Trace file c:\oracle\product\diag\rdbms\orabase\orabase\trace\orabase\_ora\_8484\_use\_nl10053.trc

Oracle Database 11g Enterprise Edition Release 11.1.0.7.0 - Production

With the Partitioning, OLAP, Data Mining and Real Application Testing options

Windows XP Version V5.1 Service Pack 3

CPU : 2 - type 586, 2 Physical Cores

Process Affinity : 0x00000000

Memory (Avail/Total): Ph:1534M/3062M, Ph+PgF:3484M/4947M, VA:1273M/2047M

Instance name: orabase

Redo thread mounted by this instance: 1

Oracle process number: 23

Windows thread id: 8484, image: ORACLE.EXE (SHAD)

\*\*\* 2009-08-16 13:51:14.953

\*\*\* SESSION ID:(132.937) 2009-08-16 13:51:14.953

\*\*\* CLIENT ID:() 2009-08-16 13:51:14.953

\*\*\* SERVICE NAME:(SYS$USERS) 2009-08-16 13:51:14.953

\*\*\* MODULE NAME:(SQL\*Plus) 2009-08-16 13:51:14.953

\*\*\* ACTION NAME:() 2009-08-16 13:51:14.953

Registered qb: SEL$1 0xccc4820 (PARSER)

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QUERY BLOCK SIGNATURE

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signature (): qb\_name=SEL$1 nbfros=2 flg=0

fro(0): flg=4 objn=87744 hint\_alias="TA"@"SEL$1"

fro(1): flg=4 objn=87745 hint\_alias="TB"@"SEL$1"

SPM: statement not found in SMB

DOP: Automatic degree of parallelism is disabled: Parameter.

PM: Considering predicate move-around in query block SEL$1 (#0)

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Predicate Move-Around (PM)

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OPTIMIZER INFORMATION

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

----- Current SQL Statement for this session (sql\_id=7wfpkrpzfphqm) -----

SELECT /\*+ USE\_NL(tb) \*/ COUNT(\*)

FROM ta, tb

WHERE ta.col1 = tb.col1

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Legend

The following abbreviations are used by optimizer trace.

CBQT - cost-based query transformation

JPPD - join predicate push-down

OJPPD - old-style (non-cost-based) JPPD

FPD - filter push-down

PM - predicate move-around

CVM - complex view merging

SPJ - select-project-join

SJC - set join conversion

SU - subquery unnesting

OBYE - order by elimination

ST - star transformation

CNT - count(col) to count(\*) transformation

JE - Join Elimination

qb - query block

LB - leaf blocks

DK - distinct keys

LB/K - average number of leaf blocks per key

DB/K - average number of data blocks per key

CLUF - clustering factor

NDV - number of distinct values

Resp - response cost

Card - cardinality

Resc - resource cost

NL - nested loops (join)

SM - sort merge (join)

HA - hash (join)

CPUSPEED - CPU Speed

IOTFRSPEED - I/O transfer speed

IOSEEKTIM - I/O seek time

SREADTIM - average single block read time

MREADTIM - average multiblock read time

MBRC - average multiblock read count

MAXTHR - maximum I/O system throughput

SLAVETHR - average slave I/O throughput

dmeth - distribution method

1: no partitioning required

2: value partitioned

4: right is random (round-robin)

128: left is random (round-robin)

8: broadcast right and partition left

16: broadcast left and partition right

32: partition left using partitioning of right

64: partition right using partitioning of left

256: run the join in serial

0: invalid distribution method

sel - selectivity

ptn - partition

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PARAMETERS USED BY THE OPTIMIZER

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PARAMETERS WITH ALTERED VALUES

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Compilation Environment Dump

sort\_area\_size = 1048576

query\_rewrite\_integrity = trusted

Bug Fix Control Environment

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PARAMETERS WITH DEFAULT VALUES

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Compilation Environment Dump

