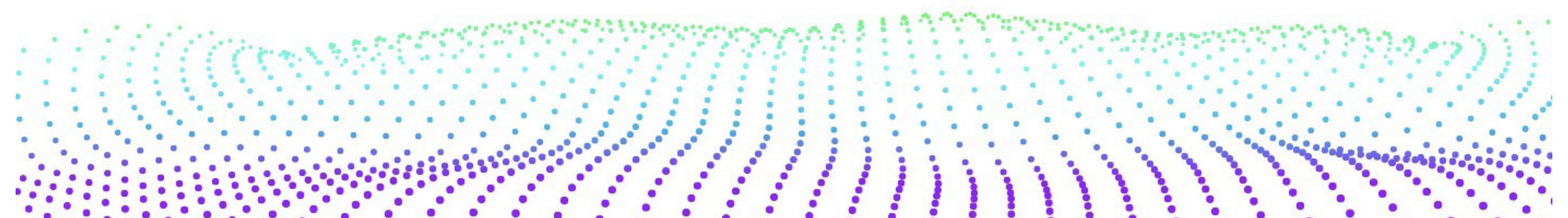




Infinidat and Kasten: Application-Centric, Lightning-Fast Backup and Recovery at Multi-PB Scale

Assaf Yahav, Corporate System Engineer EMEA&APJ
April 20th, 2023



Data Protection Challenges of Kubernetes Platforms

- Application Consistency
- Volume Consistency
- Scalability
- Performance impact
- Disaster recovery



Broad Enterprise Use Cases and Guaranteed SLAs



One Architecture
many possibilities



100% Availability
guaranteed



Guaranteed Performance
from AIOps inside and outside
the array



Primary Storage



Set it and Forget it
IT Operations
simple to install and manage



Multi-Petabyte
Scalability

Performance-critical
apps

Cyber Attack
Ransomware
Defense

Containers

Business Apps
(SAP, Oracle, ...)

Cyber Attack
Ransomware Defense

Office Apps
(Exchange, File Servers, ...)

Data Warehouses
Analytics

Cyber Attack
Ransomware Defense

Disaster / Rapid Recovery

InfiniBox®

Virtualization

HPC

AI / ML

Mission
Critical
Apps

VDI

Backup

Long-Term Retention (LTR)

Secondary Storage

InfiniGuard®

Archive

InfiniSafe
Guaranteed
Cyber storage resilience



Lowest Cost & TCO

Broad Enterprise Use Cases and Guaranteed SLAs



One Architecture
many possibilities



100% Availability
guaranteed

\$167,000 USD Annual Benefit per PB

51% more efficient storage management

\$41,600 USD OPEX reduction per PB

11 months ROI

IDC Business Value of InfiniBox/InfiniBox SSA, Jan 2023

(Exchange, File Servers, ...) VDI

Data Warehouses

Analytics

Cyber Attack
Ransomware Defense

Backup

InfiniGuard®

Disaster / Rapid Recovery

Long-Term Retention (LTR)

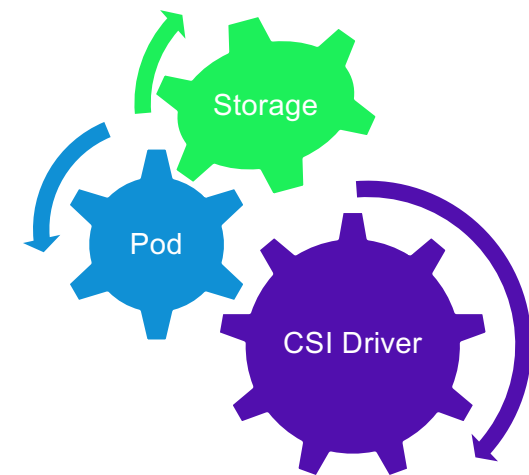
Archive

Storage

Lowest Cost & TCO

Integration between Kubernetes and Persistent storage

- Kubernetes is the de-facto standard for container orchestration
- Heavy demand to run Stateful Applications
- Advanced Storage and Data protection capabilities
- CSI is a standard for exposing arbitrary block and file storage systems to containerized workloads on Kubernetes
- CSI increased the autonomy and flexibility of developers



