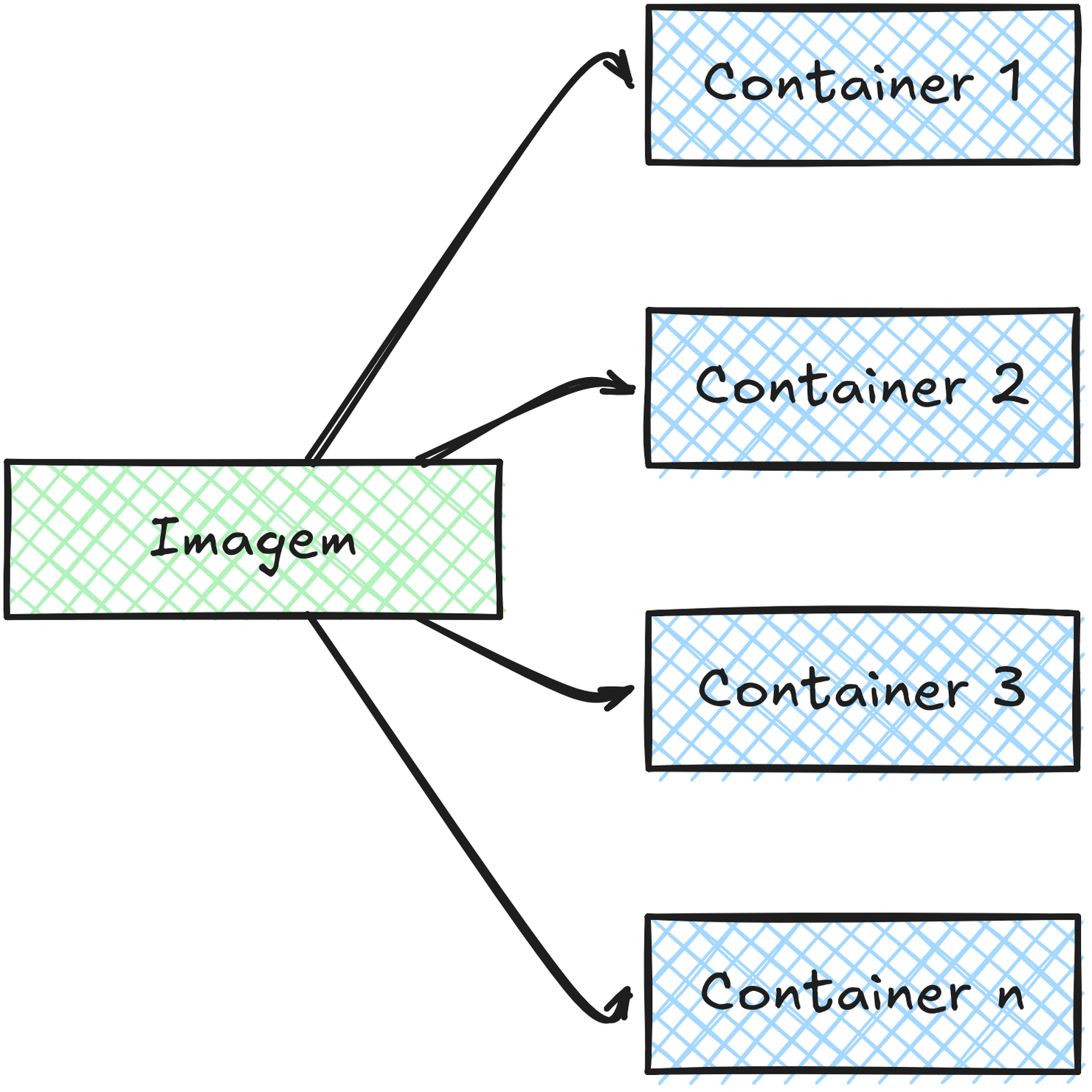
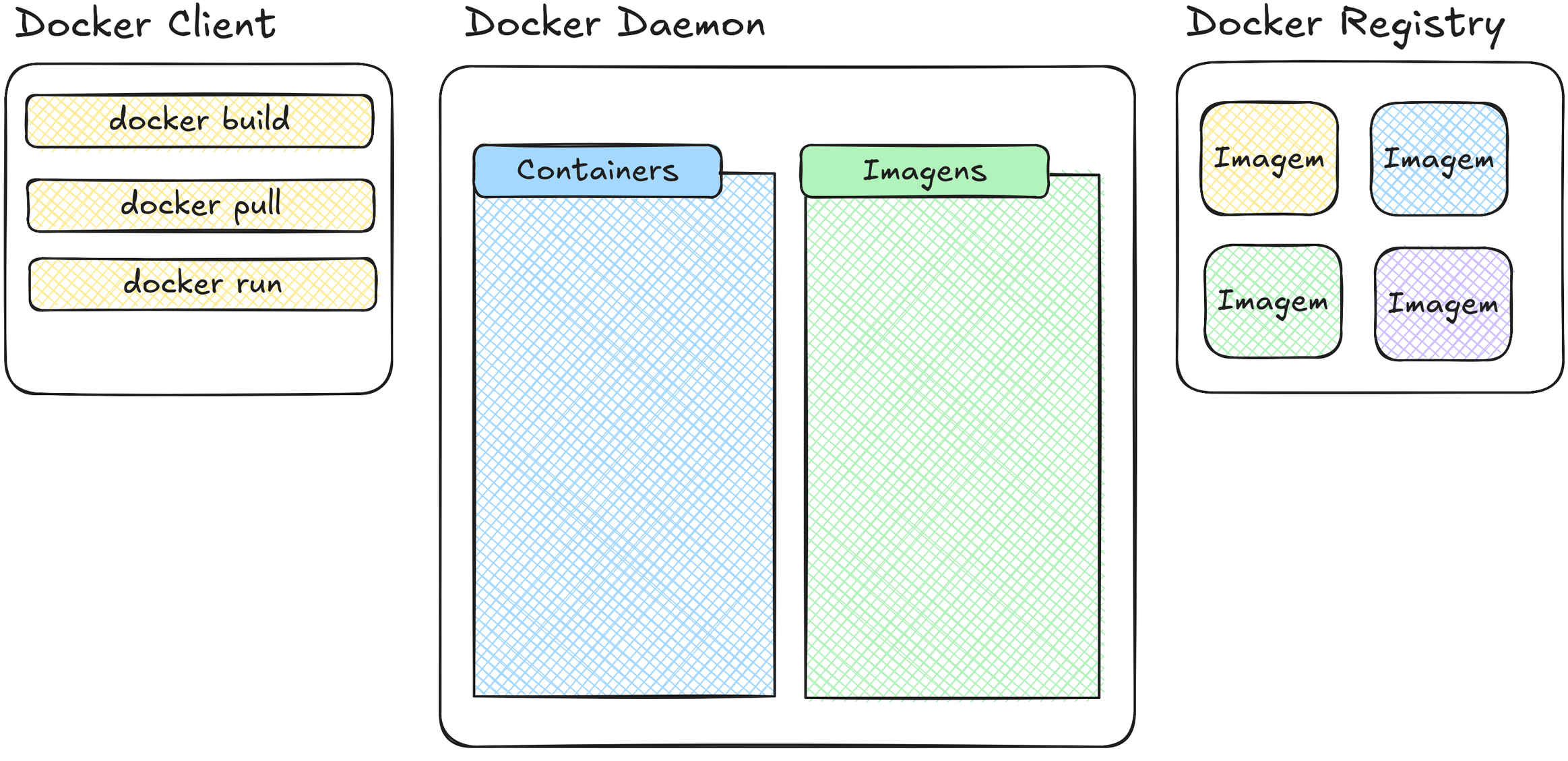

