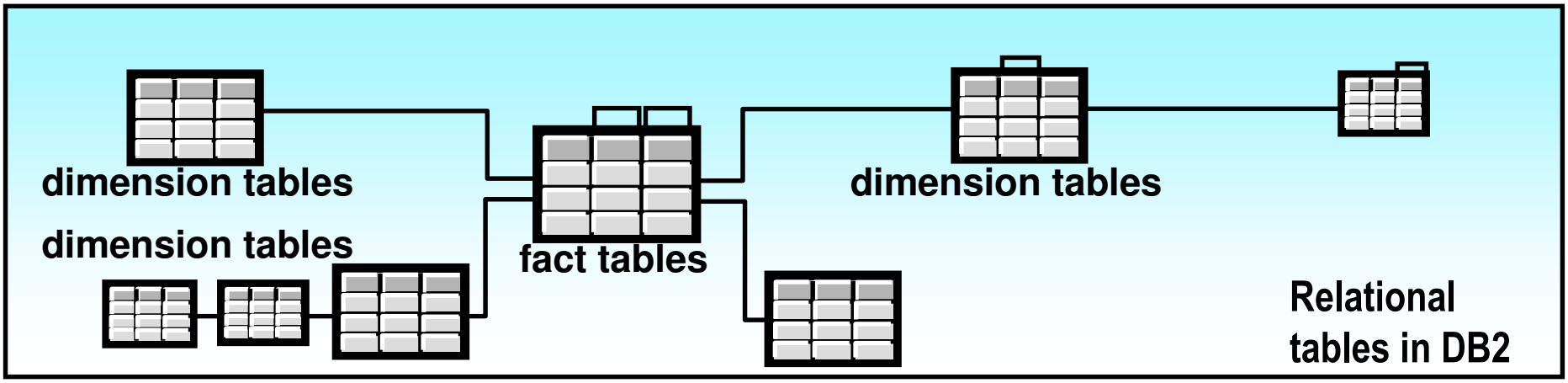
IBM Software Group

DB2's New OLAP Subsystem "Cube Views"

DB2 Data Management Software

e business software

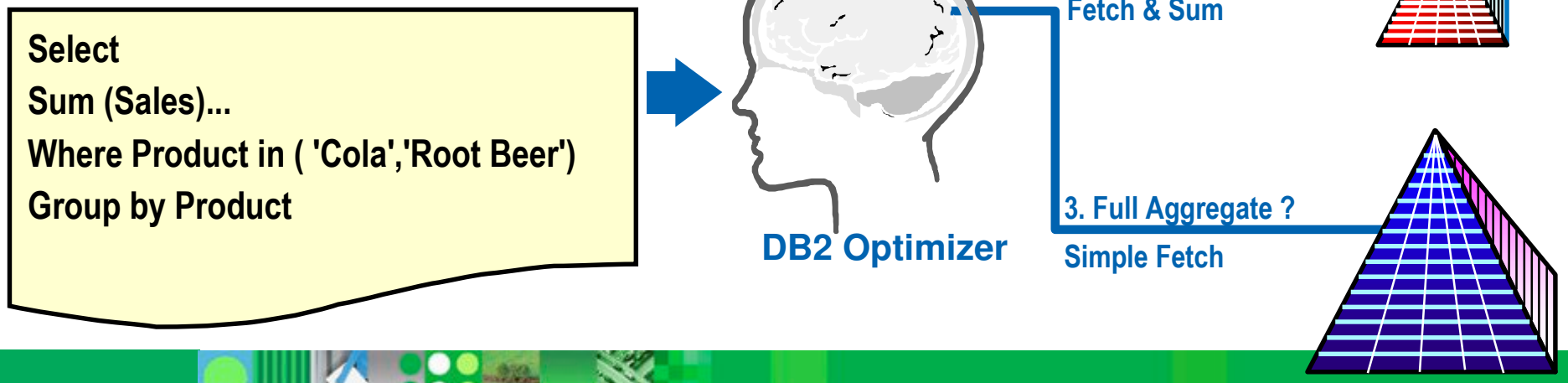
Star Schema -- very nice, but not perfect?



