S3-like Object Store

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no special thing
design a distributed storage
storage system:

- block storage: low level

- file storage: store names in linked list, separate from file content

- object storage: immutable, no structure, store metadata and data separately

1 Step 1

Size: 100PB/yr
functions:

- bucket creation

- object upload and download

- object versioning

- list objects in a bucket

2 Step 2

Propose High-level Design
RESTful API call
metadata store - http call - object store
structure:

- load balancer

- API service

- identify and access management

- metadata service

- data store service

3 Step 3

Design Deep Dive
inside data store:

- data routing service

- placement service : receiving heartbeats

- data nodes : primary and secondary

organize small data
for small data much less than 4kB, it will also consume 4kB block
so merge them together before writing (similar to write ahead log)
to save some space
metadata store sharding
based on user-created bucket-id and object-id