



<http://www.grid-support.ac.uk>



<http://www.ngs.ac.uk>

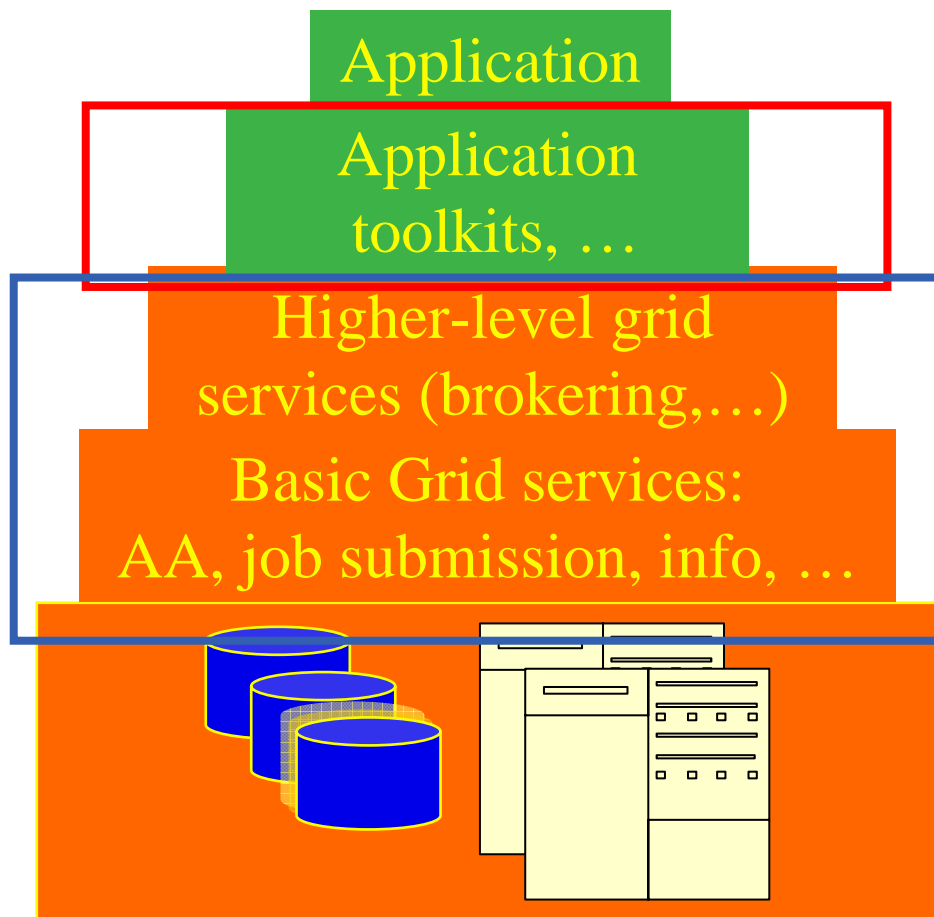
P-GRADE and GEMMLCA



<http://www.pparc.ac.uk/>



<http://www.eu-egee.org/>



Where computer science meets the application communities!

VO-specific developments:

- Portals
- Virtual Research Environments
- Semantics, ontologies
- Workflow
- Registries of VO services

Production grids provide these services.



Enhancing useability



- NGS has deployed low-level tools: these are reliable and give a production service
- Consequently an application developer interacts at a low level with grid services
- Role of application developer: build higher abstractions & tools
 - Specific to a community (MyGrid was developed for bioinformatics)
 - Generic

Example: P-GRADE and GEMLCA, developed at SZTAKI, Hungary and University of Westminster are made available to NGS users

- www.cpc.wmin.ac.uk/gemlca
- www.lpds.sztaki.hu/pgportal
- www.cpc.wmin.ac.uk/ngsportal



