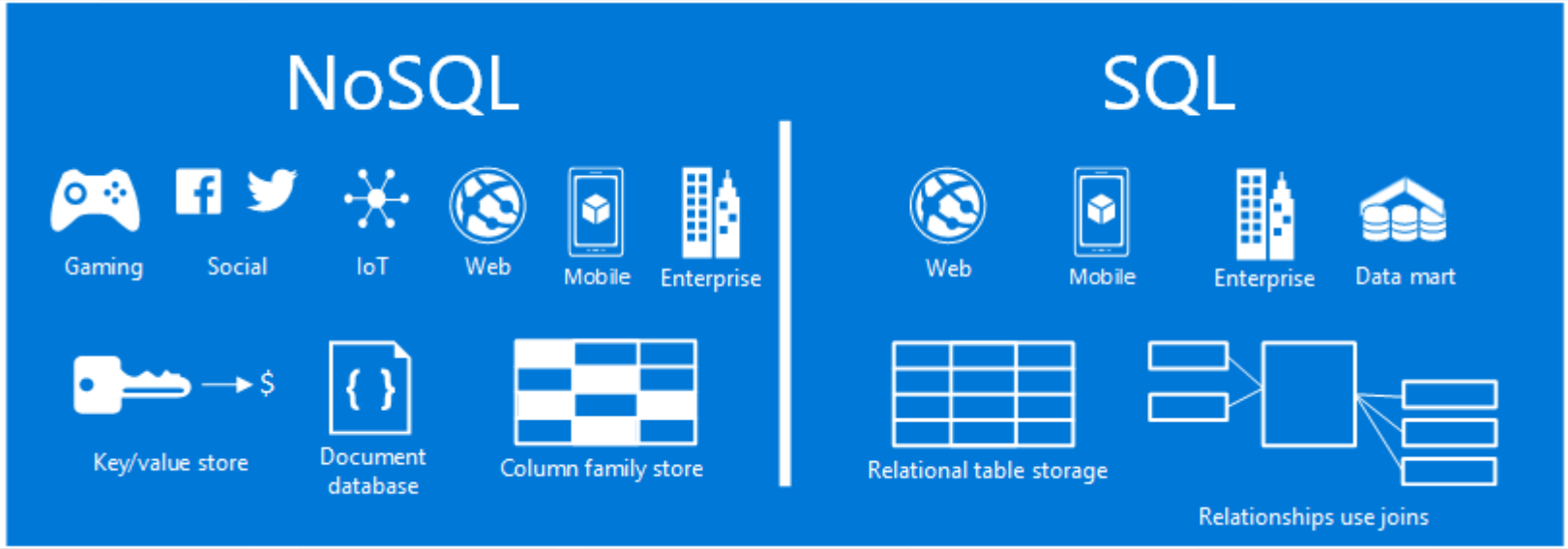

Hbase Shell

2017.2 XenRon

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