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White Paper Public

Deploy Kasten K10 on Cisco Intersight Kubernetes Service for Container Backup

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Purpose of this document

This document provides step-by-step procedures for deploying the Kasten K10 container backup software, by Veeam, on a Cisco Intersight[™] Kubernetes Service tenant cluster.

Introduction

A recent survey showed that from 2018 to 2019, the use of containers in development, testing, and production environments grew rapidly. Most notably, the use of containers in production environments increased significantly. In addition, container-based use is growing rapidly at scale. As organizations are trusting their production workloads to containers, they also are using more containers.

However, as Kubernetes has matured as a viable platform during the past years of rapid adoption, the complexity of installing it and operating it over time at the enterprise level has increased. A critical part of container operation in production is a working backup and restore procedure. Traditional backup methodologies such as agent-based backups for bare-metal installations, and snapshot-based backups for virtual machines, do not work for containerized workloads. In a containerized environment, two areas need to be protected:

- Control plane
- Customer data



Figure 1.

Cisco Intersight Kubernetes Service overview

Cisco Intersight Kubernetes Service (Figure 1) manages the control plane from a central point and includes life-cycle management. This feature eliminates the need for you to protect the control plane of your Kubernetes Service container deployment. However, you do need to back up the customer data used by your containerized applications and use cases.

One option for protecting containerized workloads on Kubernetes Service tenant clusters deployed onpremises is Kasten K10 container backup software. The software is installed as a containerized application within the Kubernetes Service tenant cluster and can discover all deployed namespaces and pods without complex configuration steps.

About Kasten K10

Kasten is an independent Kubernetes business unit within Veeam and the award-winning Kubernetes backup and disaster-recovery leader. Kasten helps enterprises overcome day-2 data management challenges to run applications on Kubernetes confidently. Kasten K10, a data management platform built specifically for Kubernetes, provides enterprise operations teams an easy-to-use, scalable, and secure system for backup and restore processes, disaster recovery, and application mobility with outstanding operational simplicity.

Prerequisites

The following items need to be preconfigured before you begin the setup and configuration of a Cisco Intersight Kubernetes Service tenant cluster:

- Linux host that has the kubectl client binary installed that has access to the Internet to download the Kasten K10 software and that has access to the Kubernetes Service tenant cluster
- Cisco Intersight account with a Kubernetes Service license subscription to deploy Kubernetes tenant clusters
- Amazon Simple Storage Service (S3) compatible storage used as a backup target

Create a Kubernetes cluster on the Cisco Intersight Kubernetes Service platform

Use the procedure described in this section to create a Kubernetes cluster on the Kubernetes Service control plane.

Perform initial login

Log in to the Cisco Intersight platform with the necessary credentials to create a Kubernetes Service cluster (Figure 2).

INTE	etsco ERSIGHT
Cisco ID	Single Sign-On (SSO) 🕥
If you do not have a Cisco ID, create one here	Email
Sign in with Cisco ID	Sign in with SSO
Don't have an Inters	ight Account? Create an account
and and	
Learn more about	Cisco Intersight at Help Center
	ems and Cisco Systems logo are registered trademarks of Cisco ates in the U.S and certain other countries.
	s Privacy Statement Cookies

Figure 2. Cisco Intersight log-in screen

Create a cluster

Follow these steps to create a cluster:

1. In Cisco Intersight, go to Profiles > Kubernetes Cluster Profiles and click Create Kubernetes Cluster Profile in the top-right corner (Figure 3).

≡	cisco Intersight	CONFIGURE > Profiles					۵	⊠3▲2 🕑 📢 3 ⊂	. © 0 u	rich Kleidon 🔔
<u>00o</u>	MONITOR	HyperFlex Cluster Profiles U	JCS Chassis Profiles UCS Domai	n Profiles UCS Server Profiles Kub	ernetes Cluster Profiles				Create Kubernetes 0	luster Profile
ø	OPERATE ^									
	Servers	🖉 🔍 Add Filter						C Export 3 items found 10 ~	perpage 🔣 🗧 1 of 1 🗦	O K
	Chassis	Name	: Status	Kubernetes Version	Cloud Provider Type	Control Plane Nodes	Worker Nodes	Last Update	Organization	ş
	Fabric Interconnects	POD4-IKS-Test	40 Failed	v1.19.5	ESXi	0	2	a day ago	default	
	HyperFlex Clusters	POD6-IKS-Test	⊘ OK	v1.19.5	ESXi	3	3	May 17, 2021 11:33 AM	POD6	
	Storage	NTAP-IKS-Shopfloor	⊘ OK	v1.19.5	ESXi	3	3	May 18, 2021 3:40 PM	NetApp-WDF	
	Virtualization	0							K < 1	of 1 🕞 🖂
	Kubernetes									
×	CONFIGURE ^									
	Orchestration									
	Profiles									
	Templates									
	Policies									
1991	ADMIN									
-db	Targets									
	Software Repository									

Figure 3.

