

Advancements in UNICORE accounting

*Piotr Bała, Krzysztof Benedyczak, Rafał Kluszczyński,
Grzegorz Marczak
ICM, University of Warsaw*

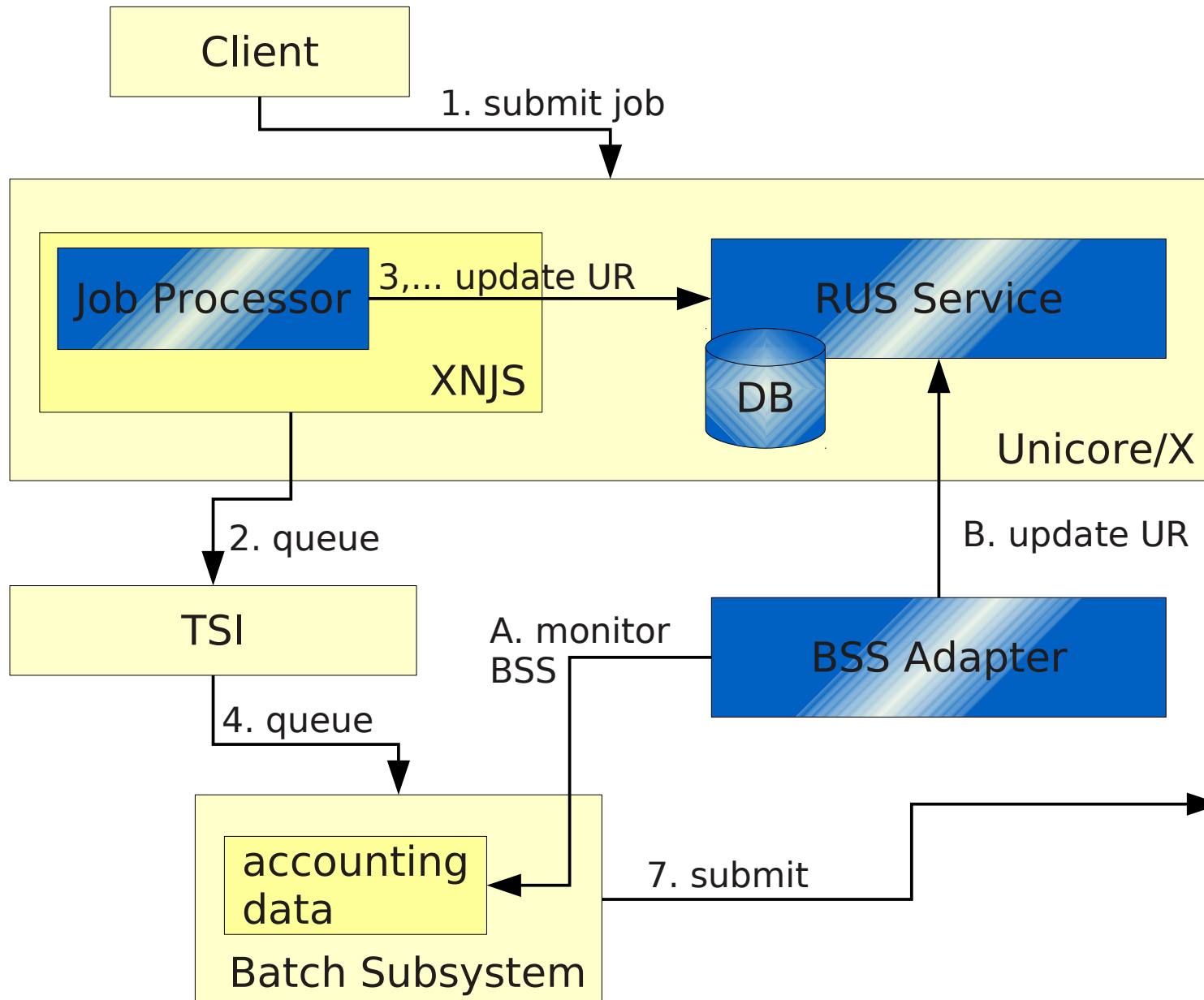
Outline

- ◆ UNICORE Accounting system overview
- ◆ New core features
- ◆ Accounting portal
- ◆ Future work
- ◆ Short portal demo