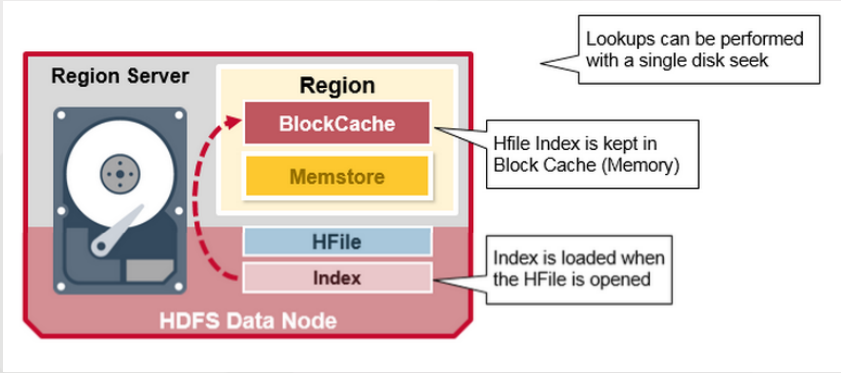
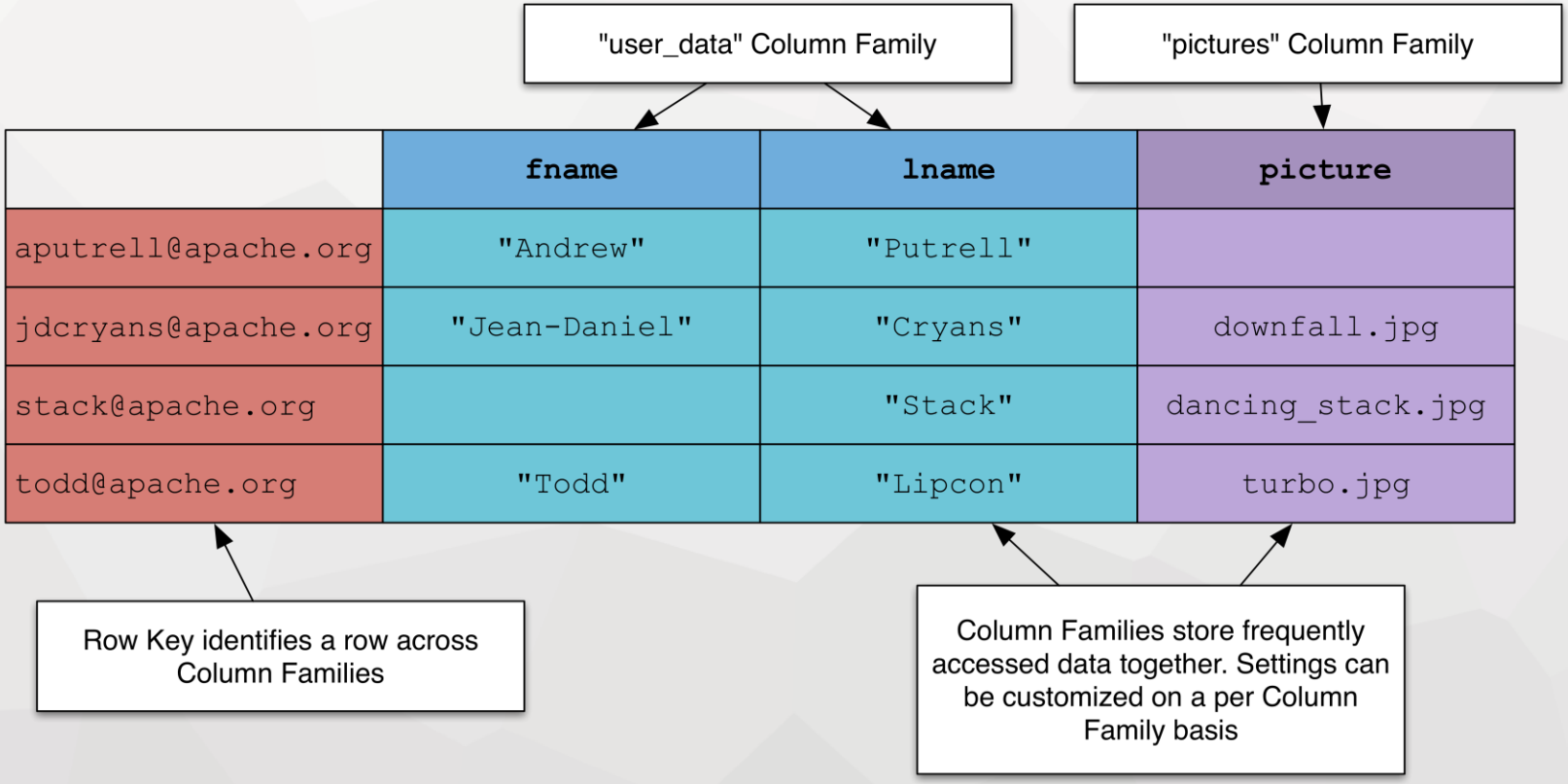
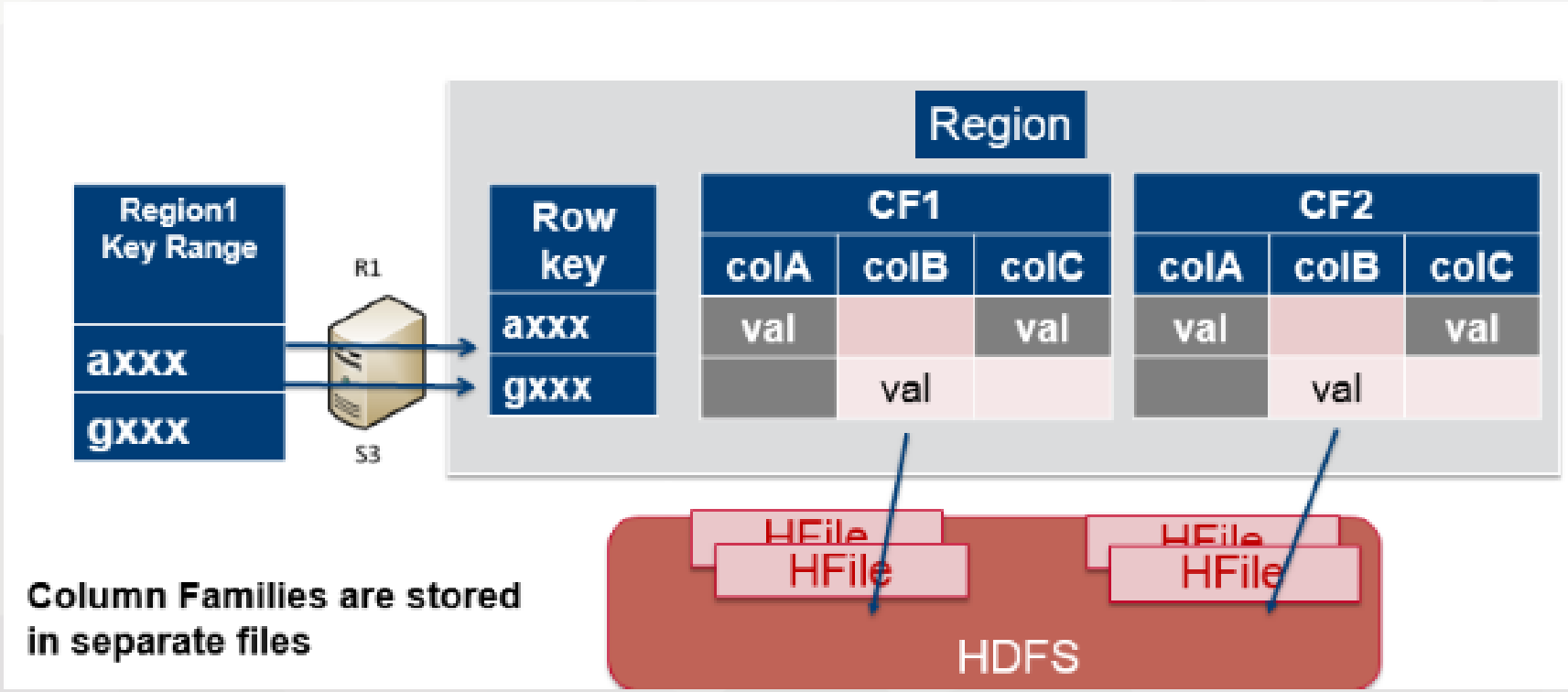