Cisco Intersight Kubernetes Service profiles

2. Click through the profile-creation workflow and deploy it.

Download the kubeconfig file for access to the cluster using kubectl

Follow these steps to download the kubeconfig file to access the cluster:

1. Select the Kubernetes cluster and click the three dots (...) at the right end of the line. From the drop-down menu, choose Download Kubeconfig (Figure 4).

=	cisco Intersight	OPERATE > Kubernetes		🗘 🖬 3 🔺 2			
<u>16</u>	MONITOR OPERATE ^	Connection © Connected 2					XK
	Servers Chassis						
	Fabric Interconnects	Q. Add Filter		G Export 2	items found 10 v per page 🔣 🤇	1_of1 >>>	0
	HyperFlex Clusters	Name ÷	Status	Last Update	Associated Profile Profile Status	Organization	Ş
	Storage	POD6-IKS-Test	© Connected	7 minutes ago	POD6-IKS-Test OK	P0D6	
	Virtualization	NTAP-IKS-Shopfloor	© Connected	9 minutes ago	NTAP-IKS-Shopfio OK	NetApp-WDF	
	Kubernetes					Download Kubeco	nfig
×	CONFIGURE ^					Undeploy Cluster	
	Orchestration					Open TAC Case	
	Profiles						
	Templates						
	Policies						
	Pools						
Ŵ	ADMIN ^						
	Targets						
	Software Repository						

Figure 4.

Deployed Cisco Intersight Kubernetes Service tenant cluster

 Copy the downloaded kubeconfig file to your Linux admin workstation and then export it as the KUBECONFIG system variable. To verify a successful connection, run the kubectl get nodes command.

```
ubuntu@Ubuntu-jump:~$ export KUBECONFIG=NTAP-IKS-Shopfloor-kubeconfig.yml
ubuntu@Ubuntu-jump:~$ kubectl get nodes
NAME
                                           STATUS
                                                    ROLES
                                                              AGE
                                                                     VERSION
ntap-iks-shopfloor-controlpl-04e5423fdc
                                                                    v1.19.5
                                           Ready
                                                              113m
                                                    master
                                                                    v1.19.5
ntap-iks-shopfloor-controlpl-86d1f383da
                                           Ready
                                                              112m
                                                    master
ntap-iks-shopfloor-controlpl-b9344c79f3
                                                                    v1.19.5
                                           Ready
                                                              112m
                                                    master
ntap-iks-shopfloor-sf2-worker-3052beb375
                                           Ready
                                                              112m
                                                                    v1.19.5
                                                    <none>
ntap-iks-shopfloor-sf2-worker-5459c960b6
                                                                    v1.19.5
                                           Ready
                                                    <none>
                                                              112m
ntap-iks-shopfloor-sf2-worker-60086452cd
                                                                    v1.19.5
                                           Ready
                                                     <none>
                                                              112m
```

Install the Kasten K10 software

This section presents the installation procedure for the Kasten K10 software as described in the Kasten K10 documentation.

Qualify the Kubernetes cluster

Follow these steps to qualify the cluster:

1. Verify the version, permissions, and network connectivity for the installation.

ubuntu@Ubuntu-jump:~\$ kubectl version

```
Client Version: version.Info{Major:"1", Minor:"20", GitVersion:"v1.20.0",
GitCommit:"af46c47ce925f4c4ad5cc8d1fca46c7b77d13b38", GitTreeState:"clean", BuildDate:"2020-
12-08T17:59:43Z", GoVersion:"gol.15.5", Compiler:"gc", Platform:"linux/amd64"}
Server Version: version.Info{Major:"1", Minor:"19", GitVersion:"v1.19.5",
GitCommit:"e338cf2c6d297aa603b50ad3a301f761b4173aa6", GitTreeState:"clean", BuildDate:"2020-
12-09T11:10:32Z", GoVersion:"gol.15.2", Compiler:"gc", Platform:"linux/amd64"}
ubuntu@Ubuntu-jump:~$
ubuntu@Ubuntu-jump:~$
ubuntu@Ubuntu-jump:~$
wbuntu@Ubuntu-jump:~$
subuntu@Ubuntu-jump:~$
wbuntu@Ubuntu-jump:~$
wbuntu@Ubuntu-jump:~$
```