optimizer\_mode\_hinted = false

optimizer\_features\_hinted = 0.0.0

parallel\_execution\_enabled = true

parallel\_query\_forced\_dop = 0

parallel\_dml\_forced\_dop = 0

parallel\_ddl\_forced\_degree = 0

parallel\_ddl\_forced\_instances = 0

\_query\_rewrite\_fudge = 90

optimizer\_features\_enable = 11.1.0.7

\_optimizer\_search\_limit = 5

cpu\_count = 2

active\_instance\_count = 1

parallel\_threads\_per\_cpu = 2

hash\_area\_size = 2097152

bitmap\_merge\_area\_size = 1048576

sort\_area\_retained\_size = 0

\_sort\_elimination\_cost\_ratio = 0

\_optimizer\_block\_size = 8192

\_sort\_multiblock\_read\_count = 2

\_hash\_multiblock\_io\_count = 0

\_db\_file\_optimizer\_read\_count = 8

\_optimizer\_max\_permutations = 2000

pga\_aggregate\_target = 315392 KB

\_pga\_max\_size = 204800 KB

\_query\_rewrite\_maxdisjunct = 257

\_smm\_auto\_min\_io\_size = 56 KB

\_smm\_auto\_max\_io\_size = 248 KB

\_smm\_min\_size = 315 KB

\_smm\_max\_size = 63078 KB

\_smm\_px\_max\_size = 157696 KB

\_cpu\_to\_io = 0

\_optimizer\_undo\_cost\_change = 11.1.0.7

parallel\_query\_mode = enabled

parallel\_dml\_mode = disabled

parallel\_ddl\_mode = enabled

optimizer\_mode = all\_rows

sqlstat\_enabled = false

\_optimizer\_percent\_parallel = 101

\_always\_anti\_join = choose

\_always\_semi\_join = choose

\_optimizer\_mode\_force = true

\_partition\_view\_enabled = true

\_always\_star\_transformation = false

\_query\_rewrite\_or\_error = false

\_hash\_join\_enabled = true

cursor\_sharing = exact

\_b\_tree\_bitmap\_plans = true

star\_transformation\_enabled = false

\_optimizer\_cost\_model = choose

\_new\_sort\_cost\_estimate = true

\_complex\_view\_merging = true

\_unnest\_subquery = true

\_eliminate\_common\_subexpr = true

\_pred\_move\_around = true

\_convert\_set\_to\_join = false

\_push\_join\_predicate = true

\_push\_join\_union\_view = true

\_fast\_full\_scan\_enabled = true

\_optim\_enhance\_nnull\_detection = true

\_parallel\_broadcast\_enabled = true

\_px\_broadcast\_fudge\_factor = 100

\_ordered\_nested\_loop = true

\_no\_or\_expansion = false

optimizer\_index\_cost\_adj = 100

optimizer\_index\_caching = 0

\_system\_index\_caching = 0

\_disable\_datalayer\_sampling = false

query\_rewrite\_enabled = true

\_query\_cost\_rewrite = true

\_query\_rewrite\_2 = true

\_query\_rewrite\_1 = true

\_query\_rewrite\_expression = true

\_query\_rewrite\_jgmigrate = true

\_query\_rewrite\_fpc = true

\_query\_rewrite\_drj = true

\_full\_pwise\_join\_enabled = true

\_partial\_pwise\_join\_enabled = true

\_left\_nested\_loops\_random = true

\_improved\_row\_length\_enabled = true

\_index\_join\_enabled = true

\_enable\_type\_dep\_selectivity = true

\_improved\_outerjoin\_card = true

\_optimizer\_adjust\_for\_nulls = true

\_optimizer\_degree = 0

\_use\_column\_stats\_for\_function = true

\_subquery\_pruning\_enabled = true

\_subquery\_pruning\_mv\_enabled = false

\_or\_expand\_nvl\_predicate = true

\_like\_with\_bind\_as\_equality = false

\_table\_scan\_cost\_plus\_one = true

\_cost\_equality\_semi\_join = true

\_default\_non\_equality\_sel\_check = true

\_new\_initial\_join\_orders = true

\_oneside\_colstat\_for\_equijoins = true

\_optim\_peek\_user\_binds = true

\_minimal\_stats\_aggregation = true

\_force\_temptables\_for\_gsets = false

workarea\_size\_policy = auto

\_smm\_auto\_cost\_enabled = true

\_gs\_anti\_semi\_join\_allowed = true

\_optim\_new\_default\_join\_sel = true

optimizer\_dynamic\_sampling = 2

\_pre\_rewrite\_push\_pred = true

\_optimizer\_new\_join\_card\_computation = true

\_union\_rewrite\_for\_gs = yes\_gset\_mvs

\_generalized\_pruning\_enabled = true

\_optim\_adjust\_for\_part\_skews = true

\_force\_datefold\_trunc = false

statistics\_level = typical

\_optimizer\_system\_stats\_usage = true

skip\_unusable\_indexes = true

\_remove\_aggr\_subquery = true

\_optimizer\_push\_down\_distinct = 0

\_dml\_monitoring\_enabled = true

\_optimizer\_undo\_changes = false

\_predicate\_elimination\_enabled = true

\_nested\_loop\_fudge = 100

\_project\_view\_columns = true

\_local\_communication\_costing\_enabled = true

\_local\_communication\_ratio = 50

\_query\_rewrite\_vop\_cleanup = true

\_slave\_mapping\_enabled = true

\_optimizer\_cost\_based\_transformation = linear

\_optimizer\_mjc\_enabled = true

\_right\_outer\_hash\_enable = true

\_spr\_push\_pred\_refspr = true

\_optimizer\_cache\_stats = false

\_optimizer\_cbqt\_factor = 50

\_optimizer\_squ\_bottomup = true

\_fic\_area\_size = 131072

\_optimizer\_skip\_scan\_enabled = true

\_optimizer\_cost\_filter\_pred = false

\_optimizer\_sortmerge\_join\_enabled = true

\_optimizer\_join\_sel\_sanity\_check = true

\_mmv\_query\_rewrite\_enabled = true

\_bt\_mmv\_query\_rewrite\_enabled = true

\_add\_stale\_mv\_to\_dependency\_list = true

\_distinct\_view\_unnesting = false

\_optimizer\_dim\_subq\_join\_sel = true

\_optimizer\_disable\_strans\_sanity\_checks = 0

\_optimizer\_compute\_index\_stats = true

