Comparison of LFC and DFC for the VO *auger* Usage

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The VO auger for the Pierre Auger Observatory

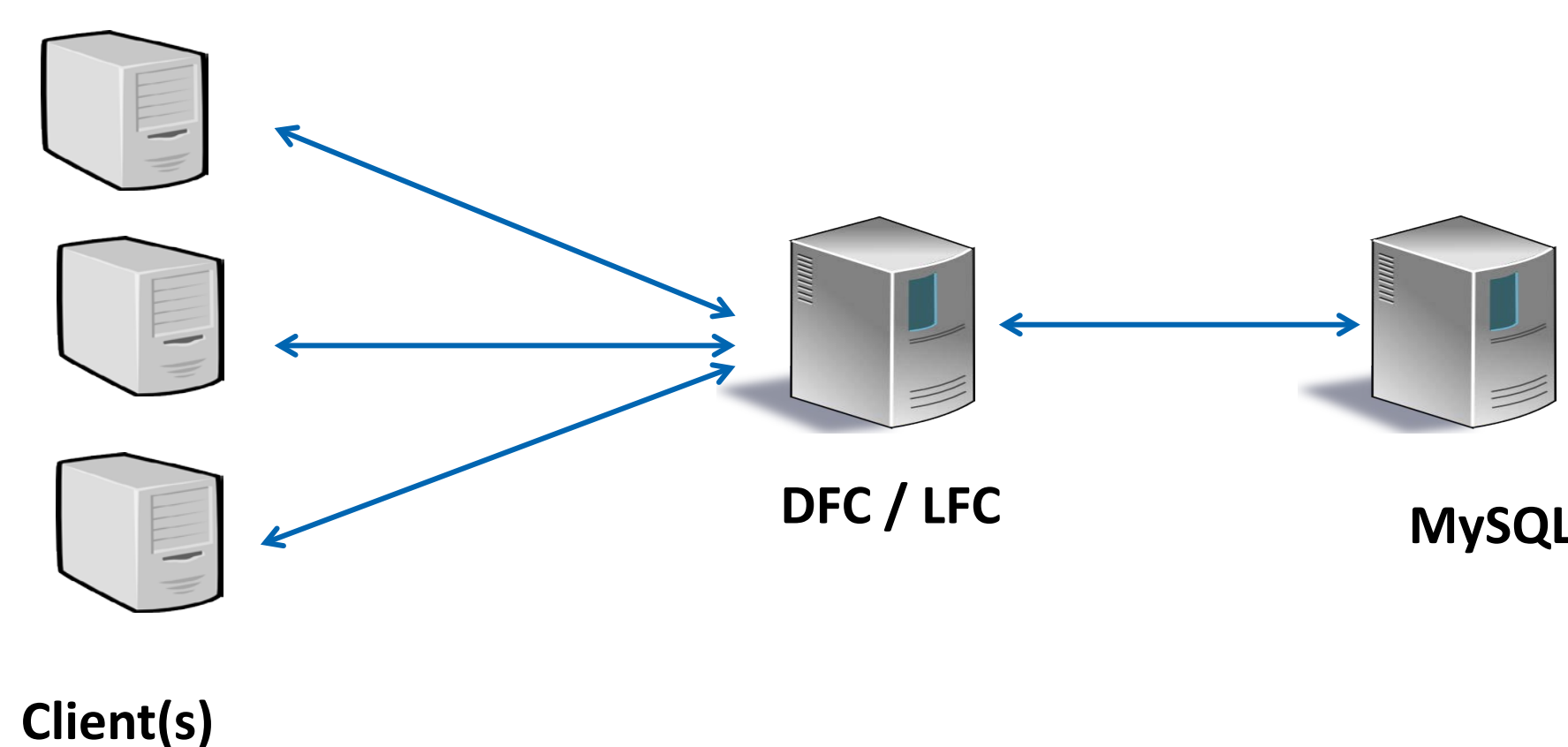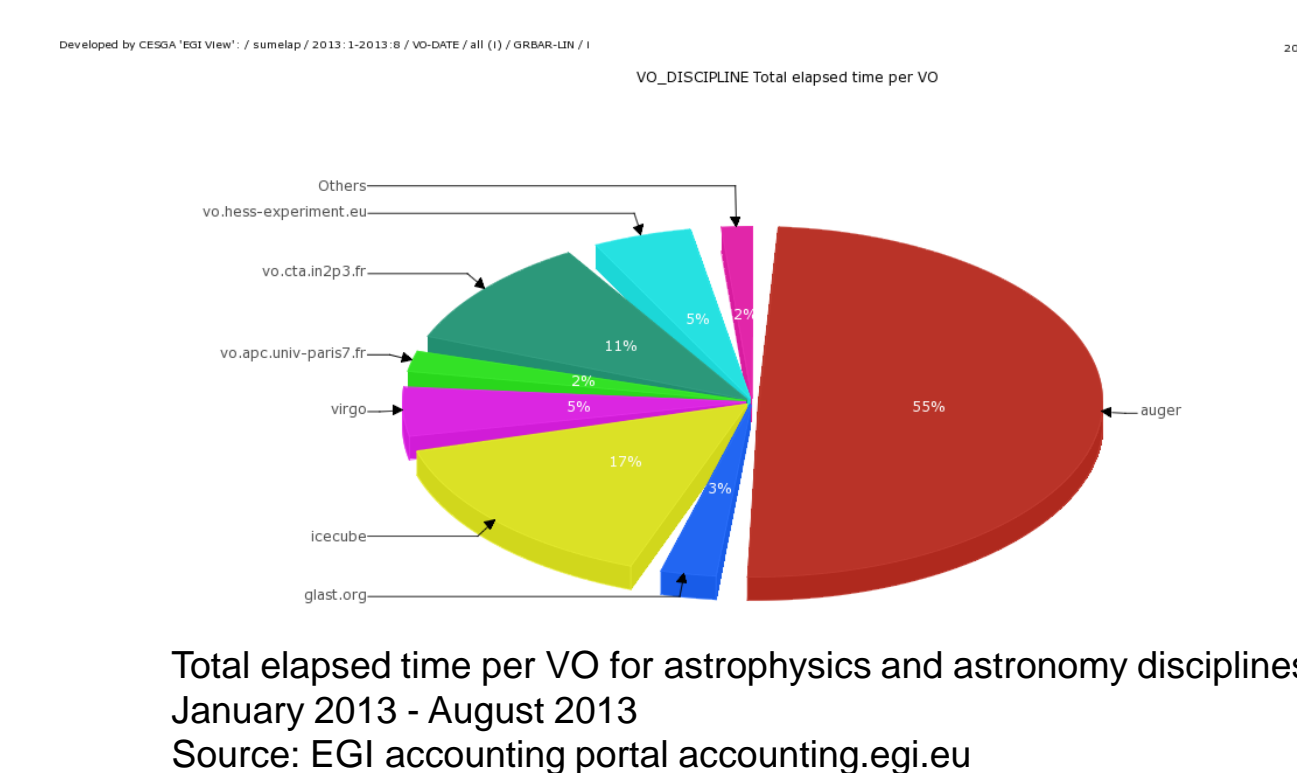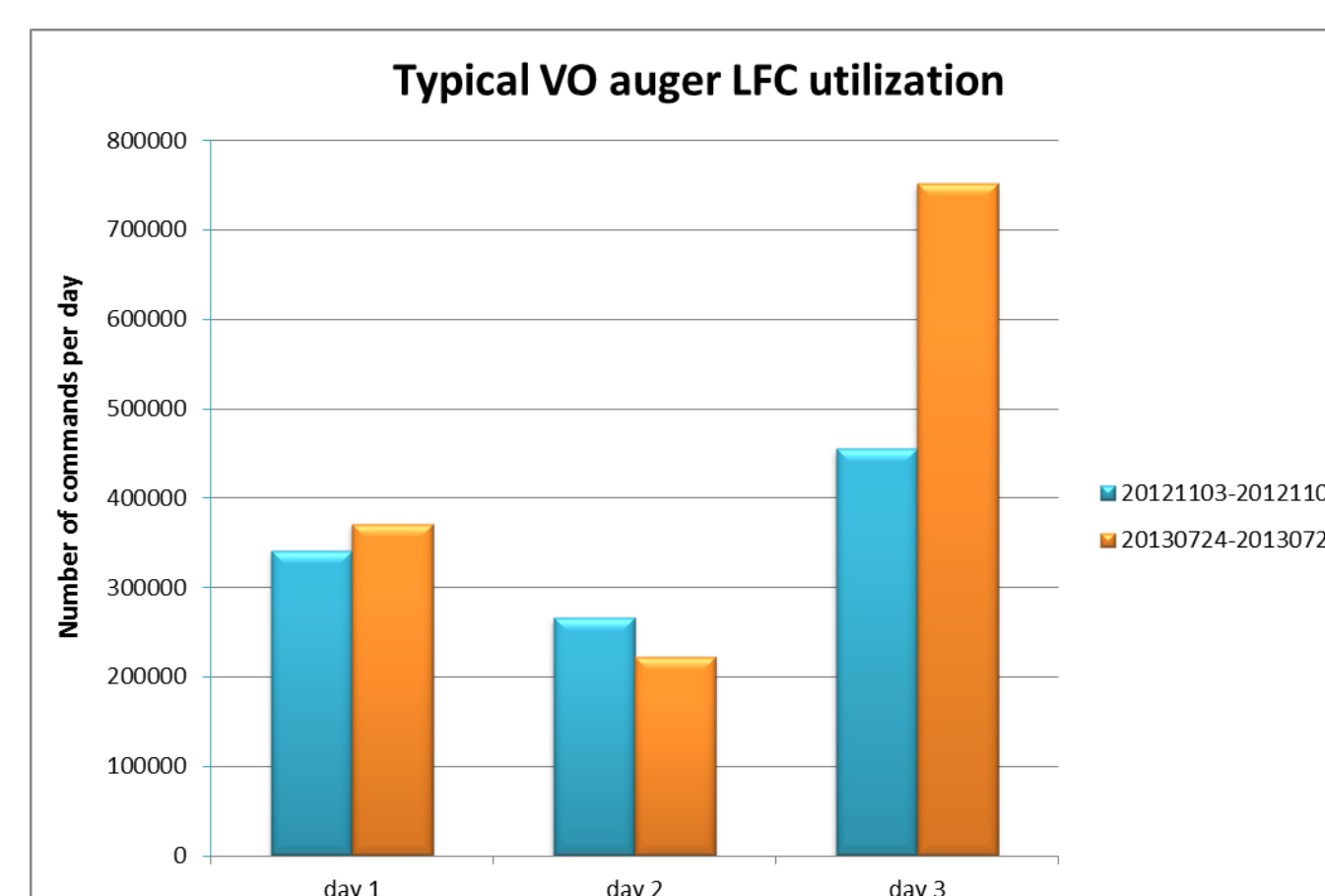