OGSA-BES implementation experiences with Grid Underground middleware

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OGF, http://www.ogf.org

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Who we are?

- NIIFI/HUNGARNET, the HUNGarian Academic and Research NETwork, provides data network facility to the Hungarian universities, high schools, public libraries.
- Besides networking we also provide compute and data storage facilities, such as supercomputers (SUN 15K), production desktop grid and cost-efficient storage devices.

What are we doing in the grid community?

Being engaged in both:

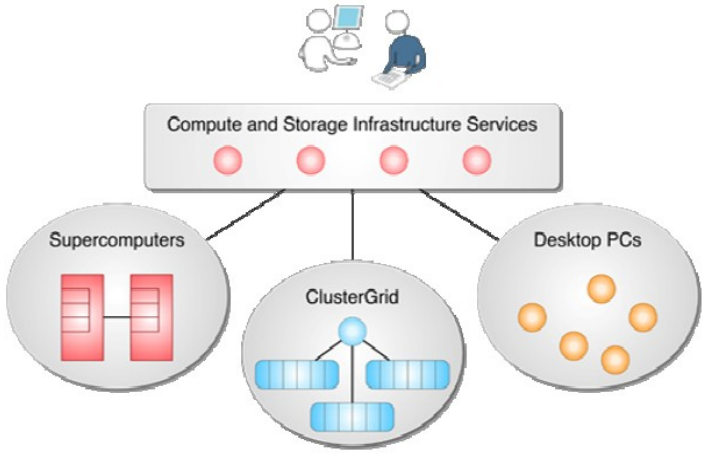
  - grid operations (ClusterGrid, ARC, gLite)
  - grid development (GUG, KnowARC)

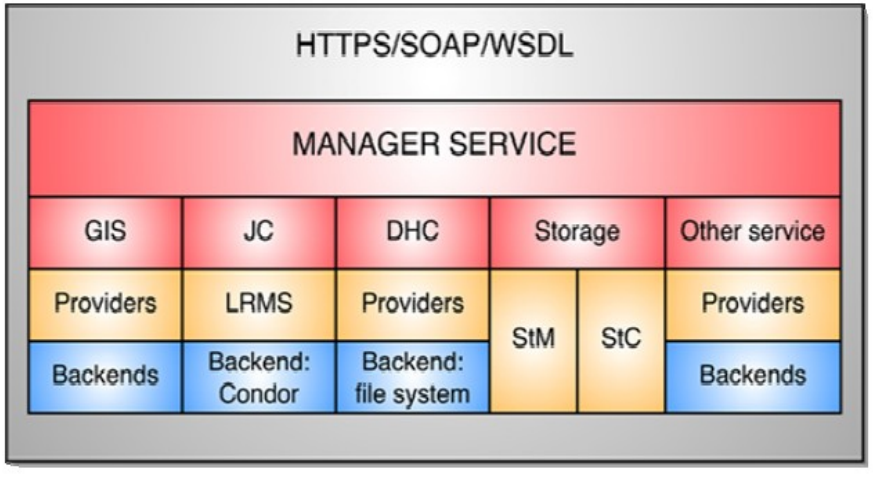
- Special interests in developing lightweight grid middleware, virtualization solutions, grid data management.
- Enormous need for mutually accepted best-practices, standards.

Grid Underground (GUG)

http://gug.grid.niif.hu

- GUG is a ligthweight framework based on Service Oriented Architecture.
- It allows easy webservices based implementation and management of Grid Services.
- Platform independent: Python.
- It is fully compliant with any web and grid standards: WSDL, SOAP, XML, JSDL 1.0, OGSA-BES v31, HPC Basic Profile 1.0, HTTP(S).
- Usable services: Job Manager, Execution Service, Local Resource Management Service, Exec, Storage Manager, Storage Controller, Catalog Service.
- You can write other services in easy and straightforward way.





