Comment gérer des applications nécessitant la persistance des données avec Kubernetes

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Agenda

- Contexte
- Volume provider
- Gestion le lifecycle de Volumes
- Demo
- Conclusion

Pourquoi choisir Kubernetes plutôt que des VMs ?

Parce que Kubernetes est un framework de gestion de système distribué

Pourquoi a-t-on besoin de gérer la persistance des données ?

Parce qu'une architecture stateless... ça n'existe pas

Types de volumes

Types de Volumes - Kubernetes Internals

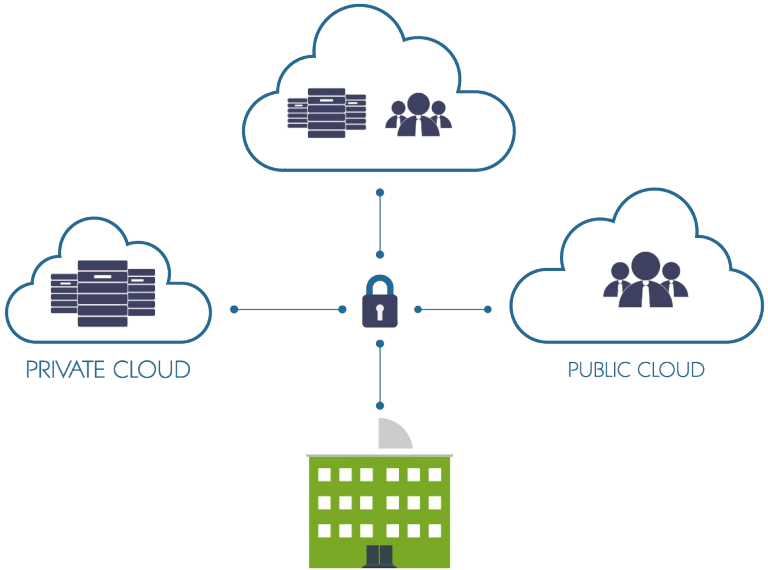
- configMap
- downwardAPI
- emptyDir
- gitRepo
- hostPath
- local
- persistentVolumeClaim
- projected
- Secret
- csi

Types de Volumes - Public Cloud

- awsElasticBlockStore
- azureDisk
- azureFile
- gcePersistentDisk

Types de Volumes - Non Cloud Dependant

- cephfs
- fc (fibre channel)
- flocker
- glusterfs
- nfs
- iscsi
- portworxVolume
- quobyte
- rbd (Rados Block Device)
- scaleIO
- storageos
- vsphereVolume



Un problème ?

CSI à la rescousse

CSI c’est quoi ?

- Container Storage Interface
- Adopté par Kubernetes, Mesos et Cloud Foundry (pour l’instant)
- Supporté en beta dans Kubernetes 1.10 (planifié en stable pour 1.12)
- Un moyen standard d’exposer du storage au container

Pourquoi est ce important ?

- Interface commune à plusieurs plates-formes (standardisation)
- Permet l'évolution des storage provider en dehors des realease de Kubernetes