\_push\_join\_union\_view2 = true

\_optimizer\_ignore\_hints = false

\_optimizer\_random\_plan = 0

\_query\_rewrite\_setopgrw\_enable = true

\_optimizer\_correct\_sq\_selectivity = true

\_disable\_function\_based\_index = false

\_optimizer\_join\_order\_control = 3

\_optimizer\_cartesian\_enabled = true

\_optimizer\_starplan\_enabled = true

\_extended\_pruning\_enabled = true

\_optimizer\_push\_pred\_cost\_based = true

\_optimizer\_null\_aware\_antijoin = true

\_optimizer\_extend\_jppd\_view\_types = true

\_sql\_model\_unfold\_forloops = run\_time

\_enable\_dml\_lock\_escalation = false

\_bloom\_filter\_enabled = true

\_update\_bji\_ipdml\_enabled = 0

\_optimizer\_extended\_cursor\_sharing = udo

\_dm\_max\_shared\_pool\_pct = 1

\_optimizer\_cost\_hjsmj\_multimatch = true

\_optimizer\_transitivity\_retain = true

\_px\_pwg\_enabled = true

optimizer\_secure\_view\_merging = true

\_optimizer\_join\_elimination\_enabled = true

flashback\_table\_rpi = non\_fbt

\_optimizer\_cbqt\_no\_size\_restriction = true

\_optimizer\_enhanced\_filter\_push = true

\_optimizer\_filter\_pred\_pullup = true

\_rowsrc\_trace\_level = 0

\_simple\_view\_merging = true

\_optimizer\_rownum\_pred\_based\_fkr = true

\_optimizer\_better\_inlist\_costing = all

\_optimizer\_self\_induced\_cache\_cost = false

\_optimizer\_min\_cache\_blocks = 10

\_optimizer\_or\_expansion = depth

\_optimizer\_order\_by\_elimination\_enabled = true

\_optimizer\_outer\_to\_anti\_enabled = true

\_selfjoin\_mv\_duplicates = true

\_dimension\_skip\_null = true

\_force\_rewrite\_enable = false

\_optimizer\_star\_tran\_in\_with\_clause = true

\_optimizer\_complex\_pred\_selectivity = true

\_optimizer\_connect\_by\_cost\_based = true

\_gby\_hash\_aggregation\_enabled = true

\_globalindex\_pnum\_filter\_enabled = true

\_px\_minus\_intersect = true

\_fix\_control\_key = 0

\_force\_slave\_mapping\_intra\_part\_loads = false

\_force\_tmp\_segment\_loads = false

\_query\_mmvrewrite\_maxpreds = 10

\_query\_mmvrewrite\_maxintervals = 5

\_query\_mmvrewrite\_maxinlists = 5

\_query\_mmvrewrite\_maxdmaps = 10

\_query\_mmvrewrite\_maxcmaps = 20

\_query\_mmvrewrite\_maxregperm = 512

\_query\_mmvrewrite\_maxmergedcmaps = 50

\_query\_mmvrewrite\_maxqryinlistvals = 500

\_disable\_parallel\_conventional\_load = false

\_trace\_virtual\_columns = false

\_replace\_virtual\_columns = true

\_virtual\_column\_overload\_allowed = true

\_kdt\_buffering = true

\_first\_k\_rows\_dynamic\_proration = true

\_optimizer\_sortmerge\_join\_inequality = true

\_aw\_row\_source\_enabled = true

\_optimizer\_aw\_stats\_enabled = true

\_bloom\_pruning\_enabled = true

result\_cache\_mode = MANUAL

\_px\_ual\_serial\_input = true

\_optimizer\_skip\_scan\_guess = false

\_enable\_row\_shipping = true

\_row\_shipping\_threshold = 80

\_row\_shipping\_explain = false

transaction\_isolation\_level = read\_commited

\_optimizer\_distinct\_elimination = true

\_optimizer\_multi\_level\_push\_pred = true

\_optimizer\_group\_by\_placement = true

\_optimizer\_rownum\_bind\_default = 10

\_enable\_query\_rewrite\_on\_remote\_objs = true

\_optimizer\_extended\_cursor\_sharing\_rel = simple

\_optimizer\_adaptive\_cursor\_sharing = true

\_direct\_path\_insert\_features = 0

\_optimizer\_improve\_selectivity = true

optimizer\_use\_pending\_statistics = false

\_optimizer\_enable\_density\_improvements = true

\_optimizer\_aw\_join\_push\_enabled = true

\_optimizer\_connect\_by\_combine\_sw = true

\_enable\_pmo\_ctas = 0

\_optimizer\_native\_full\_outer\_join = force

\_bloom\_predicate\_enabled = true

\_optimizer\_enable\_extended\_stats = true

\_is\_lock\_table\_for\_ddl\_wait\_lock = 0

\_pivot\_implementation\_method = choose

optimizer\_capture\_sql\_plan\_baselines = false

optimizer\_use\_sql\_plan\_baselines = true

\_optimizer\_star\_trans\_min\_cost = 0

\_optimizer\_star\_trans\_min\_ratio = 0

\_with\_subquery = OPTIMIZER

\_optimizer\_fkr\_index\_cost\_bias = 10

\_optimizer\_use\_subheap = true

\_parallel\_policy = manual

parallel\_degree = 0

\_parallel\_time\_threshold = 10

\_parallel\_time\_unit = 10

\_optimizer\_or\_expansion\_subheap = true

\_optimizer\_free\_transformation\_heap = true

\_optimizer\_reuse\_cost\_annotations = true

\_result\_cache\_auto\_size\_threshold = 100

\_result\_cache\_auto\_time\_threshold = 1000

\_optimizer\_nested\_rollup\_for\_gset = 100

\_nlj\_batching\_enabled = 1

parallel\_query\_default\_dop = 0

is\_recur\_flags = 0

optimizer\_use\_invisible\_indexes = false

flashback\_data\_archive\_internal\_cursor = 0

\_optimizer\_extended\_stats\_usage\_control = 224

\_parallel\_syspls\_obey\_force = true

cell\_offload\_processing = true

\_rdbms\_internal\_fplib\_enabled = false

db\_file\_multiblock\_read\_count = 111

\_bloom\_folding\_enabled = true

\_mv\_generalized\_oj\_refresh\_opt = true

cell\_offload\_compaction = ADAPTIVE

cell\_offload\_plan\_display = AUTO

\_bloom\_predicate\_pushdown\_to\_storage = true

