Storage with Ceph

Scale-Out made easy

Martin Gerhard Loschwitz

hastexo!

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h!

Wer?

h!

h!

h!

h!


LINUX
MAGAZIN


ADMIN
www.admin-magazin.de


Pacemaker


SLAC
Secure Linux
Administration
Conference 2013

h!


XTREME BOWL


WIEN

hastexo!

Skalierbares Storage

2 Arten der Skalierbarkeit

Scale-Up

Scale-Up vorher:

Scale-Up nachher:

Scale-Up stößt schnell
an seine **Grenzen**

Scale-Out

Scale-Out vorher:

Scale-Out nachher:

Scale-Out ist hip

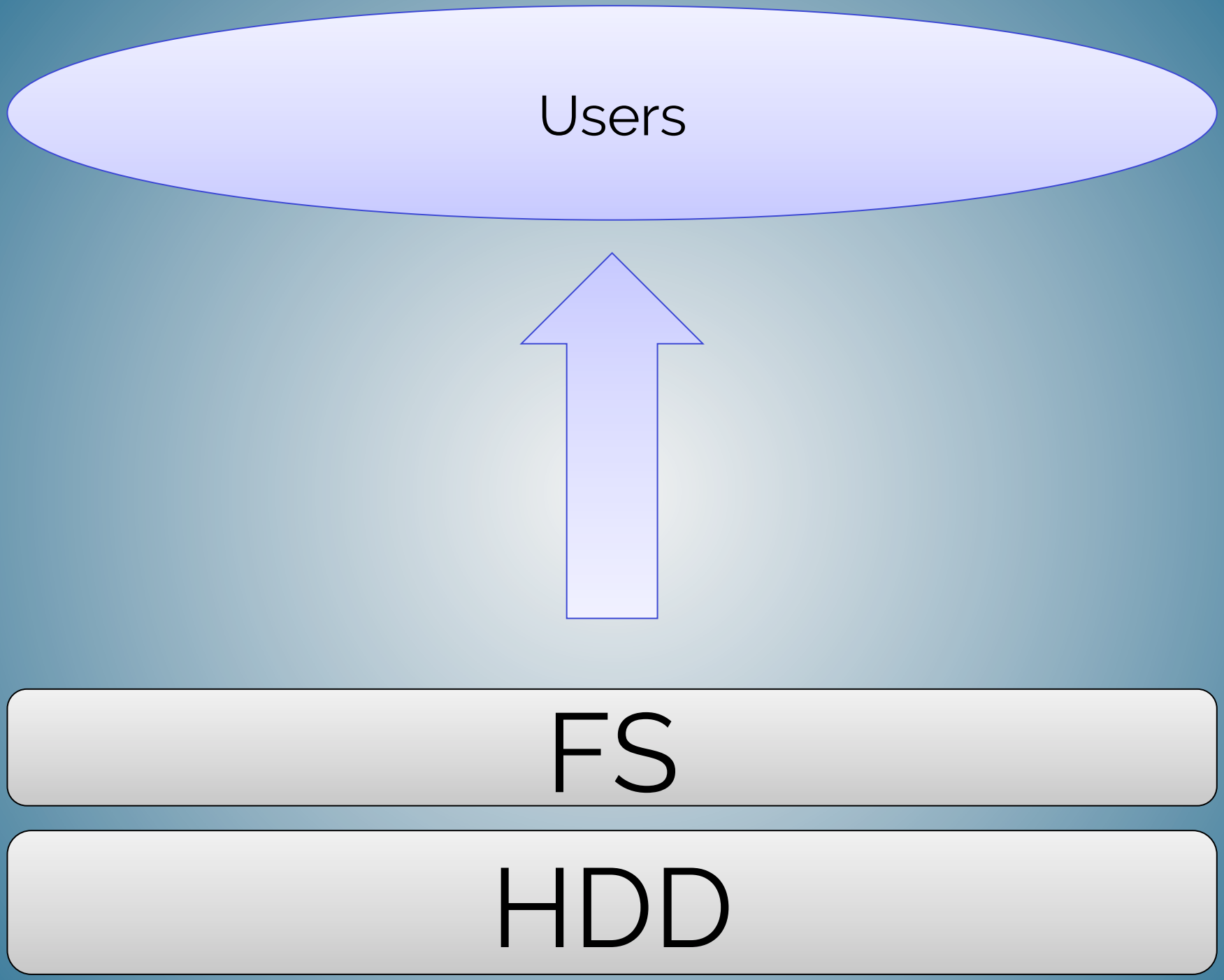
Webserver

h!

Datenbanken

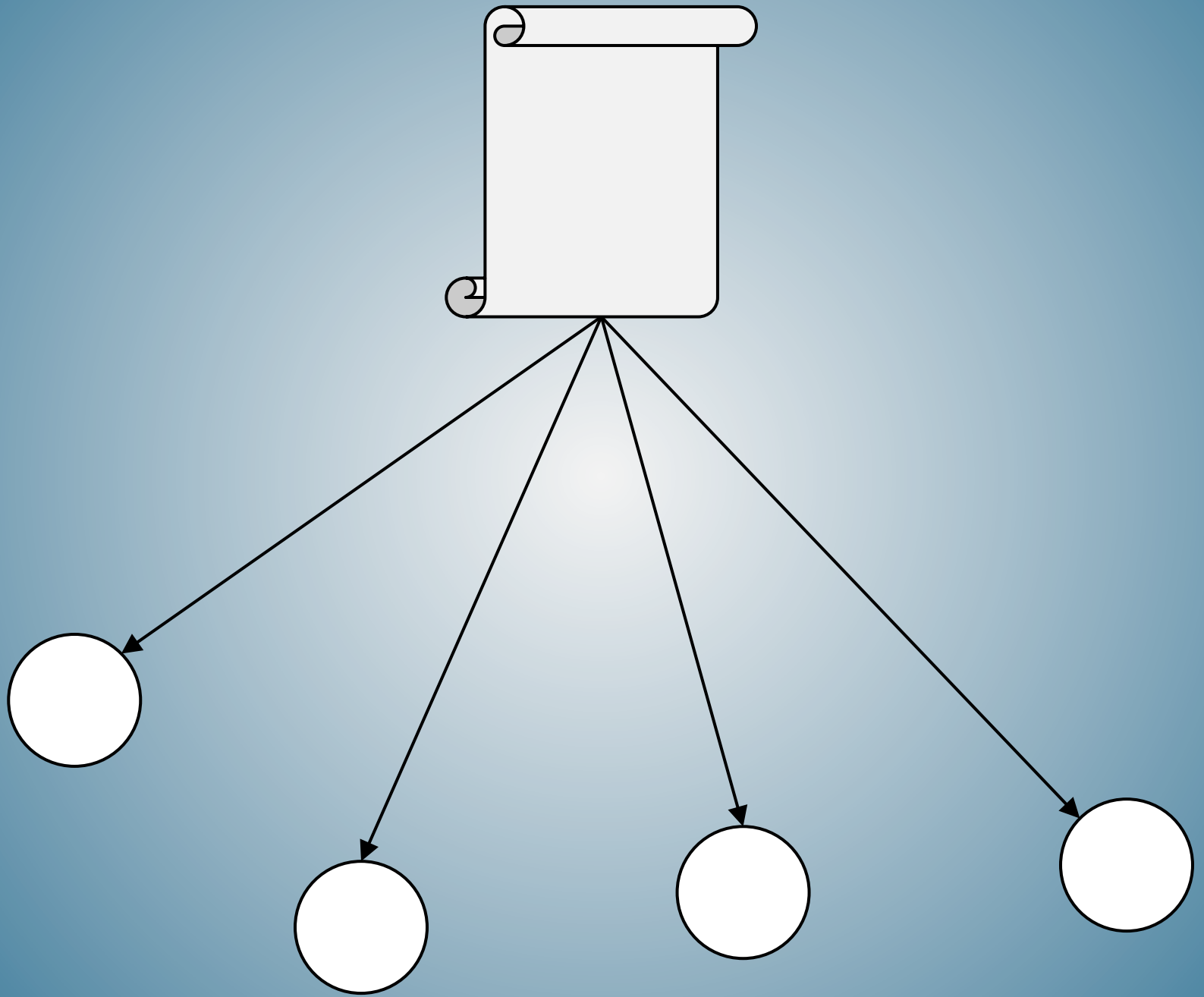
Storage? Meh.

