TechDays

LINBIT OpenNebula

1. DRBD + LINSTOR

Highly Available Block Storage Demo

Speaker

LINBIT

Philipp Reisner
CEO

LINBIT

Rene Peinthor
LINSTOR Developer

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LINSTOR

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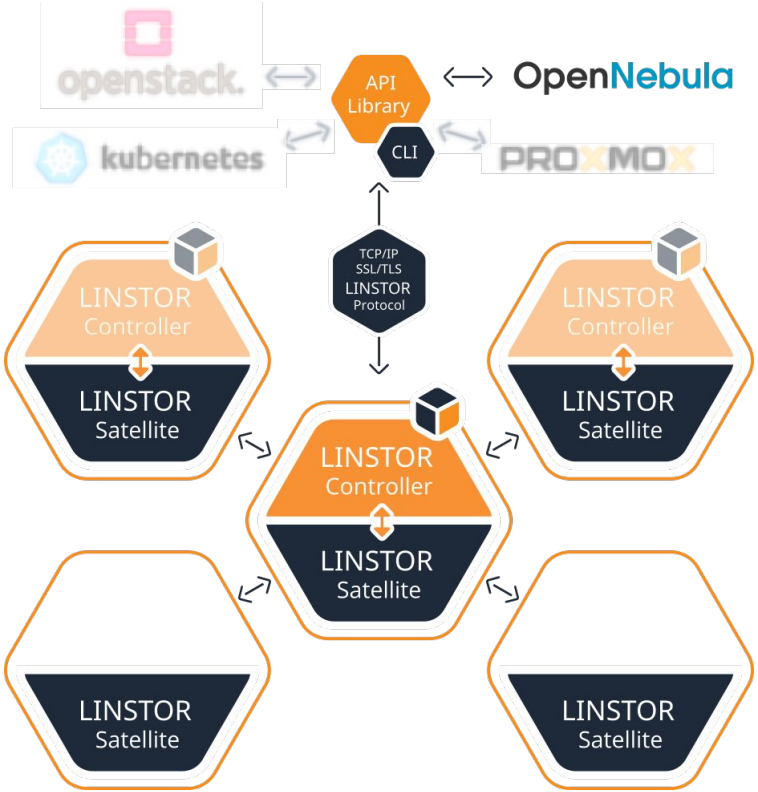
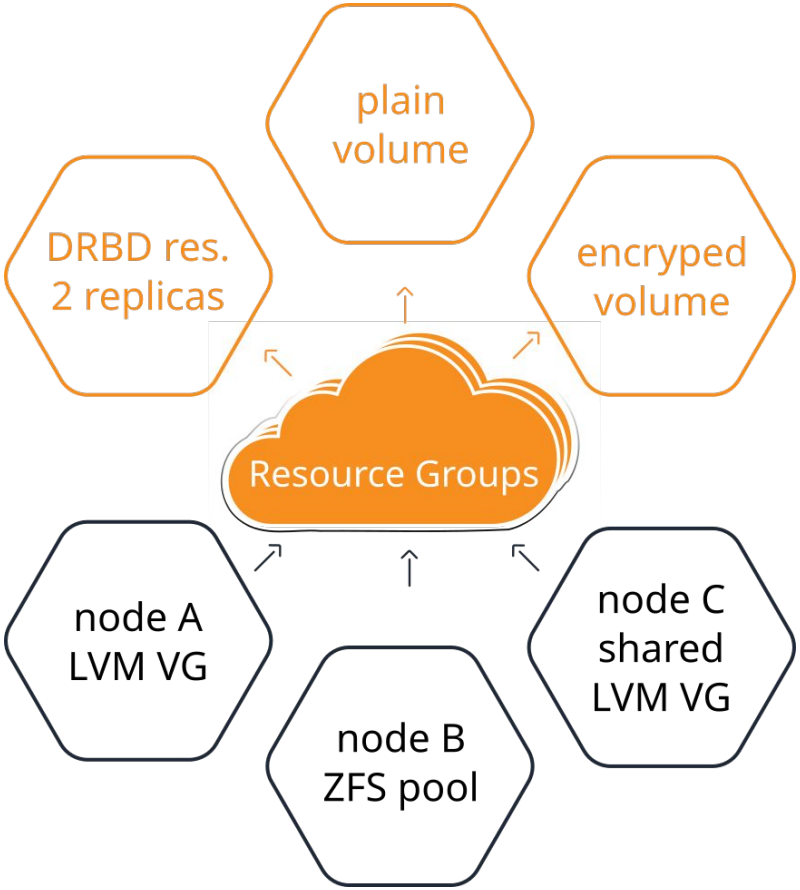
LINSTOR - Components

- Linstor-Controller (java8)
  - Manages satellites (protobuf)
  - Persistent storage (h2, mariadb, postgresql, etcd)
  - REST-API
- Linstor-Satellite (java8)
  - Manages block devices (drbd, lvm, zfs, nvme, ...)
  - Retrieves all needed data from Controller
- Linstor-client (python)
  - Command-line client that issues REST call to the Controller


openstack.
API
Library
OpenNebula
kubernetes
CLI
PROXMOX
TCP/IP
SSL/TLS
LINSTOR
Protocol
LINSTOR
Controller
LINSTOR
Satellite
LINSTOR
Controller
LINSTOR
Satellite
LINSTOR
Controller
LINSTOR
Satellite
LINSTOR
Satellite
LINSTOR
Satellite


plain volume
DRBD res. 2 replicas
encryped volume
Resource Groups
node A LVM VG
node B ZFS pool
node C shared LVM VG