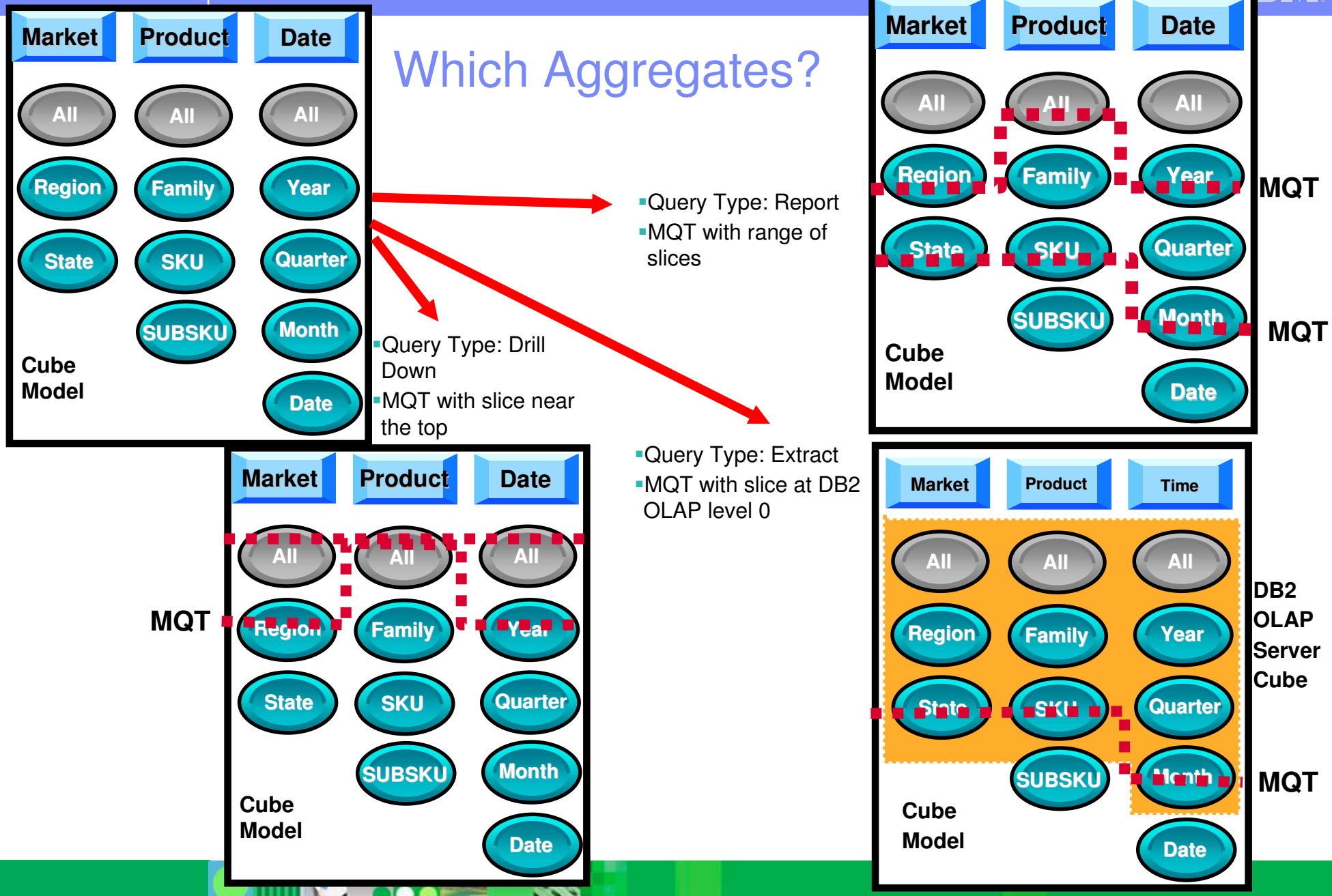
- Challenges:
  - Usage:
    - Need to "understand" facts/formulas, dimensions, hierarchies
    - Need to "feed" tools (MSTR, BOBJ, COGN, MOLAP)
  - Performance:
    - Need superb indexing
    - Need pre-built aggregates
    - Need effective optimization

