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CESNET

## Lightweight L&B Interface

L&B querying capabilities are provided through a legacy API and web service interface (formerly wrapped in C/C++ API). These full-featured interfaces are rather difficult to use, though. Therefore, we provide a lightweight HTML and text interface as well. This allows users to load their grid credentials into a web browser and point the browser to the appropriate L&B server endpoint, displaying a list of the given user's active jobs.

Pasting a Job ID into the browser's URL input box displays an overview of the job's status, making it easy for users to track the states of their jobs from any Web-enabled computer.

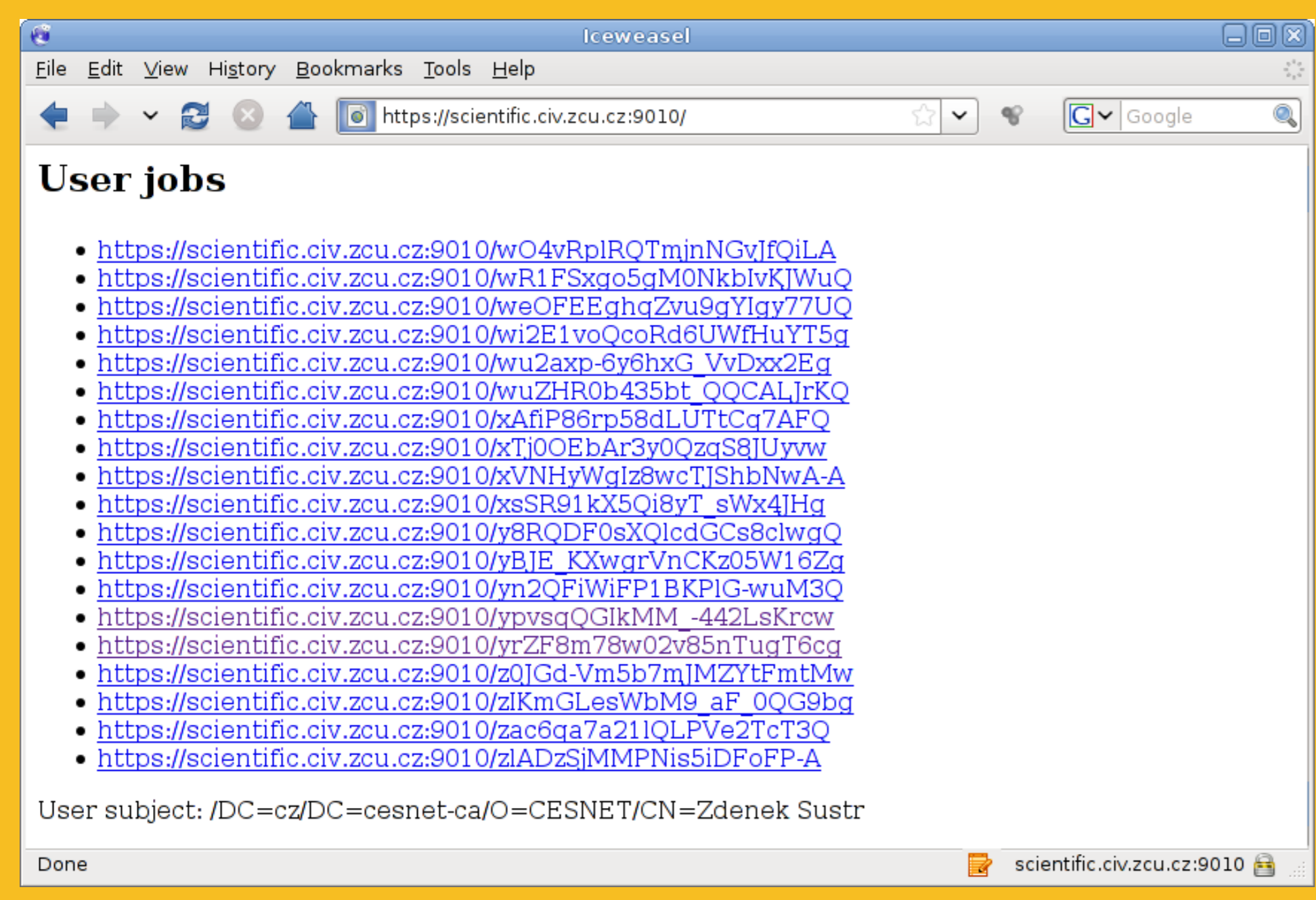
The plain text interface works similarly (by appending the `?text` modifier), displaying the information in a `key=value` format that can be processed conveniently by simple automated tools.

The following types of information can be currently accessed through the lightweight HTTP interface:

- **List of user jobs** – all jobs belonging to a user  
URL: <https://<L&B server address:port>>
- **Job details** – single job details: status, JDL...  
URL: <https://<L&B server address:port>/<Job ID>>
- **List of user notifications** – all notifications registered by a user  
URL: <https://<L&B server address:port>/NOTIF>
- **Notification details** – notification validity and flags  
URL: <https://<L&B server address:port>/NOTIF/<Notification ID>>

Getting a list of user jobs registered with the given L&B sever:

<https://<L&B server address:port>>



Getting a description of a job (can be produced by clicking a link in the previous list):

<https://scientific.civ.zcu.cz:9010/-caUWWSrKPNRpt2inRLcuQ>



Using the pure text interface to retrieve machine-readable output:

<https://scientific.civ.zcu.cz:9010/-caUWWSrKPNRpt2inRLcuQ?text>



## Computing Element Reputability Rank

Information gathered by the L&B service can serve, among others, as evidence of CE reputability, especially when trying to identify 'black holes' where jobs get accepted quickly only to fail immediately.

