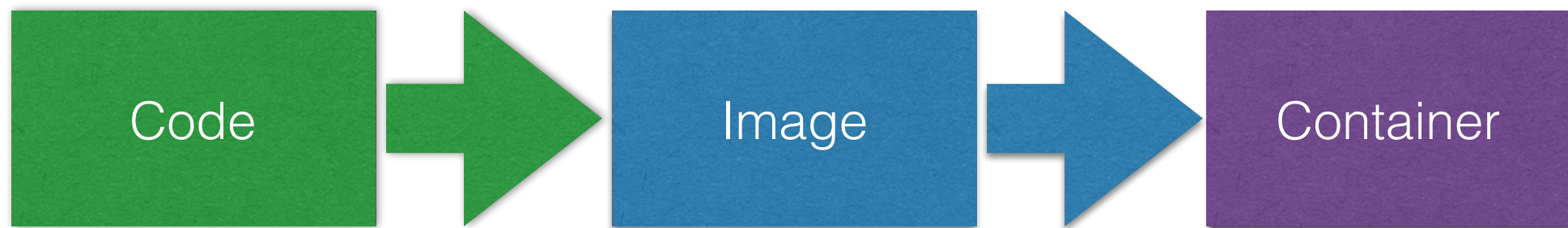
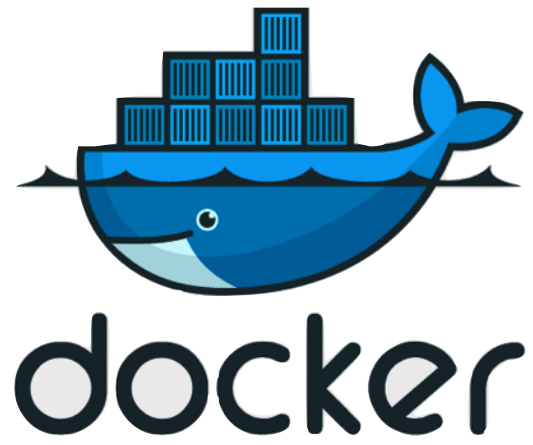




From Code to Browser

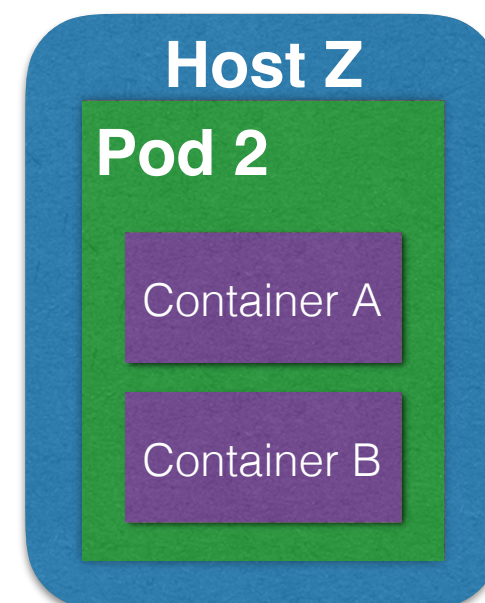
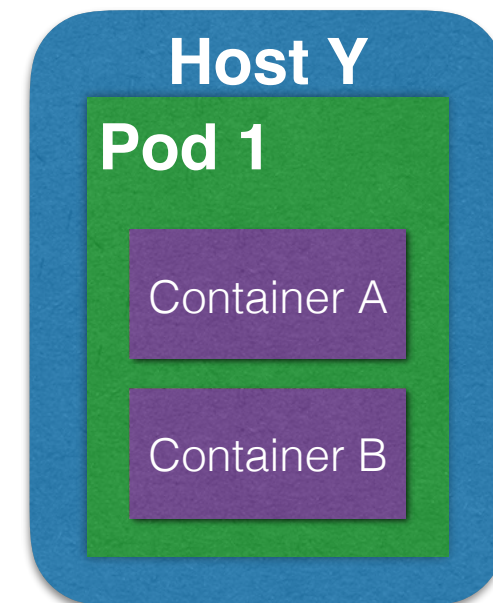
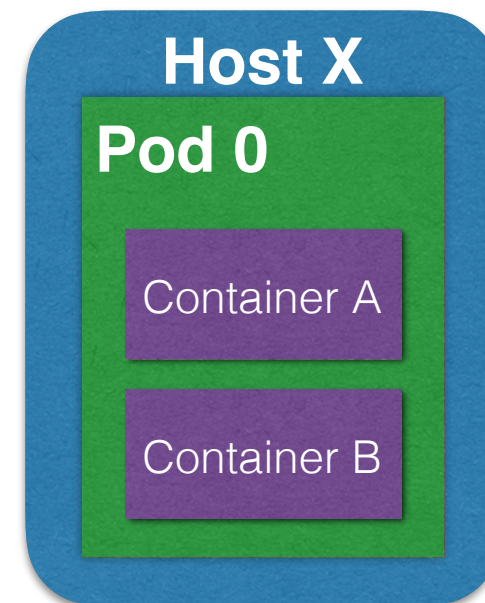
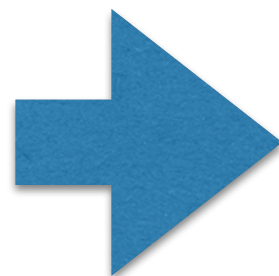


