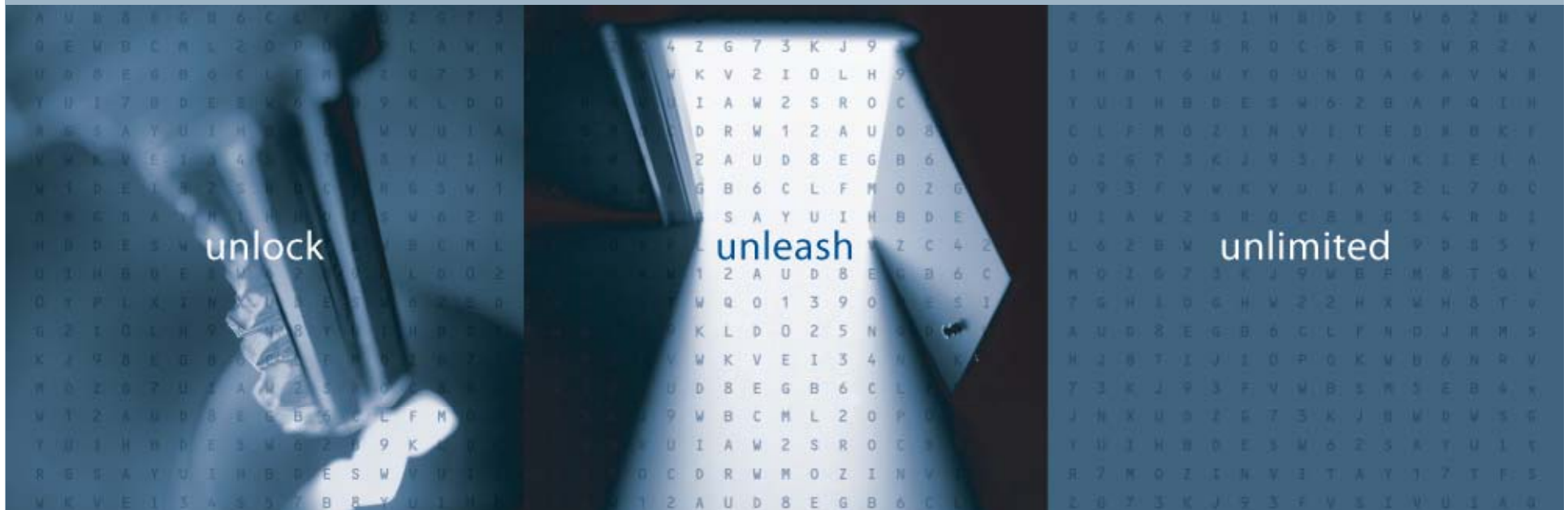


Session #1125A

But How Do I Make It Go Faster?

(May 2008 revision)

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Optimize your environment in these areas:

- The database(s) being queried
- The network configuration
- The server hardware used by the Hyperion software
- Hyperion server tuning
- The client hardware
- Hyperion Intelligence / Hyperion Interactive Reporting documents
 - The BQY file itself
 - The DAS use of the BQY file
 - Creative Job Scheduling

Important Notes:

- The tips in this presentation are offered as general guidelines and idea suggestions. Not all tips will apply to your specific implementation.
- No attempt has been made to provide a complete listing of optimization techniques. I have listed the ones that have provided the biggest impact in the customer implementations in which I have personally been involved.
- Some of these tips are mutually exclusive, so do NOT expect to use all of them.
- This May 2008 update adds new tips based on the added capabilities available in v9.3.1 and in the Oracle BI Server (which can be used as an ODBC “data source” for BQY documents).

Consider using one or more of the following:

- Use a separate reporting database
- Use a denormalized database schema (except with Teradata)
- Create adequate field indexes
- Use all appropriate database server software optimizations
- Use appropriate disk storage optimization techniques
- Select appropriate database technology
 - Consider using the Oracle BI Server as a query optimizer
 - Aggregate Navigation, Intelligent Query Caching and Function Shipping
 - Consider using Hyperion Essbase as a query optimizer
 - Use the 80-20 rule to shield the transactional database from global queries
 - Use Hyperion Essbase Hybrid Analysis to send only focused queries to the relational store

Consider using one or more of the following:

- Place all associated servers on a single, high-speed backbone
 - Hyperion System 9 server
 - Web server
 - Database server
- Use a dedicated Web server and dedicated database servers
- Check for throughput bottlenecks
- Eliminate shared network connections
- Update any old network equipment

Consider using one or more of the following:

- Beef up the Hyperion server hardware
 - More CPUs
 - More RAM
 - Faster, wider disks
 - Faster system bus
 - Appropriate use of RAID
- Place the Hyperion software on dedicated machines
- Place the DAS and BIService on dedicated machines
- Replicate appropriate services such as DAS and BIService

