

LINBIT

STORAGE DAY

**LINSTOR is like
Kubernetes,
but for block
devices**



About me



Andrei Kvapil

Solutions Architect

andrei.kvapil@palark.com

PALARK

What I do

Architectural solutions based on Kubernetes

Design and developing cloud platforms

Software-defined storage

My experience

2017—2021 — Cloud Architect, WEDOS

since 2021 — Solutions Architect, Palark

The tools I use the most



kubernetes



KubeVirt

LIN^{STOR}



Holistic DevOps & SRE experts

We are



Germany based company



Certified Kubernetes Administrators



Kubernetes organisation members



Open Source projects creators



CNCF projects contributors

Our team is

Building and supporting Linux-based infrastructure since 2008

Consulting on your app's design to run them in K8s

Using Kubernetes in production since 2017

Bringing DevOps & SRE practices with 24/7 support & SLA

We have customers from



Online retail



Fintech



Blockchain



Online media



Edtech



Advertising

Read our tech blog!



Best practices for deploying highly available app in Kubernetes. Part 1



Making the most out of Helm templates



Just-for-fun experiment: Deploying Kubernetes on two old laptops with Gentoo Linux

blog.palark.com





Disclaimer

My opinion \neq LINBIT's opinion











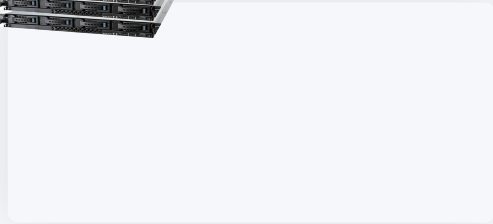
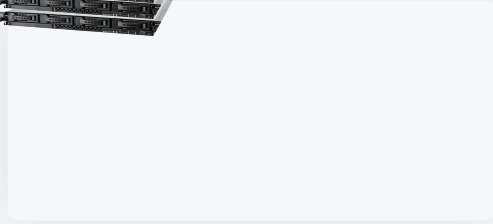














VM



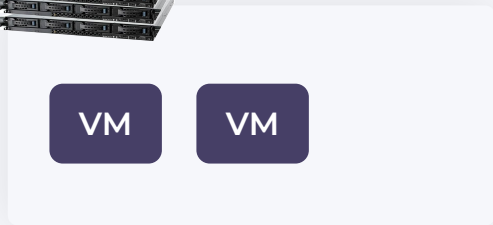
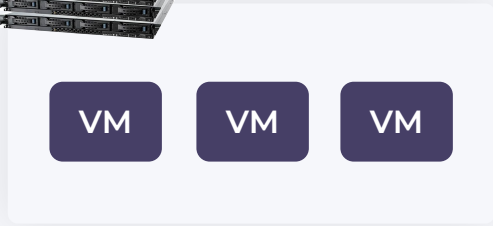


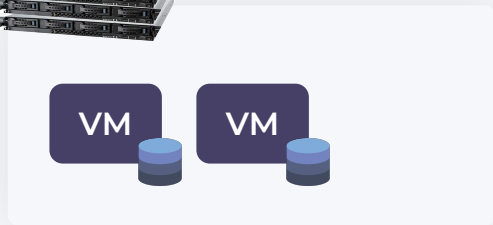
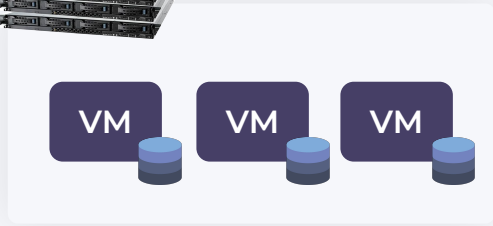
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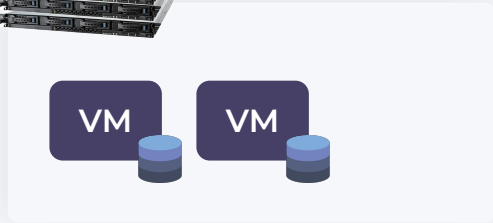
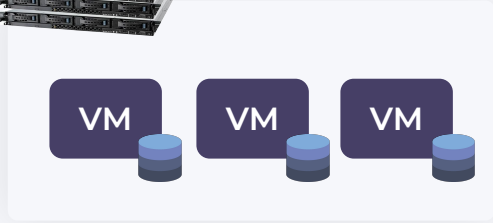
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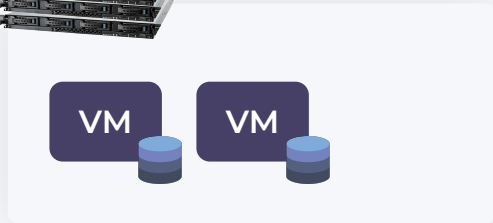
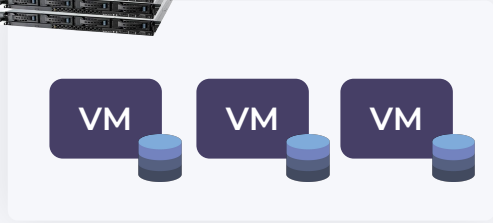


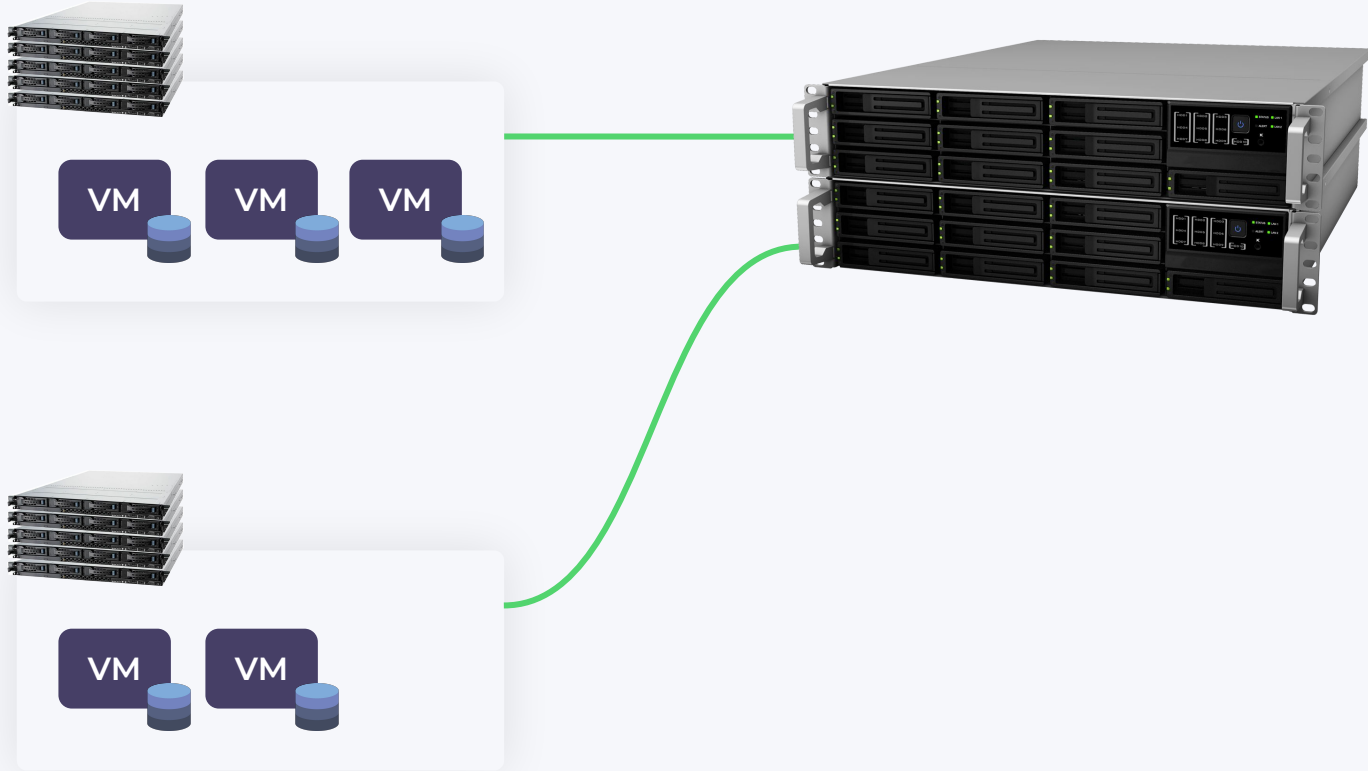
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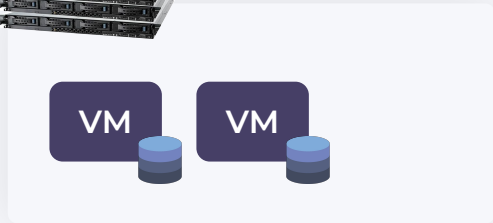
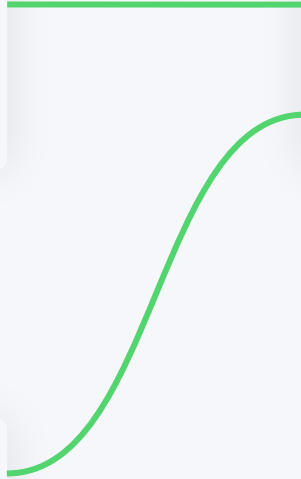
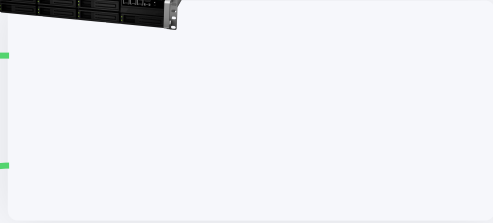
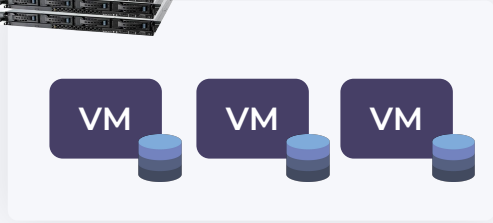














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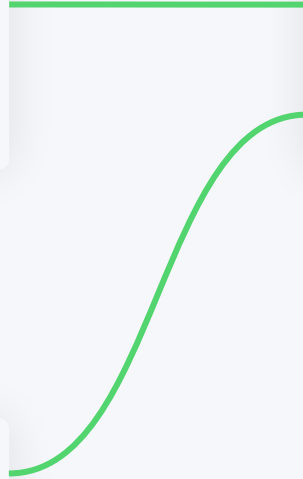
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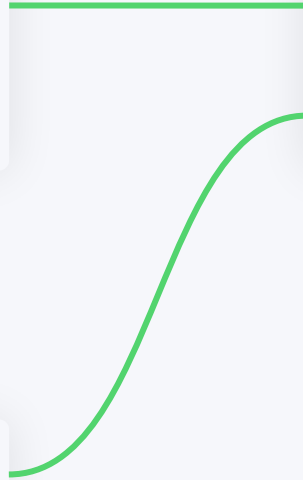
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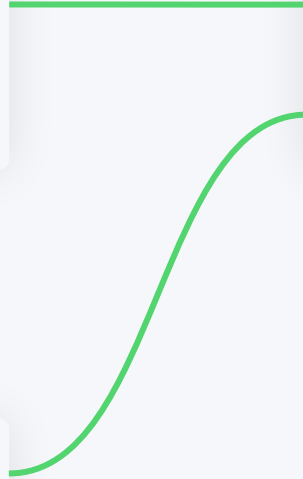
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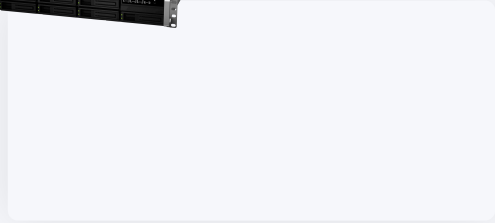
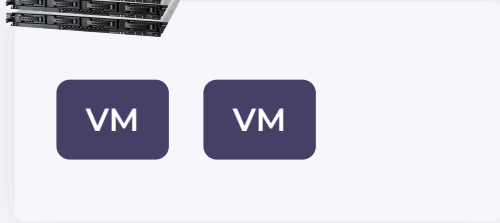
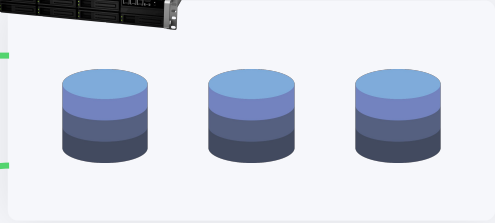
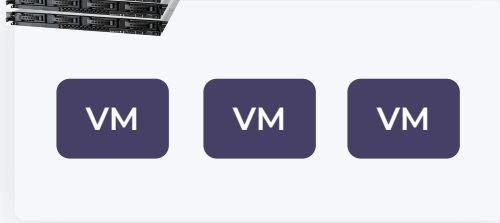
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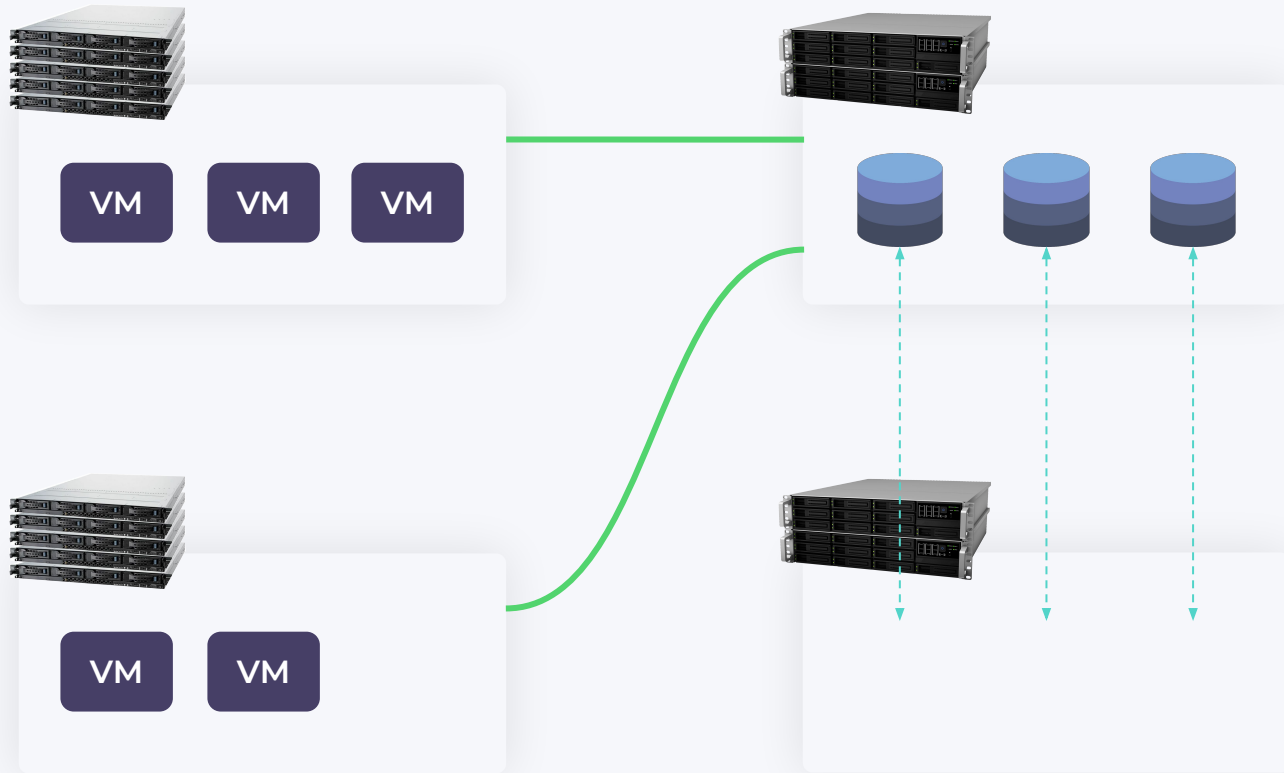
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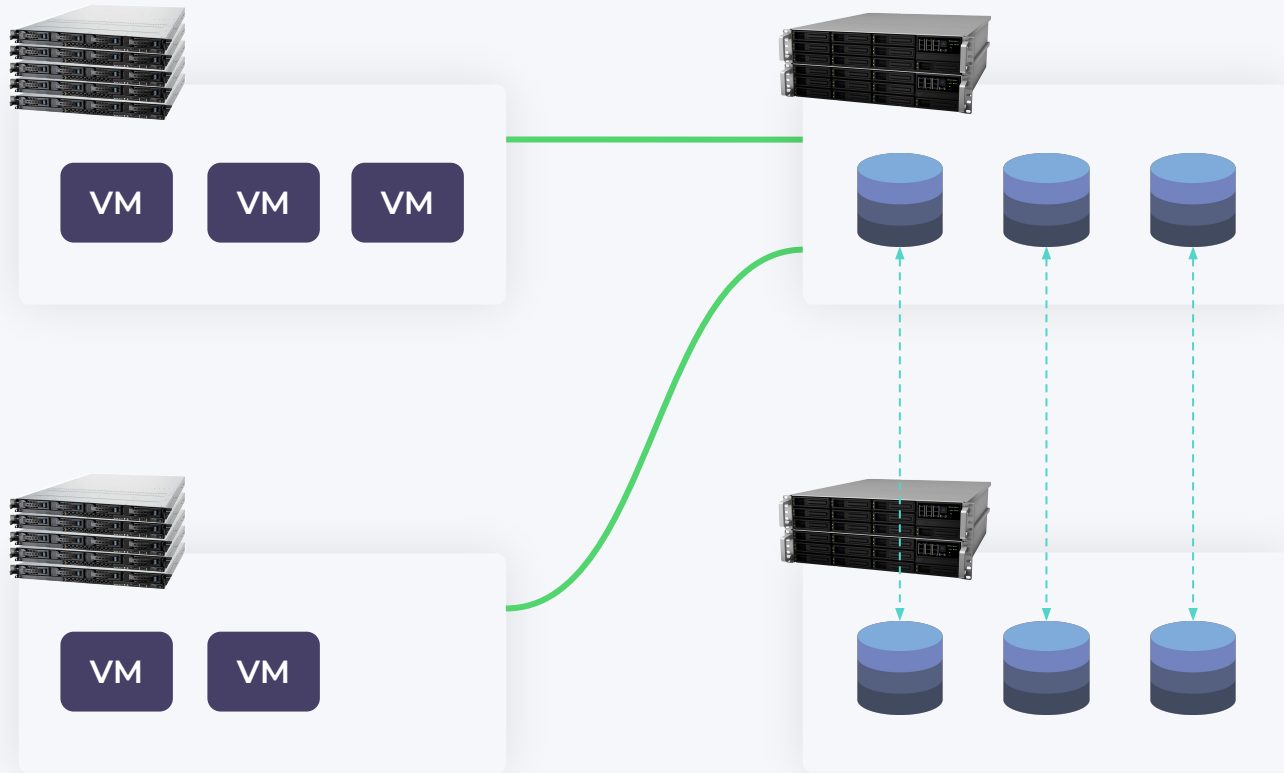


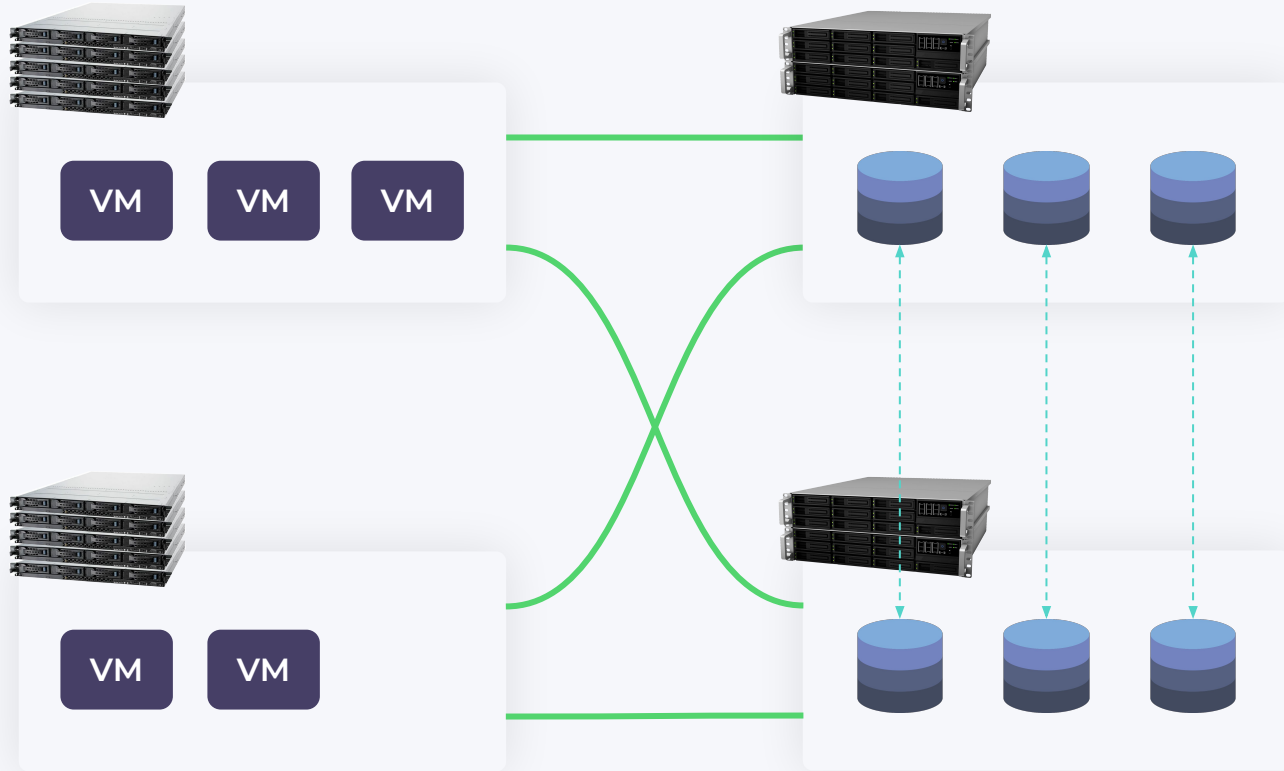
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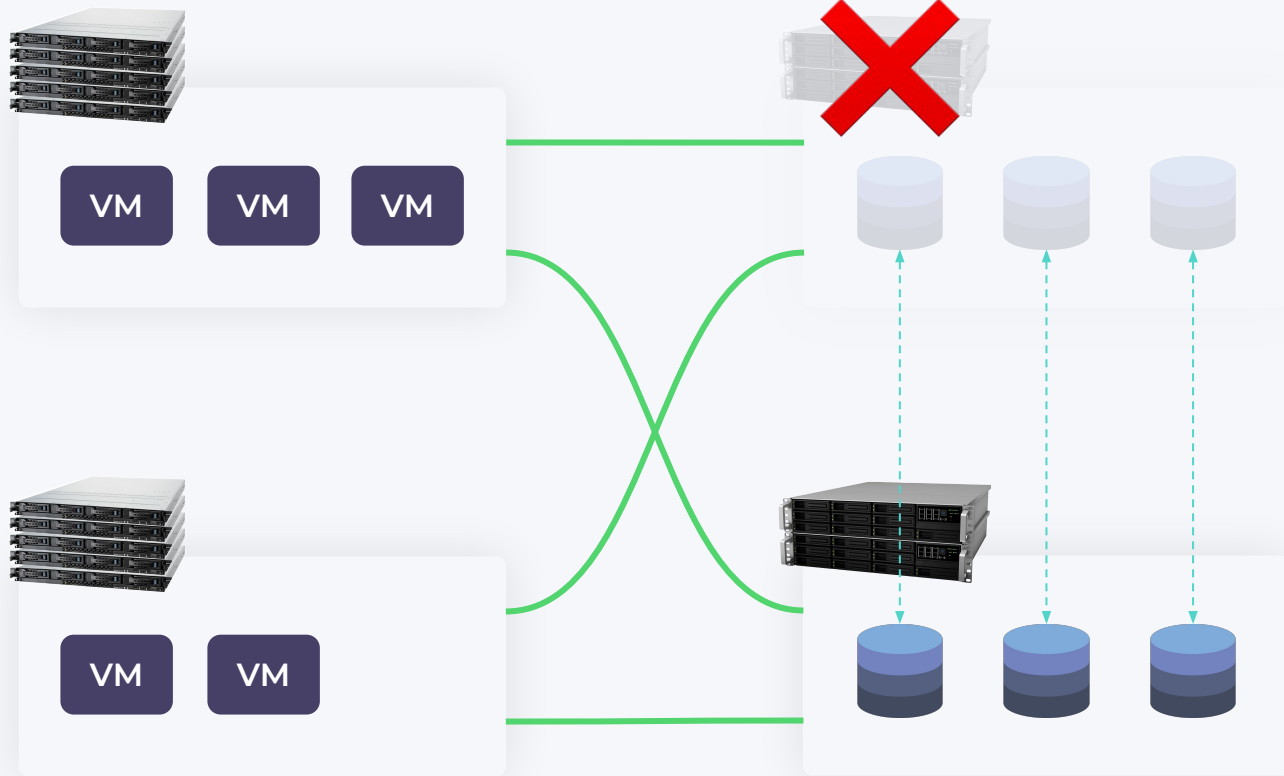
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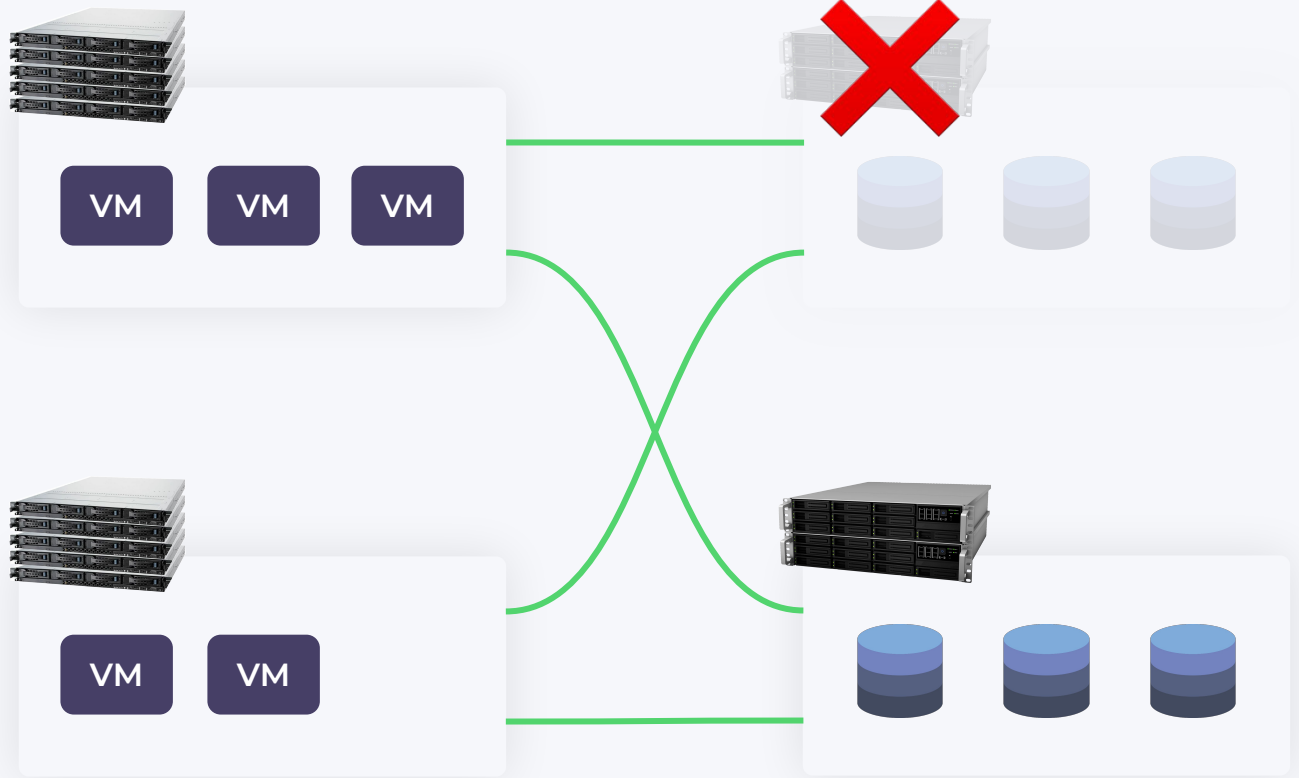