 Validate a pod that uses an image from Docker Hub and can reach your S3-compatible storage system over the pod network.

ubuntu@Ubuntu-jump:~\$ kubectl run -i --tty ping --image=busybox --restart=Never --rm -- ping 172.29.6.88

```
If you don't see a command prompt, try pressing enter.
64 bytes from 172.29.8.88: seq=1 ttl=62 time=0.312 ms
64 bytes from 172.29.8.88: seq=2 ttl=62 time=0.188 ms
64 bytes from 172.29.8.88: seq=3 ttl=62 time=0.301 ms
64 bytes from 172.29.8.88: seq=4 ttl=62 time=0.191 ms
^C
--- 172.29.8.88 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 0.188/0.263/0.325 ms
pod "ping" deleted
```

Configure Kasten K10 prerequisites

Follow these steps to configure the prerequisites for the K10 installation:

1. Add the Kasten helm repository and run the Kasten K10 Primer validation script.

The version used for this document is Release 21.04.0.

```
iksadmin@ntap-iks-shopfloor-controlpl-04e5423fdc:~$ helm repo add kasten
https://charts.kasten.io/
"kasten" has been added to your repositories
```

```
iksadmin@ntap-iks-shopfloor-controlpl-04e5423fdc:~$ curl
https://docs.kasten.io/tools/k10 primer.sh | bash
            % Received % Xferd Average Speed Time
  % Total
                                                           Time Current
                                Dload Upload Total
                                                       Spent Left Speed
100 6072 100 6072
                             0 47811
                                          0 --:--: 47811
                       0
Namespace option not provided, using default namespace
Checking for tools
 --> Found kubectl
 --> Found helm
Checking if the Kasten Helm repo is present
 --> The Kasten Helm repo was found
Checking for required Helm version (\geq v3.0.0)
 --> No Tiller needed with Helm v3.3.4
K10Primer image
 --> Using Image (gcr.io/kasten-images/k10tools:4.0.2) to run test
Checking access to the Kubernetes context admin@NTAP-IKS-Shopfloor
 --> Able to access the default Kubernetes namespace
Running K10Primer job in cluster with command-
     ./k10tools primer
serviceaccount/k10-primer created
clusterrolebinding.rbac.authorization.k8s.io/k10-primer created
job.batch/k10primer created
Waiting for pod k10primer-jjmt8 to be ready - ContainerCreating
Waiting for pod k10primer-jjmt8 to be ready - ContainerCreating
Pod Ready!
Kubernetes Version Check:
  Valid kubernetes version (v1.19.5) - OK
RBAC Check:
  Kubernetes RBAC is enabled - OK
Aggregated Layer Check:
  The Kubernetes Aggregated Layer is enabled - OK
W0520 17:36:23.354914
                           6 warnings.go:70] storage.k8s.io/v1beta1 CSIDriver is deprecated
in v1.19+, unavailable in v1.22+; use storage.k8s.io/v1 CSIDriver
CSI Capabilities Check:
  VolumeSnapshot CRD-based APIs are not installed - Error
```

W0520 17:36:23.607964 6 warnings.go:70] storage.k8s.io/v1beta1 CSIDriver is deprecated in v1.19+, unavailable in v1.22+; use storage.k8s.io/v1 CSIDriver

```
W0520 17:36:23.611974
                            6 warnings.go:70] storage.k8s.io/v1beta1 CSIDriver is deprecated
in v1.19+, unavailable in v1.22+; use storage.k8s.io/v1 CSIDriver
                            6 warnings.go:70] storage.k8s.io/v1beta1 CSIDriver is deprecated
W0520 17:36:23.614213
in v1.19+, unavailable in v1.22+; use storage.k8s.io/v1 CSIDriver
Validating Provisioners:
csi.trident.netapp.io:
  Is a CSI Provisioner - OK
  VolumeSnapshot CRD-based APIs are not installed - Error
  Storage Classes:
    basic-csi
      Valid Storage Class - OK
csi.vsphere.vmware.com:
  Storage Classes:
    standard
      K10 supports the vSphere CSI driver natively. Creation of a K10 infrastucture profile
is required.
      Valid Storage Class - OK
Validate Generic Volume Snapshot:
  Pod Created successfully - OK
  GVS Backup command executed successfully - OK
  Pod deleted successfully - OK
serviceaccount "k10-primer" deleted
clusterrolebinding.rbac.authorization.k8s.io "k10-primer" deleted
job.batch "k10primer" deleted
  Create a namespace for Kasten K10.
iksadmin@ntap-iks-shopfloor-controlpl-04e5423fdc:~$ kubectl create namespace kasten-io
Create a service account in the new namespace
iksadmin@ntap-iks-shopfloor-controlpl-04e5423fdc:~$ 221036.11 salesforce-Lookbook-
benefits v1.pdf
```

