Abstract - Wnodes

WNoDeS, a Cloud and Grid Integration Framework
============================================ For the past 3 years, INFN have been developing and deploying a framework to integrate Grid and Cloud computing. This framework, called WNoDeS (Worker Nodes on Demand Service), is now the production solution offered for Grid and Cloud integration by the Italian Grid Initiative (IGI). WNoDeS is running in production at several Italian centers, including the main INFN computing center in Bologna, Italy, where it currently manages 2,000 dynamically-created virtual machines and serves the need of some 20 different scientific collaborations. In WNoDeS, all services are provisioned through virtualization technologies by a common pool of resources, regardless of the actual interface (Cloud, Grid, local jobs) requested by users. This eliminates the need to partition resources and optimized overall resource utilization. The services provided by WNoDeS include:
- Self-instantiation of resources via Cloud interfaces (a web-based portal, or an OCCI-based API);
- The possibility to run distributed jobs submitted via standard EMI (European Middleware Initiative) tools on user-specified virtual machines;
- The creation of customized environments for the execution of batch jobs;
- Self-request of pools of customized systems for local users. A key characteristic of WNoDeS is its tight integration with a standard job scheduler; this ensures scalability, configuration flexibility and integration into the existing policies of a computing center. WNoDeS currently supports Platform LSF and PBS/Torque as underlying schedulers. For more information on WNoDeS, please see http://web.infn.it/wnodes, or send an email to wnodes@lists.infn.it.