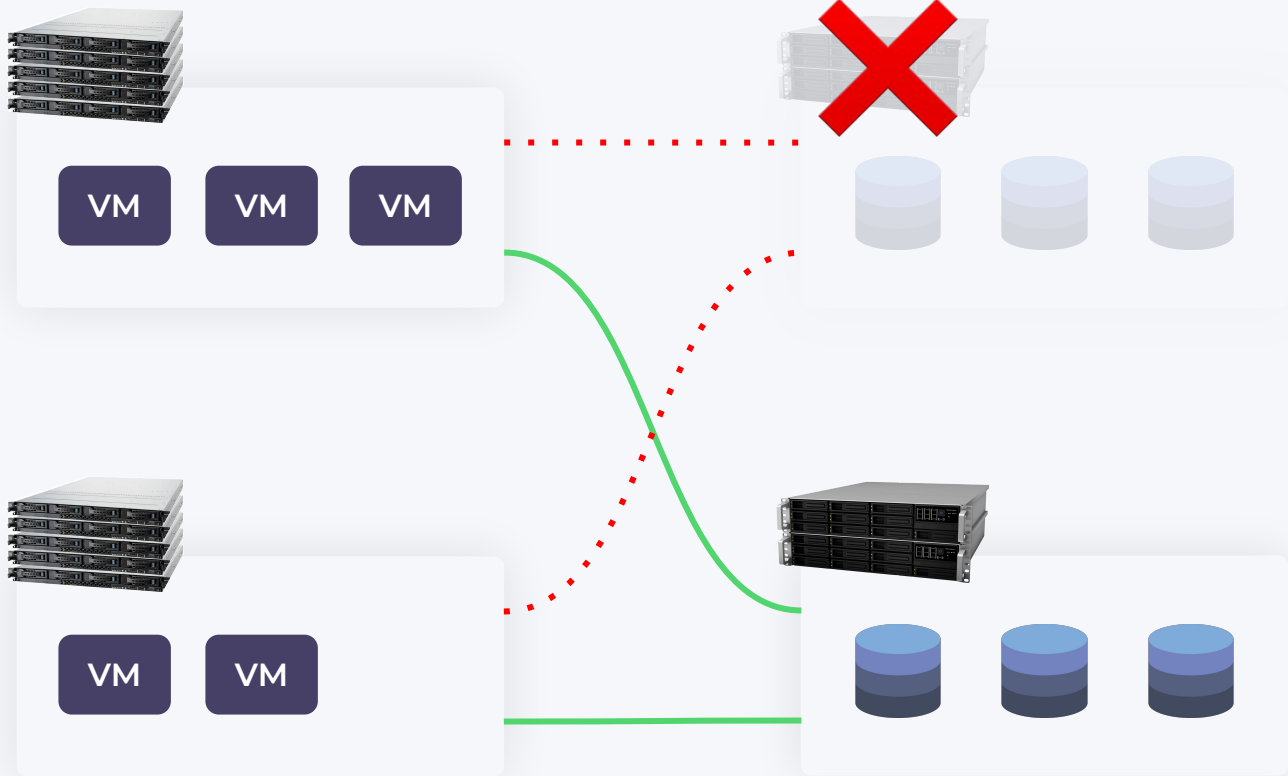


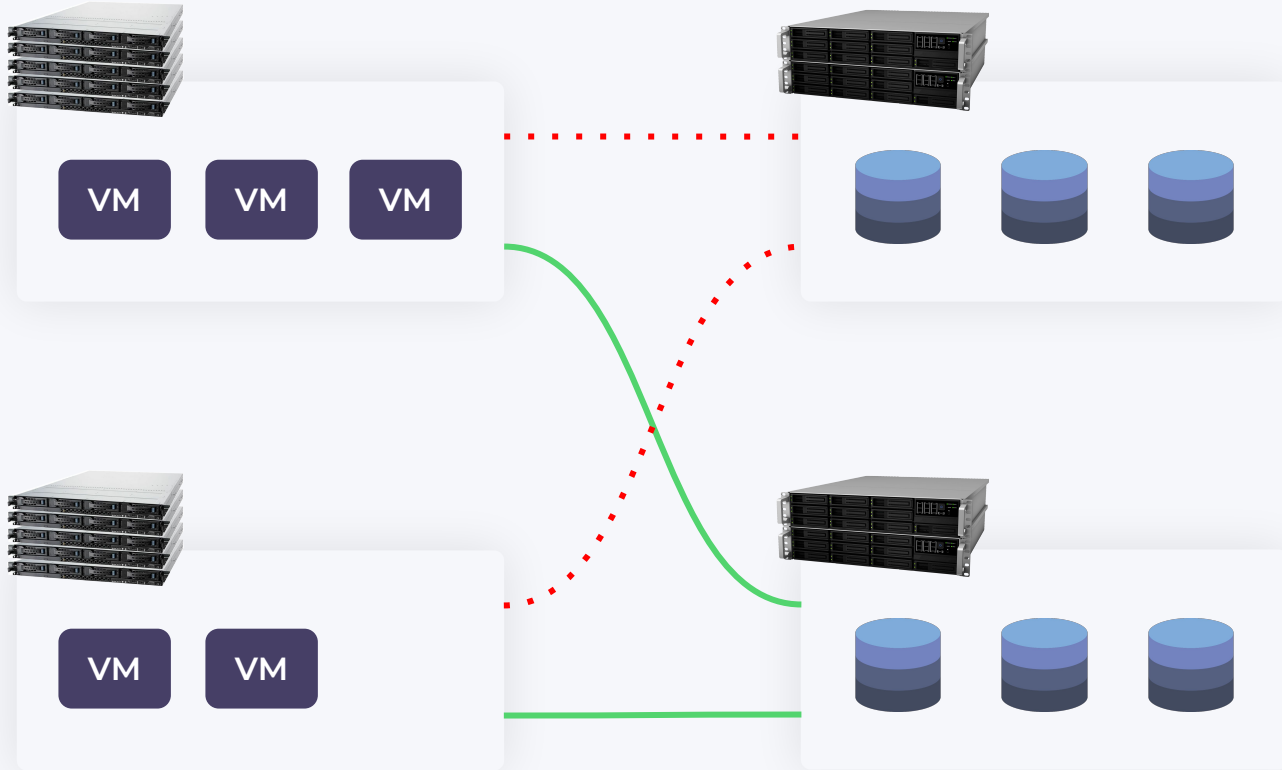


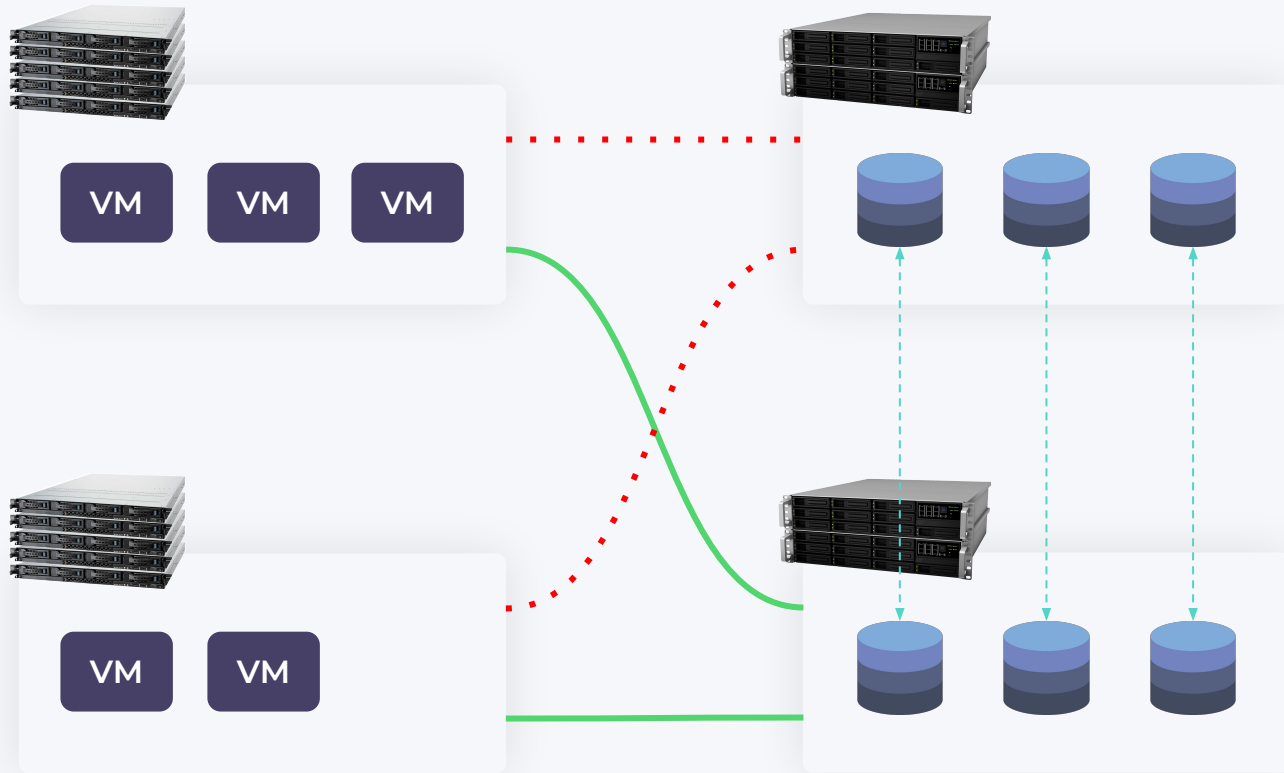


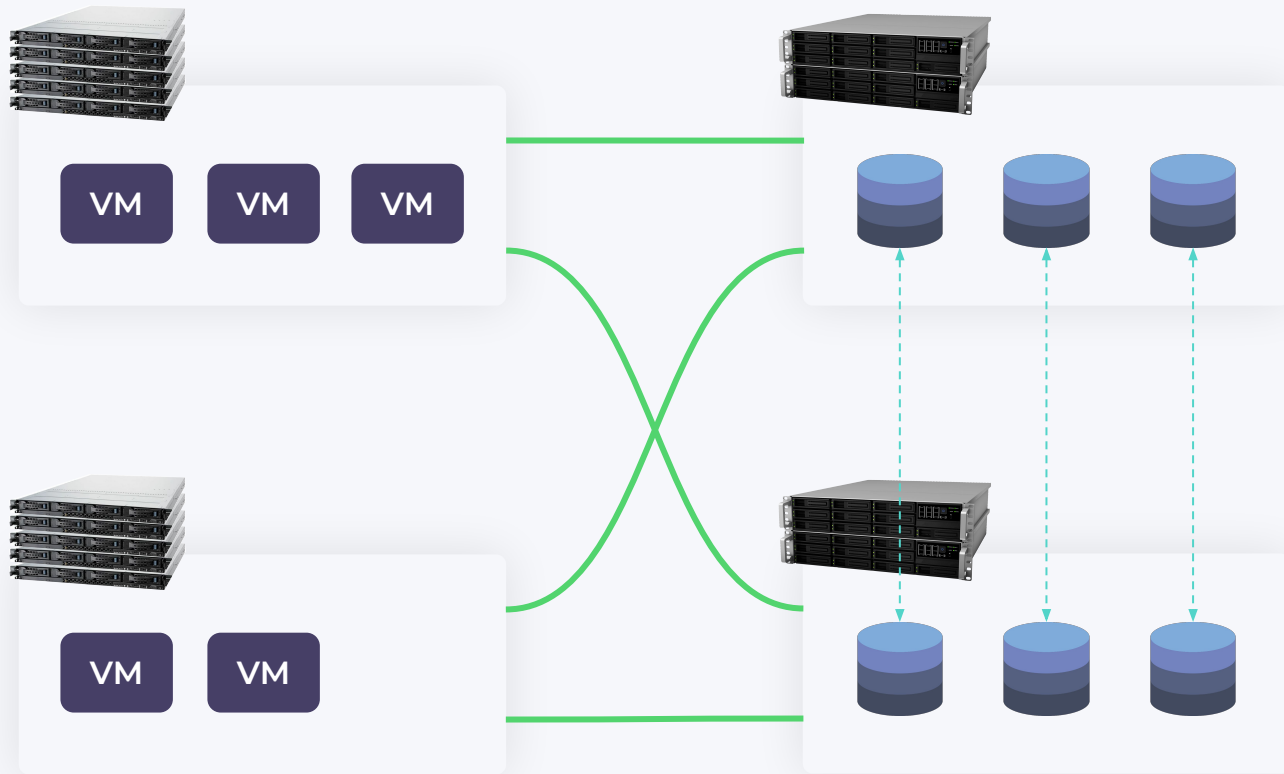


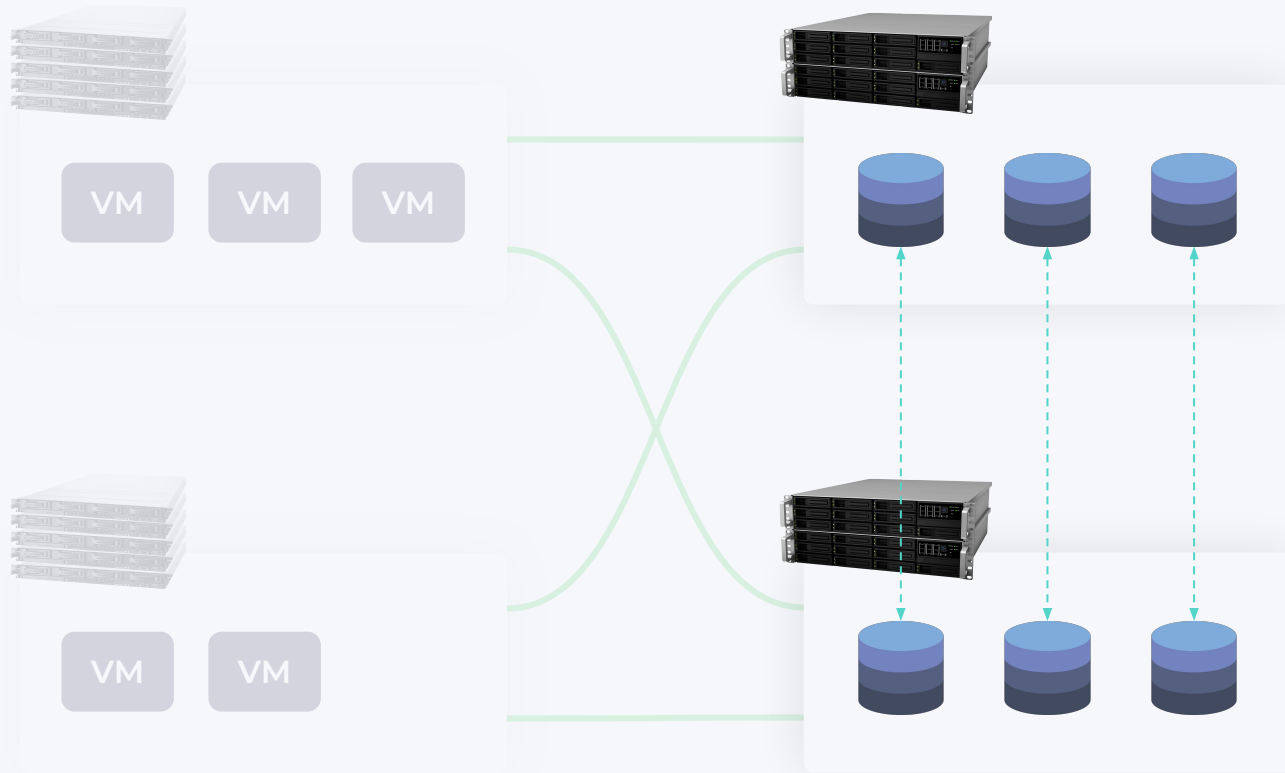


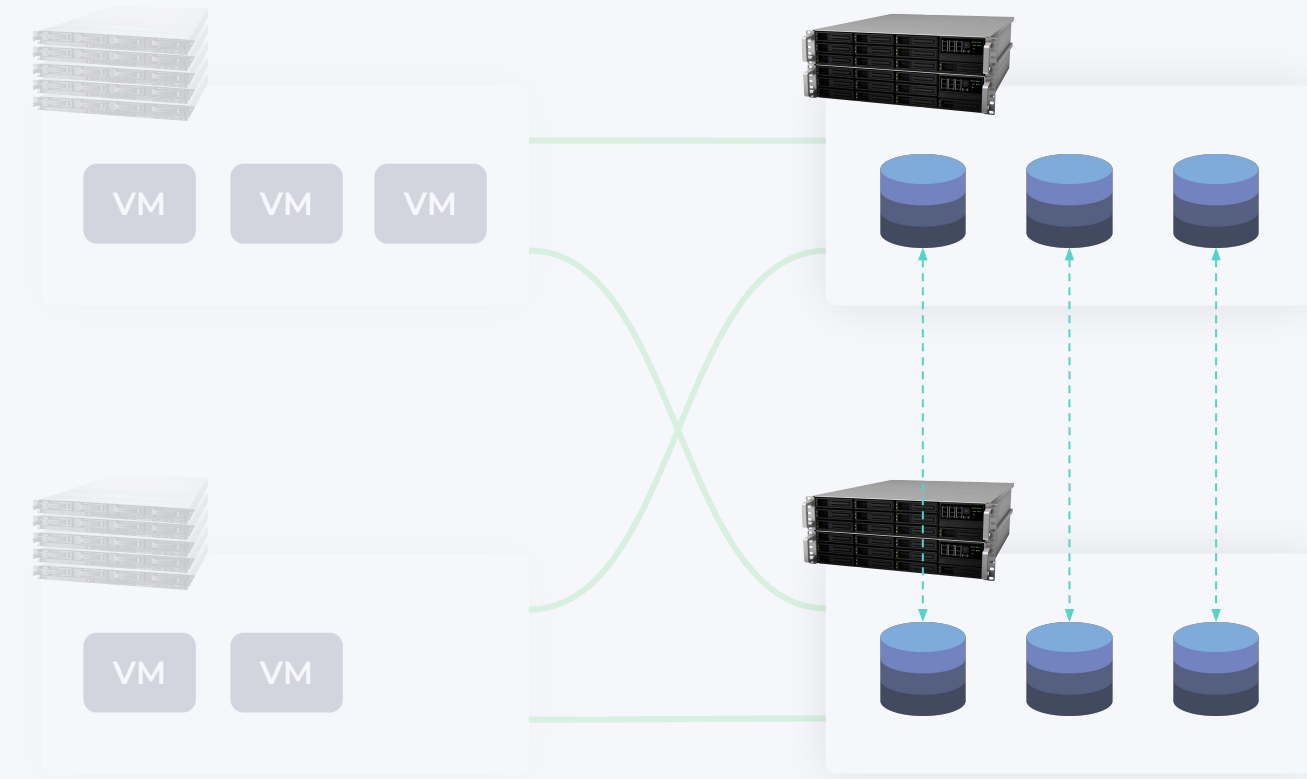


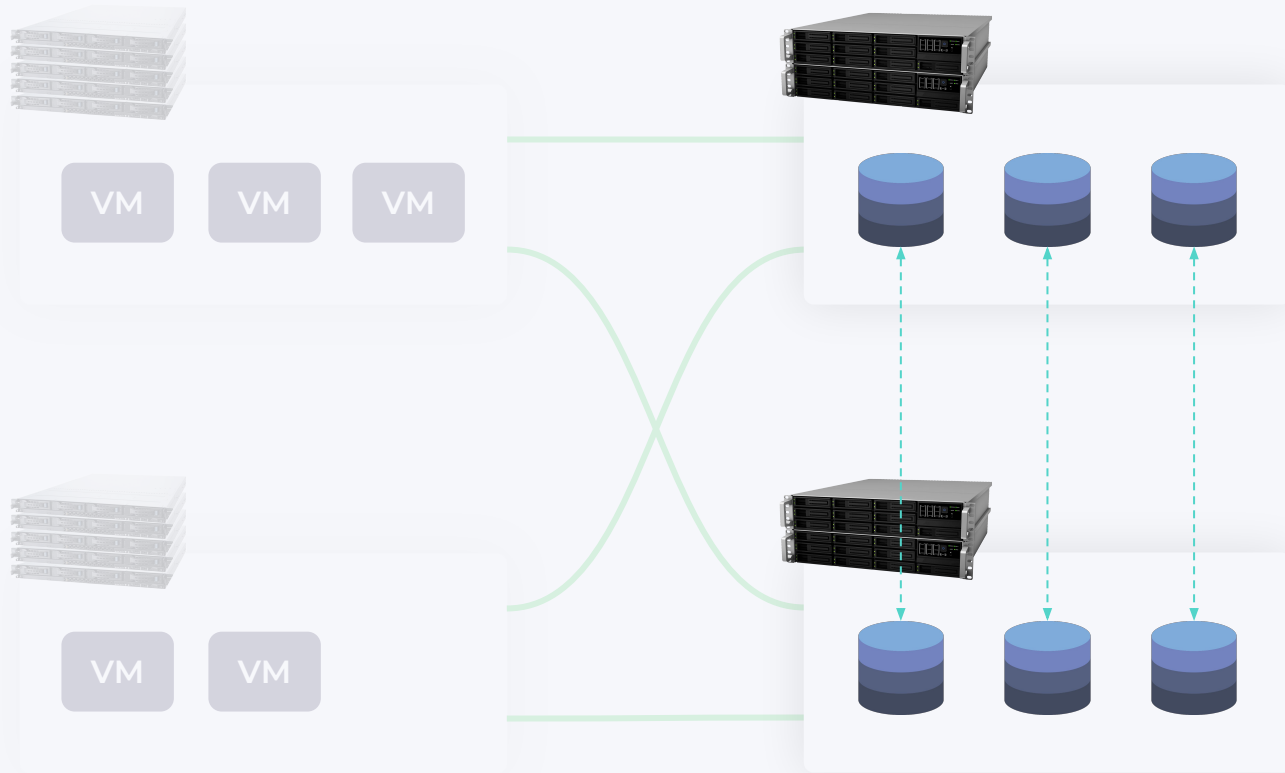


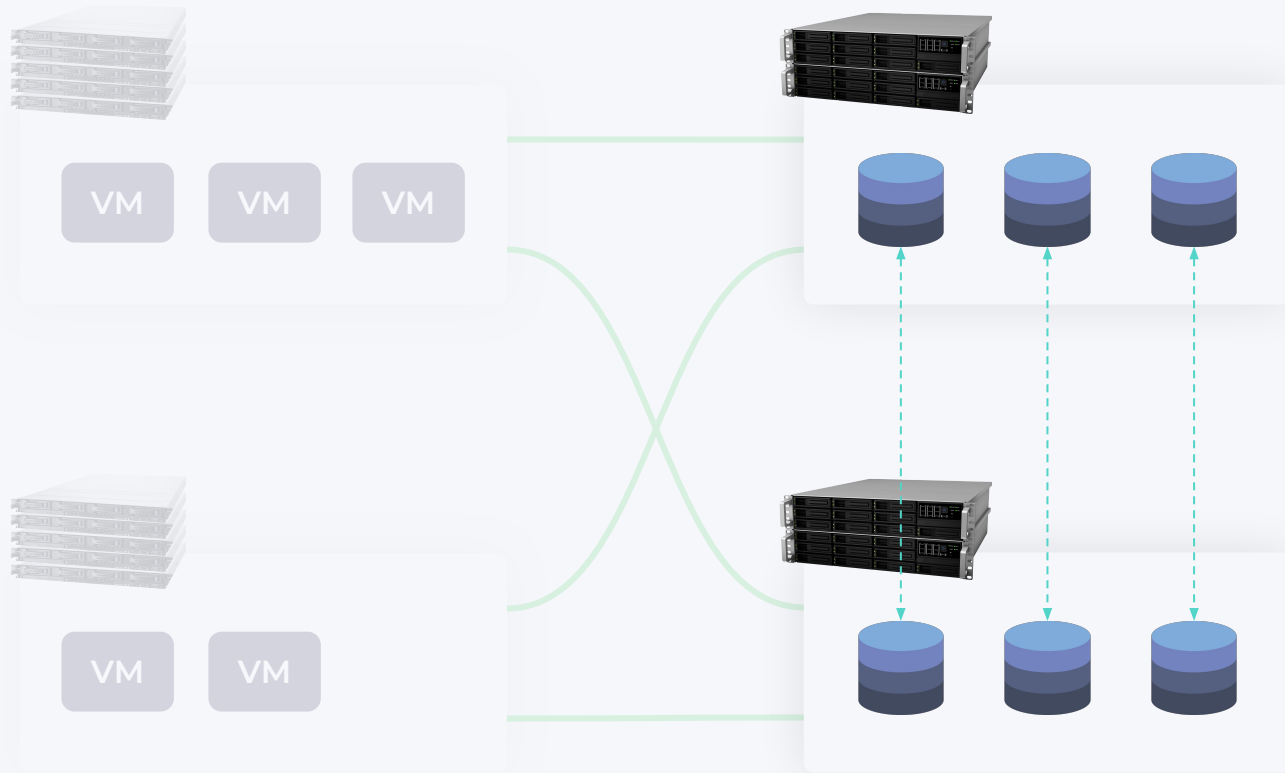


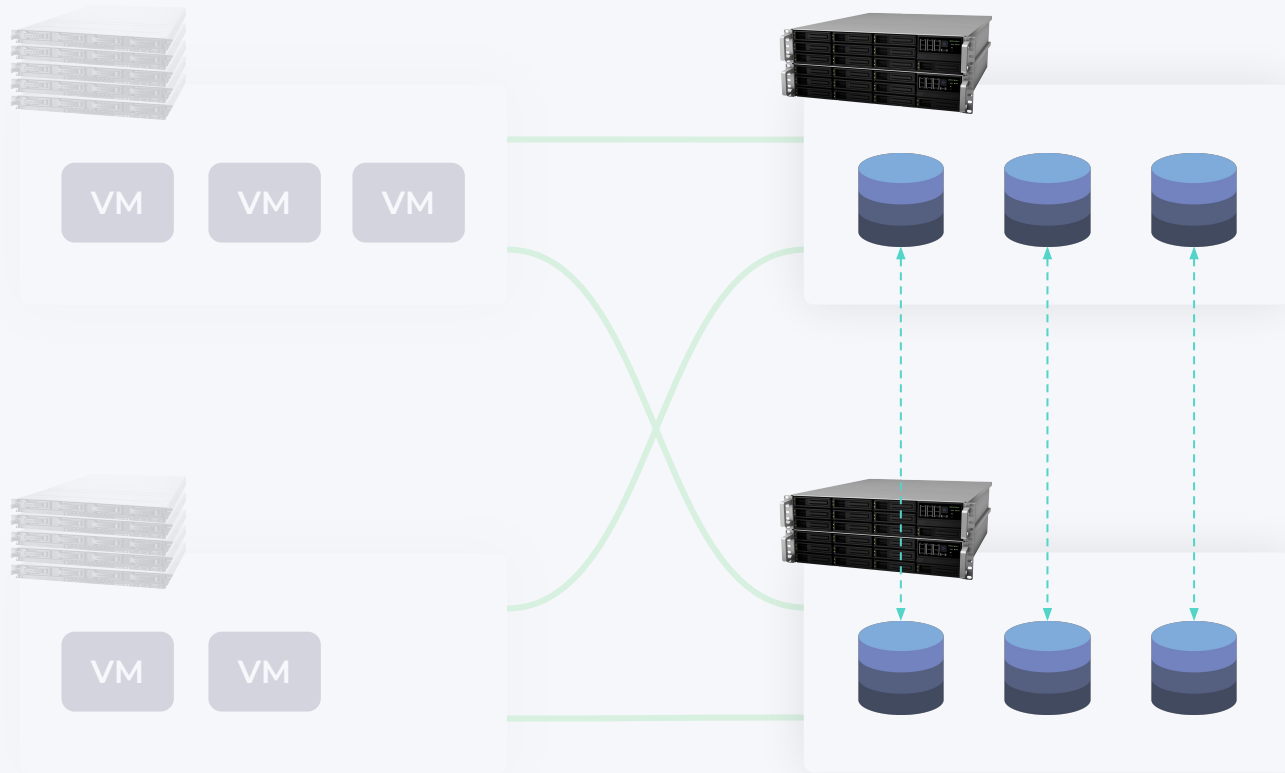


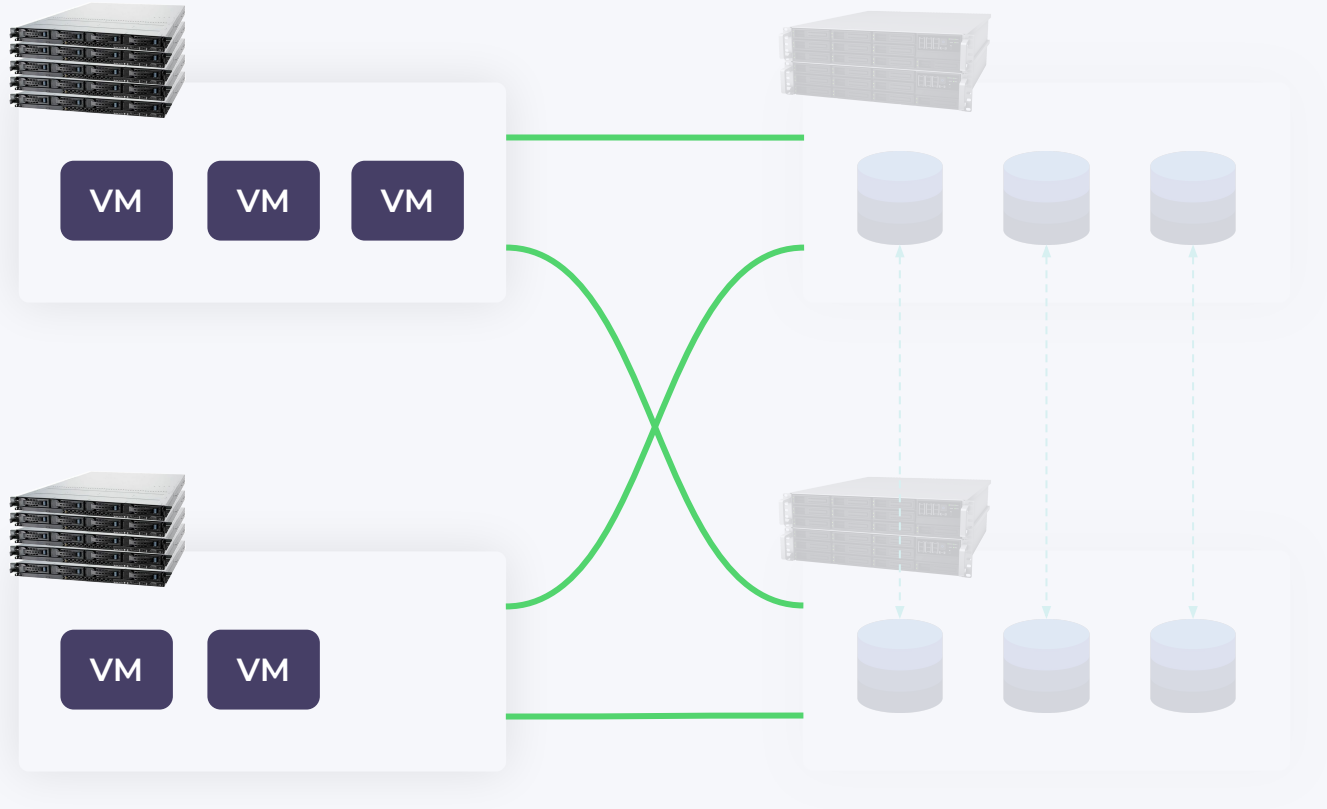


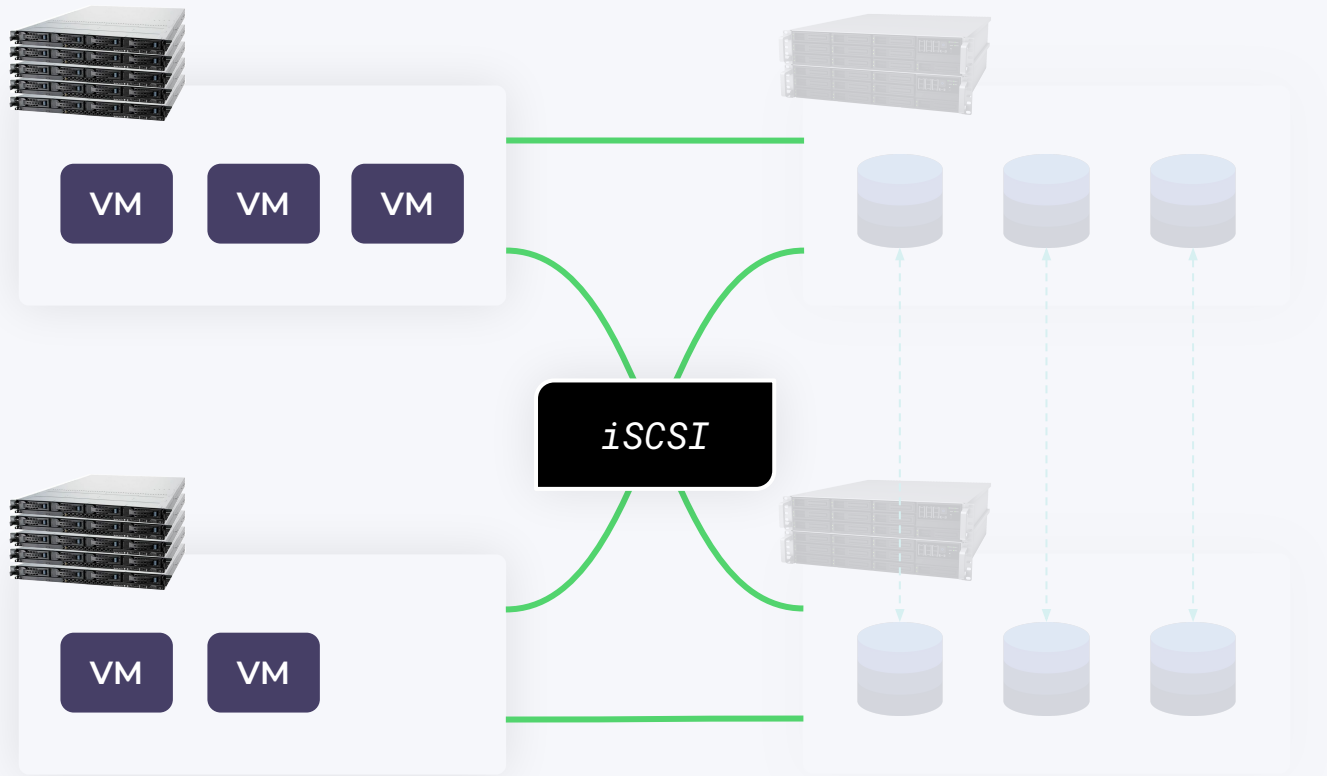


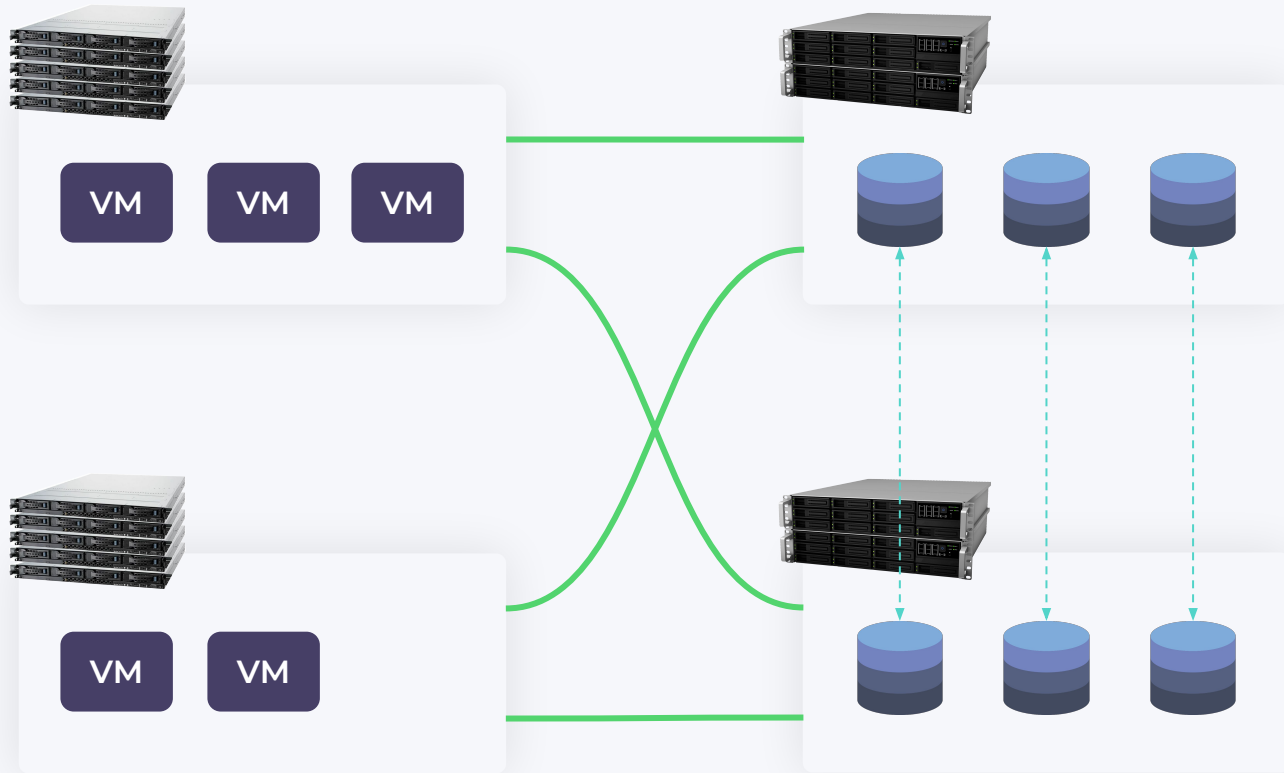


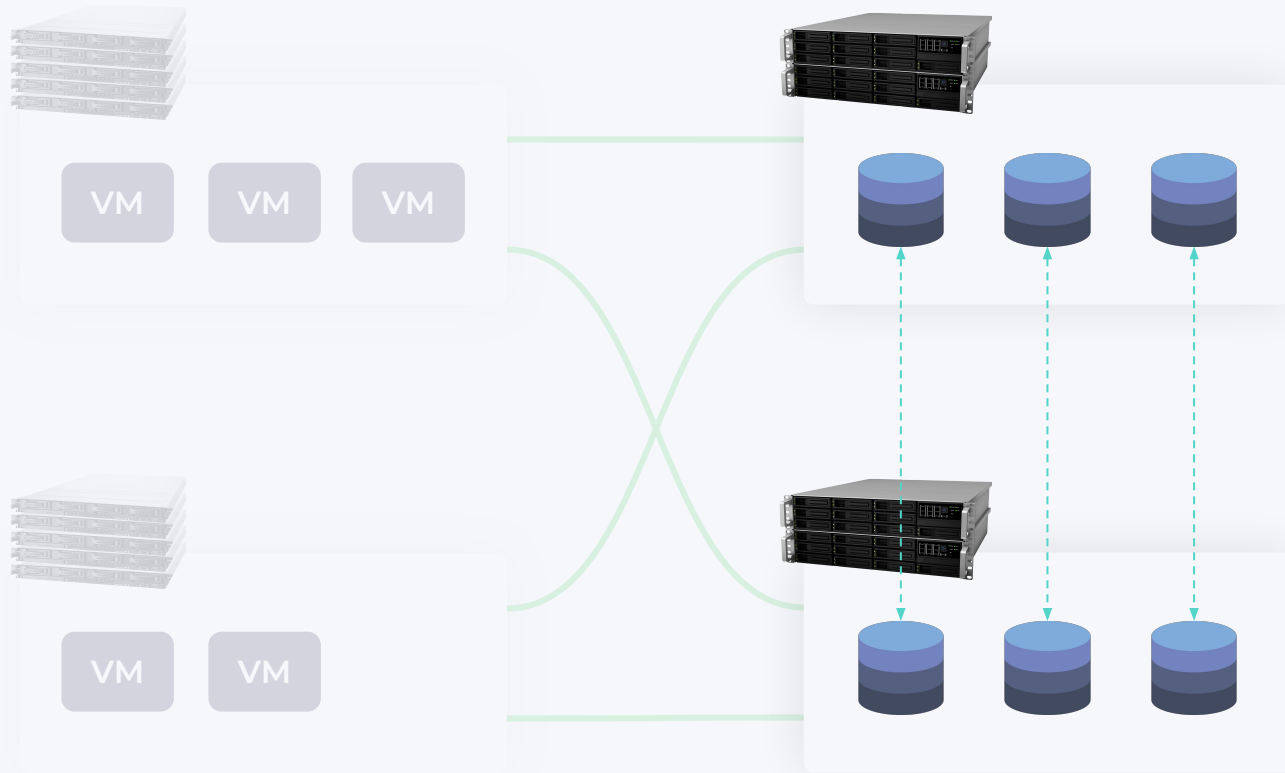


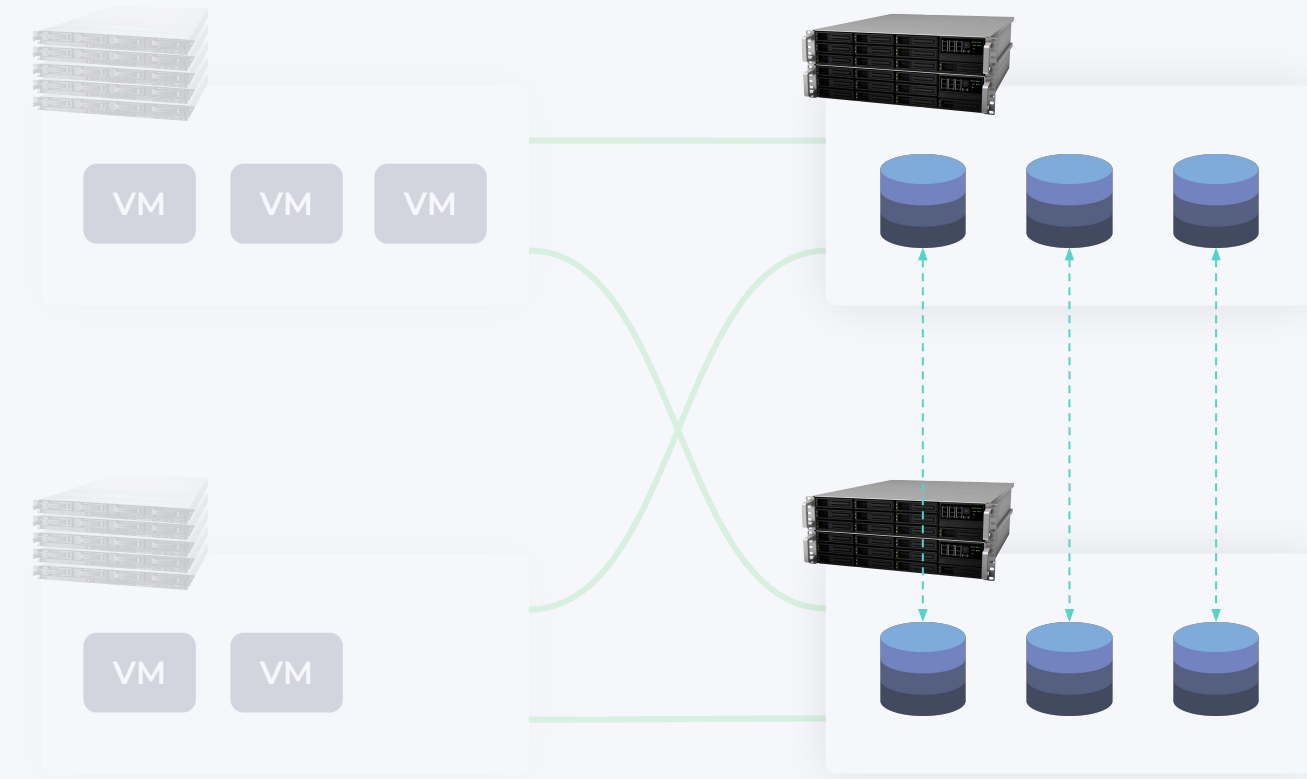


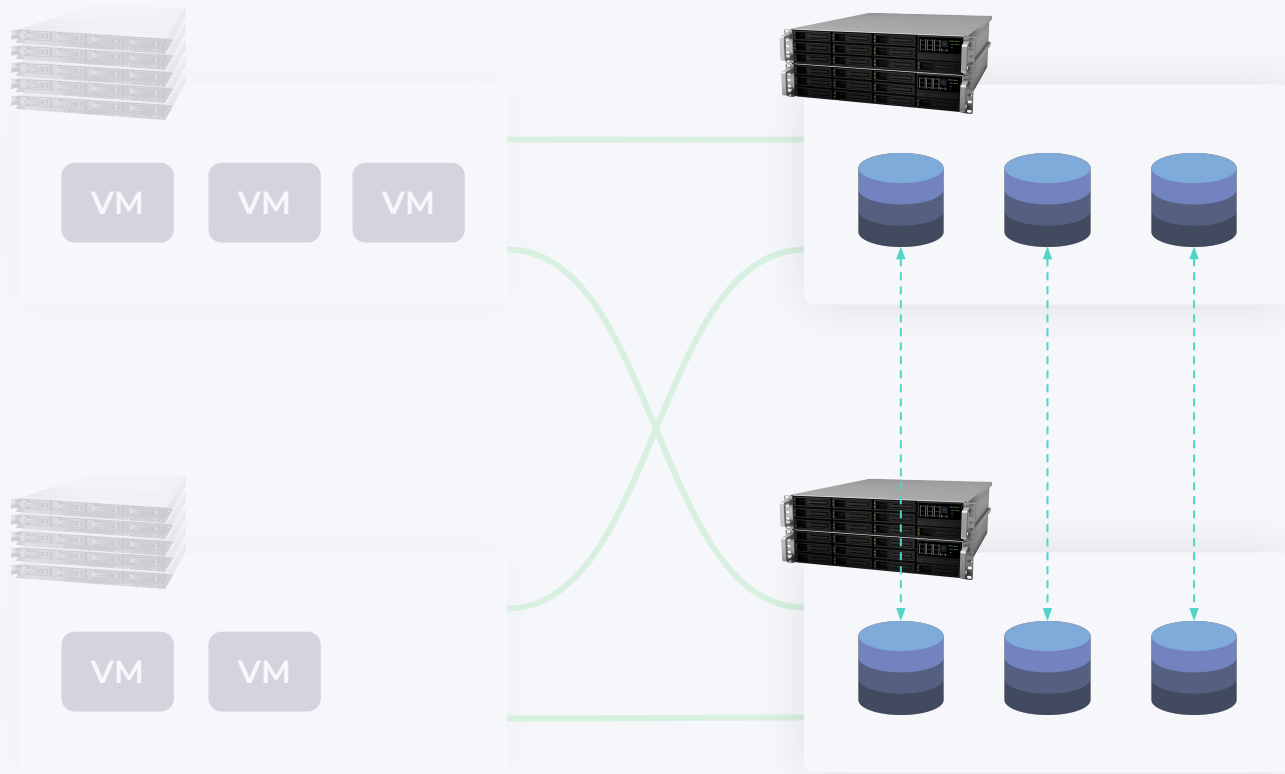


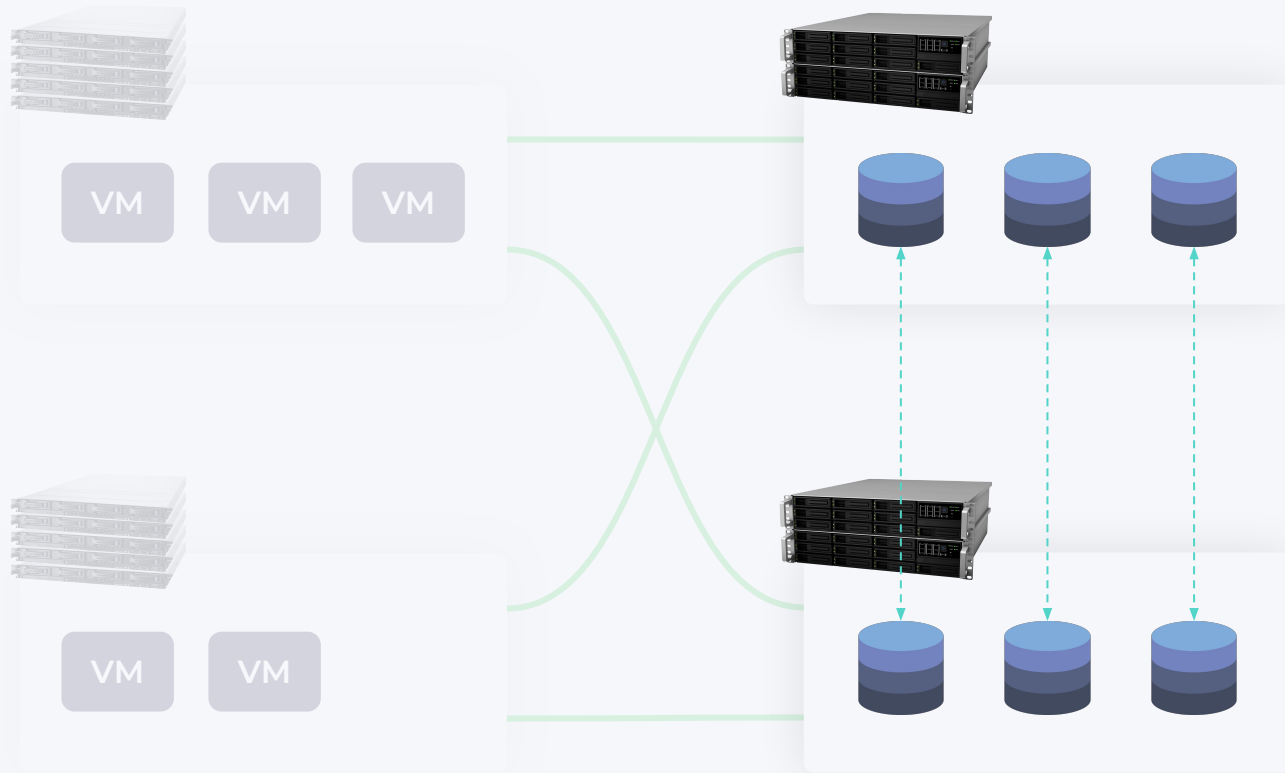




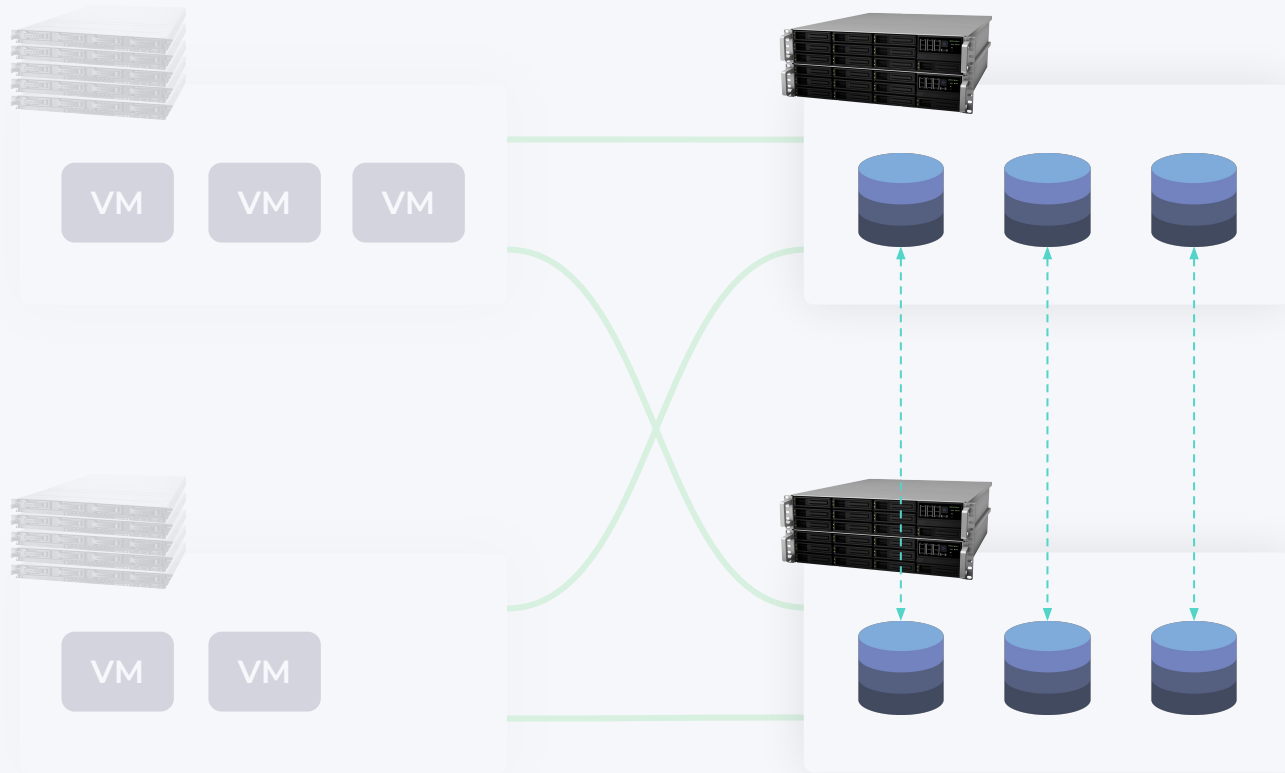


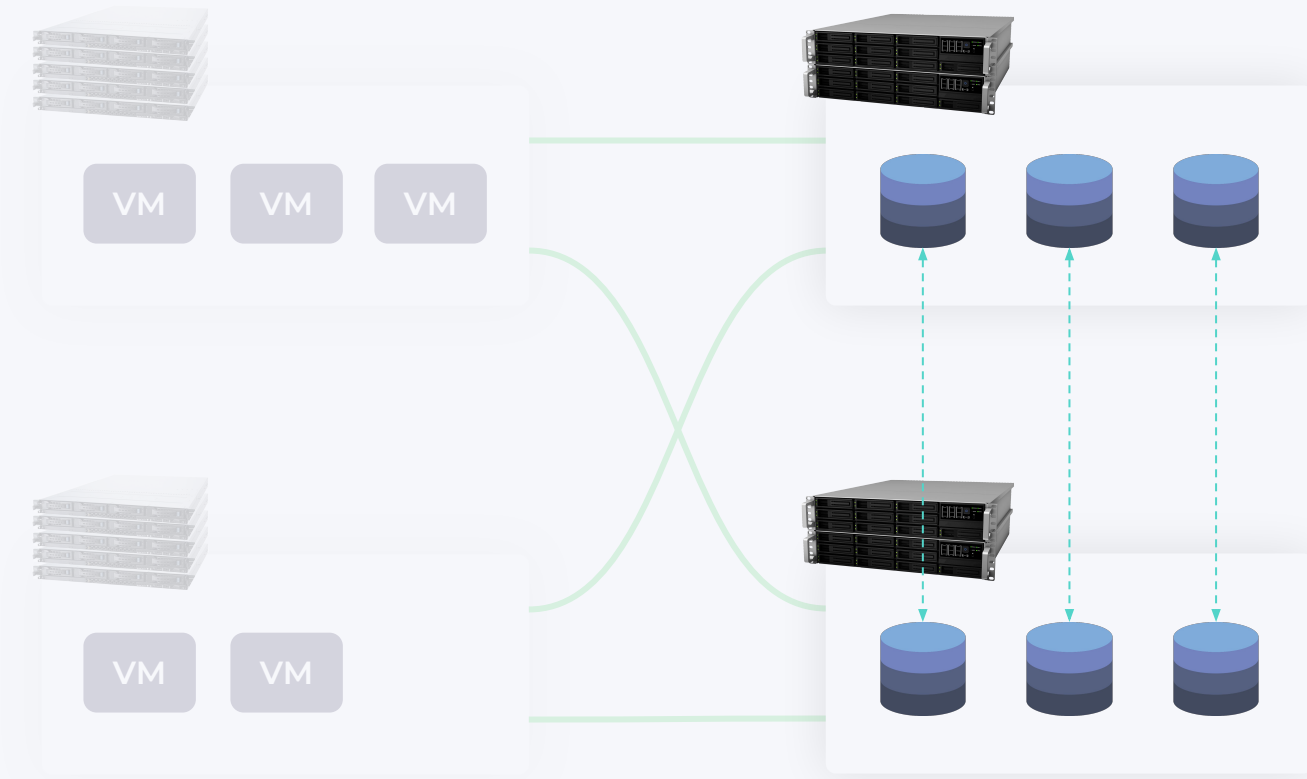


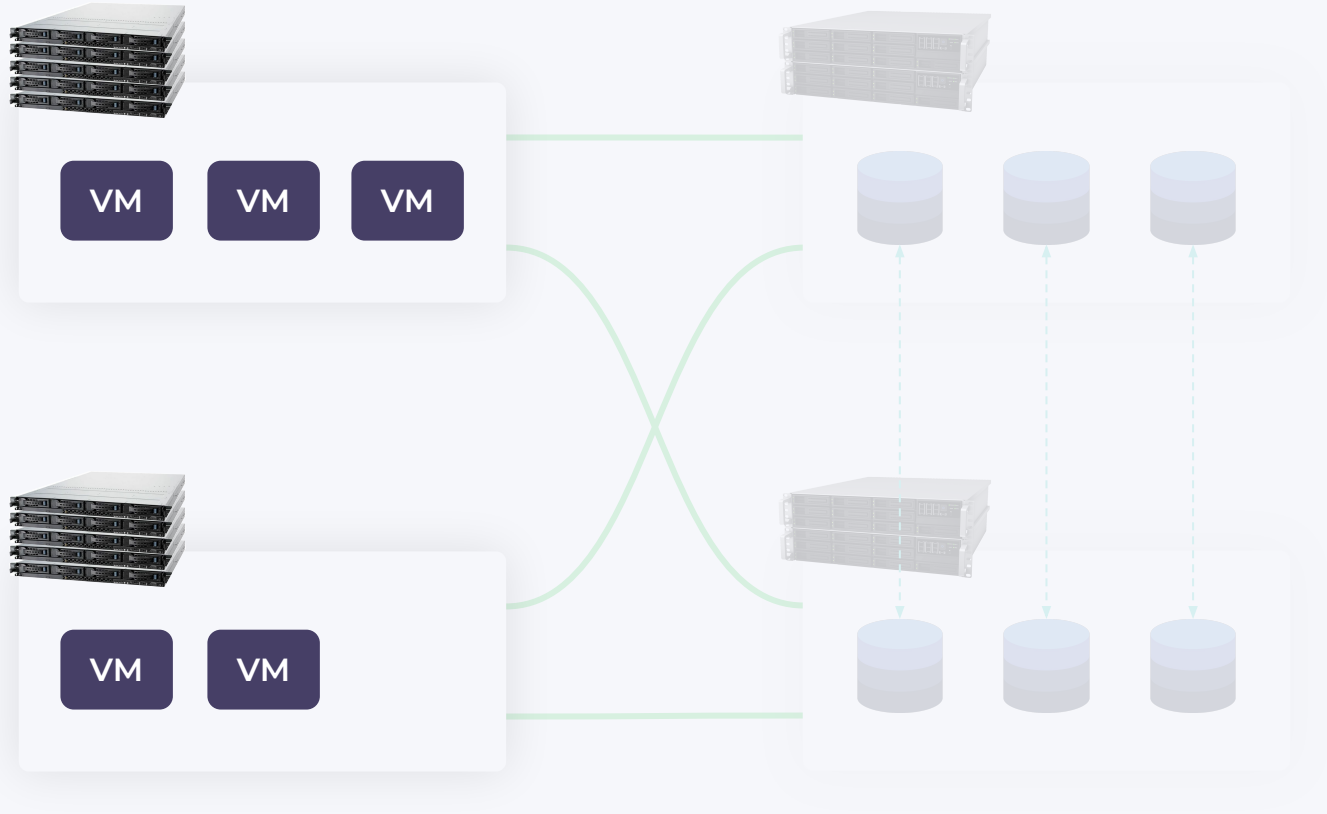


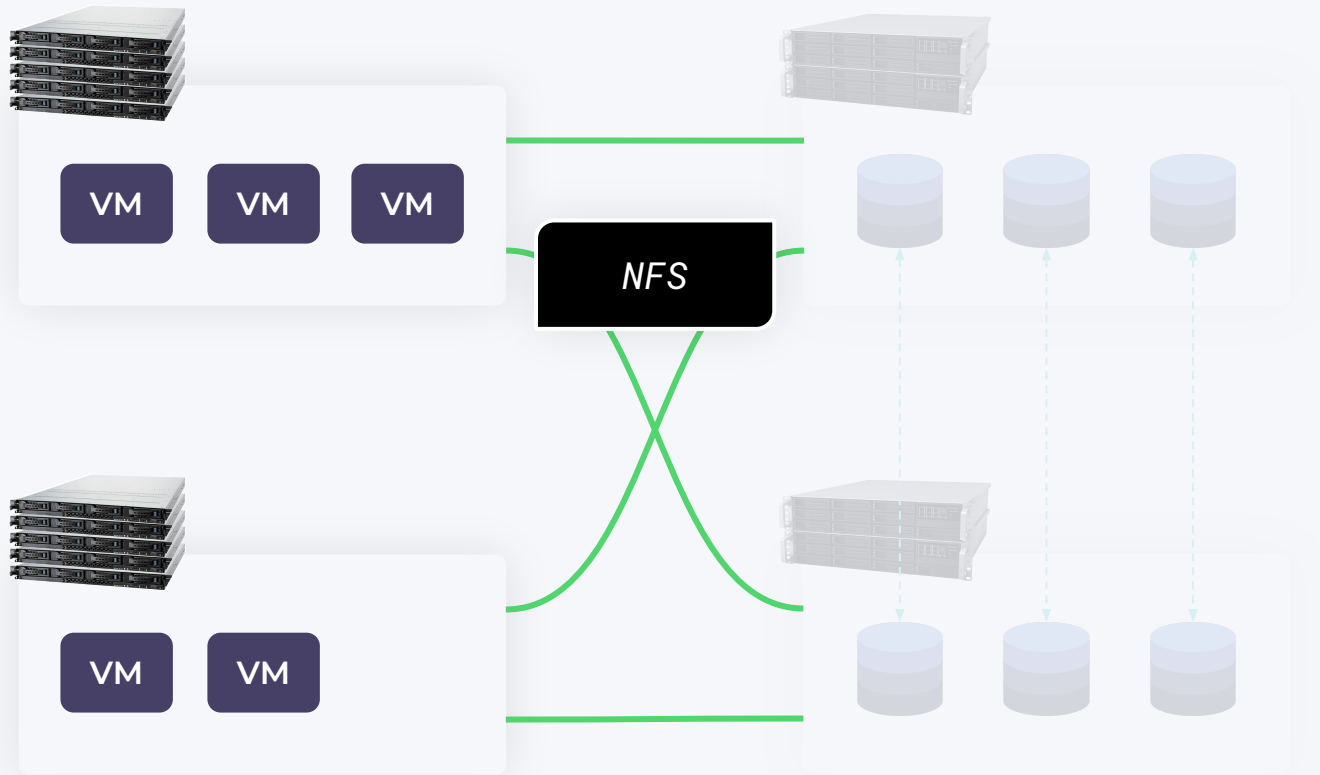


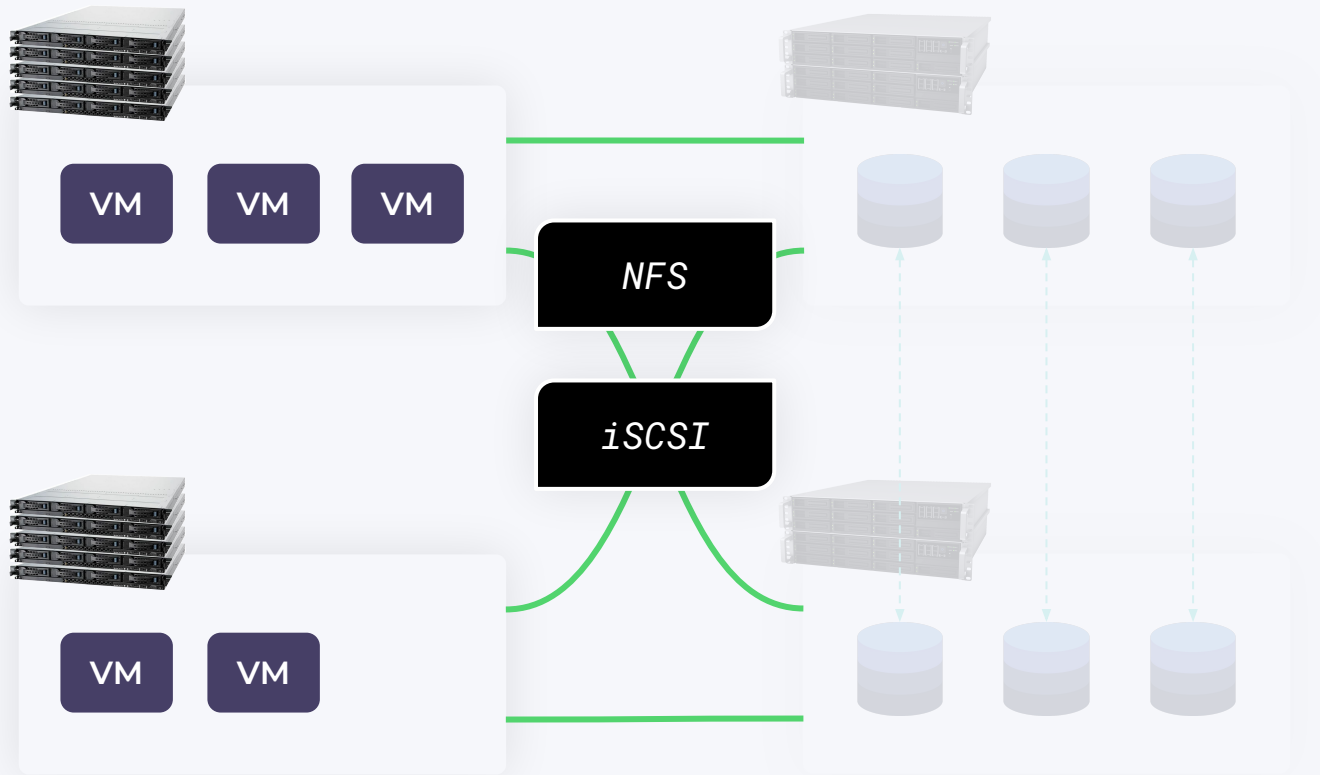
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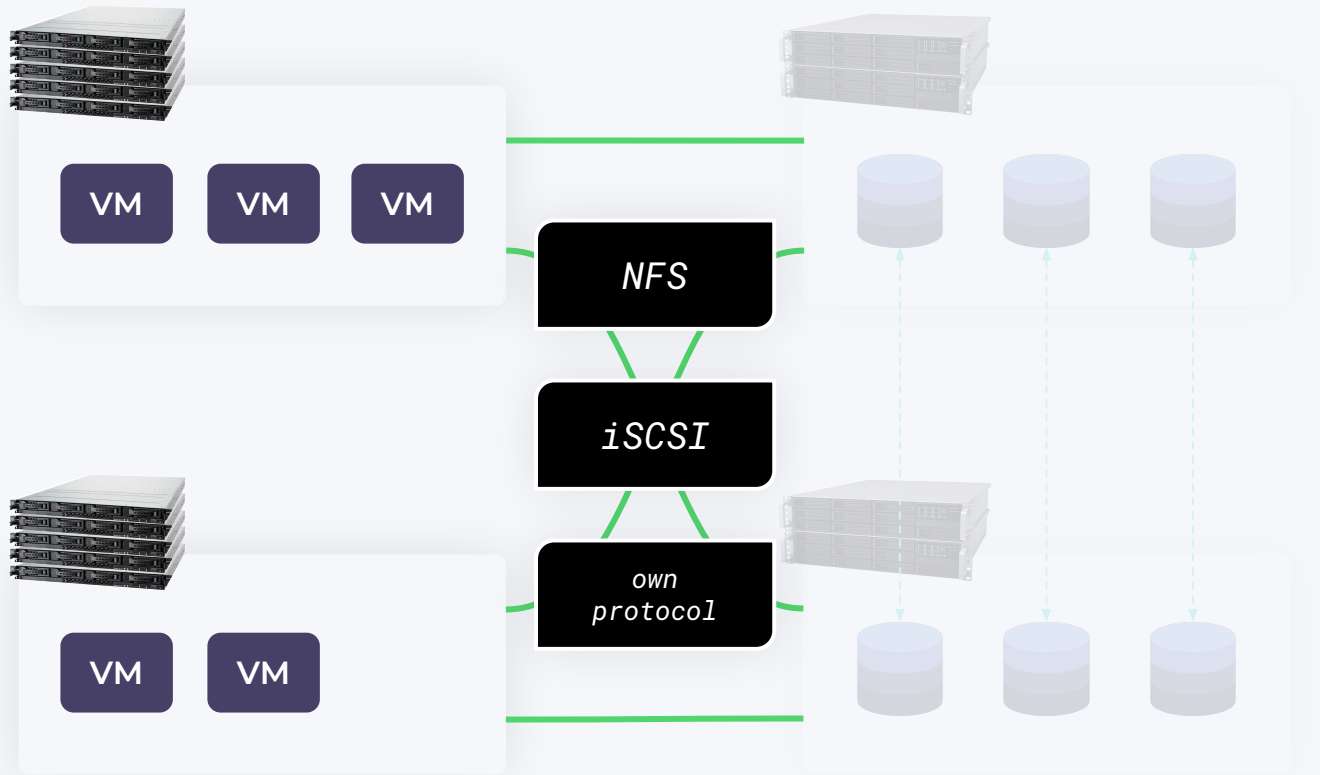


