

# The Grid Application Platform: Development and Applications

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GAP is developed with the following aspects. It is easy to use for not only the end-users but also the grid application developers. GAP provides higher level of Java API which maps the problem domain model to programming domain model. GAP is easy to evolve for adapting new IT technologies as well, and the accommodation is transparent to both developers and users. The GAP abstracts the difference of grid middleware with a unified interface and could be extended to adapt new middleware. The GAP is light-weight in terms of the deployment effort and the system overhead. Its goal is to provide problem domain models for grid application and prevent developers from reinventing the wheels.

## 3. Impact

In the collaboration of the EGEE WISDOM project, the docking services for Avian Flu drug analysis was implemented as an application of the GAP framework. The service has been promoted to wider auto-docking research groups of Taiwan and Asia Pacific Region through the collaboration of the 2nd grid challenge of the avian flu drug analysis on the EGEE grid infrastructure. It provides biologists a simplified way to run large-scale docking simulations on the grid directly from their desktop and also the possibility to integrate the grid-enabled docking simulation service with the existing tools that has been used in the daily work.

## URL for further information:

<http://www.twgrid.org/Application/Bioinformatics/AvainFlu-GAP/>

## 4. Conclusions / Future plans

At present, GAP is going to be integrated with more practical grid applications such as the digital archive application, earthquake data center services and so on. Application usability would be improved by the aid of GAP based on the experiences of Avian Flu Drug Analysis System. In the future, the flexibility to integrate existing tools, the improvement of user interface, and the reusability of client API are the focus for advancement.

## Provide a set of generic keywords that define your contribution (e.g. Data Management, Workflows, High Energy Physics)

Grid Applications, Grid Services, Service-Oriented Architecture, Drug analysis, Avian flu

## 1. Short overview

Grid Application Platform (GAP) is a light-weight framework for developing problem solving applications on the Grid, while reducing efforts of application integration and adapting new technologies in the future. Layered architecture was deployed to make the system easy to scale, manage and reuse, by three frameworks from bottom to the top. Compared to the traditional grid services, it provides a simpler way for both users and developer to use the grid and create grid application.

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