



ORACLE[®]

A bit more about PGA: Avoiding ORA-04030

Mansvi Sharma



Why
PGA?

Because . . .

Ignored PGA



**Higher
resource
consumption**

**Performance
degradation**

**Risk To
Business**

Agenda

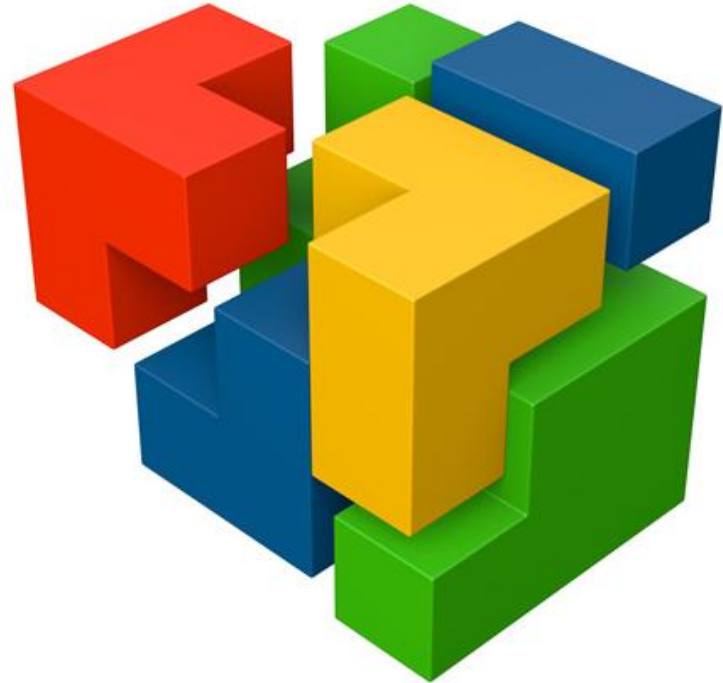
- **PGA – at a glance**
- **PGA components**
- **Tune my PGA**
- **What's new with 12c ?**
- **ORA-04030 : Reasons and Troubleshooting**

