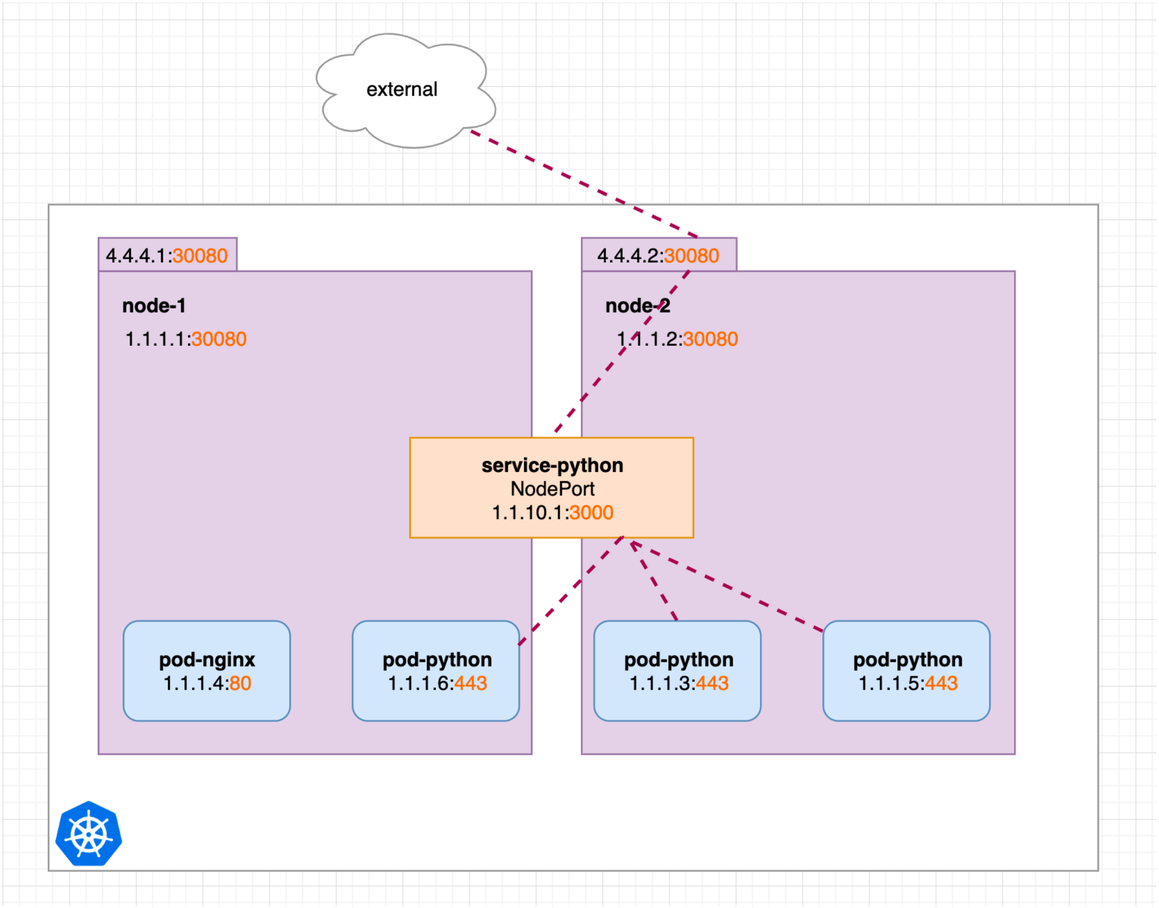
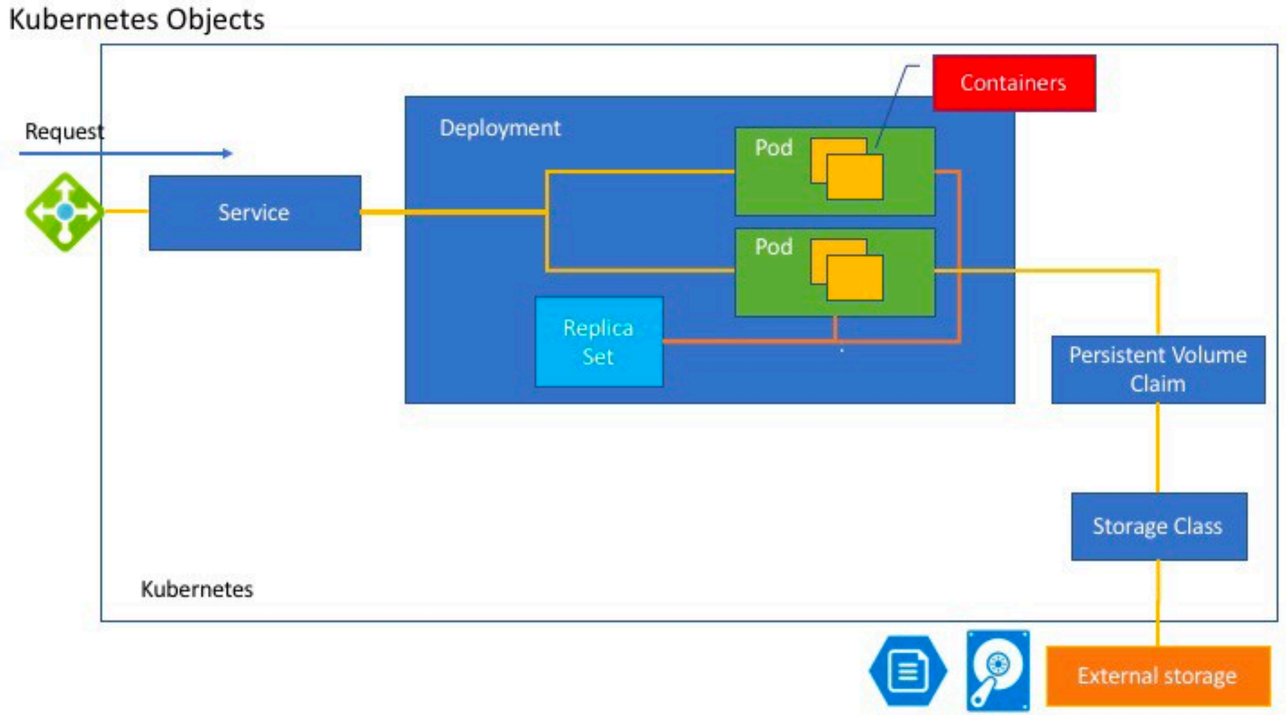
K8s service & deployment/pod

