Hive Clients

• Command line shell (CLI)
• JDBC
• ODBC
• Custom thrift client
  o python, perl, C++, ...
Hive Server processes

- Thrift based client/server messaging
- Hiveserver
  - Executing SQL and fetch data
- HiveServer2, improved thrift server
  - concurrency and authentication
- MetaStore server
  - Remote metadata access
Hive CLI

CLI shell
Hive Driver
Compiler
Executor
Meta Store

Embedded mode

MetaStore DB

Hadoop

HDFS
Hive CLI

- Most commonly used with hive

- Thick client mode
  - Includes Hive execution engine
  - Command shell
  - Metastore

- Supports a thin client mode with Thrift server
JDBC

- Java client package implements JDBC APIs
- Java Thrift client for Hive thrift servers
- Part of Apache Hive distribution
- Enables ETL/BI/Analytics tools and custom apps
ODBC

- C client library implements ODBC APIs
- C Thrift client for Hive thrift servers
- Multiple distros
  - Apache Hive
  - Cloudera
  - Simba
- Enables ETL/BI/Analytics tools and custom apps
Hive Server

- JDBC Application
- Thrift service
  - Hive Driver Compiler Executor
  - Meta Store
- Hadoop
  - HDFS
Hive Trifft Server

- Thrift based server for data access
- Work with CLI, JDBC and ODBC clients
- Doesn’t support concurrent client access
- No authentication
HiveServer2

- JDBC App1
- JDBC App2

Thrift service
- Driver Compiler Executor
- Driver Compiler Executor

Session1
Session2

MetaStore

Hadoop

HDFS
HiveServer2

- Improved Thrift server for data access
- Supports concurrent clients
- Supports authentication
  - Kerberos
  - Pass through LDAP
- Includes new command line tool ‘beeline’
- Better support for JDBC/ODBC drivers
- Works with secure Hadoop
Metastore Server

- CLI shell
- Hive Driver
- Compiler
- Executor

Hadoop → HDFS

- Thrift Service
- MetaStore

MetaStore DB credentials stored at server
Remote metastore

- Thrift server for metadata access
- Open hive metadata to external clients
- Consolidate BD credentials
- Secure access
  - Kerberos authentication
  - Hadoop user impersonation
Multi client Remote metastore

- HiveServe2
- JDBC App
- Hive CLI
- Hadoop
- HDFS
- Meta Store
- HCat
- Web HCat
- REST App
- Impala
- HCat-Plugin
- Pig
- JDBC App
- Hive Serve2
- Hadoop + HDFS
- Meta Store
- HCat
Questions ???