Mateus Caruccio - Dev & Ops
mateus@getup.cloud
@MateusCaruccio





kubernetes



Standardized Builds

Incremental Builds

Build Strategies

Lifecycle

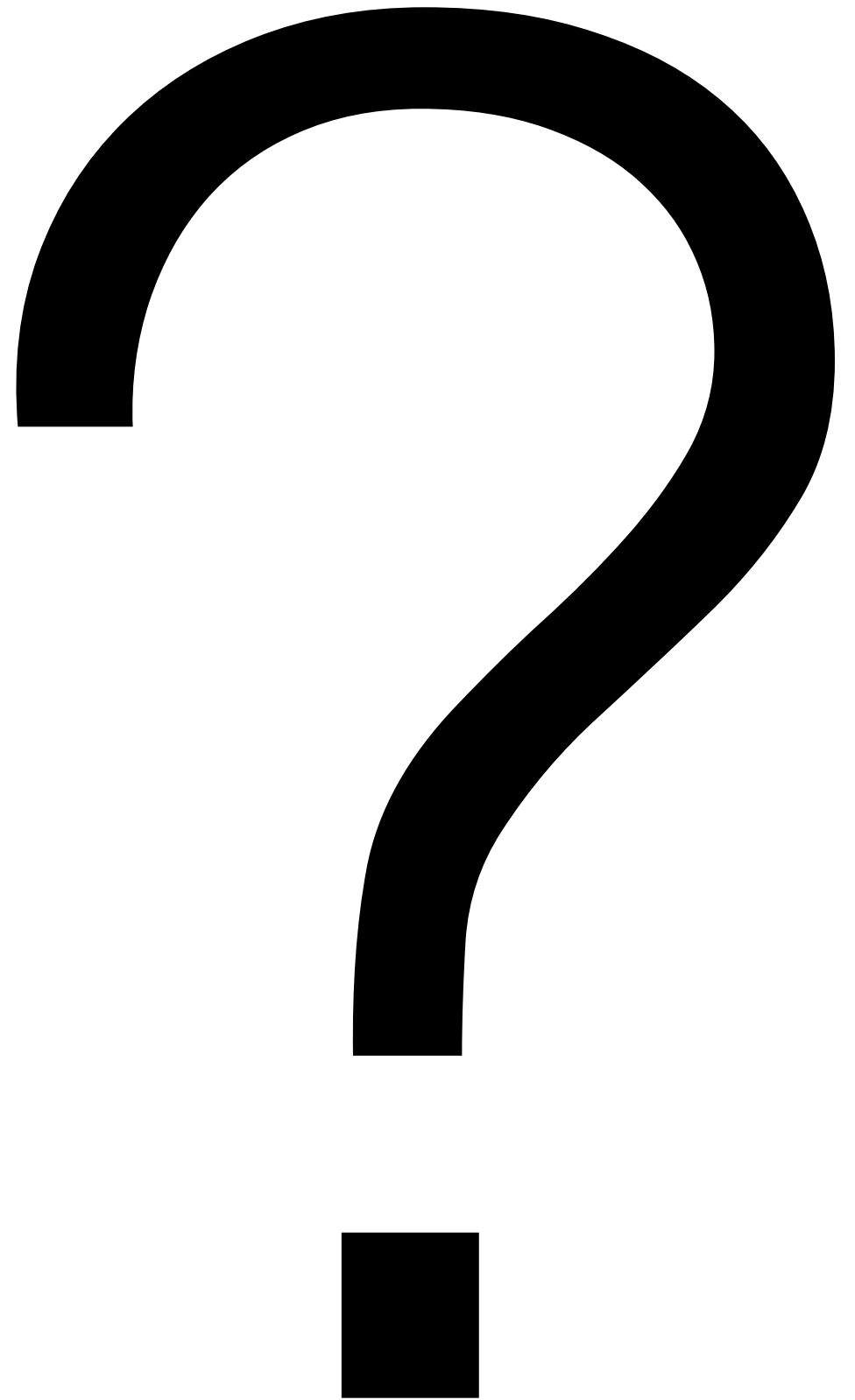
Run Policy

Build Triggers

Image Versioning

Deployments

Rollout/Rollback





Transforms Code into Image

- Source Repo
- Dockerfile
- Jenkins Pipeline



Docker Registry



Build Config

Image Stream

Deployment Config





OPENSIFT

Build Config

Image Stream

Deployment Config

```
1 apiVersion: v1
2 kind: BuildConfig
3 metadata:
4   name: gpa
5 spec:
6   strategy:
7     type: Source
8     sourceStrategy:
9       from:
10        kind: ImageStreamTag
11        name: nodejs:7
12        namespace: openshift
13
14   source:
15     type: Git
16     git:
17       ref: master
18       uri: git@github.com:getupcloud/gpa.git
19     sourceSecret:
20       name: git-ssh-gpa
21
22   output:
23     to:
24       kind: ImageStreamTag
25       name: gpa:latest
26
27   postCommit:
28     command: [ "npm", "test" ]
29     args: --verbose
30
31   runPolicy: Serial
32
33   triggers:
34   - type: GitHub
35     github:
36       secret: c7db37d2c0d1be2af4d021e8
37   - type: ImageChange
38   - type: ConfigChange
39
```



