Improve Performance & Comply with Sarbanes-Oxley

Meeting Compliance Requirements While Delivering Performance & Service

Presented by:
Chris Doolittle, VP Marketing
Teleran Technologies, Inc.
Agenda

- Compliance and Performance Demands
- Combining Oracle 10G Automatic Workload Repository and Teleran Usage Management to Meet Demands
- Case Studies
Compliance Challenge

- Requires changes to business process & IT systems to comply to multiple US and international regulations
- Companies must “attest” or document their compliance
- Fewer than half of US companies have or automated their compliance to any extent*
- IT plays critical role in implementing internal control frameworks that maintain integrity & confidentiality

* Note: Resources Audit Solutions Survey, DMReview, June 2005
Compliance Regulations

Sarbanes-Oxley (SOX)

- Intended to ensure integrity of financial reporting in publicly traded companies

- Section 404 requires implementing, assessing effectiveness, & reporting on “adequate internal controls” to ensure compliance

- Controls include auditing and enforcing policies associated with accessing data from which financial reporting is derived
Compliance Regulations

Gramm-Leach Bliley (GLBA)
- Regulates the use & distribution of personal financial data in financial services organizations

BASEL II
- Sets explicit standards for auditing and protecting financial data for corporations doing business in the European Market
Compliance Regulations

HIPAA

• Applies to medical providers and insurers to ensure privacy & integrity of patient medical data

Corporate Governance

• Internal corporate policies established to maintain the integrity & security of corporate data
Database Professional’s Challenge

- All these regulations have key data audit and data protection requirements
- Increases demand on database professionals
- And, performance and service level management requirements aren’t going away
- Business Mandate: Protect the application and data while maintaining expected performance and service
We Wish Users Acted Like This…
They Really Act Like This…
Compliance / Performance Imperative

Business expectations…

Compliance

Governance

Security
Compliance / Performance Imperative

Business expectations…

Compliance

Governance

Security

Performance

Service Mgmt
A combination of tools can be used to ensure compliance and protection as well as performance and service:

- Oracle 10G Automatic Workload Repository (AWR) for database performance management
- Teleran Application Usage Management audit and enforcement
Compliance and Performance Mgmt

- AWR sits inside the database
- Teleran audit and enforcement sits outside the database
- AWR is database focused
- Teleran is user focused
Automatic Workload Repository in Oracle 10g

- In the past statistics in internal DB tables were reset on instance startup
- AWR automatically stores cumulative and delta values for a wide range of statistics
- AWR Snapshot - Collection of a data set
- Defaults: one snapshot per hour; data saved for 7 days
- AWR is automatically installed and configured
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AWR Metrics

Used for diagnosis and performance tuning

- Object Statistics - Object access and usage statistics of application data segments including read and write activity and data waits
- Time-Model Statistics - Connection management, SQL statement parse, PL/SQL compilation and SQL and PL/SQL execution
- OS Statistics - CPU and memory utilization
- Wait Classes - I/O, CPU concurrency, COMMIT, and scheduler waits
AWR Metrics

Used for diagnosis and performance tuning

- SQL Statistics - CPU and elapsed SQL execution times, wait-class times, and PL/SQL Java times
- System and Session Statistics - Collected and stored in the V$SYSSTAT and V$SESSTAT dynamic performance views
- Current Session Activity - The Active Session History component of the Automatic Database Diagnostic Monitor samples recent session activity
Teleran Usage Management

- Continuously audits, manages and guides how people use applications and data
- Operates as logical mid-tier access proxy between SQL generating applications and databases
- Can reside on the same physical server as the database or on a mid-tier web or application server
Teleran Application Usage Mgmt

- What data are users looking at?
- What applications are they using?
- What inappropriate user behavior is occurring?
- How can I prevent this behavior?
- Are we in compliance?
- How can I better service business users?
Teleran Usage Auditing

