10 – Constant Time Recovery in Azure SQL Database

1. Overview of Idea
   Failure of long running transactions causes major performance degrading. With persistent version store, MVCC can handle this problem with constant time recovery. It can improve Azure DB's performance a lot since there are some long running transactions.

2. Main Finding

   MVCC with CTR technique is good at handling long txn failure recovery.

3. Systems used and its Specifications
   MVCC, SI database, with CRT technique

   A. Maintain two log type
      Slog to manage system modification log
      txn log to manage transaction action log

   B. PVS to manage multiple versions
      in-row version storage to manage version by active txn.
      off-row version storage to manage version which is already commited

   C. Logical reverting to manage failure at constant time

4. Workloads evaluated
   Custom OLTP benchmark is used.