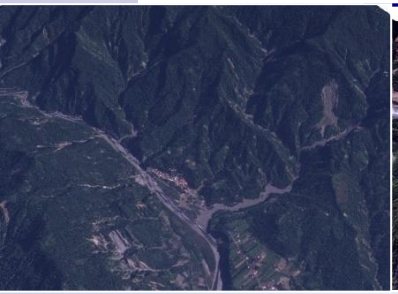
National Applied Research Laboratories Taiwan

Cloud based Disaster Management Information Platform



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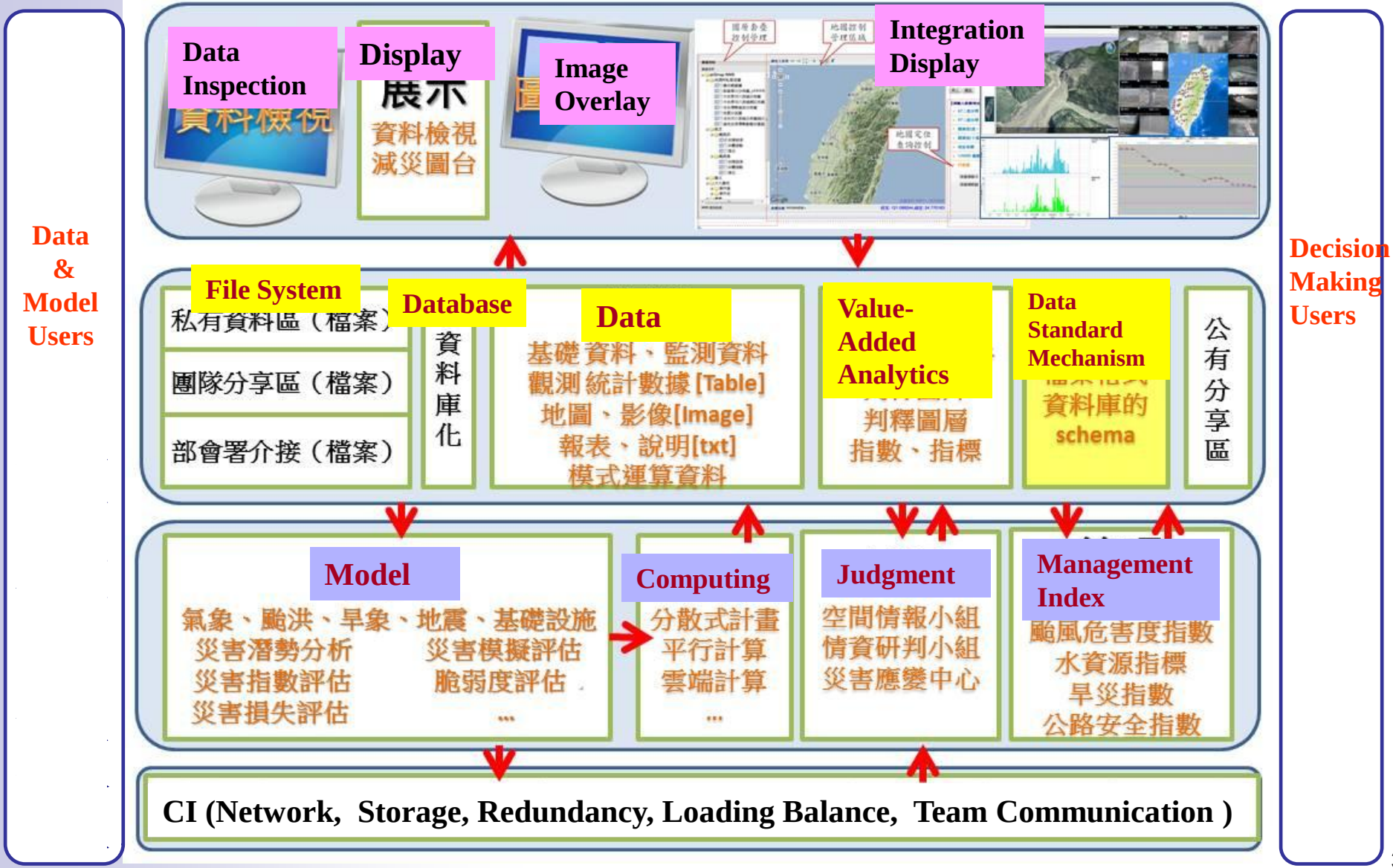
Introduction