Fundamental facts

- ◆ “RUS” used for legacy reasons.
- ◆ Accounting data retrieved from two sources:
 - XNJS processor (distributed with Unicore/X)
 - Standalone LRMS agent
- ◆ Records merged by a central RUS-service
 - can be exported to other services
- ◆ Communication via JMS messaging
- ◆ Record format based on the OGF UsageRecord.
- ◆ Java web application available as a visualization tool

The big picture

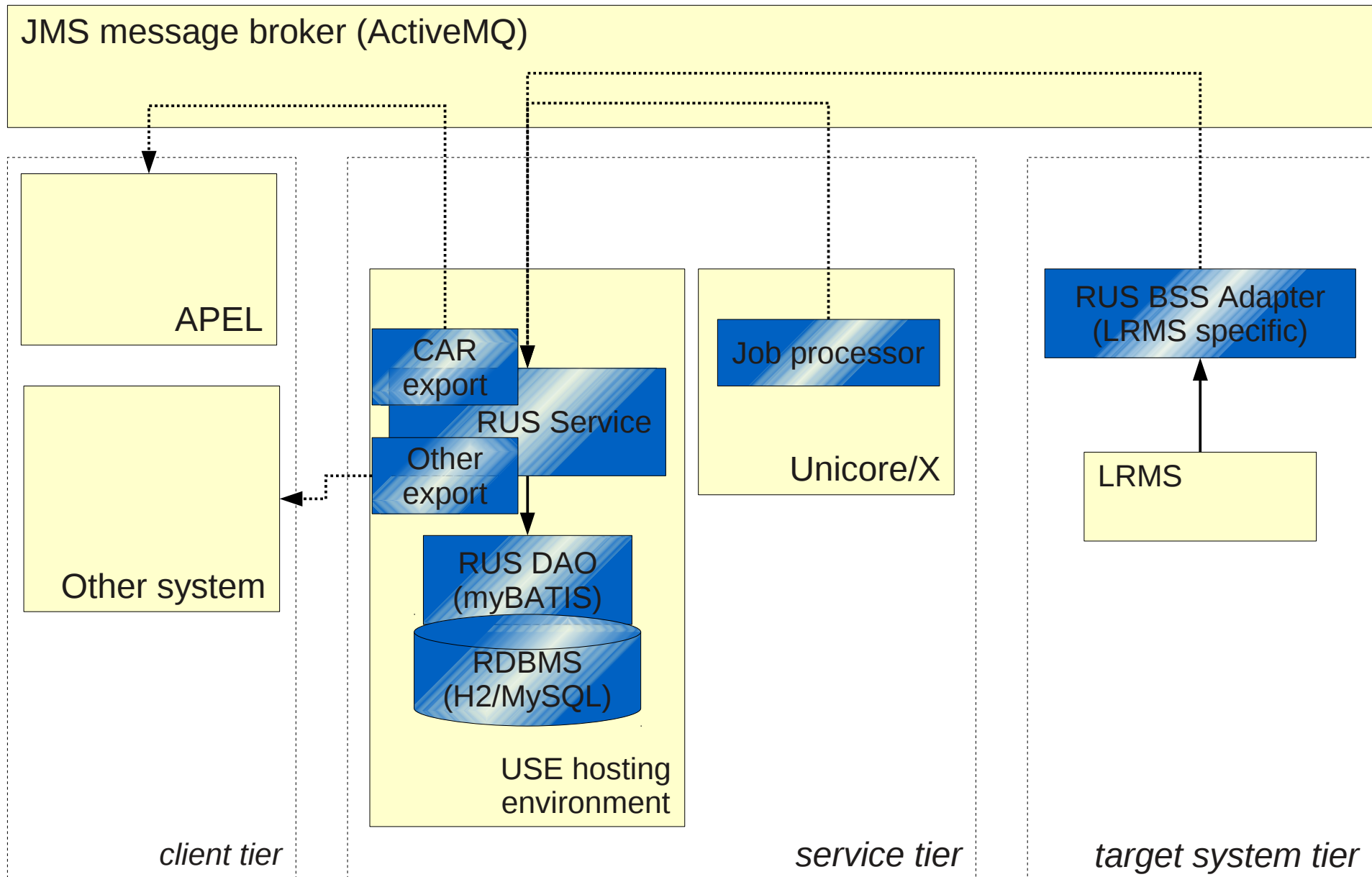


Recent new features

- ◆ XNJS job-processor module integrated with Unicore/X since 6.5
- ◆ Added support for SLURM in bss-adapter
 - along with Torque and SGE/OGE
- ◆ Enhanced the collected data
 - e.g. maximum job time known after submission
 - U/X time (start at U/X, submit to BSS, ...)
- ◆ More reliable merging
 - revised algorithms handling mostly all, even very weird cases
- ◆ APEL export (EMI CAR & EMPA support)