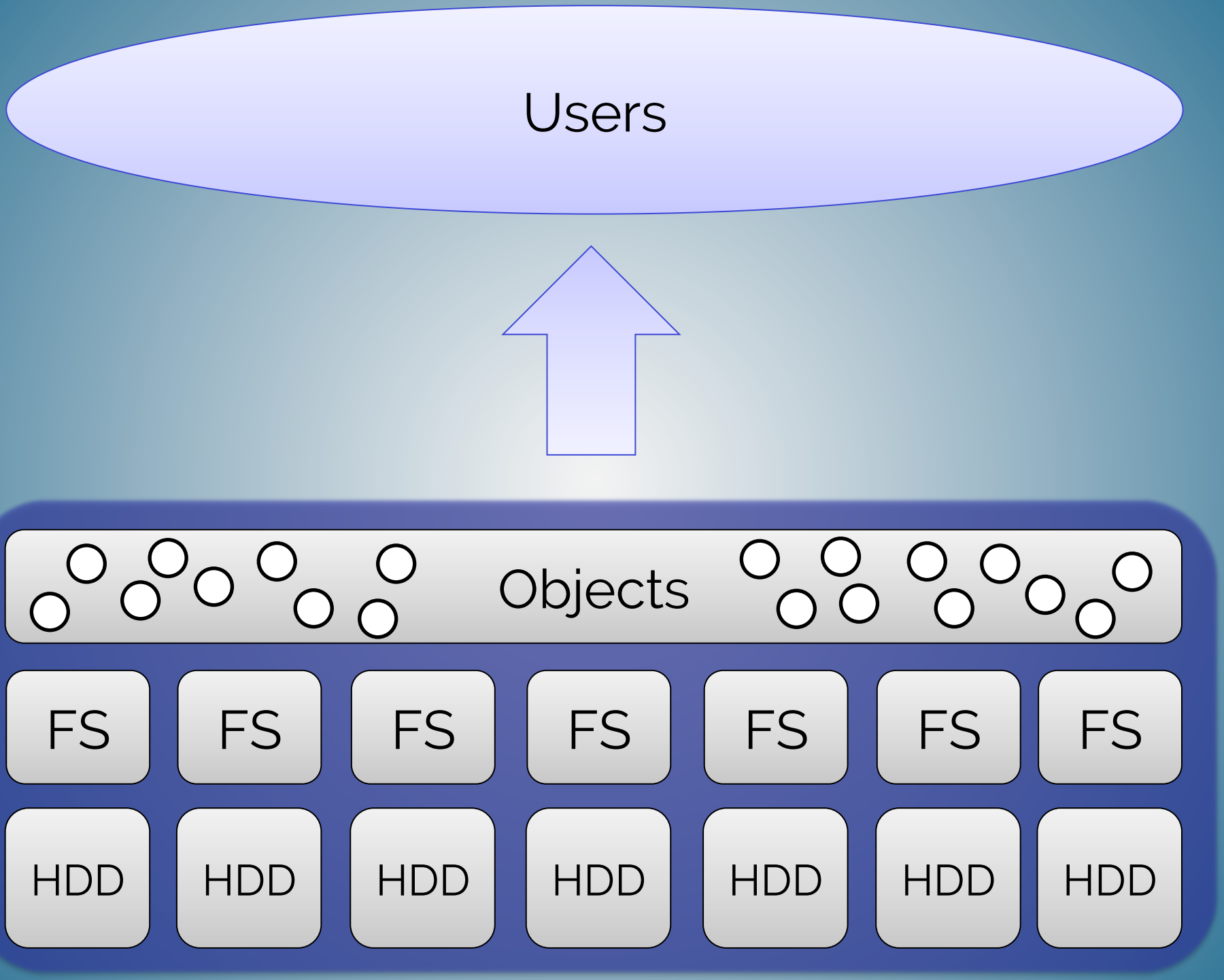
Das Block-Problem


Users
FS
HDD

Mit Blöcken geht
Scale-Out
nicht vernünftig

Object Stores




Users
Objects
FS
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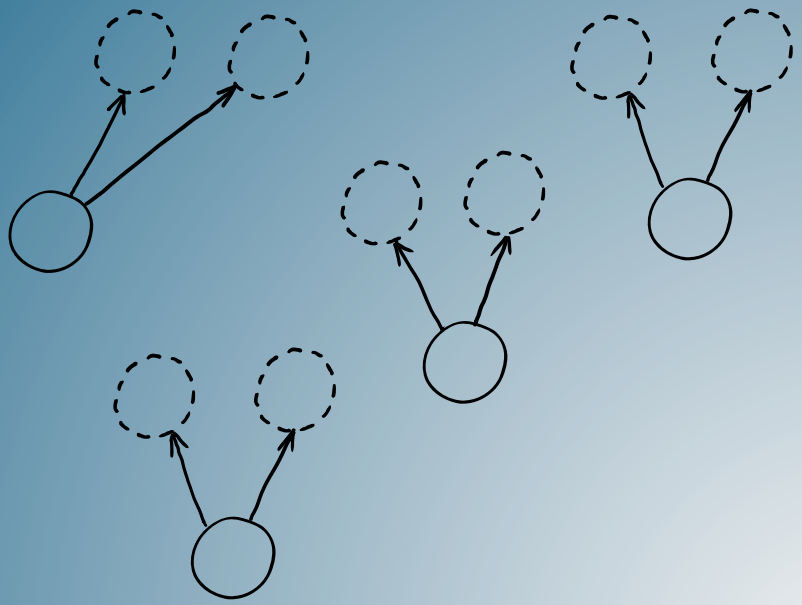
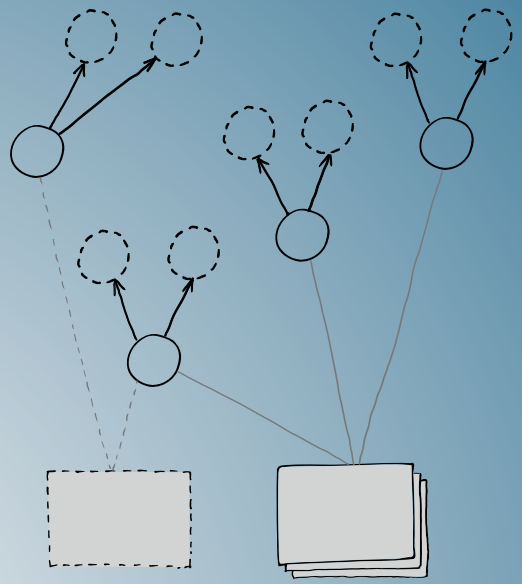
ceph

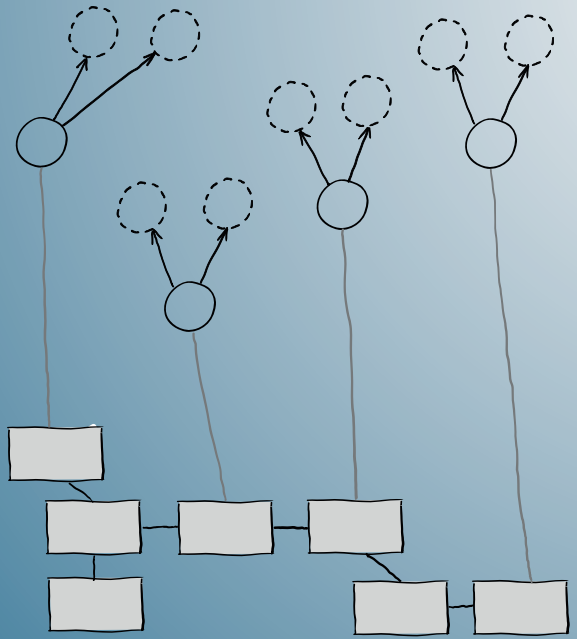
h!

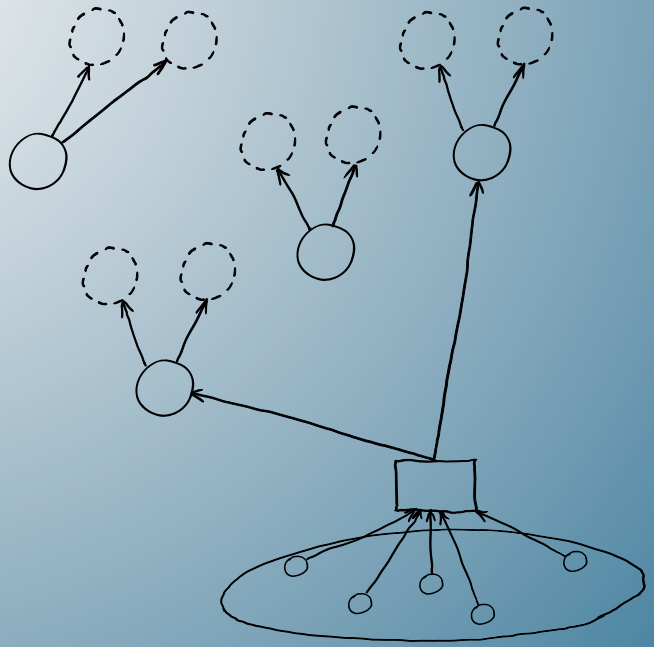
Cephalopod (Wikipedia, user Nhobgood)

Doktorarbeit von Sage Weil

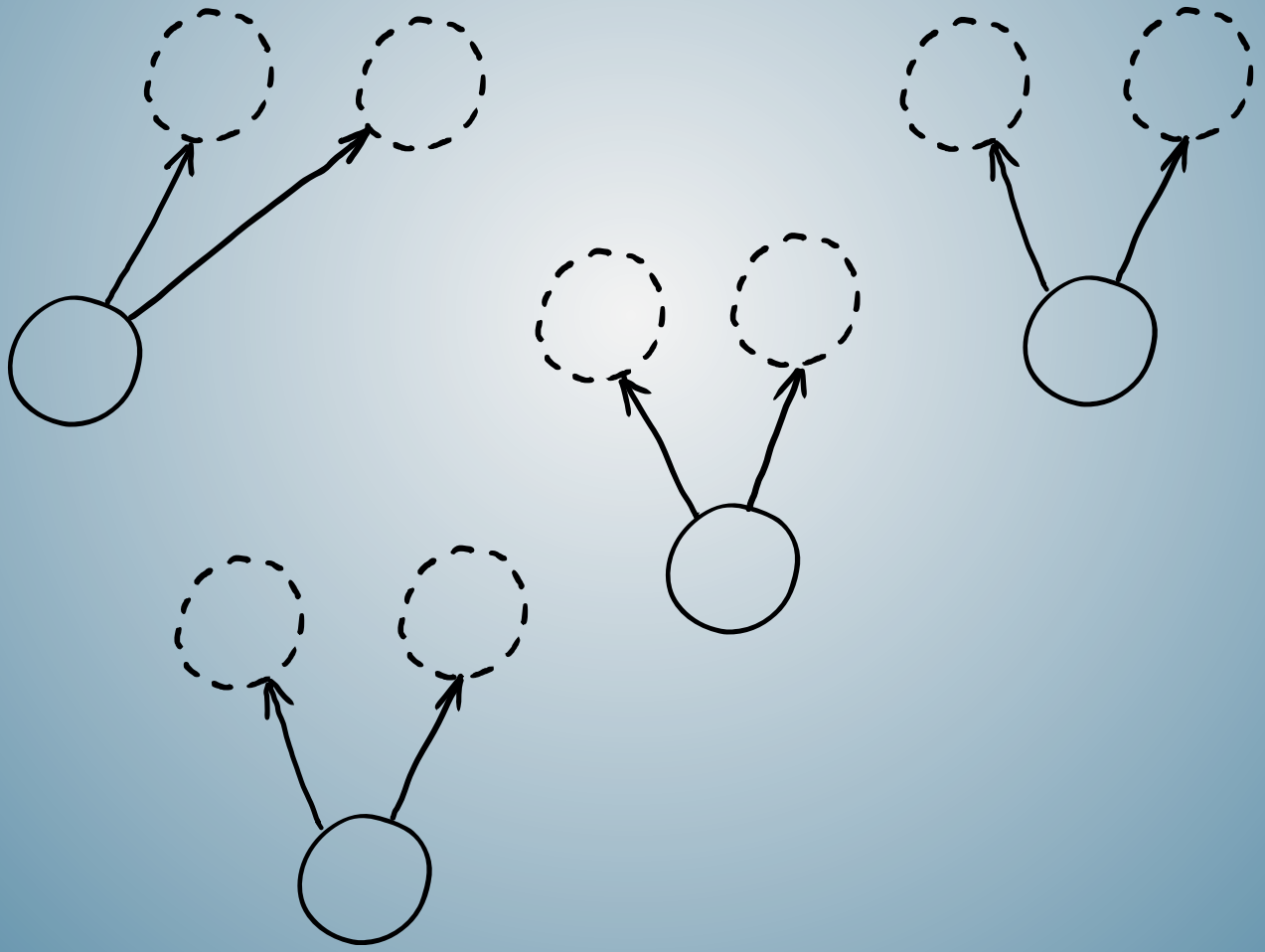








RADOS



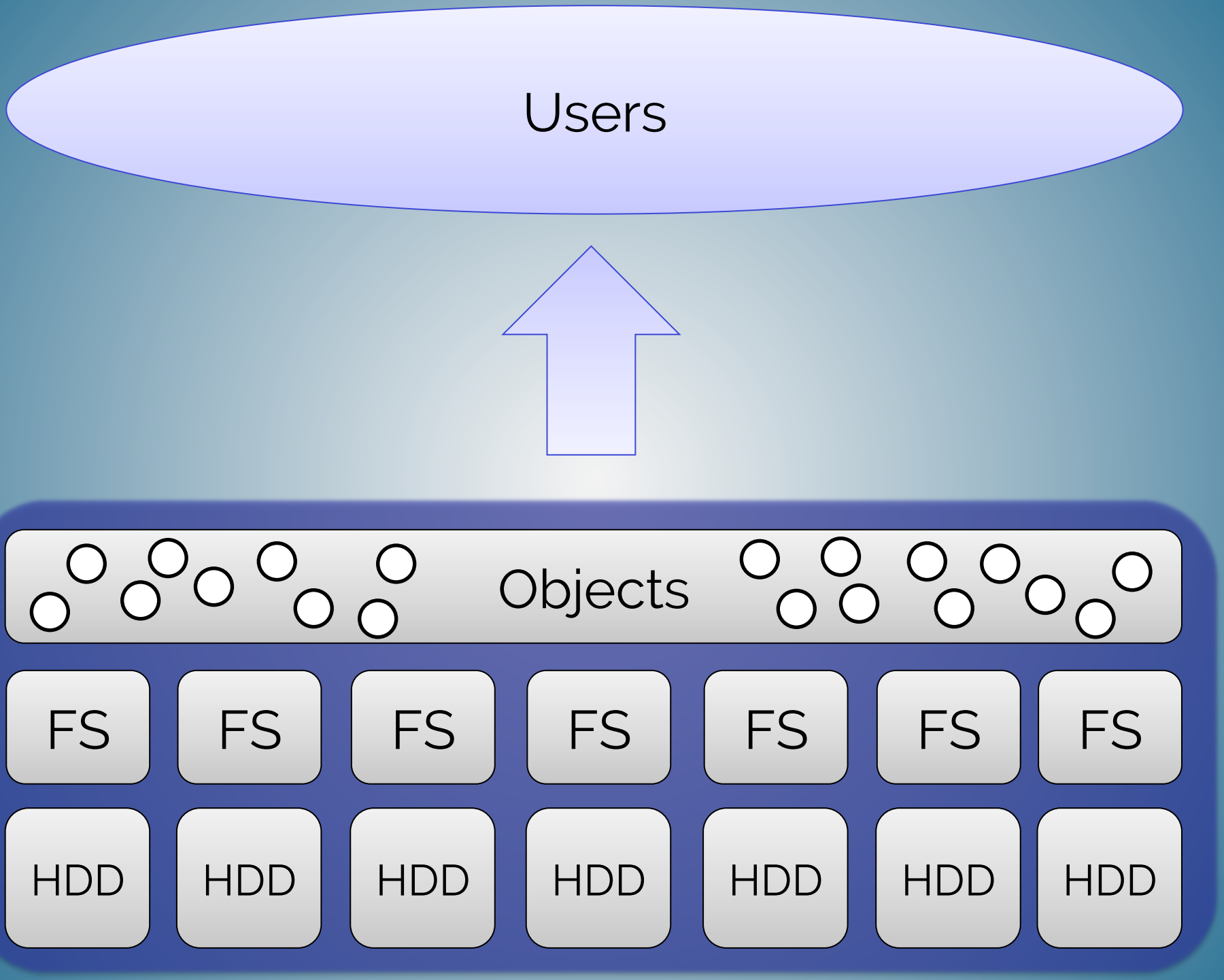
h!

