

Study on Emergency Plan of College Students Based on Cloud Computing

Yanli Xiao^{*}, Lei Peng

Shandong First Medical University & Shandong Academy of Medical Sciences, Taian, China

Abstract

The emergency happened on campus endangers the safety of life and property, interferes with the teaching order and damages the reputation of the colleges and universities. It has the characteristics of a wide range of social influence, a great degree of harm and a threat to the stability of campus and society. At present, there are some problems in the process of dealing with emergencies in colleges and universities, such as the difficulty of modification and updating the emergency plan, inconvenient retrieval and query, poor resource sharing, etc. In order to solve the above problems, according to the needs of information construction of emergency plan management of college students, the management system architecture of college emergency plan based on cloud computing technology is constructed. This management architecture includes the cloud storage system of emergency plan database, the virtualization modelling of emergency plan information, the resource sharing system of emergency data, the cloud collaboration and decision support mechanism, etc. Using this emergency plan management system under cloud computing, the emergency management countermeasures of colleges and universities can be improved, including improving the emergency prevention, handling and support mechanism, improving the emergency capability by carrying out emergency drills, improving the feedback work after the emergency, etc. The establishment of an effective emergency plan system of college students can make rapid response, correct decision-making and resolute disposal in case of emergencies, so as to ensure campus stability to the maximum extent.

Keywords

Emergency, Emergency Plan, Cloud Computing

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1. Introduction

College emergency is a kind of uncertain event that occurs in the campus, endangers the safety of life and property, interferes with the teaching order, and damages the reputation of the school. It mainly includes public health, public security cases, natural disasters, school management, mental illness, facility safety, incidents, etc. The main characteristics of college students' emergencies include the following points. [1-3] (1) The incident is urgent. (2) It is difficult to predict effectively because of various inducements. (3) It has a high degree of social concern and a wide range of influence. (4) It

spreads rapidly and easily leads to chain reaction. (5) The main body of the event has strong activity, if not correctly guided it will lead to the deterioration of the situation.

With the development of economy and society, as well as the coming of information age, college students' emergencies are increasing year by year, which seriously affects the safety of teachers and students. [4-6] Colleges and universities have their special social attributes and sensitivities. Bad emergencies have a wide range of social impact and a large degree of harm. It not only causes casualties and campus environment damage, but also threatens the stability of campus and society. Therefore, it is of great practical

* Corresponding author

E-mail address: serpentsd@126.com (Yanli Xiao)

significance to strengthen the research on the key technologies of emergency plan for college students. Educators and relevant departments should attach great importance to it.

Emergency plan is a response and rescue action plan for possible accidents. It is an important part of the emergency system at the basic level. But at present, most of the emergency plans are stored in the form of paper or electronic documents. Moreover, the quality of document preparation is also uneven and the operability is poor. In particular, it brings great inconvenience to emergency command and exercise. However, in the information management of emergency plan, various plans need to be prepared for different types and levels of events. [7-10] At present, the existing problems in the process of emergency response are as follows.

- (1) It is not easy to modify and update. The plans need to be updated and improved with the change of actual situation and the accumulation of experience. However, the existing storage method makes it expensive to update the plans.
- (2) It is not convenient to inquire. The existing regulations and emergency plans are stored in the form of printed documents. Due to the large number, it takes time to consult. It is even more complicated to query the plans of other departments.
- (3) It is poor in resource sharing. Although the work content of each department is different, the work of each department within the system is interactive. The decentralized management mode brings great inconvenience to the sharing of these resources.

This paper aims to establish an effective emergency plan management system framework based on cloud computing according to the characteristics of college students' emergencies. It makes full use of the flexible, customizable and externally hosted features of cloud computing. Modern information technology is used to collect, store, analyse and make rational use of the information of emergencies. The emergency plan processing system covering the whole process of emergency management is established. It can effectively manage emergency resources and make decisions on emergencies. On the basis of scientific decision-making, it can realize the effective collaboration and assistant decision support of large-scale and multi department linkage.

