

Accelerate your journey to Kubernetes with the Konveyor Community

A community of people passionate about helping others modernize and migrate their applications to the hybrid cloud by **building tools and best practices on how to break down monoliths, adopt containers, and embrace Kubernetes.**



www.konveyor.io

Konveyor Forklift

October 2021



Agenda

9:00 ~9:45 ET (15:00 ~15:45 CET) - Forklift project intro [Miguel]

15 minute break

10:00 ~ 10:45 ET (16:00 ~16:45 CET) - Forklift documentation status and how to contribute [Avital]

15 minute break

11:00 ~ 11:45 ET (17:00 ~17:45 CET) - Forklift validation service and how to create custom rules [Peter]

15 minute break

12:00 ~ 12:45 ET (18:00 ~ 18:45 CET) - Forklift roadmap proposals review and feedback [Miguel]





Rehost virtual
machines to
KubeVirt



Rehost apps
between
Kubernetes
clusters



Replatform
applications to
Kubernetes



Refactor
applications for
Kubernetes



Measure software
delivery
performance

Why moving VMs to KubeVirt + Kubernetes?





MAINFRAME

CLIENT-SERVER

VIRTUALIZATION

CLOUD SHIFT

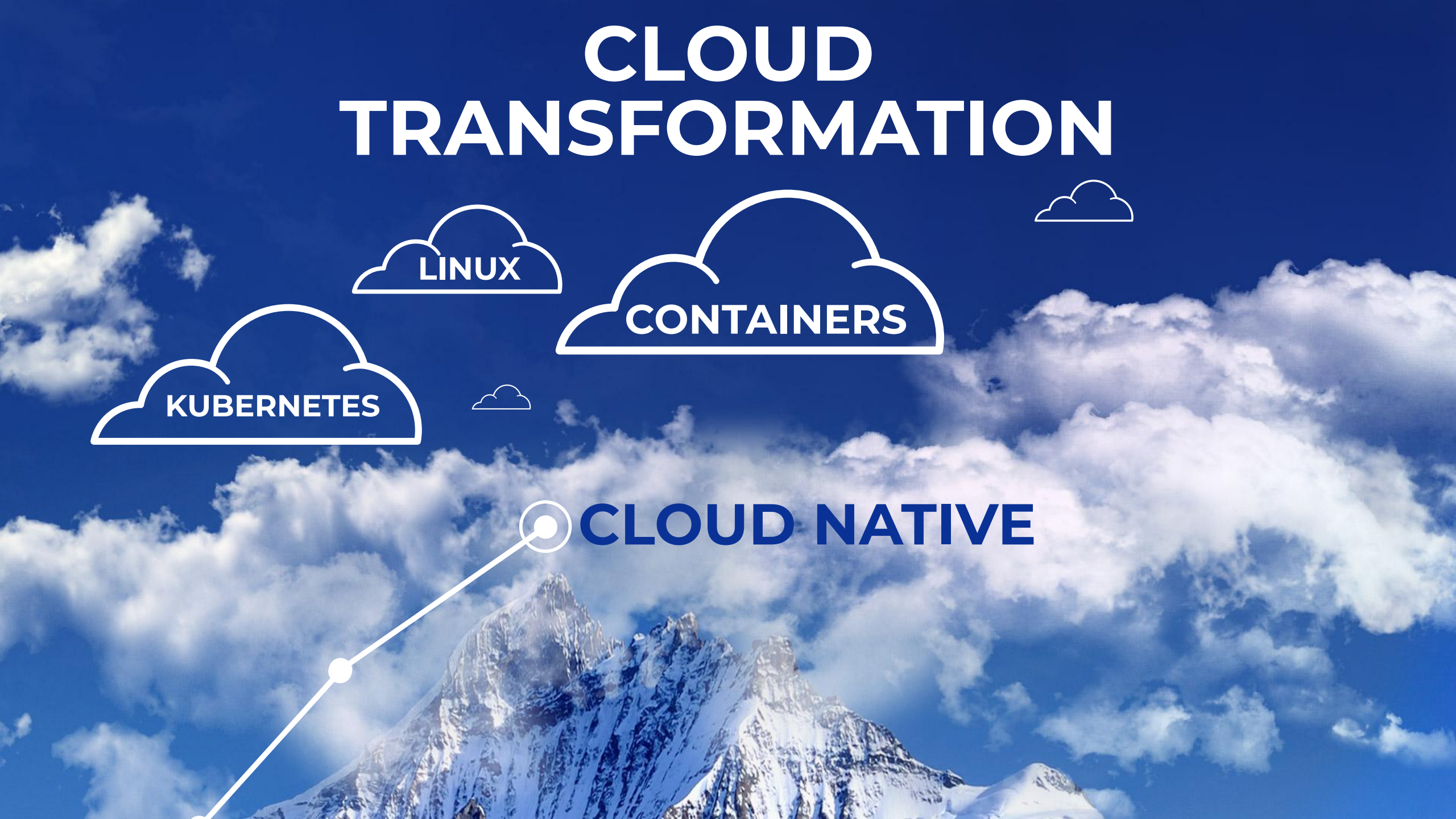
CLOUD TRANSFORMATION

LINUX

CONTAINERS

KUBERNETES

CLOUD NATIVE





COMPUTE



CLOUD
NATIVE







KUBEVIRT

VIRTUALIZATION

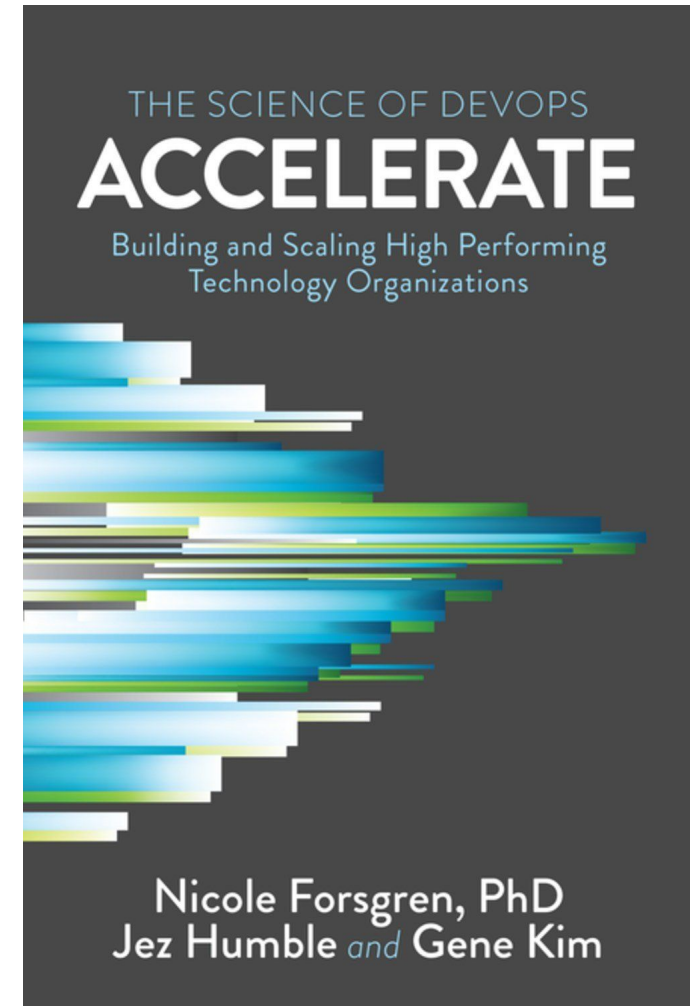


Why Transform?