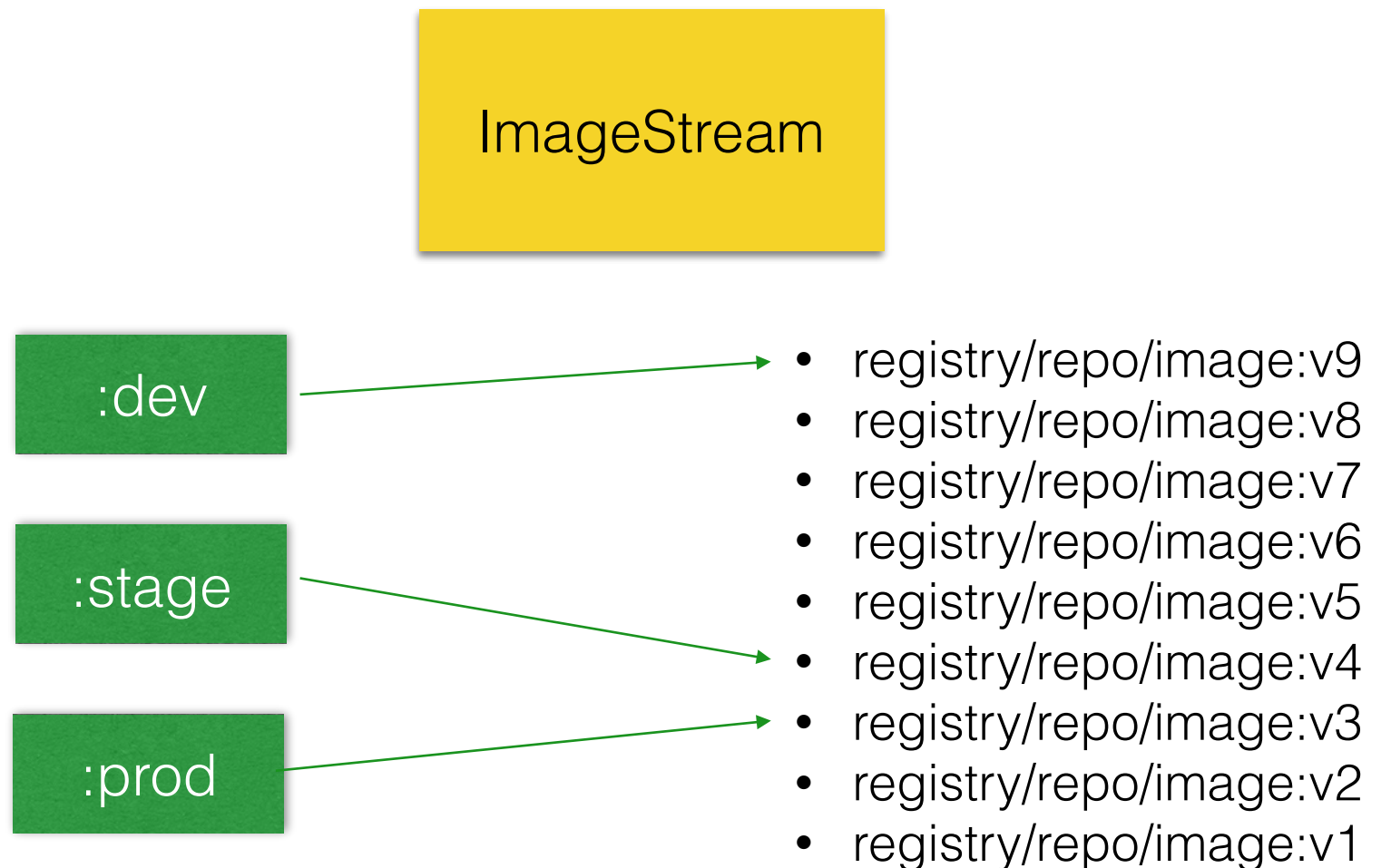
Image Tracking

- Maps tags of images
- Image History

Build Config

Image Stream

Deployment Config





OPENSIFT

Build Config

Image Stream

Deployment Config

```
1 apiVersion: v1
2 kind: ImageStream
3
4 metadata:
5   name: gpa
6   namespace: mateus
7
8 status:
9   dockerImageRepository: 172.30.34.145:5000/mateus/gpa
10  tags:
11    - items:
12
13      tag: latest
14      - created: 2017-07-31T13:39:11Z
15        dockerImageReference: 172.30.34.145:5000/mateus/gpa@sha256:46bbd0...
16        image: sha256:46bbd0...
17      - created: 2017-07-27T17:34:06Z
18        dockerImageReference: 172.30.34.145:5000/mateus/gpa@sha256:6325ea...
19        image: sha256:6325ea
20
21      tag: stage
22      - created: 2017-07-31T13:54:27Z
23        dockerImageReference: 172.30.34.145:5000/mateus/gpa@sha256:168020...
24        image: sha256:168020...
25      - created: 2017-07-31T13:39:11Z
26        dockerImageReference: 172.30.34.145:5000/mateus/gpa@sha256:46bbd0...
27        image: sha256:46bbd0...
28      - created: 2017-07-27T17:34:06Z
29        dockerImageReference: 172.30.34.145:5000/mateus/gpa@sha256:6325ea...
30        image: sha256:6325ea...
31
```