Another big picture

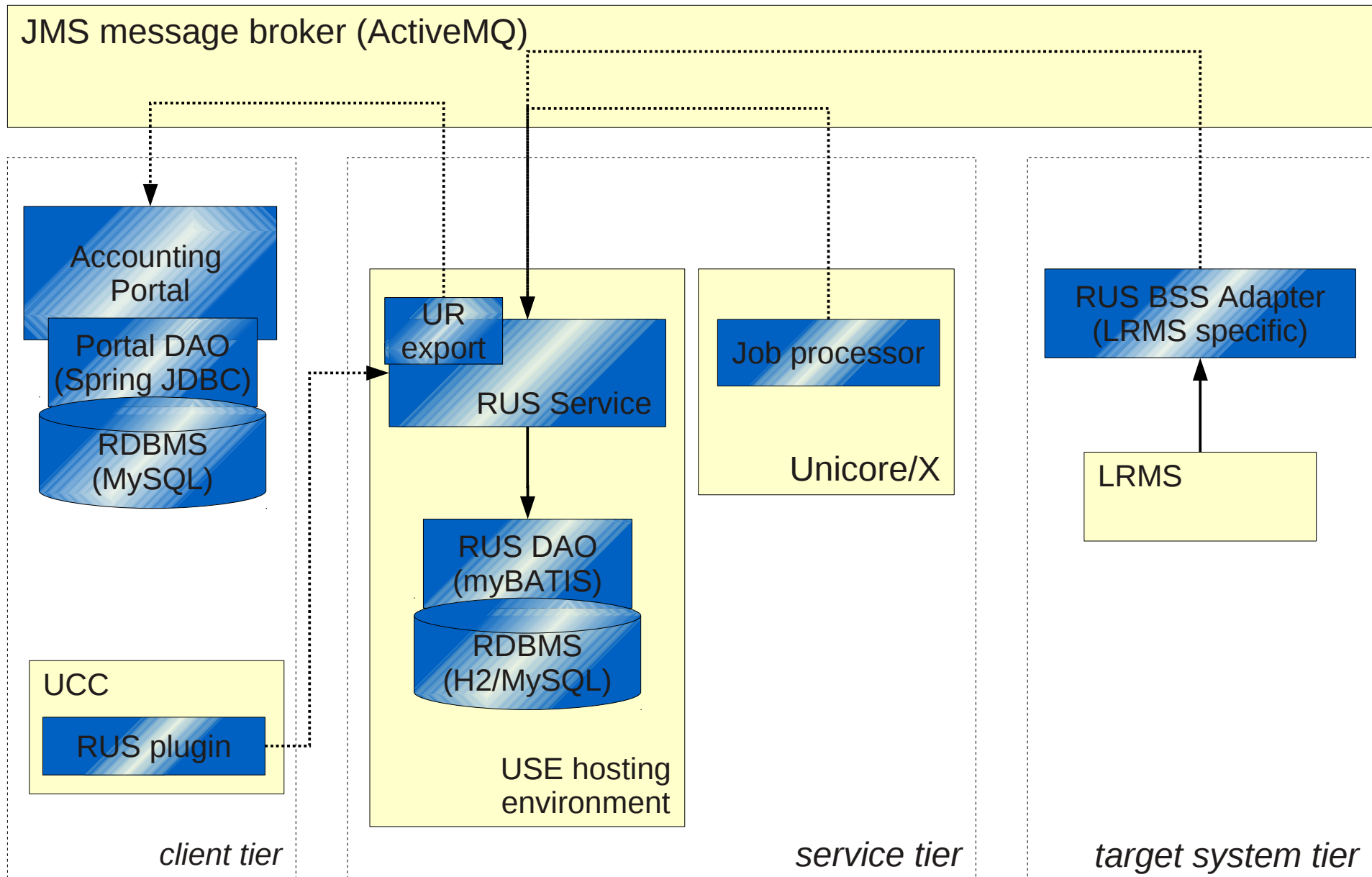
Export to 3rd party systems



The 1.x DB layer

- ◆ 1.x version featured a central DB, exclusively maintained by rus-service.
 - hybrid, XML + caching columns
- ◆ Around 1,000,000 job records, the DB started to become a bottleneck
 - record merging/insertion and queries
- ◆ The portal UI had its own copy of the DB with custom format.
 - same problems with performance, 'custom' bugs, ...