The Metrics

	 LEAD TIME FOR CHANGE	 DEPLOYMENT FREQUENCY	 MEAN TIME TO RECOVERY (MTTR)	 CHANGE FAILURE RATE*
	Measures of MARKET AGILITY		Measures of RELIABILITY	
WHAT	Time from code committed to deployed to production	Proxy for batch size, how often does an app deploy to production	How long it takes systems to recover from failures in production	Percentage of deployments requiring rollback and/or fixes
WHY	Shorter is better. Enables faster feedback cycles and makes you better able to adjust to the marketplace	Indicator of batch size. Smaller batch size leads to more market agility	Critical to ensure that we aren't speeding up delivery at the expense of negative customer impacts	*Secondary indicator of stability

<https://github.com/konveyor/pelorus>



Technical? Join the Konveyor Community



Exploration in progress to obtain CNCF support for the Konveyor community projects



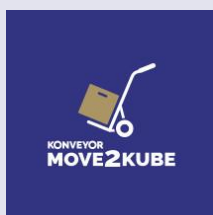
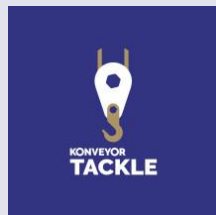
www.konveyor.io

A community of **people** passionate about **helping others modernize** and migrate their **applications** to Kubernetes by **building tools and discovering patterns** of how to **break down monoliths, adopt containers, and embrace Kubernetes**.



Additional community contributors being recruited

Projects



Meetups



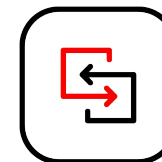
How I strangled a monolith

How I containerized my java app

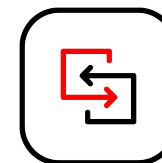
How I created an operator



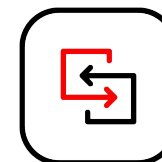
Red Hat Supported Operators



Migration Toolkit for Applications



Migration Toolkit for Containers



Migration Toolkit for Virtualization



Red Hat

Forklift 2.2



Migration at Scale

Of virtual machines to KubeVirt

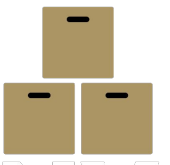


The screenshot shows the 'Migration plans' page in the Konveyor Forklift UI. The left sidebar has a menu with 'Providers', 'Migration Plans', and 'Mappings'. The main content area has a search bar, a 'Create plan' button, and a table of migration plans. The table has columns for Name, Source provider, Target provider, VMs, and Plan status. There are four plans listed: 'plantest-1' (Running), 'plantest-2' (Ready), 'plantest-3' (Succeeded), and 'plantest-4' (Succeeded). Each plan has a progress bar and a 'Start' button.

Name	Source provider	Target provider	VMs	Plan status
plantest-1 my first plan	vcenter-1	ocpv-1	2	Running 0 of 2 VMs migrated
plantest-2 my 2nd plan	vcenter-1	ocpv-1	1	Ready Start
plantest-3 my 3rd plan	vcenter-1	ocpv-1	4	Succeeded 1 of 4 VMs migrated
plantest-4 my 4th plan	vcenter-1	ocpv-1	1	Succeeded 1 of 1 VMs migrated

Mass Migration of VMs

Migrate virtual machines at scale to OpenShift Virtualization in a few simple steps. Provide source and destination credentials, map infrastructure, and create migration plans



