

**SRM/Xroot/ECHO/GFAL2/...**

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8<sup>th</sup> DIRAC User Workshop  
23/05/18

# The famous “protocol zoo”



# Some very fishy protocols



# The protocol aquarium

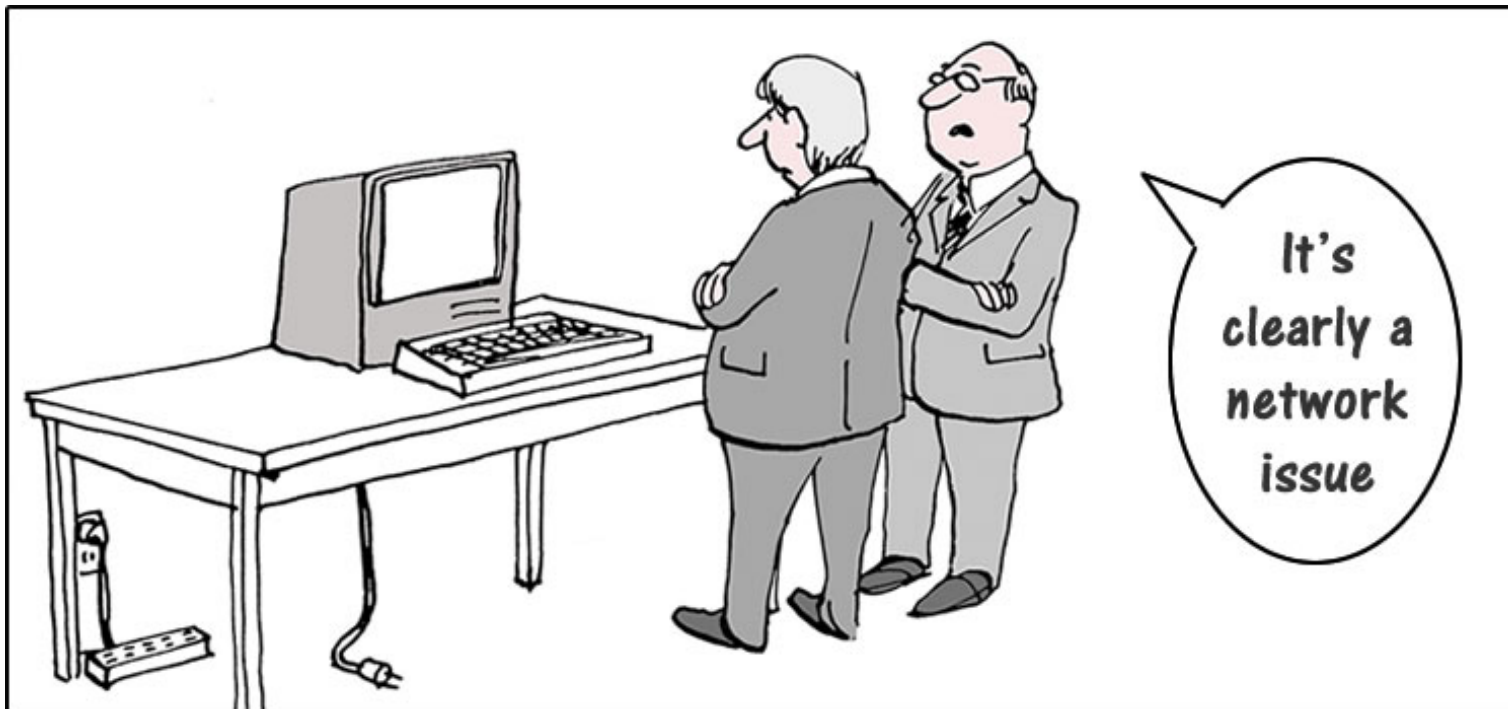
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# Why this presentation?

- **What we will cover:**
  - Quite a number of protocols out there
  - How DIRAC handles them
- **What I will not do**
  - Enter low technical details
  - Discuss the different implementations of storages
  - Emit a judgment

# Protocols?

- **Network + Storage**
- **A minima, what you use to access/transfer a file**



# SRM

- **srm://...**
- **Storage Resource Manager (has a [wiki page](#) !!)**
- **Most common protocol on the Grid**
  - But not a file transfer protocol !
- **Takes care of:**
  - Namespace
  - Permissions/quota
  - Space accounting (the only one)
  - **Staging** (the only one)

# SRM

- **If only metadata, srm interactions only**
- **If accessing the file, srm→turl (one more interaction with outside)**
- **SpaceToken: logical division, can share the namespace**
- ***“They”* want to get ride of it**



# GridFTP

- **gsiftp://**
- **FTP with X509 + VOMS on top**
- **Usual protocol you get from SRM**
- **Supports Third party copy**
- **Globus born**
  - Who knows what will happen

# Xroot

- **Root://**
- **Complete ecosystem plugin based**
- **Supports redirector**
- **In practice, does NOT support third party copy**
- **Very popular**

# Echo

- **Replacement for RAL Castor Disk**
- **Ceph (+ stripping + access protocol plugins)**
- **How you talk to it:**
  - New experiment → S3
  - Historical one → xroot, **gsiftp**
- **No SRM !**
- **Not POSIX → no directory**

# Protocol in DIRAC

```
CERN-EOS
{
  BackendType = eos # backend type of storage element
  SEType = T0D1 # Tape or Disk SE
  UseCatalogURL = True # used the stored url or generate it (default False)
  ReadAccess = True # Allowed for Read if no RSS enabled
  WriteAccess = True # Allowed for Write if no RSS enabled
  CheckAccess = True # Allowed for Check if no RSS enabled
  RemoveAccess = True # Allowed for Remove if no RSS enabled
  GFAL2_SRM2 # Protocol section
  {
    Host = srm-eoslhcb.cern.ch
    Port = 8443
    PluginName = GFAL2_SRM2 # If different from the section name
    Protocol = srm # primary protocol
    Path = /eos/lhcb/grid/prod # base path
    Access = remote
    SpaceToken = LHCb-EOS
    WSUrl = /srm/v2/server?SFN=
  }
}
```

# Protocol in DIRAC

- **Inside the StorageElement, and NEVER gets out**
- **Plugin based**
- **Relies mostly on GFAL2 library (so yes, you need the LcgBundle)**
- **Multi protocol supported**
  - Several protocol per SE
  - Different protocols between SE
- **Always the same interface**