OPENSIFT

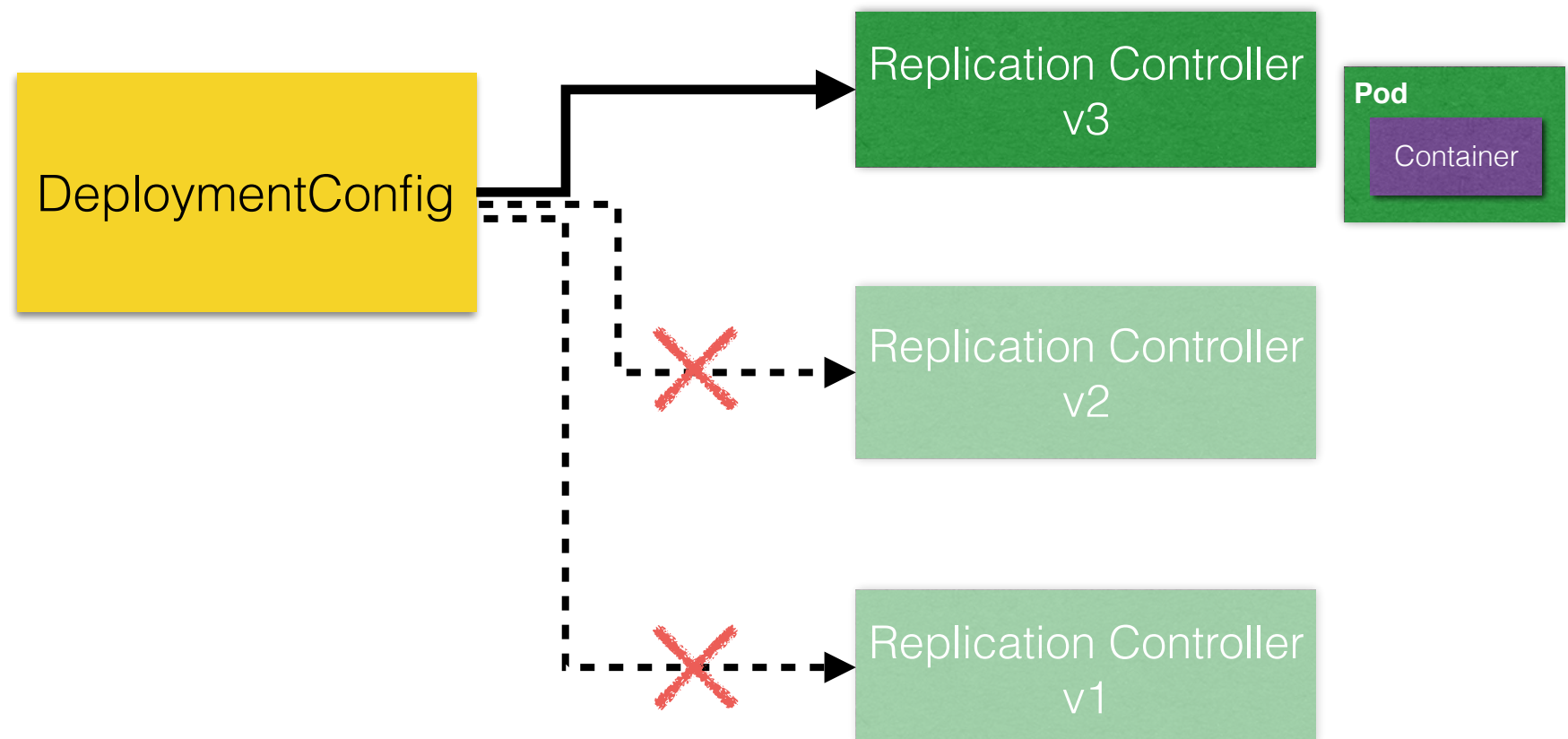
Build Config

Image Stream

Deployment Config

Deploy Image into Containers

- Pod Template
- Deployment Strategies
 - Rolling, Recreate & Custom
- Config or ImageStream changes
- Lifecycle: pre/mid/post hooks





OPENSIFT

Build Config

Image Stream

Deployment Config

```
1 apiVersion: v1
2 kind: DeploymentConfig
3 metadata:
4   name: gpa
5 spec:
6   replicas: 10
7
8   selector:
9     app: gpa
10
11  strategy:
12    type: Rolling
13    rollingParams:
14      maxSurge: 20%
15      maxUnavailable: 20%
16
17  template:
18    metadata:
19      labels:
20        app: gpa
21
22    spec:
23      containers:
24        - name: nodejs
25          image: 172.30.34.145:5000/mateus/gpa@sha256:168020...
26          ports:
27            - containerPort: 8080
28              protocol: TCP
29          env:
30            - name: NODE_ENV
31              value: "production"
32            - name: MONGODB_CONNECTION_URL
33              value: "mongodb://user:password@mongodb:27017/gpa"
34          restartPolicy: Always
35
36    triggers:
37      - type: ConfigChange
38      - type: ImageChange
39        imageChangeParams:
40          automatic: true
41          containerNames:
42            - nodejs
43          from:
44            kind: ImageStreamTag
45            name: gpa:latest
46            namespace: mateus
```



OPENSIFT

Source to Image

github.com/openshift/source-to-image

```
$ s2i build /path/to/src builder-image output-image
```

