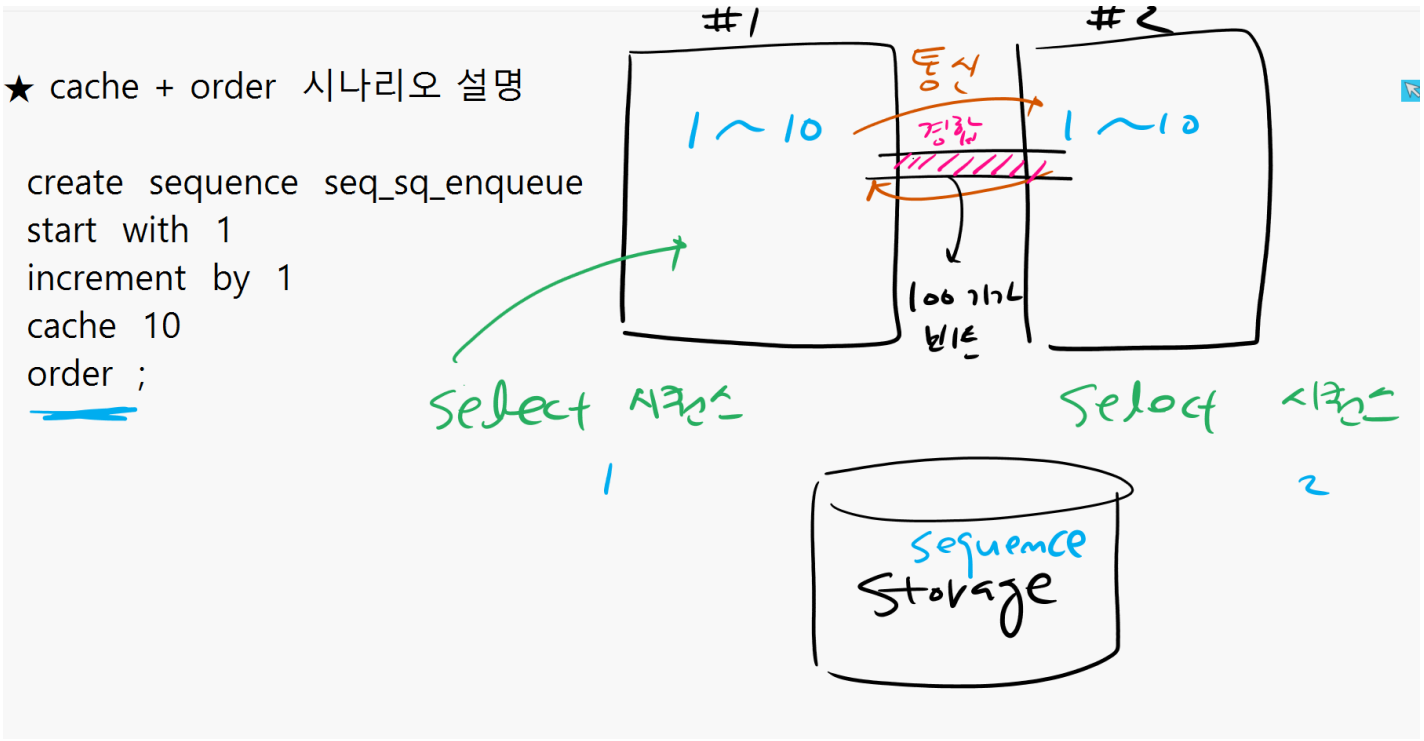
❁ 50. RAC 환경에서 발생하는 SQ enqueue 성능 문제 해결하는 방법 2 (cache + order일 때)

```
sequence 생성 시 안 좋은 상황들 순위
1. nocache
2. cache + order
3. cache 사이즈 작게 + noorder
4. cache 사이즈 크게 + noorder

※ cache + order 시나리오
create sequence seq_sq_enqueue
start with 1
increment by 1
cache 10
order;

=> 1번 노드와 2번 노드가 서로 통신하면서 몇 번까지 번호를 부여했는지 서로 메세지를 교환한다.
     sequence 사용이 모든 노드에서 빈번해지면 RAC 성능 저하가 발생한다. 이 때 발생하는 대기 이벤트가
     SV-contention 이다.
```




```
실습
1. owi 유저의 seq_sq_enqueue sequence의 sequence 속성을 확인하시오.
select sequence_name, cache_size, order_flag
from user_sequences;
```

```
racdb1(OWI) >  select sequence_name, cache_size, order_flag
        from user_sequences;
          2
SEQUENCE_NAME                  CACHE_SIZE O
------------------------------ ---------- -
SCENARIO_NO_SEQ                        20 N
SEQ_SQ_ENQUEUE                          0 N
```

```
2. cache 사이즈는 10으로 하고 order flag는 order로 하시오.
alter sequence seq_sq_enqueue cache 10;
alter sequence seq_sq_enqueue order;
```

```
select sequence_name, cache_size, order_flag
from user_sequences;
```

```
racdb1(OWI) >   select sequence_name, cache_size, order_flag
        from user_sequences;   2

SEQUENCE_NAME                  CACHE_SIZE O
------------------------------ ---------- -
SCENARIO_NO_SEQ                        20 N
SEQ_SQ_ENQUEUE                         10 Y
```

```
3. 부하를 일으키기 전에 별도의 터미널 창을 열어서 대기 이벤트를 볼 준비를 하시오.
select  sid, event
from gv$session_wait
where  event  not  in ('ASM background timer',
                                          'DIAG idle wait',
                                          'GCR sleep',
                                          'PING',
                                          'PX Deq: Execute Reply',
                                          'PX Deq: Execution Msg',
                                          'SQL*Net message from client',
                                          'Space Manager: slave idle wait',
                                          'Streams AQ: qmn coordinator idle wait',
                                          'Streams AQ: qmn slave idle wait',
                                          'Streams AQ: waiting for time management or cleanup
                                          'VKTM Logical Idle Wait',
                                          'class slave wait',
                                          'gcs remote message',
                                          'ges remote message',
                                          'pmon timer',
                                          'rdbms ipc message',
                                          'smon timer',
                                          'wait for unread message on broadcast channel')
  order  by event  asc;

save event.sql

4. 다른 터미널 창에서 owi 유저에서 cache+order 시퀀스에 대한 부하를 일으키시오.
(sql 1 owi)
@exec
-------------------------
sq_enqueue
-------------------------
=> 모니터링 하는 터미널 창에서 대기 이벤트를 확인하시오.
=> SV enquque가 발생한다는 것은 sequence의 옵션 설정 중, order flag를 noorder가 아니라 order로
     했을 때 발생하는 대기 이벤트다. 1번 노드와 2번 노드가 서로 sequence 번호 관련해서 통신하면서
     대기하고 있다는 뜻이다.
```

```
racdb1(OWI) >  /

       SID EVENT
---------- ----------------------------------------
         5 control file parallel write
         5 control file parallel write
       137 enq: SV -  contention
       140 enq: SV -  contention
       371 enq: SV -  contention
       246 enq: SV -  contention
       257 enq: SV -  contention
       373 enq: SV -  contention
       370 enq: SV -  contention
        18 enq: SV -  contention
        15 enq: SV -  contention

       SID EVENT
---------- ----------------------------------------
       141 enq: SV -  contention
       143 jobq slave wait
       360 log file parallel write
```

