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# Usage of JSDL in GridWay

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<http://www.gridway.org>

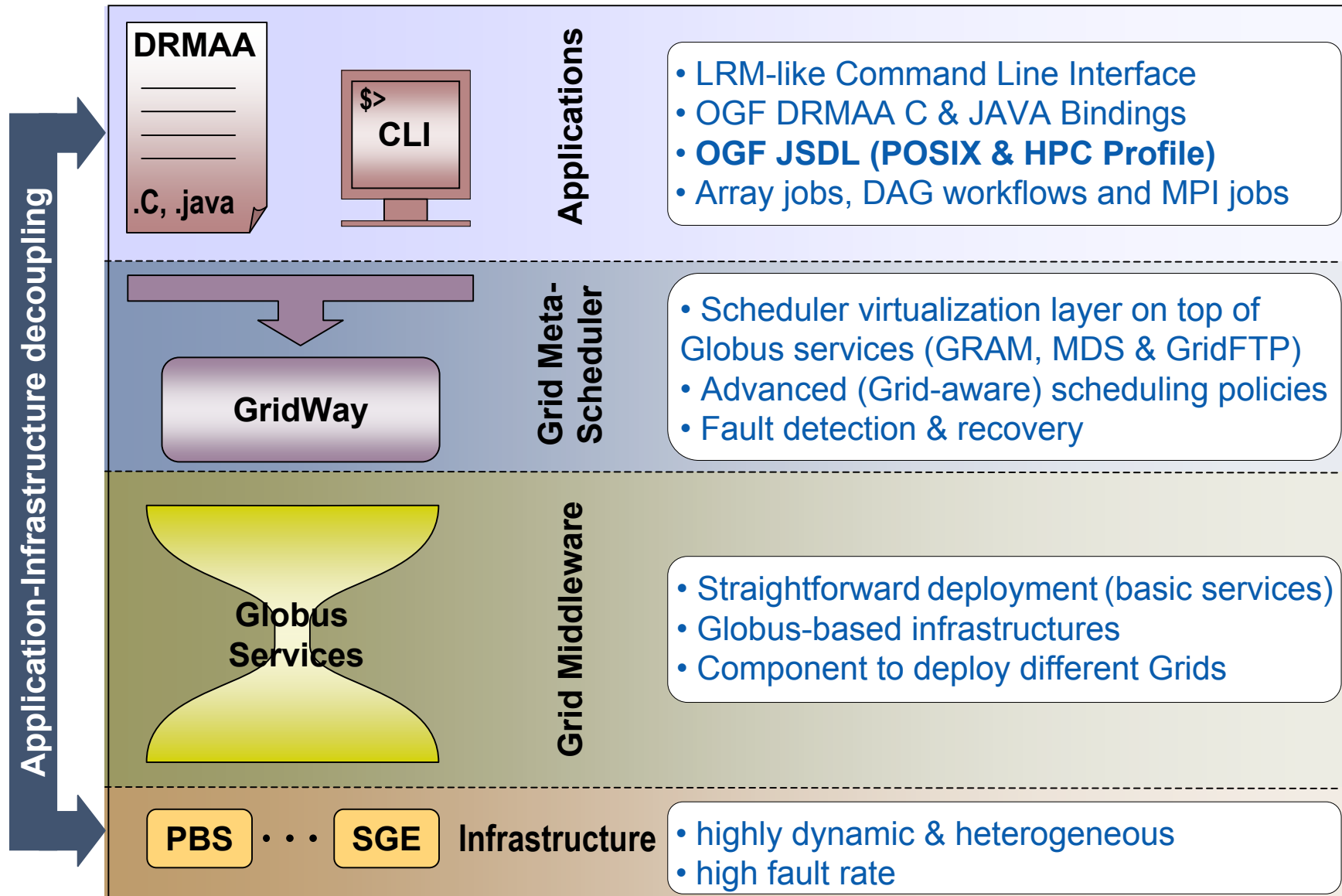
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# GridWay Meta-scheduler





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# Implemented JSDL Elements

- JobIdentification
  - ◆ JobName
  - ◆ JobAnnotation, JobProject (not applicable)
- Application\*
  - ◆ ApplicationName, ApplicationVersion

\*must be completed with POSIX or HPC Profile Application



# Implemented JSDL Elements

- Resources

- ◆ CandidateHosts: HostName
- ◆ FileSystem: MountPoint, MountSource, DiskSpace, FileSystemType (not applicable)
- ◆ ExclusiveExecution (not applicable)
- ◆ OperatingSystem: OperatingSystemType, OperatingSystemName, OperatingSystemVersion
- ◆ CPUArchitecture: CPUArchitectureName