Consider using one or more of the following:

- Improve the quality of the network cables
- Improve the speed of the network connection
- Check for adequate operational hardware
 - Minimum of 1 MB of video RAM
 - Dedicated video RAM (not shared)
 - Sufficient processor RAM to avoid disk swapping
- Set Windows virtual memory so initial = max to create a permanent swap file
 - Right-click “My Computer” and select “Properties”
 - In the “Advanced” tab, click on “Performance Options”
 - In the “Virtual memory” area, click on “Change...”
 - General Rule – Set to two times the physical RAM

Concentrate on three basic areas to minimize:

- Size of the BQY file itself
- Amount of query processing
- Amount of local re-calculation processing

To make BQYs *open* faster:

- Reduce the BQY file size
 - Delete unused sections
 - Use table sections instead of multiple queries
 - Use summary data functions on all facts in the query (when appropriate)
 - Replace all BMP image files with PNG, GIF or JPEG equivalents
 - Save the BQY in Compressed mode
 - For BQYs with many images (including long Report sections with Page Header images), upgrade to v9.3.1 and use the new Resource Manager
- Use Drill-to-Detail to avoid fetching lots of data for drilling
 - Set a topic or meta topic as a dimension
 - Turn on the Drill-to-Detail option
 - Create a query and change the data function of the facts to be an appropriate summary function (SUM, AVG, MAX, etc.)

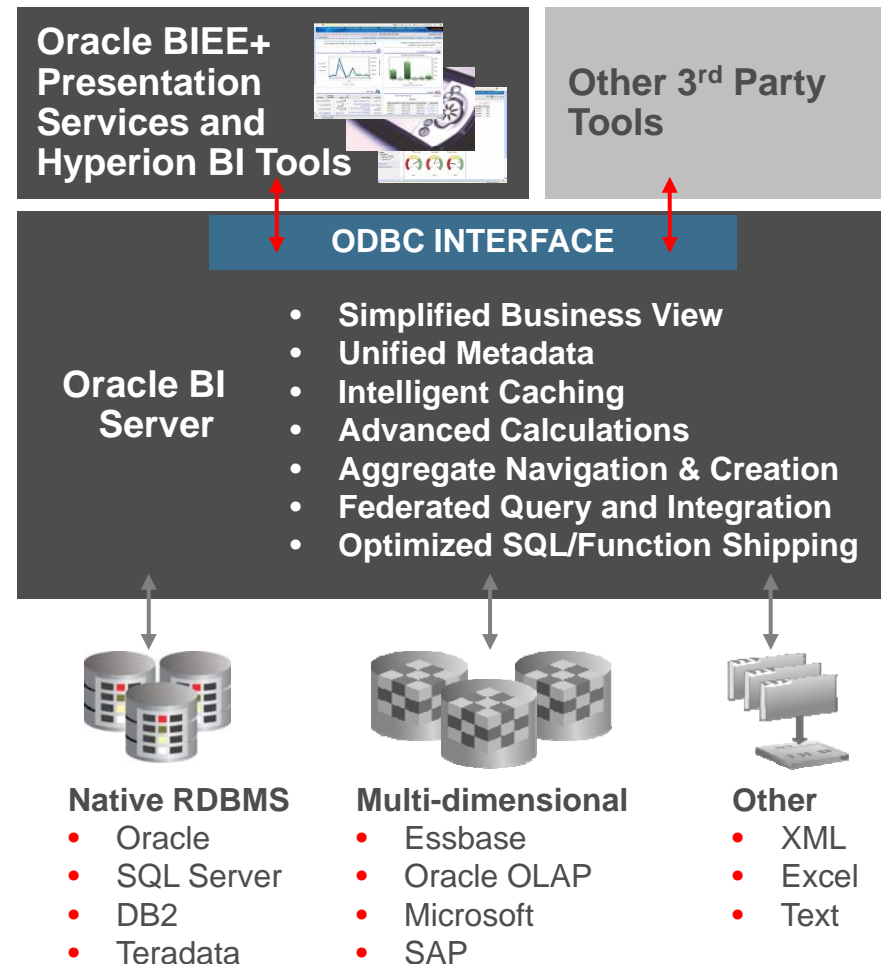
To make BQYs *operate* faster:

- Schedule long running queries rather than have each user process them
- Use Table sections with local filters instead of multiple queries
- Consider using Hyperion Essbase Hybrid Analysis
- Consider using Hyperion Production Reporting
 - Can directly output to BQD format
 - Can use as Import Data source with the Hyperion System 9 Analytic Bridge
- For v6 users, upgrade to System 9
 - Much smaller query processor task
 - Uses multi-threading and connection pooling
 - Significantly faster than Version 6
- Consider using the Oracle BI Server as a middle tier

