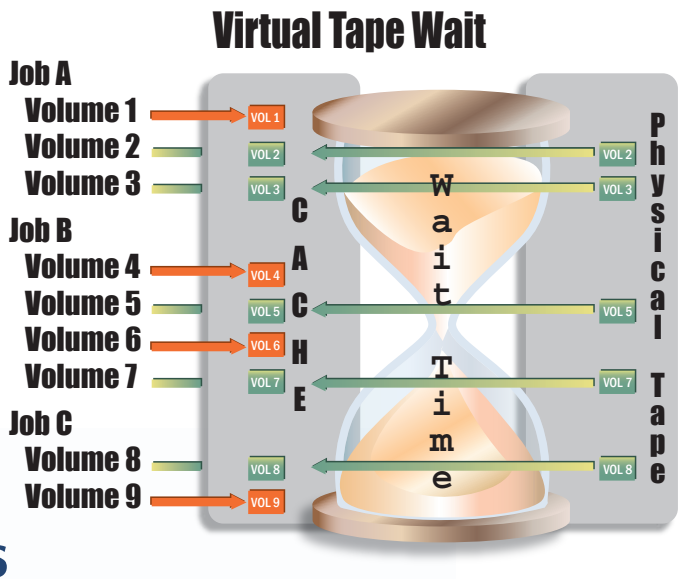
OpenTech Systems, Inc.

Virtual Tape Advanced Recall (VTAR)

- ☑ **Slash run times for batch workloads**
- ☑ **Dramatically improve batch run times for weekly/monthly/quarterly cycles**
- ☑ **Postpone or eliminate virtual tape hardware cache upgrades**

Virtual Tape Wait

Virtual tape cache is a finite amount of storage and virtual tape volumes are eventually migrated to physical tape for different reasons. When jobs request virtual tape data residing on physical tape, a recall must be performed, the volume containing the requested data set must be mounted, and the data set migrated back to disk cache. This recall process causes a delay for all jobs requesting a data set that is not in cache.



Recall wait for all workloads

The size of your current virtual disk cache and residency time of virtual volumes within cache will largely dictate the number of recalls necessary to satisfy your batch job. If your current virtual cache size forces many volume recalls, the time spent processing some batch jobs can be considerable. The number of batch jobs affected is dependent on the percentage of recalls necessary for each job.

Virtual tape recalls utilize time and resources regardless of which virtual tape device you use.

Virtual recall mount times vary from manufacturer to manufacturer. An average expectation is 200-300 seconds per recall. If a data center creates 1,000 mounts per day and 60 mounts are recalls, the time spent waiting on recalled data would be 5 hours per day if the average recall time were 300 seconds.

Even if the data center's cache hit rate is 94% daily, the time savings could be large depending on how many mounts per day were requested and what subset were recalls. If 2,000 virtual mounts were created daily, six percent of those mounts (120) would be recalls. 120 mounts times 300 seconds results in 10 hours of wait time.
This wait time could be used to:

- ☑ Process more applications within a 24 hour window
- ☑ Ensure applications are processed in a shorter window
- ☑ Start on-line applications sooner

Workloads that are not run every day will incur the most volume recalls since they possess the greater chance of having required tape data sets migrated from cache due to inactivity. The windows for all your weekly, monthly, etc. workloads will suffer due to additional processing time necessary to service the recalls.

The Solution

Pre-staging the required virtual volumes that need to be recalled into cache before the jobs need the data is the most efficient solution to reduce the processing times of batch jobs affected by virtual recall requirements.

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FTAPE                                                    DATE 12-12-04 PAGE 0001

                          TAPE PULL LIST FOR CA-7 JOBS

            PERIOD     : 12-12-04 AT 0000 HRS  TO 12-12-04 AT 2400 HRS

VOLSER  ------------- DATASET NAME -------------   CREATED-ON DEV-CODE SEQ
        JOBNAME   SYSTEM  START DTTM  END DTTM   SCHED#  SID TRIGGERING JOB/DSN

MIGRAT  P195.TRI.P9860.AUTH.PGP(0)                    00000/0000 78048083 000
        J195PGP2 AR/AUTH  02322/0945 02322/0949 SJ000766 001
        J210E320 EBFIX    02322/2348 02322/2348 SJ000590 002
        J210E330 EBFIX    02322/2348 02322/2348 SJ000590 002
        J210S330 SP/FIX   02322/2322 02322/2322 SJ000213 001
        J3706685 COPS/INV 02322/0600 02322/0600 SJ000827 001

MIGRAT  P305B.P0030990.TDATACSS(0)                     94203/0430 78048083 001
        J4113029 CSS      02322/0330 02322/0334 SJ000415 002

MIGRAT  P236.PE030.APMASTER.AP0002E(0)                 99364/2249 78048083 001
        J835ER01 EB-PO    02323/0207 02323/0207 SJ000495 001
        J835ER04 EB-PO    02323/0207 02323/0207 SJ000495 001
        J835ER05 EB-PO    02323/0207 02323/0207 SJ000495 001
        J835ER08 EB-PO    02323/0207 02323/0207 SJ000495 001