Redundant
Autonomic
Distributed
Object
Store

2 Komponenten

h!

OSDs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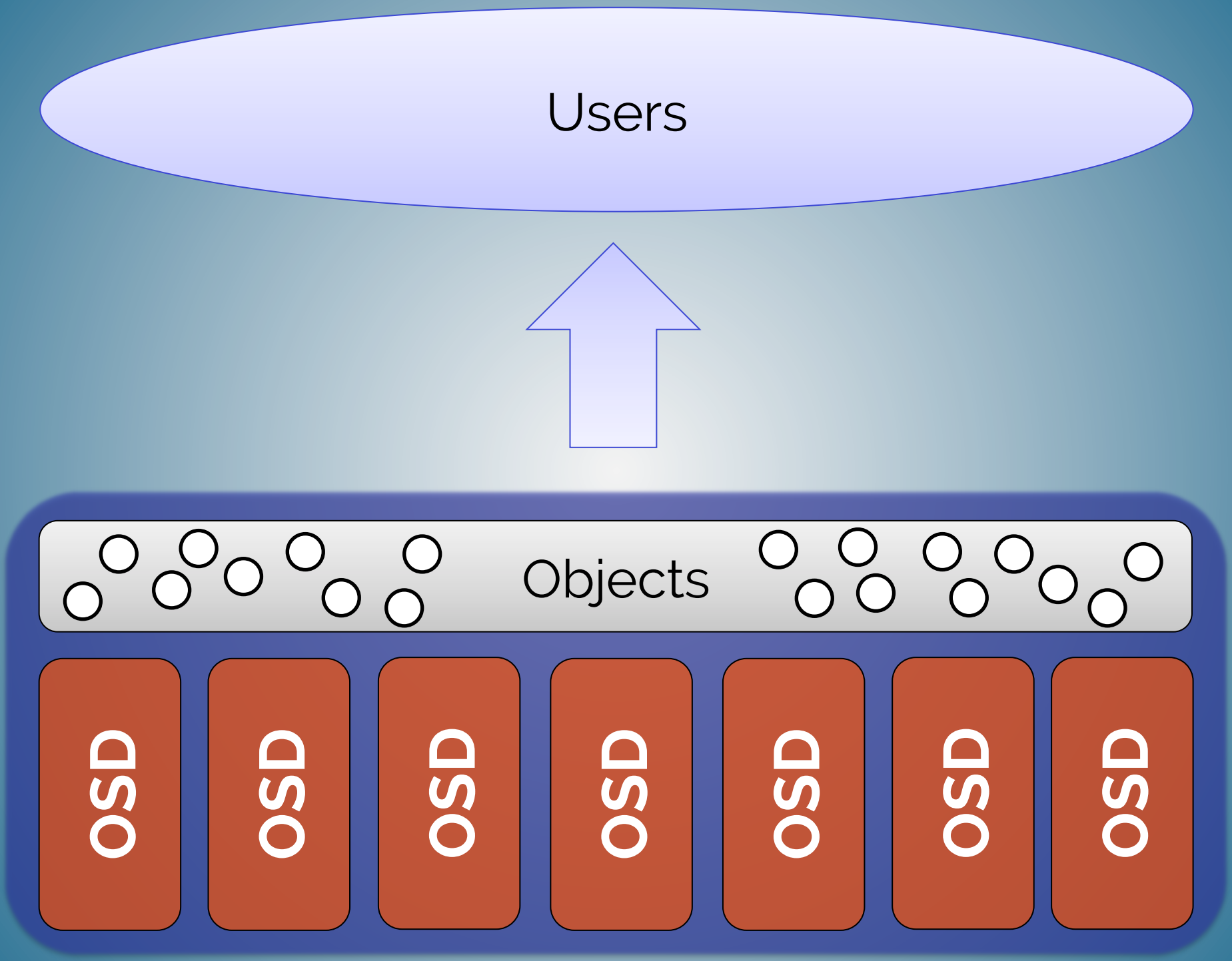
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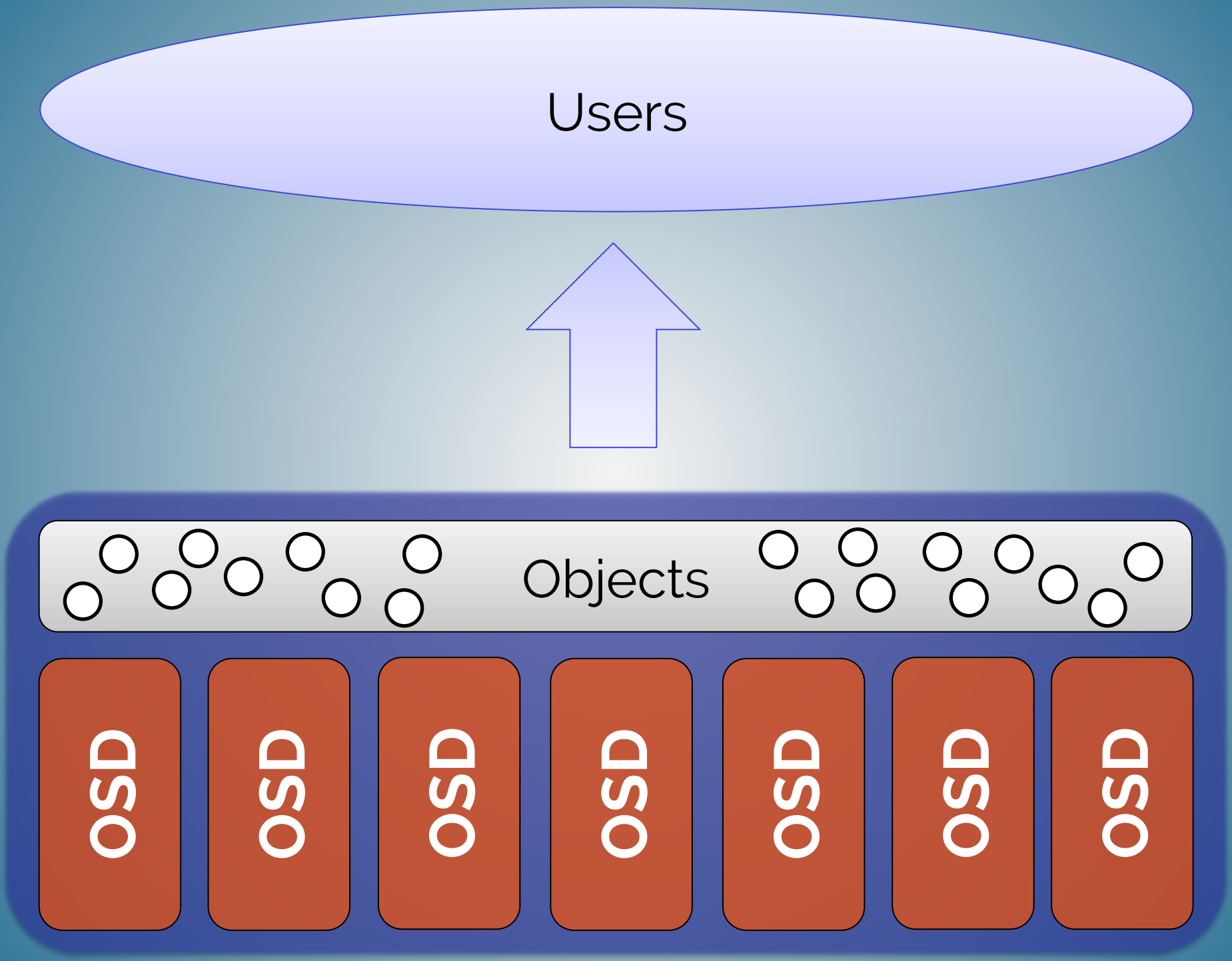
Unified Storage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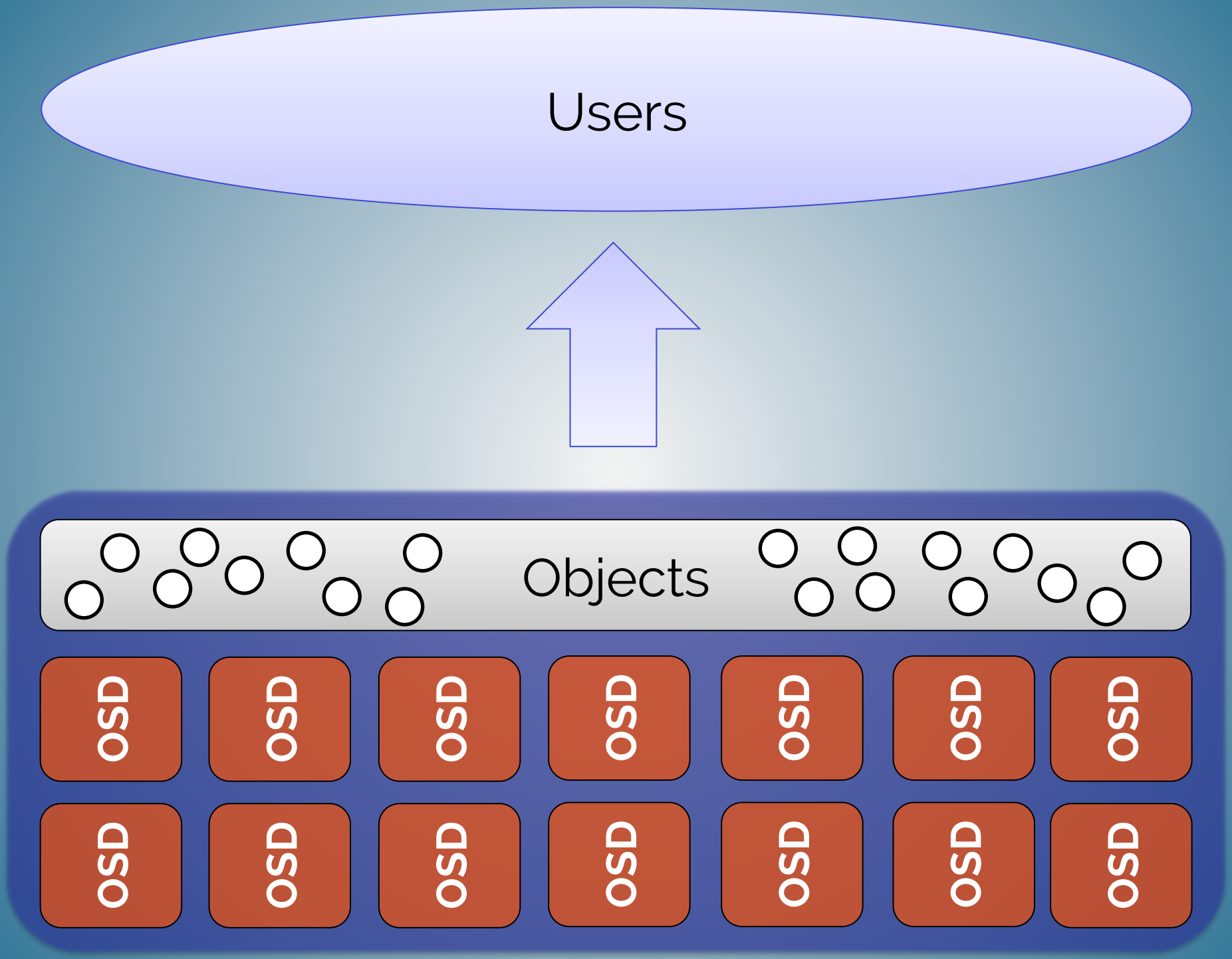
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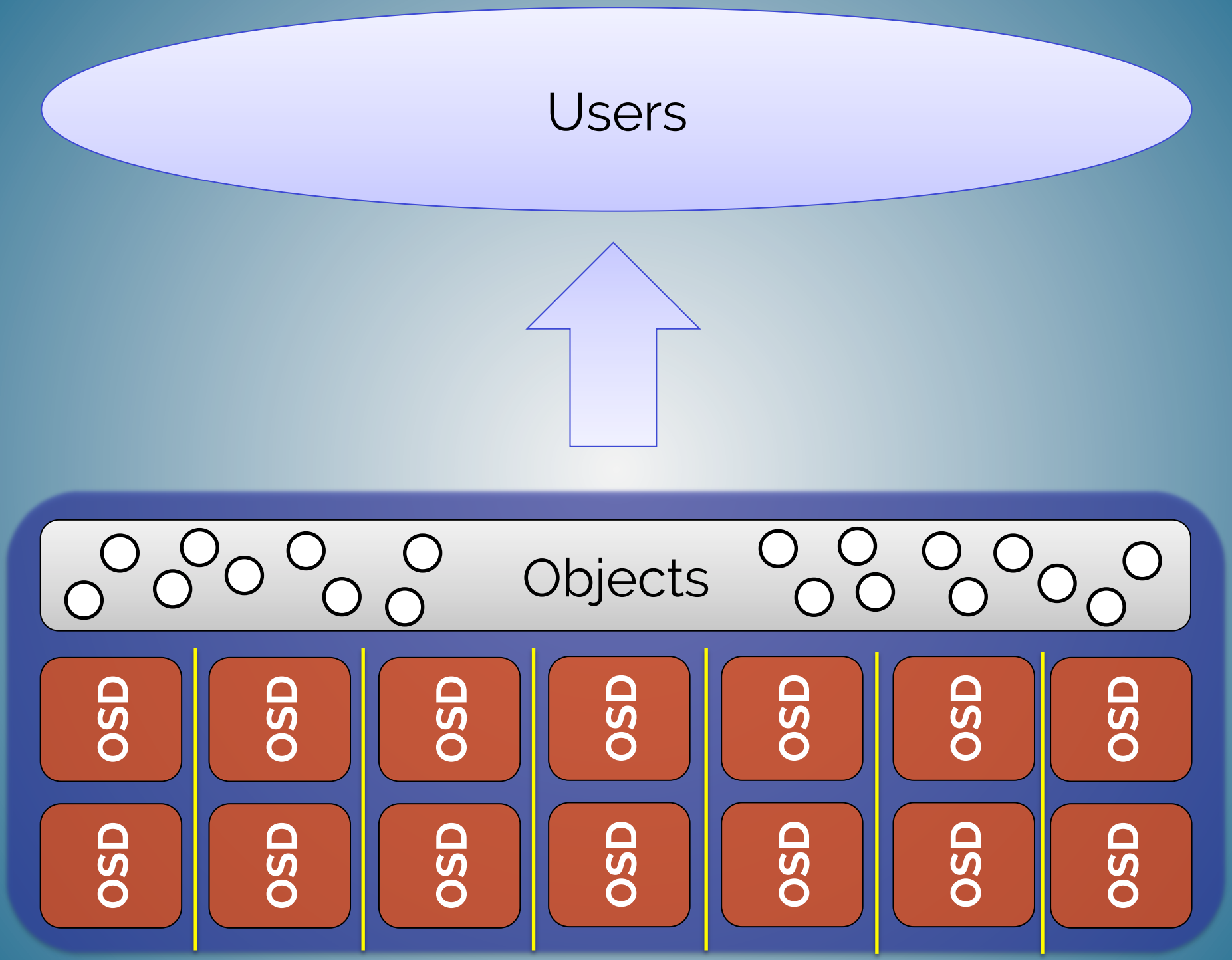