P-GRADE Portal and GEMMLCA



**Grid Execution
Management for Legacy
Code Applications**



P-GRADE
portal

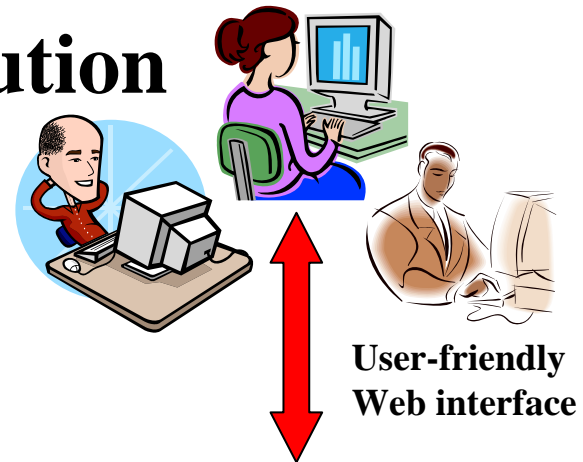


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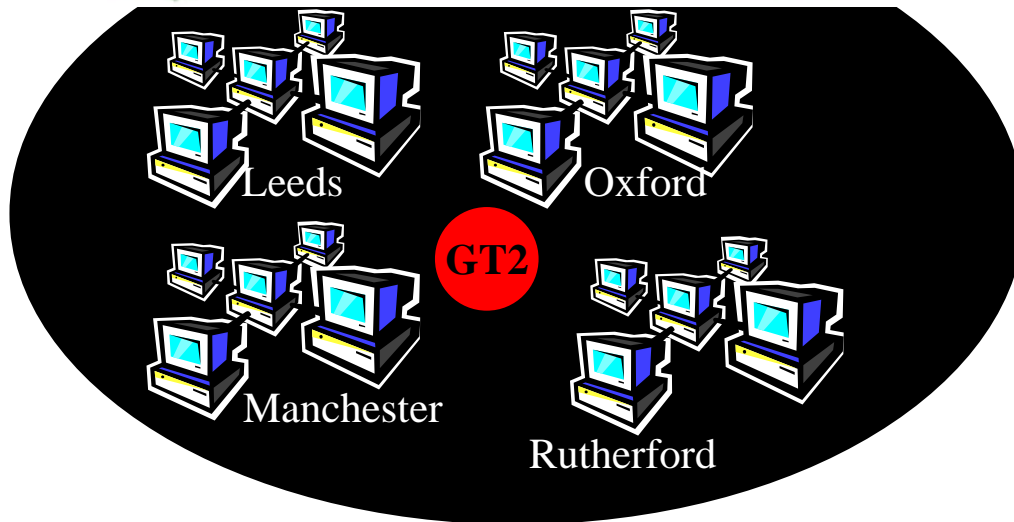
Peter Kacsuk
SZTAKI Hungary
University of Westminster
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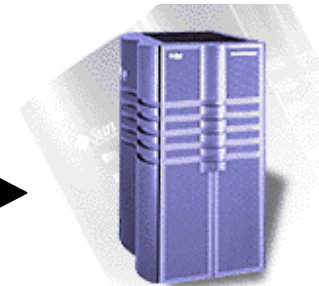
The P-GRADE solution



