



**Hewlett Packard
Enterprise**

DMFUG 2019

Migration of DMF 6 to 7

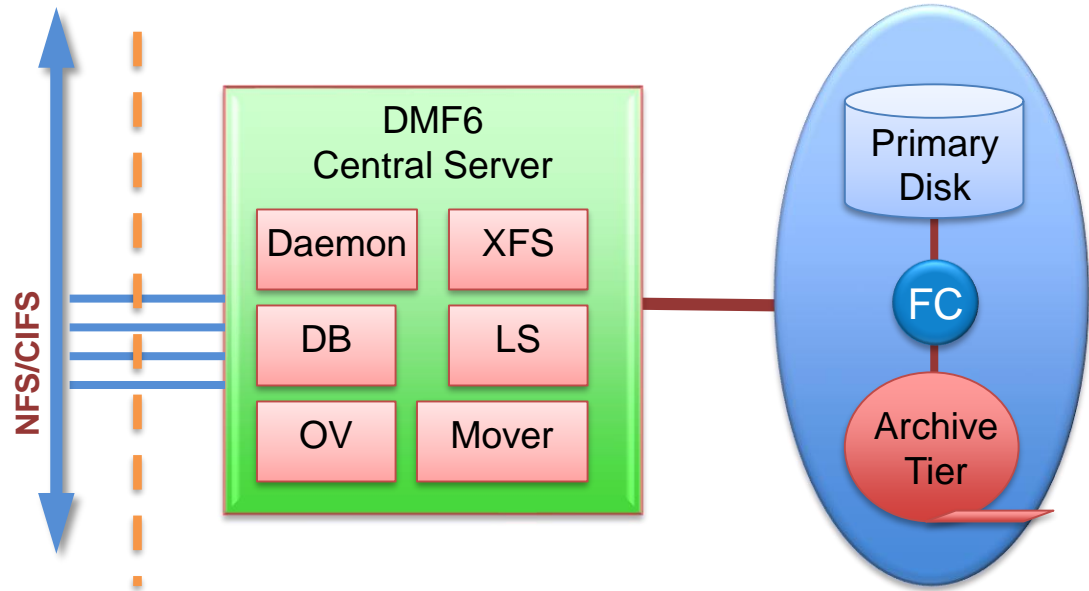
Zsolt Ferenczy

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