Standardized Builds

Incremental Builds

Build Strategies

Lifecycle

Run Policy

Build Triggers

Deployment Strategies

Rollout/Rollback

Source
Code

+

STI
Builder
Image

=

Runnable
App
Image



OPENSIFT

Source to Image

github.com/openshift/source-to-image

```
$ s2i build /path/to/src builder-image output-image --incremental
```

Standardized Builds

Incremental Builds

Build Strategies

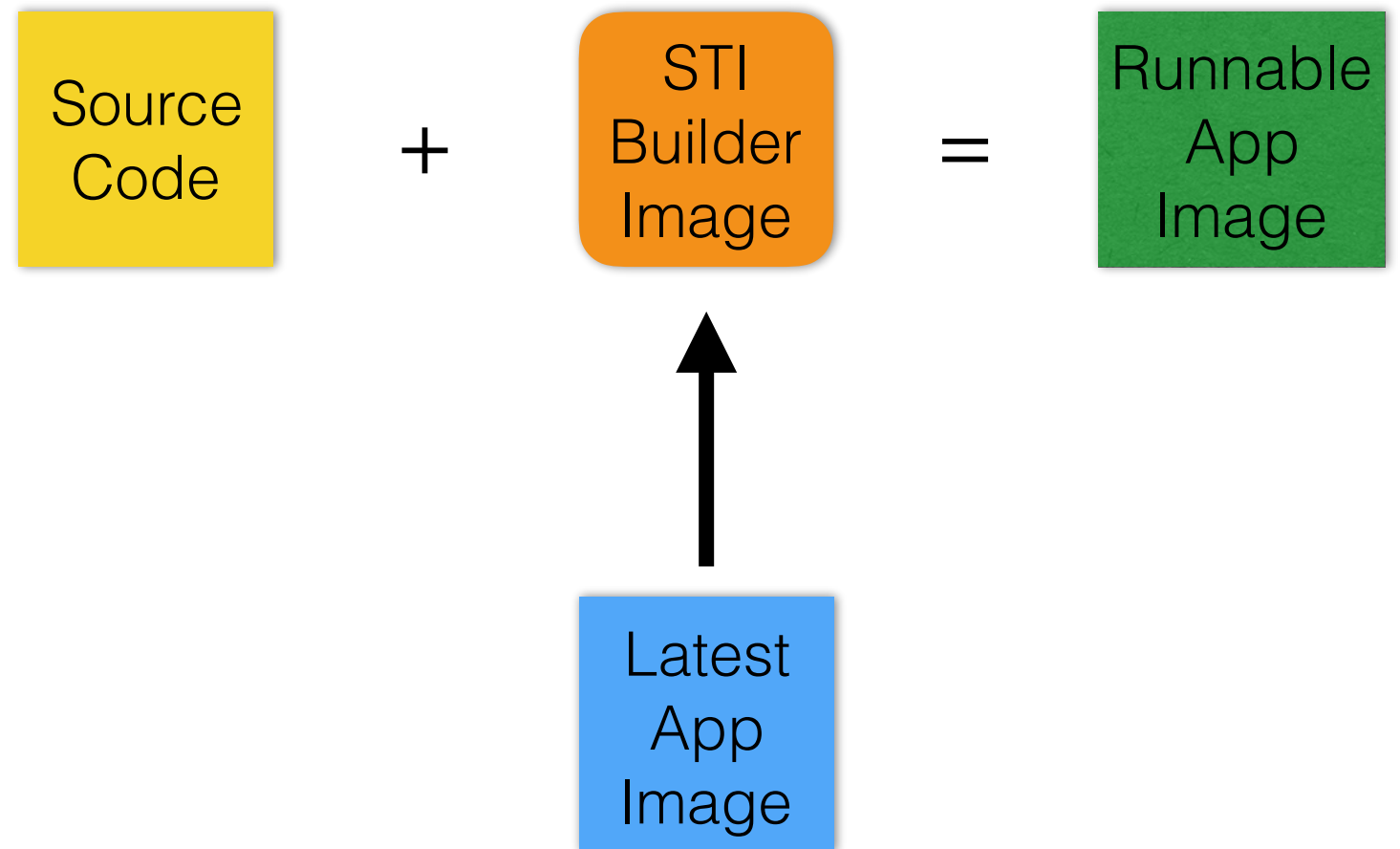
Lifecycle

Run Policy

Build Triggers

Deployment Strategies