\_bloom\_vector\_elements = 0

\_bloom\_pushing\_max = 524288

Bug Fix Control Environment

fix 3834770 = 1

fix 3746511 = enabled

fix 4519016 = enabled

fix 3118776 = enabled

fix 4488689 = enabled

fix 2194204 = disabled

fix 2660592 = enabled

fix 2320291 = enabled

fix 2324795 = enabled

fix 4308414 = enabled

fix 3499674 = disabled

fix 4569940 = enabled

fix 4631959 = enabled

fix 4519340 = enabled

fix 4550003 = enabled

fix 1403283 = enabled

fix 4554846 = enabled

fix 4602374 = enabled

fix 4584065 = enabled

fix 4545833 = enabled

fix 4611850 = enabled

fix 4663698 = enabled

fix 4663804 = enabled

fix 4666174 = enabled

fix 4567767 = enabled

fix 4556762 = 15

fix 4728348 = enabled

fix 4708389 = enabled

fix 4175830 = enabled

fix 4752814 = enabled

fix 4583239 = enabled

fix 4386734 = enabled

fix 4887636 = enabled

fix 4483240 = enabled

fix 4872602 = disabled

fix 4711525 = enabled

fix 4545802 = enabled

fix 4605810 = enabled

fix 4704779 = enabled

fix 4900129 = enabled

fix 4924149 = enabled

fix 4663702 = enabled

fix 4878299 = enabled

fix 4658342 = enabled

fix 4881533 = enabled

fix 4676955 = enabled

fix 4273361 = enabled

fix 4967068 = enabled

fix 4969880 = disabled

fix 5005866 = enabled

fix 5015557 = enabled

fix 4705343 = enabled

fix 4904838 = enabled

fix 4716096 = enabled

fix 4483286 = disabled

fix 4722900 = enabled

fix 4615392 = enabled

fix 5096560 = enabled

fix 5029464 = enabled

fix 4134994 = enabled

fix 4904890 = enabled

fix 5104624 = enabled

fix 5014836 = enabled

fix 4768040 = enabled

fix 4600710 = enabled

fix 5129233 = enabled

fix 4595987 = enabled

fix 4908162 = enabled

fix 5139520 = enabled

fix 5084239 = enabled

fix 5143477 = disabled

fix 2663857 = enabled

fix 4717546 = enabled

fix 5240264 = enabled

fix 5099909 = enabled

fix 5240607 = enabled

fix 5195882 = enabled

fix 5220356 = enabled

fix 5263572 = enabled

fix 5385629 = enabled

fix 5302124 = enabled

fix 5391942 = enabled

fix 5384335 = enabled

fix 5482831 = enabled

fix 4158812 = enabled

fix 5387148 = enabled

fix 5383891 = enabled

fix 5466973 = enabled

fix 5396162 = enabled

fix 5394888 = enabled

fix 5395291 = enabled

fix 5236908 = enabled

fix 5509293 = enabled

fix 5449488 = enabled

fix 5567933 = enabled

fix 5570494 = enabled

fix 5288623 = enabled

fix 5505995 = enabled

fix 5505157 = enabled

fix 5112460 = enabled

fix 5554865 = enabled

fix 5112260 = enabled

fix 5112352 = enabled

fix 5547058 = enabled

fix 5618040 = enabled

fix 5585313 = enabled

fix 5547895 = enabled

fix 5634346 = enabled

fix 5620485 = enabled

fix 5483301 = enabled

fix 5657044 = enabled

fix 5694984 = enabled

fix 5868490 = enabled

fix 5650477 = enabled

fix 5611962 = enabled

fix 4279274 = enabled

fix 5741121 = enabled

fix 5714944 = enabled

fix 5391505 = enabled

fix 5762598 = enabled

fix 5578791 = enabled

fix 5259048 = enabled

fix 5882954 = enabled

fix 2492766 = enabled

fix 5707608 = enabled

fix 5891471 = enabled

fix 5884780 = enabled

fix 5680702 = enabled

fix 5371452 = enabled

fix 5838613 = enabled

fix 5949981 = enabled

fix 5624216 = enabled

fix 5741044 = enabled

fix 5976822 = enabled

fix 6006457 = enabled

fix 5872956 = enabled

fix 5923644 = enabled

fix 5943234 = enabled

fix 5844495 = enabled

fix 4168080 = enabled

fix 6020579 = enabled

fix 5842686 = disabled

fix 5996801 = enabled

fix 5593639 = enabled

fix 6133948 = enabled

fix 3151991 = enabled

fix 6146906 = enabled

fix 6239909 = enabled

fix 6267621 = enabled

fix 5909305 = enabled

fix 6279918 = enabled

fix 6141818 = enabled

fix 6151963 = enabled

fix 6251917 = enabled

fix 6282093 = enabled

fix 6119510 = enabled

fix 6119382 = enabled

fix 3801750 = enabled

fix 5705630 = disabled

fix 5944076 = enabled

fix 5406763 = enabled

fix 6070954 = enabled

fix 6282944 = enabled

fix 6138746 = enabled

fix 6082745 = enabled

fix 3426050 = enabled

fix 599680 = enabled

fix 6062266 = enabled

fix 6087237 = enabled

fix 6122894 = enabled

fix 6377505 = enabled

fix 5893768 = enabled

fix 6163564 = enabled

fix 6073325 = enabled

fix 6188881 = enabled

fix 6007259 = enabled

fix 6239971 = enabled

fix 5284200 = enabled

fix 6042205 = enabled

fix 6051211 = enabled

fix 6434668 = enabled

fix 6438752 = enabled

fix 5936366 = enabled

fix 6439032 = enabled

fix 6438892 = enabled

fix 6006300 = enabled

fix 5947231 = enabled

fix 5416118 = 1

fix 6365442 = 1

fix 6239039 = enabled

fix 6502845 = enabled

fix 6029469 = enabled

fix 5919513 = enabled

fix 6057611 = enabled

fix 6469667 = enabled

fix 6608941 = disabled

fix 6368066 = enabled

fix 6329318 = enabled

fix 6656356 = enabled

fix 6671155 = enabled

fix 6694548 = enabled

fix 6688200 = enabled

fix 6612471 = enabled

fix 6708183 = disabled

fix 6326934 = enabled

fix 6520717 = disabled

fix 6714199 = enabled

fix 6681545 = enabled

fix 6167716 = enabled

fix 6674254 = enabled

fix 6468287 = enabled

fix 6503543 = enabled

fix 6120483 = enabled

fix 6626018 = disabled

fix 6771838 = enabled

fix 6778642 = enabled

