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## **Grid administration: towards an autonomic approach**

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Within the DIRAC framework in the LHCb collaboration, we deployed an autonomous policy system acting as a central status information point for grid elements.

Experts working as grid administrators have a broad and very deep knowledge about the underlying system which makes them very precious. We have attempted to formalize this knowledge in an autonomous system able to aggregate information, draw conclusions, validate them, and take actions accordingly.

The DIRAC Resource Status System is a monitoring and generic policy system that enforces managerial and operational actions automatically. As an example, the status of a grid entity can be evaluated using a number of policies, each making assessments relative to specific monitoring information. Individual results of these policies can be combined to evaluate and propose a global status for the resource. This evaluation goes through a validation step driven by a state machine and an external validation system. Once validated, actions can be triggered accordingly.

External monitoring and testing systems such as Nagios or Hammercloud are used by policies for site commission and certification. This shows the flexibility of our system, and of what an autonomous policy system can achieve.

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