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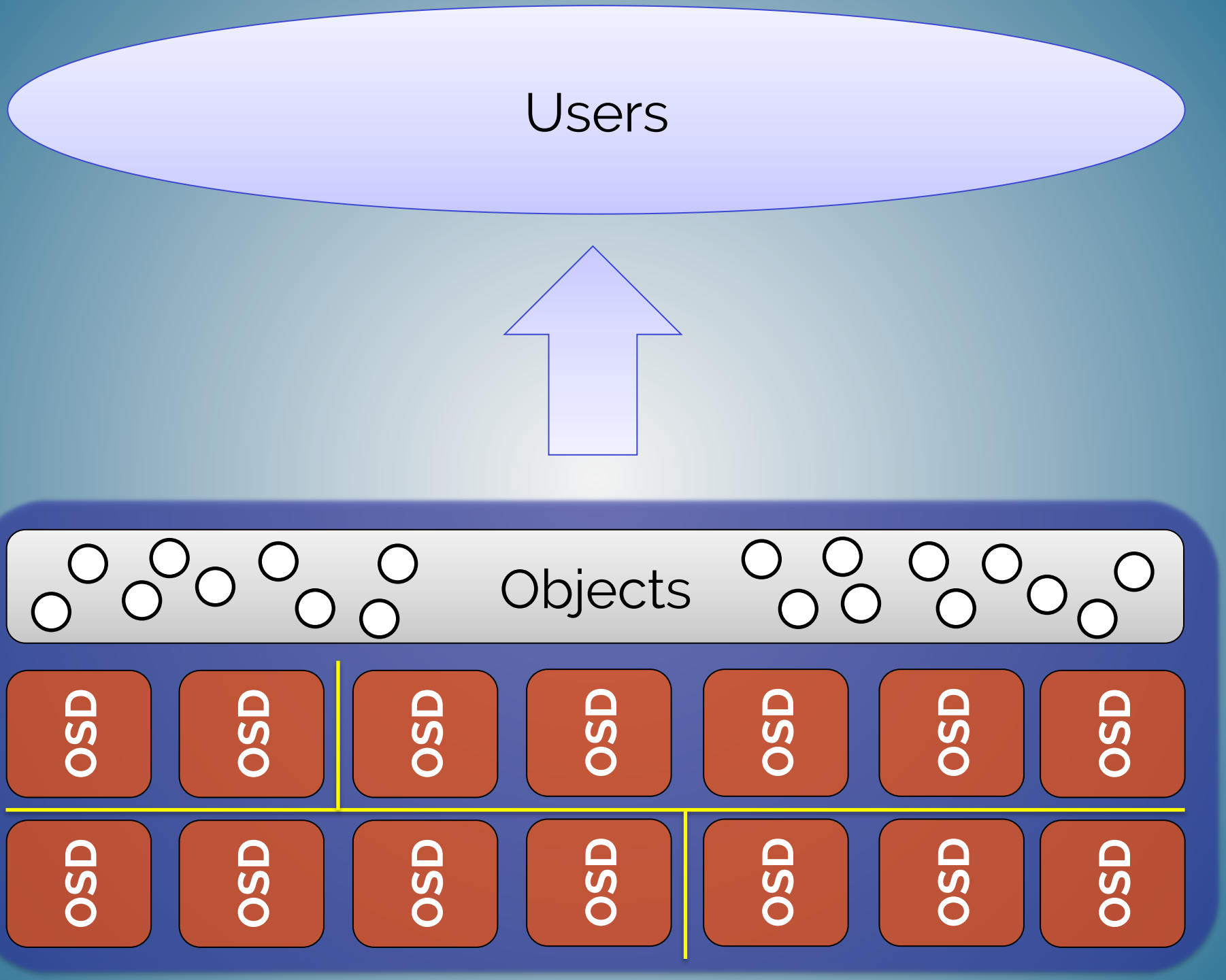
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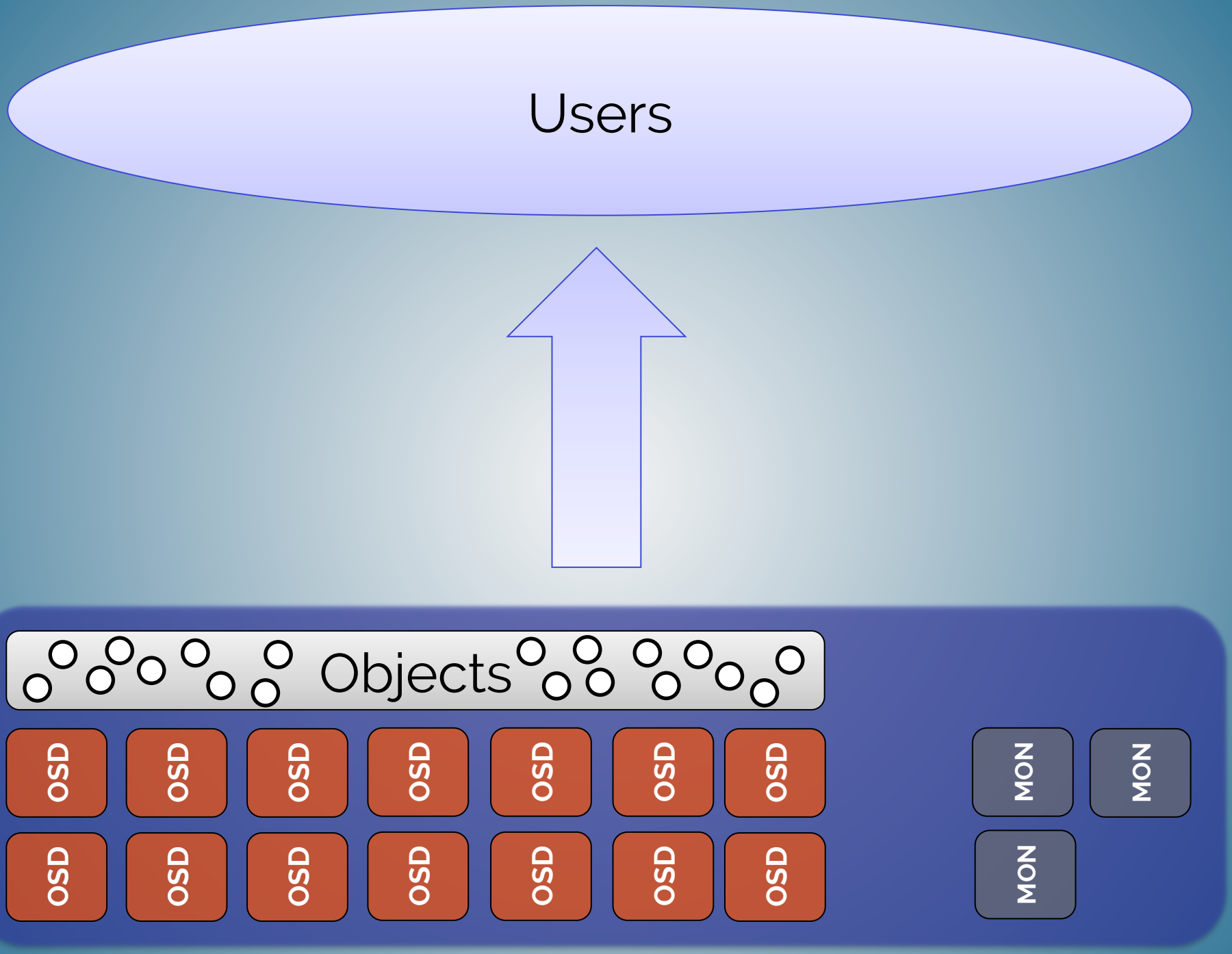
MONs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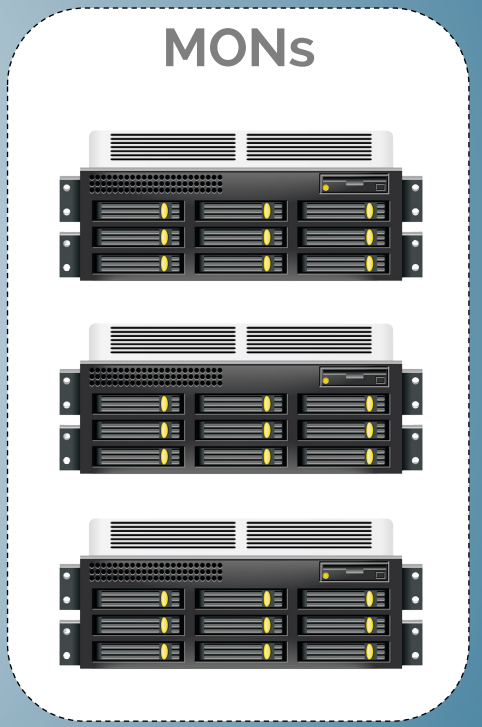
Data Placement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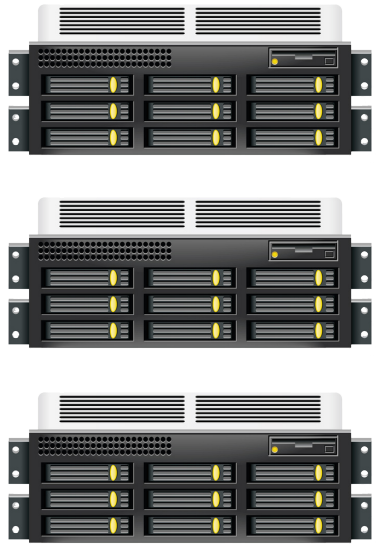
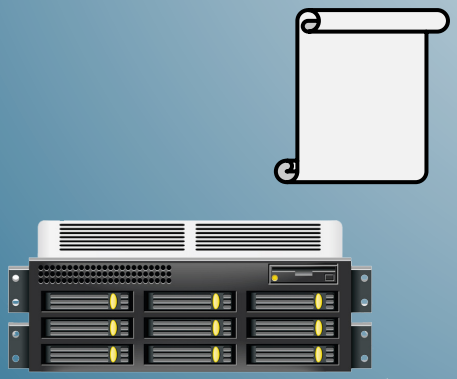
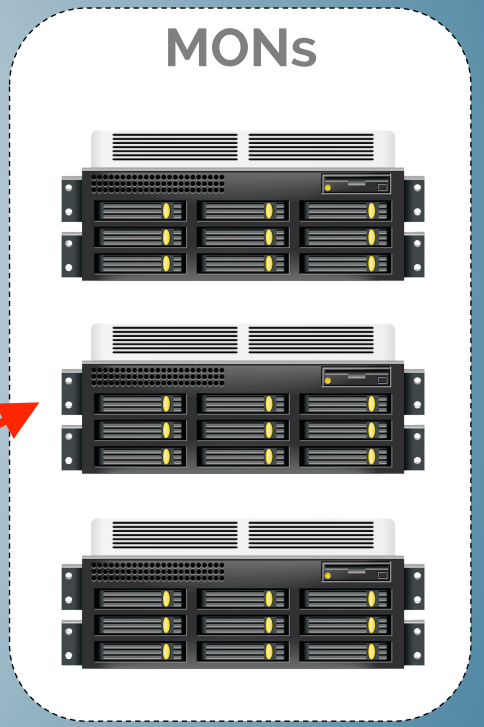
MONs



