

# To The Edge with OC Mirror

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# Edge Strategy

- Data centers are extending to the edge
- Edge across enterprise, telco, auto, medical, financial, and industrial, space
- Need to enable any workload on any footprint in any location
- Installation may include a path to multi-cloud management (ACM/MCE)
- Installations that are potentially air-gapped or disconnected

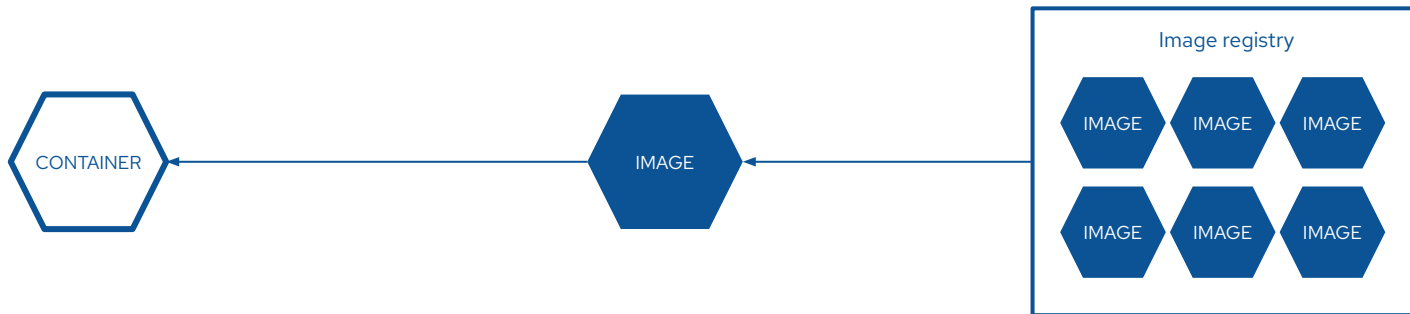
**We are making significant investments in the Edge experience as part of our strategy**

# Containers and Registries

A container is the smallest compute unit.

Containers are created from container images.

Container images are stored in an image registry.



**If containers and Kubernetes is part of your Edge strategy you will need a registry**

# Drivers to Mirror?

- Air-gapped or disconnected deployments
- Low bandwidth connectivity
- High latency connectivity
- Sites with many devices pulling images
- Organize images into centralized registry
- Geo location placement
- Security and compliance

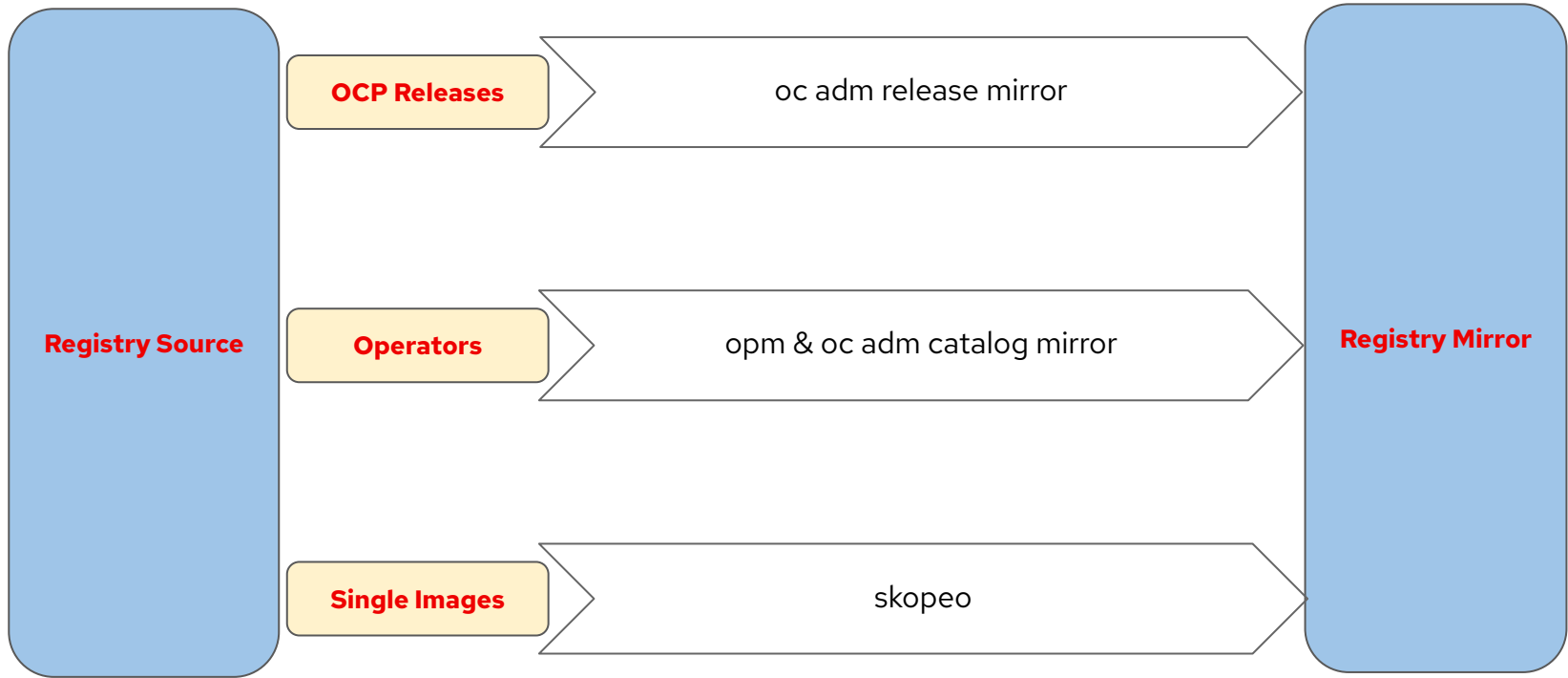
**Getting images closer to the deployments is key**

