OPENSHIFT OVERVIEW

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Arquiteto de Soluções

MUDANÇAS FUNDAMENTAIS

Monolith

N-Tier

Microservices

Aplicações

Datacenter

Hosted

Hybrid

Infraestrutura

Waterfall

Agile

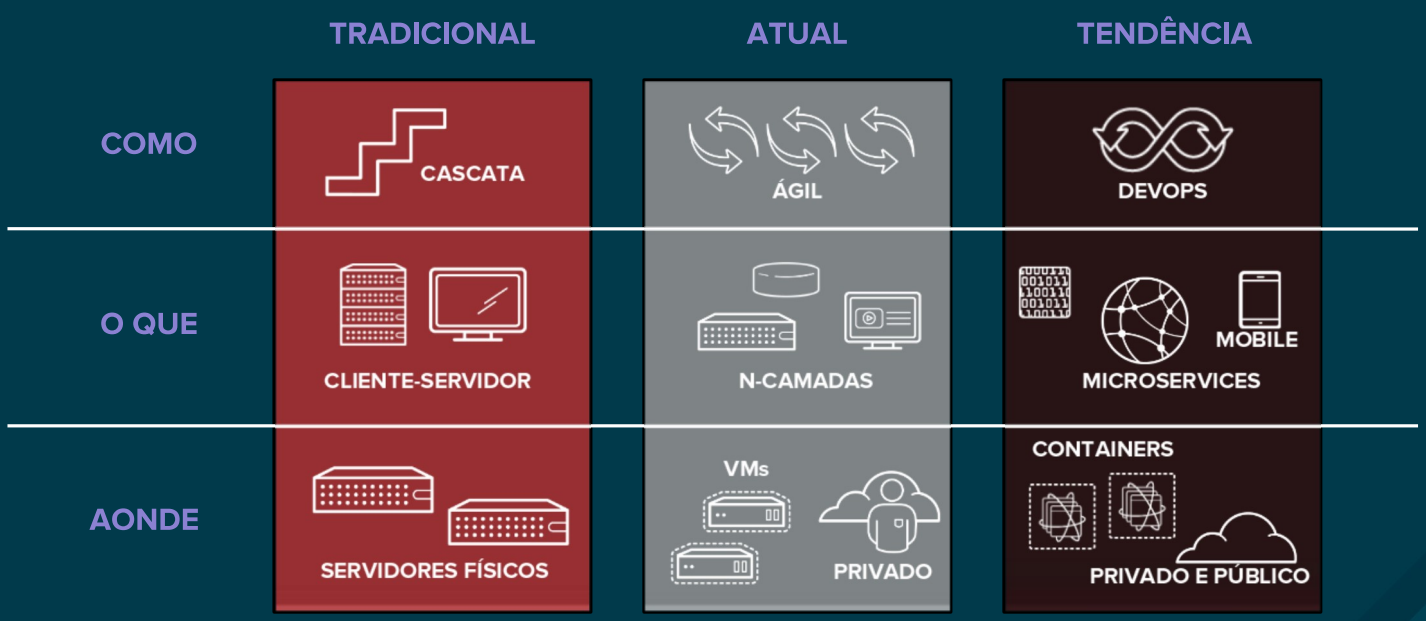
DevOps

Processos

redhat

TRANSFORMAÇÃO DIGITAL

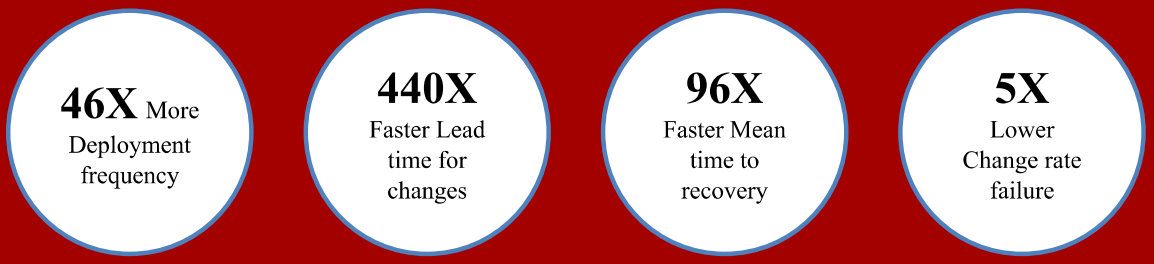
IMPACTA A FORMA DE CONSTRUIR, EXECUTAR E GERENCIAR SOFTWARE



redhat.

CLOUD NATIVE DEVELOPMENT IS ABOUT
RESPONDING TO CHANGE WITH

SPEED, RESILIENCY AND AGILITY



2017 State of DevOps Report https://puppet.com/system/files/2017-09/2017-state-of-devops-report-puppet-dora.pdf

POR QUE CONTAINERS?

redhat.

Menos de 1s para subir...

São muito rápidos!

Restarts imediatos

redhat.

~35 Mb de RAM para uma app Java (Quarkus)

São muito leves!

Imagem core de RH com 35mb

redhat.

São econômicos

~35 Mb de RAM para uma app Java (Quarkus)

Menos de 1s para subir...

¼ a ⅛ do custo com Infra

Imagem core de RH com 35mb

Restarts imediatos

São eficientes

~35 Mb de RAM para uma app Java (Quarkus)

Menos de 1s para subir...

CI/CD é uma realidade

¼ a ⅛ do custo com Infra

Imagem core de RH com 35mb

Restarts imediatos

São mais seguros

~35 Mb de RAM para uma app Java (Quarkus)

Menos de 1s para subir...

CI/CD é uma realidade

¼ a ⅛ do custo com Infra

Imagem core de RH com 35mb

SELinux, Capabilities, Cgroups….

Restarts imediatos

São portáveis

Clouds Publicas, privadas, VMs, Físicas...

SELinux, Capabilities, Cgroups….

~35 Mb de RAM para uma app Java (Quarkus)

Menos de 1s para subir...

CI/CD é uma realidade

¼ a ⅛ do custo com Infra

Imagem core de RH com 35mb

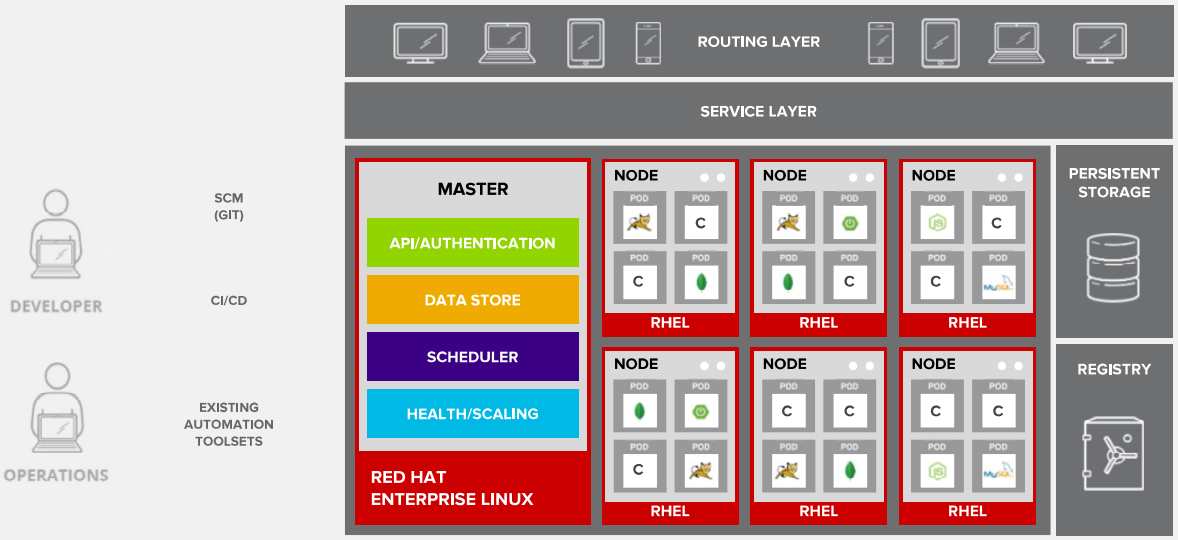
Restarts imediatos

CONTAINER APENAS NÃO É SUFICIENTE! NECESSITAMOS DE MAIS!

Multi-tenancy	Teams and Collaboration
Routing & Load Balancing	Quota Management
CI/CD Pipelines	Image Build Automation
Role-based Authorization	Container Isolation
Capacity Management	Vulnerability Scanning
Infrastructure Visibility	Chargeback

Red Hat OpenShift Container Platform direcionando a inovação !!!

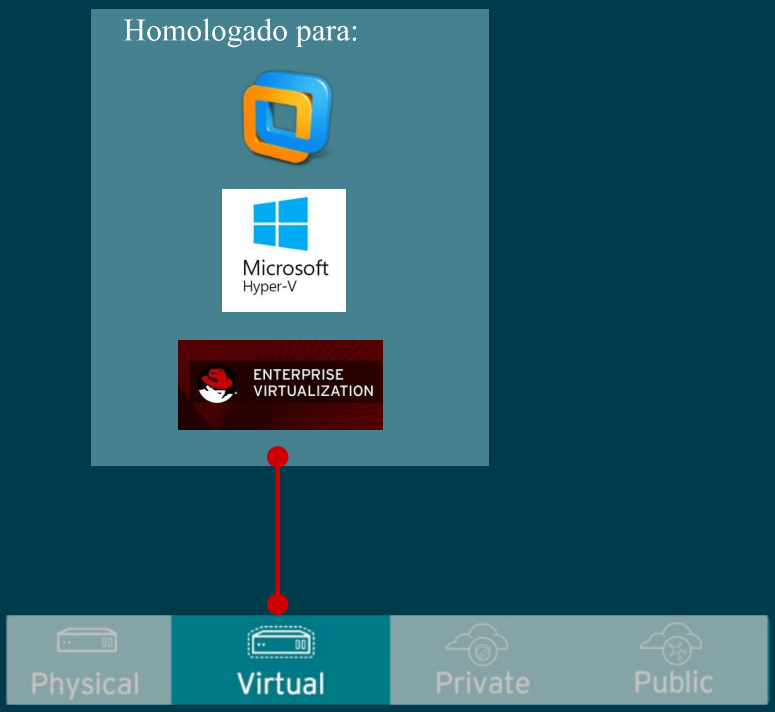
ARQUITETURA OPENSHIFT



redhat.

OpenShift roda em qualquer infraestrutura

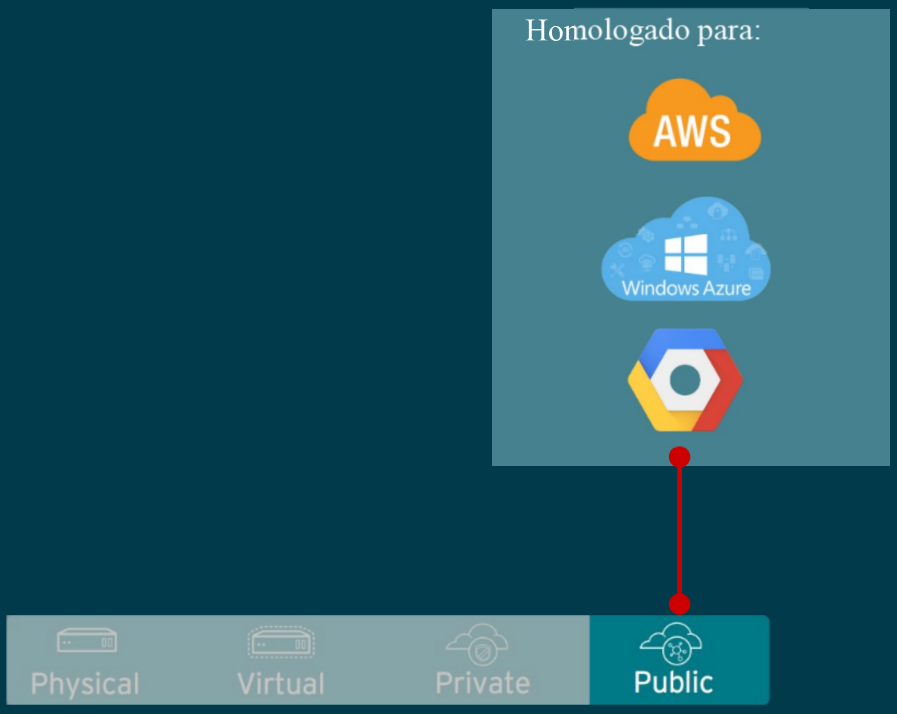
Seja ambiente virtual...



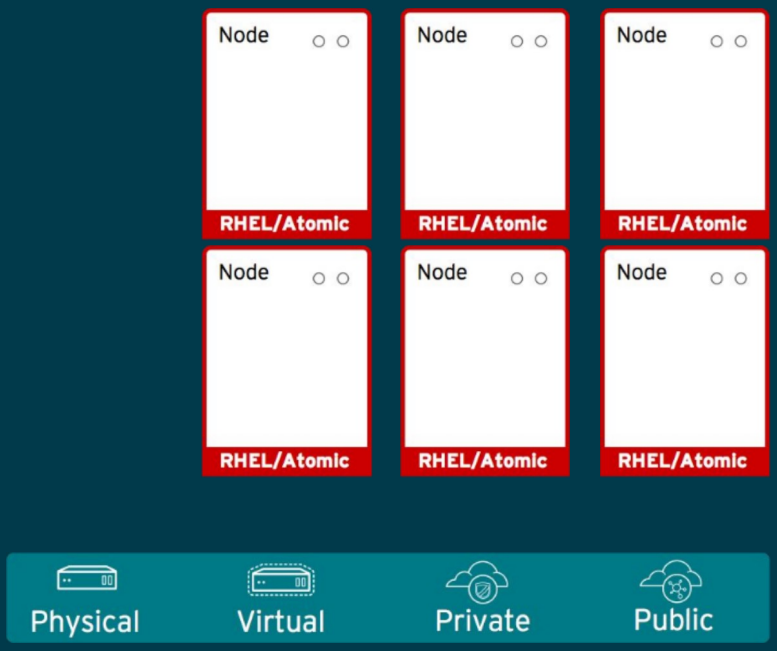
Nuvem privada...

Homologado para:

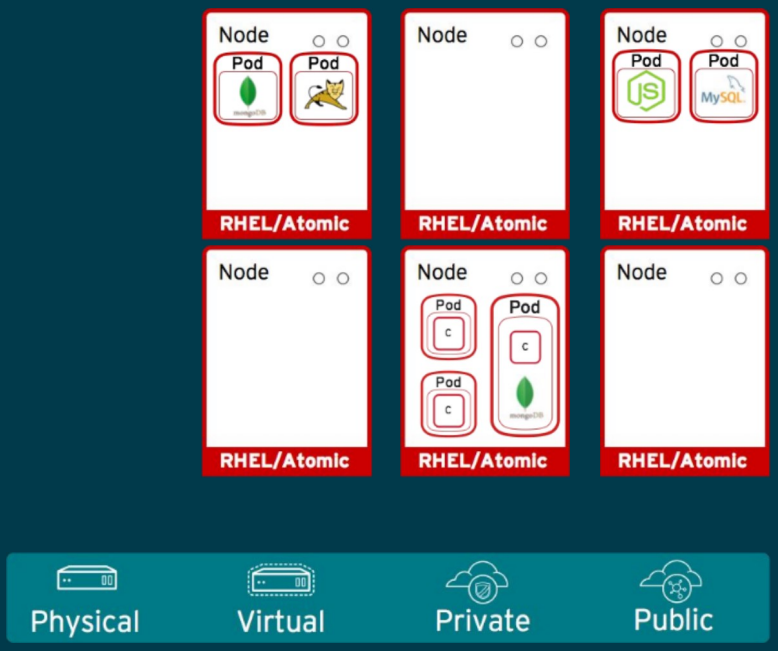
Ou nuvem pública



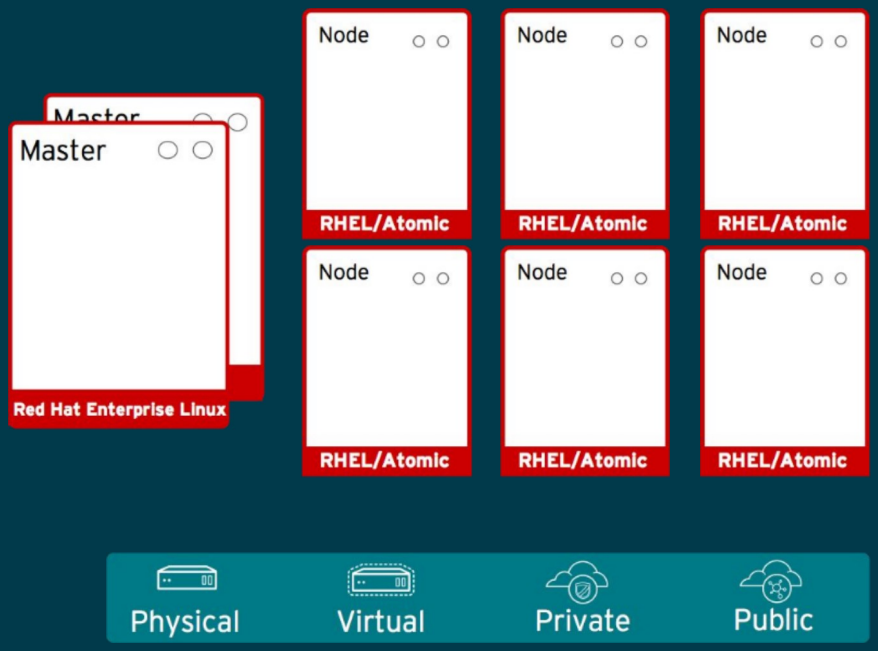
Nodes são instâncias do RHEL onde sua app irá rodar



