Apache Hadoop 安装

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Apache Hadoop集群

- 版本说明
  - zookeeper-3.4.6
  - Hadoop 2.4
  - Hive 0.13.1
  - Spark 1.3
  - Hbase 0.98.6.1-hadoop2
  - Phoenix 4.x - HBase 0.98.1+
  - 集群监控工具ganglia, Graphite, Nagios, Cacti
- 安装方式
  - 源码安装

Cloudera Hadoop安装

- 版本说明
  - CDH 5.2.0
  - http://www.cloudera.com/content/cloudera/en/downloads/quickstart_vms/cdh-5-3-x.html
- 安装方式
  - ClouderaManager离线安装
  - Yum 离线安装

cloudera®
Ask Bigger Questions

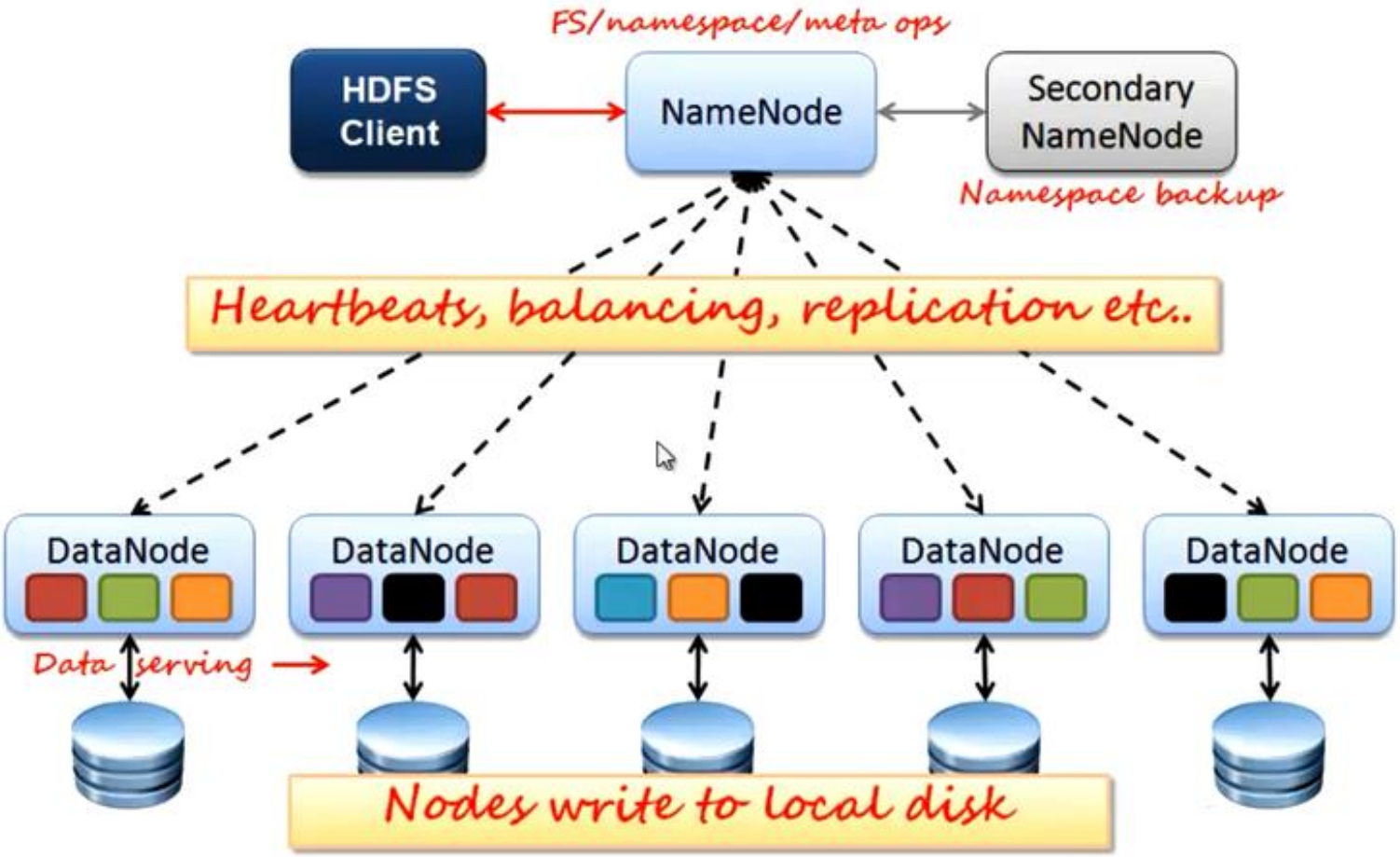
Hortonworks Hadoop安装

- 版本说明
  - HDP 2.2
  - http://zh.hortonworks.com/hdp/downloads/
- 安装方式
  - Ambari 2.0方式安装

