

Bull Director for HPSS

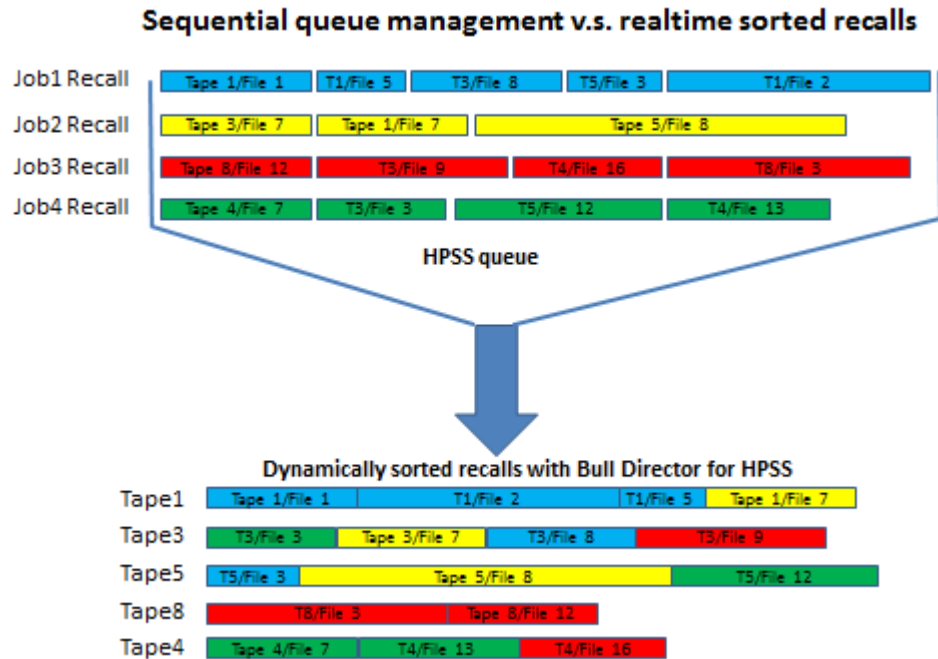
Sub title

15-03-2017

Bull Director for HPSS

Overview

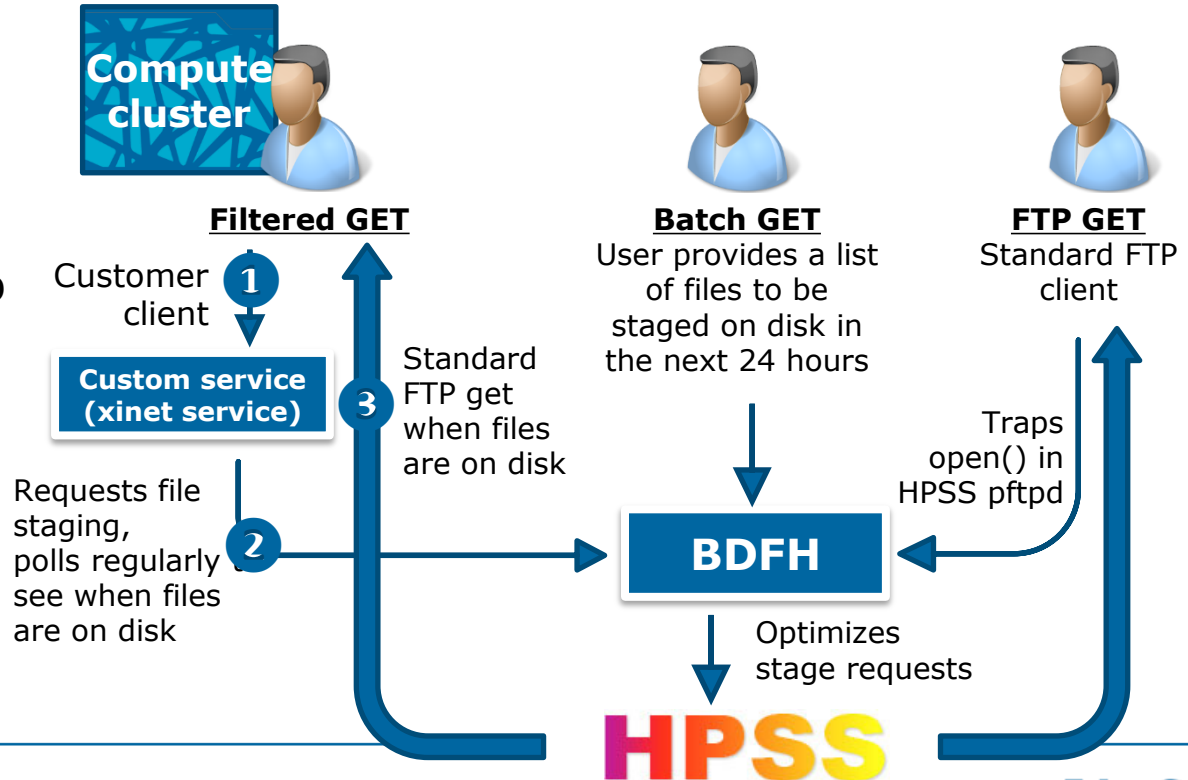
- ▶ Smart companion for HPSS
 - optimize request queue by reordering requests
 - per library (PVR)
 - per tape
 - per offset
 - use CLAPI to communicate with HPSS
 - virtually infinite queue depth (only limited by available memory on node. About 1K per request)
- ▶ Low overhead