Datacenter Local
VM 1 - Aplicação Web
VM 2 - Database Server
Usuários
15.000 ativos
Aplicação Python
4 CPUs, 8GB RAM
Port :8000
PostgreSQL 17
8 CPUs, 16GB RAM
Port :5432


Usuários
15.000+
ativos
Provedor de Nuvem
Cluster Kubernetes
Serviço
Balanceador de
Carga
Pod App 1
Pod App 2
Pod App N
PostgreSQL
Gerenciado
Serviços Gerenciados
Prometheus
Métricas
Grafana
Painéis
Monitoramento

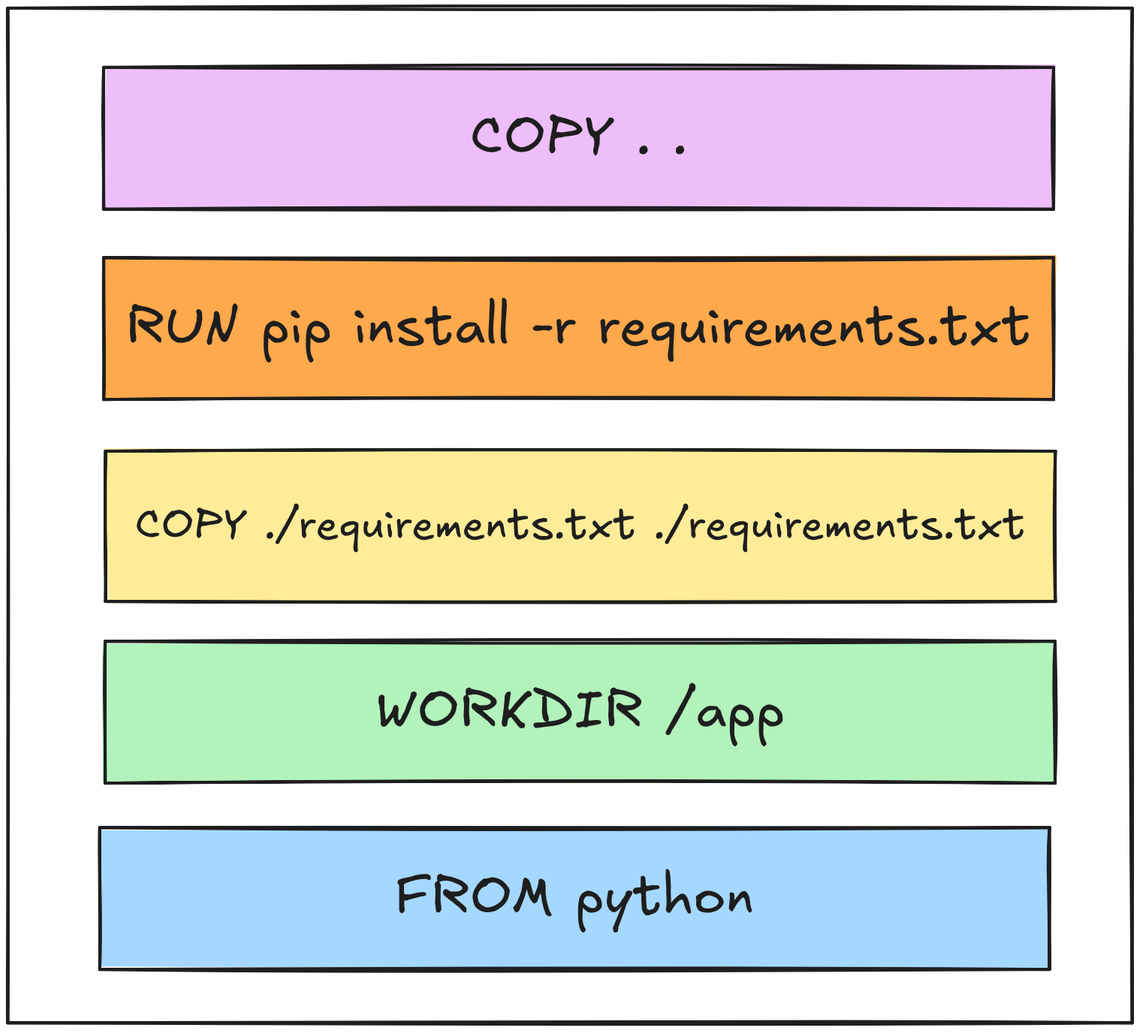

Pipeline CI/CD
Desenvolvedor
Repositório Git
GitHub
Pipeline CI
Testes
Unitários
Construção
Imagem Docker
Registro de Contêineres
Docker Hub
Pipeline CD
Implantação
Kubernetes


Máquina Virtual
App
Sistema Operacional
Máquina Virtual
App
Sistema Operacional
Máquina Virtual
App
Sistema Operacional
Máquina Virtual
Hypervisor
Infraestrutura
Containers
Container
App
Container
App
Container
App
Docker
Sistema Operacional
Infraestrutura