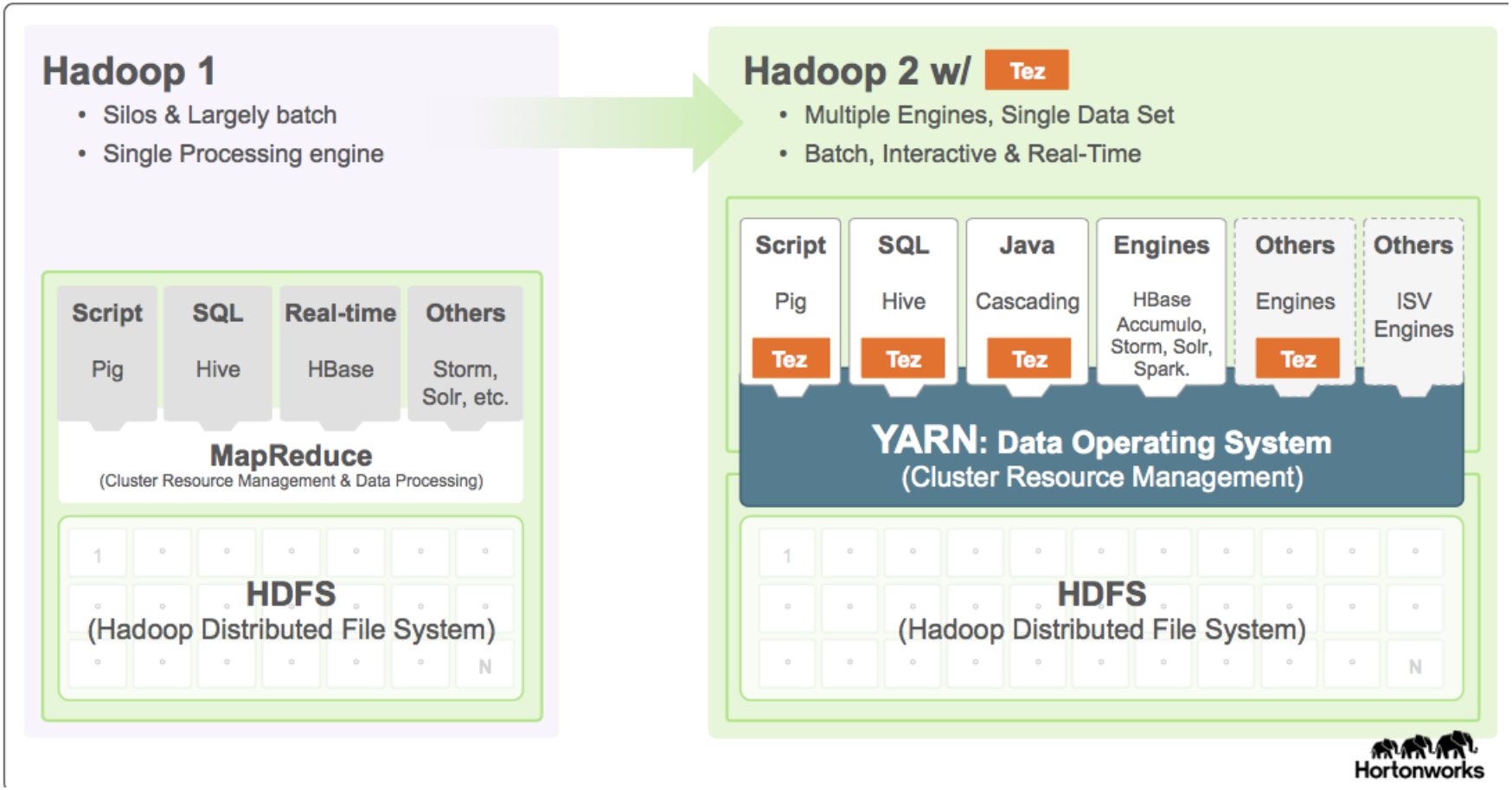
MapR Hadoop

- https://www.mapr.com/

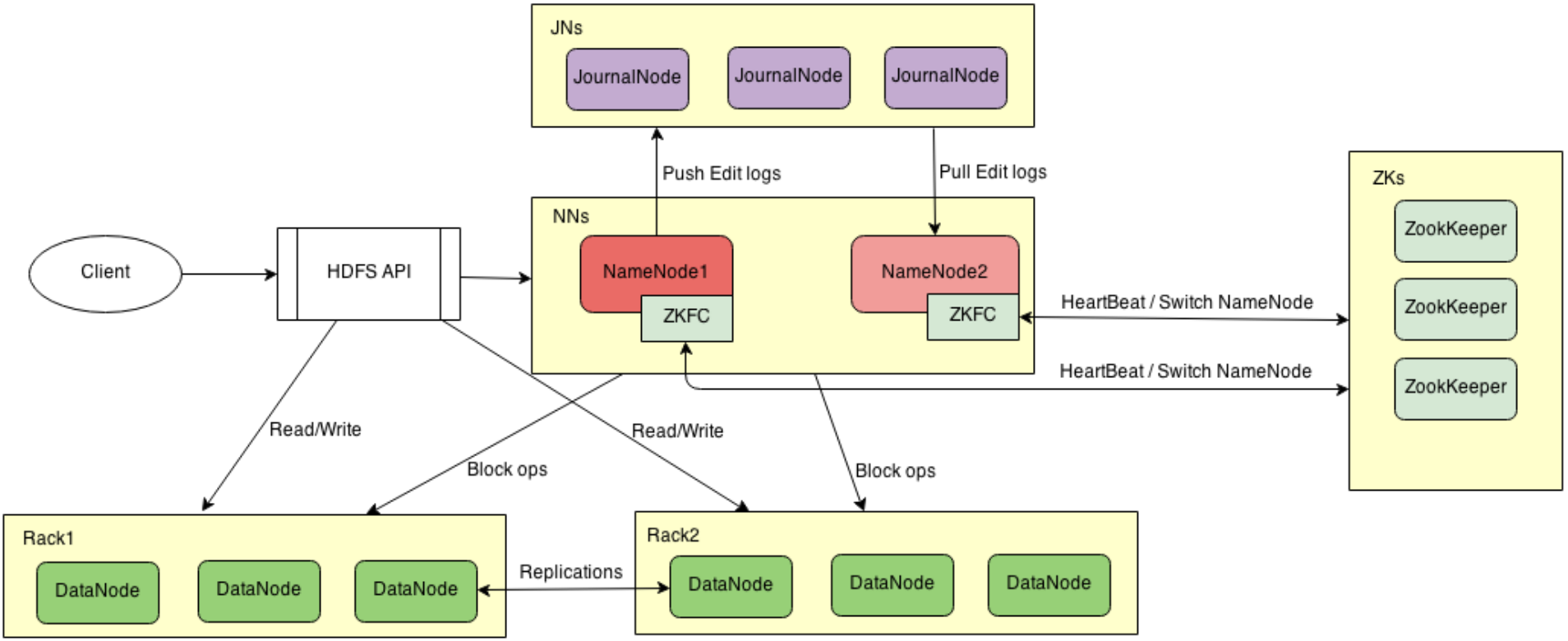
分布式存储


FS/namespace/meta ops
HDFS Client
NameNode
Secondary NameNode
Namespace backup
Heartbeats, balancing, replication etc..
DataNode
DataNode
DataNode
DataNode
DataNode
Data serving
Nodes write to local disk

Why?