Think about using MQT's

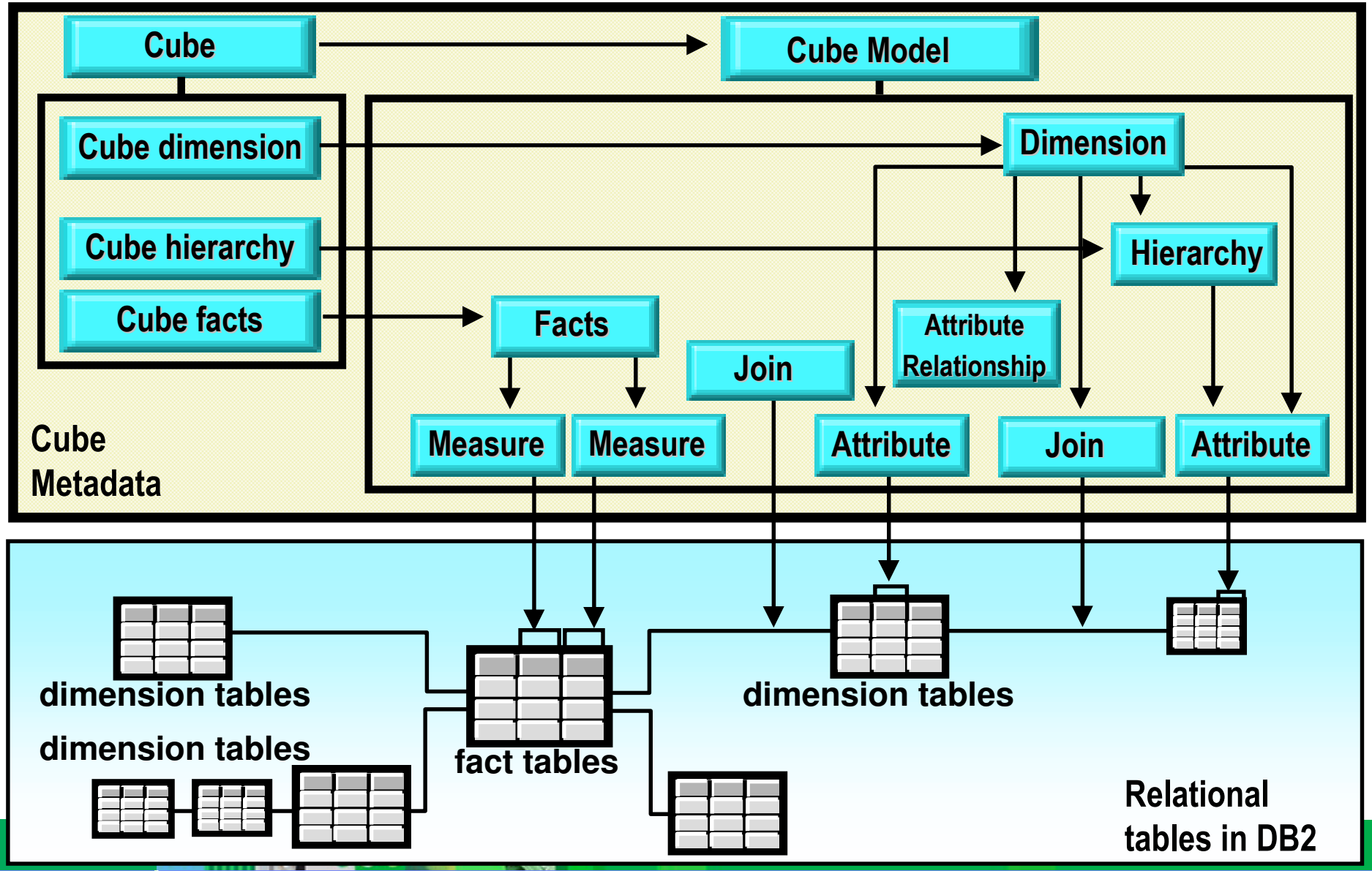
- Materialized Query Tables
  - Database managed tables for
    - Aggregates
    - Join elimination
  - Optimizer **transparently** rewrites incoming queries
  - Cost based optimization
  - Capable of exploiting both full and partial matches
  - All tools and applications benefit **unchanged**