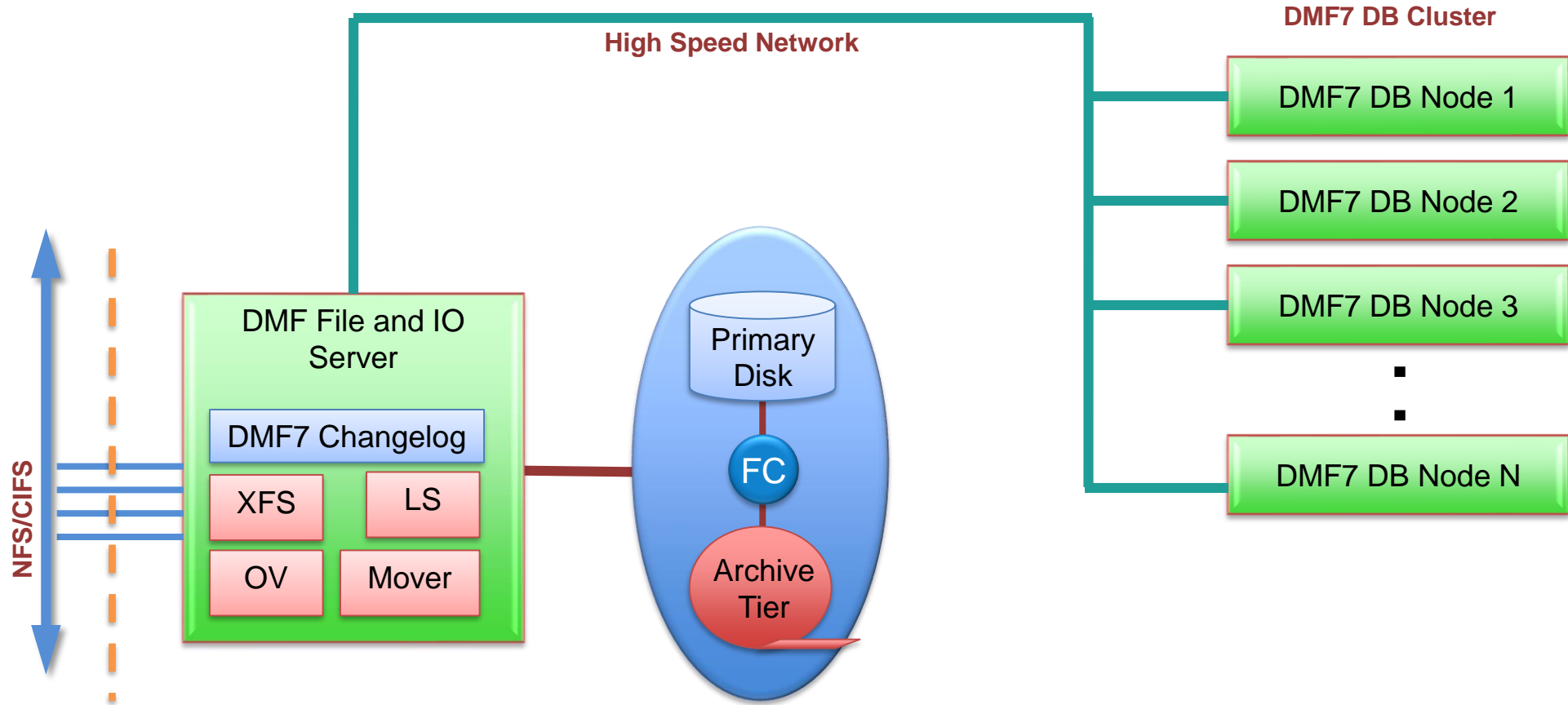
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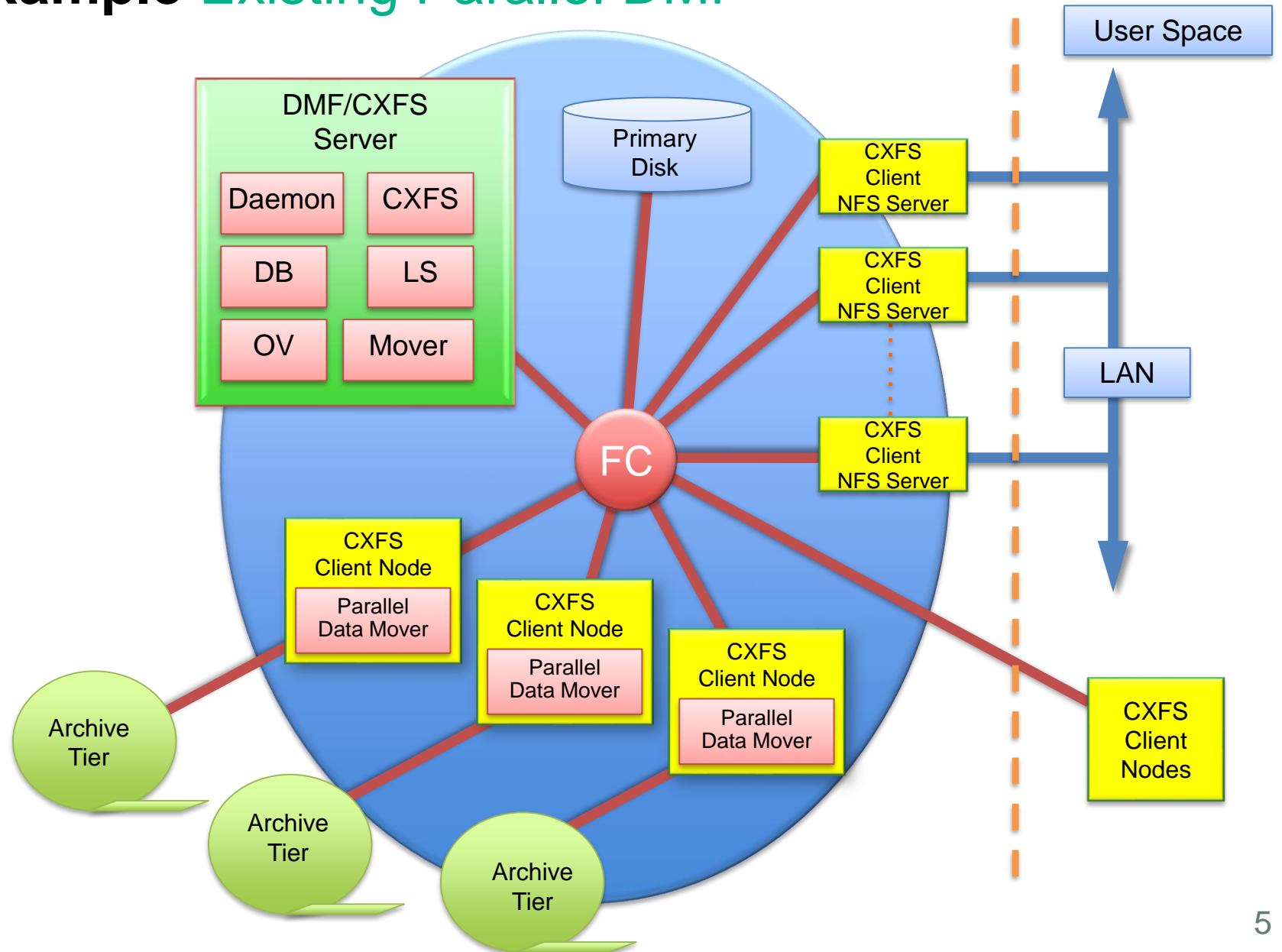
DMF6 to DMF7 | Example Existing Basic DMF



