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Agent-based monitoring system for cloud/Grid computing

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1 Abstract

Goal of the project is to create a robust, fault tolerant, agent-based monitoring system, which is capable of working in cloud/Grid type environment with zero configuration. Created solution should be helpful for system administrators (of a clouds / Grids). To provide additional information about the situation a rule-based inferencing system is going to be included in it. It can be used to provide alerts, additional information and detecting complex problems, based on cumulative knowledge about the state of the system.

Task of resource monitoring is already solved by monitoring systems, e.g. Ganglia (requires little configuration) or Nagios (requires extensive configuration). Our approach should be more extensible, since we attempt at applying software agents.

Very important part of the system is inclusion of some basic inferencing capabilities. Due to such approach, at this stage, we are able to implement simple AI based on rule-based inferencing system, which is able to provide additional information for user of the system (system administrators). The following scenarios are detected by the system (subject to some limitations):

- detecting severed network connection
- detecting non-responding node in a cloud
- detecting dead monitoring agent on a node

Interestingly, the preliminary version of the system skeleton has been implemented using EXAT software environment.