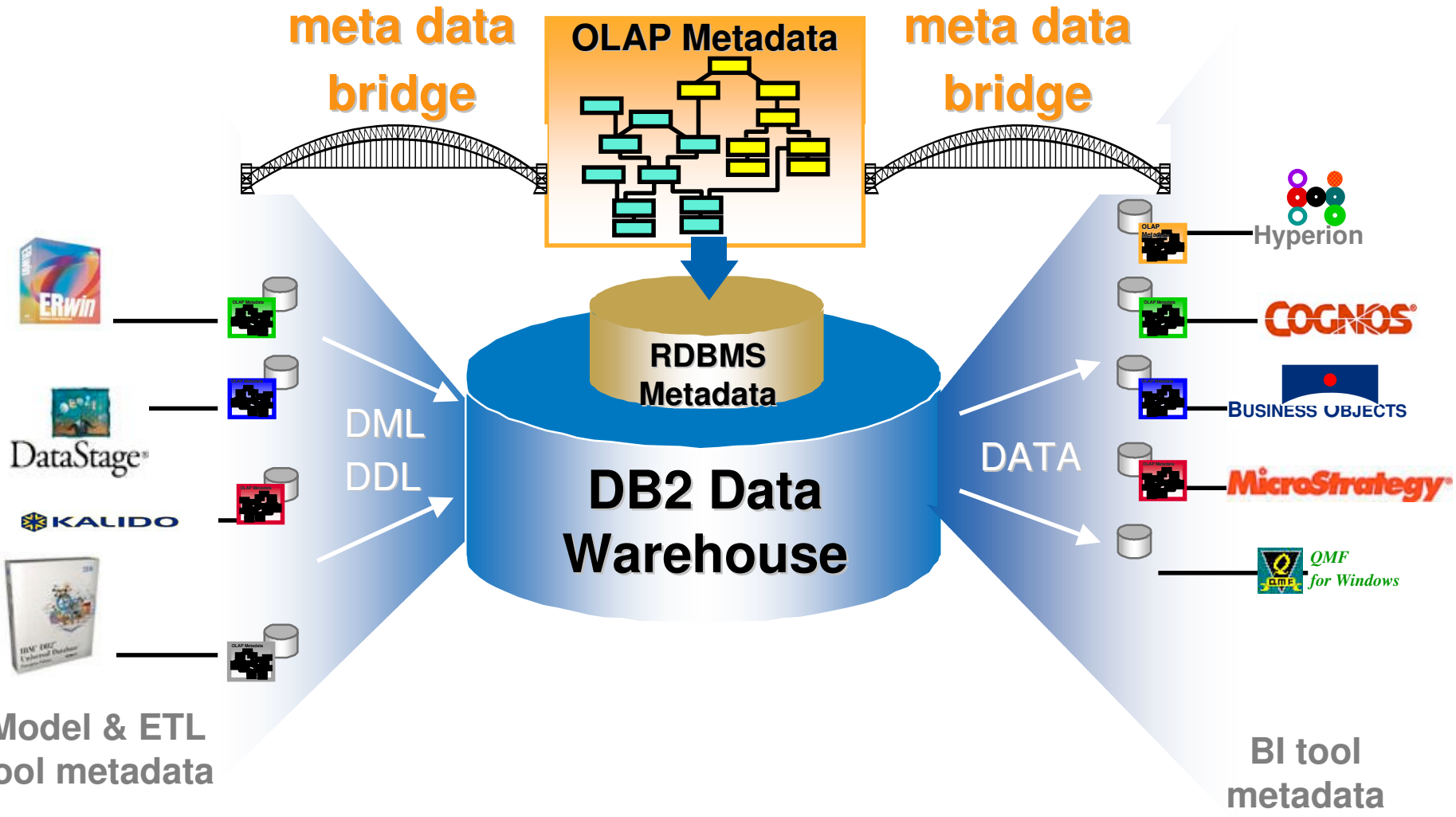
Which Aggregates?



