



Porting applications onto the Grid



Why to use the Grid?

(just some examples to provoke discussion)

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Why do we need a grid?

To run our application faster

- Access external resources (compute and data)
- Parallelise the code
 - Use low level API - MPI/PVM
 - Use high level tool to generate MPI/PVM code automatically **e.g. P-GRADE**

Attention: P-GRADE \neq P-GRADE portal

e.g. MadCity traffic simulator

- Road network divided into sections
- MPI code generated both manually and by P-GRADE



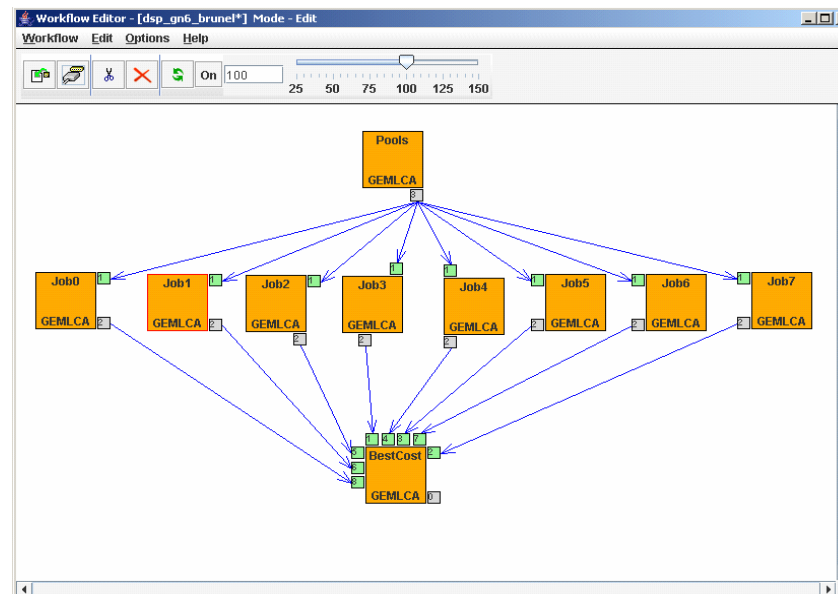


Why do we need a grid?

To run our application faster

- Run the sequential (or the parallel) code with different parameters at different Grid resources
- Dynamic behaviour can be hidden behind the static workflow

e.g.



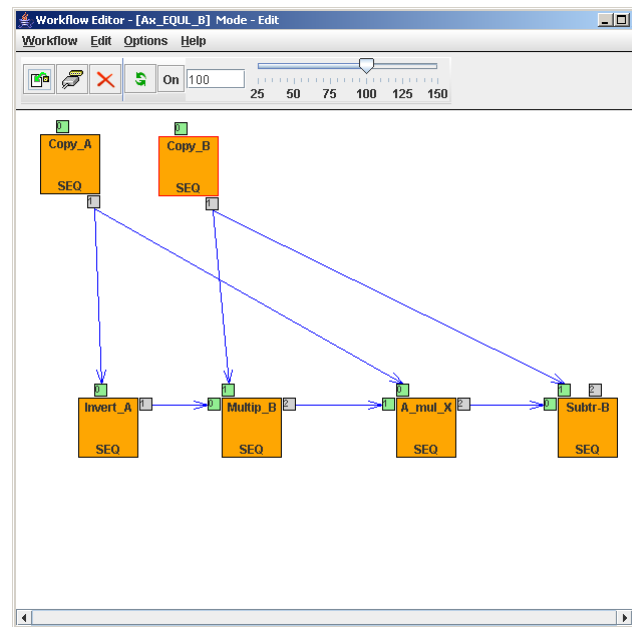


Why do we need a grid?

To construct complex applications
(workflows) to be used by end-users

- Combine standalone applications into Grid workflows
- Express complicated business logic and make it available for end-users

e.g. equation solver





Why do we need a grid?

For collaboration

- Upload our applications into a repository and make it available for other authorised users (both as standalone applications or as workflow components)
- Publish our application on our resources but make them accessible by other users
- Create workflows collaboratively

e.g.

- GEMLCA
- Collaborative P-GRADE portal





Application Support Service

challenges of application support:

users want to run their legacy code applications on the Grid with their constraints without investing in extra hardware & software resources and allocating extra man power

tasks of application support:

1. Grid-enabling legacy codes

enable legacy code applications to run on the Grid

2. Parallelising codes

- converting sequential code → parallel code





Application Support Service

Providing application support:

1. Grid-enabling legacy codes

converting legacy code applications into Grid applications using GEMLCA & the P-GRADE Grid portal

running Grid-enabled applications on Grid(s) using the GEMLCA & P-GRADE Grid portal on different Grids