Rollout/Rollback





OPENSIFT

STI Builder Image

Source only
Assemble & Run hooks
Pre-defined layout

Docker Build

Vanilla `\$ docker build`

Pipeline Build

Jenkins Pipeline plugin

Standardized Builds

Incremental Builds

Build Strategies

Lifecycle

Run Policy

Build Triggers

Deployment Strategies

Rollout/Rollback



OPENSIFT

Build Lifecycle

Standardized Builds
Incremental Builds

Build Strategies

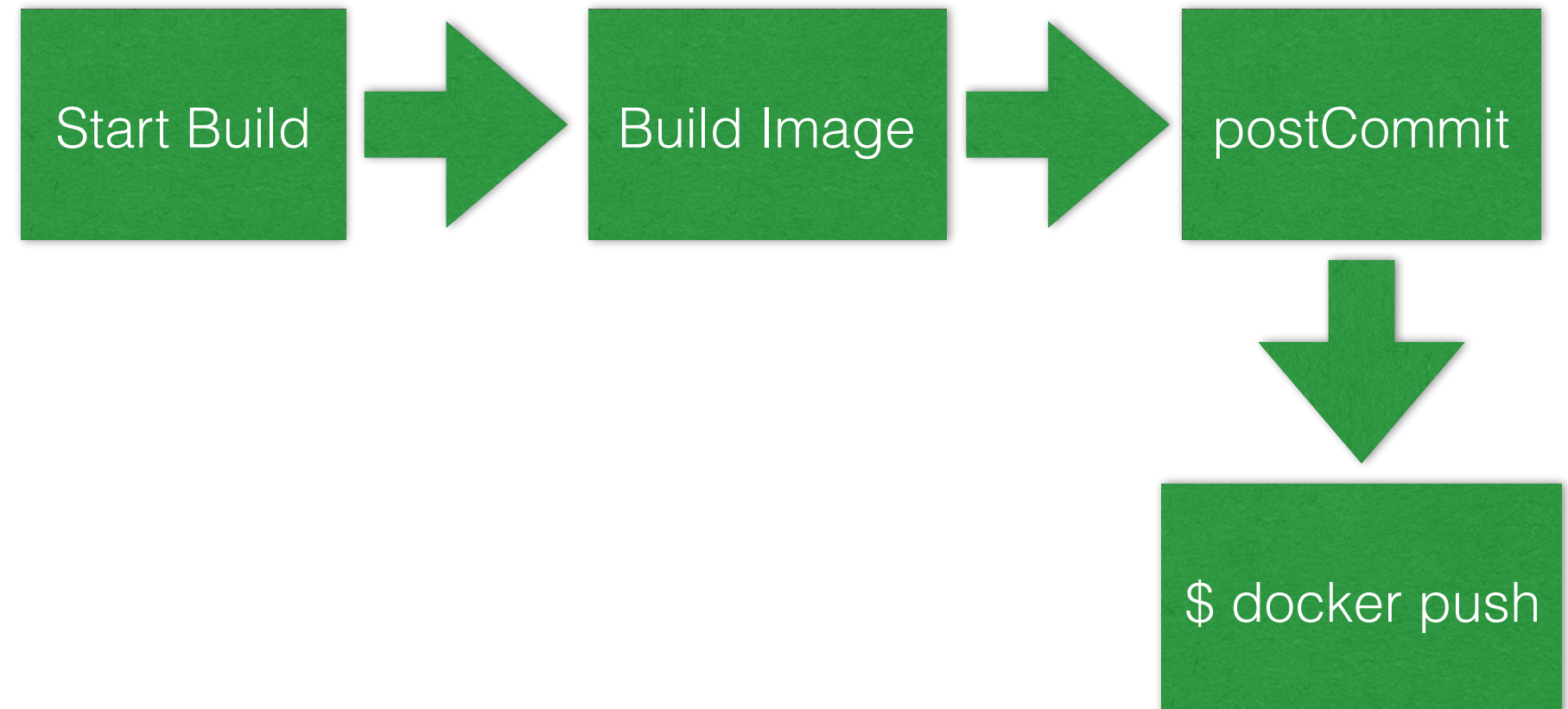
Lifecycle

Run Policy

Build Triggers

