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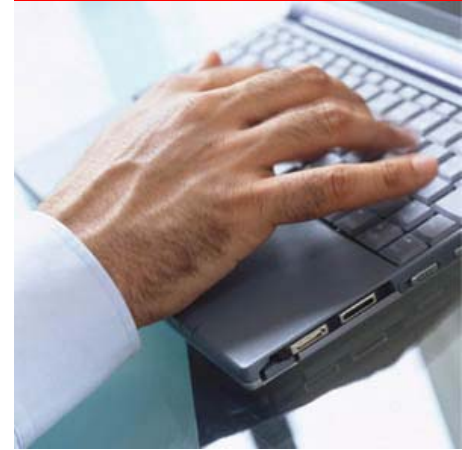
Essential Diagnostic Techniques for Oracle Database 11g

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Oracle USA



Agenda

Diagnostic Pack Is Essential For Database Performance Tuning



- 11g Diagnostic Pack: Highlights and Usage
- However, we start with “Why It Works”
 - DB Time and Average Active Sessions
 - The DB Time Performance Method

Oracle Performance Analysis: The DB Time Method



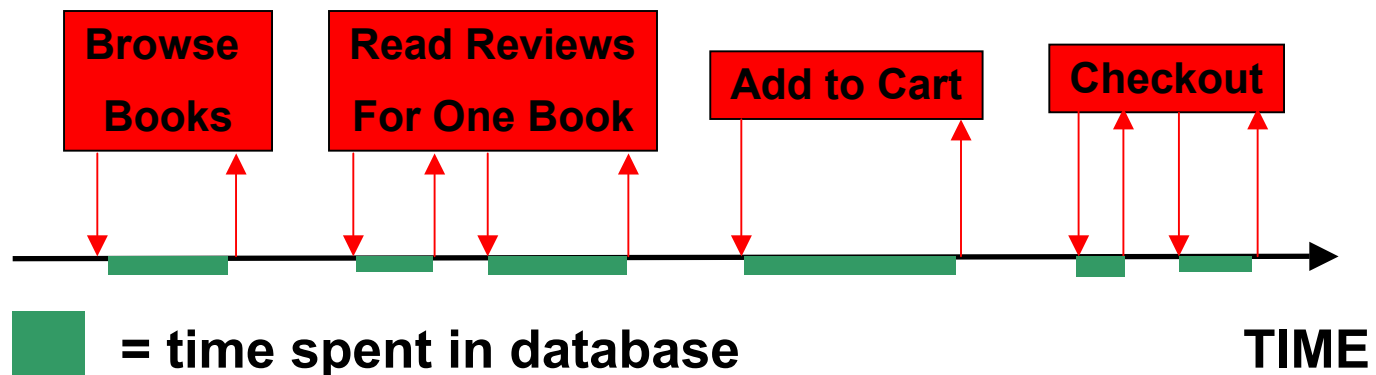
Why Do We Care About Time?

Performance Is Always About Time

- Human time is critical to the enterprise
- System time includes human and IT resource time to accomplish business goals
- System performance affects business goals
 - “Time is money.”
- Performance improvement usually means doing things faster
- Method: find where system time is spent – reduce it!

A Single Session

Single session with Database Black Box server



Fundamental concepts

Active Session =

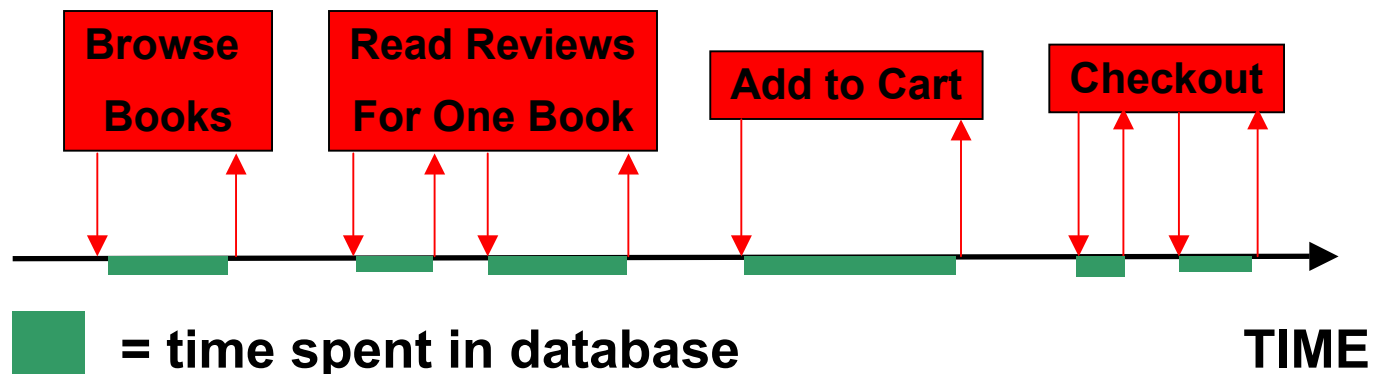
Session currently spending time in a database call

Database Time (DB Time) =

Total time session spent in all database calls

Average Activity of the Session =

The ratio of time being active to total wall clock time



Session Details: 1869 (AFOTHERG)

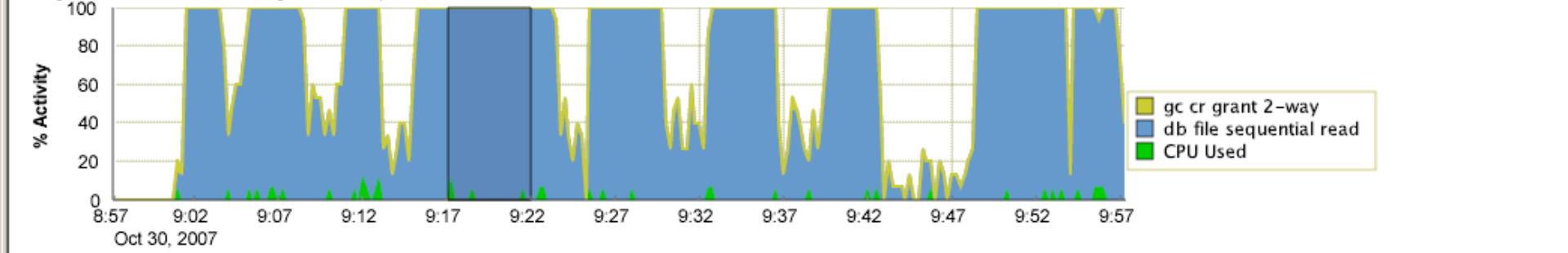
Collected From Target **Oct 30, 2007 9:49:37 AM CDT**

View Data Real Time: 15 Second Refresh Refresh

Kill Session Enable SQL Trace

General **Activity** Statistics Open Cursors Blocking Tree Wait Event History

Drag the shaded box to change the time period for the detail section below.



Detail for Selected 5 Minute Interval

Start Time **Oct 30, 2007 9:17:05 AM** View Show Aggregated Data Run ASH Report

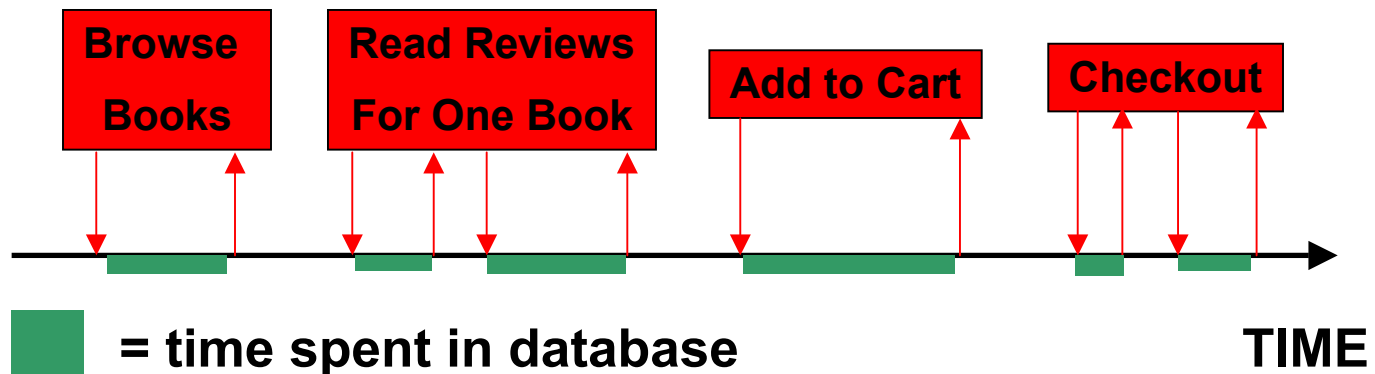
Activity (%)	SQL ID	SQL Command	Plan Hash Value	Module	Action	Client ID
100.00	gkmd7xwuz1na0	SELECT	64730335	oraclealan@ap103fam (TNS V1-V3)	AFOTHERG	

