

# Diving in: Kasten K10 + Veeam Backup & Replication



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# Agenda

- Overview & timeline
- Backup to Veeam repository
- Centralized management
- Instant Recovery
- Futures

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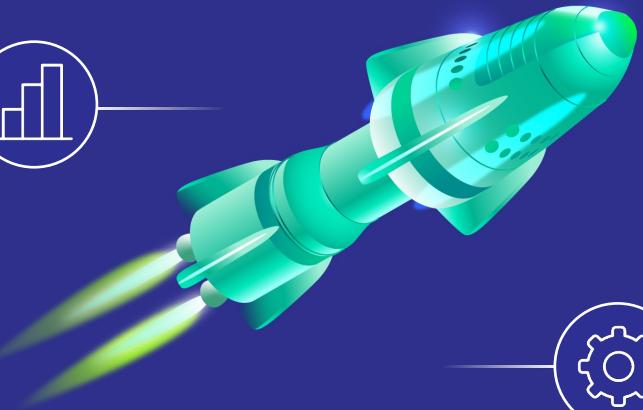
# Overview & timeline

# Market growth:

## Industry drivers

### Kubernetes – increased production usage

Fastest growing infrastructure platform, deployed everywhere



### Adoption of shift left processes and CI/CD automation

Improve software quality by moving tasks to the left early in delivery cycle



### Cloud native development growing

Enterprises taking advantage of speed and efficiency of cloud environments

# Kubernetes data protection



## Kubernetes native

Automation and workflows in Kubernetes native environments



## Freedom of choice

Avoid fragmentation and enable deployment flexibility



## Multi-layered consistency

Consistent data and application resources capture



## DevOps speed & scale

Shift-left environments and secure self-service

# Kasten K10 by Veeam

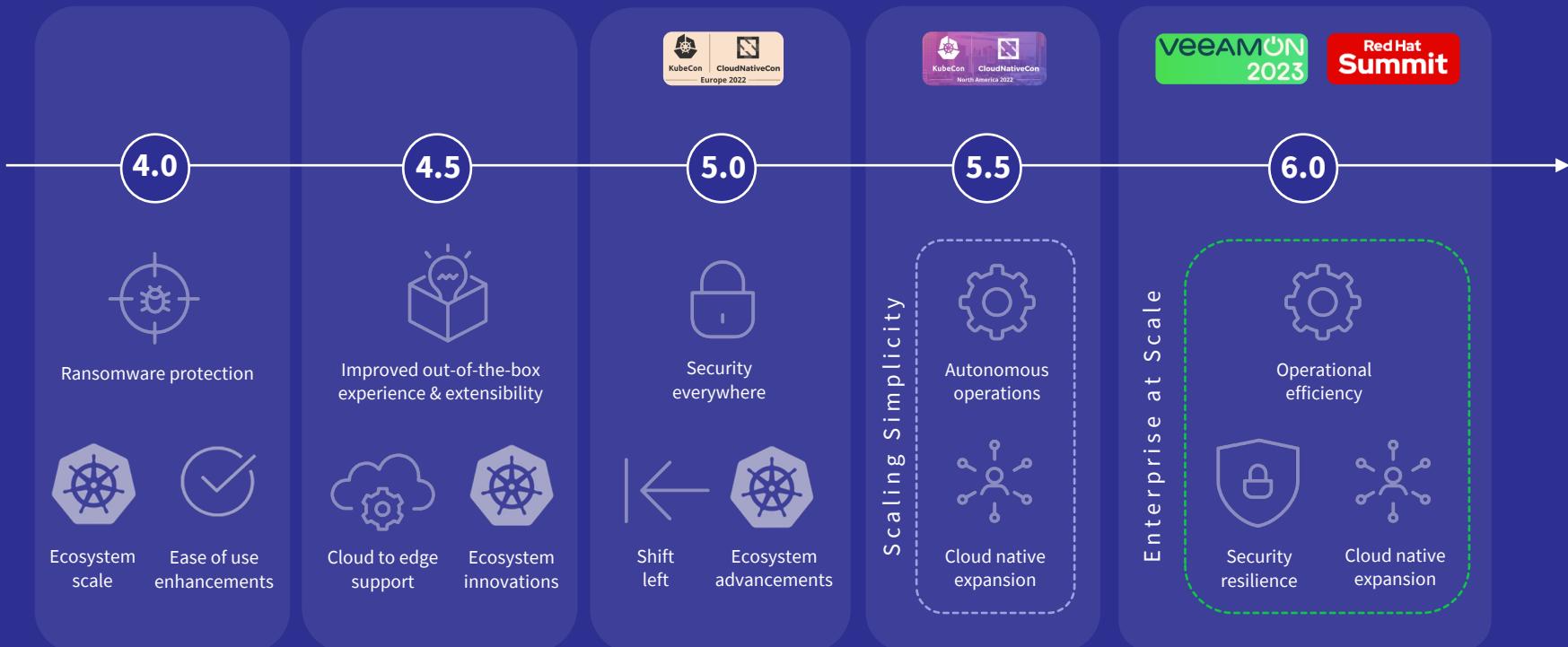
## #1 Kubernetes backup

Purpose-built for Kubernetes, the Kasten K10 data management platform provides enterprise operations teams an easy-to-use, scalable and secure system for backup/restore, disaster recovery and application mobility of Kubernetes applications.



# Kasten K10 release train

Continued innovation



# Kasten K10 V6.0

Enterprise at cloud scale

## Operational efficiency

Veeam® Data Platform.

- Kasten K10 a fitting component.
- VBR integration (centralized management, Instant Recovery).

App fingerprinting.

Custom transforms library.

Multi-cluster license management.

Streamlined VM restore workflow for KubeVirt/OpenShiftVirtualization.

AWS EKS blueprints add-ons.

## Security resilience

Ransomware detection.

- Kubernetes audit log analysis.
- Integrations (Red Hat ACS and Amazon GuardDuty).

AWS Secrets Manager support for K10 DR.

Policy presets enforcement with Kyverno.

## Cloud native expansion

Additional workload types:

- Kubernetes 1.26.
- Red Hat OCP 4.12.
- Blueprint for Amazon RDS.

Hybrid environments:

- Google Anthos.
- Cross-platform restore targets for Tanzu backups.
- Cisco Hybrid Cloud CVD with Red Hat and Kasten.