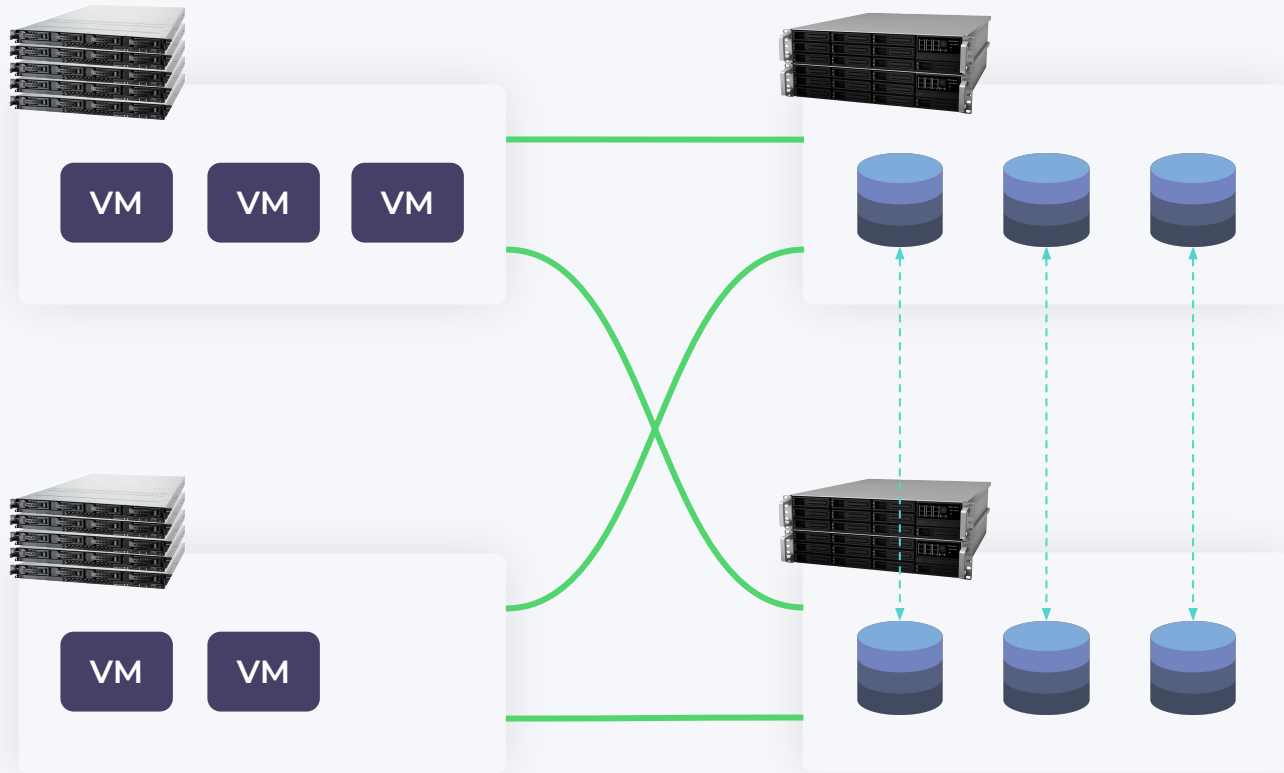


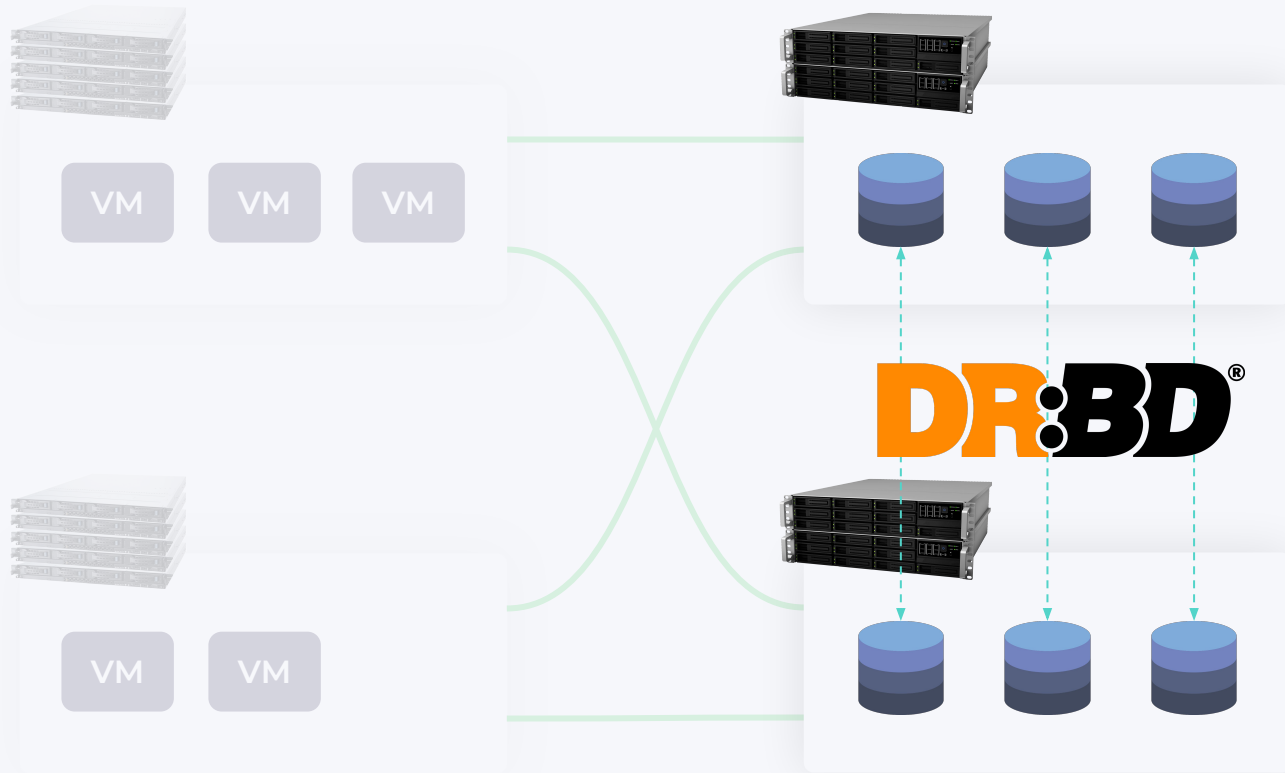


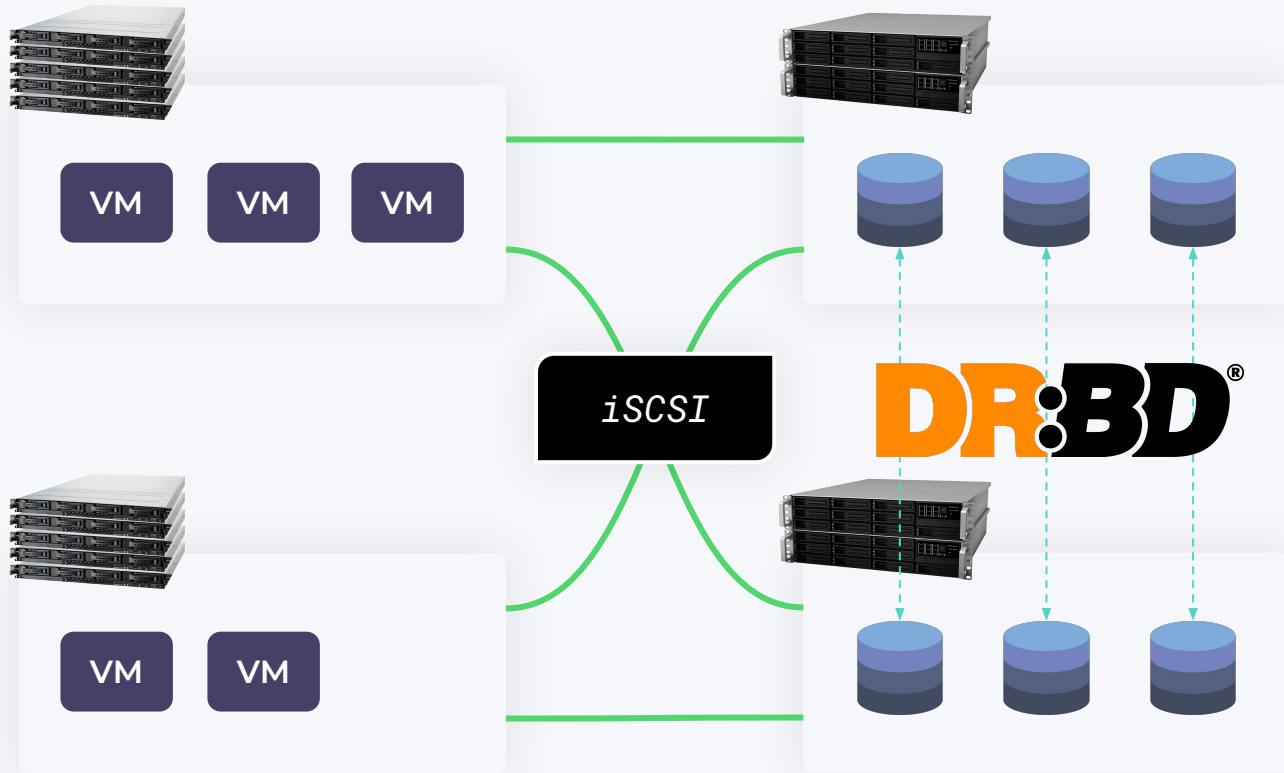












Storage 1

Storage 2

Storage 1



Storage 2



Storage 1

md0



Storage 2

md0



Storage 1

DRBD

secondary

md0



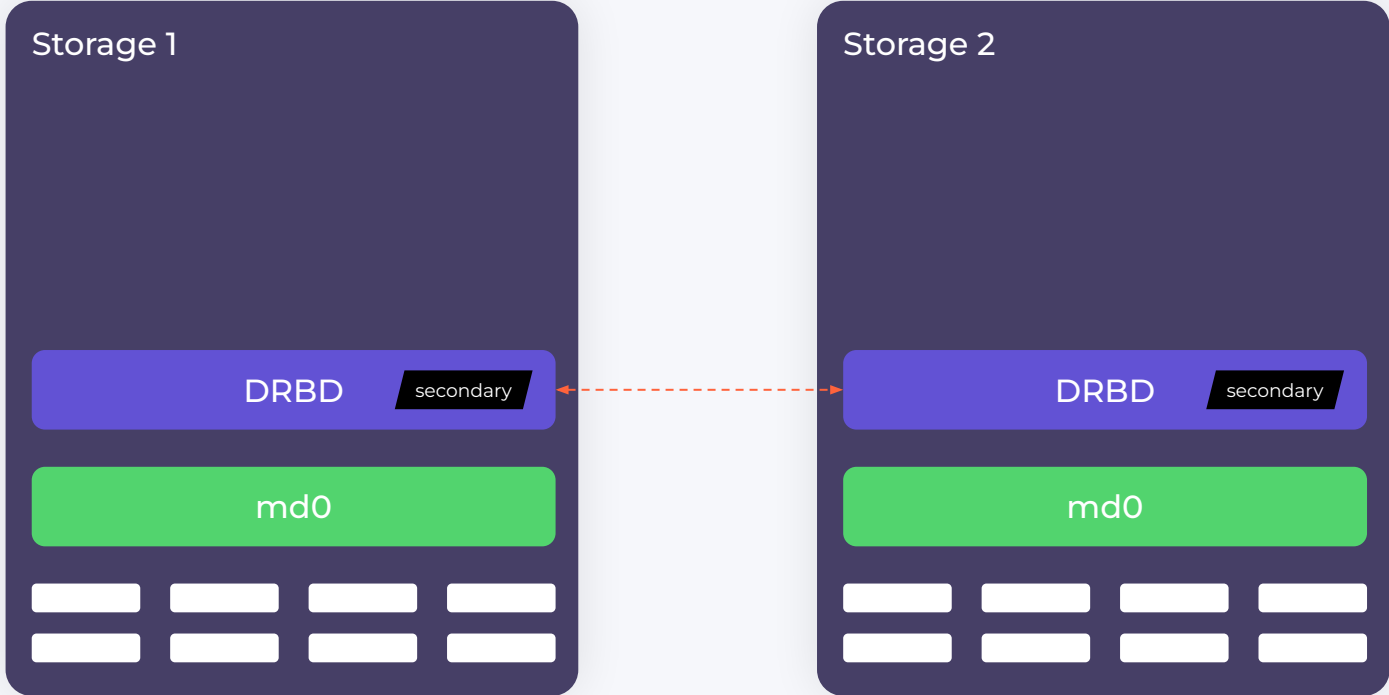
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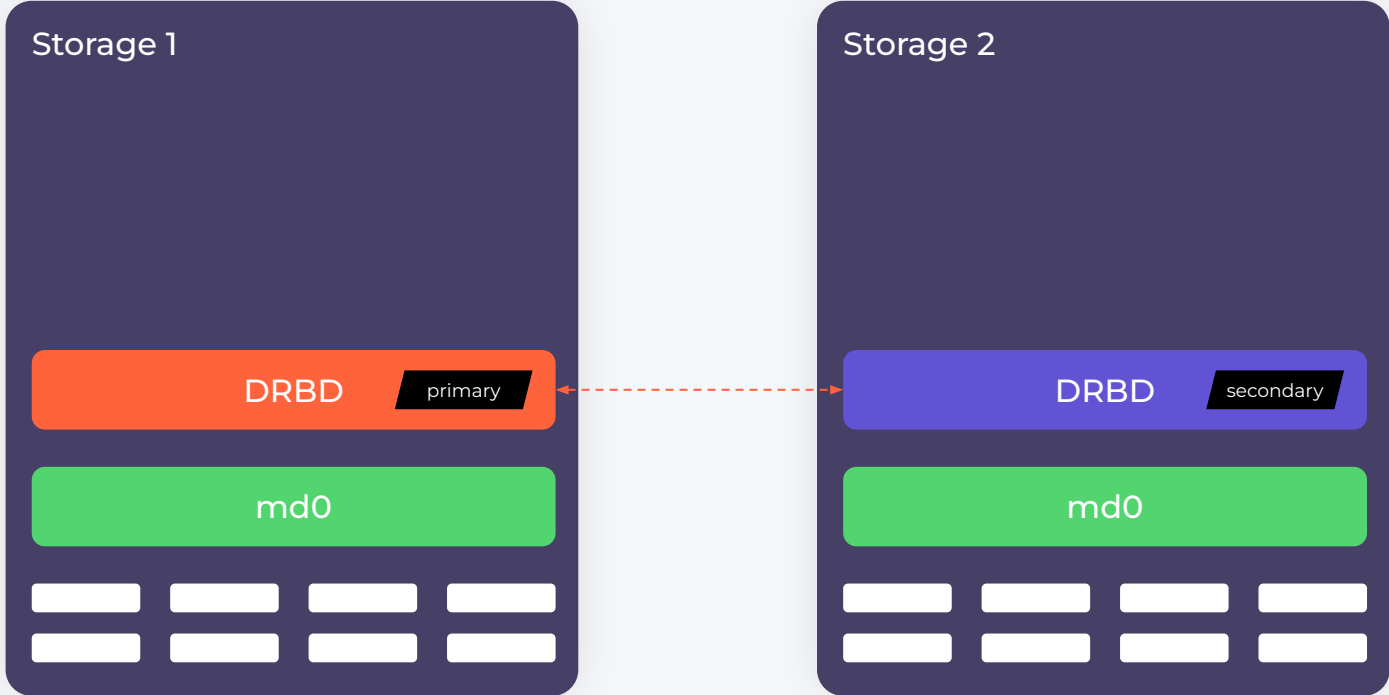
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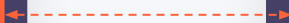
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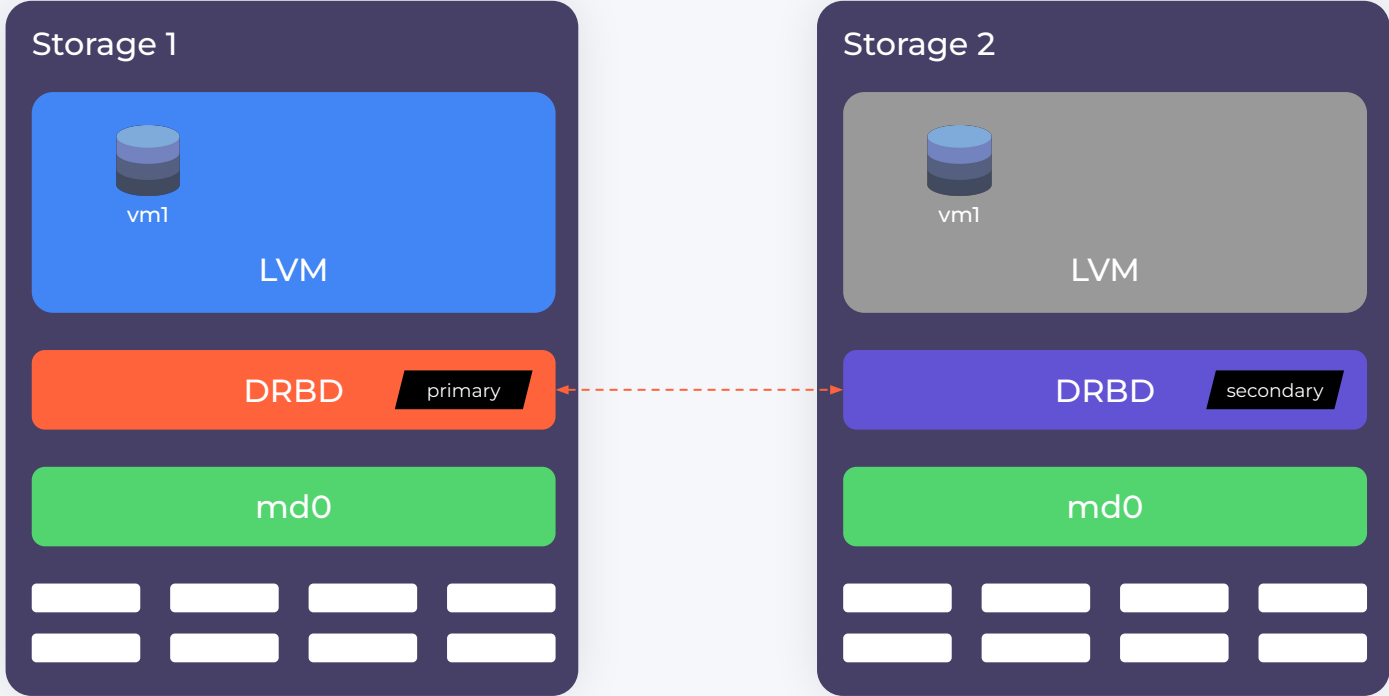
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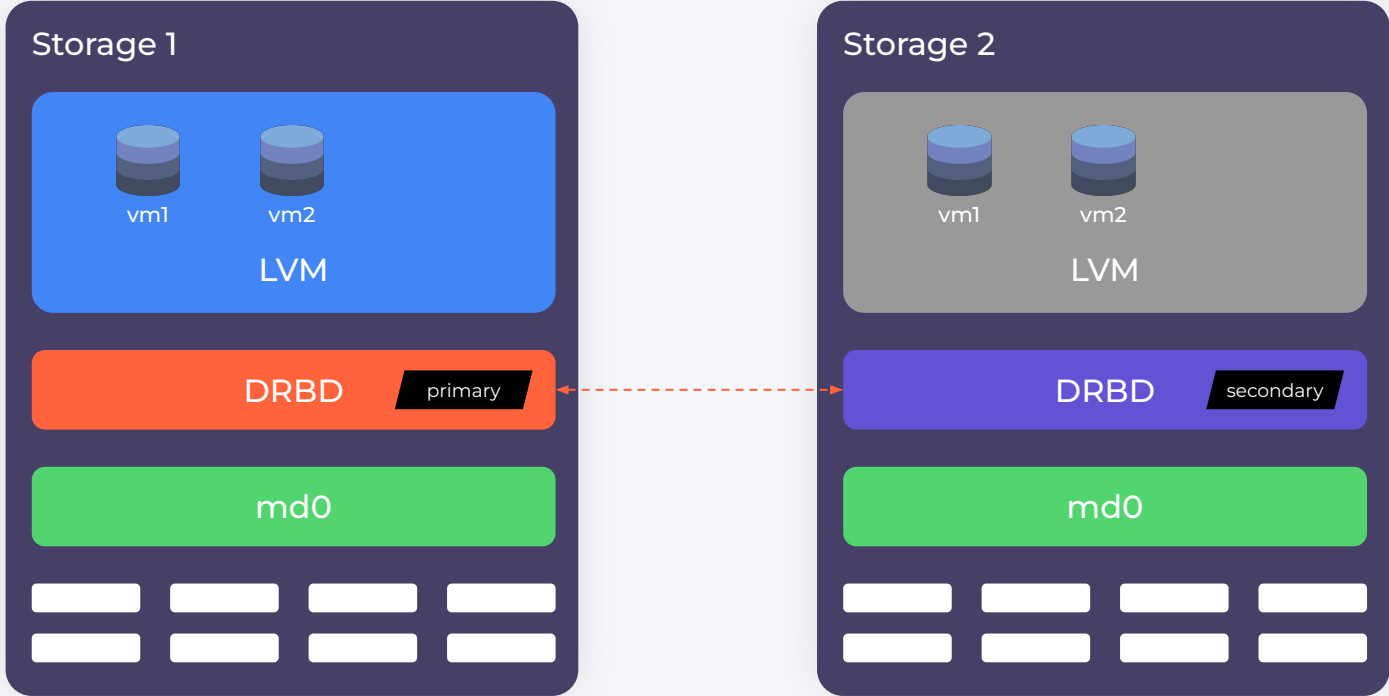