serviceaccount/k10-sa created

Grand cluster-admin role to the new service account

```
iksadmin@ntap-iks-shopfloor-controlpl-04e5423fdc:~$ kubectl create clusterrolebinding k10-sa-rb \backslash
```

--clusterrole cluster-admin \

--serviceaccount=kasten-io:k10-sa

clusterrolebinding.rbac.authorization.k8s.io/k10-sa-rb created

iksadmin@ntap-iks-shopfloor-controlpl-04e5423fdc:~\$

3. Install the Kasten software with the new service account and bound network access to the Cisco Intersight Kubernetes Service ingress load balancer.

```
iksadmin@ntap-iks-shopfloor-controlpl-04e5423fdc:~$ helm install k10 kasten/k10 --
namespace=kasten-io \
     --set rbac.create=false \
     --set serviceAccount.create=false \
     --set serviceAccount.name=k10-sa \
     --set auth.tokenAuth.enabled=true \
     --set ingress.create=true \
     --set ingress.class=nginx
NAME: k10
LAST DEPLOYED: Thu May 20 17:57:30 2021
NAMESPACE: kasten-io
STATUS: deployed
REVISION: 1
TEST SUITE: None
NOTES:
Thank you for installing Kasten's K10 Data Management Platform!
Documentation can be found at https://docs.kasten.io/.
How to access the K10 dashboard:
You are using the system's default ingress controller. Please ask your
administrator for instructions on how to access the cluster.
WebUI location: https://Your ingress endpoint/k10
The K10 dashboard is not exposed externally. To establish a connection to it use the
following `kubectl` command:
`kubectl --namespace kasten-io port-forward service/gateway 8080:8000`
The Kasten dashboard will be available at: `http://127.0.0.1:8080/k10/#/`
iksadmin@ntap-iks-shopfloor-controlpl-04e5423fdc:~$
iksadmin@ntap-iks-shopfloor-controlpl-04e5423fdc:~$ kubectl get pods --namespace kasten-io
NAME
                                              STATUS
                                                        RESTARTS
                                      READY
                                                                    AGE
aggregatedapis-svc-7d98c87b44-gwcj4
                                      1/1
                                              Running
                                                         0
                                                                    48s
auth-svc-778c5c9759-z6cs7
                                      1/1
                                              Running
                                                        0
                                                                    49s
catalog-svc-6f78f7c66d-wqxzf
                                      2/2
                                              Running
                                                         0
                                                                    48s
```

config-svc-8498987c8f-shbsq	1/1	Running	0	48s
crypto-svc-9d69847c5-nqpg9	1/1	Running	0	48s
dashboardbff-svc-564bc77c8f-fmtbv	1/1	Running	0	49s
executor-svc-9dd8cdcfd-4zmr9	2/2	Running	0	49s
executor-svc-9dd8cdcfd-hbkdb	2/2	Running	0	49s
executor-svc-9dd8cdcfd-sw8f9	2/2	Running	0	49s
frontend-svc-f6f95c4bf-xnchc	1/1	Running	0	48s
gateway-6bdbcc4597-mssns	1/1	Running	0	49s
jobs-svc-7bd7bffdb5-flmdr	1/1	Running	0	48s
kanister-svc-57d9964bc8-xc6qx	1/1	Running	0	48s
logging-svc-58c4cbfbf6-mq99v	1/1	Running	0	48s
metering-svc-568dfdcfb5-c9qgh	1/1	Running	0	48s
prometheus-server-78b94b85fb-gkcbn	1/2	Running	0	49s
state-svc-6b4c777d5c-ht5hh	1/1	Running	0	48s

iksadmin@ntap-iks-shopfloor-controlpl-04e5423fdc:~\$

Configure Kasten K10

Now configure K10.