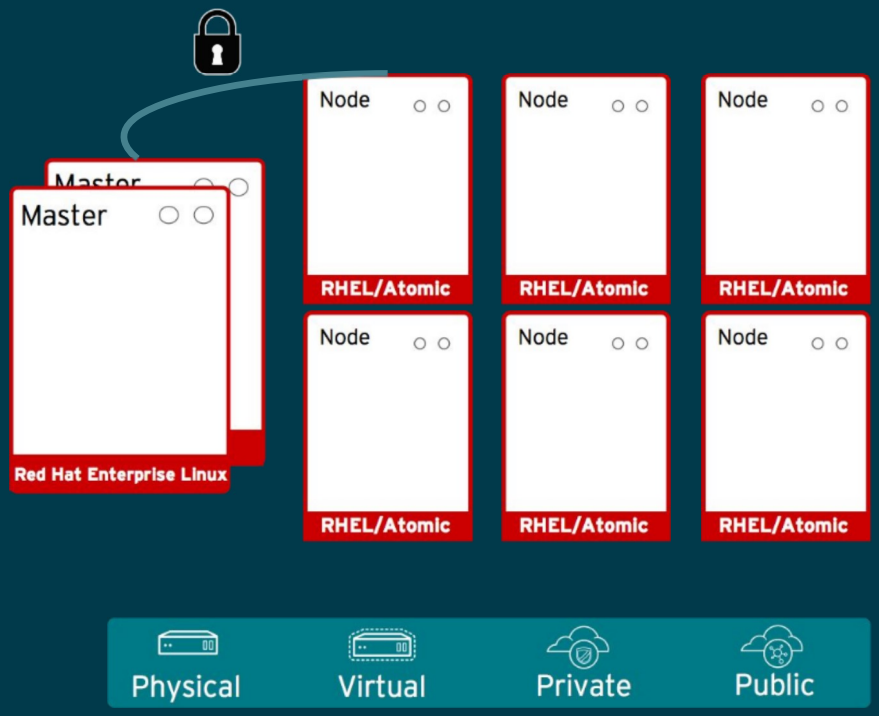
Aplicações rodam em vários nodes



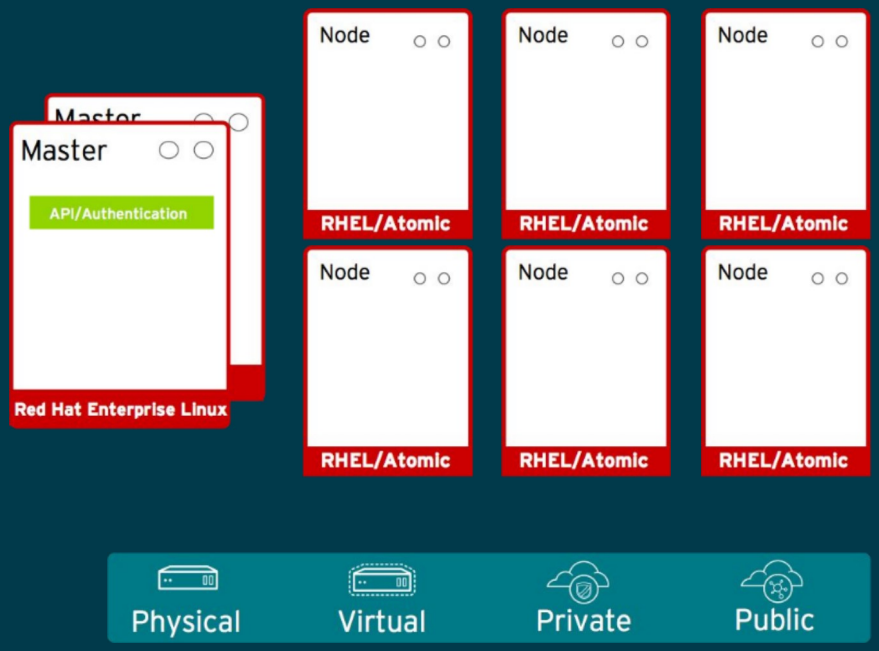
Master orquestra as apps nos nodes



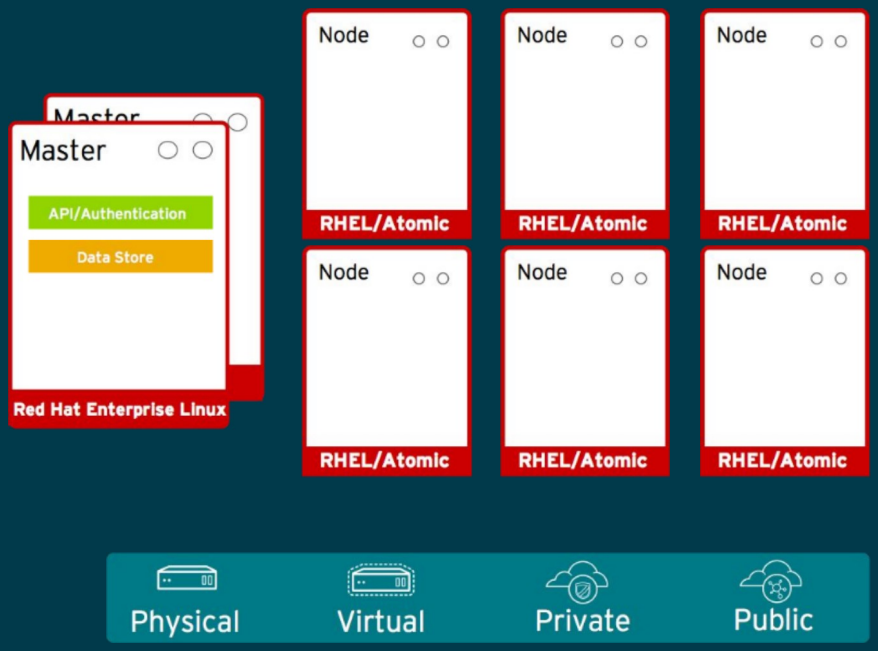
Toda comunicação é segura no Openshift



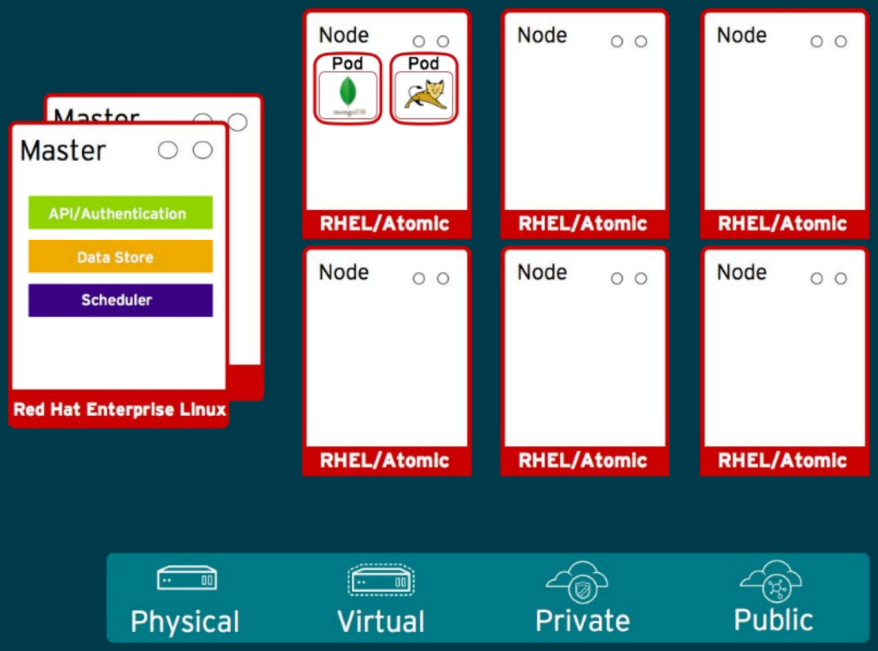
Master fornece uma API para usuários e clientes



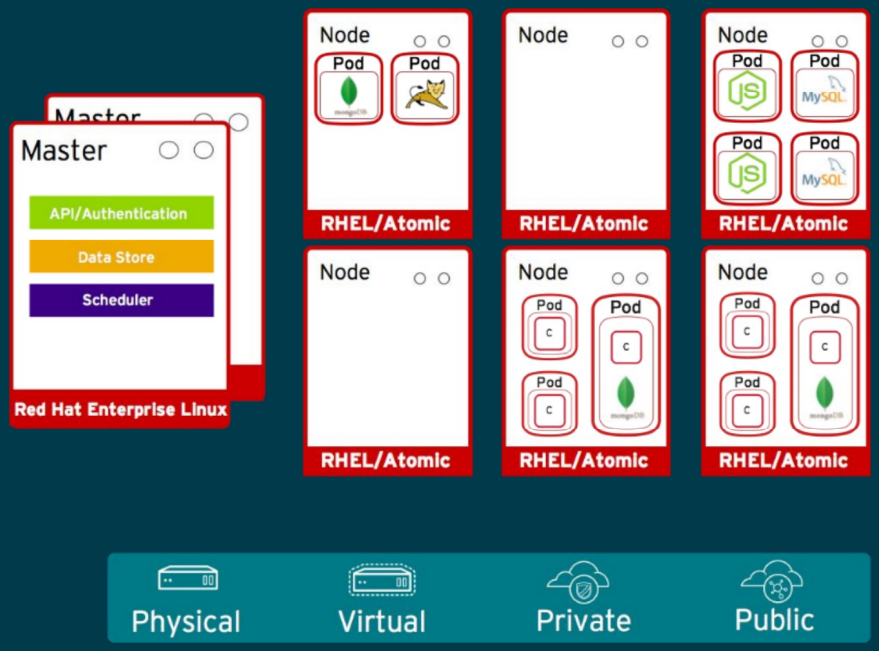
Master usa um banco chave-valor chamado etcd



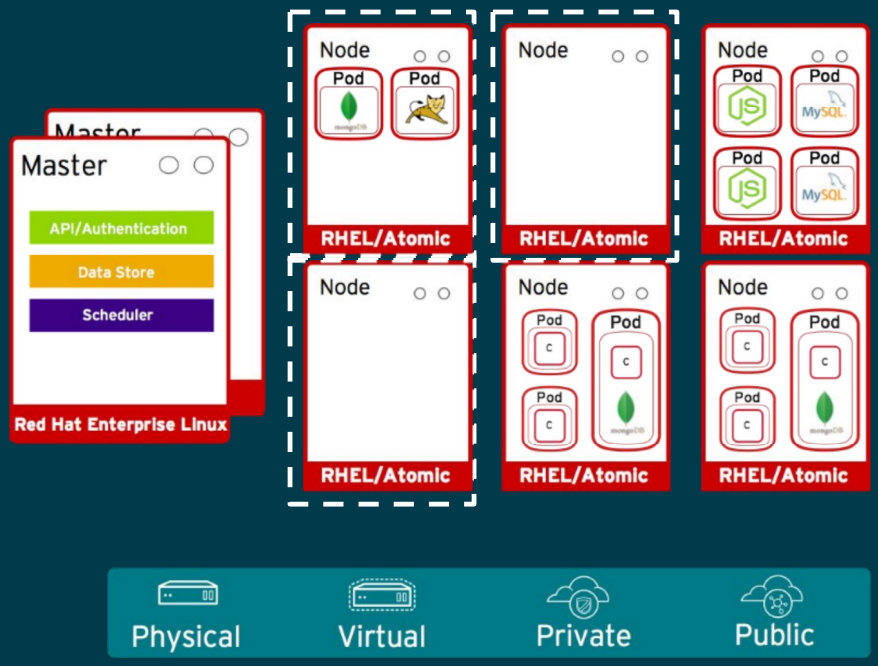
Master fornece um “agendador” de apps



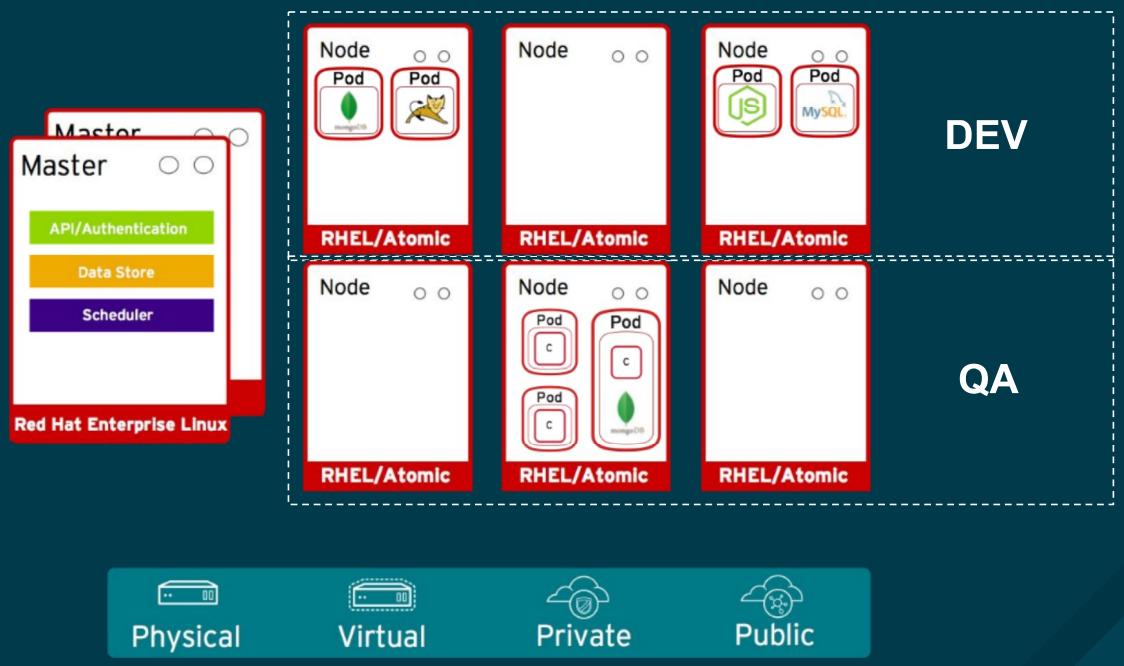
Agendamento das apps é baseado em políticas



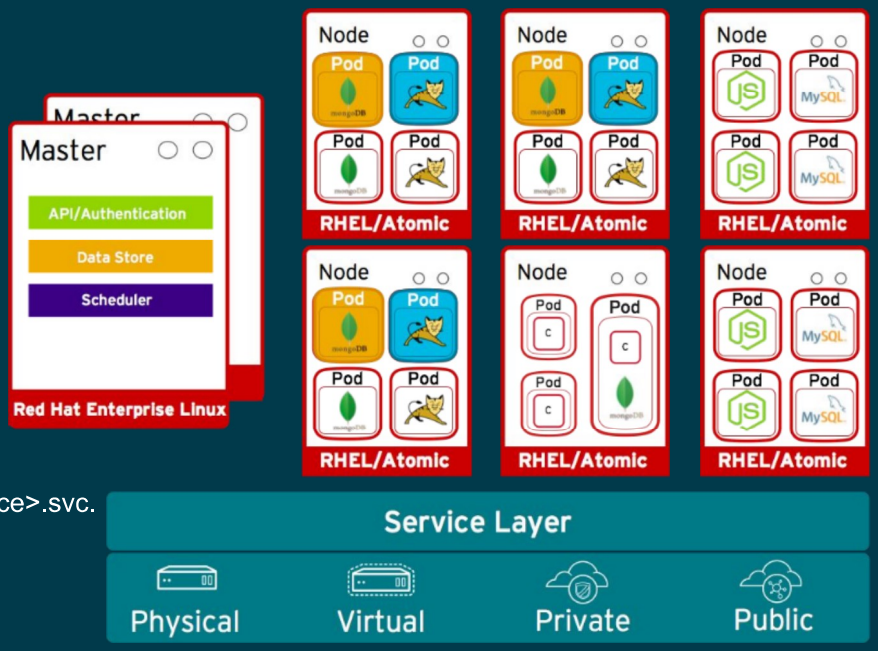
No momento da criação da app, são escolhidos os melhores nodes



É possível segregar a aplicações em ambientes



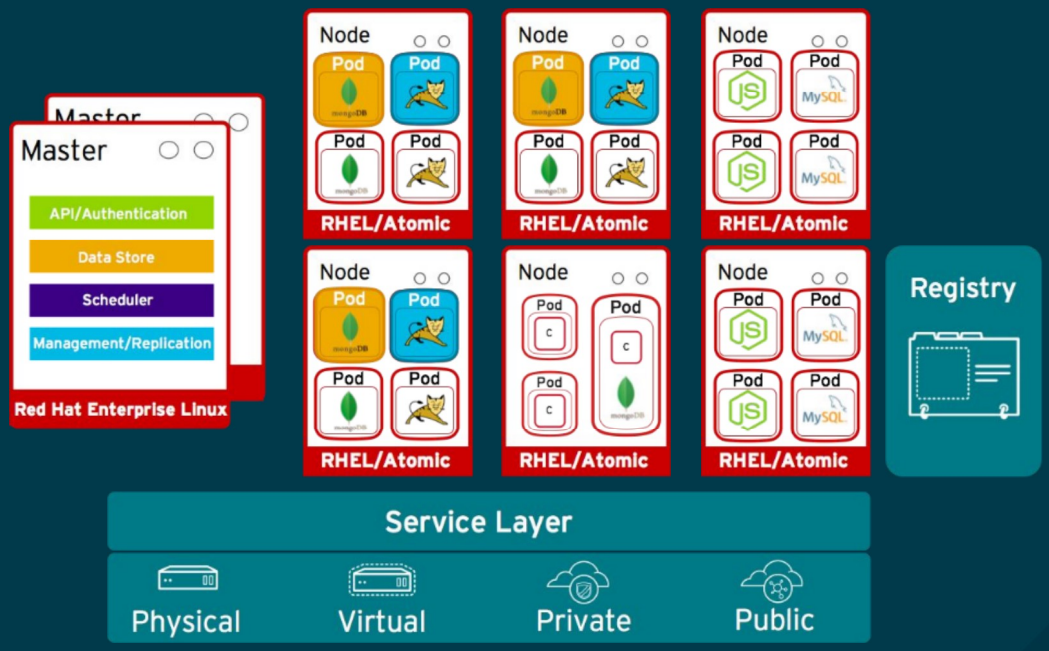
Serviço permite que a app se comunique internamente



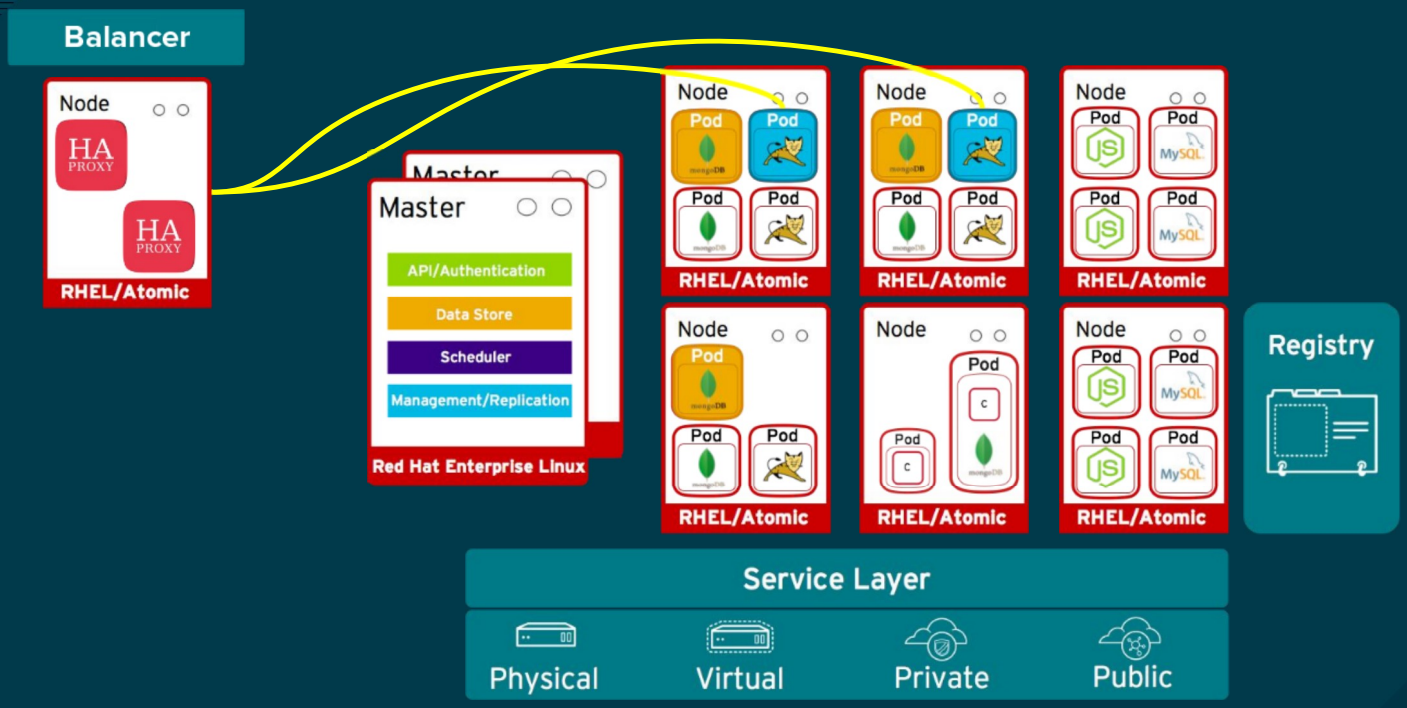
App pode se comunicar:

- postgresql:5432
- <service>.<pod_namespace>.svc.cluster.local:<port>
- variáveis internas

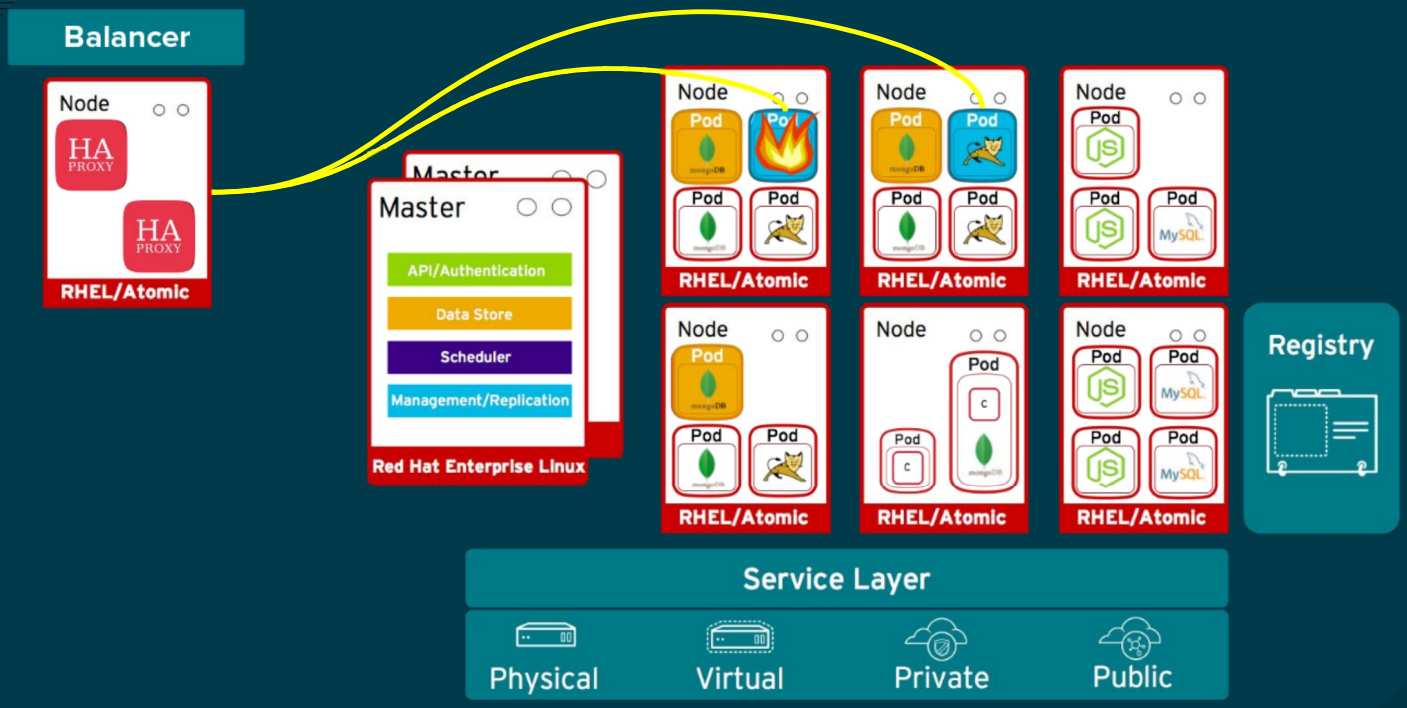
Registry é o local que armazena as imagens da app