Structure

Column Family



Column Family



Column Family

Column families

Column names

Rows

	Contactinfo		Prifileinfo
Rowkey	Fname	Lname	Image
jdupont	Jean	Dupont	
jsmith	John	Smith	<smith.jpg>
mrossi	Mario	Rossi	<mario.jpg>

File

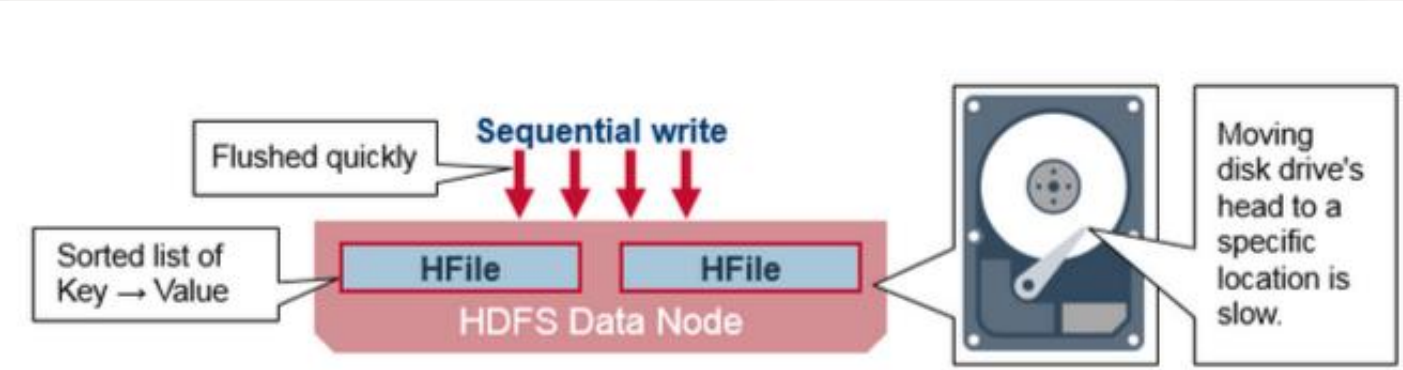
	Contactinfo	
Rowkey	Fname	Lname
jdupont	Jean	Dupont
jsmith	John	Smith
mrossi	Mario	Rossi

File

	Prifileinfo
Rowkey	Image
jdupont	
jsmith	<smith.jpg>
mrossi	<mario.jpg>

Table

Rowkey + column + timestamp -> value



Key Value

Key	CF1:Col	version	value
ra	cf1:ca	v1	1
rb	cf1:cb	v2	4
rb	cf1:cb	v1	3
rc	cf1:ca	v1	5

Key Value

Key	CF2:Col	version	value
ra	cf2:ca	v1	2
rc	cf2:ca	v2	7
rc	cf2:ca	v1	6
rc	cf2:cd	v1	8