fix 6776808 = enabled

fix 6766962 = enabled

fix 6699059 = disabled

fix 5468809 = enabled

fix 6917633 = enabled

fix 6748058 = enabled

fix 4444536 = disabled

fix 5475051 = enabled

fix 6987082 = disabled

fix 7132036 = enabled

fix 6982954 = enabled

fix 7155968 = enabled

fix 6686762 = enabled

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PARAMETERS IN OPT\_PARAM HINT

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Column Usage Monitoring is ON: tracking level = 1

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Considering Query Transformations on query block SEL$1 (#0)

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Query transformations (QT)

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CBQT bypassed for query block SEL$1 (#0): no complex view or sub-queries.

CBQT: Validity checks failed for 7wfpkrpzfphqm.

CSE: Considering common sub-expression elimination in query block SEL$1 (#0)

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Common Subexpression elimination (CSE)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

CSE: CSE not performed on query block SEL$1 (#0).

OBYE: Considering Order-by Elimination from view SEL$1 (#0)

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Order-by elimination (OBYE)

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OBYE: OBYE bypassed: no order by to eliminate.

JE: Considering Join Elimination on query block SEL$1 (#0)

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Join Elimination (JE)

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\*\*\* 2009-08-16 13:51:15.125

SQL:\*\*\*\*\*\*\* UNPARSED QUERY IS \*\*\*\*\*\*\*

SELECT /\*+ USE\_NL ("TB") \*/ COUNT(\*) "COUNT(\*)" FROM "UWCLASS"."TA" "TA","UWCLASS"."TB" "TB" WHERE "TA"."COL1"="TB"."COL1"

Query block SEL$1 (#0) unchanged

CVM: Considering view merge in query block SEL$1 (#0)

CNT: Considering count(col) to count(\*) on query block SEL$1 (#0)

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Count(col) to Count(\*) (CNT)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

CNT: COUNT() to COUNT(\*) not done.

JE: Considering Join Elimination on query block SEL$1 (#0)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Join Elimination (JE)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

SQL:\*\*\*\*\*\*\* UNPARSED QUERY IS \*\*\*\*\*\*\*

SELECT /\*+ USE\_NL ("TB") \*/ COUNT(\*) "COUNT(\*)" FROM "UWCLASS"."TA" "TA","UWCLASS"."TB" "TB" WHERE "TA"."COL1"="TB"."COL1"

Query block SEL$1 (#0) unchanged

query block SEL$1 (#0) unchanged

Considering Query Transformations on query block SEL$1 (#0)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Query transformations (QT)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

CBQT bypassed for query block SEL$1 (#0): no complex view or sub-queries.

CBQT: Validity checks failed for 7wfpkrpzfphqm.

CSE: Considering common sub-expression elimination in query block SEL$1 (#0)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Common Subexpression elimination (CSE)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

CSE: CSE not performed on query block SEL$1 (#0).

SU: Considering subquery unnesting in query block SEL$1 (#0)

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Subquery Unnest (SU)

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SJC: Considering set-join conversion in query block SEL$1 (#0)

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Set-Join Conversion (SJC)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

SJC: not performed

JE: Considering Join Elimination on query block SEL$1 (#0)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Join Elimination (JE)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

SQL:\*\*\*\*\*\*\* UNPARSED QUERY IS \*\*\*\*\*\*\*

SELECT /\*+ USE\_NL ("TB") \*/ COUNT(\*) "COUNT(\*)" FROM "UWCLASS"."TA" "TA","UWCLASS"."TB" "TB" WHERE "TA"."COL1"="TB"."COL1"

Query block SEL$1 (#0) unchanged

**PM: Considering predicate move-around in query block SEL$1** (#0)

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Predicate Move-Around (PM)

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PM: PM bypassed: Outer query contains no views.

PM: PM bypassed: Outer query contains no views.

query block SEL$1 (#0) unchanged

FPD: Considering simple filter push in query block SEL$1 (#0)

"TA"."COL1"="TB"."COL1"

try to generate transitive predicate from check constraints for query block SEL$1 (#0)

finally: "TA"."COL1"="TB"."COL1"

apadrv-start sqlid=9095778924376015571

:

call(in-use=472, alloc=16360), compile(in-use=45132, alloc=49036), execution(in-use=1992, alloc=4060)

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Peeked values of the binds in SQL statement

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Final query after transformations:\*\*\*\*\*\*\* UNPARSED QUERY IS \*\*\*\*\*\*\*

SELECT /\*+ USE\_NL ("TB") \*/ COUNT(\*) "COUNT(\*)" FROM "UWCLASS"."TA" "TA","UWCLASS"."TB" "TB" WHERE "TA"."COL1"="TB"."COL1"

kkoqbc: optimizing query block SEL$1 (#0)