Additional storage options:

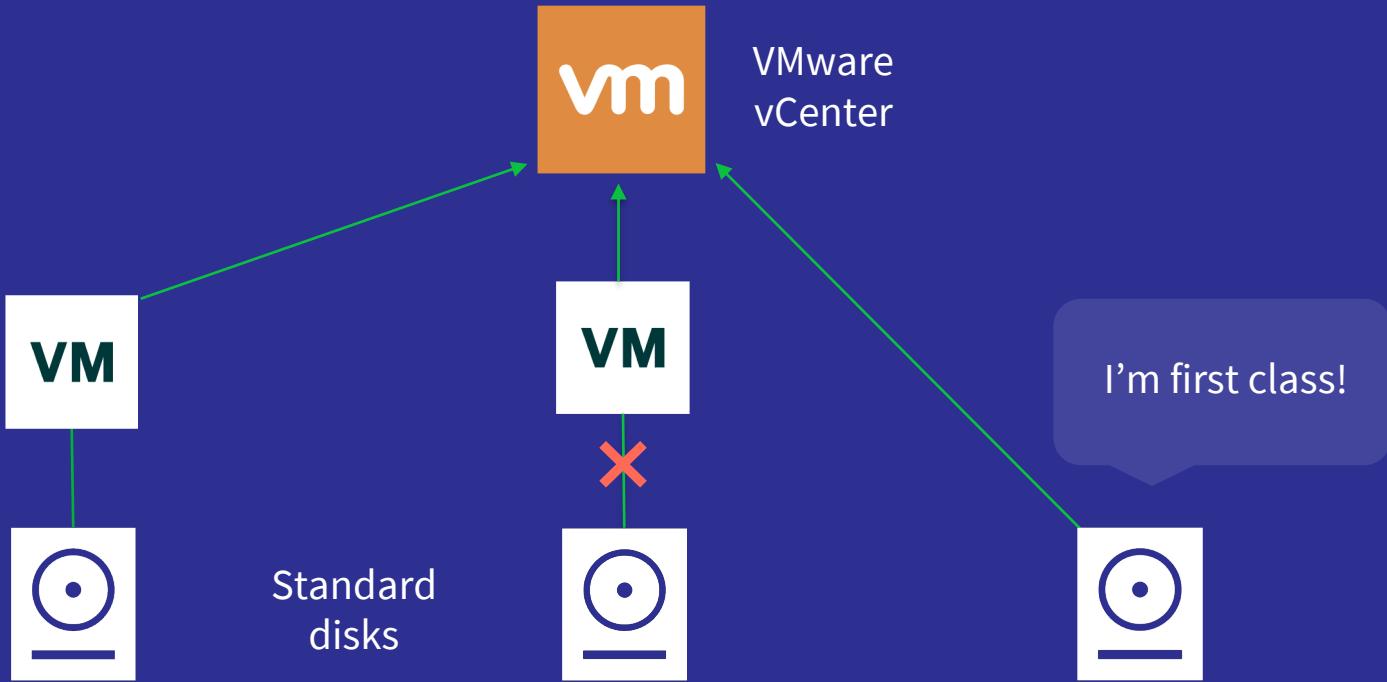
- NetApp ONTAP S3.
- Dell-EMC ECS S3.

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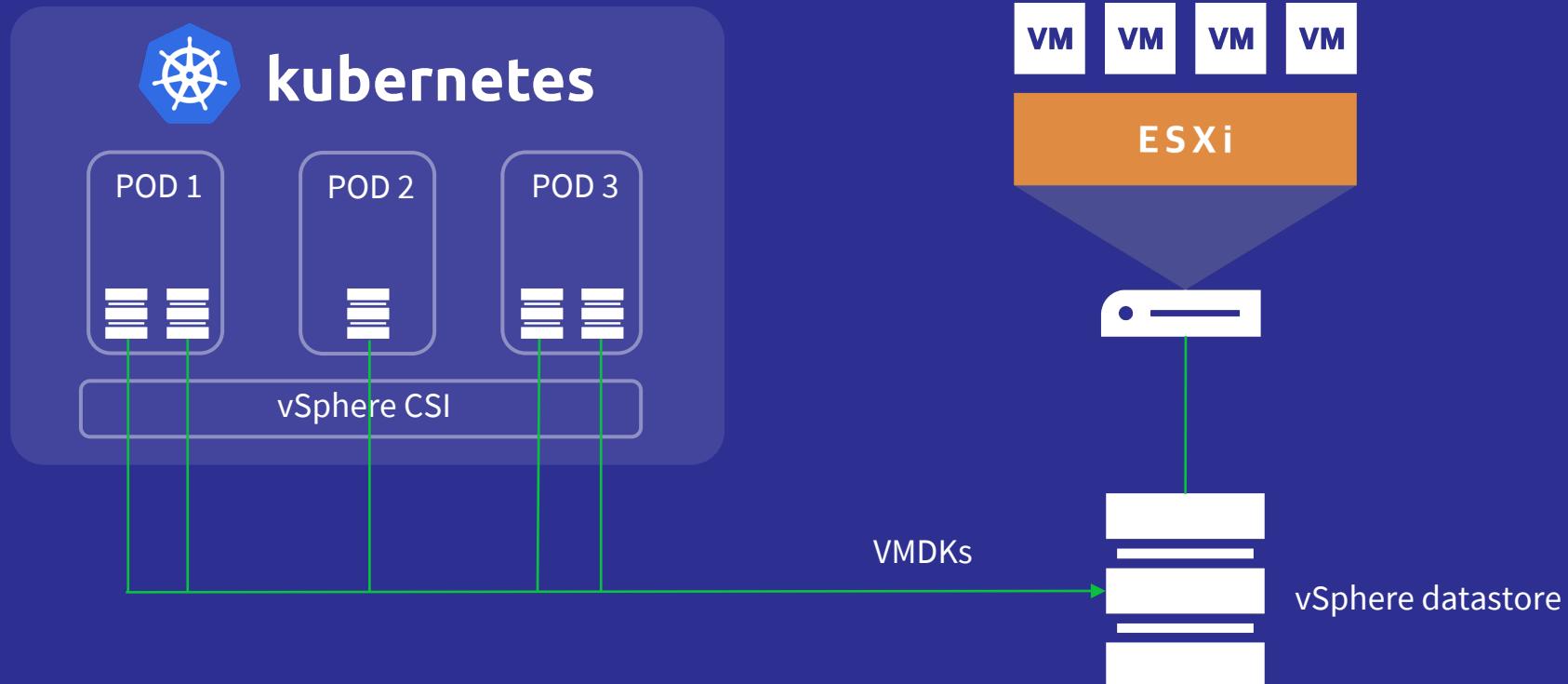
# Kubernetes on vSphere technology overview



# What is a first-class disk?



# vSphere cloud native storage



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Backup to Veeam repository

# K10 export options



Veeam VBR repository, can be commercial offering like HPE StoreOnce, DAS or NAS storage. Can be immutable.  
[https://helpcenter.veeam.com/docs/backup/vsphere/backup\\_repository.html?ver=120](https://helpcenter.veeam.com/docs/backup/vsphere/backup_repository.html?ver=120)



AWS S3 storage. Can be regular, intelligent tiering, single-zone etc but avoid any types that have either retrieval fees or deletion fees. Can be immutable.



