

Practice and exploration of digital construction of already running diversion project

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Objectives

The water diversion project construct with a long history, often be short of monitoring, data sharing, business supporting, and information managing, then it is difficult to fully control the operation of the project. In order to improve the operational management level of the water diversion project and achieve efficient, energy-saving, and safe operation, it is necessary to comprehensively carry out digital construction in a systematic manner.

Methods

Taking Shenzhen Dongjiang water source project as an example, the "one data one source" mechanism including unified Big data basic database, integrated monitoring platform and GIS platform was adopted; Utilize the data fusion integration ROMA platform to achieve data interaction and business flow among different business systems; Building a practical and reliable business function architecture system based on the principle of intensive construction but moderate redundancy; Through comprehensive on-site research and multi-party collaborative promotion, key business breakthroughs are carried out, and cross system services are iteratively upgraded to achieve a closed-loop water supply scheduling process; Follow the Microservices architecture specification, provide expandable supports which provide shared services for other systems; Based on a unified visualization engine, share a district level BIM co-built model library.



Fig. 1 System Architecture

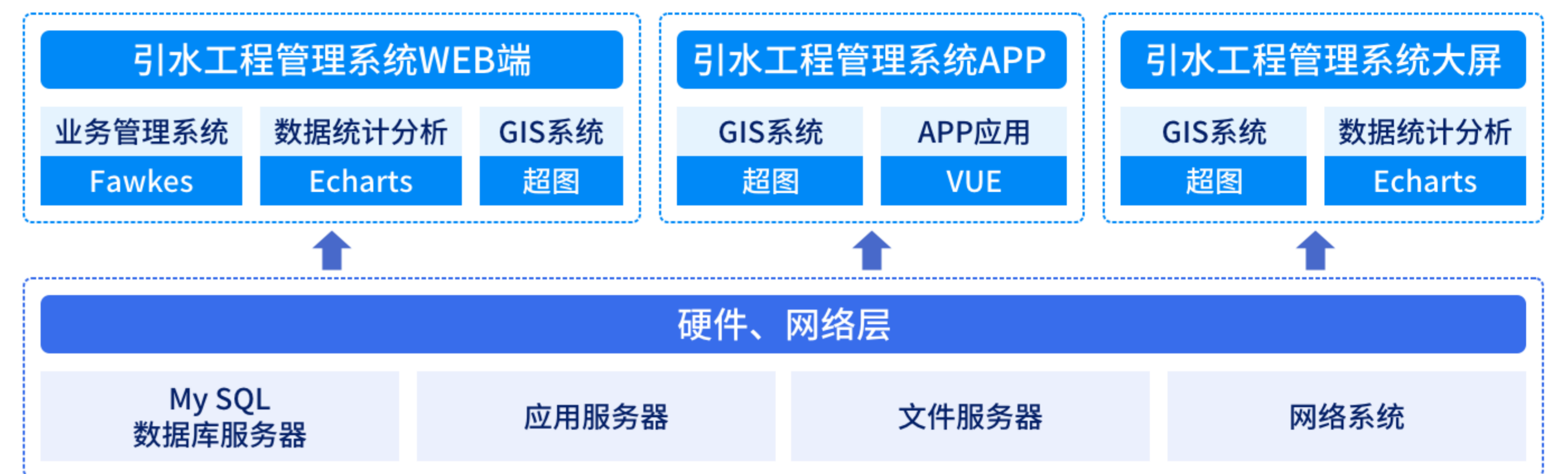


Fig. 2 Technical Architecture

Results

The results show that all application scenarios of the water diversion project management system can maintain data consistency, data and business functions between different systems and modules can be interconnected, and cover multi-level user needs. The project panorama is stereoscopic and intuitive.



Fig. 3 Overall View of Project



Fig. 4 Water-balance Analysis

Conclusions

The results indicate that through the above technologies and methods, multi-level integrated information management of water diversion engineering related businesses can be achieved, reducing the workload of relevant personnel, improving work efficiency, enhancing emergency response capabilities, achieving safe and efficient operation of water diversion engineering facilities, and providing technical support for better completing water diversion engineering tasks.