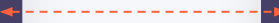


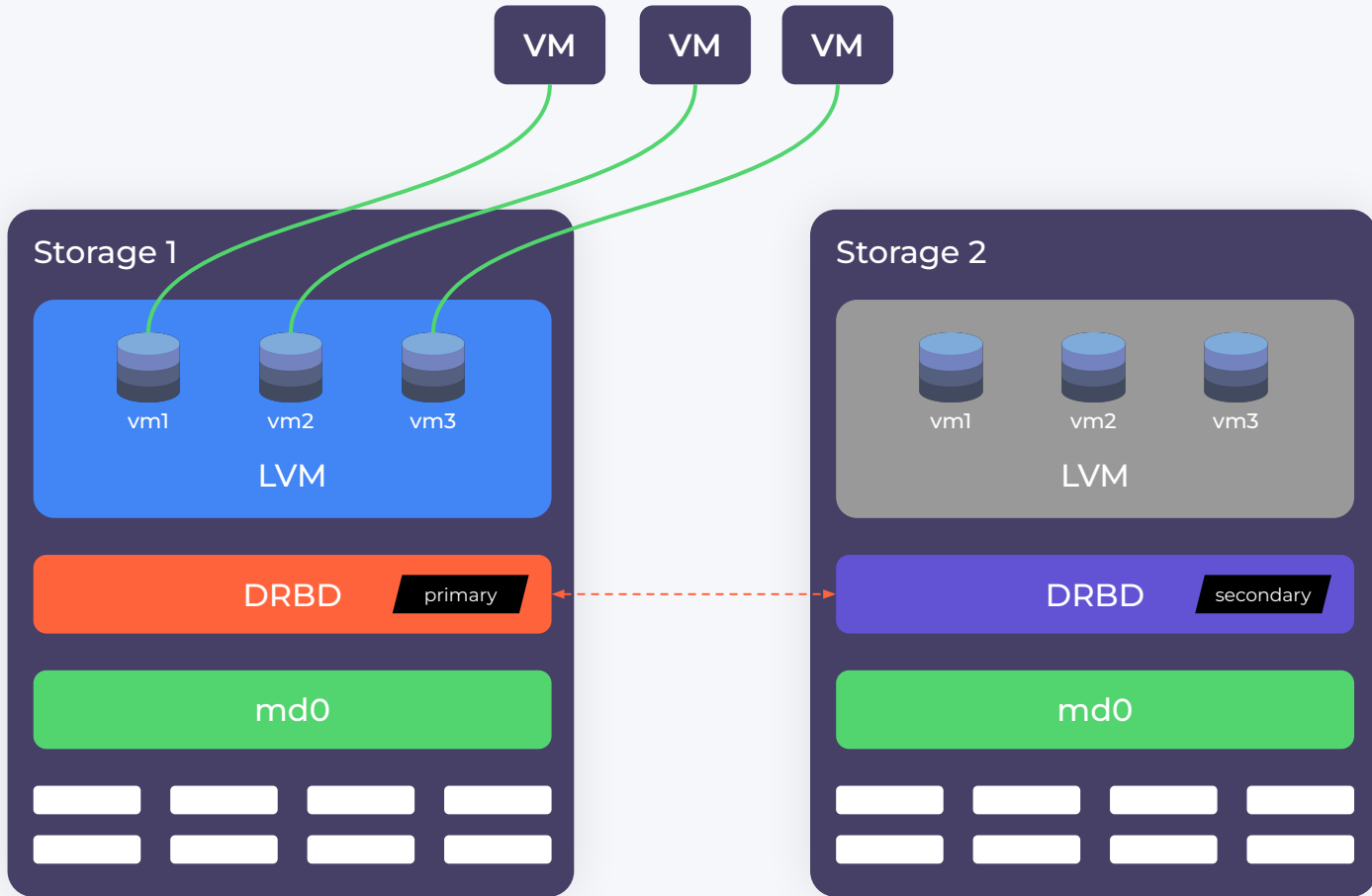


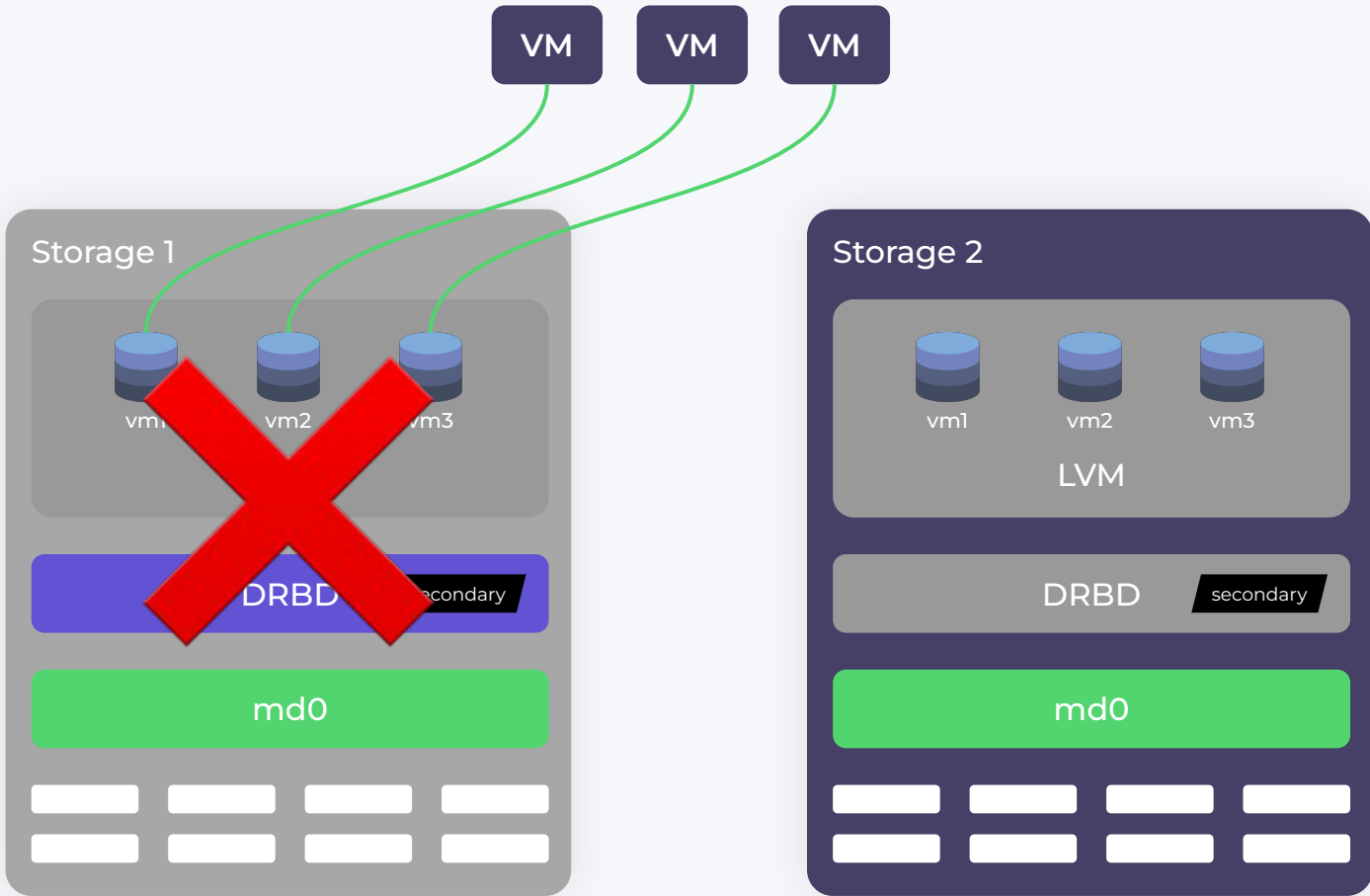


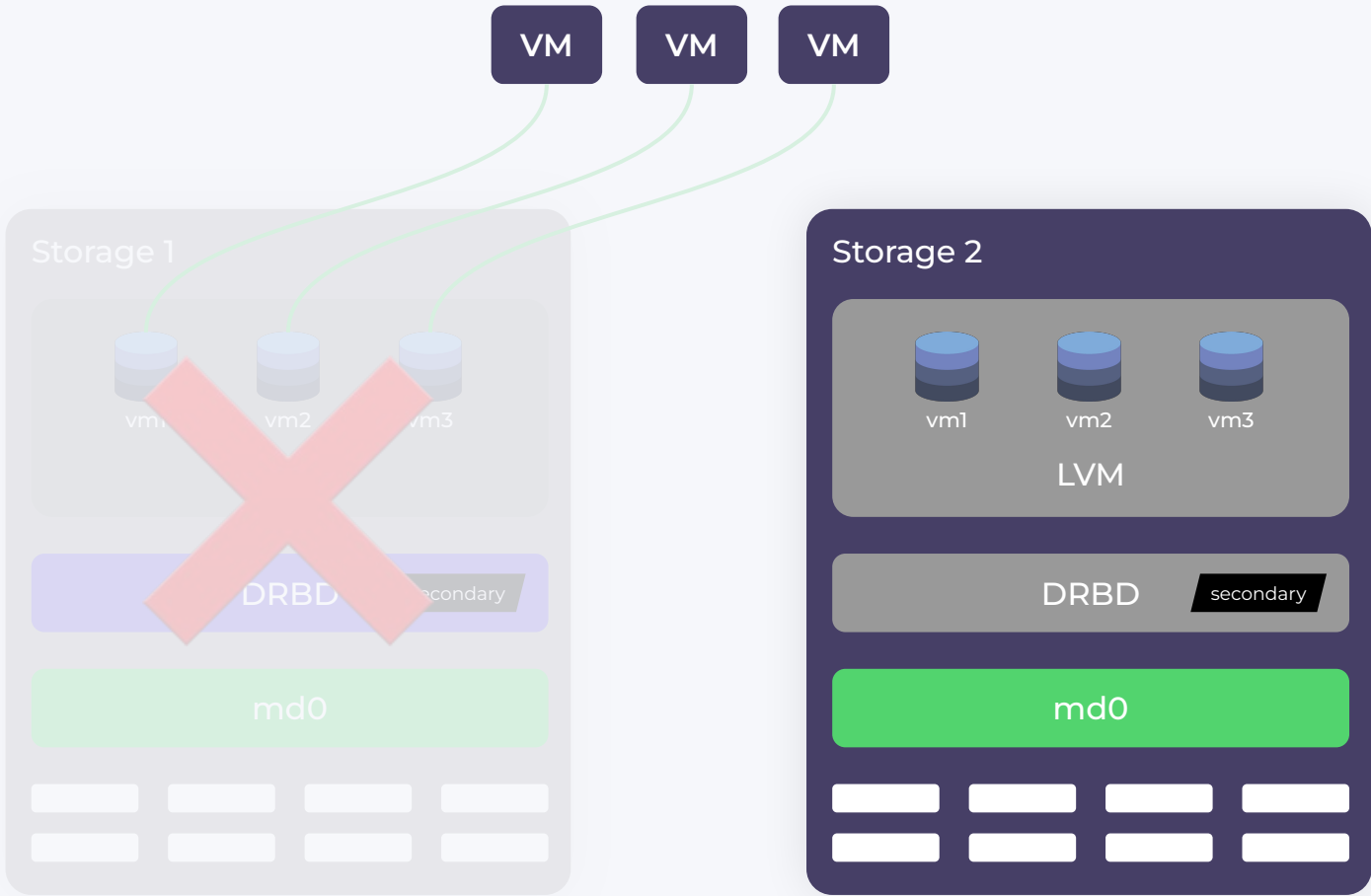


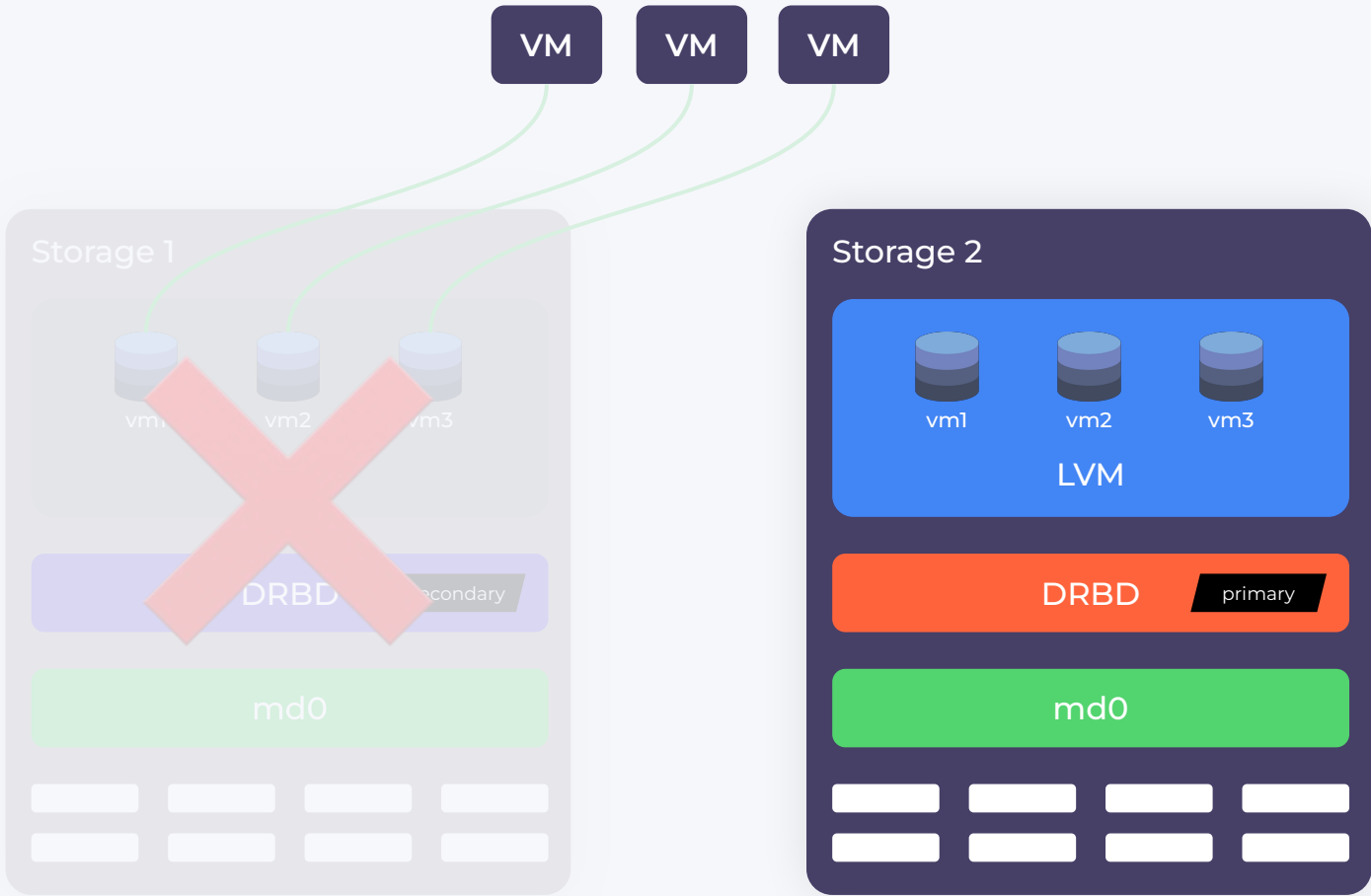


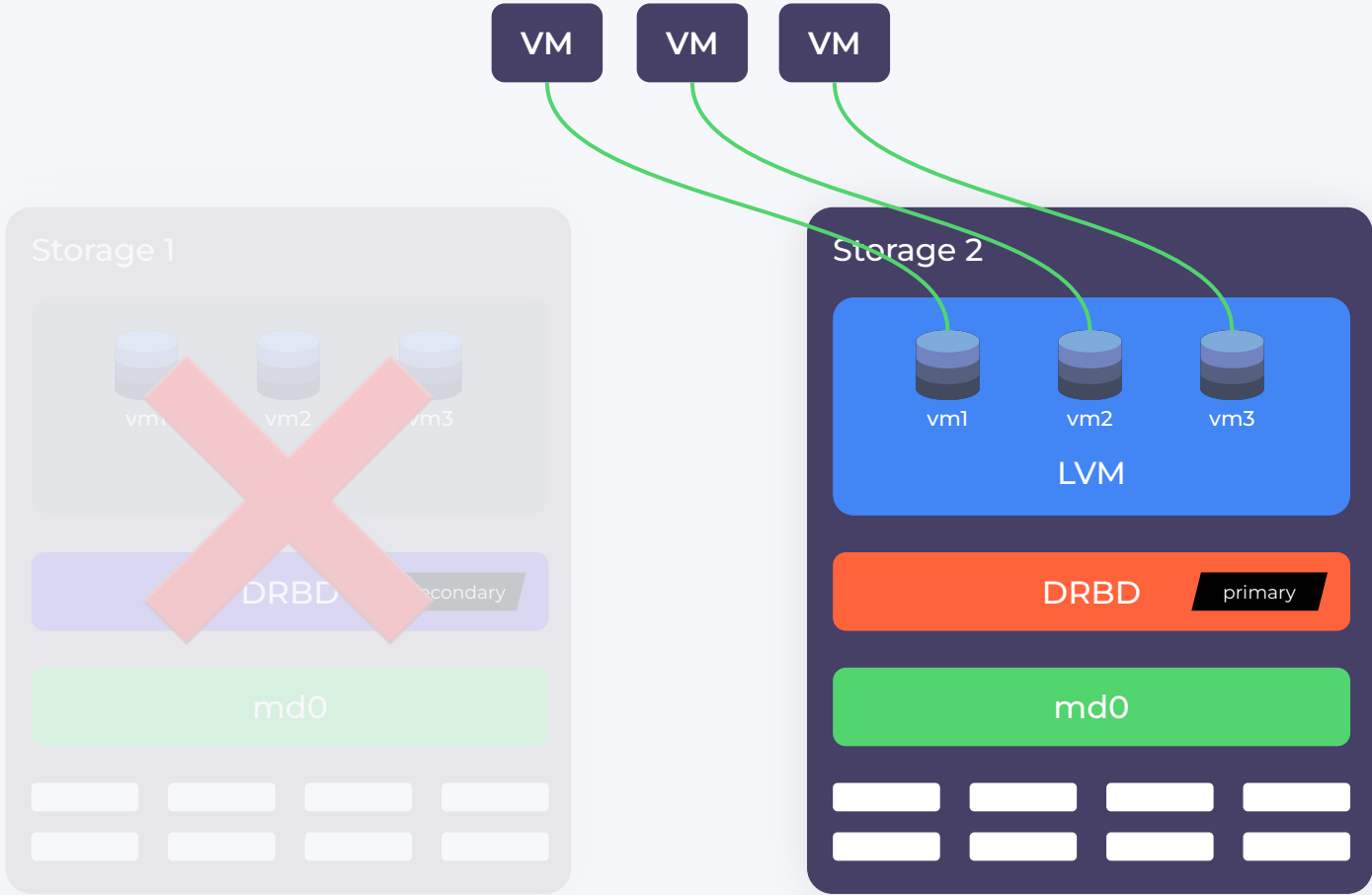


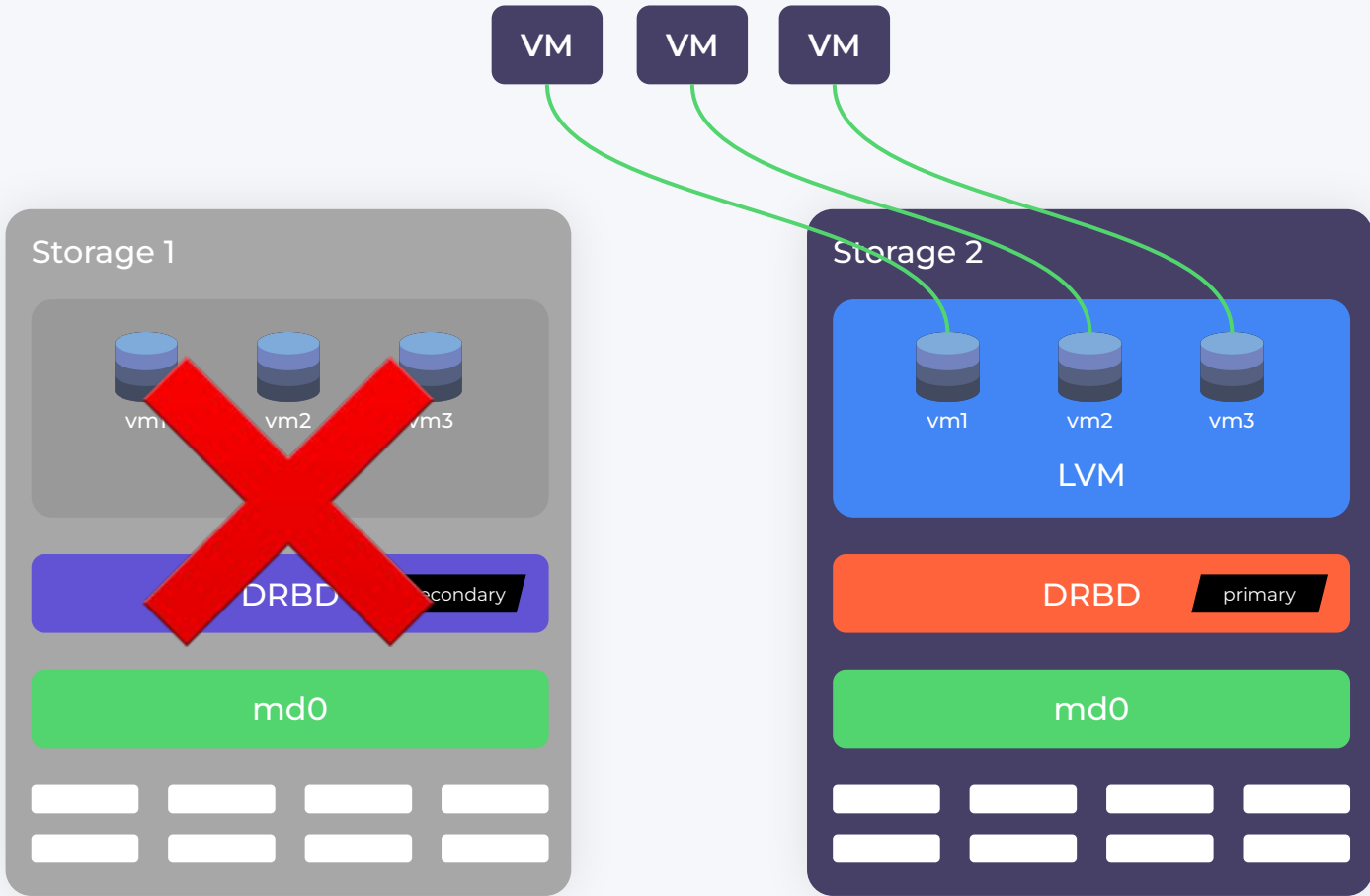


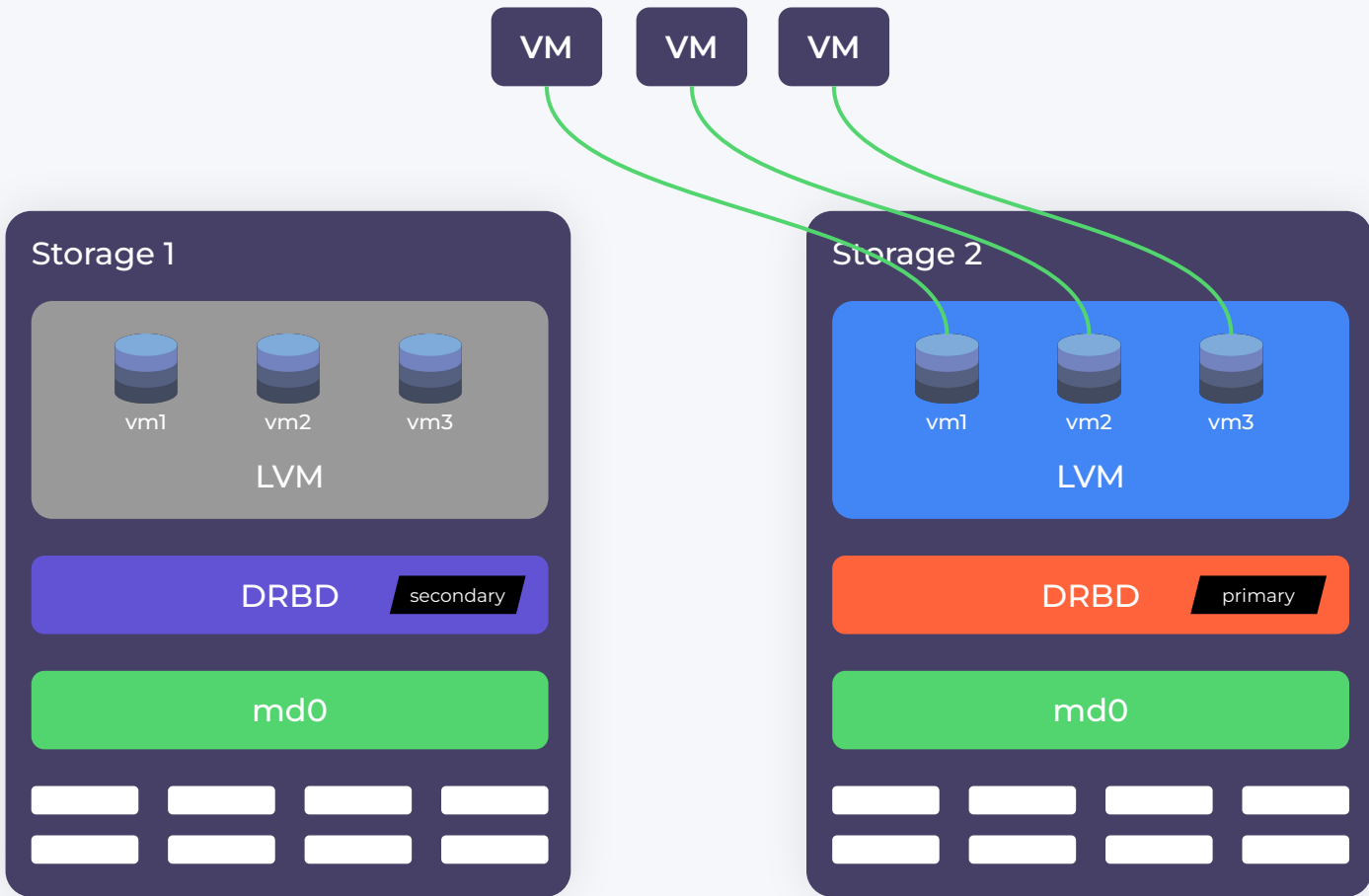


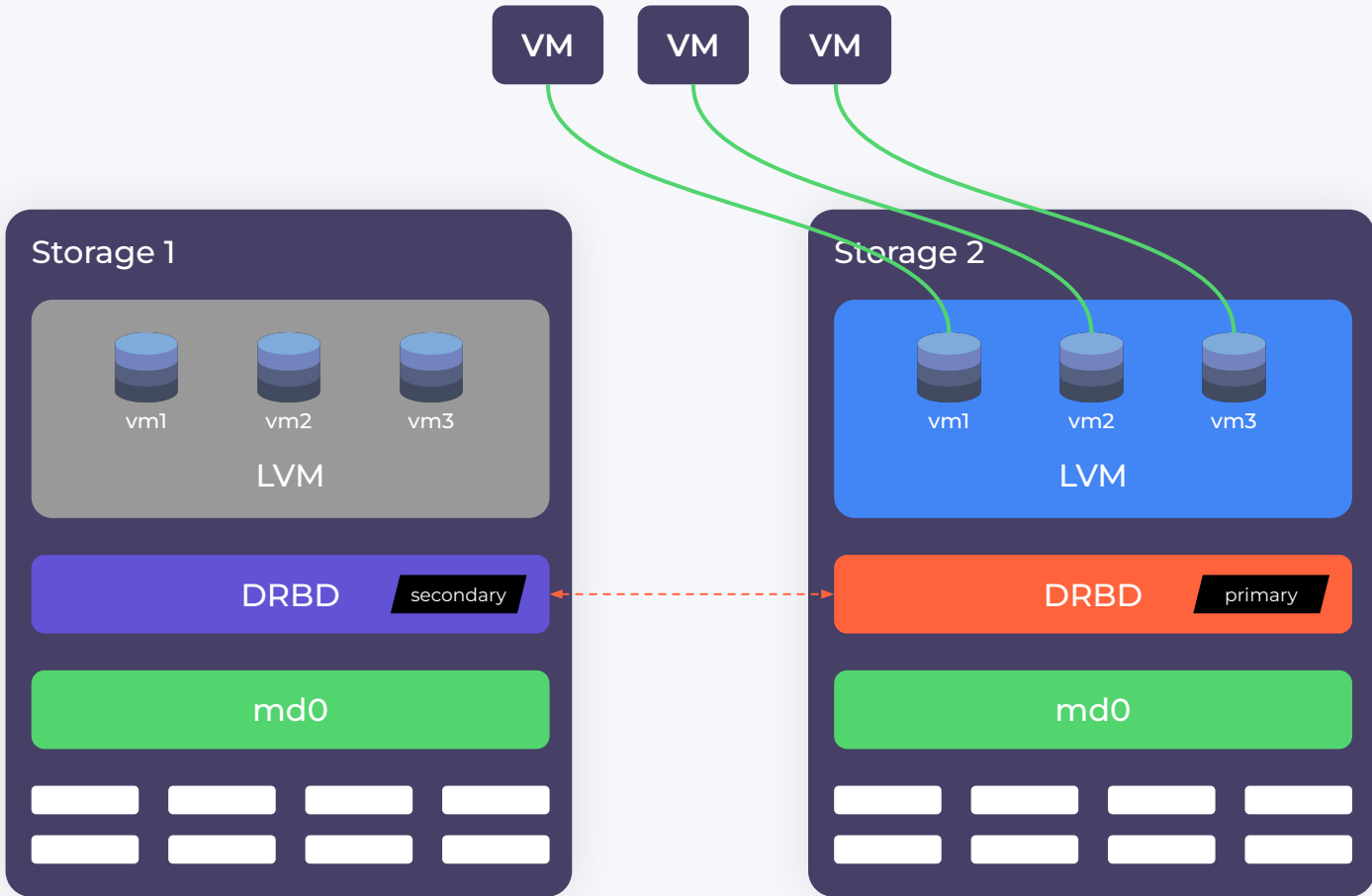


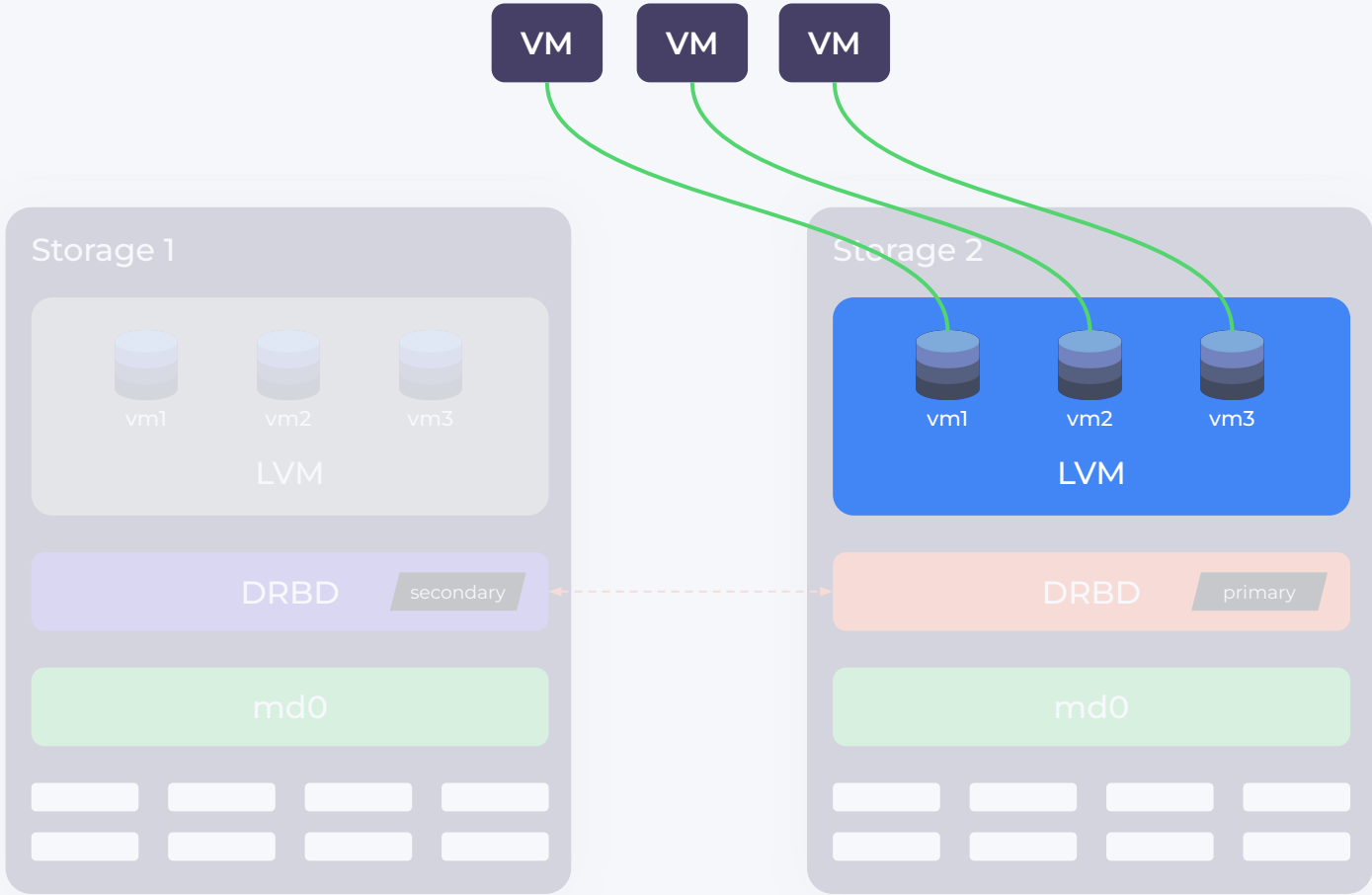


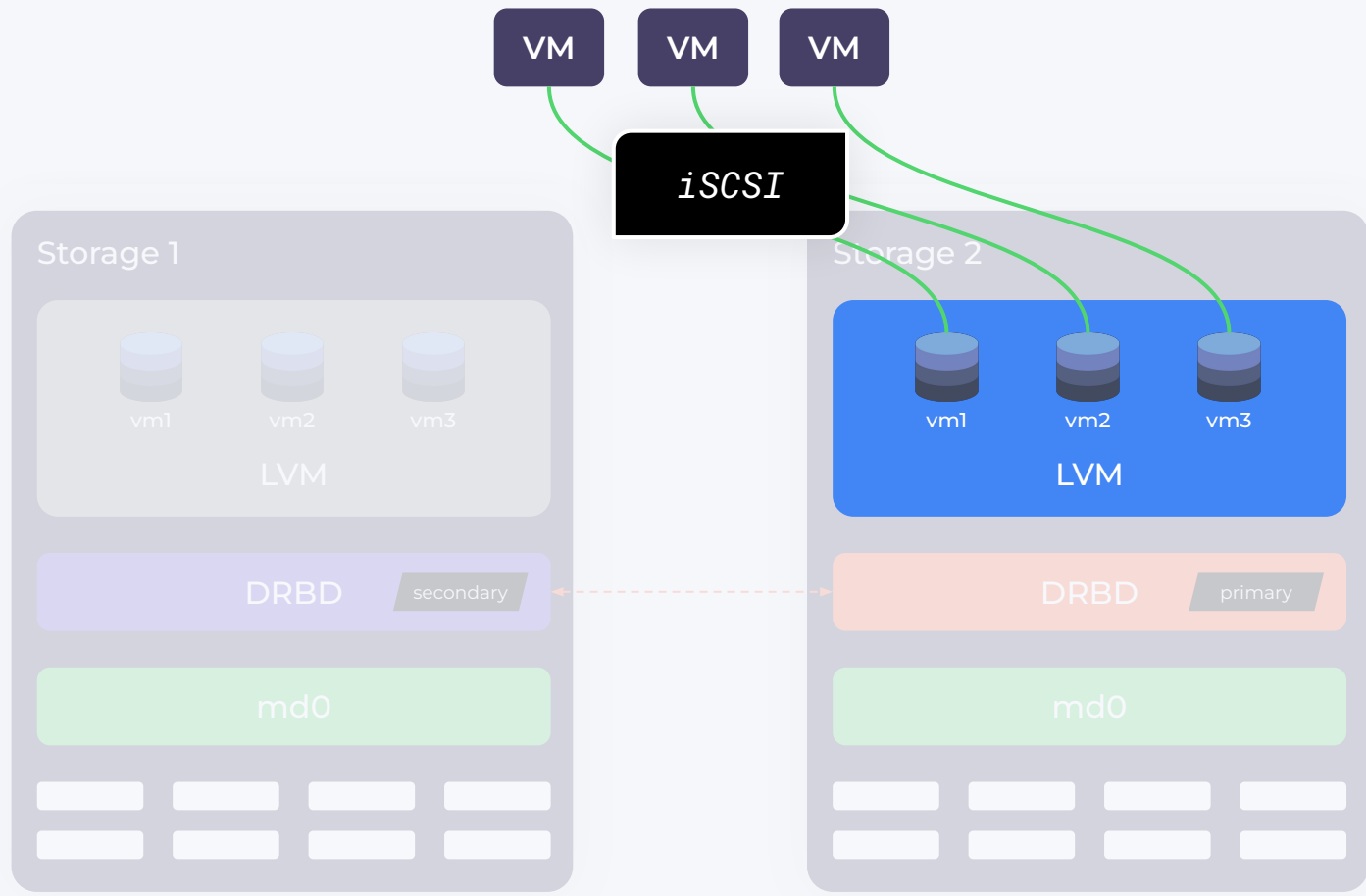


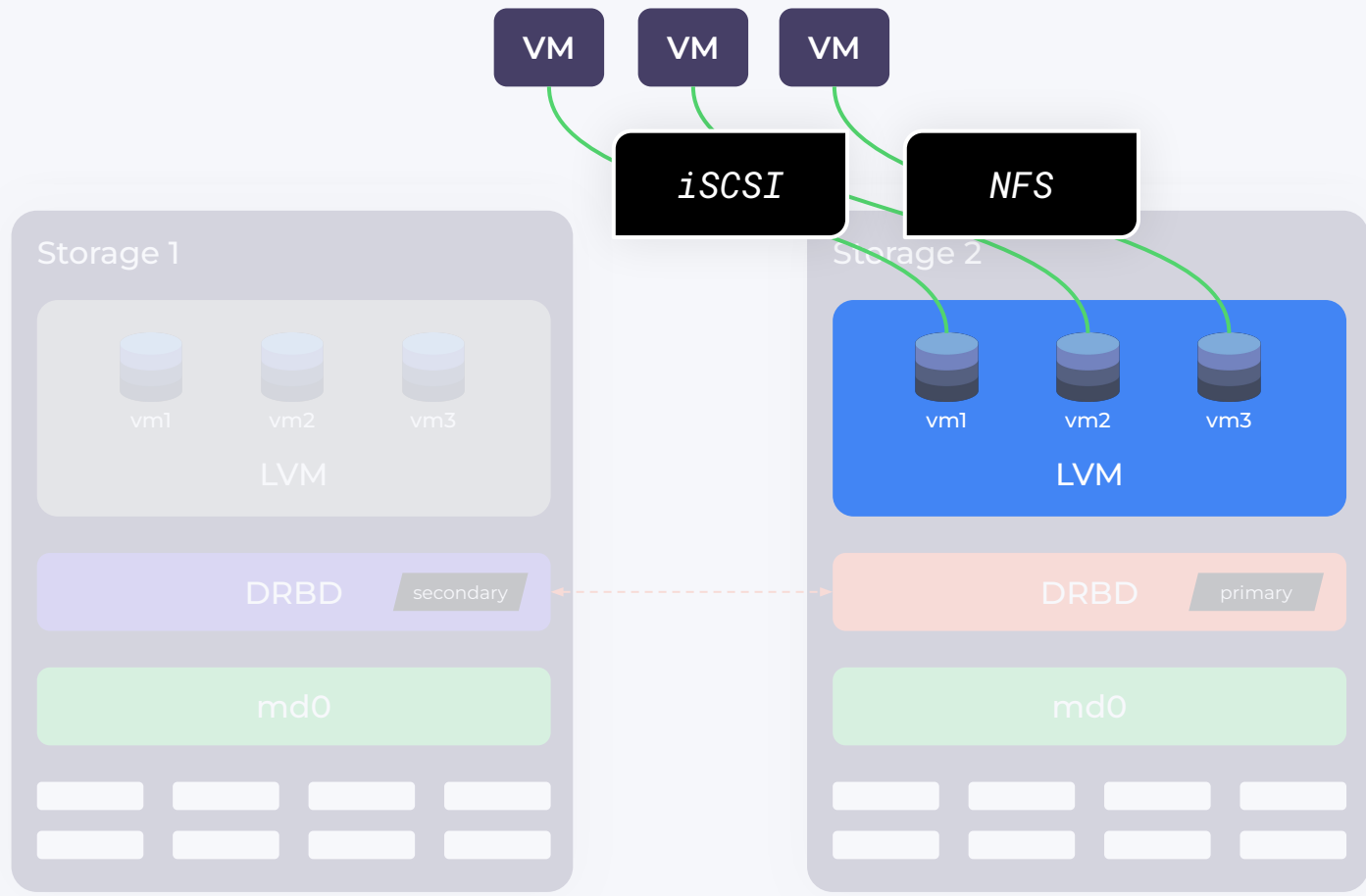


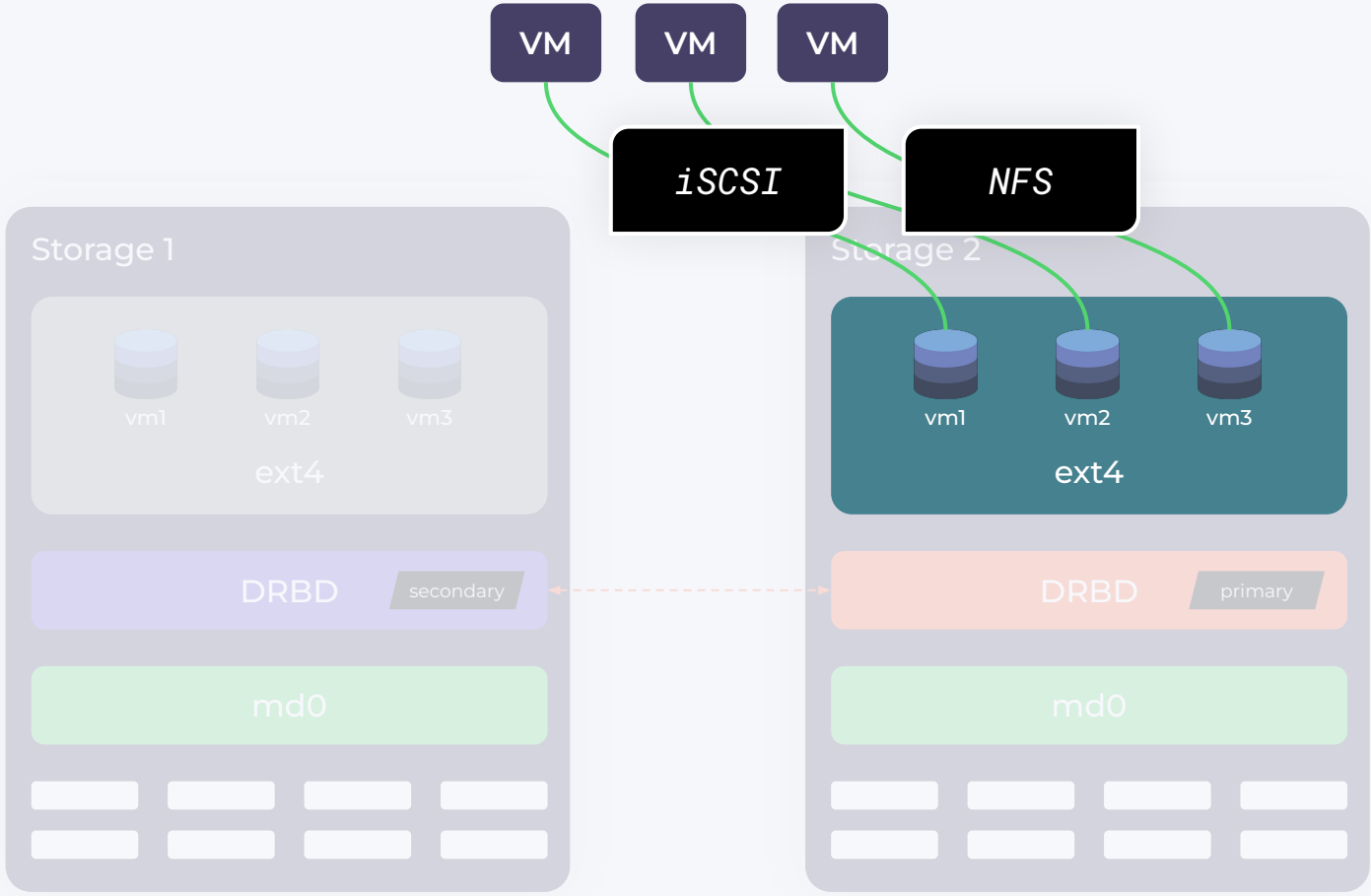


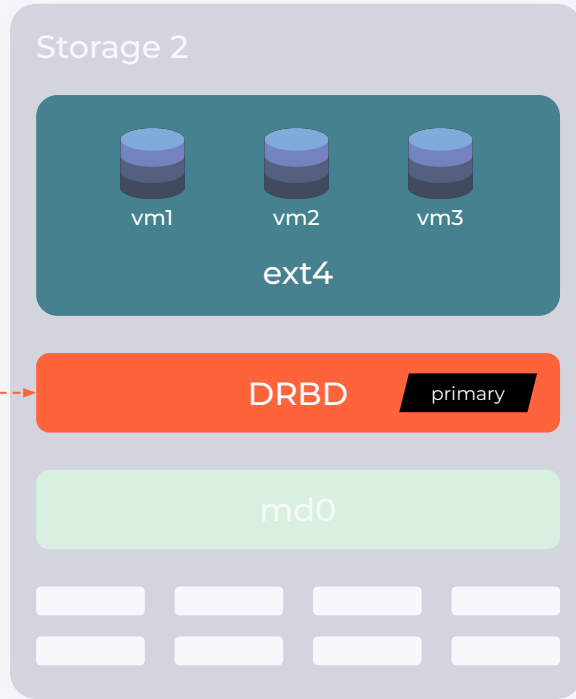
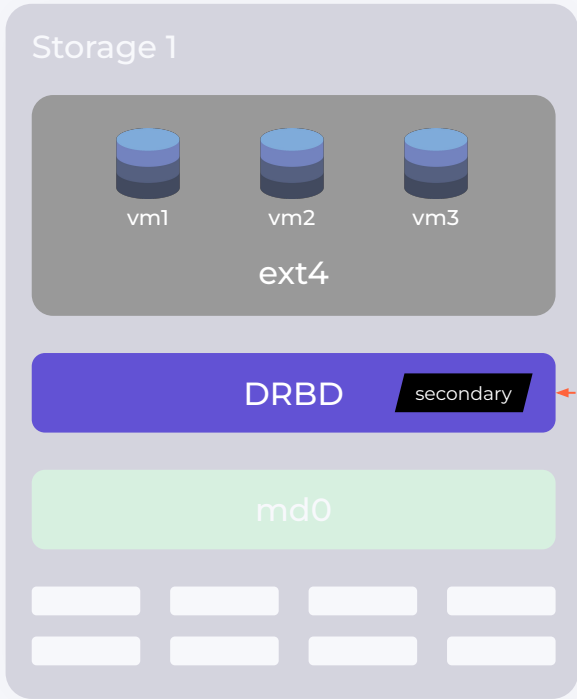


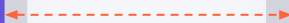
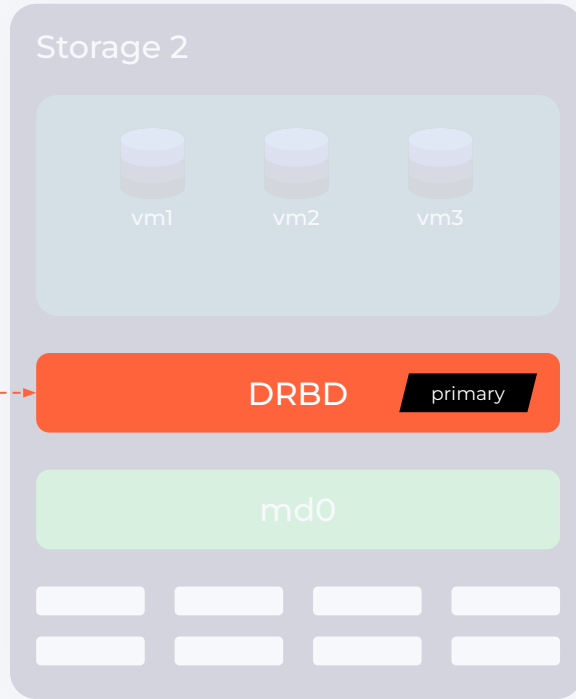




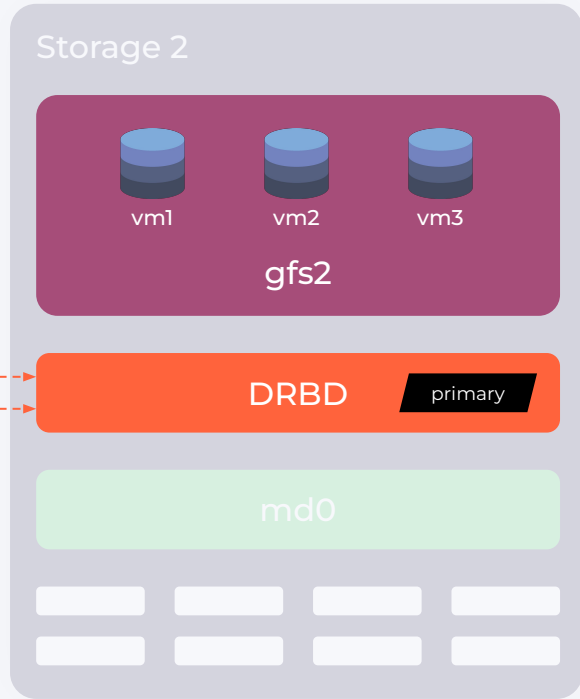
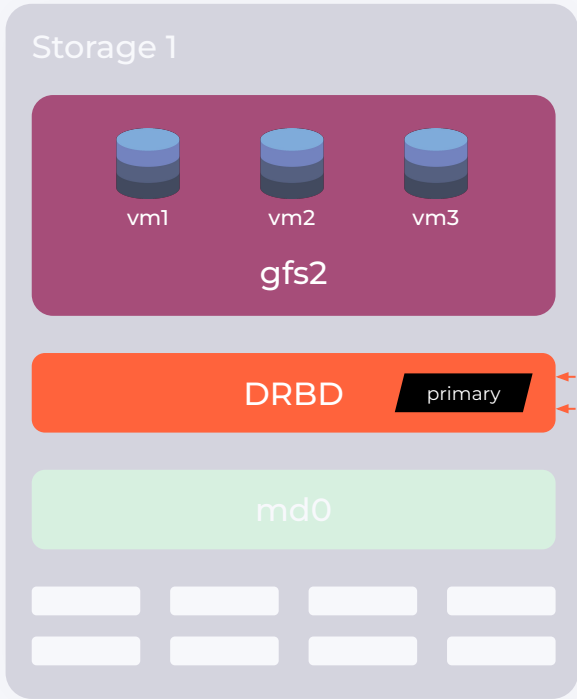


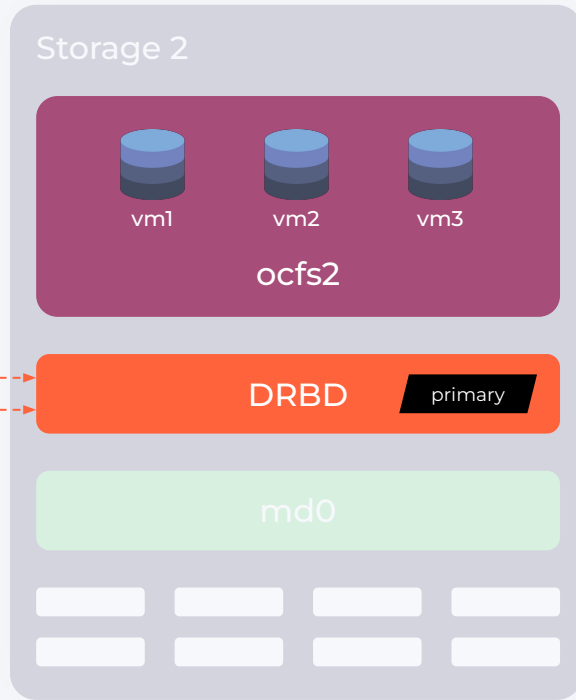
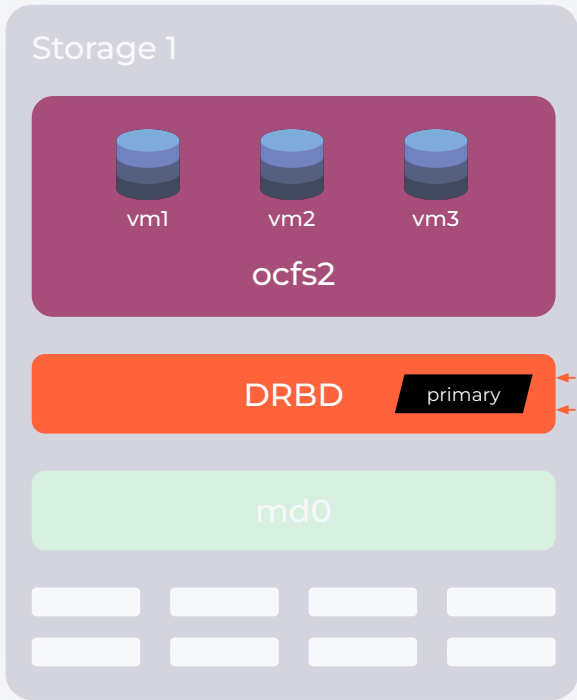


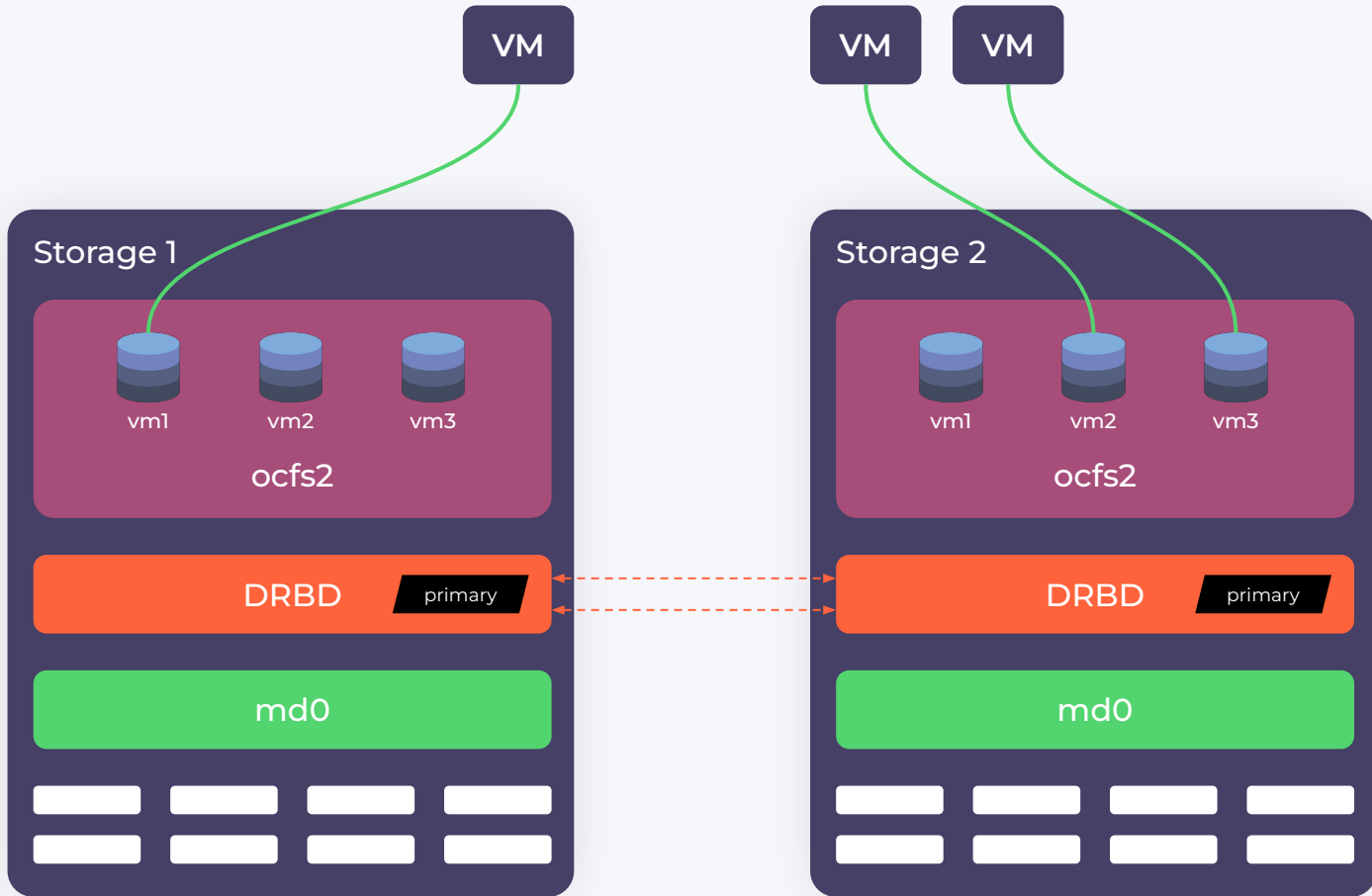


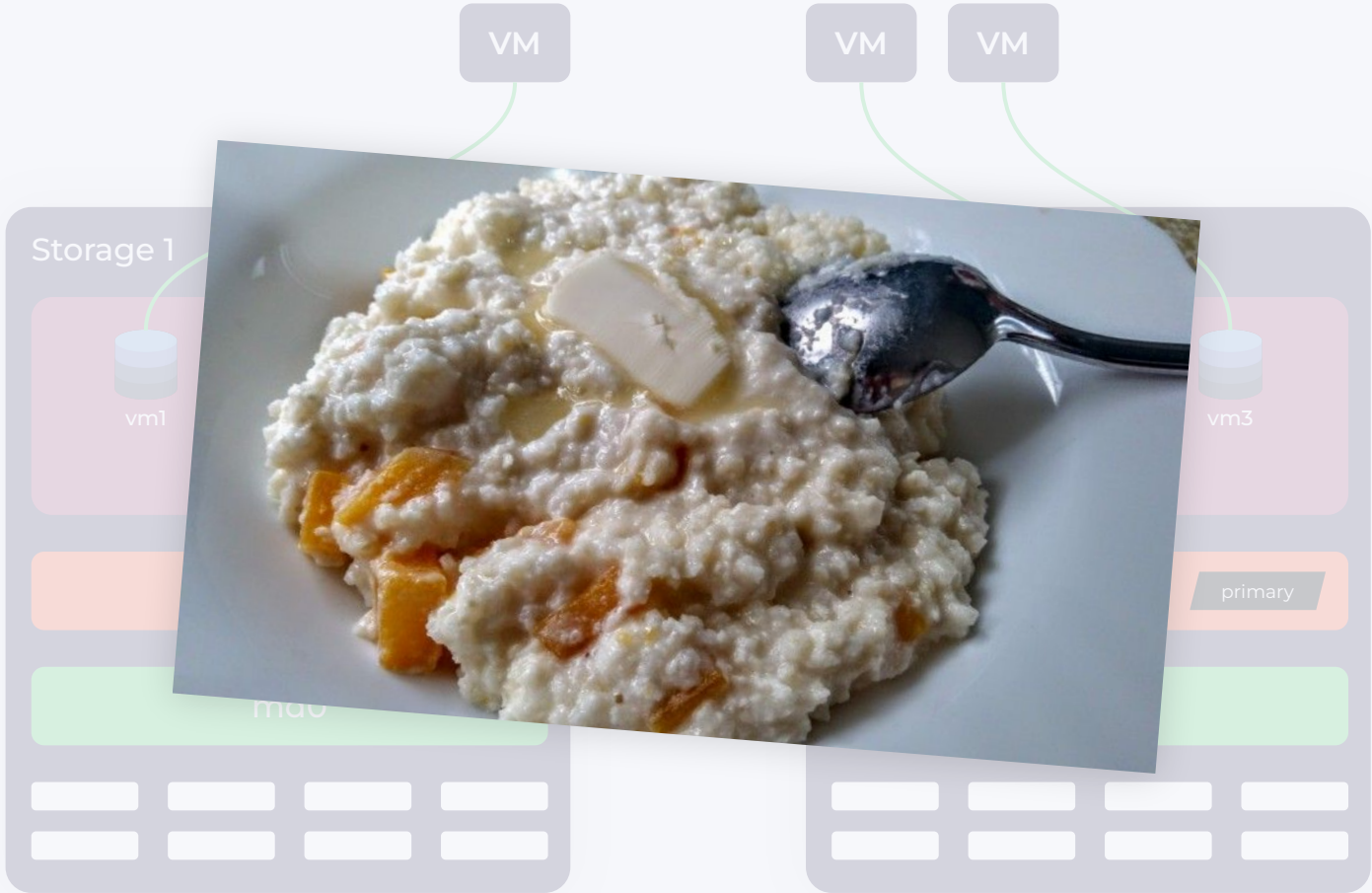




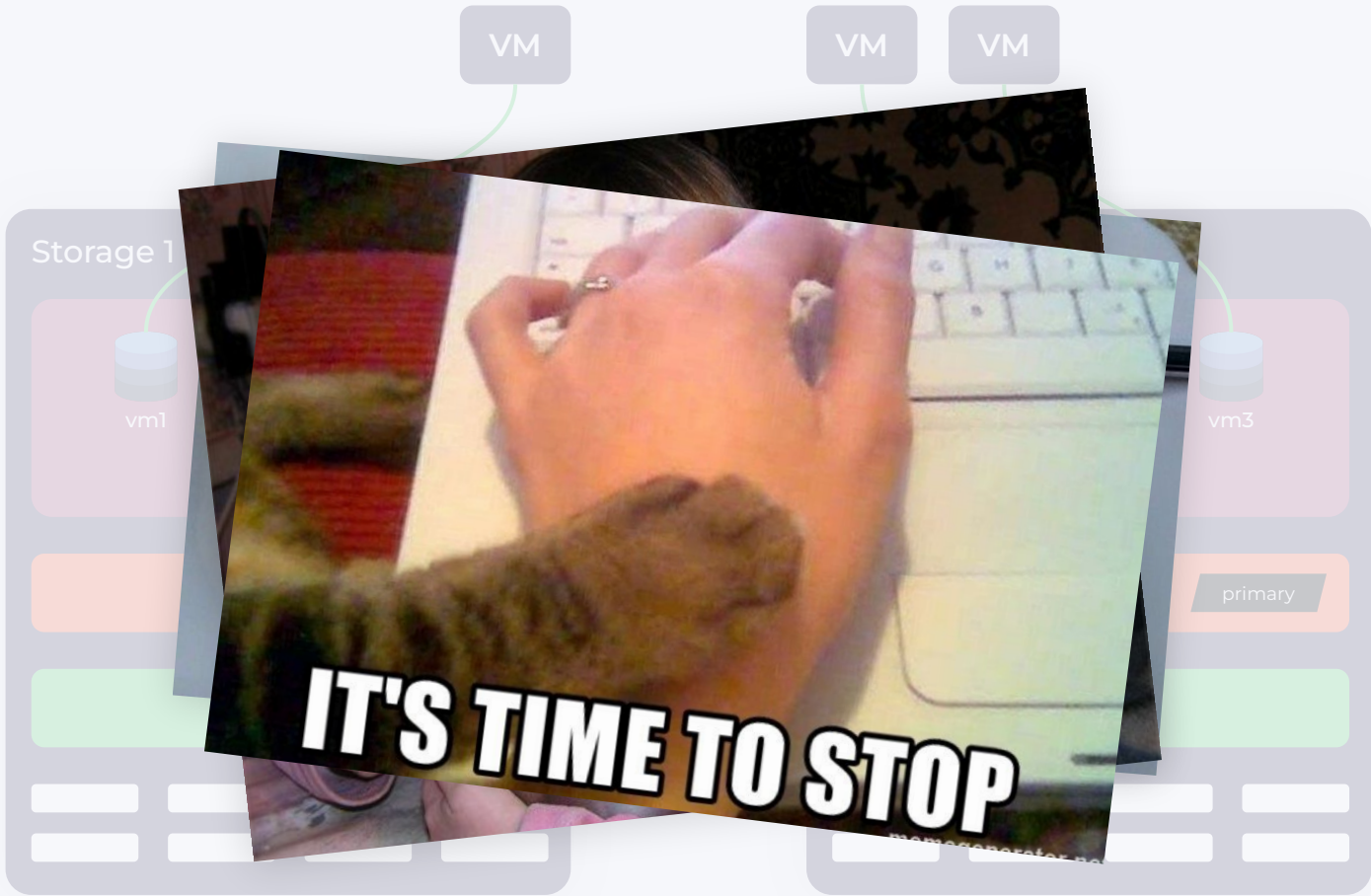












VM

VM

VM

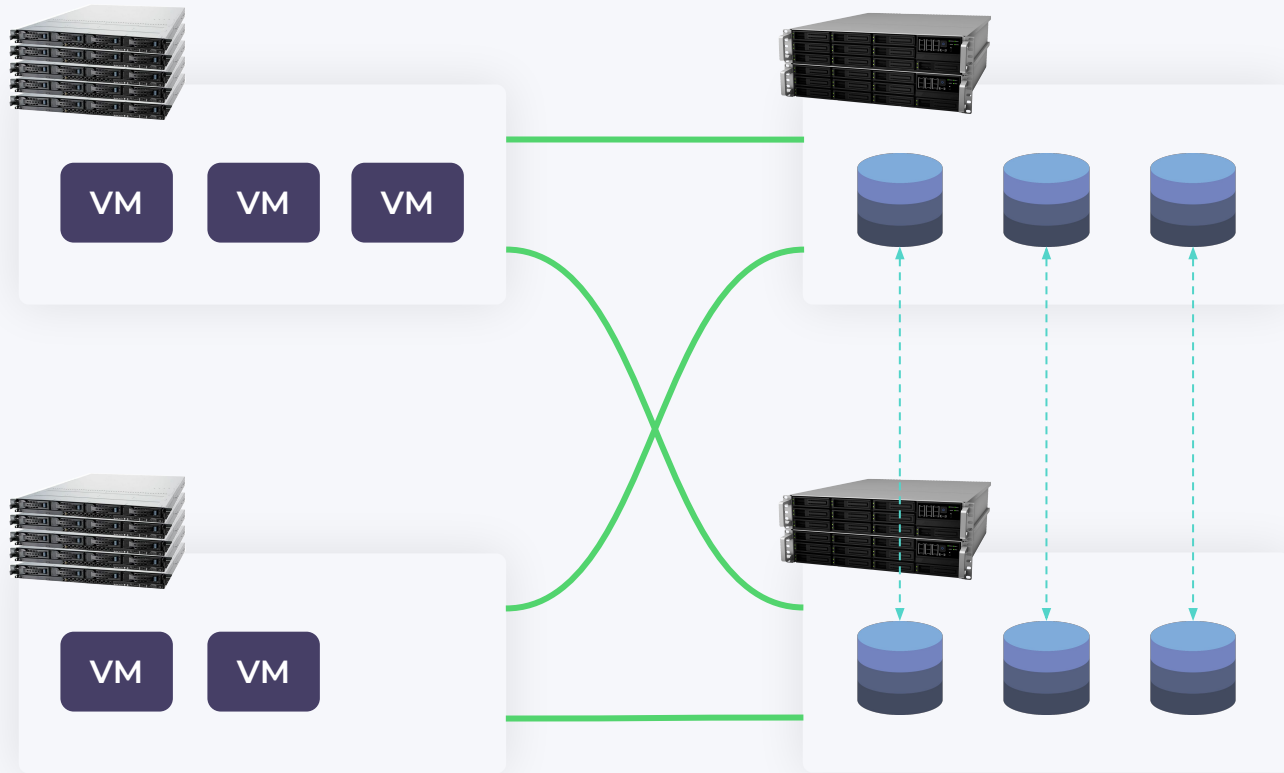
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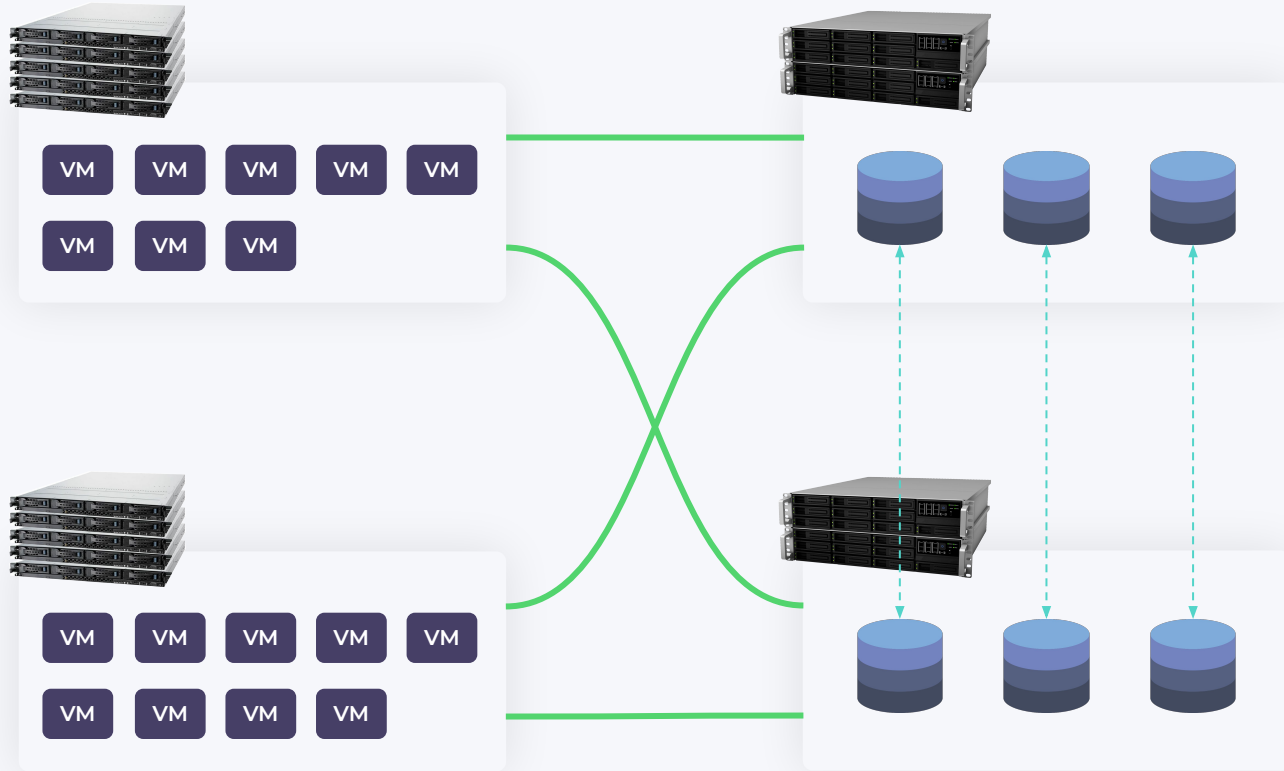
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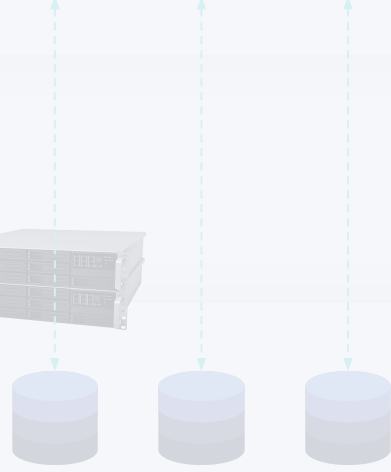
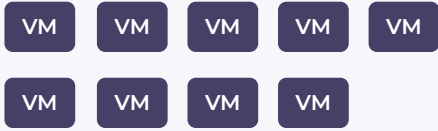
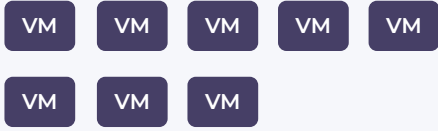
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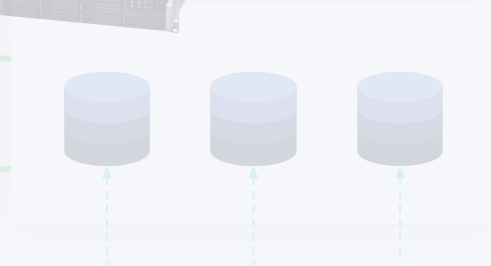
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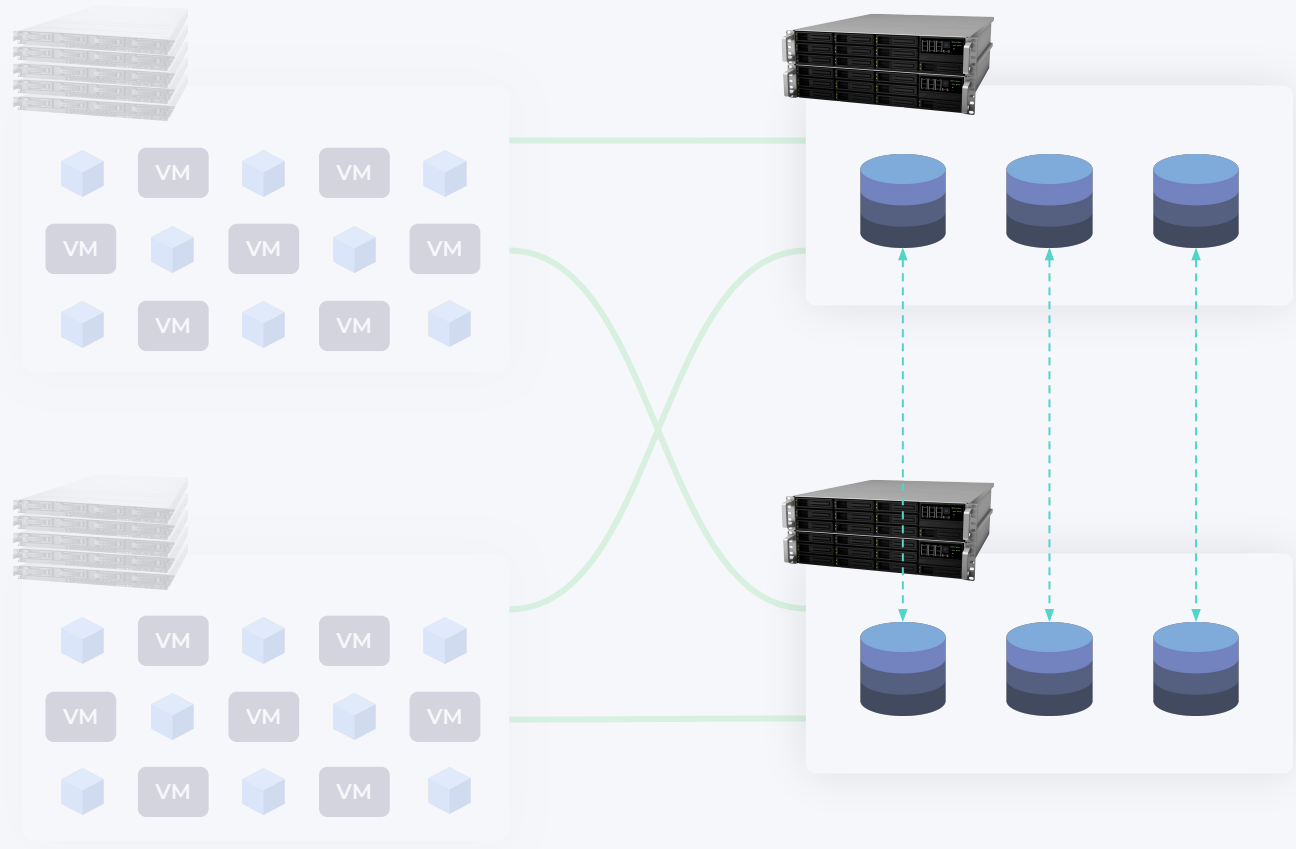
IT'S TIME TO STOP

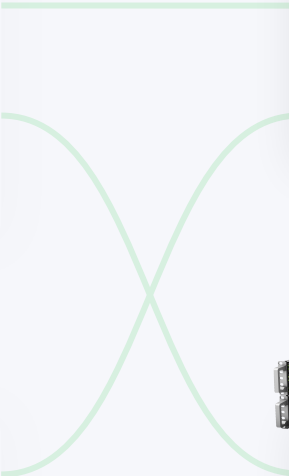
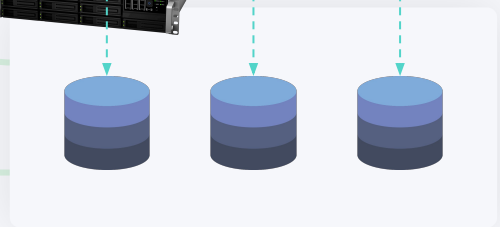
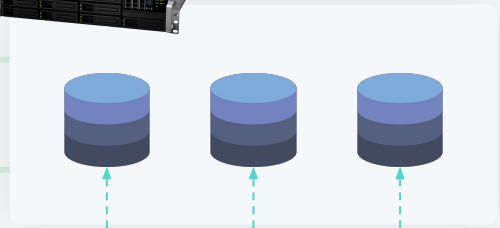
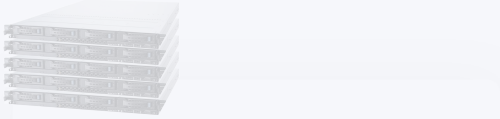


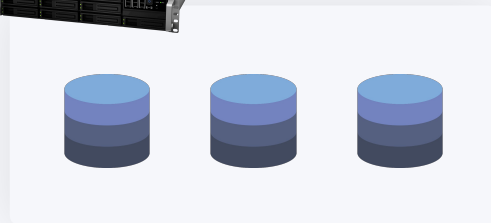
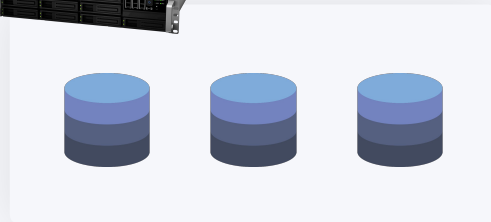




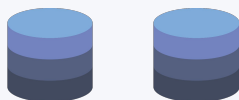


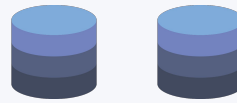


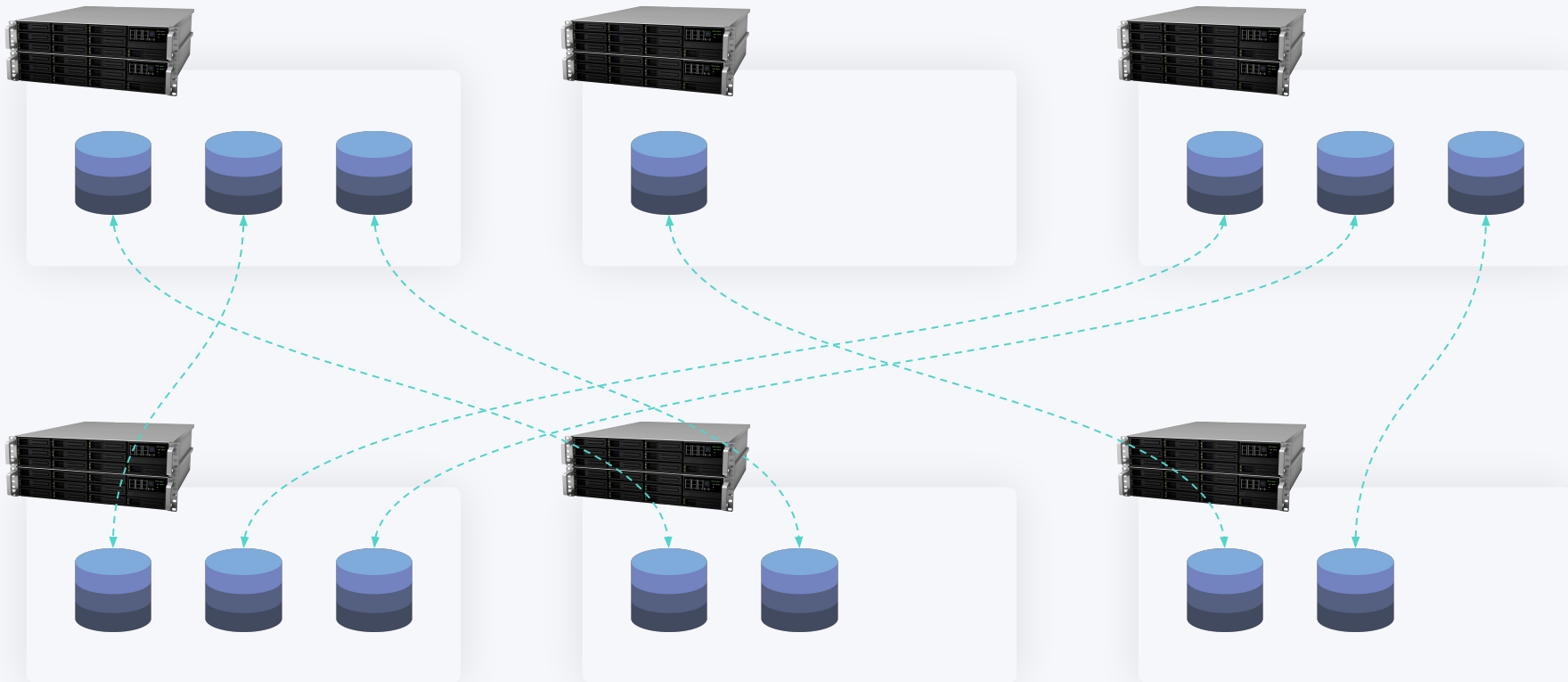






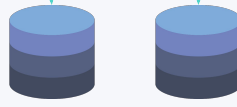
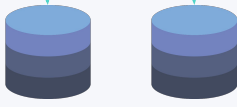






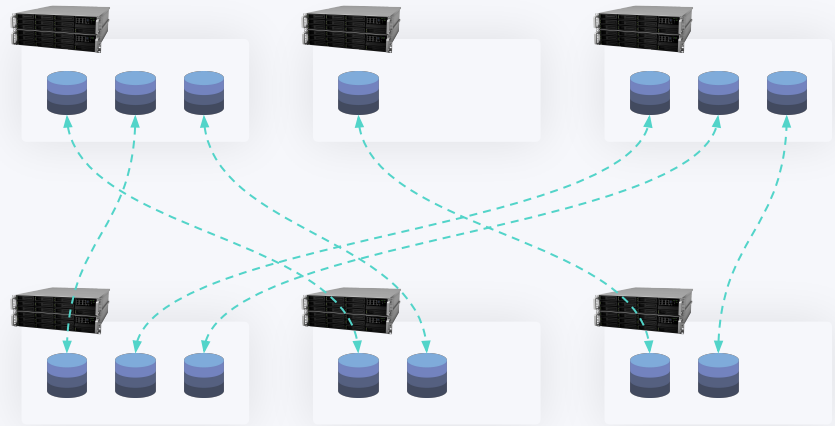
LIN  **STOR**



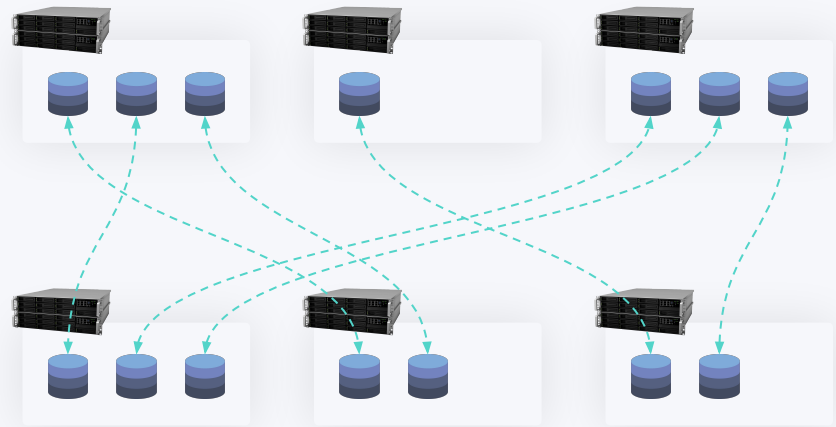
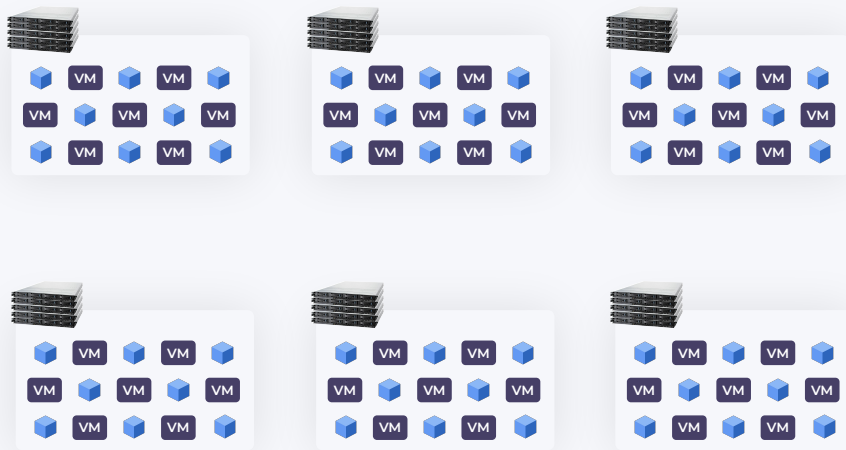


LIN  **STOR**





LIN³STOR



 **kubernetes**

LIN**STOR**



Architecture





storage backend

etcd



storage backend

etcd

etcd



storage backend

etcd

etcd

communication interface

API



storage backend

etcd

etcd

communication interface

API

API



storage backend

etcd

etcd

communication interface

API

API

scheduler

Scheduler



storage backend

etcd

etcd

communication interface

API

API

scheduler

Scheduler

Autoplacer



storage backend	etcd	etcd
communication interface	API	API
scheduler	Scheduler	Autoplacer
control logic	Controller-manager	



storage backend	etcd	etcd
communication interface	API	API
scheduler	Scheduler	Autoplacer
control logic	Controller-manager	Controller



storage backend	etcd	etcd
communication interface	API	API
scheduler	Scheduler	Autoplacer
control logic	Controller-manager	Controller
Prometheus-exporter	Metrics	



storage backend	etcd	etcd
communication interface	API	API
scheduler	Scheduler	Autoplacer
control logic	Controller-manager	Controller
Prometheus-exporter	Metrics	Metrics



storage backend	etcd	etcd
communication interface	API	API
scheduler	Scheduler	Autoplacer
control logic	Controller-manager	Controller
Prometheus-exporter	Metrics	Metrics
running resources	Kubelet	



storage backend	etcd	etcd
communication interface	API	API
scheduler	Scheduler	Autoplacer
control logic	Controller-manager	Controller
Prometheus-exporter	Metrics	Metrics
running resources	Kubelet	Satellite



