

Red Hat
Summit

Connect

Kasten by Veeam

Backup, DR e migrazione multi-cloud
per **Red Hat OpenShift**

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veeam

Best of Breed Technology Alliance



Data protection and backup is a necessity for managing Kubernetes at scale across the hybrid cloud. We are pleased to collaborate with **Kasten by Veeam** so organizations across the globe can use Kasten K1O data management platform with **Red Hat OpenShift** to rollout, upgrade and protect their cloud-native applications.



Joe Fernandez

VP and GM, Core Cloud Platforms at RedHat

Kasten by Veeam: our Mission

Kasten's **Mission** is tackling Day 2 data management challenges to help enterprises confidently run applications on **Kubernetes**.



Backup & Restore



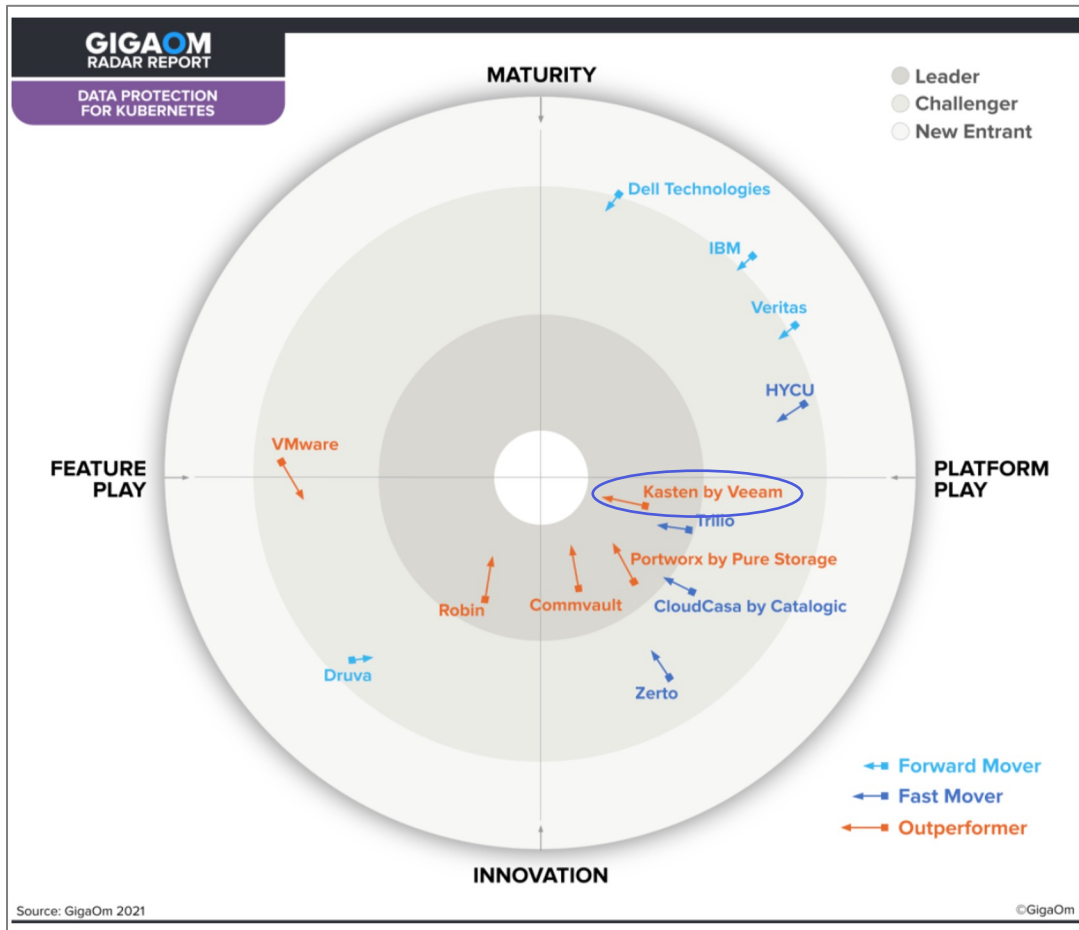
Disaster Recovery



Application Mobility



Kasten by Veeam: industry recognition



Kasten K10 is a Kubernetes-native, mature solution that's very suitable for self-hosted, self-managed use cases. It's architecture scales well and is especially well-suited for edge deployments.

