

# REPORT ON DIRAC DATAMANAGEMENT

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Giacinto Donvito

INFN-BARI

# OUTLINE

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- Catalogue and other info
- Put/Get/delete features
- Replica
- High level features
  - Interactive usage
  - Metadata
  - Ancestors

# CATALOGUE

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- All the test has been carried on with DIRAC File Catalogue
  - This will be interesting because we will have both File Catalogue features and Metadata feature
- Using the Storage Element already configured in DIRAC instance
  - Configuring the SE is not at all a trivial task!!
- The typical grid file catalogue features are available
  - copy-and-register, replicate, delete, get, etc...

# CATALOGUE – 2

- The DIRAC File Catalogue has a good number of added features:
  - Checksum
  - CreationDate
  - ModificationDate
  - Owner
  - OwnerGroup
  - Size
- DIRAC provides both “batch” and “interactive” command line
  - Web interface still to be tested
- The system is able to provide also an index of the Storage Element configured
  - They can be used with user-friendly names



# PUT/GET/DELETE FEATURES

- PUT:

- `dirac-dms-add-file /superbvo.org/user/g/donvito/dir_test/test2 /lustre/donvito/dirac/bashrc BARI-INFN`
  - The storage element name is the one configured in DIRAC
  - `{'Failed': {},`
  - `'Successful': {'/superbvo.org/user/g/donvito/dir_test/test2': {'put': 7.4923808574676514,`
  - `'register': 0.52035999298095703}}}`
- `dirac-dms-lfn-replicas /superbvo.org/user/g/donvito/dir_test/test2`
  - `{'Failed': {},`
  - `'Successful': {'/superbvo.org/user/g/donvito/dir_test/test2': {'BARI-INFN': 'srm://storm-se-01.ba.infn.it:8444/srm/manager?SFN=/superbvo.org/superbvo.org/user/g/donvito/dir_test/test2'}}}`

# PUT/GET/DELETE FEATURES

- GET:
  - `dirac-dms-get-file /superbvo.org/user/g/donvito/dir_test/test2`
    - The Storage Element is automatically chosen
- DELETE:
  - `dirac-dms-remove-lfn`
    - Remove LFN and \*all\* associated replicas from Storage Elements and File Catalogs.
  - `dirac-dms-remove-lfn-replica /superbvo.org/user/g/donvito/dir_test/test2 FERRARA-INFN`
    - Remove replica of LFN from specified Storage Element and File catalogs.

# REPLICA FEATURES

- Replica:

- Quite an easy task for the users:

- -bash-3.2\$ dirac-dms-lfn-replicas /superbvo.org/user/g/donvito/dir\_test/test2
- {'Failed': {}},
- 'Successful': {'/superbvo.org/user/g/donvito/dir\_test/test2': {'BARI-INFN': 'srm://storm-se-01.ba.infn.it:8444/srm/manager?SFN=/superbvo.org/superbvo.org/user/g/donvito/dir\_test/test2'}}}
- -bash-3.2\$
- -bash-3.2\$ dirac-dms-replicate-lfn /superbvo.org/user/g/donvito/dir\_test/test2 FERRARA-INFN
- {'Failed': {}},
- 'Successful': {'/superbvo.org/user/g/donvito/dir\_test/test2': {'register': 0.5209200382232666,
- -bash-3.2\$ 'replicate': 15.390527009963989}}}
- -bash-3.2\$ dirac-dms-lfn-replicas /superbvo.org/user/g/donvito/dir\_test/test2
- {'Failed': {}},
- 'Successful': {'/superbvo.org/user/g/donvito/dir\_test/test2': {'BARI-INFN': 'srm://storm-se-01.ba.infn.it:8444/srm/manager?SFN=/superbvo.org/superbvo.org/user/g/donvito/dir\_test/test2',
- 'FERRARA-INFN': 'srm://grid2.fe.infn.it:8444/srm/manager?SFN=///superbvo.org/user/g/donvito/dir\_test/test2'}}}



# HIGH LEVEL FEATURES: INTERACTIVE USAGE

- The interactive usage is much more intuitive (and fast) when dealing with long “data-management sessions”
  - -bash-3.2\$ dirac-dms-filecatalog-cli
  - Starting DIRAC FileCatalog client
  - File Catalog Client \$Revision: 1.17 \$Date:
  - FC: /> help
  - Documented commands (type help <topic>):
  - =====
  - add        chgrp     exit  guid  meta    replicas  rmreplica
  - ancestor  chmod     find  id    mkdir    replicate  size
  - ancestorset  chown    get    lcd  pwd     rm        unregister
  - cd        descendent  group  ls    register  rmdir    user

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  - =====
  - add chgrp exit guid meta replicas rmreplica
  - ancestor chmod find id mkdir replicate size
  - ancestorset chown get lcd pwd rm unregister
  - cd descendent group ls register rmdir user
  - FC: /> cd /superbvo.org/user/g/donvito/dir\_test/
  - FC:/superbvo.org/user/g/donvito/dir\_test>ls -l
  - -r-----rwx 0 gdonvito user 967 2011-06-22 17:10:45 test2
  - -r-----rwx 0 gdonvito user 967 2011-06-21 09:39:34 test3