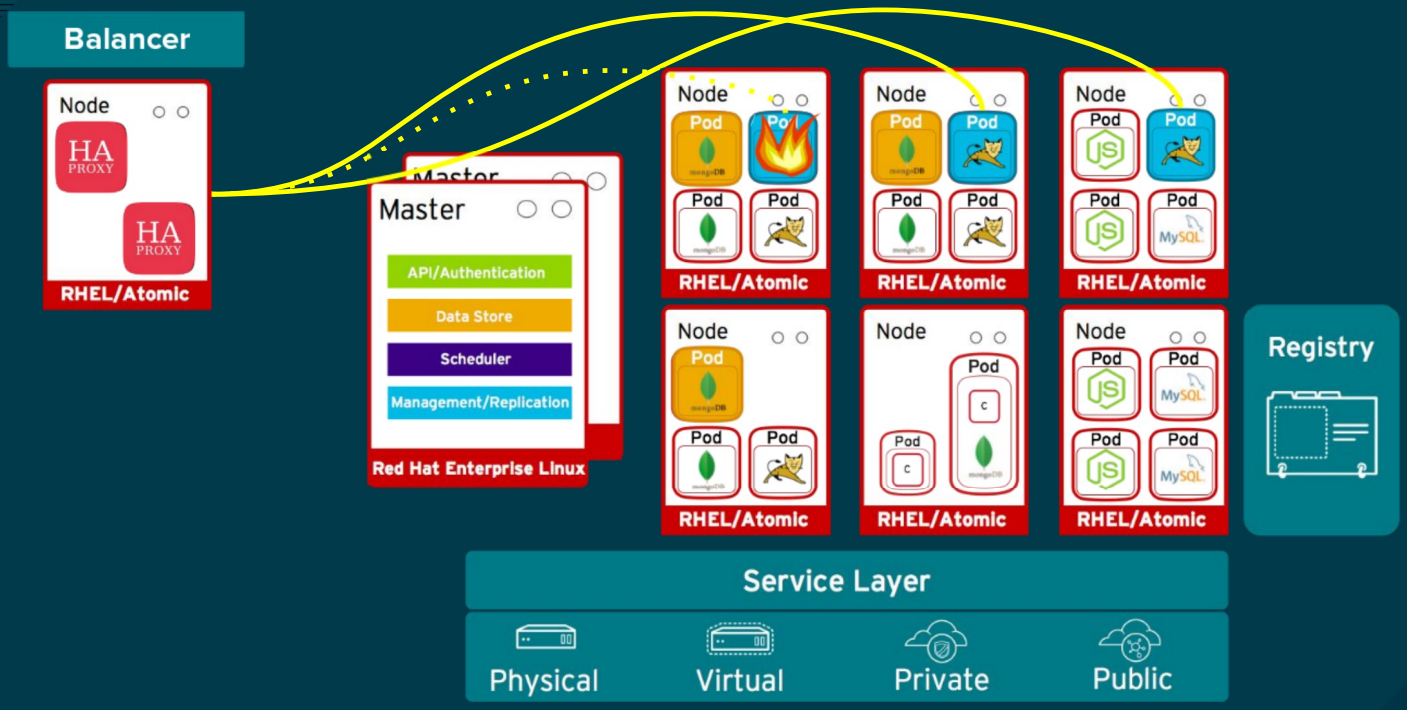
Openshift gerencia o balanceamento automaticamente



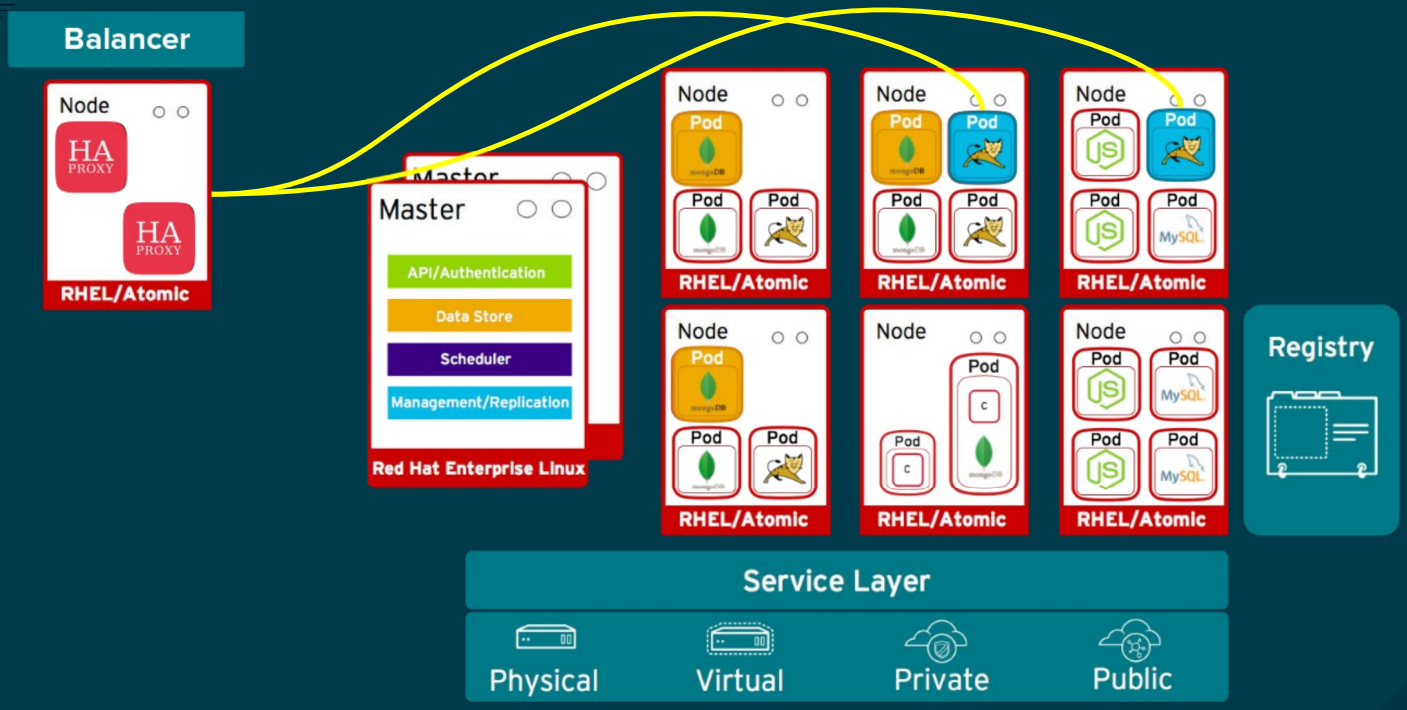
E se a aplicação falhar?



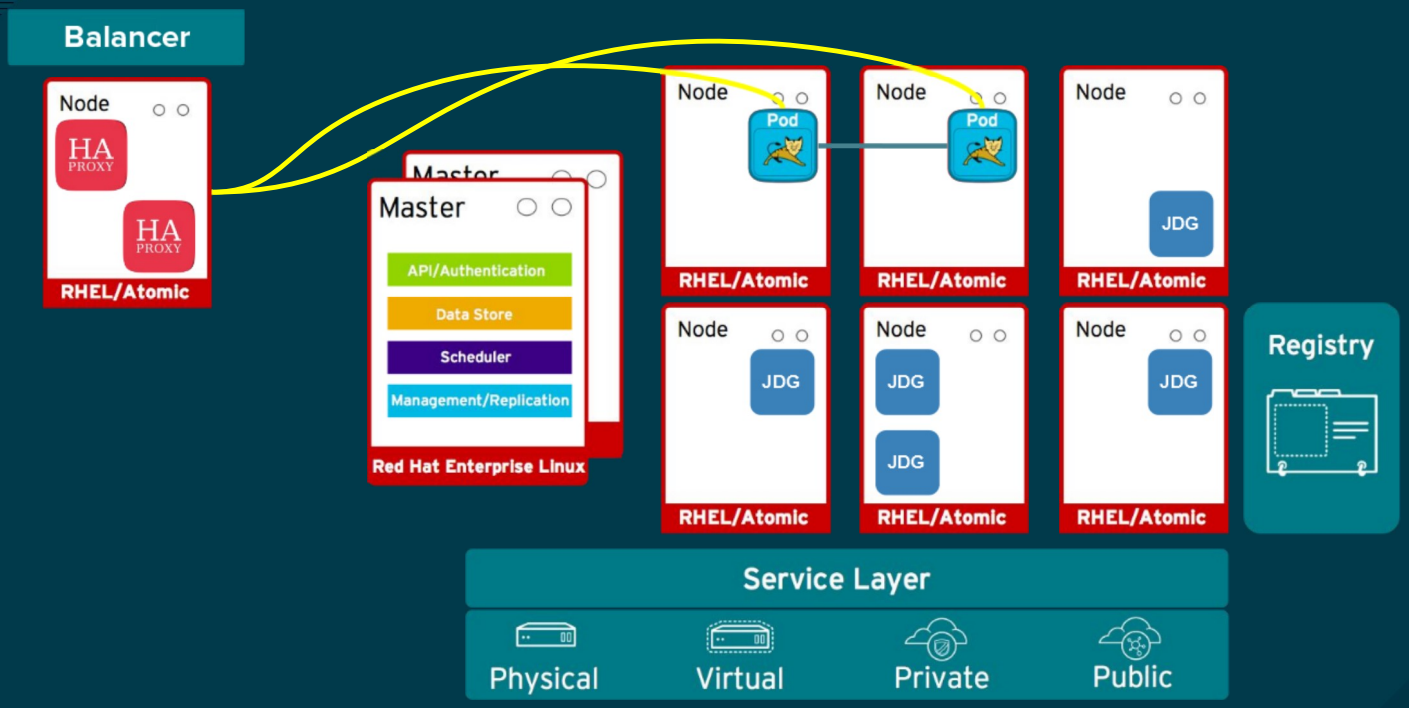
Openshift a recupera e cria uma nova automaticamente



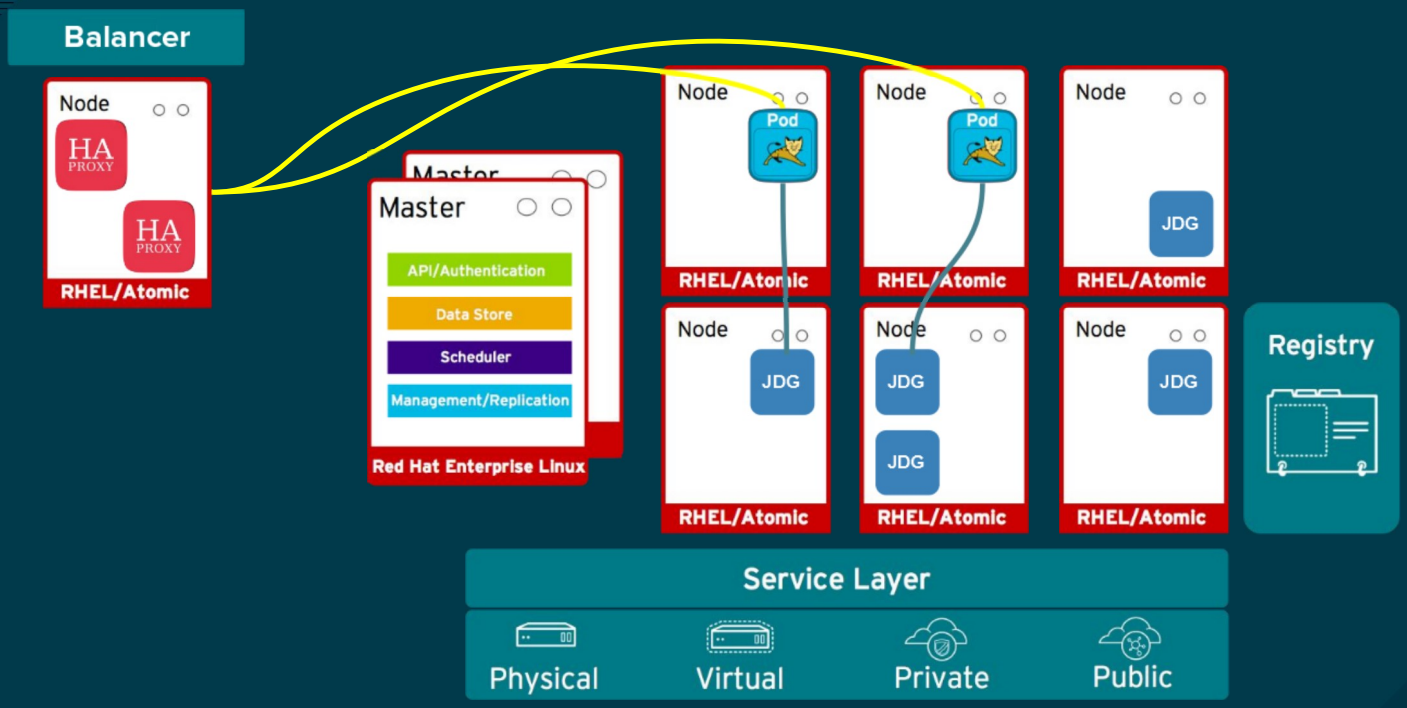
E a sessão dos usuários?



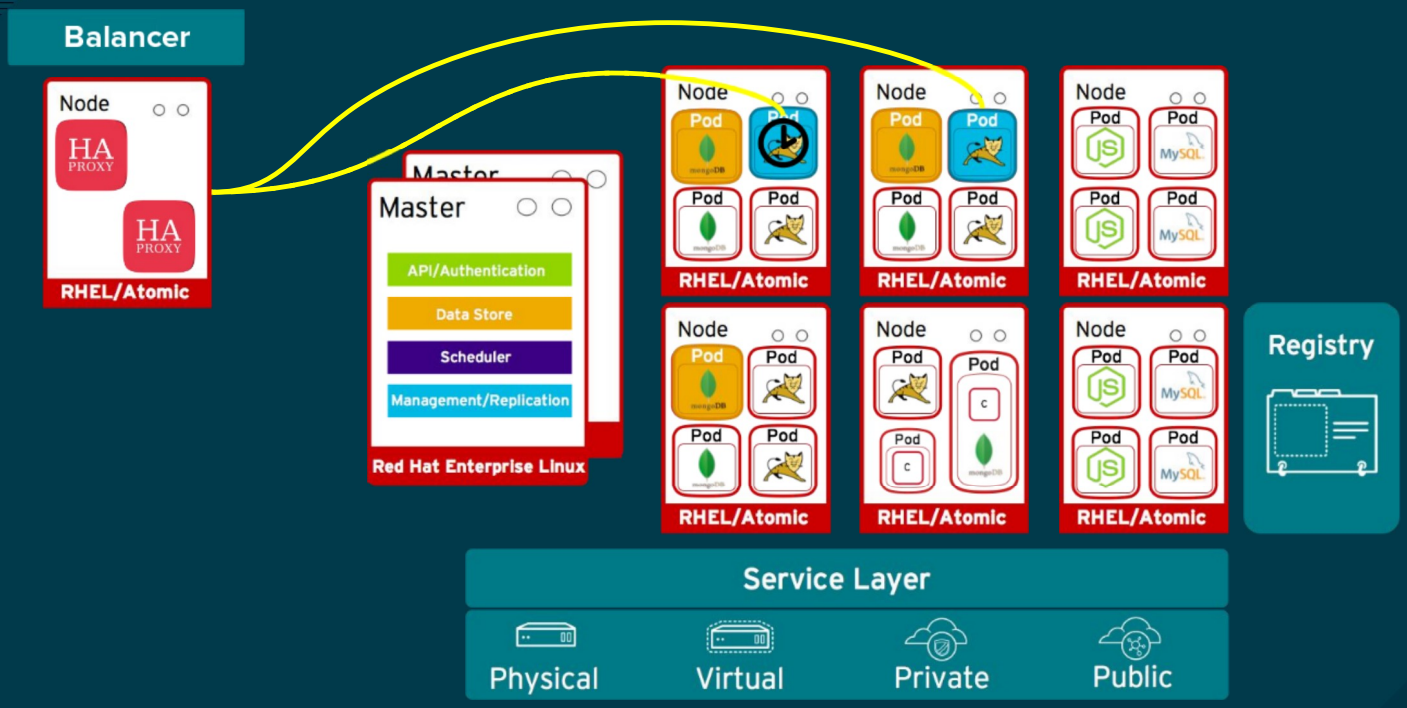
A sessão pode ser replicada



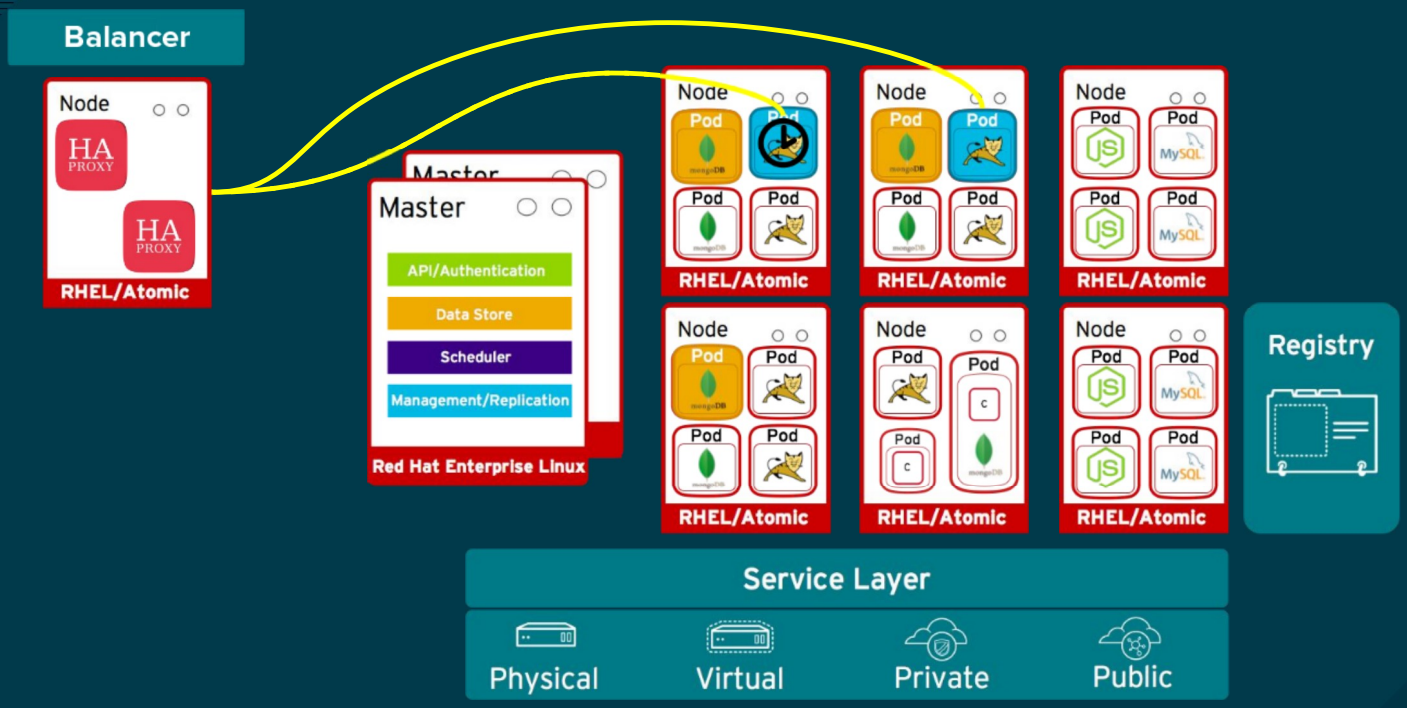
Ou externalizada



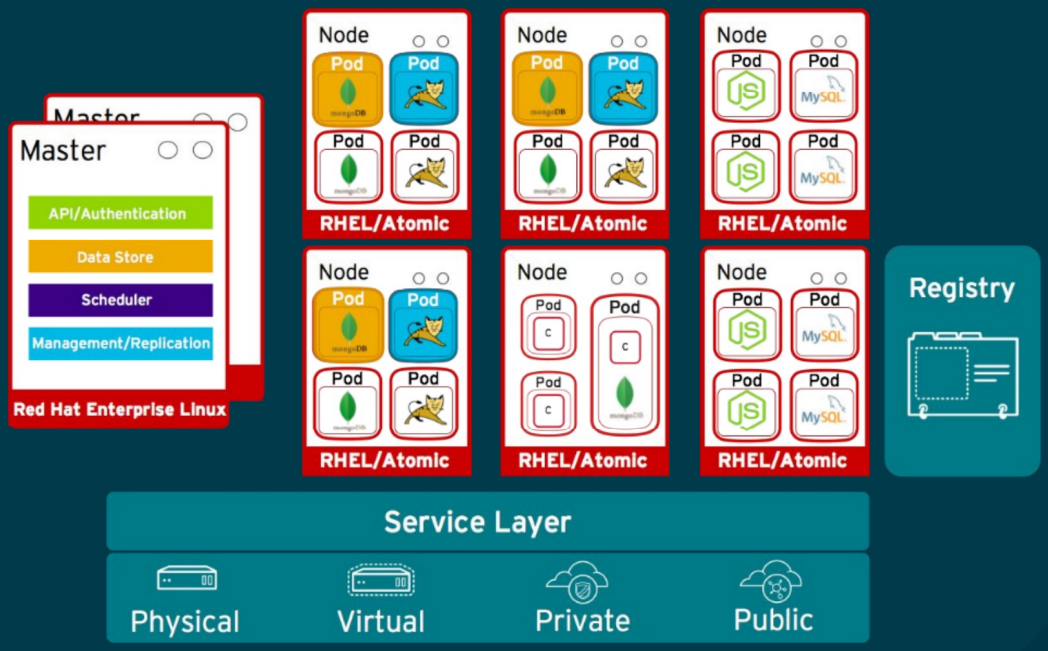
E se a app não estiver pronta para ser acessada?