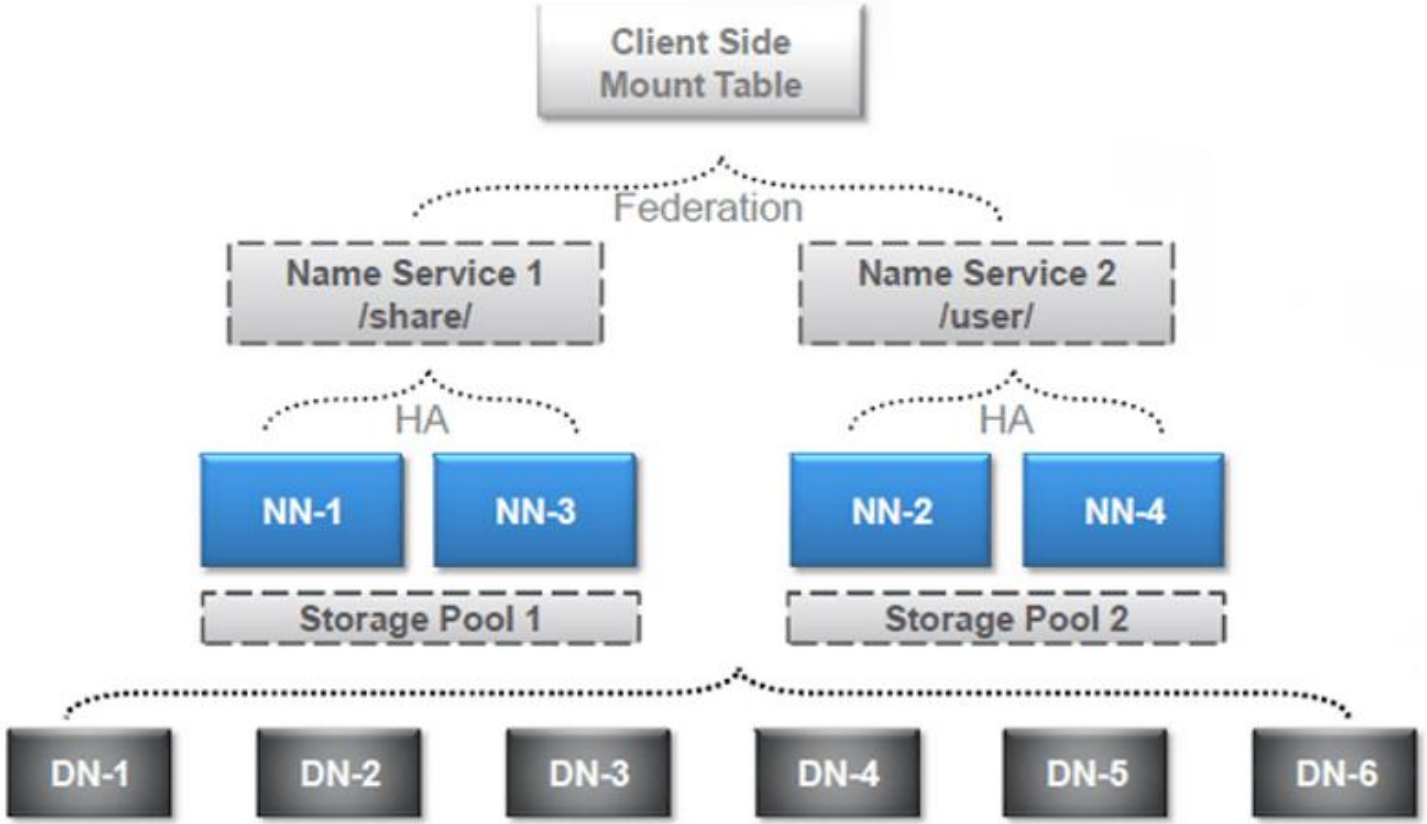

Hadoop 1
• Silos & Largely batch
• Single Processing engine
Script
Pig
SQL
Hive
Real-time
HBase
Others
Storm, Solr, etc.
MapReduce
(Cluster Resource Management & Data Processing)
HDFS
(Hadoop Distributed File System)
Hadoop 2 w/ Tez
• Multiple Engines, Single Data Set
• Batch, Interactive & Real-Time
Script
Pig
Tez
SQL
Hive
Tez
Java