Table

Rowkey + column + timestamp -> value

Rowkey	Column	Timestamp	Cell value
jdupont	Contactinfo:fname	1273746289103	Jean
jdupont	Contactinfo:lname	1273878447049	Dupont
jsmith	Contactinfo:fname	1273516197868	John
jsmith	Contactinfo:lname	1273871824184	Smith
mrossi	Contactinfo:fname	1273616297446	Mario
mrossi	Contactinfo:lname	1273971921442	Rossi

RDBMS VS HBase

	RDBMS	HBase
Data layout	Row- or column-oriented	Column family-oriented
Transactions	Yes	Single row only
Query language	SQL	get/put/scan
Security	Authentication/ Authorization	Access control at per-cell level, also at cluster, table, or row level
Indexes	Yes	Row key only
Max data size	TBs	PB+
Read/write throughput limits	1000s queries/second	Millions of queries/second

HDFS Storage

HBase

Browse Directory

/hbase Go!

Permission	Owner	Group	Size	Replication	Block Size	Name
drwxr-xr-x	root	supergroup	0 B	0	0 B	.tmp
drwxr-xr-x	root	supergroup	0 B	0	0 B	MasterProcWALs
drwxr-xr-x	root	supergroup	0 B	0	0 B	WALs
drwxr-xr-x	root	supergroup	0 B	0	0 B	data
-rw-r--r--	root	supergroup	42 B	3	128 MB	hbase.id
-rw-r--r--	root	supergroup	7 B	3	128 MB	hbase.version
drwxr-xr-x	root	supergroup	0 B	0	0 B	oldWALs

/hbase/.tmp: 临时目录，当对表做创建和删除操作时，会将表move到该目录下，然后进行操作。

/hbase/WALs:RegionServer在处理数据插入和删除的过程中记录操作内容的一种日志，在0.94叫.logs

/hbase/data:核心目录，存储Hbase表的数据
默认情况下该目录下有两个目录
– Hbase/data/default:当在用户创建表的时候，没有指定namespace时，表就创建在此目录下
– Hbase/data/hbase： 系统内部创建的表，hbase:meta; namespace

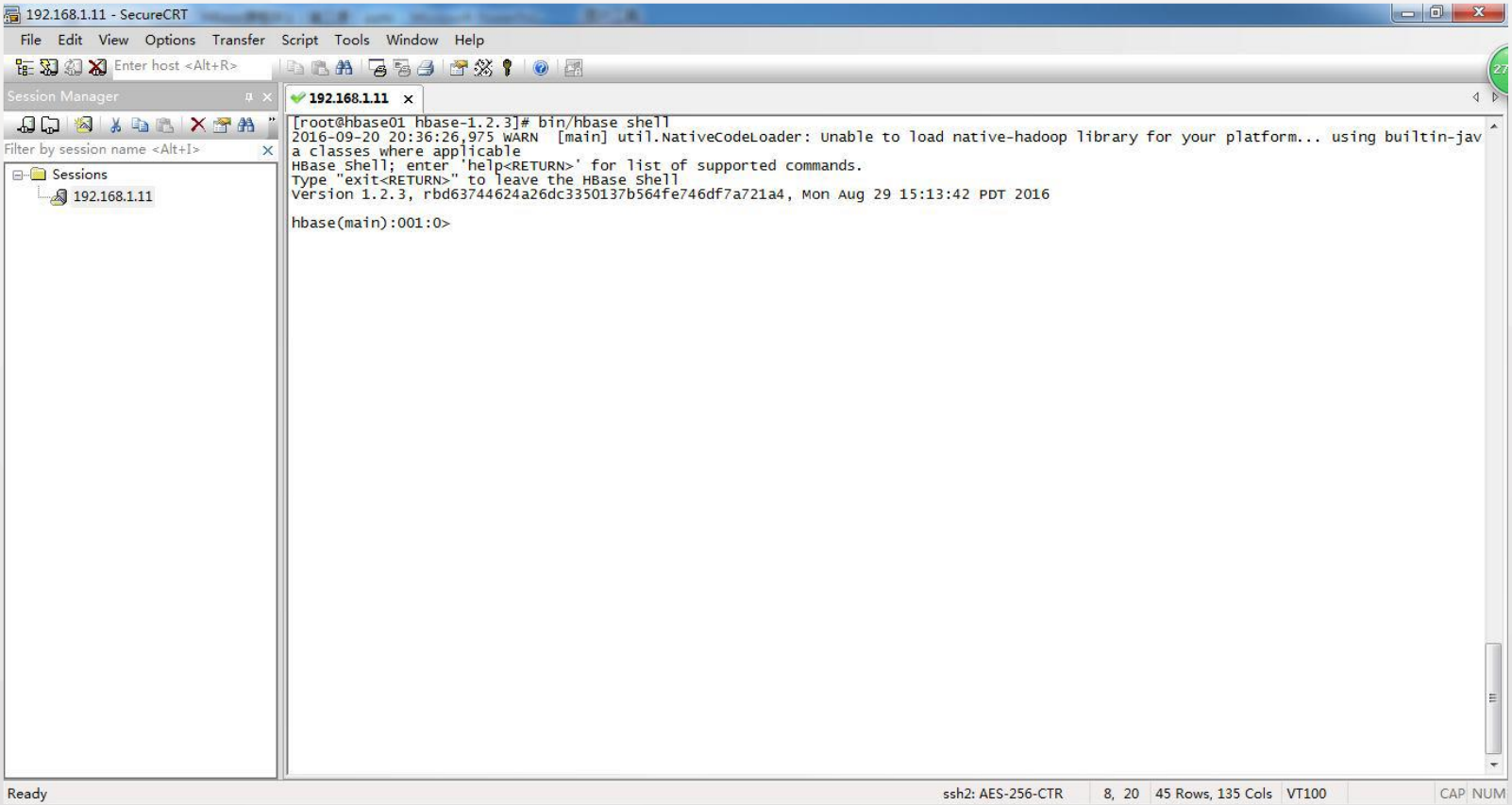
/hbase/hbase.id:存储集群唯一cluster id, (UUID)