603951  DB2L.TAPE.DCDB01.DCTSACTI.DBP100(-8)           00000/0000 78048080 001
        J289VT0B CA1-VTS  02322/0747 02322/0751 SJ000256 001

612358  DB2L.P411.CSSCSDB.P411CS29.DSNP00(-2)          00000/0000 78048081 001
        J289VT05 CA1-VTS  02322/0747 02322/0925 SJ000256 001

MIGRAT  P387.P200P.M1982.DHOLD(0)                      02321/1912 78048083 001
        J390200P AR.AUTH  02323/2034 02323/2231 SJ000513 001

614559  TAPE.RT.PRODUCTN.BACKUP(-49)                   00000/0000 78048081 001
        J289VT04 CA1-VTS  02322/0747 02322/1143 SJ000256 001
        . . . . .         . . . . . . . . . . . . . . .
        . . . . .         . . . . . . . . . . . . . . .
        . . . . .         . . . . . . . . . . . . . . .

SCRATCH ... APPROXIMATELY 01890 TAPES REQUIRED FOR OUTPUT DATASETS.
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Migrated Virtual Tape Data

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REL 1.2.1  PTF 0              A D V A N C E D    R E C A L L        PROGRAM OTPF0006

DATE:  12/14/2004    TIME:  08:56:10    RECALL ACTIVITY SUMMARY REPORT     PAGE      1


   RECALL TIME SAVED:

     TOTAL TIME:                                  06:34:03  (HH:MM:SS)
     AVERAGE TIME:                                02:29  (MM:SS)
     MAX. TIME:                                   04:31  (MM:SS)
     MIN. TIME:                                   00:16  (MM:SS)


   TOTAL RECS PROCESSED:                          3249

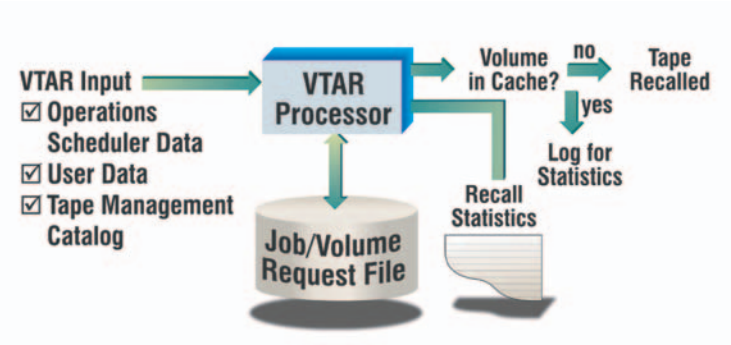
     PENDING RECALL RECORDS:                        64
     BEING RECALLED RECORDS:                        12
     RECALL DONE    RECORDS:                       896
     ALREADY IN     RECORDS:                       120
     RECALL FAILED  RECORDS:                        15
     NOT IN CATALOG RECORDS:                         4
     VOLUME IN USE  RECORDS:                         2
     PENDING SCHED  RECORDS:                         0
     PENDING EXPANS RECORDS:                        25
     VTL NOT AUTH   RECORDS:                         1
     VOL NOT IN TMC RECORDS:                         0
     DUPLICATE VOL  RECORDS:                       115
     TMC REC ERROR  RECORDS:                         0
     IOCNTLTB ERROR RECORDS:                         0
     REQ TOO OLD    RECORDS:                        13
     NOT TAPE FILE  RECORDS:                         9
     REQ CANCELED   RECORDS:                        17
     NOT IN ANY ATL RECORDS:                       320
     DELETED/RESCHD RECORDS:                         0
     DELETED/GDGBAS RECORDS:                         0
     NO VSER/NO TMS RECORDS:                         0
     HSM RCALL DONE RECORDS:                      1633
     HSM RCALL FAIL RECORDS:                         3
     HSM RCALL SKIP RECORDS:                         0
```

Save Hours!

How VTAR Works

Using information from your job scheduling software or other input sources, VTAR creates an extract file of the virtual tape data sets used by production jobs and determines the date and time that these data sets will be required. The VTAR task uses the information it receives from the extract file to recall the data sets shortly before they will be requested by the production jobs.

The data sets are now in cache and available, so your production job cycle is not delayed by a virtual tape recall.



VTAR is fully automated and will first determine if a volume is in cache before requesting a recall. The user can review reports on the savings VTAR provides, including the Recall Activity Summary Report, which displays the number of advance recalls processed as well as the associated savings in wait time.

VTAR allows you to maximize the value of your virtual tape investment by eliminating the virtual tape wait that hinders daily production job cycles, and especially periodic cycles such as month-end processing.

You can measure the improvement in your virtual tape workloads in only 1-2 weeks!

Contact OpenTech Systems today to request a FREE evaluation or to schedule a product presentation.

Also available:
HSM Advanced Recall (HSM/AR)
Eliminate processing delays caused by recalling migrated HSM data.

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