How To Troubleshoot Database Contention With Procwatcher (Doc ID 1352623.1)

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APPLIES TO:

Oracle Database - Enterprise Edition - Version 11.1.0.6 to 11.2.0.2 [Release 11.1 to 11.2]
Oracle Database Cloud Schema Service - Version N/A and later
Gen 1 Exadata Cloud at Customer (Oracle Exadata Database Cloud Machine) - Version N/A and later
Oracle Cloud Infrastructure - Database Service - Version N/A and later
Oracle Database Cloud Exadata Service - Version N/A and later
Information in this document applies to any platform.

GOAL

How to use Procwatcher Note: 459694.1 to troubleshoot contention issues in 11g and above.

SOLUTION

Either watch this **demo** or review the following:

For this example I will create a simple locking problem. This is a simple example to demonstrate the basic troubleshooting approach. In real life examples, the contention may be more complex. The following will create simple lock contention:

```
Session 1:

SQL> update test set test = 'blah1';

1 row updated.

Session 2:

SQL> update test set test = 'blah2';
```

Session 2 will wait...

Now to demonstrate how to troubleshoot this with Procwatcher, will start Procwatcher:

```
$ ./prw.sh start
Fri Aug 26 10:38:36 EDT 2011: Starting Procwatcher

Fri Aug 26 10:38:36 EDT 2011: Thank you for using Procwatcher. :-)
Fri Aug 26 10:38:36 EDT 2011: Please add a comment to Oracle Support Note 459694.1
Fri Aug 26 10:38:36 EDT 2011: if you have any comments, suggestions, or issues with this tool.

Fri Aug 26 10:38:36 EDT 2011: Started Procwatcher
```

