JSDL implementation experiences with Grid Underground middleware

Gábor Rőczei, Ferenc Szalai

roczei@niif.hu szferi@niif.hu

GUG, http://gug.grid.niif.hu

KnowARC, http://www.knowarc.eu

NIIFI/HUNGARNET, http://www.niif.hu

OGF, http://www.ogf.org

NIIF Institute (NIIFI) / HUNGARNET

http://www.niif.hu

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

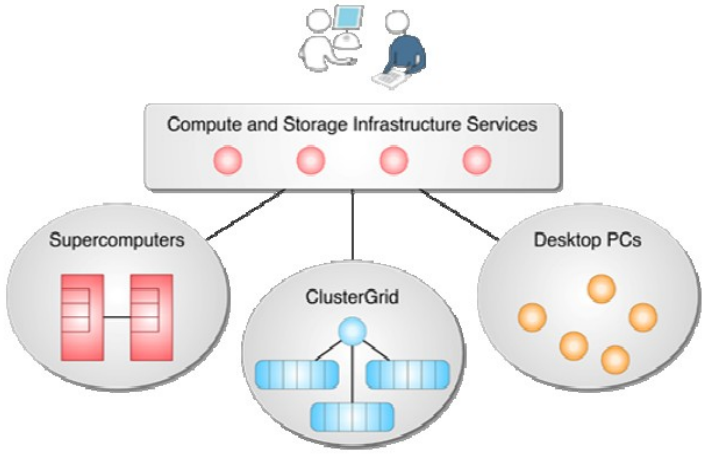
  - grid operations (ClusterGrid, ARC, gLite)
  - grid development (GUG, KnowARC)

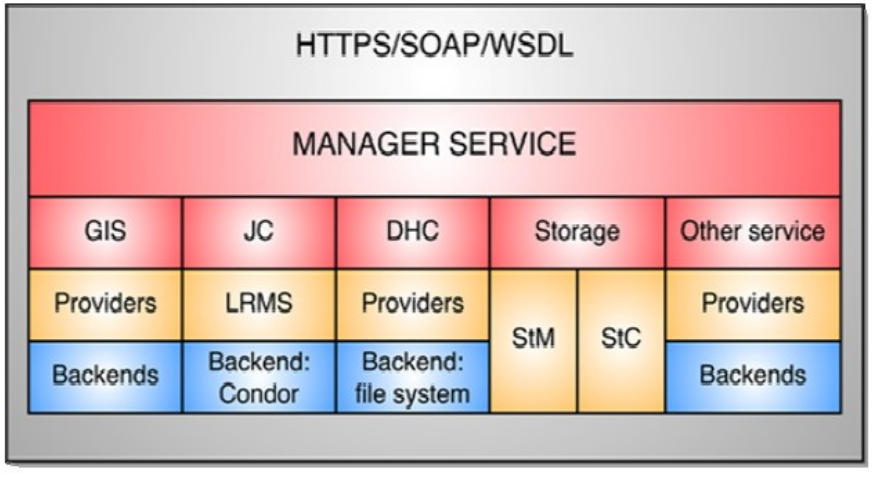
- Special interests in developing lightweight grid middleware, virtualization solutions, grid data management.
- Enormous need for mutually accepted best-practices, standards.

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.





JSDL parser's implementation, experiences

jsdl_parser.py:

- Supported extensions: POSIXApplication, BasicHPCApplication
- Supported Resources elements: CandidateHosts, ExclusiveExecution, OperatingSystem, CPUArchitecture, TotalCPUCount , TotalPhysicalMemory, TotalVirtualMemory, TotalDiskSpaces
- Full matching semantics support: UpperBoundedRange, LowerBoundedRange, Exact, Range

Comments (JSDL 1.0):