Job submission efficiency can be further increased by reflecting the CE reputability in the JDL rank expression to penalize unreliable computing elements during the job matching process carried out by the gLite WMS. The `successFraction(CEId)` function computes the ratio of successful to all jobs for a given CE, and it can be directly used to penalize problematic CEs in the ranking JDL expression as shown in the example.

JDL Example:

```
[
requirements=(successFraction(other.GlueCEUniqueID)>0.9);
rank=successFraction(other.GlueCEUniqueID);
]
```

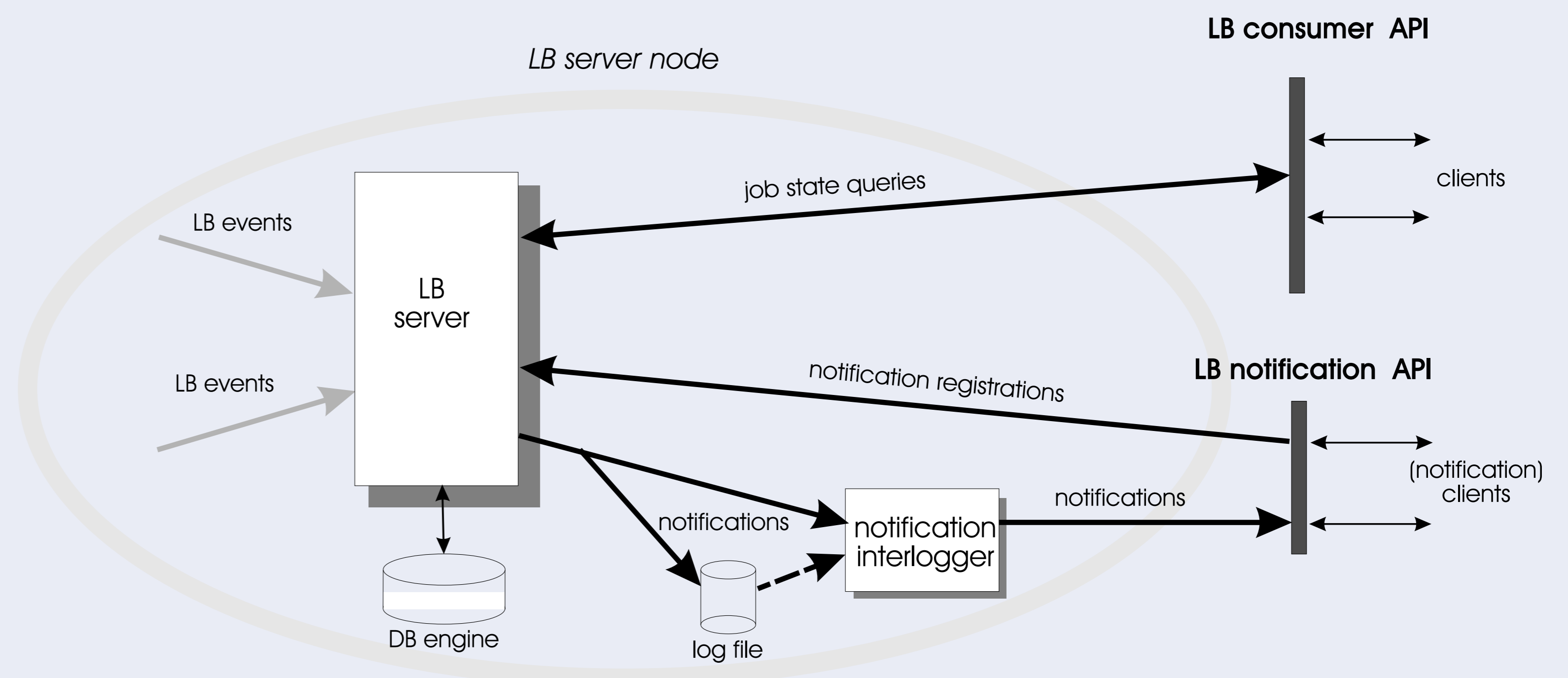
Note: This functionality is enabled with the `--count-statistics=2` L&B server option. The user can point the `successFraction` function to a particular L&B server using its second optional parameter.

## References

- [1] *The Logging and Bookkeeping Subsystem*, <http://egee.cesnet.cz/cs/JRA1/LB/>
- [2] Křenek, A. et al.: *Monitoring Grid Jobs with L&B Notifications in GridView and Experiment Dashboard*, <http://egee.cesnet.cz/cms/export/sites/egee/en/info/poster.pdf>.

## Notifications

The L&B service has two types of consumer interfaces: L&B consumer API (query/response model) and L&B notification API (*publish/subscribe streaming model*). The less-known notification interface allows users for example to subscribe for messages to be sent out once a job enters a particular state, allowing users to avoid repeated queries to detect job status changes.



Example: notify me when my jobs (-o) change their major state (-c):

```
$ glite-lb-notify new -c -o
notification ID: https://my.server.org/NOTIF:gUj74
```

Receive events from the notification (identified by an ID returned by the command above). Stop receiving after 120s (-i). Once an event arrives, print attributes specified with -f:

```
$ glite-lb-notify receive -i 120 -f stateEnterTime \
> https://my.server.org/NOTIF:gUj74
notification is valid until: '2009-02-26 14:21:54 UTC'
https://my.server.org/jtRur Submitted '2009-02-26 13:21:59 UTC'
https://my.server.org/jtRur Waiting '2009-02-26 13:22:07 UTC'
https://my.server.org/jtRur Ready '2009-02-26 13:22:07 UTC'
```



The EGEE project is building a Grid infrastructure for the scientific community. Grids are networks of computers spread across many sites but able to act together to provide a range of large scale facilities, from incredible processing power and mass storage to a platform for international collaboration.