:

call(in-use=504, alloc=16360), compile(in-use=45968, alloc=49036), execution(in-use=1992, alloc=4060)

kkoqbc-subheap (create addr=0x0CCCBDE0)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

QUERY BLOCK TEXT

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

SELECT /\*+ USE\_NL(tb) \*/ COUNT(\*)

FROM ta, tb

WHERE ta.col1 = tb.col1

---------------------

QUERY BLOCK SIGNATURE

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signature (optimizer): qb\_name=SEL$1 nbfros=2 flg=0

fro(0): flg=0 objn=87744 hint\_alias="TA"@"SEL$1"

fro(1): flg=0 objn=87745 hint\_alias="TB"@"SEL$1"

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SYSTEM STATISTICS INFORMATION

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Using NOWORKLOAD Stats

CPUSPEEDNW: 1534 millions instructions/sec (default is 100)

IOTFRSPEED: 4096 bytes per millisecond (default is 4096)

IOSEEKTIM: 10 milliseconds (default is 10)

MBRC: -1 blocks (default is 8)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

BASE STATISTICAL INFORMATION

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Table Stats::

Table: TB Alias: TB

#Rows: 3499 #Blks: 121 AvgRowLen: 219.00

Index Stats::

Index: TB\_COL2 Col#: 3

LVLS: 1 #LB: 8 #DK: 6 LB/K: 1.00 DB/K: 23.00 CLUF: 140.00

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Table Stats::

Table: TA Alias: TA

#Rows: 3498 #Blks: 121 AvgRowLen: 219.00

Index Stats::

Index: TA\_COL1 Col#: 3

LVLS: 1 #LB: 8 #DK: 6 LB/K: 1.00 DB/K: 23.00 CLUF: 138.00

Access path analysis for TA

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

SINGLE TABLE ACCESS PATH

Single Table Cardinality Estimation for TA[TA]

Table: TA Alias: TA

Card: Original: 3498.000000 Rounded: 3152 Computed: 3152.00 Non Adjusted: 3152.00

Access Path: TableScan

Cost: 35.09 Resp: 35.09 Degree: 0

Cost\_io: 35.00 Cost\_cpu: 1596274

Resp\_io: 35.00 Resp\_cpu: 1596274

Access Path: index (index (FFS))

Index: TA\_COL1

resc\_io: 4.00 resc\_cpu: 498252

ix\_sel: 0.000000 ix\_sel\_with\_filters: 1.000000

Access Path: index (FFS)

Cost: 4.03 Resp: 4.03 Degree: 1

Cost\_io: 4.00 Cost\_cpu: 498252

Resp\_io: 4.00 Resp\_cpu: 498252

kkofmx: index filter:"TA"."COL1" IS NOT NULL

Access Path: index (FullScan)

Index: TA\_COL1

resc\_io: 9.00 resc\_cpu: 694493

ix\_sel: 1.000000 ix\_sel\_with\_filters: 1.000000

Cost: 9.04 Resp: 9.04 Degree: 1

Best:: AccessPath: IndexFFS

Index: TA\_COL1

Cost: 4.03 Degree: 1 Resp: 4.03 Card: 3152.00 Bytes: 0

Access path analysis for TB

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

SINGLE TABLE ACCESS PATH

Single Table Cardinality Estimation for TB[TB]

Table: TB Alias: TB

Card: Original: 3499.000000 Rounded: 3153 Computed: 3153.00 Non Adjusted: 3153.00

Access Path: TableScan

Cost: 35.09 Resp: 35.09 Degree: 0

Cost\_io: 35.00 Cost\_cpu: 1596484

Resp\_io: 35.00 Resp\_cpu: 1596484

Access Path: index (index (FFS))

Index: TB\_COL2

resc\_io: 4.00 resc\_cpu: 498392

ix\_sel: 0.000000 ix\_sel\_with\_filters: 1.000000

Access Path: index (FFS)

Cost: 4.03 Resp: 4.03 Degree: 1

Cost\_io: 4.00 Cost\_cpu: 498392

Resp\_io: 4.00 Resp\_cpu: 498392

kkofmx: index filter:"TB"."COL1" IS NOT NULL

Access Path: index (FullScan)

Index: TB\_COL2

resc\_io: 9.00 resc\_cpu: 694693

ix\_sel: 1.000000 ix\_sel\_with\_filters: 1.000000

Cost: 9.04 Resp: 9.04 Degree: 1

Best:: AccessPath: IndexFFS

Index: TB\_COL2

Cost: 4.03 Degree: 1 Resp: 4.03 Card: 3153.00 Bytes: 0

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OPTIMIZER STATISTICS AND COMPUTATIONS

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GENERAL PLANS

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Considering cardinality-based initial join order.

Permutations for Starting Table :0

**Join order[1]: TA[TA]#0 TB[TB]#1**

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**Now joining: TB[TB]#1**

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

NL Join

Outer table: Card: 3152.00 Cost: 4.03 Resp: 4.03 Degree: 1 Bytes: 7

Access path analysis for TB

Inner table: TB Alias: TB

Access Path: TableScan

NL Join: Cost: 103572.39 Resp: 103572.39 Degree: 1

Cost\_io: 103299.00 Cost\_cpu: 5032616576

Resp\_io: 103299.00 Resp\_cpu: 5032616576

Access Path: index (index (FFS))

Index: TB\_COL2

resc\_io: 2.17 resc\_cpu: 498392

ix\_sel: 0.000000 ix\_sel\_with\_filters: 1.000000

Inner table: **TB Alias: TB**

Access Path: **index (FFS)**

NL Join: Cost: 6920.37 Resp: 6920.37 Degree: 1

Cost\_io: 6835.00 Cost\_cpu: 1571428323

Resp\_io: 6835.00 Resp\_cpu: 1571428323

kkofmx: index filter:"TB"."COL1" IS NOT NULL

Access Path: index (AllEqJoinGuess)