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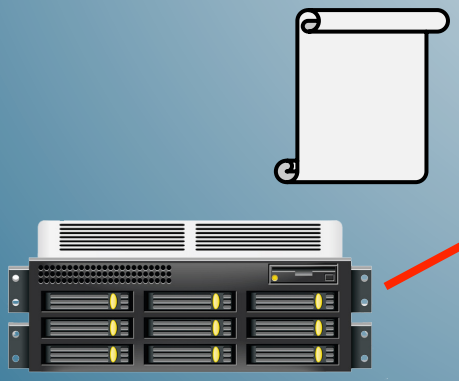

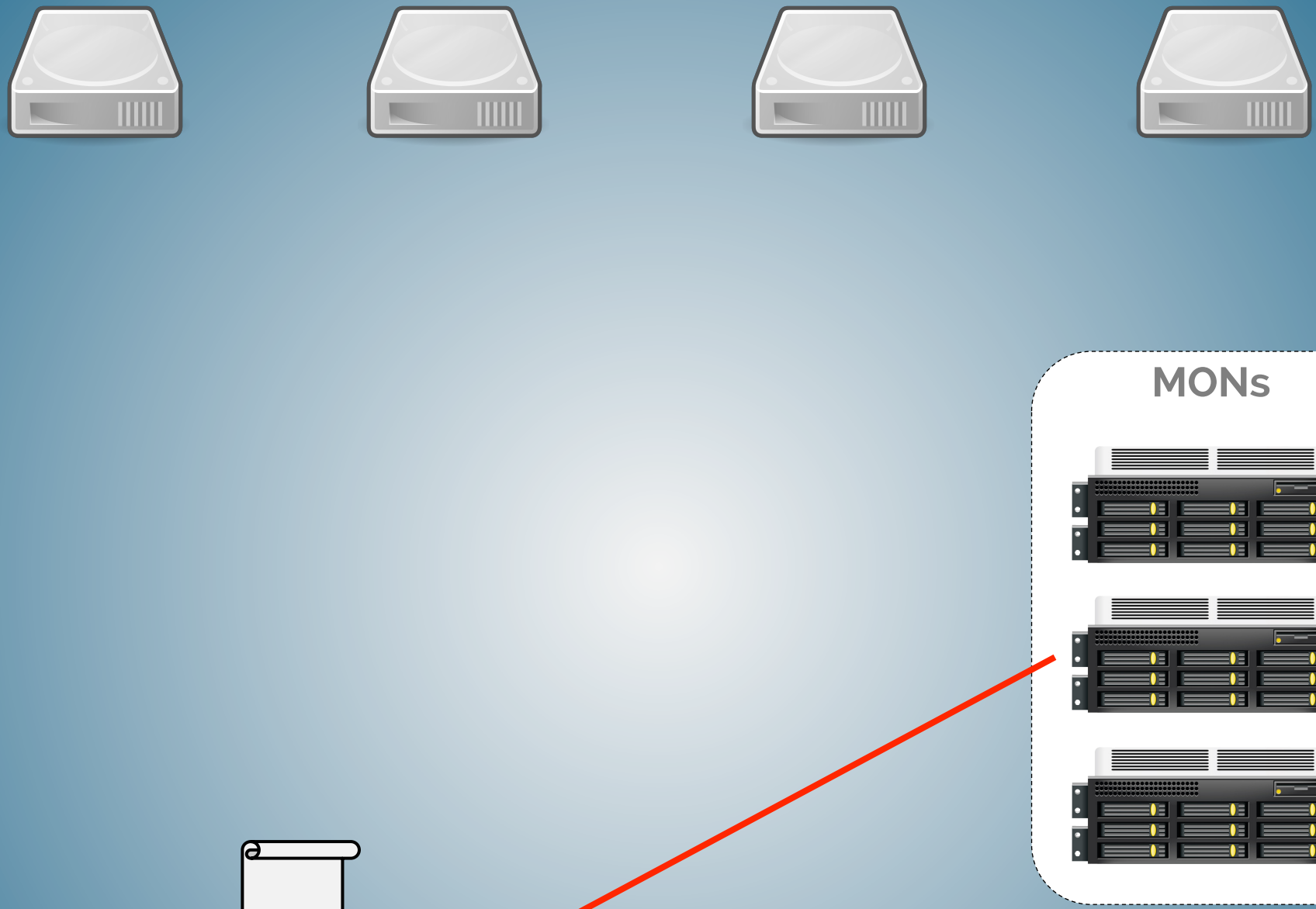
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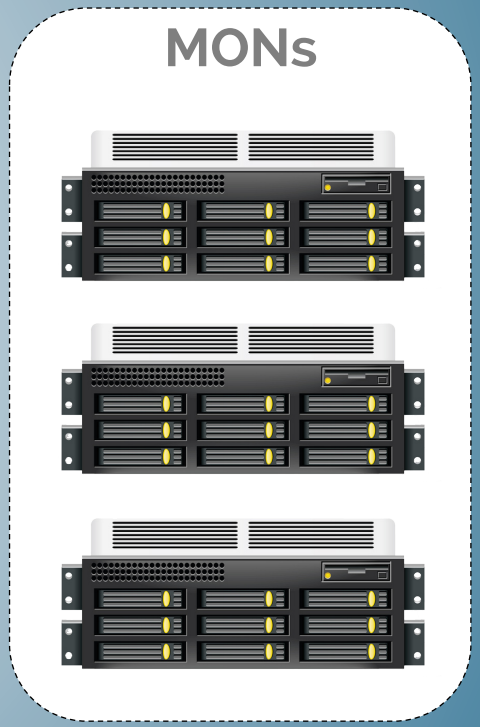
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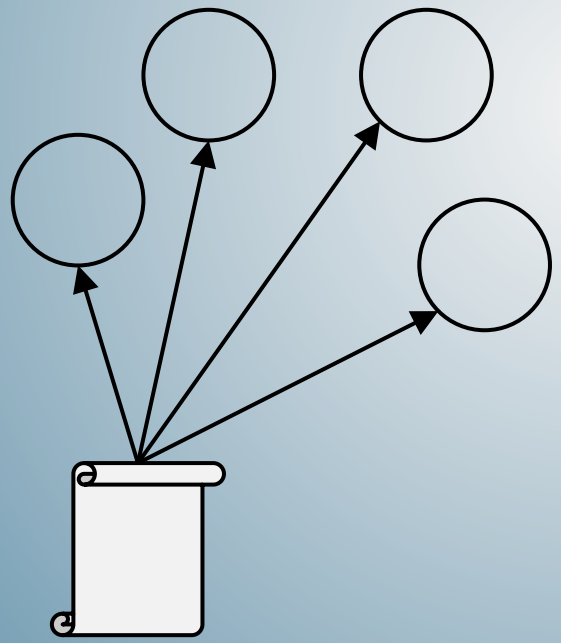

