



青云存储实践

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Agenda

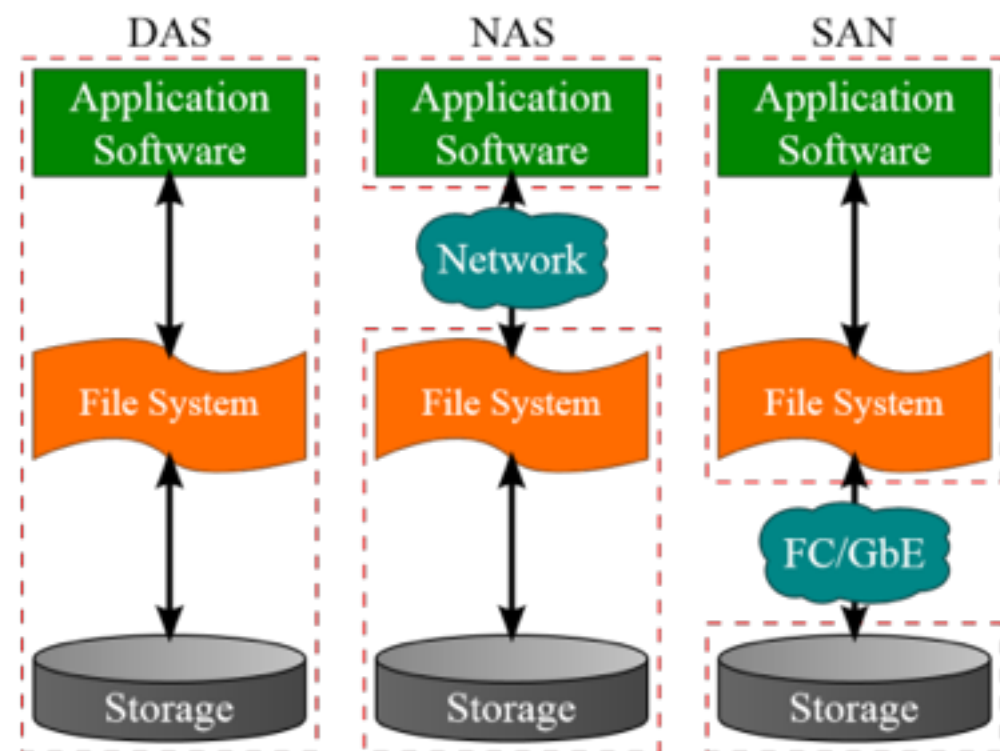
- 青云存储分类
- 青云存储架构
- 与其它存储方案的比较