First -- Add a "Layer" of Understanding



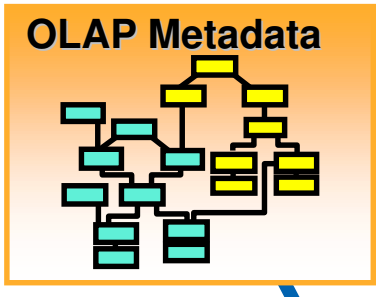
Second, Share the Understanding



Third, Build the Best Possible MQT's

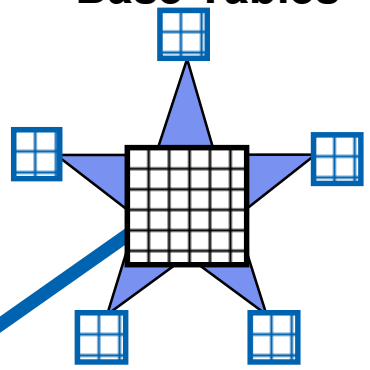
Administrator

Metadata Layer



Catalog Tables

Base Tables



Model Information

Statistics

Time & Space constraints

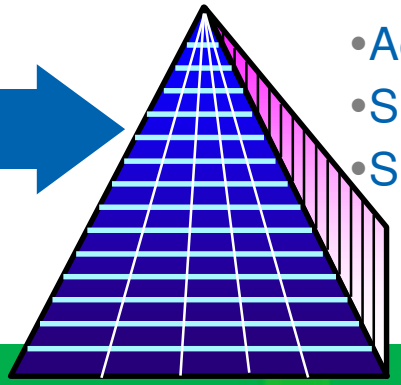
Access Patterns

Data Samples

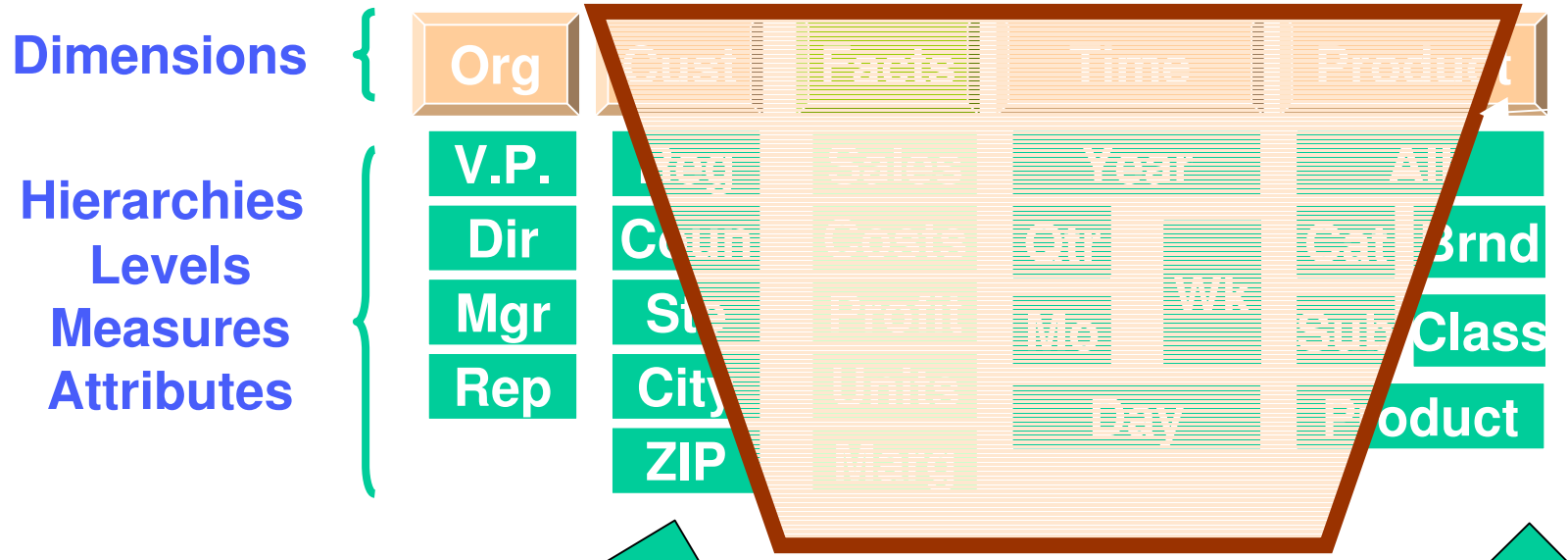
Performance Advisor

MQT's

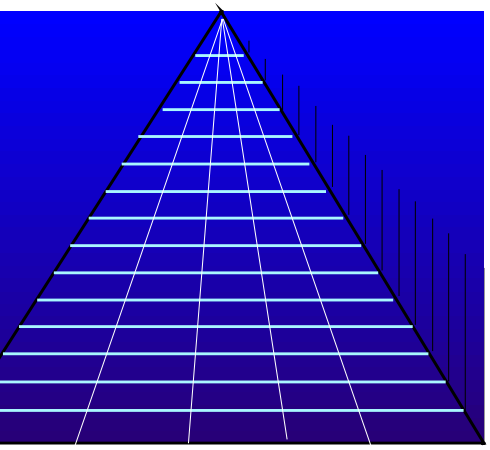
- Groups
- Aggregates
- Super Groups
- Super Aggregates



