

LINBIT

STORAGE DAY

Filling the Gap:
**LINBIT SDS in
Amazon EKS**





LINBIT

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EKS out of the box features

Amazon **EKS**

- Managed control plane
- Managed node group updates
- AWS service integrations
 - Elastic Load Balancers (ELB)
 - Elastic Block Storage (EBS)
- Monitoring and logging (Amazon CloudWatch)
- Access controls (IAM for Service Accounts, etc)
- VPC Networking (VPC CNI is Calico based)
- ...



Where LINBIT fits into EKS' Storage

AWS storage services in EKS:

- Elastic Block Storage (EBS)
 - Block storage (faster)
 - Read Write Once access mode
 - Cannot be accessed across Availability Zones (AZ)
- Elastic File System (EFS)
 - File storage (slower)
 - Read Write Many access mode
 - Provides cross AZ access

LIN **STOR**

LINBIT SDS (LINSTOR) in EKS:

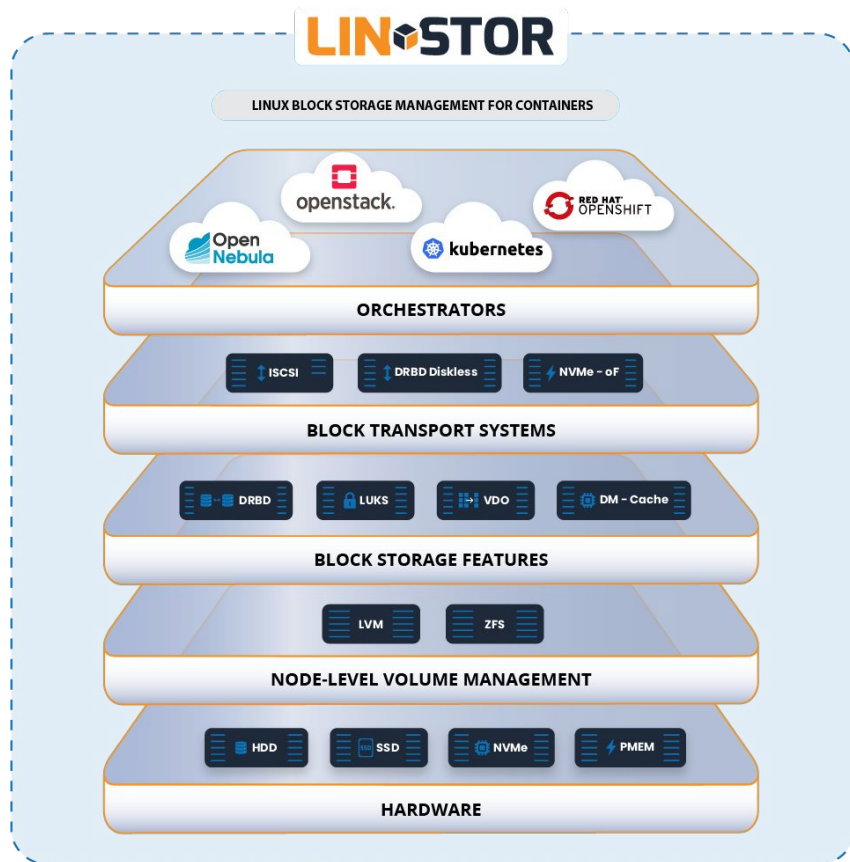
- LINSTOR “Fills the gap”
 - Replicated Block storage
 - Read Write Once access mode
 - Enables access for block storage across AZs

How does LINSTOR work?

By layering block storage...

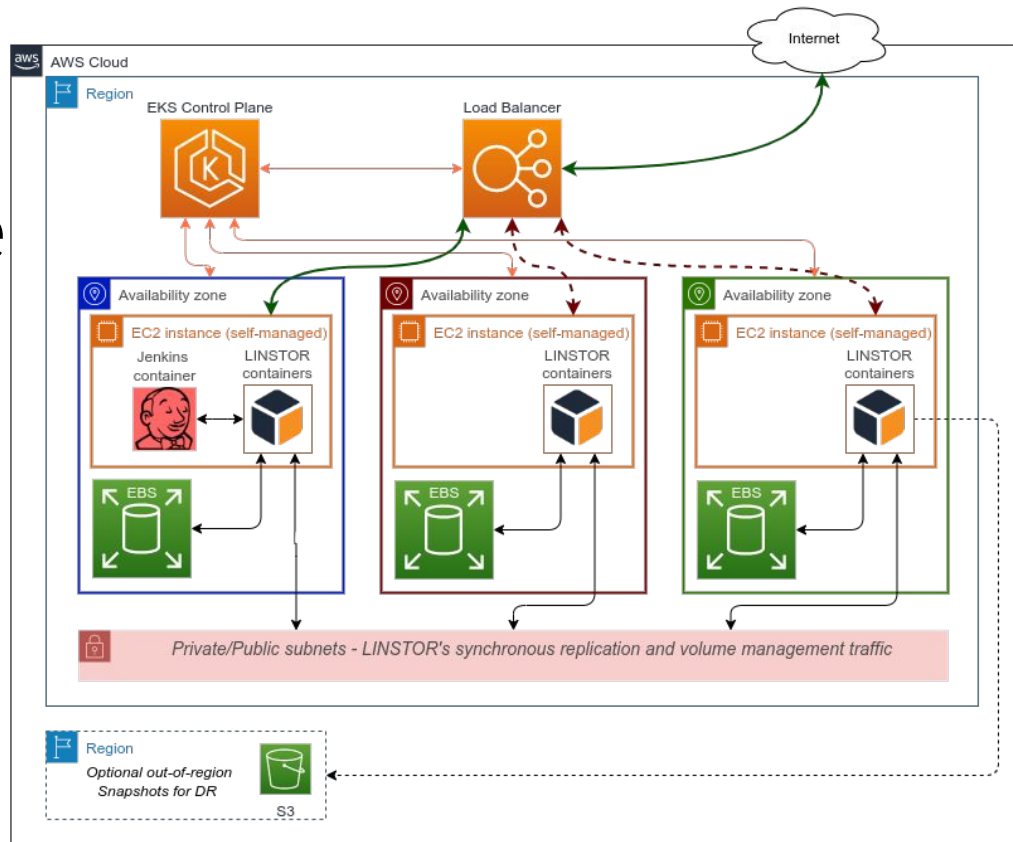
Layers in EKS from bottom to top:

- EBS as the raw block storage
- LVM or ZFS for volume provisioning
- DRBD for synchronous replication
- [optionally LUKS, VDO, or DM Cache layers]
- DRBD Diskless as the block transport



Reference architecture

- Single region with three or more AZs
- EKS worker in each AZ within region
- EBS volumes attached to each worker
- LINSTOR PV replica in each AZ
- Workload (Jenkins) running in any one AZ accessing the LINSTOR PV
- LINSTOR S3 “remote” for out-of-region snapshot shipping (Disaster Recovery)
- ELB redirecting users to workload



What is the overhead? (GP3 EBS)

Baseline
EBS GP3



	4k	16k	32k	64k
randrw	3024	3024	3024	2065
randwrite	3025	3025	3025	2065
readwrite	3025	3025	4132	2065
write	3025	3025	4133	2066

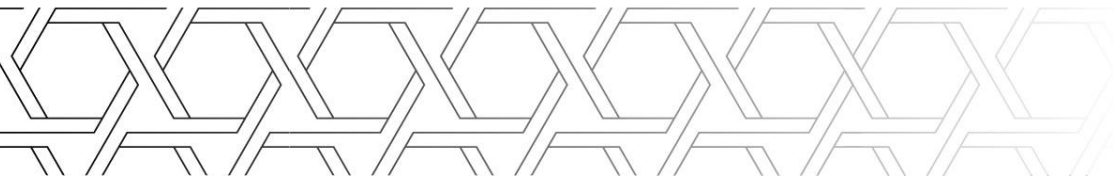
LINSTOR
3 Replica



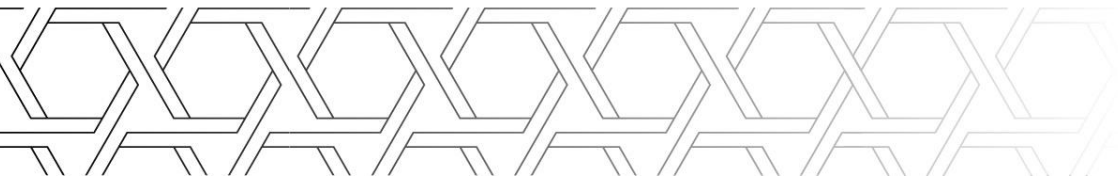
	4k	16k	32k	64k
randrw	3452	3338	3014	2931
randwrite	2355	2207	1843	1988
readwrite	3343	3204	3901	2176
write	3207	2959	3168	2011

Preparing to launch LINSTOR in EKS

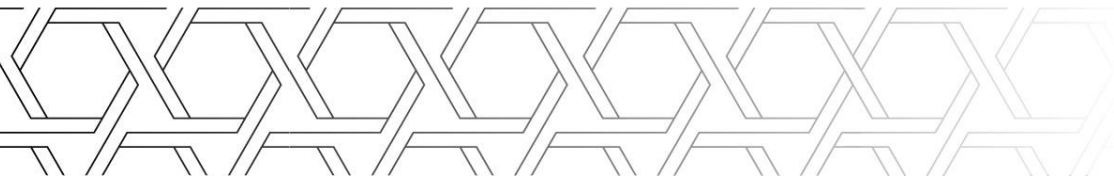
- EKS instances will run DRBD v9 in their kernel
 - use Red Hat or Ubuntu instances ...
 - OR install kernel-headers during bootstrapping (preferred)
- Additional EBS volume(s) for LINSTOR's storage pools
 - for best performance separate data and metadata using two storage-pools in LINSTOR



Demo:
EC2 Launch Template Creation
and EKS + LINSTOR Deployment



Q&A



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