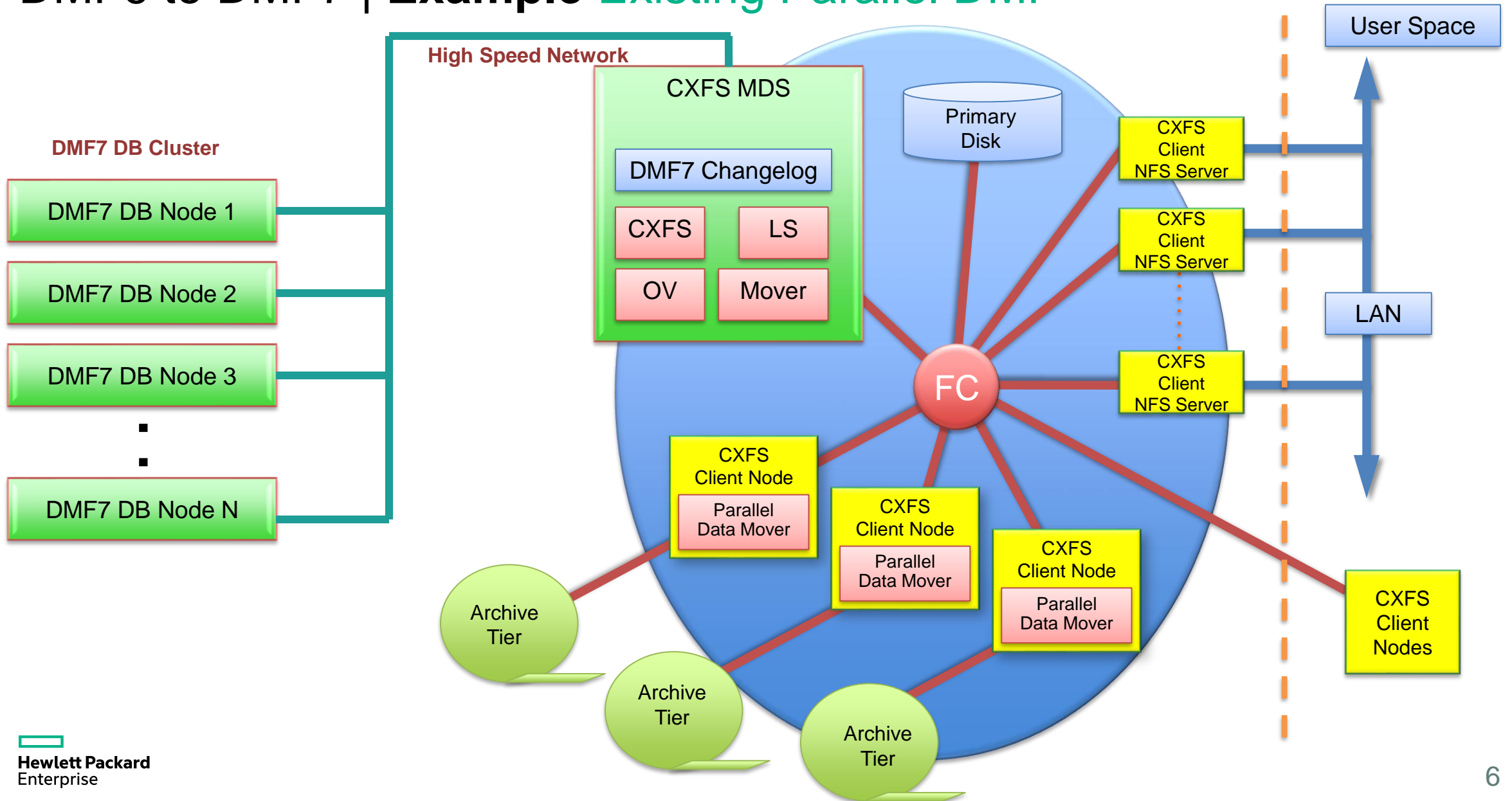
DMF6 to DMF7 | Example Existing Basic DMF