NGS National Grid Service
core production computational and data grid



P-GRADE
portal



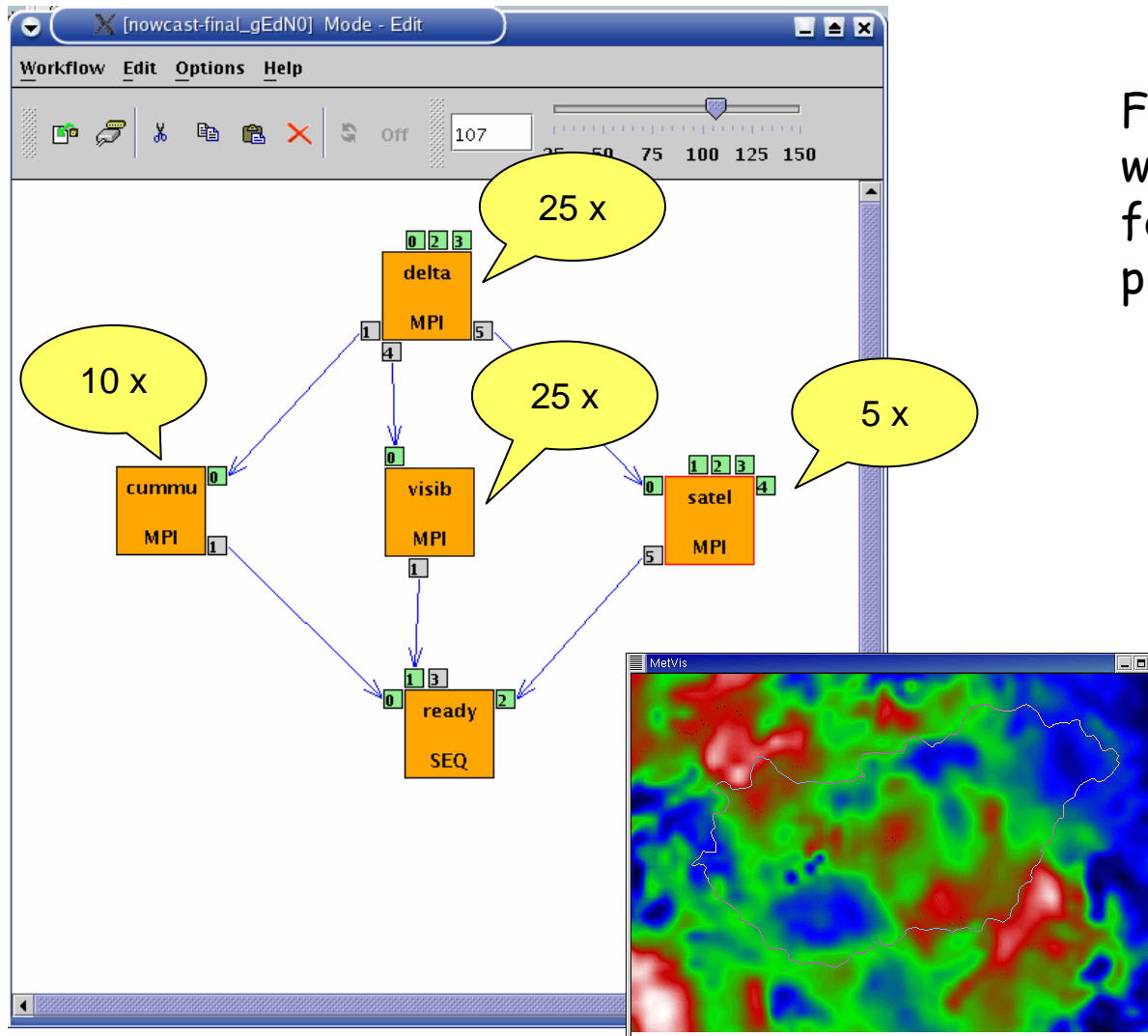
Portal server at
UoW





Ultra-short range weather forecast

(Hungarian Meteorology Service)



Forecasting dangerous weather situations (storms, fog, etc.), crucial task in the protection of life and property

Processed information:
 surface level measurements, high-altitude measurements, radar, satellite, lightning, results of previous computed models

Requirements:

- Execution time < 10 min
- High resolution (1km)





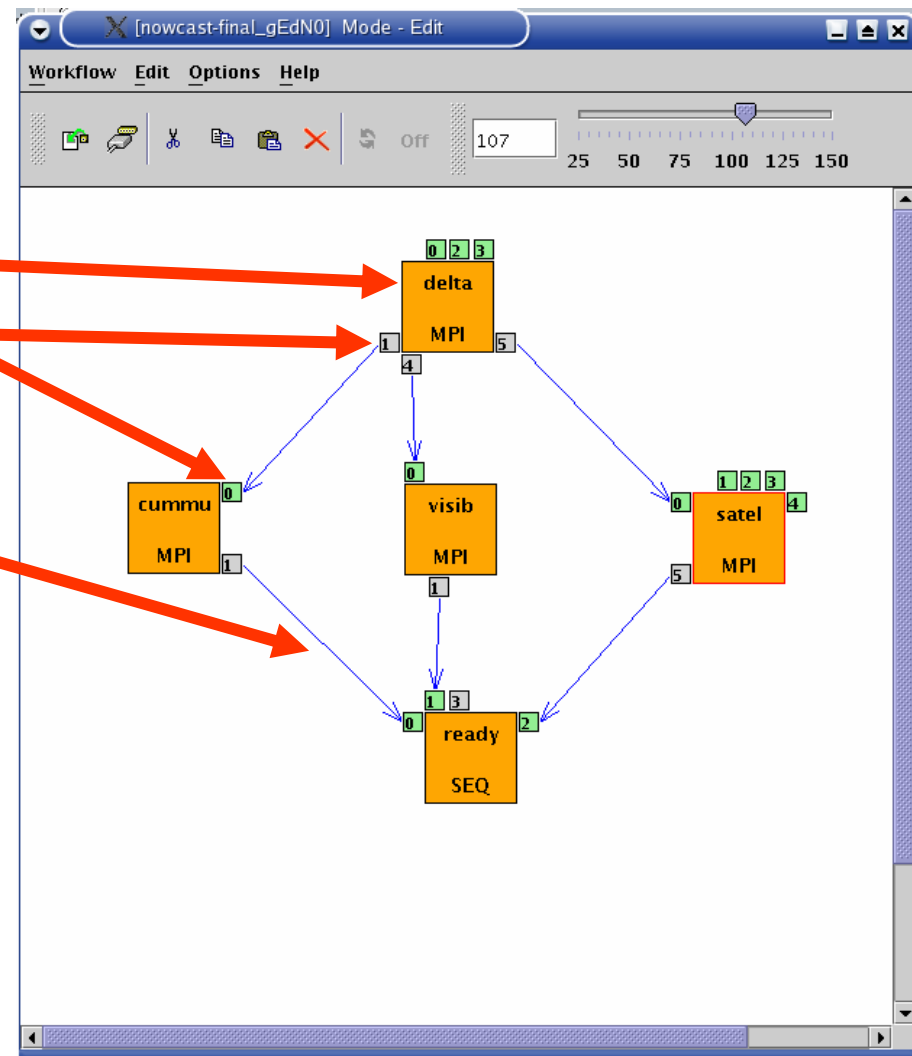
What is a P-GRADE Portal workflow?