Interface





basic unit

pod
workload



basic unit

pod
workload

resource
drbd-resource



basic unit

pod
workload

resource
drbd-resource

made up of

container



basic unit

pod
workload

resource
drbd-resource

made up of

container

volume



basic unit

pod
workload

resource
drbd-resource

made up of

container

volume

set of units

deployment
group of pods



basic unit

pod
workload

resource
drbd-resource

made up of

container

volume

set of units

deployment
group of pods

resource-definition
group of drbd resources



basic unit

pod
workload

resource
drbd-resource

made up of

container

volume

set of units

deployment
group of pods

resource-definition
group of drbd resources

physical node

node



basic unit

pod
workload

resource
drbd-resource

made up of

container

volume

set of units

deployment
group of pods

resource-definition
group of drbd resources

physical node

node

node



basic unit	pod <i>workload</i>	resource <i>drbd-resource</i>
made up of	container	volume
set of units	deployment <i>group of pods</i>	resource-definition <i>group of drbd resources</i>
physical node	node	node
key/value labels	labels	



basic unit	pod <i>workload</i>	resource <i>drbd-resource</i>
made up of	container	volume
set of units	deployment <i>group of pods</i>	resource-definition <i>group of drbd resources</i>
physical node	node	node
key/value labels	labels	aux-properties




basic unit	pod <i>workload</i>	resource <i>drbd-resource</i>
made up of	container	volume
set of units	deployment <i>group of pods</i>	resource-definition <i>group of drbd resources</i>
physical node	node	node
key/value labels	labels	aux-properties
storage parameters	storageClass	



basic unit	pod <i>workload</i>	resource <i>drbd-resource</i>
made up of	container	volume
set of units	deployment <i>group of pods</i>	resource-definition <i>group of drbd resources</i>
physical node	node	node
key/value labels	labels	aux-properties
storage parameters	storageClass	resource-group



basic unit	pod <i>workload</i>	resource <i>drbd-resource</i>
made up of	container 	volume
set of resources	deployment <i>group of pods</i>	resource-definition <i>group of drbd resources</i>
physical node	node	node
key/value labels	labels	aux-properties
storage parameters	storageClass	resource-group



basic unit

pod



resource

drbd-resource

made up of

container



volume

set of resources

deployment

group of pods

resource-definition

group of drbd resources

physical node

node

node

key/value labels

labels

aux-properties

storage parameters

storageClass

resource-group



basic unit

pod



resource

drbd-resource

made up of

container



volume

set of resources

deployment

group of pods

resource-definition

group of drbd resources

physical node

node

node

key/value labels

labels

aux-properties

storage parameters

storageClass

resource-group



basic unit

pod



resource



made up of

container



volume

set of resources

deployment

group of pods

resource-definition

group of drbd resources

physical node

node

node

key/value labels

labels

aux-properties

storage parameters

storageClass

resource-group

kubernetes

basic unit

pod



made up of

container



set of resources

deployment
group of pods

physical node

node

key/value labels

labels

storage parameters

storageClass

LIN^{STOR}

resource



volume

resource-definition



node

aux-properties

resource-group

kubernetes

basic unit

pod



made up of

container



set of resources

deployment
group of pods

physical node

node

key/value labels

labels

storage parameters

storageClass

LIN^{STOR}

resource



volume

resource-definition



node

aux-properties

resource-group

kubernetes

basic unit

pod



made up of

container



set of resources

deployment
group of pods

physical node

node

key/value labels

labels

storage parameters

storageClass

LIN^{STOR}

resource



volume

resource-definition



node

aux-properties

resource-group





How are they different?



pools to host volumes

storage-pools

storage layers

layers

drbd resources

resources



pools to host volumes

storage-pools

storage layers

layers

drbd resources

resources





pools to host volumes

-

storage-pools

storage layers

-

layers

drbd resources

-

resources



pools to host volumes

-

storage-pools

storage layers

-

layers

drbd resources

-

resources

node1

node2

node3

node4

node5

node6

node1

node2

node3

node4

node5

node6



```
linstor node list
```

node1

node2

node3

node4

node5

node6

```
linstor node list
```

Node	NodeType	Addresses	State
node1	SATELLITE	192.168.242.35:3367 (SSL)	Online
node2	SATELLITE	192.168.242.38:3367 (SSL)	Online
node3	SATELLITE	192.168.242.37:3367 (SSL)	Online
node4	SATELLITE	192.168.242.39:3367 (SSL)	Online
node5	SATELLITE	192.168.242.40:3367 (SSL)	Online
node6	SATELLITE	192.168.242.41:3367 (SSL)	Online

node1

node2

node3

node4

node5

node6

```
linstor node list
```

Node	NodeType	Addresses	State
node1	SATELLITE	192.168.242.35:3367 (SSL)	Online
node2	SATELLITE	192.168.242.38:3367 (SSL)	Online
node3	SATELLITE	192.168.242.37:3367 (SSL)	Online
node4	SATELLITE	192.168.242.39:3367 (SSL)	Online
node5	SATELLITE	192.168.242.40:3367 (SSL)	Online
node6	SATELLITE	192.168.242.41:3367 (SSL)	Online

node1

node2

node3

node4

node5

node6

```
linstor node list
```

Node	NodeType	Addresses	State
node1	SATELLITE	192.168.242.35:3367 (SSL)	Online
node2	SATELLITE	192.168.242.38:3367 (SSL)	Online
node3	SATELLITE	192.168.242.37:3367 (SSL)	Online
node4	SATELLITE	192.168.242.39:3367 (SSL)	Online
node5	SATELLITE	192.168.242.40:3367 (SSL)	Online
node6	SATELLITE	192.168.242.41:3367 (SSL)	Online

node1

node2

node3

node4

node5

node6

```
linstor node list
```

Node	NodeType	Addresses	State
node1	SATELLITE	192.168.242.35:3367 (SSL)	Online
node2	SATELLITE	192.168.242.38:3367 (SSL)	Online
node3	SATELLITE	192.168.242.37:3367 (SSL)	Online
node4	SATELLITE	192.168.242.39:3367 (SSL)	Online
node5	SATELLITE	192.168.242.40:3367 (SSL)	Online
node6	SATELLITE	192.168.242.41:3367 (SSL)	Online

node1

node2

node3

node4

node5

node6

node1



node2



node3



node4



node5



node6



node1



LVM



node2



LVM



node3



LVM



node4



LVM



node5



LVM



node6



LVM



node1

LVM

node2

LVM

node3

LVM

node4

LVM

node5

LVM

node6

LVM

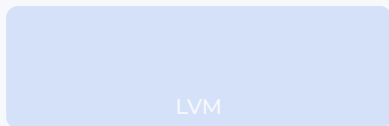


```
linstor storage-pool list
```

node1



node2



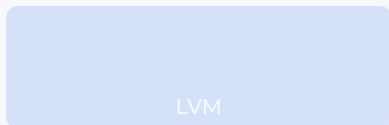
node3



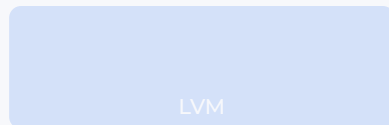
node4



node5



node6



```
linstor storage-pool list
```

StoragePool	Node	Driver	PoolName	FreeCapacity	TotalCapacity	CanSnapshots	State	SharedName
ssd-lvmthin	node1	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node2	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node3	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node4	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node5	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node6	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	

node1

LVM

node2

LVM

node3

LVM

node4

LVM

node5

LVM

node6

LVM

```
linstor storage-pool list
```

```
+-----+
| StoragePool | Node | Driver | PoolName | FreeCapacity | TotalCapacity | CanSnapshots | State | SharedName |
|=====+-----+
| ssd-lvmthin | node1 | LVM_THIN | linstor_data/thindata | 1.80 TiB | 1.80 TiB | True | Ok | |
| ssd-lvmthin | node2 | LVM_THIN | linstor_data/thindata | 1.80 TiB | 1.80 TiB | True | Ok | |
| ssd-lvmthin | node3 | LVM_THIN | linstor_data/thindata | 1.80 TiB | 1.80 TiB | True | Ok | |
| ssd-lvmthin | node4 | LVM_THIN | linstor_data/thindata | 1.80 TiB | 1.80 TiB | True | Ok | |
| ssd-lvmthin | node5 | LVM_THIN | linstor_data/thindata | 1.80 TiB | 1.80 TiB | True | Ok | |
| ssd-lvmthin | node6 | LVM_THIN | linstor_data/thindata | 1.80 TiB | 1.80 TiB | True | Ok | |
+-----+-----+
```

node1

LVM

node2

LVM

node3

LVM

node4

LVM

node5

LVM

node6

LVM

```
linstor storage-pool list
```

StoragePool	Node	Driver	PoolName	FreeCapacity	TotalCapacity	CanSnapshots	State	SharedName
ssd-lvmthin	node1	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node2	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node3	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node4	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node5	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node6	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	

node1

LVM

node2

LVM

node3

LVM

node4

LVM

node5

LVM

node6

LVM

```
linstor storage-pool list
```

```
+-----+
| StoragePool | Node | Driver | PoolName | FreeCapacity | TotalCapacity | CanSnapshots | State | SharedName |
+-----+
| ssd-lvmthin | node1 | LVM_THIN | linstor_data/thindata | 1.80 TiB | 1.80 TiB | True | Ok | |
| ssd-lvmthin | node2 | LVM_THIN | linstor_data/thindata | 1.80 TiB | 1.80 TiB | True | Ok | |
| ssd-lvmthin | node3 | LVM_THIN | linstor_data/thindata | 1.80 TiB | 1.80 TiB | True | Ok | |
| ssd-lvmthin | node4 | LVM_THIN | linstor_data/thindata | 1.80 TiB | 1.80 TiB | True | Ok | |
| ssd-lvmthin | node5 | LVM_THIN | linstor_data/thindata | 1.80 TiB | 1.80 TiB | True | Ok | |
| ssd-lvmthin | node6 | LVM_THIN | linstor_data/thindata | 1.80 TiB | 1.80 TiB | True | Ok | |
+-----+
```

node1

LVM

node2

LVM

node3

LVM

node4

LVM

node5

LVM

node6

LVM

```
linstor storage-pool list
```

StoragePool	Node	Driver	PoolName	FreeCapacity	TotalCapacity	CanSnapshots	State	SharedName
ssd-lvmthin	node1	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node2	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node3	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node4	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node5	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node6	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	

node1

LVM

node2

LVM

node3

LVM

node4

LVM

node5

LVM

node6

LVM

```
linstor storage-pool list
```

StoragePool	Node	Driver	PoolName	FreeCapacity	TotalCapacity	CanSnapshots	State	SharedName
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ssd-lvmthin	node2	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node3	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node4	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node5	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node6	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	

node1

LVM

node2

LVM

node3

LVM

node4

LVM

node5

LVM

node6

LVM

```
linstor storage-pool list
```

StoragePool	Node	Driver	PoolName	FreeCapacity	TotalCapacity	CanSnapshots	State	SharedName
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ssd-lvmthin	node2	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node3	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node4	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node5	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node6	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	

node1

LVM

node2

LVM

node3

LVM

node4

LVM

node5

LVM

node6

LVM

```
linstor storage-pool list
```

```
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| StoragePool | Node | Driver | PoolName | FreeCapacity | TotalCapacity | CanSnapshots | State | SharedName |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| ssd-lvmthin | node1 | LVM_THIN | linstor_data/thindata | 1.80 TiB | 1.80 TiB | True | Ok | |
| ssd-lvmthin | node2 | LVM_THIN | linstor_data/thindata | 1.80 TiB | 1.80 TiB | True | Ok | |
| ssd-lvmthin | node3 | LVM_THIN | linstor_data/thindata | 1.80 TiB | 1.80 TiB | True | Ok | |
| ssd-lvmthin | node4 | LVM_THIN | linstor_data/thindata | 1.80 TiB | 1.80 TiB | True | Ok | |
| ssd-lvmthin | node5 | LVM_THIN | linstor_data/thindata | 1.80 TiB | 1.80 TiB | True | Ok | |
| ssd-lvmthin | node6 | LVM_THIN | linstor_data/thindata | 1.80 TiB | 1.80 TiB | True | Ok | |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+

```

node1

LVM

node2

LVM

node3

LVM

node4

LVM

node5

LVM

node6

LVM

```
linstor storage-pool list
```

StoragePool	Node	Driver	PoolName	FreeCapacity	TotalCapacity	CanSnapshots	State	SharedName
ssd-lvmthin	node1	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node2	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node3	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node4	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node5	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	
ssd-lvmthin	node6	LVM_THIN	linstor_data/thindata	1.80 TiB	1.80 TiB	True	Ok	



pools to host volumes

-

storage-pools

storage layers

-

layers

drbd resources

-

resources



pools to host volumes

-

storage-pools

storage layers

-

layers

drbd resources

-

resources

node1



node2



node3



node4



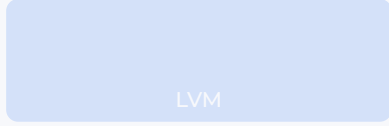
node5



node6



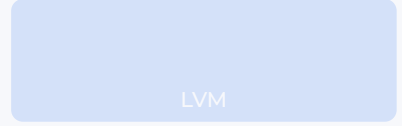
node1



node2



node3



node4



node5



node6



Hardware



Node-level volume management

LVM

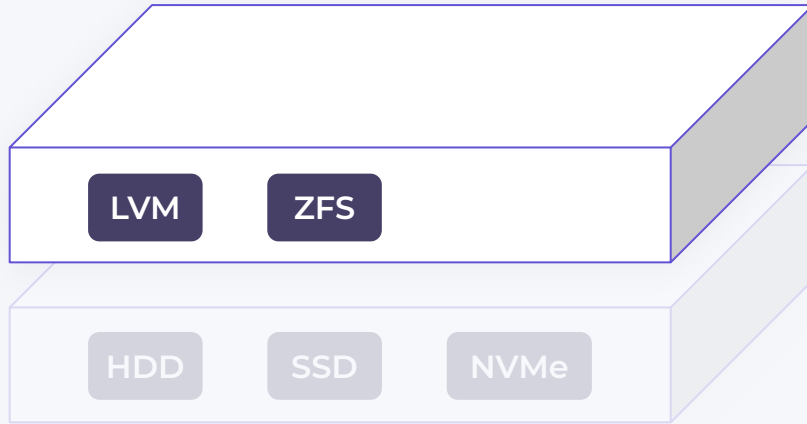
ZFS

Hardware

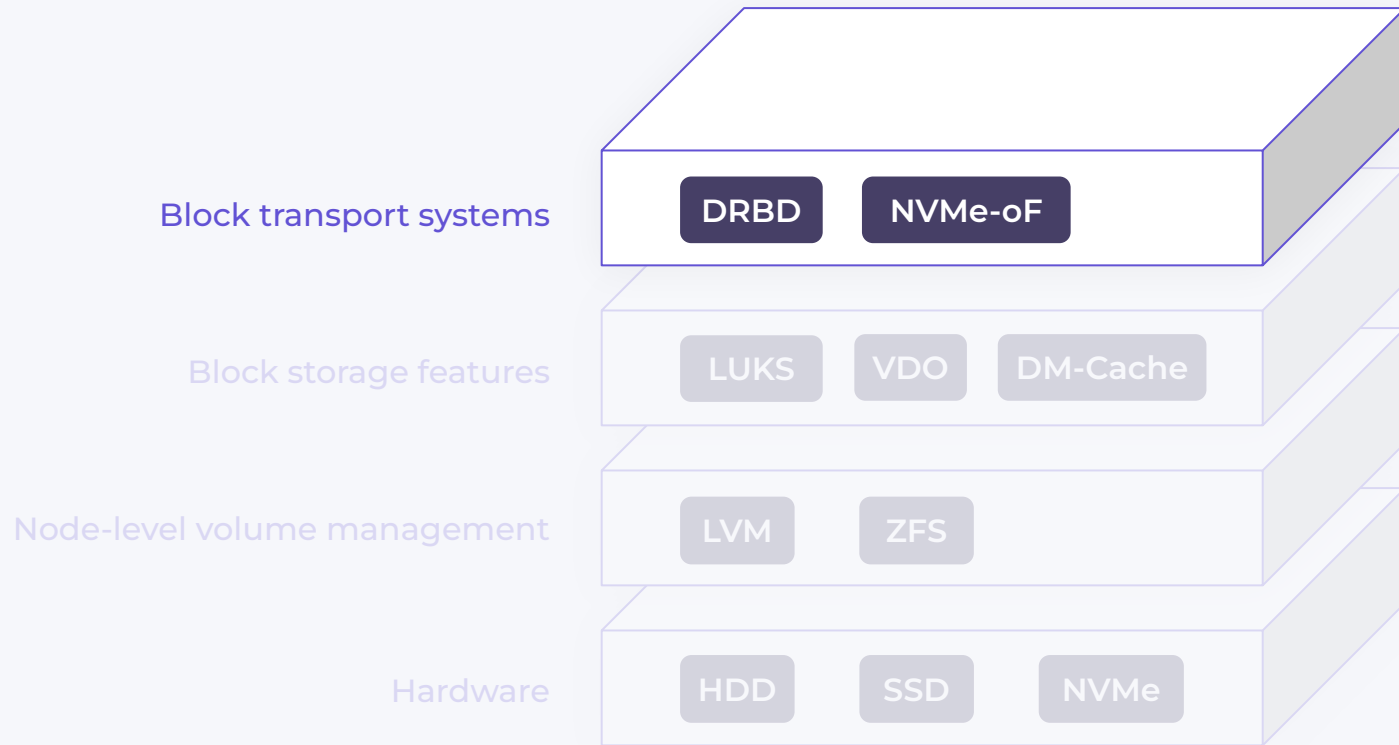
HDD

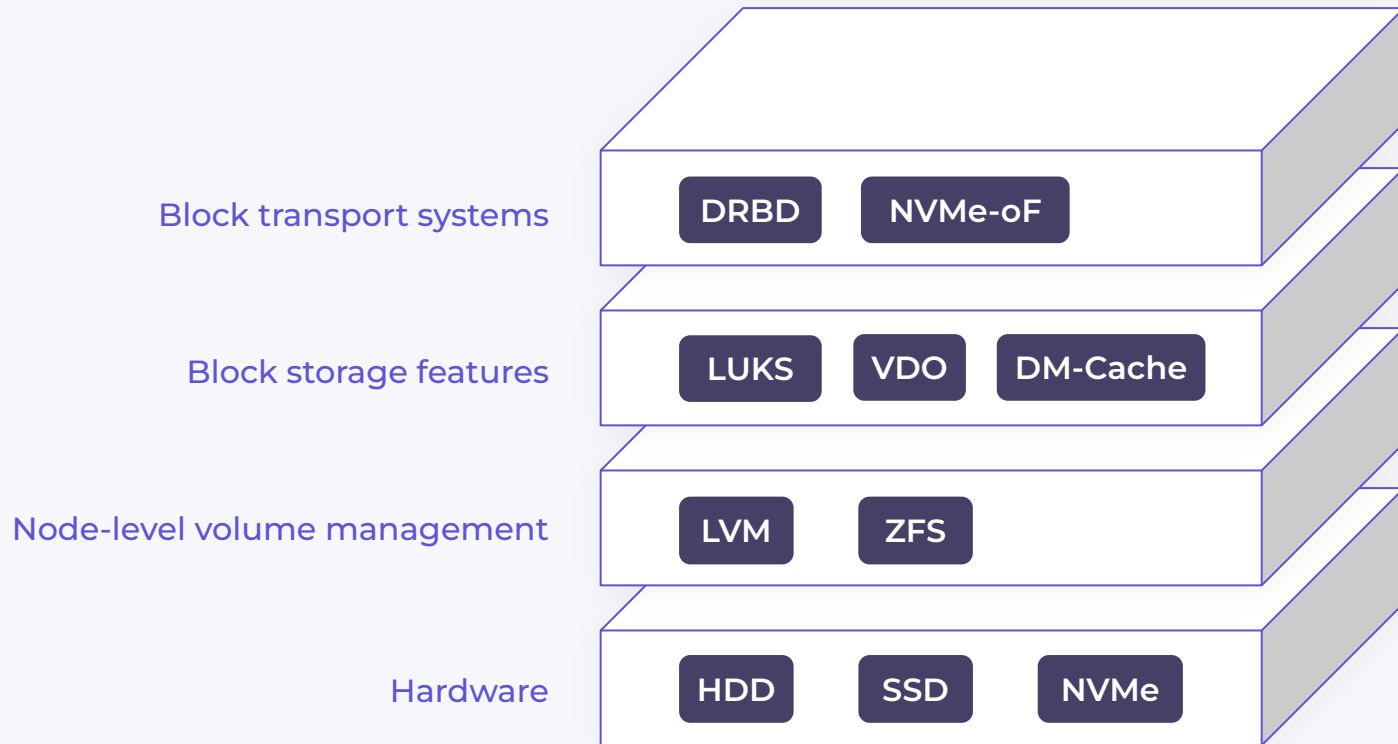
SSD

NVMe











pools to host volumes

-

storage-pools

storage layers

-

layers

drbd resources

-

resources



pools to host volumes

-

storage-pools

storage layers

-

layers

drbd resources

-

resources

node1



LVM



node2



LVM



node3



LVM



node4



LVM



node5



LVM



node6



LVM





resource-definition-1

node1



LVM



node2



LVM



node3



LVM



node4



LVM



node5



LVM



node6



LVM





resource-definition-1

node1



LVM



node2



LVM



node3



resource

LVM



node4



resource

LVM



node5



LVM



node6



LVM





resource-definition-1

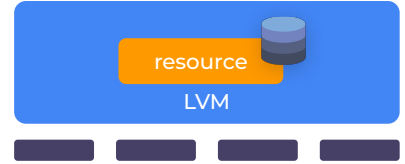
node1



node2



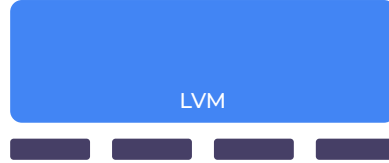
node3



node4



node5



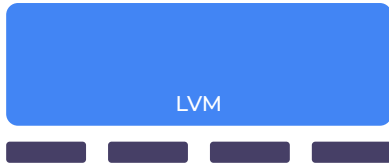
node6



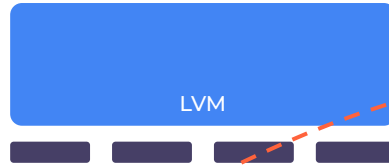


resource-definition-1

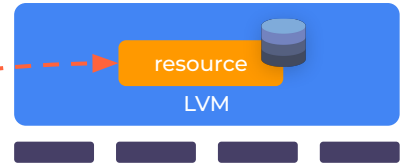
node1



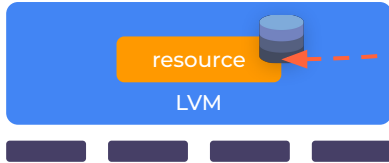
node2



node3



node4



node5



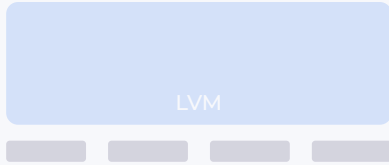
node6





resource-definition-1

node1



node2



node3



node4



node5



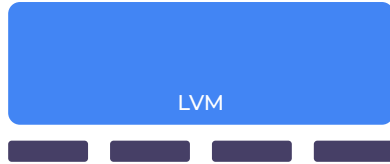
node6



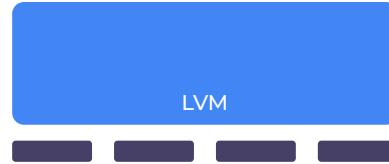


resource-definition-1

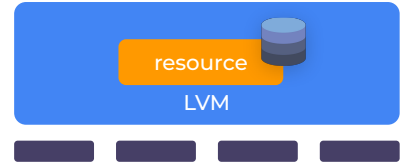
node1



node2



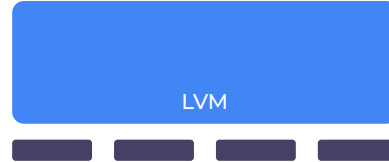
node3



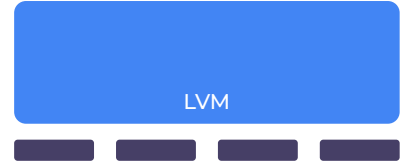
node4



node5



node6





resource-definition-1

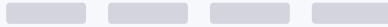


resource-definition-2

node1



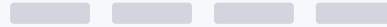
LVM



node2



LVM

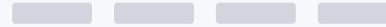


node3



resource

LVM

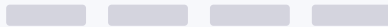


node4



resource

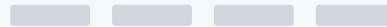
LVM



node5



LVM



node6



LVM





resource-definition-1



resource-definition-2

node1



LVM

node2



LVM

node3



resource

LVM

node4



resource

LVM

node5



LVM

node6



LVM

```
linstor resource-definition list -r test1
```



resource-definition-1

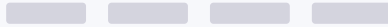


resource-definition-2

node1



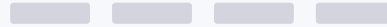
LVM



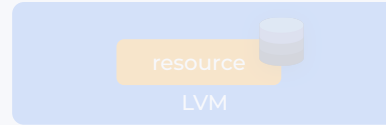
node2



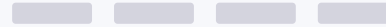
LVM



node3



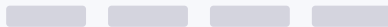
LVM



node4



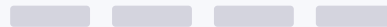
LVM



node5



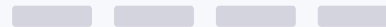
LVM



node6



LVM



```

linstor resource-definition list -r test1
+-----+
| ResourceName | Port | ResourceGroup | State |
+-----+
| test1       | 7006 | DfltRscGrp   | ok   |
+-----+

```

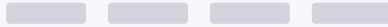



resource-definition-1

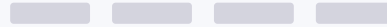


resource-definition-2

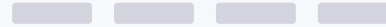
node1



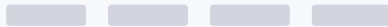
node2



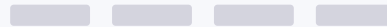
node3



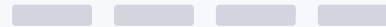
node4



node5



node6



```

linstor resource-definition list -r test1
+-----+
| ResourceName | Port | ResourceGroup | State |
|=====|
| test1       | 7006 | DfltRscGrp   | ok   |
+-----+

```

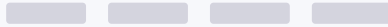


resource-definition-1

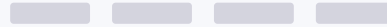


resource-definition-2

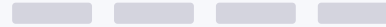
node1



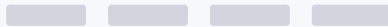
node2



node3



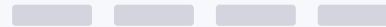
node4



node5



node6



```

linstor resource-definition list -r test1
+-----+
| ResourceName | Port | ResourceGroup | State |
+-----+-----+
| test1        | 7006 | DfltRscGrp    | ok    |
+-----+-----+

```

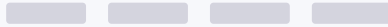


resource-definition-1

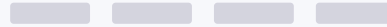


resource-definition-2

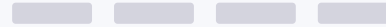
node1



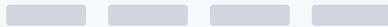
node2



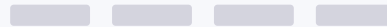
node3



node4



node5



node6



```

linstor resource-definition list -r test1
+-----+
| ResourceName | Port | ResourceGroup | State |
+-----+-----+-----+-----+
| test1       | 7006 | DfltRscGrp   | ok   |
+-----+-----+-----+-----+

```



resource-definition-1



resource-definition-2

node1



node2



node3



node4



node5



node6



```

linstor resource-definition list -r test1
+-----+
| ResourceName | Port | ResourceGroup | State |
+-----+-----+
| test1        | 7006 | DfltRscGrp    | ok    |
+-----+-----+

```



resource-definition-1

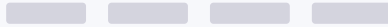


resource-definition-2

node1



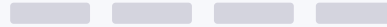
LVM



node2



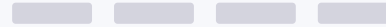
LVM



node3



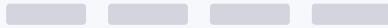
LVM



node4



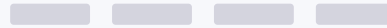
LVM



node5



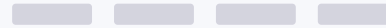
LVM



node6



LVM



```

linstor resource-definition list -r test1
+-----+
| ResourceName | Port | ResourceGroup | State |
+-----+-----+-----+-----+
| test1        | 7006 | DfltRscGrp    | ok    |
+-----+-----+-----+-----+

```

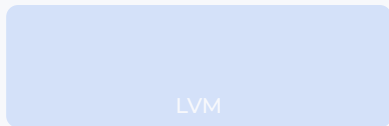


resource-definition-1

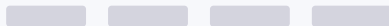


resource-definition-2

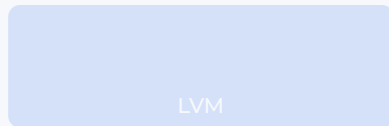
node1



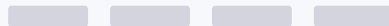
LVM



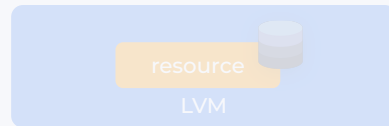
node2



LVM



node3

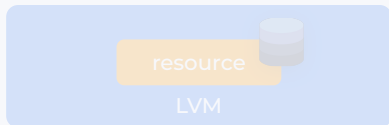


resource

LVM

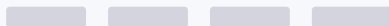


node4



resource

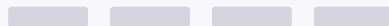
LVM



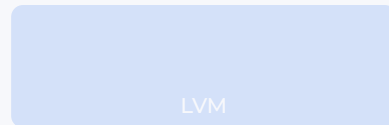
node5



LVM



node6



LVM



```
linstor resource-definition list -r test1
```

ResourceName	Port	ResourceGroup	State
test1	7006	DfltRscGrp	ok

```
linstor volume-definition list -r test1
```



resource-definition-1



resource-definition-2

node1



node2



node3



node4



node5



node6



```
linstor resource-definition list -r test1
```

```
+-----+
| ResourceName | Port | ResourceGroup | State |
+-----+-----+-----+-----+
| test1        | 7006 | DfltRscGrp    | ok    |
+-----+-----+-----+-----+
```

```
linstor volume-definition list -r test1
```

```
+-----+-----+-----+-----+-----+-----+
| ResourceName | VolumeNr | VolumeMinor | Size  | Gross | State |
+-----+-----+-----+-----+-----+-----+
| test1        | 0        | 1005        | 10 GiB |      | ok    |
+-----+-----+-----+-----+-----+-----+
```



resource-definition-1



resource-definition-2

node1



node2



node3



node4



node5



node6



```
linstor resource-definition list -r test1
```

```
+-----+
| ResourceName | Port | ResourceGroup | State |
+-----+-----+-----+-----+
| test1        | 7006 | DfltRscGrp    | ok    |
+-----+-----+-----+-----+
```

```
linstor volume-definition list -r test1
```

```
+-----+-----+-----+-----+-----+-----+
| ResourceName | VolumeNr | VolumeMinor | Size   | Gross | State |
+-----+-----+-----+-----+-----+-----+
| test1        | 0         | 1005         | 10 GiB |       | ok    |
+-----+-----+-----+-----+-----+-----+
```




resource-definition-1



resource-definition-2

node1



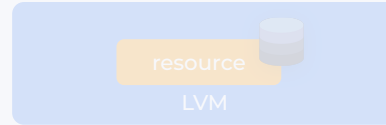
LVM

node2



LVM

node3



resource

LVM

node4



resource

LVM

node5



LVM

node6



LVM

```
linstor resource-definition list -r test1
```

ResourceName	Port	ResourceGroup	State
test1	7006	DfltRscGrp	ok

```
linstor volume-definition list -r test1
```

ResourceName	VolumeNr	VolumeMinor	Size	Gross	State
test1	0	1005	10 GiB		ok



resource-definition-1



resource-definition-2

node1



node2



node3



node4



node5



node6



```
linstor resource-definition list -r test1
```

ResourceName	Port	ResourceGroup	State
test1	7006	DfltRscGrp	ok

```
linstor volume-definition list -r test1
```

ResourceName	VolumeNr	VolumeMinor	Size	Gross	State
test1	0	1005	10 GiB		ok



resource-definition-1



resource-definition-2

node1



node2



node3



node4



node5



node6



```
linstor resource-definition list -r test1
```

ResourceName	Port	ResourceGroup	State
test1	7006	DfltRscGrp	ok

```
linstor volume-definition list -r test1
```

ResourceName	VolumeNr	VolumeMinor	Size	Gross	State
test1	0	1005	10 GiB		ok



resource-definition-1



resource-definition-2

node1



node2



node3



node4



node5



node6



```
linstor resource-definition list -r test1
```

```
+-----+
| ResourceName | Port | ResourceGroup | State |
+-----+-----+-----+-----+
| test1        | 7006 | DfltRscGrp    | ok   |
+-----+-----+-----+-----+
```

```
linstor volume-definition list -r test1
```

```
+-----+-----+-----+-----+-----+-----+
| ResourceName | VolumeNr | VolumeMinor | Size  | Gross | State |
+-----+-----+-----+-----+-----+-----+
| test1        | 0        | 1005        | 10 GiB |      | ok    |
+-----+-----+-----+-----+-----+-----+
```



resource-definition-1



resource-definition-2

node1



node2



node3



node4



node5



node6





resource-definition-1



resource-definition-2

node1



node2



node3



node4



node5



node6





resource-definition-1



resource-definition-2

node1



node2



node3



node4



node5



node6





resource-definition-1

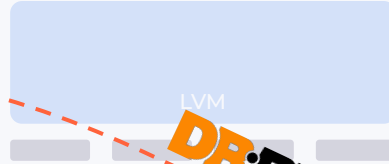


resource-definition-2

node1



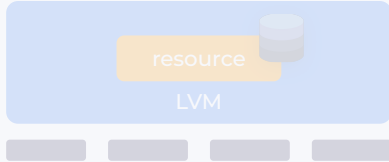
node2



node3



node4



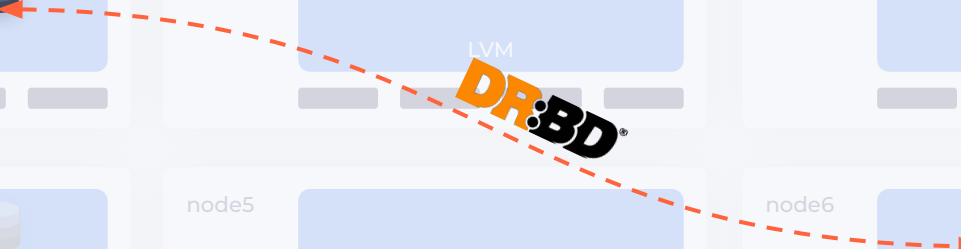
node5



node6



DRBD





resource-definition-1



resource-definition-2

node1



node2



node3



node4



node5



node6



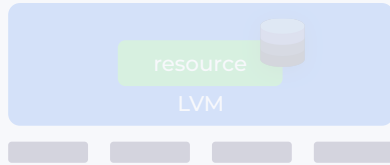
resource-definition-1



resource-definition-2



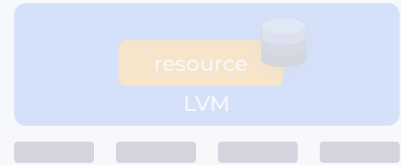
node1



node2



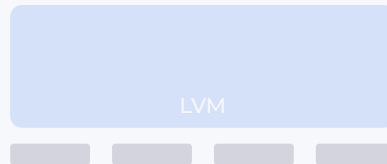
node3



node4



node5



node6



```
linstor resource list -r test1
```

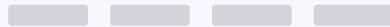
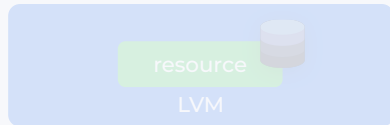


resource-definition-1

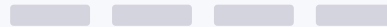


resource-definition-2

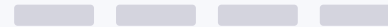
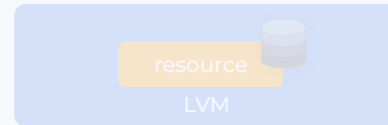
node1



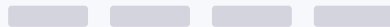
node2



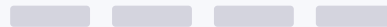
node3



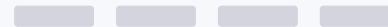
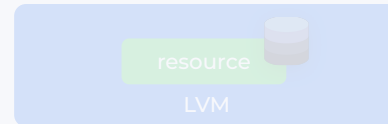
node4



node5



node6



```
linstor resource list -r test1
+-----+
| ResourceName | Node | Port | Usage | Conns | State | CreatedOn |
+-----+-----+-----+-----+-----+-----+-----+
| test1        | node1 | 7006 | Unused | Ok    | UpToDate | 2022-05-26 13:46:20 |
| test1        | node6 | 7006 | Unused | Ok    | UpToDate | 2022-05-26 13:46:21 |
+-----+-----+-----+-----+-----+-----+-----+

```

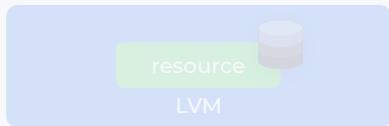


resource-definition-1



resource-definition-2

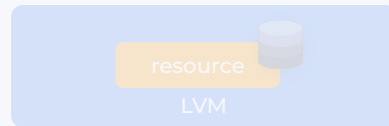
node1



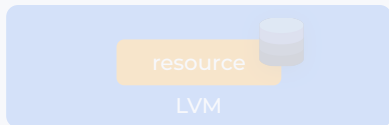
node2



node3



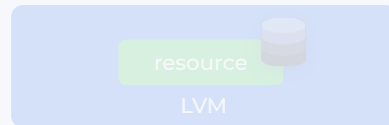
node4



node5



node6



```
linstor resource list -r test1
+-----+
| ResourceName | Node | Port | Usage | Conns | State | CreatedOn |
+-----+
| test1        | node1 | 7006 | Unused | Ok     | UpToDate | 2022-05-26 13:46:20 |
| test1        | node6 | 7006 | Unused | Ok     | UpToDate | 2022-05-26 13:46:21 |
+-----+
```

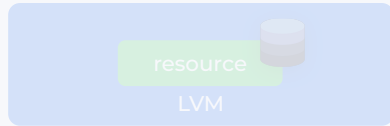


resource-definition-1



resource-definition-2

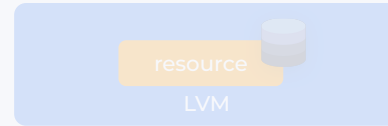
node1



node2



node3



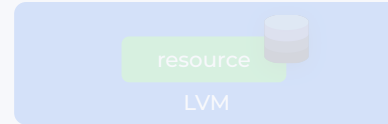
node4



node5



node6



```
linstor resource list -r test1
```

ResourceName	Node	Port	Usage	Conns	State	CreatedOn
test1	node1	7006	Unused	Ok	UpToDate	2022-05-26 13:46:20
test1	node6	7006	Unused	Ok	UpToDate	2022-05-26 13:46:21

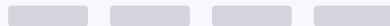
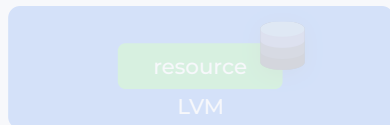


resource-definition-1

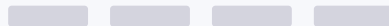
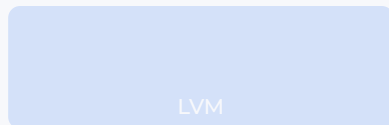


resource-definition-2

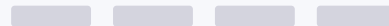
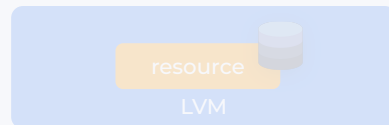
node1



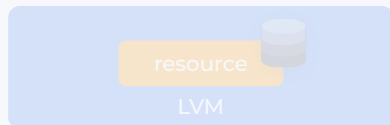
node2



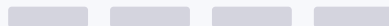
node3



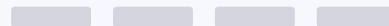
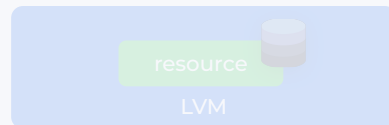
node4



node5



node6



```
linstor resource list -r test1
```

ResourceName	Node	Port	Usage	Conns	State	CreatedOn
test1	node1	7006	Unused	0k	UpToDate	2022-05-26 13:46:20
test1	node6	7006	Unused	0k	UpToDate	2022-05-26 13:46:21

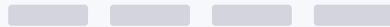
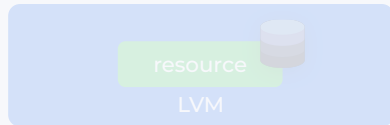


resource-definition-1



resource-definition-2

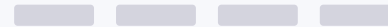
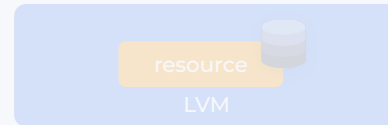
node1



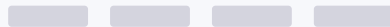
node2



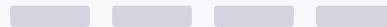
node3



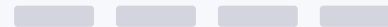
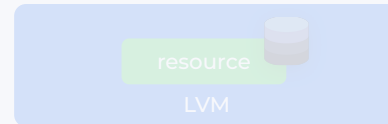
node4



node5



node6



```
linstor resource list -r test1
+-----+
| ResourceName | Node | Port | Usage | Conns | State | CreatedOn |
+-----+-----+-----+-----+-----+-----+-----+
| test1        | node1 | 7006 | Unused | Ok    | UpToDate | 2022-05-26 13:46:20 |
| test1        | node6 | 7006 | Unused | Ok    | UpToDate | 2022-05-26 13:46:21 |
+-----+-----+-----+-----+-----+-----+-----+

```

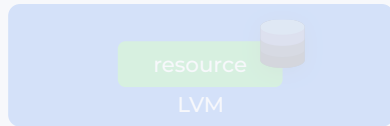


resource-definition-1



resource-definition-2

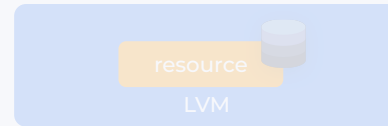
node1



node2



node3



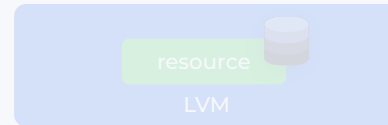
node4



node5



node6



```
linstor volume list -r test1
```

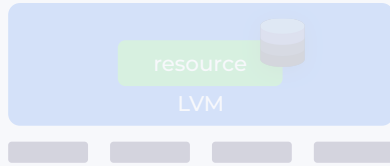



resource-definition-1



resource-definition-2

node1



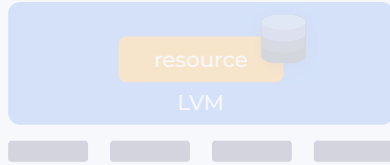
node2



node3



node4



node5



node6



```
linstor volume list -r test1
```

Node	Resource	StoragePool	VolNr	MinorNr	DeviceName	Allocated	InUse	State
node1	test1	ssd-lvmthin	0	1005	/dev/drbd1005	3.07 MiB	Unused	UpToDate
node6	test1	ssd-lvmthin	0	1005	/dev/drbd1005	3.07 MiB	Unused	UpToDate

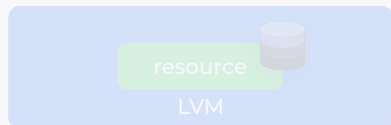


resource-definition-1

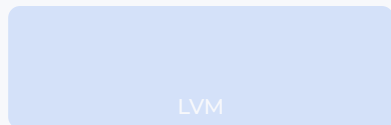


resource-definition-2

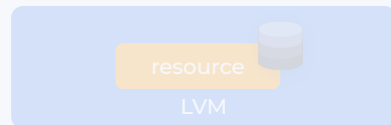
node1



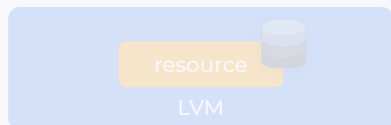
node2



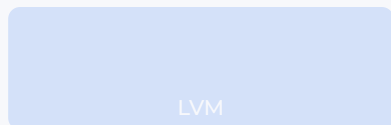
node3



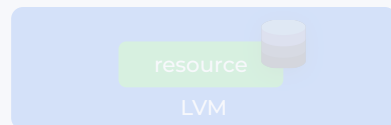
node4



node5



node6



```
linstor volume list -r test1
```

Node	Resource	StoragePool	VolNr	MinorNr	DeviceName	Allocated	InUse	State
node1	test1	ssd-lvmthin	0	1005	/dev/drbd1005	3.07 MiB	Unused	UpToDate
node6	test1	ssd-lvmthin	0	1005	/dev/drbd1005	3.07 MiB	Unused	UpToDate

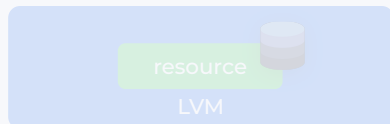


resource-definition-1

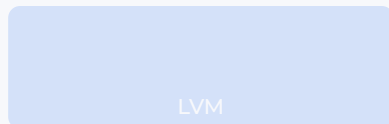


resource-definition-2

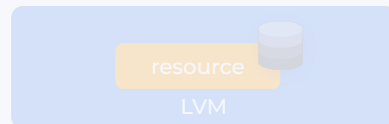
node1



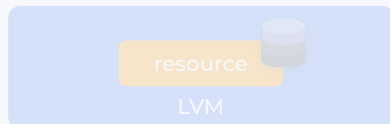
node2



node3



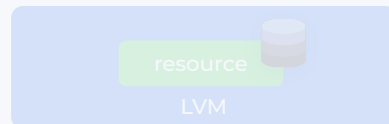
node4



node5



node6



```
linstor volume list -r test1
```

Node	Resource	StoragePool	VolNr	MinorNr	DeviceName	Allocated	InUse	State
node1	test1	ssd-lvmthin	0	1005	/dev/drbd1005	3.07 MiB	Unused	UpToDate
node6	test1	ssd-lvmthin	0	1005	/dev/drbd1005	3.07 MiB	Unused	UpToDate

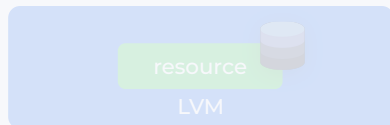


resource-definition-1

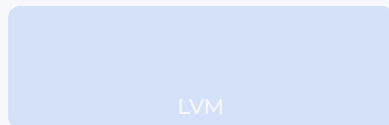


resource-definition-2

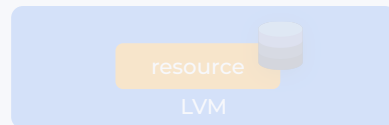
node1



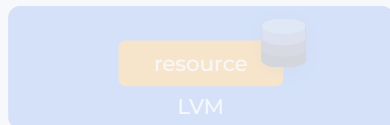
node2



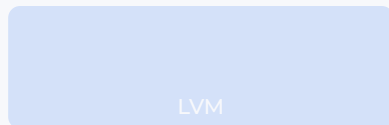
node3



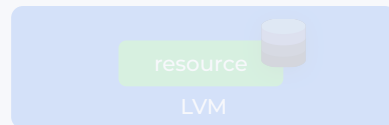
node4



node5



node6



```
linstor volume list -r test1
```

Node	Resource	StoragePool	VolNr	MinorNr	DeviceName	Allocated	InUse	State
node1	test1	ssd-lvmthin	0	1005	/dev/drbd1005	3.07 MiB	Unused	UpToDate
node6	test1	ssd-lvmthin	0	1005	/dev/drbd1005	3.07 MiB	Unused	UpToDate

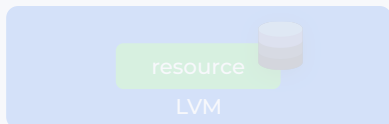


resource-definition-1

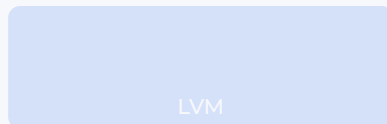


resource-definition-2

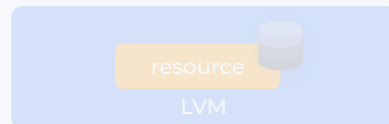
node1



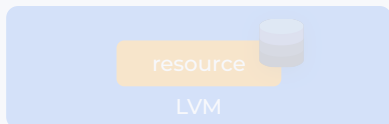
node2



node3



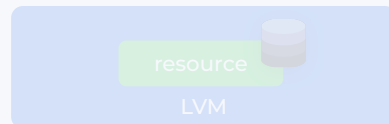
node4



node5



node6



```
linstor volume list -r test1
```

Node	Resource	StoragePool	VolNr	MinorNr	DeviceName	Allocated	InUse	State
node1	test1	ssd-lvmthin	0	1005	/dev/drbd1005	3.07 MiB	Unused	UpToDate
node6	test1	ssd-lvmthin	0	1005	/dev/drbd1005	3.07 MiB	Unused	UpToDate

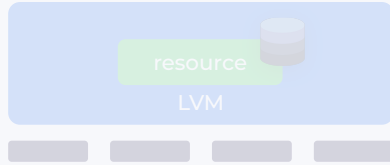


resource-definition-1



resource-definition-2

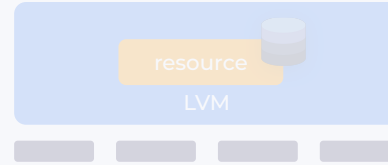
node1



node2



node3



node4



node5



node6



```
linstor volume list -r test1
```

Node	Resource	StoragePool	VolNr	MinorNr	DeviceName	Allocated	InUse	State
node1	test1	ssd-lvmthin	0	1005	/dev/drbd1005	3.07 MiB	Unused	UpToDate
node6	test1	ssd-lvmthin	0	1005	/dev/drbd1005	3.07 MiB	Unused	UpToDate

