Using Oracle DBIM to Accelerate Analytics in the Cloud
About Me

- Kiran Tailor, Senior Enterprise Data Architect
  - Oracle Ace, Specialising in Cloud/Oracle BI/DW & Data
  - Over 18 years Experience Oracle Technology.
  - Articles for Oracle Scene Magazine.
  - Speaker (UK, US, Germany, Poland, Ireland)
  - Videos (YouTube OTNArchBeat Channel)

- Blog: https://puredba.co.uk

- Twitter: @iamkirantailor
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• Oracle ACE
• Oracle ACE Associate

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Key Points

- What was our objective?
- Oracle Cloud Infrastructure
- Provisioning
- Security
- Enabling In-Memory
- Performance

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What was our Objective?

- Comprehensive view of **all** our Operational Data.
- Information Consistency.
Why? Data Warehouse in the Cloud

<table>
<thead>
<tr>
<th></th>
<th>Oracle (Bare Metal)</th>
<th>Azure</th>
<th>AWS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI Server (IAAS)</td>
<td>36 CPU, 256GB Ram</td>
<td>64 CPU, 432 GB Ram,</td>
<td>Linux on i3.16xlarge Dedicated (64 CPU x 488GB Mem)</td>
</tr>
<tr>
<td></td>
<td>$1,950</td>
<td>$5,553</td>
<td></td>
</tr>
<tr>
<td>Database Server</td>
<td>4 CPU 512GB Ram</td>
<td>32 CPU, 256 GB Ram,</td>
<td>Linux on i2.8xlarge Dedicated (32 CPU x 244GB Mem)</td>
</tr>
<tr>
<td>Per Month</td>
<td>$6,060</td>
<td>$2,946</td>
<td>$22,300</td>
</tr>
<tr>
<td></td>
<td>$8,175</td>
<td>$8,500</td>
<td></td>
</tr>
<tr>
<td>Oracle Database</td>
<td>N/A</td>
<td>$71,183</td>
<td>$71,183</td>
</tr>
<tr>
<td>License</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Per Month</td>
<td>$8,175</td>
<td>$79,683</td>
<td>$93,483</td>
</tr>
<tr>
<td>Total 1 Year</td>
<td>$98,103</td>
<td>$956,199</td>
<td>$1,121,801</td>
</tr>
</tbody>
</table>

* Figures - September 2017

- 91%
Provisioning
Oracle Cloud Infrastructure (F.K.A Bare Metal)

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What have we built?
Database Enterprise Edition Extreme Performance

- 2 enabled OCPUs.
- 2 OCPU DB License.
- Up to 34 additional OCPU's (purchased separately).
- Database instance(s) with 512 GB RAM, 28.8 TB NVMe SSD raw, ~9.4 TB with two-way mirroring, ~5.4 TB with three-way mirroring.
Provisioning

<table>
<thead>
<tr>
<th>Database Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATABASE NAME</td>
</tr>
<tr>
<td>EDWH</td>
</tr>
<tr>
<td>DATABASE VERSION</td>
</tr>
<tr>
<td>12.2.0.1</td>
</tr>
<tr>
<td>FOR NAME (Optional)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DATABASE ADMIN PASSWORD</th>
</tr>
</thead>
<tbody>
<tr>
<td>------------------------</td>
</tr>
</tbody>
</table>
| Password must be 9 to 30 characters and contain at least 2 uppercase, 2 lowercase, 2 special, and 2 numeric characters. The special characters must be _ $ # or -.
<table>
<thead>
<tr>
<th>CONFIRM DATABASE ADMIN PASSWORD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirmation must match password above.</td>
</tr>
</tbody>
</table>

**Automatic Backup**

- Configure the service to automatically back up this database to Oracle Cloud Infrastructure Object Storage.

**Database Workload**

- **Online Transaction Processing (OLTP)**
  - Configure the database for a transactional workload, with bias towards high volumes of random data access.