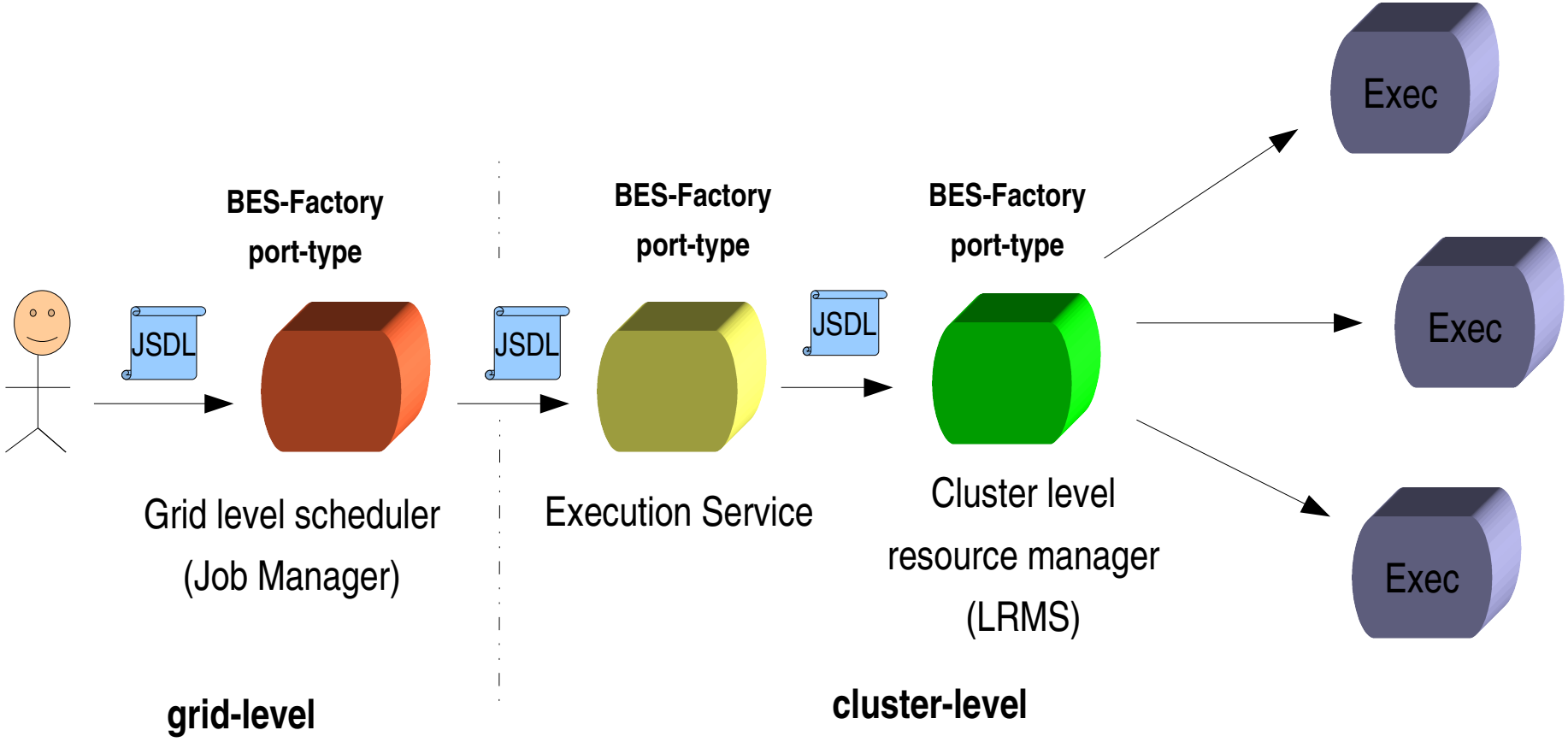
OGSA-BES implementation, experiences

We have three services witch are implements BES. These are sitting at different level of our grid architecture:

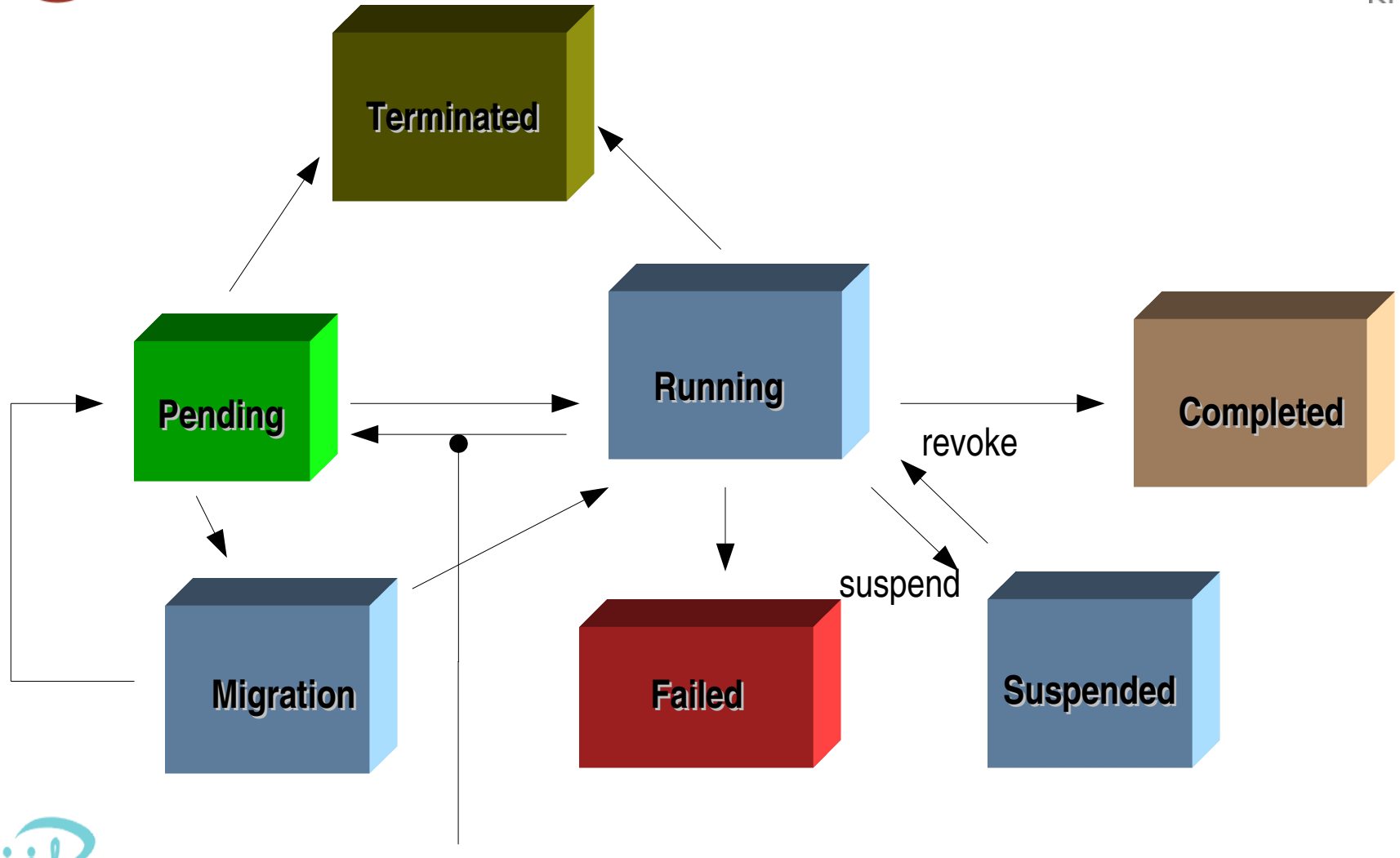
- Grid level scheduler (Job Manager)
- Execution Service running on the resource computing element
- Cluster resource manager (LRMS), similar to Condor, Sun Grid Engine, etc. (non grid component)

All of these components using only BES-Factory port-type. The BES-Factory implementation is based on WS-I and did not use the WS-RF standard.