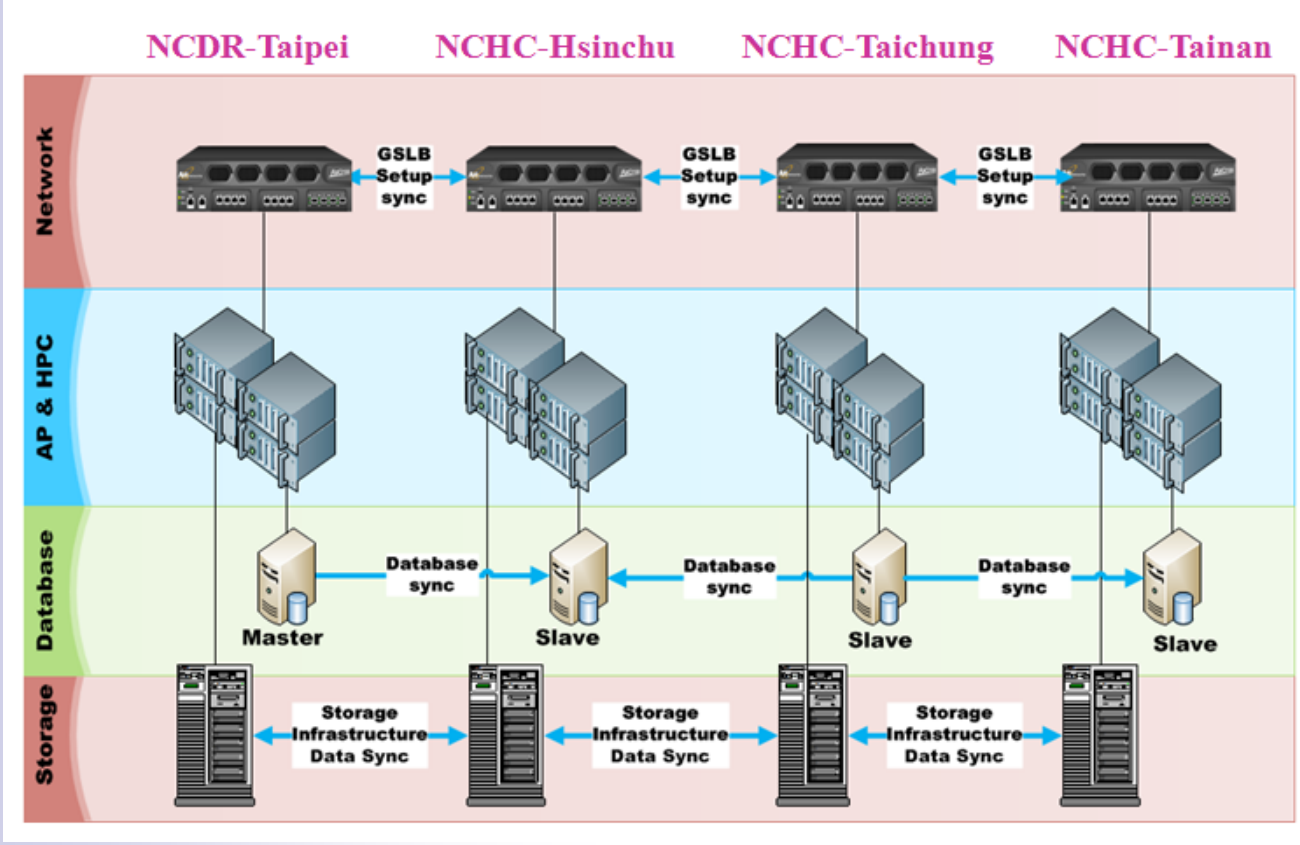
- **The purposes of this research project are**
  - **to establish the large data processing system for data backup & redundancy, circulation, sharing, model analyses, and visualization.**
  - **to develop the system of communication, collaboration, and coordination utilized among the governmental disaster prevention and rescue units, and**
  - **to accelerate the integration of multiple disaster information sources provided by the distributed government agencies and analyzed results to improve the performance of disaster response and mitigation operations.**
- **The core technologies adopted in the project include data warehousing of remote sensing image, 3D visualization, cloud computing, collaborative technology, and disaster reduction technology along with the vision of the advanced Cyberinfrastructure.**