General **Activity** Statistics Open Cursors Blocking Tree Wait Event History

Kill Session Enable SQL Trace

The Basic Relationship

$$\text{Avg. Active Sessions} = \frac{\text{Database Time}}{\text{Wall Clock (Elapsed) Time}}$$

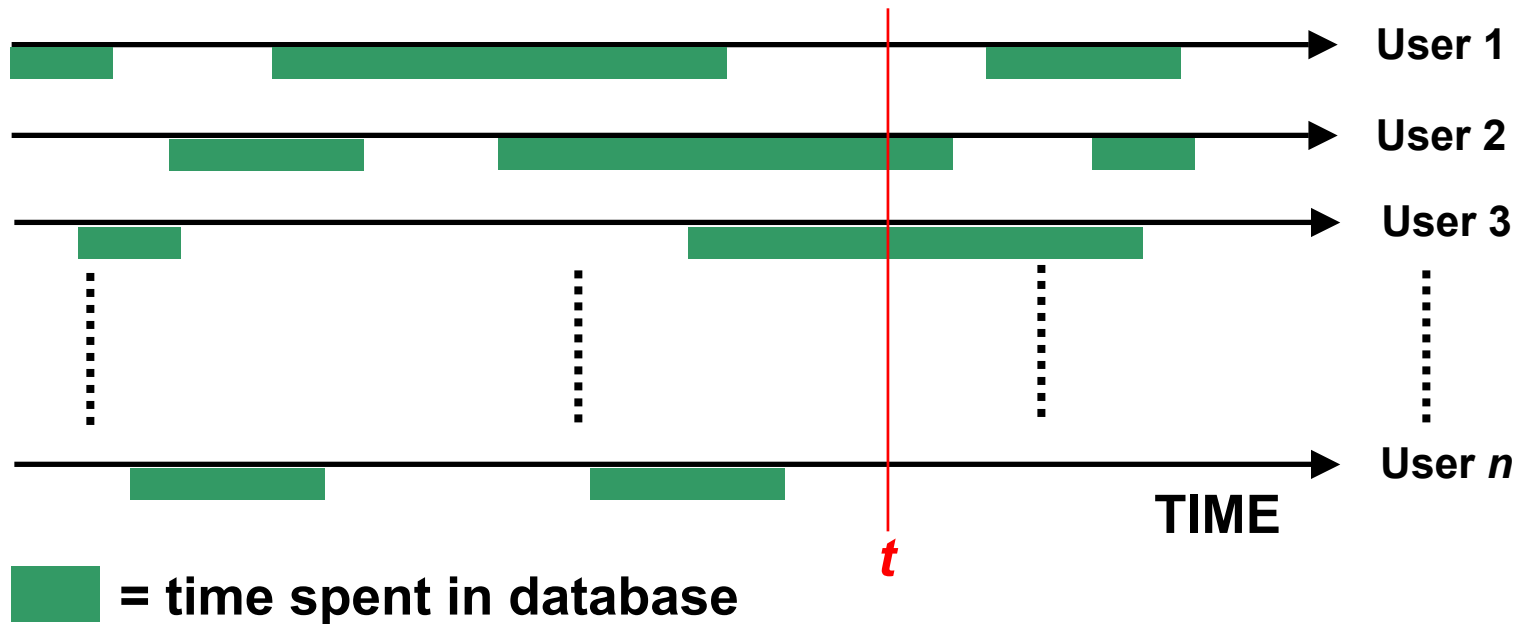


Multiple Sessions

DB Time = Sum of DB Time Over All Sessions

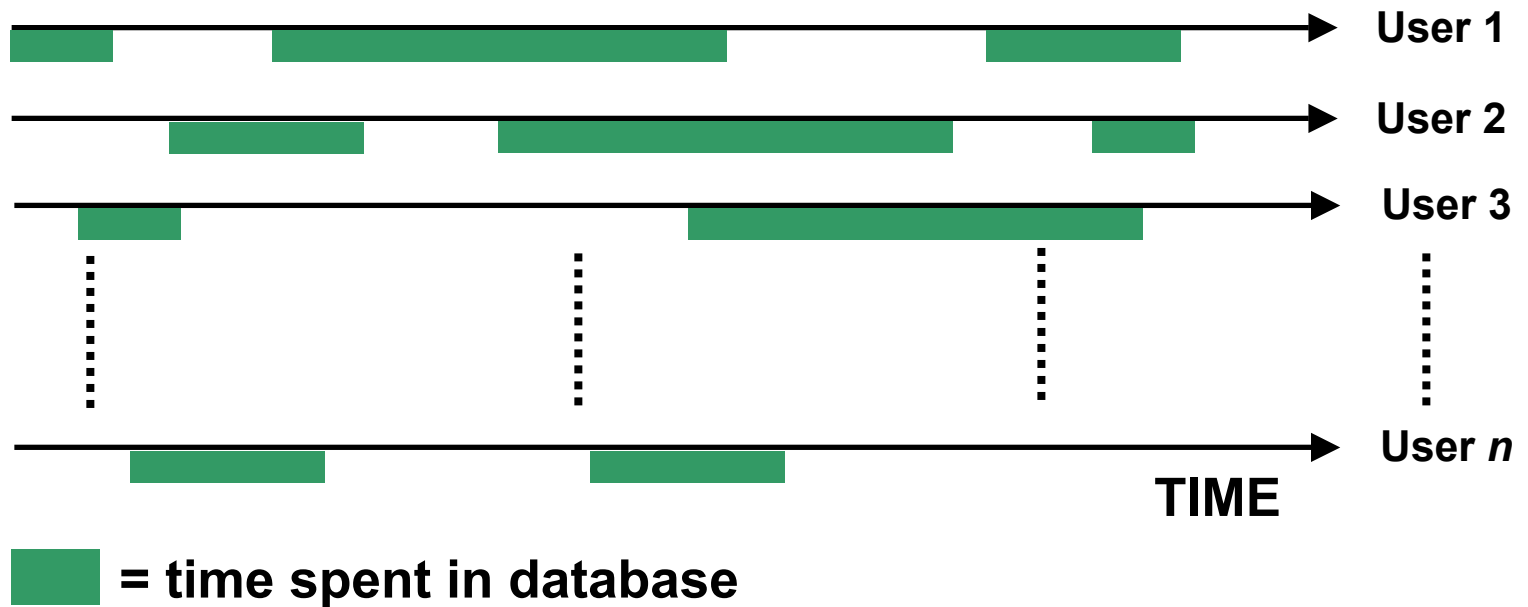
Avg. Active Sessions = Sum of Avg. Active Sessions Over All Sessions

At time t we have 2 active sessions






Breaking down DB Time (example)