/hbase/hbase.version:集群版本号

/hbase/oldWALs:
– 对应0.94版本中的.oldlogs目录，
– 当/hbase/WALs目录中的logs没有用之后，会将这些文件移到此目录下，Hmaster会定期进行清理

Shell

Shell


192.168.1.11 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt+R>
Session Manager
Filter by session name <Alt+I>
Sessions
192.168.1.11
192.168.1.11
[root@hbase01 hbase-1.2.3]# bin/hbase shell
2016-09-20 20:36:26,975 WARN [main] util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-jav
a classes where applicable
HBase Shell; enter 'help<RETURN>' for list of supported commands.
Type "exit<RETURN>" to leave the HBase Shell
Version 1.2.3, rbd63744624a26dc3350137b564fe746df7a721a4, Mon Aug 29 15:13:42 PDT 2016
hbase(main):001:0>
Ready
ssh2: AES-256-CTR
8, 20
45 Rows, 135 Cols
VT100
CAP NUM

HBase

General HBase shell commands

status
Show cluster status. Can be ‘summary’, ‘simple’, or ‘detailed’. The default is ‘summary’.
hbase> status
hbase> status ‘simple’
hbase> status ‘summary’
hbase> status ‘detailed’

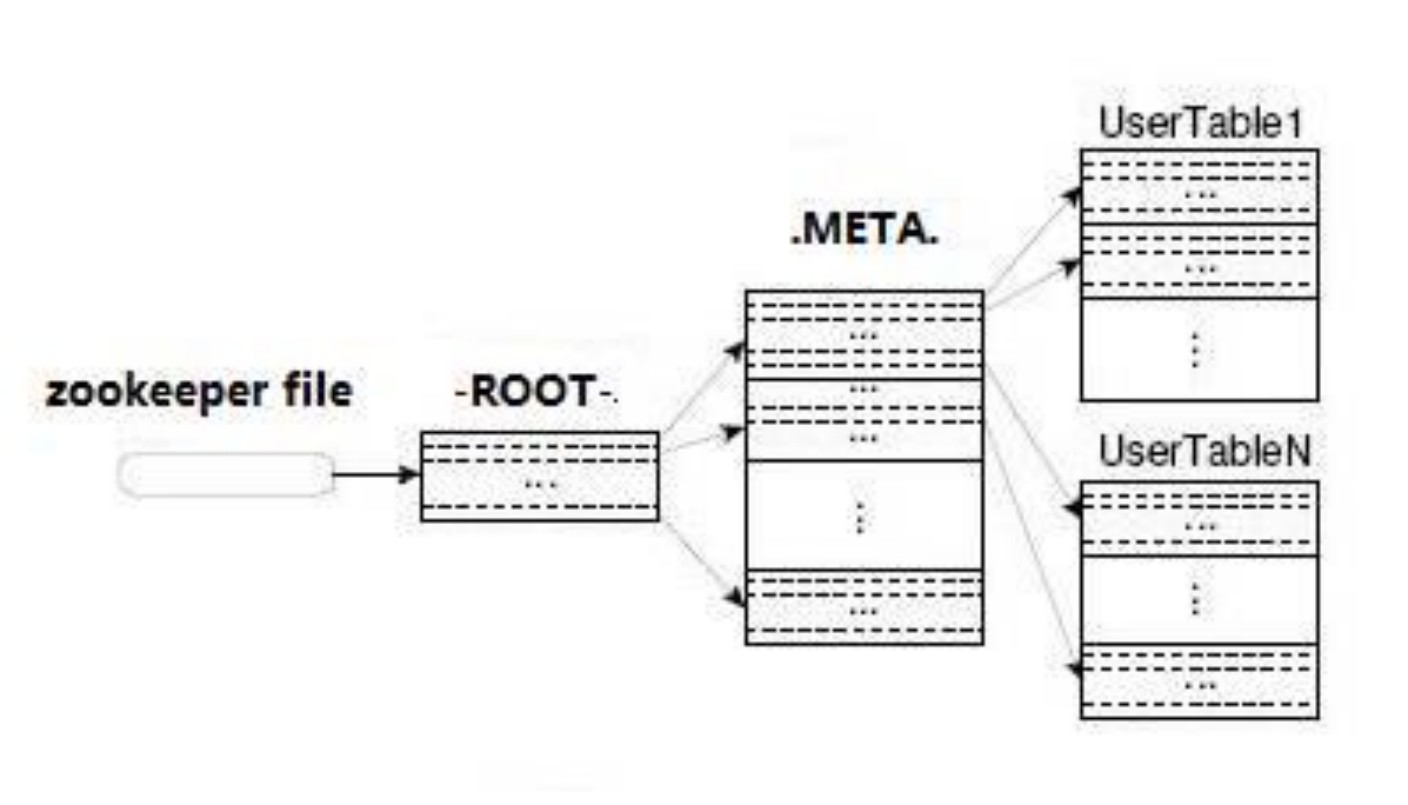
version
Output this HBase versionUsage:
hbase> version