# What Was Used to Mirror?

- oc adm release mirror
  - mirror OpenShift releases
- opm & oc adm catalog mirror
  - opm to build/prune operator indexes then mirror
- skopeo
  - copy images from one registry to another

I really wish there was a single tool to handle all my needs

## Registry Image Management Before



# Use Cases Addressed

- Simplifying the mirroring process
- Single command for mirroring all types of relevant content
- Minimizing the amount of content downloaded
- Ensuring the right content is mirrored
- Ensuring the mirror stays updated over time

**The need for simplicity**

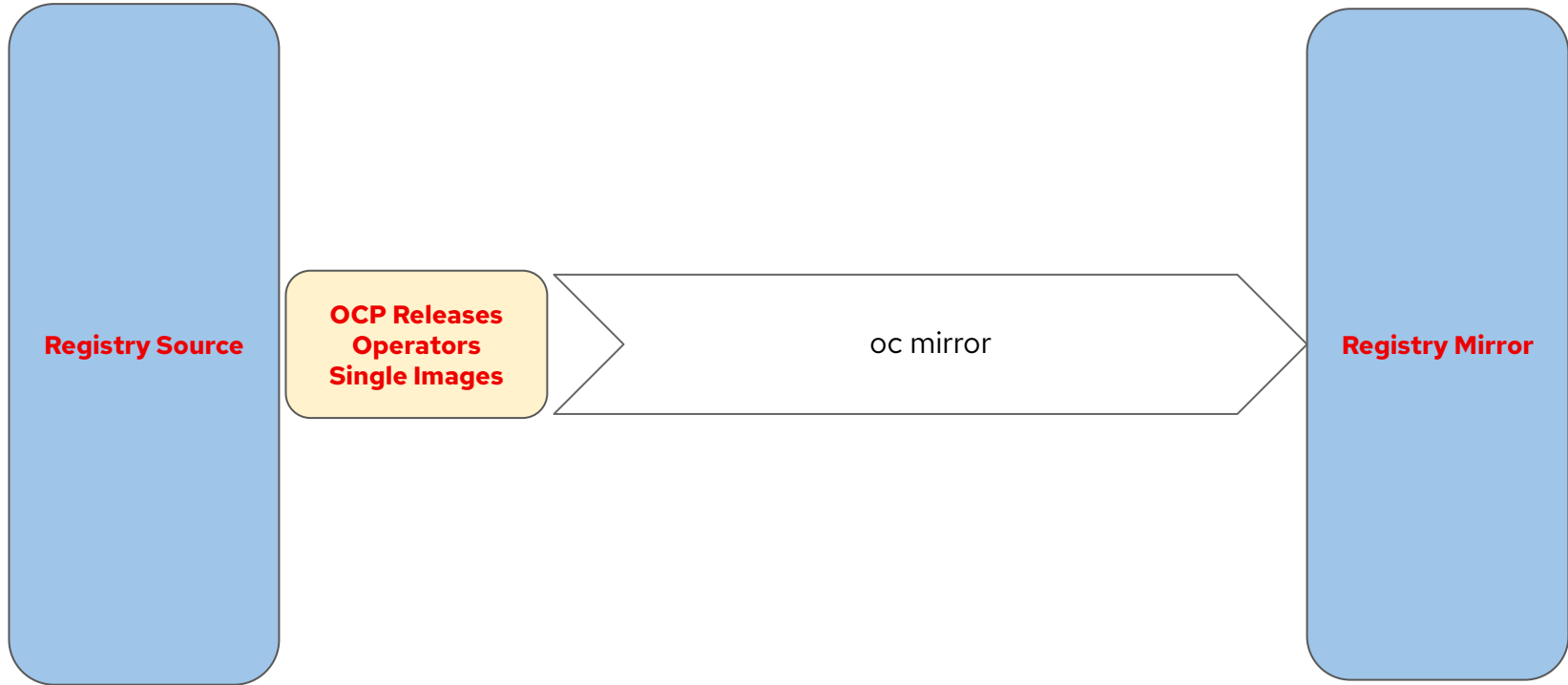
# OC Mirror Plugin

- Provides a centralized method to mirror content
- Maintains update paths for content
- Uses a declarative image set configuration file
- Querying & auto discover published content
- Prune content images from the target registry
- Select image content based on version range
- OpenShift Update Service graph creation
- Option to prefer direct update paths and skip intermediate releases

**Provides a complete single command for registry container image management**



## Registry Image Management Now



# Where to Get Oc Mirror?

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<https://console.redhat.com/openshift/downloads>

Where do I get oc mirror plugin?