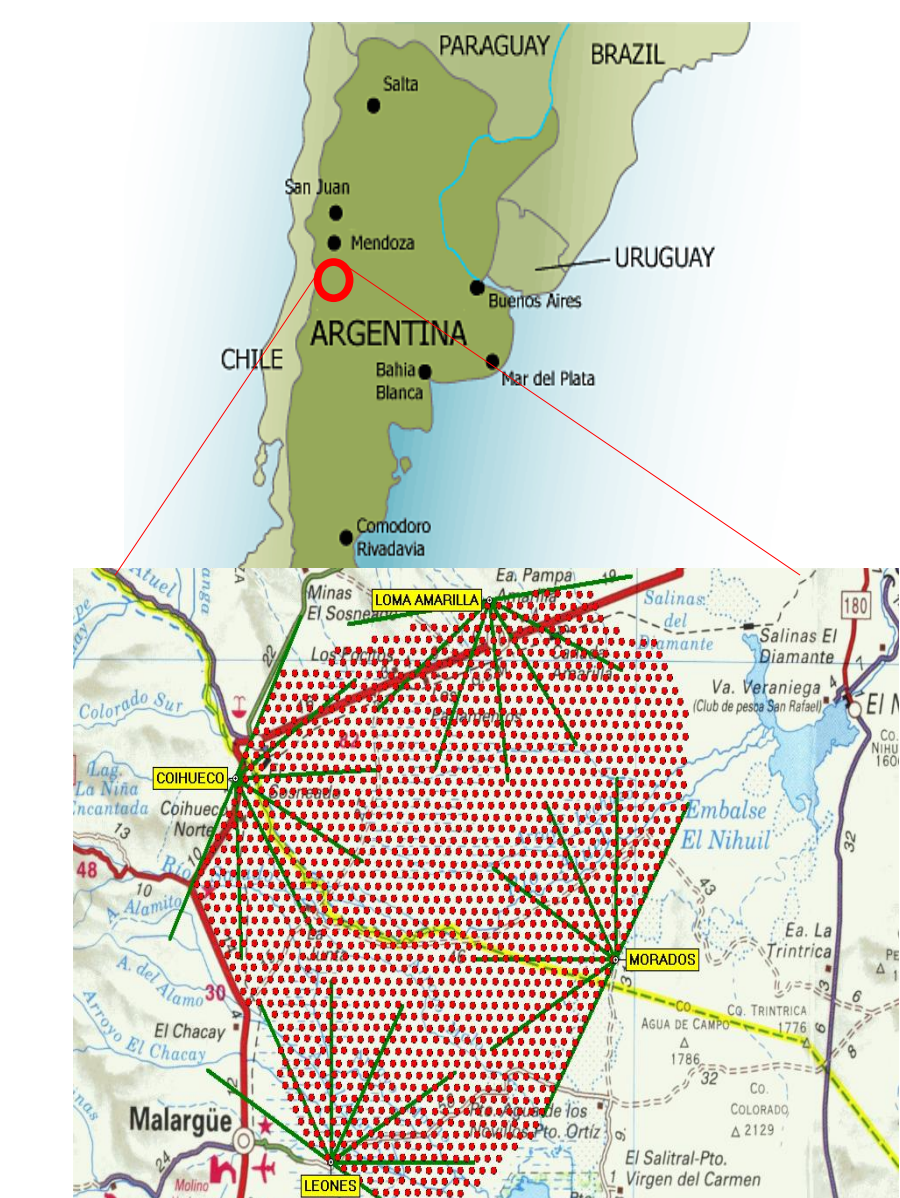Pierre Auger Observatory is the largest cosmic rays observatory
- Covers area of 3000 km^2 in Argentina
- Measures extensive air showers induced by ultra high energy cosmic rays
- Requires a lot of computing power for MC simulations of showers