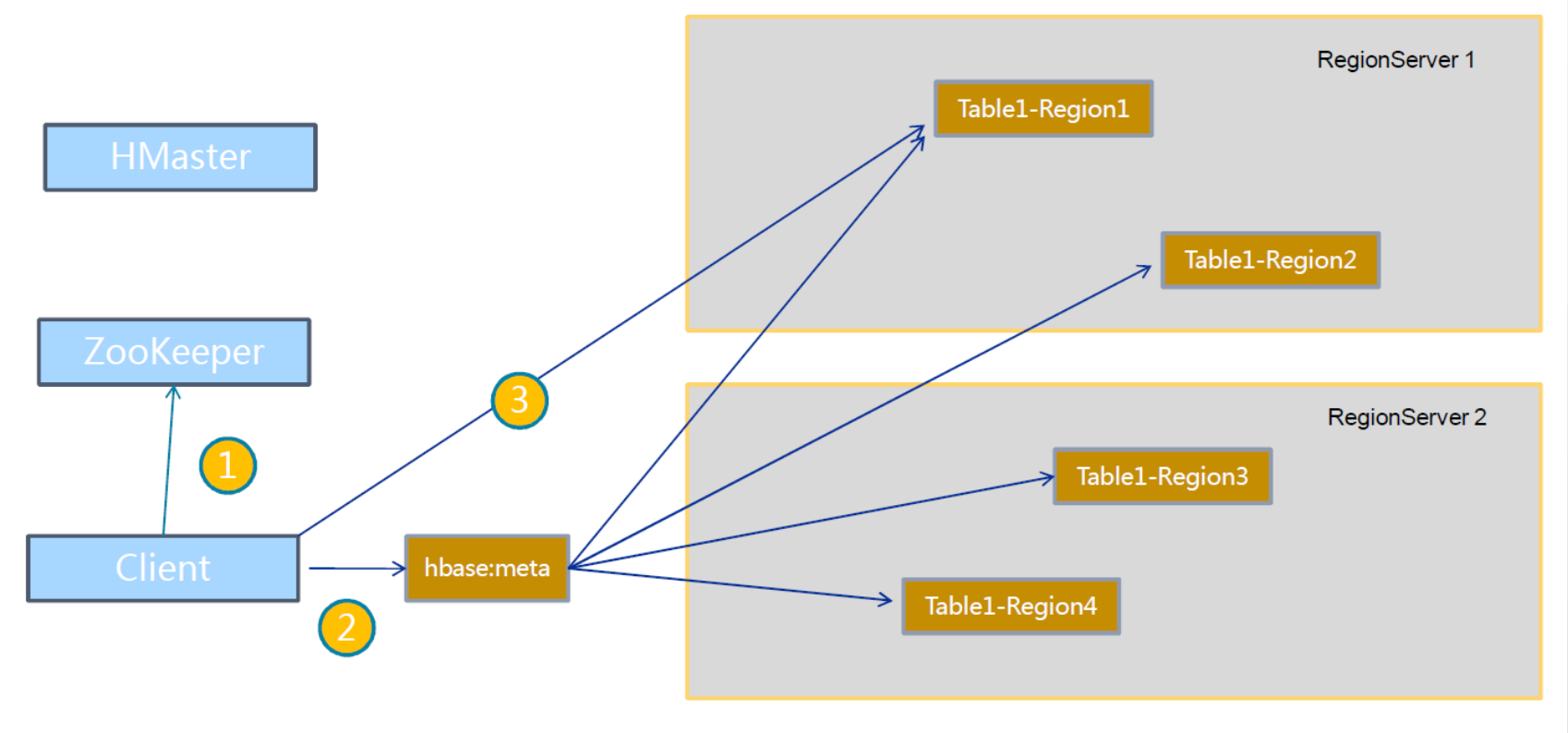
whoami
Show the current hbase user.Usage:
hbase> whoami