DMF6 to DMF7 | Example Existing Parallel DMF



DMF6 to DMF7 | Example Existing Parallel DMF



DMF6 to DMF7 | Prerequisites for Converting to DMF 7

- Running DMF 6.9.1
- No database errors in dmaudit or verifymsp
- External backup of the database and file systems
- Using only the OpenVault mounting service
- All migrated data stored only in a Library Server
 - Tape or JBFS (ZWS)
- Only EXFS Managed Filesystems
- No files in PAR, MIG, UNM or ARC states
 - OFL and DUL states are supported

Prepare for Export from DMF 6 Database | Step 1 of 4

- Establish logical checkpoint for marking start of the import procedure
 - Stop new requests from streaming into the DMF 6.0 server.
 - Cancel requests triggered by low priority tasks and maintenance scripts.
 - Reprioritize important requests to complete first.
 - Handle files in transient state which are being moved, recalled etc.
 - Once all queues drain, proceed to shutting down daemon, movers and library servers.
- Create consistent snapshot of RAIMA database state
 - Ensure that cross table dependencies between daemon objects, volumes and chunks are logically consistent.
 - Run dmaudit and deal with any issues with daemon database tuples.
 - Run dmatvfy to deal with cross table issues between volumes and chunks.
 - Run a copy database operation to obtain consistent copy of the RAIMA databases (Daemon, Vol and Chunk)
 - Verify integrity of the snapped tuples using dmdbcheck.

