

PANACEA will propose innovative solutions for proactive autonomic management of cloud resources, based on machine learning, overlay networks, pervasive monitoring and the OpenNebula cloud manager. By predicting anomalies (like time to failure of cloud applications and DDoS attacks) before they occur, PANACEA will provide the following autonomic functionalities:

## ⚙️ self-healing

against anomalies by recovering from multiple node and link failures, and using proactive rejuvenation of applications and servers for preventing crashes and increasing the availability, predicting the threshold violation of response time of servers,

## ⚙️ self-optimizing

using proactive migration of virtual machines among cloud resources, maintaining the quality of service of end-to-end flows,

## ⚙️ self-configuring

by efficiently mapping user's requirements onto distributed clouds and dynamically reconfiguring in the presence of anomalies,

## ⚙️ self-protecting

using proactive reconfiguration of overlay networks to protect against DDoS attacks.