문제 1. 다시 한번 부하를 일으키는 데 이번에는 부하 일으키기 전에 사진 한번 찍고 부하 일으킨 후에
사진 한번 찍고서 ADDM report를 떠서 오라클이 권장하는 처방전을 출력하시오.

```
(sql 1 owi)
@snap

@exec
-------------------------
sq_enqueue
-------------------------
select  sid, event
from gv$session_wait
where  event  not  in ('ASM background timer',
                                                'DIAG idle wait',
                                                'GCR sleep',
                                                'PING',
                                                'PX Deq: Execute Reply',
                                                'PX Deq: Execution Msg',
                                                'SQL*Net message from client',
                                                'Space Manager: slave idle wait',
                                                'Streams AQ: qmn coordinator idle wait',
                                                'Streams AQ: qmn slave idle wait',
                                                'Streams AQ: waiting for time management or cleanup
                                                'VKTM Logical Idle Wait',
                                                'class slave wait',
                                                'gcs remote message',
                                                'ges remote message',
                                                'pmon timer',
                                                'rdbms ipc message',
                                                'smon timer',
                                                'wait for unread message on broadcast channel')
  order  by event  asc; -> no rows selected 될 때까지 실행하기

@snap
@?/rdbms/admin/addmrpt.sql
```

```
                                48 28 Mar 2024 13:00      1
                                49 28 Mar 2024 14:00      1
                                50 28 Mar 2024 14:24      1
                                51 28 Mar 2024 14:25      1


Specify the Begin and End Snapshot Ids
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Enter value for begin_snap: 50
Begin Snapshot Id specified: 50

Enter value for end_snap: 51
End   Snapshot Id specified: 51



Specify the Report Name
~~~~~~~~~~~~~~~~~~~~~~~
The default report file name is addmrpt_1_50_51.txt.  To use this name,
press <return> to continue, otherwise enter an alternative.

