HSM, Data Movement, Tiering and more

Ben Evans LUG 2019
Active Development
HSM – Current Status

Ifs hsm_archive $foo

Client → MDS → Copytool

coordinator

action

status
What’s Wrong with this Picture

Ifs hsm_archive $foo

Client

MDS

coordinator

action

status

Copytool
#2 and 3 Coordinator (LU-10986)

```
Ifs hsm_archive $foo
```

```
Client
```

```
coordinator
```

```
MDS
```

```
Coordinator
```

```
Userspace
```

```
DB
```

```
Copytool
```

```
action
```

```
status
```
#4 Copytool Interfaces

```
Ifs hsm_archive $foo

Client -> MDS -> coordinator

action

status

Begin, End

Copytool

Work
```
Archive (New Interface)

• Can all be handled by the new data mover
  • Only HSM xattr info needs to be set (ARCHIVED, etc.)
  • Need to check data versions to make sure nothing changed
• Failovers? Not a problem
• Locks? Not a problem
• Multiple backups? All userspace
• But wait, there’s more!
Restore (New Interface)

- Can all be handled by the new data mover
  - Need to check that it can be restored (basically the ARCHIVED flag)
  - Restore data to a temp file, then do a layout swap
  - Remove RELEASED flag
- Failovers? Not a problem
- Locks? Not a problem (kind of)
Ifs hsm_archive $foo

Client

MDS

Coordinator

status

Copytool

Begin, End
Migrate LU-9855

• Use current lfs migrate to create a temp file with new striping info
  • Add it to the HSM queue
  • Copytool copies data from the file to the temp file
  • Layout swap
  • Delete the old temp file
• No real coordinator changes needed (internal or external)
Future Work
Migrate LU-9855+

- Leverage stripes
  - Create an HSM mirror sync operation
- Migrate
  - Create a new stripe
  - Migrate data
  - Delete old stripes
Migrate LU-9855++

• Leave old stripes in place
  • At the end, delete all data in the old stripe and mark it as inactive

• Migrate
  • Create or Reactivate stripe
  • Mirror sync
  • Truncate old stripe
  • Deactivate old stripe
Migrate LU-9855+++ 

• Name the stripes
  • “SSD” or ”HDD”

• Migrate
  • Activate “HDD” stripe
  • Mirror sync
  • Truncate “SDD” stripe
  • Deactivate “SSD” stripe
Migrate LU-9855++++

• PFL and stripes

• Migrate off of SSD
  • Copy the file?
  • Mirror sync?
  • Something else?
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• Current view of mirrored stripes

• Or could we do this?
QUESTIONS?

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