Openshift adiciona a app no balanceamento quando pronto



E se a app tentar consumir todo recurso do node?



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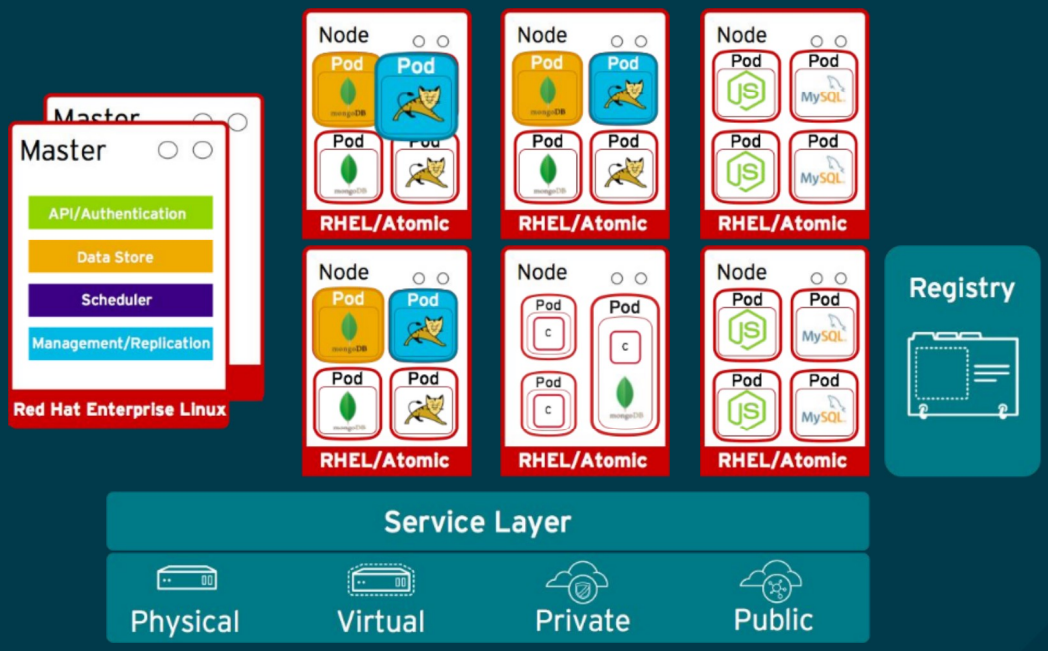

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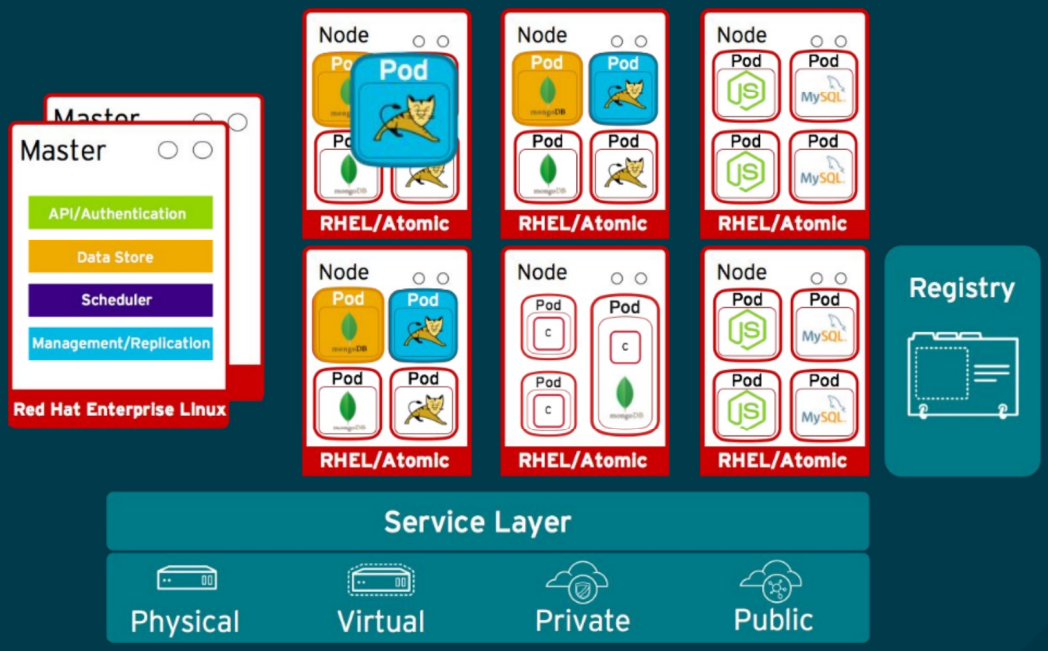
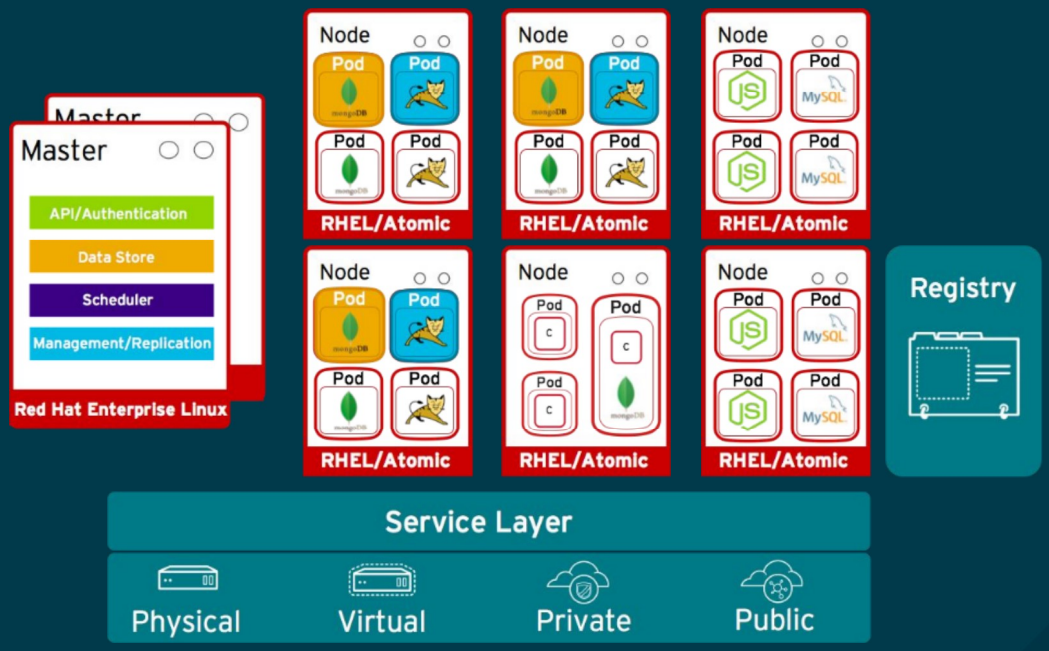
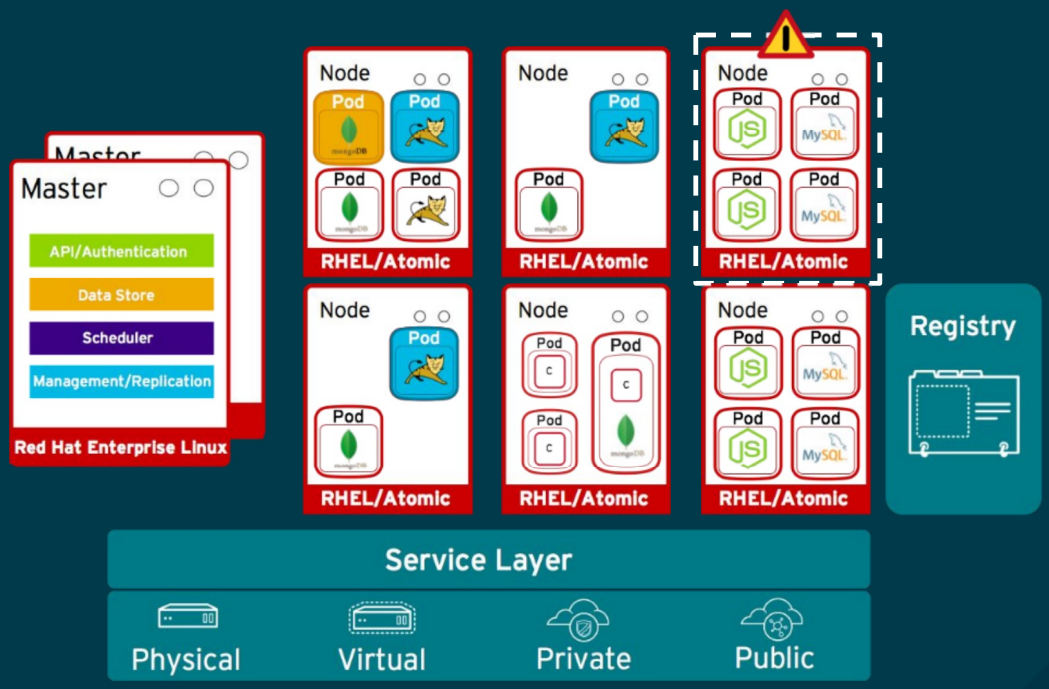


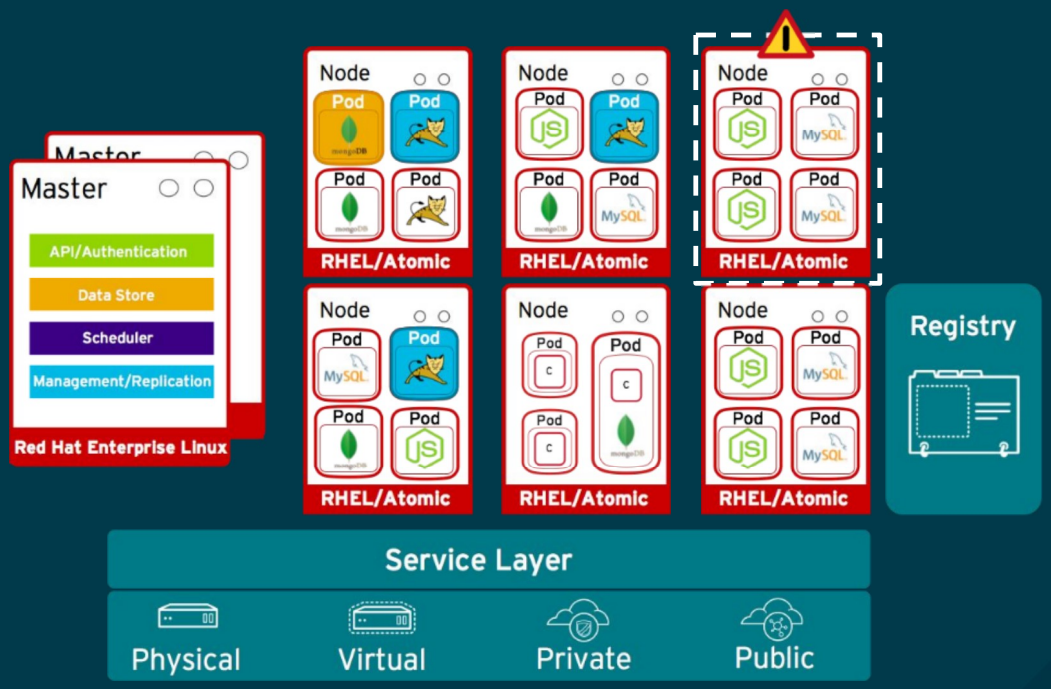
Openshift a impedirá por meio das quotas e limites



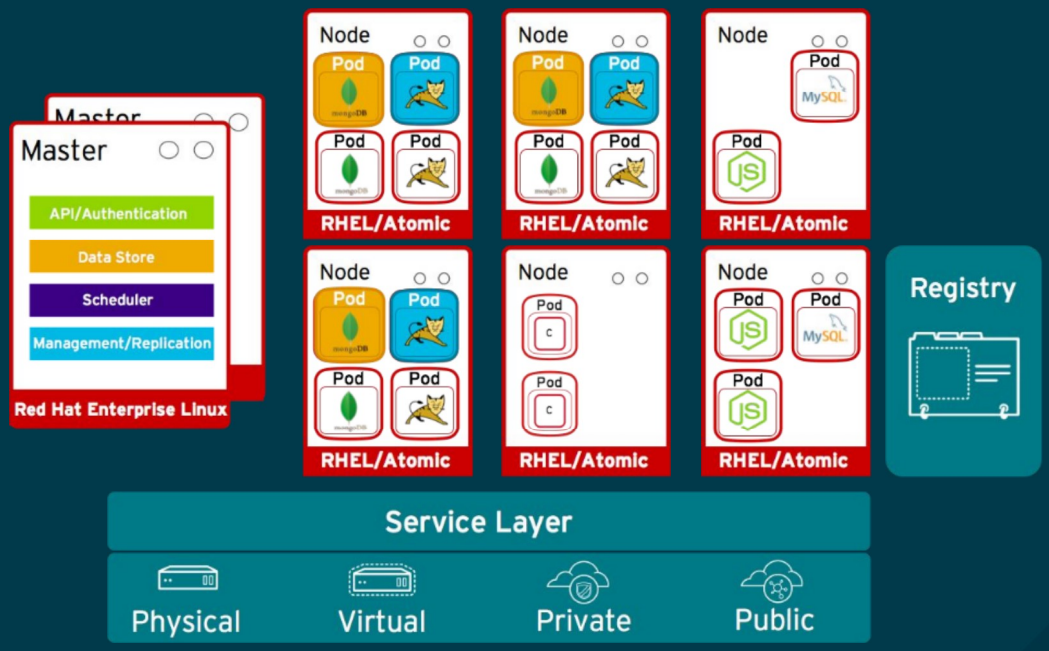
E se um node falhar ou precisar de manutenção?



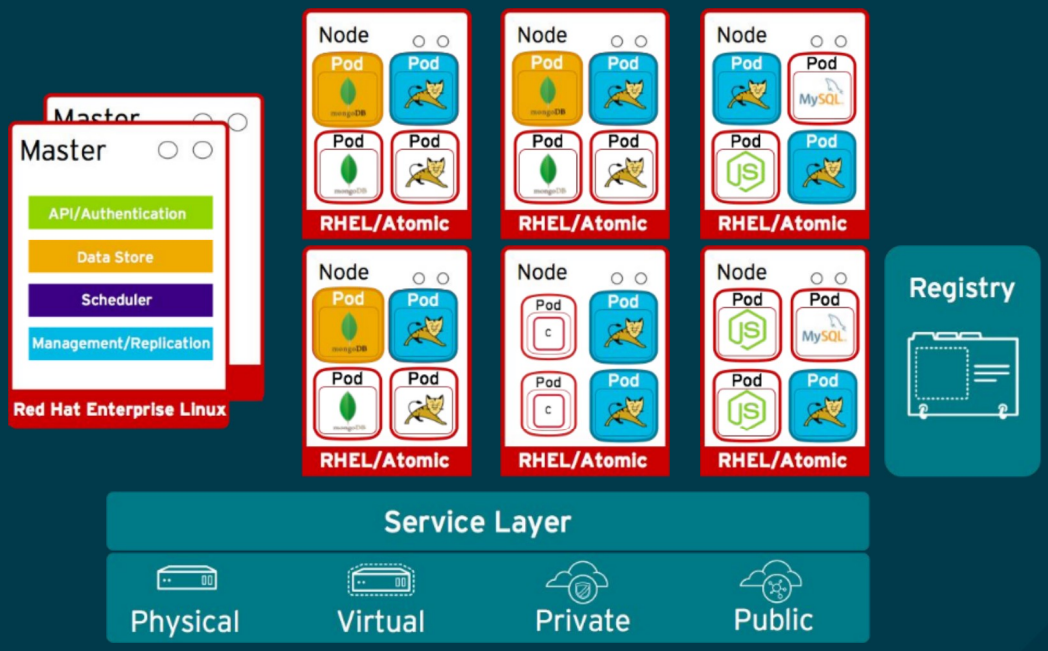
Openshift migrará as apps para outros nodes



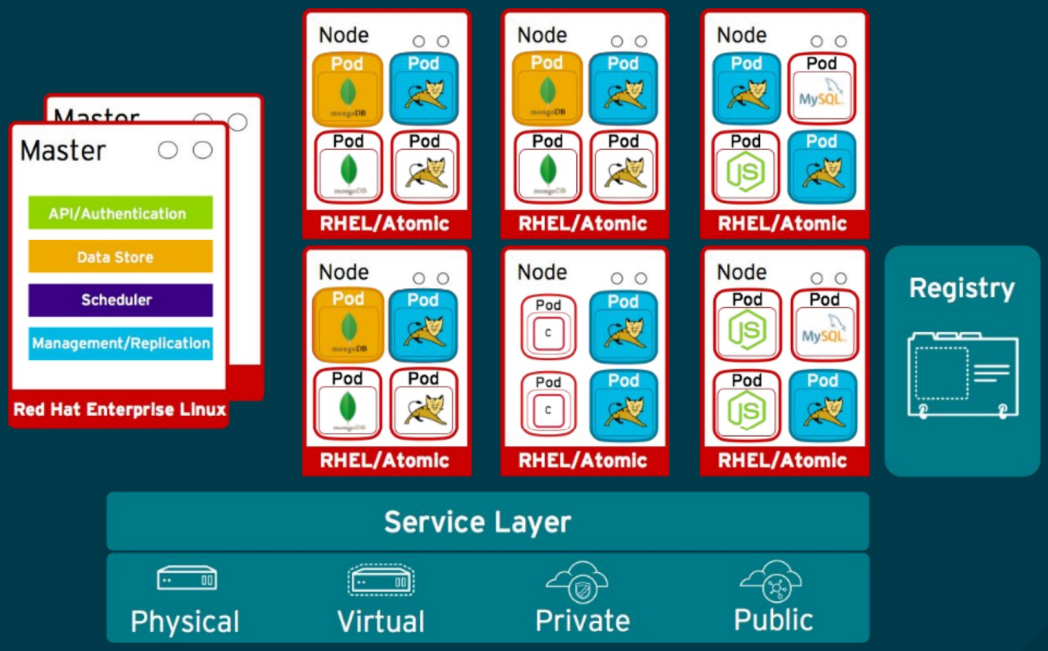
E se as instâncias da minha app não forem suficiente?