- **Decision Support System (DSS)**
  - Configure the database for a decision support or data warehouse workload, with bias towards large data scanning operations.

**Hide Advanced Options**

<table>
<thead>
<tr>
<th>Character Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL32UTF8</td>
</tr>
<tr>
<td>National Character Set</td>
</tr>
<tr>
<td>AL16UTF16</td>
</tr>
</tbody>
</table>

**Launch DB System**
Oracle DataGuard
DataGuard

Enable Data Guard

PROTECTION MODE
Maximum Performance

PEER DB SYSTEM

PEER DATABASE AVAILABILITY DOMAIN
RIWS-US-ASHBURN-AD-2
Primary Database is in Availability Domain

TRANSPORT TYPE
Async.

DATABASE ADMIN PASSWORD
Password must be 9 to 30 characters and

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Backups
## Backups

<table>
<thead>
<tr>
<th>Backups</th>
<th>Displaying 32 Backups</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Backup Status]</td>
<td>![Backup Status]</td>
</tr>
<tr>
<td><strong>Automatic Backup</strong></td>
<td><strong>Automatic Backup</strong></td>
</tr>
<tr>
<td><strong>OCID:</strong> ...2rea3q</td>
<td><strong>OCID:</strong> ...upjg2q</td>
</tr>
<tr>
<td><strong>Type:</strong> Incremental</td>
<td><strong>Type:</strong> Incremental</td>
</tr>
<tr>
<td><strong>Started:</strong> Sat, 20 Oct 2018 06:27:04 GMT</td>
<td><strong>Started:</strong> Fri, 19 Oct 2018 06:28:26 GMT</td>
</tr>
<tr>
<td><strong>Ended:</strong> Sat, 20 Oct 2018 06:33:42 GMT</td>
<td><strong>Ended:</strong> Fri, 19 Oct 2018 06:35:10 GMT</td>
</tr>
</tbody>
</table>

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How it all works

SaaS Applications
- FUSION ERP US
- FUSION ERP UK

Integration
- OBIA (ETL)
- OBIEE 12C (ON-PREM)

Data Layer
- Database Cloud Service for Analytics Warehouse Bare Metal
  - DB Storage x TB
  - Storage CS x TB
  - DB Backup x TB

DR Site
- Database Cloud Service for Analytics Warehouse Bare Metal
  - DB Storage x TB
  - Storage CS x TB
  - DB Backup x TB

Move Data from On-Prem to CLOUD DB (i.e. Siebel Analytics Warehouse)

EBS (AR only) load into Analytics warehouse via OBIA

Application Access

Interne

VPN Tunnel + Fast Connect

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Public Cloud

On-Premise
Security | Data Redaction
SSO + Data Redaction
Data Redaction

BEGIN
  DBMS_REDACT.ADD_POLICY (OBJECT_SCHEMA => 'SIEBEL',
  object_name => 'W_PERSON_D', policy_name => 'PII',
  expression => 'SYS_CONTEXT("SYS_SESSION_ROLES", "PII") = "FALSE"');
END;
/

BEGIN
  DBMS_REDACT.ALTER_POLICY (OBJECT_SCHEMA => 'SIEBEL', object_name =>
  'W_PERSON_D', policy_name => 'PII', action => DBMS_REDACT.ADD_COLUMN,
  column_name => '"BIRTH_DT "', function_type => DBMS_REDACT.FULL );
END;
/
What is Data Redaction?