InfiniBox Container Storage Interface (CSI) Driver



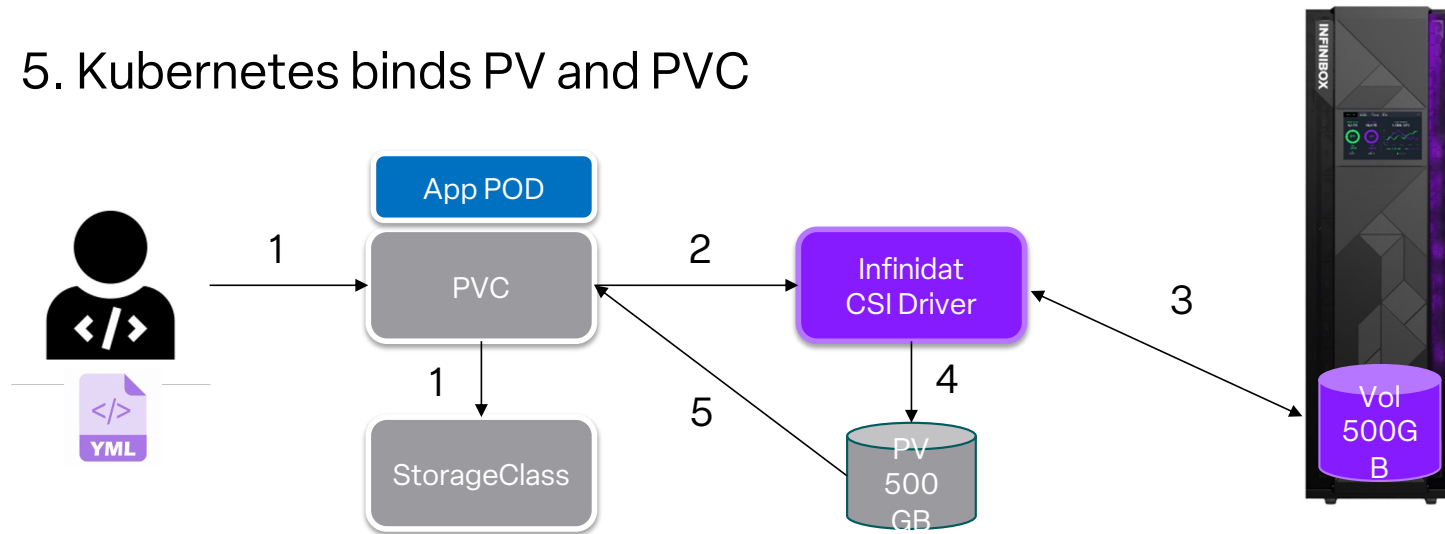
- Features
 - Multiple InfiniBox systems
 - Dynamic provisioning
 - Multi-access modes
 - Raw block
 - Cloning
 - Resize
 - Snapshots
 - Restore
 - Import
- Protocols
 - FC / iSCSI / NFS / NFS-TreeQ
- Deployment Methods
 - Helm for upstream K8s
 - Helm-based operator for OpenShift