- deployment负责pod的部署；
- pod可以看作“后端”，service可以看作“前端”
  - 真正提供功能的是pod内的container；
  - 但是pod的ip是不固定的，会随着创建、销毁而改变，不能提供稳定的访问途径；
  - 于是加了一层虚拟的service，拥有稳定的ip、port；
  - 请求提交给service以后，service会自动将请求提交给对应的pod（通过label锁定pod），以此来提供稳定的服务；
    - label: app=python



K8s persistent volume

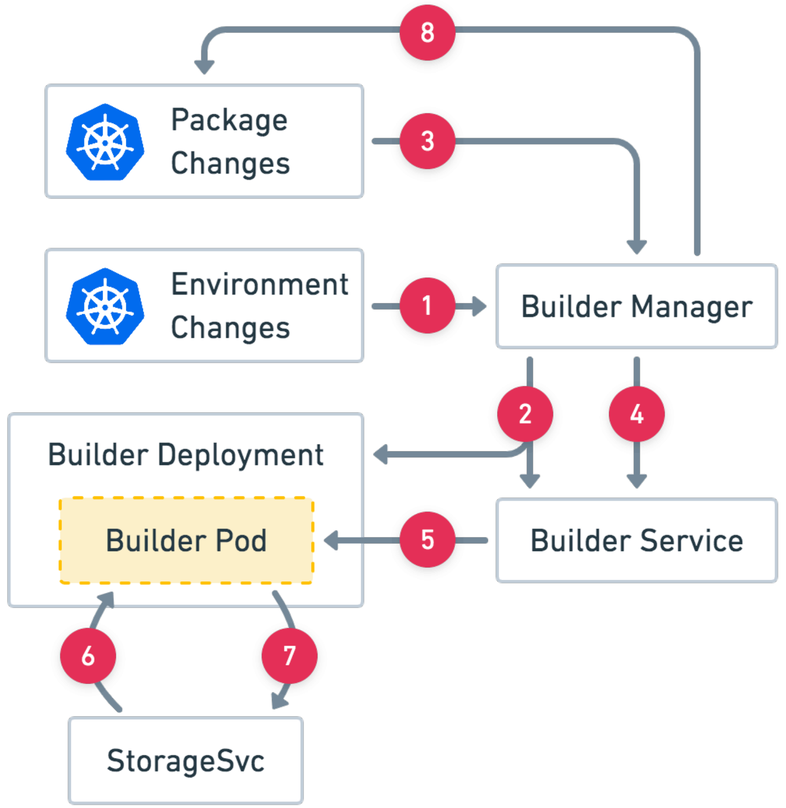
- Presistent Volume Claim is the **abstraction** of the Persistent Volume.
- Persistent Volume is **physical resources** of inflastructure.



