

TAJO-338

blrunner

2013-11-27

Contents

Chapter 1

Root issue TAJO-338

1.1 Summary

Add Query Optimization Part for Column-Partitioned Tables

1.2 Description

If user write partitioned column at where clause, Tajo must make a plan to scan a partition directory path. So, Planner needs to improve for partitioned table.

1.3 Attachments

1. [TAJO-338_2.patch](#)
2. [TAJO-338.patch](#)

1.4 Commits

No related commits

1.5 Comments

1. **hyunsik:** Could you explain this issue in more detail?
2. **blrunner:** When I adjust the patch about jira issue named [TAJO-284][<https://issues.apache.org/jira/browse/TAJO-284>], it made a error to scan hdfs blocks. So, I thought that Scanning just one file is sure the main cause of error. But I think now that I misunderstood about the cause. It needs to improve Planner compare than StorageManager and Scanner. So, I'm going to modify the issue title.
3. **hyunsik:** This patch does as follows:
 - * Add PartitionedTableScanNode
 - * Add a rewrite rule named PartitionedTableRewriter
 - ** First of all, PartitionedTableRewriter finds partition predicates from search condition.
 - *** A partition predicate must be a simple predicate, meaning one column reference and one constant with one of =, <, <=, >, >=, IN, and LIKE predicate operators.
 - ** PartitionedTableRewriter also finds necessary partition paths via PathFilters generated from partition predicates.

** Then, it rewrites ScanNode to PartitionedTableScanNode with filtered partition paths.
 * Some methods in EvalTreeUtil and AlgebraUtil are refactored and renamed to more comprehensive names.
 * Rename Partitions to PartitionDesc
 * Add some schema rewrite methods to ColumnPartitionedTableStoreExec and SeqScan
 ** Column Partitioned Table aims at hive-compatible table partition.
 ** As a result, scan does not read field values corresponding to partition key columns from files, and store does not store field values to files.
 ** Instead of, field values corresponding to partition key columns are just retrieved from a partition path.
 ** For that, the rewriter usually removes partition key columns from actual input schema of scan plan and output schema of store plan.

4. **blrunner:** Awesome!

It looks great. :)

But you have to update HCatalogStore because It converted Partitions to PartitionDesc.

You can find build failure using HCatalogStore as follows:

```

1  *mvn clean install -Phcatalog-0.12.0*
2  [INFO] -----
3  [INFO] BUILD FAILURE
4  [INFO] -----
5  [INFO] Total time: 3:49.379s
6  [INFO] Finished at: Thu Dec 19 10:47:28 KST 2013
7  [INFO] Final Memory: 43M/123M
8  [INFO] -----
9  -----
10 [ERROR] Failed to execute goal org.apache.maven.plugins:maven-compiler-plugin:2.5.1
    :compile (default-compile) on project tajo-hcatalog: Compilation failure:
    Compilation failure:
11 [ERROR] /Users/blrunner/IdeaProjects/TAJO-338/tajo-catalog/tajo-catalog-drivers/
    tajo-hcatalog/src/main/java/org/apache/tajo/catalog/store/HCatalogStore.java:
    [33,40] cannot find symbo
12 l
13 [ERROR] symbol   : class Partitions
14 [ERROR] location: package org.apache.tajo.catalog.partition
15 [ERROR] /Users/blrunner/IdeaProjects/TAJO-338/tajo-catalog/tajo-catalog-drivers/
    tajo-hcatalog/src/main/java/org/apache/tajo/catalog/store/HCatalogStore.java:
    [109,4] cannot find symbol
16 [ERROR] symbol   : class Partitions
17 [ERROR] location: class org.apache.tajo.catalog.store.HCatalogStore
18 [ERROR] /Users/b
19 lrunner/IdeaProjects/TAJO-338/tajo-catalog/tajo-catalog-drivers/tajo-hcatalog/src/
    main/java/org/apache/tajo/catalog/store/HCatalogStore.java:[181,27] cannot find
    symbol
20 [ERROR] symbol   : class Partitions
21 [ERROR] location: class org.apache.tajo.catalog.store.HCatalogStore
  
```

5. **hyunsik:** I've updated the second patch.

6. **blrunner:** +1 for the patch.

'mvn clean install -Phcatalog-0.12.0' finished successfully.

Ship it. :)

7. **hyunsik:** committed the latest patch to master. Thanks for the review.

8. **hudson:** SUCCESS: Integrated in Tajo-trunk-postcommit #628 (See [<https://builds.apache.org/job/Tajo-trunk-postcommit/628/>])

TAJO-338 - Add Query Optimization Part for Column-Partitioned Tables. (hyunsik) (hyun-

sik: <https://git-wip-us.apache.org/repos/asf?p=incubator-tajo.git&a=commit&h=f58f6ee827139c01253902f0b1076>

- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/DefaultTaskScheduler.java
- * tajo-catalog/tajo-catalog-common/src/main/java/org/apache/tajo/catalog/DDLBuilder.java
- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/logical/CreateTableNode.java
- * tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/engine/eval/ExprTestBase.java
- * tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/worker/TestRangeRetrieverHandler.java
- * tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/engine/planner/physical/TestSortExec.java
- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/TajoMasterClientService.java
- * tajo-catalog/tajo-catalog-common/src/main/java/org/apache/tajo/catalog/partition/Partitions.java
- * tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/engine/planner/physical/TestPhysicalPlanner.java
- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/PhysicalPlannerImpl.java
- * tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/engine/util/TestTupleUtil.java
- * tajo-common/src/main/java/org/apache/tajo/datum/BooleanDatum.java
- * tajo-catalog/tajo-catalog-common/src/main/java/org/apache/tajo/catalog/Schema.java
- * tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/engine/planner/TestLogicalPlan.java
- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/GlobalEngine.java
- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/parser/SQLAnalyzer.java
- * tajo-catalog/tajo-catalog-common/src/main/java/org/apache/tajo/catalog/TableDesc.java
- * tajo-catalog/tajo-catalog-server/src/main/java/org/apache/tajo/catalog/store/AbstractDBStore.java
- * tajo-catalog/tajo-catalog-drivers/tajo-hcatalog/src/main/java/org/apache/tajo/catalog/store/HCatalogStore.java
- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/eval/EvalTreeUtil.java
- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/Target.java
- * tajo-core/tajo-core-backend/src/main/proto/ClientProtos.proto
- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/BasicLogicalPlanVisitor.java
- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/logical/TableSubQueryNode.java
- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/rewrite/ProjectionPushDownRule.java
- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/logical/StoreTableNode.java
- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/eval/InEval.java
- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/querymaster/QueryMasterTask.java
- * tajo-catalog/tajo-catalog-common/src/main/java/org/apache/tajo/catalog/partition/PartitionDesc.java
- * tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/engine/query/TestTablePartitions.java
- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/LogicalPlanner.java
- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/logical/NodeType.java
- * tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/engine/parser/TestSQLAnalyzer.java
- * tajo-common/src/main/java/org/apache/tajo/datum/DatumFactory.java
- * tajo-catalog/tajo-catalog-server/src/main/java/org/apache/tajo/catalog/store/DerbyStore.java
- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/utils/TupleUtil.java
- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/logical/RelationNode.java
- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/logical/ScanNode.java
- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/eval/LikePredicateEval.java
- * tajo-core/tajo-core-backend/src/test/queries/create_table_partition_by_column.sql
- * tajo-core/tajo-core-backend/src/main/antlr4/org/apache/tajo/engine/parser/SQLLexer.g4
- * tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/engine/planner/physical/TestHashAntiJoinExec.java
- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/rewrite/FilterPushDownRule.java
- * tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/master/TestExecutionBlockCursor.java
- * tajo-catalog/tajo-catalog-client/src/main/java/org/apache/tajo/catalog/AbstractCatalogClient.java
- * tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/engine/planner/physical/TestHashSemiJoinExec.java
- * tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/engine/planner/TestLogicalOptimizer.java
- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/global/ExecutionBlock.java
- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/physical/PhysicalExec.java
- * tajo-catalog/tajo-catalog-common/src/test/java/org/apache/tajo/catalog/TestSchema.java
- * tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/engine/query/TestInsertQuery.java
- * tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/engine/planner/physical/TestBSTIndexExec.java
- * tajo-common/src/main/java/org/apache/tajo/util/TUtil.java
- * tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/global/GlobalPlanner.java

```

* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/rewrite/PartitionedTableRewriter.java
* tajo-catalog/tajo-catalog-server/src/test/java/org/apache/tajo/catalog/TestCatalog.java
* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/LogicalOptimizer.java
* tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/engine/eval/TestEvalTreeUtil.java
* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/logical/PartitionedTableScanNode.java
* tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/client/TestTajoClient.java
* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/physical/ColumnPartitionedTableScanNode.java
* tajo-catalog/tajo-catalog-server/src/test/java/org/apache/tajo/catalog/TestDBStore.java
* tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/master/TestGlobalPlanner.java
* tajo-core/tajo-core-backend/src/main/antlr4/org/apache/tajo/engine/parser/SQLParser.g4
* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/eval/AlgebraicUtil.java
* tajo-algebra/src/main/java/org/apache/tajo/algebra/CreateTable.java
* tajo-catalog/tajo-catalog-common/src/main/proto/CatalogProtos.proto
* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/logical/join/GreedyHeuristicJoinOperator.java
* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/querymaster/SubQuery.java
* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/physical/SeqScanExec.java
* CHANGES.txt
* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/PlannerUtil.java
* tajo-catalog/tajo-catalog-drivers/tajo-hcatalog/src/test/java/org/apache/tajo/catalog/store/TestHCatalogStore.java
* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/logical/join/JoinGraph.java
* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/LogicalPlanVisitor.java

```

9. **coderplay:** Why did you remove some testcases which insert overwrite a partitioned table in TestInsertQuery.java? Any conflict against this issue?

see

```
git show f58f6ee827139c01253902f0b1076b47fde9d5e6 ./tajo-core/tajo-core-backend/src
```

10. **hyunsik:** I moved some unit tests related to partitioned table from TestInsertQuery to TestTablePartitions.
11. **hyunsik:** In order to test the processing of partitioned tables, I needed table insertions prior to test. Table insertions are duplicated to some unit tests in TestInsertQuery. So, I integrated them.

1.6 Pull requests

No pull requests