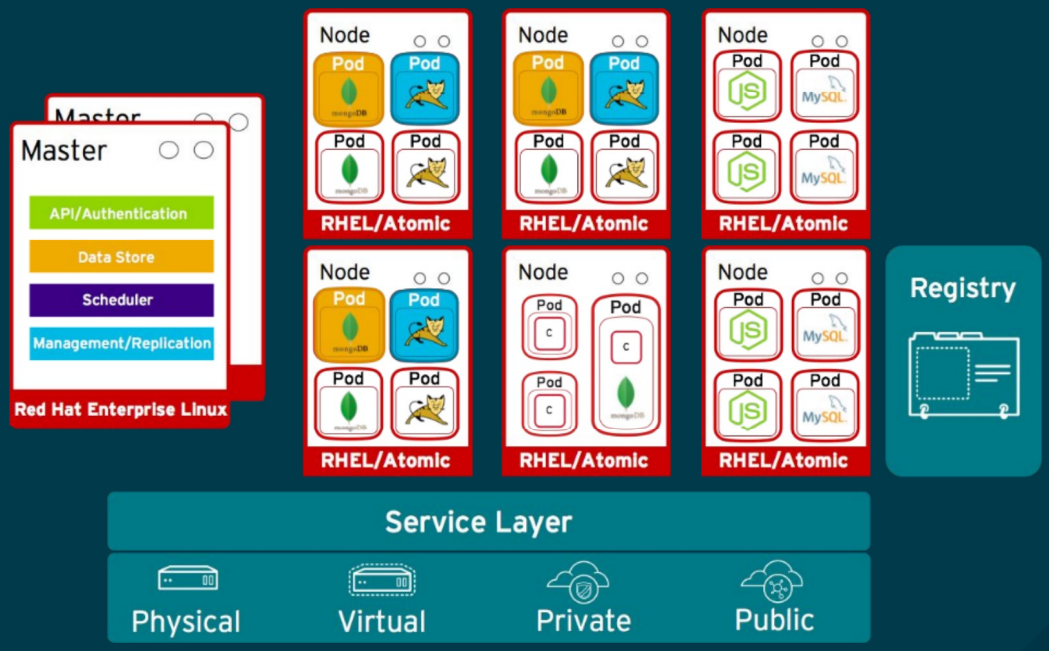
Openshift realizará o auto-scaling (scale-out)



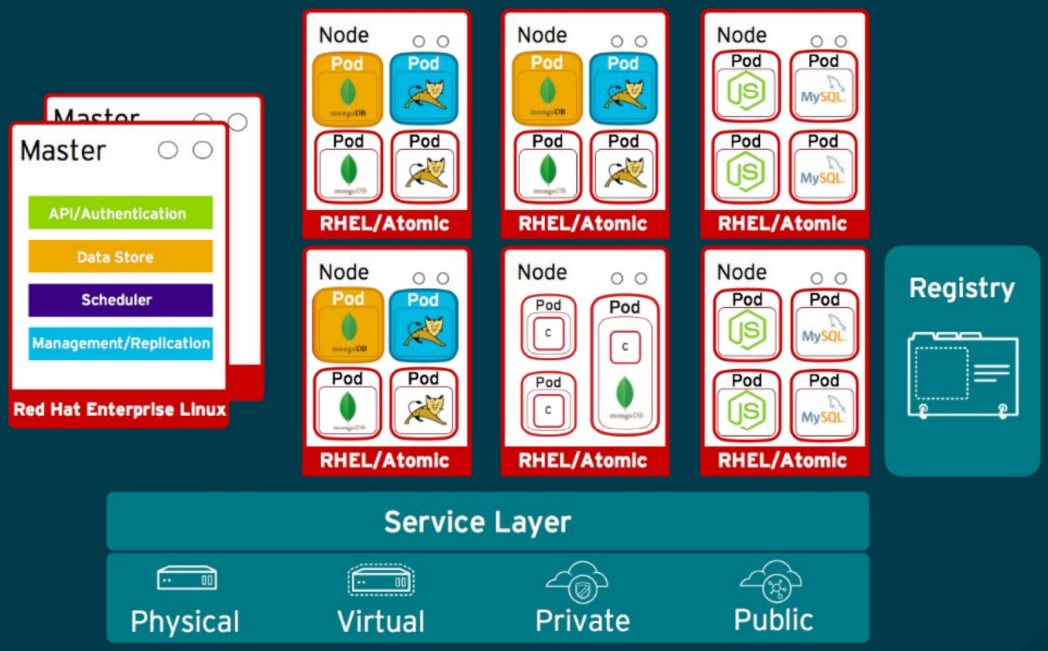
E também o scale in automaticamente



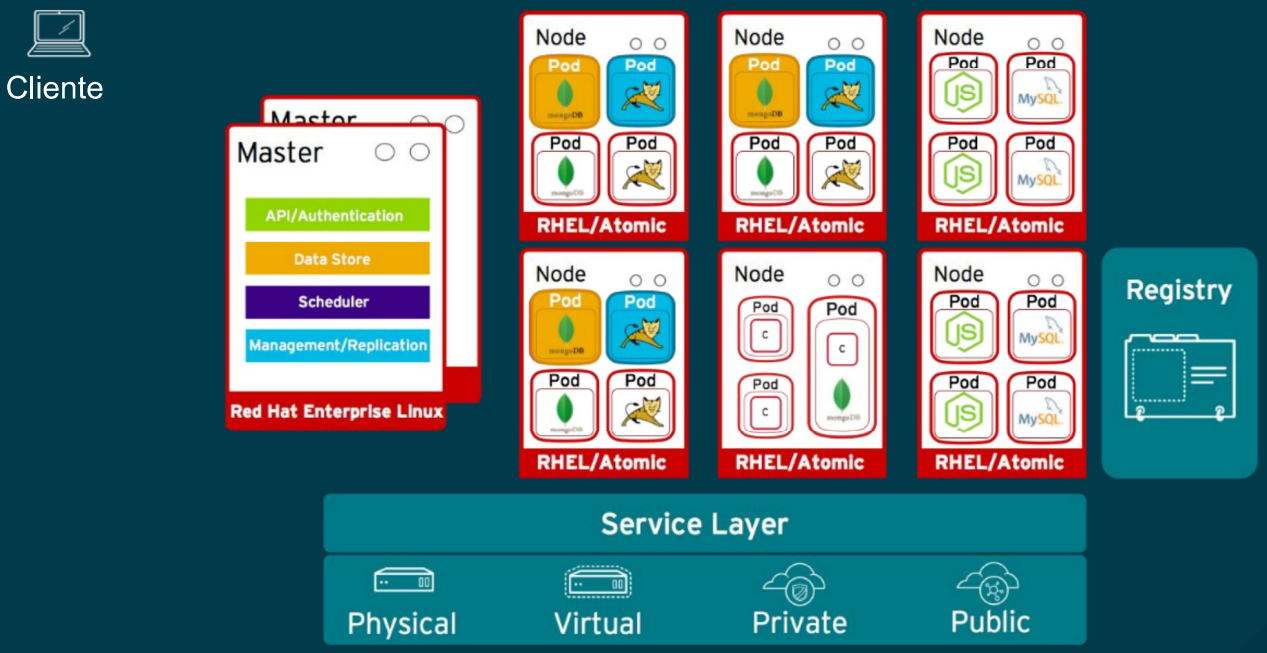
E se eu precisar economizar mais recursos?



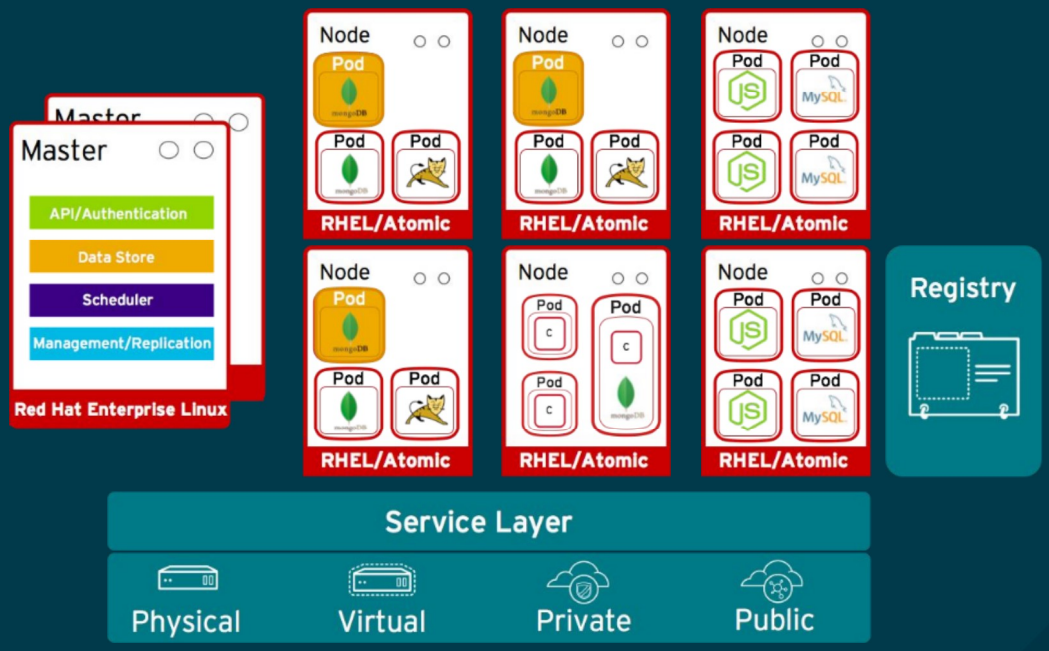
Openshift colocará a app em idle



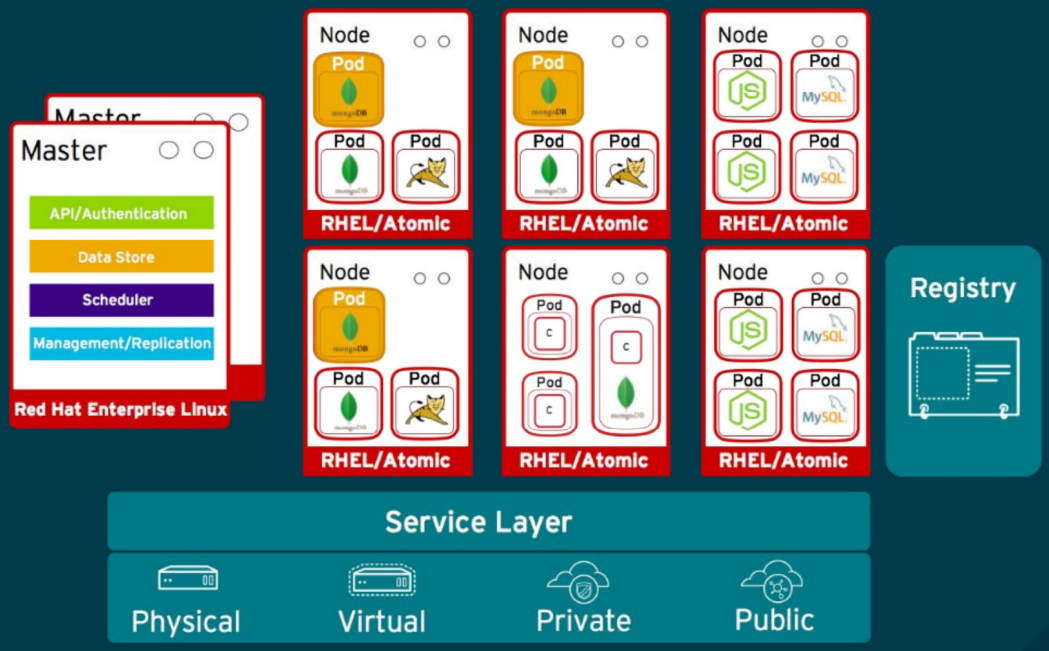
Quando houver acesso o Openshift iniciará a app novamente



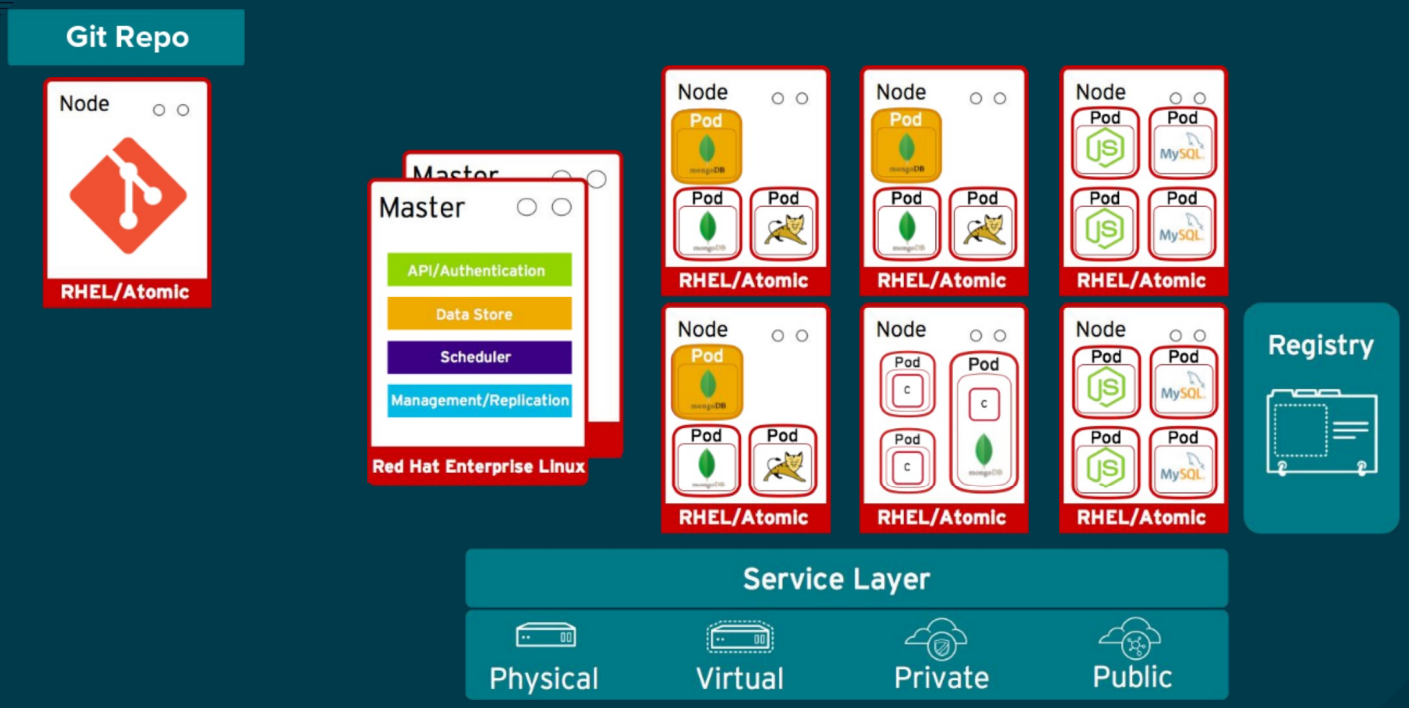
E qual esforço de colocar minha app no Openshift?



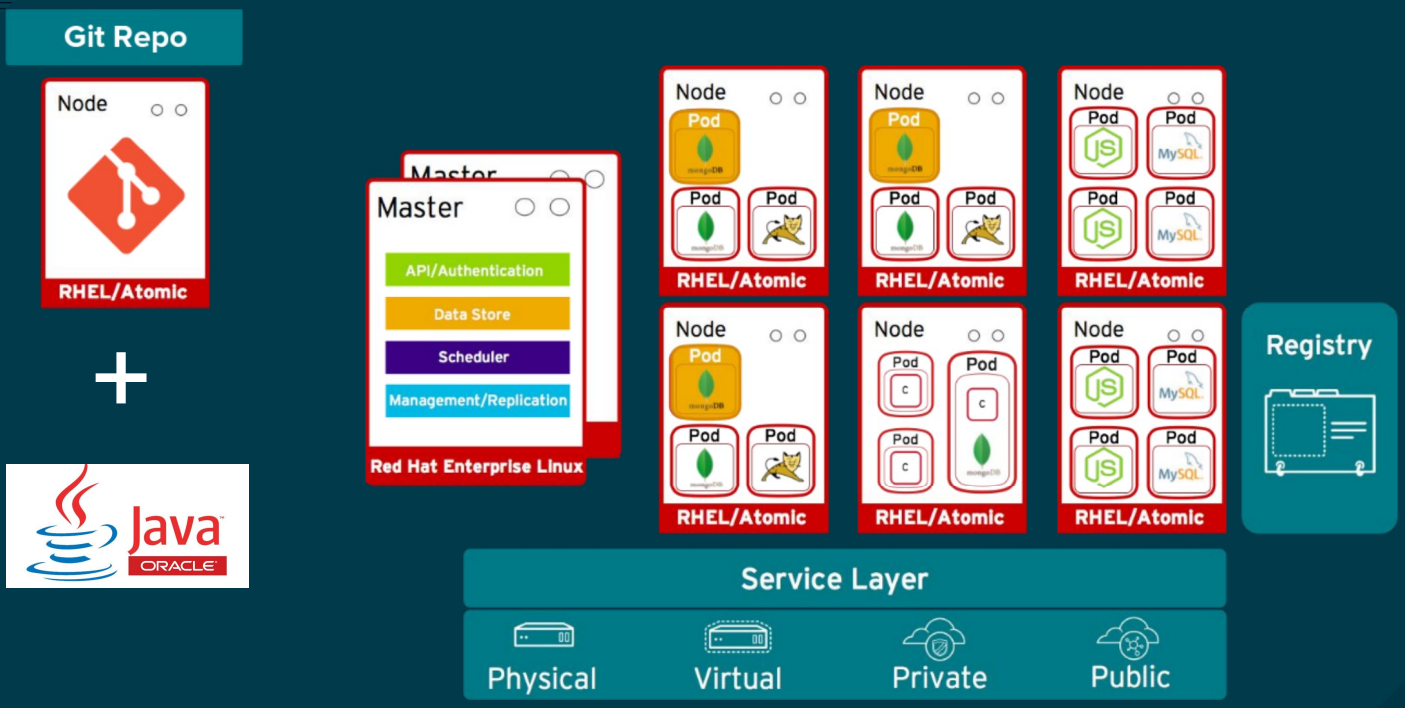
Openshift constrói apps usando Source-to-Image (sti/s2i)



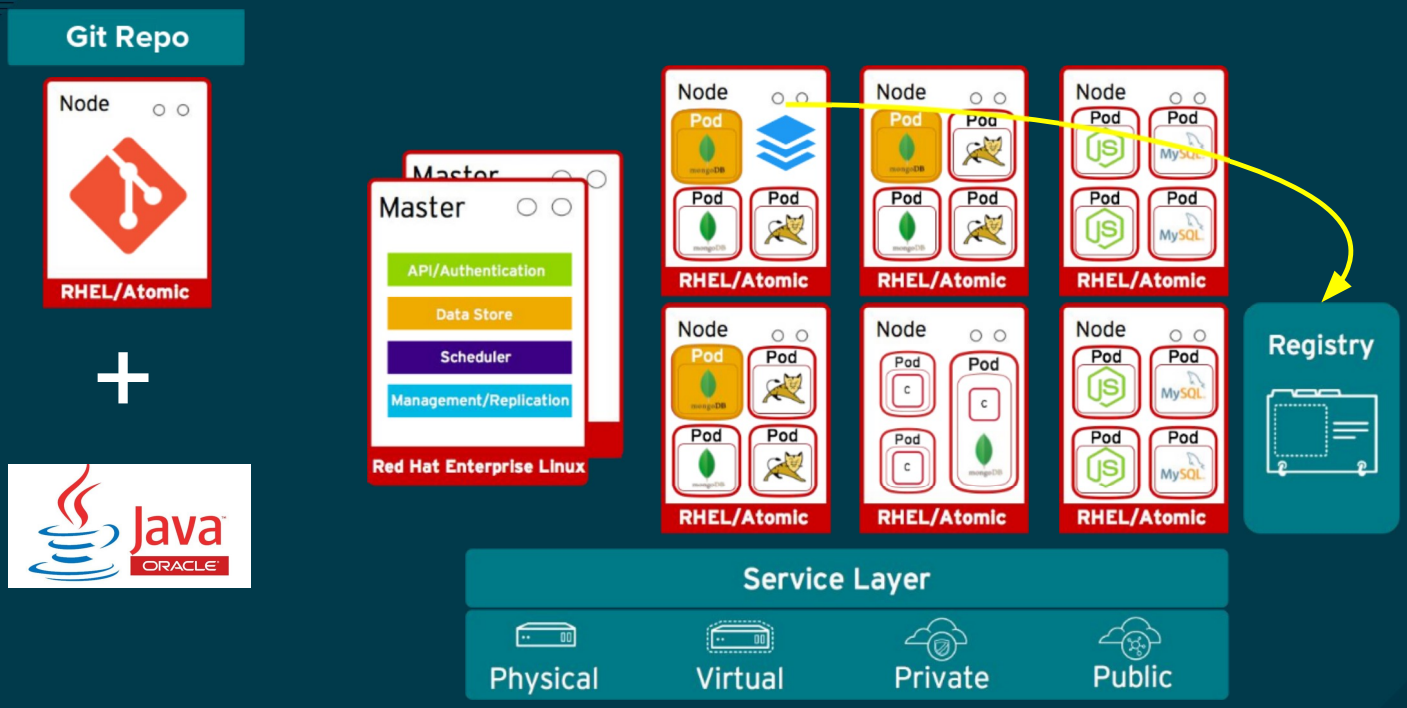
Basta informar o repositório do código fonte



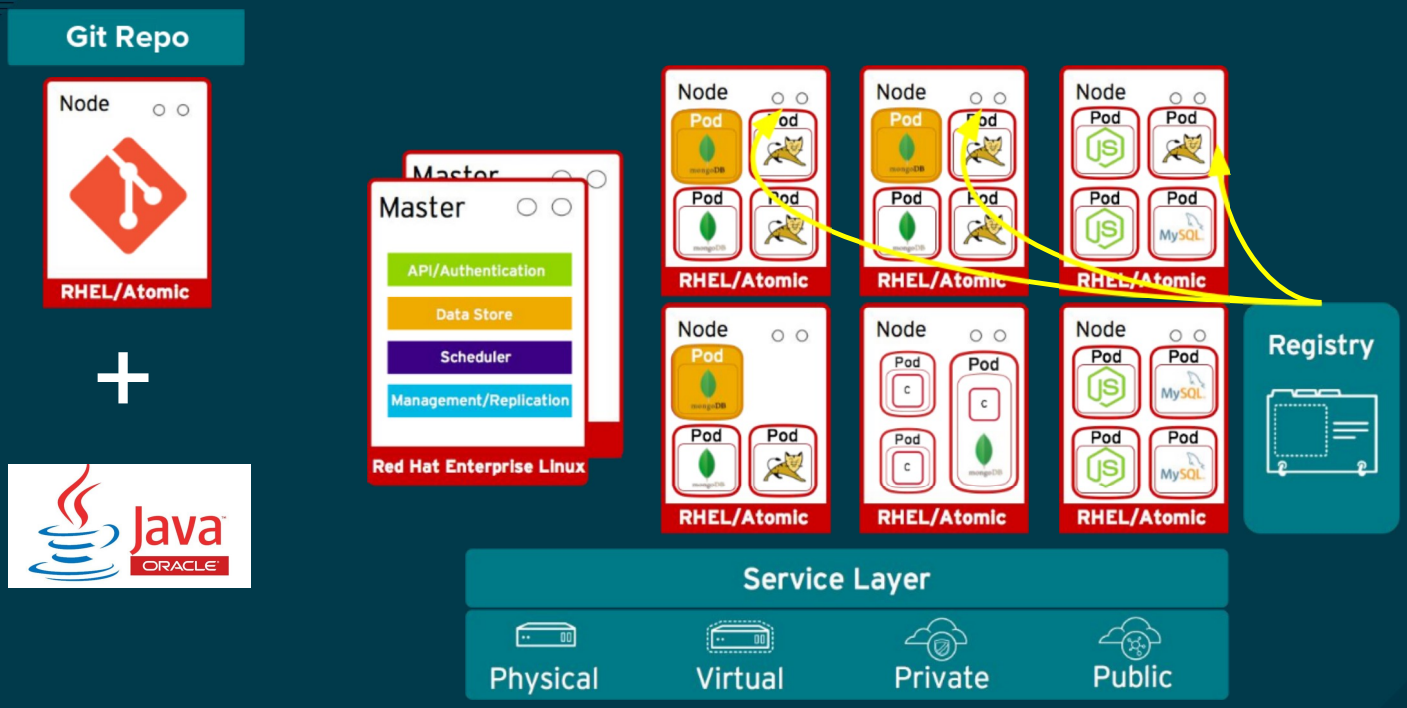
E um template da linguagem (opcional)