Azure Blob Storage. Can be immutable.



Can be cloud based or on-premises, must support v4.1 protocol and ports TCP/UDP 2049 open on firewalls.



Google Cloud Platform

Google Cloud Storage. Auto tiering. Can be immutable.



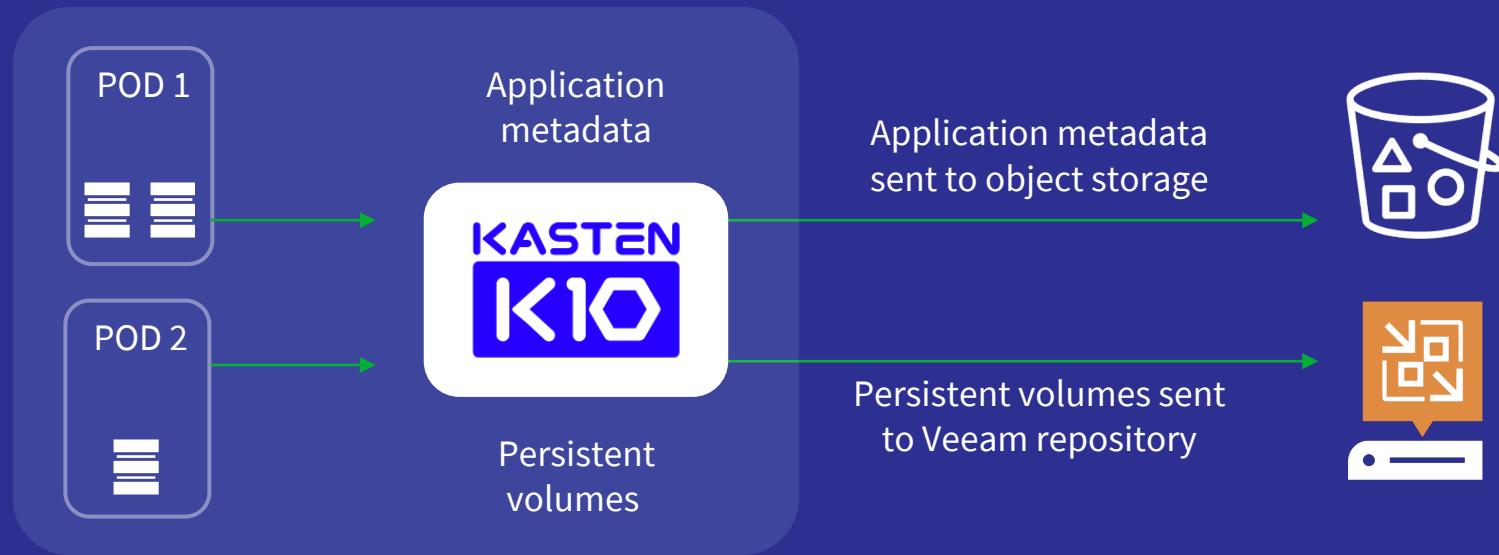
S3 compatible. Cloud offerings like Wasabi or on-premises like Minio or Cloudian. Can be immutable.

# K10 backups to object storage



kubernetes

# K10 backups to Veeam repository



**kubernetes**

Volume backups stored in  
Veeam VBK/VIB format



# Why Veeam repository?

- CapEx leverage investments in dedupe or other local storage for bulk volume data.
- Faster restores for local Kubernetes.
- Leverage investments in dedupe or other local storage for bulk volume data.
- Immutability & regulation.
- Tape tiering – VTL and physical.
- Veeam Cloud Connect.
- Enable granular file-level recovery from K10 backups.

# Requirements

Can only be used with a vSphere environment, requires the vSphere CSI driver on the Kubernetes cluster

Firewall rules/access from ALL cluster nodes to both Veeam server and repository

From	To	Protocol	Port	Notes
K10 application	Veeam Backup & Replication server	TCP	10006	Port used to connect to the Veeam Backup & Replication server.
	VBR RestAPI Service	HTTPS	9419	Port used to validate Veeam Backup & Replication Location Profile.
	Veeam backup repository	TCP	2500 to 3300	Default range of ports used as data transmission channels. For every TCP connection that a job uses, one port from this range is assigned.

VBR Ent Pro Plus Edition required

Kasten K10 5.5.3 or greater

[https://helpcenter.veeam.com/docs/backup/kasten\\_integration/overview.html?ver=120](https://helpcenter.veeam.com/docs/backup/kasten_integration/overview.html?ver=120)

# Setting up immutable backup protection using Veeam repository

To use the K10 backup immutability feature with Veeam Backup & Replication™, immutability settings should be set up consistently as follows.

Set up the immutability window length in VBR for desired immutability period.

Set up a properly protected period in K10 (see K10 immutability documentation for details). This period must be less than or equal to the immutability window in VBR.