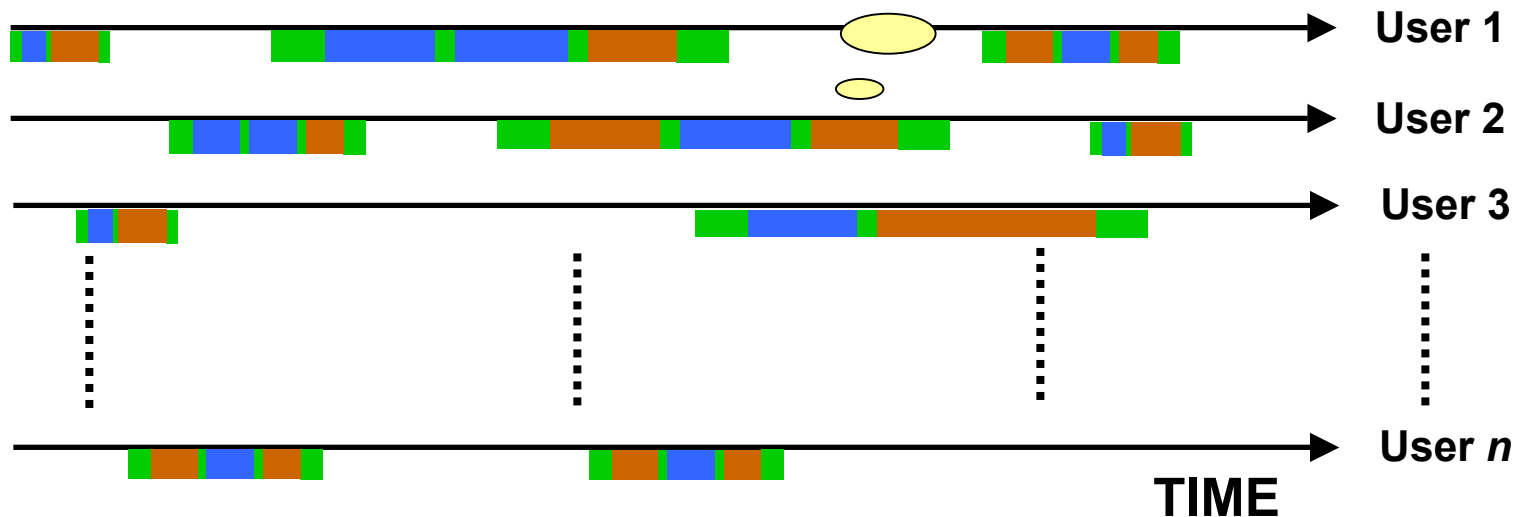
Sessions do different database things at different times



Breaking down DB Time (example)

 CPU
 I/O
 Other Waits

Lot's of
brown...maybe I
should investigate
other wait time?

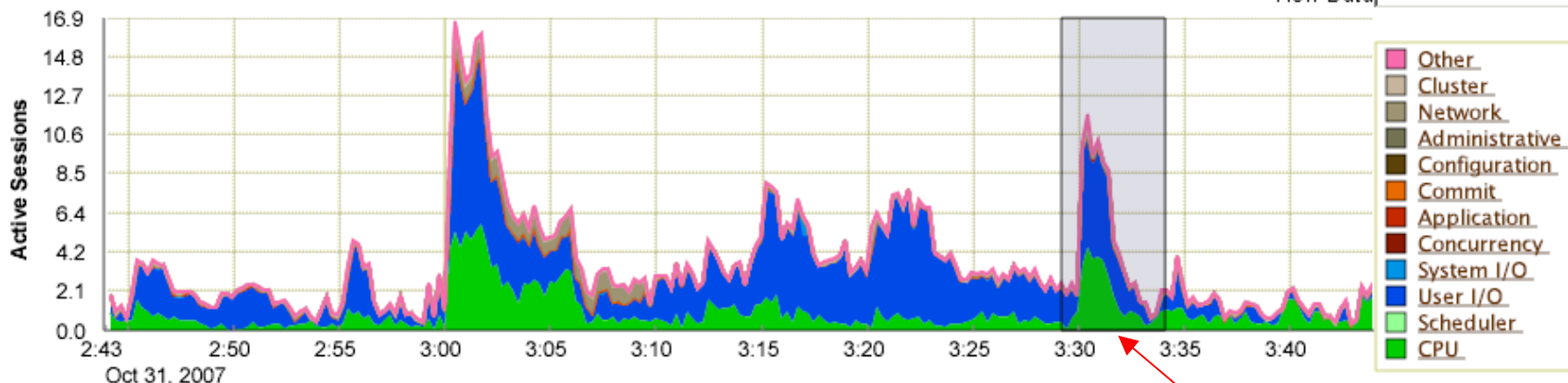


Top Activity

Switch Database Instance BUG1AP_DBS232 Go

Drag the shaded box to change the time period for the detail section below.

View Data Real Time: 15 Second Refresh



Detail for Selected 5 Minute Interval

Start Time Oct 31, 2007 3:29:12 PM CDT

Run ASH Report

Top SQL

Schedule SQL Tuning Advisor		Create SQL Tuning Set	
Select All Select None			
Select Activity (%) ▾		SQL ID	SQL Type
<input type="checkbox"/>	12.59	8znv5trv71d4a	SELECT
<input type="checkbox"/>	10.75	6p15v8k8zwuh5	SELECT
<input type="checkbox"/>	10.66	076tygk66k8ha	SELECT
<input type="checkbox"/>	7.30	8f4k3v24y910b	SELECT
<input type="checkbox"/>	4.95	22183tatccs8d	SELECT
<input type="checkbox"/>	4.95	93sgq7vmg35xv	SELECT
<input type="checkbox"/>	4.20	5qvmmd821tbb	SELECT
<input type="checkbox"/>	3.86	9rauu0kprxwuf	SELECT

Top Sessions

View Top Sessions ▾			
Activity (%) ▾	Session ID	User Name	Program
9.54	1906	AOLREP	perl@atgebs.us.oracle.com (TNS V1-V3)
9.32	1728	BGRAEF	oracledb92@iasbde.us.oracle.com (TNS V1-V3)
6.38	2251	ARUDAS	JDBC Thin Client
5.72	1682	BUGPATCH	oracle@staip12 (TNS V1-V3)
5.65	1570	MFGOPSTM	
5.36	2047	MFGOPSTM	? @ap615utl (TNS V1-V3)
4.62	1695	TOGEORGE	
3.96	1935	JSARICOS	OMS

DB time

DB Time Tuning

- DB Time can be scoped at multiple levels:
 - Database / instance
 - Service / module / action
 - Session / user
 - SQL id / rowsource
- *Performance improvement for Oracle database means doing the same work in less DB Time*

Performance Diagnosis Method

1. Look for large contributions to DB Time.
(Start from large scope to specific scope, regardless of complaint)
2. Find root cause for DB Time consumption
(At scope found in step 1)
3. Fix problem
(apply one fix at a time)
4. Observe reduction in DB Time (At same scope)
5. Affected users are happy? (Rinse and repeat)

What enables the DB Time method?

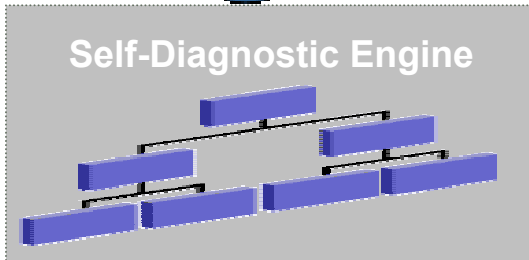
- Server instrumentation to measure DB Time directly
 - Time Model
 - Wait Events
 - SQL Statistics
 - Segment Statistics
 - Metrics
- Sampling instrumentation to sample all active sessions
 - Active Session History (ASH)
- Storage warehouse of statistics for historical reference
 - Automatic Workload Repository (AWR)
 - Statspack (pre-10g)

Oracle Diagnostic Pack: 11g Highlights



ADDM for RAC

Database-Level ADDM

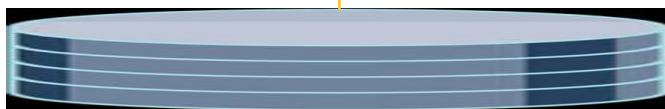
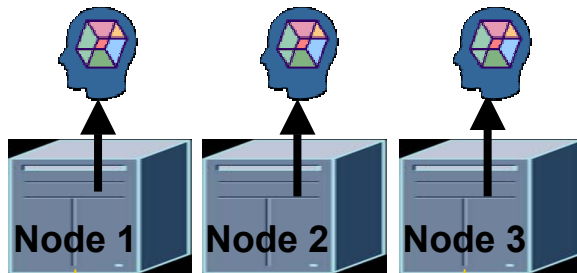


