

Data Management News

7th DIRAC Workshop
29-31 May 2017
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Since the last workshop

- **Last workshop just before v6r15**
- **A few new features**
 - Detailed in this presentation
- **Zillions of bug fixes & improvements**
 - No detail here
- **Contributions from Belle II, BES 3, CTA and ILC ! Thanks ! :-)**

New features: various

- **Operation MoveReplica #3071**
 - v6r16
 - Only interactive transfers (no FTS)
 - Original purpose met with [#3024](#) (v6r15)
- **Low level SE accounting #2559**
 - v6r15
 - Accounting done in the StorageElement class
 - More precise info (e.g. protocol)
 - Increased load on the accounting

New features: conditional FC

- **#2649**
- **Already mentioned last year, but was not used**
- **Now it is :-)** (LHCb Bookkeeping used only for production files)
- **Catalogs are used only under conditions**
- **Different from permissions !!**
- **Just realized user doc missing :(**

New features: conditional FC

- **Decide on a per method base what catalog should be used**
 - READ/WRITE/ALL magic keywords
 - Specific method name (takes precedence)
- **In the Operation section**
 - Setup specific
 - VO specific
- **Conditions are handled by plugins**
 - Extremely easy to add a new one in your VO extension
 - Currently: LFN, Proxy

New features: conditional FC

- **/Operations/Default/Services/Catalogs/FileCatalog/Conditions/WRITE**
 - [Filename=startswith('/lhcb') & !Filename=find('/user/')] | proxy=group.in(lhcb_mc, lhcb_data)
- **Easy to write new plugins:**

```
from DIRAC.Resources.Catalog.ConditionPlugins.FCConditionBasePlugin import FCConditionBasePlugin
import random

class MaybePlugin( FCConditionBasePlugin ):
    """
    """
    def __init__( self, conditions ):
        super( DummyPlugin, self ).__init__( conditions )
    """
    """
    def eval( self, **kwargs ):
        return bool(random.randint(0,1))
```

New feature: GFAL2

- **LCG/gfal libraries not supported since a while (really, it was about time that we switched)**
 - LHCb uses it in production for SRM and XROOT
- **Plugins very easy to write**
 - Available: srm, xroot, gsiftp, http
 - Maybe a generic one, to be checked
- **Issues with CLI:**
 - User interface is a piece of “Sadly Highly Inadequate Tool” (not in our hands, not going to change)
 - Currently not packaged properly in LcgBundle
 - When done, gfal based plugin support will be dropped

New feature: GFAL2

- **How to move from gfal to gfal2**
 - Just a different plugin
 - In the SE definition: PluginName = SRM2 → PluginName = GFAL2_SRM2
 - If you still have ‘ProtocolName’
 - Shame on you!!!
 - Replace it, because this will disappear soon
 - **CAUTION:** bug in globus
 - Gfal and gfal2 can’t live together
 - All the SEs must be changed at once

New feature: GFAL2

- **Problems with xroot checksum evaluation on copy:**
 - Not implemented in castor
 - Fail at comparing for other storages (bug in xroot low level library. Native plugin impacted ?)
 - Option to disable this computation

New feature: GFAL2

- **Obviously, many problems**
 - We are aware, and want to make it better
 - Aim at spotting regression: send us simple script to reproduce
 - Yes, it is also the bane of my existence



New feature: multi protocol

- **Until then, effectively only srm and dips could be fully used #3082**
- **Plugins advertise input/output protocols**
- **Based on 4 lists:**
 - Access, Write, Register, ThirdParty
 - Defined in the Operations section (Setup&VO dependent)
 - Can be overwritten per SE