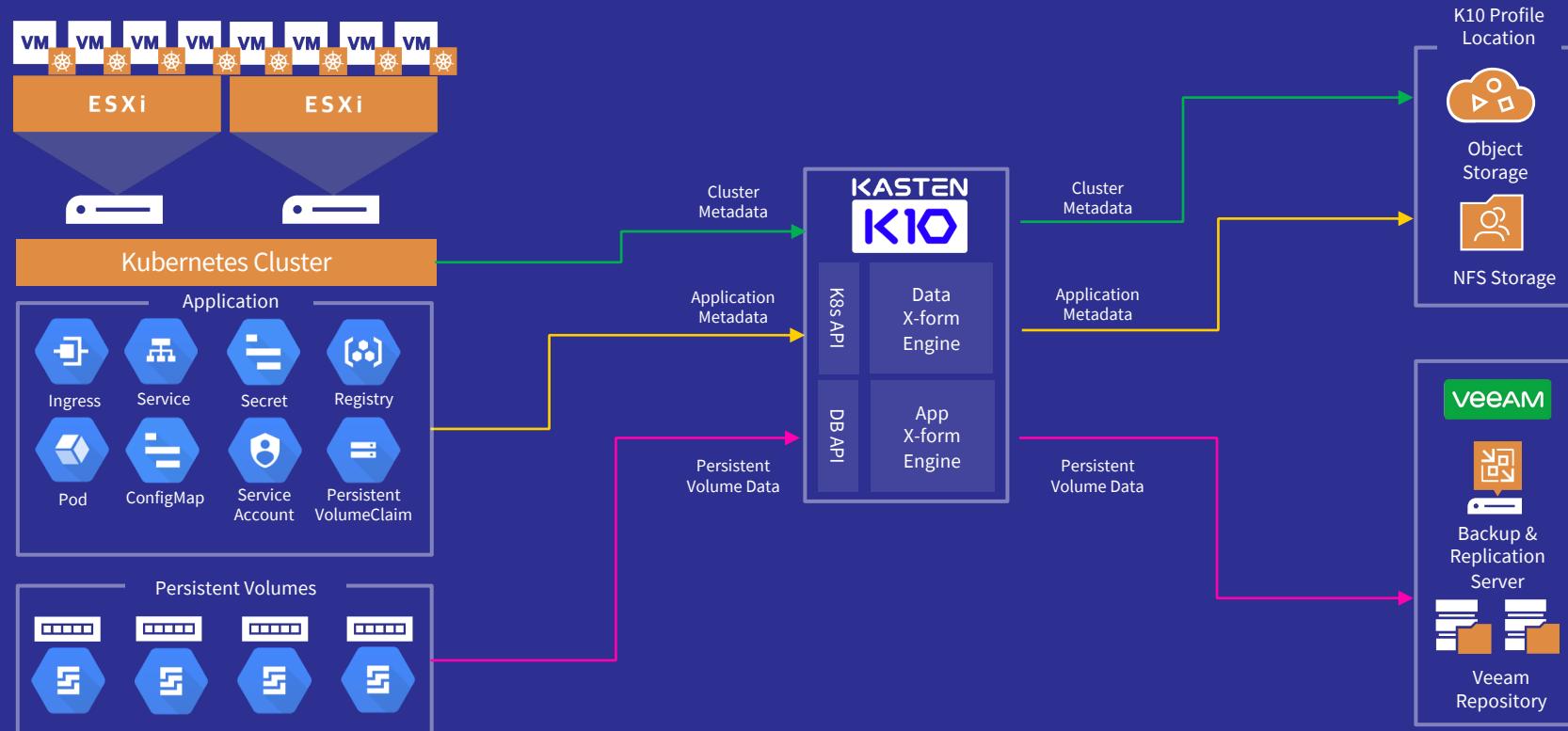
Configure K10 backup frequency and retention settings in a way that prevents deleting restore points inside the VBR immutability window (otherwise, it will lead to orphaned restore points that will not be automatically retired).

<https://docs.kasten.io/latest/usage/immutable.html#setup-immutable-vbr>

# vSphere support summary

	vSphere with Tanzu [1]	Other Kubernetes infrastructures [1]
vSphere	Supported versions	7.0 U3 or higher
	vCenter access required [2]	Required
	Export in <a href="#">filesystem mode</a>	<b>Not supported [3]</b>
Export	Export in <a href="#">block mode</a> [4]	To an <a href="#">object storage location</a> , an <a href="#">NFS file storage location</a> or a <a href="#">Veeam repository</a> [5]
	Restore from a <a href="#">snapshot</a>	<b>Not supported [3]</b>
Restore	Restore from an export (any mode)	Supported
	<a href="#">Instant Recovery</a> restore	From a <a href="#">Veeam repository</a>
Import	Import a <a href="#">filesystem mode</a> export	Supported
	Import a <a href="#">block mode</a> export	From an <a href="#">object storage location</a> , an <a href="#">NFS file storage location</a> or a <a href="#">Veeam repository</a> [5]
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# Architecture overview



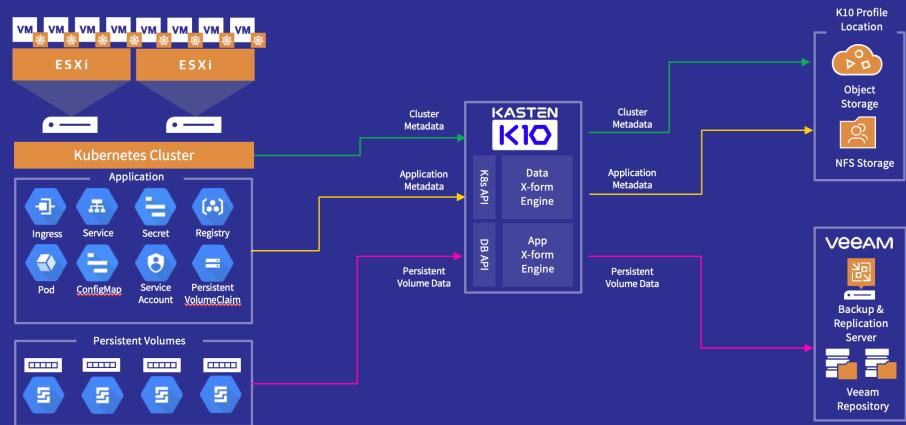
# Architecture overview

Kasten K10 V4.5 introduced initial support for Veeam Backup & Replication v11a+ (CU3+).