Self-Diagnostic Engine

- Identifies the most “Globally Significant” performance issues
- Automatically runs every hour
- Cluster-wide analysis of:
 - Global cache interconnect issues
 - Lock manager congestion issues
 - Global resource contention, e.g. IO bandwidth, hot blocks
 - Globally high-load SQL
 - Skew in instance response times

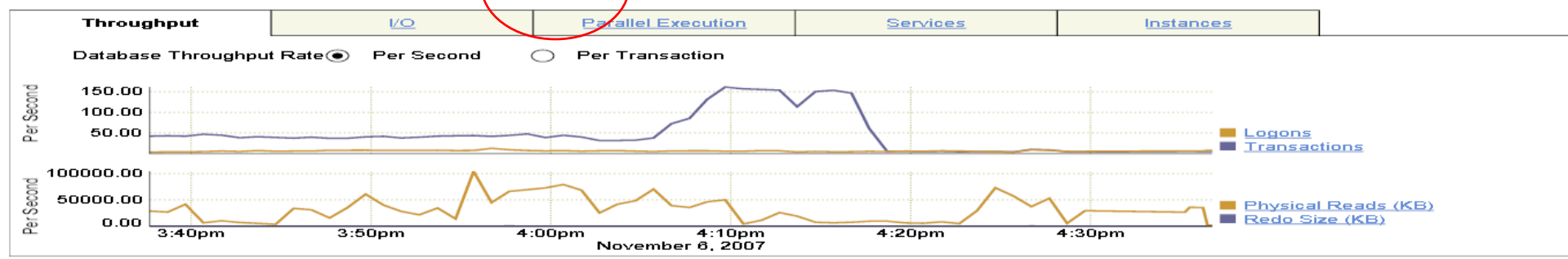
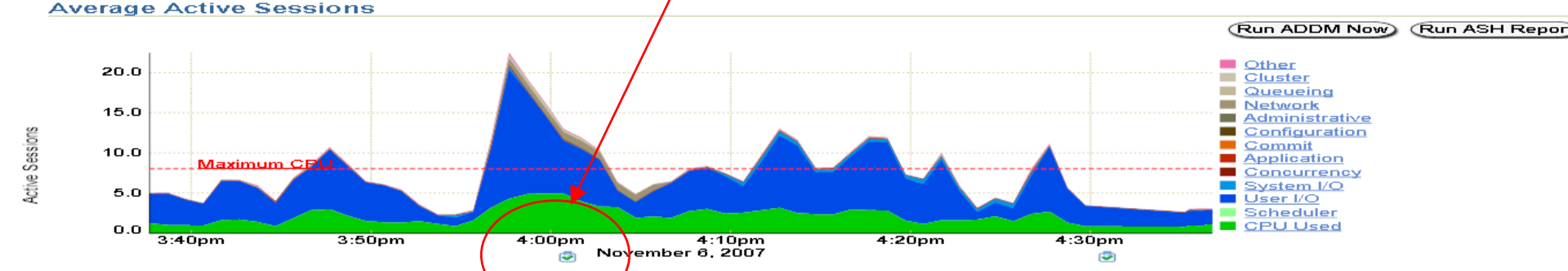
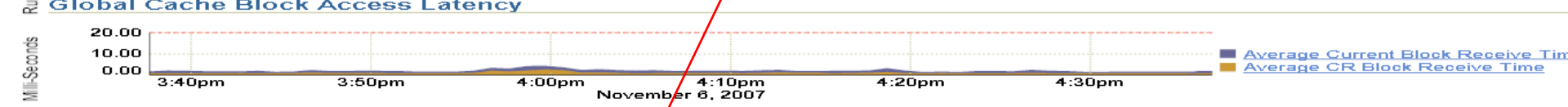
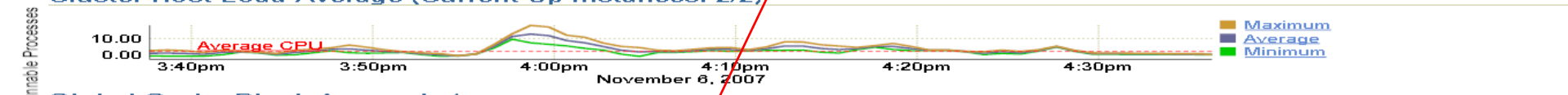
Database
Level
Analysis

Instance-Level ADDMs



Click on an area of a graph or legend to get more detail.

Cluster Host Load Average (Current Up Instances: 2/2) Settings View Data Real Time: 15 Second Refresh



Additional Monitoring Links

Top Sessions and Top SQL data from ASH can be found on the Top Activity page.

- Top Activity
- Cluster Cache Coherency
- Top Segments
- Top Consumers
- Database Locks

Additional Instance Monitoring Links

- Duplicate SQL
- Search Sessions
- SQL Tuning Sets
- Blocking Sessions
- Search SQL
- SQL Performance Analyzer
- Hang Analysis
- Snapshots

ADDM Finding History

- Identify systemic vs. transient issues
 - *Does the finding appear consistently over many ADDM runs?*
- Justify expensive or difficult recommendations
 - *How much DB Time could be saved by implementing?*

Oracle Enterprise Manager (SYS) - Finding History: Top SQL by DB Time - Microsoft Internet Explorer

FileEditViewFavoritesToolsHelp

Back

Search

Favorites

Addresshttps://gwood-lap1.us.oracle.com:1158/em/console/database/instance/hdm?target=bugdb_inst1&type=oracle_database&dbPageNum=2&task_id=251405&event=findingHistory&name=Top%20SQL%20by%20DB%20TimeGo

ORACLE Enterprise Manager 11gDatabase Control

SetupPreferencesHelpLogoutDatabase

Cluster Database: bugdb > Database Instance: bugdb_inst1 > Advisor Central > Automatic Database Diagnostic Monitor (ADDM) >

Logged in As SYS

Finding History: Top SQL by DB Time

ViewNov 5, 2007GoFilters

Drag the shaded box to change the time period for the detail section below.

Active Sessions

Other Load on SystemImpact of Finding

Detail for Selected 3 Hour Interval

Show All DetailsHide All Details

Details	Finding Details	Impact (Active Sessions)	Start Date
Hide	ADDM:1679034986_1_20945	0.79	Nov 6, 2007 4:30:09 PM PST
Action	Run SQL Tuning Advisor on the SQL statement with SQL_ID "ct95g8wvh5p9k". SQL Text select h.rptho, h.subject, b.lineno, b.comments, h.do_by release from rpthed h... SQL ID ct95g8wvh5p9k		
Action	Tune the PL/SQL block with SQL_ID "3wu6rmz7ys6ch". Refer to the "Tuning PL/SQL Applications" chapter of Oracle's "PL/SQL User's Guide and Reference". SQL Text declare rc_number; simple_list_owa util.vc arr; complex_list_owa util.v... SQL ID 3wu6rmz7ys6ch		
Action	Tune the PL/SQL block with SQL_ID "6s5nn1xay68f8". Refer to the "Tuning PL/SQL Applications" chapter of Oracle's "PL/SQL User's Guide and Reference". SQL Text declare rc_number; simple_list_owa util.vc arr; complex_list_owa util.v... SQL ID 6s5nn1xay68f8		
Action	Run SQL Tuning Advisor on the SQL statement with SQL_ID "7kvyuqg8f1rkq". SQL Text select h.rptho, h.subject, b.lineno, b.comments, h.do_by release from rpthed h... SQL ID 7kvyuqg8f1rkq		
Action	Run SQL Tuning Advisor on the SQL statement with SQL_ID "88wb73tmwd6m5". SQL Text select -- -- APAC BUG DETAILS - Bug priority highlight -- ===== SQL ID 88wb73tmwd6m5		
Show	ADDM:1679034986_1_20946	2.17	Nov 6, 2007 5:00:03 PM PST
Show	ADDM:1679034986_1_20947	1.03	Nov 6, 2007 5:30:13 PM PST
Show	ADDM:1679034986_1_20948	1	Nov 6, 2007 6:00:20 PM PST
Show	ADDM:1679034986_1_20949	0.55	Nov 6, 2007 6:30:30 PM PST
Show	ADDM:1679034986_1_20950	1.4	Nov 6, 2007 7:00:10 PM PST