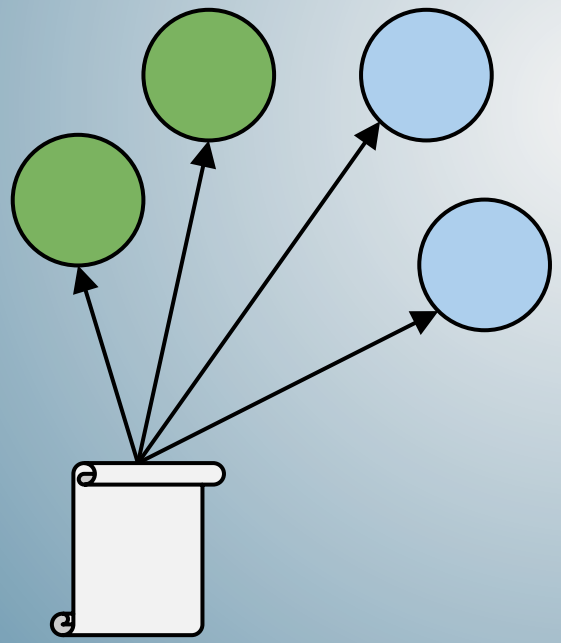

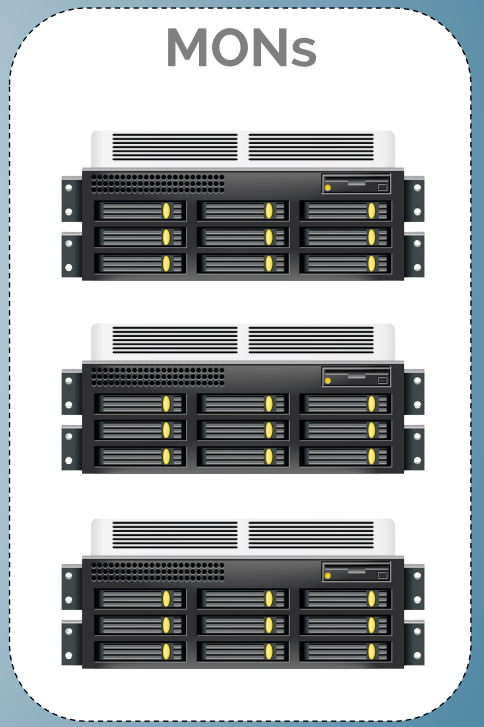
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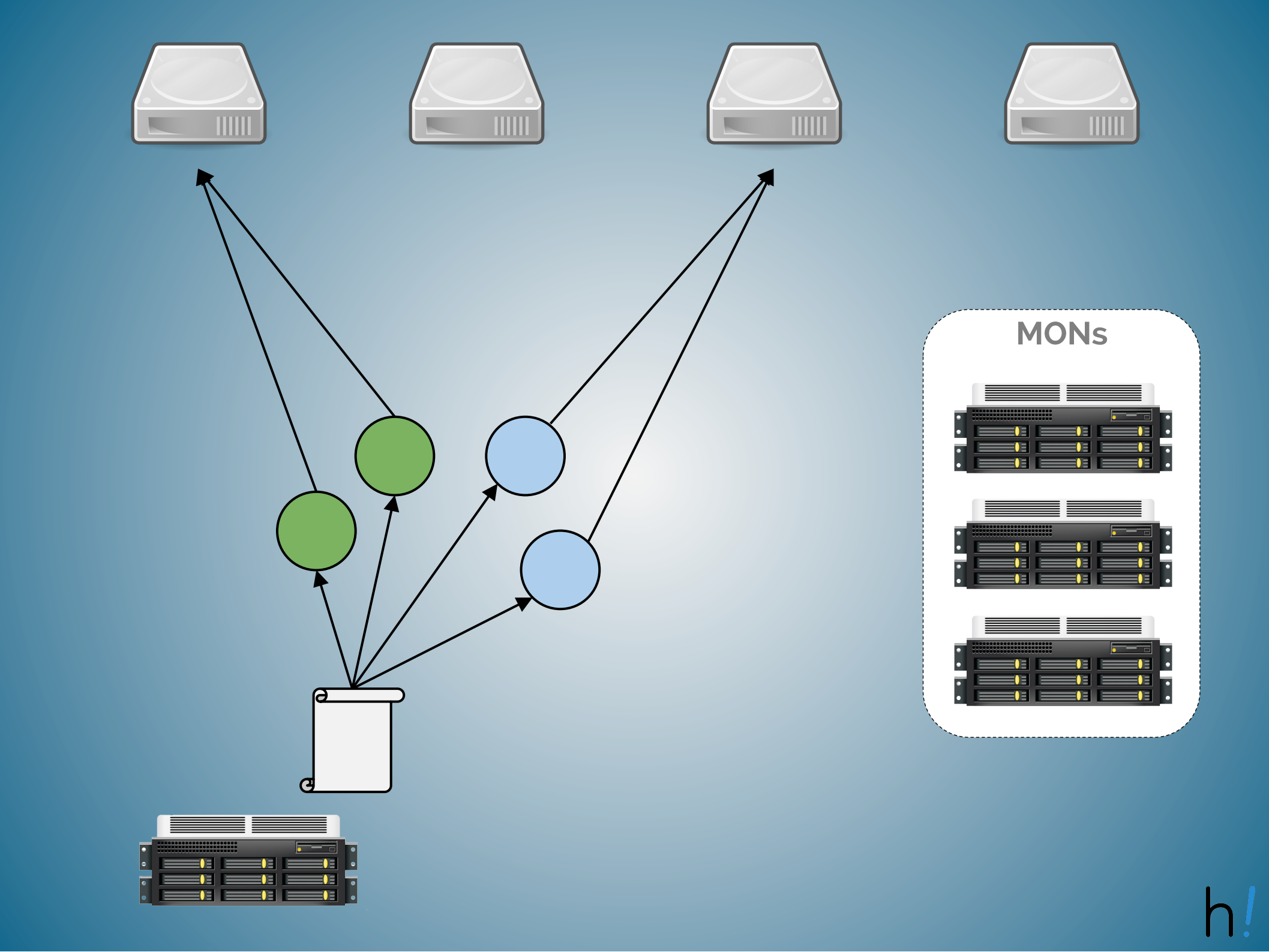
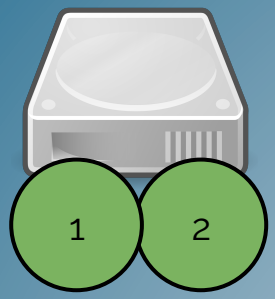

MONs

Parallelisierung

h!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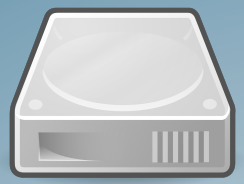

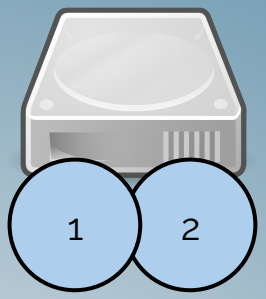
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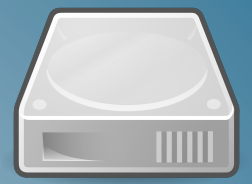

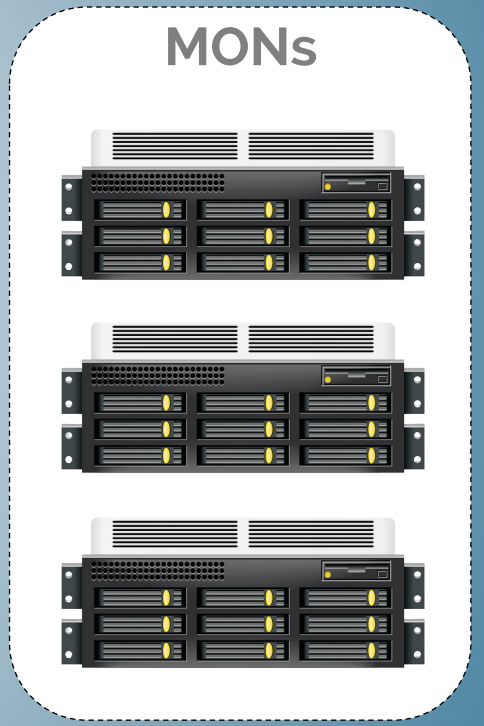
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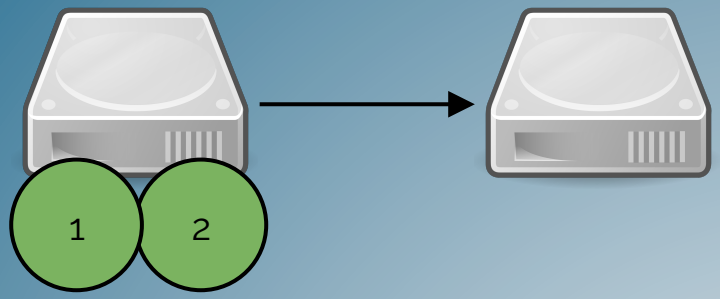
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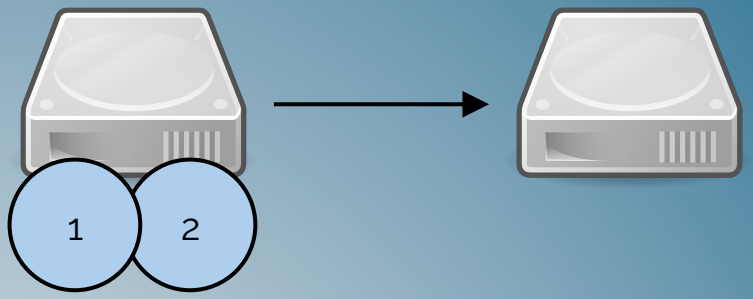
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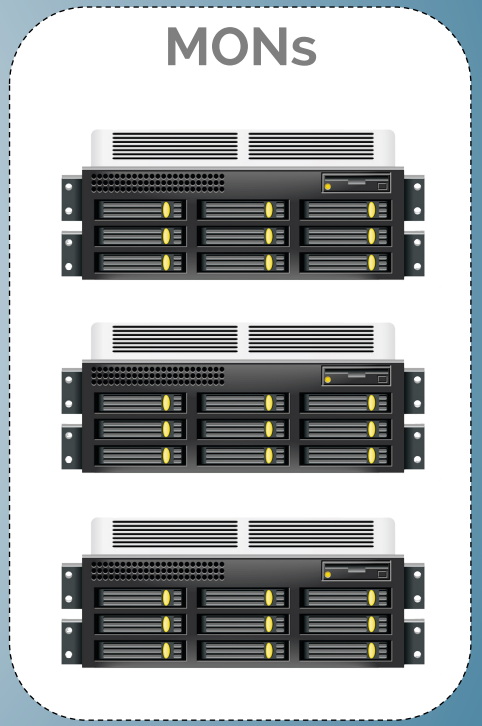
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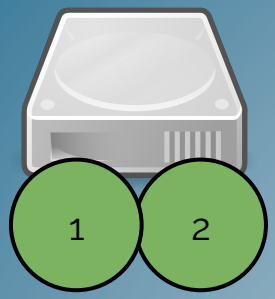
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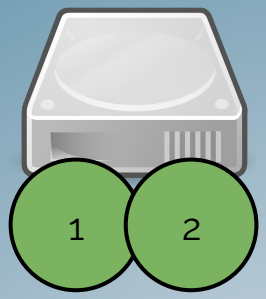
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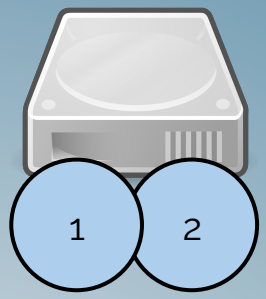
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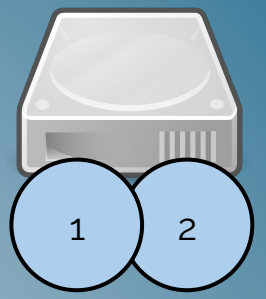
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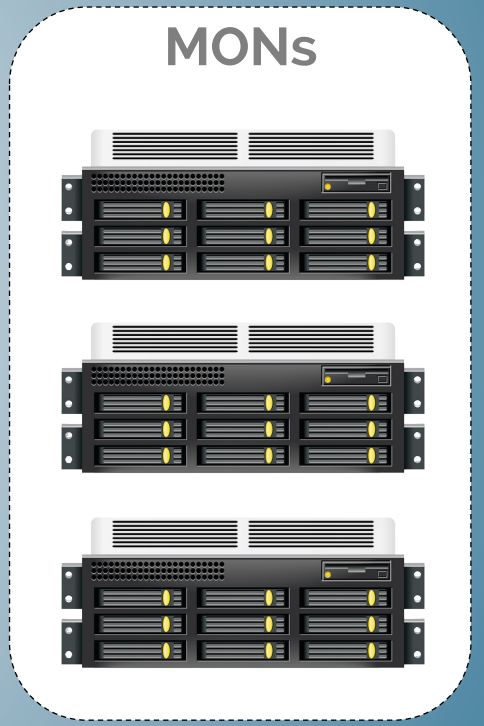
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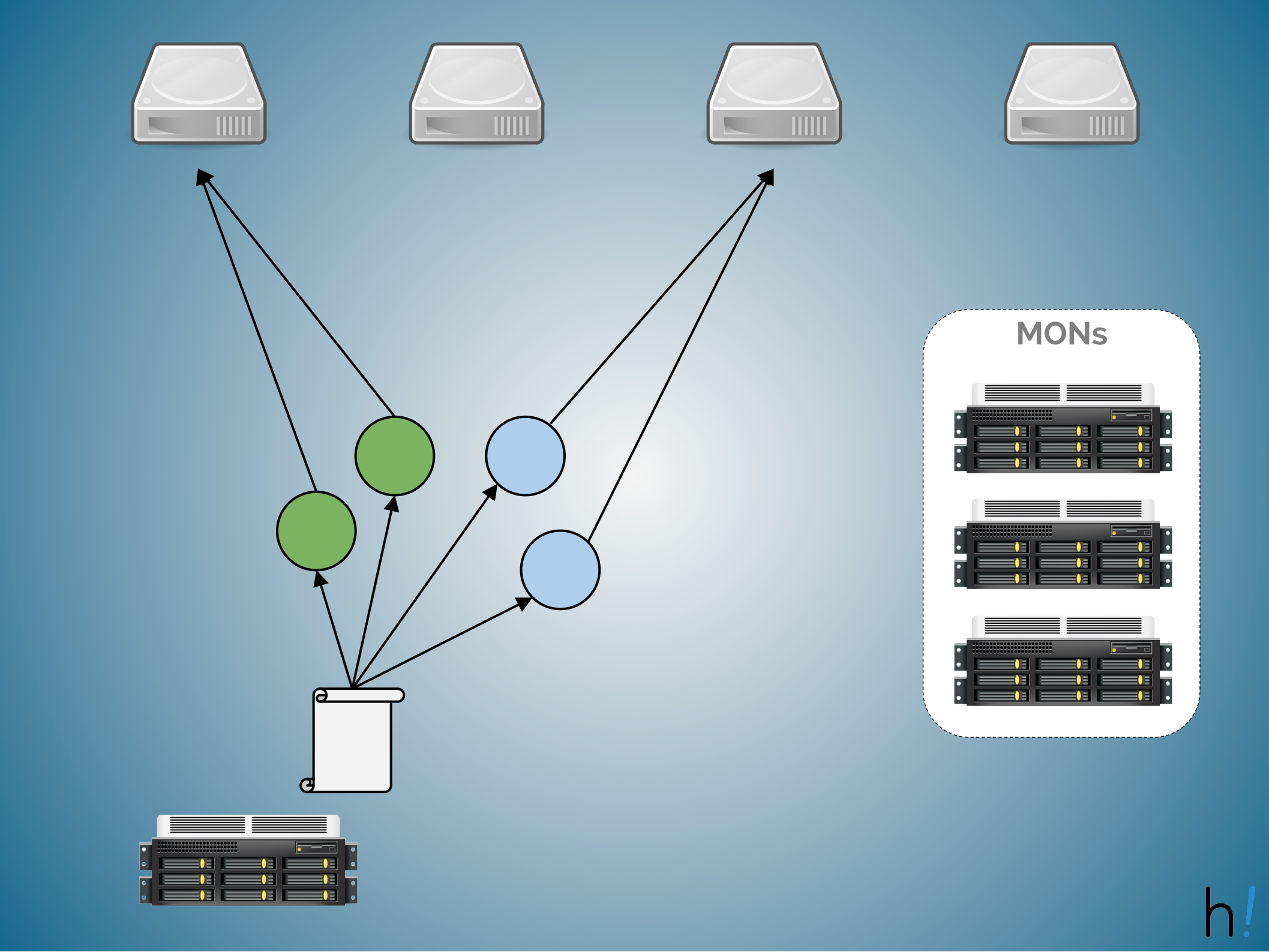
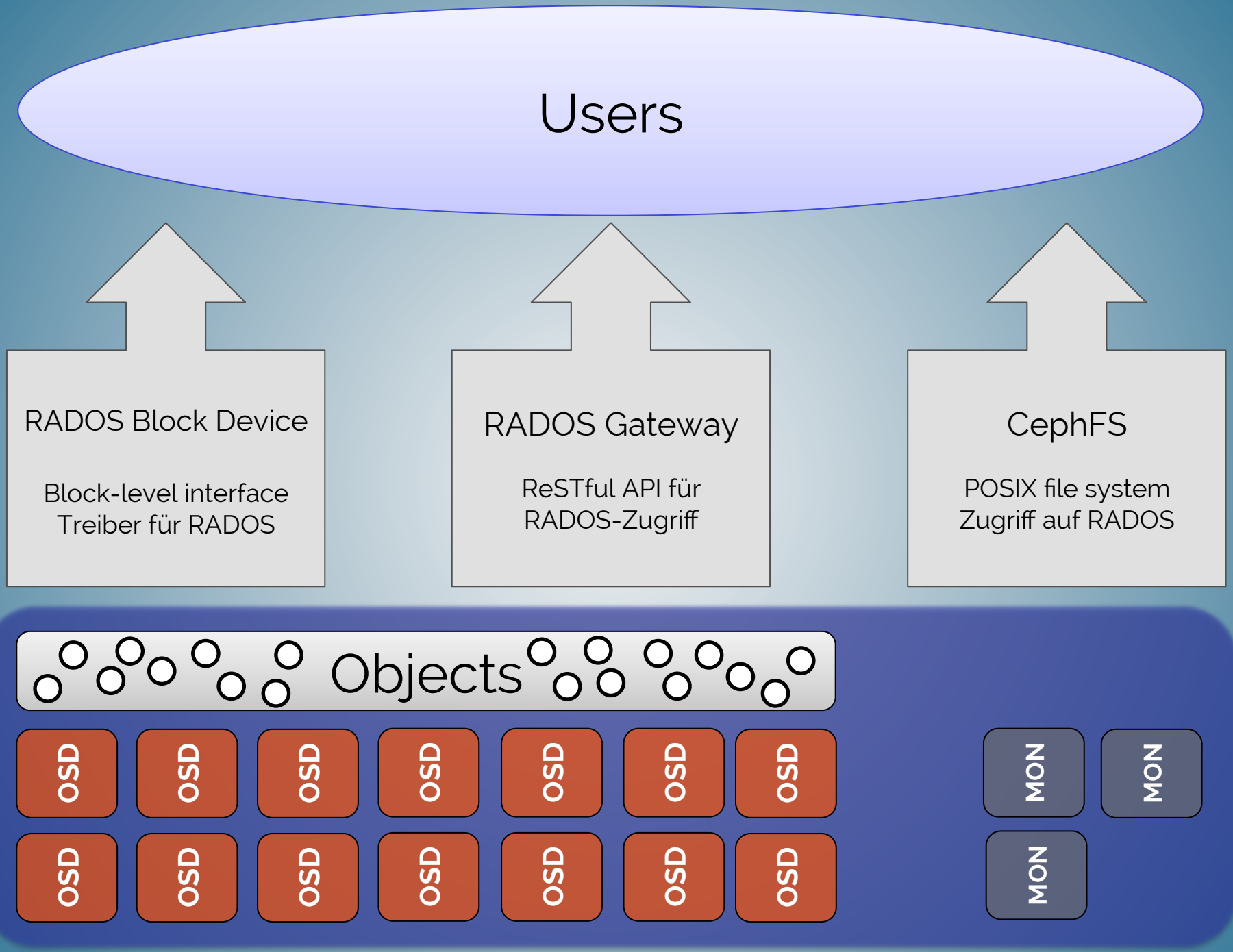