Export Library Server & Daemon Data | Step 2 of 4

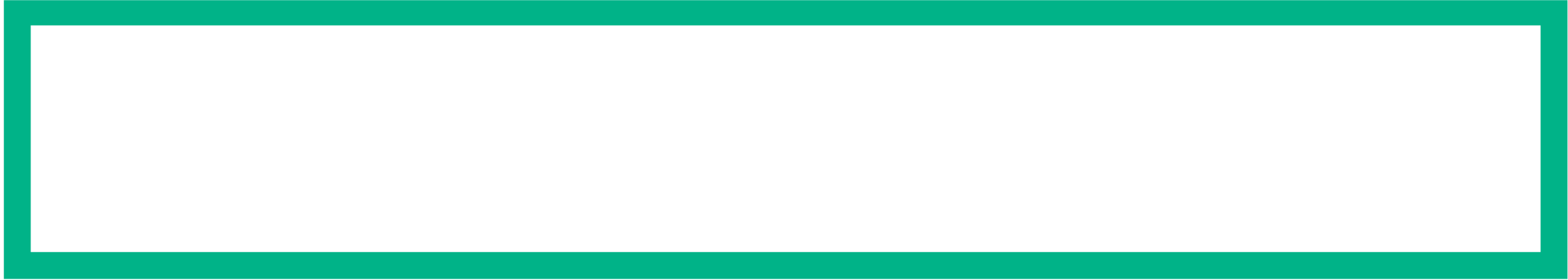
- Export database tuples in text (csv) format
 - There is a pair of volume and chunk database for each library server instance.
- The daemon database is exported using the following commands
 - `dmdump -c <path_to_daemon_db_snapshot> > <output_file.txt>`
- The Library Server volume database is exported using the following command:
 - `dmdump <path_to_library_server_vol_db_snapshot_dir/tpvrdb.dat> > <output_file.txt>`
- The Library Server chunk database is exported using the following command:
 - `dmdump <path_to_library_server_cat_db_snapshot_dir/tpcrdb.dat> > <output_file.txt>`
- Once the exports have completed, we can populate the DMF7 object keyspaces and the library server keyspaces from the output files obtained above.
- At this point, DMF6 installation can be shutdown

Scan Filesystems & Import Data | Step 3 of 4

- Install DMF7 according to Administrator’s Guide
- Register HPE XFS filesystem(s) with DMF7
- Start DMF7 EXFS scanner instances on DMF6 managed HPE XFS filesystems to capture all inode attributes.
- Create scratch namespace called *dmf_mig* where all temporary migration related table data will be kept.
- Scan the *file_xattr* table and extract the DMF6 bfid and file state attributes captured as a binary blob. Create mapping between Fileid, Bfid and State.
- Construct DMF7 *object_version*, *chunk* and *managed_file* information using the bfid and vg information obtained from scanning the daemon table dump. Also establish the mapping between the files and objects constructed above.
- Register library server with “dmf library register” command using definitions from DMF6’s *dmf.conf*.
 - This will be automated before release
- Import the library server chunk information into Cassandra library server keyspaces.

Validate Migration | Step 4 of 4

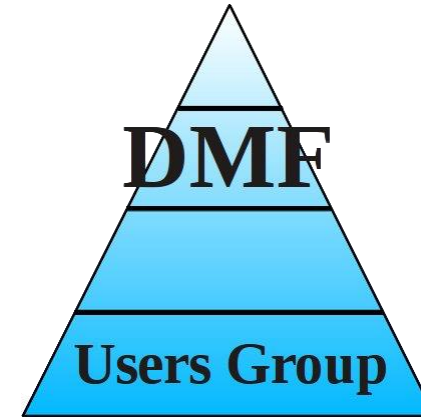
- Bring up DMF7 with policies disabled
- Verify contents of Cassandra library server database.
 - Run dmvoladm & dmcatadm test queries against new Cassandra library server database and check consistency across table tuples.
 - Run count operations on chunk table for VSNs and verify if it matches aggregate chunk counts in VOL table.
- Operate with new Cassandra library server database state
 - Start library server
 - Run test queries using CLI
 - Perform test recalls on OFL files
 - Perform test migrations, punches and recalls
- Create and enable policies



DEMO



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Thank You