2. Method

Through the construction of emergency plan management system architecture for college students under cloud computing, improve the ability to respond to emergencies. [11-13]

2.1. Management System Architecture of Emergency Plan under Cloud Computing

The main difference between cloud computing emergency plan management system architecture and traditional architecture is that the infrastructure support mode and software deployment mode are different. At the level of operating system and middleware, open source component-based system and middleware are widely used. They are more compatible with cloud computing mode. The self-service deployment management network of operating system and middleware platform virtualization is established. Many business platforms of the emergency plan application system, such as GIS platform, multimedia platform, communication platform, data analysis platform, rule engine, etc., are built on the virtualized operating system, file system and data source. In terms of deployment agility and processing capacity, it is better than the traditional construction mode. Multi-tenant emergency business software system is based on SaaS business model. The deployment mode is centralized, automatic and shared. For customers, the cost of access can be reduced by renting mode. It can access all kinds of business software and functions of emergency plan management platform through safe channel in various ways, such as traditional PC, handheld terminal and large screen. The management system architecture of emergency plan under cloud computing is shown in Figure 1.

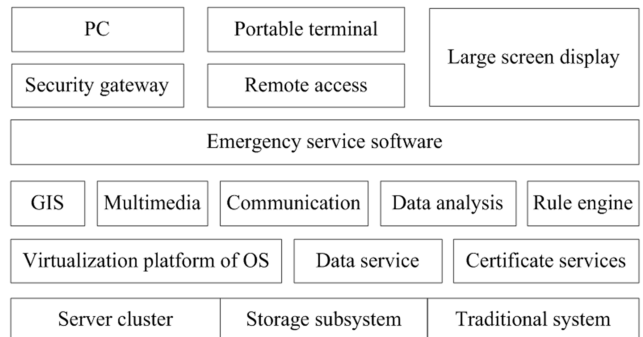


Figure 1. Management system architecture of emergency plan under cloud computing.

2.2. Cloud Storage System of Emergency Plan Database

Combined with cloud computing virtualization technology, the classification and hierarchical storage system of distributed data is established. It can not only meet the storage needs of daily operation of each department, but also provide data and storage support for emergency plans. Through virtualized storage devices, a departmental storage private cloud is formed and managed by each department. When one department is short of storage resources, The IaaS mode can be used to provide storage services between departments. When dealing with emergency events, the emergency plan system forms an emergency management

database by coordinating the emergency data of various departments. After virtualization, the Department private storage cloud provides storage resources for emergency events and establishes emergency storage cloud for emergency plan management. The cloud storage system of emergency plan database is shown in Figure 2.

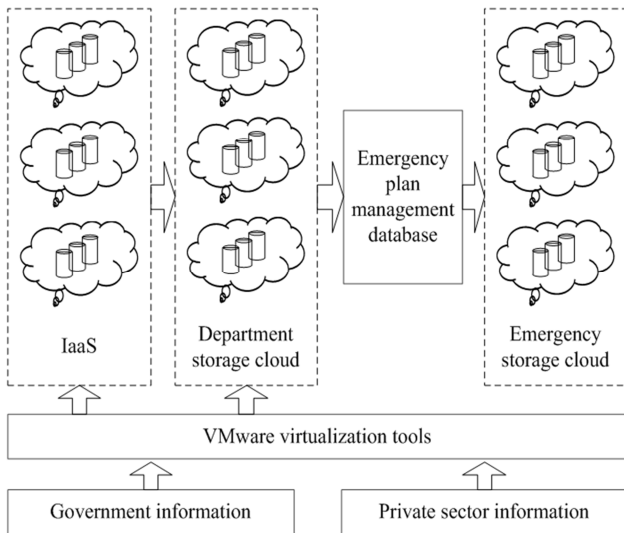


Figure 2. Cloud storage system of emergency plan database.