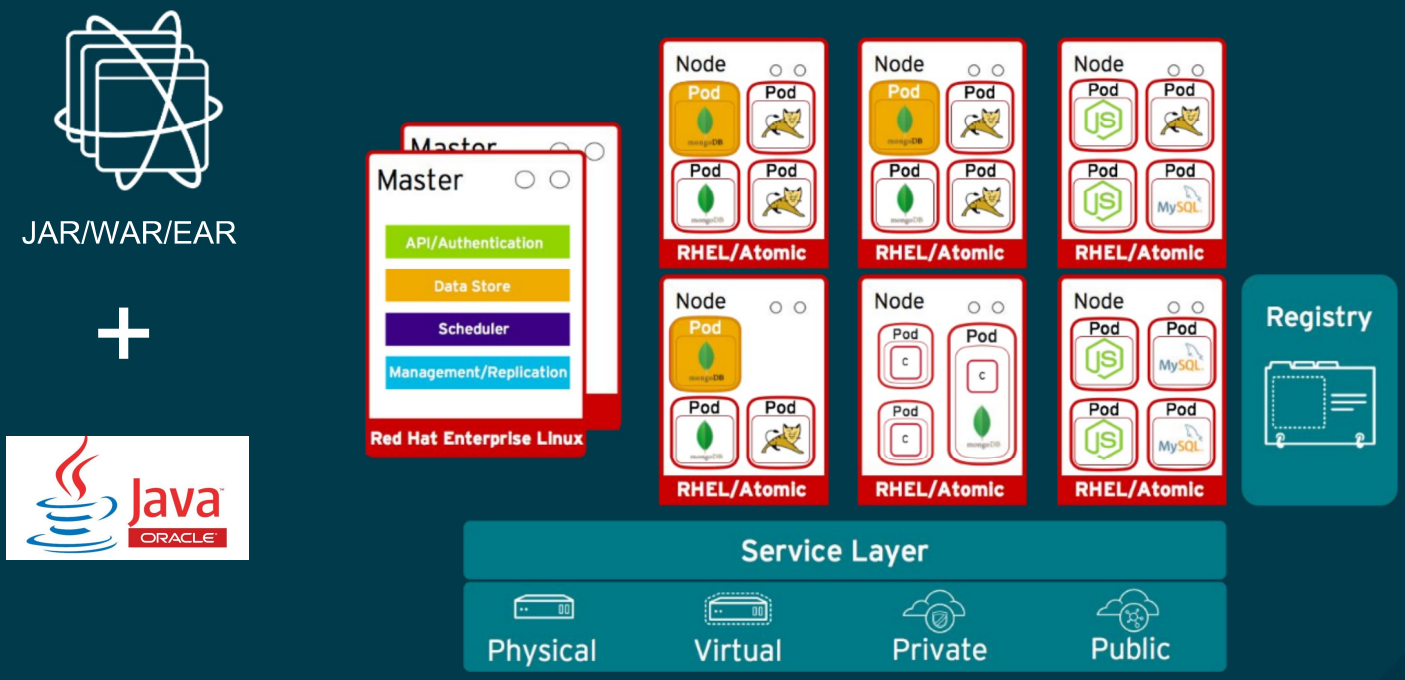
Openshift cria a imagem e salva no registry



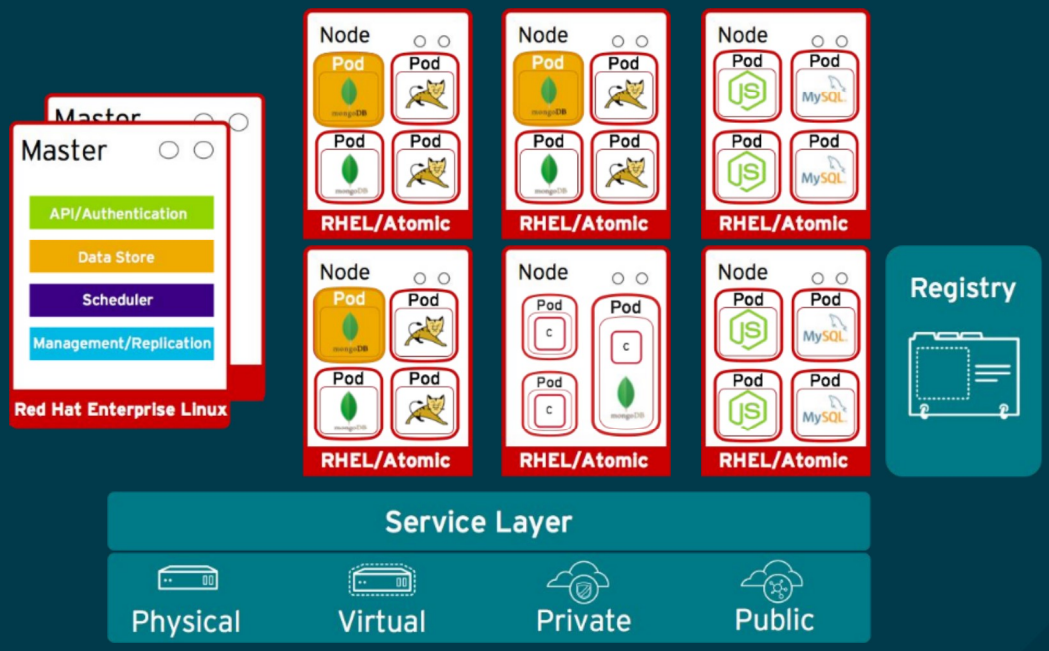
E executa a imagem da app recém criada



Além do fonte, também é possível enviar o binário da app



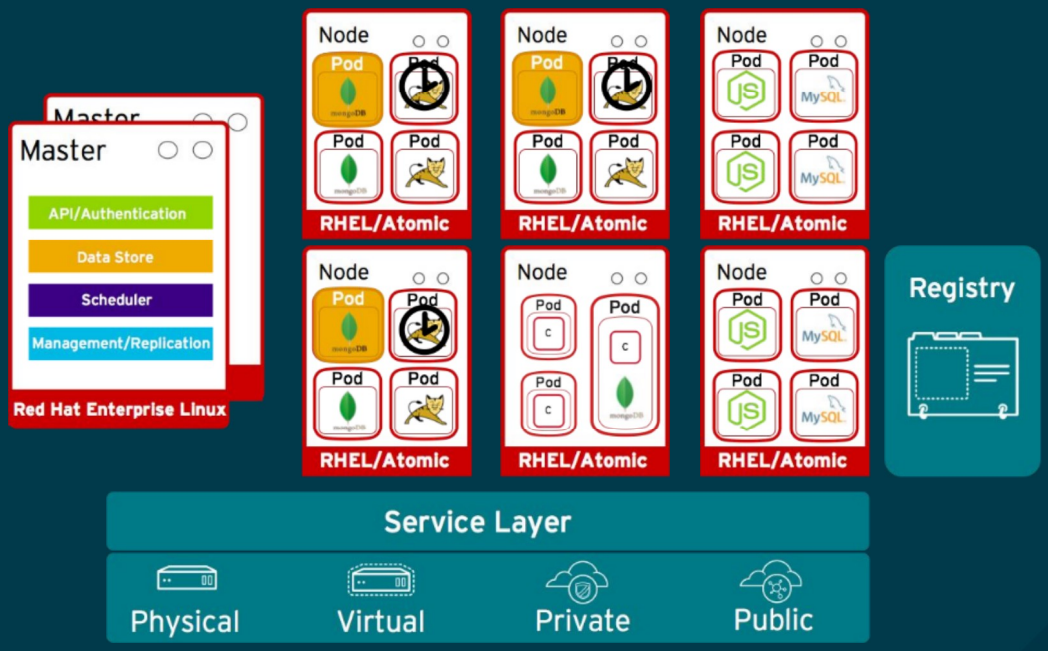
E se eu quiser executar processamento batch?



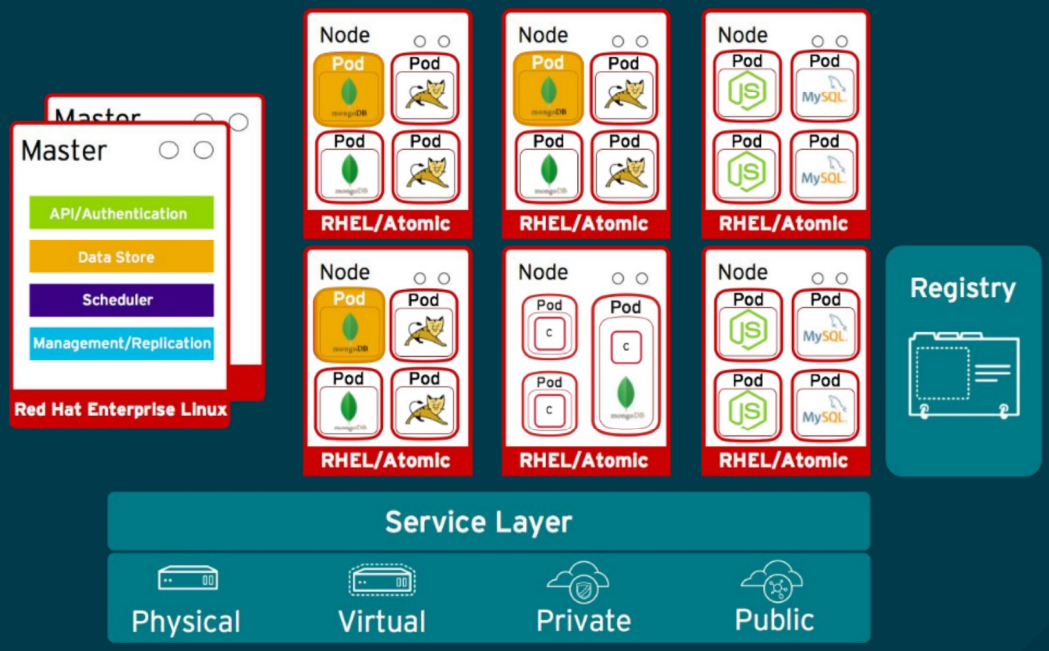
Openshift executará cron jobs

Cron:

*/1 * * * *

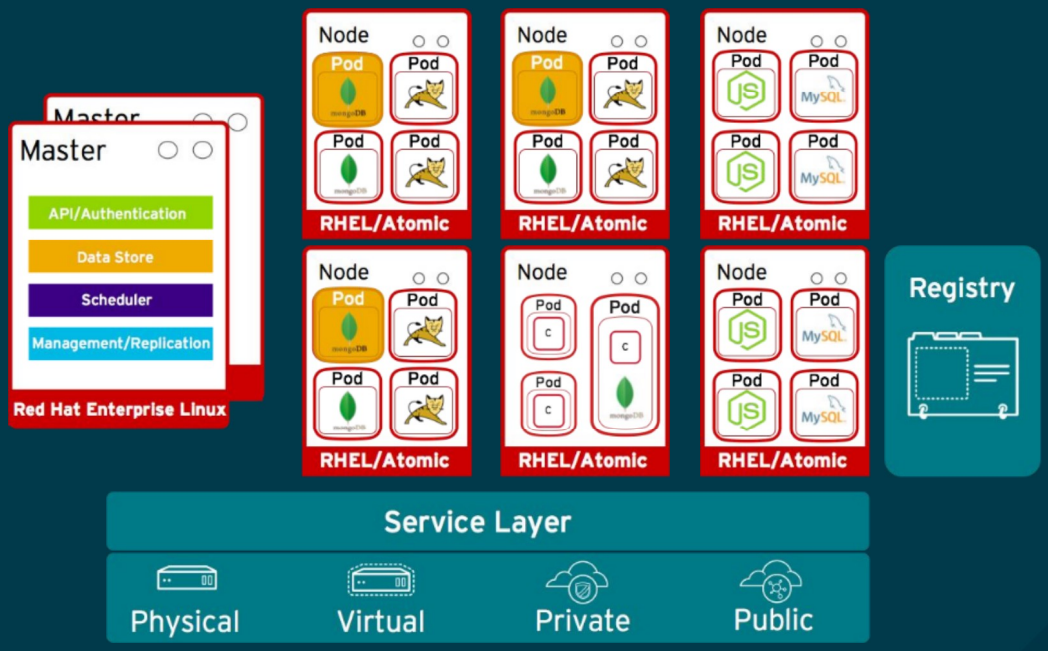


E se eu quiser monitorar os recursos da app?

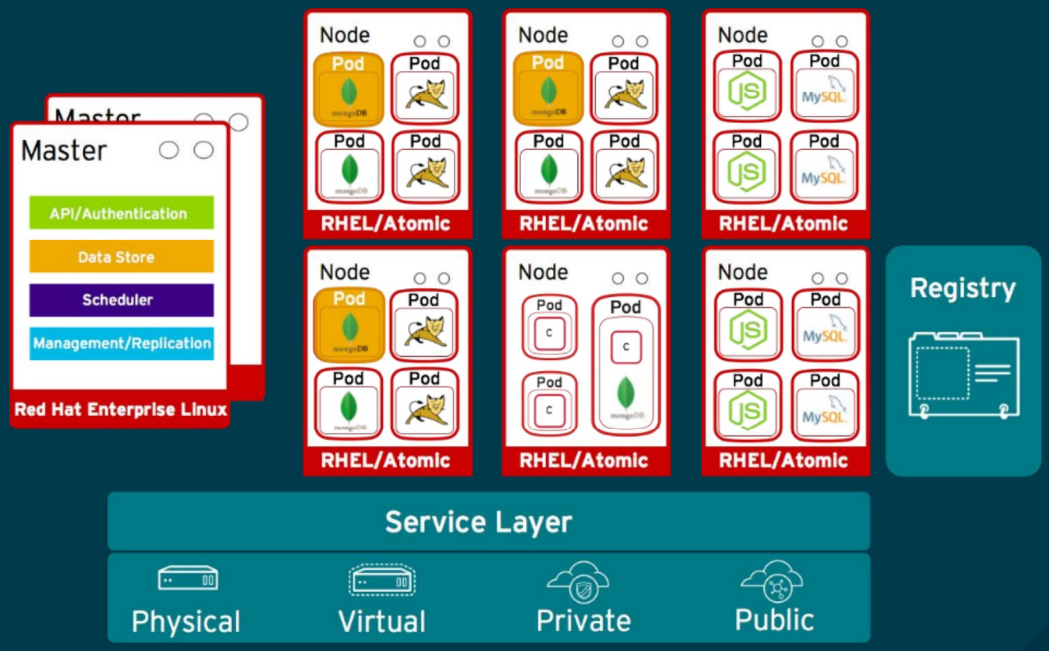


Openshift permite monitorar:

- CPU
- Memória
- Rede

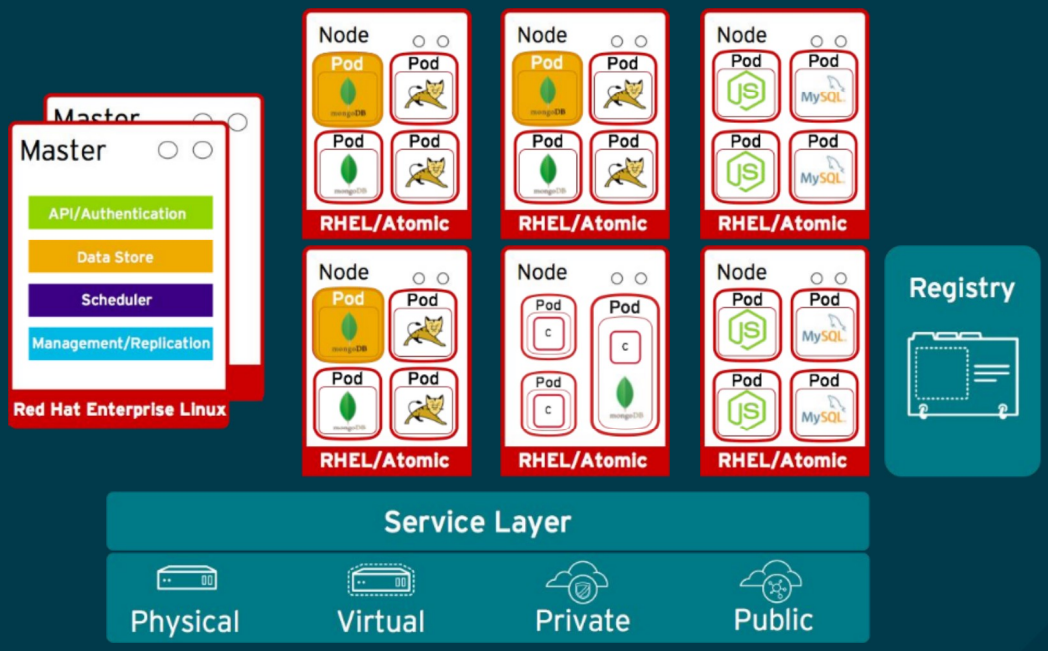


E se eu quiser monitorar os logs da minha app de maneira centralizada?

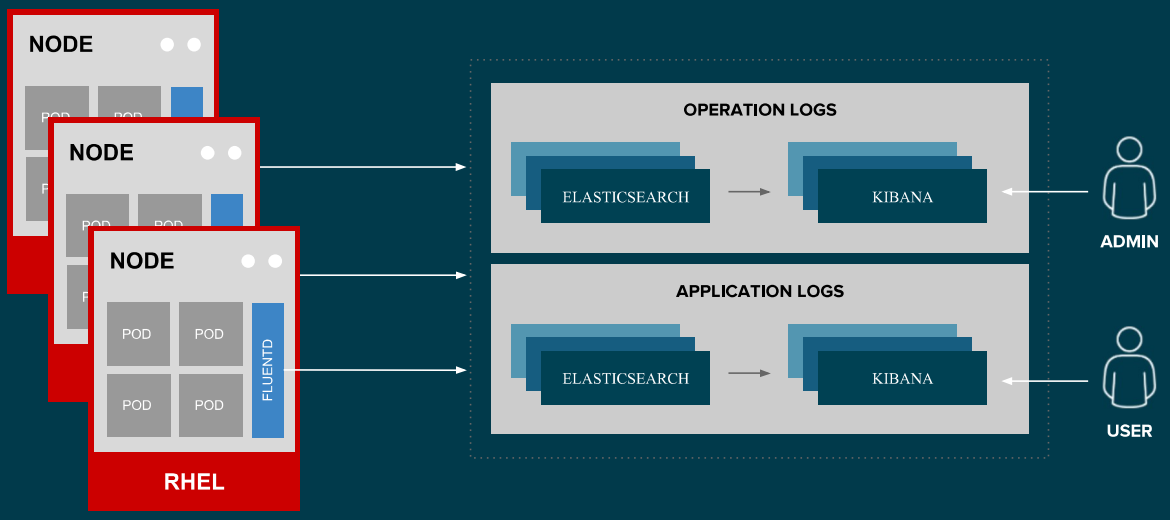


Openshift já vem com o stack EFK

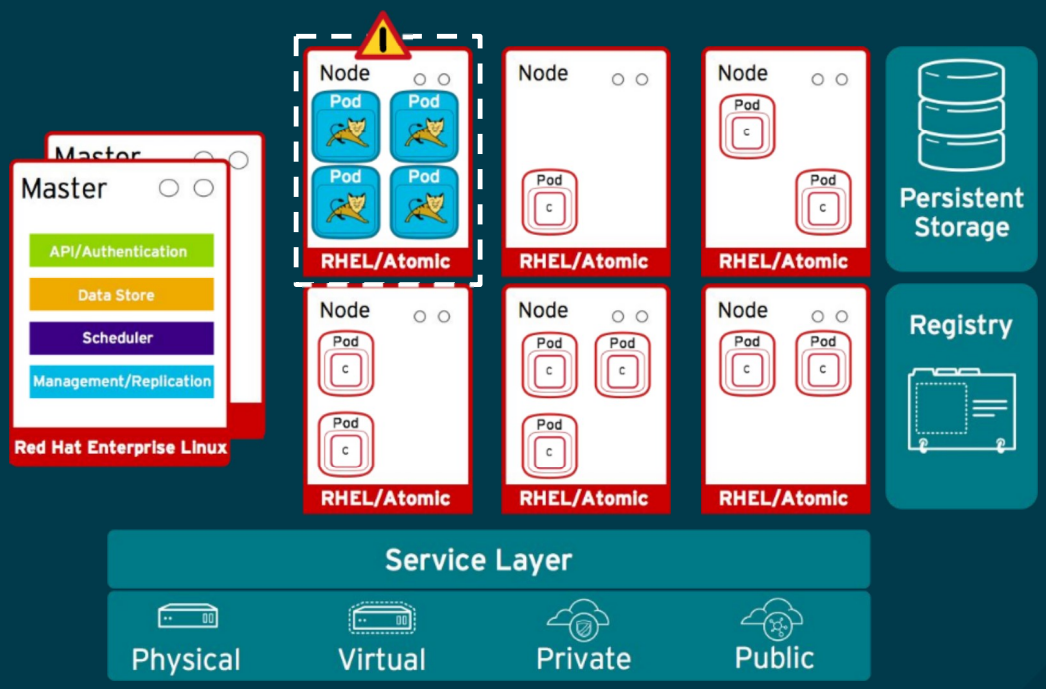
- ElasticSearch
- Fluentd
- Kibana



Openshift já vem com o stack EFK

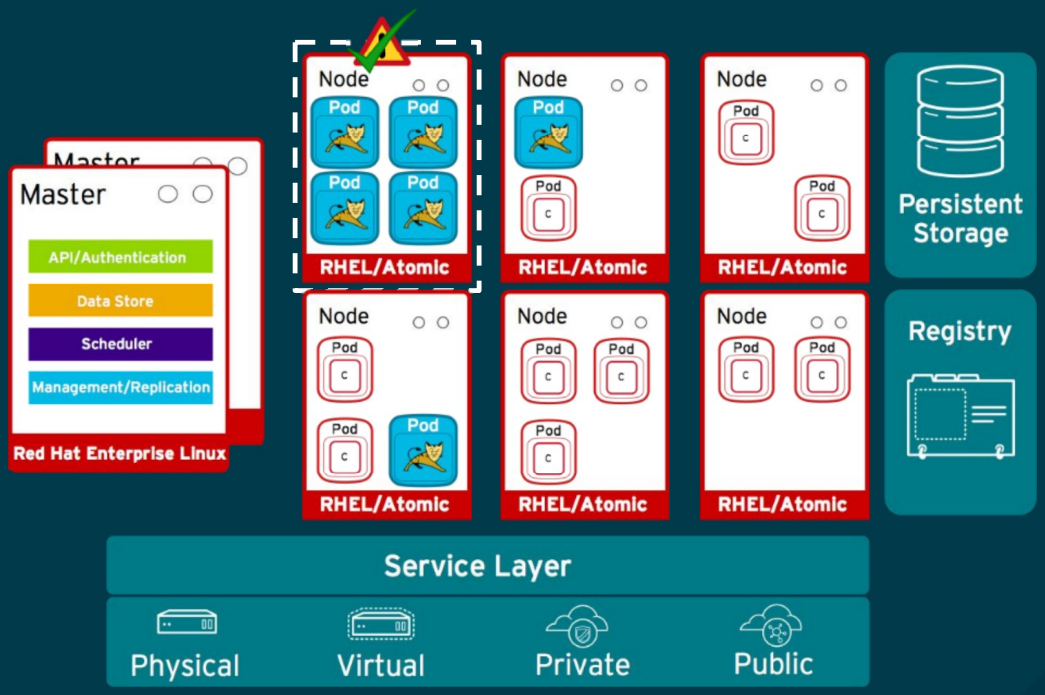


E se um node ficar saturado de instâncias da minha app?