Mise en situation avec **Bob** le développeur et **John** le Sysadmin

Scénario: Persistent Volumes et Claims

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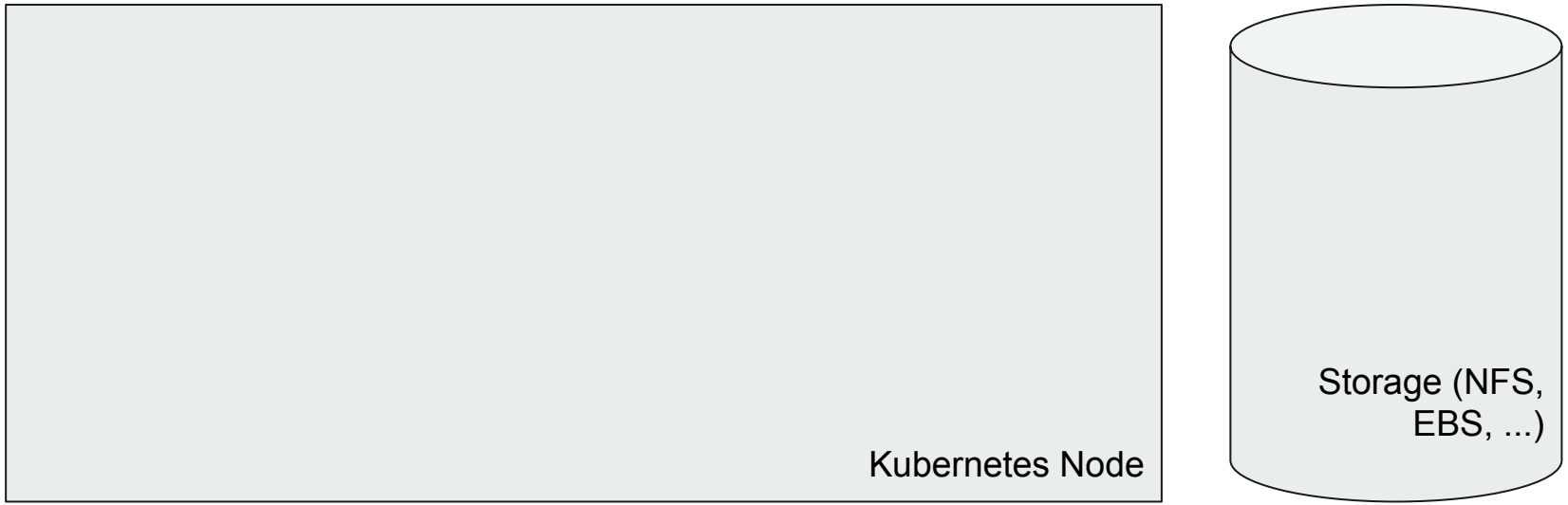

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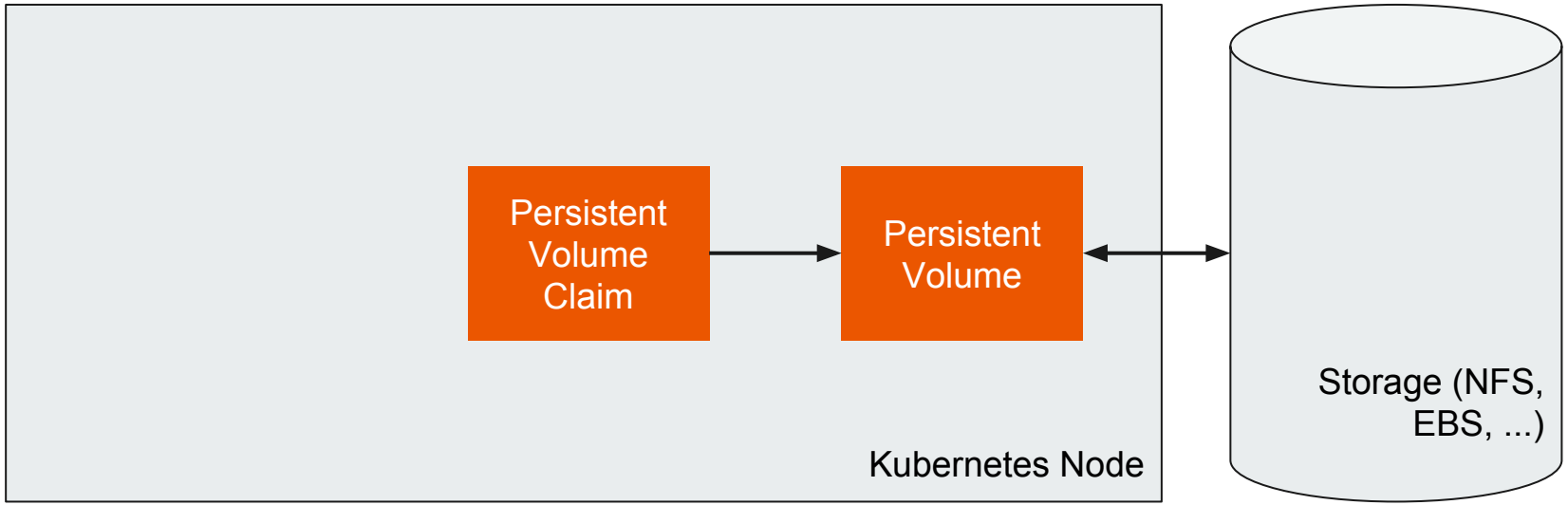