**iSight™** continuously audits user activity query by query

- Captures SQL and result set metrics on the network
- Logs to any relational database on the network
- Includes out-of-the-box reports and analyses
- Audit for compliance and security
iGuard™ prevents inappropriate, unauthorized, inefficient queries before they reach the database

- Rule-based policy engine enforces compliance & privacy policies at the database object level
- Prevents user errors that decrease performance, availability & productivity
- Reduces IT support staff demands
Automated Helpdesk™ guides & alerts application users with real-time messages

- Advises users in real-time how to interact with data/application correctly & efficiently
- Automates end-user support, reducing help desk calls & minimizing training costs
- Increases end user productivity & performance
Teleran User Guidance

Automated Helpdesk message to user

```
Teleran Message to iFeingold on 9/12/05 1:10PM
You are not authorized to access quarterly financial data
```
Teleran User Guidance

Trains users, protects resources, increases user productivity

| Enforcement | “You do not have authorization to access employee salary data.” |
| Performance | “This query will run for more than 180 minutes. Please schedule your query overnight.” |
| Accuracy    | “Joining tables A and B will produce incorrect results. Try again using tables A and C.” |
| Alerts      | “A data security policy has been activated 3 times by user x. Check audit report for more details.” |
Components & Process

Teleran Usage Management

Client and Server-based Applications

TCP/IP Network

Oracle Databases

System Tables

User, App & Database Modeling

Identity Files/Tables

Teleran Admin Console

Helpdesk Messages

iGuard Policies

iSight Usage Reports

Teleran Knowledge Base

System Tables

Identity Files/Tables
Components & Process

Teleran Usage Management

Usage Capturing

TCP/IP Network

Oracle Databases

AWR

System Tables

User, App & Database Modeling

Identity Files/Tables

Client and Server-based Applications

Client and Server-based Applications

Helpdesk Messages

Usage Logging

iGuard Policies

iSight Usage Reports

Telerik Knowledge Base

Telerik Admin Console

System Tables

Identity Files/Tables

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Components & Process

Teleran Usage Management

- **Usage Capturing**
- **Usage Logging**
- **Feedback**
- **Usage Analysis**

Oracle Databases

- System Tables
- User, App & Database Modeling
- Identity Files/Tables

TCP/IP Network

- AWR

Client and Server-based Applications

- Helpdesk Messages
- iGuard Policies

Teleran Admin Console

- iSight Usage Reports

System Tables

- Teleran Knowledge Base

User, App & Database Modeling

Identity Files/Tables

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Components & Process

Teleran Usage Management

- Client and Server-based Applications
- Oracle Databases
- TCP/IP Network

- Usage Capturing
- Query Filtering
- User Guidance

- Helpdesk Messages
- iGuard Policies

- Usage Logging

- Feedback

- iSight Usage Reports

- Usage Analysis

- System Tables

- User, App & Database Modeling

- Identity Files/Tables

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iSight Usage Reporting

Over 80 parameterized reports link AWR metrics and Teleran user focused data
Combines AWR & User Metrics
Identifying High Cost Queries

Identifies each discrete SQL statement that took more than 200 CPU seconds
### Users Who Generate High IO

