

First stage (end\_node\_id 13): File Scan catalog\_sales,4967.6FileScan->Filter->ExchangeHashpartitioning

First stage (end\_node\_id 17): File Scan customer,1475.0FileScan->Filter->ExchangeHashpartitioning

NormalStage (end\_node\_id 9): length of beginNodesToChains is 2  
[2,0,2,0,2,2,0,0]  
Chain 0 is : Sort [cs\_bill\_customer\_sk#3 ASC NULLS FIRST], false, 0  
Sort->SortMergeJoin->Project->ExchangeHashpartitioning  
Chain 1 is : Sort [c\_customer\_sk#34 ASC NULLS FIRST], false, 0  
Sort->SortMergeJoin->Project->ExchangeHashpartitioning

Broadcast stage(end\_node\_id 24): date\_dim,10000FileScan->Filter->Project->BroadcastExchange

First stage (end\_node\_id 21): File Scan customer\_address,0FileScan->Filter->ExchangeHashpartitioning

NormalStage (end\_node\_id 2): length of beginNodesToChains is 2  
[2,2,4,2,2,2,0,0]  
Chain 0 is : Sort [ca\_address\_sk#52 ASC NULLS FIRST], false, 0  
Sort->SortMergeJoin->Project->BroadcastHashJoin->Project->HashAggregate->ExchangeHashpartitioning  
Chain 1 is : Sort [c\_current\_addr\_sk#38 ASC NULLS FIRST], false, 0  
Sort->SortMergeJoin->Project->BroadcastHashJoin->Project->HashAggregate->ExchangeHashpartitioning

NormalStage (end\_node\_id 0): length of beginNodesToChains is 1  
[1,0,0,1,0,0,0,0]  
Chain 0 is : HashAggregate(keys=[ca\_zip#61], functions=[sum(cs\_sales\_price#21)])  
HashAggregate->TakeOrderedAndProject