VO *auger*
- Since 2007 integrates distributed grid resources
- Belongs to the biggest CPU and disk space users of the EGI grid

File Catalog
- is a critical component for the grid usage
- LFC is currently used
- DFC is evaluated as a possible alternative

Typical VO auger LFC utilization

Total elapsed time per VO for astrophysics and astronomy disciplines
January 2013 - August 2013
Source: EGI accounting portal accounting.egi.eu

Client(s)   DFC / LFC   MySQL

Test Configuration

- Dedicated MySQL server
- DFC and LFC running on another server
- Tests are run for both catalogues one by one in the same conditions
- Servers with sufficient parameters (no swapping)
- 30 million catalog entries from the production LFC inserted into 2 MySQL databases (separate for LFC and DFC)
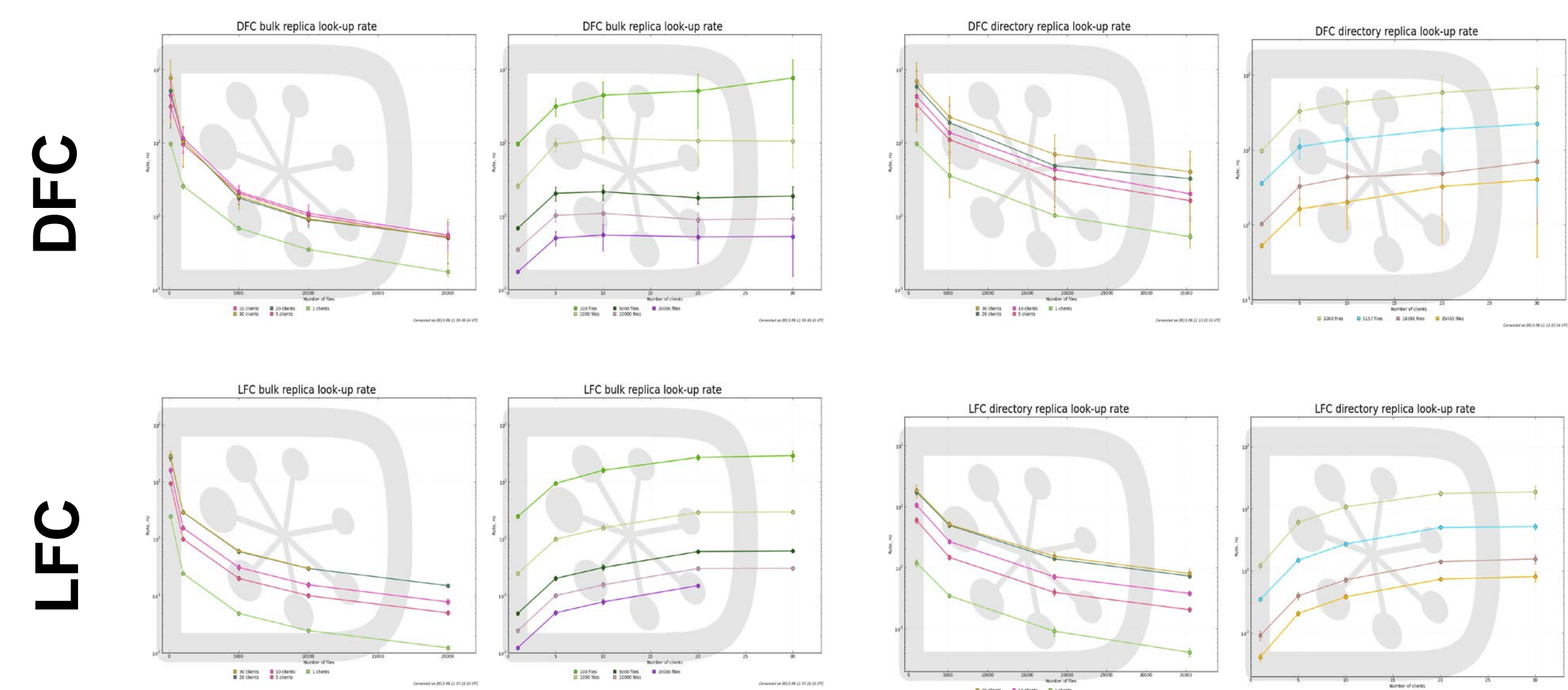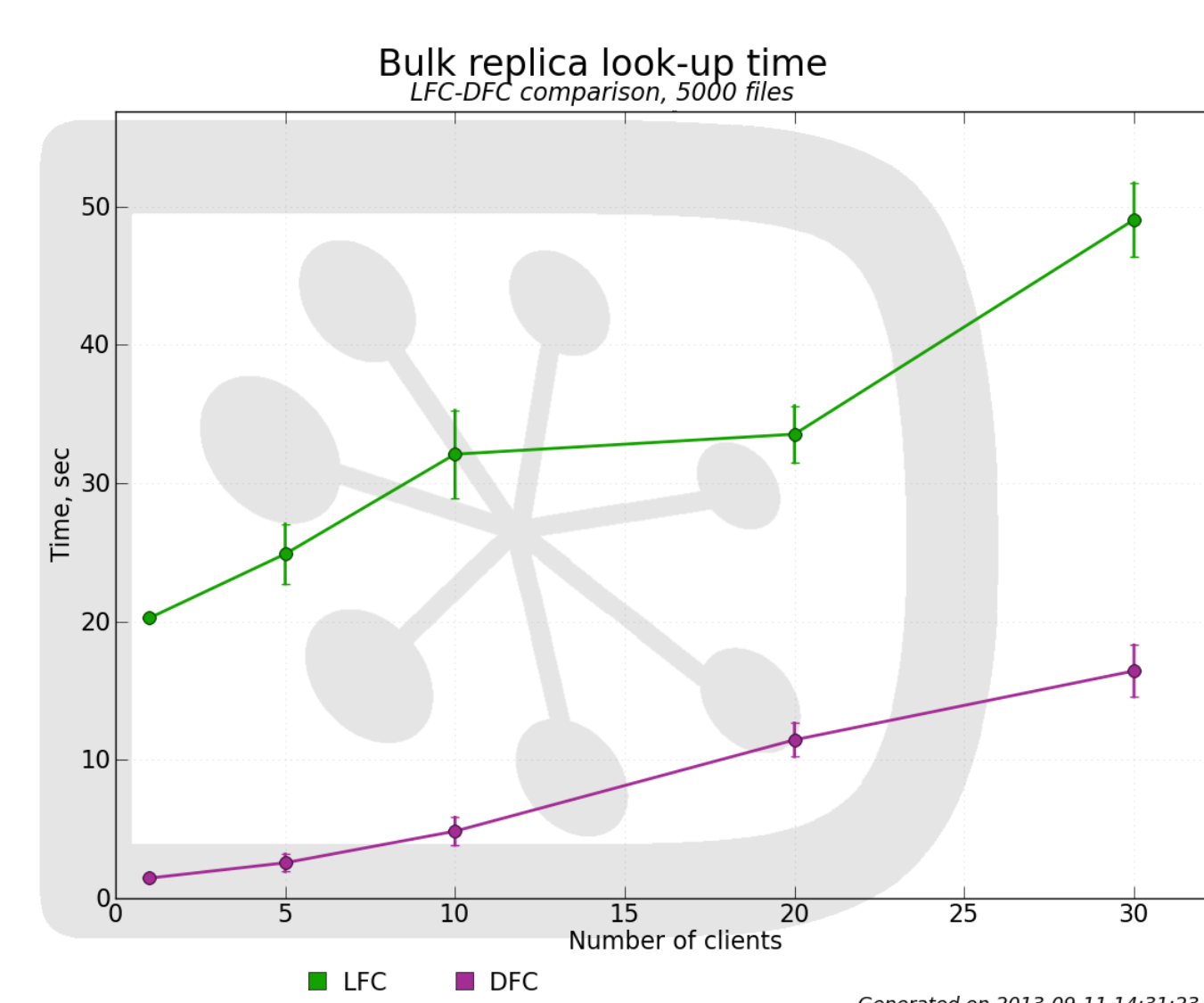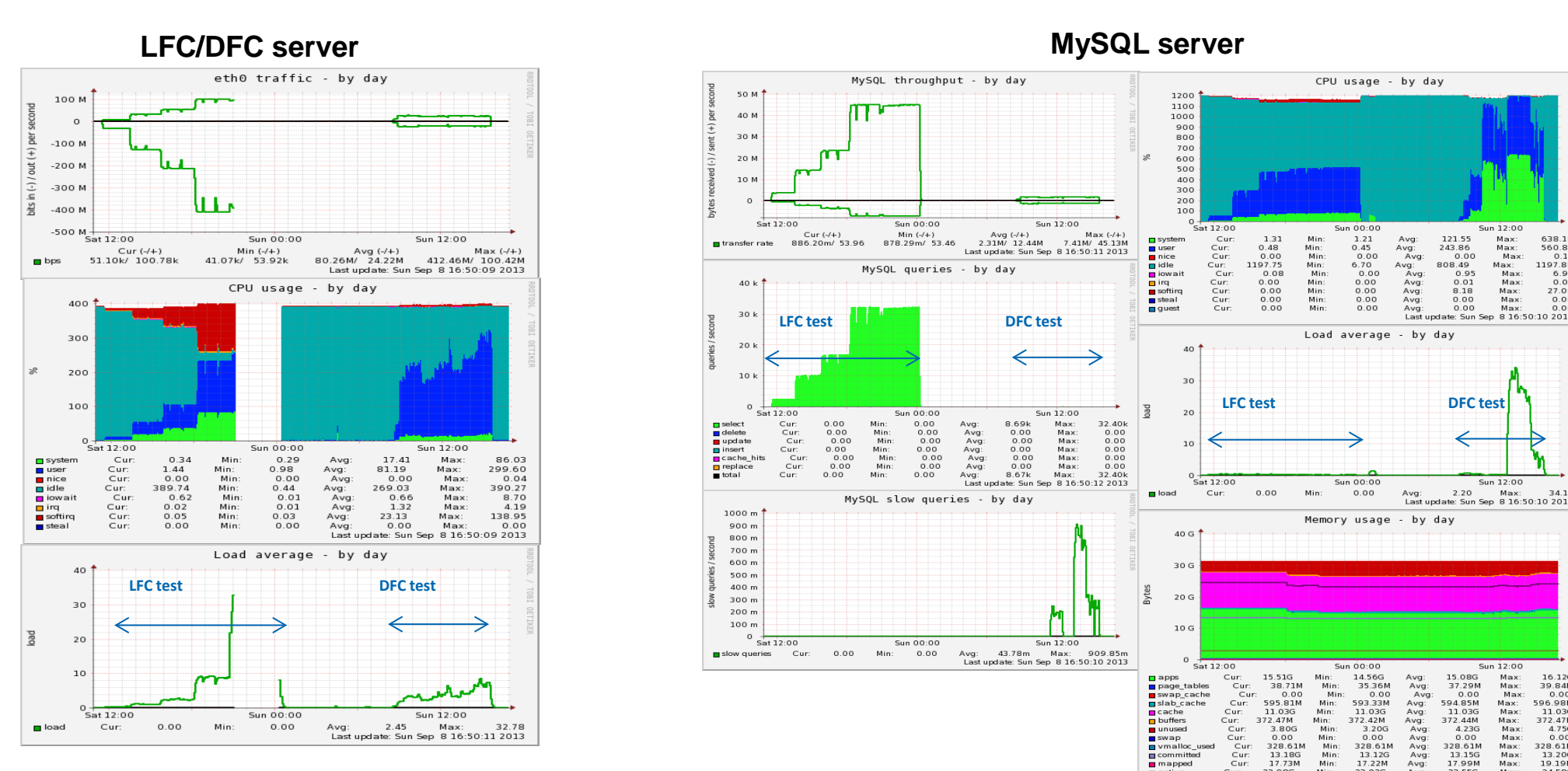
Tests and Results

1. Get replicas (bulk method)
   - get replicas for a given set of LFNs
   - sets with 10 to 20000 entries
2. Get directory replicas
   - get replicas for all files in a given directory
   - directories with 500 to 35000 entries used
3. List directories content (results not presented here)
   - no replica information returned, only entry's metadata

Test 1: Get Replicas (Bulk)   Test 1: Get Directory Replicas

DFC

LFC

Load on servers during get replica (bulk) test

LFC/DFC server   MySQL server

Bulk replica look-up time
LFC-DFC comparison, 5000 files

Time, sec
Number of clients
LFC   DFC
Generated on 2013-09-11 14:31:23 UTC

Conclusions

DFC response in performed tests is sufficient for the VO *auger* usage. Active approach of the DIRAC development team promises further improvements and customization of advance catalog features (metadata, data management tools).