MONs

CRUSH

Controlled
Replication
Under
Scalable
Hashing

Rack aware

Clients?


Users
RADOS Block Device
Block-level interface
Treiber für RADOS
RADOS Gateway
ReSTful API für
RADOS-Zugriff
CephFS
POSIX file system
Zugriff auf RADOS
Objects
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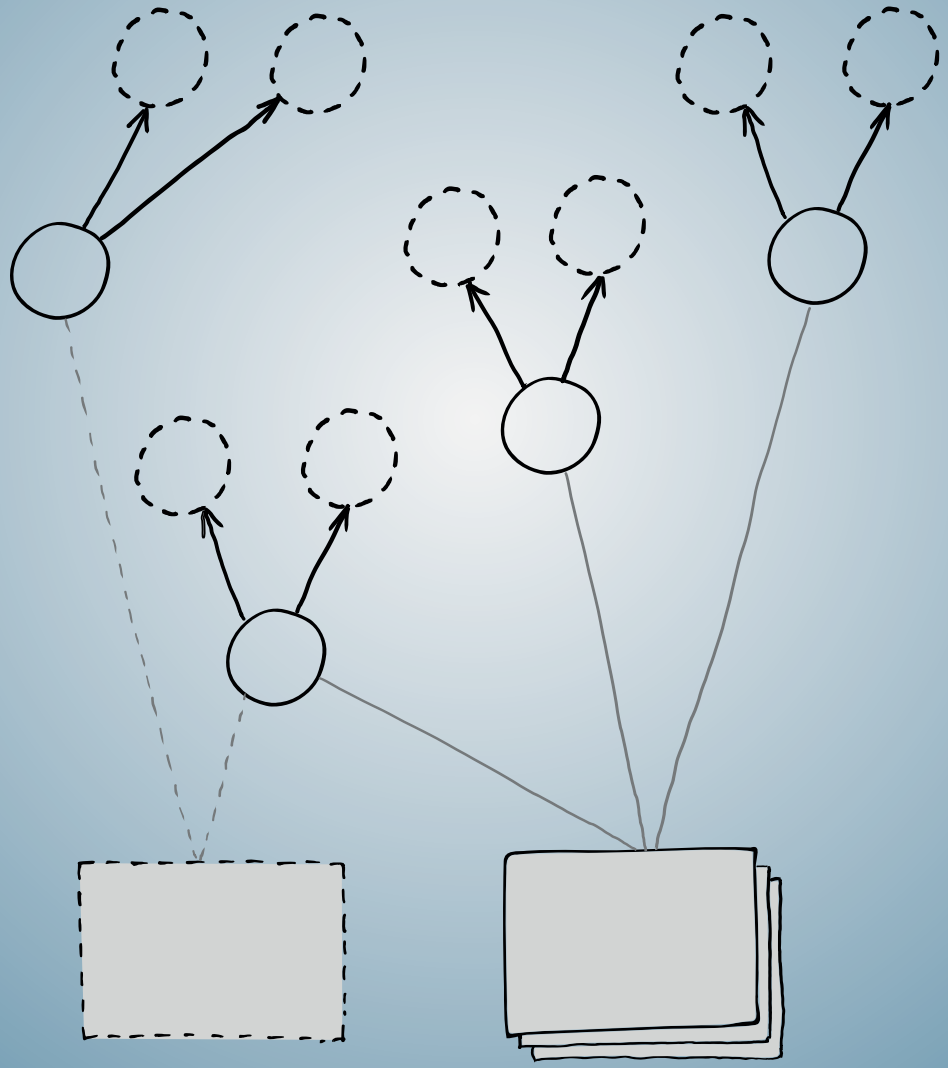
RBD (RADOS Block Device)



