

# Quality Assurance of Grid Service Provisioning by Risk Aware Managing of Resource Failures\*

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## Abstract

Quality assurance is a key aspect in scope of the provisioning of Grid services since end-users ask for specific Quality of Service (QoS) criteria defined in Service Level Agreements (SLA). To commit to an SLA, Grid providers need a risk analysis during SLA negotiation in order to estimate the probability of an SLA violation. In addition, such a risk analysis is necessary in the post-negotiation phase in order to find the most profitable solution if not all SLAs can be fulfilled. Current job failure rates in Grids (10-45%) highlight the necessity of fault-tolerance mechanisms. If not enough

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resources exist to compensate for all resource outages, the provider has to prefer those jobs which are in expectation the most profitable ones. Hence, this quality assurance ensures that obligations from the most important jobs will be fulfilled.