DatabaseSetupPreferencesHelpLogout

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[About Oracle Enterprise Manager](#)

Trusted sites

AWR Instrumentation improvements

- Event waits separate foreground and background time
 - Allows wait-event and DB Tuning methods to sync better
- DB Time CPU measurement improvements
- Average Active Sessions metric
 - Replaces DB Time per Second

AWR Baselines

- Capture and preserve representative workload performance
 - Continuous set of AWR snapshots
 - Can schedule advance captures using templates
- SYSTEM_MOVING_WINDOW baseline
 - Trailing N days of AWR activity
- Usages
 - AWR Compare period reports
 - Manual or adaptive alert thresholds

Baselines and Metric Thresholds

- Set fixed or adaptive thresholds using a baseline as context
- Quick Configure Adaptive Thresholds
 - Simple bootstrap settings by workload pattern
- Metric Analysis
 - Which metrics are correlated with known problem?

FileEditViewFavoritesToolsHelp

BackForwardStopReloadHomeSearchFavorites

Addresshttps://gwood-lap1.us.oracle.com:1158/em/console/database/awr/baselines/editThresholds?target=bugdb_inst1&type=oracle_database&bsln=04ADE9D8D4D1556219351027EBFFFC70&mtrc=2098&mthd=ABSVAL&wprm=1&cprm=2&occs=1&event=updatGo

ORACLE Enterprise Manager 11gDatabase Control

SetupPreferencesHelpLogoutDatabase

Database Instance: bugdb_inst1 > Baseline Metric Thresholds >Edit Thresholds: Global Cache Average CR Block Request Time (centi-seconds)Logged in As JSARICOS

CancelClear ThresholdsApply ThresholdsLast Updated November 6, 2007 5:58:43 PM PST

Global Cache Average CR Block Request Time (centi-seconds) is not a basic metric.

Metrics that are not basic do not support Significance Level thresholds.

Note: Non-basic metrics display average values over AWR snapshots, not per-minute metric values.

AWR Baseline

NameSYSTEM_MOVING_WINDOW

Threshold Settings

Threshold TypeFixed Values

Critical2

Warning1

Occurrences1

Preview

Legend

Metric Data

Critical Threshold

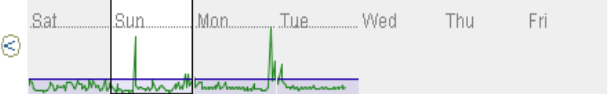
Warning Threshold

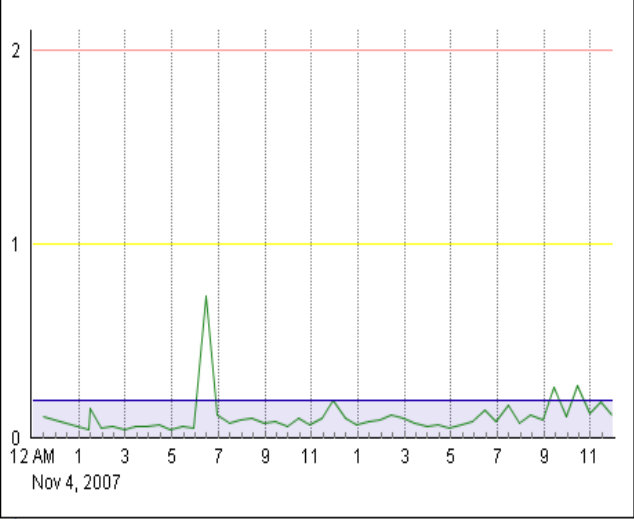
Average of Baseline

Global Cache Average CR Block Request Time (centi-seconds) vs. Baseline

Week of Nov 3, 2007

SatSunMonTueWedThuFri





TIP To see a different day, click the image for that day above the chart.

Related Links

All MetricsAWR Baselines

CancelClear ThresholdsApply Thresholds

DatabaseSetupPreferencesHelpLogout

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Set metric alert thresholds using context of baseline data

ORACLE Enterprise Manager 11g

Database Control

Database Instance: bugdb_inst1 >

Baseline Metric Thresholds

[Threshold Configuration](#)**Metric Analysis**

Find Metrics Correlating to a Known Problem Time

Specify an approximate time at which a problem occurred and an AWR Baseline to compare against metrics at that time.

Problem Time  ☐ AM ☒ PM[\(example: 11/6/07\)](#)AWR Baseline [Advanced](#)

Overview

Metric Analysis is used to identify metrics that may have provided a good indication for a known problem time in the recent past.

Use this feature to interactively learn which metrics provide good indicators for performance problems specific to your database. Then, set thresholds for those metrics.

 **TIP** Click on a chart to edit the thresholds for a displayed metric.[Threshold Configuration](#)**Metric Analysis**

Related Links

[All Metrics](#)[AWR Baselines](#)[Database](#) | [Setup](#) | [Preferences](#) | [Help](#) | [Logout](#)

11g ASH improvements

- SQL row source information captured
 - *Which SQL execution plan operations take most time?*
- SQL execution ID captured
 - *Are successive identical samples the same or different executions of the SQL?*
- Untimed session states captured (e.g. bind, close)
 - *Use ASH to estimate times spent in difficult to time operations.*
- Remote instance id for cache transfers captured
- Remote blocking session captured
 - *Much improved diagnosis of RAC performance issues.*

Oracle Diagnostic Pack: Usage



The easy way:
Ask ADDM



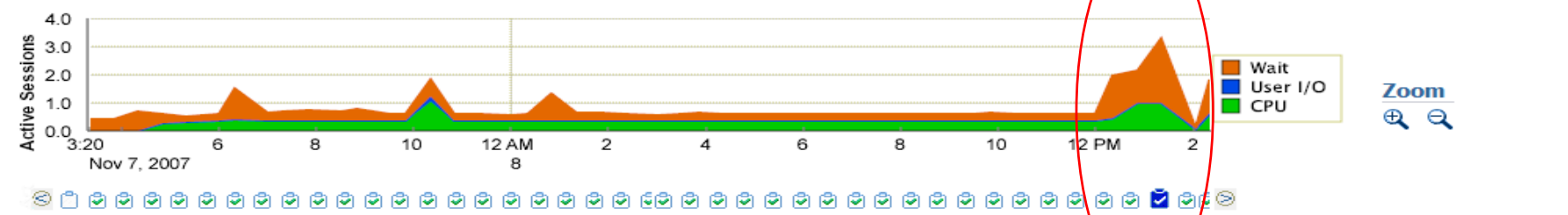
Automatic Database Diagnostic Monitor (ADDM)

Page Refreshed Nov 8, 2007 2:44:24 PM PST

Refresh

Database Activity

The icon selected below the graph identifies the ADDM analysis period. Click on a different icon to select a different analysis period.