Index: TB\_COL2

resc\_io: 1.00 resc\_cpu: 124771

ix\_sel: 0.184956 ix\_sel\_with\_filters: 0.184956

**NL Join (ordered): Cost: 3177.39 Resp: 3177.39 Degree: 1**

**Cost\_io: 3156.00 Cost\_cpu: 393777830**

**Resp\_io: 3156.00 Resp\_cpu: 393777830**

Best NL cost: 3177.39

resc: 3177.39 resc\_io: 3156.00 resc\_cpu: 393777830

resp: 3177.39 resp\_io: 3156.00 resc\_cpu: 393777830

Join Card: 3673981.000000 = = outer (3152.000000) \* inner (3153.000000) \* sel (0.369681)

Join Card - Rounded: 3673981 Computed: 3673981.00

Best:: JoinMethod: NestedLoop

Cost: 3177.39 Degree: 1 Resp: 3177.39 Card: 3673981.00 Bytes: 14

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**Best so far: Table#: 0 cost: 4.0271 card: 3152.0000 bytes: 22064**

**Table#: 1 cost: 3177.3918 card: 3673981.0000 bytes:** 51435734

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**Join order[2]: TB[TB]#1 TA[TA]#0**

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Now joining: TA[TA]#0

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

NL Join

Outer table: Card: 3153.00 Cost: 4.03 Resp: 4.03 Degree: 1 Bytes: 7

Access path analysis for TA

Inner table: TA Alias: TA

Access Path: TableScan

NL Join: Cost: 103605.44 Resp: 103605.44 Degree: 1

Cost\_io: 103332.00 Cost\_cpu: 5033551070

Resp\_io: 103332.00 Resp\_cpu: 5033551070

Access Path: index (index (FFS))

Index: TA\_COL1

resc\_io: 2.17 resc\_cpu: 498252

ix\_sel: 0.000000 ix\_sel\_with\_filters: 1.000000

Inner table: TA Alias: TA

Access Path: index (FFS)

NL Join: Cost: 6922.37 Resp: 6922.37 Degree: 1

Cost\_io: 6837.00 Cost\_cpu: 1571485434

Resp\_io: 6837.00 Resp\_cpu: 1571485434

kkofmx: index filter:"TA"."COL1" IS NOT NULL

Access Path: index (AllEqJoinGuess)

Index: TA\_COL1

resc\_io: 1.00 resc\_cpu: 124571

ix\_sel: 0.184962 ix\_sel\_with\_filters: 0.184962

NL Join (ordered): Cost: 3178.36 Resp: 3178.36 Degree: 1

Cost\_io: 3157.00 Cost\_cpu: 393272142

Resp\_io: 3157.00 Resp\_cpu: 393272142

Best NL cost: 3178.36

resc: 3178.36 resc\_io: 3157.00 resc\_cpu: 393272142

resp: 3178.36 resp\_io: 3157.00 resc\_cpu: 393272142

Join Card: 3673981.000000 = = outer (3153.000000) \* inner (3152.000000) \* sel (0.369681)

Join Card - Rounded: 3673981 Computed: 3673981.00

Outer table: TB Alias: TB

resc: 4.03 card 3153.00 bytes: 7 deg: 1 resp: 4.03

Inner table: TA Alias: TA

resc: 4.03 card: 3152.00 bytes: 7 deg: 1 resp: 4.03

using dmeth: 2 #groups: 1

SORT ressource Sort statistics

Sort width: 367 Area size: 322560 Max Area size: 64591872

Degree: 1

Blocks to Sort: 7 Row size: 18 Total Rows: 3153

Initial runs: 1 Merge passes: 0 IO Cost / pass: 0

Total IO sort cost: 0 Total CPU sort cost: 20058980

Total Temp space used: 0

SORT ressource Sort statistics

Sort width: 367 Area size: 322560 Max Area size: 64591872

Degree: 1

Blocks to Sort: 7 Row size: 18 Total Rows: 3152

Initial runs: 1 Merge passes: 0 IO Cost / pass: 0

Total IO sort cost: 0 Total CPU sort cost: 20058392

Total Temp space used: 0

SM join: Resc: 30.18 Resp: 30.18 [multiMatchCost=19.94]

SM Join

SM cost: 30.18

resc: 30.18 resc\_io: 8.00 resc\_cpu: 408196815

resp: 30.18 resp\_io: 8.00 resp\_cpu: 408196815

SM Join (with index on outer)

kkofmx: index filter:"TB"."COL1" IS NOT NULL

Access Path: index (FullScan)

Index: TB\_COL2

resc\_io: 9.00 resc\_cpu: 694693

ix\_sel: 1.000000 ix\_sel\_with\_filters: 1.000000

Cost: 9.04 Resp: 9.04 Degree: 1

Outer table: TB Alias: TB

resc: 9.04 card 3153.00 bytes: 7 deg: 1 resp: 9.04

Inner table: TA Alias: TA

resc: 4.03 card: 3152.00 bytes: 7 deg: 1 resp: 4.03

using dmeth: 2 #groups: 1

SORT ressource Sort statistics

Sort width: 367 Area size: 322560 Max Area size: 64591872

Degree: 1

Blocks to Sort: 7 Row size: 18 Total Rows: 3152

Initial runs: 1 Merge passes: 0 IO Cost / pass: 0

Total IO sort cost: 0 Total CPU sort cost: 20058392

Total Temp space used: 0

SM join: Resc: 34.10 Resp: 34.10 [multiMatchCost=19.94]

