

Zumastor

Enterprise NAS for Linux

Motivation

Linux is weak in enterprise storage functionality such as snapshots and replication

Zumastor is an effort to fix that.
It is free software, licensed under GPLv2



Architecture

Kernel-level dm-ddsnap driver

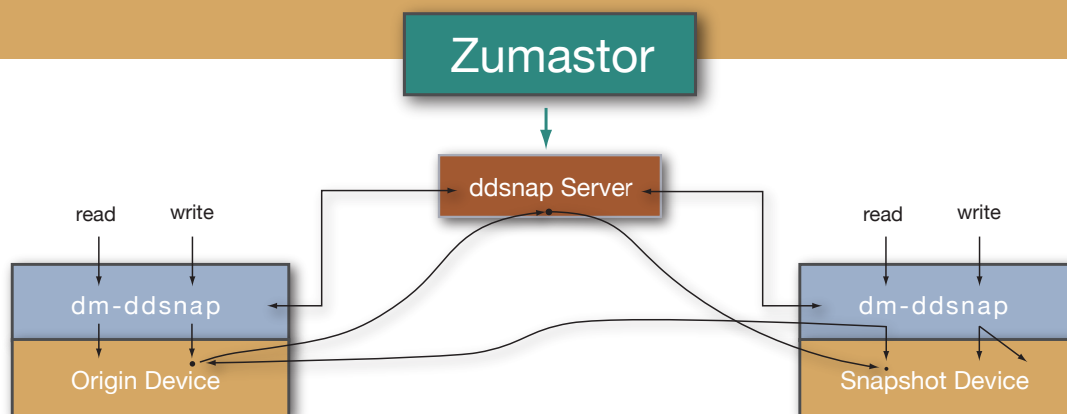
A virtual block device sitting on top of physical disks
Intercepts IO to origin and snapshot devices

User-space ddsnap server

Implements copy-before-write snapshot strategy
Maintains allocation bitmaps, chunk sharing btree, journal, etc.

Zumastor volume manager

Simple command line interface
Manage snapshot rotation, replication topology, and file system configuration



Key Features

Block level snapshots

Works with any Linux file system, ext3, xfs, etc.
Multiple read/write snapshots with data sharing

Performance

Great origin read performance, slow writes
Write performance does not degrade with number of snapshots

Efficient remote replication

Compressed delta between two snapshots is sent across wire
Single or multilevel branching replication

Integrates with NFS and Samba

Implements CIFS "previous versions" api
Kerberosized NFS and CIFS support

Current Status

Source code and binary Debian packages available for download

Stable operation under heavy load

Linux block IO system was improved to eliminate deadlock issues
Tolerates multiple system and network failures

Now getting valuable feedback from early adopters

Future Work

Optimize write performance

Optimize Memory footprint

Simplify component interconnect

Graphical management interface

Snapshot cluster filesystems