Policy: PPI

User with No Role: PPI

Role: PPI

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Enabling In-Memory
What is In-Memory?

```sql
SQL> select pool, alloc_bytes, used_bytes, populate_status from v$inmemory_area;

POOL   ALLOC_BYTES  USED_BYTES  POPULATE_STATUS
------- --------- --------- ---------------
1MB_POOL 8.5815E+10 1.3780E+10  DONE
64KB_POOL 2.1446E+10 90177536  DONE

```
HugePages

```
SQL> show parameter use_large_pages

<table>
<thead>
<tr>
<th>NAME</th>
<th>TYPE</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>use_large_pages</td>
<td>string</td>
<td>only</td>
</tr>
</tbody>
</table>

SQL>  
```

```
[oracle@edwh ~]$ cat /proc/meminfo | grep -i pages
AnonPages:  10030528  kB
AnonHugePages: 8069120  kB
HugePages_Total:  135349
HugePages_Free:  82214
HugePages_Rsvd:   115
HugePages_Surp:    0
Hugepagesize:      2048  kB

[oracle@edwh ~]$  
```
Enabling In-Memory (1,2,3)

SQL> show parameter INMEMORY

NAME                  TYPE    VALUE
-------------------- ------ ------------
inmemory_adg_enabled  boolean TRUE
inmemory_clause_default string
inmemory_expressions_usage string ENABLE
inmemory_force        string DEFAULT
inmemory_max_populate_servers integer 0
inmemory_query        string ENABLE
inmemory_size         big integer 0
inmemory_trickle_repopulate_servers integer 1
percent               string MANUAL
inmemory_virtual_columns string
optimizer_inmemory_aware boolean TRUE

SQL>

SQL> select name, value from v$sga;

NAME      VALUE
--------- ------------
Fixed Size     8801008
Variable Size  2634024208
Database Buffers  1627389952
Redo Buffers    24752128

alter system set inmemory_size=100G scope=spfile;
alter system set sga_target=104G scope=spfile;

Restart the database and check the values.

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# Types of Compression and Priority

<table>
<thead>
<tr>
<th>Compression</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO MEMCOMPRESS</td>
<td>PRIORITY CRITICAL</td>
</tr>
<tr>
<td>MEMCOMPRESS FOR DML</td>
<td>PRIORITY HIGH</td>
</tr>
<tr>
<td>MEMCOMPRESS FOR QUERY LOW</td>
<td>PRIORITY MEDIUM</td>
</tr>
<tr>
<td>MEMCOMPRESS FOR QUERY HIGH</td>
<td>PRIORITY LOW</td>
</tr>
<tr>
<td>MEMCOMPRESS for CAPACITY LOW</td>
<td>PRIORITY NONE</td>
</tr>
<tr>
<td>MEMCOMPRESS for CAPACITY HIGH</td>
<td></td>
</tr>
</tbody>
</table>

- **No Compression**: When Database Opened
- **Space Saving**: When First Scanned – and available Space

**Priority Critical**: Fact Tables

**Priority High**: Dimension Tables
Oracle Compression Advisor

DECLARE
  l_blkcnt_cmp PLS_INTEGER;
  l_blkcnt_uncmp PLS_INTEGER;
  l_row_cmp PLS_INTEGER;
  l_row_uncmp PLS_INTEGER;
  cmp_ratio PLS_INTEGER;
  comptype_str VARCHAR2(100);
  comp_ratio_allrows NUMBER := -1;
BEGIN
  DBMS_COMPRESSION.GET_COMPRESSION_RATIO(
    scratchtbsname => 'SCRATCH',
    ownname => 'NF_EBS',
    objname => 'PA_EMAIL',
    subobjname => NULL,
    comptype => dbms_compression.comp_inmemory_query_low,
    blkcnt_cmp => l_blkcnt_cmp,
    blkcnt_uncmp => l_blkcnt_uncmp,
    row_cmp => l_row_cmp,
    row_uncmp => l_row_uncmp,
    cmp_ratio => cmp_ratio,
    comptype_str => comptype_str,
    subset_numrows => dbms_compression.comp_ratio_allrows);
  dbms_output.Put_line('The compression ratio : ' || cmp_ratio);
  dbms_output.Put_line('The compression Type : ' || comptype_str);
END;
/
Loading and Validating

alter table W_EXPENSE_VIOLATION_F inmemory priority critical;

Select v.segment_name name, v.populate_status populate_status, v.bytes_not_populated missing_bytes from v$im_segments v order by 1;