Cube Model Complexity Impacts the MQT

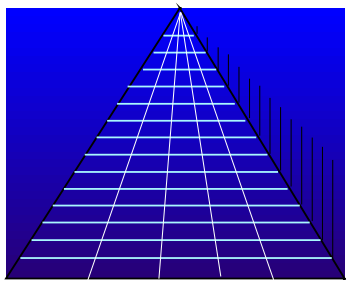


Time, Space & Measure Considerations



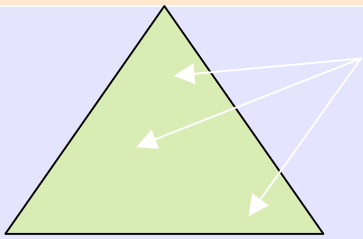
- More Disk
- Longer Refresh
- More Reroute
- Typical for Non-Distributive Measures

- Less Disk
- Shorter Refresh
- Less Reroute
- Typical for Distributive Measures

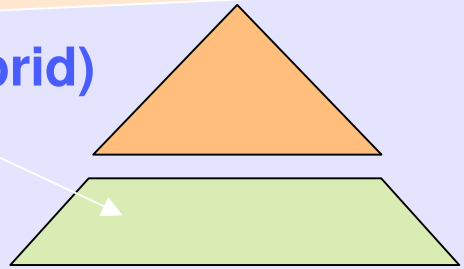


Query Type: Impact on MQT

Report Style (Ad-hoc Queries)

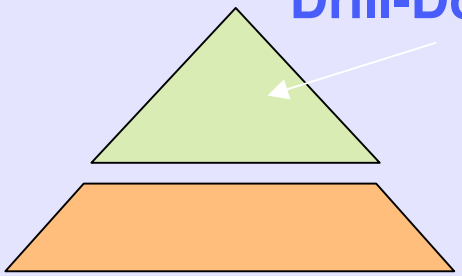


Drill-Through Style (Hybrid)

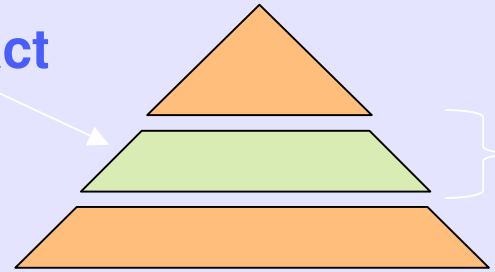


Full Cube Model

Drill-Down Style (OCA)