Cascading
Tez
Engines
HBase Accumulo, Storm, Solr, Spark.
Others
Engines
Tez
Others
ISV Engines
YARN: Data Operating System
(Cluster Resource Management)
HDFS
(Hadoop Distributed File System)
Hortonworks

Hadoop Cluster HA



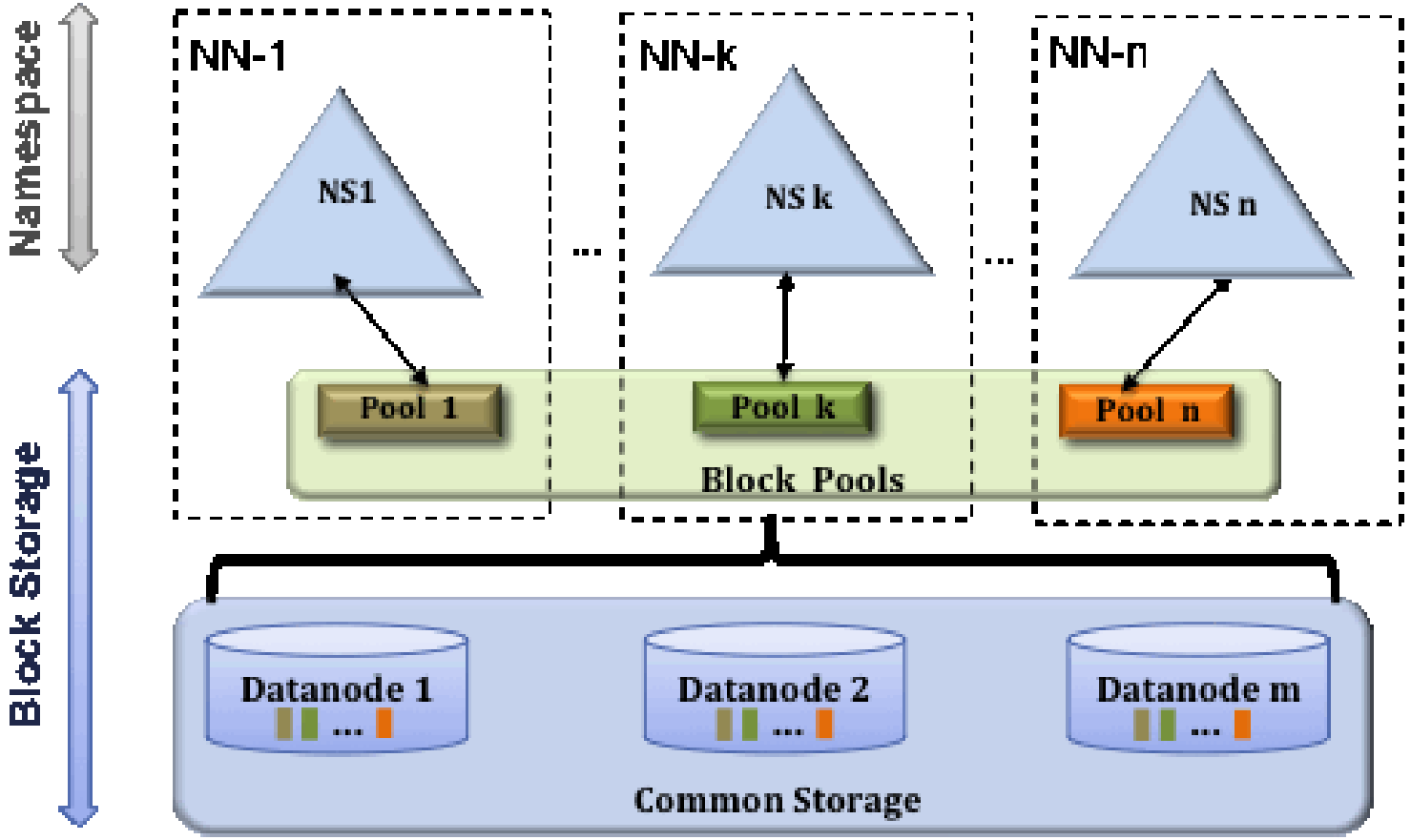
参考：http://hadoop.apache.org/docs/r2.6.0/hadoop-project-dist/hadoop-hdfs/HDFSHighAvailabilityWithNFS.html

