* How do we get a heath check on the dictionary size?
  + i.e. what is the current % used?  
    **ctrlrpc -p 9911 show.dedupe\_stats|grep uhd\_total\_nrecs**  
    **this gives number of records in the dictionary.**
* If a QS system has had a dictionary overflow..
  + How do we determine if it needs to run through the ten step plan or not?  
    **If the savings are negative in CT or on-prem, even after cleaner is 'Done'**
* How can they check the progress of the machines in the 10 step plan?  
  **stats --cleaner**  
  **+   Check number of refcnt log files under refcnt log directory.**  
  **find /QSdata/qs\_metadata/0/refcnt\_log/**
* How can they check the size of queued data not yet sent to cloud. - user friendly  
  **stats --system**  
  **Compare 'Current Bytes' vs 'Stubbed Bytes'**
* If we make changes for the refcounts - put them on faster disk to help with cloud cleaning.
  + Before:
    - How do we check the current speed of processing refcounts?  
      **ctrlrpc -p 9911 show.cleaner\_status**  
      **Check for phases, 'PL' 'NL' & 'SL'.**
  + After
    - How do we check the speed of processing refcounts in their new location?  
      **ctrlrpc -p 9911 show.cleaner\_status**  
      **Check for phases, 'PL' 'NL' & 'SL'.**
    - If it completes, how long did it take to catch up?  
      **Depends on the pending work at various cleanup stages.**
    - In an ‘ideal’ world cloud cleaning would complete every day.  
      **Yes.**
* What is the complete process for moving refcounts?
  + Different disk - size required?  
    **roughly 4k \*  (max post dedupe bytes local  / 12MB  + max post dedupe bytes cloud / 4MB)**
  + Stop QS services
  + **Add new disk for example at /QSdata/ssd**
  + Set PLATFORM\_DS\_REFCNTS\_ON\_SSD from ‘0’ to ‘1’  in **/etc/oca/oca.cfg**
  + **Append export TGTSSDDIR=/QSdata/ssd/  to /etc/oca/oca.cfg**  
    **mkdir QSdata/ssd/0**  
    **mv /QSdata/ocaroot/0/.ocarina\_hidden/refcnt /QSdata/ssd/0**  
    **QSdata/ssd/1**  
    **mv /QSdata/ocaroot/1/.ocarina\_hidden/refcnt /QSdata/ssd/1/**  
    **QSdata/ssd/2**  
    **mv /QSdata/ocaroot/2/.ocarina\_hidden/refcnt /QSdata/ssd/2/**  
    **..**  
    **...**
  + Start services