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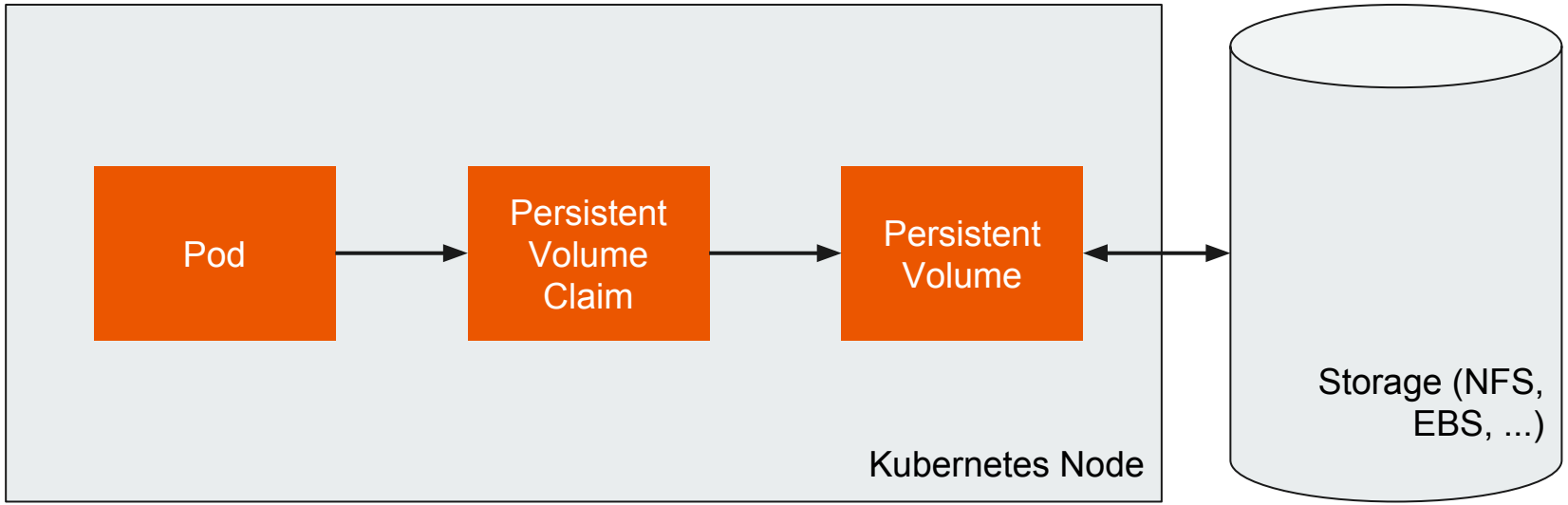

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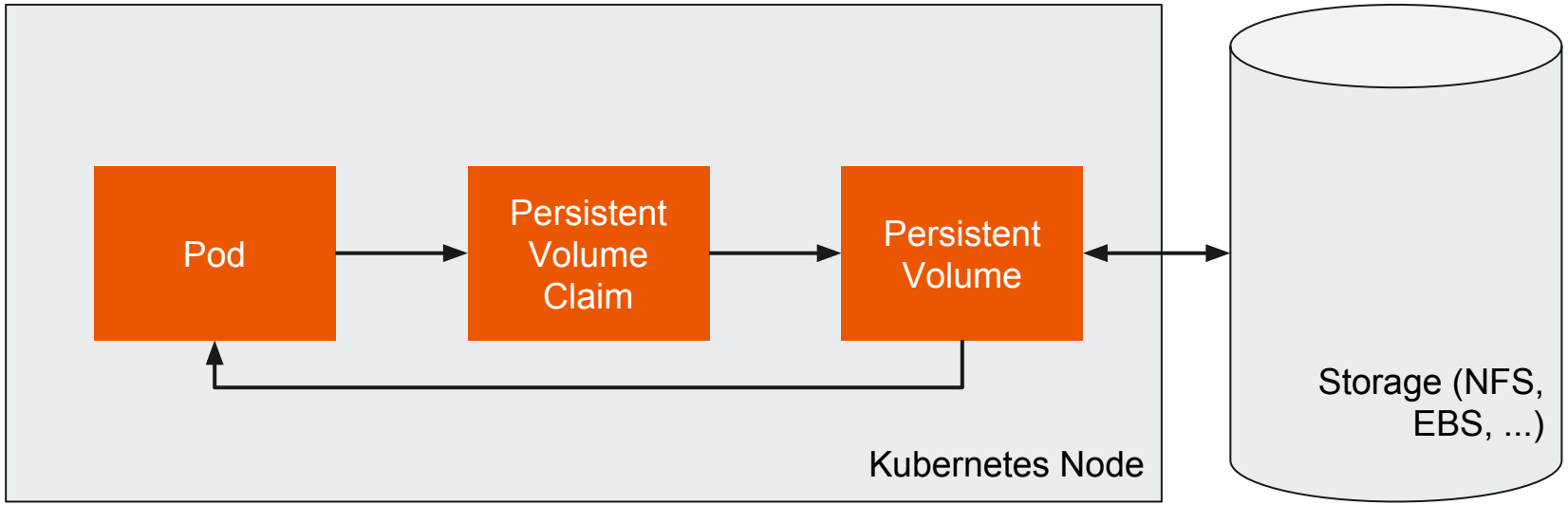