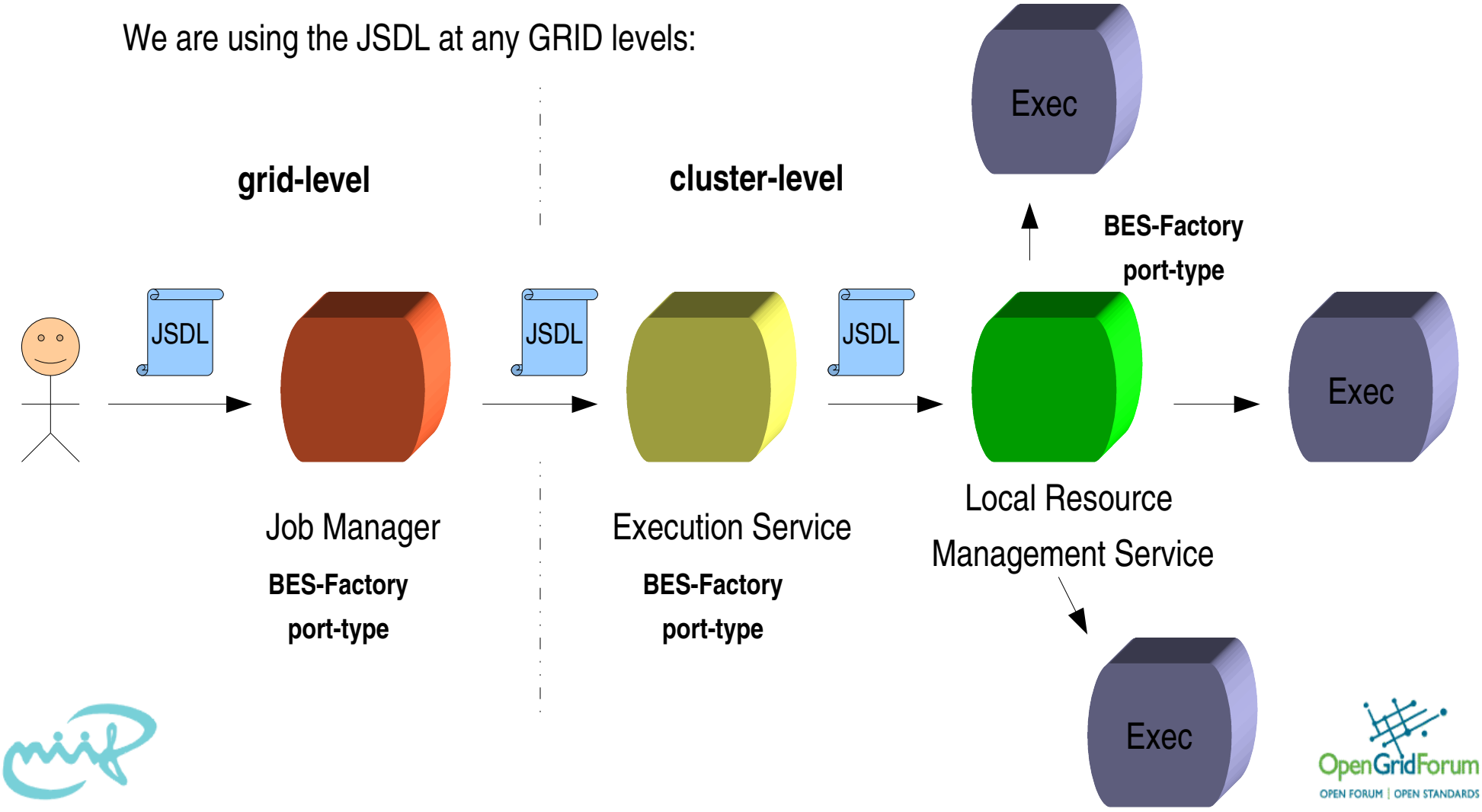
1. The detailed definition of words **total** and **individual** is not specified in the JSDL doc.
2. Should not the **CPU count type** be integer instead of double?

Local Resource Management Service:

- We implemented the **HPC Basic Profile 1.0**.
- Supported features: checkpointing, timeout mechanism, automatic job migration.
- We implemented only the BES-Factory port-type.
- We preferred WS-I to WS-RF in this implementation and so **we do not use the WS-RF**!

Summary

We are using the JSDL at any GRID levels:



Questions?!

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