Traditional Enterprise Storage

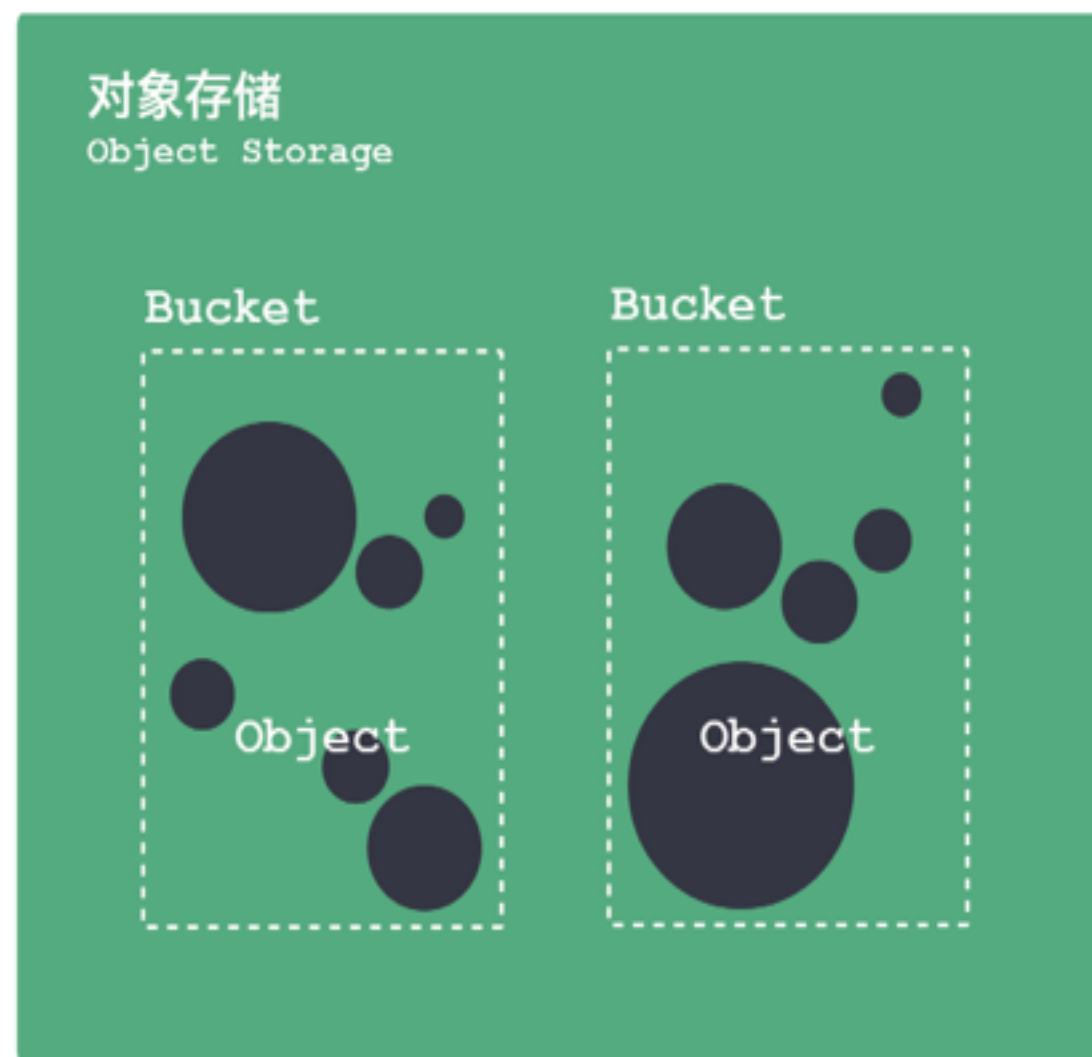
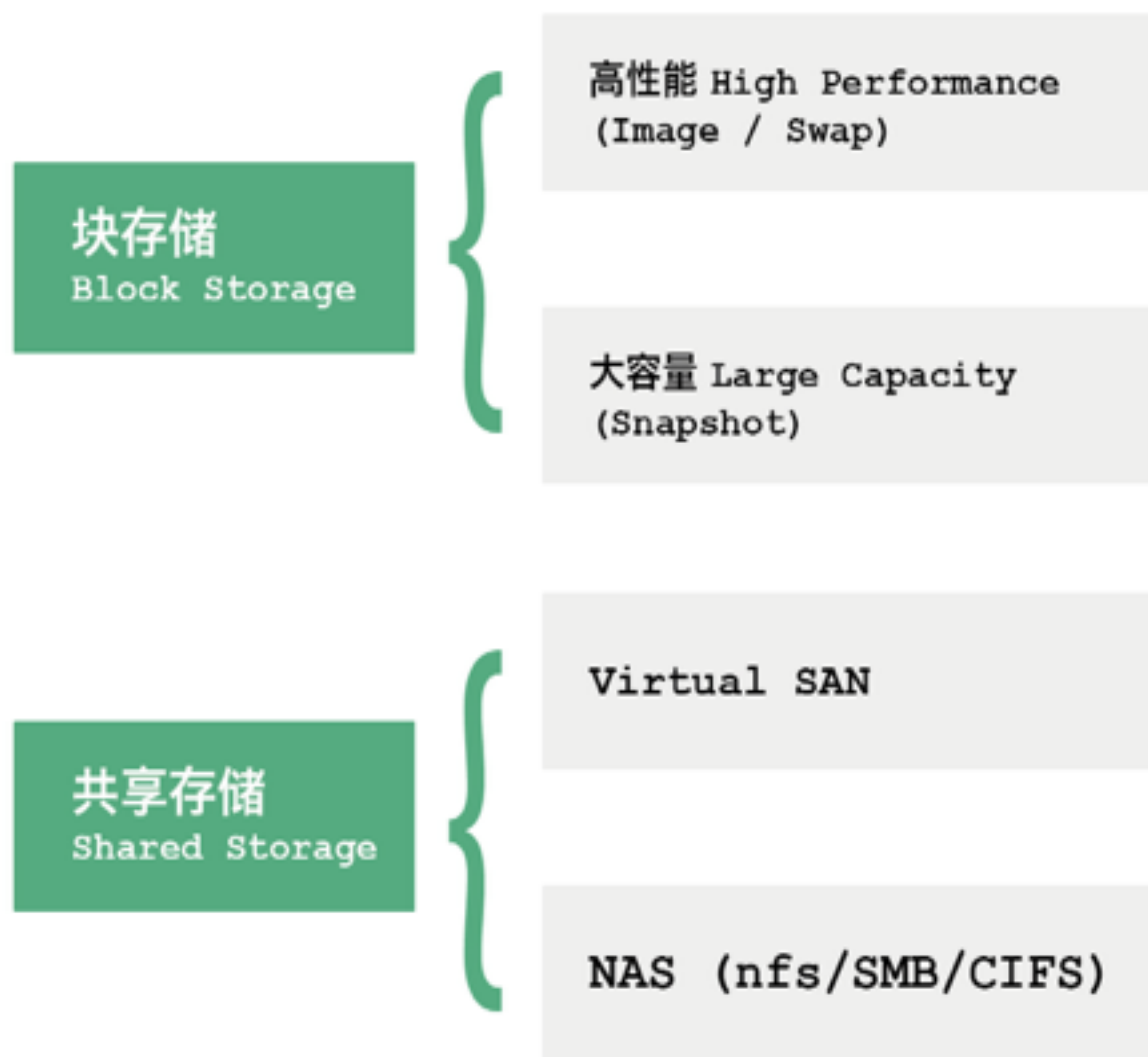
DAS (Direct Attached Storage)