Providers

Easy to configure source and target providers



Migration Toolkit for Virtualization

Providers

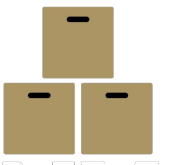
VMware OpenShift Virtualization

Download data

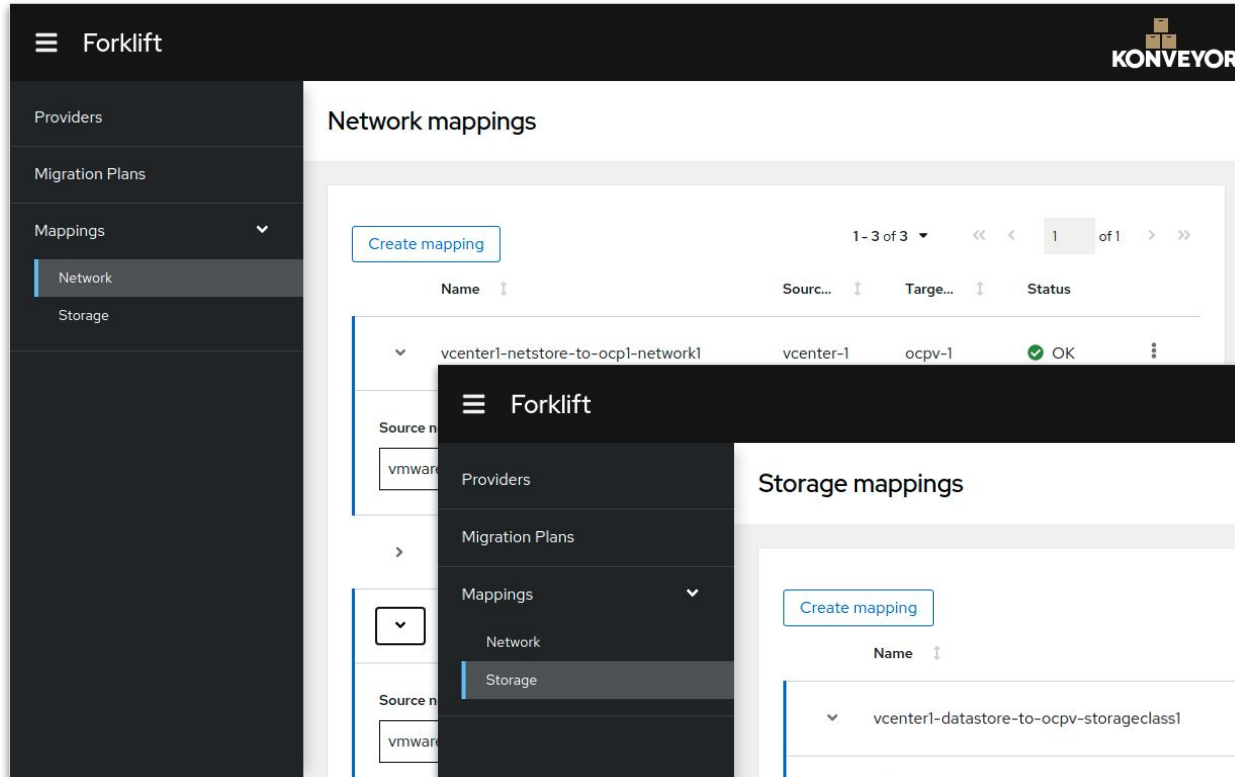
	Na...	Endpoint	Clu...	Ho...	VMs	Net...	Dat...	Sta...
<input type="checkbox"/>	VCenter1	vcenter.v2v.bos.redhat.com	2	15	41	8	3	Ready
<input type="checkbox"/>	VCenter2	vcenter.v2v.bos.redhat.com	2	15	41	8	3	Ready
<input type="checkbox"/>	VCenter3	vcenter.v2v.bos.redhat.com	2	15	41	8	3	Ready

The providers section allows you to configure the credentials for your source and destination clusters.

Multiple source and destinations can be added, and your overall provider information can also optionally be uploaded to cloud.redhat.com for additional information about your overall environment, helping you better plan your migration at scale.