Now will check the Procwatcher log to make sure it is collecting data:

```
$ cat prw_racbde1.log
################################################################################
Fri Aug 26 10:38:36 EDT 2011: Procwatcher Version 062211 starting on Linux
################################################################################
Fri Aug 26 10:38:36 EDT 2011: Thank you for using Procwatcher. :-)
Fri Aug 26 10:38:36 EDT 2011: Please add a comment to Oracle Support Note 459694.1
Fri Aug 26 10:38:36 EDT 2011: if you have any comments, suggestions, or issues with this tool.
################################################################################
Fri Aug 26 10:38:36 EDT 2011: Procwatcher running as user oracle
Fri Aug 26 10:38:36 EDT 2011: ### Parameters ###
Fri Aug 26 10:38:36 EDT 2011: EXAMINE_CLUSTER=false
Fri Aug 26 10:38:36 EDT 2011: EXAMINE_BG=true
Fri Aug 26 10:38:36 EDT 2011: USE_SQL=true
```

```
Fri Aug 26 10:38:36 EDT 2011: INTERVAL=180
Fri Aug 26 10:38:36 EDT 2011: THROTTLE=5
Fri Aug 26 10:38:36 EDT 2011: IDLECPU=3
Fri Aug 26 10:38:36 EDT 2011: SIDLIST=RAC1|ASM1
Fri Aug 26 10:38:36 EDT 2011:
CLUSTERPROCS=crsd.bin|evmd.bin|evmlogge|racgimon|racge|racgmain|racgons.b|
ohasd.b|oraagent|oraroota|gipcd.b|mdnsd.b|gpnpd.b|gnsd.bi|diskmon|octssd.b|
ons -d|tnslsnr
Fri Aug 26 10:38:36 EDT 2011:
BGPROCS=_dbw|_smon|_pmon|_lgwr|_lmd|_lms|_lck|_lmon|_ckpt|_arc|_rvwr|_gmon|_lmhb|_rms0
Fri Aug 26 10:38:36 EDT 2011: ### Advanced Parameters ###
Fri Aug 26 10:38:36 EDT 2011: sessionwait=y
Fri Aug 26 10:38:36 EDT 2011: lock=y
Fri Aug 26 10:38:36 EDT 2011: latchholder=y
Fri Aug 26 10:38:36 EDT 2011: sgastat=y
Fri Aug 26 10:38:36 EDT 2011: heapdetails=n
Fri Aug 26 10:38:36 EDT 2011: gesenqueue=y
Fri Aug 26 10:38:36 EDT 2011: waitchains=y
Fri Aug 26 10:38:36 EDT 2011: rmanclient=n
Fri Aug 26 10:38:36 EDT 2011: process_memory=n
Fri Aug 26 10:38:36 EDT 2011: sqltext=y
Fri Aug 26 10:38:36 EDT 2011: ash=y
Fri Aug 26 10:38:36 EDT 2011: use_gv=
Fri Aug 26 10:38:36 EDT 2011: VERSION_10_1=y
Fri Aug 26 10:38:36 EDT 2011: VERSION_10_2=y
Fri Aug 26 10:38:36 EDT 2011: VERSION_11_1=y
Fri Aug 26 10:38:36 EDT 2011: VERSION_11_2=y
Fri Aug 26 10:38:36 EDT 2011: PROCINTERVAL=1
Fri Aug 26 10:38:36 EDT 2011: FALL_BACK_TO_OSDEBUGGER=false
Fri Aug 26 10:38:36 EDT 2011: STACKCOUNT=3
