



# Ceph Mesos Framework

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Big Data Technologies



# Content

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# Apache Mesos PoC

A PoC to enable Big Data PaaS based on Apache Mesos

- Myriad
- HDFS-mesos
- **ceph-mesos**
  - A framework to scale a Ceph cluster
  - Project open sourced
- CDAP (Cask Data Analysis Platform)
  - PaaS layer
- Marathon
- Mesos-DNS

# Motivation for ceph-mesos

We have a team working on RGWFS

- HCFS

Ceph as a storage backend for Big Data analytics based on Mesos

- Node Managers are managed by Myriad
- Data locality is important
- Need for a framework to manage Ceph

Apache Mesos is becoming an application deployment platform

- It is not only for running Spark now

# Goal & Scope

Implement a Mesos framework for Ceph

Provide RADOS service in a Mesos cluster

- Our main target is to support RADOS gateway
- RADOS block device and Ceph file system will be supported in future releases

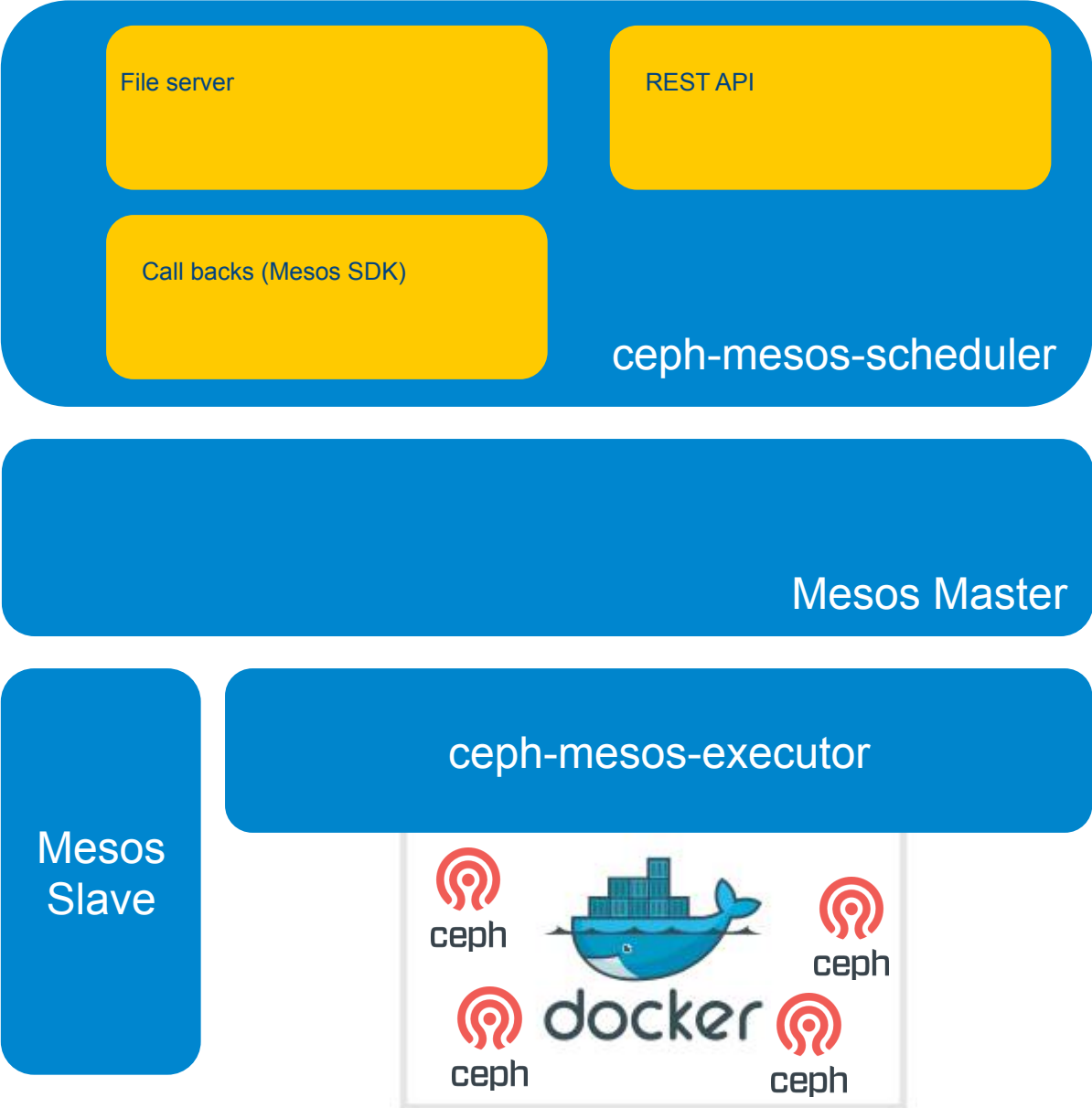
The scheduler will have three modules

- The callback interaction with the Master
- Static file server (libmicrohttpd)
- REST API service (libzmq IPC communication with the callbacks)