Builder Manager

Compile the source code into a runnable function

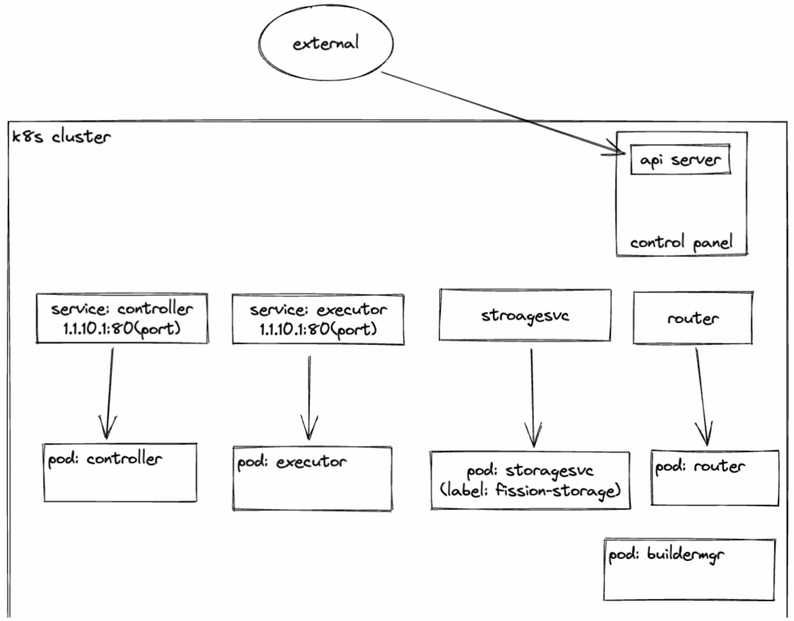
- 监控package & environment CRD的改变，并且负责function 源码的编译工作
  - 如果包含builder image的env创建成功，builder manager会创建相应的k8s service与deployment；
    - builder service
  - 如果包含source archive的package创建成功，builder manager会让env builder把source archive编译为deploy archive；