Deployment Strategies

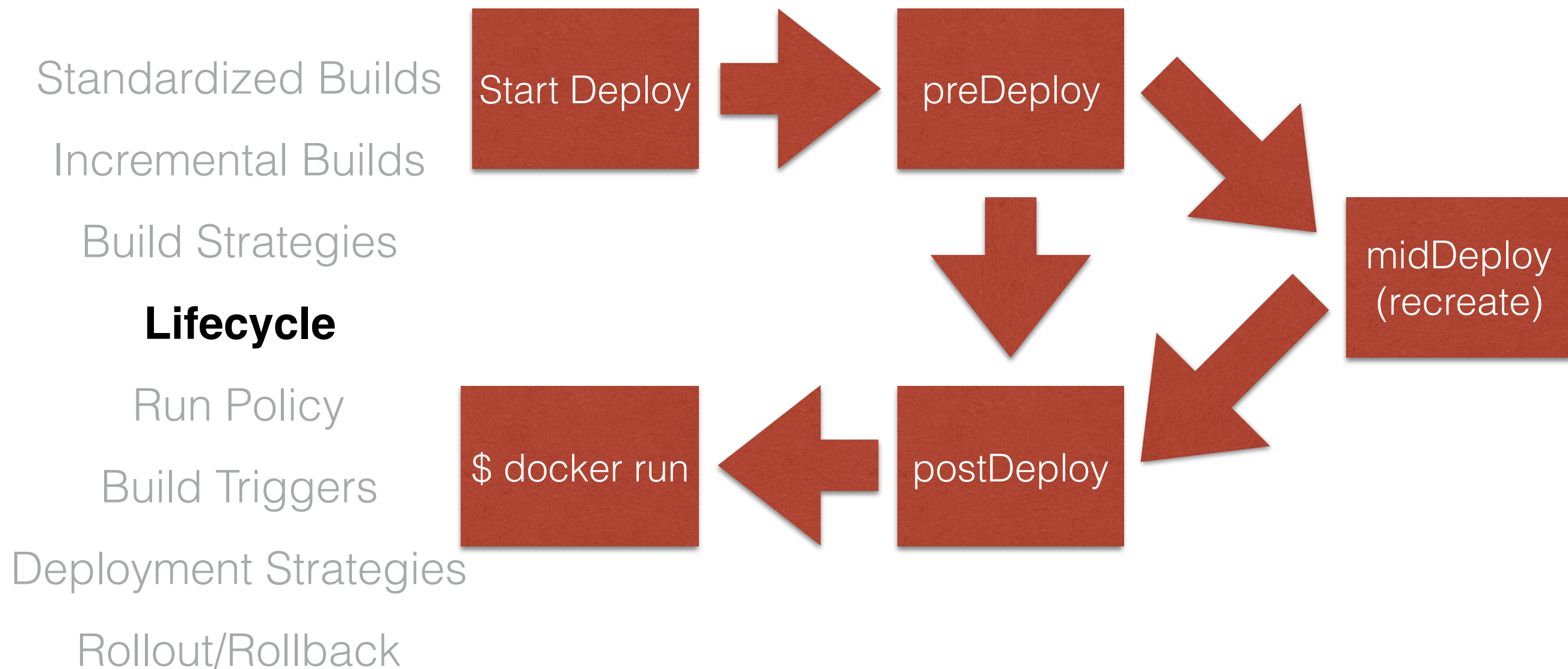
Rollout/Rollback





OPENSIFT

Deployment Lifecycle





OPENSIFT

Standardized Builds

Incremental Builds

Build Strategies

Lifecycle

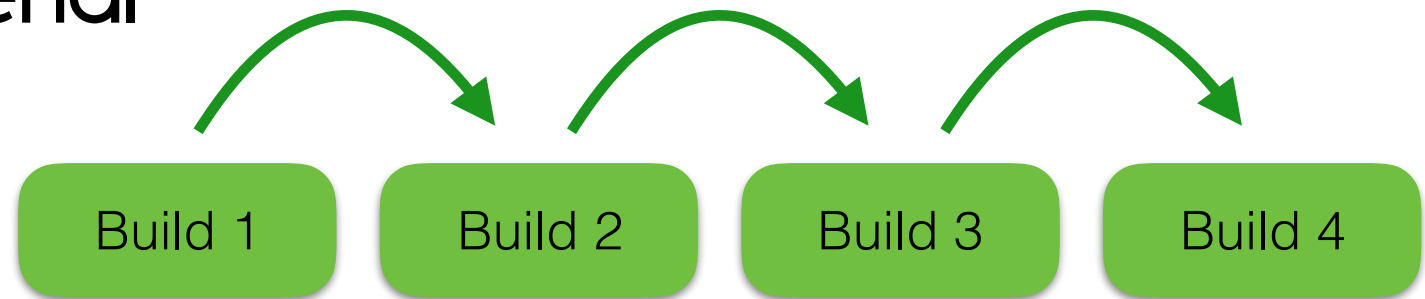
Run Policy

Build Triggers

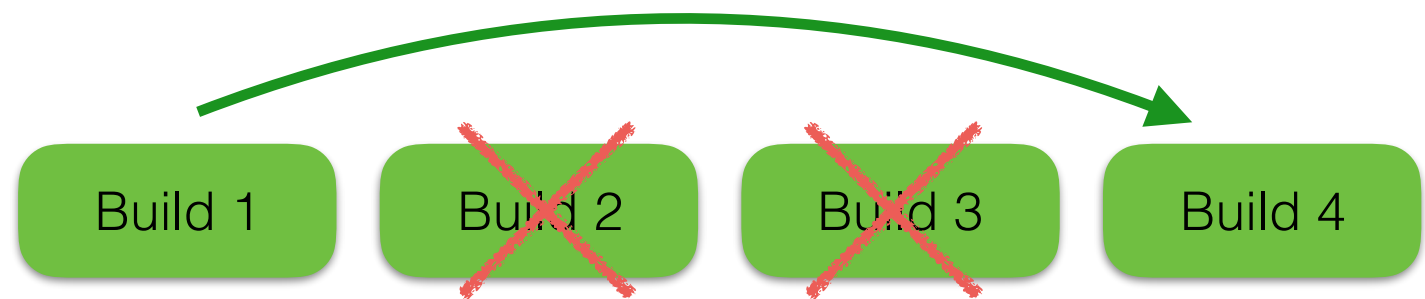
Deployment Strategies

Rollout/Rollback

Serial



Serial Latest Only



Parallel






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Manual

```
$ oc start-build myapp
```