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Large variety of interfaces

- ▶ command line
 - bdfhstage
 - bdfhadmin
- ▶ API
 - can be used to develop custom services
- ▶ automatic change cos



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Command line tools

- ▶ bdfhstage
 - get a list of objects to be staged
 - from a file
 - from the command line
 - from stdin
 - objects can be
 - canonical HPSS file name (ie the name used in the HPSS namespace)
 - absolute or relative file name within a vfs namespace
 - HPSS BFID
 - request can be submitted synchronously or asynchronously

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API

- ▶ Allow to develop custom tools
- ▶ library level
 - bdfh_init
 - bdfh_finalize
- ▶ collection management (ie group of actions)
 - bdfh_create_collection
 - bdfh_delete_collection
 - bdfh_get_collection_size
 - bdfh_add2collection
- ▶ execution
 - bdfh_apply

bdfh_apply can register a callback which is triggered as soon as an action on an object did complete

- status of object available
- stage done
- cos change completed
- error

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Interceptor

- ▶ interceptor is a dynamic library that can be used to intercept hpss_open CLAPI call in order to forward them to bdfh
- ▶ can be used to mitigate the random load of ftp servers
 - the file is open in the ftp service only when it is available on hpss level 0
 - benefit of the BDFH local optimization
 - however, due to the sequential nature of ftp it doesn't provide the same level of performance improvement than submitting a large list of objects to stage to BDFH through API or bdfhstage.

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Automatic Change Cos (ACC)

- ▶ allow the administrator to define rules that will be regularly applied in order to move object from one COS to an another
 - for example to move small file to a dedicated storage class
- ▶ very flexible way to describe rules
 - SQL like syntax
 - support integer arithmetic (add, sub, mult, div)
 - support logical expressions (and or)
 - support time references (NOW is defined as the current time stamp)
 - support order comparison operator (< <= == <> > >=)
 - allow integer multiplier (**minutes**, **hours**, **days**, **Months**, **years**, **KB**, **MB**, **GB**, **TB** as well as **KiB**, **MiB**, **GiB**, **TiB**)

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Observation tool

- ▶ bdfhstat command gather statistics and instantaneous information
- ▶ return a xml file which can be processed by any kind of presentation tool
- ▶ allow to specify level of information
 - from high level counters
 - down to the entire list of request and how many processed and remote client are waiting for

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Supported platform

- ▶ bdfh_core daemon follow HPSS support policy
 - for performance reason it is required to run it on the core server
- ▶ all others components
 - supported on RedHat 6 ou RedHat 7
 - other might be considerate

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Production statistics

- ▶ Statistics from V0
 - number of days : 521
 - average number of requests : 138.059 per day
 - average number of stages : 25.016 per day [4:538.238]
 - average number of tapes mounted : 349 per day [3:1558]
 - average size : 8.3 TB per day [8GB:137TB]
 - survive to a burst of more than 20 M requests
- ▶ ACC installed about a year ago
 - average number of ACC : 104.820 per day

Thanks

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