Every 2m the daemon runs, so after a few minutes
Columnar Compression

```
select sum(v.bytes/1024/1024/1024) originalGB, sum(v.inmemory_size/1024/1024/1024) memsizeGB from v$im_segments v
```

```
SQL> / 
ORIGINALGB MEMSIZEGB 
---------- ---------- 
19.4790955 4.90284912 

SQL> 
```

Select v.segment_name name, v.bytes original, v.inmemory_size mem_size, v.bytes / v.inmemory_size ratio from v$im_segments v order by 1;

```

<table>
<thead>
<tr>
<th>NAME</th>
<th>ORIGINAL</th>
<th>MEM_SIZE</th>
<th>RATIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>W AP_BALANCE_F</td>
<td>21610496</td>
<td>10747904</td>
<td>2.01067073</td>
</tr>
<tr>
<td>W AP_XACT_F</td>
<td>433659904</td>
<td>88539136</td>
<td>4.89794597</td>
</tr>
<tr>
<td>W AR_BALANCE_F</td>
<td>1786281904</td>
<td>1158807552</td>
<td>1.54142826</td>
</tr>
<tr>
<td>W AR_XACT_F</td>
<td>3116654592</td>
<td>5183242224</td>
<td>6.01294411</td>
</tr>
<tr>
<td>W CUSTOMER_FIN_PROFL_F</td>
<td>1998848</td>
<td>1310720</td>
<td>1.525</td>
</tr>
<tr>
<td>W EXPENSE_CC_F</td>
<td>1998848</td>
<td>1310720</td>
<td>1.525</td>
</tr>
<tr>
<td>W EXPENSE_F</td>
<td>23674880</td>
<td>6553600</td>
<td>3.6125</td>
</tr>
<tr>
<td>W EXPENSE_VIOLATION_F</td>
<td>598016</td>
<td>1310720</td>
<td>0.45625</td>
</tr>
<tr>
<td>W FA_BALANCE_F</td>
<td>6127616</td>
<td>3407872</td>
<td>1.79807692</td>
</tr>
<tr>
<td>W FA_XACT_F</td>
<td>12320768</td>
<td>5505024</td>
<td>2.33809524</td>
</tr>
<tr>
<td>W GL_BALANCE_F</td>
<td>291610624</td>
<td>104267776</td>
<td>2.79674733</td>
</tr>
<tr>
<td>W GL_OTHER_F</td>
<td>6619635712</td>
<td>1007419392</td>
<td>6.57088375</td>
</tr>
<tr>
<td>W_GL_REVN_F</td>
<td>538107904</td>
<td>114950144</td>
<td>4.68122862</td>
</tr>
<tr>
<td>W_SLA_BALANCE_F</td>
<td>2809856</td>
<td>1310720</td>
<td>2.14375</td>
</tr>
<tr>
<td>W_SLA_XACT_F</td>
<td>3328294912</td>
<td>1102577664</td>
<td>3.01864895</td>
</tr>
</tbody>
</table>

15 rows selected.

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What is In-Memory?