# HIGH LEVEL FEATURES: METADATA

- The DIRAC File Catalogue give also metadata features embedded on the same tool:
  - FC:/> meta set /superbvo.org/user/g/donvito/test3 Creator GiacintoDonvito
  - FC:/> meta set /superbvo.org/user/g/donvito/test3 Group GSuperB
  - FC:/> meta get /superbvo.org/user/g/donvito/test3 Creator
    - Group : GSuperB
    - Creator : GiacintoDonvito
  - FC:/superbvo.org/user/g/donvito>meta show
    - ID : INT
    - NewMetaInt : INT

# HIGH LEVEL FEATURES: METADATA – 2

- The DIRAC File Catalogue also provide metadata “search” features:
  - `FC:/superbvo.org/user/g/donvito>meta set dir_test Owner string`
  - `/superbvo.org/user/g/donvito/dir_test Owner string`
  - `FC:/superbvo.org/user/g/donvito>meta get dir_test`
    - `!Owner : string`
    - `Meta1 : test_dir`
    - `!NewMetaInt : 0`
  - `FC:/superbvo.org/user/g/donvito>`
  - `FC:/superbvo.org/user/g/donvito>meta set dir_test NewMetaInt 3`
  - `/superbvo.org/user/g/donvito/dir_test NewMetaInt 3`
  - `FC:/superbvo.org/user/g/donvito>meta get dir_test`
    - `!Owner : string`
    - `Meta1 : test_dir`
    - `!NewMetaInt : 3`
  - `FC:/superbvo.org/user/g/donvito>meta set dir_test Owner Giacinto`
  - `/superbvo.org/user/g/donvito/dir_test Owner Giacinto`

# HIGH LEVEL FEATURES: METADATA – 3

- FC:/superbvo.org/user/g/donvito>find NewMetaInt>2 Owner=Giacinto
- Query: {'Owner': 'Giacinto', 'NewMetaInt': {'>': 2}}
- /superbvo.org/user/g/donvito/dir\_test/test2
- /superbvo.org/user/g/donvito/dir\_test/test3
  
- FC:/superbvo.org/user/g/donvito>find NewMetaInt>2 Owner=DGiacinto
- Query: {'Owner': 'DGiacinto', 'NewMetaInt': {'>': 2}}
  
- FC:/superbvo.org/user/g/donvito>find NewMetaInt>0 Owner=DGiacinto
- Query: {'Owner': 'DGiacinto', 'NewMetaInt': {'>': 0}}
- /superbvo.org/user/g/donvito/test\_2\_dir/test1
- /superbvo.org/user/g/donvito/test\_2\_dir/test2

# HIGH LEVEL FEATURES: METADATA – 4

- `-bash-3.2$ cat test_cli`
- `find NewMetaInt>0 Owner=DGiacinto`
- `exit`
  
- `-bash-3.2$ dirac-dms-filecatalog-cli < test_cli`
- Starting DIRAC FileCatalog client
- File Catalog Client \$Revision: 1.17 \$Date:
- FC:/> Query: {'Owner': 'DGiacinto', 'NewMetaInt': {'>': 0}}
  
- `/superbvo.org/user/g/donvito/test_2_dir/test1`
- `/superbvo.org/user/g/donvito/test_2_dir/test2`

# HIGH LEVEL FEATURES: ANCESTORS

- The DIRAC File Catalogue give also “File Provenance” features embedded on the same tool:
  - `FC:/superbvo.org/user/g/donvito/test_2_dir>ancestorset test1 /superbvo.org/user/g/donvito/dir_test/test3`
  - Added 1 ancestors to file `/superbvo.org/user/g/donvito/test_2_dir/test1`
  
  - `FC:/superbvo.org/user/g/donvito/test_2_dir>ancestorset test2 test1`
  - Added 1 ancestors to file `/superbvo.org/user/g/donvito/test_2_dir/test2`
  
  - `FC:/superbvo.org/user/g/donvito/test_2_dir>ancestor test2 2`
  - `/superbvo.org/user/g/donvito/test_2_dir/test2`
  - 1 `/superbvo.org/user/g/donvito/test_2_dir/test1`
  - 2 `/superbvo.org/user/g/donvito/dir_test/test3`
  
  - `FC:/superbvo.org/user/g/donvito/test_2_dir>descendent /superbvo.org/user/g/donvito/dir_test/test3 2`
  - `/superbvo.org/user/g/donvito/dir_test/test3`
  - 1 `/superbvo.org/user/g/donvito/test_2_dir/test1`
  - 2 `/superbvo.org/user/g/donvito/test_2_dir/test2`

# TEST PLANNED

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- FTS Usage
- Scalability tests
- Performance evaluation
- DB replica for HA purposes



# CONCLUSIONS

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- Interesting features integrated in the same tool
- It is flexible enough to cover different use cases
- Documentation is the main weak point
- Wildcard (\*) not usable for bulk operations