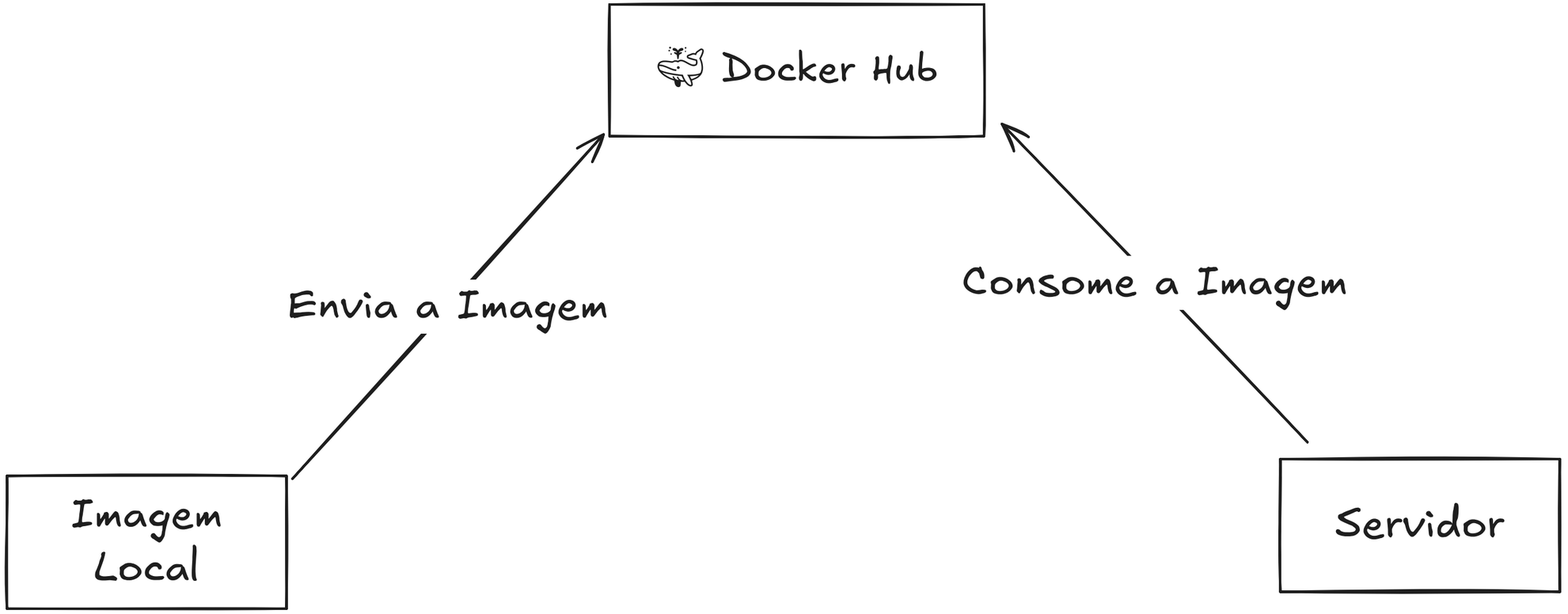

Container 1
Container 2
Imagem
Container 3
Container n

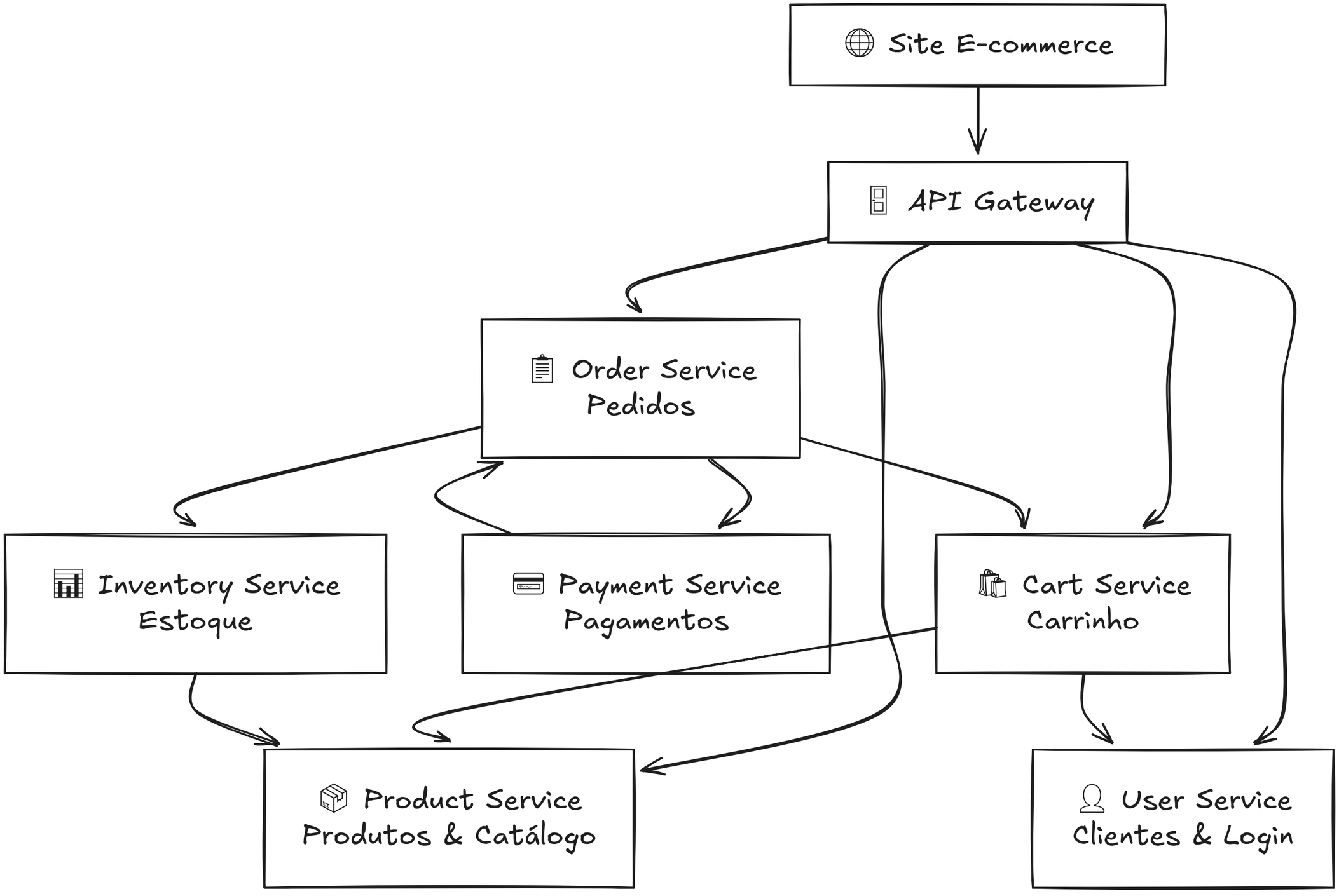

Docker Client
docker build
docker pull
docker run
Docker Daemon
Containers
Imagens
Docker Registry
Imagem
Imagem
Imagem
Imagem