It's RBAC features and centrally managed policy model are well aligned with large enterprise and self-service requirements.

It's application-aware data management framework, Kanister, is promising and quickly maturing. It has good support for on-premises repositories.

Enrico Signoretti
Senior Data Storage Analyst, GigaOm
December 2021



Kubernetes Data Protection – Key customer asks



Kubernetes native

Automation and workflows in Kubernetes native environments



Multi-layered consistency

Consistent data and application resources capture



Freedom of choice

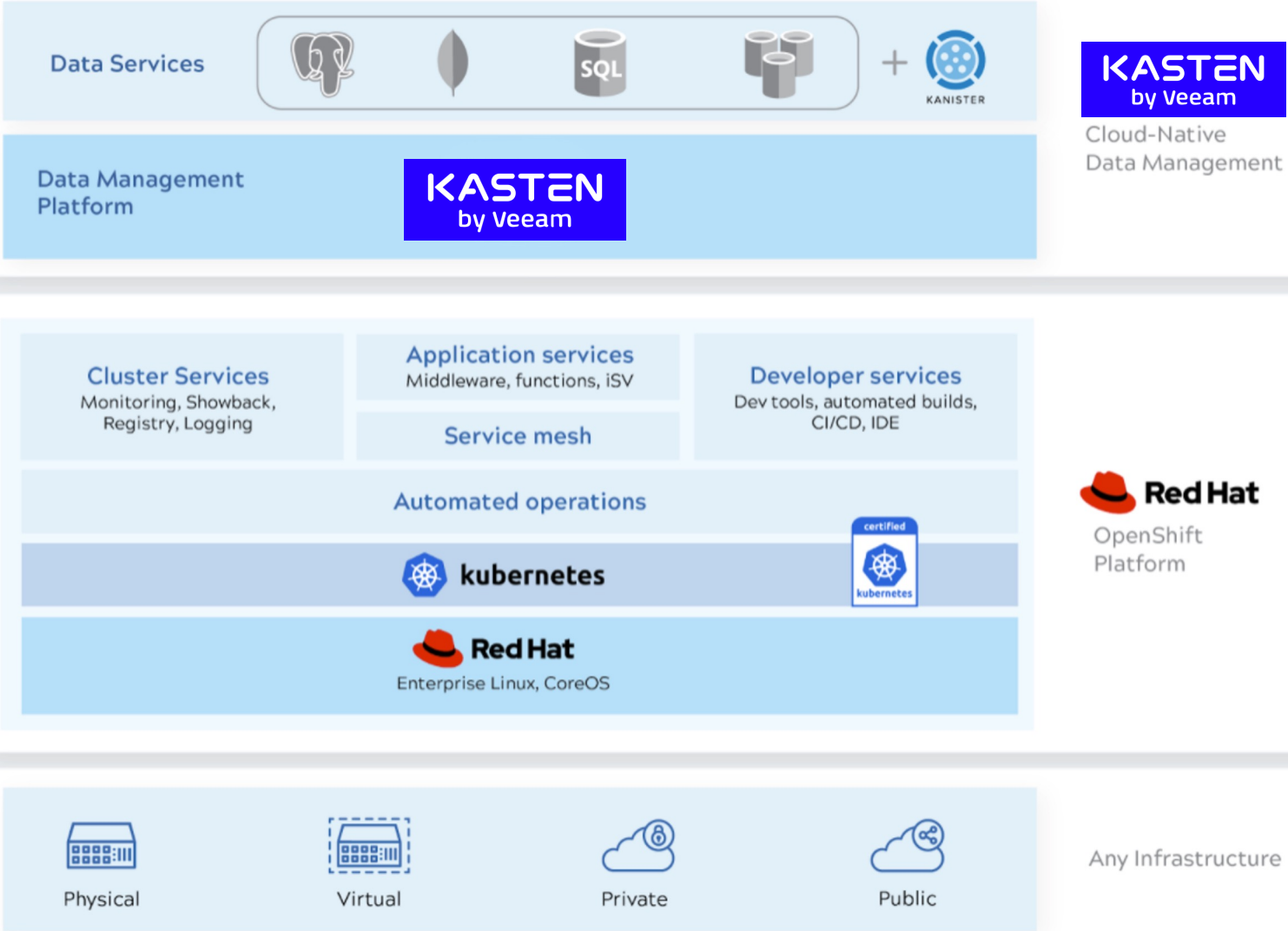
Avoid fragmentation and enable deployment flexibility