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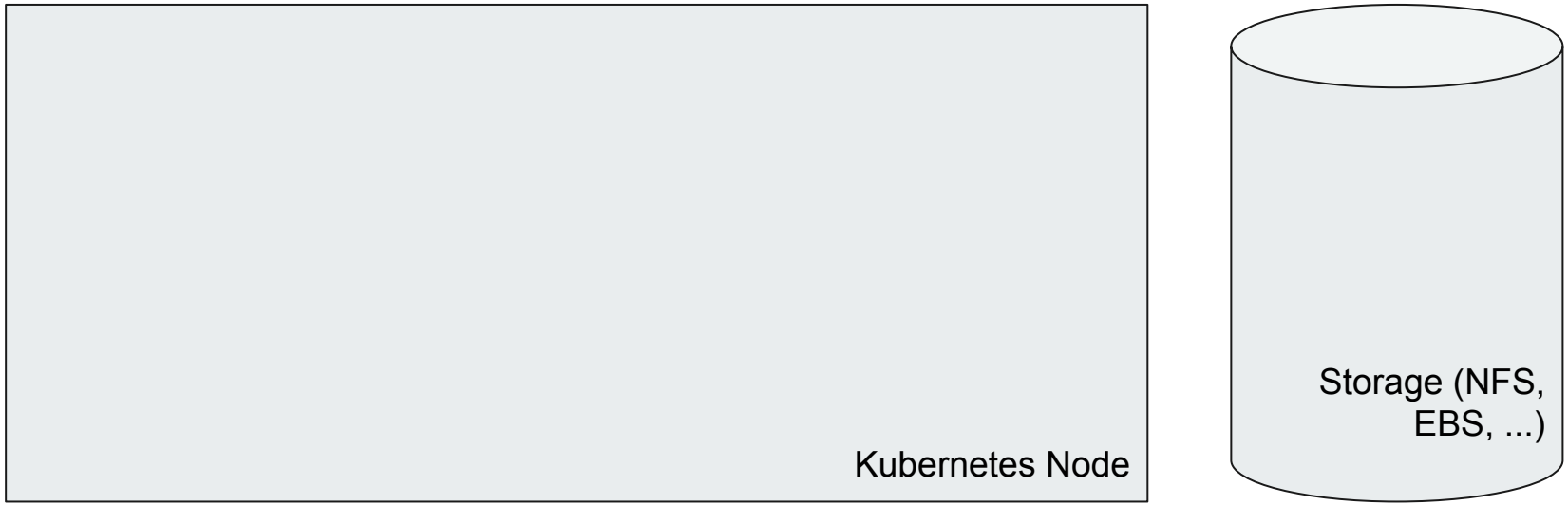