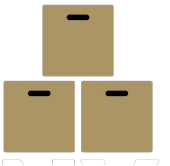
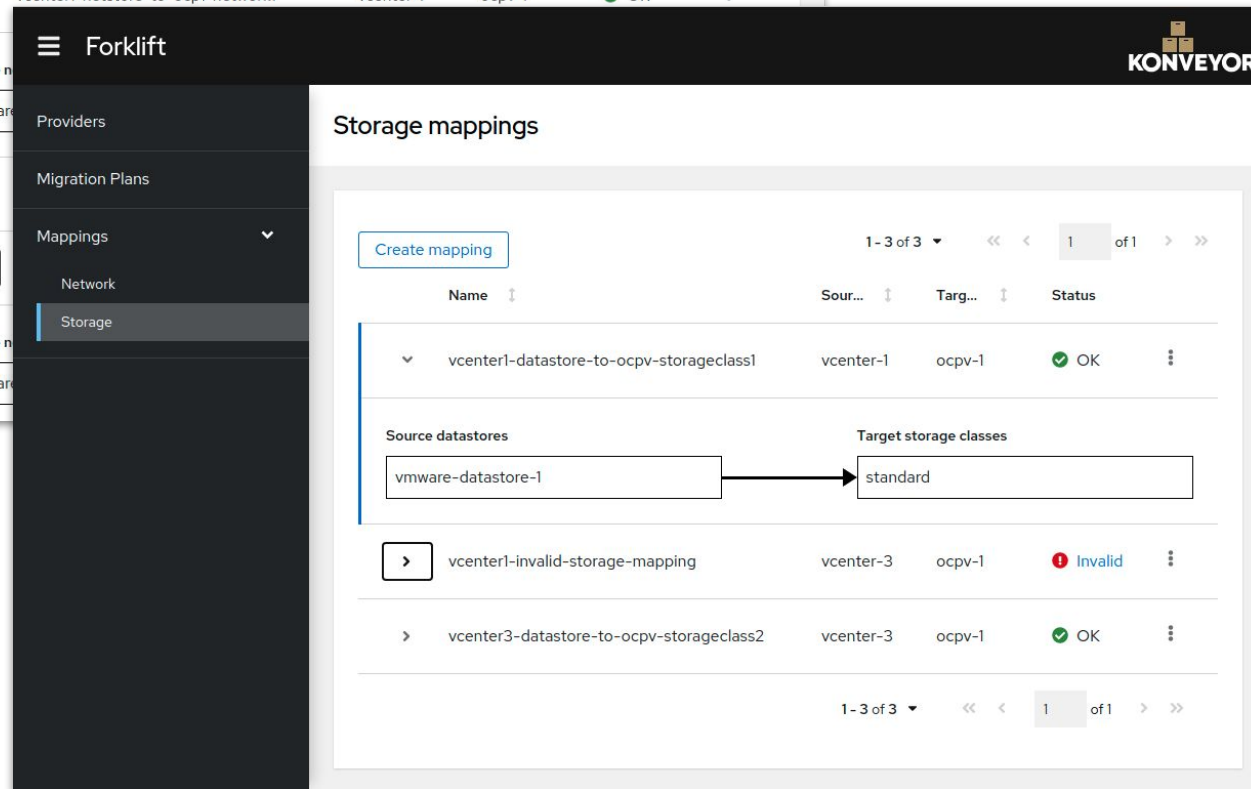


Infrastructure Mappings



Infrastructure mapping allows you to answer questions about source and destination of your VMs from a **network and storage** point of view.

This can be configured once by your network and storage specialist, avoiding redundant questions during the execution of your migrations.



Migration Plans

And pre-migration checks



Forklift

Providers

Migration Plans

Mappings

Migration plans > Create

Create migration plan

1 General

2 VM selection

3 Network mapping

4 Storage mapping

5 Type

6 Hooks

7 Review

Filter

Select VMs

Select VMs

Select VMs for migration. The Migration assessment column highlights conditions related to migrating a particular VM, as determined by Red Hat's migration analytics service.

>

☐

0 selected

1 - 5 of 5

<

>

	Migr...	VM ...	Data...	Clus...	esx13.v2v.bos.redhat.com	r path
>	<input type="checkbox"/>	Advisory	fdupont-test	V2V-DC	V2V_Cluster	esx13.v2v.b...
>	<input type="checkbox"/>	Warning	fdupont-te...	V2V-DC	V2V_Cluster	esx13.v2v...
>	<input type="checkbox"/>	Critical	fdupont-te...	V2V-DC	V2V_Cluster	esx13.v2v...
>	<input type="checkbox"/>	Analysing	pemcg-dis...	V2V-DC	V2V_Cluster	esx13.v2v.b... Discovered virtu...
>	<input type="checkbox"/>	Ok	pemcg-isc...	V2V-DC	V2V_Cluster	esx13.v2v.b...