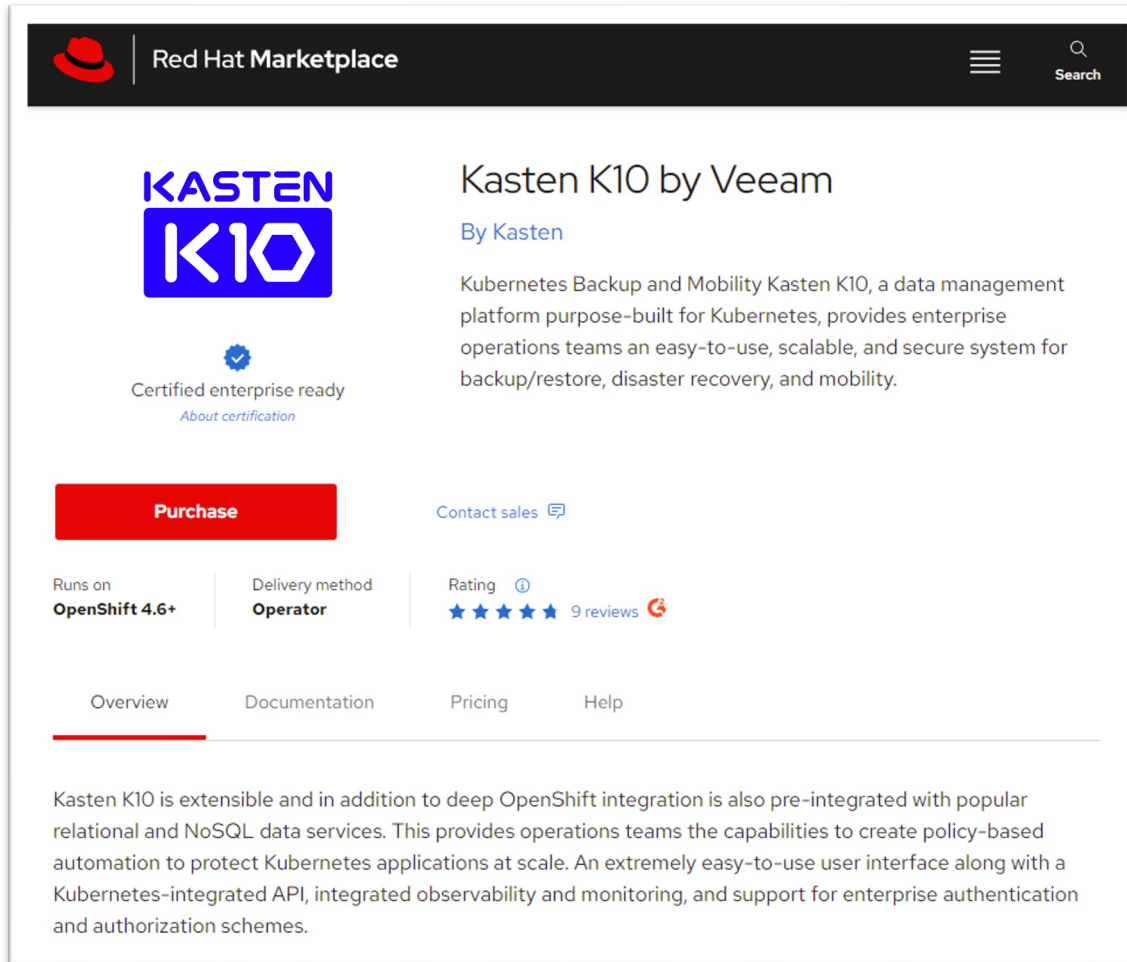
DevOps speed & scale

Shift-left environments and secure self-service

Kasten by Veeam + Red Hat OpenShift



Kasten on Red Hat Marketplace



The screenshot shows the Red Hat Marketplace interface for the Kasten K10 operator. The header includes the Red Hat logo and 'Red Hat Marketplace' text. The main content area features the Kasten K10 logo, a 'Certified enterprise ready' badge, and a description: 'Kubernetes Backup and Mobility Kasten K10, a data management platform purpose-built for Kubernetes, provides enterprise operations teams an easy-to-use, scalable, and secure system for backup/restore, disaster recovery, and mobility.' Below the description are 'Purchase' and 'Contact sales' buttons. A metadata section shows 'Runs on OpenShift 4.6+', 'Delivery method Operator', and a 'Rating' of 5 stars based on 9 reviews. A navigation bar at the bottom includes 'Overview', 'Documentation', 'Pricing', and 'Help' tabs. The 'Overview' tab is selected, showing a paragraph about Kasten K10's extensibility and integration with OpenShift and various data services.

