dCache.0RG

Improved dCache – HSM Interface

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Improved dCache HSM Interface

Goal of HSM Connection Module

Overall Goal

Keep drives streaming !!!!

Reduce number of (real) mount/dismount operations !!!

Allows HSM to do smart scheduling Sorts requests based on media container (tape) Submit requests based on resource knowledge (drives)

Data Stream Control

Overcome disk deficiencies (read/write competition/congestion)

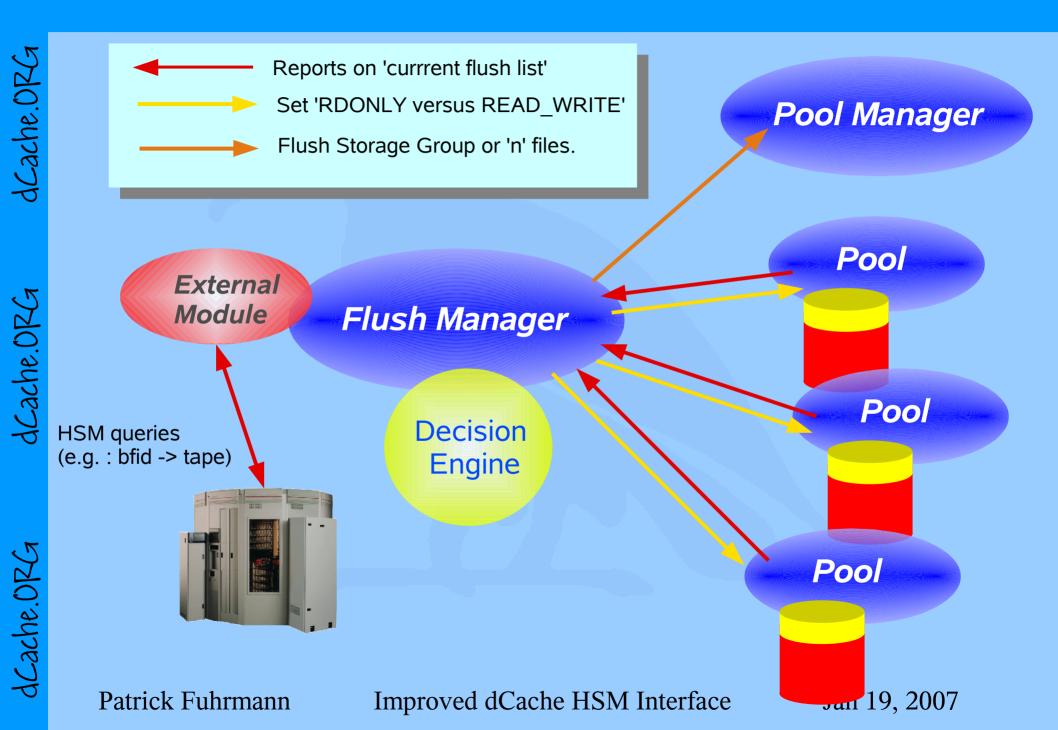
Network bandwidth limitation

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Improved Flushing

Components



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- * A single Flush Manager operates on a single Pool-Manager Pool-Group
- * Multiple Flush Managers may run in a single dCache instance
- * Pools are set *rdOnly* before being flushed (to improve Disk Performance)
- * starts flushing after considering the following rules :
 - never flushes more than a configured number of pools.
 - makes sure there are always enough DATA INPUT pools available.
 - never flushes more than a configured number of storage groups (drives)
 - may limit the maximum number of files per flush operation.

Improved dCache HSM Interface

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				_Flus	<u>h Con</u>	trol			
PoolName Pool Mode						Precious Size			Fraction
limerick_1 R-			0 7 GB			60 MB			
limerick_2 R-		-			2 KB				
				Action on selected queue entries					
			Set ReadOnly Set ReadWrite						
									Fraction
					7.60		-		
								-	
imerick_2	dteam:STATL		Idle	2 KB	7 GB	0	3	0	
Toggle Viev				_				erName	
F	limerick. limerick	limerick_1 R- limerick_2 R- PoolName Storage Class imerick_1 dteam:GENE imerick_1 dteam:STATI imerick_1 ops:GENERA	limerick_1 R- limerick_2 R- PoolName Storage Class imerick_1 dteam:GENE imerick_1 dteam:STATI imerick_1 ops:GENERA	limerick_1 R- 0 limerick_2 R- 0 Action or Set Read Set Read Set Read Set Read Set Read Flush All imerick_1 dteam:STATI Idle imerick_1 ops:GENERA Idle	PoolName Pool Mode Flushing limerick_1 R- 0 limerick_2 R- 0 limerick_1 R- 0 Set ReadOnly Set ReadWrite PoolName Storage Class Flush All PoolName Storage Class Flush All imerick_1 dteam:STATI Idle 2 KB imerick_1 ops:GENERA Idle 30 MB	PoolName Pool Mode Flushing Total Size limerick_1 R- 0 7 GB limerick_2 R- 0 7 GB Action on selected queue entries Set ReadOnly Set ReadWrite PoolName Storage Class imerick_1 dteam:GENE Idle 2 KB Imerick_1 ops:GENERA Idle 30 MB 7 GB	limerick_1 R- 0 7 GB 60 limerick_2 R- 0 7 GB 60 Action on selected queue entries 2 Action on selected queue entries 2 Set ReadOnly 5 4 Set ReadOnly 4 4 Set ReadWrite 4 4 PoolName Storage Class Flush All 0 imerick_1 dteam: GENE Idle 2 KB 7 GB 0 imerick_1 ops: GENERA Idle 30 MB 7 GB 0	PoolName Pool Mode Flushing Total Size Precious Size limerick_1 R- 0 7 GB 60 MB limerick_2 R- 0 7 GB 2 KB Action on selected queue entries Set ReadOnly Set ReadWrite PoolName Storage Class Set ReadWrite Active Pending imerick_1 dteam:GENE Idle 2 KB 7 GB 0 1 imerick_1 ops:GENERA Idle 30 MB 7 GB 0 1	PoolName Pool Mode Flushing Total Size Precious Size limerick_1 R- 0 7 GB 60 MB 1 limerick_2 R- 0 7 GB 2 KB 1 Marcina Size R- 0 7 GB 2 KB 1 Set ReadOnly Set ReadWrite Active Pending Failed SolName Storage Class Flush All 0 1 0 imerick_1 dteam: GENE Idle 2 KB 7 GB 0 4 0 imerick_1 ops: GENERA Idle 30 MB 7 GB 0 1 0