1. To access the Kasten user interface, the access secret is required. Please run the following commands to get the secret.

iksadmin@ntap-iks-shopfloor-controlpl-04e5423fdc:~\$ sa_secret=\$(kubectl get serviceaccount
k10-sa -o jsonpath="{.secrets[0].name}" --namespace kasten-io)

iksadmin@ntap-iks-shopfloor-controlpl-04e5423fdc:~\$

iksadmin@ntap-iks-shopfloor-controlpl-04e5423fdc:~\$ kubectl get secret \$sa_secret -namespace kasten-io -ojsonpath="{.data.token}{'\n'}" | base64 --decode

eyJhbGciOiJSUzI1NiIsImtpZCI6ImNickpVTkJEWmE3aWV3d0x0VnlRY3pidzdfVk1la1JjTTVQNW9HQmxRblUifQ.e yJpc3MiOiJrdWJlcm5ldGVzL3NlcnZpY2VhY2NvdW50Iiwia3ViZXJuZXRlcy5pby9zZXJ2aWNlYWNjb3VudC9uYW1lc 3BhY2UiOiJrYXN0ZW4taW8iLCJrdWJlcm5ldGVzLmlvL3NlcnZpY2VhY2NvdW50L3NlY3JldC5uYW1lIjoiazEwLXNhL XRva2VuLWpyZnRoIiwia3ViZXJuZXRlcy5pby9zZXJ2aWNlYWNjb3VudC9zZXJ2aWNlLWFjY291bnQubmFtZSI6ImsxM C1zYSIsImt1YmVybmV0ZXMuaW8vc2VydmljZWFjY291bnQvc2VydmljZS1hY2NvdW50LnVpZCI6IjBkZTI4MTI3LTc1N WMtNGQ0ZS1iOWVkLTUxYTU0M2Z1Mzk2NCIsInN1YiI6InN5c3RlbTpzZXJ2aWNlYWNjb3VudDprYXN0ZW4taW86azEwL XNhIn0.IPb_iMakR0p2iJRQ1_U92PLYetZwfyGfSNVB5qGYw8JuNFIIuXgfjbMotN0wzkkqF7554YryB5CBQpGyaQ4_F 4hWTqBsq0jt30caW-

vR_8XL6R6FTBy8W0Lzz5tw0Ejg56iMbzfDjTreIwnRv_nJva27ZedkXZTS8zgZYiunqQEv100bXqueM2d_Sr1Z6GhkzY vPyjBehhCxZ0_tMYyjNT75whLFKbvPGbayilYRN8qSuhIGjC7020DmYYy5Jd2cQGka304wGG38S9f9k0XUct3-W_NcU5Ig0F70PhLH6Bx4xbWhPpMF8qeRm1iPZMuS40vlKD_oH-FTfq7QMkDoHg

iksadmin@ntap-iks-shopfloor-controlpl-04e5423fdc:~\$

2. Enter the following command to display the external IP address of the load balancer deployed by Cisco Intersight Kubernetes Service:

iksadmin@ntap-iks-shopfloor-controlpl-04e5423fdc:~\$ kubectl get svc essential-nginx-ingressingress-nginx-controller -n iks -o jsus.loadBalancer.ingress[0].ip}'

172.29.34.109 iksadmin@ntap-iks-shopfloor-controlpl-04e5423fdc:~\$

3. Open the URL to the Kasten user interface and copy the token to sign in (Figure 5).

https://<loadbalancer ip>/k10/#/



Figure 5.

Kasten K10: Login screen

4. On the dashboard screen, click the user icon at the top right and verify that your account has unrestricted permissions (Figure 6).

kasten by Veeam			Docs	Settings & k10-sa
			User	Sign Out
Applications	Policies	م م	username	system:serviceaccount:k asten-io:k10-sa
Discovered in this system	成 Managing resources	۵۰۰ _{۲۰} ۵.	permissions	unrestricted
0 Compliant	0 Backup Policie:	s Spanshots	BACKUPS Obje	t Storage
0 Non-Compliant 3 Unmanaged	● Import Policies	0 B	0 E	
Activity				
Du dian (arc	No Actions Actions will appe	ar here.		Antion
• see - Action Durations • - running • - comp	leted 🔴 — failed			Pictor
total actions completed actions fa	iled actions skipped actions 0 0	avg duration live artifacts 0 sec 1		retired artifacts

Figure 6. Kasten K10: Initial dashboard view

Create a new location profile

The location profile represents the backup target: in the example here, a local S3-compatible storage. Three pieces of information are required to configure an S3 target: the S3 endpoint URL, the access key, and the secret key (Figure 7).