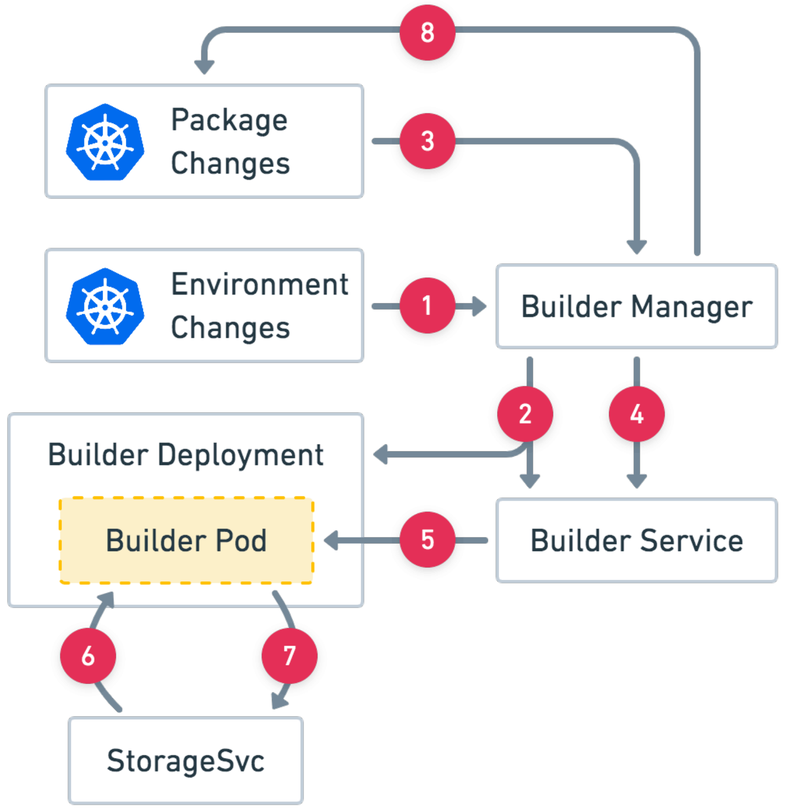


Builder Manager

Compile the source code into a runnable function

- install fission创建的service/pod:
  - kubectl apply -f https://github.com/fission/fission/releases/download/v1.16.0/fission-all-v1.16.0-minikube.yaml
  - buildermgr, controller, executor, storagesvc, router
  -

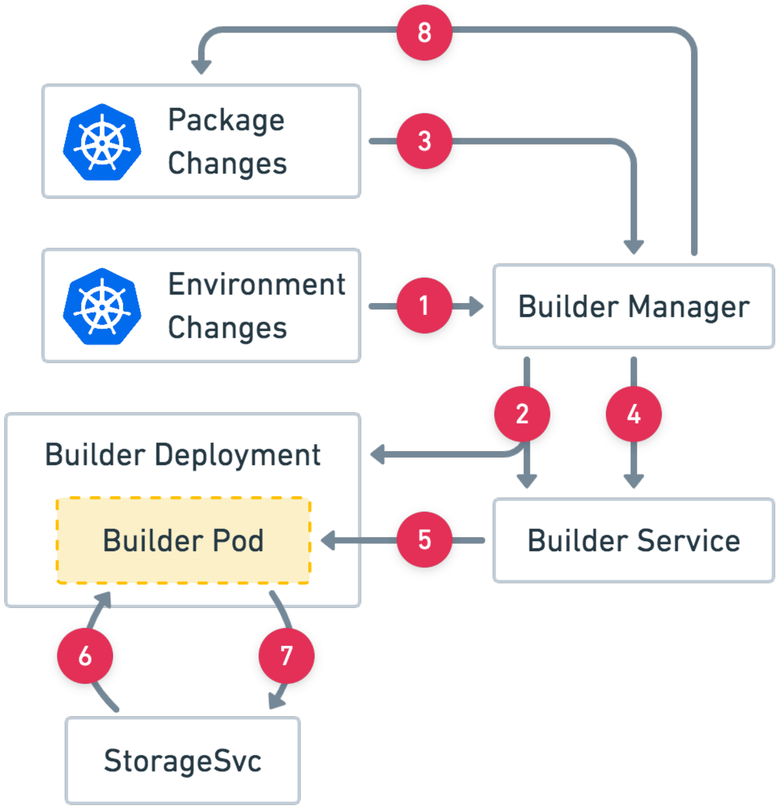




Builder Manager

Workflow

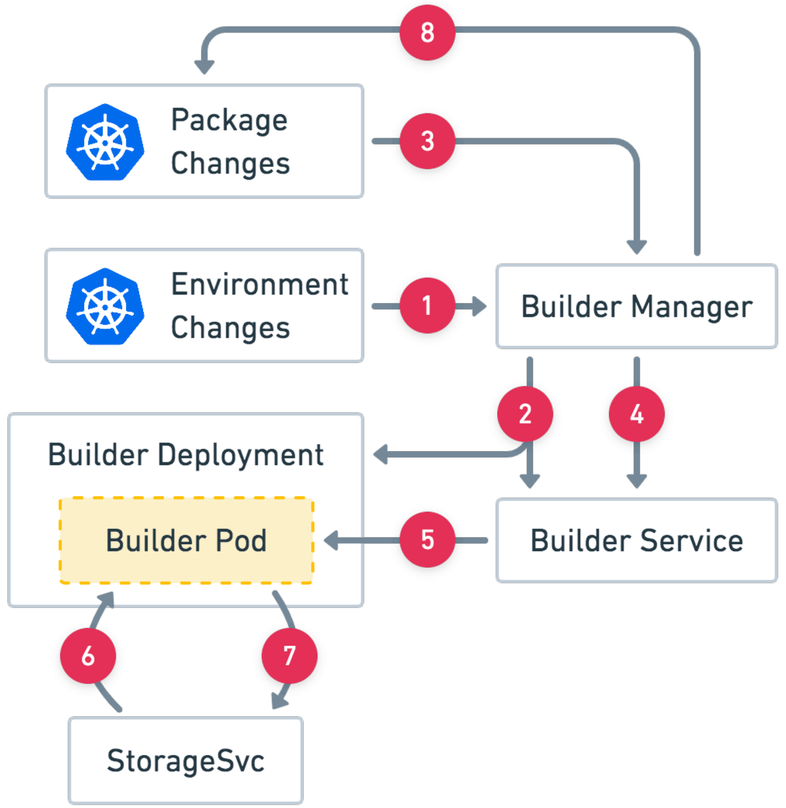
1. Builder Manager watches the environment changes.
   - fission create env --name xxx --builder xxx --env xxx；
   - 在 environment.fission.io crd创建builder image；
2. Create/delete service and deploy when a new environment with build image is created/deleted.
   - 创建builder service，并部署builder pod；
3. Builder Manager watches the packages changes.
   - create package (with source archive)
     1. 创建source archive (zip), -> pkg.source；build pending -> pkg.status;
     2. 把pkg上传给storageSvc (storage svc 也是一个service，将object存储到persistent volume 中)