GUI

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Web Interface

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Update this Flush Manager (hfc)

Manager : hfc

Cell Name	Driver Class	Control Type		
hfc@hsmcontrolDomain	diskCacheV111.hsmControl.flush.driver.AlternatingFlushSchedulerV1	Centrally Controlled		
	Control Locally Control Centrally			

Flushing Pools

Action	PoolName	Pool Mode	Flushing	Total Size	Precious Size	Fraction			
	limerick_1	ReadOnly	0	7516192768	63398804	8.4349624E-5			
	limerick_2	ReadOnly	0	7516192768	2334	3.1052956E-9			
Set Read Only Set Read Write Query									

Flushing Storage Classes

1	Action	PoolName	StorageClass	Status	Total Size	Precious Size	Fraction	Active	Pending	Failed
		limerick_1	ops:GENERATED@osm	ldle	7516192768	31698359	4.2173426E-5	0	1	0
	Γ	limerick_2	dteam:STATIC@osm	ldle	7516192768	2334	3.1052956E-9	0	3	0
		limerick_1	dteam:STATIC@osm	ldle	7516192768	2086	2.7753413E-9	0	4	0
	Γ	limerick_1	dteam:GENERATED@osm	ldle	7516192768	31698359	4.2173426E-5	0	1	0

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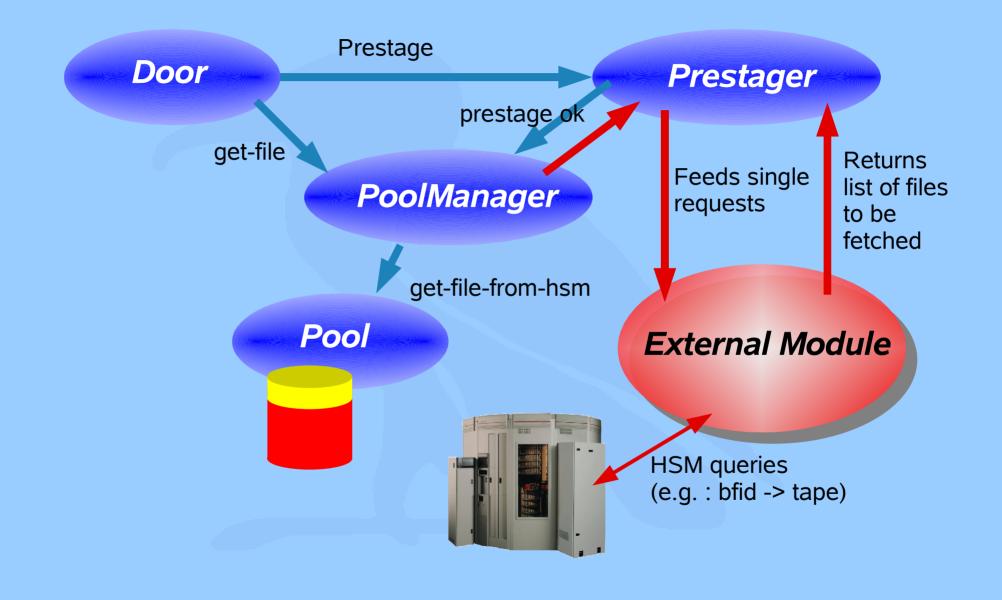
Flush

Components and message flow

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dCache.ORG

dCache.0RG



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Flush Manager

Evaluated at USCMS and BNL Functional except for unclear behavior in conjunction with Pool 2 Pool Will be worked on next

Timeline

Improved HSM restore

Not clear when we get free resources for that

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