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A Projection For River Information Service In South Korea

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A PROJECTION FOR RIVER INFORMATION SERVICE IN SOUTH KOREA

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River information management systems in South Korea have been improved in order to proactively respond to the change in the information environment. Recently, Smart River-based river information services and related data have become so large as to be overwhelming, requiring necessary improvements in managing Big Data. Nowadays, data is gathered from diverse sources including terrestrial measurements, sensor networks and satellites. In this study, a plan was suggested to respond to changes in the information environment and to provide a future Cloud Computing based river information service by understanding and improving the current state of river information management systems. GeoServer is a platform that abstracts a relational database and provides data services for developed web services using OGC (Open Geospatial Consortium) standards. A geospatially standard data model is developed to create a generic standard for sharing river information data. In this paper we present a logical database design for the Geospatial Data Model (GDM) that advances the information science knowledge base of water resources research. Cloud Computing is the latest buzz word in ICT (Information Communication Technology). In order to share and collaborate GIS data and the computation results among geographically dispersed users, a scalable and computation platform, such as Cloud Computing. In addition, this study was undertaken to expand the current supplier-oriented operating system to a demand-oriented operating system by establishing both the efficient management of river-related information and a utilization system capable of adapting to the changes of a river management paradigm.

INTRODUCTION

This study suggests a future direction for efficient integrated management to common use a river spatial information. River information systems provide a convenient and useful service environment, because of a building of river related database and river information. In order to improve a comprehensive river management and efficient information services, it is need to manage at national level and to establish a user-centric information system. River spatial informations play a role as a base data to provide the river information in a number of information systems.

Establishment of efficient river-related information management and utilization system, which can adapt the changes of river management paradigm. Provide national level measure for

changing operation system from provider-centric system to consumer-centric system. Open and scalable technology development and utilization of rivers standard data model information systems (Figure 1).

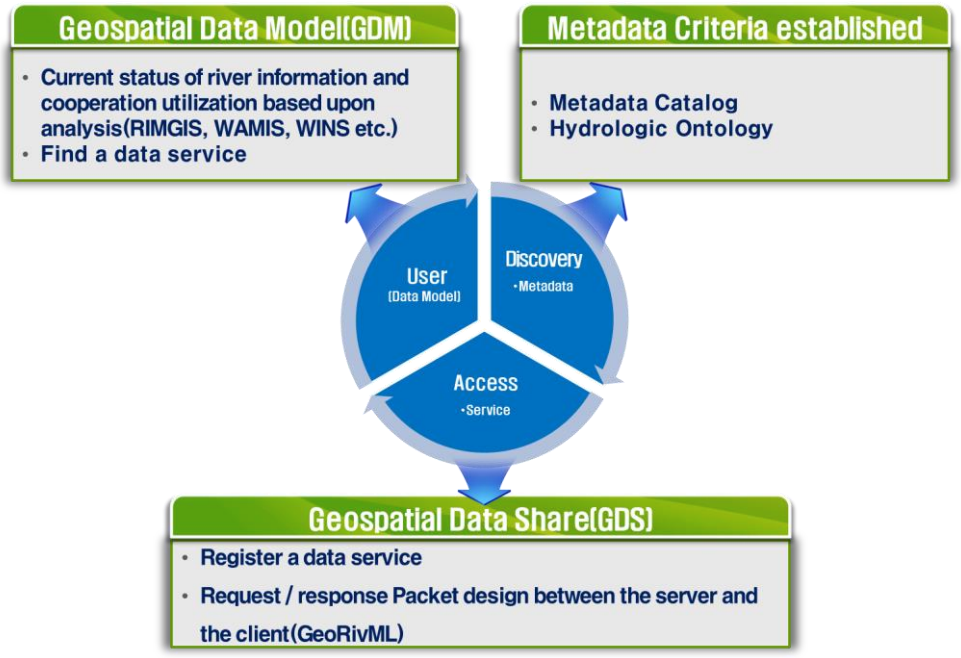

Figure 1. Services-Oriented Architecture for river geospatial data

VISION AND DIRECTION FOR RIVER INFORMATION MANAGEMENT

In the design presented in Figure 2, one important factor for the application users is the flexibility it provided them for accessing the river geospatial data application (Ministry of Land, Infrastructure and Transport RIMGIS (River Information Management Geographic Information System; http://www.river.go.kr) and WAMIS (WAter Management Information System; http://www.wamis.go.kr/)) service. The user may be located in different parts of the world and be able to access the service (Pandey [1]).