Next

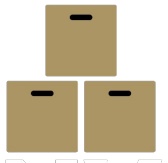
Back

Cancel

Forklift introduces, as tech preview, new on-premise migration analytic capabilities, helping you find potential migration issues before executing a migration.

When selecting your virtual machines, Forklift will automatically inform you of any known potential issue and provide information on how to solve this issue when possible.

Virtual machines can be filtered down by names, folders or other parameters to review all VMs related to a specific applications.



Other Features



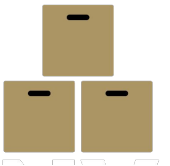
- Mass migration of VMs from VMware and RHV to OpenShift
- Added Red Hat Virtualization as supported source provider (Cold Migration only)
- Validation service: Includes SR-IOV cards and Opaque networks that are configured.
- Hooks: Automated tasks to be performed pre and post migration
- Must-Gather: specific add-ons and UI integration to ease troubleshooting

Providers

Name	Endpoint	Cluster	Hosts	VMs	Networks	Datastores	Status
VCenter1	vcenter.v2v.bos.redhat.com	2	15	41	8	3	Ready
VCenter2	vcenter.v2v.bos.redhat.com	2	15	41	8	3	Ready

Migration plans

Name	Source provider	Target provider	VMs	Plan status	Progress
plantest-1 my first plan	vcenter-1	ocpv-1	2	Running	0 of 2 VMs migrated
plantest-2 my 2nd plan	vcenter-1	ocpv-1	1	Ready	



Migration Progress



Launch your migration, sit back and relax.

We will keep you informed on our progress during the migration.

