Labels & Selectors

- Key/value pairs associated with Kubernetes objects
- Used to organize and select subsets of objects
- Attached to objects at creation time but modified at any time.
- Labels are the essential glue to associate one API object with other
  - Replication Controller -> Pods
  - Service -> Pods
  - Pods -> Nodes

```
"labels": {
  "key1" : "value1",
  "key2" : "value2"
}
```

```
"release" : "stable", "release" : "canary"
```

```
"environment" : "dev", "environment" : "qa", "environment" : "production"
```

```
"tier" : "frontend", "tier" : "backend", "tier" : "cache"
```

```
"partition" : "customerA", "partition" : "customerB"
```

```
"track" : "daily", "track" : "weekly"
```

Labels

- List of key=value pairs
- Attached to all objects
- Currently used in 2 main places
  - Matching pods to replication controllers
  - Matching pods to services
- Objects can be queried from the API server by label

Labels

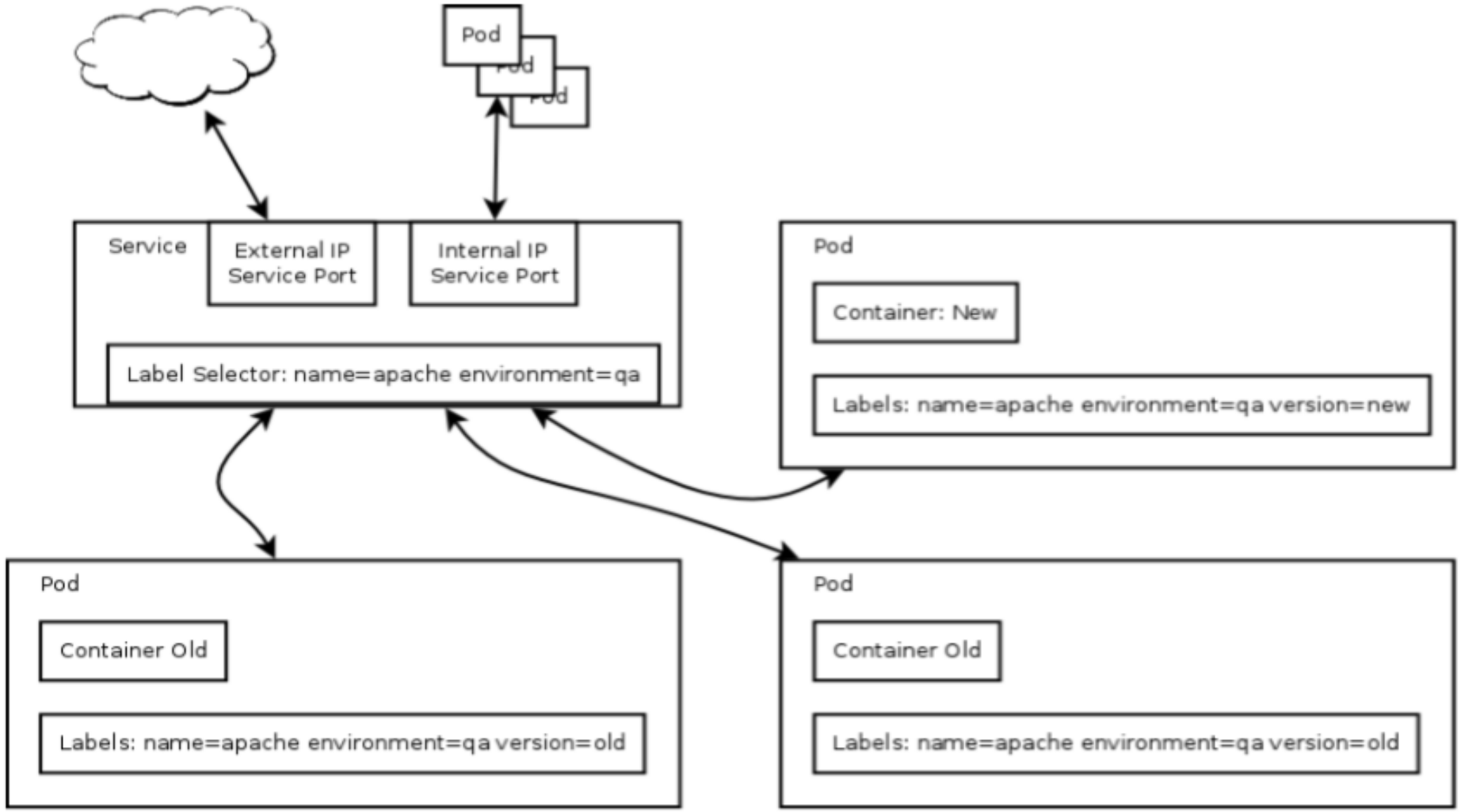
- Labels are key/values pairs that can be attached to objects
  - Labels are like **tags** in AWS or other cloud providers, used to tag resources
- You can **label** your **objects**, for instance your pod, following an org. structure
  - **Key**: environments - **Value**: Dev\ UAT\ QA\ PROD
  - **Key**: department - **Value**: R&D\ finance \ marketing
- In our previous examples, I already have been using labels to tag pods

```
----------------------------
metadata:
  name: nodehelloworld.example.com
  labels:
    app: helloworld
----------------------------
```

Labels

- Labels are **not unique** & **multiple labels** can be added to one object
- Once labels are attached to an object, you can use filters to narrow down results
  - This is called **Label Selector**
- Using Label Selector, you can use **matching expressions** to match labels
  - For instance, a particular pod can only run on a node labeled with "environment" equal "Dev".
  - More complex matching: "environment" in "Dev" or "QA".

Services and Labels



Node Labels

- You can also use labels to tag **nodes**
- Once nodes are tagged, you can use **label selectors** to let pods only run on **specified nodes**

- There are **2 steps** required to run a pod on specific set of nodes:
  - First you **tag** the node
  - Then you add a **nodeSelector** to your pod configuration