Visual SQL Tuning
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Creating Diagrams

1. Pick any table in query and draw a node to represent it
2. Look for joins to this table's PK / UK
   a. Draw down arrow into this node and create node for joined table at top of arrow.
3. Look for joins from current table to PK/UK of another table
   a. Draw down arrow from this node and create node for joined table at bottom of arrow
4. Repeat until all tables on diagram
5. Fill in Filter and Join Ratios
   a. Filter Ratio = % of table rows returned after filter applied
   b. Join Ratio = How many rows returned for every 1 row in joined table
   c. Asterisk by filter ratio when always will return 1 row

Interpreting Diagrams

1. Start with table with best (smallest) filter ratio
2. Drive through full, unique indexes downward as far as possible, choosing nodes with best filter ratios first
3. Only when necessary, drive up diagram links through full, non-unique FK indexes
4. All other things being equal, choose path that will get you to lower filter ratios sooner

Somewhat Common Exceptions

- Filter to Exactly 1 Row
  - These can be done out of order, cross joining the results
- Detail Join Ratios Near 1
  - Don't have to follow down-first guideline. Go in whatever direction to get to next best filter ratio
- Filter Ratios Almost Equal
  - Drive to a slightly higher filter ratio first if it will lead to a much lower filter ratio

Resources / Additional Reading

- SQL Tuning by Dan Tow - http://amzn.com/0596005733
- Articles on Join Types
  - Jonathan Lewis:
    - http://jonathanlewis.wordpress.com/2010/08/09/joins-nlj/
    - http://jonathanlewis.wordpress.com/2010/08/10/joins-hj/
    - http://jonathanlewis.wordpress.com/2010/08/15/joins-mj/
  - Tanel Poder:
    - http://tech.e2sn.com/oracle/sql/the-fundamental-difference-between-nested-loops-and-hash-joins

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"If you don't have time to do it right, when will you have time to do it over?" - John Wooden