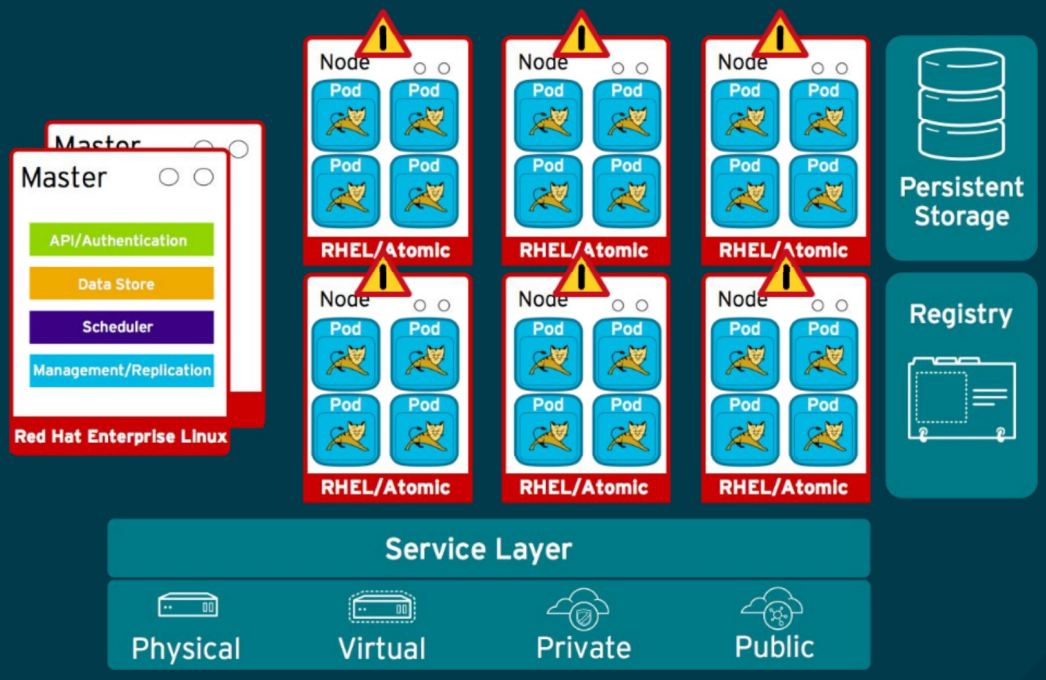


Openshift criará novas apps usando QoS

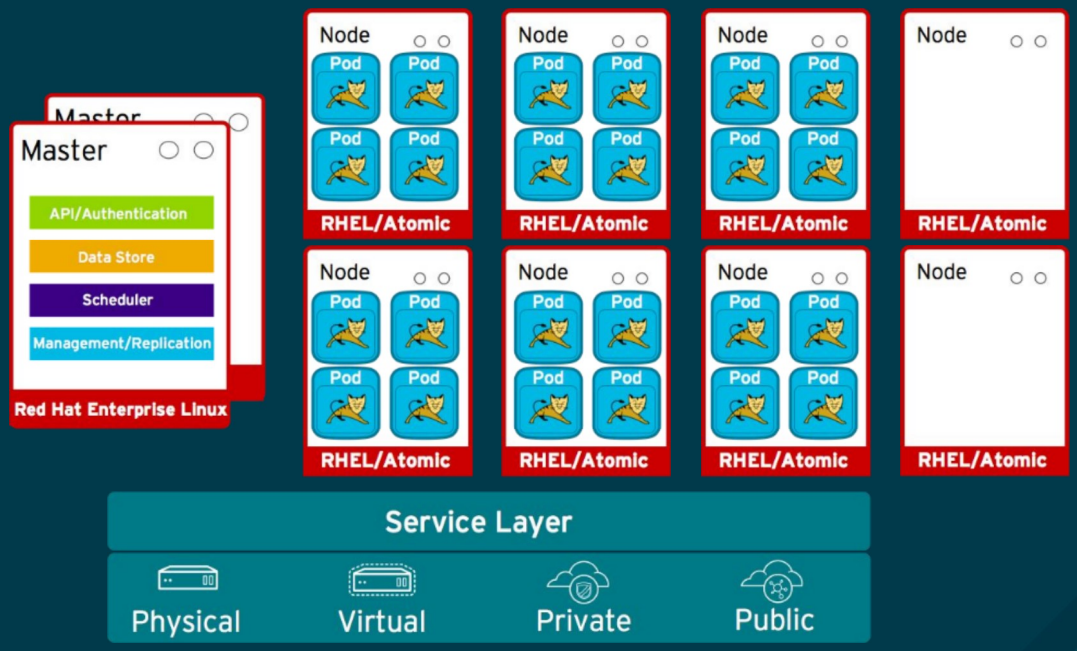
- Guaranteed
- Burstable
- BestEffort



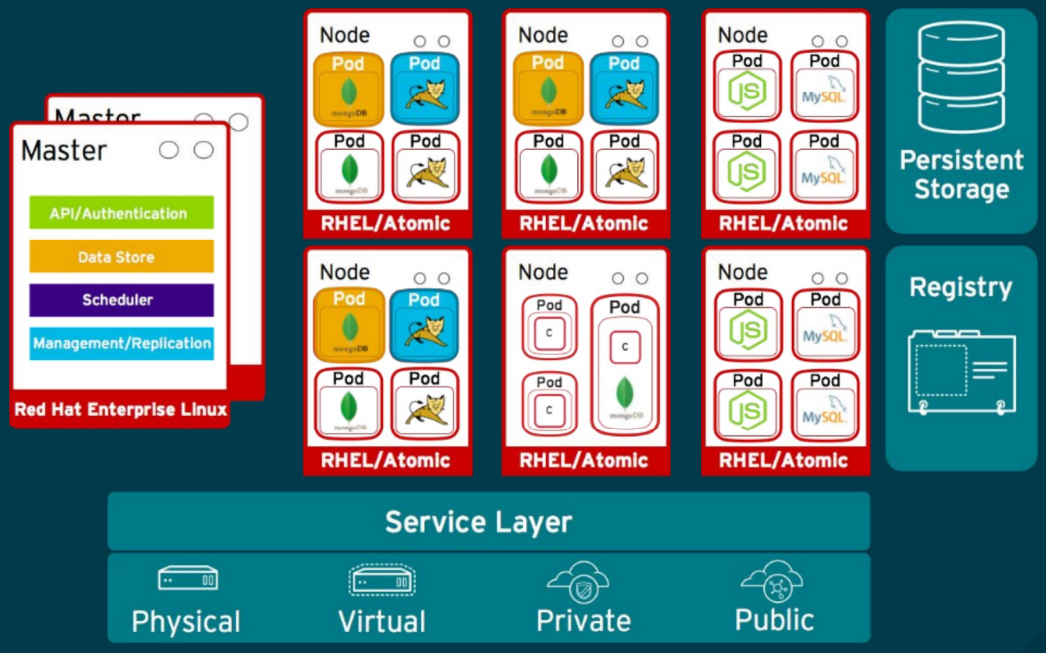
E se todos os nodes ficarem saturados?



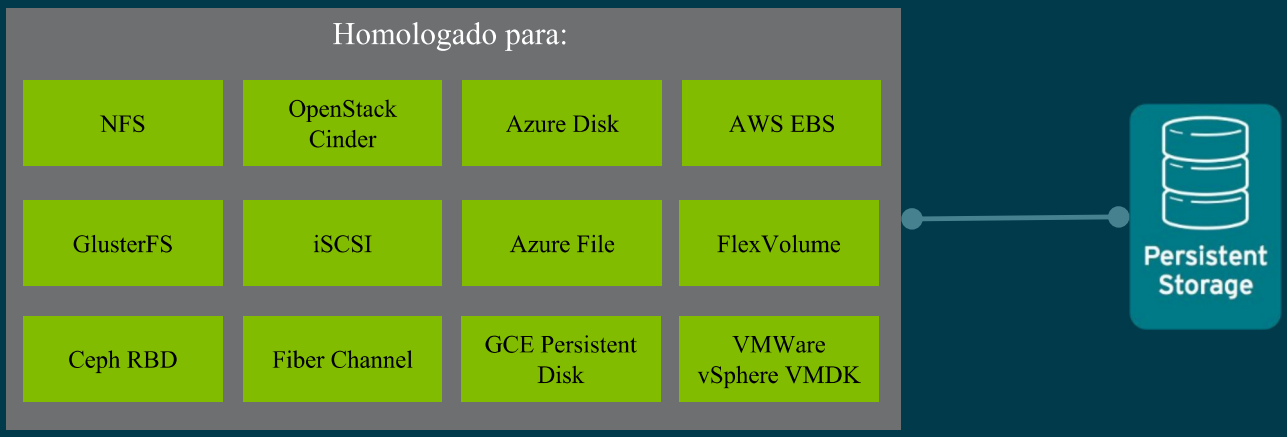
OpenShift adiciona mais nodes



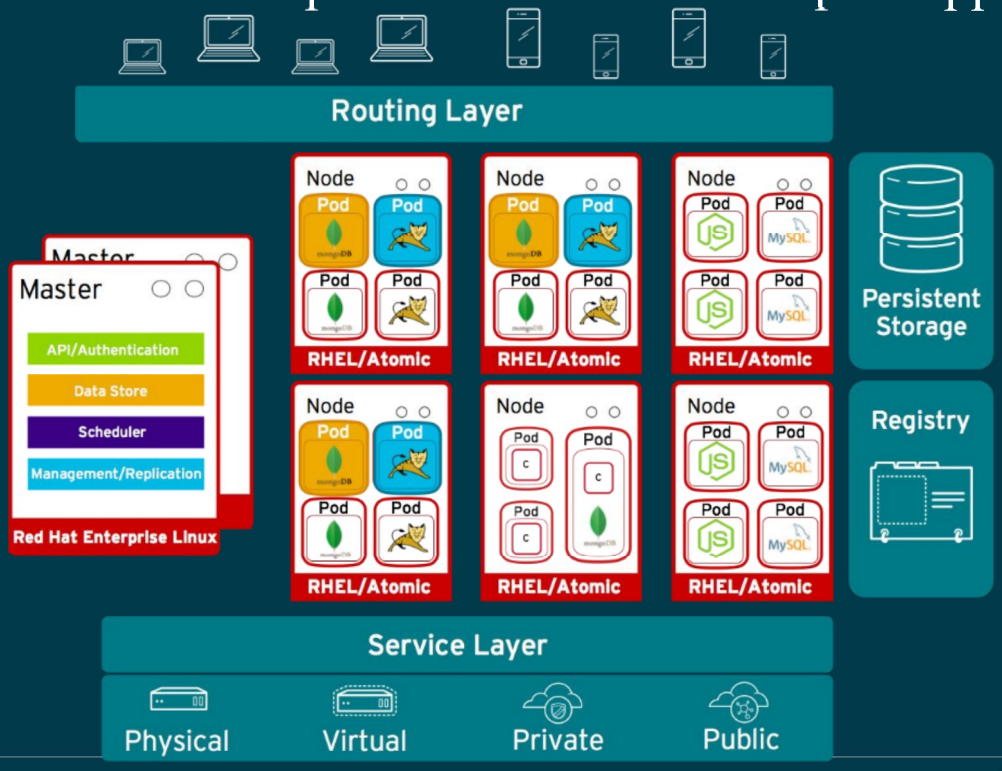
Aplicações podem usar um storage para serviços stateful



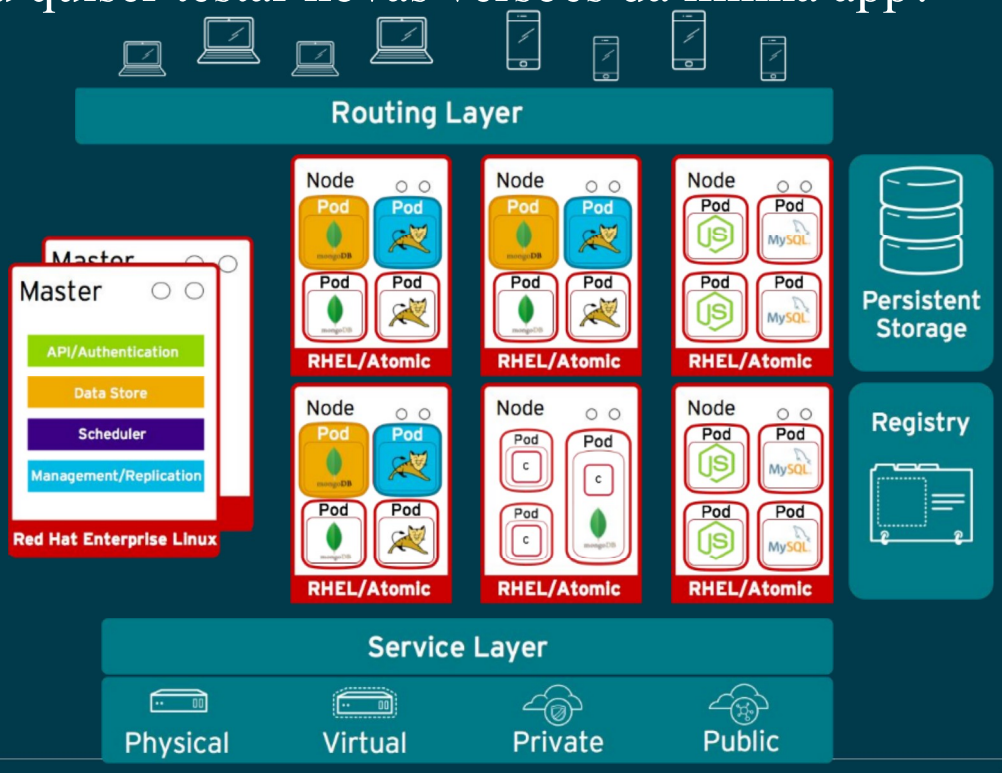
Com as principais tecnologias do mercado



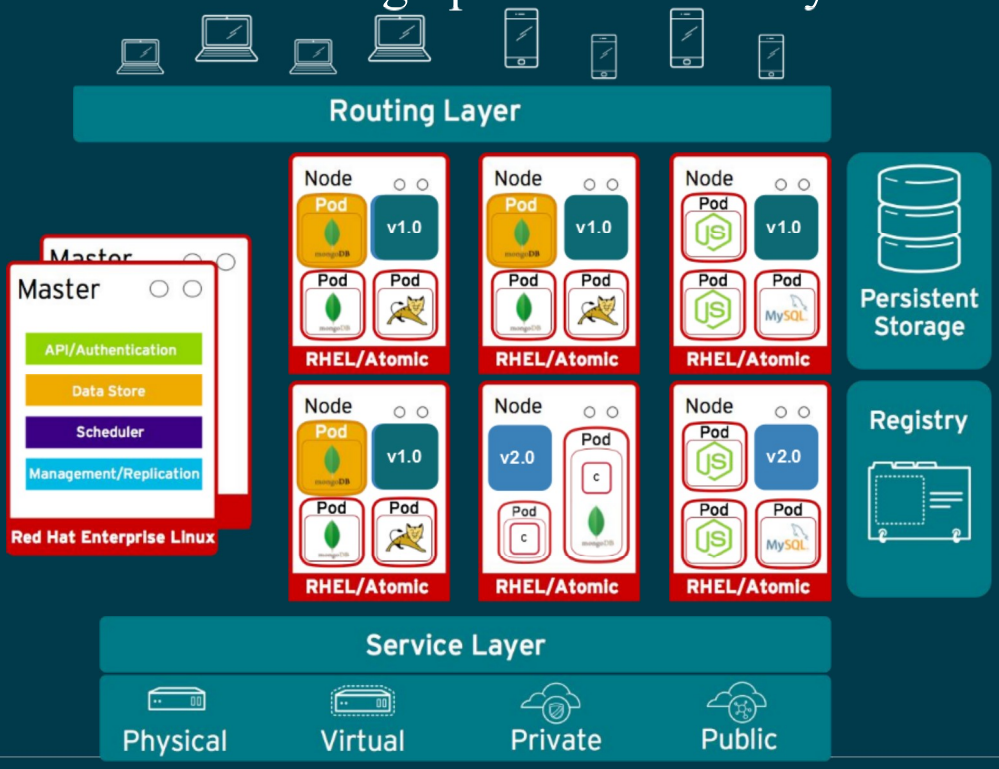
Camada de roteamento permite acesso externo para app



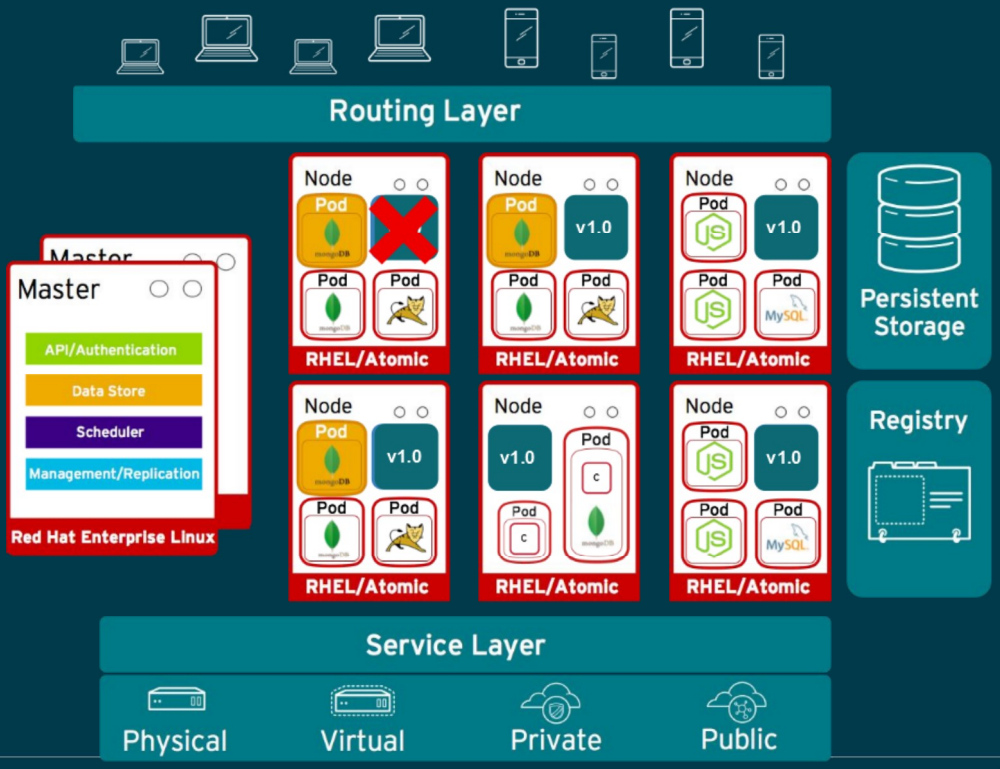
E se eu quiser testar novas versões da minha app?