#### Top 100 Queries by IOWait - Oracle Diagnostic Pack Edition

**Datasource**: TeleranDemo  
**Database**: ORACLE  
**User**: GCurious

<table>
<thead>
<tr>
<th>Datasource</th>
<th>Database</th>
<th>User</th>
<th>IO Wait (seconds)</th>
<th>SQL Statement</th>
<th>SQL Start</th>
</tr>
</thead>
<tbody>
<tr>
<td>TeleranDemo</td>
<td>ORACLE</td>
<td>GCurious</td>
<td>510.05</td>
<td>select distinct(cu.customername) Customer, count(co.taxexemptflag) Tax_Exempt_Orders from orders.customer cu, orders.customerorder co where co.customerid = cu.customerid and co.taxexemptflag= 1 group by cu.customername</td>
<td>2005-08-10 23:31:27.0</td>
</tr>
<tr>
<td>TeleranDemo</td>
<td>ORACLE</td>
<td>MRICHTER</td>
<td>177.83</td>
<td>select cu.firstname, cu.lastname, cu.streetaddress, cu.city, cu.state, cu.zipcode, c.quantity, c.incomescategory, c.incomeamount from finance.customer cu, orders.productorder p where p.productid = c.productid and p.orderid = c.orderid and c.orderdate - ot.timeid and c.quarter_name like 'Quarter_2' order by ot.month, co.discount</td>
<td>2005-08-10 23:27:26.0</td>
</tr>
<tr>
<td>TeleranDemo</td>
<td>ORACLE</td>
<td>MWILSON</td>
<td>156.35</td>
<td>select c.productid, c.quantity, c.incomescategory, c.incomeamount, c.customerid from finance.customer c, orders.productorder p where p.productid = c.productid and p.orderid = c.orderid and c.orderdate - ot.timeid and c.quarter_name like 'Quarter_2' order by ot.month, co.discount</td>
<td>2005-08-10 23:25:29.0</td>
</tr>
<tr>
<td>TeleranDemo</td>
<td>ORACLE</td>
<td>DMENDERSON</td>
<td>156.34</td>
<td>select c.productid, c.quantity, c.incomescategory, c.incomeamount, c.customerid from finance.customer c, orders.productorder p where p.productid = c.productid and p.orderid = c.orderid and c.orderdate - ot.timeid and c.quarter_name like 'Quarter_2' order by ot.month, co.discount</td>
<td>2005-08-10 23:24:08.0</td>
</tr>
<tr>
<td>TeleranDemo</td>
<td>ORACLE</td>
<td>GCurious</td>
<td>147.05</td>
<td>select count(*) from orders.orderfact where quantityintransit &lt; (select avg (quantityintransit) from orders.orderfact)</td>
<td>2005-08-10 23:29:34.0</td>
</tr>
<tr>
<td>TeleranDemo</td>
<td>ORACLE</td>
<td>HR</td>
<td>147.01</td>
<td>select firstname, lastname, streetaddress, city, state, zipcodes, incomescategory, incomeamount, incomeamount from finance.customer where age &gt; 50 and propertyowner like 'YES' and state in ('CA', 'NY', 'NJ', 'NM') and education in ('Doctorate', 'Masters Degree') order by incomescategory</td>
<td>2005-08-10 23:20:21.0</td>
</tr>
<tr>
<td>TeleranDemo</td>
<td>ORACLE</td>
<td>GCurious</td>
<td>115.01</td>
<td>select count(*) from orders.orderfact where quantityintransit &lt; (select min (quantityintransit) from orders.orderfact)</td>
<td>2005-08-10 23:29:33.0</td>
</tr>
</tbody>
</table>

**IOWait column identifies average IOWait for a SQL statement by user GCurious**

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### Detailed Usage Metrics by User