SAN (Storage Area Network)

NAS (Network Attached Storage)



青云存储分类



最大容量

Capacity

对象存储 S3

容量型块存储 5TB

性能型块存储

超高性能块存储 SSD

性能 Performance



多维块存储解决方案

对象存储

超高性能块存储

容量型块存储

性能型块存储

配合传统企业解决方案

Virtual SAN / NAS

数据备份解决方案

备份 Snapshot

青云存储设计原则

- 存储域与计算域融合还是分离?
- 运维优先
- 性能、规模、成本的平衡

存储域与计算域融合还是分离？

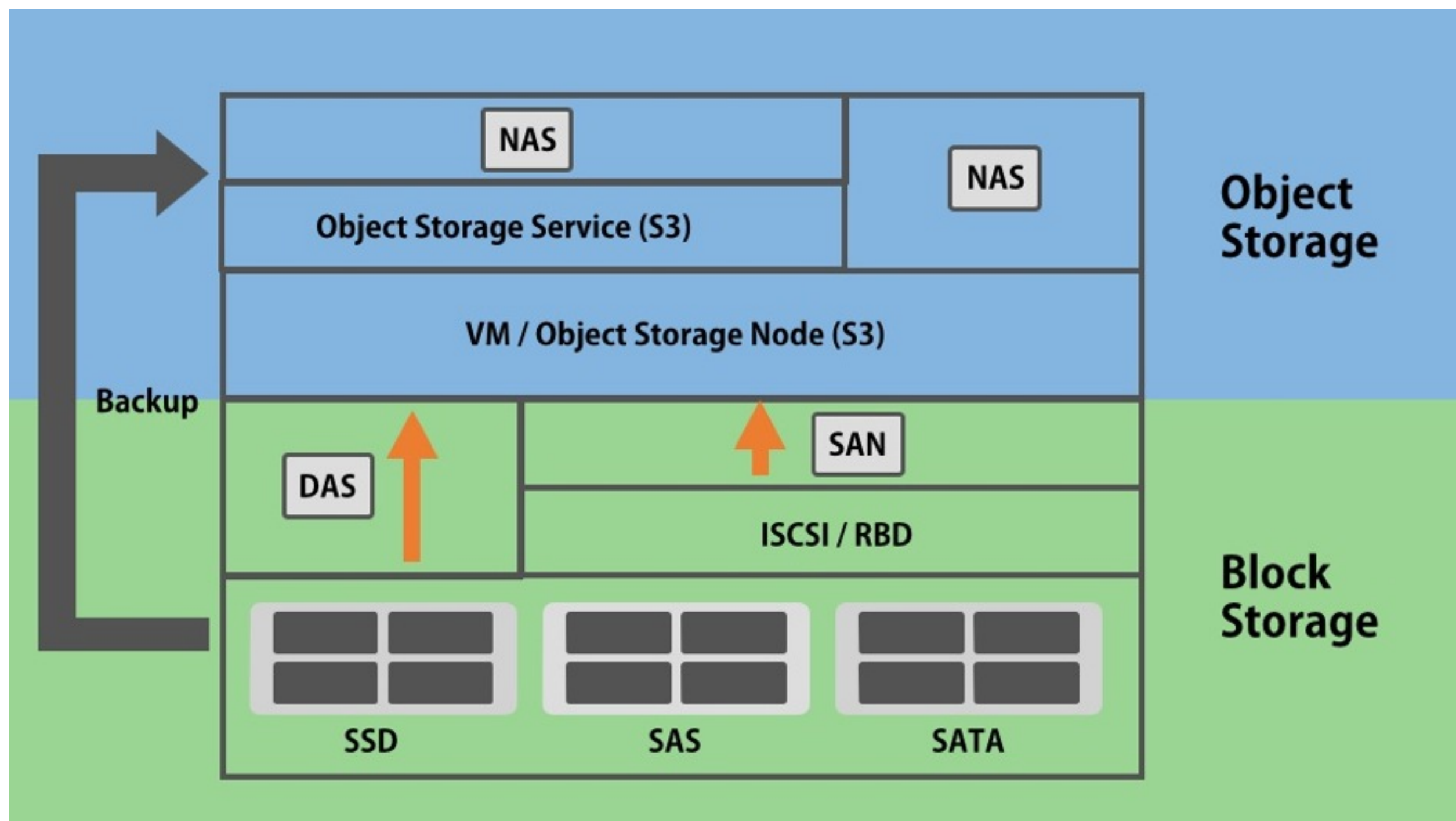