Fri Aug 26 10:38:36 EDT 2011: CUSTOMSQL1=
Fri Aug 26 10:38:36 EDT 2011: CUSTOMSQL2=
Fri Aug 26 10:38:36 EDT 2011: CUSTOMSQL3=
Fri Aug 26 10:38:36 EDT 2011: ### End Parameters ###
Fri Aug 26 10:38:36 EDT 2011: Checking DB version for SID RAC1
Fri Aug 26 10:38:37 EDT 2011: ..SQL: Running SQLvinstance.sql on SID RAC1
Fri Aug 26 10:38:38 EDT 2011: DB Version for SID RAC1 is 11.2.0.2.0
Fri Aug 26 10:38:38 EDT 2011: Checking DB version for SID ASM1
Fri Aug 26 10:38:38 EDT 2011: ..SQL: Running SQLvinstance.sql on SID ASM1
Fri Aug 26 10:38:40 EDT 2011: DB Version for SID ASM1 is 11.2.0.2.0
Fri Aug 26 10:38:40 EDT 2011: Using oradebug short_stack to speed up DB stack times...
Fri Aug 26 10:38:40 EDT 2011: Collecting SQL Data for SID ASM1
Fri Aug 26 10:38:40 EDT 2011: ..SQL: Running SQLvwaitchains.sql on SID ASM1
Fri Aug 26 10:38:40 EDT 2011: ..SQL: Running SQLvsessionwait.sql on SID ASM1
Fri Aug 26 10:38:40 EDT 2011: ..SQL: Running SQLvlock.sql on SID ASM1
Fri Aug 26 10:38:41 EDT 2011: ..SQL: Running SQLvlatchholder.sql on SID ASM1
Fri Aug 26 10:38:41 EDT 2011: ..SQL: Running SQLvsgastat.sql on SID ASM1
Fri Aug 26 10:38:41 EDT 2011: ..SQL: Running SQLvgesenqueue.sql on SID ASM1
Fri Aug 26 10:38:42 EDT 2011: Collecting SQL Data for SID RAC1
Fri Aug 26 10:38:43 EDT 2011: ..SQL: Running SQLvwaitchains.sql on SID RAC1
Fri Aug 26 10:38:43 EDT 2011: ..SQL: Running SQLvsessionwait.sql on SID RAC1
Fri Aug 26 10:38:43 EDT 2011: ..SQL: Running SQLvlock.sql on SID RAC1
Fri Aug 26 10:38:44 EDT 2011: ..SQL: Running SQLvlatchholder.sql on SID RAC1
Fri Aug 26 10:38:44 EDT 2011: ..SQL: Running SQLvsgastat.sql on SID RAC1
Fri Aug 26 10:38:45 EDT 2011: ..SQL: Running SQLvgesenqueue.sql on SID RAC1
Fri Aug 26 10:38:47 EDT 2011: Saving SQL report data for SID ASM1
Fri Aug 26 10:38:48 EDT 2011: Saving SQL report data for SID RAC1
Fri Aug 26 10:38:48 EDT 2011: Adding these processes to the process list for SID RAC1 if they are
not there already:
UID PID PPID C STIME TTY TIME CMD
oracle 21065 21064 0 10:36 ? 00:00:00 oracleRAC1 (DESCRIPTION=(LOCAL=YES)(ADDRESS=(PROTOCOL=beq)))
oracle 21412 21411 0 10:36 ? 00:00:00 oracleRAC1 (DESCRIPTION=(LOCAL=YES)(ADDRESS=(PROTOCOL=beq)))
Fri Aug 26 10:38:48 EDT 2011: Collecting process specific SQLs for SID ASM1