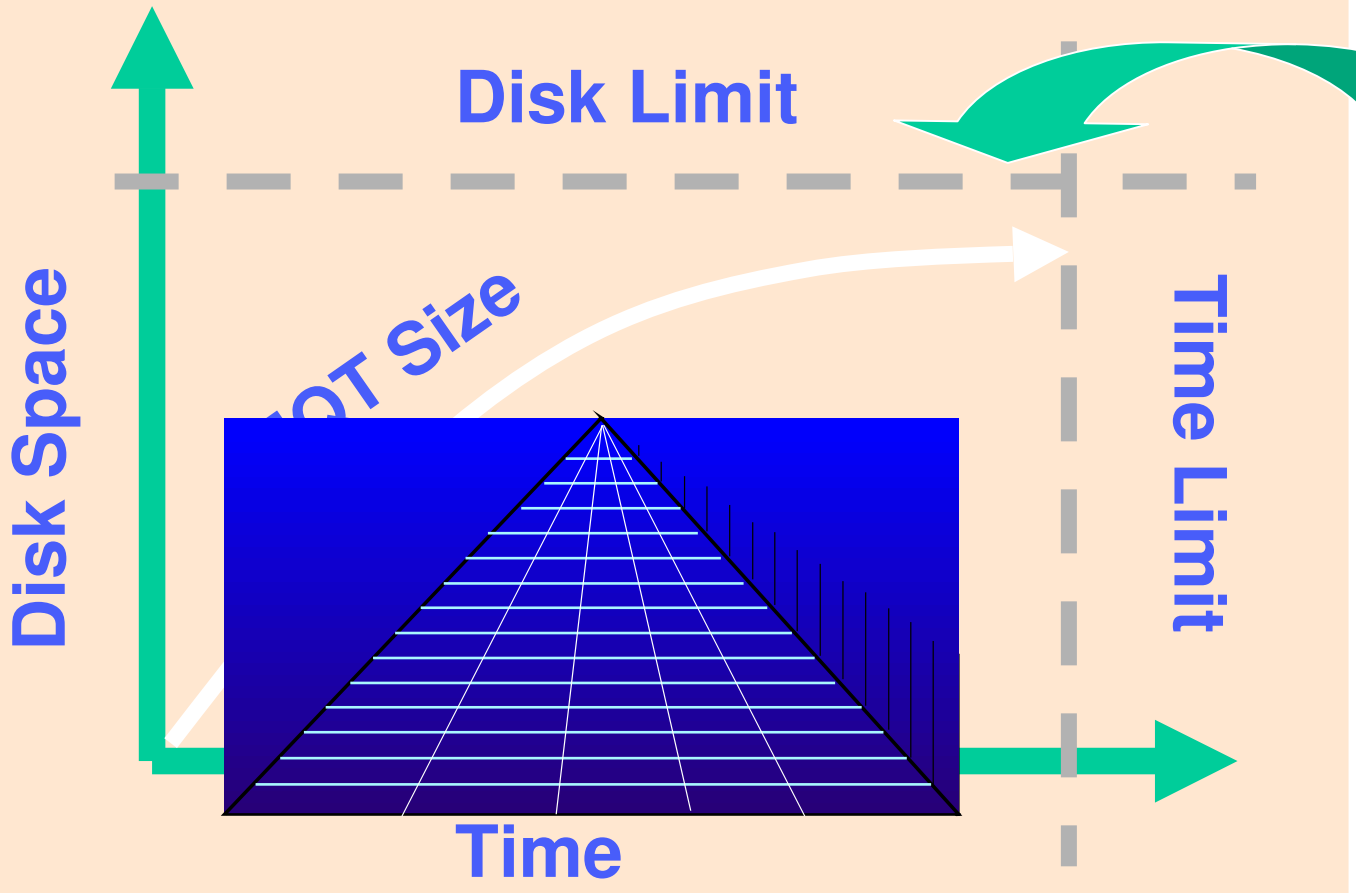
Extract



Optimized Region

Take care to choose the correct query style when using the Performance Advisor.

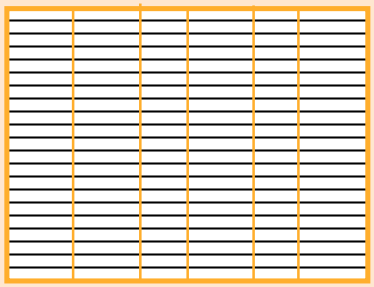
Disk Space and Time Implications for the MQT



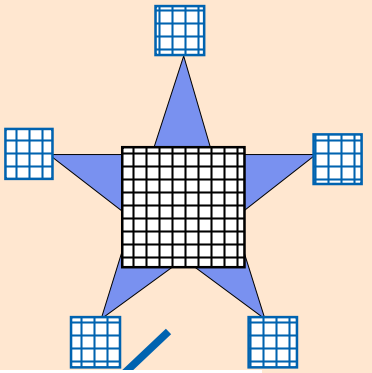
Constrain MQT size to 10% size of Fact Table

Data Impact on the MQT

Catalog Tables



Base Tables



Statistics

Data Samples

Table Size, Columns, Types, etc.