Figure 7.

Kasten K10: Creating a location profile

Create a new VMware vSphere K10 infrastructure profile

The Cisco Intersight Kubernetes Service with Kasten K10 solution is based on VMware vSphere. Therefore, you must configure an infrastructure profile for vSphere in K10 to allow snapshot management (Figure 8). To configure vSphere, you need the following information: the IP address of the fully qualified domain name (FQDN) of the vCenter server, the vSphere user name with <u>sufficient cluster access</u>, and the user password.

The recommended approach is to create a dedicated user account for K10.

- 1. To authorize a dedicated user account for K10, create a role with the following privileges:
- Datastore privileges
 - Allocate space
 - Browse datastore
 - · Low-level file operations
- Global privileges
 - Disable methods

- Enable methods
- Licenses
- <u>Virtual machine snapshot management privileges</u>
 - · Create snapshot
 - Remove snapshot
 - · Revert to snapshot
- 2. Assign this role to the dedicated K10 user account on the following objects:
- The root vCenter object
- The data center objects (propagate down each subtree to reach the datastore and virtual machine objects)



Adding Kasten K10 infrastructure profiles

Configure backup policy

Kasten K10 automatically discovers all namespaces, applications, secrets, and other configurations in the Kubernetes Service cluster and displays them under Applications.

Example: Configure backup policy for Cisco Intersight Kubernetes Service management namespaces

Here we will create a backup policy for the Kubernetes Service system.

1. On the Applications tile, click the Unmanaged option (Figure 9).



Figure 9.

Kasten K10: Dashboard view

2. On the iks tile, click Create a Policy (Figure 10).

K kas	sten by Veeam			🛍 Docs 🔘 Settings 🖉 k10-sa
< Dashbo	ard			
Appl View details	or perform actions on applications.			Cluster-Scoped Resources M No snapshots
() Unma	anaged × Filter by Name	3 applications	88 :=	
	default Not Protected by Policies		iks	trident Not Protected by Policies
	✓ Create a Policy >		✓ Create a Policy >	✓ Create a Policy >
			50 GiB 📄 1 •€ 7 💿 5 🗇 35	e€ 1 @ 1 © 4
	snapshot restore export details		[일] · · · · · · · · · · · · · · · · · · ·	및 •2♥ ☞ III snapshot restore export details

Figure 10.

Kasten K10: Applications menu view

3. Enter a name for the new policy and specify the backup frequency based on your needs. Then scroll down to select namespaces and destinations (Figure 11).

kasten by Veeam	New Policy ×
< Dashboard Policies are used to automate your data management workflows. To achieve this, they combine a want to take (e.g., snapshot), a frequency or schedule for how often you want to take that action, label-based selection criteria for the resources you want to manage.	Name The display name for this policy iks-backup Comments Protect IKS and trident namespaces.
Create New Policy Filter by Name No Policies No policies have been created yet. Create your first policy.	Action The action that should be taken when this policy is executed Snapshot Import Backup Frequency Hourly Daily Weekly Monthly Yearly
	Snapshot Retention Customize the snapshot retention schedule if needed. Set to Zeros 24 hourly snapshots 7 daily snapshots 12 monthly snapshots

Figure 11.

Kasten K10: New policy creation frequency selection

4. Add trident to the applications protected by this policy (Figure 12).

kasten by Veeam		New Policy	×
< Dashboard		Content Conten	•
Policies are used to automate want to take (e.g., snapshot), a label-based selection criteria for	your data management workflows. To achieve this, they combine a frequency or schedule for how often you want to take that action, or the resources you want to manage.	Select Applications Choose which application namespaces this policy should target. Select applications by name or by label. • By Name • By Labels • None	
+ Create New Policy	Filter by Name	Choose one or more applications to target with this policy. iks × trident ×	ł
No Policies No policies have been crea	ated yet. Create your first policy .	Select Application Resources Optionally create filters to include/exclude specified application resources. All Resources Filter Resources 	
		Snapshot Cluster-Scoped Resources These include non-namespaced resources that are not captured in application snapshots, such as Custom Resource Definitions, ClusterRoles, and ClusterRoleBindings.	