Fri Aug 26 10:38:49 EDT 2011: ..SQL: Running SQLsqltext.sql on SID ASM1
Fri Aug 26 10:38:49 EDT 2011: ..SQL: Running SQLash.sql on SID ASM1
Fri Aug 26 10:38:50 EDT 2011: Collecting process specific SQLs for SID RAC1
Fri Aug 26 10:38:50 EDT 2011: ..SQL: Running SQLsqltext.sql on SID RAC1
Fri Aug 26 10:38:50 EDT 2011: ..SQL: Running SQLash.sql on SID RAC1
Fri Aug 26 10:38:52 EDT 2011: SQL collection complete after 16 seconds (16 SQLs - average seconds:
1)
Fri Aug 26 10:38:52 EDT 2011: Getting stack for ora_fg_RAC1 21065 using short_stack in
PRW_DB_RAC1/prw_ora_fg_RAC1_21065_08-26-11.out
Fri Aug 26 10:38:52 EDT 2011: Getting stack for ora_fg_RAC1 21412 using short_stack in
PRW_DB_RAC1/prw_ora_fg_RAC1_21412_08-26-11.out
Fri Aug 26 10:38:53 EDT 2011: Getting stack for ora_pmon_RAC1 3091 using short_stack in
PRW_DB_RAC1/prw_ora_pmon_RAC1_3091_08-26-11.out
Fri Aug 26 10:38:53 EDT 2011: Getting stack for ora_lmon_RAC1 3127 using short_stack in
PRW_DB_RAC1/prw_ora_lmon_RAC1_3127_08-26-11.out
Fri Aug 26 10:38:53 EDT 2011: Getting stack for ora_lmd0_RAC1 3129 using short_stack in
PRW_DB_RAC1/prw_ora_lmd0_RAC1_3129_08-26-11.out
Fri Aug 26 10:38:53 EDT 2011: Getting stack for ora_lms0_RAC1 3131 using short_stack in
PRW_DB_RAC1/prw_ora_lms0_RAC1_3131_08-26-11.out
Fri Aug 26 10:38:55 EDT 2011: Getting stack for ora_rms0_RAC1 3135 using short_stack in
PRW_DB_RAC1/prw_ora_rms0_RAC1_3135_08-26-11.out
Fri Aug 26 10:38:55 EDT 2011: Getting stack for ora_lmhb_RAC1 3137 using short_stack in
PRW_DB_RAC1/prw_ora_lmhb_RAC1_3137_08-26-11.out
Fri Aug 26 10:38:55 EDT 2011: Getting stack for ora_dbw0_RAC1 3141 using short_stack in
PRW_DB_RAC1/prw_ora_dbw0_RAC1_3141_08-26-11.out
Fri Aug 26 10:38:55 EDT 2011: Getting stack for ora_lgwr_RAC1 3143 using short_stack in
PRW_DB_RAC1/prw_ora_lgwr_RAC1_3143_08-26-11.out
Fri Aug 26 10:38:55 EDT 2011: Getting stack for ora_ckpt_RAC1 3145 using short_stack in
PRW_DB_RAC1/prw_ora_ckpt_RAC1_3145_08-26-11.out
Fri Aug 26 10:38:57 EDT 2011: Getting stack for ora_smon_RAC1 3147 using short_stack in
PRW_DB_RAC1/prw_ora_smon_RAC1_3147_08-26-11.out
Fri Aug 26 10:38:57 EDT 2011: Getting stack for ora_lck0_RAC1 3186 using short_stack in
PRW_DB_RAC1/prw_ora_lck0_RAC1_3186_08-26-11.out
Fri Aug 26 10:38:57 EDT 2011: Getting stack for asm_pmon_+ASM1 3872 using short_stack in
```