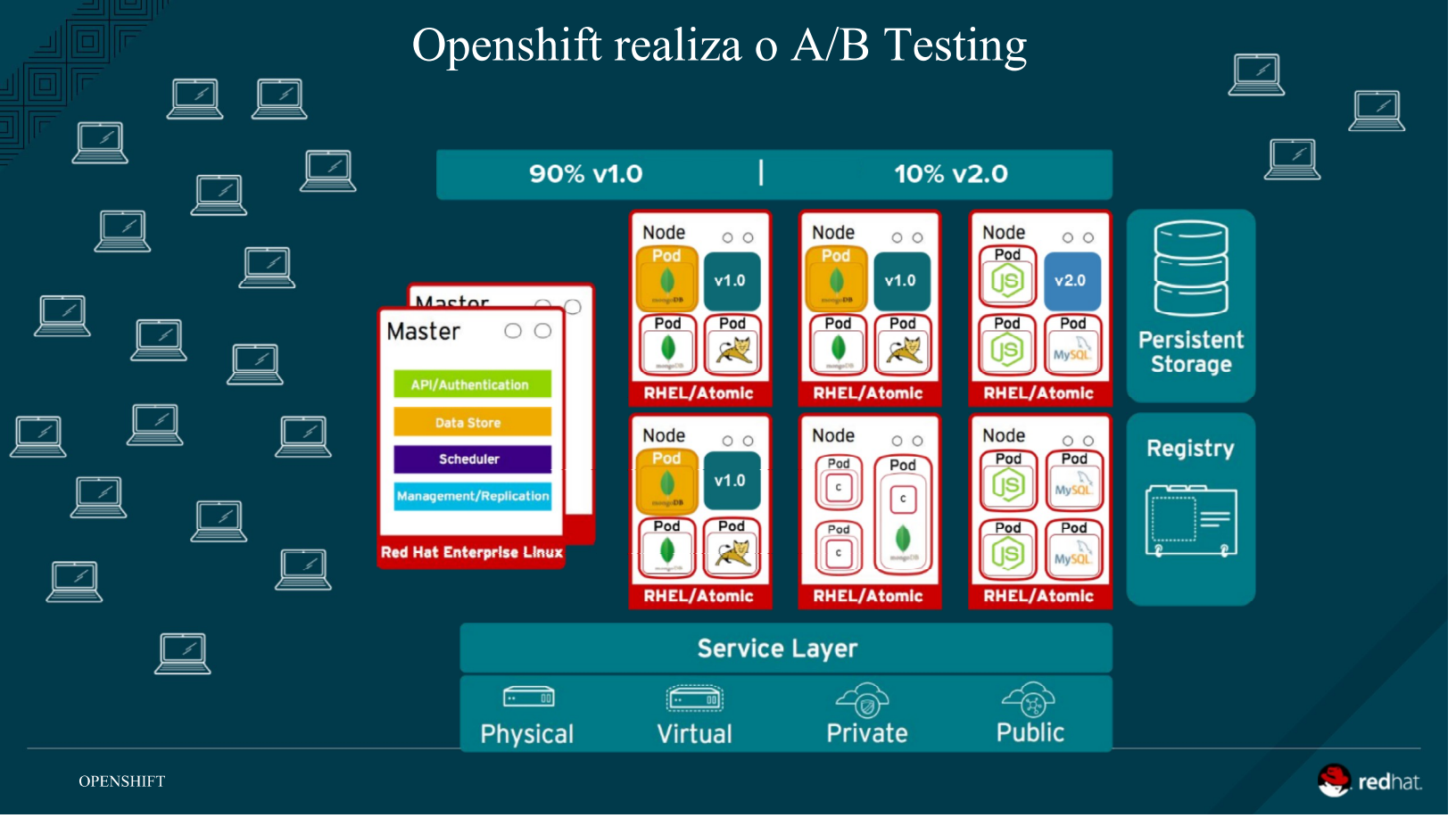
Openshift executa o rolling update com canary check



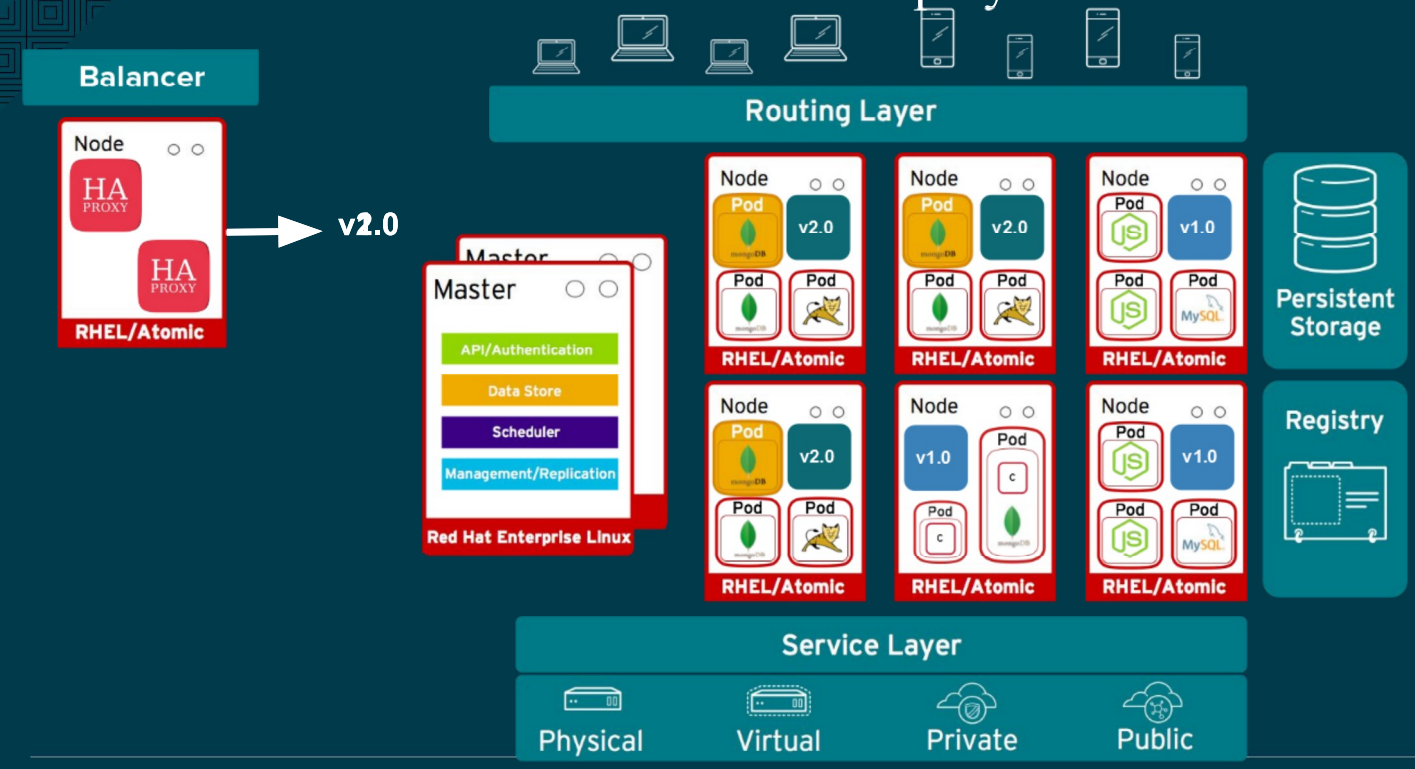
E também faz rollback manual ou automático



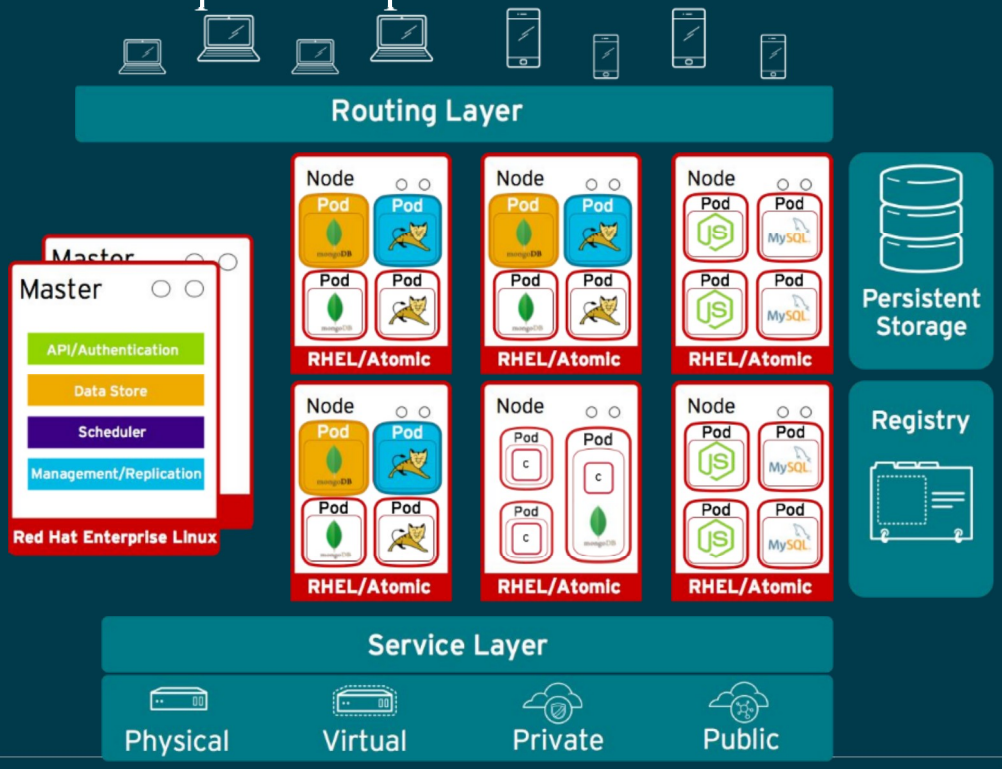
Openshift realiza o A/B Testing



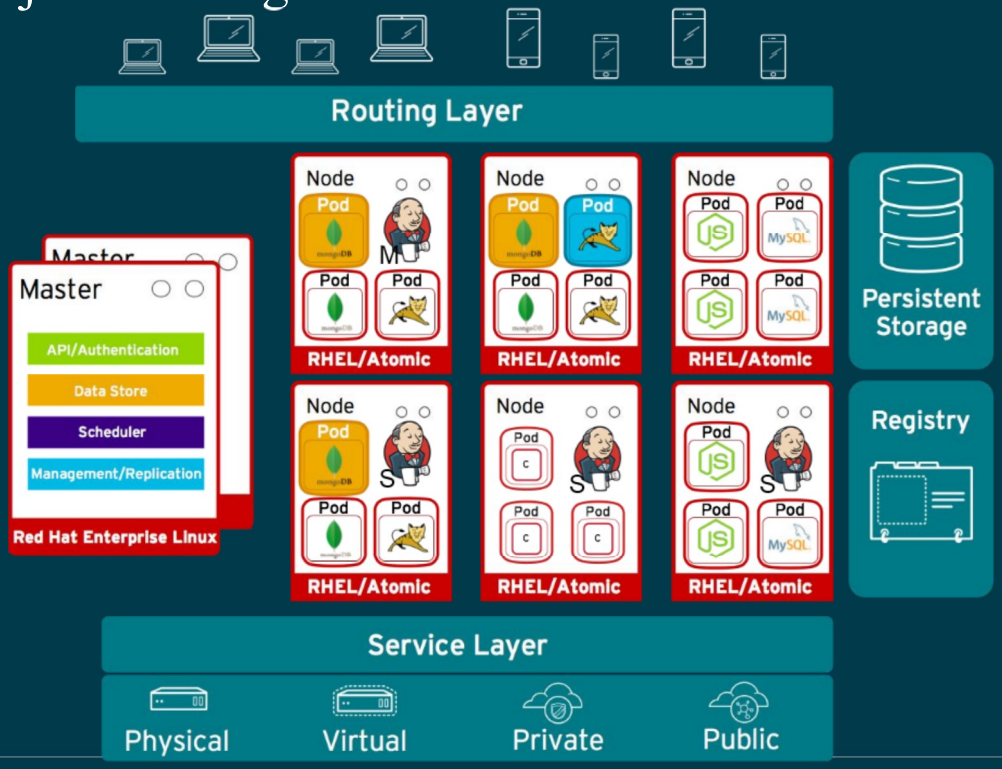
E o Blue Green Deployment



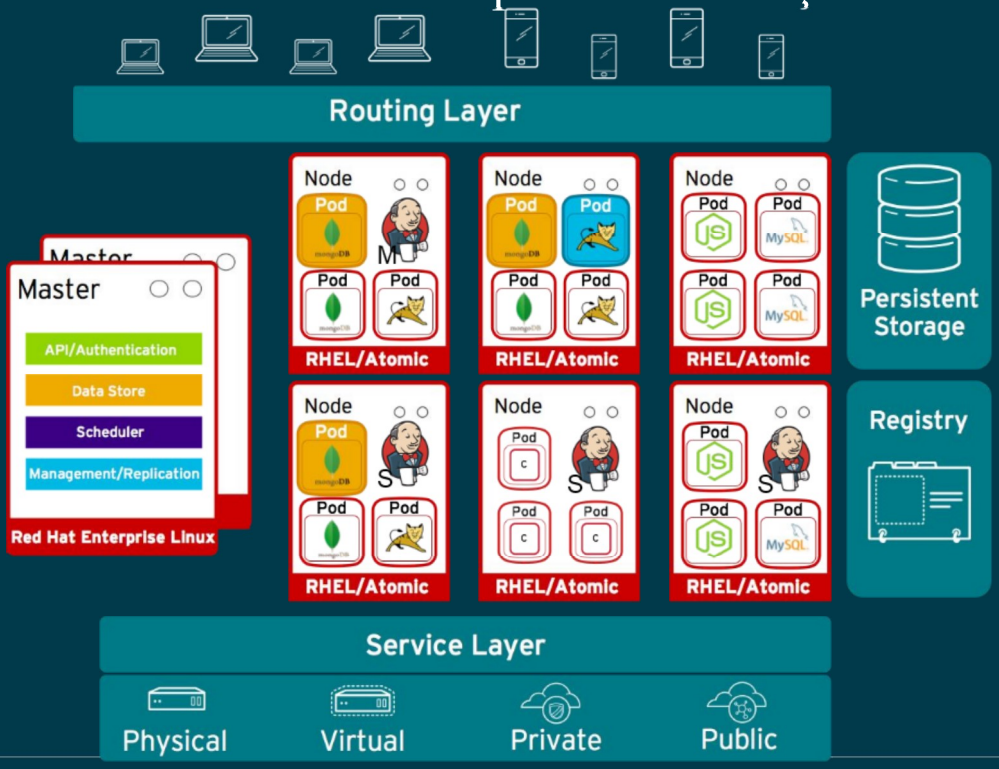
E se eu quiser implementar CI/CD?



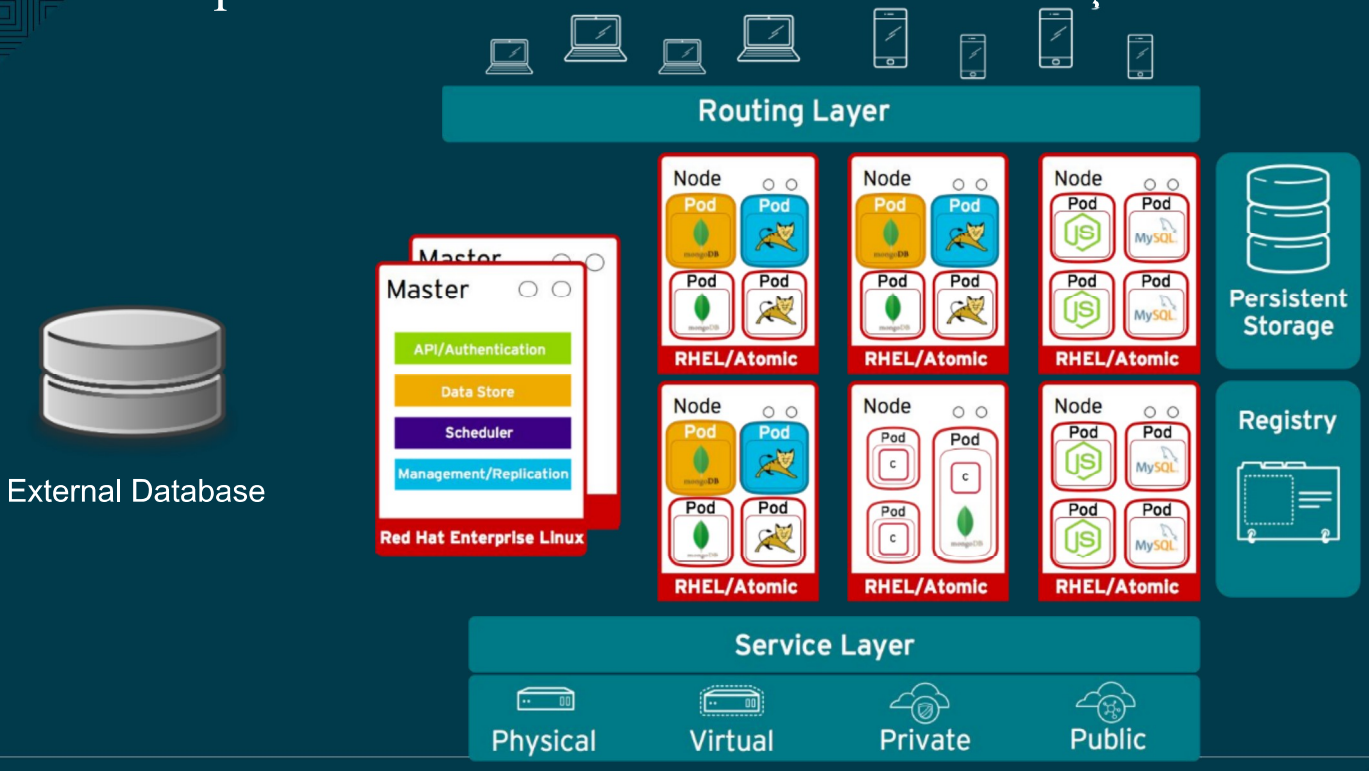
Openshift já vem integrado com o Jenkins e seus slaves



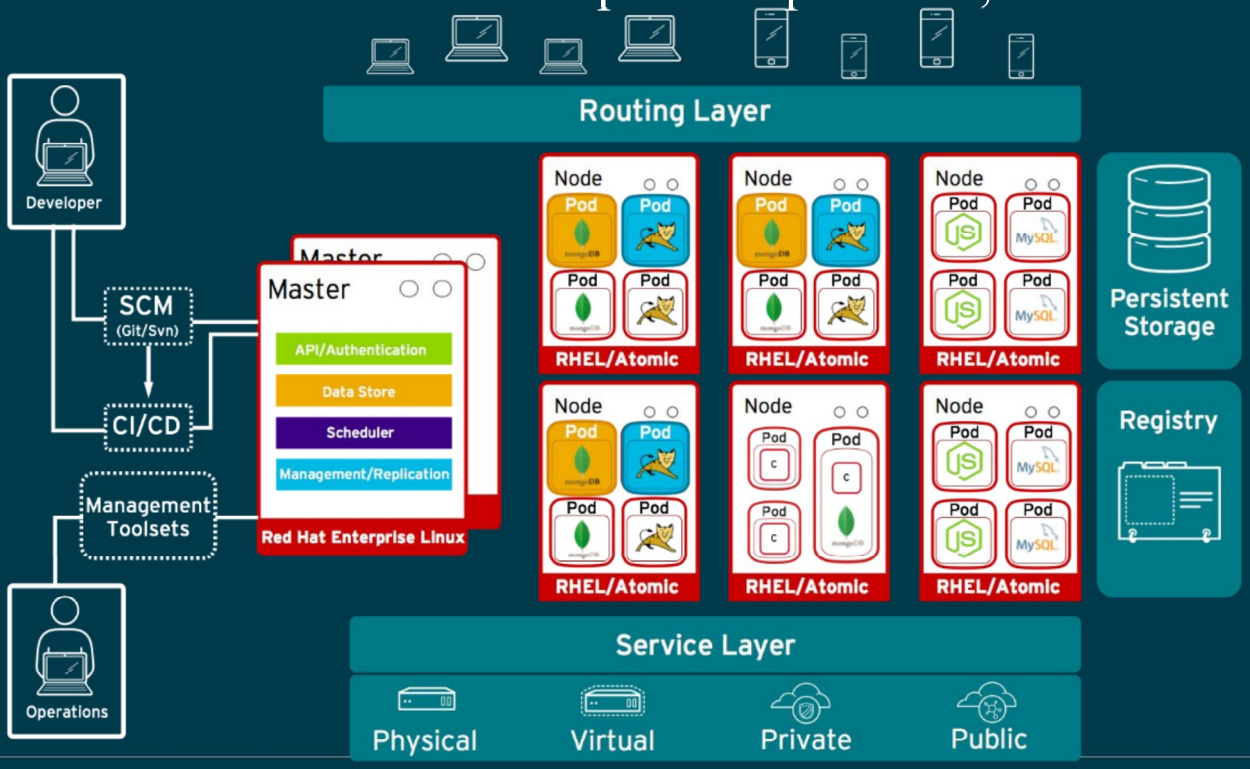
Os slaves são removidos após sua execução



Openshift também se comunica com serviços externos



Desenvolvedor acessa o Openshift pela web, CLI ou IDE



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Demo time!

CONTAINERS EM PRODUÇÃO USANDO O RED HAT OPENSHIFT

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Test Driver OpenShift 07/04
e-mail para fahmad@redhat.com até 03/04

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