Builder Manager

Workflow

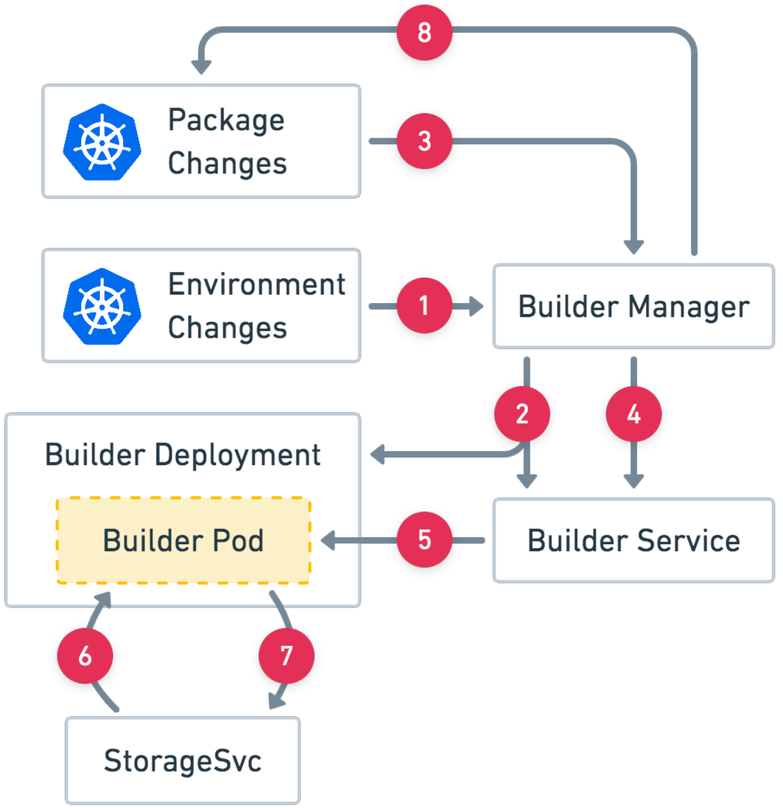
- 4.Send a build request to the builder service
  - http request -> builder
  - 请求中包含pkg的位置，对应的env
- 5.Builder pod receives build request from the builder manager
- 6.Builder pulls the source archive from the StorageSvc and starts the build process.
  If the build process succeeded, go to step 7; otherwise, go to step 8.
- 7.Builder uploads the deployment archive to StorageSvc for function pod to use.
  - pkg { source, deploy, status}
- 8.Builder Manager updates the package status with build logs.



Builder Manager

问题

- 没看到builder pod编译的过程；
- package
  - env
  - source
  - deploy
  - status



fission构建java builder与java env

- **源码**中并没有与特定语言相关的代码；
  - 以java为例：在源码中提到 java/jvm 的都是测试脚本；
- 按**现有镜像的制作过程**制作一个wasm 的builder、env镜像；

参考

- 图解 Kubernetes Service
- Kubernetes 之 Pod 实现原理
- https://fission.io/docs/architecture/buildermgr/