Camadas da Imagem

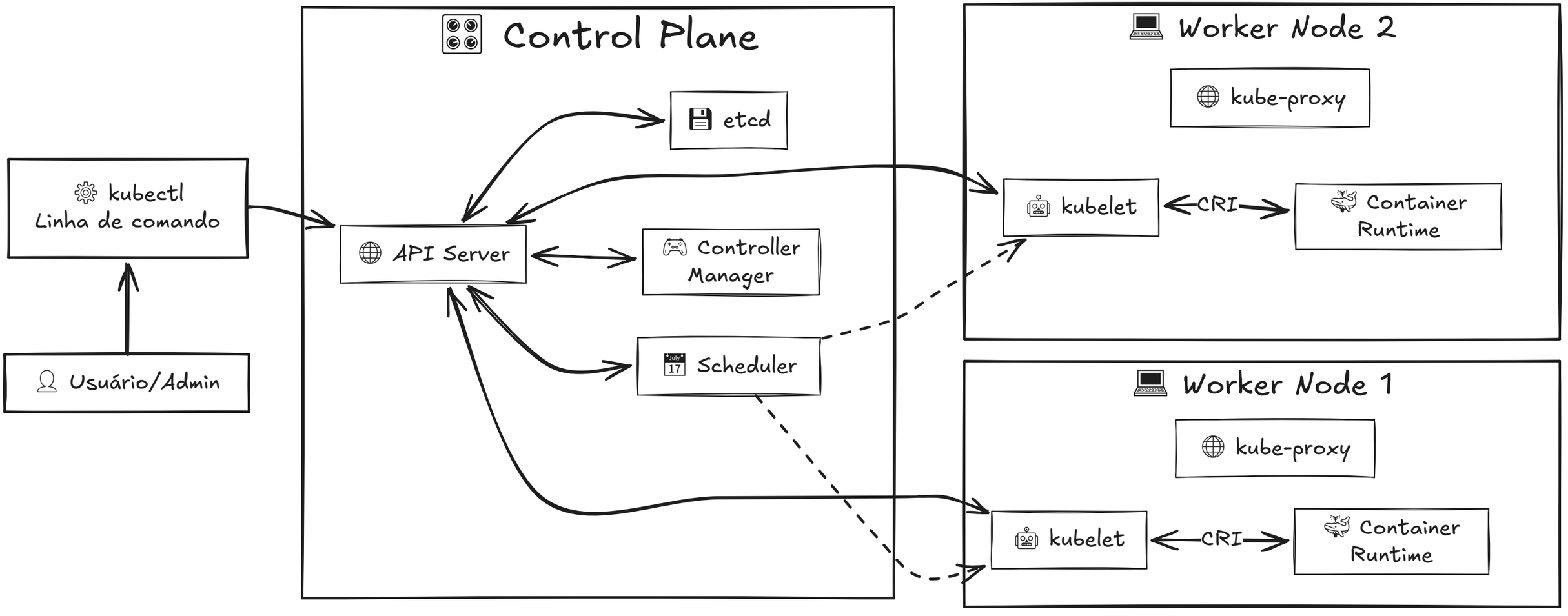


Docker Registry e Docker Hub

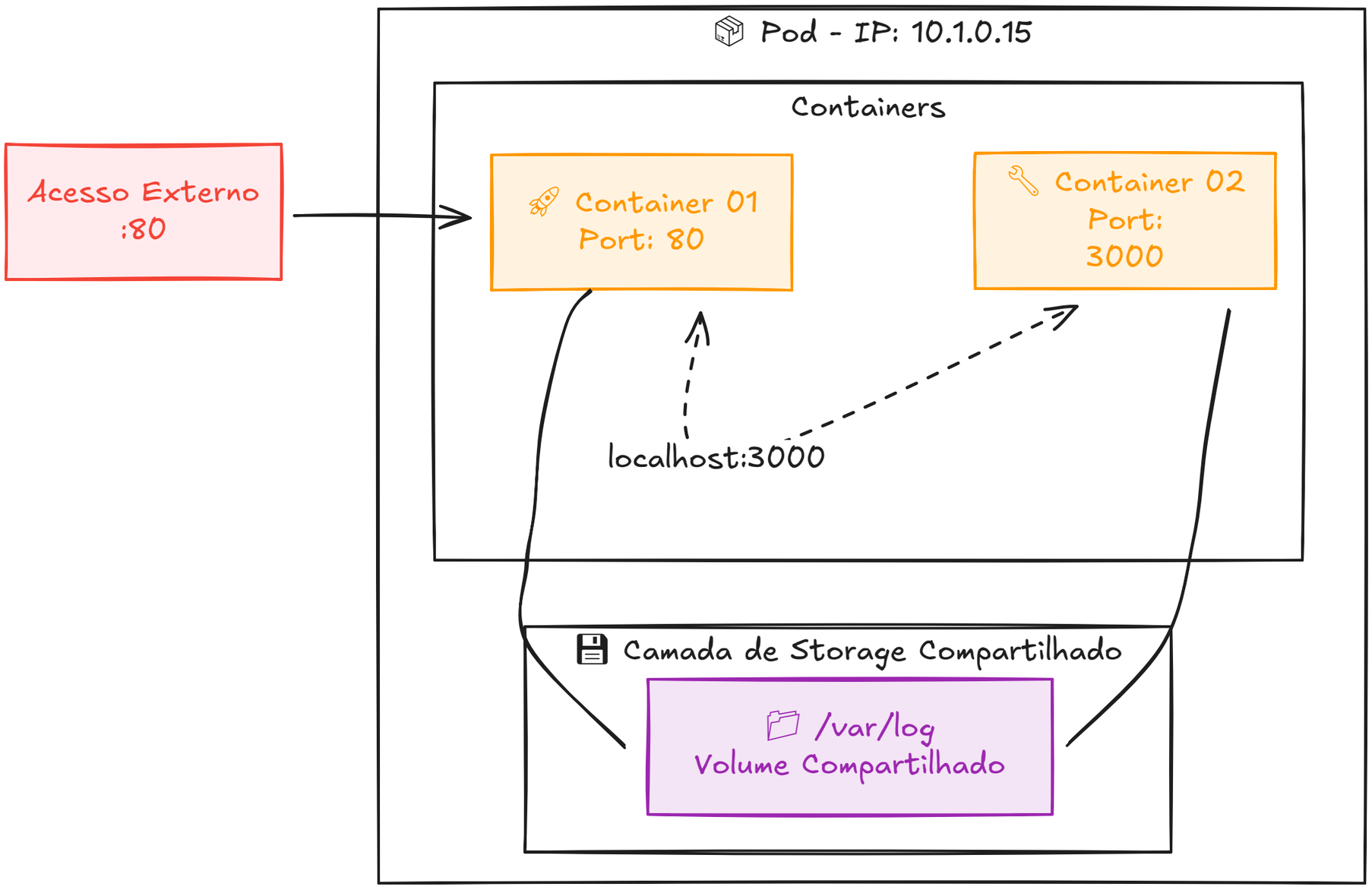



Site E-commerce
API Gateway
Order Service
Pedidos
Inventory Service
Estoque
Payment Service
Pagamentos
Cart Service
Carrinho
Product Service
Produtos & Catálogo
User Service
Clientes & Login

