SQL Plan Operations & Options

```
select distinct operation, options from v$sql_plan union
select distinct operation, options from dba_hist_sql_plan
 order by 1, 2;
```

Only a limited subset of all operations and options can fit on this slide!

OPERATION	OPTIONS
FILTER	
COUNT	STOPKEY
INLIST ITERATOR	

OPERATION	OPTIONS
VIEW	
VIEW PUSHED PREDICATE	

OPERATION	OPTIONS
CONCATENATION	
UNION-ALL	
UNION ALL PUSHED PREDICATE	
MINUS	

OPERATION	OPTIONS
NESTED LOOPS	
NESTED LOOPS	ANTI
NESTED LOOPS	OUTER
NESTED LOOPS	SEMI
HASH JOIN	
HASH JOIN	SEMI
HASH JOIN	ANTI
HASH JOIN	ANTI NA
HASH JOIN	OUTER
HASH JOIN	FULL OUTER
HASH JOIN	RIGHT SEMI
HASH JOIN	RIGHT ANTI
HASH JOIN	RIGHT OUTER
HASH JOIN	BUFFERED
HASH JOIN	OUTER BUFFERED
HASH JOIN	RIGHT OUTER BUFFERED
JOIN FILTER	CREATE
JOIN FILTER	USE
PART JOIN FILTER	CREATE
MERGE JOIN	
MERGE JOIN	ANTI
MERGE JOIN	CARTESIAN
MERGE JOIN	OUTER
MERGE JOIN	SEMI
SORT	JOIN
BUFFER	SORT
BUFFER	SORT (REUSE)

OPERATION	OPTIONS
TABLE ACCESS	FULL
TABLE ACCESS	BY INDEX ROWID
TABLE ACCESS	BY INDEX ROWID BATCHED
TABLE ACCESS	BY LOCAL INDEX ROWID
TABLE ACCESS	BY LOCAL INDEX ROWID BATCHED
TABLE ACCESS	BY GLOBAL INDEX ROWID BATCHED
TABLE ACCESS	BY USER ROWID

OPERATION	OPTIONS
FAST DUAL	
XMLTABLE EVALUATION	
RESULT CACHE	
SEQUENCE	
FIXED TABLE	FULL
EXTERNAL TABLE ACCESS	FULL
COLLECTION ITERATOR	PICKLER FETCH

OPERATION	OPTIONS
PARTITION RANGE	SINGLE
PARTITION RANGE	ITERATOR
PARTITION RANGE	ALL
PARTITION RANGE	AND
PARTITION RANGE	SUBQUERY
PARTITION LIST	SINGLE
PARTITION LIST	ITERATOR
PARTITION LIST	ALL
PARTITION LIST	SUBQUERY
PARTITION HASH	SINGLE
PARTITION HASH	INLIST
PARTITION HASH	ALL
PARTITION HASH	SUBQUERY

OPERATION	OPTIONS
INDEX	UNIQUE SCAN
INDEX	RANGE SCAN
INDEX	RANGE SCAN DESCENDING
INDEX	RANGE SCAN (MIN/MAX)
INDEX	FULL SCAN
INDEX	FAST FULL SCAN
INDEX	FULL SCAN (MIN/MAX)
INDEX	SAMPLE FAST FULL SCAN
INDEX	SKIP SCAN

OPERATION	OPTIONS
BITMAP INDEX	SINGLE VALUE
BITMAP INDEX	RANGE SCAN
BITMAP INDEX	FULL SCAN
BITMAP INDEX	FAST FULL SCAN
BITMAP AND	
BITMAP OR	
BITMAP MERGE	
BITMAP MINUS	
BITMAP CONVERSION	FROM ROWIDS
BITMAP CONVERSION	TO ROWIDS

OPERATION	OPTIONS
HASH	UNIQUE
HASH	GROUP BY
HASH	GROUP BY PIVOT
SORT	UNIQUE
SORT	UNIQUE STOPKEY
SORT	GROUP BY
SORT	GROUP BY NOSORT
SORT	GROUP BY ROLLUP
SORT	ORDER BY
SORT	ORDER BY STOPKEY
WINDOW	BUFFER
WINDOW	SORT
WINDOW	SORT PUSHED RANK
WINDOW	CHILD PUSHED RANK

OPERATION	OPTIONS
PX COORDINATOR	
PX BLOCK	ITERATOR
PX RECEIVE	
PX SEND	QC (ORDER)
PX SEND	QC (RANDOM)
PX SEND	BROADCAST
PX SEND	HASH
PX SEND	HYBRID HASH
PX SEND	RANGE
PX SEND	ROUND-ROBIN

OPERATION	OPTIONS
CONNECT BY	NO FILTERING WITH START-WITH
CONNECT BY	WITH FILTERING
CONNECT BY	WITH FILTERING (UNIQUE)
CONNECT BY	WITHOUT FILTERING
CONNECT BY PUMP	
UNION ALL (RECURSIVE WITH)	DEPTH FIRST
UNION ALL (RECURSIVE WITH)	BREADTH FIRST
RECURSIVE WITH PUMP	