An APEL Tool Based CPU Usage Accounting Infrastructure for Large Scale Computing Grids

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The APEL (Accounting Processor for Event Logs) is the fundamental tool for the CPU usage accounting infrastructure deployed within the WLCG and EGEE Grids. In these Grids, jobs are submitted by users to computing resources via a Grid Resource Broker (e.g. gLite Workload Management System). As a log processing tool, APEL interprets logs of Grid gatekeeper (e.g. globus) and batch system logs (e.g. PBS, LSF, SGE and Condor) to produce CPU job accounting records identified with Grid identities. These records provide a complete description of usage of computing resources by user’s jobs. APEL publishes accounting records into an accounting record repository at a Grid Operations Centre (GOC) for the access from a GUI web tool. The functions of log files parsing, records generation and publication are implemented by the APEL Parser,

APEL Core, and APEL Publisher component respectively. Within the distributed accounting infrastructure, accounting records are transported from APEL Publishers at Grid sites to either a regionalised accounting system or the central one by choice via a common ActiveMQ message broker network. This provides an open transport layer for other accounting systems to publish relevant accounting data to a central accounting repository via a unified interface provided an APEL Publisher and also will give regional/National Grid Initiatives (NGIs) Grids the flexibility in their choice of accounting system. The robust and secure delivery of accounting record messages at an NGI level and between NGI accounts instances and the central one are achieved by using configurable APEL Publishers and an ActiveMQ message broker.