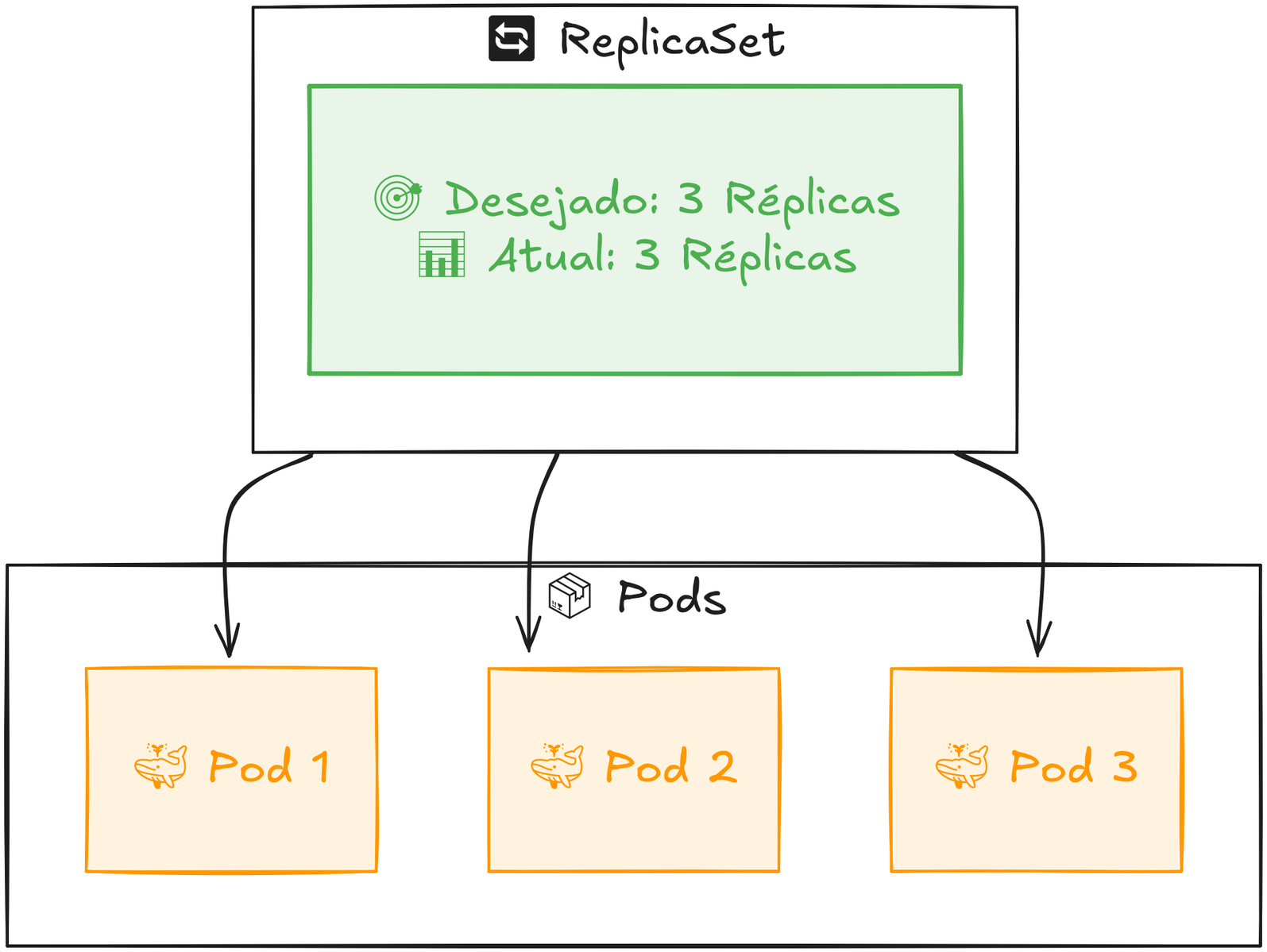
Arquitetura do Kubernetes



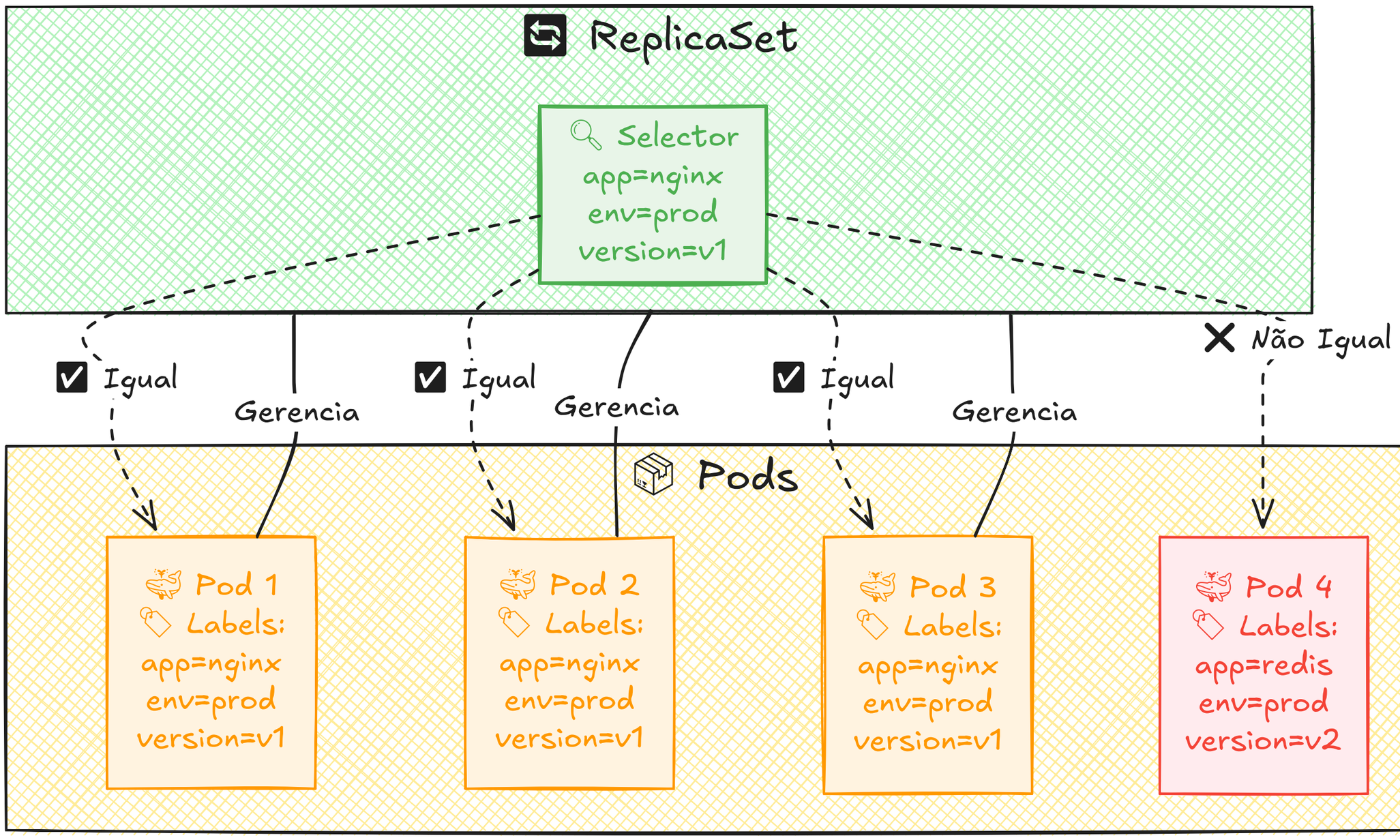
POD


Pod - IP: 10.1.0.15
Containers
Acesso Externo
:80
Container 01
Port: 80
Container 02
Port:
3000
localhost:3000
Camada de Storage Compartilhado
/var/log
Volume Compartilhado