#### Top 100 Queries by Optimizer Cost - Oracle Diagnostic Pack Edition

**Report Date:** Fri Aug 12 11:05:10 EDT 2005  
**Start Date:** 7/12/2005  
**End Date:** 8/12/2005

<table>
<thead>
<tr>
<th>Datasource</th>
<th>Database</th>
<th>User</th>
<th>Optimizer Cost</th>
<th>Optimizer Mode</th>
<th>SQL Statement</th>
<th>SQL Start</th>
</tr>
</thead>
<tbody>
<tr>
<td>TeleranDemo</td>
<td>ORACLE</td>
<td>WJONES</td>
<td>2509</td>
<td>CHOOSE</td>
<td><code>SELECT firstname, lastname, streetaddress, city, state, zipcode, incomecategory, profession from finance.customer where profession like 'Wedding Coordinator' and maritalstatus = 'Single'</code></td>
<td>2005-06-10 23:31:29.0</td>
</tr>
<tr>
<td>TeleranDemo</td>
<td>ORACLE</td>
<td>BHENDERSON</td>
<td>2929</td>
<td>CHOOSE</td>
<td><code>SELECT sm.shipmentname Shipper, sm.freight Shipping_Cost, sh.shipmentdate Date_Shipped, sh.deliverydate Date_Delivered from orders.shipmentmethod sm, orders.shipment sh where sm.shipmentmethodid = sh.shipmentmethodid and sm.shipmentname like '%Fades' and sm.freight = (SELECT max(freight) from orders.shipmentmethod)</code></td>
<td>2005-06-10 23:25:00.0</td>
</tr>
<tr>
<td>TeleranDemo</td>
<td>ORACLE</td>
<td>BHENDERSON</td>
<td>841</td>
<td>CHOOSE</td>
<td><code>SELECT To whom, cur.Customer from finance.customer</code></td>
<td>2005-06-10 23:21:49.0</td>
</tr>
<tr>
<td>TeleranDemo</td>
<td>ORACLE</td>
<td>MWILSON</td>
<td>841</td>
<td>CHOOSE</td>
<td><code>SELECT B, orderid from finance.customer</code></td>
<td>2005-06-10 23:29:52.0</td>
</tr>
<tr>
<td>TeleranDemo</td>
<td>ORACLE</td>
<td>MWILSON</td>
<td>841</td>
<td>CHOOSE</td>
<td><code>SELECT distinct(v.vendornname) Manufacturer, count(o.returnedflag) Orders_Returned from orders, orderfact a, orders.product p, orders.vender v where o.productid = p.productid and p.vendorid = v.vendorid and o.returnedflag = 1 group by v.vendornname order by count(o.returnedflag)</code></td>
<td>2005-06-10 23:25:57.0</td>
</tr>
<tr>
<td>TeleranDemo</td>
<td>ORACLE</td>
<td>GCURIOUS</td>
<td>841</td>
<td>CHOOSE</td>
<td><code>SELECT distinct(cu.customername), p.productrecallflag, count (o.orderid) from orders.customer cu, orders.customerorder co, orders.orderfact o, orders.product p where cu.customerid = co.customerid and co.orderid = o.orderid and o.productid = p.productid group by cu.customername, p.productrecallflag</code></td>
<td>2005-06-10 23:30:09.0</td>
</tr>
</tbody>
</table>

"WJJones ran a high cost query on August 10"
### Resource Utilization Summary by Table - Oracle Diagnostic Pack Edition

*Summary of Table activities grouped by database*

**Report Date:** Fri Aug 12 11:06:57 EDT 2005

**Start Date:** 7/12/2005  
**End Date:** 8/12/2005

**Datasource:** TelerikDemo  
**Database:** ORACLE

<table>
<thead>
<tr>
<th>Table</th>
<th>Avg Shareable Memory(kb)</th>
<th>Avg CPU Time(sec)</th>
<th>Avg IO Wait (sec)</th>
<th>Avg Optimizer Cost</th>
<th>Total Accesses</th>
<th>First Time Accessed</th>
<th>Last Time Accessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORDERS.VENDOR</td>
<td>26.9</td>
<td>22.42</td>
<td>0.11</td>
<td>41.96</td>
<td>29</td>
<td>2005-08-10</td>
<td>2005-08-10</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td>23:21:09.0</td>
<td>23:30:07.0</td>
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<tr>
<td>ORDERS.PRODUCT</td>
<td>26.53</td>
<td>14.77</td>
<td>5.69</td>
<td>47.31</td>
<td>48</td>
<td>2005-08-10</td>
<td>2005-08-10</td>
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<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>23:21:09.0</td>
<td>23:32:07.0</td>
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<tr>
<td>ORDERS.CUSTOMER</td>
<td>26.03</td>
<td>12.94</td>
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<td>2005-08-10</td>
<td>2005-08-10</td>
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<tr>
<td>ORDERS.SHIPMENT</td>
<td>24.39</td>
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<td>2005-08-10</td>
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<tr>
<td>ORDERS.INVENTORY</td>
<td>21.34</td>
<td>1.42</td>
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<td>2005-08-10</td>
<td>2005-08-10</td>
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<td>ORDERS.ORDERFACT</td>
<td>24.67</td>
<td>13.19</td>
<td>6.31</td>
<td>71.75</td>
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<td>2005-08-10</td>
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<tr>
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<td>23:20:14.0</td>
<td>23:22:07.0</td>
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<td>ORDERS.ORDERTIME</td>
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<td>23:22:02.0</td>
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<td>ORDERS.PRICELIST</td>
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<td>6</td>
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<td>2005-06-10</td>
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<td>ORDERS.RETURNCODE</td>
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<td>0.04</td>
<td>5.26</td>
<td>7</td>
<td>2005-06-10</td>
<td>2005-06-10</td>
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<td>23:21:09.0</td>
<td>23:28:51.0</td>
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<tr>
<td>ORDERS.CUSTOMERORDER</td>
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<td>86</td>
<td>2005-08-10</td>
<td>2005-08-10</td>
</tr>
</tbody>
</table>