Hadoop federation

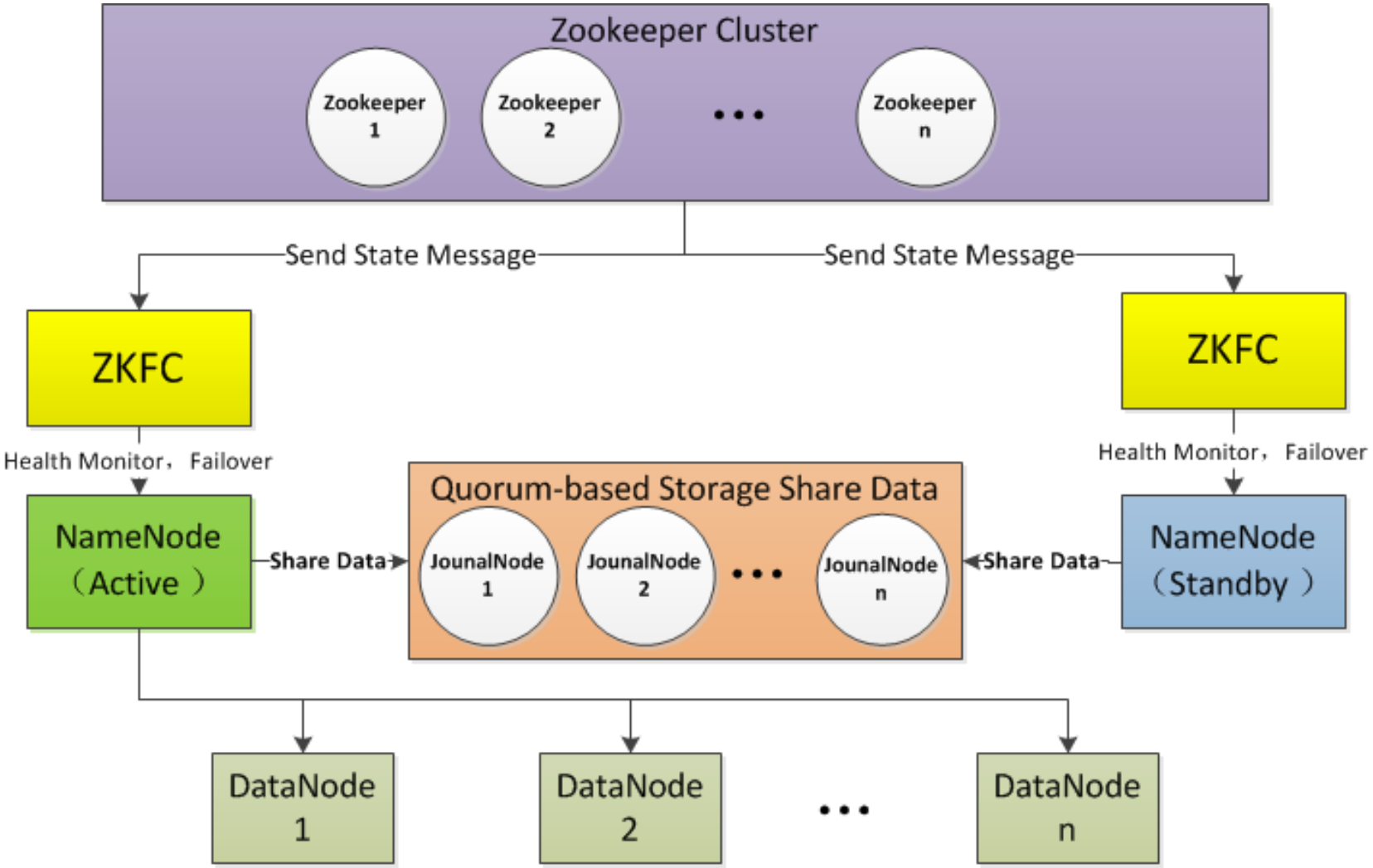


参考：http://hadoop.apache.org/docs/r2.6.0/hadoop-project-dist/hadoop-hdfs/Federation.html