- a directed acyclic graph (DAG) where

- Nodes represent jobs (executable batch programs)
- Ports represent input/output files the jobs expect/ produce
- Arcs represent file transfer between the jobs

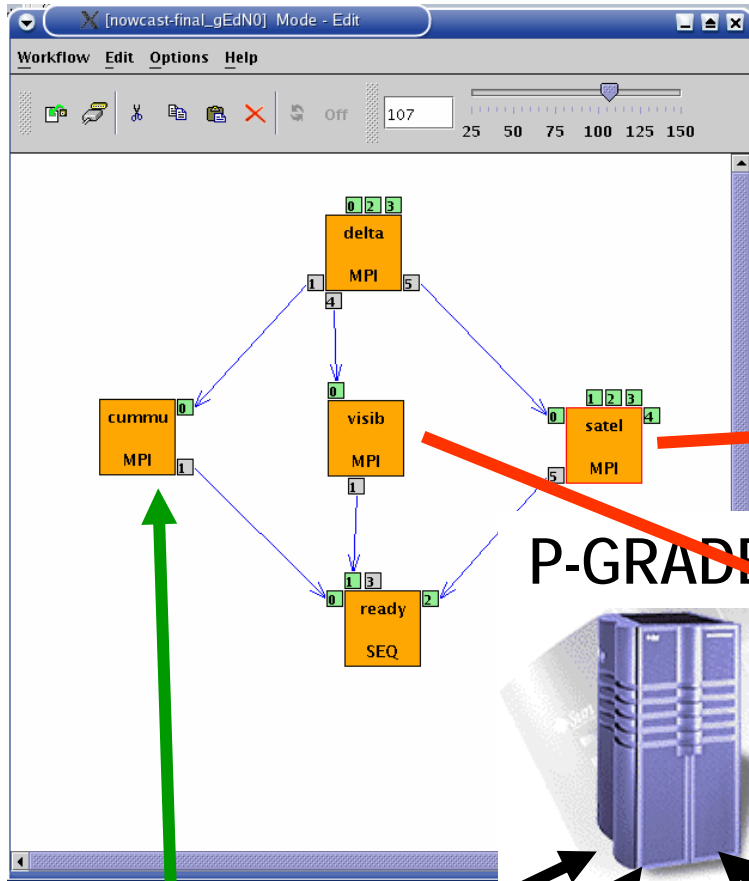
- semantics of the workflow:

- A job can be executed if all of its input files are available
 - **local input files:** on the portal server
 - **remote input files:** at Grid storage service providers



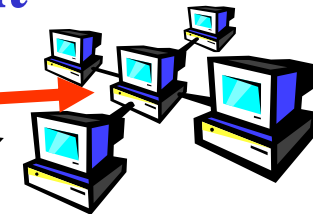


Multi-Grid P-GRADE Portal



Different jobs of a workflow can be executed in different grids

EGEE Grid
e.g. VOCE



P-GRADE-Portal

The portal can be connected to multiple grids

UK NGS



London



Rome



Athens





P-GRADE portal in a nutshell

The screenshots illustrate the P-Grade portal's interface, including a main dashboard, a workflow editor, and a job execution monitor.

Workflow	Job	Hostname	Status	Logs	Output	Action
nowcast-final_gEdn0_b	summu	m0.hpcc.sztaki.hu	Finished	Out	-	Attach Delete
	delta	m0.hpcc.sztaki.hu	Finished	Out	Err	
	ready	m0.hpcc.sztaki.hu	Finished	-	Err	
	satal	m0.hpcc.sztaki.hu	Finished	-	-	
	visib	m0.hpcc.sztaki.hu	Finished	Out	-	

Proxy management

Grid resources management

Workflow creation

Job mapping to Grid resources

Workflow management and execution visualization





GEMMLCA objectives

- To deploy legacy code applications as Grid services **without reengineering the original code** and minimal user effort

GEMMLCA

- To create Grid workflows where components can also be legacy code applications

GEMMLCA &

- To make these functions available from a Grid Portal

P-GRADE
Portal
Integration





GEMMLCA repository