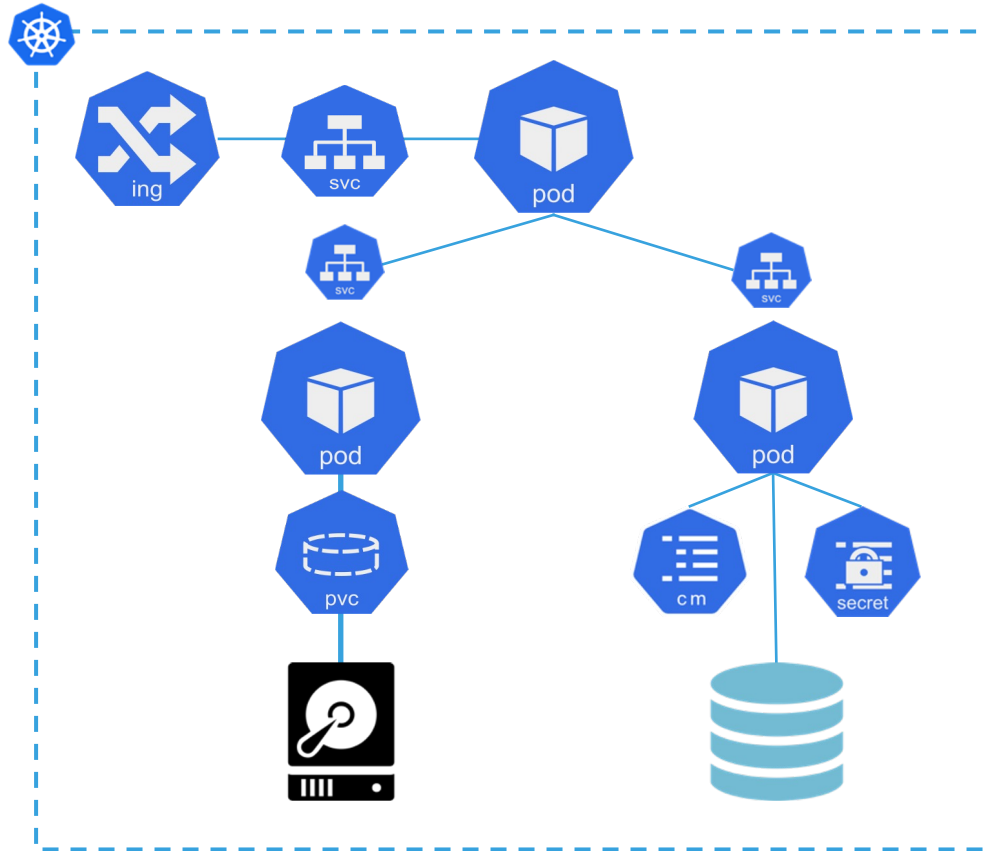
- Backup and DR for OpenShift
- Flexible purchase options
- Level III certified operator with full lifecycle capabilities (backup, failure recovery / DR)

Kubernetes-native, policy-based protection

```
mysql-backup
1 kind: Policy
2 apiVersion: config.kio.kasten.io/v1alpha1
3 metadata:
4   name: mysql-backup
5   namespace: kasten
6   uid: 9b29e82b-7164-4c89-b306-6206848129e0
7   resourceVersion: "97195772"
8   generation: 2
9   creationTimestamp: 2022-09-28T10:24:04Z
10  managedFields:
38 spec:
39   frequency: "@daily"
40   subFrequency:
41     minutes:
42       - 0
43     hours:
44       - 4
45     weekdays:
46       - 0
47     days:
48       - 1
49     months:
50       - 1
51   retention:
52     daily: 7
53     weekly: 4
54   selector:
55     matchExpressions:
56       - key: k10.kasten.io/appNamespace
57         operator: In
58         values:
59           - mysql
60   actions:
61     - action: backup
62       backupParameters:
63         filters: {}
64         profile:
65           name: gcs-dchiavari
79     retention: {}
80
```