≡ Forklift

Providers

Migration Plans

Mappings

Migration plans > plantest-01

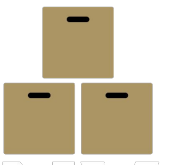
Migration details by VM

Cancel

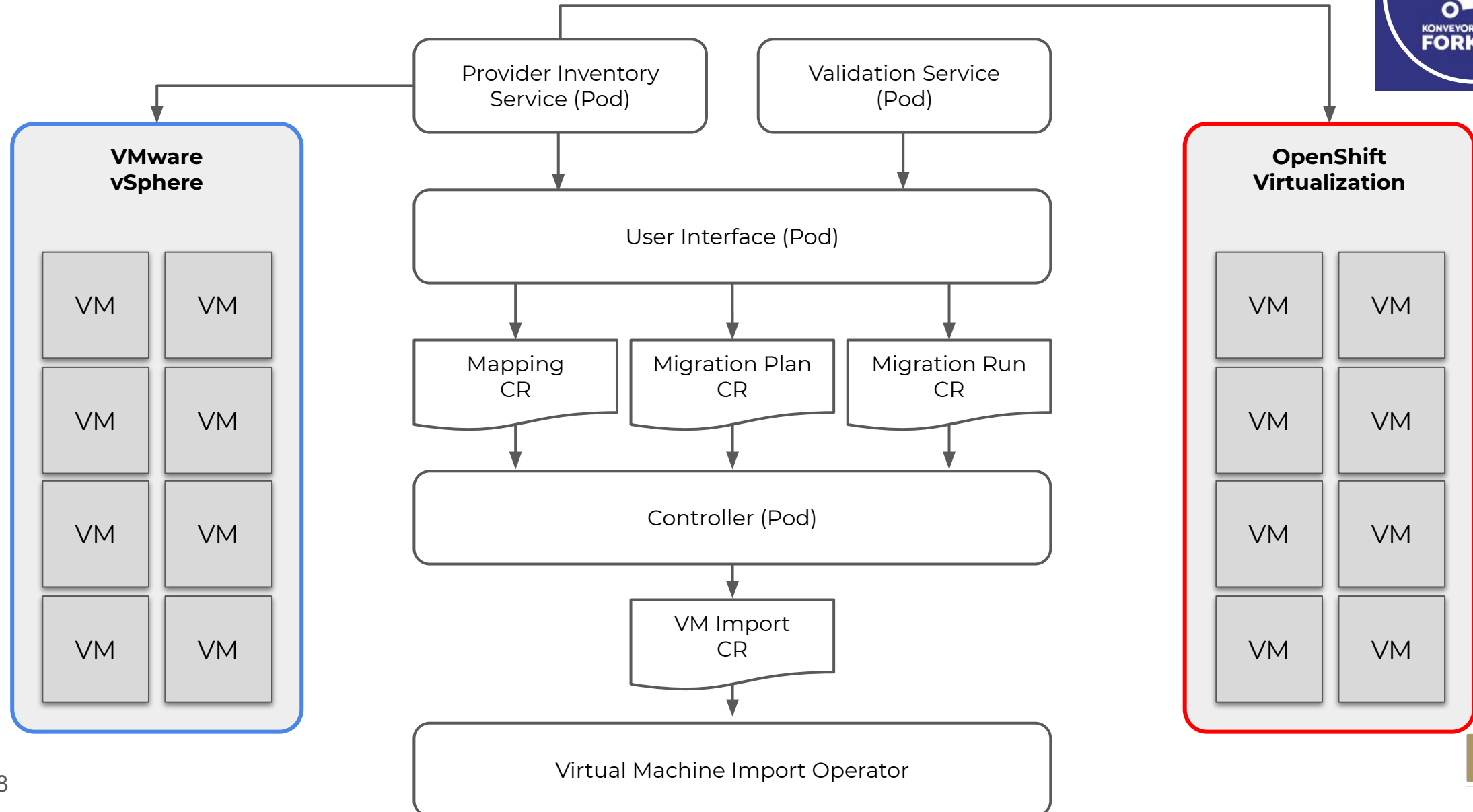
1 - 2 of 2

1 of 1

Name	Start ti...	End ti...	Data copied	Status									
<div>▼</div> <div>fdupont-tes...</div>	10 Oct 202...		30.41 / 64.00 GB	Convert image to kubevirt.									
<table><thead><tr><th>Step</th><th>Elapsed time</th><th>State</th></tr></thead><tbody><tr><td>● Transfer disks</td><td>01:36:00</td><td>Mock Step Phase</td></tr><tr><td>● Convert image to kubevirt</td><td>6258:24:48</td><td>Mock Step Phase</td></tr></tbody></table>					Step	Elapsed time	State	● Transfer disks	01:36:00	Mock Step Phase	● Convert image to kubevirt	6258:24:48	Mock Step Phase
Step	Elapsed time	State											
● Transfer disks	01:36:00	Mock Step Phase											
● Convert image to kubevirt	6258:24:48	Mock Step Phase											



Forklift Architecture



Forklift Project



Konveyor Community (con't)

Governance

- **Goal**

- Although each project can/will maintain a level of governance internally, community governance will comprise of members of each project. The intent is to provide guidance and direction through a steering committee which is comprised of the following:
 - One representative from each Konveyor project
 - One overall "Maintainer Representative"
 - One overall "Member Representative"
- Additionally a Code of Conduct committee is established to ensure meritocracy, fairness, diversity and to offer conflict resolution.

- **Status**

- In-progress, under review with community project leads (review/feedback welcomed!)
 - [Proposed Governance](#)

Konveyor Community (con't)

Contributing

- **Goal**

- Encourage community participation through a contributor ladder approach. The idea is to provide a rewards based system identifying various roles based on level of contributions made. This includes everything from a community participant to a project maintainer.