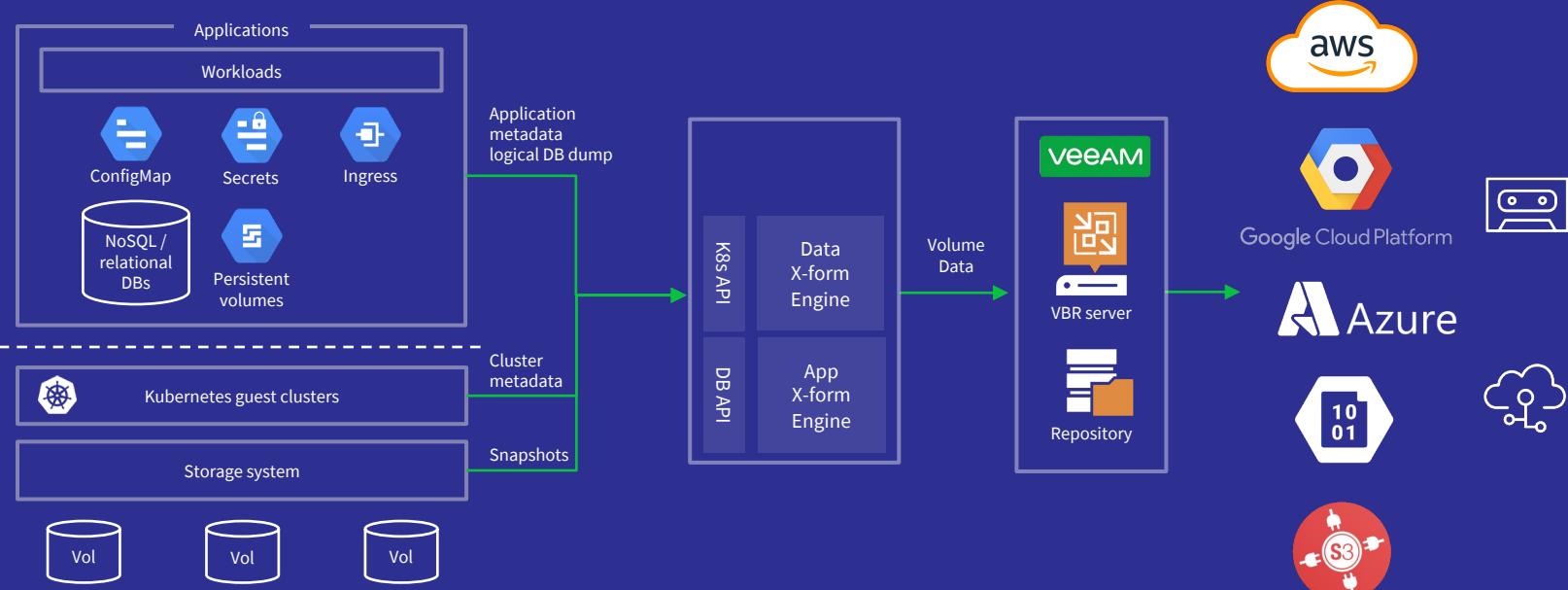
Repository Target and Kasten K10 Management for K8s on vSphere.

Adds unified backup target support for Veeam Backup & Replication backups and Kasten K10 PVC backups.

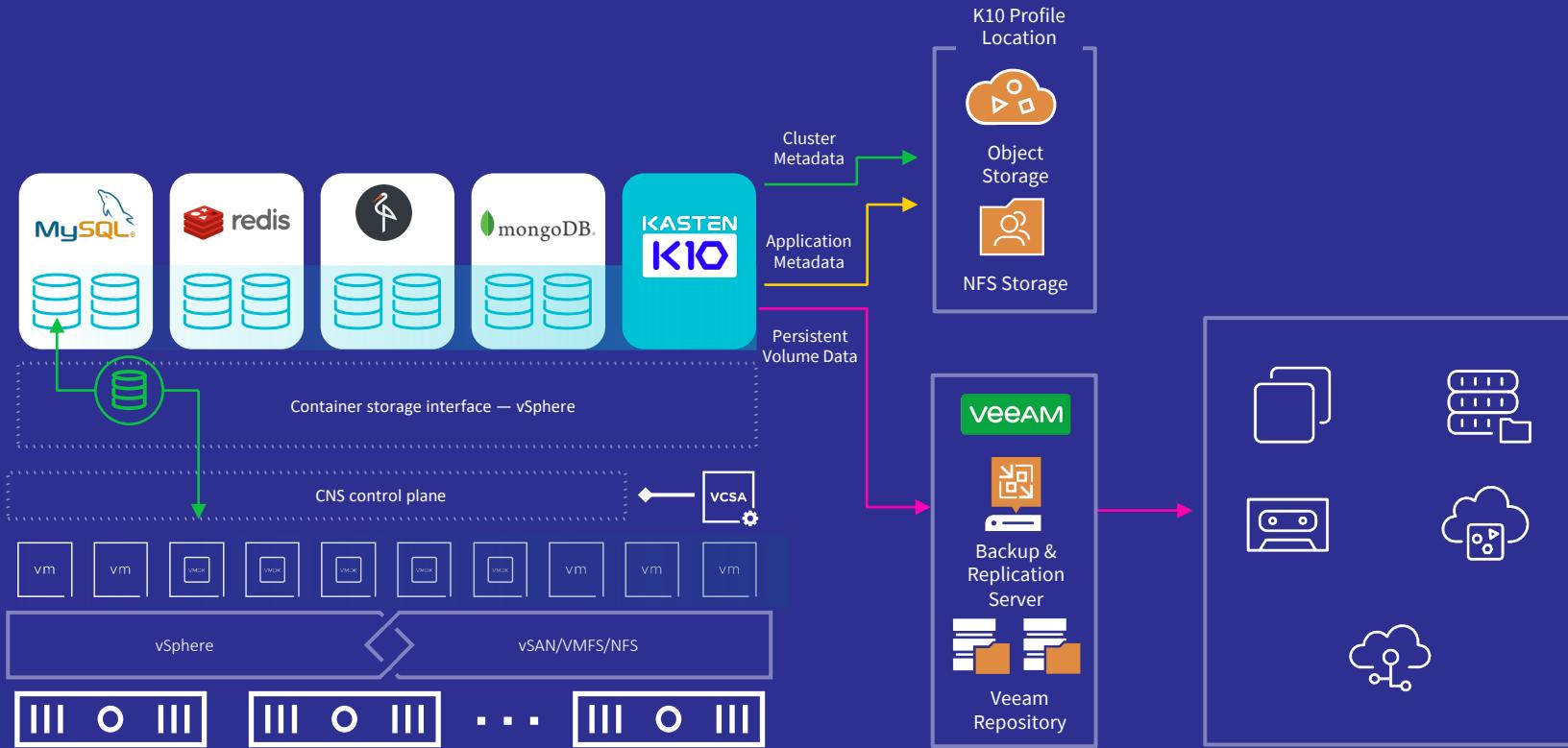
Integrations add support for Kasten K10 **PVC backups** for popular backup targets such as HPE Apollo and StoreOnce, Cisco S3260, Dell EMC DataDomain, NetApp E-Series and more.