TIP For an explanation of the icons and symbols used in this page, see the [Icon Key](#)

ADDM Performance Analysis

Task Name

ADDM:634508306_1071 (End Time:Nov 8, 2007 1:10:32 PM)

Filters

View Snapshots

View Report

Task Owner **SYS**

Average Active Sessions **3.9**

Period Start Time **Nov 8, 2007 1:00:32 PM PST**

Period Duration **10** minutes

Instance **racdb**

Impact (%)	Finding	Affected Instances	Occurrences (last 24 hrs)
90.6	Top SQL by DB Time		126 of 141
45.9	Unusual "Concurrency" Wait Event		124 of 141
32.1	Sequence Usage	2 of 2	5 of 141
31.1	Session Connect and Disconnect	2 of 2	124 of 141
28.7	CPU Usage	2 of 2	17 of 141
3.6	Unusual "Other" Wait Event		28 of 141

Informational Findings

Affected Instances

Name	Impact (%)	Status
racdb_racdb1	65	ANALYZED
racdb_racdb2	35	ANALYZED

Cluster Database: racdb > Advisor Central > Automatic Database Diagnostic Monitor (ADDM) >

Logged in

Finding History: Sequence Usage

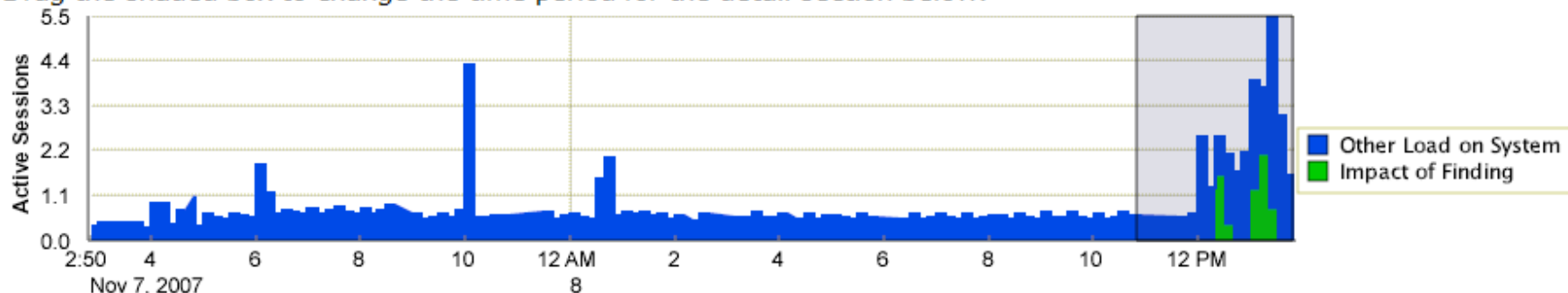
View



Go

Filters

Drag the shaded box to change the time period for the detail section below.



Detail for Selected 3 Hour Interval

[Show All Details](#) | [Hide All Details](#)

Details	Finding Details	Impact (Active Sessions)	Start Date
Hide	ADDM:634508306_1067	1.6	Nov 8, 2007 12:20:18 PM PST
Action	Investigate application or look at top SQL to find hot sequences. Use a larger cache size for those sequences. Try avoiding the use of the ORDER setting if running RAC.		
Show	ADDM:634508306_1068	0.3	Nov 8, 2007 12:30:19 PM PST
Show	ADDM:634508306_1071	1.2	Nov 8, 2007 1:00:32 PM PST
Show	ADDM:634508306_1072	2.1	Nov 8, 2007 1:10:32 PM PST
Show	ADDM:634508306_1073	0.7	Nov 8, 2007 1:20:33 PM PST

[Database](#) | [Setup](#) | [Preferences](#) | [Help](#) | [Logout](#)

The fun way:

Click on the big stuff!



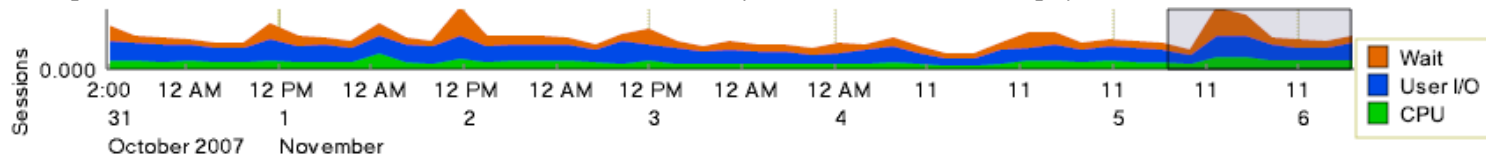
Baseline Name **None**

Select a date (example: Nov 6, 2007)

View Data

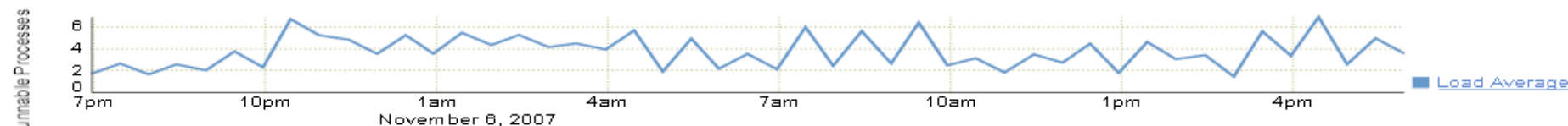
Historical Interval Selection

Drag the shaded box to select the historical 24 hour interval for which you want to view data in the graphs below. Use the active sessions data to help with your selection.

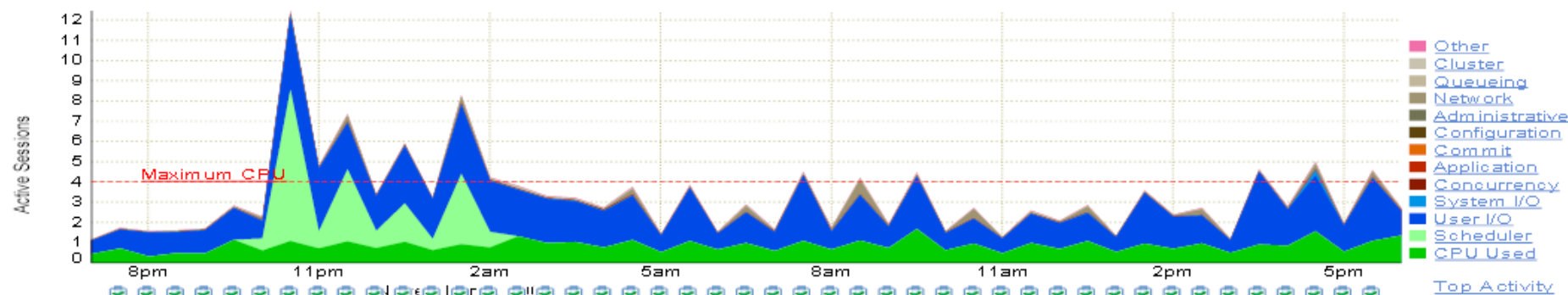


Detail for Selected 24 Hour Interval

Host



Average Active Sessions



Throughput

[I/O](#)

[Parallel Execution](#)

[Services](#)

Instance Throughput Rate ☒ Per Second ☐ Per Transaction



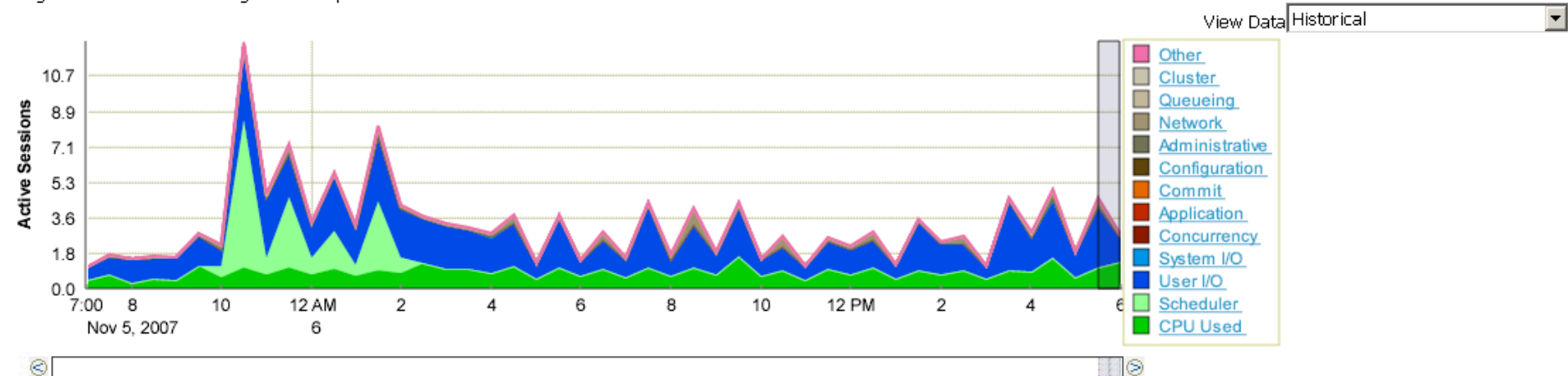
Cluster Database: bugdb > Database Instance: bugdb_inst1 >

Logged in As SYS

Top Activity

Switch Database Instance bugdb_inst1 Go

Drag the shaded box to change the time period for the detail section below.