2.3. Virtual Modelling of Emergency Plan Information

Data virtualization is one of the key technologies of cloud services. In the cloud service system of emergency plan management in colleges and universities, the data has the characteristics of wide distribution, fuzzy emergency management boundary, sudden and evolution of events, etc. It makes the storage mode and physical nodes of data have a wide range of heterogeneous characteristics. Virtualization must be adopted to realize data storage, retrieval and application. It is necessary to establish the description method of multimodal data and storage resources. The data features, such as life cycle, evolution characteristics and multi-modal semantic association of data, are described from multiple aspects. The data application requirements at different stages of the life cycle are described in terms of performance, availability and security. Based on the analysis of the distribution, access mode and service capability of emergency resources in typical fields, the optimization mode of cloud storage is proposed. It can support intelligent hierarchical virtualization and evaluation of storage services. These data description methods need to support the compatibility of storage layer and service layer and support the interface of existing application accessing traditional storage.

2.4. Resource Sharing of Emergency Plan Under Cloud Computing

Through the expansion of cloud computing system, private

cloud service platform is established on the basis of traditional system used by various departments. Under the goal of centralization, standardization, personalization, service and agility, each private cloud platform establishes an interrelated management system. The multiple one-to-one relationships among management subjects are transformed into an open collaborative mode under the service management system. The cloud service requirements from different business departments are managed according to the collaborative competition model. Under the support of multi-objective optimization model, the optimal utilization of resources is realized. The problem of standardization and personalization is solved effectively. The distributed resources of various departments are organized through cloud computing system. It is not only the need of cluster computing mode and resource sharing, but also an important means of multi-agent business collaboration.

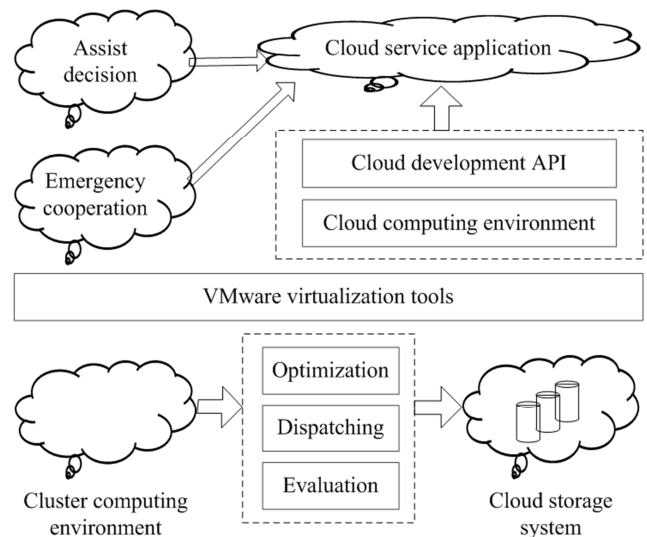


Figure 3. Cloud collaboration and decision support.

2.5. Cloud Collaboration and Decision Support

In the process of emergency plan management in colleges and universities, on the basis of cluster computing, the data analysis of emergency plan and the development of emergency key business are carried out. Emergency plan management service mode is based on PaaS and IaaS. It can integrate cloud computing systems at different levels and regions according to the development of the situation and provide computing and analysis capabilities on demand. The emergency plan management system requires the relevant departments at all levels to cooperate with each other to control the emergency events. The cloud collaboration system based on cloud storage and cloud computing requires cross departmental cooperation. The public cloud, private cloud and external cloud of each department support and

coordinate with each other to form an organic emergency service. Different agents cooperate with each other by service application. It provides a standardized and personalized decision support for relevant departments of emergency plan management. The cloud collaboration and decision support function is shown in Figure 3.

3. Result

Using the emergency plan management system under cloud computing, colleges and universities can improve the emergency management mechanism.