# Implemented JSDL Elements

- Resources (cont.)
  - ◆ IndividualCPUSpeed, IndividualCPUCount, IndividualPhysicalMemory, IndividualDiskSpace
  - ◆ IndividualCPUTime, IndividualVirtualMemory, IndividualNetworkBandwidth (changes needed)
  - ◆ TotalCPUTime, TotalCPUCount, TotalPhysicalMemory, TotalVirtualMemory, TotalDiskSpace, TotalResourceCount (changes needed)



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# Implemented JSDL Elements

- DataStaging
  - ◆ FileName
  - ◆ FilesystemName (not applicable)
  - ◆ CreationFlag, DeleteOnTermination
  - ◆ Source, Target



# Implemented JSDL Elements

- **POSIXApplication**

- ◆ Executable, Argument, Input, Output, Error, Environment
- ◆ WorkingDirectory, UserName, GroupName (not applicable)
- ◆ WallTimeLimit, MemoryLimit, CPUTimeLimit, ProcessCountLimit (changes needed)
- ◆ FileSizeLimit, CoreDumpLimit, DataSegmentLimit, LockedMemoryLimit, OpenDescriptorsLimit, PipeSizeLimit, StackSizeLimit, ThreadCountLimit, VirtualMemoryLimit (not applicable)



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# Implemented JSDL Elements

- HPCProfileApplication
  - ◆ Executable, Argument, Input, Output, Error, Environment
  - ◆ WorkingDirectory, UserName (not applicable)





# A Simple Example

## \$ more simple.xml

```
<jSDL:JobDefinition xmlns="http://www.example.org/"
  xmlns:jSDL="http://schemas.ggf.org/jSDL/2005/11/jSDL"
  xmlns:jSDL-posix="http://schemas.ggf.org/jSDL/2005/11/jSDL-posix"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <jSDL:JobDescription>
    <jSDL:JobIdentification>
      <jSDL:JobName>simple</jSDL:JobName>
      <jSDL:Description>This is a simple example</jSDL:Description>
    </jSDL:JobIdentification>
    <jSDL:Application>
      <jSDL:ApplicationName>ls</jSDL:ApplicationName>
      <jSDL-posix:POSIXApplication>
        <jSDL-posix:Executable>/bin/ls</jSDL-posix:Executable>
        <jSDL-posix:Argument>-la file.txt</jSDL-posix:Argument>
        <jSDL-posix:Environment name="LD_LIBRARY_PATH">/usr/local/lib</jSDL-posix:Environment>
        <jSDL-posix:Output>stdout.${JOB_ID}</jSDL-posix:Output>
        <jSDL-posix:Error>stderr.${JOB_ID}</jSDL-posix:Error>
      </jSDL-posix:POSIXApplication>
    </jSDL:Application>
  </jSDL:JobDescription>
</jSDL:JobDefinition>
```

--More--



# A Simple Example

--More--

```
<jSDL:Resources>  
  <jSDL:CandidateHost>  
    <jSDL:HostName>*.dacya.ucm.es</jSDL:HostName>  
  </jSDL:CandidateHost>  
  <jSDL:CPUArchitecture>  
    <jSDL:CPUArchitectureName>x86</jSDL:CPUArchitectureName>  
  </jSDL:CPUArchitecture>  
</jSDL:Resources>  
<jSDL:DataStaging>  
  <jSDL:FileName>file.txt</jSDL:FileName>  
  <jSDL:CreationFlag>overwrite</jSDL:CreationFlag>  
  <jSDL>DeleteOnTermination>>true</jSDL>DeleteOnTermination>  
  <jSDL:Source>  
    <jSDL:URI>gsiftp://hydrus.dacya.ucm.es/~file.txt</jSDL:URI>  
  </jSDL:Source>  
</jSDL:DataStaging>  
</jSDL:JobDescription>  
</jSDL:JobDefinition>
```



# A Simple Example

```
$ jsdl2gw simple.xml
```

```
#This file was automatically generated by the jsdl2gw command
```

```
NAME=simple
```

```
EXECUTABLE=/bin/l
```

```
ARGUMENTS=-la file.txt
```

```
STDOUT_FILE=stdout.${JOB_ID}
```

```
STDERR_FILE=stderr.${JOB_ID}
```

```
ENVIRONMENT=LD_LIBRARY_PATH=/usr/local/lib
```

```
REQUIREMENTS=HOSTNAME="*.dacya.ucm.es" & ARCH="x86_32"
```

```
INPUT_FILES=file.txt
```

```
$ jsdl2gw simple.xml | gws
```

```
$ gwps
```

USER	JID	DM	EM	START	END	EXEC	XFER	EXIT	NAME	
HOST										
ehuedo	2	pend	----	18:57:29	--:--:--	0:00:00	0:00:00	--	simple	--



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## Conclusions and Future Work

- JSDL in GridWay useful for integration in portals, workflow engines...
- Many JSDL elements not implemented yet
  - ◆ Some not applicable
  - ◆ Some need changes, but will be supported
- Implement SPMD Application
- Perform standard compliance tests
- Use JSDL to submit jobs to GRAM, BES...



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# Questions?