分离的好处：

- 架构简洁
- 容易迁移
- 各个域解决自己的问题
- 有现成的解决方案

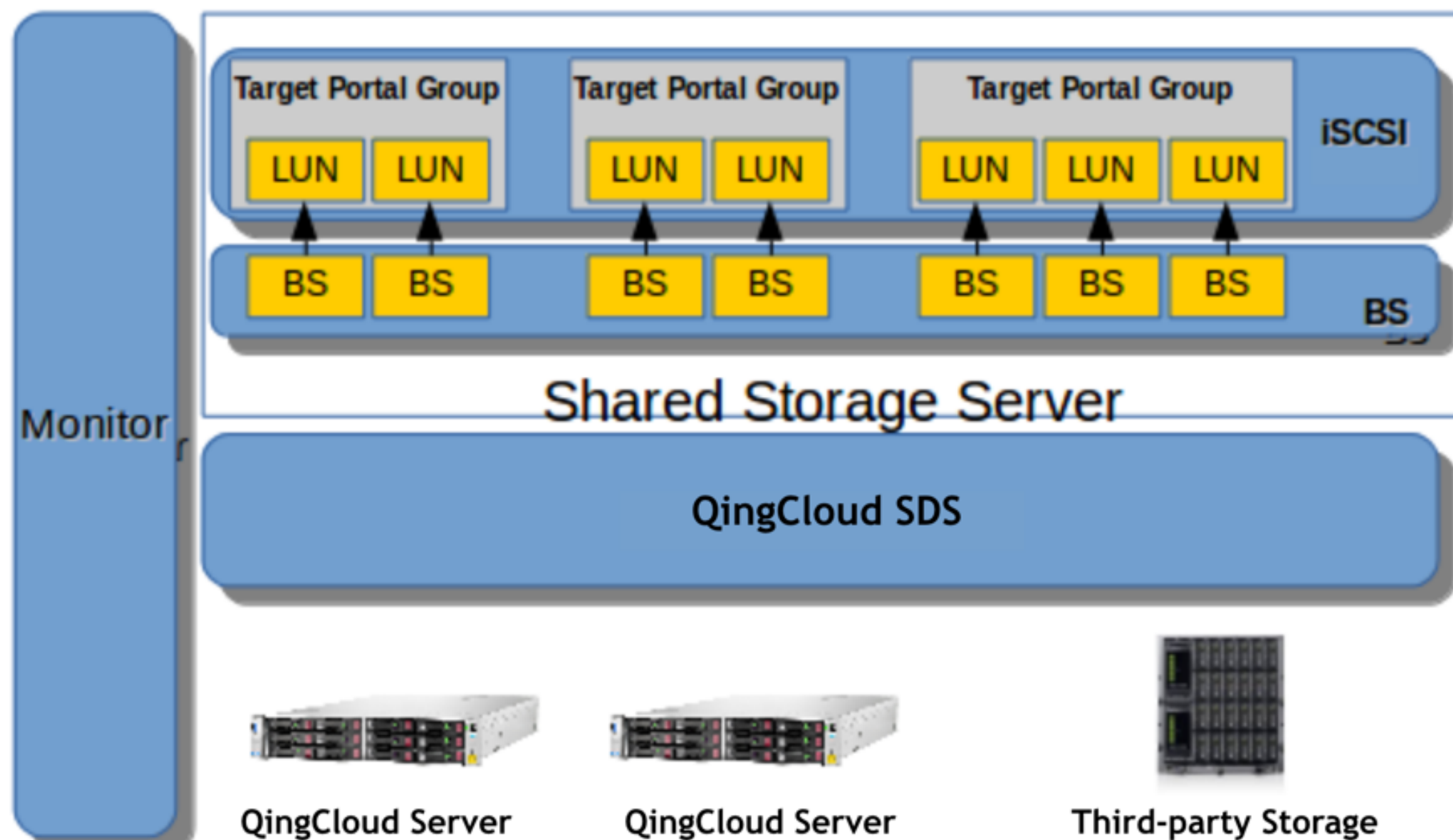
融合的好处：

- **IO**路径短
- 对网络依赖少
- 物理拓扑简单

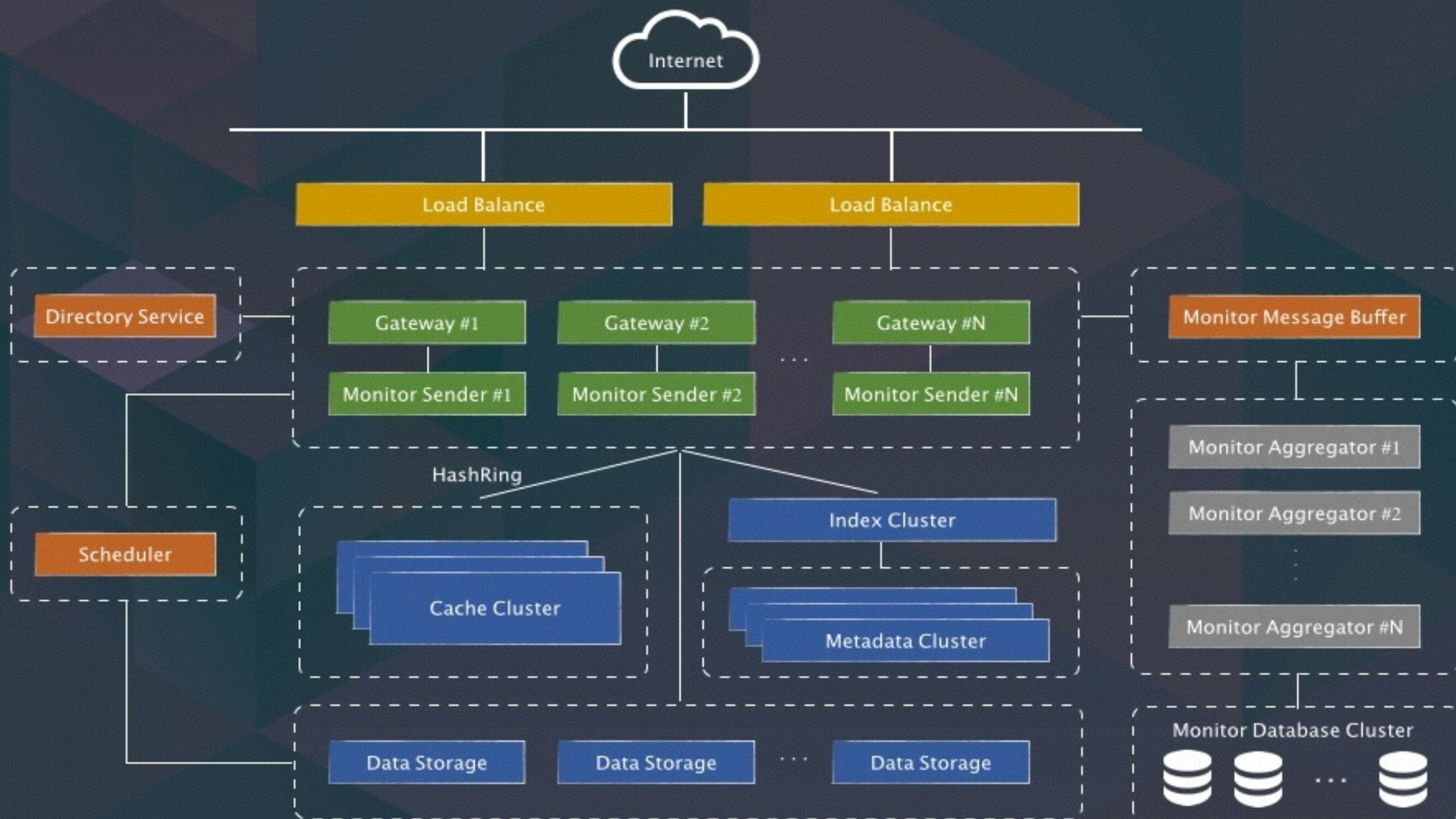