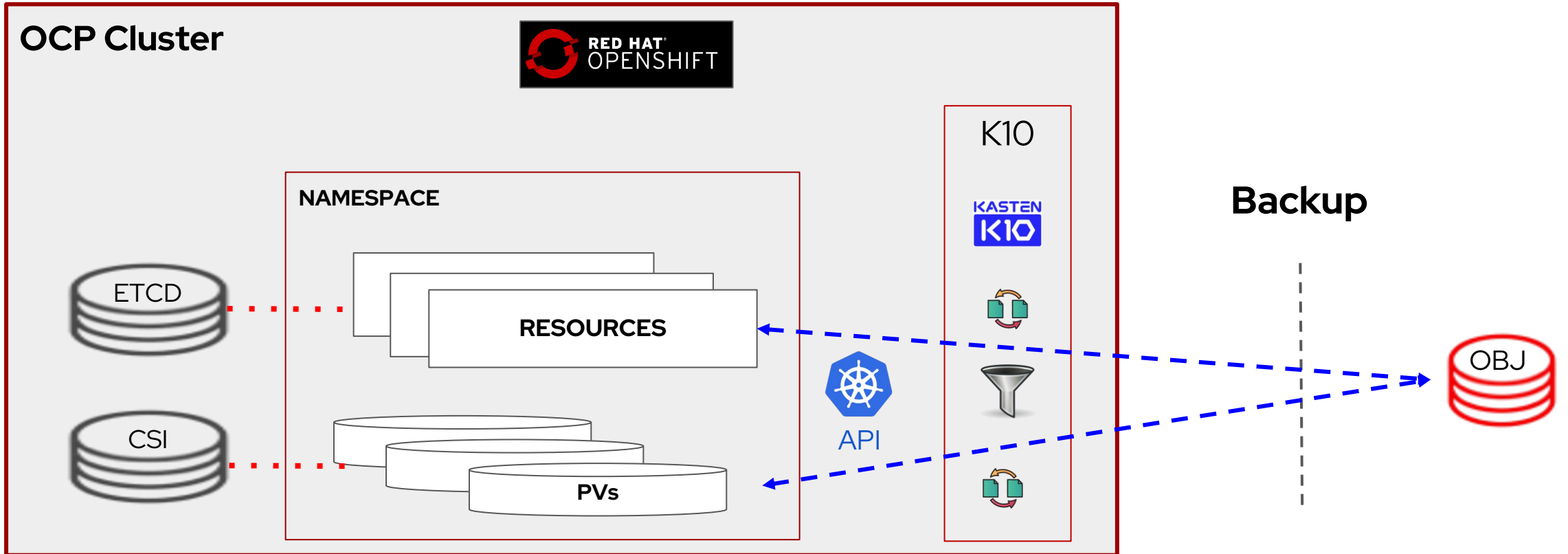
How Kasten K10 by Veeam works



Applications as the Operational Unit

- Perform complete application capture
- Abstract underlying infrastructure
- Perform coordinated operations

How Kasten K10 by Veeam works



Application Transforms – Kasten K10 by Veeam

Restore Point

Application Name
Select a namespace to restore into. The contents of the selected namespace will be overwritten with the restored application.

app-1 ⊕ Create a New Namespace

Optional Restore Settings

Pre and Post-Restore Action Hooks
Optional blueprint actions to be run before or after restores complete

- Before
- After - On Success
- After - On Failure

Data-Only Restore
Restore only the volume data and exclude other artifacts such as config files.

Don't wait for workloads to be ready
Specifies whether the restore action should skip waiting for all workloads (Deployments, StatefulSets or DeploymentConfigs) to be ready before completing.

Apply transforms to restored resources
On restore, change the contents of spec resources. This may be useful when migrating between environments. For example, you can change storage classes or edit container image names.