Figure 3. illustrates the architecture of the general process for discovering and retrieving. The proposed services oriented architecture offers several functionalities, which can be classified into four main categories : 1) GeoServer Discovery; 2) GeoServer Access; 3) GeoData Access; and 4) GeoData Service.

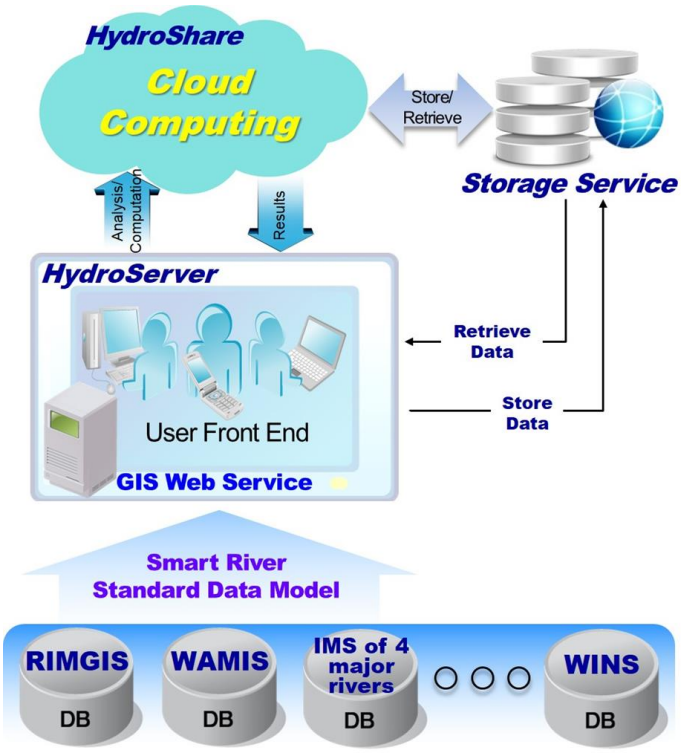

Figure 2. GIS Applications using Cloud Computing infrastructure

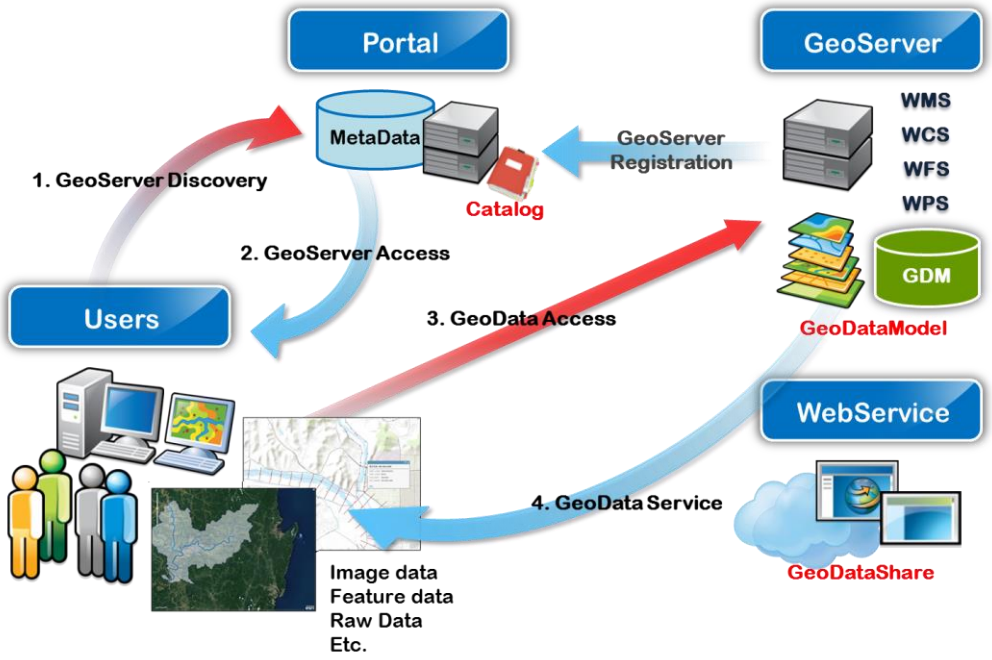

Figure 3. General architectural components for a geospatial information system

CONCLUSIONS

This study has the need of common use infrastructure establishment to enhance access to and interoperability among data to common use spatial data, which provides to multiple systems. In addition, if user could commonly use information to apply multiple river environmental change and to support river management task, and the integrated river spatial information system should be jointed with a technology of high IT and high capacity data analysis, we could be expected to improve for the user-centric system that could be provided accurate real-time service. This study is expected to provide an improvement direction in the river information system in the future.

ACKNOWLEDGEMENT

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