# Expand your K10 backups



# Architecture overview



# Granular recovery from PVCs

sqlserver as of less than a day ago (8:50 AM Wednesday 5/3/2023) - Backup Browser

File Tools

Home File

Restore Copy

Action

sqlserver

sda

.system

data

log

lost+found

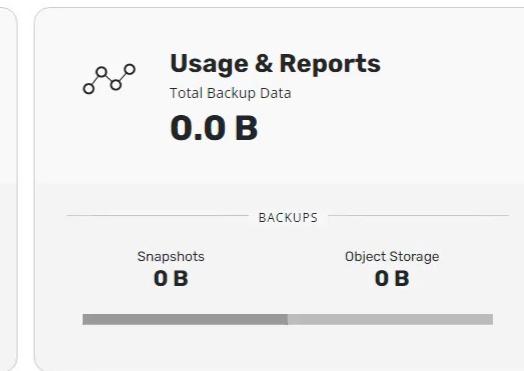
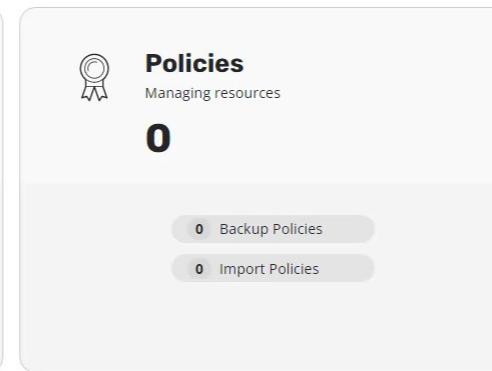
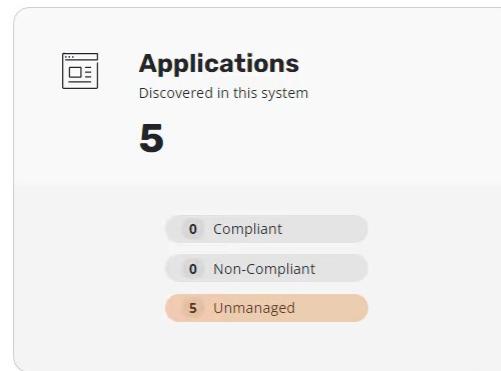
secrets

Type in an object name to search for

Name	Size	Date Modified	Permissions	Owner	Group
Entropy.bin	256.0 B	5/3/2023 8:42 AM	rw-rw----	root	root
master.mdf	4.4 MB	5/3/2023 8:43 AM	rw-rw----	root	root
mastlog.ldf	2.3 MB	5/3/2023 8:48 AM	rw-rw----	root	root
model.mdf	8.0 MB	5/3/2023 8:46 AM	rw-rw----	root	root
model_msdbdata.mdf	13.4 MB	5/3/2023 8:43 AM	rw-rw----	root	root
model_msdblog.ldf	512.0 KB	5/3/2023 8:43 AM	rw-rw----	root	root
model_replicatedmaster.ldf	512.0 KB	5/3/2023 8:43 AM	rw-rw----	root	root
model_replicatedmaster.mdf	4.4 MB	5/3/2023 8:43 AM	rw-rw----	root	root
modellog.ldf	8.0 MB	5/3/2023 8:46 AM	rw-rw----	root	root
msdbdata.mdf	13.4 MB	5/3/2023 8:43 AM	rw-rw----	root	root
msdblog.ldf	512.0 KB	5/3/2023 8:43 AM	rw-rw----	root	root
tempdb.mdf	8.0 MB	5/3/2023 8:43 AM	rw-rw----	root	root
tempdb2.ndf	8.0 MB	5/3/2023 8:43 AM	rw-rw----	root	root
tempdb3.ndf	8.0 MB	5/3/2023 8:43 AM	rw-rw----	root	root
tempdb4.ndf	8.0 MB	5/3/2023 8:43 AM	rw-rw----	root	root
templog.ldf	8.0 MB	5/3/2023 8:43 AM	rw-rw----	root	root
TestDB.mdf	8.0 MB	5/3/2023 8:46 AM	rw-r-----	root	root
TestDB_log.ldf	8.0 MB	5/3/2023 8:47 AM	rw-r-----	root	root

1 object selected

Activate Windows 8 MB  
Go to Settings to activate



## Activity



Action	Policy Run
	action type
	1 min, 49 secs
	duration
	Complete
	status
	Today, 7:41am
	start time
	Today, 7:43am
	end time

total actions 5 completed actions 5 failed actions 0 skipped actions 0

live artifacts 8 retired artifacts 29

### Actions (1)

Filter

Activate Windows  
Go to Settings to activate Windows.  
Page 1

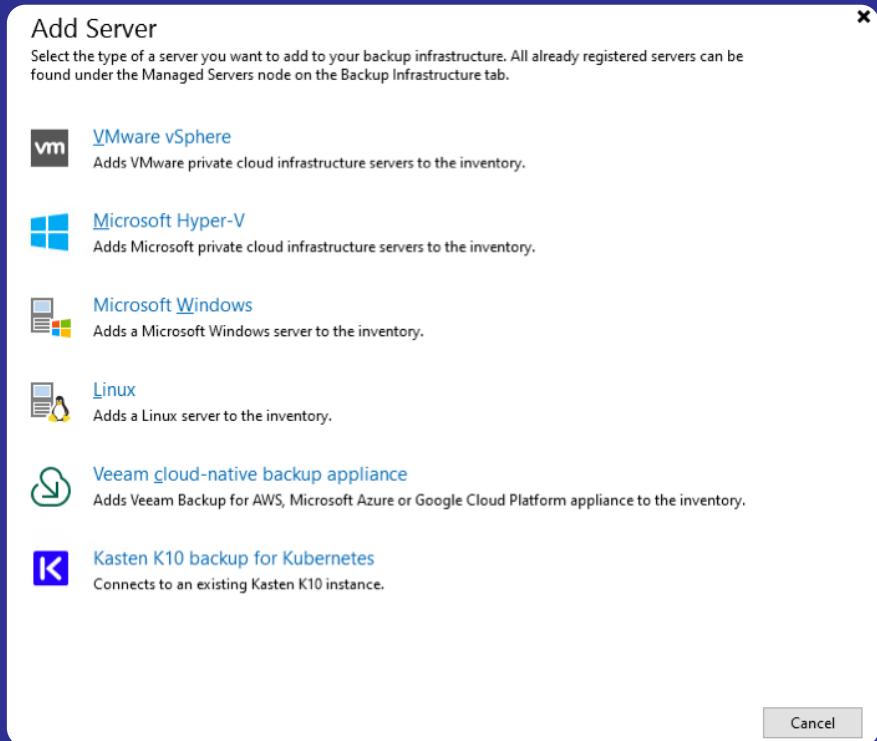
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Centralized management

# V12 VBR console K10 integration

- You can now add Kasten K10 clusters as another server type in VBR.
- Can queue workloads, do recovery and other actions.
- Many of the functionality will result in a browser window to the K10 console.
- Expect much closer integration in future patches/releases.

