First stage (end node id 2): File Scan store sales, 24347.8 FileScan-> Filter-> BroadcastHashJoin-> Project-> BroadcastHashJoi NormalStage (end node id 0): length of beginNodesToChains is 1 Chain 0 is: HashAggregate(keys=[i\_item\_id#65], functions=[avg(ss\_quantity#14), avg(ss\_list\_price#16), avg(ss\_coupon\_amt#23), avg(ss\_sales\_price#17)]) HashAggregate->TakeOrderedAndProject

Broadcast stage(end node id 18): date dim,10000FileScan->Filter->Project->BroadcastExchange

Broadcast stage(end node id 22): item,10000FileScan->Filter->BroadcastExchange

Broadcast stage(end\_node\_id 14): customer\_demographics,10000FileScan->Filter->Project->BroadcastExchange

Broadcast stage(end\_node\_id 25): promotion,10000FileScan->Filter->Project->BroadcastExchange