ON X" when PQ slave"s execution plan does not match with QC [31602782.8]

"SELECT SPARE6 FROM USER$ WHERE USER#=:1" Causes Blocking Sessions, Hangs on RAC on 12.2.x with Infiniband "gc cr request"<="gc buffer busy acquire"<="library cache lock" Waits on a Single Session [2546022.1]

Show More

```
PRW_DB_ASM1/prw_asm_pmon_+ASM1_3872_08-26-11.out
Fri Aug 26 10:38:58 EDT 2011: Getting stack for asm_lmon_+ASM1 3888 using short_stack in
PRW_DB_ASM1/prw_asm_lmon_+ASM1_3888_08-26-11.out
Fri Aug 26 10:38:58 EDT 2011: Getting stack for asm_lmd0_+ASM1 3890 using short_stack in
PRW_DB_ASM1/prw_asm_lmd0_+ASM1_3890_08-26-11.out
Fri Aug 26 10:38:58 EDT 2011: Getting stack for asm_lms0_+ASM1 3892 using short_stack in
PRW_DB_ASM1/prw_asm_lms0_+ASM1_3892_08-26-11.out
Fri Aug 26 10:38:58 EDT 2011: Getting stack for asm_lmhb_+ASM1 3896 using short_stack in
PRW_DB_ASM1/prw_asm_lmhb_+ASM1_3896_08-26-11.out
Fri Aug 26 10:39:00 EDT 2011: Getting stack for asm_dbw0_+ASM1 3900 using short_stack in
PRW_DB_ASM1/prw_asm_dbw0_+ASM1_3900_08-26-11.out
Fri Aug 26 10:39:01 EDT 2011: Getting stack for asm_lgwr_+ASM1 3902 using short_stack in
PRW_DB_ASM1/prw_asm_lgwr_+ASM1_3902_08-26-11.out
Fri Aug 26 10:39:01 EDT 2011: Getting stack for asm_ckpt_+ASM1 3904 using short_stack in
PRW_DB_ASM1/prw_asm_ckpt_+ASM1_3904_08-26-11.out
Fri Aug 26 10:39:01 EDT 2011: Getting stack for asm_smon_+ASM1 3906 using short_stack in
PRW_DB_ASM1/prw_asm_smon_+ASM1_3906_08-26-11.out
Fri Aug 26 10:39:01 EDT 2011: Getting stack for asm_gmon_+ASM1 3910 using short_stack in
PRW_DB_ASM1/prw_asm_gmon_+ASM1_3910_08-26-11.out
Fri Aug 26 10:39:02 EDT 2011: Getting stack for asm_lck0_+ASM1 3916 using short_stack in
PRW_DB_ASM1/prw_asm_lck0_+ASM1_3916_08-26-11.out
Fri Aug 26 10:39:04 EDT 2011: Stacks complete after 12 seconds (24 stacks - average seconds: 0)
Fri Aug 26 10:39:04 EDT 2011: Cycle complete after 28 seconds
Fri Aug 26 10:39:04 EDT 2011: Sleeping 152 seconds until time to run again per the INTERVAL setting
(180 seconds)
```

In the **bolded** sections above we can see that Procwatcher added our two contending sessions to it's debug list and collected data for them.

Typically the first thing to do when troubleshooting contention in Procwatcher is to look at the waitchains report:

```
$ cd PRW_DB_RAC1
$ vi pw_waitchains_RAC1_08-26-11.out
```

In the wait chains report we see the contention:

```
SQL> SQL> V WAITCHAINS (top 100 rows) Snapshot Taken At: Fri Aug 26 10:41:38 EDT 2011


PROC 21065 : Current Process: 21065 SID RAC1 INST #: 1
PROC 21065 : Blocking Process: <none> from Instance Number of waiters: 1
PROC 21065 : Wait Event: SQL*Net message from client P1: 1650815232 P2: 1 P3: 0
PROC 21065 : Seconds in Wait: 317 Seconds Since Last Wait:
PROC 21065 : Wait Chain: 1: 'SQL*Net message from client'<='enq: TX - row lock contention'
PROC 21065 : Blocking Wait Chain: <none>

PROC 21412 : Current Process: 21412 SID RAC1 INST #: 1
PROC 21412 : Blocking Process: 21065 from Instance 1 Number of waiters: 0
PROC 21412 : Wait Event: enq: TX - row lock contention P1: 1415053318 P2: 65552 P3: 28807
PROC 21412 : Seconds in Wait: 308 Seconds Since Last Wait:
PROC 21412 : Wait Chain: 1: 'SQL*Net message from client'<='enq: TX - row lock contention'
PROC 21412 : Blocking Wait Chain: <none>
```

