Infinidat OpenShift Integrations to Make Life Easy at Petabyte Scale

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Kubernetes CSI/Golang Developer
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Data Protection Challenges of Kubernetes Platforms

- Application Consistency
- Volume Consistency
- Scalability
- Performance impact
- Disaster recovery
One SDS Architecture, All Platforms

InfiniBox®

- Lower TCO and Rapid ROI
- Autonomous Automation
- Multi-petabyte Scalability
- Guaranteed Performance
- InfiniBox™ SSA
- InfinGuard®
- Cyber Resilience Guarantees
- Broad-based Consolidation
- 100% Availability Guaranteed

AI/ML · Analytics · Big Data · Business & Office Apps
Containers · Cyber Defense · Data Warehouses · HPC
Mission-and Performance-critical Apps · VDI · Virtualization

Set-it-and-forget-it IT Operations
Archive · Backup · Disaster Recovery
Rapid Recovery · Long-Term Retention

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One SDS Architecture, All Platforms

Storage at its best.

Storage Engineer, Healthcare & Biotech | InfiniBox™ SSA

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In what way does persistent storage integrate with Kubernetes?

- 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
  - ✔ Raw block
  - ✔ Cloning
  - ✔ Resize
  - ✔ Immutable snapshots
  - ✔ Restore
  - ✔ Import

- **Protocols**
  - ✔ FC / iSCSI / NFS / NFS-TreeQ

- **Deployment Methods**
  - ✔ Helm for upstream K8s
  - ✔ 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
OperatorHub

Discover Operators from the Kubernetes community and Red Hat partners, curated by Red Hat. You can purchase commercial software through Red Hat Marketplace. You can install Operators on your clusters to provide optional add-ons and shared services to your developers. After installation, the Operator capabilities will appear in the Developer Catalog providing a self-service experience.
InfiniBox CSI Driver - Operator

2.9.0 provided by Infinidat

Install

Latest version
2.9.0

Capability level
- Basic Install
- Seamless Upgrades
  - Full Lifecycle
  - Deep Insights
  - Auto Pilot

Source
Certified

Features and Benefits
- Multi-protocol flexibility - manage Kubernetes Persistent Volumes attached via block and file protocols, including Fibre Channel, iSCSI, and NFS, with all Kubernetes PV 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 import PVs created outside of InfiniBox CSI Driver

Required Parameters
- **hostname** - IP address or hostname of the InfiniBox management interface
- **username** / **password** - InfiniBox credentials
- **SecretName** - secret name, to be used in the StorageClass to define a specific InfiniBox for persistent volumes
Install Operator

Install your Operator by subscribing to one of the update channels to keep the Operator up to date. The strategy determines either manual or automatic updates.

Update channel
- stable
- alpha

Installation mode
- All namespaces on the cluster (default)
  This mode is not supported by this Operator
- A specific namespace on the cluster
  Operator will be available in a single Namespace only.

Installed Namespace
- infinisat-csi

Update approval
- Automatic
- Manual

InfiniBox CSI Driver - Operator
- Provided by Infinidat

Provided APIs

*ICD infinibocsdriver
Not available
### Pods

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<thead>
<tr>
<th>Name</th>
<th>Status</th>
<th>Ready</th>
<th>Restarts</th>
<th>Owner</th>
<th>Memory</th>
<th>CPU</th>
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<td>0.001 cores</td>
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You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Summary:

- **OpenShift + Infinidat**
  - Simplified, seamless and rapid integration of persistent storage to your Kubernetes environment via the OperatorHub

- **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, restore from snapshots, import PVs created outside of InfiniBox CSI Driver, automatic updates with no administrative hassle
The End Users Have Spoken

InfiniBox Reviews
by Infinidat in Primary Storage
4.9 ★★★★★ 441 Ratings

InfiniBox SSA Reviews
by Infinidat in Primary Storage
4.9 ★★★★★ 11 Ratings

InfiniGuard Reviews
by Infinidat in Data Center - Others
4.8 ★★★★★ 17 Ratings

As of October 26, 2023
The End Users Have Spoken

InfiniBox Reviews

by Infinidat in Primary Storage

4.9 ★★★★★ 441 Reviews

"Infinidat is the Golden Standard for Enterprise Storage."
Storage Operations Supervisor, Banking

InfiniGuard Reviews

by Infinidat in Data Center - Others

4.8 ★★★★★ 17 Ratings

As of October 26, 2023
Infinidat Drives Dramatic CAPEX and OPEX Savings

162% 5-year ROI  

48% Reduced OPEX  

51% More efficient storage management  

11 Month Payback in 11 months

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Thank you

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