Detail for Selected 30 Minute Interval

Start Time Nov 6, 2007 5:30:19 PM PST

Run ASH Report

Top SQL

Actions Schedule SQL Tuning Advisor Go

Select All Select None

Select	Activity (%) ▾	SQL Hash Value	SQL Type
<input type="checkbox"/>	15.53	066c96y30w3fw	SELECT
<input type="checkbox"/>	6.84	7kvyugg8f1rkq	SELECT
<input type="checkbox"/>	3.51	6h74w5pcm76f4	SELECT
<input type="checkbox"/>	3.51	8zrv5trv71d4a	SELECT
<input type="checkbox"/>	3.33	4kfhtnt2vdrjz	SELECT
<input type="checkbox"/>	2.77	2gfwx7gpywxvh	SELECT
<input type="checkbox"/>	2.59	cyx0thd63mcxf	SELECT
<input type="checkbox"/>	2.4	ct95g8wvh5p9k	SELECT
<input type="checkbox"/>	2.4	ff2qw34gg39ty	SELECT
<input type="checkbox"/>	2.22	6p15v8k8zwuh5	SELECT

Actions Schedule SQL Tuning Advisor Go

Total Sample Count: 541

Top Sessions

View Top Sessions ▾

Activity (%) ▾	Session ID	User Name	Program
15.06	1728	JSARICOS	OMS
6.06	1670	GLOGUNA	JDBC Thin Client
2.95	1612	BUGASSGN	oracle@staip12 (TNS V1-V3)
2.29	1939	JEDUGGAN	httpd@amts502 (TNS V1-V3)
2.13	2240	GLOGUNA	JDBC Thin Client
1.96	2132	MREYNOVA	httpd@amts503 (TNS V1-V3)
1.96	1735	SYS	oracle@dbs232 (1000)
1.96	1769	JCALVERT	httpd@amts502 (TNS V1-V3)
1.8	1833	AOLREP	perl@atgebs.us.oracle.com (TNS V1-V3)
1.8	1666	MOCONNEL	oracle@rmlnxie01 (TNS V1-V3)

Total Sample Count: 611

Additional Monitoring Links

- Historical SQL (AWR)
- Snapshots

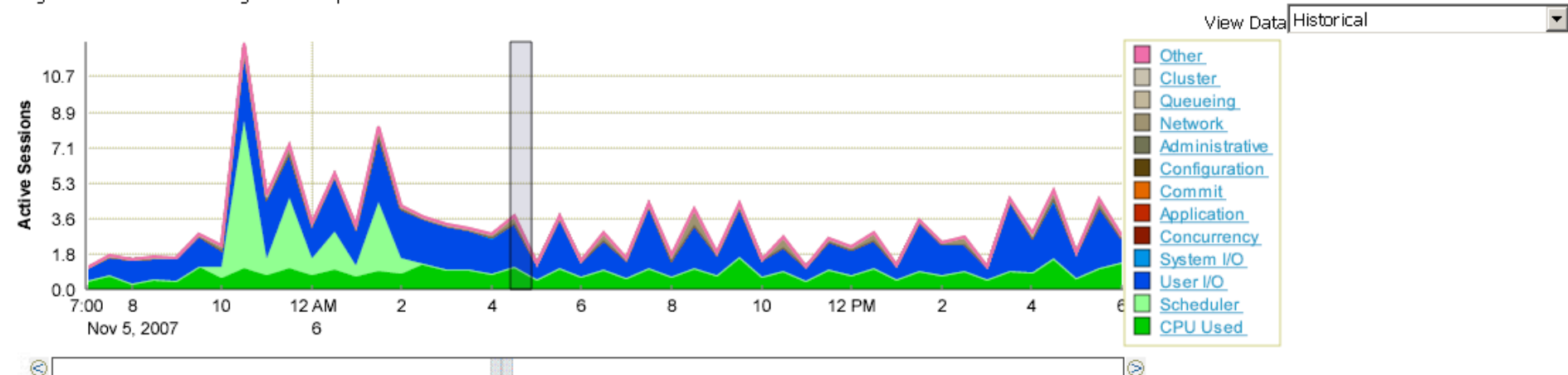
Cluster Database: bugdb > Database Instance: bugdb_inst1 >

Logged in As SYS

Top Activity

Switch Database Instance

Drag the shaded box to change the time period for the detail section below.



Detail for Selected 30 Minute Interval

Start Time Nov 6, 2007 4:25:21 AM PST

Top SQL

Actions

[Select All](#) | [Select None](#)

Select	Activity (%)	SQL Hash Value	SQL Type
<input type="checkbox"/>	7.11	6p15v8k8zwuh5	SELECT
<input type="checkbox"/>	6.28	8zrv5trv71d4a	SELECT
<input type="checkbox"/>	5.86	amrq8hk767tuz	SELECT
<input type="checkbox"/>	4.18	1kkgvqnb92uag	SELECT
<input type="checkbox"/>	3.35	gbb6xh6zqkx41	SELECT
<input type="checkbox"/>	3.35	9sbqqub72gwjs	SELECT
<input type="checkbox"/>	3.35	76cb5x1nx2cp6	SELECT
<input type="checkbox"/>	2.93	0g42zhpuz31qq	SELECT
<input type="checkbox"/>	2.51	93sqg7vmg35xy	SELECT
<input type="checkbox"/>	2.51	g1kw6w4wcfq8y	SELECT

Actions

Total Sample Count: 239

Top Objects

View

Activity (%)	Object Name	Object Type
40	BUG.RPTBODY	TABLE
20.87	BUG.RPTHEAD_HISTORY	TABLE
9.57	BUG.RPTHEAD	TABLE
7.83	BUG.RPTBODY RPTNO LINENO	INDEX
3.48	BUG.I RPTHEAD RPTNO	INDEX
2.61	BUG.RPTBODY RPTNO	INDEX
2.61	BUG.I RPTHEAD HIST RPTNO UDATE	INDEX
1.74	BUG.RPTHEAD BASERPTNO	INDEX
1.74	BUG.I RPTHEAD PRODUCT_ID2	INDEX
0.87	BUG.MAIL_ALERT	TABLE

Total Sample Count: 115

Additional Monitoring Links

• [Historical SQL \(AWR\)](#)

• [Snapshots](#)

Cluster Database: bugdb > Database Instance: bugdb_inst1 > Top Activity >

Logged in As SYS

SQL Details: 8zrv5trv71d4a

Switch to SQL ID

View Data

Text

```
select a.rptno,a.cs_priority,a.status,a.subject,a.rptdate,a.rptd_by,a.programmer
from rpthead a
where a.status < 90 and a.subject like '%ARE1202%'...
```

Details

Select the plan hash value to see the details below. Plan Hash Value

[Statistics](#)

Activity

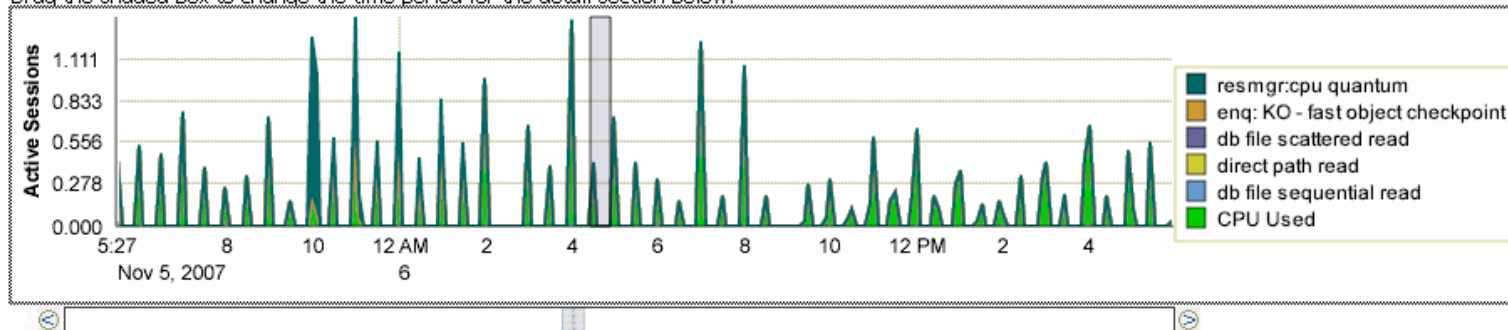
[Plan](#)

[Plan Control](#)

[Tuning History](#)

Summary

Drag the shaded box to change the time period for the detail section below.