⊕ Add New Transform

Restore Cancel

Resource	Transform Examples
Ingress	Change FQDNs
Service Account	Merge image pull Secrets
Storage	Change StorageClass
Registry	Transform registry URLs for applications
StatefulSets	Transform DNS names, e.g., workload URLs
Secrets	Filter by label, e.g., Remove TLS secret for auto-regeneration
OpenShift	Internal updates, e.g., OCP ImageStream tags

Application Transforms – Kasten K10 by Veeam

Test Transform

Operations

- > **Replace**
 - path `"/spec/ports/0/targetPort"`
 - value `6380`

Original Resource
Paste a test resource here — JSON or YAML

```
1 apiVersion: v1
2 kind: Service
3 metadata:
4   creationTimestamp: 2019-05-23T15:48:38Z
5   labels:
6     app: redis
7     chart: redis-7.1.0
8     heritage: Tiller
9     release: wanton-cat
10  name: wanton-cat-redis-master
11  namespace: redis
12  resourceVersion: "22491736"
13  selfLink: /api/v1/namespaces/redis/services/v
14  uid: 3b513112-7d72-11e9-9bf4-42010a8a0204
15 spec:
16   clusterIP: 10.55.250.25
17   ports:
18     - name: redis
19       port: 6379
20       protocol: TCP
21       targetPort: redis
22   selector:
23     app: redis
24     release: wanton-cat
25     role: master
26   sessionAffinity: None
27   type: ClusterIP
28 status:
29   loadBalancer: {}
30
```

Transformed Resource
Transform result will be placed here.

```
1 apiVersion: v1
2 kind: Service
3 metadata:
4   creationTimestamp: 2019-05-23T15:48:38Z
5   labels:
6     app: redis
7     chart: redis-7.1.0
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27   type: ClusterIP
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```

</> Paste an existing resource for testing... ▾

Kasten K10 by Veeam – Main features



Built for Kubernetes

Purpose-built for Kubernetes using cloud native architectural principles



Security Everywhere

Support for RBAC, OIDC, Token Auth, IAM and industry-standard encryption



Rich Ecosystem

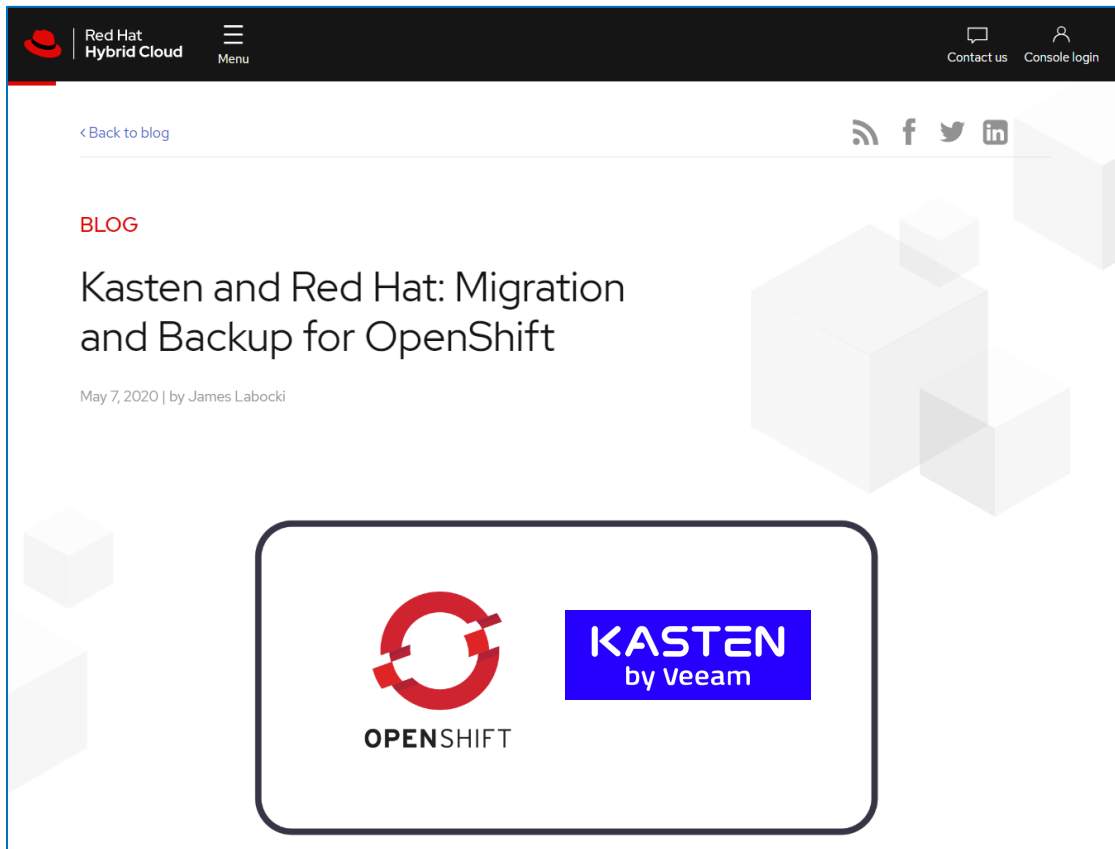
Extensive support across the entire stack: select the best tools or infrastructure



Ease of Use

State-of-the-art multi-cluster UI; cloud native architecture and API, easy install, extensible

Use case: OpenShift Migration (v3.11 → v4.3)



<https://cloud.redhat.com/blog/kasten-and-red-hat-migration-and-backup-for-openshift>

The diagram shows a migration process from Red Hat OpenShift v3.11 (Kubernetes 1.11) to v4.3 (Kubernetes 1.16) using Kasten by Veeam. The source environment includes AWS, AWS EBS, and Ceph. The target environment includes AWS, AWS EBS, Rook, and Ceph. The migration involves 170+ Applications, 54 nodes, 216 CPUs, 1.7 TB RAM, and 415 Volumes, Multi-TB.

Number	Component
2,126	Pods (1,380 workloads)
3,166	Secrets
1,411	Services
3,483	Image Information
768	Service Accounts
915	Configuration
3,484	Role Bindings
5,137	Other Components
18,393	Total (average 112/app)

Integrated reporting & visibility

Applications
Discovered in this system
7

- 5 Compliant
- 0 Non-Compliant
- 2 Unmanaged

Policies
Managing resources
3

- 3 Backup Policies
- 0 Import Policies

Usage & Reports
Total Backup Data
445.2 MiB

BACKUPS

- Snapshots (135): 174 MiB (39%)
- Object Storage: 271 MiB (61%)

Reports

The most recent reports that have been generated for this cluster.

Enable Reports
Turn on auto-generated reports.

DATE	ACTIONS	COMPLIANCE	STORAGE	K10 VERSION
Oct 5 to Oct 6, 2021	16 (16) 0 0	6 0 0	Snapshot: 39.7 GiB Object: 18.3 GiB	4.5.0
Oct 4 to Oct 5, 2021	16 (15) 0 1	5 1 0	Snapshot: 37.1 GiB Object: 17.4 GiB	4.5.0