# How Does It Work?

Create an ImageSetConfiguration yaml

```
apiVersion: mirror.openshift.io/v1alpha2
kind: ImageSetConfiguration
storageConfig:
  registry:
    imageURL:
      provisioning.schmaustech.com:5000/mirror/metadata
    skipTLS: false
mirror:
  platform:
    channels:
      - name: stable-4.10
        minVersion: 4.9.12
        maxVersion: 4.10.22
        shortestPath: true
    graph: true
```

**Imageset configuration file defines what content is mirrored**

## How Does It Work?

```
$ oc mirror --config=imageset-configuration.yaml \  
docker://registry.schmaustech.com:5000 --dest-skip-tls --dry-run
```

```
$ oc mirror --config=ubi-local-config.yaml file://output-dir
```

```
$ oc mirror --from ./output-dir/mirror_seq1_000000.tar \  
docker://registry.schmaustech.com:5000 --dest-skip-tls
```

**Review content to be mirrored before actually doing it**

# How Does It Work?

```
uploading: provisioning.schmaustech.com:5000/ubi8/ubi sha256:e46e89129c9d273e7b57a9b719d06e3f9e0469a35cdfcc7ea4bda6b7a69cf965 72.95MiB
uploading: provisioning.schmaustech.com:5000/ubi8/ubi sha256:d6050ae37df36bd42b8d5ae50c9ec8016ec8191cd44d03ff5b67a2e513b16f8f 81MiB
uploading: provisioning.schmaustech.com:5000/ubi8/ubi sha256:5e70be1586c73537515c1c2e1441ca2f90c489b814b2fee24c3ac929a2f01853 72.03MiB
uploading: provisioning.schmaustech.com:5000/ubi8/ubi sha256:db0f4cd412505c5cc2f31cf3c65db80f84d8656c4bfa9ef627a6f532c0459fc4 74.73MiB
sha256:c2931a594cab69b4a2e912fd5d9bbc7e3542e47c341974fad6e407c8d91e76c3 provisioning.schmaustech.com:5000/ubi8/ubi
sha256:08e221b041a95e6840b208c618ae56c27e3429c3dad637ece01c9b471cc8fac6 provisioning.schmaustech.com:5000/ubi8/ubi
sha256:48ba6276b423eafd63c7c54949cbc98b47165e5660329b7bae9632f6c592b258 provisioning.schmaustech.com:5000/ubi8/ubi
sha256:bc2a3d7583a955f1c2f9753b5c01ebca12287c5f68a8ce7e85b2c7fd64c145d3 provisioning.schmaustech.com:5000/ubi8/ubi
sha256:6edca3916b34d10481e4d24d14ebe6ebc6db517bec1b2db6ae2d7d47c2ecfaee provisioning.schmaustech.com:5000/ubi8/ubi:latest
info: Mirroring completed in 28.92s (10.9MB/s)
Pruning 4 manifest(s) from repository ubi7/ubi
Deleting manifest sha256:339ca735e05529c9f1991ce7a12fc81aebfe242a42fccde152e9c0715557b896 from repo ubi7
Deleting manifest sha256:d9f7746715fea2d770e23a34e97b36a44e2b/ubi
Deleting manifest sha256:360f063fb2a417f2fbb1ac46a8ab74b00e3361a936e179c9895c03d06425546f from repo ubi7/ubi
Deleting manifest sha256:bf29e70507e4147279cc43b06069df30b860b593adef9ac00bcb261f97a9b1d6 from repo ubi7/ubi2dac9c95d26829d6d5fa836bd99
from repo ubi7/ubi
```

Output of run for all content all in one place

# What About Authentication?

```
$ podman login registry.schmaustech.com:5000
```

```
$ podman login quay.io
```

```
$ podman login registry.redhat.io
```

```
$ mkdir ~/.docker/
```

```
$ cat "PULL_SECRET" > ~/.docker/config.json
```

**How does oc mirror know I can pull/push content?**

# How Does It Work?

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## Demo

Let's see oc mirror in action

# Future oc-mirror Enhancement

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- Configurable Pruning Behavior of oc mirror
- Prepare a Disconnected Mirror Using a UI in console.redhat.com
- Add -auth File option
- oc mirror IBM CloudPak Support

Additional enhancements are on the horizon



## Further References

- [Official Documentation OpenShift 4.11](#)
- [How oc-mirror Will Help Reduce Image Management Complexity](#)
- [Mirroring OpenShift Registries: The Easy Way](#)
- [Oc Mirror Github Page](#)

More information can be found in the links

# Thank you!

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