Detail for Selected 30 Minute Interval

Start Time Nov 6, 2007 4:26:19 AM

Activity (%)	SID	User	Program	Service	Plan Hash Value
<div><div></div></div> 53.33	1591	MFGOPSTM		bugap.us.oracle.com	1764762109
<div><div></div></div> 46.67	2095	MFGOPSTM	? @ap615utl (TNS V1-V3)	bugap.us.oracle.com	1764762109

[Statistics](#)

Activity

[Plan](#)

[Plan Control](#)

[Tuning History](#)

SQL Details: 8zrv5trv71d4a

Switch to SQL ID

View Data

▼Text

```
select a.rptno,a.cs_priority,a.status,a.subject,a.rptdate,a.rptd_by,a.programmer
from rpthead a
where a.status < 90 and a.subject like '%ARE1202%' ORDER BY a.cs_priority asc, a.status asc,a.rptd_by
```

Details

Select the plan hash value to see the details below. Plan Hash Value

[Statistics](#)

[Activity](#)

Plan

[Plan Control](#)

[Tuning History](#)

Data Source [Snapshot \(20947\)](#)

Capture Time Nov 6, 2007 6:00:19 PM (UTC-08:00)

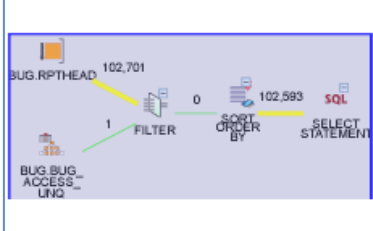
Parsing Schema MFGOPSTM

Optimizer Mode ALL_ROWS

Additional Information

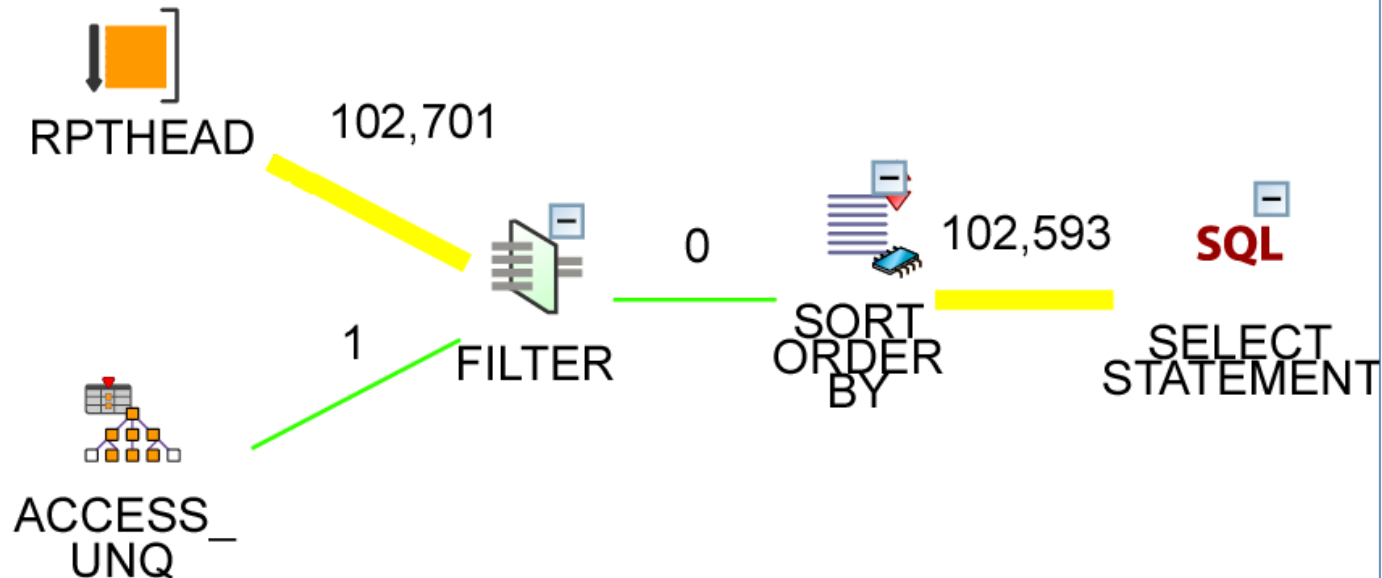
View ☒ Graph ☐ Table

Overview



Selection Details

Nothing Selected



✓ TIP For an explanation of the icons and symbols used in this page, see the [Icon Key](#)

▶ [Show Explain Rewrite](#)

[Statistics](#)

[Activity](#)

Plan

[Plan Control](#)

[Tuning History](#)

Switch to SOL ID

View Data ☒ Historical

Refresh

SQL Worksheet

Schedule SQL Tuning Advisor

SQL Repair Advis

```
select a.rptno,a.cs_priority,a.status,a.subject,a.rptdate,a.rptd_by,a.programmer
from rpthead a
where a.status < 90 and a.subject like '%ARE1202%' ORDER BY a.cs priority asc, a.status asc,a.rptd by
```

Select the plan hash value to see the details below.

Plan Hash Value 1764762109 ▼

Statistics

Activity

Plan

Plan Control

Tuning History

The following SQL tuning tasks provide the recommendations to tune this SQL statement.

Previous 1-10 of 15 Next 5

Advisor Task Name	Advisor Task Owner	Task Completion ▾
SYS AUTO SQL TUNING TASK		
SYS AUTO SQL TUNING TASK		
SYS AUTO SQL TUNING TASK		
SYS AUTO SQL TUNING TASK	SYS	Nov 2, 2007 7:00:10 AM
SYS AUTO SQL TUNING TASK	SYS	Nov 2, 2007 11:00:17 PM
SYS AUTO SQL TUNING TASK	SYS	Nov 1, 2007 11:00:33 PM
SYS AUTO SQL TUNING TASK	SYS	Oct 31, 2007 11:00:48 PM
SYS AUTO SQL TUNING TASK	SYS	Oct 30, 2007 11:00:22 PM
SYS AUTO SQL TUNING TASK	SYS	Oct 29, 2007 11:00:24 PM
SYS AUTO SQL TUNING TASK	SYS	Oct 28, 2007 7:00:16 AM
SYS AUTO SQL TUNING TASK	SYS	Oct 27, 2007 7:00:10 AM

Previous 1-10 of 15 Next 5

ADDM Findings for this SOL during historic period

Finding Name	Occurrences (last 24 hrs) ▾
Top SQL by DB Time	21 of 46

...and ADDM as well.

Statistics

Activity

Plan

Plan Control

Tuning History

SQL Worksheet


Schedule SQL Tuning Advis

[Database](#) | [Setup](#) | [Preferences](#) | [Help](#) | [Logout](#)

Conclusion

Diagnostic Pack Is Essential For Database Performance Tuning

- DB Time method:
 - Simple, powerful concept for analyzing Oracle performance
- Diagnostic Pack
 - Instrumentation (AWR, ASH)
 - Method (automated into ADDM)
 - Graphical Interface (manual method)
 - Reports (scoped tightly or widely)



The preceding is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

A large, stylized graphic of the letters 'Q' and 'A' in red, with a grey ampersand between them. The letters are thick and have a slight shadow effect.

QUESTIONS ANSWERS



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