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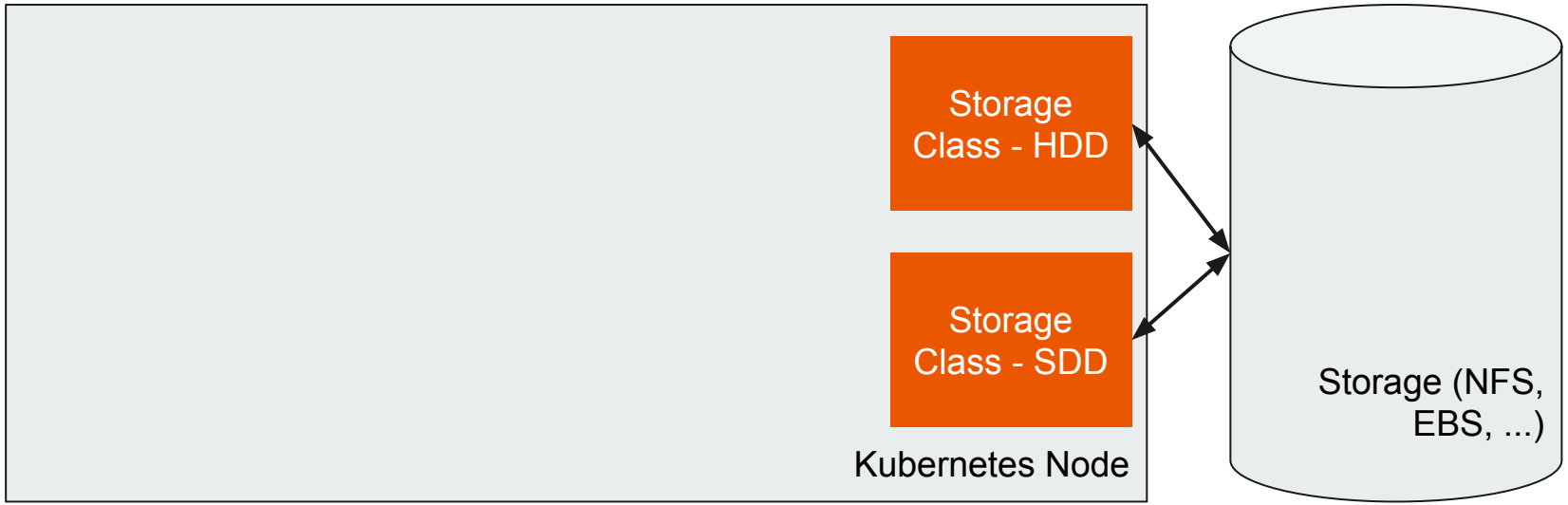

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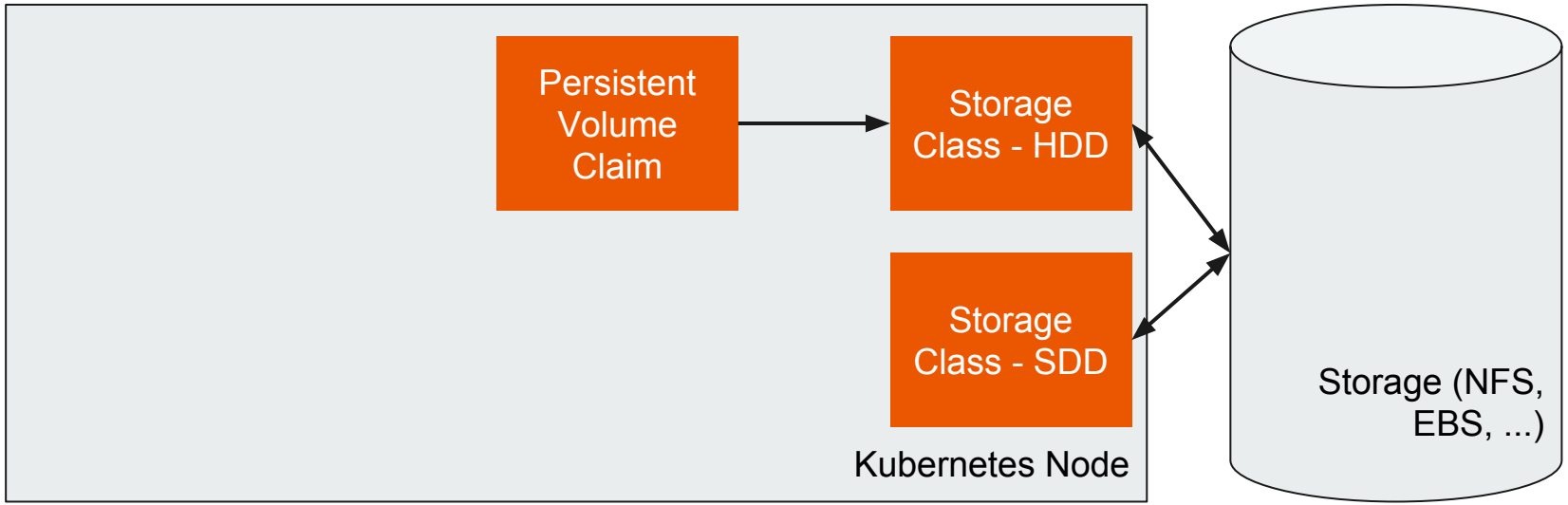