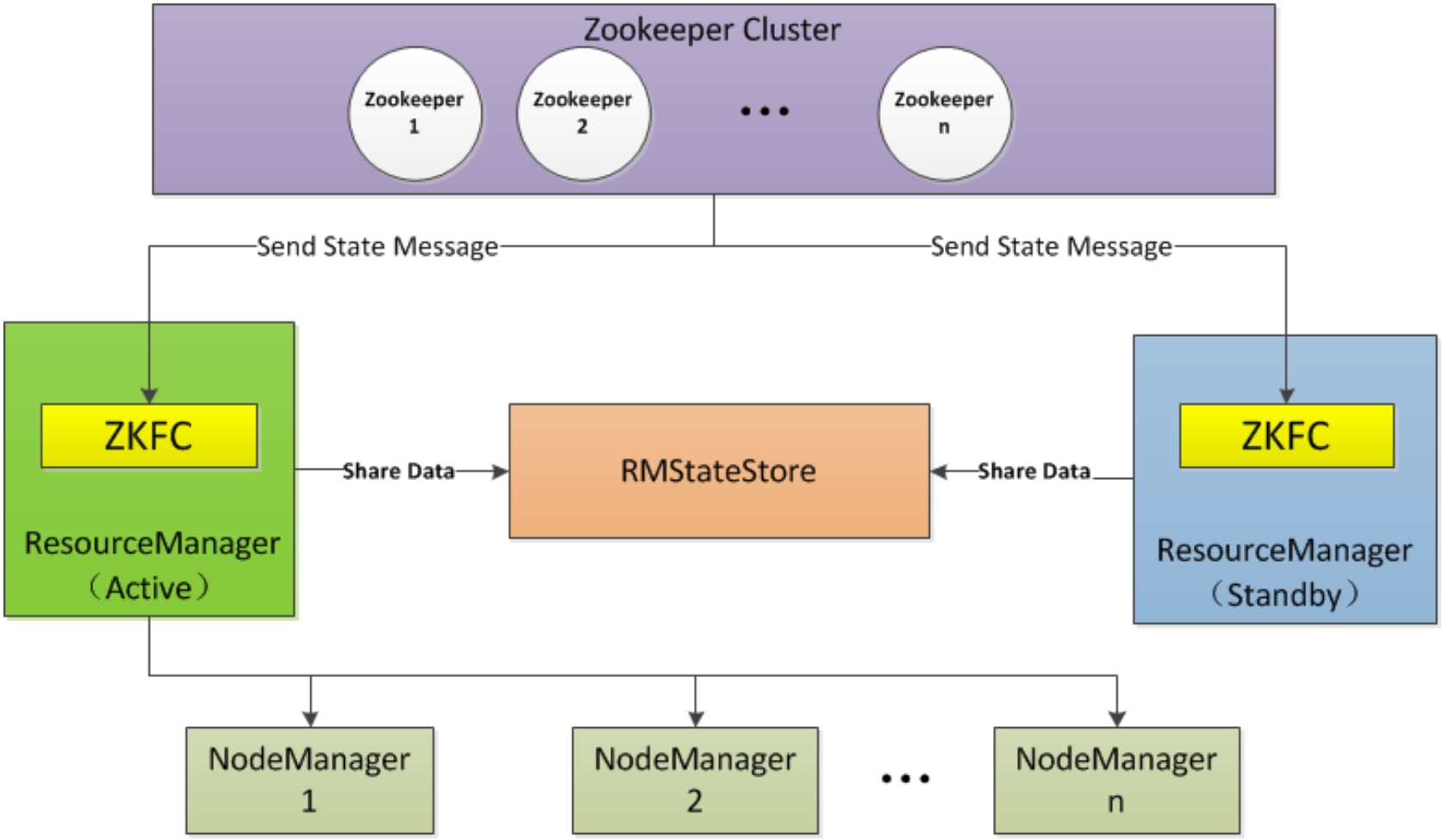
多重Namenodes/Namespaces



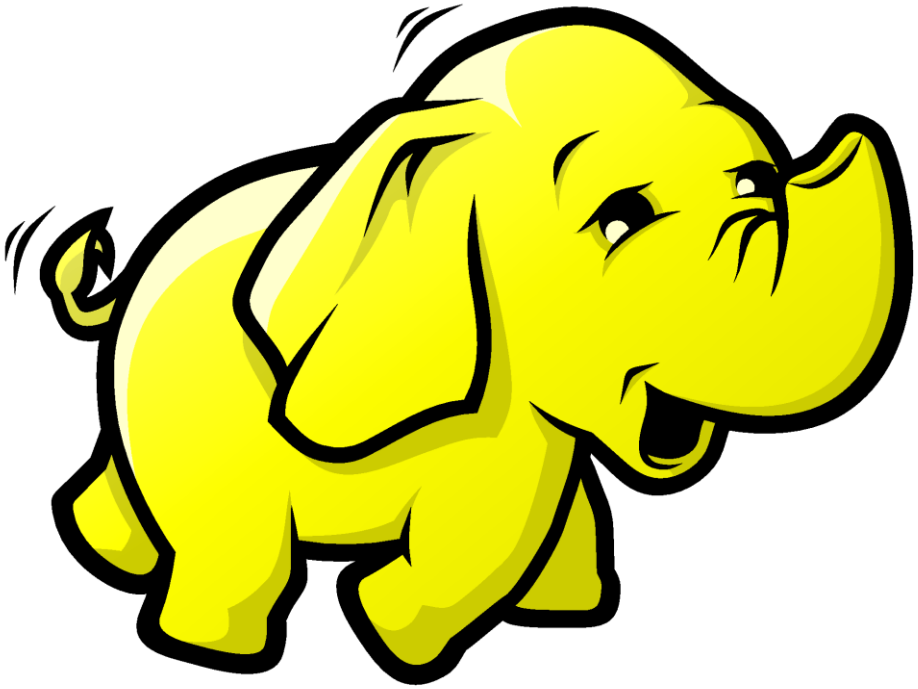
HDFS HA


Zookeeper Cluster
Zookeeper 1
Zookeeper 2
Zookeeper n
Send State Message
Send State Message
ZKFC
ZKFC
Health Monitor， Failover
Health Monitor， Failover
NameNode （Active ）
Share Data
Quorum-based Storage Share Data
JounalNode 1
JounalNode 2
JounalNode n
Share Data
NameNode （Standby ）
DataNode 1
DataNode 2
DataNode n

YARN HA


Zookeeper Cluster
Zookeeper 1
Zookeeper 2
Zookeeper n
Send State Message
Send State Message
ZKFC
ResourceManager (Active)
Share Data
RMStateStore
Share Data
ZKFC
ResourceManager (Standby)
NodeManager 1
NodeManager 2
NodeManager n