Disaster Management Information Platform: Framework



Framework of Data Backup, Redundancy and Loading Balance

- The framework of backup, redundancy and loading balance mechanism have been planned, which cover the service of disaster prevention and rescue information and the multiple-communication and sharing system among four nodes: National Center for Disaster Reduction (NCDR) and NCHC three sites located in Hsinchu, Taichung, and Tainan, respectively

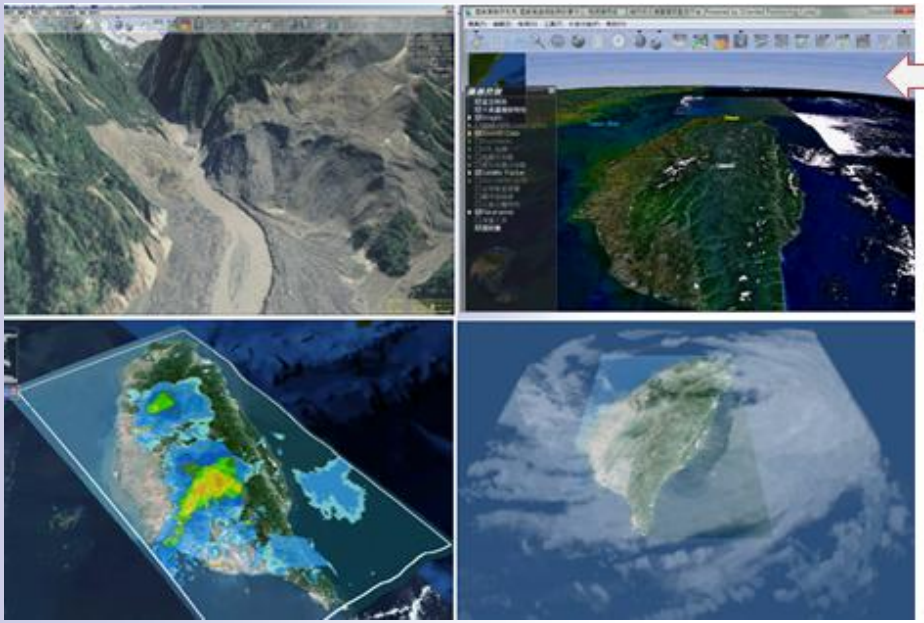


The Communication and Collaboration System

- The communication and collaboration system has been developed and is used by the member institutes of governmental disaster spatial information taskforce. The service to the member institutes includes: (1) interactive communication and information sharing; (2) coordination and call-for-help during disaster event period and regular time; and (3) work recording, experience sharing, and summary of results

The WMS Cloud Coupled with Web 3D GIS Application System

- The WMS (Web Map Service) cloud has been developed following the OGC (Open Geospatial Consortium) standard to provide single-entry image service. The web 3D GIS application system, World Wind Taiwan, is able to link and use the WMS cloud for multiple images stitching and overlaying with atmospheric observation data (Fig. 3). The WMS cloud coupled with the web 3D GIS application system provides an integrated and complete service.



The WebM 3D GIS Navigation Cloud System

- **The WebM 3D GIS navigation cloud system following the NVIDIA 3D vision requirement has been developed. The terrain of Taiwan, watershed layout, weather observation information, and forecast results of disaster events can be browsed through the web in form of 3D stereo video. This is quite helpful for decision support associated with disaster mitigation management.**

3D Watershed Terrain viewed in web browser