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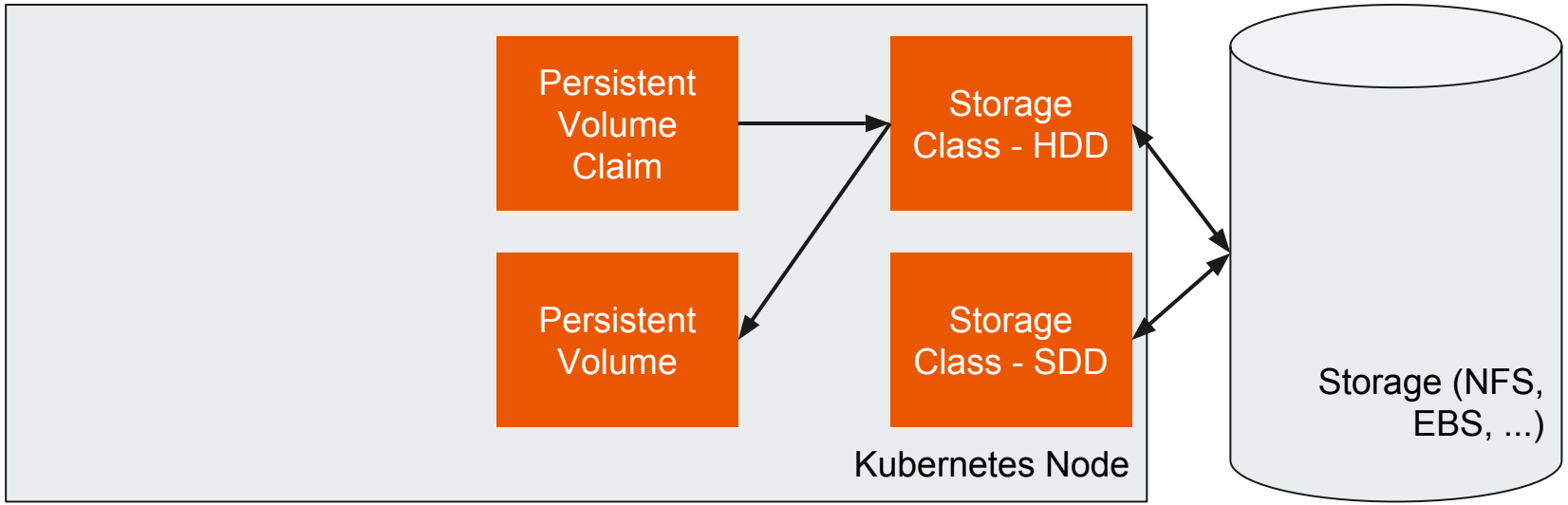

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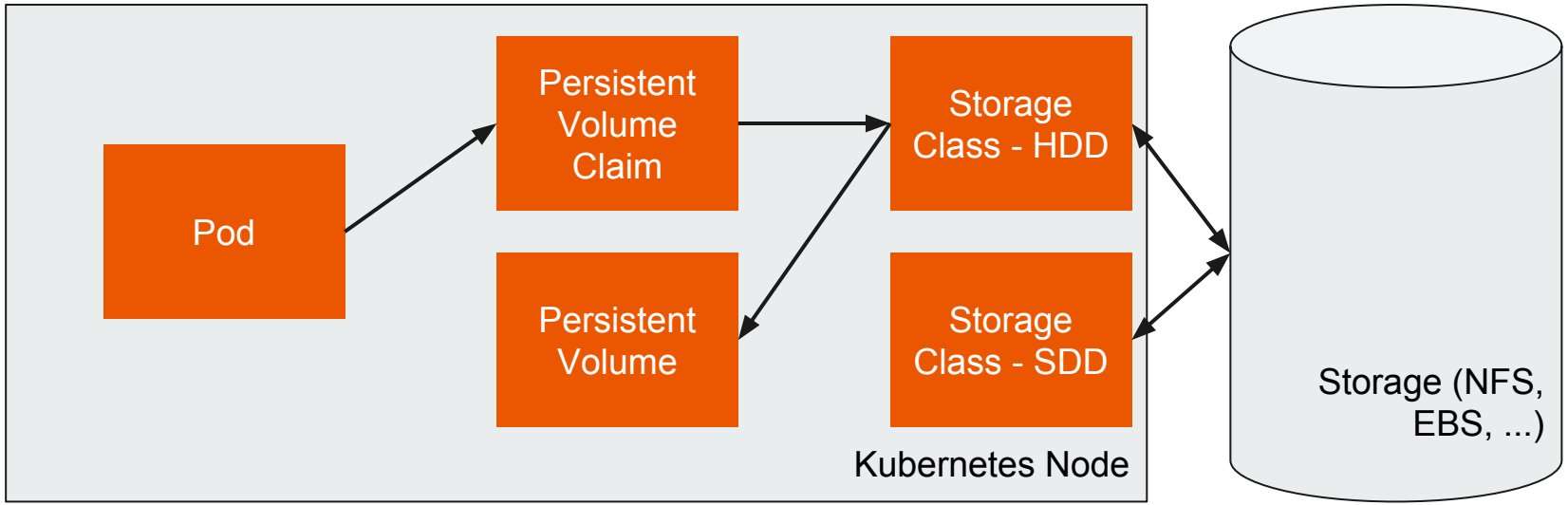