I have **bolded** the most interesting pieces above. From the above data it should be clear that ospid 21412 is waiting for a TX lock and is blocked by ospid 21065. Meanwhile ospid 21065 is idle waiting for "SQL*Net message from client".

Note that in later version of Procwatcher, it will attempt to find the suspected final blocker and give you counts of waiters (in waitchains) per instance:

```
----------blkr----------
Fri Dec 21 10:15:36 EST 2012: Suspected final blocker is:  Process: 21065 SID: 7146 SER#: 8949 INST
RAC1 INST #: 1
-------end blkr---------
testa2 Waitchains SessionCount:3-Instance:1
```

Now we can get more details about each of these processes. This should be available in files generated specifically for these processes:

```
$ ls | egrep "21065|21412"
prw_ora_fg_RAC1_21065_08-26-11.out
prw_ora_fg_RAC1_21412_08-26-11.out
```

Now we will look at the waiting process first (21412):

```
$ cat prw_ora_fg_RAC1_21412_08-26-11.out
################################################################################
Procwatcher Debugging for Process 21412 ora_fg_RAC1
################################################################################
SQL: Wait Chains Report for Process 21412 ora_fg_RAC1

SQL> SQL> V WAITCHAINS (top 100 rows) Snapshot Taken At: Fri Aug 26 10:38:43 EDT 2011
PROC 21412 : Current Process: 21412 SID RAC1 INST #: 1
PROC 21412 : Blocking Process: 21065 from Instance 1 Number of waiters: 0
PROC 21412 : Wait Event: enq: TX - row lock contention P1: 1415053318 P2: 65552 P3: 28807
PROC 21412 : Seconds in Wait: 139 Seconds Since Last Wait:
PROC 21412 : Wait Chain: 1: 'SQL*Net message from client'<='enq: TX - row lock contention'
PROC 21412 : Blocking Wait Chain: <none>

################################################################################
SQL: Session Wait Report for Process 21412 ora_fg_RAC1

SQL> SQL> V SESSIONWAIT Snapshot Taken At: Fri Aug 26 10:38:43 EDT 2011
PROC INST STATE EVENT P1 P2
P3 SEC
---------------------------- -------------------- ---------- ------------------------------ -------
--- ---------- --------
-- ----------
PROC 21412 SID RAC1 WAITING enq: TX - row lock contention 1415053318 65552 288
07 141

################################################################################
SQL: Active Session History Report for Process 21412 ora_fg_RAC1

SQL> SQL> Snapshot Taken At: Fri Aug 26 10:38:50 EDT 2011
PROC SAMPLE_TIME EVENT P1 P2 P3 WAIT_CLASS TIME_WAITED
---------------------------- ------------------ ------------------------------ ---------- ---------
- ---------- ------------ -----------
PROC 21412 26-AUG-11 10.38.33 enq: TX - row lock contention 1415053318 65552 28807 Application 0
PROC 21412 26-AUG-11 10.38.34 enq: TX - row lock contention 1415053318 65552 28807 Application 0
PROC 21412 26-AUG-11 10.38.35 enq: TX - row lock contention 1415053318 65552 28807 Application 0
PROC 21412 26-AUG-11 10.38.36 enq: TX - row lock contention 1415053318 65552 28807 Application 0
PROC 21412 26-AUG-11 10.38.37 enq: TX - row lock contention 1415053318 65552 28807 Application 0
PROC 21412 26-AUG-11 10.38.38 enq: TX - row lock contention 1415053318 65552 28807 Application 0
PROC 21412 26-AUG-11 10.38.39 enq: TX - row lock contention 1415053318 65552 28807 Application 0
PROC 21412 26-AUG-11 10.38.40 enq: TX - row lock contention 1415053318 65552 28807 Application 0
PROC 21412 26-AUG-11 10.38.41 enq: TX - row lock contention 1415053318 65552 28807 Application 0
PROC 21412 26-AUG-11 10.38.42 enq: TX - row lock contention 1415053318 65552 28807 Application 0
PROC 21412 26-AUG-11 10.38.43 enq: TX - row lock contention 1415053318 65552 28807 Application 0
PROC 21412 26-AUG-11 10.38.44 enq: TX - row lock contention 1415053318 65552 28807 Application 0
PROC 21412 26-AUG-11 10.38.45 enq: TX - row lock contention 1415053318 65552 28807 Application 0
PROC 21412 26-AUG-11 10.38.46 enq: TX - row lock contention 1415053318 65552 28807 Application 0
PROC 21412 26-AUG-11 10.38.47 enq: TX - row lock contention 1415053318 65552 28807 Application 0