```
select table_name, inmemory, inmemory_compression, inmemory_priority from all_tables where owner='OBIA_DW' and inmemory='ENABLED'
```

<table>
<thead>
<tr>
<th>TABLE_NAME</th>
<th>INMEMORY</th>
<th>INMEMORY_COMPRESS</th>
<th>INMEMORY_PRIORITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>W_GL_BALANCE_F</td>
<td>ENABLED</td>
<td>FOR QUERY LOW</td>
<td>CRITICAL</td>
</tr>
<tr>
<td>W_GL_OTHER_F</td>
<td>ENABLED</td>
<td>FOR QUERY LOW</td>
<td>CRITICAL</td>
</tr>
<tr>
<td>W_AR_XACT_F</td>
<td>ENABLED</td>
<td>FOR QUERY LOW</td>
<td>CRITICAL</td>
</tr>
<tr>
<td>W_EXPENSE_F</td>
<td>ENABLED</td>
<td>FOR QUERY LOW</td>
<td>CRITICAL</td>
</tr>
<tr>
<td>W_AP_XACT_F</td>
<td>ENABLED</td>
<td>FOR QUERY LOW</td>
<td>CRITICAL</td>
</tr>
<tr>
<td>W_SLA_XACT_F</td>
<td>ENABLED</td>
<td>FOR QUERY LOW</td>
<td>CRITICAL</td>
</tr>
<tr>
<td>W_FA_XACT_F</td>
<td>ENABLED</td>
<td>FOR QUERY LOW</td>
<td>CRITICAL</td>
</tr>
<tr>
<td>W_GL_REVN_F</td>
<td>ENABLED</td>
<td>FOR QUERY LOW</td>
<td>CRITICAL</td>
</tr>
<tr>
<td>W_EXPENSE_CC_F</td>
<td>ENABLED</td>
<td>FOR QUERY LOW</td>
<td>CRITICAL</td>
</tr>
<tr>
<td>W_AP_BALANCE_F</td>
<td>ENABLED</td>
<td>FOR QUERY LOW</td>
<td>CRITICAL</td>
</tr>
<tr>
<td>W_FA_BALANCE_F</td>
<td>ENABLED</td>
<td>FOR QUERY LOW</td>
<td>CRITICAL</td>
</tr>
<tr>
<td>W_AR_BALANCE_F</td>
<td>ENABLED</td>
<td>FOR QUERY LOW</td>
<td>CRITICAL</td>
</tr>
<tr>
<td>W_EXPENSE_VIOLATION_F</td>
<td>ENABLED</td>
<td>FOR QUERY LOW</td>
<td>CRITICAL</td>
</tr>
<tr>
<td>W_CUSTOMER_FIN_PROF_F</td>
<td>ENABLED</td>
<td>FOR QUERY LOW</td>
<td>CRITICAL</td>
</tr>
<tr>
<td>W_SLA_BALANCE_F</td>
<td>ENABLED</td>
<td>FOR QUERY LOW</td>
<td>CRITICAL</td>
</tr>
</tbody>
</table>

15 rows selected.
What is Current State

```
SQL> select count (*) from all_tables where inmemory='ENABLED';
    COUNT(*)
-----------
     243
SQL> 
```

