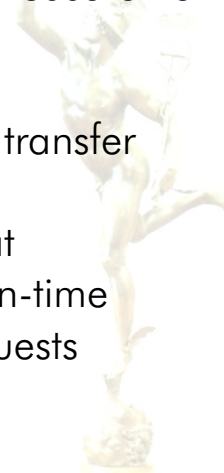


The Mercury Grid Monitoring System has been developed within the GridLab project Wp11. It provides a general and extensible grid monitoring infrastructure.

Mercury Monitor is designed to satisfy specific requirements of grid performance monitoring: it provides monitoring data represented as metrics via both pull and push model data access semantics and also supports steering by controls. It supports monitoring of grid entities such as resources and applications in a generic, extensible and scalable way.

The architecture of Mercury Monitor is based on the Grid Monitoring Architecture (GMA) proposed by Global Grid Forum (GGF), and implemented in a modular way with emphasis on simplicity, efficiency, portability and low intrusiveness on the monitored system. The input of the monitoring system consists of measurements generated by sensors.

Sensors are controlled by producers that can transfer measurements to consumers when requested. Sensors are implemented as shared objects that are dynamically loaded into the producer at run-time depending on configuration and incoming requests for different measurements.



Mercury is used by the P-GRADE Parallel Grid Runtime and Application Development Environment and the Hungarian Supergrid project.

In Mercury all measurable quantities are represented as metrics. Metrics are defined by a unique name such as *host.cpu.user* which identifies the metric definition), a list of formal parameters and a data type. By providing actual values for the formal parameters a metric instance can be created representing an entity to be monitored. A measurement corresponding to a metric instance is called metric value.

Metric values contain a time-stamp and the measured data according to the data type of the metric definition. Sensor modules implement the measurement of one or more metrics. Mercury Monitor supports both event-like (i.e. an external event is needed to produce a metric value) and continuous metrics (i.e. a measurement is possible whenever a consumer requests it such as, the CPU temperature in a host). Continuous metrics can be made event-like by requesting automatic periodic measurements. In addition to the functionality proposed in the GMA document, Mercury also supports actuators.

Actuators are analogous to sensors but instead of taking measurements of metrics they implement controls that represent interactions with either the monitored entities or the monitoring system itself. In addition to all mentioned features Mercury facilitates steering.