

PURE DRIVES OPENSTACK

Pure Storage delivers performance, simplicity and advanced storage features for open cloud environments

SUMMARY

Pure Storage® has been an active contributor to OpenStack, from early versions right up through the latest release. All-flash storage from Pure simplifies OpenStack deployments, increases storage efficiency, and shortens integration times to improve the ROI. Advanced storage features like replication protect your service offerings. Easy to integrate into an OpenStack environment, FlashArray™ provides the scalability, reliability, simplicity, low cost, and non-disruptive operations required to make your cloud successful.

WHY PURE ALL-FLASH FOR OPENSTACK

OpenStack is the most widely supported open source software for building public and private clouds. OpenStack deployments help capture the value of cloud services, but traditional storage solutions can limit OpenStack benefits. White box storage nodes are costly to maintain, slow, and extremely complex. Purpose-built storage arrays, even those using flash, can be expensive, difficult to scale, and disrupt cloud services during upgrades and maintenance. By contrast, Pure delivers all-flash speed, effortless simplicity, and industry-leading efficiency.



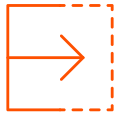
FAST

Pure Storage provides exceptional performance for Cinder and leverages OpenStack tools to accelerate functions like instance creation.



SIMPLE

Pure Storage provides the simplest storage for OpenStack – easy to deploy, easy to use, easy to maintain and scale.



EFFICIENT

Replace hundreds of white box nodes with a single highly-available FlashArray//X.

BUILT TO SHARE AND SCALE

- All-NVMe flash architecture provides latency as low as 250µs and up to 3PB in 6RU
- Replace hundreds of white box storage nodes with a single FlashArray

ALWAYS ON

- Proven FlashArray >99.9999% delivered availability and nondisruptive operations keep vital cloud services online
- Redundancy, data protection, and BC/DR features built-in
- Native replication and snapshot features supported in OpenStack

SIMPLE, AUTOMATED

- No need to manage tiers, RAID, or encryption. Storage simplicity reduces integration complexity
- Cinder driver, Python Automation Toolkit, and comprehensive REST API simplify storage automation and orchestration

ECONOMICAL

- Integration and automation toolkits lower the cost and complexity of OpenStack deployment
- Save time, space, power, and cooling in your data center with purpose-built all-flash storage

DEPLOY OPENSTACK FASTER WITH PURE STORAGE



PURE STORAGE CINDER DRIVER

- Complete Cinder functionality
- Contributed integration makes Cinder deployment faster
- Create and delete volumes, attach and detach to hosts, create and delete snapshots
- Full synchronous and asynchronous replication support
- Generic Volume Group, including consistency capabilities, fully integrated
- Fully documented and supported, included in core OpenStack (Juno and beyond)

PYTHON AUTOMATION TOOLKIT

- For custom OpenStack implementation. Leveraging the Python Automation Toolkit provides access to vital storage features
- Automated snapshot policies, replication, capacity management and monitoring
- Improved monitoring and control tools
- Available at no cost to all Pure customers

COMPREHENSIVE REST API

- For full customization and access to 100% of FlashArray's advanced storage features
- Comprehensive, fully documented RESTful API
- Accelerates customized integration for a range of management and orchestration suites
- Included at no cost with every FlashArray

PURE'S INVESTMENT IN OPENSTACK

- Corporate Sponsor of OpenStack Foundation since 2014
- First Cinder driver in Folsom (2012 H2)
- Full in-tree Cinder driver since Juno (2014 H2)
- Python SDK library (2014 H2)
- Active contributor to multiple core projects
- Cinder team senior developer
- Dedicated Solution Architect
- Sponsorship of OpenStack Summits and Days

- Cinder scheduler load balances on capacity and performance metrics provided by the arrays
- Full Integration with Snapshots, Consistency Groups and Generic Volume Groups
- Full support for Cinder Replication, including multi-target, asynchronous and synchronous
- Best practices available for all supported OpenStack releases
- Supports OpenStack's Quality of Service
- Great implementation of Glance Image-Cache for Cinder (significant instance creation time improvements)

OPENSTACK CONTRIBUTIONS

- 1000 code and patch set commits
- Over 50,000 lines of code (22,200 in Cinder)
- #6 contributor to Cinder (Rocky)
- Contributor to over 19 projects
- High-level architectural contributions

OPENSTACK INTEGRATION: OPERATIONAL SIMPLICITY

- Multi-backend support; multi-protocol support
- No cloud admin access/training required for Pure GUI
- 'Zero Touch' Implementation – minimum of 3 lines in OpenStack configurations
- All OpenStack Cinder features fully integrated through Horizon GUI and OpenStack CLI

OPENSTACK PROJECTS (PURE STORAGE INTEGRATION POINTS)

PROJECT NAME	FUNCTION	PURE INTEGRATION POSSIBLE
HORIZON	DASHBOARD	YES*
GLANCE	IMAGE SERVICE	YES
SWIFT	OBJECT STORAGE	YES
CINDER	BLOCK STORAGE	YES
NOVA	COMPUTE	YES

* Planned for upstream in Stein



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