Outer table: TB Alias: TB

resc: 4.03 card 3153.00 bytes: 7 deg: 1 resp: 4.03

Inner table: TA Alias: TA

resc: 4.03 card: 3152.00 bytes: 7 deg: 1 resp: 4.03

using dmeth: 2 #groups: 1

Cost per ptn: 0.54 #ptns: 1

hash\_area: 124 (max=15770) buildfrag: 8 probefrag: 8 ppasses: 1

Hash join: Resc: 28.54 Resp: 28.54 [multiMatchCost=19.94]

HA Join

HA cost: 28.54

resc: 28.54 resc\_io: 8.00 resc\_cpu: 378071653

resp: 28.54 resp\_io: 8.00 resp\_cpu: 378071653

Best:: JoinMethod: Hash

Cost: 28.54 Degree: 1 Resp: 28.54 Card: 3673981.00 Bytes: 14

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**Best so far: Table#: 1 cost: 4.0271 card: 3153.0000 bytes: 22071**

**Table#: 0 cost: 28.5385 card: 3673981.0000 bytes:** 51435734

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

(newjo-stop-1) k:0, spcnt:0, perm:2, maxperm:2000

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**Number of join permutations tried: 2**

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Consider using bloom filter between TB[TB] and TA[TA]

join (lcdn:3153 rcdn:3152 jcdn:3673981 limit:4969128)

kkoBloomFilter: predicate (bndv:6 ndv:6) and (bndv:6 ndv:6)

kkoBloomFilter: join ndv:0 (3153) reduction:1.000317 (limit:0.500000) rejected because invalidated

(newjo-save) [0 1 ]

Trying or-Expansion on query block SEL$1 (#0)

Transfer Optimizer annotations for query block SEL$1 (#0)

id=0 froiand (index only filter) predicate="TB"."COL1" IS NOT NULL

id=0 frofkksm[i] (sort-merge/hash) predicate="TA"."COL1"="TB"."COL1"

id=0 frosand (sort-merge/hash) predicate="TA"."COL1"="TB"."COL1"

id=0 froiand (index only filter) predicate="TA"."COL1" IS NOT NULL

Final cost for query block SEL$1 (#0) - All Rows Plan:

Best join order: 2

Cost: 28.5385 Degree: 1 Card: 3673981.0000 Bytes: 51435734

Resc: 28.5385 Resc\_io: 8.0000 Resc\_cpu: 378071653

Resp: 28.5385 Resp\_io: 8.0000 Resc\_cpu: 378071653

kkoqbc-subheap (delete addr=0x0CCCBDE0, in-use=20064, alloc=22308)

kkoqbc-end:

:

call(in-use=9184, alloc=49112), compile(in-use=47540, alloc=49036), execution(in-use=1992, alloc=4060)

kkoqbc: finish optimizing query block SEL$1 (#0)

apadrv-end

:

call(in-use=9184, alloc=49112), compile(in-use=48228, alloc=49036), execution(in-use=1992, alloc=4060)

Starting SQL statement dump

user\_id=88 user\_name=UWCLASS module=SQL\*Plus action=

sql\_id=7wfpkrpzfphqm plan\_hash\_value=-344520624 problem\_type=3

----- Current SQL Statement for this session (sql\_id=7wfpkrpzfphqm) -----

SELECT /\*+ USE\_NL(tb) \*/ COUNT(\*)

FROM ta, tb

WHERE ta.col1 = tb.col1

sql\_text\_length=70

sql=SELECT /\*+ USE\_NL(tb) \*/ COUNT(\*)

FROM ta, tb

WHERE ta.col1 = tb.col1

----- Explain Plan Dump -----

----- Plan Table -----

============

Plan Table

============

------------------------------------------+-----------------------------------+

| Id | Operation | Name | Rows | Bytes | Cost | Time |

------------------------------------------+-----------------------------------+

| 0 | SELECT STATEMENT | | | | 29 | |

| 1 | SORT AGGREGATE | | 1 | 14 | | |

| 2 | HASH JOIN | | 3588K | 49M | 29 | 00:00:01 |

| 3 | INDEX FAST FULL SCAN | TB\_COL2 | 3153 | 22K | 4 | 00:00:01 |

| 4 | INDEX FAST FULL SCAN | TA\_COL1 | 3152 | 22K | 4 | 00:00:01 |

------------------------------------------+-----------------------------------+

Predicate Information:

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2 - access("TA"."COL1"="TB"."COL1")

3 - filter("TB"."COL1" IS NOT NULL)

4 - filter("TA"."COL1" IS NOT NULL)

Content of other\_xml column

===========================

db\_version : 11.1.0.7

parse\_schema : UWCLASS

plan\_hash : 3950446672

plan\_hash\_2 : 2909540827

Outline Data:

/\*+

BEGIN\_OUTLINE\_DATA

IGNORE\_OPTIM\_EMBEDDED\_HINTS

OPTIMIZER\_FEATURES\_ENABLE('11.1.0.7')

DB\_VERSION('11.1.0.7')

ALL\_ROWS

OUTLINE\_LEAF(@"SEL$1")

INDEX\_FFS(@"SEL$1" "TB"@"SEL$1" ("TB"."COL1"))

INDEX\_FFS(@"SEL$1" "TA"@"SEL$1" ("TA"."COL1"))

**LEADING(@"SEL$1" "TB"@"SEL$1"** "TA"@"SEL$1")

**USE\_HASH(@"SEL$1" "TA"@"SEL$1")**

END\_OUTLINE\_DATA

\*/