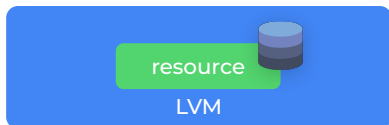


resource-definition-1



resource-definition-2

node1



node2



node3



node4

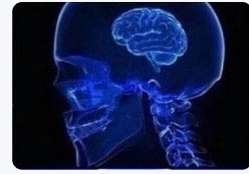


node5

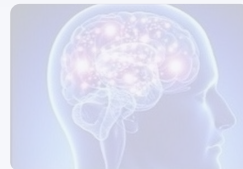
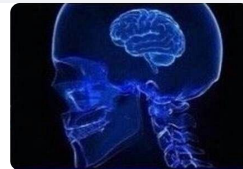


node6





Use Kubernetes PVC

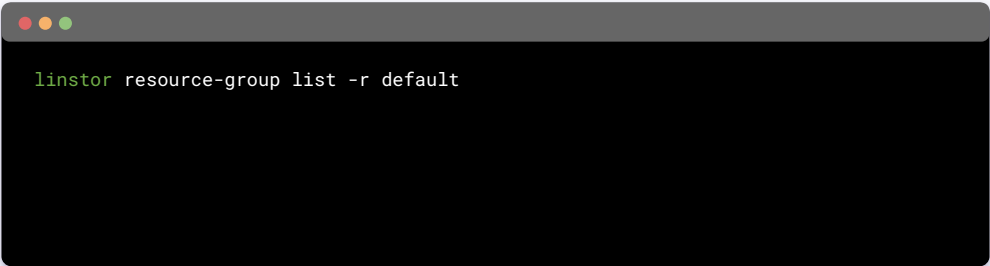


Use Kubernetes PVC



resource-group spawn



A terminal window with a dark background and a grey title bar. The title bar contains three colored window control buttons (red, yellow, green). The terminal displays a single line of text: `linstor resource-group list -r default`.

```
linstor resource-group list -r default
```

```
linstor resource-group list -r default
```

```
+-----+
| ResourceGroup | SelectFilter                | VlmNrs | Description |
+-----+-----+-----+-----+
| default      | PlaceCount: 2              | 0      |              |
|              | StoragePool(s): ssd-lvmthin |        |              |
|              | LayerStack: ['DRBD', 'STORAGE'] |        |              |
+-----+-----+-----+-----+
```

```
linstor resource-group list -r default
```

```
+-----+-----+-----+-----+
| ResourceGroup | SelectFilter | VlmNrs | Description |
+-----+-----+-----+-----+
| default       | PlaceCount: 2 | 0      |              |
|               | StoragePool(s): ssd-lvmthin |      |              |
|               | LayerStack: ['DRBD', 'STORAGE'] |      |              |
+-----+-----+-----+-----+
```



resource-group

```
linstor resource-group list -r default
```

```
+-----+-----+-----+-----+
| ResourceGroup | SelectFilter | VlmNrs | Description |
+-----+-----+-----+-----+
| default      | PlaceCount: 2 | 0      |              |
|              | StoragePool(s): ssd-lvmthin |        |              |
|              | LayerStack: ['DRBD', 'STORAGE'] |        |              |
+-----+-----+-----+-----+
```



resource-group

```
linstor resource-group list -r default
```

```
+-----+-----+-----+-----+
| ResourceGroup | SelectFilter | VlmNrs | Description |
+-----+-----+-----+-----+
| default       | PlaceCount: 2 | 0      |              |
|               | StoragePool(s): ssd-lvmthin |      |              |
|               | LayerStack: [ 'DRBD', 'STORAGE' ] |      |              |
+-----+-----+-----+-----+
```



resource-group

```
linstor resource-group list -r default
```

ResourceGroup	SelectFilter	VlmNrs	Description
default	PlaceCount: 2 StoragePool(s): ssd-lvmthin LayerStack: ['DRBD', 'STORAGE']	0	



resource-group


```
linstor resource-group list -r default
```

```
+-----+-----+-----+-----+
| ResourceGroup | SelectFilter | VlmNrs | Description |
+-----+-----+-----+-----+
| default       | PlaceCount: 2 | 0      |              |
|               | StoragePool(s): ssd-lvmthin |      |              |
|               | LayerStack: ['DRBD', 'STORAGE'] |      |              |
+-----+-----+-----+-----+
```



resource-group

```
linstor resource-group list -r default
```

```
+-----+-----+-----+-----+
| ResourceGroup | SelectFilter | VlmNrs | Description |
+-----+-----+-----+-----+
| default       | PlaceCount: 2 | 0       |              |
|               | StoragePool(s): ssd-lvmthin |         |              |
|               | LayerStack: ['DRBD', 'STORAGE'] |         |              |
+-----+-----+-----+-----+
```



resource-group

```
linstor resource-group list -r default
```

```
+-----+-----+-----+-----+
| ResourceGroup | SelectFilter | VlmNrs | Description |
+-----+-----+-----+-----+
| default       | PlaceCount: 2 | 0       |              |
|               | StoragePool(s): ssd-lvmthin |         |              |
|               | LayerStack: ['DRBD', 'STORAGE'] |         |              |
+-----+-----+-----+-----+
```

```
linstor volume-group list default
```



resource-group

```
linstor resource-group list -r default
```

```
+-----+
| ResourceGroup | SelectFilter          | VlmNrs | Description |
+-----+-----+-----+-----+
| default      | PlaceCount: 2        | 0      |              |
|              | StoragePool(s): ssd-lvmthin |        |              |
|              | LayerStack: ['DRBD', 'STORAGE'] |        |              |
+-----+-----+-----+-----+
```

```
linstor volume-group list default
```

```
+-----+
| VolumeNr | Flags |
+-----+-----+
| 0        |       |
+-----+-----+
```



resource-group

```
linstor resource-group list -r default
```

```
+-----+
| ResourceGroup | SelectFilter          | VlmNrs | Description |
+-----+-----+-----+-----+
| default       | PlaceCount: 2        | 0      |              |
|               | StoragePool(s): ssd-lvmthin |      |              |
|               | LayerStack: ['DRBD', 'STORAGE'] |      |              |
+-----+-----+-----+-----+
```

```
linstor volume-group list default
```

```
+-----+
| VolumeNr | Flags |
+-----+-----+
| 0        |      |
+-----+-----+
```



resource-group

```
linstor resource-group list -r default
```

```
+-----+
| ResourceGroup | SelectFilter          | VlmNrs | Description |
+-----+-----+-----+-----+
| default       | PlaceCount: 2        | 0      |              |
|               | StoragePool(s): ssd-lvmthin |      |              |
|               | LayerStack: ['DRBD', 'STORAGE'] |      |              |
+-----+-----+-----+-----+
```

```
linstor volume-group list default
```

```
+-----+
| VolumeNr | Flags |
+-----+
| 0        |      |
+-----+
```

```
linstor resource-group spawn default test2 10G
```



resource-group

```
linstor resource-group list -r default
```

```
+-----+
| ResourceGroup | SelectFilter          | VlmNrs | Description |
+-----+-----+-----+-----+
| default      | PlaceCount: 2        | 0      |              |
|              | StoragePool(s): ssd-lvmthin |      |              |
|              | LayerStack: ['DRBD', 'STORAGE'] |      |              |
+-----+-----+-----+-----+
```

```
linstor volume-group list default
```

```
+-----+
| VolumeNr | Flags |
+-----+-----+
| 0        |      |
+-----+-----+
```

```
linstor resource-group spawn default test2 10G
```



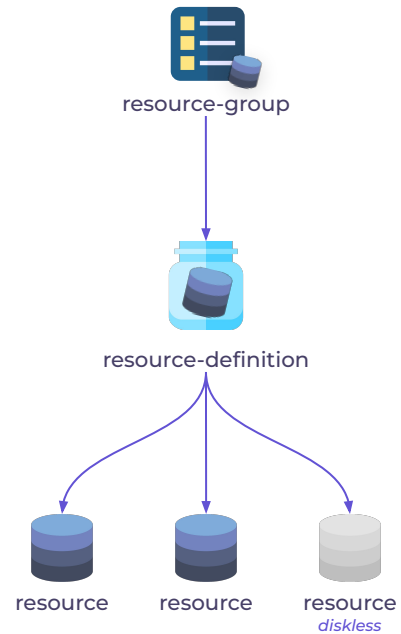
```
linstor resource-group list -r default
```

```
+-----+-----+-----+-----+
| ResourceGroup | SelectFilter | VlmNrs | Description |
+-----+-----+-----+-----+
| default       | PlaceCount: 2 | 0      |              |
|               | StoragePool(s): ssd-lvmthin |      |              |
|               | LayerStack: ['DRBD', 'STORAGE'] |      |              |
+-----+-----+-----+-----+
```

```
linstor volume-group list default
```

```
+-----+-----+
| VolumeNr | Flags |
+-----+-----+
| 0        |      |
+-----+-----+
```

```
linstor resource-group spawn default test2 10G
```




```
linstor resource-group list -r default
```

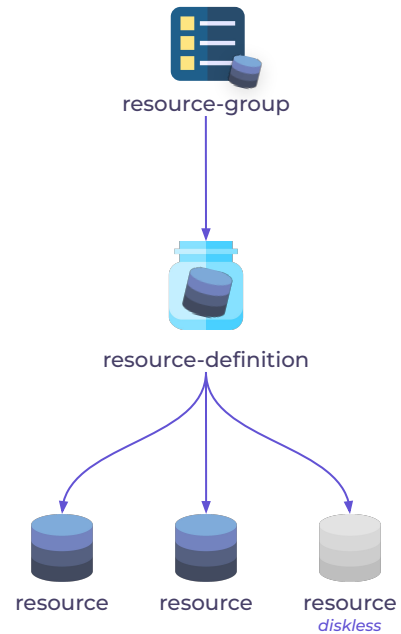
```
+-----+
| ResourceGroup | SelectFilter          | VlmNrs | Description |
+-----+-----+-----+-----+
| default       | PlaceCount: 2        | 0      |              |
|               | StoragePool(s): ssd-lvmthin |       |              |
|               | LayerStack: ['DRBD', 'STORAGE'] |       |              |
+-----+-----+-----+-----+
```

```
linstor volume-group list default
```

```
+-----+
| VolumeNr | Flags |
+-----+
| 0        |       |
+-----+
```

```
linstor resource-group spawn default test2 10G
```

```
linstor resource list -r test2
```



```
linstor resource-group list -r default
```

ResourceGroup	SelectFilter	VlmNrs	Description
default	PlaceCount: 2 StoragePool(s): ssd-lvmthin LayerStack: ['DRBD', 'STORAGE']	0	

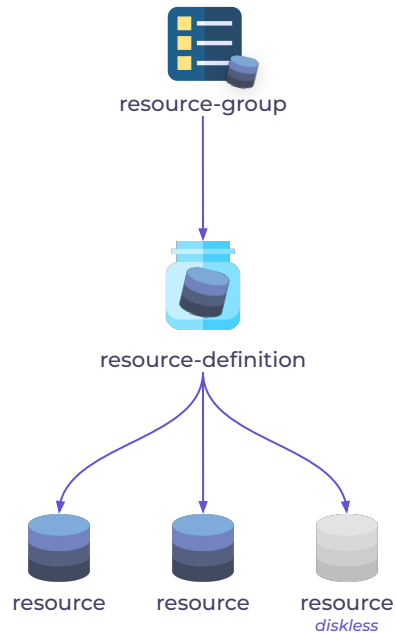
```
linstor volume-group list default
```

VolumeNr	Flags
0	

```
linstor resource-group spawn default test2 10G
```

```
linstor resource list -r test2
```

ResourceName	Node	Port	Usage	Conns	State	CreatedOn
test2	node1	7007	Unused	Ok	UpToDate	2022-05-26 15:27:02
test2	node4	7007	Unused	Ok	TieBreaker	2022-05-26 15:27:02
test2	node5	7007	Unused	Ok	UpToDate	2022-05-26 15:27:02



```
linstor resource-group list -r default
```

ResourceGroup	SelectFilter	VlmNrs	Description
default	PlaceCount: 2 StoragePool(s): ssd-lvmthin LayerStack: ['DRBD', 'STORAGE']	0	

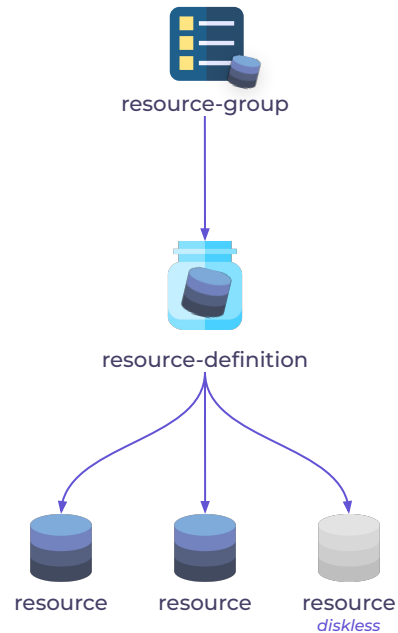
```
linstor volume-group list default
```

VolumeNr	Flags
0	

```
linstor resource-group spawn default test2 10G
```

```
linstor resource list -r test2
```

ResourceName	Node	Port	Usage	Conns	State	CreatedOn
test2	node1	7007	Unused	Ok	UpToDate	2022-05-26 15:27:02
test2	node4	7007	Unused	Ok	TieBreaker	2022-05-26 15:27:02
test2	node5	7007	Unused	Ok	UpToDate	2022-05-26 15:27:02



```
linstor resource-group list -r default
```

ResourceGroup	SelectFilter	VlmNrs	Description
default	PlaceCount: 2 StoragePool(s): ssd-lvmthin LayerStack: ['DRBD', 'STORAGE']	0	

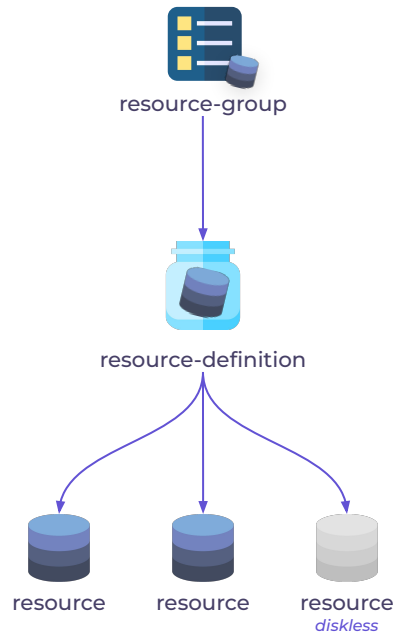
```
linstor volume-group list default
```

VolumeNr	Flags
0	

```
linstor resource-group spawn default test2 10G
```

```
linstor resource list -r test2
```

ResourceName	Node	Port	Usage	Conns	State	CreatedOn
test2	node1	7007	Unused	Ok	UpToDate	2022-05-26 15:27:02
test2	node4	7007	Unused	Ok	TieBreaker	2022-05-26 15:27:02
test2	node5	7007	Unused	Ok	UpToDate	2022-05-26 15:27:02



```
linstor resource-group list -r default
```

ResourceGroup	SelectFilter	VlmNrs	Description
default	PlaceCount: 2 StoragePool(s): ssd-lvmthin LayerStack: ['DRBD', 'STORAGE']	0	

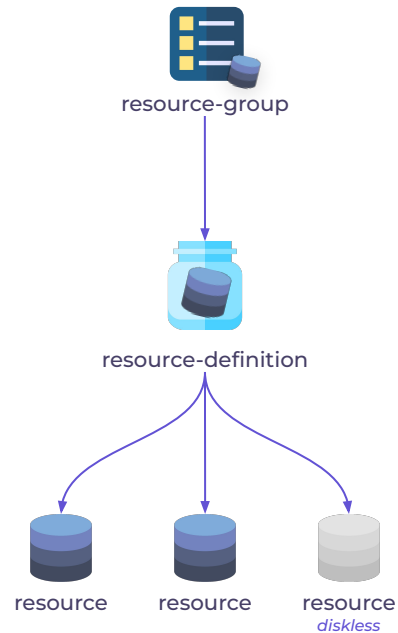
```
linstor volume-group list default
```

VolumeNr	Flags
0	

```
linstor resource-group spawn default test2 10G
```

```
linstor resource list -r test2
```

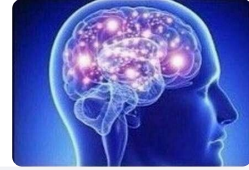
ResourceName	Node	Port	Usage	Conns	State	CreatedOn
test2	node1	7007	Unused	Ok	UpToDate	2022-05-26 15:27:02
test2	node4	7007	Unused	Ok	TieBreaker	2022-05-26 15:27:02
test2	node5	7007	Unused	Ok	UpToDate	2022-05-26 15:27:02



Use Kubernetes PVC



resource-group spawn



Use Kubernetes PVC

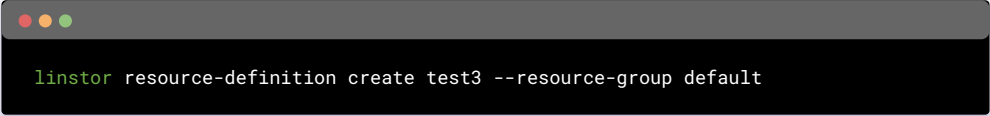


resource-group spawn



resource create --auto-place 2





```
linstor resource-definition create test3 --resource-group default
```



```
linstor resource-definition create test3 --resource-group default
```



resource-definition

```
linstor resource-definition create test3 --resource-group default
```



```
linstor resource-definition create test3 --resource-group default
```

```
linstor volume-definition create test3 10G
```



```
linstor resource-definition create test3 --resource-group default
```

```
linstor volume-definition create test3 10G
```



```
linstor resource-definition create test3 --resource-group default
```

```
linstor volume-definition create test3 10G
```

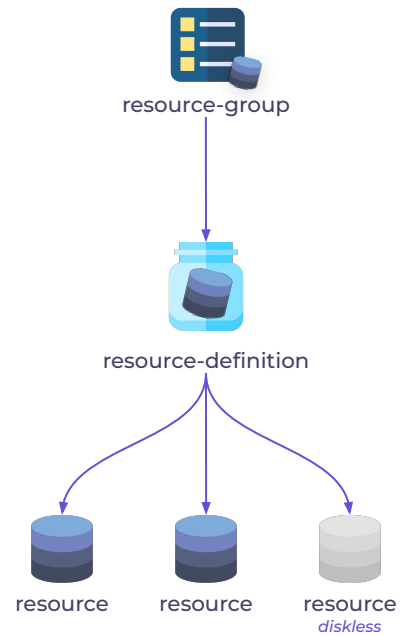
```
linstor create test3 --auto-place 2
```



```
linstor resource-definition create test3 --resource-group default
```

```
linstor volume-definition create test3 10G
```

```
linstor create test3 --auto-place 2
```

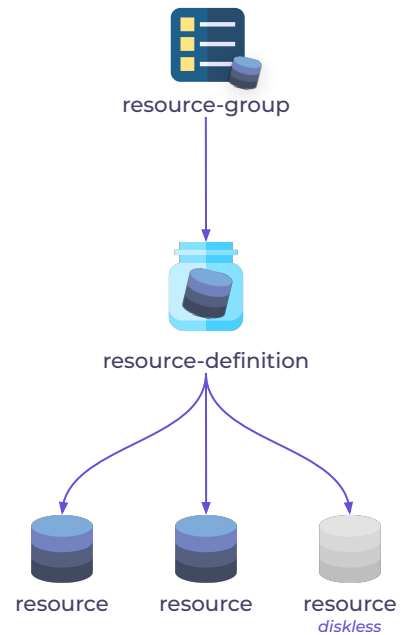


```
linstor resource-definition create test3 --resource-group default
```

```
linstor volume-definition create test3 10G
```

```
linstor create test3 --auto-place 2
```

```
linstor resource list -r test3
```



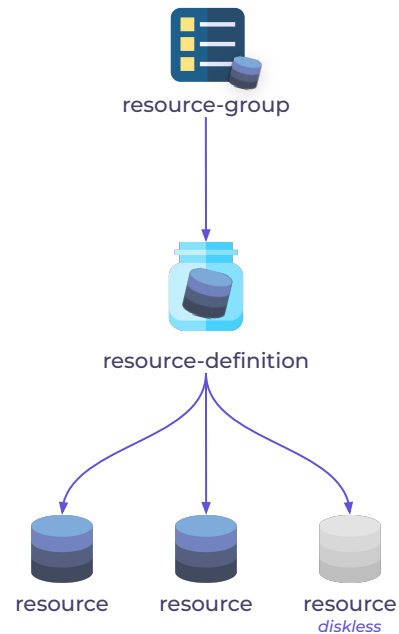
```
linstor resource-definition create test3 --resource-group default
```

```
linstor volume-definition create test3 10G
```

```
linstor create test3 --auto-place 2
```

```
linstor resource list -r test3
```

ResourceName	Node	Port	Usage	Conns	State	CreatedOn
test3	node2	7008	Unused	Ok	TieBreaker	2022-05-26 15:34:10
test3	node3	7008	Unused	Ok	UpToDate	2022-05-26 15:34:12
test3	node5	7008	Unused	Ok	UpToDate	2022-05-26 15:34:11



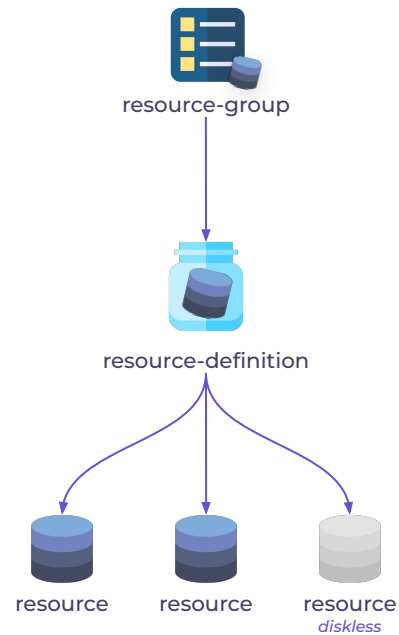

```
linstor resource-definition create test3 --resource-group default
```

```
linstor volume-definition create test3 10G
```

```
linstor create test3 --auto-place 2
```

```
linstor resource list -r test3
```

ResourceName	Node	Port	Usage	Conns	State	CreatedOn
test3	node2	7008	Unused	0k	TieBreaker	2022-05-26 15:34:10
test3	node3	7008	Unused	0k	UpToDate	2022-05-26 15:34:12
test3	node5	7008	Unused	0k	UpToDate	2022-05-26 15:34:11



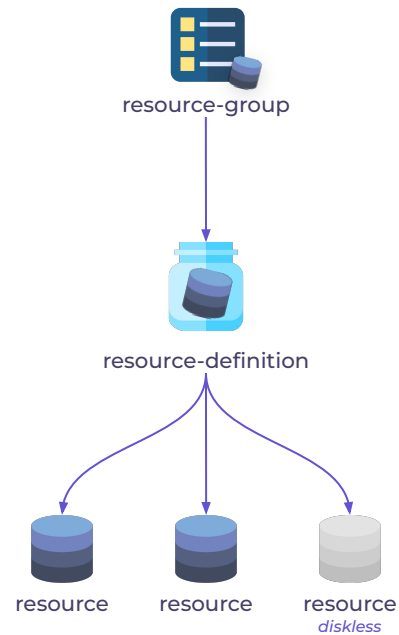
```
linstor resource-definition create test3 --resource-group default
```

```
linstor volume-definition create test3 10G
```

```
linstor create test3 --auto-place 2
```

```
linstor resource list -r test3
```

ResourceName	Node	Port	Usage	Conns	State	CreatedOn
test3	node2	7008	Unused	Ok	TieBreaker	2022-05-26 15:34:10
test3	node3	7008	Unused	Ok	UpToDate	2022-05-26 15:34:12
test3	node5	7008	Unused	Ok	UpToDate	2022-05-26 15:34:11



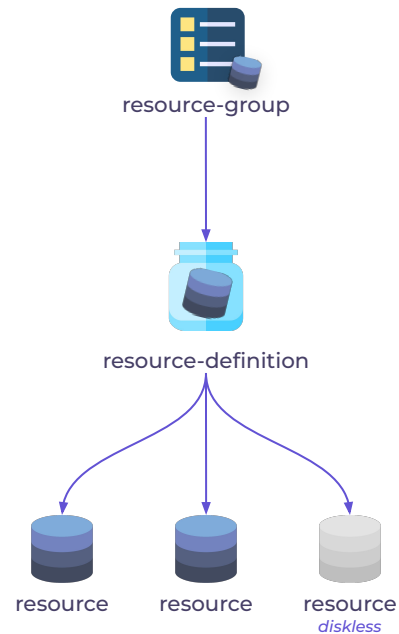
```
linstor resource-definition create test3 --resource-group default
```

```
linstor volume-definition create test3 10G
```

```
linstor create test3 --auto-place 2
```

```
linstor resource list -r test3
```

ResourceName	Node	Port	Usage	Conns	State	CreatedOn
test3	node2	7008	Unused	Ok	TieBreaker	2022-05-26 15:34:10
test3	node3	7008	Unused	Ok	UpToDate	2022-05-26 15:34:12
test3	node5	7008	Unused	Ok	UpToDate	2022-05-26 15:34:11



Use Kubernetes PVC



resource-group spawn



resource create --auto-place 2



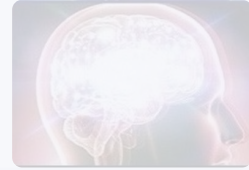
Use Kubernetes PVC



```
resource-group spawn
```

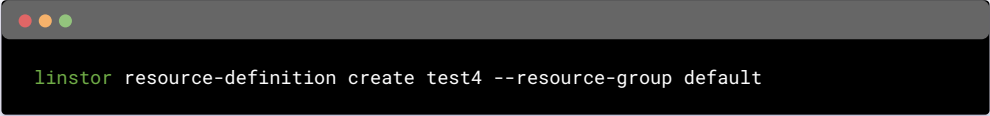


```
resource create --auto-place 2
```



```
resource create node1 -s storpool  
resource create node2 -s storpool
```





```
linstor resource-definition create test4 --resource-group default
```

```
linstor resource-definition create test4 --resource-group default
```



resource-definition

```
linstor resource-definition create test4 --resource-group default
```




```
linstor resource-definition create test4 --resource-group default
```

```
linstor volume-definition create test4 10G
```



```
linstor resource-definition create test4 --resource-group default
```

```
linstor volume-definition create test4 10G
```



```
linstor resource-definition create test4 --resource-group default
```

```
linstor volume-definition create test4 10G
```

```
linstor resource create node1 test4 -s ssd-lvmthin
```



```
linstor resource-definition create test4 --resource-group default
```

```
linstor volume-definition create test4 10G
```

```
linstor resource create node1 test4 -s ssd-lvmthin
```



```
linstor resource-definition create test4 --resource-group default
```

```
linstor volume-definition create test4 10G
```

```
linstor resource create node1 test4 -s ssd-lvmthin
```

```
linstor resource create node2 test4 -s ssd-lvmthin
```

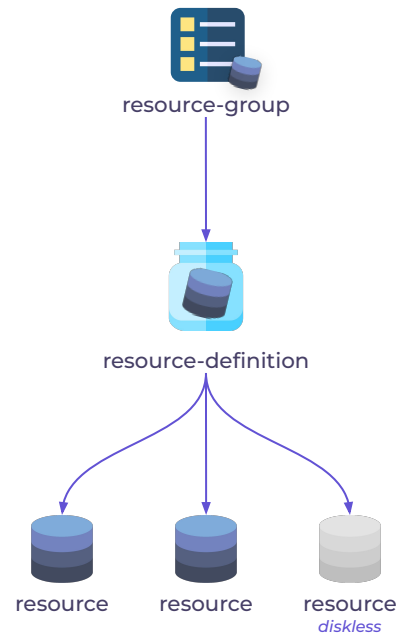


```
linstor resource-definition create test4 --resource-group default
```

```
linstor volume-definition create test4 10G
```

```
linstor resource create node1 test4 -s ssd-lvmthin
```

```
linstor resource create node2 test4 -s ssd-lvmthin
```



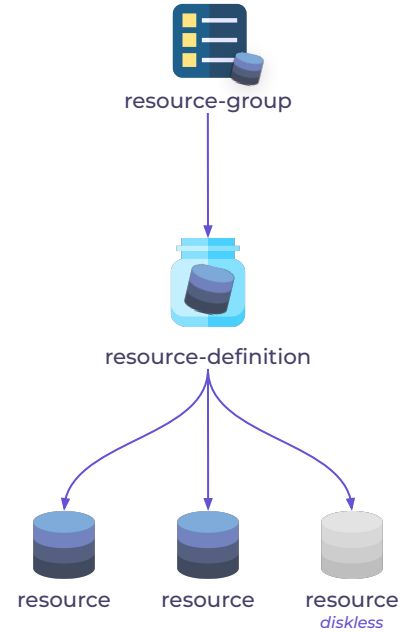
```
linstor resource-definition create test4 --resource-group default
```

```
linstor volume-definition create test4 10G
```

```
linstor resource create node1 test4 -s ssd-lvmthin
```

```
linstor resource create node2 test4 -s ssd-lvmthin
```

```
linstor resource list -r test4
```



```
linstor resource-definition create test4 --resource-group default
```

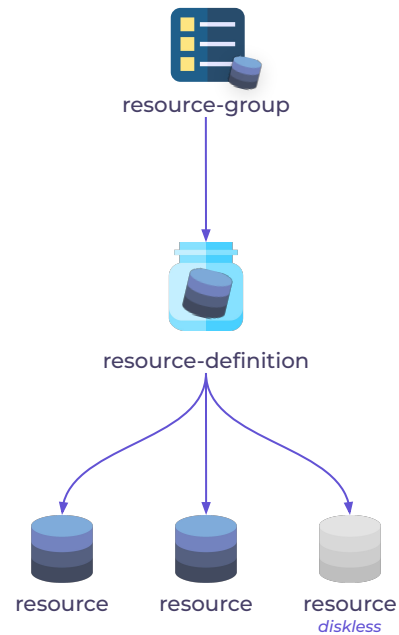
```
linstor volume-definition create test4 10G
```

```
linstor resource create node1 test4 -s ssd-lvmthin
```

```
linstor resource create node2 test4 -s ssd-lvmthin
```

```
linstor resource list -r test4
```

ResourceName	Node	Port	Usage	Conns	State	CreatedOn
test4	node1	7010	Unused	Ok	UpToDate	2022-05-26 15:40:46
test4	node2	7010	Unused	Ok	UpToDate	2022-05-26 15:40:51
test4	node6	7010	Unused	Ok	TieBreaker	2022-05-26 15:40:50




```
linstor resource-definition create test4 --resource-group default
```

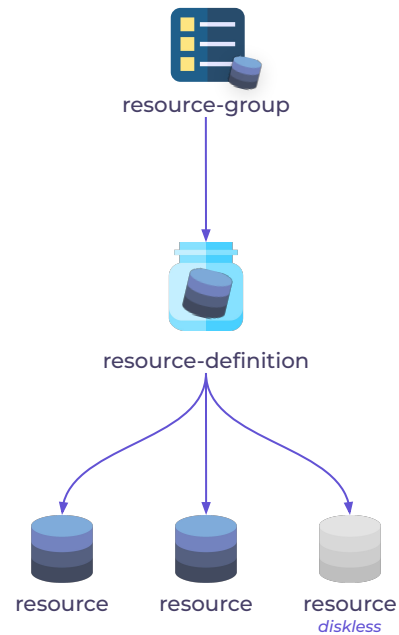
```
linstor volume-definition create test4 10G
```

```
linstor resource create node1 test4 -s ssd-lvmthin
```

```
linstor resource create node2 test4 -s ssd-lvmthin
```

```
linstor resource list -r test4
```

ResourceName	Node	Port	Usage	Conns	State	CreatedOn
test4	node1	7010	Unused	Ok	UpToDate	2022-05-26 15:40:46
test4	node2	7010	Unused	Ok	UpToDate	2022-05-26 15:40:51
test4	node6	7010	Unused	Ok	TieBreaker	2022-05-26 15:40:50



```
linstor resource-definition create test4 --resource-group default
```

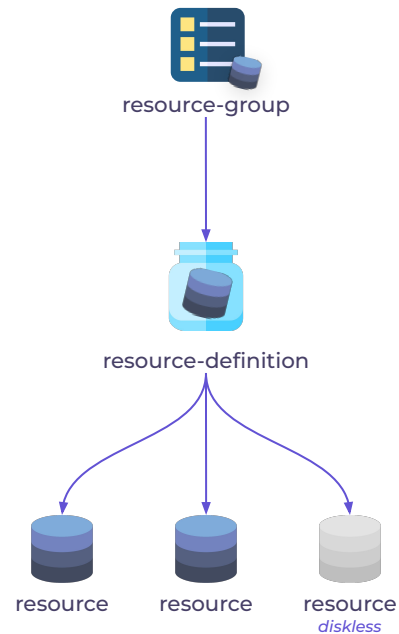
```
linstor volume-definition create test4 10G
```

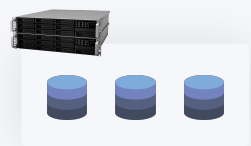
```
linstor resource create node1 test4 -s ssd-lvmthin
```

```
linstor resource create node2 test4 -s ssd-lvmthin
```

```
linstor resource list -r test4
```

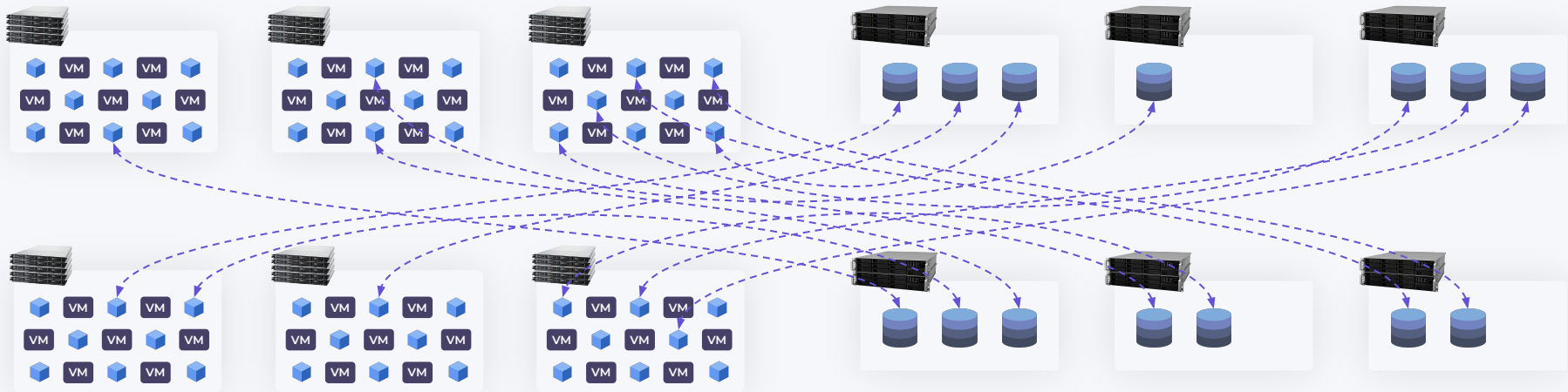
ResourceName	Node	Port	Usage	Conns	State	CreatedOn
test4	node1	7010	Unused	Ok	UpToDate	2022-05-26 15:40:46
test4	node2	7010	Unused	Ok	UpToDate	2022-05-26 15:40:51
test4	node6	7010	Unused	Ok	TieBreaker	2022-05-26 15:40:50





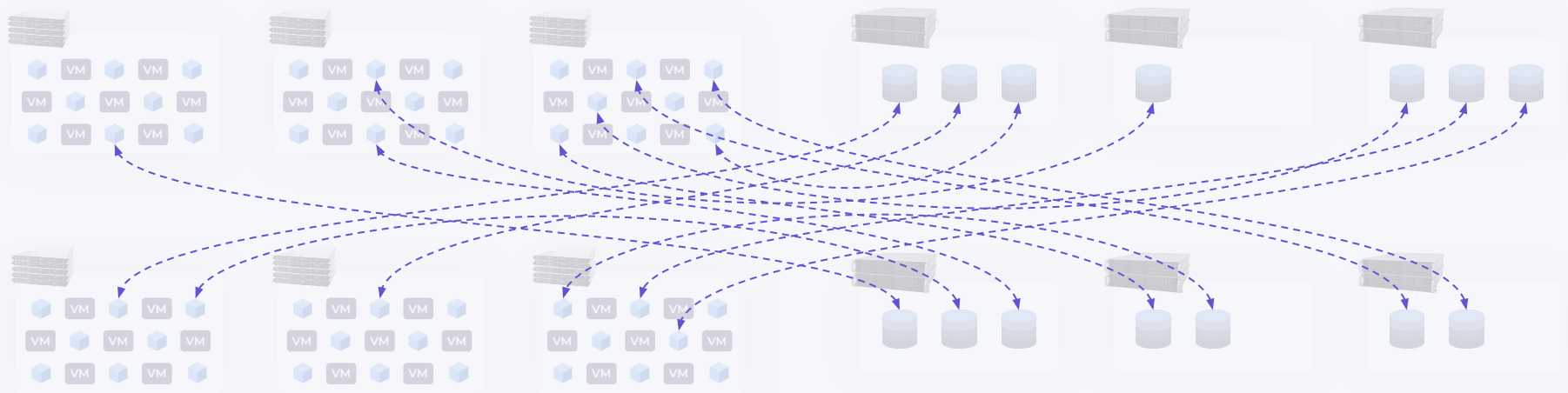
kubernetes

LIN^{STOR}



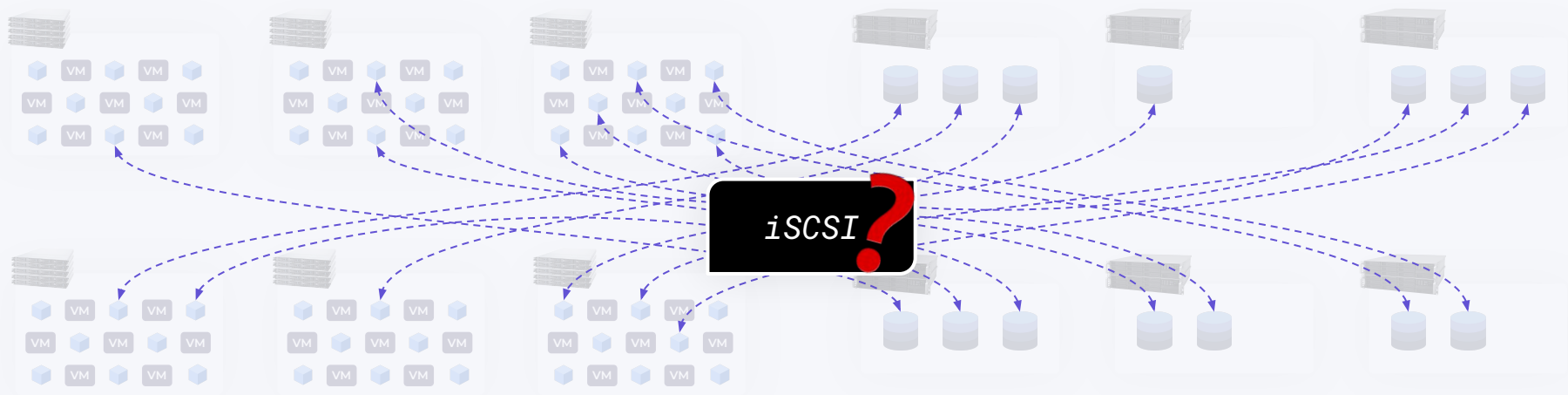
kubernetes

LIN^{STOR}



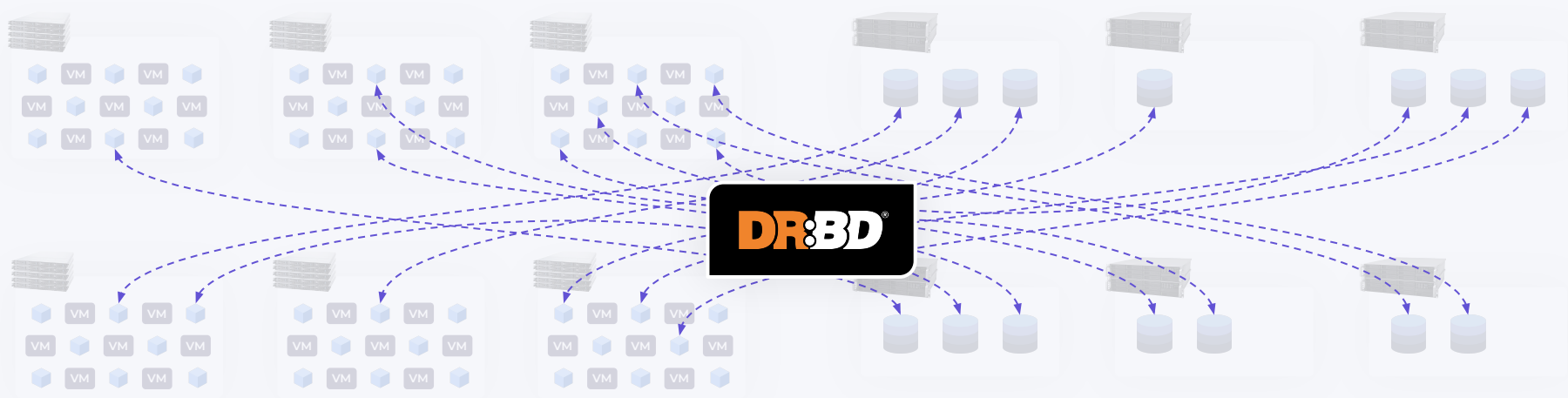
kubernetes

LIN^{STOR}



kubernetes

LIN^{STOR}



kubernetes

LIN^{STOR}





```
linstor resource create node3 test4 --diskless
```



```
linstor resource create node3 test4 --diskless
```

```
linstor resource list -r test4
```



```
linstor resource create node3 test4 --diskless
```

```
linstor resource list -r test4
```

ResourceName	Node	Port	Usage	Conns	State	CreatedOn
test4	node1	7010	Unused	Ok	UpToDate	2022-05-26 15:40:46
test4	node2	7010	Unused	Ok	UpToDate	2022-05-26 15:40:51
test4	node3	7010	Unused	Ok	Diskless	2022-05-26 15:40:50



```
linstor resource create node3 test4 --diskless
```

```
linstor resource list -r test4
```

ResourceName	Node	Port	Usage	Conns	State	CreatedOn
test4	node1	7010	Unused	Ok	UpToDate	2022-05-26 15:40:46
test4	node2	7010	Unused	Ok	UpToDate	2022-05-26 15:40:51
test4	node3	7010	Unused	Ok	Diskless	2022-05-26 15:40:50



```
linstor resource create node3 test4 --diskless
```

```
linstor resource list -r test4
```

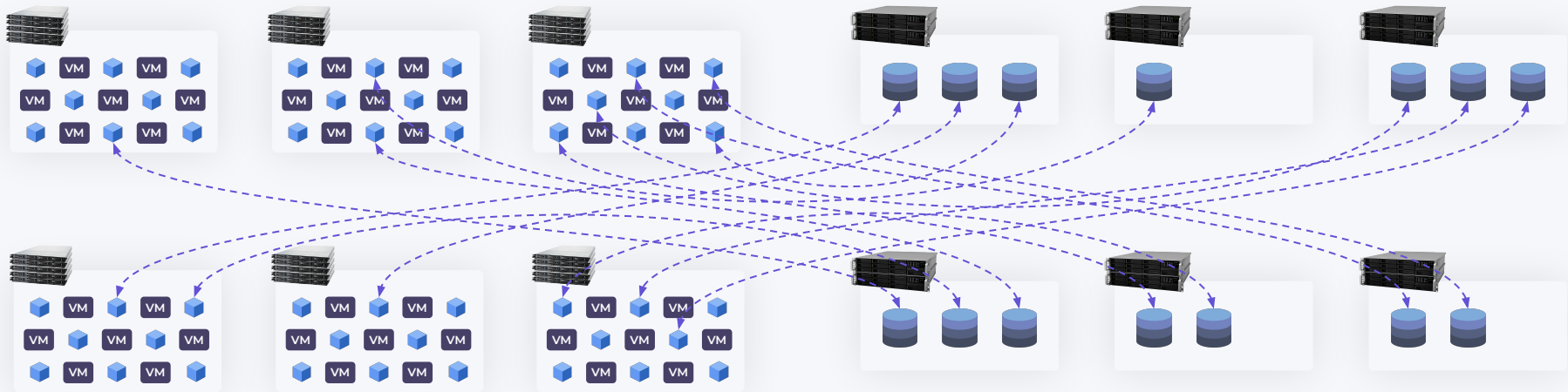
ResourceName	Node	Port	Usage	Conns	State	CreatedOn
test4	node1	7010	Unused	Ok	UpToDate	2022-05-26 15:40:46
test4	node2	7010	Unused	Ok	UpToDate	2022-05-26 15:40:51
test4	node3	7010	Unused	Ok	Diskless	2022-05-26 15:40:50



```
linstor resource create node3 test4 --diskless
```

```
linstor resource list -r test4
```

ResourceName	Node	Port	Usage	Conns	State	CreatedOn
test4	node1	7010	Unused	0k	UpToDate	2022-05-26 15:40:46
test4	node2	7010	Unused	0k	UpToDate	2022-05-26 15:40:51
test4	node3	7010	InUse	0k	Diskless	2022-05-26 15:40:50



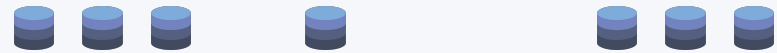
kubernetes

LIN^{STOR}



kubernetes

LIN^{STOR}



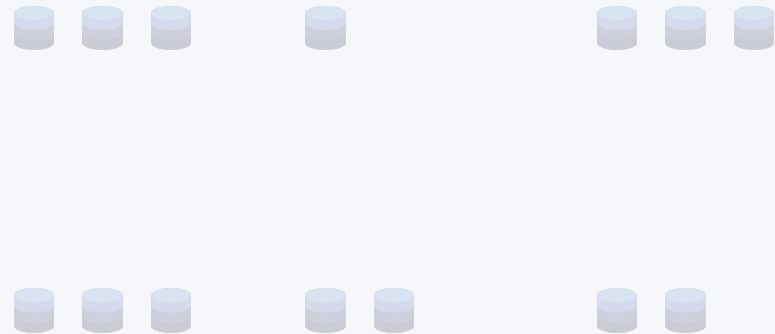
 **kubernetes**

LIN**STOR**



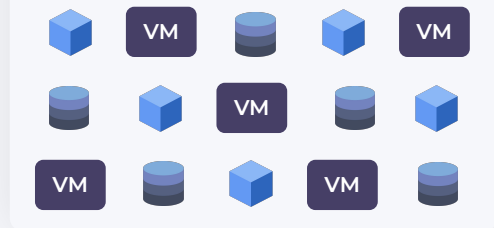
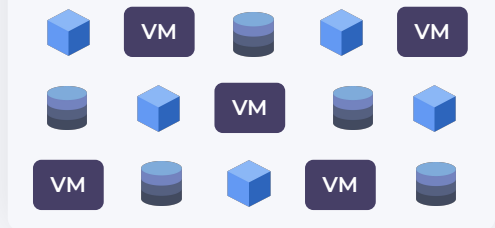
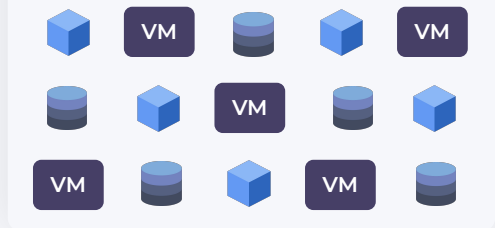
 **kubernetes**

LIN**STOR**



 **kubernetes**

LIN**STOR**



kubernetes

LIN^{STOR}



linstor-controller



linstor-satellite



user



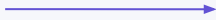
linstor-controller



linstor-satellite



user



linstor-controller



linstor-satellite



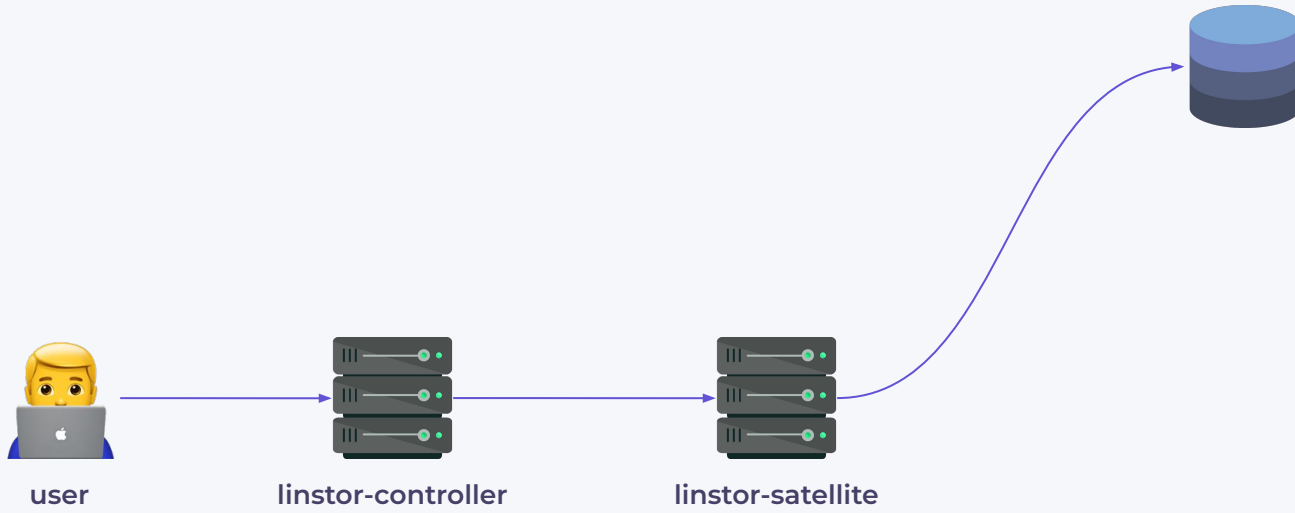
user

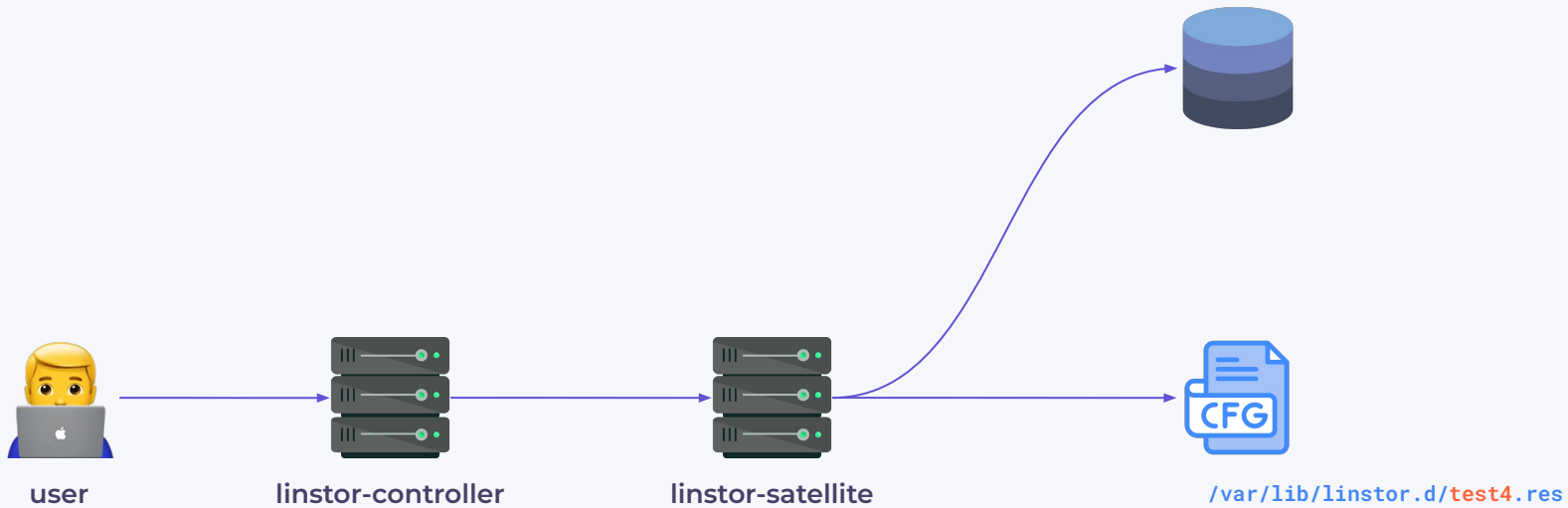


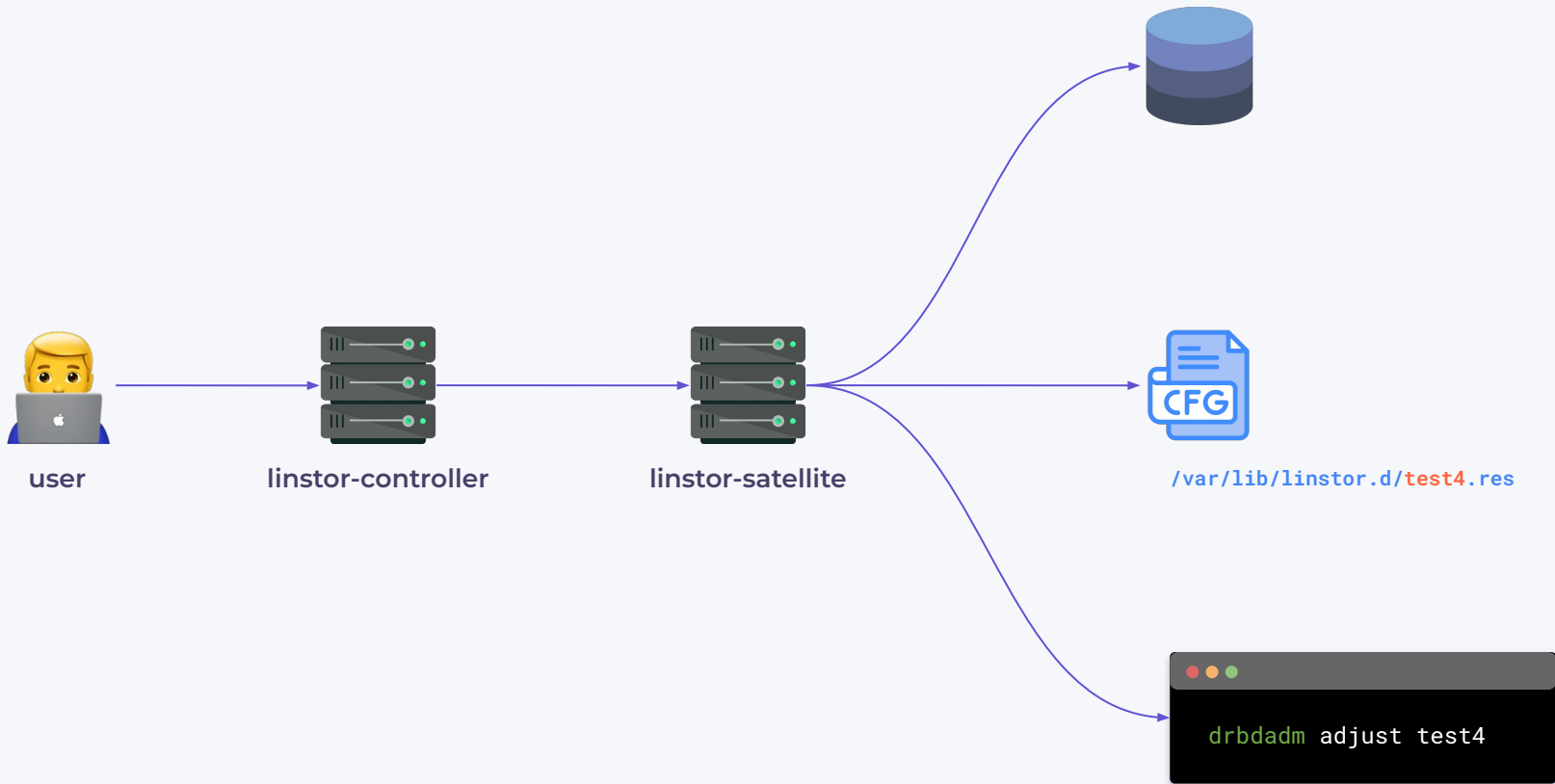
linstor-controller

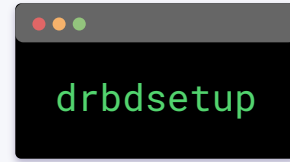
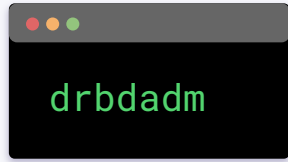


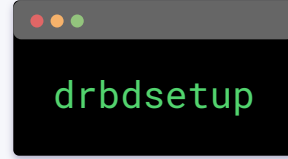
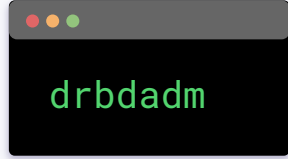
linstor-satellite

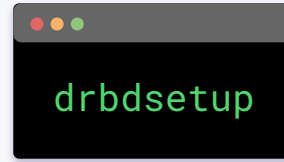
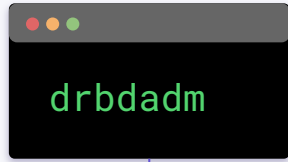


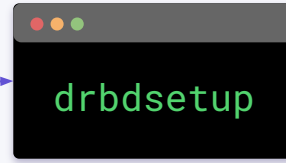
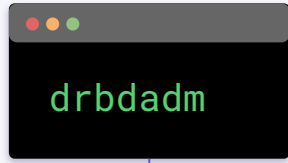


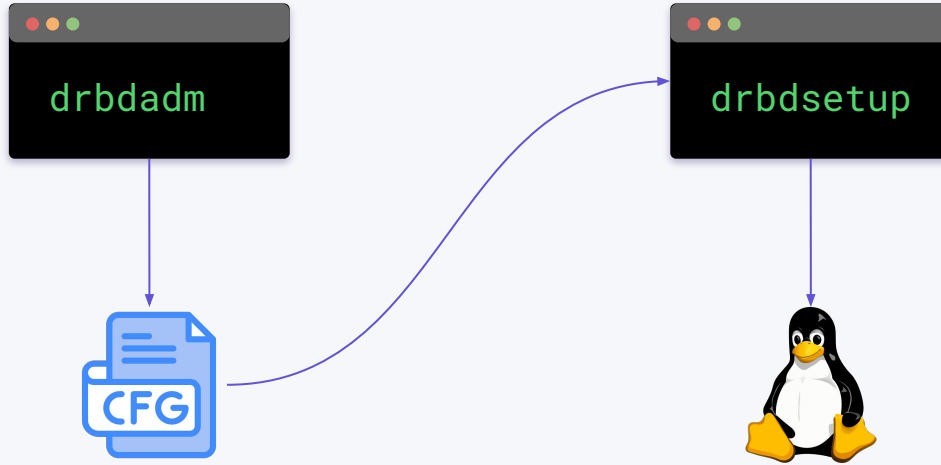








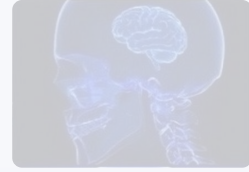






Using DRBD

Use Kubernetes PVC



```
resource-group spawn
```



```
resource create --auto-place 2
```



```
resource create node1 -s storpool  
resource create node2 -s storpool
```



Use Kubernetes PVC



```
resource-group spawn
```



```
resource create --auto-place 2
```




```
resource create node1 -s storpool  
resource create node2 -s storpool
```

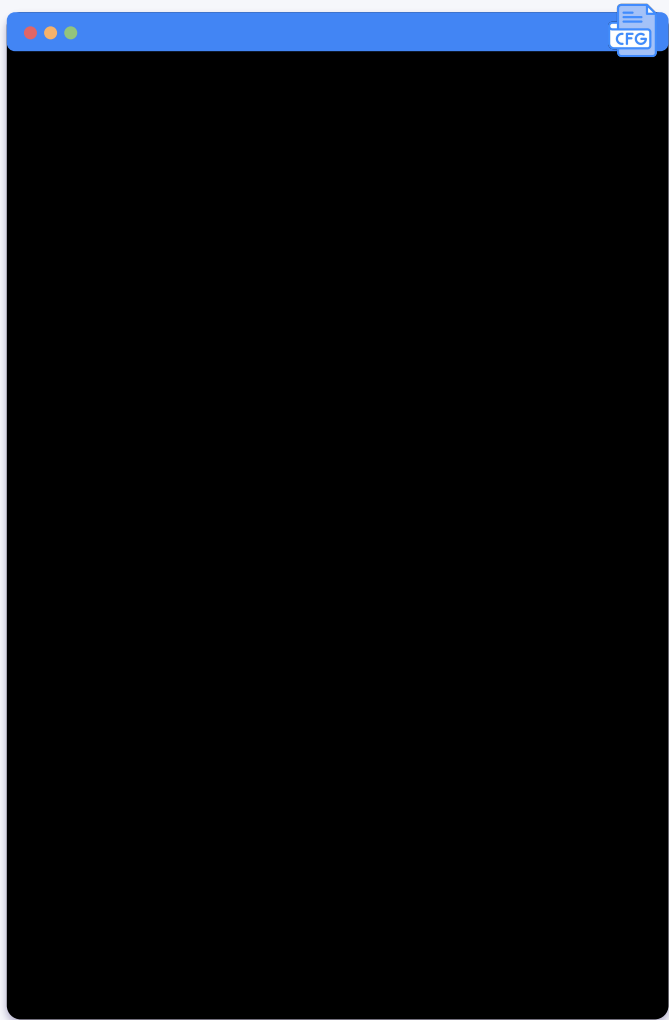


DEEPER!!!



