Measuring semantic similarity in grids using ontology

Abstract

Grid computing, a new and broad area of research, aims at sharing available information and resources through the use of computers over the network. To use the new applications of grid, it is necessary to adapt the modern software components and assembled information resources in a flexible format. Web services incorporate the necessary capabilities in achieving this goal called grid services. Due to the exponentially increasing amount of data, documents, resources and services available on the web, finding an acceptable agreement between the user and the abilities of web or grid service as well as forming an appropriate composition of service components for performing requested operation are critical issues. Measuring the similarity of services is an important and valuable solution that is used in some practical reasoning such as replacement of a service with another and combination of services and applications. Also, because the measuring the service similarity needs an appropriate semantic model, therefore, in this paper a semantic model based on OWL ontology language for services is presented and thus, similarity measure is provided. We find a semantic model for services and then provide a method for measuring the similarity between two services. A mathematical model for solving given problems is also proposed. The results evaluated by F1 measure obviously show the improvement of accuracy against previous method.