- **Status**

- In-progress, under review with community project leads (review/feedback welcomed!)
 - [Proposed Contributor Ladder](#)

GitHub Repos

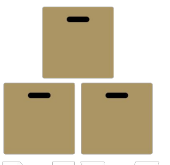
To build Forklift



Forklift projects

- [Forklift Operator](#). The Forklift Operator deploys and maintains Forklift.
- [Forklift Documentation](#). Documentation for installing and using Forklift.
- [Forklift UI](#). The Forklift UI is based on [Patternfly 4](#).
- [Forklift Controller](#). The Forklift Controller orchestrates the migration.
- [Forklift Validation](#). The Forklift Validation service checks the virtual machines for possible issues before migration. Runs with [Open Policy Agent](#).
- [Forklift must-gather](#). Support tool for gathering information about the environment.

<https://github.com/konveyor/forklift>



GitHub Repos

To build Forklift



Forklift website

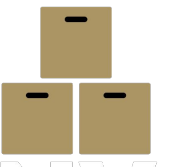
- <https://forklift.konveyor.io>

Forklift mailing list

- <https://groups.google.com/g/forklift-dev>

Konveyor Channel in Kubernetes Slack

- <https://kubernetes.slack.com/archives/CR85S82A2>



Forklift Roadmap



Forklift Roadmap

VM migration



- **Forklift 2.0**
 - Warm Migration from **VMware vSphere**
 - Pre-migration checks (tech preview)
- **Forklift 2.1**
 - Cold migration from **RHV/oVirt**
 - Migration Hooks
 - Must Gather



Forklift Roadmap

VM migration

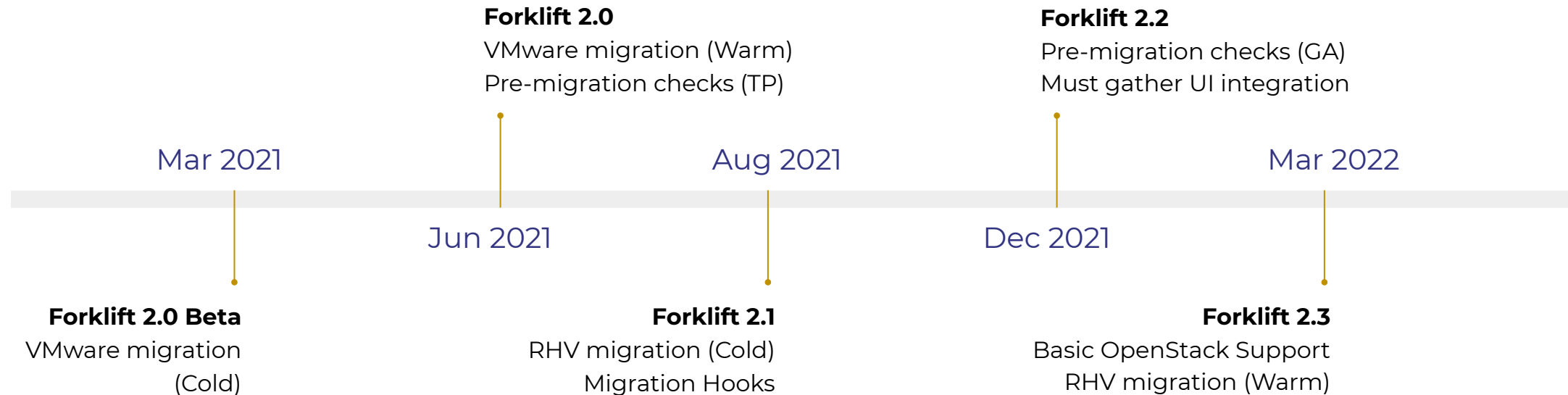


- **Forklift 2.2**
 - Ansible Hooks Image Builder
 - Pre-migration checks (GA)
- **Forklift 2.3**
 - Warm migrations from **RHV/oVirt**
 - **OpenStack** Support (Basic)



Forklift Roadmap

VM migration



Demo

<https://red.ht/mtv-videos>



Get Involved

- **Chat**
#konveyor on slack.k8s.io
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Subscribe at konveyor.io
- **Share**
Propose a meetup talk ([form](#))
- **Contribute**
Join the next quarterly project planning
Invites sent to [Konveyor-community list](#)



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Thank you!

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