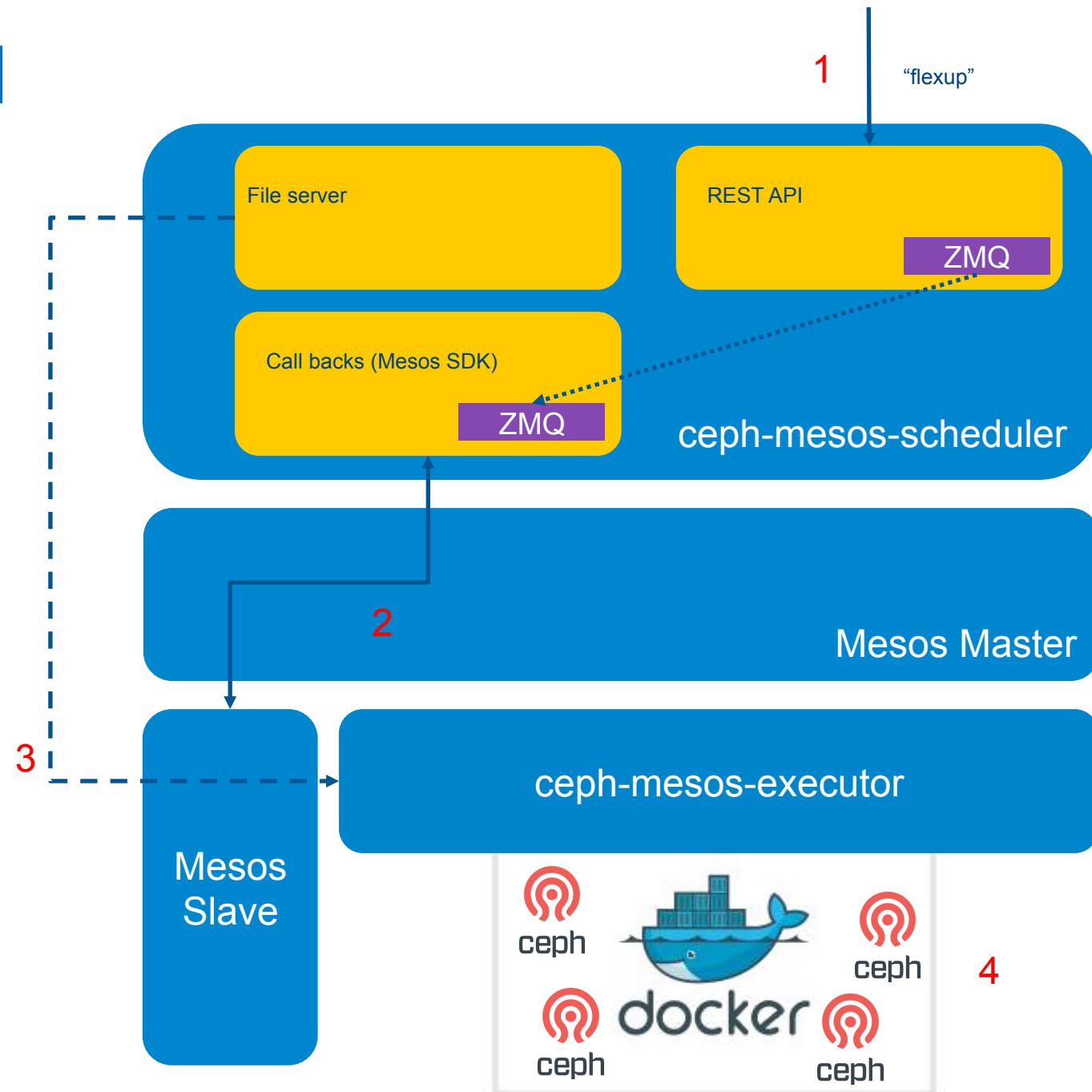
The executor will launch Ceph Docker containers as tasks

- Configuration files will be downloaded from the static file server

# Architecture



# “flexup” API



# Challenges

Ceph-Mesos is still v0.0.1

- HDD
  - OSD's need to run on multiple disks on host
  - Journal should write on SSD
    - We will implement host HDD selection
- NIC
  - All data traffic must pass through 10Gb (or greater) network
    - We will implement OSD NIC selection
- “flexdown” REST API, reconciliation, MACVLAN, etc.



# Video Demo

[http://v.youku.com/v\\_show/id\\_XMTl3MjMxNTU5Ng==.html](http://v.youku.com/v_show/id_XMTl3MjMxNTU5Ng==.html)