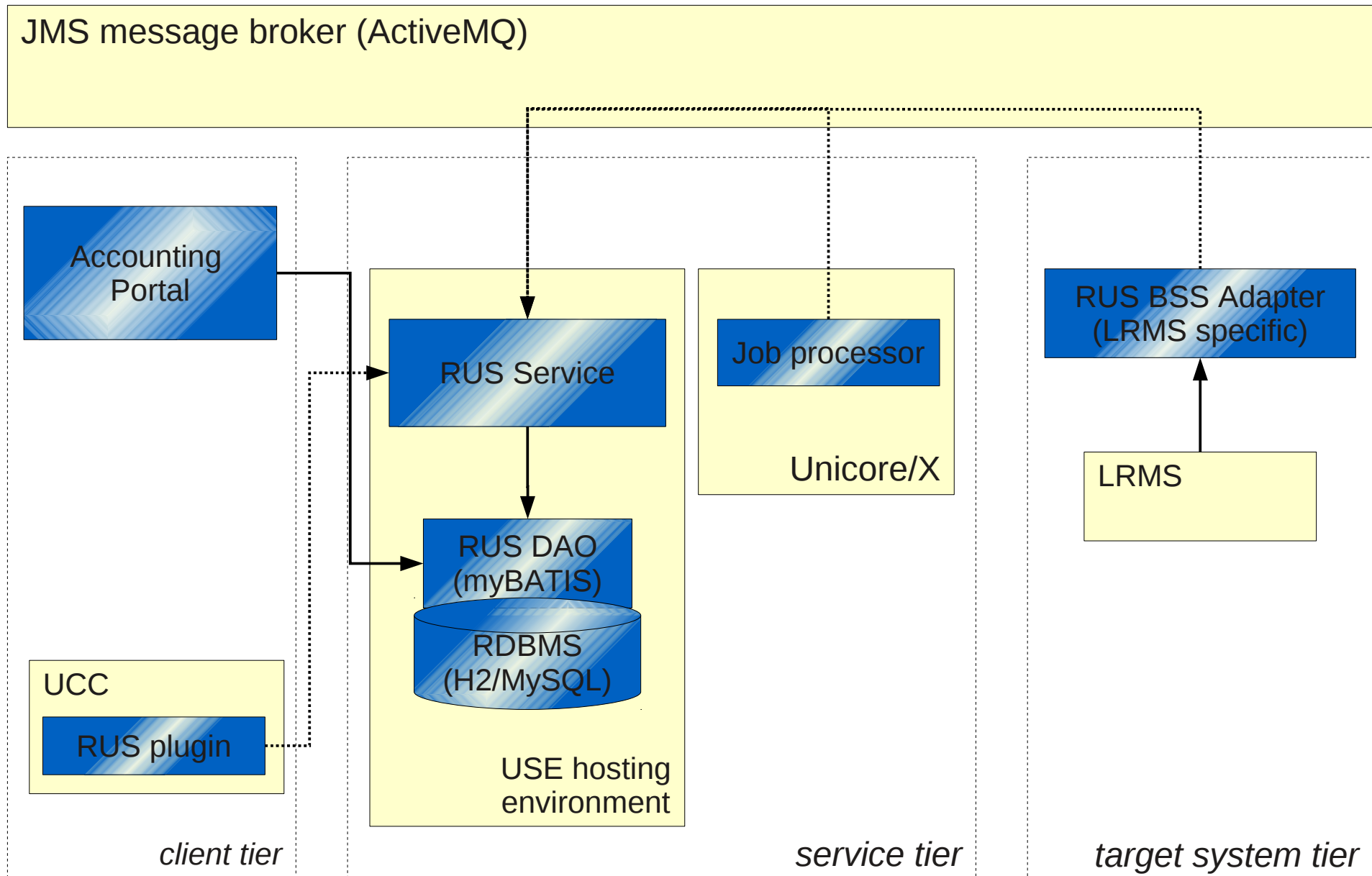
Old, 1.x DBs



The new DB layer

- ◆ Database layer is now a separate software component, shared by the portal and rus-service.
- ◆ A table with daily job summaries was greatly enhanced and become a primary source for reporting queries.
 - It holds the data which is 90% of time sufficient for administrators/management.
- ◆ Both jobs and summaries tables have separate 'rolling' mechanism:
 - old records are automatically moved to 'history' tables (by default after 6m and 3 years).

The big picture 2.x version



The new portal

- ◆ A common database layer used.
 - Code elimination, uniform performance characteristics
 - accounting data not processed by the portal anymore.
- ◆ JMS and own database are now not used
 - May be easily readded, if it is needed to have a separate portal DB.
- ◆ The fundamental interface parts are based on the daily-aggregated information
 - greatly increased performance

The new portal (2)

- ◆ The search criteria panel was extended.
- ◆ It is shared between data presentation views.

The screenshot displays a search criteria panel with the following sections:

- User:** A dropdown menu with options: "-- any user --", "cn=pawel.wolniewicz - nagios,o=psnc,o=grid,c=pl", "cn=tadeusz.szymocha - sam,o=cyfronet,o=grid,c=pl", and "cn=nagios/alfred.studmat.umk.pl,o=icm,o=usluga,o=pl-grid,c=pl".