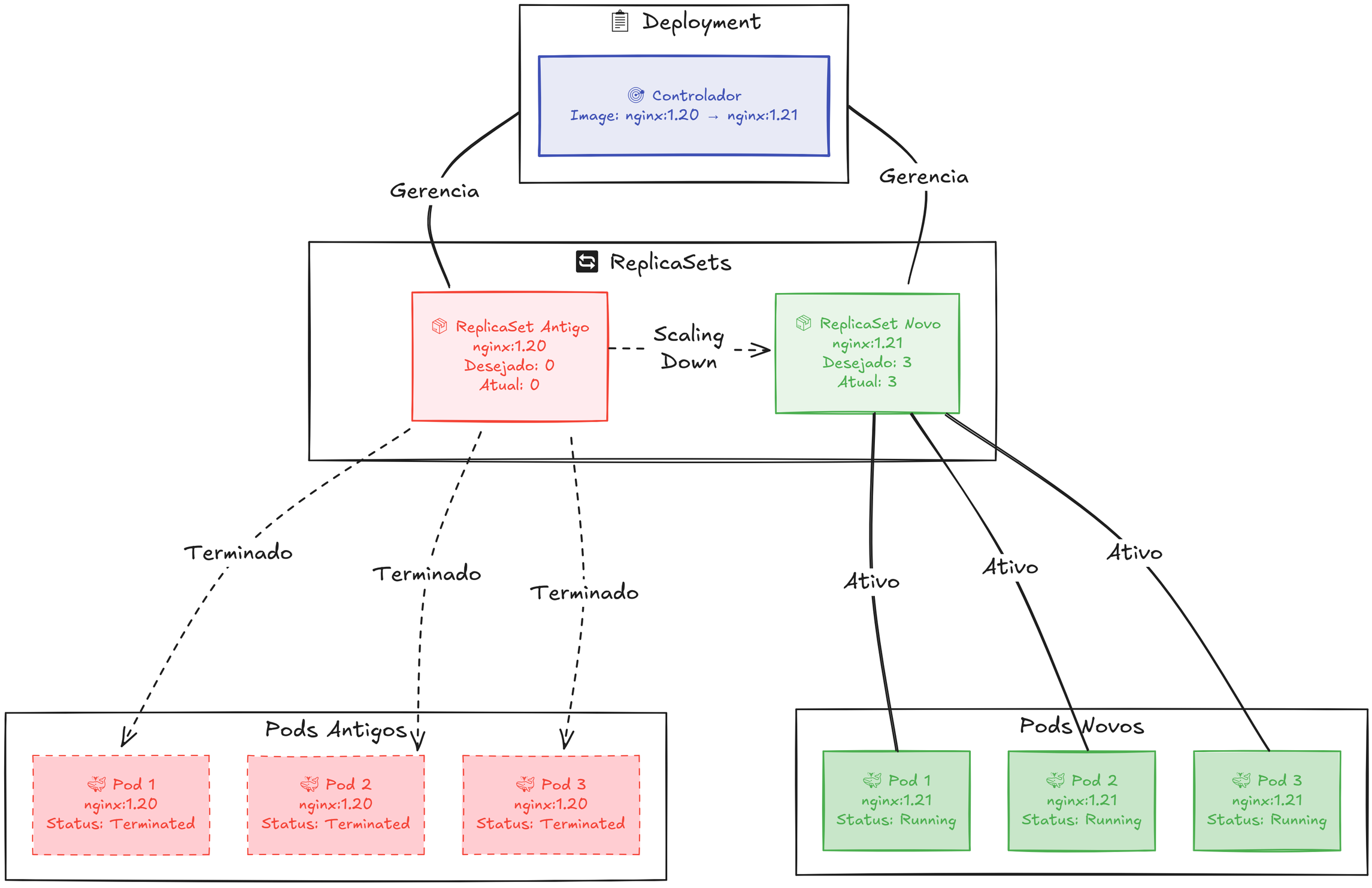
ReplicaSet


ReplicaSet
Desejado: 3 Réplicas
Atual: 3 Réplicas
Pods
Pod 1
Pod 2
Pod 3

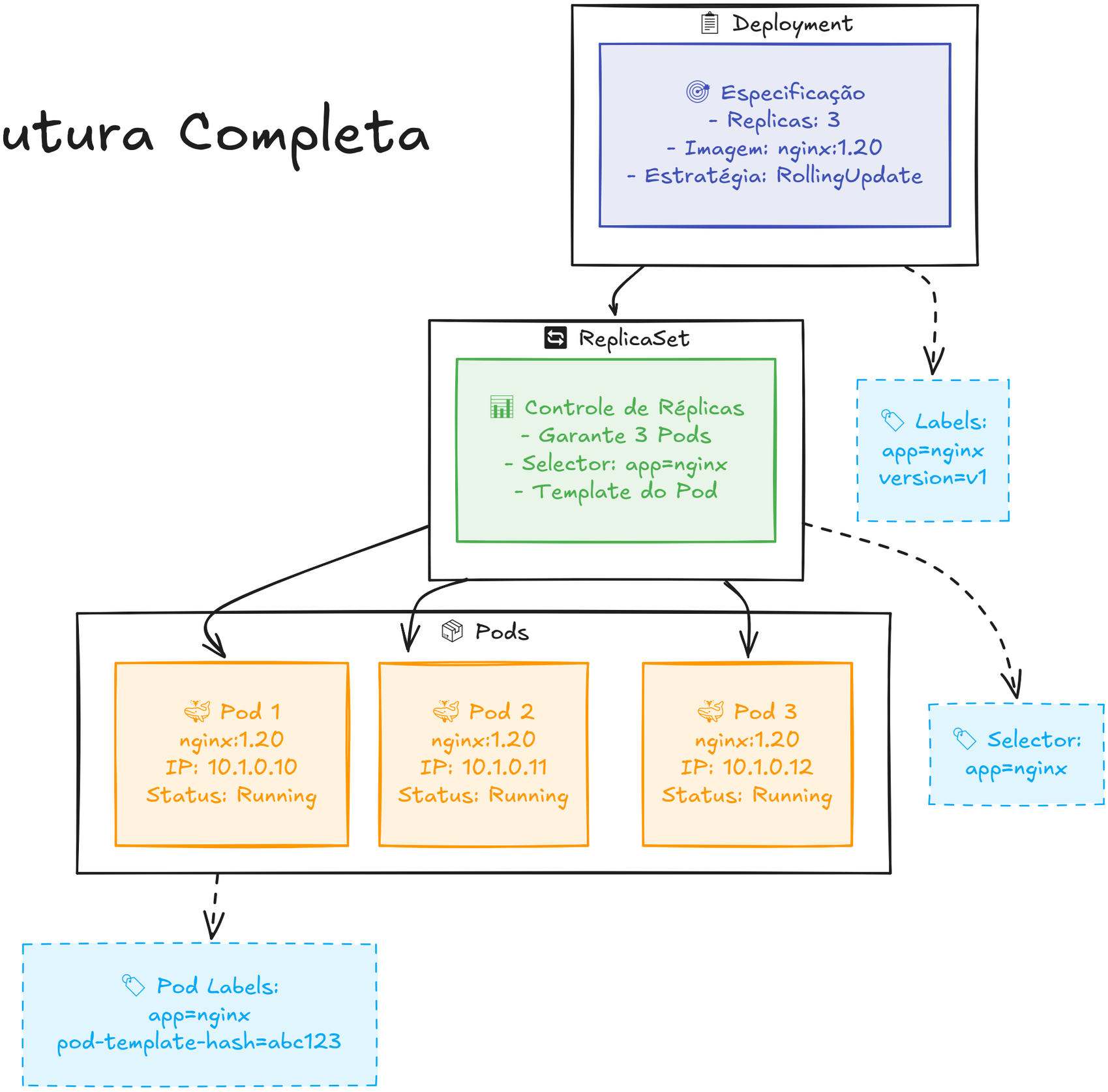
Labels e Selectors



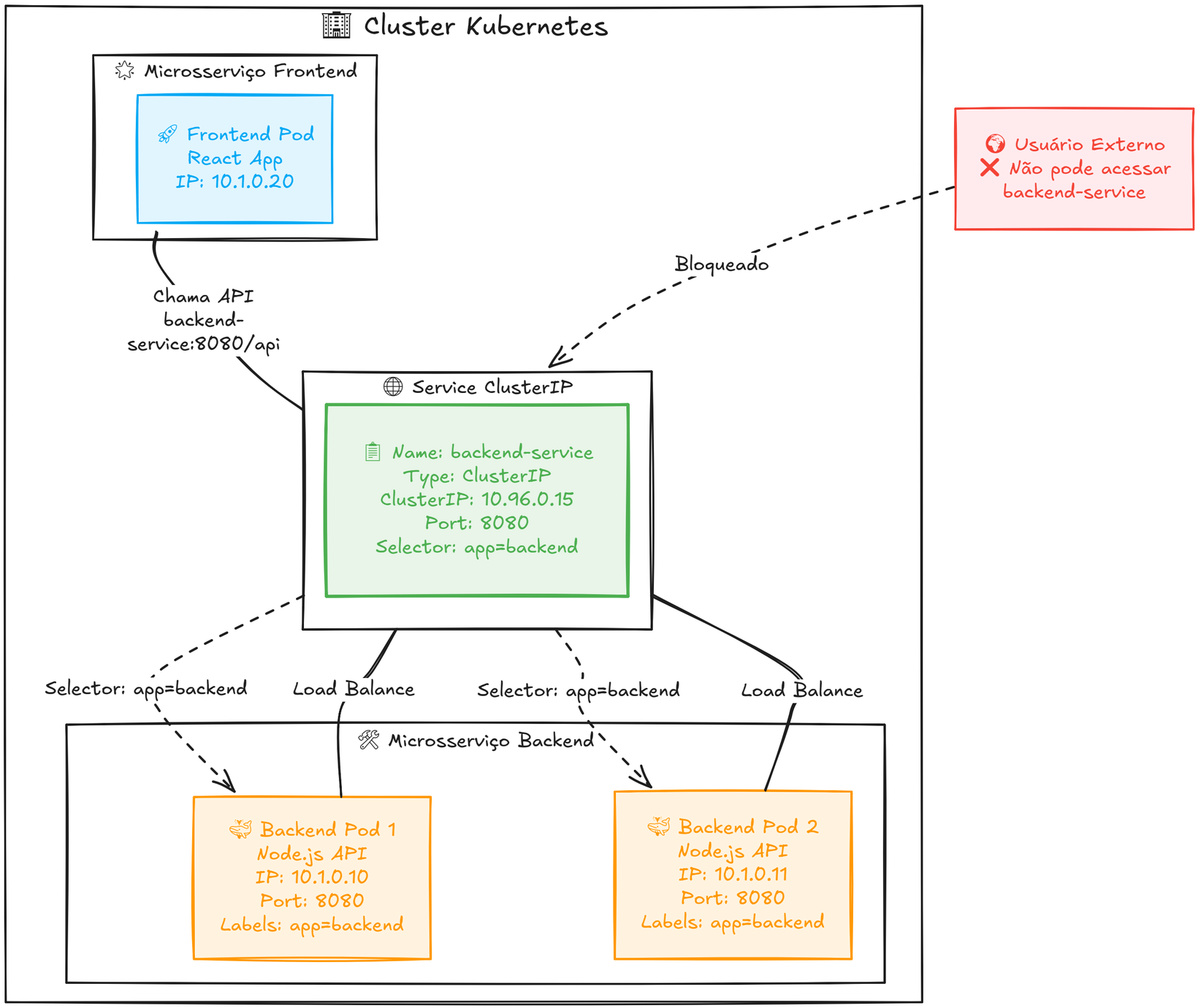
Deployment


Deployment
Controlador
Image: nginx:1.20 → nginx:1.21
Gerencia
Gerencia
ReplicaSets
ReplicaSet Antigo
nginx:1.20
Desejado: 0
Atual: 0
Scaling Down
ReplicaSet Novo
nginx:1.21
Desejado: 3
Atual: 3
Terminado
Terminado
Terminado
Ativo
Ativo
Ativo
Pods Antigos
Pod 1
nginx:1.20
Status: Terminated
Pod 2
nginx:1.20
Status: Terminated
Pod 3
nginx:1.20
Status: Terminated
Pods Novos
Pod 1
nginx:1.21
Status: Running
Pod 2
nginx:1.21
Status: Running
Pod 3
nginx:1.21
Status: Running