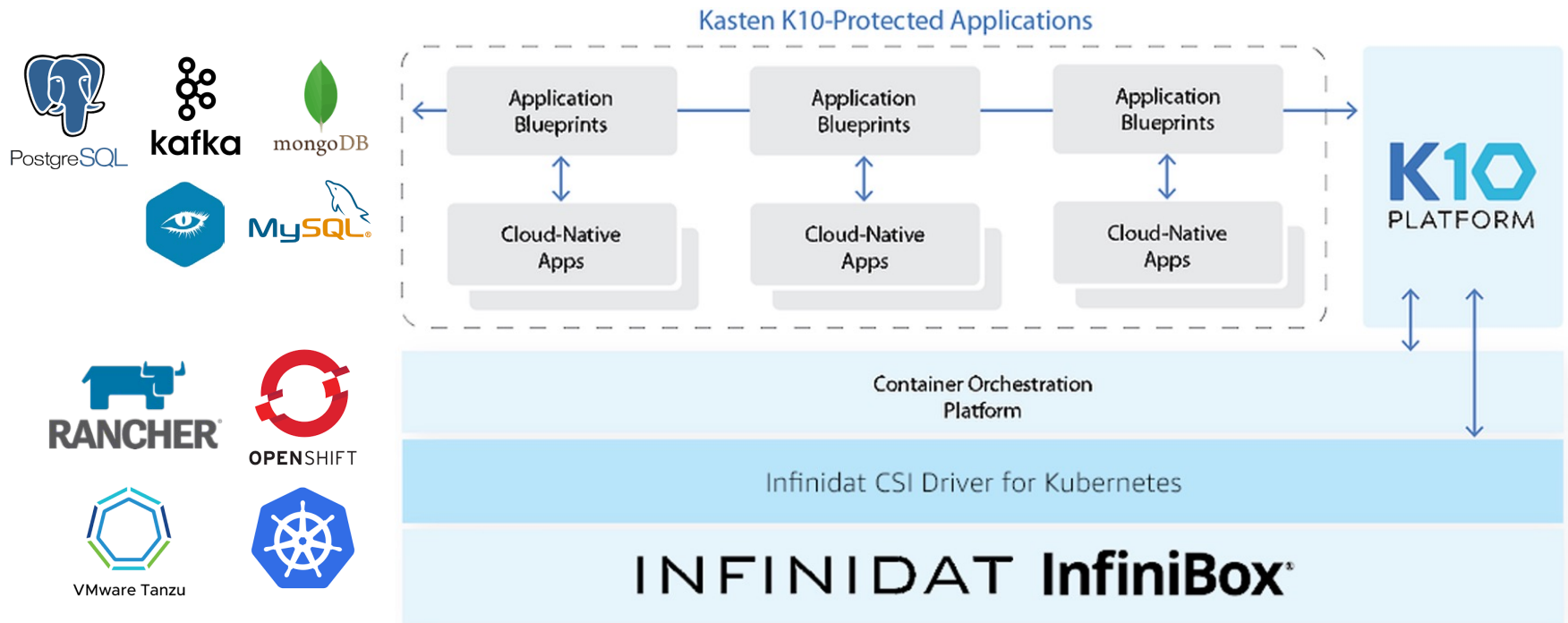
"Infinidat is the front-runner for enterprise storage innovation" GigaOm 2023