PROC 21412 26-AUG-11 10.38.48 enq: TX - row lock contention 1415053318 65552 28807 Application 0
PROC 21412 26-AUG-11 10.38.49 enq: TX - row lock contention 1415053318 65552 28807 Application 0

################################################################################
SQL: GES Enqueue Report for Process 21412 ora_fg_RAC1

SQL> SQL> V GESENQUEUE Snapshot Taken At: Fri Aug 26 10:38:45 EDT 2011
---------------------------- -------------------- ---------------------------- --------- -------
--
PROC 21412 SID RAC1 [0x10010][0x7087],[TX][ext 0x2 KJUSERNL KJUSEREX

################################################################################
SQL: Lock Report for Process 21412 ora_fg_RAC1

SQL> SQL> V LOCK Snapshot Taken At: Fri Aug 26 10:38:43 EDT 2011
PROC INST TY ID1 ID2 LMODE REQUEST BLOCK
---------------------------- -------------------- -- ---------- ---------- ---------- ---------- --
--------
PROC 21412 SID RAC1 TX 65552 28807 0 6 0

################################################################################
SQL: Current SQL Report for Process 21412 ora_fg_RAC1

SQL> SQL> Snapshot Taken At: Fri Aug 26 10:38:50 EDT 2011

PROC 21412 - update test set test = 'blah2'


################################################################################

Fri Aug 26 10:38:52 EDT 2011
F S UID PID PPID C PRI NI ADDR SZ WCHAN STIME TTY TIME CMD
0 S oracle 21412 21411 0 75 0 - 332592 - 10:36 ? 00:00:00 oracleRAC1 (DESCRIPTION=(LOCAL=YES)
(ADDRESS=(PROTOCOL=beq)))



SQL*Plus: Release 11.2.0.2.0 Production on Fri Aug 26 10:38:53 2011

Copyright (c) 1982, 2010, Oracle. All rights reserved.

Enter user-name: SQL> Oracle pid: 44, Unix process pid: 21412, image: oracle@racbde1.<domain> (TNS
V1-V3)
Fri Aug 26 10:38:53 EDT 2011

ksedsts()+461<-ksdxfstk()+32<-ksdxcb()+1900<-sspuser()+112<-__sighandler()<-semtimedop()+10<-
skgpwwait()+160<-ksliwat()+1865<-kslwaitctx()+163<-kju
suc()+3600<-ksipgetctxi()+1759<-ksqcmi()+20904<-ksqgtlctx()+3810<-ksqgelctx
```

```
()+561<-ktuGetTxForXid()+131<-ktcwit1()+291<-kdddgb()+8086<-kdusru()+460
<-updrowFastPath()+1155<-qerupFetch()+2522<-updaul()+1265<-updThreePhaseExe
()+328<-updexe()+443<-opiexe()+9904<-kpoal8()+2231<-opiodr()+910<-ttcpip
()+2289<-opitsk()+1670<-opiino()+966<-opiodr()+910<-opidrv()+570<-sou2o()+103
<-opimai_real()+133<-ssthrdmain()+252<-main()+201<-__libc_start_main()
+244<-_start()+36
Fri Aug 26 10:38:53 EDT 2011

ksedsts()+461<-ksdxfstk()+32<-ksdxcb()+1900<-sspuser()+112<-__sighandler()<-semtimedop()+10<-
skgpwwait()+160<-ksliwat()+1865<-kslwaitctx()+163<-kju
suc()+3600<-ksipgetctxi()+1759<-ksqcmi()+20904<-ksqgtlctx()+3810<-ksqgelctx()
+561<-ktuGetTxForXid()+131<-ktcwit1()+291<-kdddgb()+8086<-kdusru()+460
<-updrowFastPath()+1155<-qerupFetch()+2522<-updaul()+1265<-updThreePhaseExe()
+328<-updexe()+443<-opiexe()+9904<-kpoal8()+2231<-opiodr()+910<-ttcpip
()+2289<-opitsk()+1670<-opiino()+966<-opiodr()+910<-opidrv()+570<-sou2o()+103
<-opimai_real()+133<-ssthrdmain()+252<-main()+201<-__libc_start_main()
+244<-_start()+36
Fri Aug 26 10:38:53 EDT 2011

ksedsts()+461<-ksdxfstk()+32<-ksdxcb()+1900<-sspuser()+112<-__sighandler()<-semtimedop()+10<-
skgpwwait()+160<-ksliwat()+1865<-kslwaitctx()+163<-kju
suc()+3600<-ksipgetctxi()+1759<-ksqcmi()+20904<-ksqgtlctx()+3810<-ksqgelctx()
+561<-ktuGetTxForXid()+131<-ktcwit1()+291<-kdddgb()+8086<-kdusru()+460
<-updrowFastPath()+1155<-qerupFetch()+2522<-updaul()+1265<-updThreePhaseExe()
+328<-updexe()+443<-opiexe()+9904<-kpoal8()+2231<-opiodr()+910<-ttcpip
()+2289<-opitsk()+1670<-opiino()+966<-opiodr()+910<-opidrv()+570<-sou2o()+103
<-opimai_real()+133<-ssthrdmain()+252<-main()+201<-__libc_start_main()
+244<-_start()+36
Statement processed.
/u01/app/oracle/diag/rdbms/rac/RAC1/trace/RAC1_ora_28221.trc
SQL> Disconnected from ORACLE
Cleaning up trc file /u01/app/oracle/diag/rdbms/rac/RAC1/trace/RAC1_ora_28221.trc
Cleaning up trm file /u01/app/oracle/diag/rdbms/rac/RAC1/trace/RAC1_ora_28221.trm

Average stack time: 0 seconds (rounded)
```