Figure 12.

Kasten K10: New policy creation application selection

5. Select the created location profile as the backup destination and click Create Policy (Figure 13).

kasten by Veeam			New Policy	\times
< Dashboard			I hese include non-namespaced resources that are not captured in application snapshots, such as Custom Resource Definitions, ClusterRoles, and ClusterRoleBindings.	
Policies			Advanced Snapshot Settings	
Policies are used to automate y want to take (e.g., snapshot), a label-based selection criteria fo	your data management wo frequency or schedule for or the resources you want	orkflows. To achieve this, they combine a how often you want to take that action, to manage.	Location Profile for Kanister Actions If the applications being snapshotted use Kanister Blueprints, you may need to specify a cloud location for exported data.	
			🗟 storagegrid 🗸	
① Create New Policy	Filter by Name	X	Ignore Exceptions and Continue if Possible Ignoring exceptions (versus retrying/failing) is useful in environments where applications are in a broken state but the policy actions should continue best-effort.	
No Policies			While taking snapshots	
			Create Policy 🛷 YAML Cancel	
Figure 13				
Kasten K10: New p	oolicy creation	location profile selection		
6. On the iks	s-backup tile,	click "run once" (Figu	re 14).	
kasten by Veeam			û Docs 🔘 Settings 🛆 k10-sa	
< Dashboহ৸d				
Policies				
Policies are used to automate	your data management	workflows. To achieve this, they combine	actions you	
want to take (e.g., snapshot), a label-based selection criteria	a frequency or schedule f for the resources you wa	or how often you want to take that action nt to manage.	n, and a	

+	Filter by Name ×	
	POLICY iks-backup	e dit
	Protect IKS and trident namespaces.	
	iks trident	yaml 🏂 run once
	Snapshot hourly and retain	00
	24 hourly snapshots	pause
	7 daily snapshots	Ш
	4 weekly snapshots	delete
	12 monthly snapshots	
	7 yearly snapshots	
	Use the location profile storagegrid for exporting data.	

Figure 14.

Kasten K10: Policies view

7. Click Run Policy (Figure 15).

Run Now	>
This will immediately execute the actions in the policy iks-backup . Continue?	

Figure 15.

Kasten K10: Run Now dialog box

8. Go back to the dashboard to monitor the backup progress. The only unmanaged application is now the default namespace in which no services are running (Figures 16 and 17).

Applications Discovered in this system	Policies Managing resources	Data Total Backup Data
3	1	0.0 B
2 Compliant	1 Backup Policy	BACKUPS
0 Non-Compliant	0 Import Policies	Snapshots Object Storag
1 Unmanaged	New Policy	
rity		
-		

Figure 16.

Kasten K10: Dashboard with backup progress

Acti	ons	የቆየ	Filter ~		Page 1 🔇 (
\odot	Backup scheduled-psf4t	 Snapshotting Application Components Snapshotting Application configuration Snapshotting Workload ccp-helm-operator Snapshotting Workload essential-cert-manager cainjector Snapshotting Workload essential-cert-manager- cainjector Snapshotting Workload essential-cert-manager- webhook Snapshotting Workload essential-metallb- controller Snapshotting Workload essential-negistry- docker-registry 	PROTECTED OBJECT iks ORIGINATING POLICY kasten-io/iks-backup	ARTIFACTS 1 ③ snapshot • 50 GiB 83 ④ spec	START Today, 7:06pm Duration 30 secs
	Backup scheduled-zrxnq	 Snapshotting Application Components Snapshotting Application configuration Snapshotting Workload trident-csi 	PROTECTED OBJECT trident ORIGINATING POLICY kasten-io/iks-backup	ARTIFACTS 29 💮 spec	START Today, 7:06pm DURATION 22 secs

Figure 17.

Kasten K10: Backup actions detailed view

Conclusion

Kasten K10 is simple to deploy and well-suited for protecting customer containers, policies, and persistent data from a Cisco Intersight Kubernetes Service tenant cluster destined for S3 storage on-premises and in the cloud.

For more information

For additional information, see the following resources:

- https://docs.kasten.io/latest/index.html
- <u>https://intersight.com/help/resources/intersight_kubernetes_service_user_guide kubernetes_cluster_policies</u>

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