

A Multi-Role Oriented Collaboration Platform for Distributed Disaster Reduction in China

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Abstract : As the rapid development of urbanization, economic developments, and steady population growth in China, the widespread devastation, economic damages, and loss of human lives caused by numerous forms of natural disasters are becoming increasingly serious every year. Disaster management requires available and effective cooperation of different roles and organizations in whole process including mitigation, preparedness, response and recovery. Due to the imbalance of regional development in China, the disaster management capabilities of national and provincial disaster reduction centers are uneven. When an undeveloped area suffers from disaster, neither local reduction department could get first-hand information like high-resolution remote sensing images from satellites and aircrafts independently, nor sharing mechanism is provided for the department to access to data resources deployed in other place directly. Most existing disaster management systems operate in a typical passive data-centric mode and work for single department, where resources cannot be fully shared. The impediment blocks local department and group from quick emergency response and decision-making. In this paper, we introduce a collaborative platform for distributed disaster reduction. To address the issues of imbalance of sharing data sources and technology in the process of disaster reduction, we propose a multi-role oriented collaboration business mechanism, which is capable of scheduling and allocating for optimum utilization of multiple resources, to link various roles for collaborative reduction business in different place. The platform fully considers the difference of equipment conditions in different provinces and provide several service modes to satisfy technology need in disaster reduction. An integrated collaboration system based on focusing services mechanism is designed and implemented for resource scheduling, functional integration, data processing, task management, collaborative mapping, and visualization. Actual applications illustrate that the platform can well support data sharing and business collaboration between national and provincial department. It could significantly improve the capability of disaster reduction in China.

Keywords : business collaboration, data sharing, distributed disaster reduction, focusing service

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