- Bss host:** A dropdown menu with options: "-- any bss host --", "nova", "batch.grid.cyf-kr.edu.pl", and "cream.grid.task.gda.pl".
- Queue:** A dropdown menu with options: "-- any queue --", "plgrid", "cms", and "plgrid-long".
- Site:** A dropdown menu with options: "-- any site --", "WCSS64", "CYFRONET-LCG2", and "TASK".
- Local user:** A dropdown menu with options: "-- any user --", "plgmonitoring", "plgmichjak", and "plgborcz".
- Status:** A dropdown menu with options: "-- any status --", "started", "queued", and "completed".
- VO:** A dropdown menu with options: "-- any vo --", "/vo.plgrid.pl", "/vo.plgrid.pl,/vo.plgrid.pl/main,/vo.plgrid.pl/main/Pl", and "/vo.plgrid.pl/main/ICM".
- Project:** A dropdown menu with options: "-- any project --", "cms", "plgearth2012b", and "plgcorax2012a".
- Submit host:** A dropdown menu with options: "-- any host --", "lalande.wcss.pl", "uni-ce.grid.cyf-kr.edu.pl", and "unicore.grid.task.gda.pl".

Additional search criteria include:

- Date from:** 05/01/2013
- Date to:** 06/16/2013
- Time grouping:** day, week, month, year

Group by: Site BSS host Global user Status Queue Project VO Local user Submit host

The new portal (3)

- ◆ Search criteria are automatically filtered for users with limited permissions.
 - Only criteria available for the user-visible jobs are presented.

