

## PROJECT INTRODUCTION

### Objectives

To design and develop an information service architecture for information capturing, aggregation and provisioning in a Grid environment.

### Project Investigator / Manager

Dr. Terence Hung  
Institute of High Performance Computing  
terence@ihpc.a-star.edu.sg

### Period of Project

1 Jan 2004 – 31 Dec 2005

### Website

<http://ihpc.a-star.edu.sg>

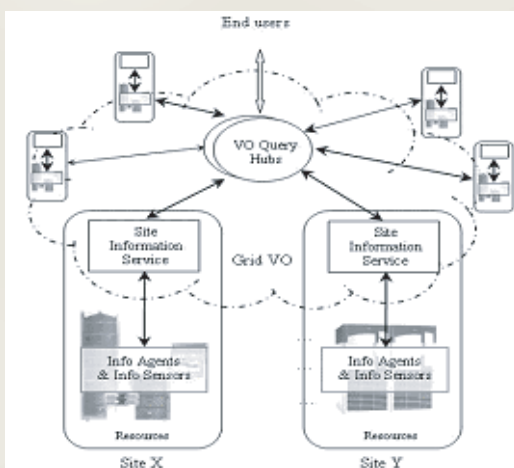
### Abstract

Information Service is a core component in a Grid software infrastructure. It provides information to users and Grid services upon request. This project presents an Information Service architecture for information management in a large scale Virtual Organization (VO).

## PROJECT DETAILS

### Description

Our Information Service is a VO-oriented service with a hierarchical structure which consists of resource layer, site layer, and VO layer (see figure). This hierarchical architecture allows efficient management of information at different level of the Grid infrastructure.



*Information Service Architecture*

The resource layer is the underlying layer of the Information Service. Physically it consists of all the resources being monitored in a VO environment.

The major components of the resource layer are Information Sensor and Information Agent. Information Sensors are used to capture information. They are runtime pluggable and can be integrated dynamically to the Information Service architecture. Information Agents runtime monitor dynamic information and ensure up-to-date data provisioning.

The site layer has a site Information Service running on each administrative domain. By talking to underlying Information Agents, a site Information Service aggregates information from the resources being monitored in a domain. The site Information Service has caching mechanisms to ensure up-to-date information especially for highly dynamic information.

At VO layer, a peer-to-peer approach is used to build a virtual network of site Information Services for information discovery and query in a large scale VO. This decentralized approach provides scalability and fault tolerance in managing large amount of VO information that comes from multiple administrative domains.

### Collaborating Organization:

Nanyang Technological University