“We have some high resource use tables”
User Resource Consumption

Resource Utilization Summary by User - Oracle Diagnostic Pack Edition
(Summary of User activities grouped by database)

<table>
<thead>
<tr>
<th>Report Date: Fri Aug 12 11:07:39 EDT 2005</th>
<th>Identify user activity along with what resources are being used. Each report can easily be resorted to identify 'heaviest users'.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Download CSV</td>
<td></td>
</tr>
<tr>
<td>DHENDERSON</td>
<td></td>
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<tr>
<td>User: DHENDERSON</td>
<td></td>
</tr>
<tr>
<td>Avg Optimizer Cost</td>
<td>57.9</td>
</tr>
<tr>
<td>Avg CPU Time (sec)</td>
<td>9.07</td>
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<tr>
<td>Avg Shareable Memory(kb)</td>
<td>22.42</td>
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<tr>
<td>Avg IO Wait (sec)</td>
<td>1.9</td>
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<tr>
<td>Total Queries</td>
<td>85</td>
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<tr>
<td>First Accessed</td>
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<td>Last Accessed</td>
<td>2005-08-10 23:25:28.0</td>
</tr>
<tr>
<td>GCURIOUS</td>
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<tr>
<td>User: GCURIOUS</td>
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<td>Avg Optimizer Cost</td>
<td>56.7</td>
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<td>Avg CPU Time (sec)</td>
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<td>Avg Shareable Memory(kb)</td>
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<td>HR</td>
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<td>User: HR</td>
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</tr>
<tr>
<td>Avg Optimizer Cost</td>
<td>32.15</td>
</tr>
<tr>
<td>Avg CPU Time (sec)</td>
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</tr>
<tr>
<td>GRICTHER</td>
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<tr>
<td>User: GRICTHER</td>
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<tr>
<td>Avg Optimizer Cost</td>
<td>16.22</td>
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<tr>
<td>Avg CPU Time (sec)</td>
<td>20.32</td>
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<td>NWILSON</td>
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<td>User: NWILSON</td>
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<td>Avg Optimizer Cost</td>
<td>92.97</td>
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<td>Avg CPU Time (sec)</td>
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<td>User: ORDERS</td>
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<td>Avg IO Wait (sec)</td>
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<td>WJONES</td>
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<td>User: WJONES</td>
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<tr>
<td>Avg Optimizer Cost</td>
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<td>Avg CPU Time (sec)</td>
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<td>Avg IO Wait (sec)</td>
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<td>Total Queries</td>
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<tr>
<td>First Accessed</td>
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</tr>
<tr>
<td>Last Accessed</td>
<td>2005-08-10 23:31:40.0</td>
</tr>
</tbody>
</table>

“User WJJones has been running more high cost queries”