A terminal window with a dark background and a light gray title bar. The title bar contains three colored window control buttons (red, yellow, green) on the left. The terminal content shows a single line of text: `cat /var/lib/linstor.d/test4.res`. The word `cat` is highlighted in green, and the rest of the command is in white.

```
cat /var/lib/linstor.d/test4.res
```





```
resource "test4" {  
  
  options {  
    on-no-quorum io-error;  
    quorum       majority;  
  }  
  
  on node1 {  
    volume 0 {  
      disk      /dev/linstor_data/test4_00000;  
      device    minor 1008;  
    }  
    node-id 0;  
  }  
  
  on node2 {  
    volume 0 {  
      disk      /dev/drbd/this/is/not/used;  
      device    minor 1008;  
    }  
    node-id 1;  
  }  
  
  on node3 {  
    volume 0 {  
      disk      none;  
      device    minor 1008;  
    }  
    node-id 2;  
  }  
}
```



```
resource "test4" {  
  
  options {  
    on-no-quorum io-error;  
    quorum       majority;  
  }  
  
  on node1 {  
    volume 0 {  
      disk      /dev/linstor_data/test4_00000;  
      device    minor 1008;  
    }  
    node-id 0;  
  }  
  
  on node2 {  
    volume 0 {  
      disk      /dev/drbd/this/is/not/used;  
      device    minor 1008;  
    }  
    node-id 1;  
  }  
  
  on node3 {  
    volume 0 {  
      disk      none;  
      device    minor 1008;  
    }  
    node-id 2;  
  }  
}
```



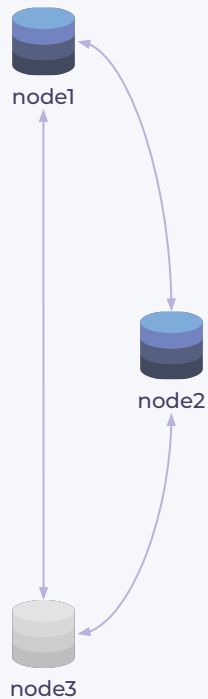
```
resource "test4" {  
  
  options {  
    on-no-quorum io-error;  
    quorum       majority;  
  }  
  
  on node1 {  
    volume 0 {  
      disk      /dev/linstor_data/test4_00000;  
      device    minor 1008;  
    }  
    node-id 0;  
  }  
  
  on node2 {  
    volume 0 {  
      disk      /dev/drbd/this/is/not/used;  
      device    minor 1008;  
    }  
    node-id 1;  
  }  
  
  on node3 {  
    volume 0 {  
      disk      none;  
      device    minor 1008;  
    }  
    node-id 2;  
  }  
}
```




```
resource "test4" {  
  
  options {  
    on-no-quorum io-error;  
    quorum       majority;  
  }  
  
  on node1 {  
    volume 0 {  
      disk      /dev/linstor_data/test4_00000;  
      device    minor 1008;  
    }  
    node-id 0;  
  }  
  
  on node2 {  
    volume 0 {  
      disk      /dev/drbd/this/is/not/used;  
      device    minor 1008;  
    }  
    node-id 1;  
  }  
  
  on node3 {  
    volume 0 {  
      disk      none;  
      device    minor 1008;  
    }  
    node-id 2;  
  }  
}
```

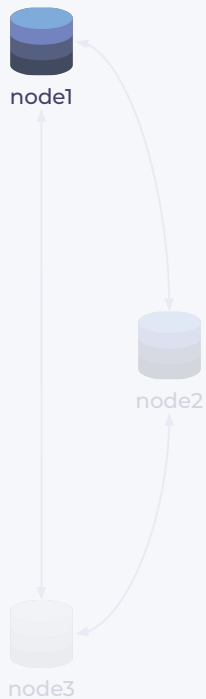


```
resource "test4" {  
  
  options {  
    on-no-quorum io-error;  
    quorum       majority;  
  }  
  
  on node1 {  
    volume 0 {  
      disk      /dev/linstor_data/test4_00000;  
      device    minor 1008;  
    }  
    node-id 0;  
  }  
  
  on node2 {  
    volume 0 {  
      disk      /dev/drbd/this/is/not/used;  
      device    minor 1008;  
    }  
    node-id 1;  
  }  
  
  on node3 {  
    volume 0 {  
      disk      none;  
      device    minor 1008;  
    }  
    node-id 2;  
  }  
}
```



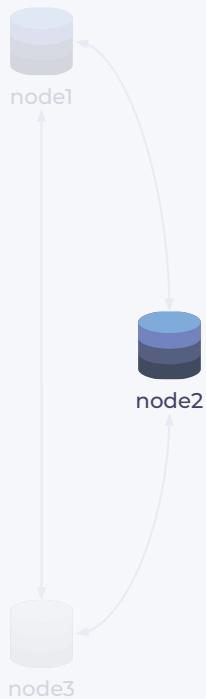


```
resource "test4" {  
  
  options {  
    on-no-quorum io-error;  
    quorum       majority;  
  }  
  
  on node1 {  
    volume 0 {  
      disk      /dev/linstor_data/test4_00000;  
      device    minor 1008;  
    }  
    node-id 0;  
  }  
  
  on node2 {  
    volume 0 {  
      disk      /dev/drbd/this/is/not/used;  
      device    minor 1008;  
    }  
    node-id 1;  
  }  
  
  on node3 {  
    volume 0 {  
      disk      none;  
      device    minor 1008;  
    }  
    node-id 2;  
  }  
}
```



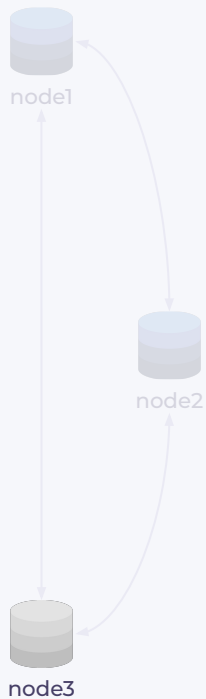


```
resource "test4" {  
  
  options {  
    on-no-quorum io-error;  
    quorum       majority;  
  }  
  
  on node1 {  
    volume 0 {  
      disk      /dev/linstor_data/test4_00000;  
      device    minor 1008;  
    }  
    node-id 0;  
  }  
  
  on node2 {  
    volume 0 {  
      disk      /dev/drbd/this/is/not/used;  
      device    minor 1008;  
    }  
    node-id 1;  
  }  
  
  on node3 {  
    volume 0 {  
      disk      none;  
      device    minor 1008;  
    }  
    node-id 2;  
  }  
}
```



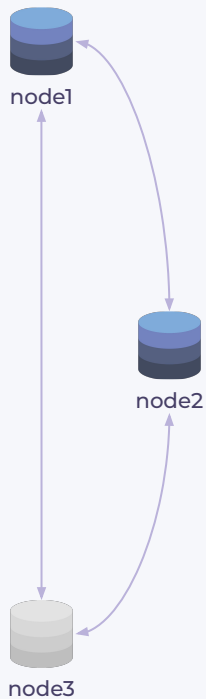


```
resource "test4" {  
  
  options {  
    on-no-quorum io-error;  
    quorum       majority;  
  }  
  
  on node1 {  
    volume 0 {  
      disk      /dev/linstor_data/test4_00000;  
      device    minor 1008;  
    }  
    node-id 0;  
  }  
  
  on node2 {  
    volume 0 {  
      disk      /dev/drbd/this/is/not/used;  
      device    minor 1008;  
    }  
    node-id 1;  
  }  
  
  on node3 {  
    volume 0 {  
      disk      none;  
      device    minor 1008;  
    }  
    node-id 2;  
  }  
}
```



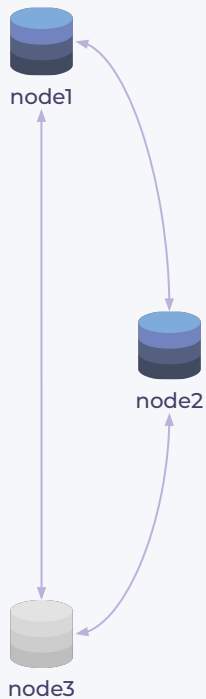


```
resource "test4" {  
  
  options {  
    on-no-quorum io-error;  
    quorum       majority;  
  }  
  
  on node1 {  
    volume 0 {  
      disk      /dev/linstor_data/test4_00000;  
      device    minor 1008;  
    }  
    node-id 0;  
  }  
  
  on node2 {  
    volume 0 {  
      disk      /dev/drbd/this/is/not/used;  
      device    minor 1008;  
    }  
    node-id 1;  
  }  
  
  on node3 {  
    volume 0 {  
      disk      none;  
      device    minor 1008;  
    }  
    node-id 2;  
  }  
}
```



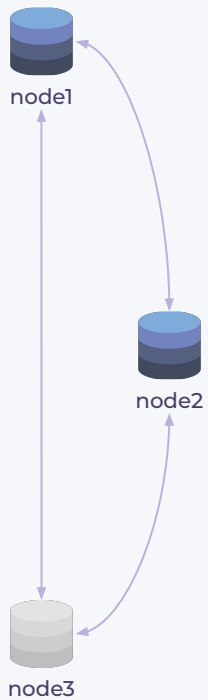


```
resource "test4" {  
  
  options {  
    on-no-quorum io-error;  
    quorum       majority;  
  }  
  
  on node1 {  
    volume 0 {  
      disk      /dev/linstor_data/test4_00000;  
      device    minor 1008;  
    }  
    node-id 0;  
  }  
  
  on node2 {  
    volume 0 {  
      disk      /dev/drbd/this/is/not/used;  
      device    minor 1008;  
    }  
    node-id 1;  
  }  
  
  on node3 {  
    volume 0 {  
      disk      none;  
      device    minor 1008;  
    }  
    node-id 2;  
  }  
}
```



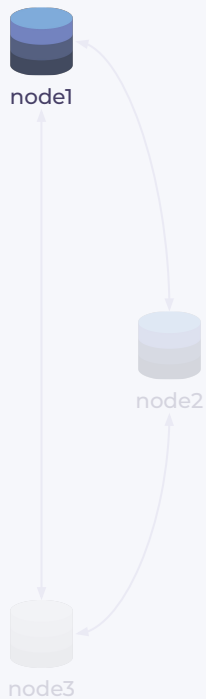


```
resource "test4" {  
  
  options {  
    on-no-quorum io-error;  
    quorum       majority;  
  }  
  
  on node1 {  
    volume 0 {  
      disk      /dev/linstor_data/test4_00000;  
      device    minor 1008;  
    }  
    node-id 0;  
  }  
  
  on node2 {  
    volume 0 {  
      disk      /dev/drbd/this/is/not/used;  
      device    minor 1008;  
    }  
    node-id 1;  
  }  
  
  on node3 {  
    volume 0 {  
      disk      none;  
      device    minor 1008;  
    }  
    node-id 2;  
  }  
}
```





```
resource "test4" {  
  
  options {  
    on-no-quorum io-error;  
    quorum       majority;  
  }  
  
  on node1 {  
    volume 0 {  
      disk      /dev/linstor_data/test4_00000;  
      device    minor 1008;  
    }  
    node-id 0;  
  }  
  
  on node2 {  
    volume 0 {  
      disk      /dev/drbd/this/is/not/used;  
      device    minor 1008;  
    }  
    node-id 1;  
  }  
  
  on node3 {  
    volume 0 {  
      disk      none;  
      device    minor 1008;  
    }  
    node-id 2;  
  }  
}
```



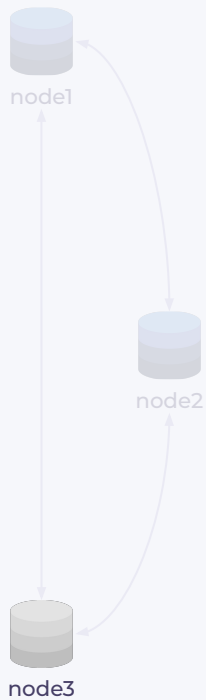


```
resource "test4" {  
  
  options {  
    on-no-quorum io-error;  
    quorum       majority;  
  }  
  
  on node1 {  
    volume 0 {  
      disk      /dev/linstor_data/test4_00000;  
      device    minor 1008;  
    }  
    node-id 0;  
  }  
  
  on node2 {  
    volume 0 {  
      disk      /dev/drbd/this/is/not/used;  
      device    minor 1008;  
    }  
    node-id 1;  
  }  
  
  on node3 {  
    volume 0 {  
      disk      none;  
      device    minor 1008;  
    }  
    node-id 2;  
  }  
}
```



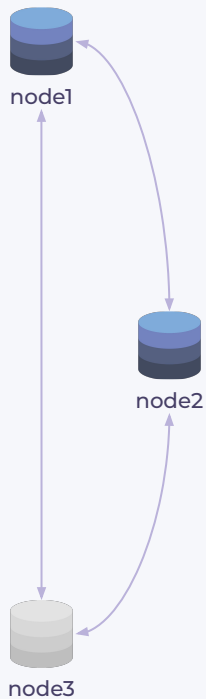


```
resource "test4" {  
  
  options {  
    on-no-quorum io-error;  
    quorum       majority;  
  }  
  
  on node1 {  
    volume 0 {  
      disk      /dev/linstor_data/test4_00000;  
      device    minor 1008;  
    }  
    node-id 0;  
  }  
  
  on node2 {  
    volume 0 {  
      disk      /dev/drbd/this/is/not/used;  
      device    minor 1008;  
    }  
    node-id 1;  
  }  
  
  on node3 {  
    volume 0 {  
      disk      none;  
      device    minor 1008;  
    }  
    node-id 2;  
  }  
}
```



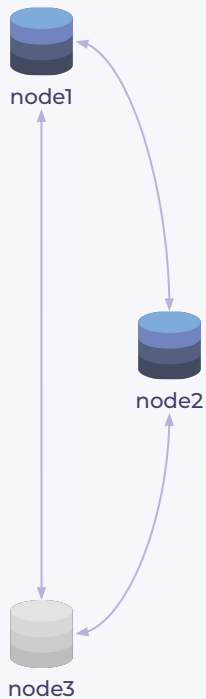


```
resource "test4" {  
  
  options {  
    on-no-quorum io-error;  
    quorum       majority;  
  }  
  
  on node1 {  
    volume 0 {  
      disk      /dev/linstor_data/test4_00000;  
      device    minor 1008;  
    }  
    node-id 0;  
  }  
  
  on node2 {  
    volume 0 {  
      disk      /dev/drbd/this/is/not/used;  
      device    minor 1008;  
    }  
    node-id 1;  
  }  
  
  on node3 {  
    volume 0 {  
      disk      none;  
      device    minor 1008;  
    }  
    node-id 2;  
  }  
}
```



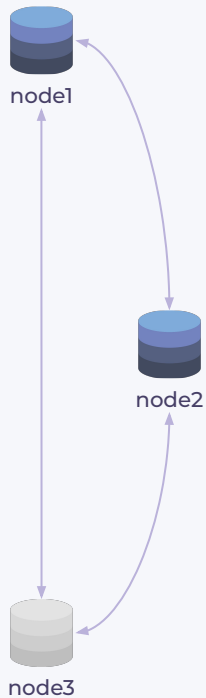


```
resource "test4" {  
  
  options {  
    on-no-quorum io-error;  
    quorum       majority;  
  }  
  
  on node1 {  
    volume 0 {  
      disk      /dev/linstor_data/test4_00000;  
      device    minor 1008;  
    }  
    node-id 0;  
  }  
  
  on node2 {  
    volume 0 {  
      disk      /dev/drbd/this/is/not/used;  
      device    minor 1008;  
    }  
    node-id 1;  
  }  
  
  on node3 {  
    volume 0 {  
      disk      none;  
      device    minor 1008;  
    }  
    node-id 2;  
  }  
}
```

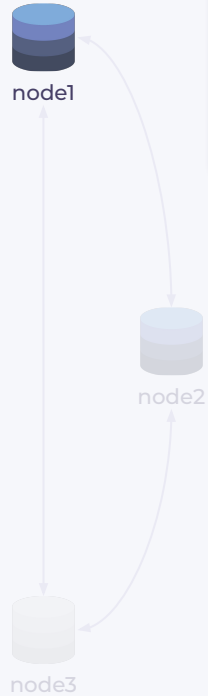




```
resource "test4" {  
  
  options {  
    on-no-quorum io-error;  
    quorum       majority;  
  }  
  
  on node1 {  
    volume 0 {  
      disk      /dev/linstor_data/test4_00000;  
      device    minor 1008;  
    }  
    node-id 0;  
  }  
  
  on node2 {  
    volume 0 {  
      disk      /dev/drbd/this/is/not/used;  
      device    minor 1008;  
    }  
    node-id 1;  
  }  
  
  on node3 {  
    volume 0 {  
      disk      none;  
      device    minor 1008;  
    }  
    node-id 2;  
  }  
}
```



```
resource "test4" {  
  
  options {  
    on-no-quorum io-error;  
    quorum       majority;  
  }  
  
  on node1 {  
    volume 0 {  
      disk      /dev/linstor_data/test4_00000;  
      device    minor 1008;  
    }  
    node-id 0;  
  }  
  
  on node2 {  
    volume 0 {  
      disk      /dev/drbd/this/is/not/used;  
      device    minor 1008;  
    }  
    node-id 1;  
  }  
  
  on node3 {  
    volume 0 {  
      disk      none;  
      device    minor 1008;  
    }  
    node-id 2;  
  }  
}
```



```
node1:/# drbdadm status test4  
test4 role:Secondary  
disk:UpToDate  
node2 role:Secondary  
peer-disk:UpToDate  
node3 role:Secondary  
peer-disk:Diskless
```

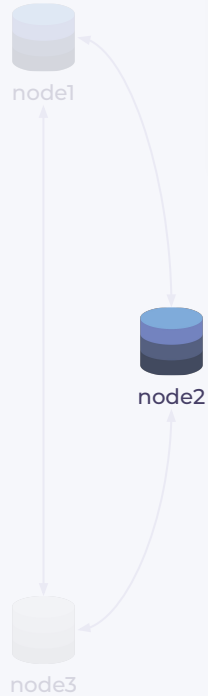
```
resource "test4" {

  options {
    on-no-quorum io-error;
    quorum       majority;
  }

  on node1 {
    volume 0 {
      disk      /dev/linstor_data/test4_00000;
      device    minor 1008;
    }
    node-id 0;
  }

  on node2 {
    volume 0 {
      disk      /dev/drbd/this/is/not/used;
      device    minor 1008;
    }
    node-id 1;
  }

  on node3 {
    volume 0 {
      disk      none;
      device    minor 1008;
    }
    node-id 2;
  }
}
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```



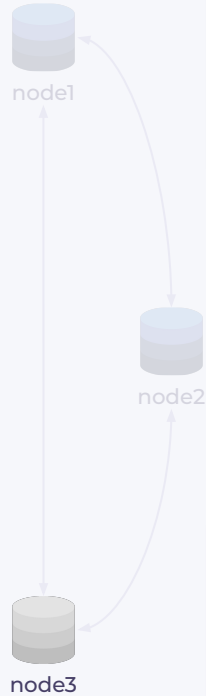
```
resource "test4" {

  options {
    on-no-quorum io-error;
    quorum       majority;
  }

  on node1 {
    volume 0 {
      disk      /dev/linstor_data/test4_00000;
      device    minor 1008;
    }
    node-id 0;
  }

  on node2 {
    volume 0 {
      disk      /dev/drbd/this/is/not/used;
      device    minor 1008;
    }
    node-id 1;
  }

  on node3 {
    volume 0 {
      disk      none;
      device    minor 1008;
    }
    node-id 2;
  }
}
```



```
node1:~# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:~# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:~# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

```

resource "test4" {

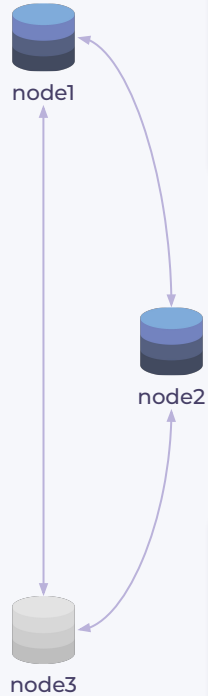
  options {
    on-no-quorum io-error;
    quorum       majority;
  }

  on node1 {
    volume 0 {
      disk      /dev/linstor_data/test4_00000;
      device    minor 1008;
    }
    node-id 0;
  }

  on node2 {
    volume 0 {
      disk      /dev/drbd/this/is/not/used;
      device    minor 1008;
    }
    node-id 1;
  }

  on node3 {
    volume 0 {
      disk      none;
      device    minor 1008;
    }
    node-id 2;
  }
}

```



```

node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless

```

```

node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless

```

```

node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate

```

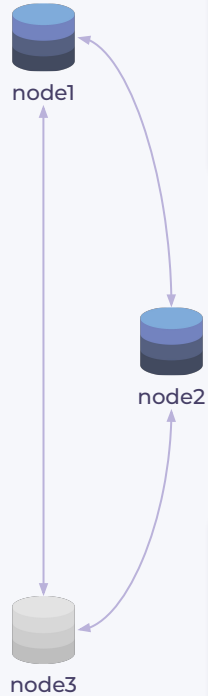
```
resource "test4" {

  options {
    on-no-quorum io-error;
    quorum       majority;
  }

  on node1 {
    volume 0 {
      disk      /dev/linstor_data/test4_00000;
      device    minor 1008;
    }
    node-id 0;
  }

  on node2 {
    volume 0 {
      disk      /dev/drbd/this/is/not/used;
      device    minor 1008;
    }
    node-id 1;
  }

  on node3 {
    volume 0 {
      disk      none;
      device    minor 1008;
    }
    node-id 2;
  }
}
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

```

resource "test4" {

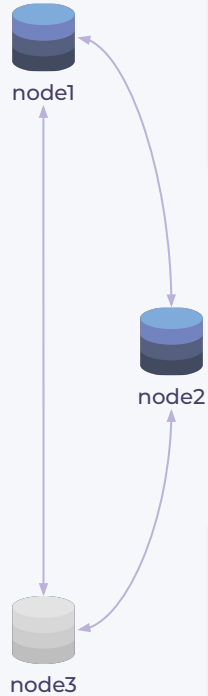
  options {
    on-no-quorum io-error;
    quorum       majority;
  }

  on node1 {
    volume 0 {
      disk      /dev/linstor_data/test4_00000;
      device    minor 1008;
    }
    node-id 0;
  }

  on node2 {
    volume 0 {
      disk      /dev/drbd/this/is/not/used;
      device    minor 1008;
    }
    node-id 1;
  }

  on node3 {
    volume 0 {
      disk      none;
      device    minor 1008;
    }
    node-id 2;
  }
}

```



```

node1:~# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless

```

```

node2:~# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless

```

```

node3:~# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate

```

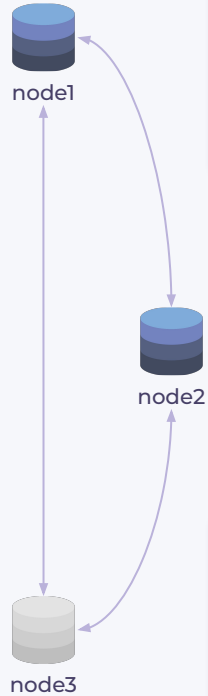
```
resource "test4" {

  options {
    on-no-quorum io-error;
    quorum       majority;
  }

  on node1 {
    volume 0 {
      disk      /dev/linstor_data/test4_00000;
      device    minor 1008;
    }
    node-id 0;
  }

  on node2 {
    volume 0 {
      disk      /dev/drbd/this/is/not/used;
      device    minor 1008;
    }
    node-id 1;
  }

  on node3 {
    volume 0 {
      disk      none;
      device    minor 1008;
    }
    node-id 2;
  }
}
```



```
node1:~# drbdadm status test4
test4 role:Secondary
      disk:UpToDate
      node2 role:Secondary
           peer-disk:UpToDate
      node3 role:Secondary
           peer-disk:Diskless
```

```
node2:~# drbdadm status test4
test4 role:Secondary
      disk:UpToDate
      node1 role:Secondary
           peer-disk:UpToDate
      node3 role:Secondary
           peer-disk:Diskless
```

```
node3:~# drbdadm status test4
test4 role:Secondary
      disk:Diskless
      node1 role:Secondary
           peer-disk:UpToDate
      node2 role:Secondary
           peer-disk:UpToDate
```

```

resource "test4" {

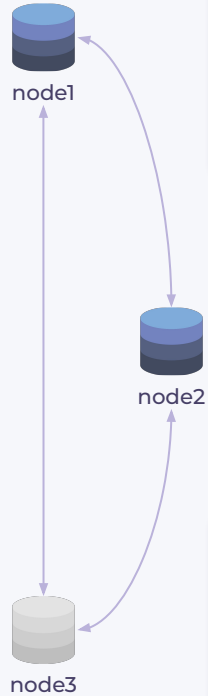
  options {
    on-no-quorum io-error;
    quorum       majority;
  }

  on node1 {
    volume 0 {
      disk      /dev/linstor_data/test4_00000;
      device    minor 1008;
    }
    node-id 0;
  }

  on node2 {
    volume 0 {
      disk      /dev/drbd/this/is/not/used;
      device    minor 1008;
    }
    node-id 1;
  }

  on node3 {
    volume 0 {
      disk      none;
      device    minor 1008;
    }
    node-id 2;
  }
}

```



```

node1:~# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless

```

```

node2:~# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless

```

```

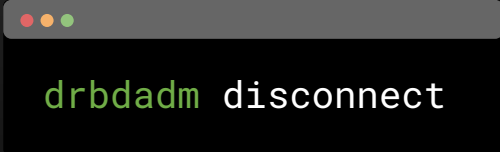
node3:~# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate

```



Managing connections

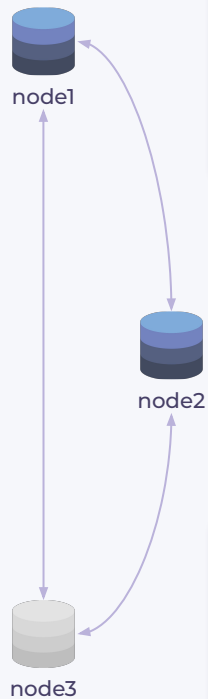
Managing connections

A terminal window icon with a grey title bar containing three colored dots (red, yellow, green).

```
drbdadm disconnect
```

A terminal window icon with a grey title bar containing three colored dots (red, yellow, green).

```
drbdadm connect
```

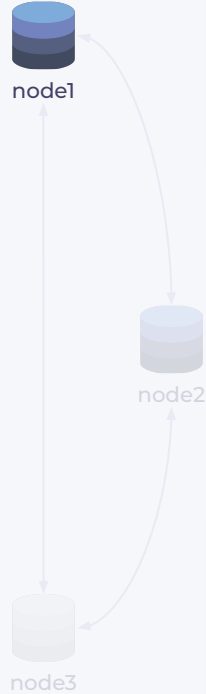



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4
```

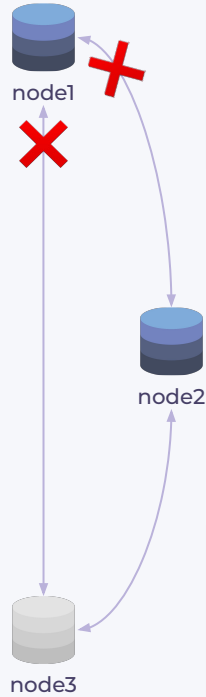


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4
```

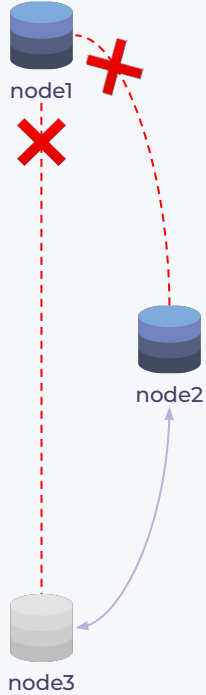


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4
```

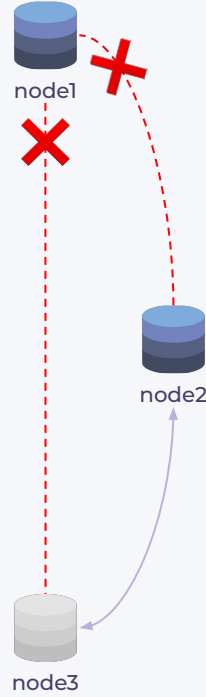


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4
```

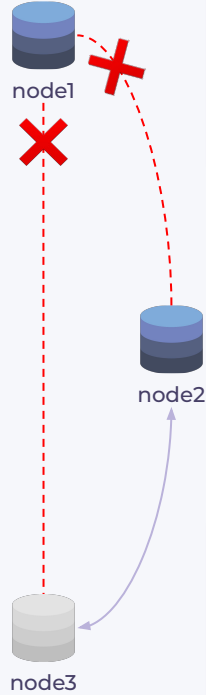


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

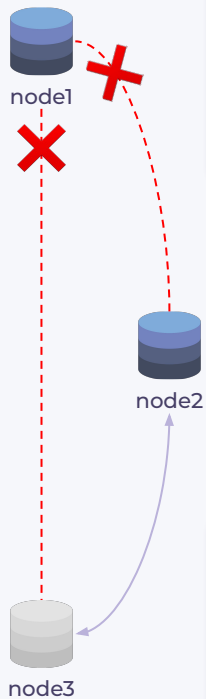
```
node1:/# drbdadm disconnect test4
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate quorum:no
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:Connecting
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```

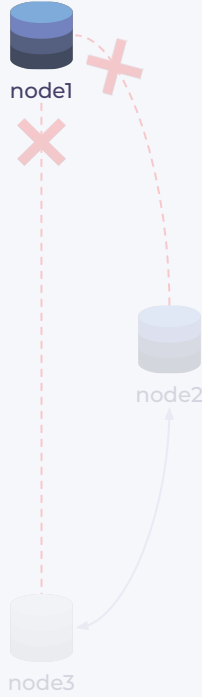


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate quorum:no
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:Connecting
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm connect test4
```



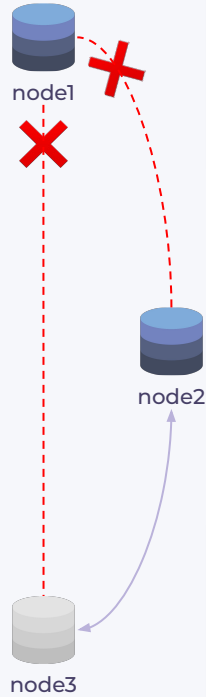
```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate quorum:no
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:Connecting
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```



```
node1:/# drbdadm connect test4
```

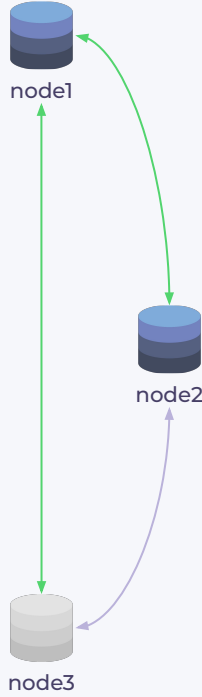


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate quorum:no
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:Connecting
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm connect test4
```

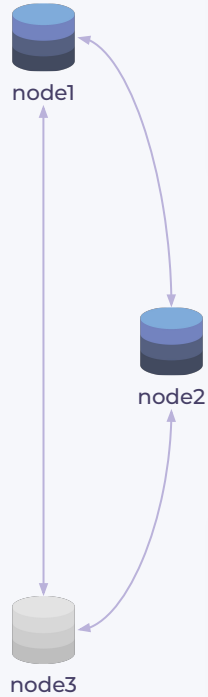


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate quorum:no
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:Connecting
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm connect test4
```

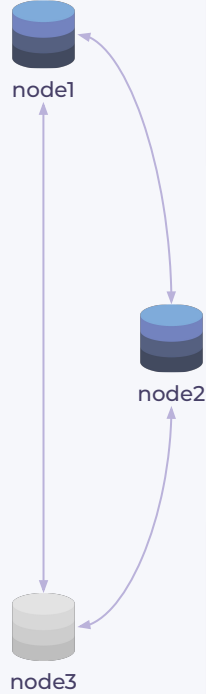


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate quorum:no
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:Connecting
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm connect test4
```

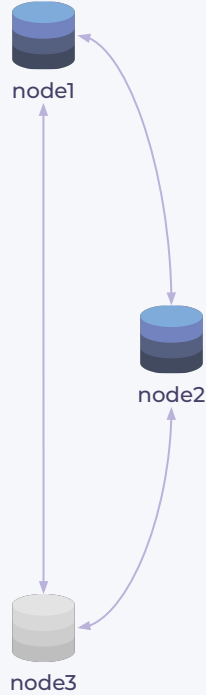


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate quorum:no
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:Connecting
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```

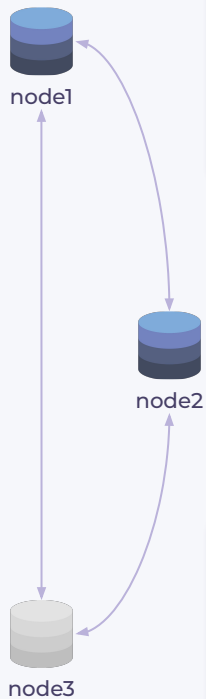
```
node1:/# drbdadm connect test4
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

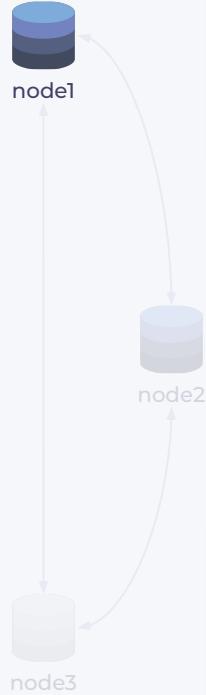


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4:node3
```

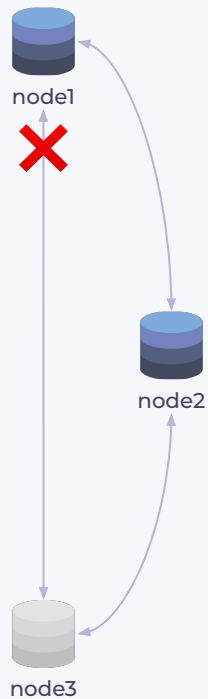


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4:node3
```



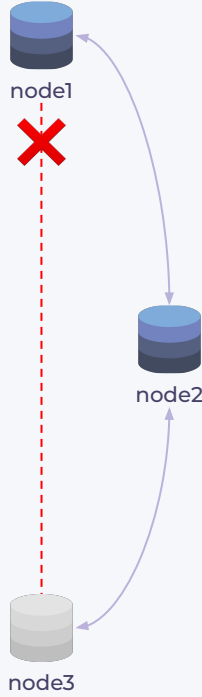
```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```



```
node1:/# drbdadm disconnect test4:node3
```

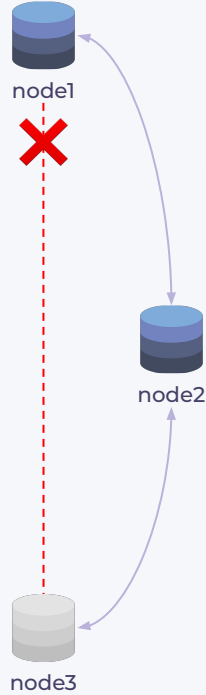


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4:node3
```

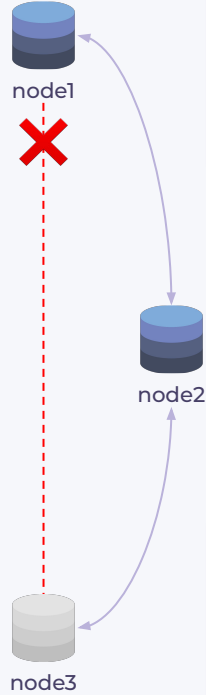


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

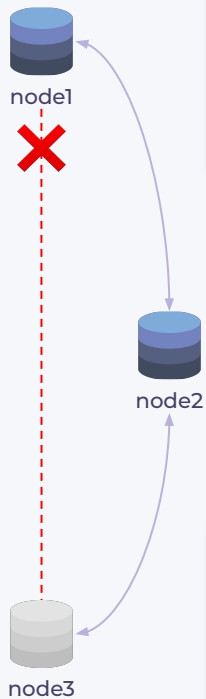
```
node1:/# drbdadm disconnect test4:node3
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```

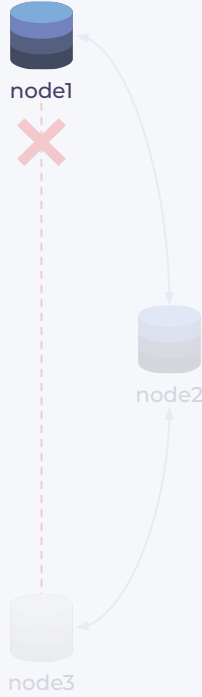


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm connect test4:node3
```

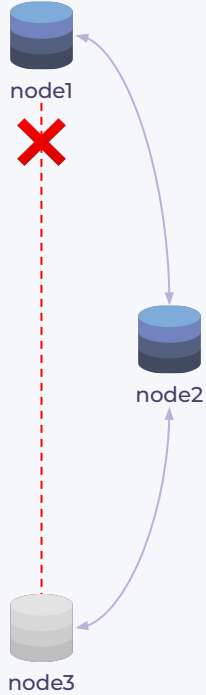


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm connect test4:node3
```

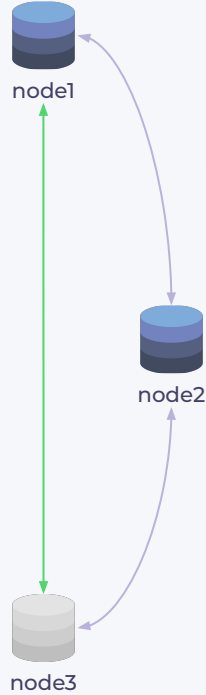


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm connect test4:node3
```

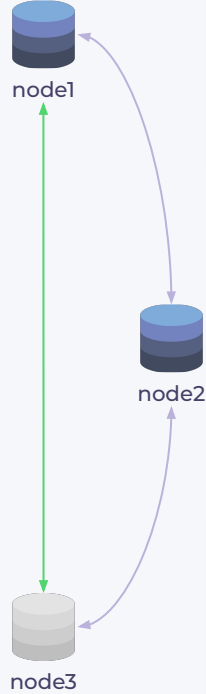


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm connect test4:node3
```



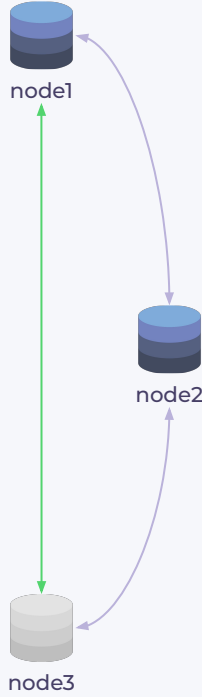
```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```



```
node1:/# drbdadm connect test4:node3
```

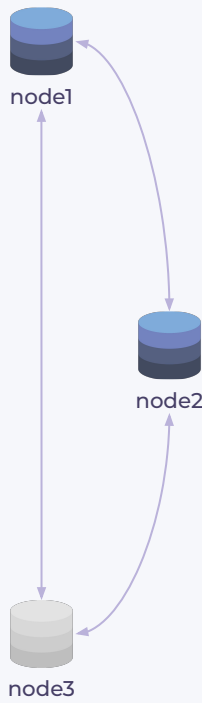


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 connection:Connecting
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 connection:StandAlone
node2 role:Secondary
peer-disk:UpToDate
```

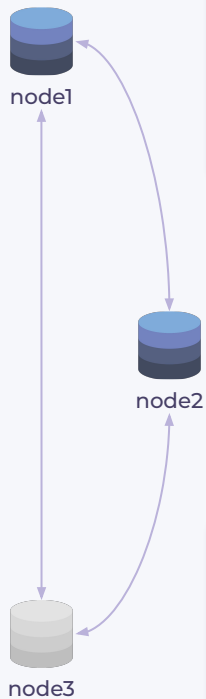
```
node1:/# drbdadm connect test4:node3
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```



Enabling/disabling the resource

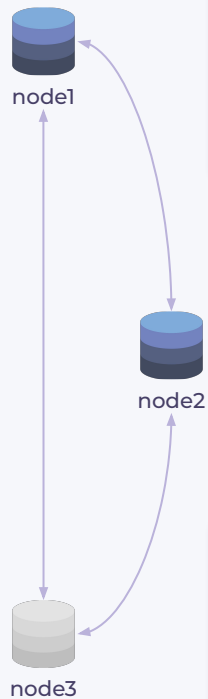
Enabling/disabling the resource

A terminal window with a dark background and a light gray title bar containing three colored window control buttons (red, yellow, green). The text 'drbdadm down' is displayed in a light green monospace font.

```
drbdadm down
```

A terminal window with a dark background and a light gray title bar containing three colored window control buttons (red, yellow, green). The text 'drbdadm up' is displayed in a light green monospace font.

```
drbdadm up
```

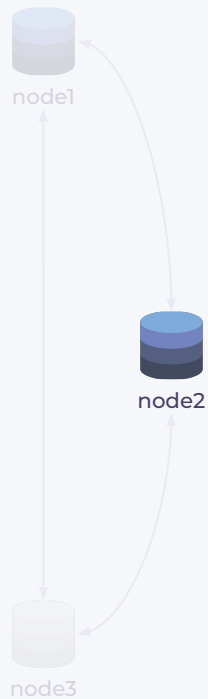


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

```
node2:/# drbdadm down test4
```

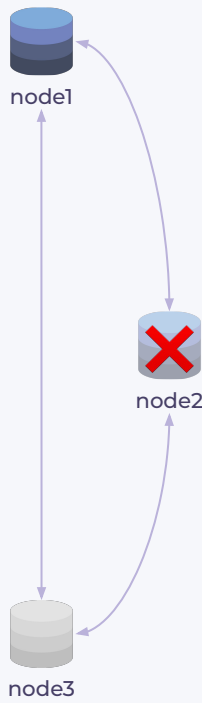


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

```
node2:/# drbdadm down test4
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```



```
node2:/# drbdadm down test4
```



node1



node3



node2

```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

```
node2:/# drbdadm down test4
```



node1



node3



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

```
node2:/# drbdadm down test4
```



node1



node3



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 connection:Connecting
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4: No such resource
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 connection:Connecting
```



node1



node3



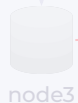
node2

```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 connection:Connecting
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4: No such resource
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 connection:Connecting
```

```
node2:/# drbdadm up test4
```

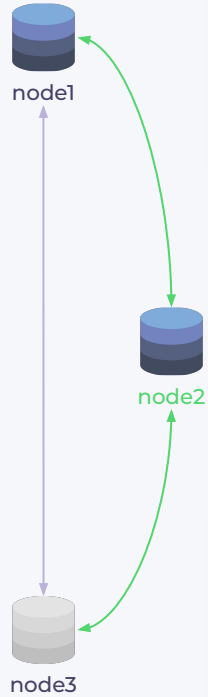


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 connection:Connecting
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4: No such resource
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 connection:Connecting
```

```
node2:/# drbdadm up test4
```

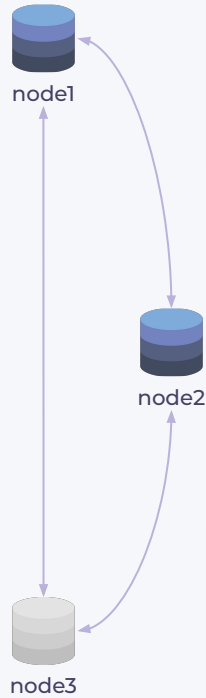


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 connection:Connecting
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4: No such resource
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 connection:Connecting
```

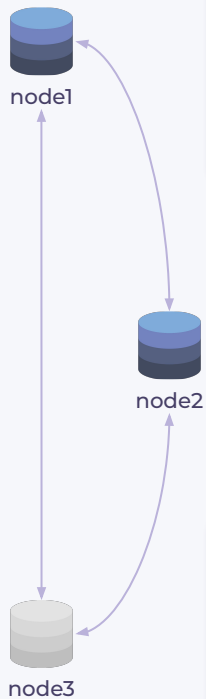
```
node2:/# drbdadm up test4
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 connection:Connecting
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4: No such resource
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 connection:Connecting
```

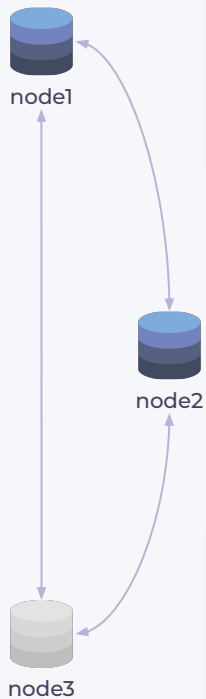


```
node2:/# drbdadm up test4
```

```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 connection:Connecting
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4: No such resource
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 connection:Connecting
```

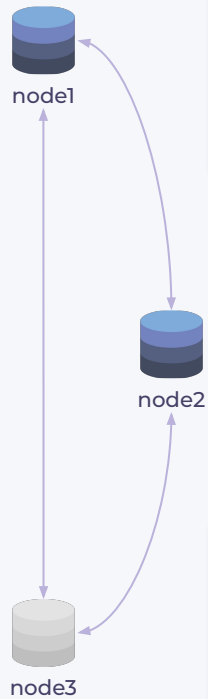



```
node2: /# drbdadm up test4
```

```
node1: /# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2: /# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3: /# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

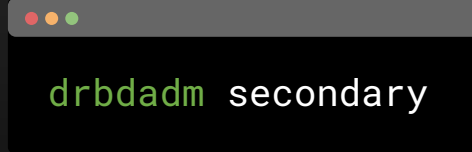


Using the created resource

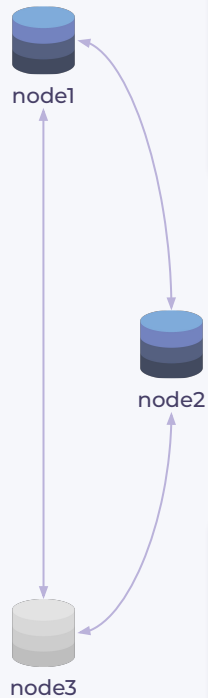
Using the created resource

A terminal window icon with a grey title bar and three colored window control buttons (red, yellow, green) on the left. The background is black.

```
drbdadm primary
```

A terminal window icon with a grey title bar and three colored window control buttons (red, yellow, green) on the left. The background is black.