Data Versions

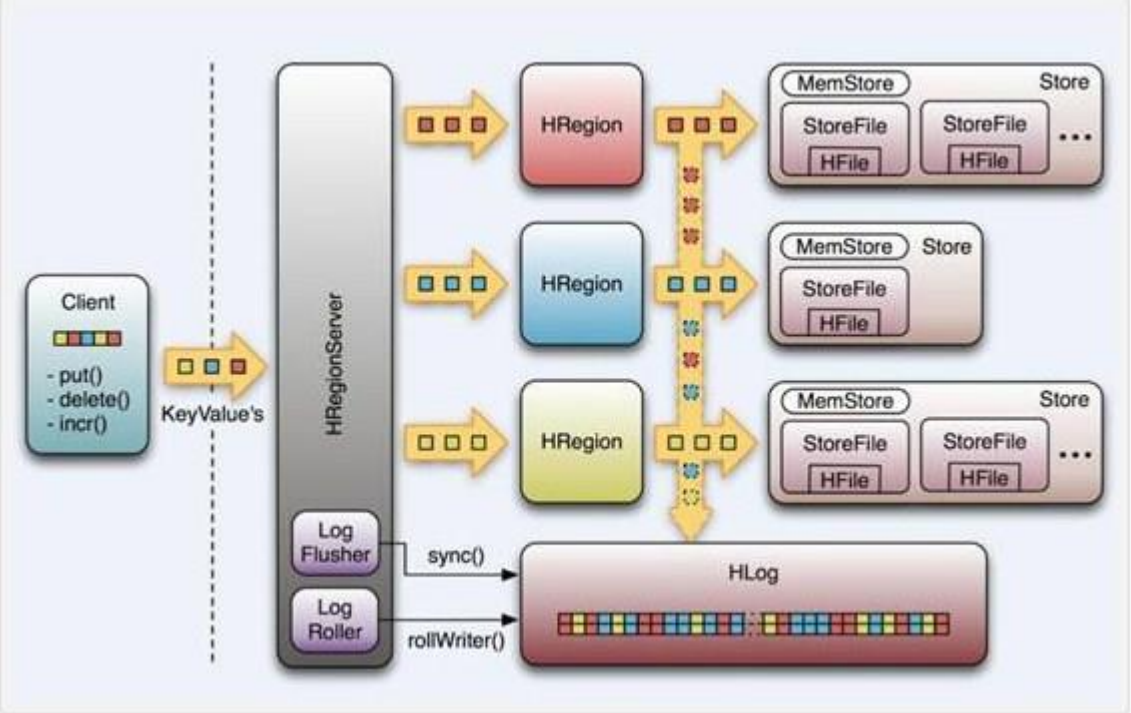
Row Key	Column	Timestamp	Cell Value
jsmith	profilephoto:image	1371851677671	<work.jpg>
jsmith	profilephoto:image	930001926438	<college.jpg>
jsmith	profilephoto:image	866929926351	<highschool.jpg>

