

A Resource Allocation-Centric Grid Operations Model

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Grid computing as defined by I. Foster and implemented in variety of infrastructures is about coordinated resource sharing among dynamic collections of individuals, institutions and resources. A resource is owned by some organization and, before shared, it usually needs preparing and deploying made by a provider. The resource owners are autonomous in shaping their resource allocation policy. The relations between providers and consumers in Grid are complex and they are not trivial to systematize. One of the reason is presence of virtual providers e.g. National Grid Initiatives which do not own any resources but rather collect these offered by real providers. Establishing and maintaining cooperation between resource provider and customer is supported by the infrastructure operations, which can be defined as a process to maintain the services according to Service Level Agreements (SLA).

EGEE/WLCG operations model is focused on providing highly available, reliable resources. However, one can notice that making the whole infrastructure accessible and reliable varies significantly from providing reliable services for particular end-users. Ability to define an SLA between the user and resource provider and then acting accordingly is crucial for using grids in projects with defined constraints. This kind of SLAs significantly shifts the focus of grid operations.

In our work which originated in EGEE and is related to Polish Grid Platform PL-Grid we propose an improved operations model in which main advances are related to:

- (1) model of resource provisioning process and SLA negotiations,
- (2) resource access configuration based on SLAs,
- (3) SLA execution monitoring,
- (4) SLA post-execution accounting.