Full History of Finished Jobs over Messaging

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In its primary role the L&B server receives events from grid components and computes job states, presenting the processed data on its output to save others the need to interpret the information themselves. There are, however, user groups that actually require the raw information. Chief among them are dashboards and computer scientists focusing on grid dynamics. The Job History capability is intended for them.

Implementation

From a technical standpoint, job history is an extension of L&B notifications. Contrary to standard messages, which contain only the processed job status, job history also packs all raw events using the JSON format. It is typically sent out when a job reaches terminal state or gets purged after prolonged inactivity. Notification messages can be dispatched over the Messaging infrastructure, or through L&B's legacy delivery chain. Detailed job history records allow grid traffic analysts to reconstruct the goings-on in the grid more precisely, and provide the community with a better picture of life within the grid.

Highlights

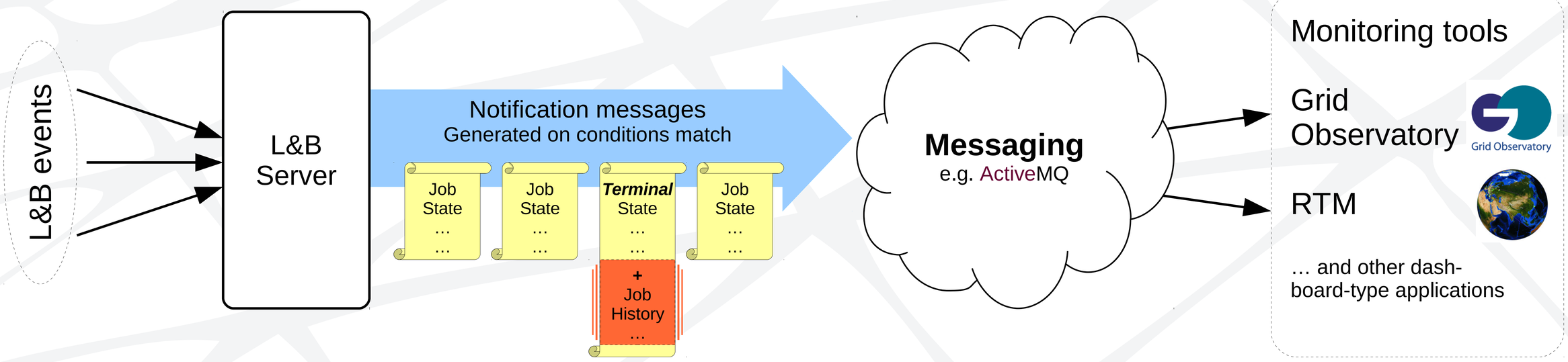
- Very detailed information on **job history** without accessing/parsing the L&B database
- Following contemporary trends, leveraging the common messaging infrastructure [3]
- Extending the current functionality of L&B notifications
- Working jointly with specific user groups to come up with a solution matching their needs.

Example

Register for notifications containing a full job history (`-H`) on your own jobs (`-O`) to be sent out when a job reaches terminal state.

```
glite-lb-notify new -O -H -a x-msg://<topic>
```

Then use your favourite messaging client to listen to `<topic>`.



L&B Notifications

L&B notifications are a well-established tool used by user groups to monitor the progress of their jobs. In the original scenario, notifications are sent out any time the L&B server receives an event matching pre-set criteria, saving the necessity to poll the server periodically for job status updates. The filters have also been extended so that only events resulting in a job state change can be reported to users through notification messages. As of L&B version 3.0 (introduced with the EMI-1 release), OpenWire/STOMP-based Messaging has been adopted as an alternative path to deliver L&B's notification messages alongside the legacy delivery path [2].

References

[1] *The Logging and Bookkeeping Subsystem*, `http://egee.cesnet.cz/cs/JRA1/LB/`

[2] *L&B with Messaging*, `http://egee.cesnet.cz/cvsweb/LB/UF11-messaging.pdf`

[3] *EMI Messaging*, `https://twiki.cern.ch/twiki/bin/view/EMI/EMIMessaging`

Future and Open Issues

The Job History feature will be made generally available with the introduction of L&B 3.1 (EMI 2 Matterhorn).

Anonymization L&B already has a solution to white-out personal or otherwise sensitive information from its output feed. That feature will be tuned to preserve important information while satisfying privacy concerns.

Authorization Since Messaging services in their essential form allow unauthorized access, it may be difficult to achieve authorization on the message passing layer. The possibility of employing encryption to protect sensitive information may be explored in the future. L&B's legacy delivery mechanism can also be used as an alternative solution since it provides full PKI-based authorization.

On top of that, ActiveMQ (EMI's selected messaging solution [3]) allows fine-grain (i.e. per destination) authorization. Although it is not being used at the moment, it is a feature that may be capitalized upon in the future.

Performance testing A real-world comparison of Messaging vs. L&B's legacy delivery mechanism will be done once the feature is deployed.

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