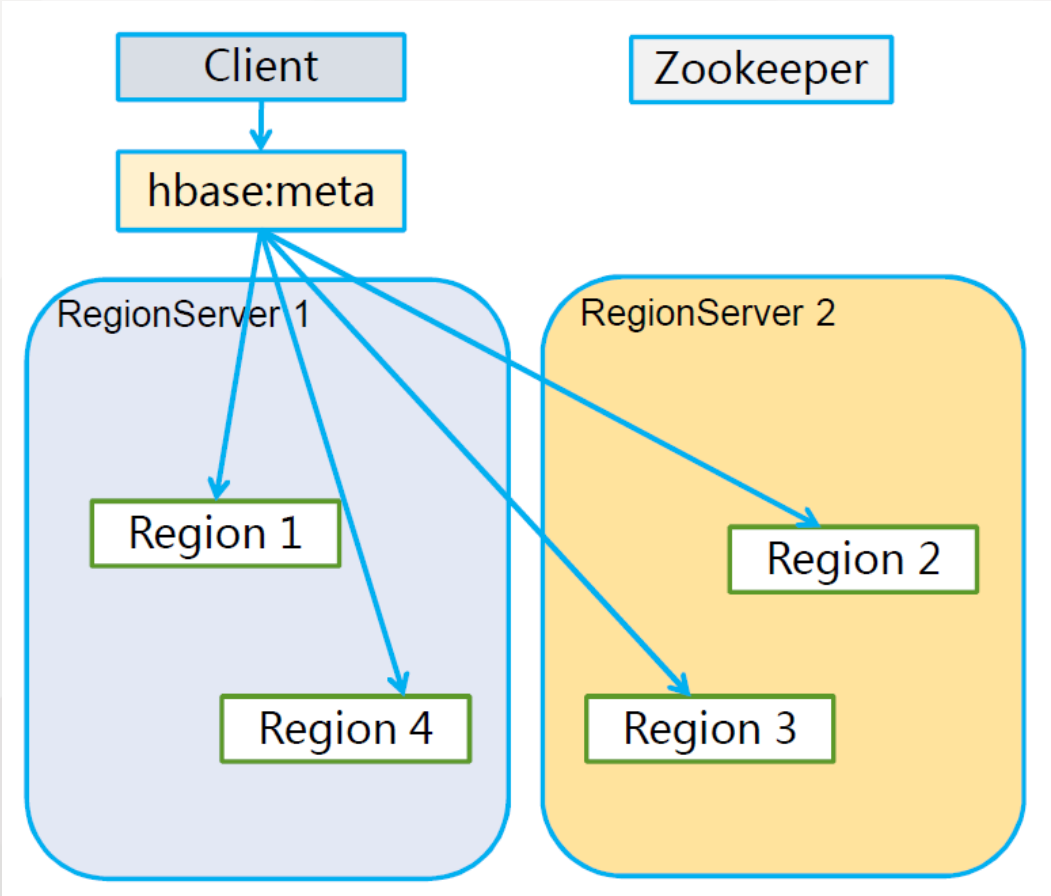
File Storage

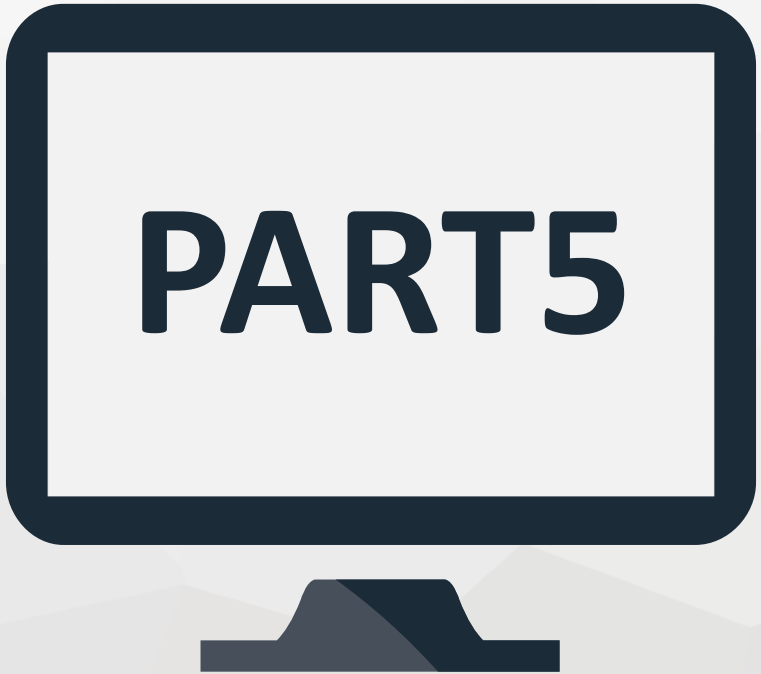

zookeeper file
-ROOT-
.META.
UserTable1
UserTableN


RegionServer 1
Table1-Region1
Table1-Region2
HMaster
ZooKeeper
3
1
RegionServer 2
Table1-Region3
Client
hbase:meta
Table1-Region4
2

HBase


Client
- put()
- delete()
- incr()
KeyValue's
HRegionServer
Log Flusher
Log Roller
sync()
rollWriter()
HRegion
HRegion
HRegion
MemStore
Store
StoreFile
HFile
StoreFile
HFile
MemStore
Store
StoreFile
HFile
MemStore
Store
StoreFile
HFile
StoreFile
HFile
HLog


Client
Zookeeper
hbase:meta
RegionServer 1
RegionServer 2
Region 1
Region 2
Region 4
Region 3



Exercise

The End