```
$ kubectl get -n kasten-io reports.reporting.kio.kasten.io
```

NAME	LICENSE	DR	TIME	AGE
scheduled-45cfn-qwmcw	Valid	Disabled	2021-10-06T22:58:54Z	24h
scheduled-568xd-s2qgh	Valid	Disabled	2021-10-07T22:57:49Z	16m

General / K10 Dashboard

18 - - 0 - -

System

- Policy R...: 10 runs
- Policy R...: -
- Catalog ...: 208 MiB
- Catalog ...: 2%
- Jobs Vo...: 26.4 MiB
- Jobs Vo...: 1%
- Logging...: 903 MiB
- Logging...: 5%

Complia...: 5

Non-Co...: 0

Unmana...: 0

Snapsh...: 46.2 MiB

Snapsh...: 96 GiB

Export S...: 1.05 GiB

Export S...: 521 MiB

22.7 MiB

2.31 GiB

Kasten K10 by Veeam v5 – What's new?



Platform Hardening & Ease of Use

- KMS integration for encryption keys management
- Kubernetes native RBAC objects (Roles and Bindings) exposed in UI dashboard



Data Protection Policy Guardrails

- Plugging vulnerabilities by identifying (and fixing) misconfigurations
- Enforceable Policy standards (e.g., RPO, retention, immutability)



Ransomware Attack Detection

- Early detection of potential / impending attack
- AWS S3 or S3-compatible storage supporting S3 Object Lock



Veeam Hardened Linux Repository with immutability

- Comprehensive, end-to-end ransomware protection, from Performance Tier to Capacity Tier
- Next step in VBR data path integration

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Thank you



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