青云存储整体架构



共享存储架构



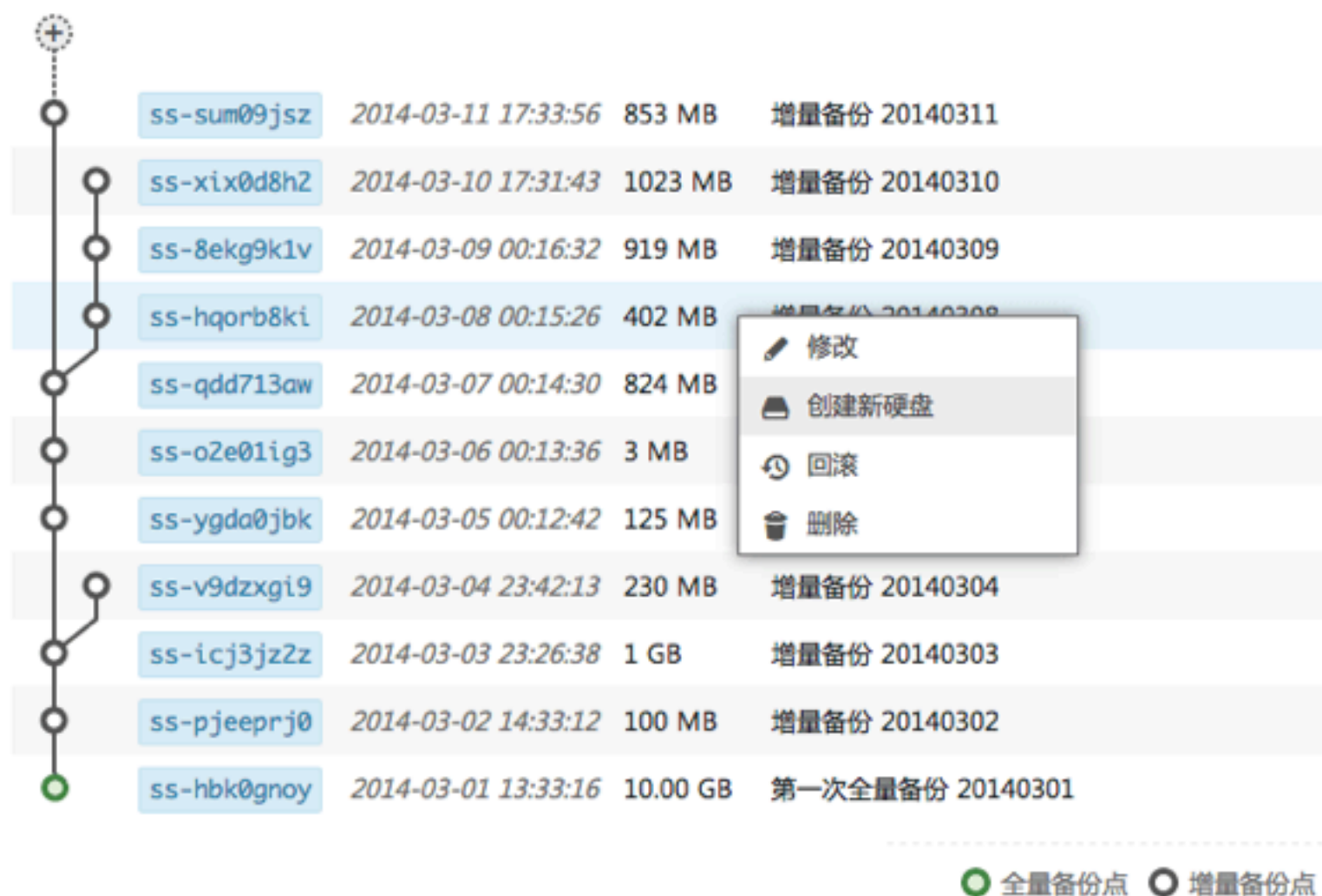
对象存储架构



备份与恢复

Snapshot

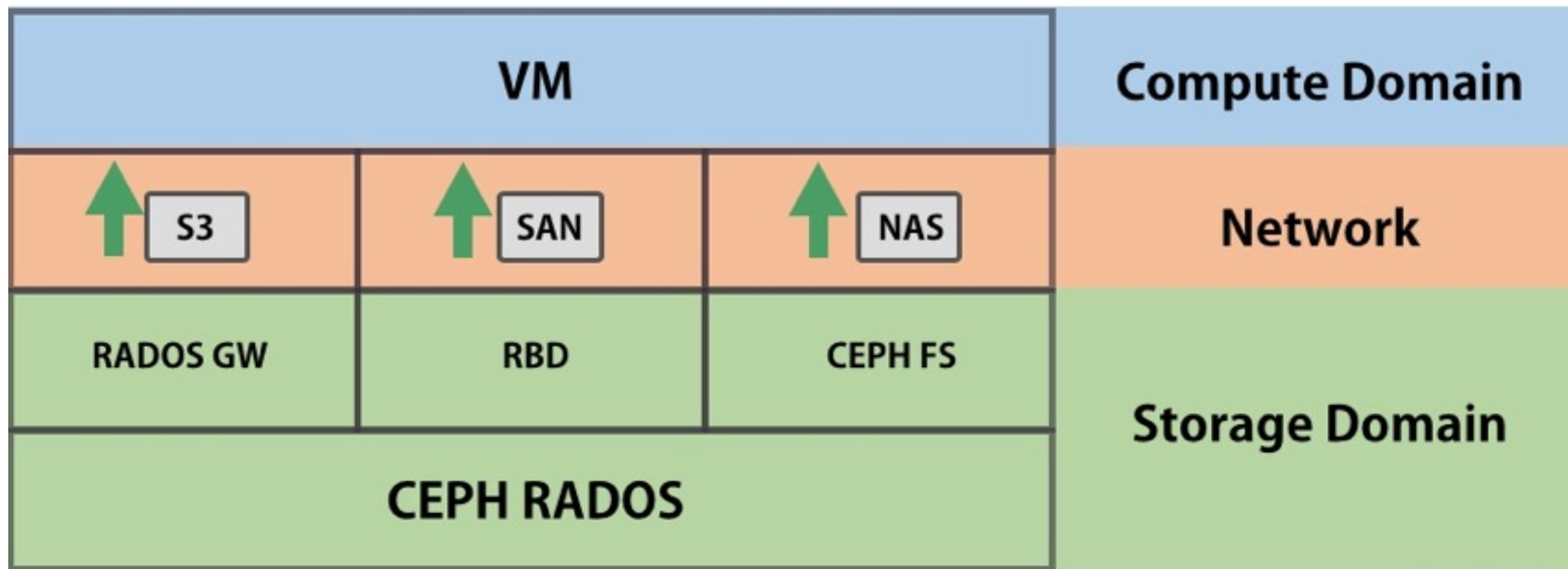
- 与实时副本的区别
- 全量 & 增量
- **Offline & Online**