PV creation flow

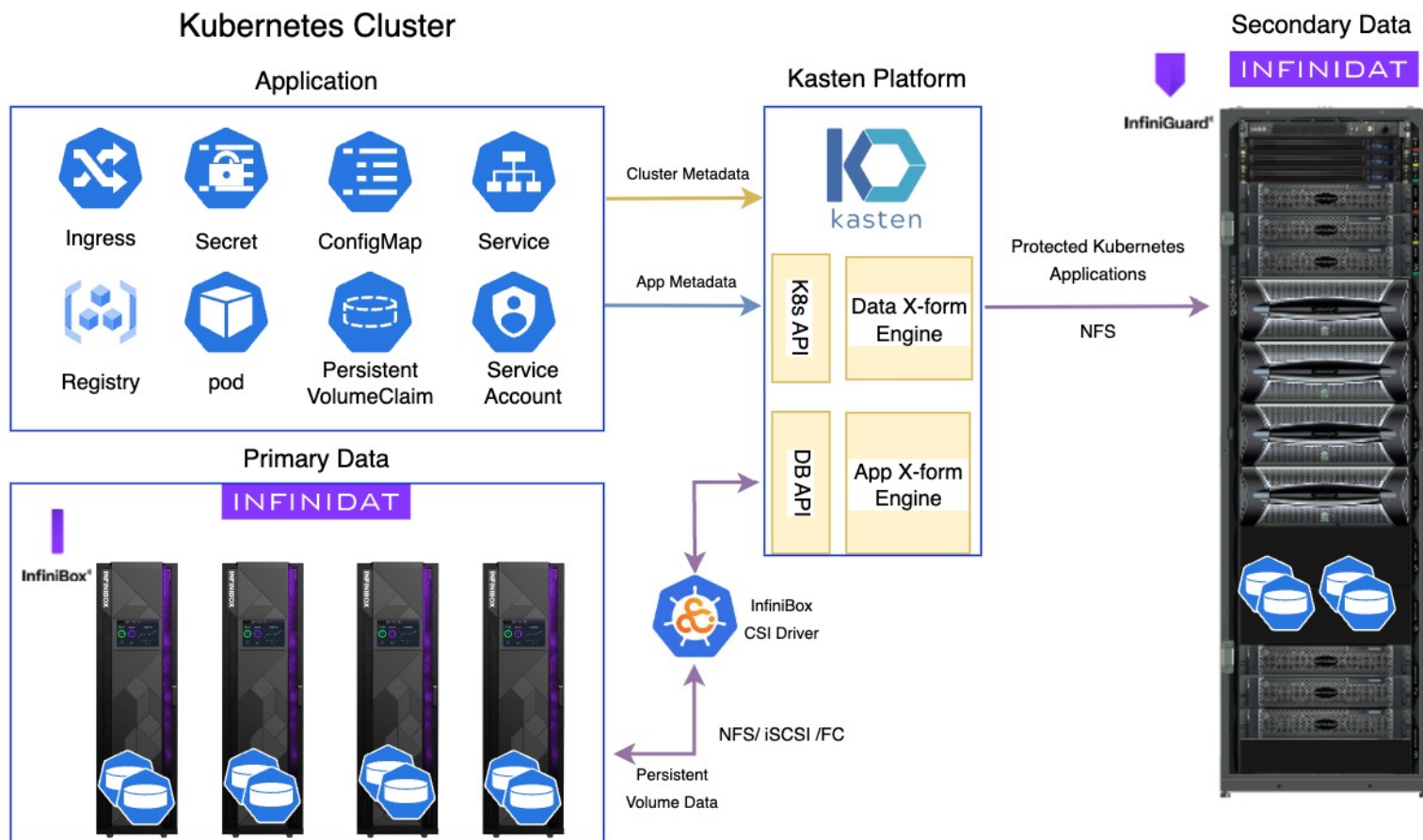
1. Developer / App creates a PVC, specifies a StorageClass
2. CSI driver is notified of a request
3. CSI driver provision volume in InfiniBox
4. CSI driver creates a PV resource
5. Kubernetes binds PV and PVC



Simplify Storage Operations with Infinidat CSI integrations



End-to-End Data Management with Kasten & Infinidat





Demo

Every 2.0s: kubectl get pod --namespace=kasten-io

Tue Apr 4 12:51:03 2023

NAME	READY	STATUS	RESTARTS	AGE
aggregatedapis-svc-7d96b7955-lgb4r	1/1	Running	0	4m16s
auth-svc-7cd47695f6-n58md	1/1	Running	0	4m17s
catalog-svc-69c8f5c4b4-zpl7g	2/2	Running	0	4m16s
controllermanager-svc-5d7d766b4c-vxqgm	1/1	Running	0	4m16s
crypto-svc-5698dd99fd-9pr7g	4/4	Running	0	4m16s
dashboardbff-svc-774c7c6794-96gcs	2/2	Running	0	4m15s
executor-svc-58564cf888-5grw4	2/2	Running	0	4m16s
executor-svc-58564cf888-dptqs	2/2	Running	0	4m16s
executor-svc-58564cf888-xvmnz	2/2	Running	0	4m16s
frontend-svc-7c7f89db75-4b2dv	1/1	Running	0	4m16s
gateway-65d6bdf55f-8s7qq	1/1	Running	0	4m17s
jobs-svc-75d8969f5c-thms4	1/1	Running	0	4m16s
k10-grafana-57d487dc7f-sxz9z	1/1	Running	0	4m17s
kanister-svc-666c6d4f6c-cqhs2	1/1	Running	0	4m16s
logging-svc-5bcd4b47d-jv4kk	1/1	Running	0	4m16s
metering-svc-6d879946d6-mprcn	1/1	Running	0	4m17s
prometheus-server-7787b6d6dc-5h8g6	2/2	Running	0	4m17s
state-svc-75865988b4-zqck9	2/2	Running	0	4m16s