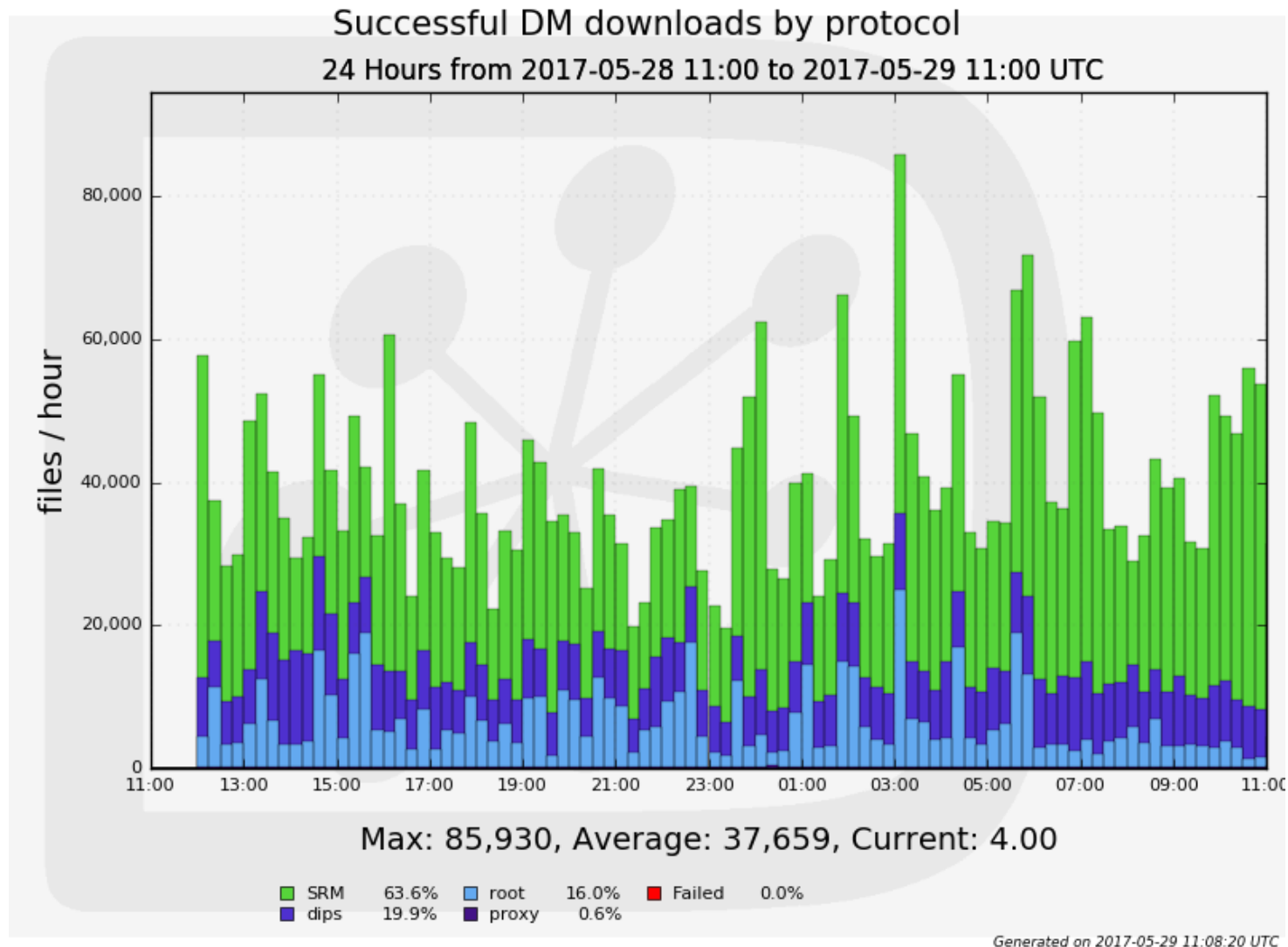
New feature: multi protocol

- **For each call:**
 - P_{SE} = Protocols defined in the SE
 - P_{ACT} = Protocols defined for the activity (Access/Write)
 - Intersection between P_{SE} and P_{ACT}
 - Order according to P_{ACT}

New feature: multi protocol

- **Special case: third party copy**
 - P_{TP} = Third Protocol list & Source SE output protocol & Destination SE input protocol
 - Generate source URL with P_{TP} & P_{read}
- **Example:**
 - AccessProtocols = root, srm
 - WriteProtocols = srm
 - ThirdPartyProtocols = root, srm
 - Copy done via srm with root source

One picture to show them all



Future development: FTS3

- **#2826**
- **Still...**
- **Needs too be properly rebased, certified, tested (Belle II offered help :-)**
- **A few features/fixes to be ported**
- **See last year's talk for shopping list**
- **Hopefully next major release**

Future development: SE inheritance

- **Already implemented and used in LHCb, but...**
- **Incomplete, and inconsistent with the “Module” option of services, and inconsistent with CS merging**

Future development: SE inheritance

```
"CERN-BASE": {  
  "BackendType": "Eos",  
  "SEType": "TOD1",  
  "AccessProtocol.1": {  
    "Host": "srm-eoslhcb.cern.ch",  
    "Port": 8443,  
    "PluginName": "GFAL2_SRM2",  
    "Protocol": "srm",  
    "Path": "/eos/lhcb/grid/prod",  
    "Access": "remote",  
    "SpaceToken": "LHCb-EOS",  
    "WSUrl": "/srm/v2/server?SFN:",  
  }  
}
```

```
"CERN-NO-PLUGIN-NAME": {  
  "BaseSE": "CERN-BASE",  
  "AccessProtocol.1": {  
    "Path": "/eos/lhcb/grid/prod",  
  }  
},
```

**Gives an error:
PluginName
not redefined**

Future development: SE inheritance

```
"CERN-BASE": {  
  "BackendType": "Eos",  
  "SEType": "TOD1",  
  "AccessProtocol.1": {  
    "Host": "srm-eoslhcb.cern.ch",  
    "Port": 8443,  
    "PluginName": "GFAL2_SRM2",  
    "Protocol": "srm",  
    "Path": "/eos/lhcb/grid/prod",  
    "Access": "remote",  
    "SpaceToken": "LHCb-EOS",  
    "WSUrl": "/srm/v2/server?SFN:",  
  }  
}
```

```
"CERN-BAD-PLUGIN-NAME": {  
  "BaseSE": "CERN-BASE",  
  "AccessProtocol.1": {  
    "PluginName": "AnotherPluginName",  
    "Path": "/eos/lhcb/grid/prod",  
  }  
},
```

**Results in two
different
protocols**

Future development: SE inheritance

```
"CERN-BASE": {  
  "BackendType": "Eos",  
  "SEType": "TOD1",  
  "AccessProtocol.1": {  
    "Host": "srm-eoslhcb.cern.ch",  
    "Port": 8443,  
    "PluginName": "GFAL2_SRM2",  
    "Protocol": "srm",  
    "Path": "/eos/lhcb/grid/prod",  
    "Access": "remote",  
    "SpaceToken": "LHCb-EOS",  
    "WSUrl": "/srm/v2/server?SFN:",  
  }  
}
```

```
"CERN-REDEFINE-PLUGIN-NAME": {  
  "BaseSE": "CERN-BASE",  
  "AccessProtocol.OtherName": {  
    "PluginName": "GFAL2_SRM2",  
    "Path": "/eos/lhcb/grid/prod",  
  }  
},
```

**Results in a
single protocol**

Future development: SE inheritance

- **Changes to come:**
 - Section names are by default the plugin to use
 - Merging done on these names
 - Backward compatible