Enter value for report_name: report11.txt
```

```
Finding 2: Unusual "Other" Wait Event
Impact is 1.45 active sessions, 46.08% of total activity.
-----------------------------------------------------------
Wait event "enq: SV -  contention" in wait class "Other" was consuming
significant database time.

   Recommendation 1: Application Analysis
   Estimated benefit is 1.45 active sessions, 46.08% of total activity.
   ---------------------------------------------------------------------
   Action
      Investigate the cause for high "enq: SV -  contention" waits. Refer to
      Oracle's "Database Reference" for the description of this wait event.
   Action
      Look at the "Top SQL Statements" finding for SQL statements consuming
      significant time on the "enq: SV -  contention" wait event. For example,
      the SELECT statement with SQL_ID "gjxq13ucm559c" is responsible for 100%
      of these waits.

   Recommendation 2: Application Analysis
   Estimated benefit is 1.45 active sessions, 46.08% of total activity.
   ---------------------------------------------------------------------
   Action
      Investigate the cause for high "enq: SV -  contention" waits in Module
      "sq_enqueue".

   Recommendation 3: Application Analysis
   Estimated benefit is 1.45 active sessions, 46.08% of total activity.
   ---------------------------------------------------------------------
   Action
      Investigate the cause for high "enq: SV -  contention" waits in Service
      "SYS$USERS".

   Recommendation 4: Application Analysis
   Estimated benefit is 1.45 active sessions, 46.08% of total activity.
   ---------------------------------------------------------------------
   Action
      Investigate the cause for high "enq: SV -  contention" waits with
      P1,P2,P3 ("type|mode, id1, id2") values "1398145029", "87614" and "0"
      respectively
```

```
=> 처방전 : SV enqueue가 발생하면서 database가 느리다면 sequence의 속성을 order에서 noroder로
                        변경을 해주면 된다.

alter sequence seq_sq_enqueue noorder;
```

```
racdb1(OWI) >  alter sequence seq_sq_enqueue noorder;

Sequence altered.

racdb1(OWI) >
select sequence_name, cache_size, order_flag
from user_sequences;racdb1(OWI) >    2

SEQUENCE_NAME                  CACHE_SIZE O
------------------------------ ---------- -
SCENARIO_NO_SEQ                        20 N
SEQ_SQ_ENQUEUE                         10 N
```