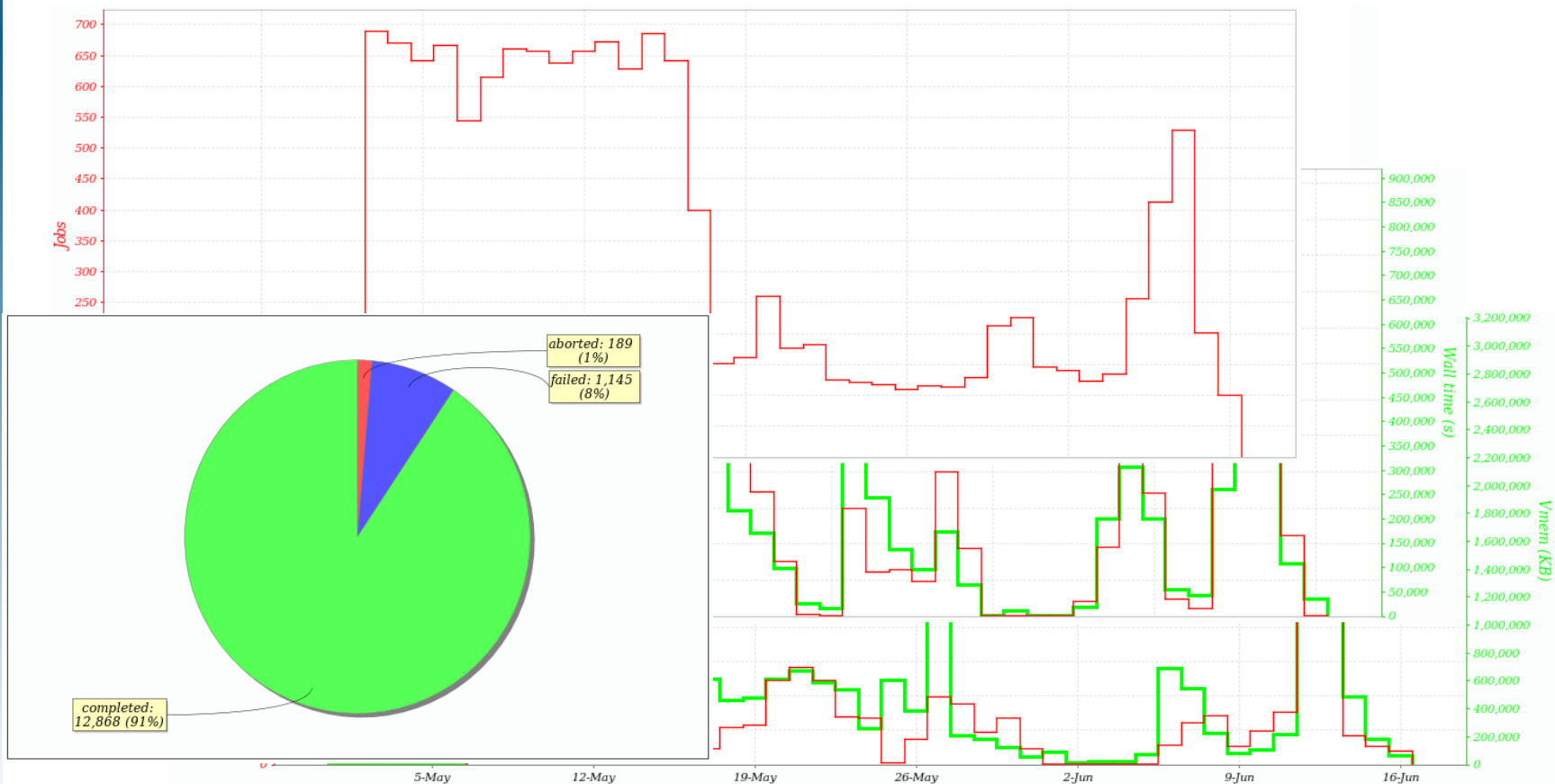
User: CN=plgmarczak, CN=Grzegorz Marczak, O=ICM, O=Uzytkownik, O=PL-Grid, C=PL

Bss host: -- any bss host -- cream.grid.task.gda.pl nova sqot.plgrid.icm.edu.pl	Status: -- any status -- aborted completed failed	Date from: 05/01/2013
Queue: -- any queue -- plgrid	VO: -- any vo -- /vo.plgrid.pl /vo.plgrid.pl/main/ICM	Date to: 06/16/2013
Site: -- any site -- ICM-HYDRA TASK WCSS64	Project: -- any project -- plgmarczak2012b	Time grouping: <input type="checkbox"/> day <input checked="" type="checkbox"/> week <input type="checkbox"/> month <input type="checkbox"/> year
Local user: -- any user -- plgmarczak	Submit host: -- any host -- hyx.grid.icm.edu.pl lalande.wcss.pl unicore.grid.task.gda.pl	

Group by: Site BSS host Status Queue Project VO Local user Submit host

The new portal (4)

- ◆ Fully rewritten charts view.
 - Still a lot to improve here...



Current & future work

- ◆ Additional enhancements in web UI
- ◆ Accounting of reservations
- ◆ (?) LoadLeveler support
- ◆ (?) Support for separate DB in portal (still the same format as in case of rus-service).

Another big picture *separate portal DB*

