Steps to investigate CPU performance on release migration

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Steps to investigate CPU performance

- Comparing CPU performance on V10 relative to V8 or V9
  - More difficult to do in real customer production environment
    - Uncertainty caused by application changes
    - Fluctuation in the daily application profile especially batch flow
  - Must try to normalise things out to ensure workloads are broadly comparable
    - Broadly similar in terms of SQL and getpage profile
    - Usually have to exclude the batch flow
    - Factor out extreme variation
    - Need to look at multiple data points
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- Check that you have the same pattern across releases from a DB2 perspective based on combined view of DB2 Statistics and Accounting Traces
- Validate that there have been no access path regression after migration or from application changes going on at the same time as the migration
- Use as a starting point look at
  - Statistics Trace
    - MSTR TCB & SRB, DBM1 TCB, SRB & IIP SRB, IRLM TCB & SRB CPU times
    - Split of CP vs. zIIP for DBM1 is likely to be very different between V9 and V10
  - Accounting
    - For each CONNTYPE
      - Class 2 CPU times on CP and zIIP, numbers of occurrences and commits/rollbacks
  - Workload indicators:
    - DML (split by type: select, insert, update, fetch, etc...),
    - Commits, rollbacks, getpages, buffer update
    - Read and write activity (#IOs. #pages)
Steps to investigate CPU performance

- A challenge to get an 'apple-to-apple' comparison in a real production environment
- Best chance is to find a period of time with limited batch activity, and to look at the same period over several days in V8/V9 and several days running on V10
- Make sure that the CPU numbers are normalized across those intervals i.e., use CPU milliseconds per commit
- Easy to combine statistics and accounting by stacking the various components of CPU resource consumption:
  - MSTR TCB / (commits + rollbacks)
  - MSTR SRB / (commits + rollbacks)
  - DBM1 TCB / (commits + rollbacks)
  - DBM1 SRB / (commits + rollbacks)
  - DBM1 IIP SRB / (commits + rollbacks)
  - IRLM TCB / (commits + rollbacks)
  - IRLM SRB / (commits + rollbacks)
  - Average Class 2 CP CPU * occurrences / (commits + rollbacks)
  - Average Class 2 SE CPU * occurrences / (commits + rollbacks)
Steps to investigate CPU performance

- Need to check the workload indicators for the chosen periods
- Similarities between data points for a given version, but big variations between V8/V9 and V10
  - Sign that something has changed from an application or access path perspective
  - More granular analysis of accounting data will be required to pin point the specific plan/package