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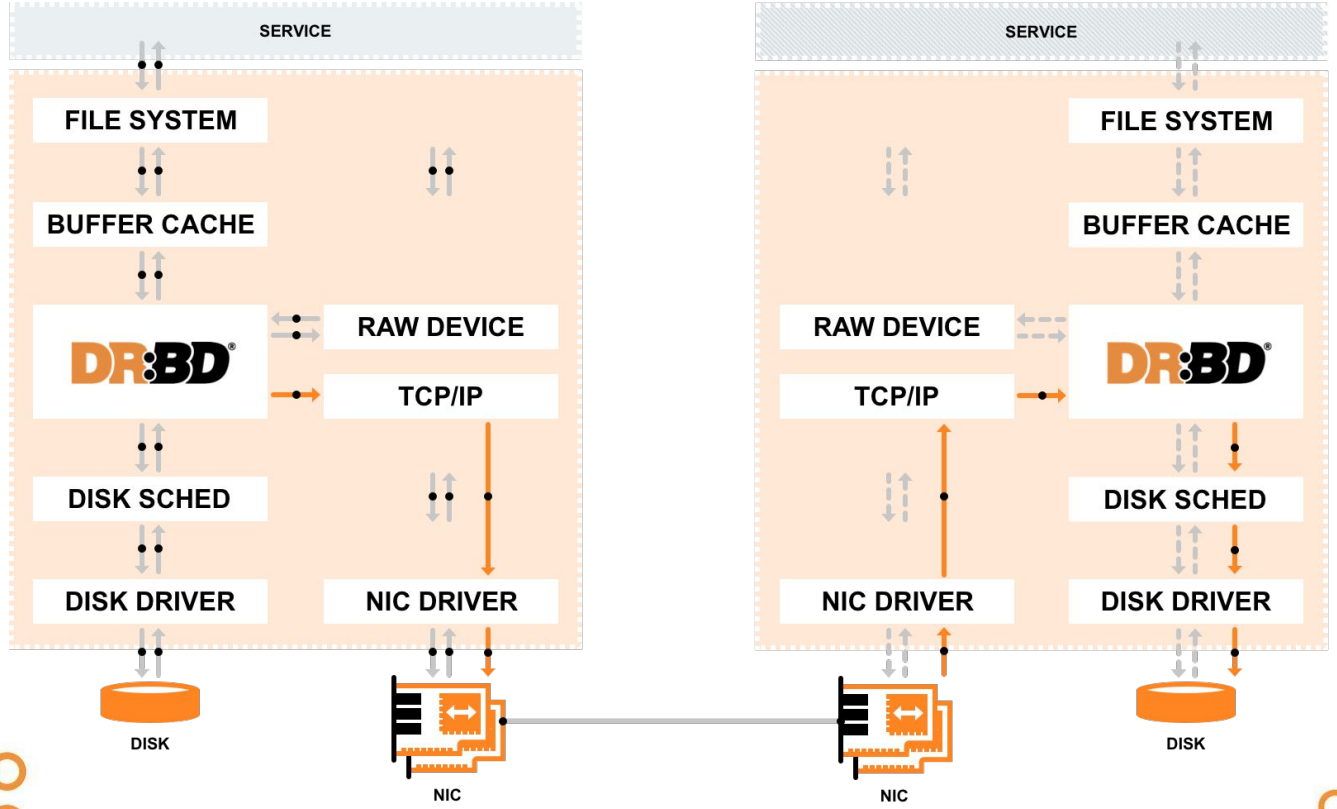
SERVICE
FILE SYSTEM
BUFFER CACHE
DRBD
RAW DEVICE
TCP/IP
DISK SCHED
DISK DRIVER
NIC DRIVER
DISK
NIC
SERVICE
FILE SYSTEM
BUFFER CACHE
RAW DEVICE
TCP/IP
DRBD
DISK SCHED
NIC DRIVER
DISK DRIVER
NIC
DISK

Why LINBIT is so fast

In Kernel data-path

- Reduce number of context switches
- Saving on CPU/memory resources
- Minimal latency for block-IO operations
- Optional load-balancing for READs

Layout at volume allocation

- Dynamic replica allocation
- Fast IO submission time
- Save on CPU/memory

Build on existing components

- DRBD, LVM, ZFS, LUKS, VDO, …
- Leverage existing knowledge
- Built on the shoulders of giants

Hyper-Converged

- Reduced network load for reads
- Reduced latency
- Low resource consumption (approximately 0.5% of a single core is consumed by DRBD)

When is LINBIT SDS a fit

Transaction Processing
- Oracle DB
- PostgreSQL
- MariaDB

Analytic Processing
- DB2 Warehouse
- ...

Persistent Volumes
..for Containers
- Kubernetes
- Nomad
- Docker

Virtualization
- OpenNebula
- OpenStack
- Proxmox
- XCP-ng
- CloudStack

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Q&A

Questions in chat

OpenNebula

contact@opennebula.io
www.opennebula.io

OpenNebula Systems
28223 Pozuelo de Alarcon (Madrid), Spain

OpenNebula Systems
Burlington, MA 01803 USA

LINBIT

sales@linbit.com
www.linbit.com

LINBIT HA-Solutions Gmbh
1150 Vienna, Austria

LINBIT USA, LLC
Tualatin, OR 97062