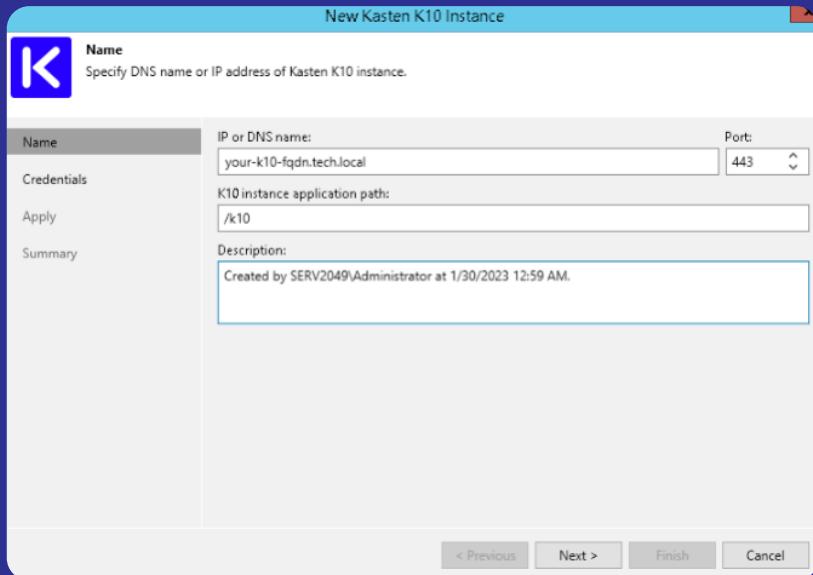


# Limitations

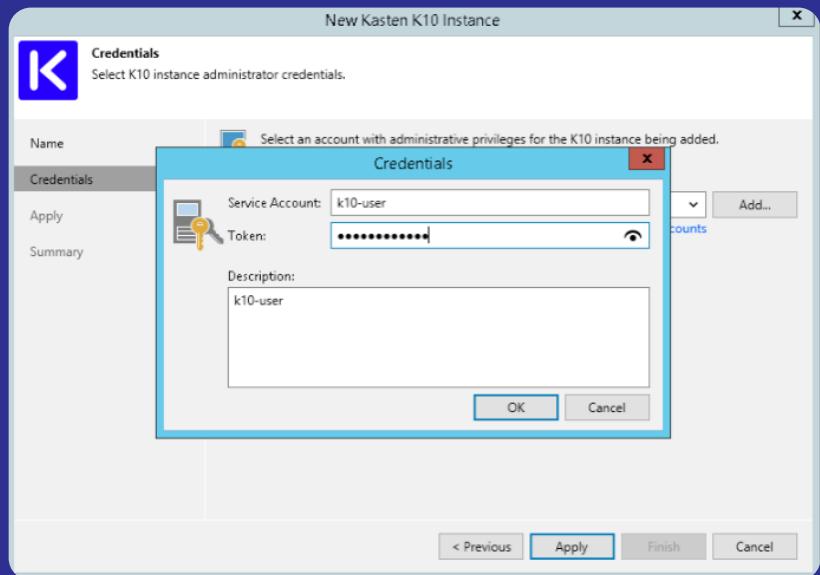
- Veeam Backup *for Kasten K10* does not support Kerberos for K10 exports to Veeam backup repositories.
- Veeam Backup *for Kasten K10* does not support IPv6.
- Veeam Backup *for Kasten K10* does not sync K10 restore sessions.
- Veeam Backup *for Kasten K10* does not sync K10 retention (retire) sessions.
- Veeam Backup *for Kasten K10* does not support K10 exports to the database-oriented operating system (DBOS) Veeam backup repositories
- Veeam Backup *for Kasten K10* does not provide granular task progress of sessions.
- If you delete K10 policies created by the K10 MultiCluster console on K10 secondary servers, they will be recreated by the K10 MultiCluster console.
- Veeam Backup *for Kasten K10* does not support K10 export of K10 instance that is not added to Veeam Backup & Replication infrastructure.

# Adding K10 to VBR

- Note /k10 path and port 443 (if using TLS with ingress as recommended)...port 80 if not using TLS.



- Token is from credential in kasten-io namespace that has k10-admin ClusterRole.
- Need to create a SA with RoleBinding and Token in Kubernetes.



K Kasten • Cluster Dashboard K Kasten • Policy Run K Pac-Man 172.31.118.132/k10/#/policy-run/policy-run-7k6c7

Not secure | https://172.31.118.132/k10/#/policy-run/policy-run-7k6c7

KASTEN by Veeam Docs Settings k10-admin

Dashboard

Actions 2

COMPLETED Export policy-run-7k6c... PHASES

COMPLETED Export scheduled-gc8ls... PHASES

COMPLETED Backup scheduled-gc8ls PHASES

Jobs

Backup

Backups

Disk

Last 24 Hours

Success

Home

Inventory

Backup Infrastructure

Storage Infrastructure

Tape Infrastructure

Files

1 job

Veeam Backup and Replication

Home View

Backup Job Primary Jobs

Replication Job Secondary Jobs

CDP Policy

Backup Copy Job

Restore Plan

Failover Plan

Import Backup

Export Backup

Best Practices Analyzer

Actions

Type in an object name to search for

Name ↑	Type	Objects	Status	Last Run	Last Result	Next Run	Target
vteam-repo	Kasten K10 policy	0	Stopped			<Not scheduled>	Default Backup Repository

Connected to: localhost Build: 12.0.0.1420 P20230412 Enterprise Plus Edition NFR: 359 days remaining

