Document Control

Date	Author	Version
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Environment Variable:

DB Name	Droll
Platform	Oracle Linux 64-bit
CPUs	8
Release	11.2.3.0
RAC	No

Troubleshooting DB Performance issues with AWR and ADDM

Problem Overview:

About two days ago, a problem appeared with me, as the response time of some SQL statements was too long and there were many warnings about that from users.

I immediately took action by making a plan to find out where the bottleneck was through some reports like AWR and ADDM reports at intervals of the problem time.

Plan steps to troubleshoot:

[1] Implement findings from an ADDM report from the same snapshot interval

[2] Review Overall picture from AWR header information

[3] Check Host and Instance CPU to determine the proportion of CPU usage by this instance

[4] Check the Load profile to use later in the context of the top waits

[5] Examine Top 5 Timed Events for highest resource users

[6] Go to SQL stats section in AWR report

Headlines of the problem:

ADDM->

First from ADDM we get recommendations about some SQL statements to optimize.

AWR->

1. DB time

1. We noticed that the database time is about 16 times greater than the elapsed time. This is a large percentage, so it should be greater than the elapsed time by about eight times only because the CPU has only eight cores.

Elapsed:		120.05 (mins)		
DB Time:		1,923.42 (mins)		

DB time ratio: Elapsed time ratio

16 : 1

So it is likely that there is some overloading issues.

2. Host and Instance CPU

We noticed that instance consume only 17% of the CPU, so it indicates that the performance load problem tends to be elsewhere.

Instance CPU

%Total CPU	%Busy CPU
17.0	99.3

3. Top 5 Timed Events

Top waits section is the most important single section in the whole report being as it quantifies and allows comparison of the primary diagnostic:

Event	Waits	Total Wait Time (sec)	Wait Avg(ms)	% DB time	Wait Class
DB CPU		37.1K		32.1	
db file sequential read	98,080,363	36K	0	31.2	User I/O
SQL*Net message from dblink	87,656	22.3K	254	19.3	Network
direct path read	4,638,747	9739	2	8.4	User I/O
db file parallel read	145,597	7121.9	49	6.2	User I/O

- Event 'SQL *Net Message from dblinks' is typically means that your local system is waiting on the network to transfer the data across the network and is 19.3% of DB time.

- Event 'db file sequential read' is a single block read and is 31% of DB time.

- 32% of the time is spent waiting for or using CPU time. High CPU usage is often a symptom of poorly tuned SQL (or at least SQL which has potential to take less resource) of which excessive I/O can also be a symptom. More on CPU usage follows later.

Note: we consider the number of users upon the duration of the reporting period.

Checks we took based on AWR and ADDM reports.

1- **We checked the OS logs to see what is being run and how it affects the performance of the database.**
2- **Get the SQLs that have a poor response time and tune them.**
3- **Checked Network bottlenecks.**

Actions and Results:

1 - We found many functions that work automatically on the operating system and thus take up a large part of the CPU.

We organized these jobs to run at a time when the database is not busy.

2- We got the SQLs with poor response from ADDM and AWR to tune them, and we got a fast response time after tuning.

Also, the network was resolved by network engineer.

References:

How To Read AWR Report :: Oracle World (oracle-world.com)

AWR Report - Overview | Report Generation | Analysis | (perfmatrix.com)

Performance Tuning Basics 15 : AWR Report Analysis – Expert Oracle