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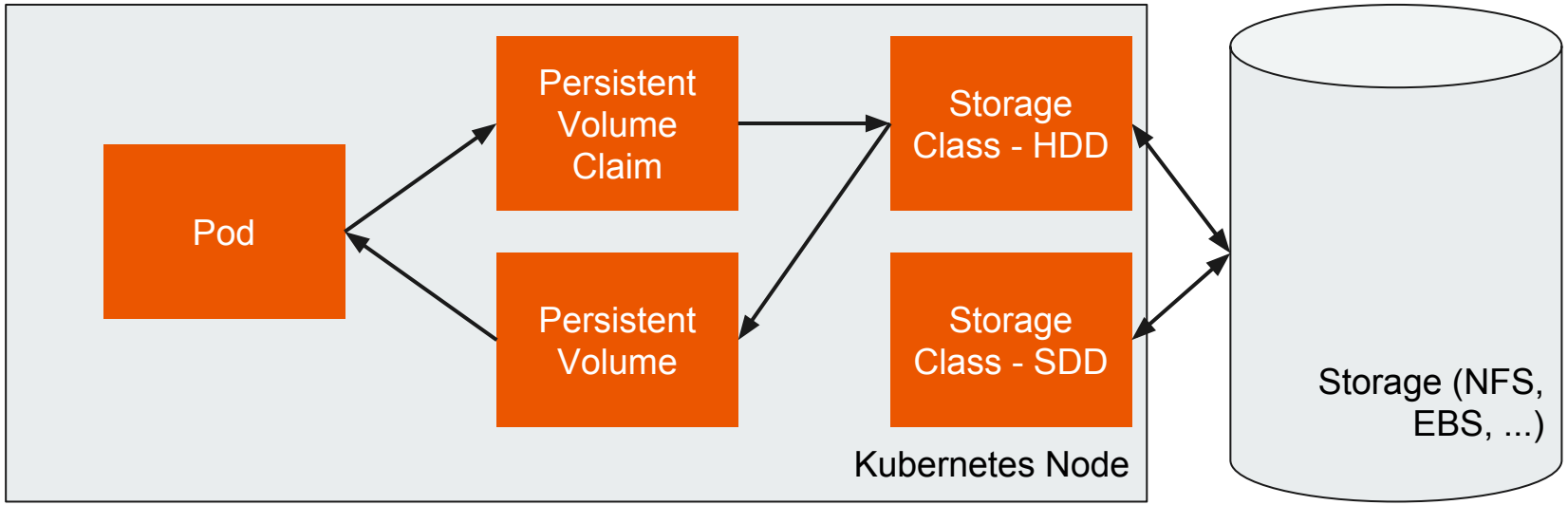


Demo

Conclusion

Référence

- Volumes Kubernetes Doc: https://kubernetes.io/docs/concepts/storage/volumes/
- Kubernetes Tasks: https://kubernetes.io/docs/tasks/
- Configure a Pod to Use a PersistentVolume for Storage: https://kubernetes.io/docs/tasks/configure-pod-container/configure-persistent-volume-storage/
- Run a Single-Instance Stateful Application: https://kubernetes.io/docs/tasks/run-application/run-single-instance-stateful-application/
- Run a Replicated Stateful Application: https://kubernetes.io/docs/tasks/run-application/run-replicated-stateful-application/
- StatefulSets Kubernetes Doc: https://kubernetes.io/docs/concepts/workloads/controllers/statefulset/

Merci !

Link vers le repos: https://github.com/woernfl/k8s-stateful-demo