PGA: At a glance

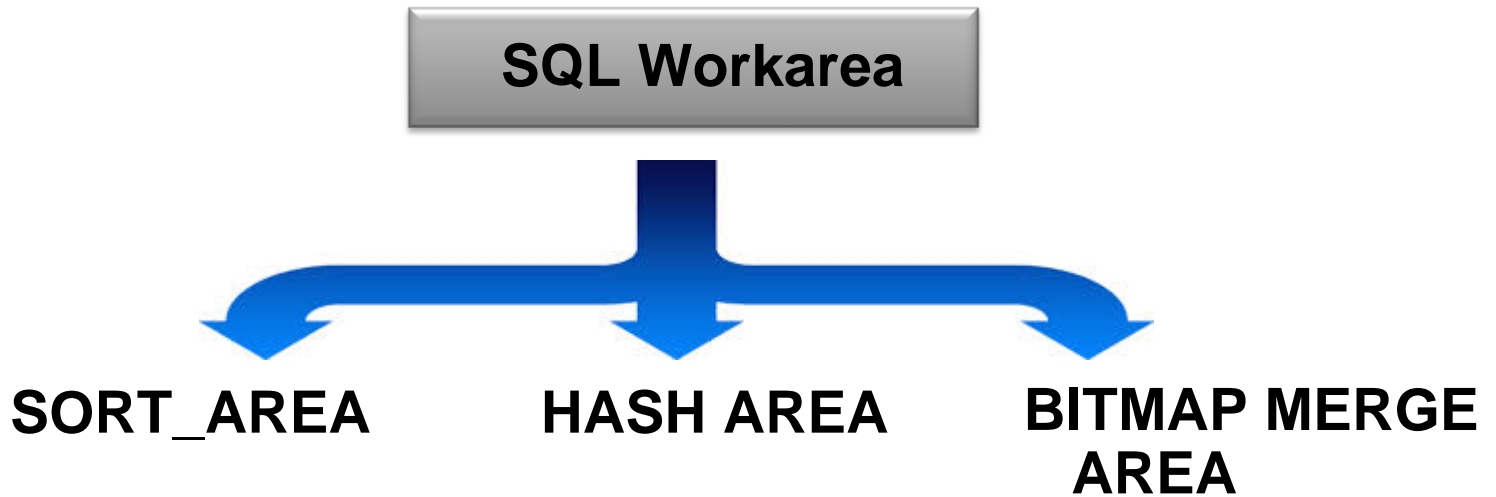


PGA Components

- **SQL Workarea**
- **Session memory**



PGA : Components



PGA Components - logically

- Tunable
- Untunable



Execution Level

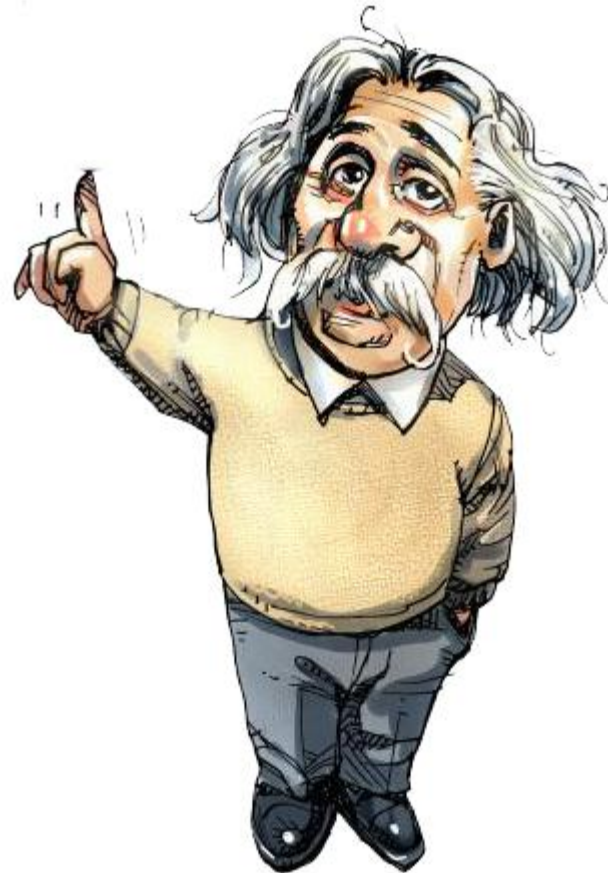
- One Pass execution
- Multipass execution



Tune PGA

- **Is my PGA set appropriately ?**
- **Over Allocation count**
- **Is memory consumption in order ?**
- **Views to be monitored**
 - **v\$sql_workarea_active**
 - **v\$sql_workarea_histogram**
 - **v\$pgastat**
 - **v\$pga_target_advice**

There's something
new with 12c !!



PGA_AGGREGATE_LIMIT (12c)

- **Untunable memory users affected**
- **Sequence of process termination**
 - **Calls for untunable memory**
 - **Currently using untunable memory**
- **Background Processes write trace**

ORA-4030



Probable reasons for ORA-04030

- **SWAP exhaustion**
- **OS limits (Ulimits)**
- **High memory usage**
- **Process map table**
- **32 bit architecture limitation**

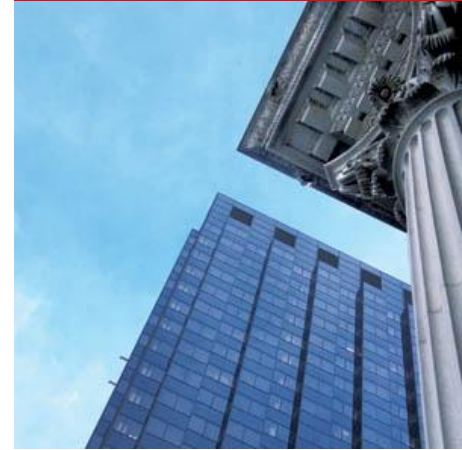
Troubleshooting ORA-04030

- **Processes consuming high memory (v\$process)**
- **Memory and SWAP configuration (Os level)**
- **Proper Ulimit settings**
- **Moving to 64 bit architecture (from 32 bit)**

Summary

- **Summary Notes (MOS) and Documentation**
 - **Note 1088267.1 Master Note for Diagnosing OS Memory Problems and ORA-4030**
 - **Note 399497.1 FAQ: ORA-4030 [Video]**
 - **Note 1520324.1 Limiting process size with PGA_AGGREGATE_LIMIT**
 - **Note 443746.1 Automatic Memory Management (AMM) on 11g**

Q & A



For any doubts/clarifications, reach me at
mansvi.sharma@oracle.com