- 多张盘并行备份
- 备份链
- 备份回滚
- 备份导出
- 定时备份



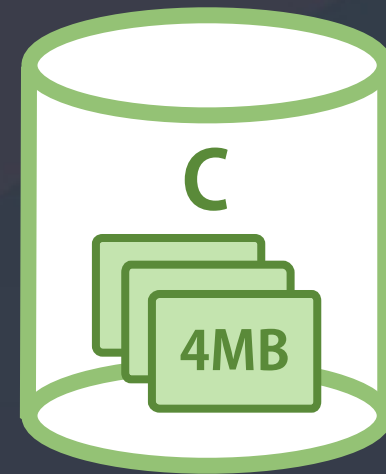
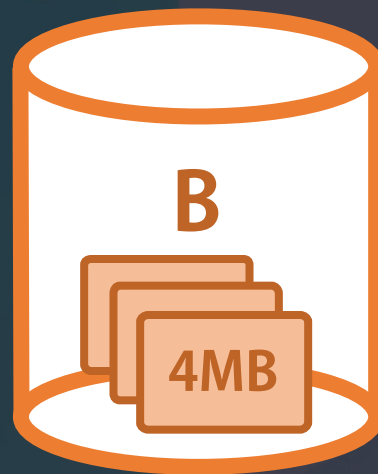
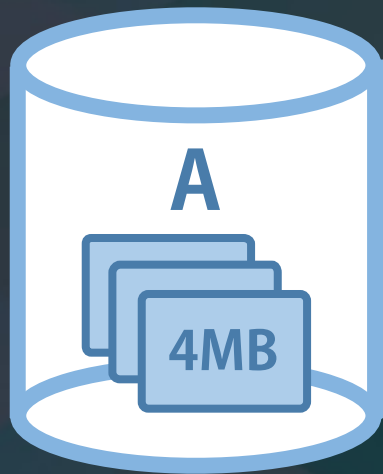
About CEPH