```
SQL> select sum(v.bytes/1024/1024/1024) original, sum(v.inmemory_size/1024/1024/1024) memsize from v$im_segments v;
  ORIGINAL  MEMSIZE
-----------  -----------
     48.0913849 12.9179688
```
Performance
WITH SAWITH0 AS (select sum(case when T2636036.OTHER_LOC_AMT is null then 0 else T2636036.OTHER_LOC_AMT * T2636036.GLOBAL1_EXCHANGE_RATE end ) as c1,
T2636036.JOURNAL_LINE_DESCR as c2,
T2635833.CONCATENATED_SEGMENT_VALUE as c3,
T2635833.GL_ACCOUNT_CAT_CODE as c4,
T2635833.GROUP_ACCOUNT_NUM as c5,
T2635833.NATURAL_ACCOUNT_NUM as c6,
T2518265.LEDGER_NAME as c7,
T2534573.MCAL_DAY_DT as c8,
T2534573.MCAL_PERIOD_NAME as c9,
T2635833.CONCATENATED_SEGMENT_VALUE like '%.307.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.308.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.320.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.321.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.309.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.310.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.311.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.312.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.313.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.314.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.315.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.316.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.301.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.317.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.318.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.319.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.322.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.323.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.324.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.325.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.326.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.237.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.238.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.239.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.240.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.241.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.242.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.243.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.244.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.245.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.246.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.247.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.248.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.249.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.250.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.251.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.252.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.253.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.254.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.255.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.256.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.257.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.258.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.259.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.260.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.261.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.262.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.263.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.264.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.265.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.266.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.267.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.268.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.269.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.270.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.271.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.272.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.273.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.274.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.275.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.276.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.277.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.278.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.279.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.280.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.281.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.282.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.283.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.284.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.285.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.286.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.287.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.288.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.289.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.290.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.291.%' then 'Dues and Fees Revenue' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.100.%' then 'Revenue Producing Activities' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.101.%' then 'Revenue Producing Activities' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.102.%' then 'Revenue Producing Activities' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.103.%' then 'Revenue Producing Activities' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.104.%' then 'Revenue Producing Activities' when T2635833.CONCATENATED_SEGMENT_VALUE like '%.105.%'
) as c10

select c1, c2, c3, c4, c5, c6, c7, c8, c9, c10 from SAWITH0
In-Memory Disabled

In-Memory Enabled

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Performance Test

Q1

select count(T32152.ROW_WID) as c1,
T44991.AREA as c2,
T44991.BRANCH as c3,
T32152.COUNTRY as c4,
T44991.COUNTRY as c5
from
SIEBEL.W_PERSON_D T32152,
SIEBEL.W_GEO_D T32359,
SIEBEL.WC_GEO_DX T44991
where  ( T32152.GEO_WID =
T32359.ROW_WID
and T32359.ROW_WID =
T44991.ROW_WID )
group by T32152.COUNTRY,
T44991.BRANCH,
T44991.AREA, T44991.COUNTRY

Q2

select sum(case when T32781.END_DT_WID =
20501231 then 1.0 end ) as c1,
T32533.NAME as c2,
T32533.ACCNT_STATUS as c3,
T32412.X_CIMA_COMPANY_RANK as c4,
T32412.X_CIMA_CMPNY_SIZE as c5
from
SIEBEL.WC_ORG_DX T32412,
SIEBEL.W_ORG_D T32533,
SIEBEL.WC_PERSON_F T32781
where  ( T32412.ROW_WID =
T32533.ROW_WID and T32533.ROW_WID =
T32781.ACCNT_WID )
group by T32412.X_CIMA_COMPANY_RANK,
T32412.X_CIMA_CMPNY_SIZE,
T32533.ACCNT_STATUS, T32533.NAME

Q3

select count(T132637.ROW_WID) as c1,
T32348.CUST_STAT_CD as c2,
case  when T32348.CON_CD = 'Student TOC' then
'Student' else T32348.CON_CD end as c3,
T132819.STATUS_CD as c4,
T132991.X_CIMA_ORDER_TYPE as c5
from
SIEBEL.WC_ORDER_DX T132991,
SIEBEL.W_ORDER_D T132819,
SIEBEL.WC_PERSON_DX T32348,
SIEBEL.W_PERSON_D T32152,
SIEBEL.WC_ORDER_F T132637
where  ( T32152.ROW_WID = T32348.ROW_WID and
T32152.ROW_WID = T132637.CONTACT_WID and
T132637.ORDER_WID = T132819.ROW_WID and
T132819.ROW_WID = T132991.ROW_WID )
group by T32348.CUST_STAT_CD,
T132819.STATUS_CD, T132991.X_CIMA_ORDER_TYPE,
case when T32348.CON_CD = 'Student TOC' then
'Student' else T32348.CON_CD end
Performance Test Results

Oracle DB | Exalytics (Times Ten) | DBIM
---|---|---
Q1 | 359 rows | 31.25 Sec | 7 Sec | 3 Sec
Q2 | 297881 rows | 3m 17 Sec | 4 Sec | 2 Sec
Q3 | 1132 rows | 6m 14 Sec | 1m 15 Sec | 19 Sec

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Summary

• All Tables approx. (150) loaded into memory
• 1 Database to manage
• Up to 85% columnar compression
• Achieved huge performance uplift with zero application code changes
• 10x + performance improvement, in some cases much higher
• Enabled unachievable analysis, leading to greater knowledge of customers and challenges across the company
• It just works
Questions?

Thank you