With the above data we should have several key pieces of information to help us troubleshoot. We have:

- Wait chain data from v$wait_chains
- Session wait data from v$session_wait
- Active Session History data to see the recent history of this process
- GES Enqueue data to look at RAC related locks.
- Lock data from v$lock
- Current SQL of the session
- Ps output for the process
- 3 short stacks of the process for more advanced troubleshooting by Oracle Support
- Suspected final blocker information in later versions of Procwatcher

Now let's look at the blocking process:

```
$ cat prw_ora_fg_RAC1_21065_08-26-11.out
################################################################################
Procwatcher Debugging for Process 21065 ora_fg_RAC1
################################################################################
SQL: Wait Chains Report for Process 21065 ora_fg_RAC1

SQL> SQL> V WAITCHAINS (top 100 rows) Snapshot Taken At: Fri Aug 26 10:38:43 EDT 2011
PROC 21065 : Current Process: 21065 SID RAC1 INST #: 1
PROC 21065 : Blocking Process: <none> from Instance Number of waiters: 1
PROC 21065 : Wait Event: SQL*Net message from client P1: 1650815232 P2: 1 P3: 0
PROC 21065 : Seconds in Wait: 148 Seconds Since Last Wait:
PROC 21065 : Wait Chain: 1: 'SQL*Net message from client'<='enq: TX - row lock contention'
PROC 21065 : Blocking Wait Chain: <none>

################################################################################
SQL: GES Enqueue Report for Process 21065 ora_fg_RAC1

SQL> SQL> V GESENQUEUE Snapshot Taken At: Fri Aug 26 10:38:45 EDT 2011
------------------------------ -------------------- ------------------------------ --------- -------
--
PROC 21065 SID RAC1 [0x10010][0x7087],[TX][ext 0x2 KJUSEREX KJUSEREX

################################################################################
SQL: Lock Report for Process 21065 ora_fg_RAC1

SQL> SQL> V LOCK Snapshot Taken At: Fri Aug 26 10:38:43 EDT 2011
PROC INST TY ID1 ID2 LMODE REQUEST BLOCK
------------------------------ -------------------- -- ---------- ---------- ---------- ---------- --
--------
PROC 21065 SID RAC1 TX 65552 28807 6 0 1


################################################################################
Fri Aug 26 10:38:52 EDT 2011
F S UID PID PPID C PRI NI ADDR SZ WCHAN STIME TTY TIME CMD
0 S oracle 21065 21064 0 78 0 - 332592 pipe_w 10:36 ? 00:00:00 oracleRAC1 (DESCRIPTION=(LOCAL=YES)
(ADDRESS=(PROTOCOL=beq)))
```

```
SQL*Plus: Release 11.2.0.2.0 Production on Fri Aug 26 10:38:52 2011

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Enter user-name: SQL> Oracle pid: 37, Unix process pid: 21065, image: oracle@racbde1.<domain> (TNS
V1-V3)
Fri Aug 26 10:38:52 EDT 2011

ksedsts()+461<-ksdxfstk()+32<-ksdxcb()+1900<-sspuser()+112<-__sighandler()<-read()+14<-
ntpfprd()+115<-nsbasic_brc()+338<-nsbrecv()+69<-nioqrc()+485
<-__PGOSF36_opikndf2()+978<-opitsk()+850<-opiino()+966<-opiodr()+910<-opidrv()
+570<-sou2o()+103<-opimai_real()+133<-ssthrdmain()+252<-main()+201<-_
_libc_start_main()+244<-_start()+36
Fri Aug 26 10:38:52 EDT 2011

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_libc_start_main()+244<-_start()+36
Statement processed.
/u01/app/oracle/diag/rdbms/rac/RAC1/trace/RAC1_ora_28102.trc
SQL> Disconnected from ORACLE
Cleaning up trc file /u01/app/oracle/diag/rdbms/rac/RAC1/trace/RAC1_ora_28102.trc
Cleaning up trm file /u01/app/oracle/diag/rdbms/rac/RAC1/trace/RAC1_ora_28102.trm

Average stack time: 0 seconds (rounded)
```

So with all of the above data we should have everything we need (for most cases) to troubleshoot a contention problem. And an added benefit is that Procwatcher will collect this data automatically without any user intervention (once Procwatcher has been started).

REFERENCES

NOTE:1428210.1 - Troubleshooting Database Contention With V$Wait_Chains
NOTE:459694.1 - Procwatcher: Script to Monitor and Examine Oracle DB and Clusterware Processes

Attachments

Proc Watcher DB Demo (12.91 MB)

Related

Products

- Oracle Database Products > Oracle Database Suite > Oracle Database > Oracle Database - Enterprise Edition > Real Application Cluster
- Oracle Cloud > Oracle Platform Cloud > Oracle Database Cloud Service > Oracle Database Cloud Schema Service
- Oracle Cloud > Oracle Infrastructure Cloud > Oracle Cloud at Customer > Gen 1 Exadata Cloud at Customer (Oracle Exadata Database Cloud Machine)
- Oracle Cloud > Oracle Platform Cloud > Oracle Cloud Infrastructure - Database Service > Oracle Cloud Infrastructure - Database Service
- Oracle Cloud > Oracle Platform Cloud > Oracle Database Cloud Exadata Service > Oracle Database Cloud Exadata Service
- Oracle Cloud > Oracle Platform Cloud > Oracle Database Backup Service > Oracle Database Backup Service
- Oracle Cloud > Oracle Platform Cloud > Oracle Database Cloud Service > Oracle Database Exadata Express Cloud Service
- Oracle Cloud > Oracle Platform Cloud > Oracle Database Cloud Service > Oracle Database Cloud Service

Errors

KSQCMI; SQL1; SQL2; SQL3

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