Database Summary

<table>
<thead>
<tr>
<th>Database Summary</th>
<th>Number of Users</th>
<th>Avg Kbytes</th>
<th>Avg Rows</th>
<th>Avg Elapsed Time (sec)</th>
<th>Avg Response Time (sec)</th>
<th>Total Accesses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7</td>
<td>15.05</td>
<td>66</td>
<td>6.37</td>
<td>24.38</td>
<td>361</td>
</tr>
</tbody>
</table>

34 Addressing Compliance and Performance Demands
Some of these join patterns may be driving up resource costs
"Tracking predicates use can assist with both compliance and data usage"
"This financial data has direct impact on our financial reporting. Sarbanes Oxley Section 404 requires that its use must be audited."
These employees are authorized to view social security information.
A very large number of queries were run using PLUS80. Business Objects is now our authorized BI tool.
"Both response time and elapsed time are within the Claims Department SLA."
Data Use

Table Usage Summary
(Summary of table usage including those not accessed)

Report Date: Tue Dec 30 14:28:15 EST 2003

Generating CSV...

<table>
<thead>
<tr>
<th>Datasource</th>
<th>Database</th>
<th>Schema</th>
<th>Table</th>
<th>Total Accesses</th>
<th>First Accessed</th>
<th>Last Accessed</th>
<th>Last Analyzed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demo_DW</td>
<td>ORACLE</td>
<td>SALES</td>
<td>SALESTRANSACTION</td>
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<td>2003-07-07 09:43:46.0</td>
<td>2003-11-17 12:39:00.0</td>
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</tr>
<tr>
<td>Demo_DW</td>
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<td>SALES</td>
<td>CONTACT</td>
<td>38</td>
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<td>2003-11-17 12:39:59.0</td>
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<td>SALES</td>
<td>COMPETEPRODUCT</td>
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<td>2003-07-07 15:45:04.0</td>
<td>2003-11-17 12:38:59.0</td>
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<td>TERRITORY</td>
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<tr>
<td>Demo_DW</td>
<td>ORACLE</td>
<td>SALES</td>
<td>ACTIVITY</td>
<td>Not Accessed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>SALES</td>
<td>CUSTOMERSURVEY</td>
<td>Not Accessed</td>
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</tr>
<tr>
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<td>SALES</td>
<td>OPPORTUNITY</td>
<td>Not Accessed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

“These tables have not been accessed this month. Let’s archive this data to reduce storage and data maintenance.”
### User Management

**All Queries**

(List of all queries grouped by user and client application.)

**Report Date:** Wed Jan 07 14:39:39 EST 2004

<table>
<thead>
<tr>
<th>Datasource: Demo_DW</th>
<th>Client Application: BusinessObjects</th>
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<tbody>
<tr>
<td>SQL Id</td>
<td>Query</td>
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<tr>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>102636</td>
<td>0</td>
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<tr>
<td>102766</td>
<td>9000</td>
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<td>102867</td>
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<td>103610</td>
<td>4141</td>
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<td>104096</td>
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<td>125217</td>
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</tr>
<tr>
<td>138892</td>
<td>0</td>
</tr>
</tbody>
</table>

**“This user made 2 errors. An iGuard policy will prevent his errors and improve service levels for all use.”**
### Top 100 Queries by Response Time