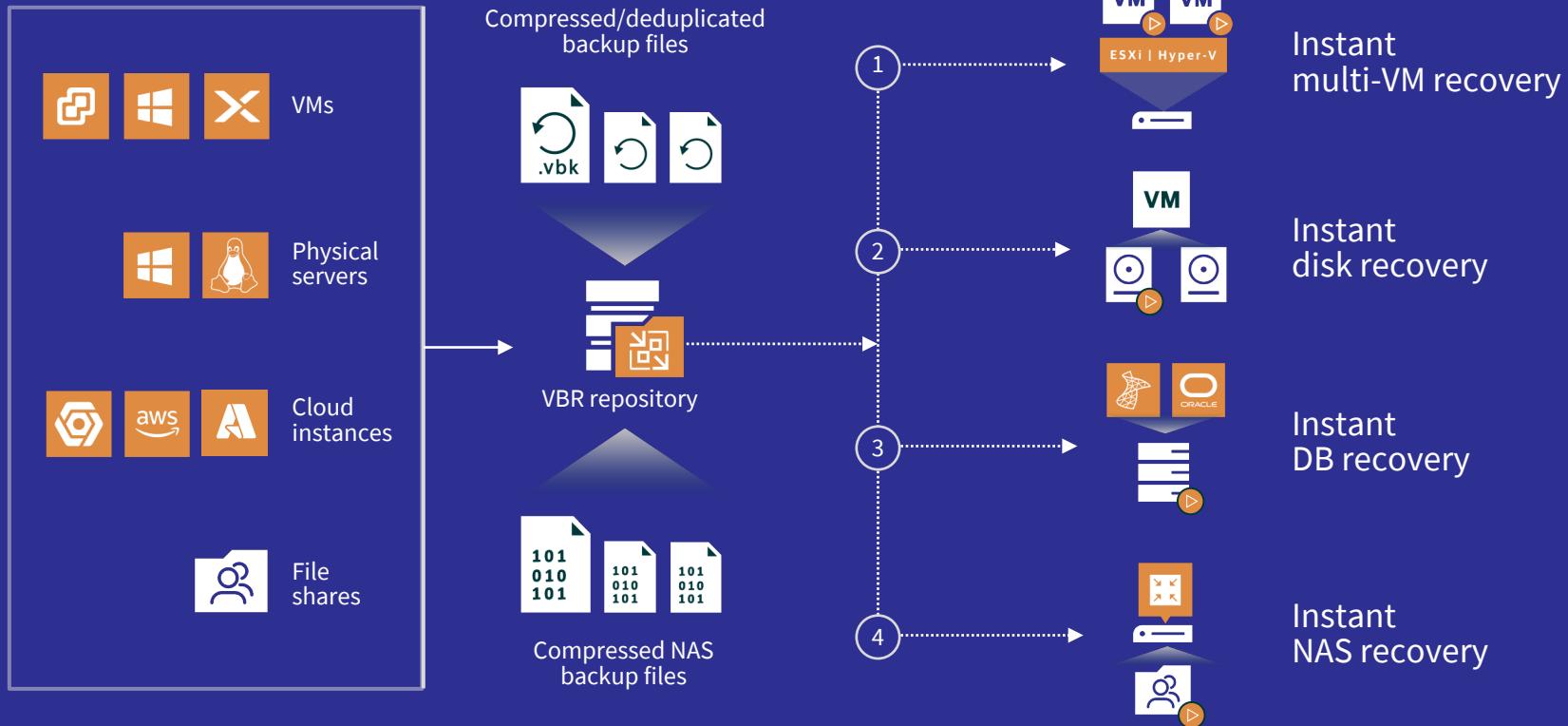
Activate Windows  
Go to Settings to activate Windows.

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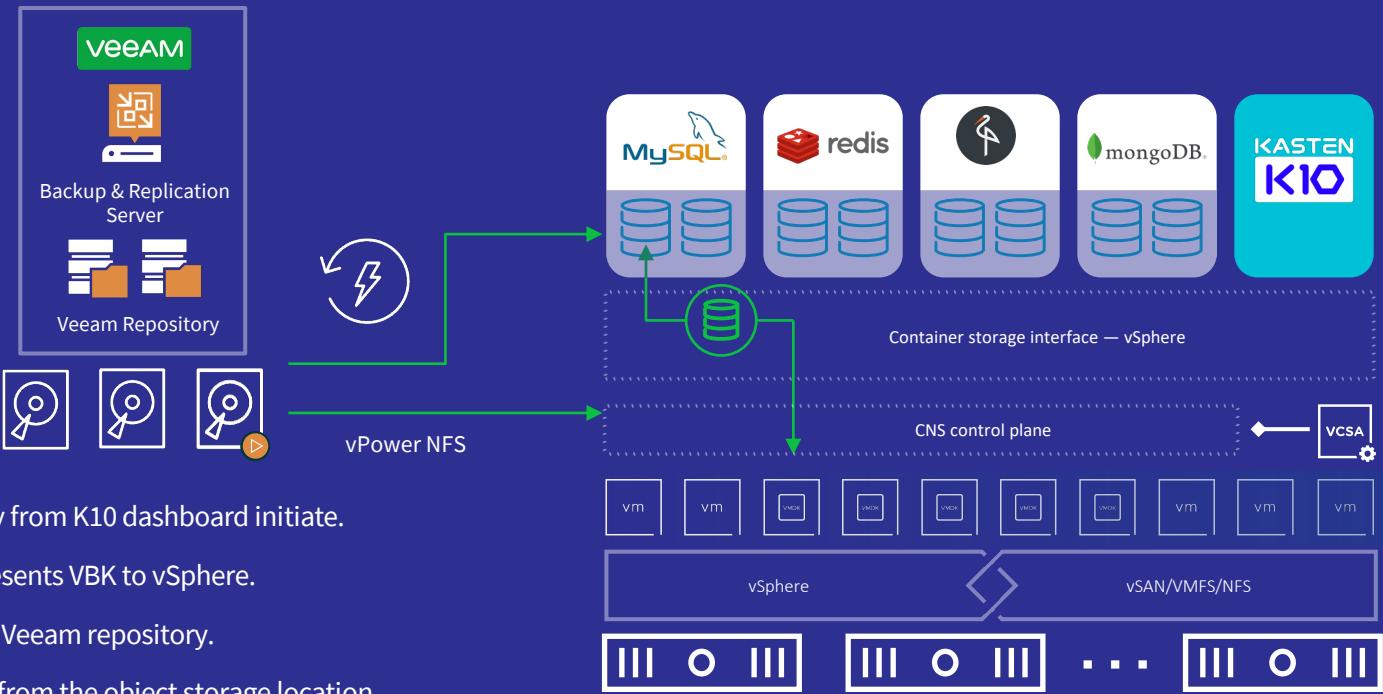


# Instant Recovery

# Instant Recovery by Veeam



# Instant FCD recovery



# Clones

These are the clones  
you are looking for...





```
mc@mc-virtual-machine:~$ kubectl run mysql-client --rm --env APP_NS=${APP_NAME} --env MYSQL_EXEC="${MYSQL_EXEC}" --env MYS  
YSQL_ROOT_PASSWORD=${MYSQL_ROOT_PASSWORD} --env MYSQL_HOST=${MYSQL_HOST} --namespace ${APP_NAME} --tty -i --restart='Never' --image docker.io/bitnami/mysql:8.0.23-debian-10-r57 --command -- bash  
If you don't see a command prompt, try pressing enter.  
I have no name!@mysql-client:/$ echo "select * from Accounts;" | ${MYSQL_EXEC}  
mysql: [Warning] Using a password on the command line interface can be insecure.  
+-----+-----+  
| name      | balance |  
+-----+-----+  
| nick      |      0 |  
| albert    |    112 |  
| alfred    |    358 |  
| beatrice  |   1321 |  
| bartholomew |    34 |  
| edward    |   5589 |  
| edwin     |    144 |  
| edwina    |    233 |  
| rastapopoulos |  377 |  
+-----+-----+  
I have no name!@mysql-client:/$
```

Activate Windows  
Go to Settings to activate Windows.

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Futures