Oracle BI Server

Simplified, Powerful, Intelligence Across Sources

- Simplified business model view
- Advanced calculation & integration engine
- Intelligent request generation and optimized, distributed data access
- Mission critical scalability and performance



To make BQYs *operate* faster:

- Optimize the list of values in Variable Limits
 - When Variable Limits value lists are static
 - Replace “Show Values” with a custom list (Select All, Transfer)
 - When Variable Limit value lists are dynamic
 - Use Lookup setting in OMI to point to lookup table, or...
 - Use a separate “limit values” query with a Dashboard section
- Optimize the topic order in all Query sections
- Use pre- and post-process audit events to control the query optimization plan
- Consider using database hints (see your DBA first)
 - Create a Computed Item as the FIRST field in the query’s Request line
 - Formula: `/*+<Hint> Comments */ 1`

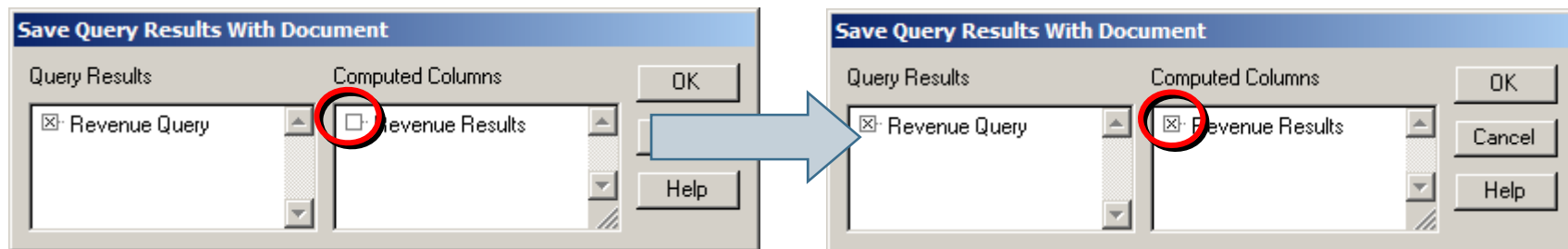
To make BQYs *operate* faster:

- Use Zero-Client mode for users on slow network connections
- Optimize the database middleware
 - Oracle: Use OCE Advanced Options to:
 - Increase the “Oracle Buffer Size” (3rd dialog box after logon)
 - ODBC: Use the OCE Advanced Options to:
 - Turn ON the “Use large buffer query mode” option
 - OLEDB: Use ODBC instead (where possible)
- For Teradata sources only:
 - Use SELECT <field> GROUP BY <field> rather than SELECT DISTINCT
 - ALWAYS use a “LOCK FOR READ” View instead of direct table access

To make BQYs *open* faster:

- Use “Snapshot” mode for all results and tables

- Problem
 - Computed Items are not saved and are being recalculated
- Solution
 - Go to Save Options and retain the values of Computed Items
- How to
 - ✓ File > Save Options > Save Query Results with Document
 - ✓ Make sure checkboxes on both sides are checked



To make BQYs *open* faster:

- Use “Snapshot” mode for all results and tables
- Only use local sorting when absolutely needed

- Problem
 - The Results and Table Sections are being sorted unnecessarily
- Solution
 - Wherever possible have the database sort the results
- How to
 - Remove Sort specifications from the BQY unless they are required
 - Readability
 - Functionally required for computations (Prior / Next)
 - Move the Sort spec from large result sets to the Sort line of the Query Section
 - Make sure appropriate database indices exist to support the sort

To make BQYs *open* faster:

- Use “Snapshot” mode for all results and tables
- Only use local sorting when absolutely needed
- Control when sections are refreshed
 - Charts and Pivots: Refresh Data options
 - Reports: Dummy limits
- Set the number of pre-gen pages for reports to 1
- Remove all BQ*.INI files from virus scanning

- Problem
 - There are too many Charts and Pivots with “Refresh After Process”
 - Each Chart / Pivot needs to be recalculated even if it not visible
- Solution
 - Refresh the visible Charts / Pivots and only when required
- How to
 - No Dashboards in the BQY
 - Use “**Refresh on Activate**”
 - Dashboard Builder Dashboards
 - Use “**Refresh... on Active Dashboard**” in the Properties (7) step
 - Other Dashboards
 - Set each Chart / Pivot to “**Refresh Manual**”
 - When dashboard Activates
 - Refresh section’s Charts / Pivots if required
 - Set to “**Refresh After Process**” to allow drill, etc.
 - When dashboard Deactivates
 - Set to “**Refresh Manual**”

To make BQYs *operate* faster:

- Separate Computed Items from Local Limits
 - Why? Every limit change will recalculate every row of every computed item column that resides in the same section
 - How:
 - Create Computed Items in the Results Section
 - Create one or more Table sections and place any local limits there
 - Build all reports, charts, and pivots from the Table section(s)
- What if you already have limits and computed items together?
 - Create appropriate Table sections, using the same field names
 - Move the local limits to the Table sections
 - Run the Optimize utility to re-host all reports, charts and pivots to use the Table sections

NOTE – Optimize can also be used for other BQY maintenance tasks

Before Re-Calc Optimization

Chart/Pivot
Parent is
Results

Hyperion - Designer - no_eis_esm.bqy

File Edit View Insert Format Results Tools Custom Window Help

Sales Results *Limit(7) Sort(0) Outliner*

Sections

- Sector Report
- State Report
- Sales Query
- Sales Results**
- Revenue by State
- Revenue by Type
- Empty Pivot
- Home.. Revenue
- Home..Count by
- Home.. Revenue
- Home..Count by
- Revenue by State
- Revenue by Type
- Sales Table

Limit	Year	Quarter	Customer Type	State	City	Category	Type
1	1998	Q1	Commercial	IL	Chicago	Internal	Internal
2	1998	Q1	Commercial	IL	Chicago	Internal	Internal
3	1998	Q1	Commercial	IL	Chicago	Internal	Internal
4	1998	Q1	Commercial	IL	Chicago	Internal	Internal
5	1998	Q1	Commercial	IL	Chicago	Internal	Internal
6	1998	Q1	Commercial	IL	Chicago	Internal	External
7	1998	Q1	Commercial	IL	Chicago	Internal	Internal
8	1998	Q1	Commercial	IL	Chicago	Internal	Internal
9	1998	Q2	Commercial	IL	Chicago	Internal	Internal
10	1998	Q2	Commercial	IL	Chicago	Internal	Internal
11	1998	Q2	Commercial	IL	Chicago	Internal	Internal
12	1998	Q2	Commercial	IL	Chicago	Internal	Internal
13	1998	Q2	Commercial	IL	Chicago	Internal	Internal
14	1998	Q3	Commercial	IL	Chicago	Internal	Internal
15	1998	Q3	Commercial	IL	Chicago	Internal	External
16	1998	Q3	Commercial	IL	Chicago	Internal	Internal
17	1998	Q4	Commercial	IL	Chicago	Internal	External
18	1999	Q1	Commercial	IL	Chicago	Internal	Internal
19	1999	Q1	Commercial	IL	Chicago	Internal	External
20	1999	Q1	Commercial	IL	Chicago	Internal	Internal
21	1999	Q2	Commercial	IL	Chicago	Internal	Internal
22	1999	Q2	Commercial	IL	Chicago	Internal	Internal

Customer Type, State, City, Year, Quarter, Category, Type, Revenue, *Cost*, *Profit*, *Yield*, *Unit Cost*, *Cost per mile*

Slow Limits

Computed
Items in
same section

A Real-Life Example

Operation	Original BQY	Optimized BQY
Open BQY	10 s	6 s
Set filter on ACFT	7 s	1 s
Set filter on 3 years	24 s	3 s
Clear all filters	10 s	2 s
TOTAL TIME:	51 s	12 s

Optimization techniques used:

- Enable Snapshot Mode
- Move limits to Table sections
- Change display parents to Table sections

Consider using one or more of the following:

- Decrease the size of the BQY file
 - Save the file *without* Results
 - Purge *all* data from the file
- Use compressed BQYs (memory is faster than disk)
- Upgrade to at least System 9
- Only use thread-safe database middleware
- Increase the DAS processing settings
 - Increase the Java Stack, Java Heap and data access settings (Read the appropriate Capacity Planning Guide for details)
 - Increase the DAS time-out setting
 - Increase network, Web server, etc. time-out settings

Dealing with DAS time-out issues

- Issue: DAS times out when returning large query results
- Solution: Add a larger DAS time-out settings (The default is 180 seconds)
- How-to:
 - Edit the web.xml file under servlet/deployment/web-inf
 - Under the tag `<servlet>` with entry `<servlet-name>DAServlet</servlet-name>`, add:

```
<init-param>  
  <param-name>DASREQ_TIMER_PARAM</param-name>  
  <param-value>180</param-value>  
</init-param>
```
 - Change the param-value to a larger value like 2400 and restart Tomcat default server (or appropriate equivalent servlet engine)

Consider using one or more of the following:

- Reduce the size of the BQY file used
 - Save the document ***without*** Results before scheduling
 - Use JavaScript code to control section generation:
 - a) Eliminate generation of report sections via dummy limit
 - b) Add an OnStartup script that removes the limit when opened
- Decrease the viewer user load by scheduling output to HTML or PDF and FTP the result to a “regular” Web server

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