**Report Date:** Tue Dec 30 14:26:29 EST 2003

<table>
<thead>
<tr>
<th>Datasource</th>
<th>Database</th>
<th>User</th>
<th>Query Rows</th>
<th>Response Time (secs)</th>
<th>SQL Statement</th>
</tr>
</thead>
</table>
| Demo_DW   | ORACLE    | ANINFOSURFER | 139       | 144963.77            | `SELECT DISTINCT(cu.incomecategory), a.assetname, tt.transactiontypename, t.quantity FROM finance.asset a,
finance.transactionfact tt, finance.transactiontype tt, finance.customer cu WHERE a.assetid = tt.assetid AND tt.transactiontypeid = tt.transactiontypeid AND tt.customerid = cu.customerid AND t.quantity = (SELECT MIN(t.quantity) FROM finance.transactionfact tt,
finance.transactiontype tt, finance.customer cu WHERE a.assetid = tt.assetid AND tt.transactiontypeid = tt.transactiontypeid AND tt.customerid = cu.customerid) AND tt.transactiontypename LIKE 'Asset' AND tt.transactiontypeid = tt.transactiontypeid AND tt.customerid = cu.customerid;` |
| Demo_DW   | ORACLE    | DSTERLING | 66565      | 1021.71              | `SELECT TRANSACTIONTYPE, TRANSACTIONTYPE, TRANSACTIONFACT, QUANTITY,
TRANSACTIONFACT, TOTALAMOUNT, MERCHANTADDRESS, MERCHANTNAME, MERCHANTADDRESS, CITY,
MERCHANTADDRESS, STATE, MERCHANTADDRESS, ZIPCODE, PROCESSINGPRORITY, PROCESSINGPRORITYCODE,
RETAILPRODUCT, NAME FROM TRANSACTIONFACT, MERCHANTADDRESS, MERCHANTNAME;` |

**Performance Management**

“The user, ANINFOSURFER, ran a 40 hour query. An iGuard performance policy needs to be activated.”
Oracle Teleran Compliance Solution

- iSight continuously audits & reports on user activity correlated with data usage
- Oracle AWR integrates reporting on internal database activity/processes
- iGuard protects enterprise data engine, automatically preventing inappropriate, unauthorized queries
- iGuard Messaging instantly alerts security & compliance staff of attempted policy breaches
Oracle Teleran Performance Solution

- Oracle AWR metrics direct database performance tuning
- iSight reports on AWR collected data
- iGuard protects database & applications from performance degrading queries
- iGuard Messaging guides & trains users in real-time, improving user performance & productivity
Case Study - Insurance

Challenges

- Large insurance company consolidated underwriting, sales & marketing data warehouses into large Oracle enterprise data warehouse
- Chief Compliance Officer required to comply with Sarbanes-Oxley & Gramm-Leach-Bliley
- CEO demanded performance improvements & system efficiencies to enable faster quotes to customers at a lower cost
Case Study - Insurance

Solution

- Met SOX 404 & GLBA requirements company to identify, audit & control user interaction with financial & customer data
- Automated expensive manual process to minimize compliance and operating costs
- Better managed performance & service level in new DW
- Implemented quickly to meet tight implementation plan
Case Study - Pharmaceutical

Challenges

- International pharmaceutical management science division consolidated drug trials field information from physicians, hospitals, HMOs into Oracle DW
- FDA requires meticulous record keeping & reporting across drug trial phases, HIPAA requires proof of patient data confidentiality
- Corporate mandates demanded operating cost containment without sacrificing performance
Case Study - Pharmaceutical

Solution

- Met FDA & HIPPA regulations to track & control who accessed what patient data independent of application
- Auditing facility met multiple compliance audit & reporting requirements at a lower cost
- Explicit access & usage controls enabled company to cost effectively test & prove data confidentiality
- Continued to manage & meet performance service levels
Case Study - Banking

Challenges

● Commercial bank credit card DW supports risk management, marketing, customer profit analysis

● With operations in US & Europe bank must adhere to both SOX & Basel II compliance regulations

● Increased compliance burdens can not impede application & business performance

● Executive directive to minimize costs & disruptions
Case Study - Banking

Solution

- Addressed both SOX control & Basel II audit reporting requirements with single facility
- Rapid implementation and automated compliance processes minimized disruption and lowered operating costs
- Performance management capabilities ensures ongoing business productivity and application value
Teleran Benefits

Improves the business value of applications

- Increase Performance
- Enhance Productivity
- Improve Service
- Reduce Costs
- Enforce Compliance
- Increase Protection
- Prevent Bad Queries
- Decrease Resource Waste
- Minimize Support Costs
# Contact Information

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chris Doolittle</td>
<td>Vice President Marketing</td>
</tr>
</tbody>
</table>

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