rbd

Qemu-RBD

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  <driver name='qemu' type='raw' cache='writeback'/>
  <auth username='libvirt'>
    <secret type='ceph' usage='client.libvirt secret'/>
  </auth>
  <source protocol='rbd' name='libvirt/ubuntu-amd64-alice'>
    <host name='192.168.133.111' port='6789'/>
    <host name='192.168.133.112' port='6789'/>
    <host name='192.168.133.113' port='6789'/>
  </source>
  <target dev='vda' bus='virtio'/>
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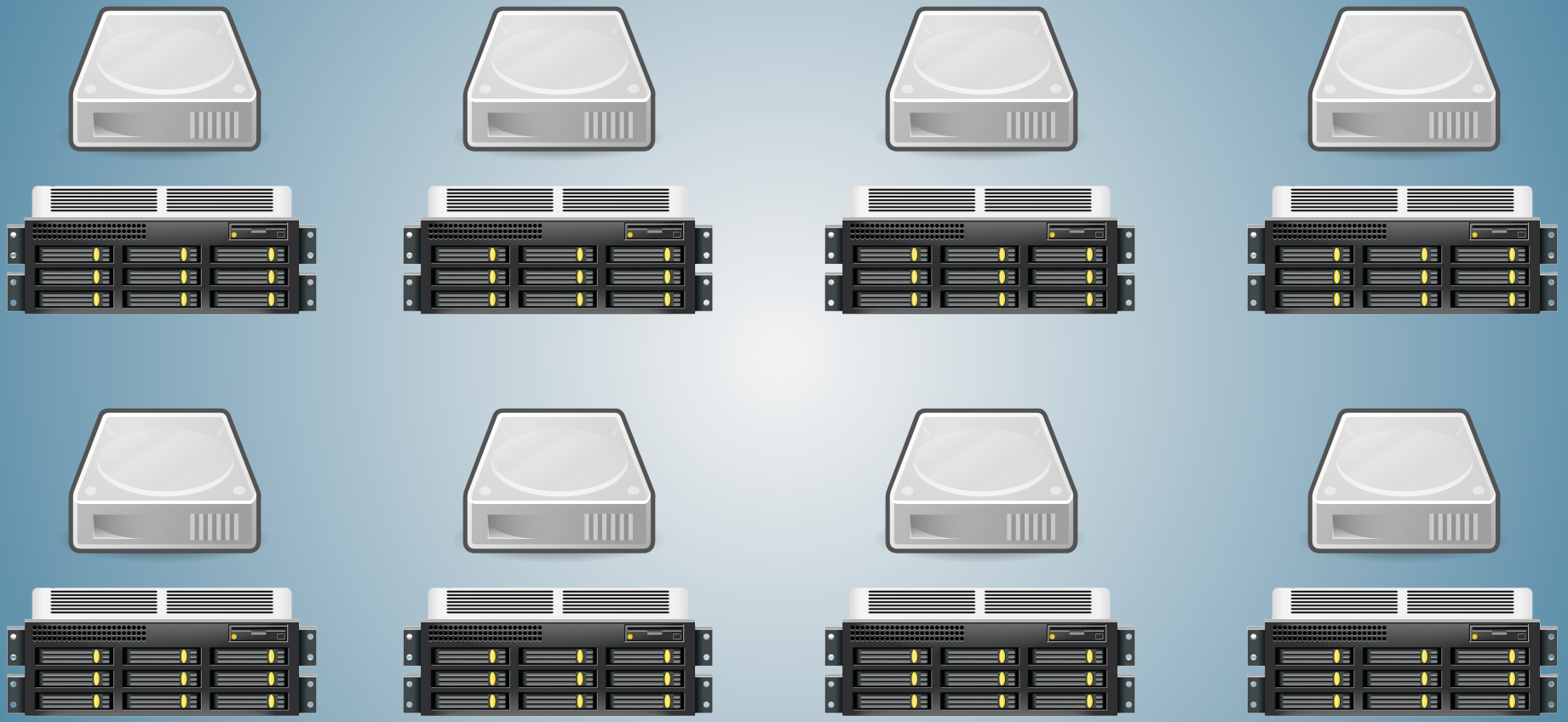
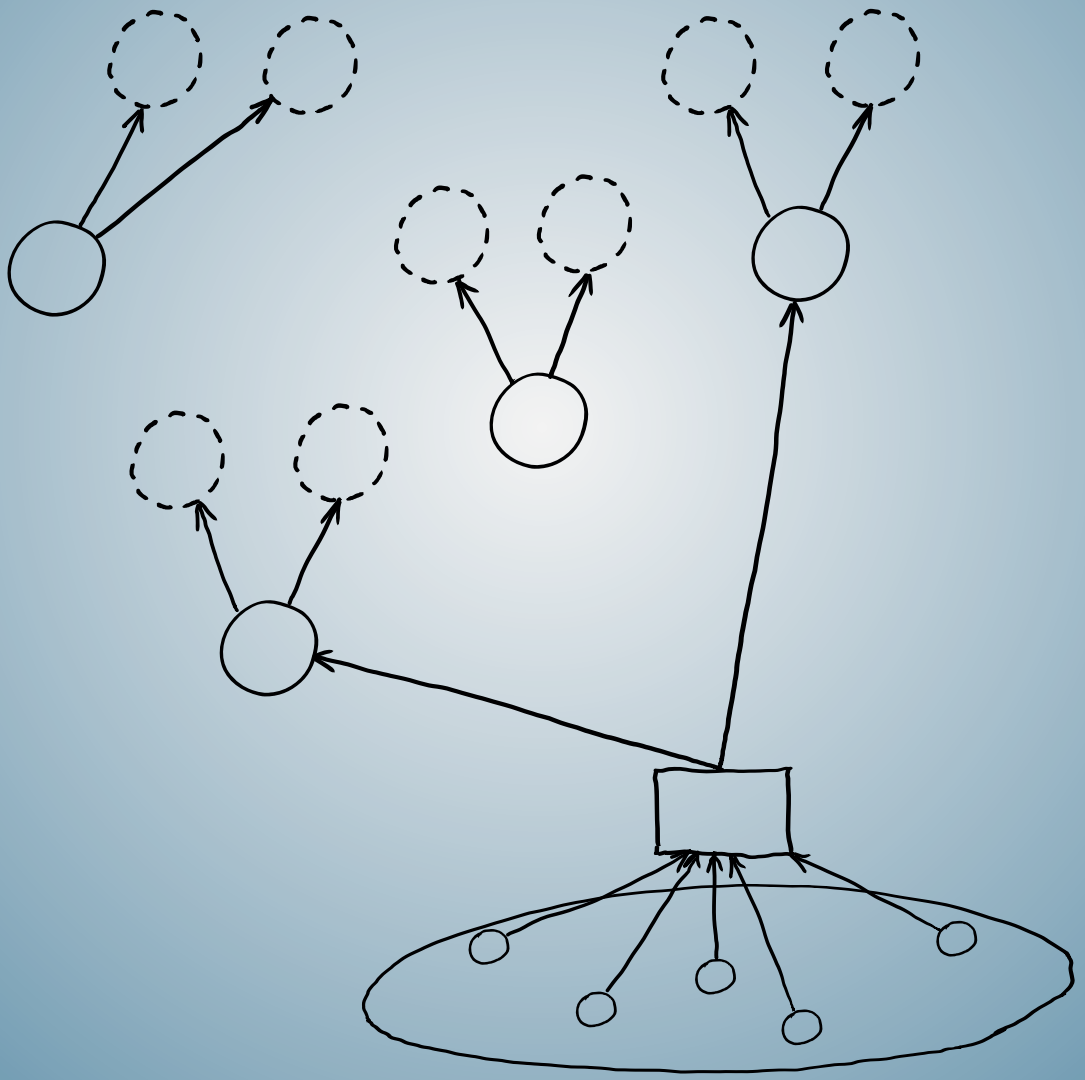


radosgw



Kompatibel mit S3 und Swift

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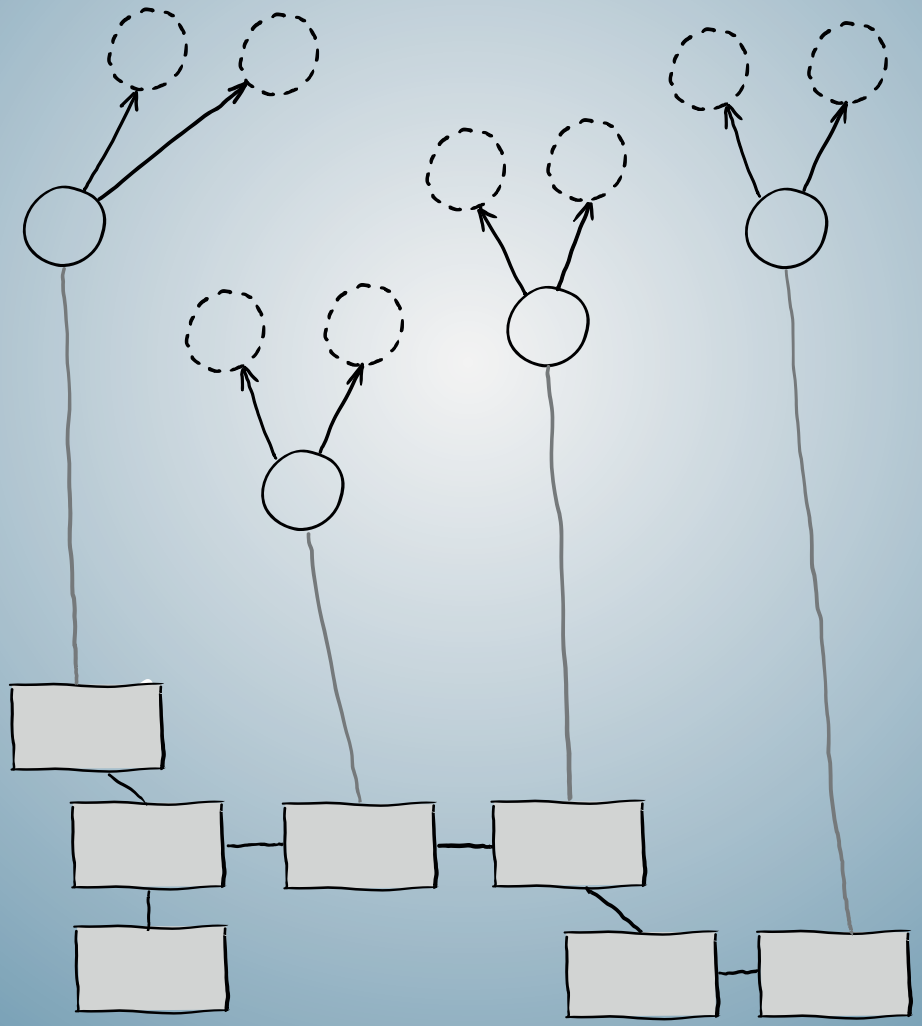
CephFS



CephFS: Leider noch beta

Nicht genug? Der **eigene Client** mit **librados**!

Einsatzszenarien

Gigantic Storage

h!

40TB, 3 Replikas= € 24.000

Virtualisierung

iSCSI Storage

OpenStack!

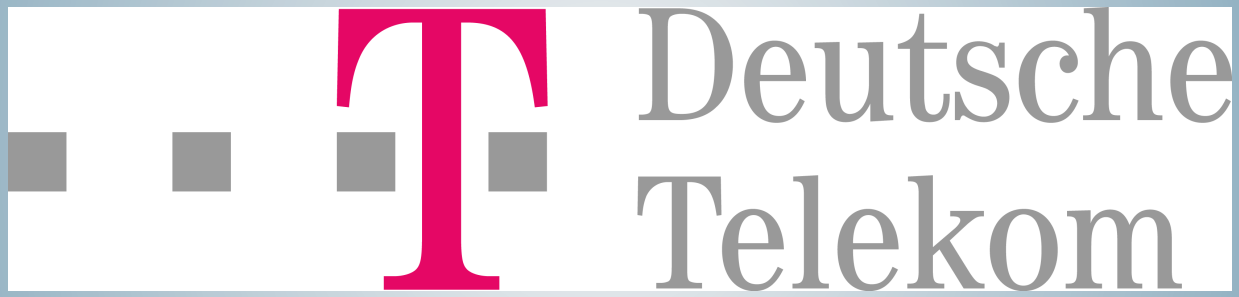
Nahtlose Integration

Cinder & RADOS: Geht!

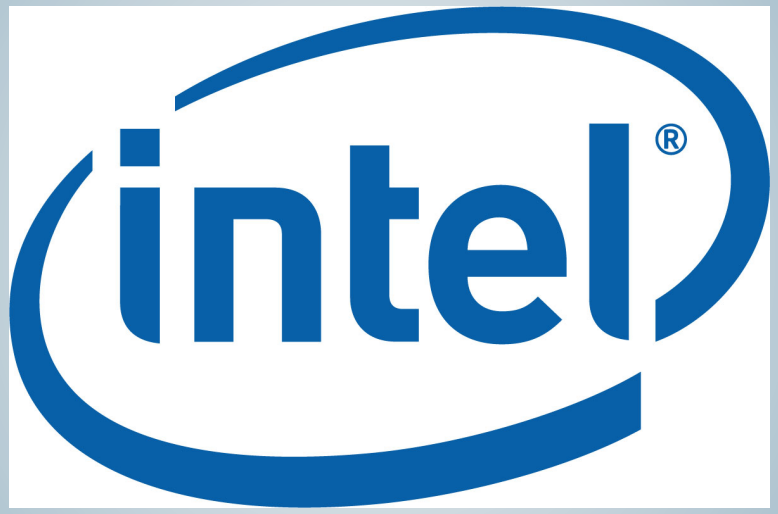
h!

Glance & RADOS: Geht!

Referenzen?


Deutsche
Telekom


Bloomberg



h!

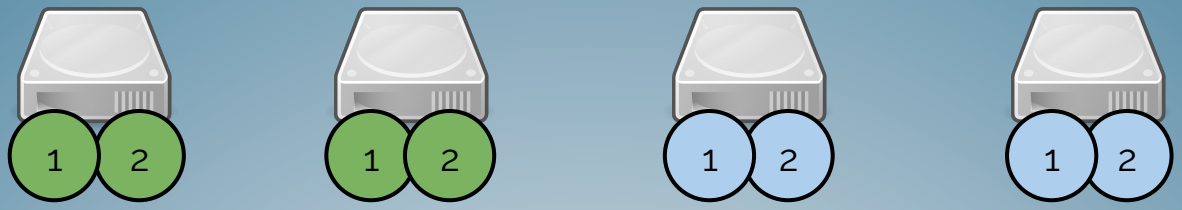
Live demo

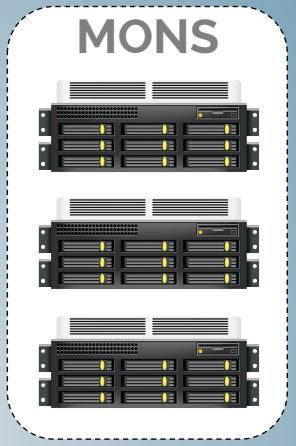
h!

Mit besonderem Dank an:

Sage Weil (Twitter: @liewegas)
& Crew für Ceph

Inktank (Twitter: @inktank)
für das Ceph-Logo





ceph

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