- 原理
- 风险扩散
- 性能低下
- 弥补性能损失 —> 高成本
- **S3 架构问题**
- **No RAID?**

About CEPH



About CEPH



Box1



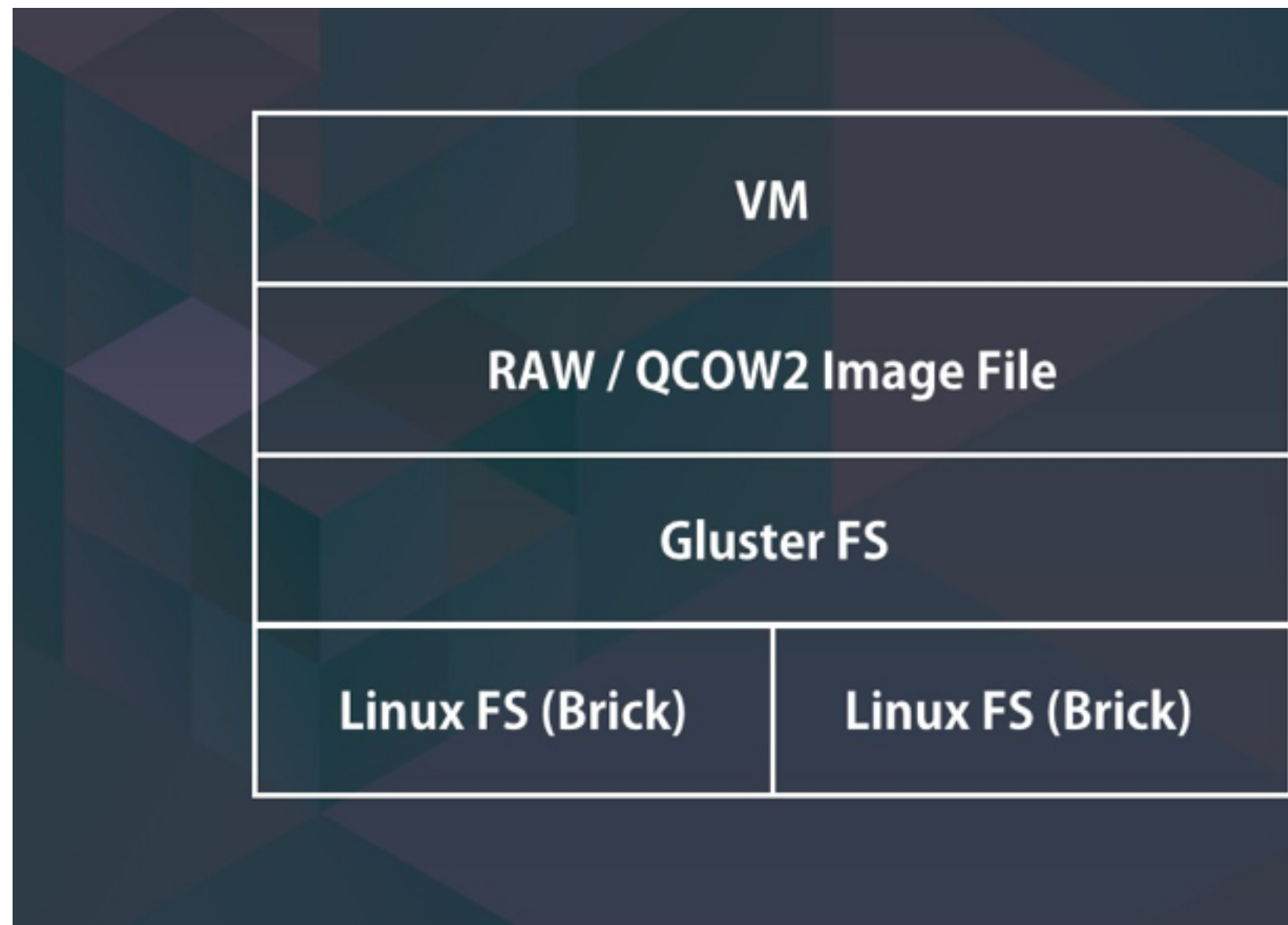
Box2



Box3

About GlusterFS

- 基于文件系统
- **No Stripe**
- **Split Brain**
- 集群规模限制



About EBS

- 存储容量与性能是否有必然关系？

for workloads where data is accessed infrequently, and scenarios where the lowest storage is important. **Magnetic volumes provide approximately 100 IOPS on average, with an ability to burst to hundreds of IOPS.**

development and test environments, and boot volumes. General Purpose (SSD) volumes are designed to offer single digit millisecond latencies, **deliver a consistent baseline performance of 3 IOPS/GB to a maximum of 10,000 IOPS,** and provide up to 160 MBps of



Thank you.

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