The main body of colleges and universities is basically a single student group. Emergency events based on student groups also have fixed characteristics. Therefore, the management department of colleges and universities can make track of the prevention, judgment, treatment and feedback of emergency events. Emergency incident is the object of emergency management. The management mechanism and countermeasures are also aimed at the incident. Emergency management should do a good job in prevention work from the source of emergencies, prevent in the bud and improve the handling and security mechanism. The administrators of colleges and universities should have a sense of hardship. They should make a good emergency plan and strengthen the exercise of emergency events. They also should be calm in dealing with unexpected problems in the face of danger. The summary and feedback of experience is also an important link. Only in this way continuous progress can be achieved. [14, 15]

3.1. Improve the Emergency Prevention Mechanism

First, colleges and universities should establish emergency management office or similar permanent institutions. They carry on the overall command and coordination to the emergency disposal work after the occurrence of the emergency. In this way, it can ensure the orderly development of emergency work. Secondly, the responsibilities of the main leaders should be clear. The principle of coordinated command should be followed to prevent improper command. Once the emergency is in the specified level, the emergency plan shall be launched in time. The leading group should give full play to its role and coordinate all departments to make use of all available emergency resources. Finally, the monitoring and prevention of incidents should be strengthened. Colleges and universities should fully consider their own conditions and carry out their work in an orderly manner. A bottom-up reporting system should be formed. The good operation of monitoring and early warning mechanism can strangle potential security risks in the cradle.

3.2. Improve the Emergency Handling Mechanism

Emergency management departments in colleges and universities should use a variety of techniques to predict potential risks. They should find out the occurrence of the incident timely and start the emergency plan quickly. After an emergency occurs, it is necessary to report the situation to the superior department as soon as possible and make every effort to control the development of the situation. It is needed to quickly assess the level, severity, change trend and influence scope of the accident. All teachers and students should be informed of the situation and be prepared psychologically. At the same time, the emergency management organization shall coordinate and command the work, make detailed work arrangements and reasonably deploy resources.

3.3. Improve the Emergency Support Mechanism

Emergency work is an important aspect to ensure the stable development of colleges and universities. Therefore, it is necessary to invest stable growth funds to ensure the ability to deal with emergencies. In addition, emergency management materials are also very important for emergencies. Therefore, it is necessary to store emergency materials in peacetime. At the same time, professional emergency management personnel are the basis for formulating emergency plan and ensuring the implementation of the plan. Colleges and universities should make rational use of existing resources, set up different levels of expert database and promote talent training. The establishment of emergency personnel training system is the basis to ensure colleges and universities to deal with emergencies. Expanding the scope of training to ordinary managers can provide a continuous stream of talents for the emergency management department of colleges and universities.

3.4. Carry out Emergency Drill to Improve Emergency Capability

In order to strengthen safety awareness, colleges and universities should regularly organize teachers and students to carry out safety emergency drills. Emergency drills can improve the ability of teachers and students to deal with emergency events. The college emergency management organization should make a detailed plan for the drill and arrange the exercise content scientifically and reasonably. The drill close to the real situation can restore the emergency to a great extent. Teachers and students should be widely mobilized to participate in the drill.

3.5. Do a Good Job of Feedback after Emergencies

The post event feedback of emergencies mainly includes the

assessment of the recovery time of crisis events and the information disclosure in the process of emergency handling. It can help teachers and students to recover their psychology and restore normal teaching work and life order as soon as possible. The information disclosure of emergencies enables the whole society to participate in the assessment of emergencies and keep them on file. It can provide the processing basis for the possible emergencies in the future.

4. Conclusion

College emergencies are directly related to the health of college students and the stability of campus. It has become a hot issue in colleges and universities. The ability to deal with emergencies has become an important symbol to evaluate the college's achievements and development. Rapid identification and timely and accurate release of information is the key to effectively control college students' emergencies. Establishing an effective emergency plan system is the key to improve the response mechanism. Through the improvement of the emergency plan management mechanism, we can make quick response, correct decision and resolute treatment in case of emergency and ensure the physical and mental health of college students and campus stability to the greatest extent.

Foundation Items

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