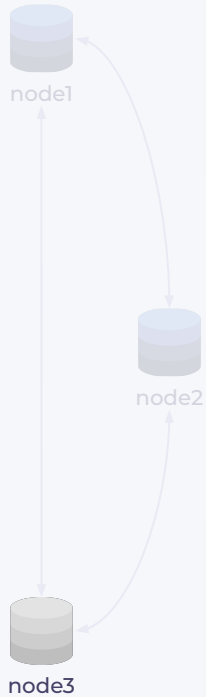
```
drbdadm secondary
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```



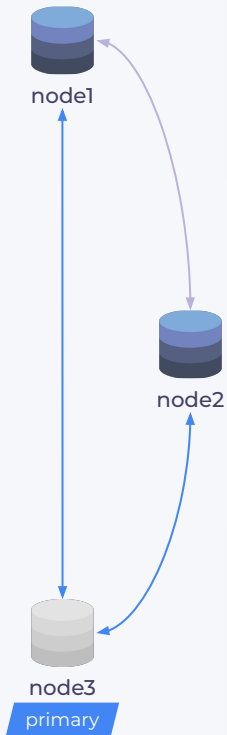
```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

```
node3:/# mount /dev/drbd1008 /mnt/
```

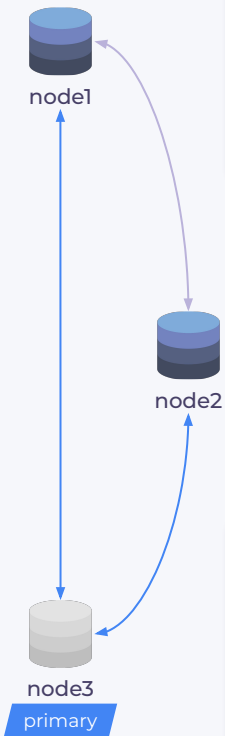
```
node3:/# mount /dev/drbd1008 /mnt/
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

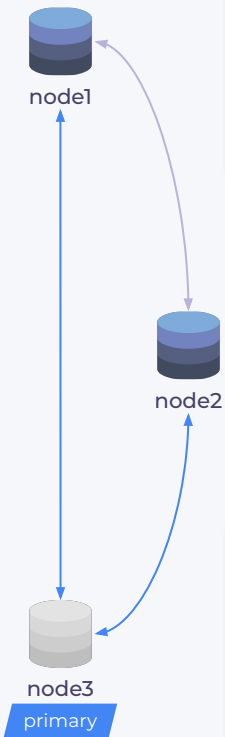


```
node3:/# mount /dev/drbd1008 /mnt/
```

```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Secondary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Secondary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

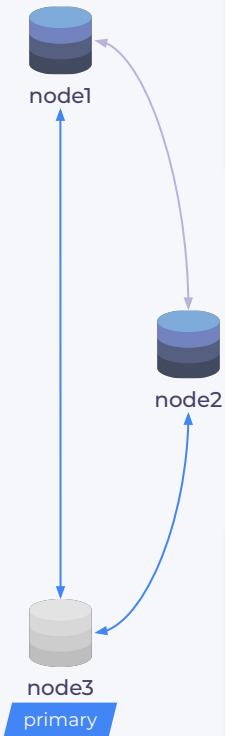



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

```
node3:/# mount /dev/drbd1008 /mnt/
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

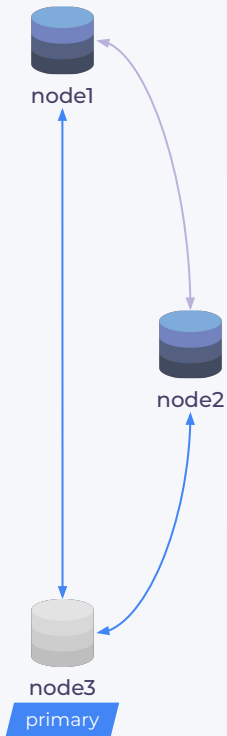
```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

```
node3:/# mount /dev/drbd1008 /mnt/
```



```
node3:/# drbdadm primary test4
```

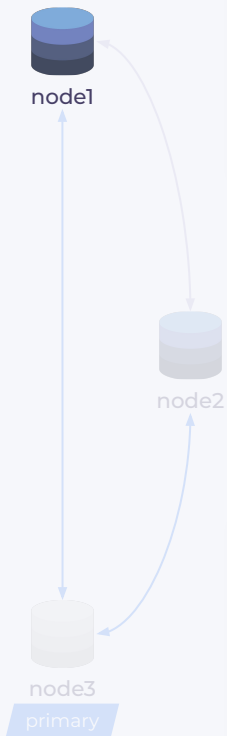


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm primary test4
```

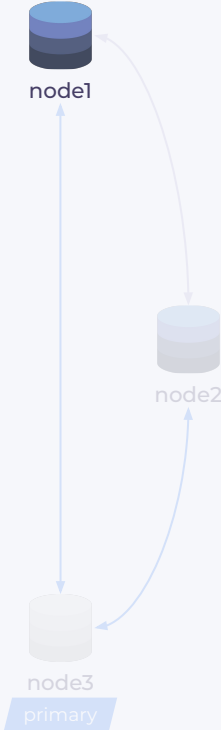


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

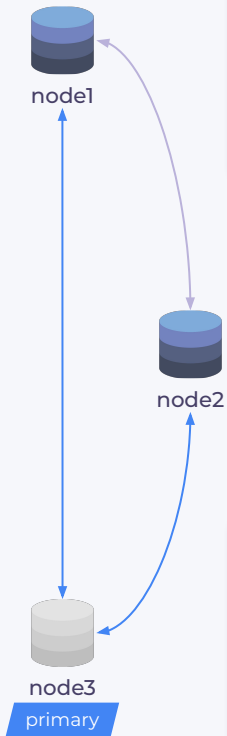
```
node1:/# drbdadm primary test4
test4: State change failed:
(-1) Multiple primaries not allowed by config
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

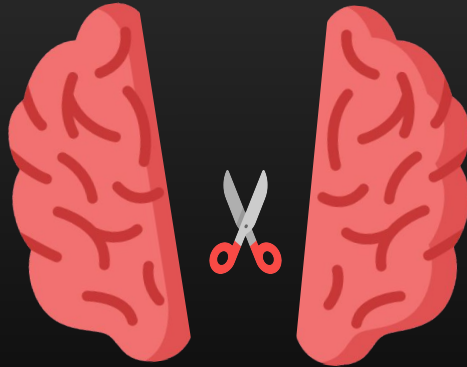


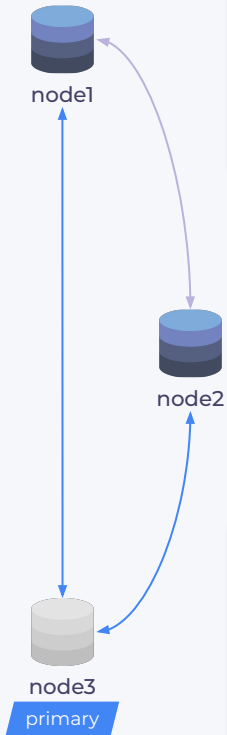
```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

Split-brain





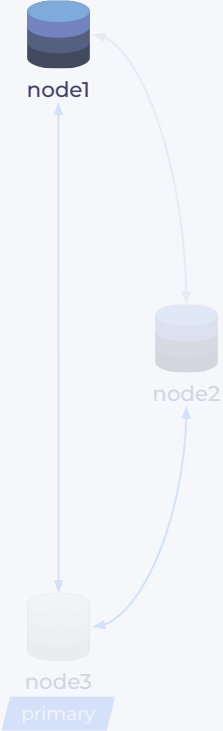
```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```



```
node1:/# drbdadm disconnect test4
```

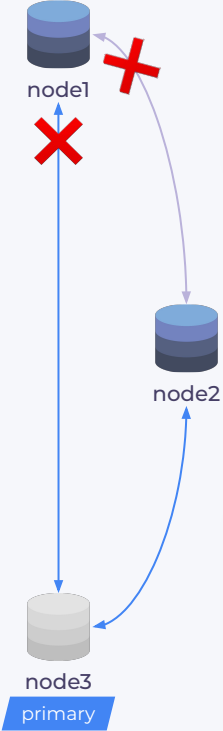


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4
```

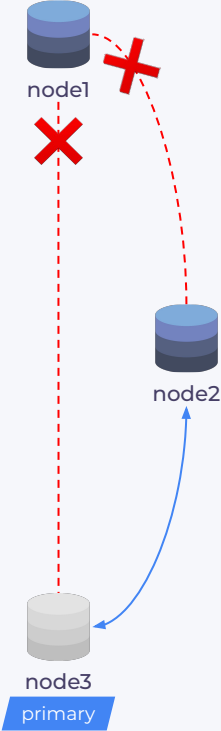


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4
```

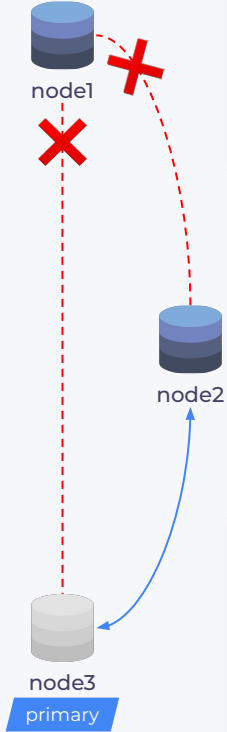


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4
```

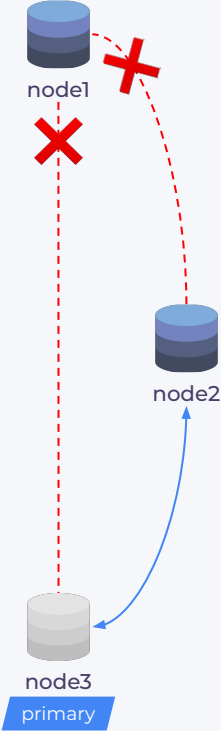


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4
```



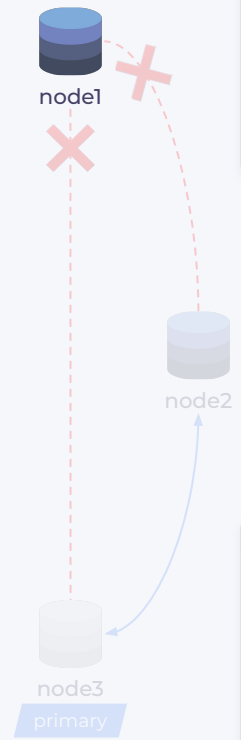
```
node1:/# drbdadm status test4
test4 role:Secondary
disk:Outdated quorum:no
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:Connecting
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4
```

```
node1:/# drbdadm primary test4 --force
```



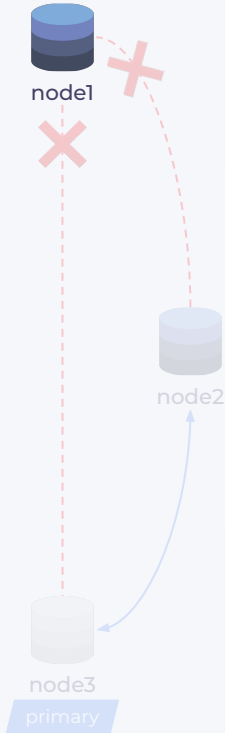
```
node1:/# drbdadm status test4
test4 role:Secondary
disk:Outdated quorum:no
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:Connecting
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4
```

```
node1:/# drbdadm primary test4 --force  
test4: State change failed: (-25) No quorum  
additional info from kernel:  
1 of 2 nodes visible, need 2 for quorum
```

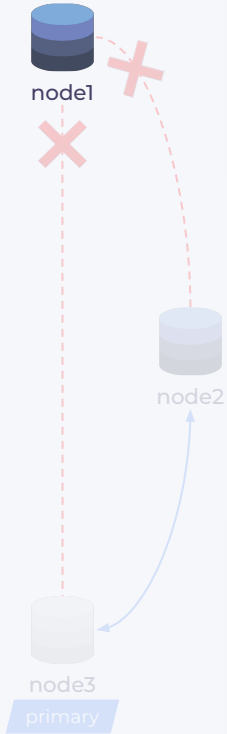


```
node1:/# drbdadm status test4  
test4 role:Secondary  
disk:Outdated quorum:no  
node2 connection:StandAlone  
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4  
test4 role:Secondary  
disk:UpToDate  
node1 connection:Connecting  
node3 role:Primary  
peer-disk:Diskless
```

```
node3:/# drbdadm status test4  
test4 role:Primary  
disk:Diskless  
node1 connection:Connecting  
node2 role:Secondary  
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:Outdated quorum:no
node2 connection:StandAlone
node3 connection:StandAlone
```

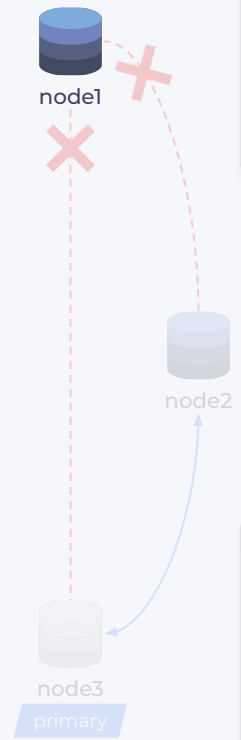
```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:Connecting
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```



```
node1:/# drbdadm disconnect test4
```

```
node1:/# drbdadm resource-options --quorum=off test4
```



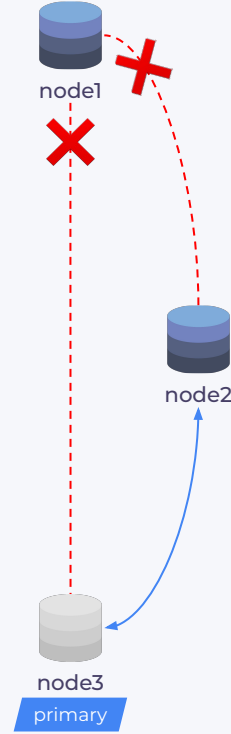
```
node1:/# drbdadm status test4
test4 role:Secondary
disk:Outdated quorum:no
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:Connecting
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4
```

```
node1:/# drbdadm resource-options --quorum=off test4
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:Outdated quorum:no
node2 connection:StandAlone
node3 connection:StandAlone
```

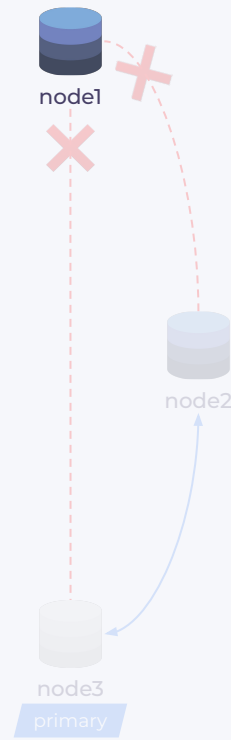
```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:Connecting
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4
```

```
node1:/# drbdadm resource-options --quorum=off test4
```

```
node1:/# drbdadm primary test4 --force
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:Outdated
node2 connection:StandAlone
node3 connection:StandAlone
```

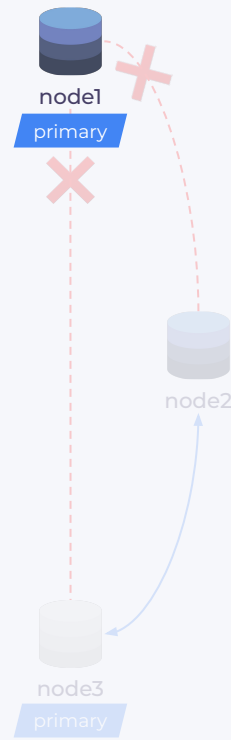
```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:Connecting
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4
```

```
node1:/# drbdadm resource-options --quorum=off test4
```

```
node1:/# drbdadm primary test4 --force
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:Outdated
node2 connection:StandAlone
node3 connection:StandAlone
```

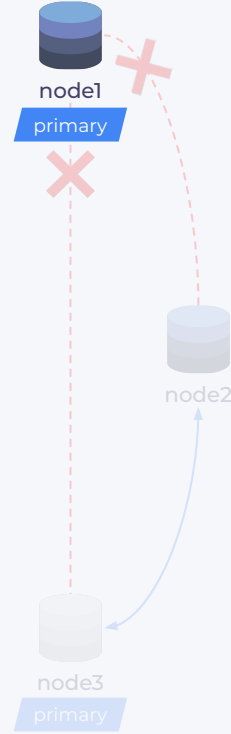
```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:Connecting
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4
```

```
node1:/# drbdadm resource-options --quorum=off test4
```

```
node1:/# drbdadm primary test4 --force
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:Outdated
node2 connection:StandAlone
node3 connection:StandAlone
```

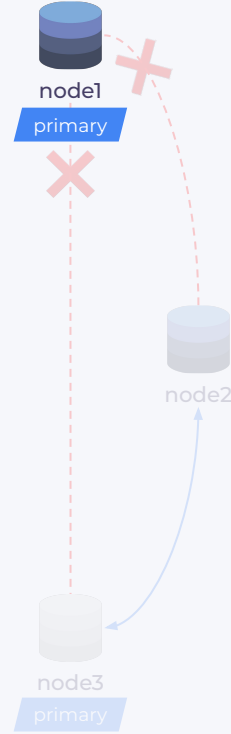
```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:Connecting
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4
```

```
node1:/# drbdadm resource-options --quorum=off test4
```

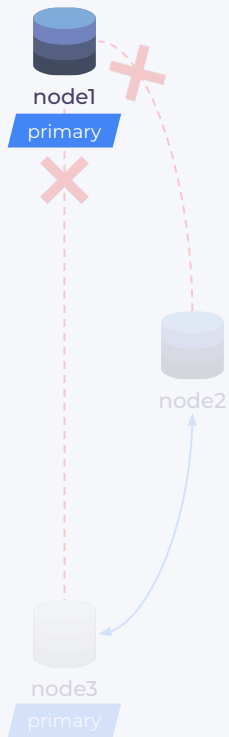
```
node1:/# drbdadm primary test4 --force
```



```
node1:/# drbdadm status test4
test4 role:Primary
disk:UpToDate
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:Connecting
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```

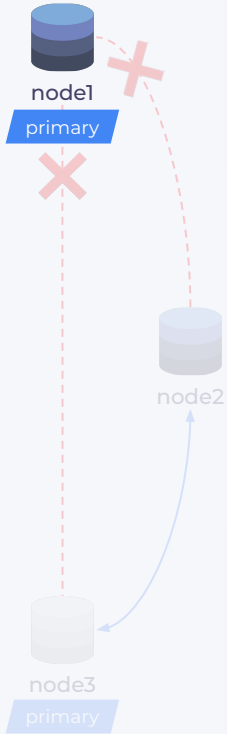


```
node1:/# drbdadm status test4
test4 role:Primary
disk:UpToDate
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:Connecting
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm connect test4
```



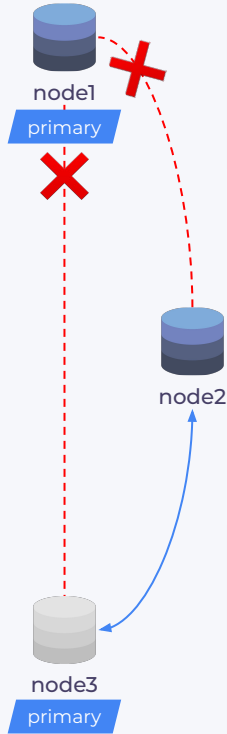
```
node1:/# drbdadm status test4
test4 role:Primary
disk:UpToDate
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:Connecting
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```



```
node1:/# drbdadm connect test4
```

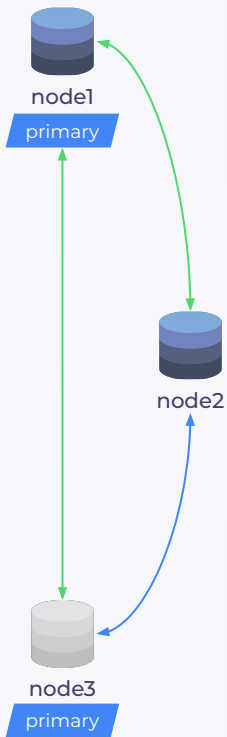


```
node1:/# drbdadm status test4
test4 role:Primary
disk:UpToDate
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:Connecting
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm connect test4
```

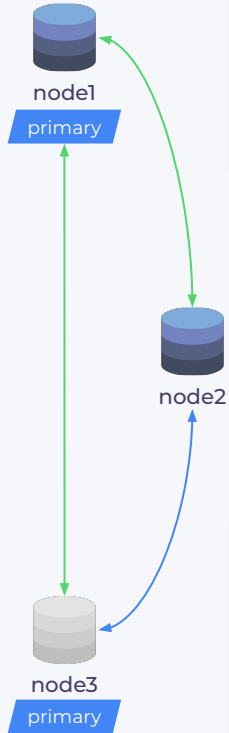


```
node1:/# drbdadm status test4
test4 role:Primary
disk:UpToDate
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:Connecting
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm connect test4
```

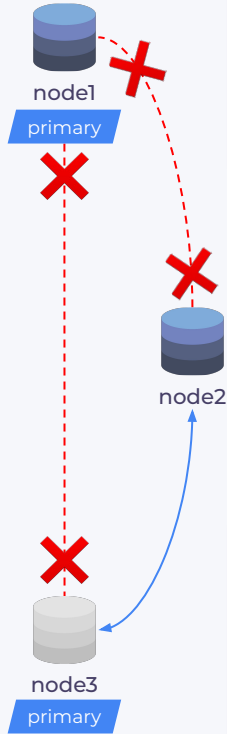


```
node1:/# drbdadm status test4
test4 role:Primary
disk:UpToDate
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:Connecting
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:Connecting
node2 role:Secondary
peer-disk:UpToDate
```

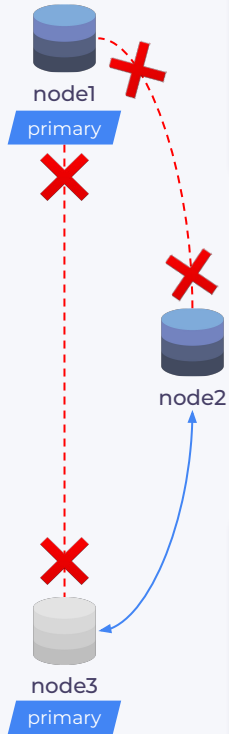
```
node1:/# drbdadm connect test4
```



```
node1:/# drbdadm status test4
test4 role:Primary
disk:UpToDate
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:StandAlone
node3 role:Primary
peer-disk:Diskless
```

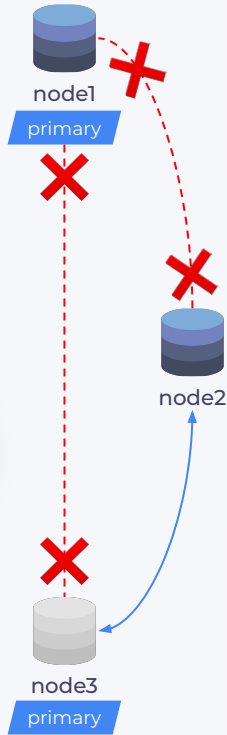
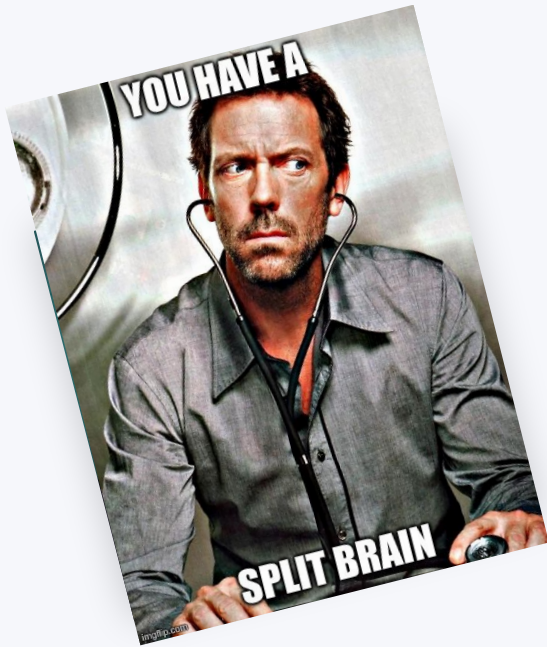
```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:StandAlone
node2 role:Secondary
peer-disk:UpToDate
```



```
node1:/# drbdadm status test4
test4 role:Primary
disk:UpToDate
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:StandAlone
node3 role:Primary
peer-disk:Diskless
```

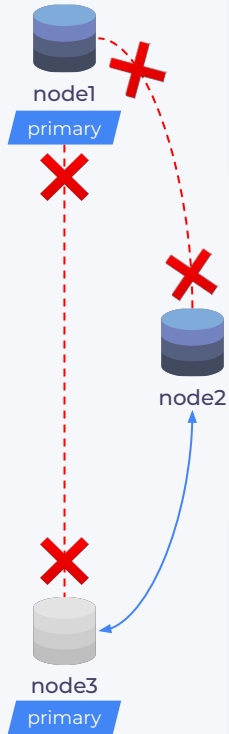
```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:StandAlone
node2 role:Secondary
peer-disk:UpToDate
```



```
node1:/# drbdadm status test4
test4 role:Primary
disk:UpToDate
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:StandAlone
node3 role:Primary
peer-disk:Diskless
```

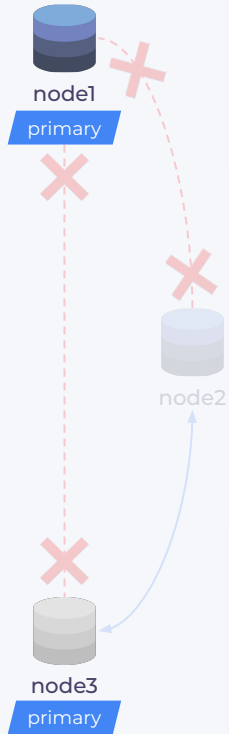
```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:StandAlone
node2 role:Secondary
peer-disk:UpToDate
```



```
node1:/# drbdadm status test4
test4 role:Primary
disk:UpToDate
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:StandAlone
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:StandAlone
node2 role:Secondary
peer-disk:UpToDate
```



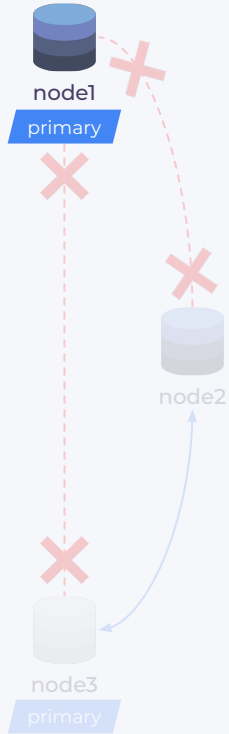
```
node1:/# drbdadm status test4
test4 role:Primary
disk:UpToDate
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:StandAlone
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:StandAlone
node2 role:Secondary
peer-disk:UpToDate
```



```
node1:/# drbdadm secondary test4
```

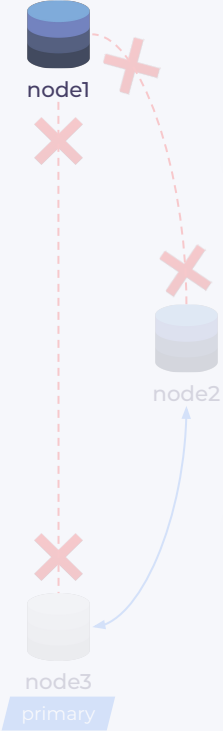


```
node1:/# drbdadm status test4
test4 role:Primary
disk:UpToDate
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:StandAlone
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:StandAlone
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm secondary test4
```

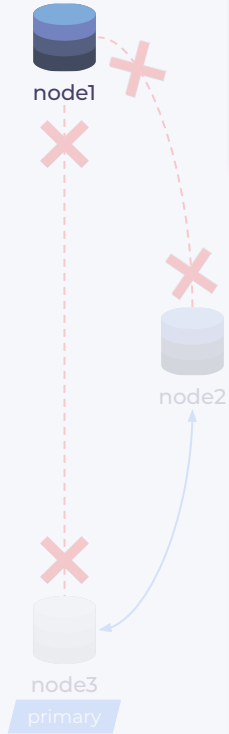


```
node1:/# drbdadm status test4
test4 role:Primary
disk:UpToDate
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:StandAlone
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:StandAlone
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm secondary test4
```

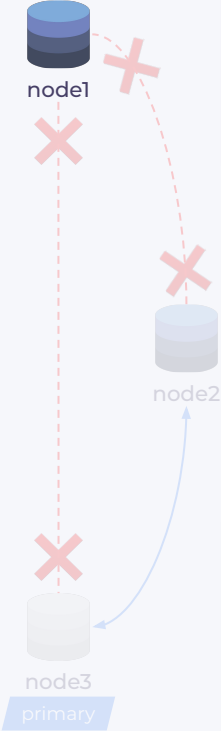


```
node1:/# drbdadm status test4
test4 role:Primary
disk:UpToDate
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:StandAlone
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:StandAlone
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm secondary test4
```



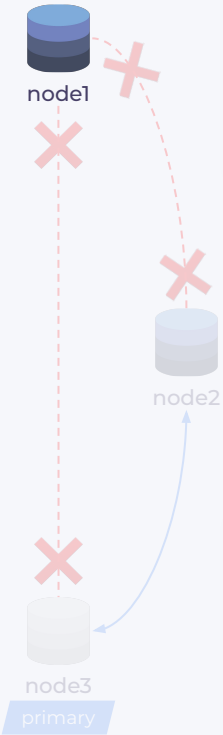
```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:StandAlone
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:StandAlone
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm secondary test4
```

```
node1:/# drbdadm connect test4
```



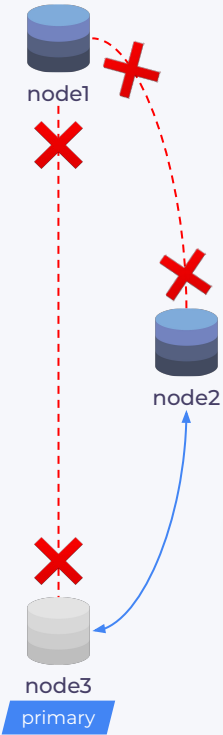
```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:StandAlone
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:StandAlone
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm secondary test4
```

```
node1:/# drbdadm connect test4
```



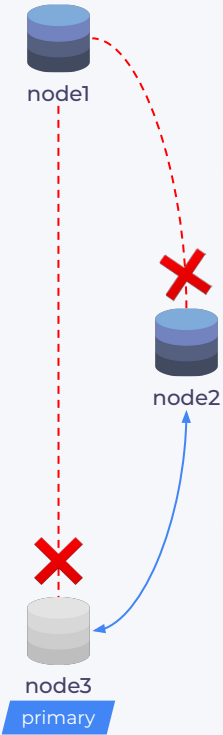
```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:StandAlone
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:StandAlone
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm secondary test4
```

```
node1:/# drbdadm connect test4
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 connection:StandAlone
node3 connection:StandAlone
```

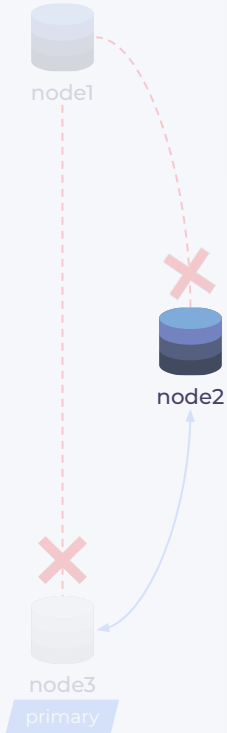
```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:StandAlone
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:StandAlone
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm secondary test4
```

```
node1:/# drbdadm connect test4
```

```
node2:/# drbdadm connect test4:node1
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:StandAlone
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:StandAlone
node2 role:Secondary
peer-disk:UpToDate
```



```
node1:/# drbdadm secondary test4
```

```
node1:/# drbdadm connect test4
```

```
node2:/# drbdadm connect test4:node1
```

```
node2:/# drbdadm connect test4:node1
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:StandAlone
node3 role:Primary
peer-disk:Diskless
```

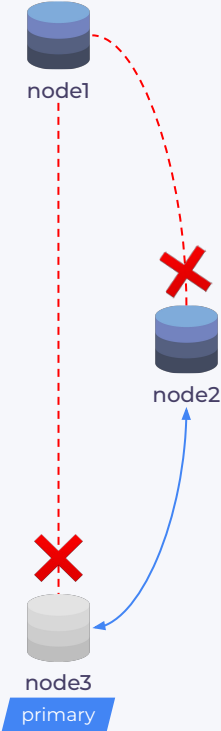
```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:StandAlone
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm secondary test4
```

```
node1:/# drbdadm connect test4
```

```
node2:/# drbdadm connect test4:node1
```

```
node2:/# drbdadm connect test4:node1
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:StandAlone
node3 role:Primary
peer-disk:Diskless
```

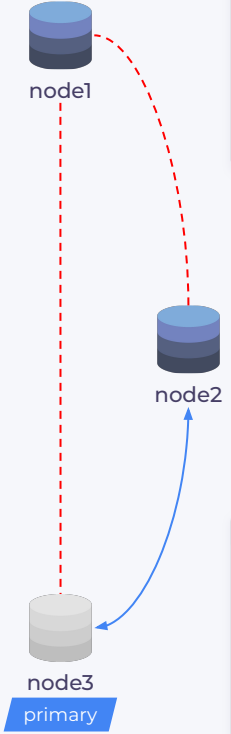
```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:StandAlone
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm secondary test4
```

```
node1:/# drbdadm connect test4
```

```
node2:/# drbdadm connect test4:node1
```

```
node2:/# drbdadm connect test4:node1
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:StandAlone
node3 role:Primary
peer-disk:Diskless
```

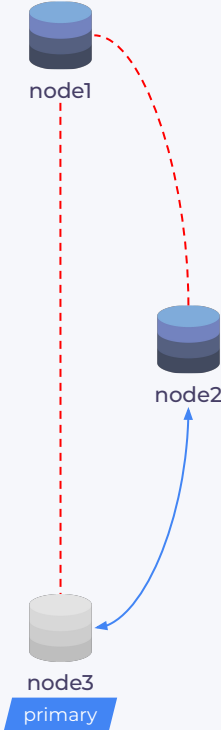
```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:StandAlone
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm secondary test4
```

```
node1:/# drbdadm connect test4
```

```
node2:/# drbdadm connect test4:node1
```

```
node2:/# drbdadm connect test4:node1
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 connection:StandAlone
node3 connection:StandAlone
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 connection:StandAlone
node3 role:Primary
peer-disk:Diskless
```

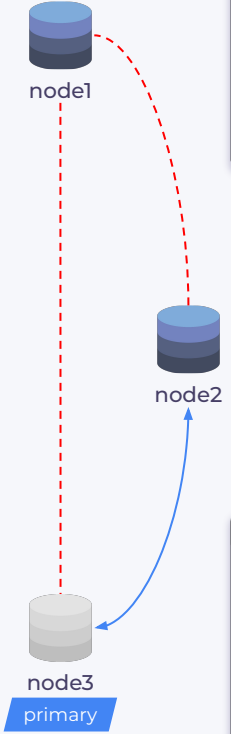
```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 connection:StandAlone
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm secondary test4
```

```
node1:/# drbdadm connect test4
```

```
node2:/# drbdadm connect test4:node1
```

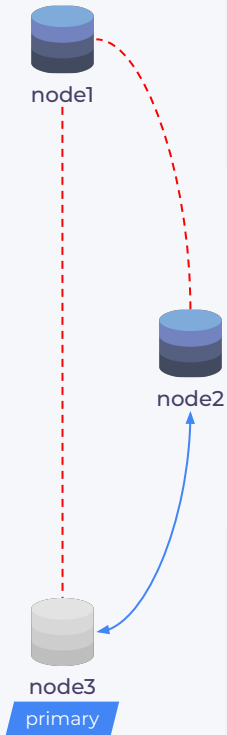
```
node2:/# drbdadm connect test4:node1
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:Inconsistent
node2 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:Inconsistent
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
peer-disk:Inconsistent
node2 role:Secondary
peer-disk:UpToDate
```

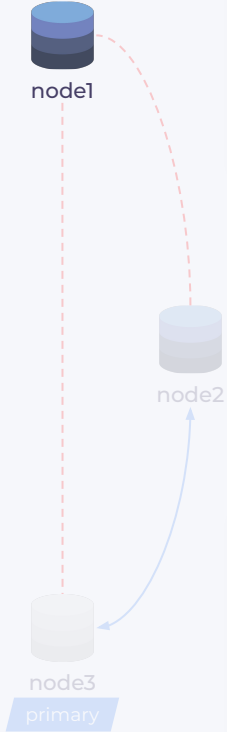


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:Inconsistent
node2 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:Inconsistent
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
peer-disk:Inconsistent
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4
```

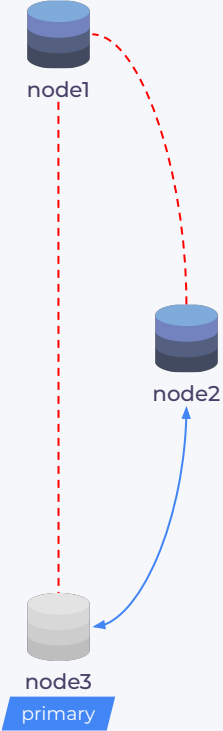


```
node1:/# drbdadm status test4
test4 role:Secondary
disk:Inconsistent
node2 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:Inconsistent
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
peer-disk:Inconsistent
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4
```



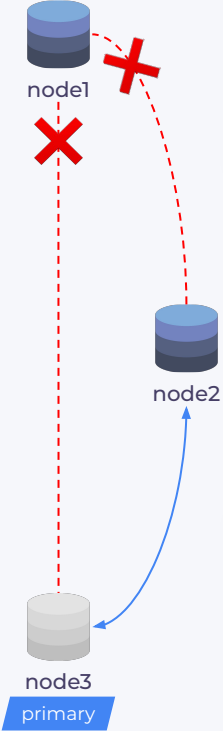
```
node1:/# drbdadm status test4
test4 role:Secondary
disk:Inconsistent
node2 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:Inconsistent
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
peer-disk:Inconsistent
node2 role:Secondary
peer-disk:UpToDate
```



```
node1:/# drbdadm disconnect test4
```



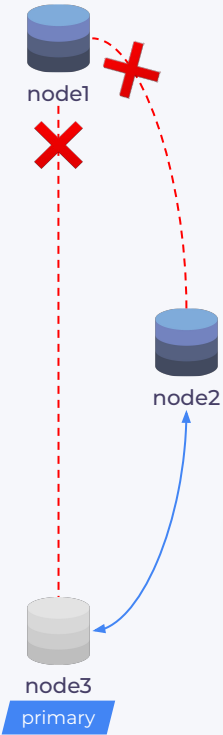
```
node1:/# drbdadm status test4
test4 role:Secondary
disk:Inconsistent
node2 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:Inconsistent
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
peer-disk:Inconsistent
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4
```

```
node1:/# drbdadm connect test4 --discard-my-data
```



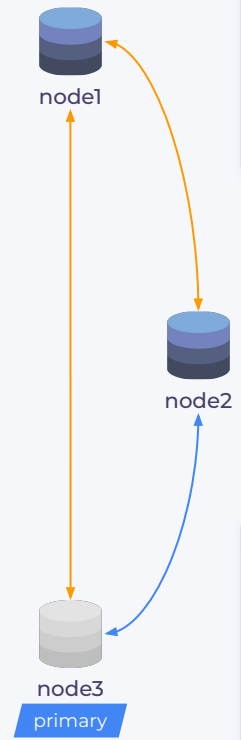
```
node1:/# drbdadm status test4
test4 role:Secondary
disk:Inconsistent
node2 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:Inconsistent
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
peer-disk:Inconsistent
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4
```

```
node1:/# drbdadm connect test4 --discard-my-data
```



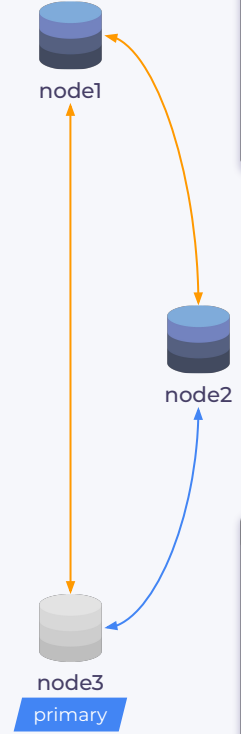
```
node1:/# drbdadm status test4
test4 role:Secondary
disk:Inconsistent
node2 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:Inconsistent
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
peer-disk:Inconsistent
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4
```

```
node1:/# drbdadm connect test4 --discard-my-data
```



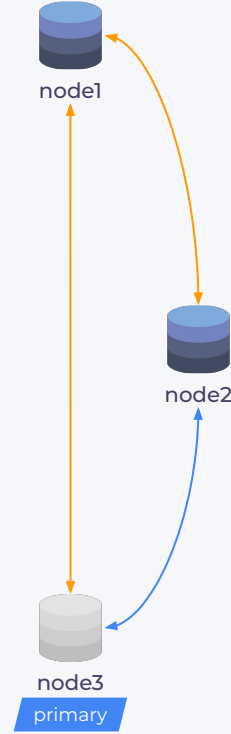
```
node1:/# drbdadm status test4
test4 role:Secondary
disk:Inconsistent
node2 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:Inconsistent
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
peer-disk:Inconsistent
node2 role:Secondary
peer-disk:UpToDate
```

```
node1:/# drbdadm disconnect test4
```

```
node1:/# drbdadm connect test4 --discard-my-data
```



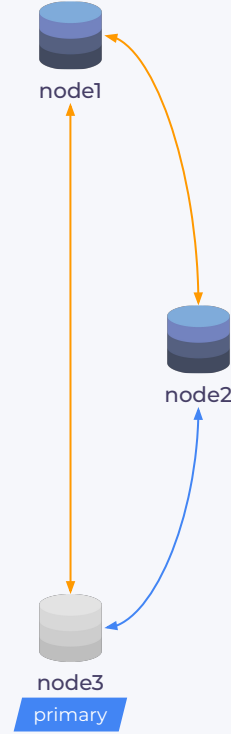
```
node1:/# drbdadm status test4
test4 role:Secondary
disk:Inconsistent
node2 role:Secondary
  replication:SyncTarget peer-disk:UpToDate done:1.56
node3 role:Primary
  peer-disk:Diskless resync-suspended:dependency
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
  replication:SyncSource peer-disk:Inconsistent done:1.56
node3 role:Primary
  peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
  peer-disk:Inconsistent resync-suspended:peer
node2 role:Secondary
  peer-disk:UpToDate
```

```
node1:~# drbdadm disconnect test4
```

```
node1:~# drbdadm connect test4 --discard-my-data
```



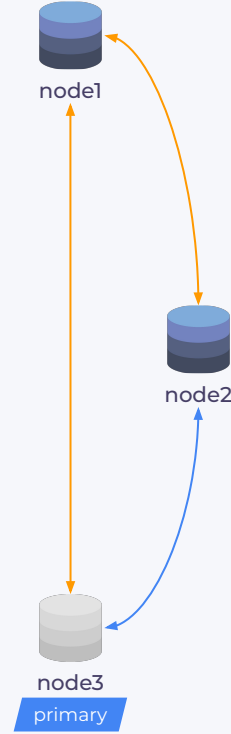
```
node1:~# drbdadm status test4
test4 role:Secondary
disk:Inconsistent
node2 role:Secondary
  replication:SyncTarget peer-disk:UpToDate done:22.19
node3 role:Primary
  peer-disk:Diskless resync-suspended:dependency
```

```
node2:~# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
  replication:SyncSource peer-disk:Inconsistent done:22.19
node3 role:Primary
  peer-disk:Diskless
```

```
node3:~# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
  peer-disk:Inconsistent resync-suspended:peer
node2 role:Secondary
  peer-disk:UpToDate
```

```
node1:~# drbdadm disconnect test4
```

```
node1:~# drbdadm connect test4 --discard-my-data
```



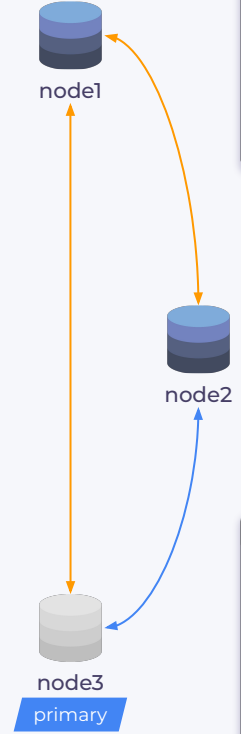
```
node1:~# drbdadm status test4
test4 role:Secondary
disk:Inconsistent
node2 role:Secondary
  replication:SyncTarget peer-disk:UpToDate done:43.07
node3 role:Primary
  peer-disk:Diskless resync-suspended:dependency
```

```
node2:~# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
  replication:SyncSource peer-disk:Inconsistent done:43.07
node3 role:Primary
  peer-disk:Diskless
```

```
node3:~# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
  peer-disk:Inconsistent resync-suspended:peer
node2 role:Secondary
  peer-disk:UpToDate
```

```
node1:~# drbdadm disconnect test4
```

```
node1:~# drbdadm connect test4 --discard-my-data
```



```
node1:~# drbdadm status test4
test4 role:Secondary
disk:Inconsistent
node2 role:Secondary
  replication:SyncTarget peer-disk:UpToDate done:67.43
node3 role:Primary
  peer-disk:Diskless resync-suspended:dependency
```

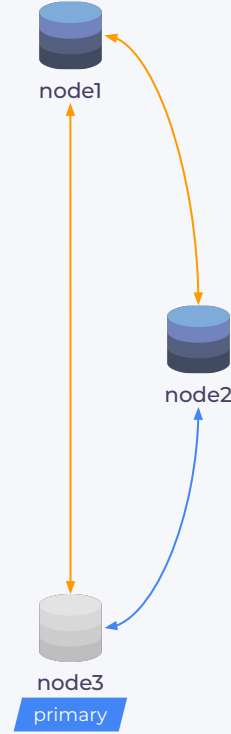
```
node2:~# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
  replication:SyncSource peer-disk:Inconsistent done:67.43
node3 role:Primary
  peer-disk:Diskless
```

```
node3:~# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
  peer-disk:Inconsistent resync-suspended:peer
node2 role:Secondary
  peer-disk:UpToDate
```



```
node1:/# drbdadm disconnect test4
```

```
node1:/# drbdadm connect test4 --discard-my-data
```



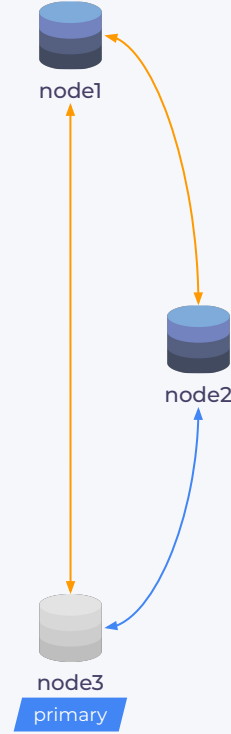
```
node1:/# drbdadm status test4
test4 role:Secondary
disk:Inconsistent
node2 role:Secondary
  replication:SyncTarget peer-disk:UpToDate done:82.05
node3 role:Primary
  peer-disk:Diskless resync-suspended:dependency
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
  replication:SyncSource peer-disk:Inconsistent done:82.05
node3 role:Primary
  peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
  peer-disk:Inconsistent resync-suspended:peer
node2 role:Secondary
  peer-disk:UpToDate
```

```
node1:~# drbdadm disconnect test4
```

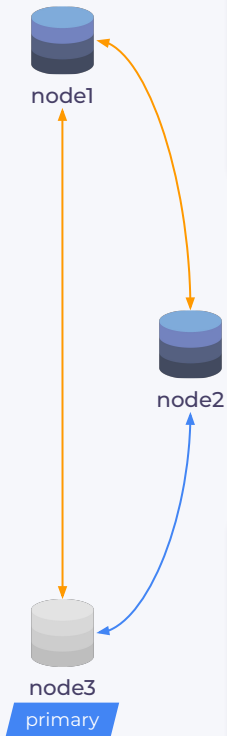
```
node1:~# drbdadm connect test4 --discard-my-data
```



```
node1:~# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node2:~# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

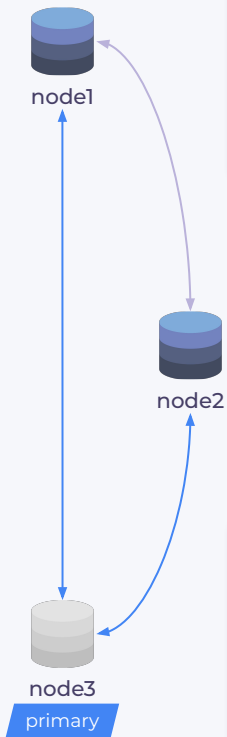
```
node3:~# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```



```
node1:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node2:/# drbdadm status test4
test4 role:Secondary
disk:UpToDate
node1 role:Secondary
peer-disk:UpToDate
node3 role:Primary
peer-disk:Diskless
```

```
node3:/# drbdadm status test4
test4 role:Primary
disk:Diskless
node1 role:Secondary
peer-disk:UpToDate
node2 role:Secondary
peer-disk:UpToDate
```



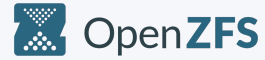




API



API



LVM

NVMe-oF

References

References



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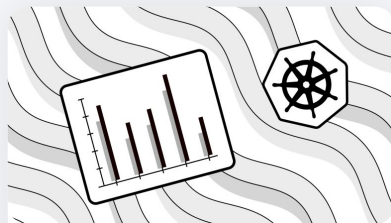


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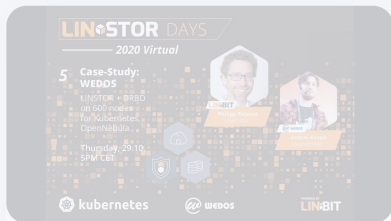


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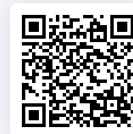
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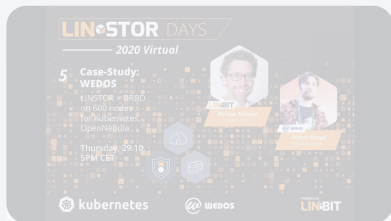


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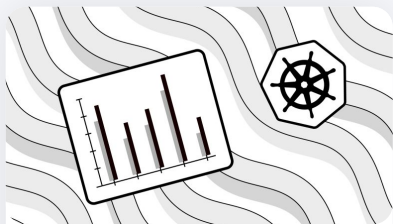


References



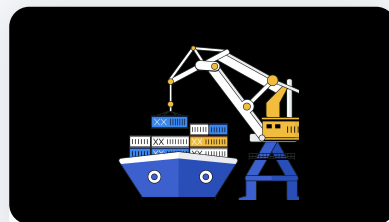
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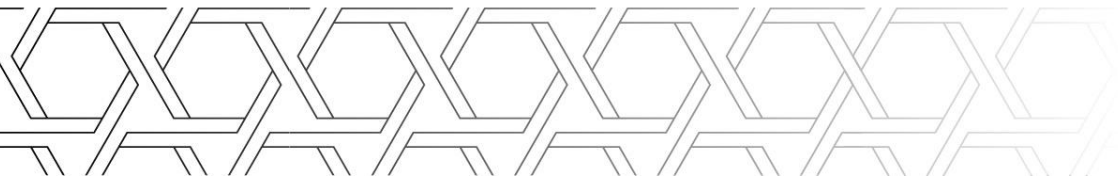
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