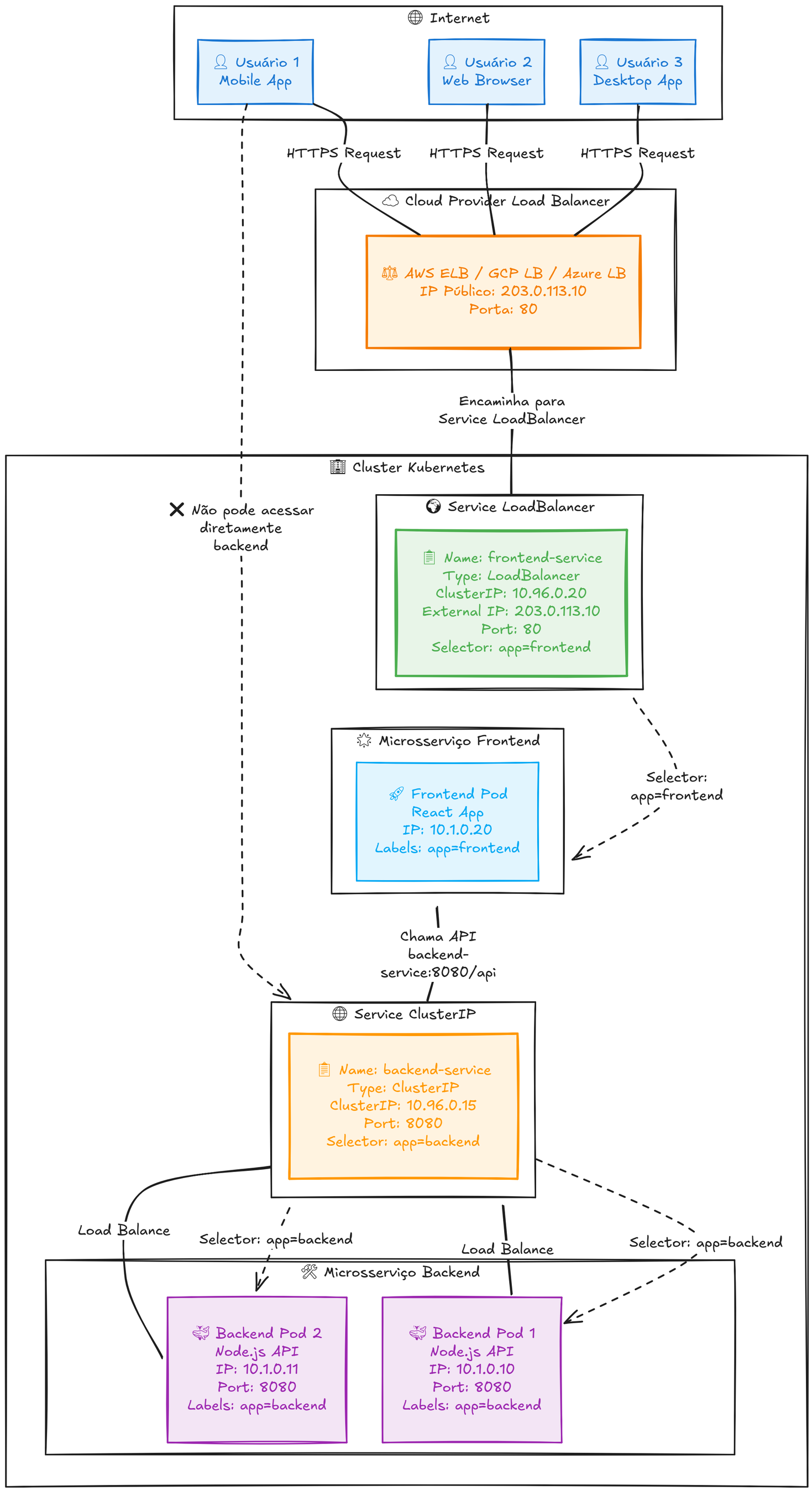
Estrutura Completa



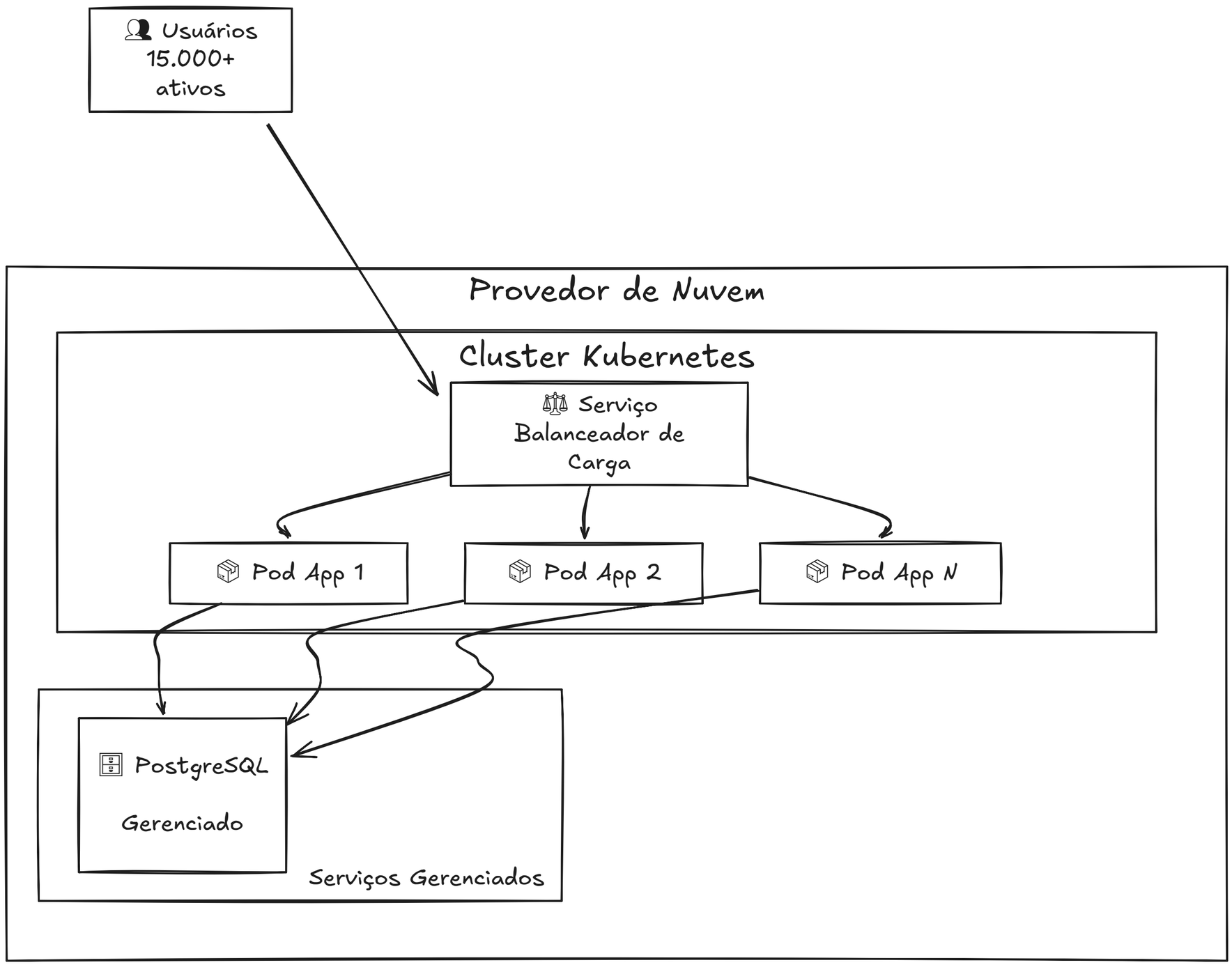
Service ClusterIP



Service LoadBalancer



Objetivo


Usuários
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Pod App 1
Pod App 2
Pod App N
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Serviços Gerenciados