OGSA-BES implementation, experiences

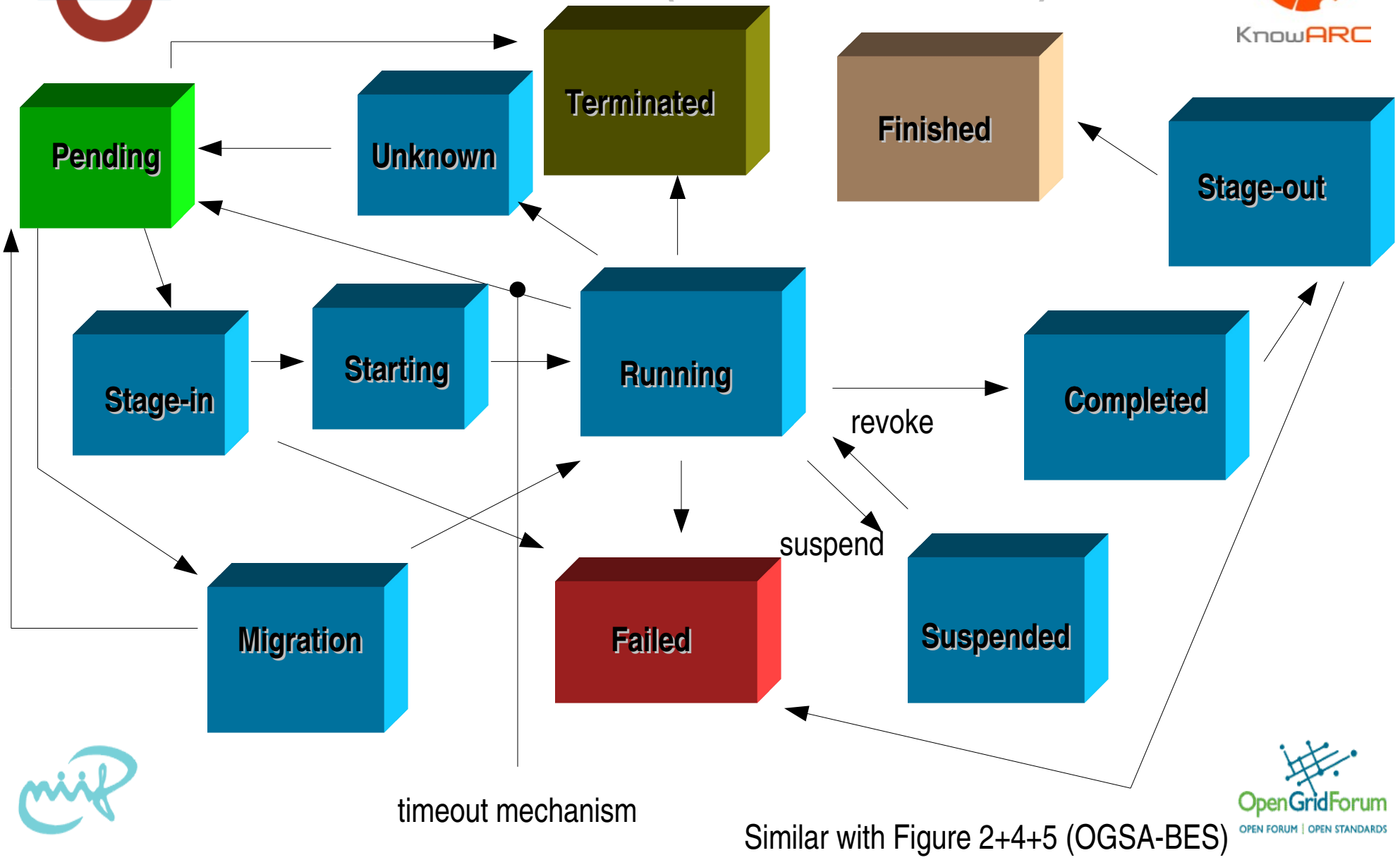


State model I. (LRMS)



Similar with Figure 4+5 (OGSA-BES)

State model II. (Execution Service)



Similar with Figure 2+4+5 (OGSA-BES)

Answers for your possible questions

What about ERP?

Currently we are not using WS-Adressing based ERP (it is possible direction of fourther development), the activities idetified by UUID.

What about information model?

Our information model do not want to follow BES and currently we have own schema. We would like to use GLUE 2.0 feature.

Conclusion and suggestion

- The WS-I based BES implementation is possible. We would like to see WS-I based rendering profile or documents.
- This implementation of the BES is used in a production grid system in Hungary.
- Let the BES implementation independent from the information model.

Questions?!

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