Build Now 

Standardized Builds

Incremental Builds

Build Strategies

Lifecycle

Run Policy

Build Triggers

Deployment Strategies

Rollout/Rollback

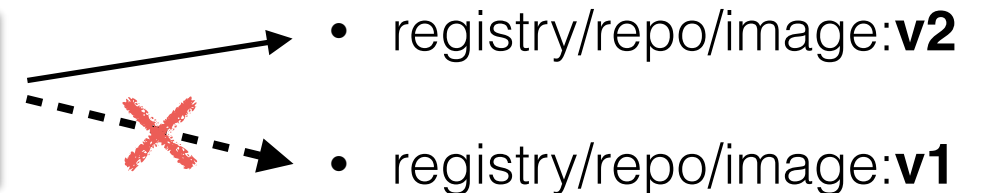
WebHook



```
$ curl
```

ImageStream Change

app-image:latest





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Standardized Builds

Incremental Builds

Build Strategies

Lifecycle

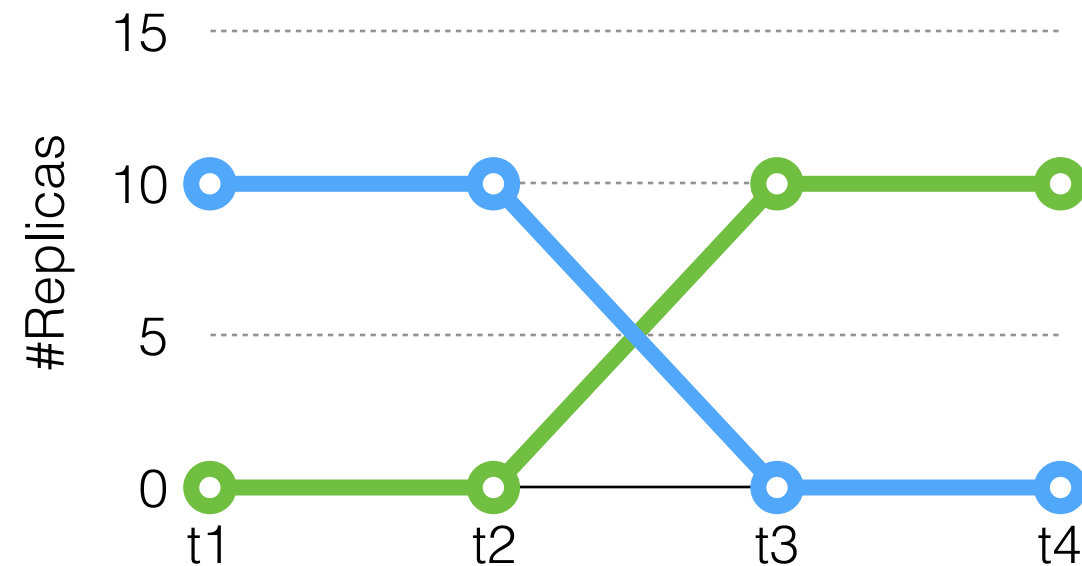
Run Policy

Build Triggers

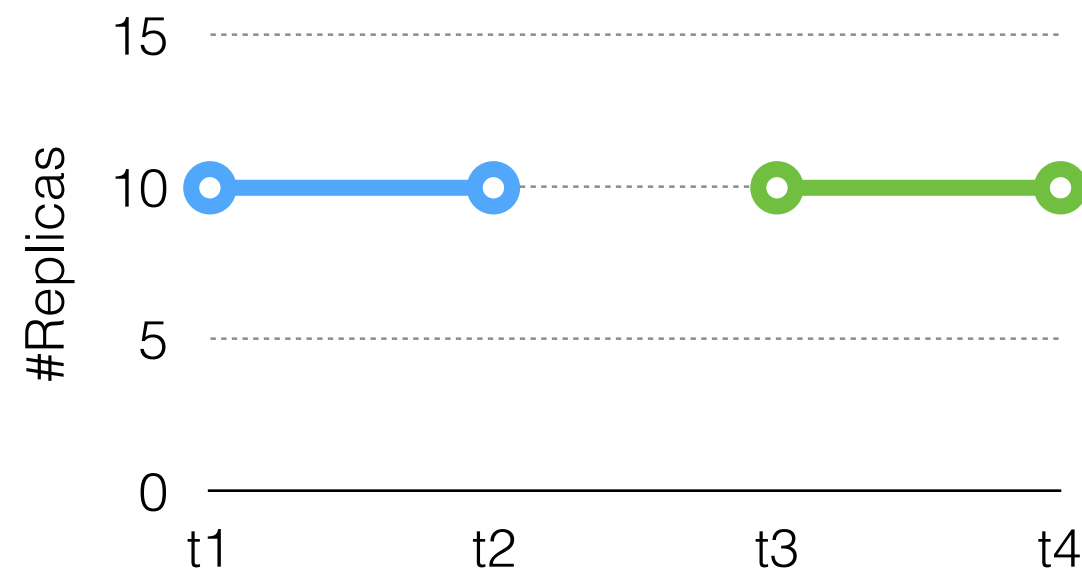
Deployment Strategies

Rollout/Rollback

Rolling



Recreate





OPENSIFT

Update ImageStream:tag

```
$ oc rollout latest myapp
```

Standardized Builds

Incremental Builds

Build Strategies

Lifecycle

Run Policy

Build Triggers

Deployment Strategies

Rollout/Rollback



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Standardized Builds

Incremental Builds

Build Strategies

Lifecycle

Run Policy

Build Triggers

Deployment Strategies

Rollout/Rollback





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```
$ oc rollback myapp
```

Standardized Builds

Incremental Builds

Build Strategies

Lifecycle

Run Policy

Build Triggers

Deployment Strategies

Rollout/Rollback

```
$ oc rollback myapp --to-version=2
```



OPENSIFT

Standardized Builds

Incremental Builds

Build Strategies

Lifecycle

Run Policy

Build Triggers

Deployment Strategies

Rollout/Rollback