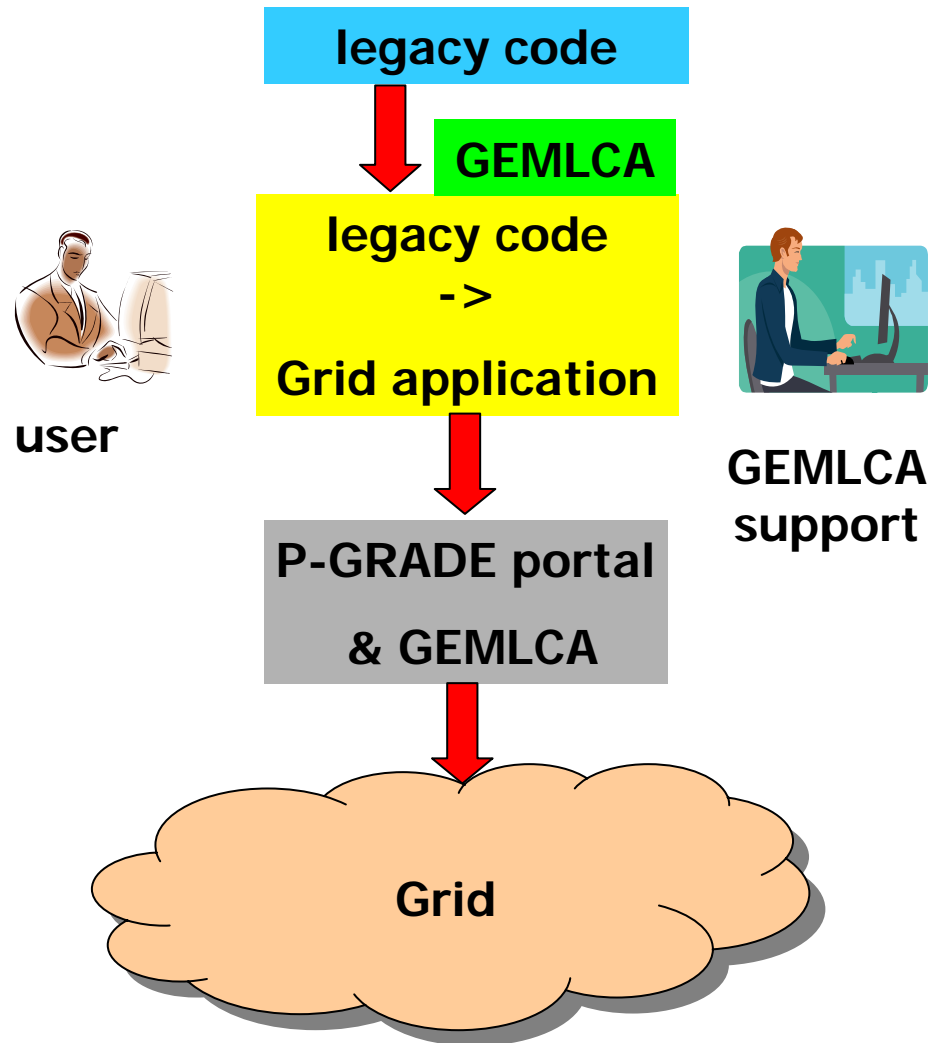
2. Parallelising code

converting C & FORTRAN sequential codes into parallel codes using P-GRADE as a graphical parallel development environment



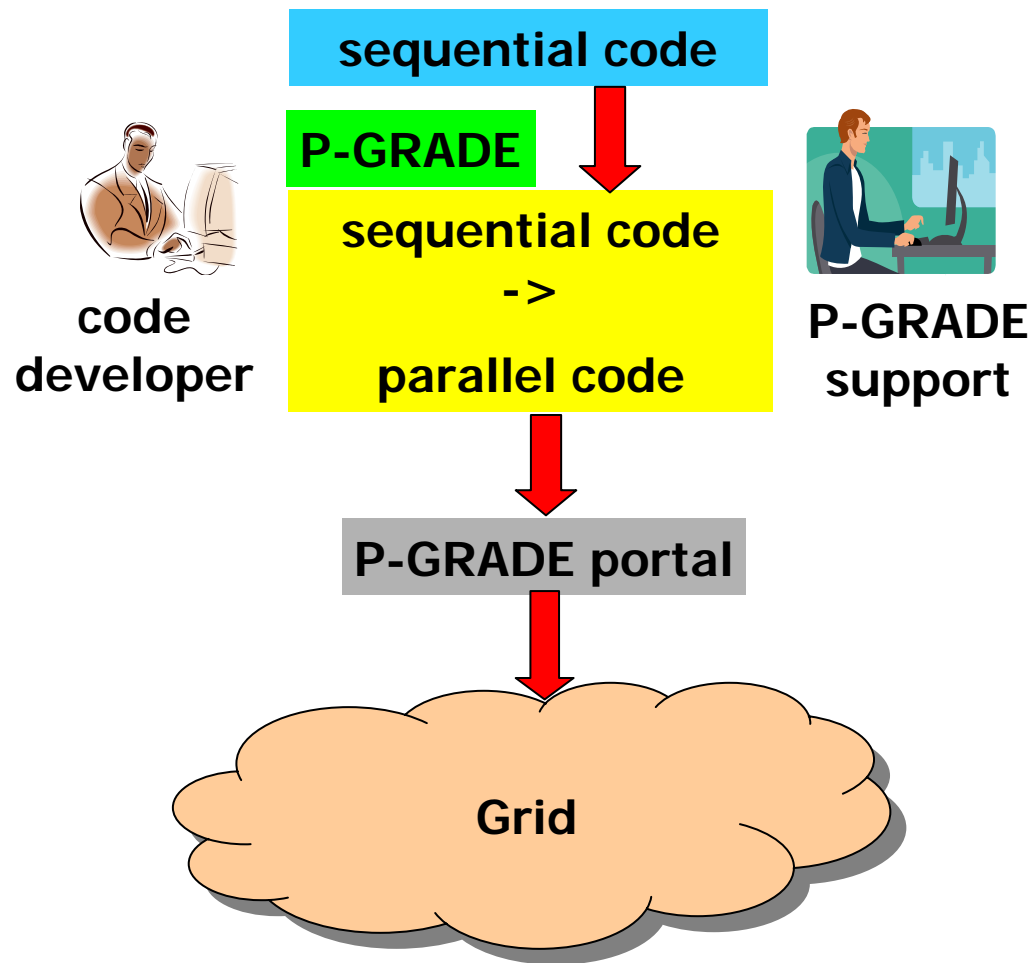


Grid-Enabling DSP Application





Parallelising & Running Ultra-short Range Weather Forecast Application on the Grid





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