Apache Hadoop的安装



Hdoop2.0+

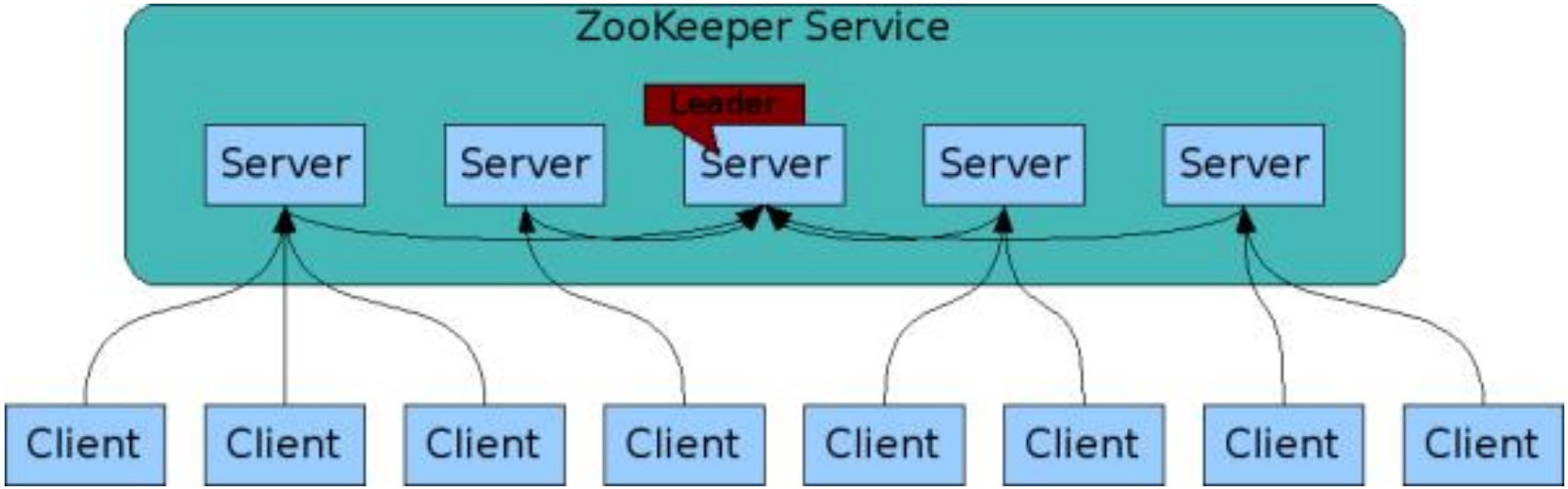
. HDFS

namenode(HA), SecondaryNamenode,journalnode,datanode

.Yarn

ResourceManager,NodeManager

Zookeeper



http://zookeeper.apache.org/doc/r3.5.0-alpha/zookeeperOver.html

Hadoop HA安装

- core-site.xml
- hdfs-site.xml
- yarn-site.xml
- mapred-site.xml

http://hadoop.apache.org/docs/r2.5.2/

1、core-site.xml

```
<configuration>
<property>
<name>fs.defaultFS</name>
<value>hdfs://mycluster</value>
</property>

<property>
<name>hadoop.tmp.dir</name>
<value>/usr/local/hadoop-2.4.0/tmp</value>
</property>

<property>
<name>ha.zookeeper.quorum</name>
<value>itr-mastertest01:2181,itr-mastertest02:2181,itr-nodetest01:2181</value>
</property>

<property>
<name>fs.trash.interval</name>
<value>2000</value>
</property>
</configuration>
```

2、hdfs-site.xml

```
<configuration>
<property>
<name>dfs.replication</name>
<value>2</value>
</property>
….
```

3、yarn-site.xml

yarn-site.xml

```
<configuration>
<property>
    <name>yarn.resourcemanager.hostname</name>
    <value>itr-mastertest01</value>
</property>
<property>
  <name>yarn.nodemanager.aux-services</name>
  <value>mapreduce_shuffle</value>
</property>
</configuration>
```

4、mapred-site.xml

mapred-site.xml

```
<configuration>
   <property>

<name>mapreduce.framework.name</name>
      <value>yarn</value>
   </property>
</configuration>
```

演示安装过程

HDFS|command

```
$ hadoop  version
Hadoop 2.5.0-cdh5.2.0
Subversion http://github.com/cloudera/hadoop -r e1f20a08bde76a33b79df026d00a0c91b2298387
Compiled by jenkins on 2014-10-11T21:00Z
Compiled with protoc 2.5.0
From source with checksum 309bccd135b199bdfdd6df5f3f4153d
```

```
$ hadoop
Usage: hadoop [--config confdir] COMMAND
       where COMMAND is one of:
  fs                   run a generic filesystem user client
  version              print the version
  jar <jar>            run a jar file
  checknative [-a|-h]  check native hadoop and compression libraries availability
  distcp <srcurl> <desturl> copy file or directories recursively
  archive -archiveName NAME -p <parent path> <src>* <dest> create a hadoop archive
  classpath            prints the class path needed to get the
  credential           interact with credential providers
                       Hadoop jar and the required libraries
  daemonlog            get/set the log level for each daemon
 or
  CLASSNAME            run the class named CLASSNAME
```

```
$ hadoop fs
Usage: hadoop fs [generic options]
        [-appendToFile <localsrc> ... <dst>]
        [-cat [-ignoreCrc] <src> ...]
        [-checksum <src> ...]
        [-chgrp [-R] GROUP PATH...]
        [-chmod [-R] <MODE[,MODE]... | OCTALMODE> PATH...]
        [-chown [-R] [OWNER][:[GROUP]] PATH...]
        [-copyFromLocal [-f] [-p] <localsrc> ... <dst>]
        [-copyToLocal [-p] [-ignoreCrc] [-crc] <src> ... <localdst>]
        [-count [-q] <path> ...]
        [-cp [-f] [-p | -p[topax]] <src> ... <dst>]
        [-createSnapshot <snapshotDir> [<snapshotName>]]
        [-deleteSnapshot <snapshotDir> <snapshotName>]
        [-df [-h] [<path> ...]]
        [-du [-s] [-h] <path> ...]
        [-expunge]
        [-get [-p] [-ignoreCrc] [-crc] <src> ... <localdst>]
```

HDFS|command jar

```
$ hadoop jar
RunJar jarFile [mainClass] args...
```

提交一个jar程序到集群
hadoop jar hadoop-mapreduce-examples-2.4.0.jar wordcount /testdata /output

大数据

Thank you

提问时间？

Blog： http://www.itweet.cn

PPT： https://github.com/itweet/course

Video： http://www.tudou.com/home/sparkjvm/