Customer Use Cases

Customer Value – DevOps at Scale

Production



InfiniBox Consistency Group



InfiniBox Snapshot Group



InfiniBox - 2nd Snapshot (Single Vol/FS)



Import as PV Using K8 CSI

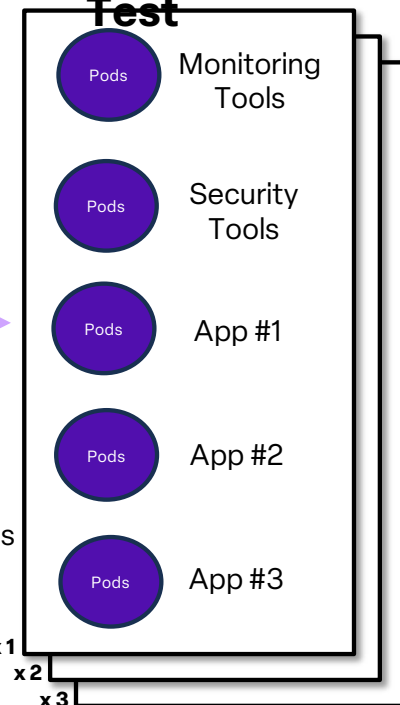


Persistent Volume Claim



Each environment gets a Single **Namespace**

Dev / Test



... Hundreds of environments!

Summary:

- The joint solution provides
 - High-performance storage that helps our customers seamlessly implement backup and recovery, disaster recovery, and stateful application mobility
- Multi-protocol flexibility
 - Customers can manage Kubernetes Persistent Volumes attached via block and file protocols, including Fibre Channel, iSCSI, and NFS, with all access modes
- Multi-petabyte scalability
 - Support hundreds of thousands of PVs per InfiniBox system and control multiple InfiniBox arrays within a single Kubernetes cluster
- Advanced enterprise features
 - Manage native InfiniBox snapshots and clones, including restoring from snapshots, and importing PVs created outside of InfiniBox CSI Driver

The End Users Have Spoken



All Categories > Primary Storage > Infinidat > InfiniBox



InfiniBox Reviews

by Infinidat in Primary Storage

4.9 ★★★★★ 444 Ratings

All Categories > Primary Storage > Infinidat > InfiniBox SSA



InfiniBox SSA Reviews

by Infinidat in Primary Storage

5.0 ★★★★★ 9 Ratings

Data Center - Others



InfiniGuard Reviews

by Infinidat in Data Center - Others

4.9 ★★★★★ 17 Ratings



Gartner.
Peer Insights™

As of 19 April 2023

The End Users Have Spoken

All Categories > Primary Storage > Infinidat > InfiniBox



InfiniBox Reviews

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INFINIDAT



Infinidat is the **Golden Standard** for Enterprise Storage.”

Storage Operations Supervisor, Banking | InfiniBox®

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InfiniGuard Reviews

by Infinidat in Data Center - Others

4.9 ★★★★★ 17 Ratings

As of 19 April 2023

Infinidat Drives Dramatic Storage Infrastructure Savings

162%
5-year ROI

48%
Reduce
OPEX

51%
More efficient
storage management

11 Month
Payback on
investment



[May 10 at 2pm CET](#)
[May 10 at 1pm ET/10am PT](#)



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