Cube Views Performance Advisor

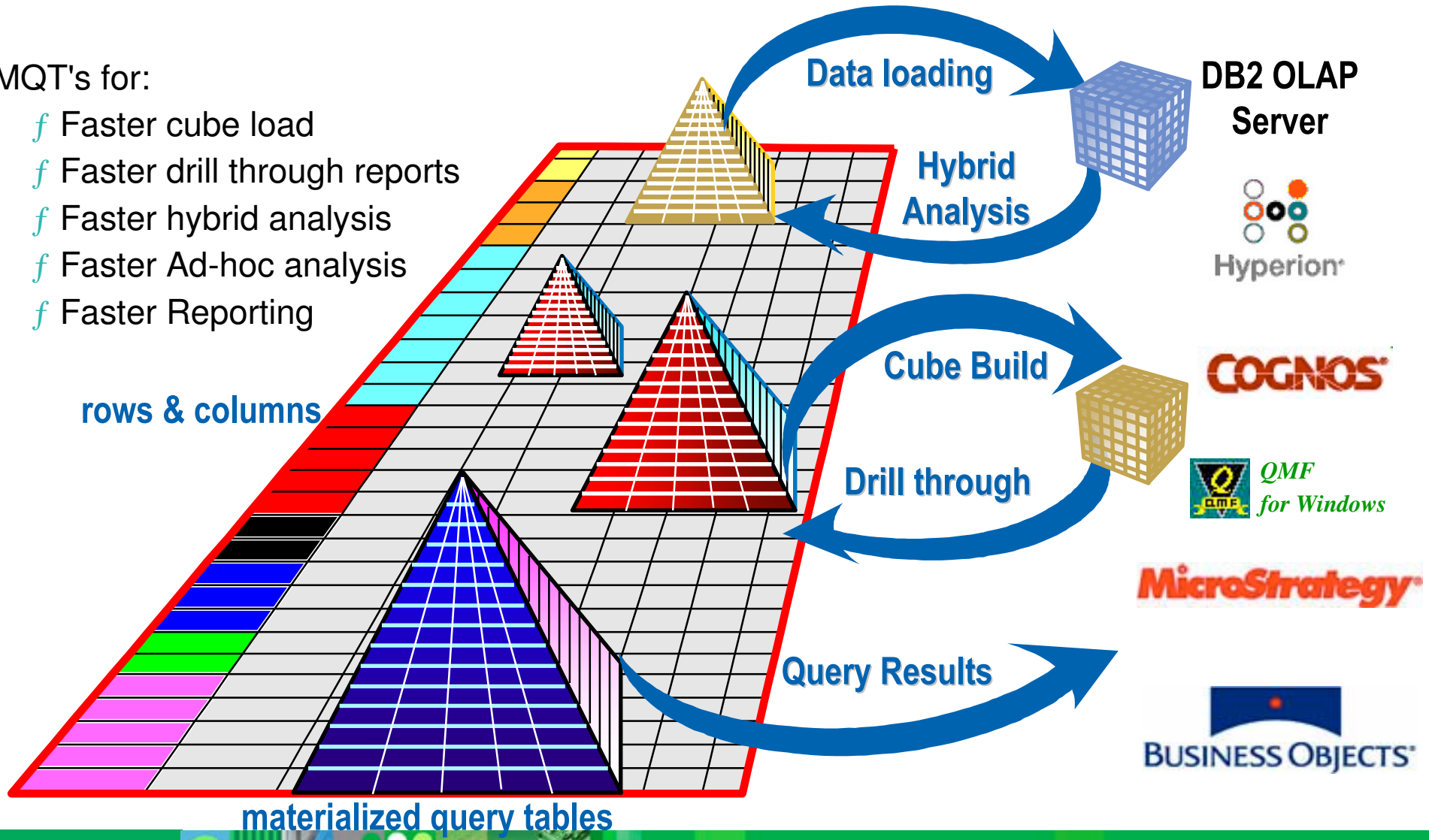
Data Skew, Fan-Out, Cardinality, etc.

Favor Sampling when Available

Don't Forget RUNSTATS!!!

Fourth, Use the MQT's -- as much as Possible!

- MQT's for:
  - Faster cube load
  - Faster drill through reports
  - Faster hybrid analysis
  - Faster Ad-hoc analysis
  - Faster Reporting



Improvements When Matching Many MQTs (FP5)