Research on Information Security Technology of Intelligent Home Remote Control Terminal

Ping Yu¹, Qiang Yang²

¹School of Information Engineering, Yancheng Teachers University, Yancheng, China, 224002
²Nanjing ZTE Corporation, Nanjing 210012, China

*Corresponding author e-mail: yuping@yctc.edu.cn

Abstract. The development of remote-control technology of smart home promotes the rapid development of remote-control information. The use of remote-control information is closely related to the transmission efficiency and application of information data. At the same time, the research of remote-control technology of smart home is also the basis of realizing information sharing. To this end, this paper is the development of remote-control information in the new period and the challenge for the smart home remote control technology is expounded, and then on the basis of in-depth study in the new period in remote control information large data storage and management of application analysis, and put forward for the remote-control information data storage strategy, hoping to bring positive influence.

Keywords: Remote Control, Big Data, Storage, Management Technology

1. Introduction
Remote control the coming of information age, the enormous impact to people's life and work, among them, the innovation of the smart home remote control technology and research, but also enhance the data transmission efficiency and the use efficiency, to realize information sharing to lay a solid technical foundation, therefore, this article will to remote control information intelligent household remote control technology in the new period to do in-depth research and analysis [1].

2. Overview of remote-control information development in the new period

2.1. Definition of remote-control information technology
As the name implies, the main information data of remote-control information comes from "things". With the innovation of computer network technology and the maturity of sensing devices, the influence of remote-control information in some fields has surpassed the Internet and become the main source of information and data in People's Daily work and life. Compared with the human-based information data transmission and application on the Internet, the birth of remote-control information is more meaningful to provide more convenience for social development, such as in the project of target identification such as urban security guarantee and the creation of smart city [2].
2.2. Remote control information hierarchy and information service system
Remote control of core technology for data storage and management of information technology, the technology to realize the change of data as the core, the design concept of joint first remote-control information, therefore, data storage and management technology is an effective way to promote the development of remote-control information, and this is raising the remote-control information data storage and data retrieval ability the key [3].

3. Challenges brought by storage and management technologies
Remote control information in the original design concept, the definition of "big data" and "quick" data into the concept, such as the technology and equipment of instrument of science and technology unceasing development and innovation, needs to be redefined, such as remote control at the beginning of the information design, tens of thousands of information transmission and recording of data per second, development to the present billions of information transmission and recording of data per second. But at the same time, the rapid development of remote-control information today, to the development of data storage and management technology has brought many challenges.

![Figure 1. Remote control design for a smart home](image)

People to the requirement of remote control information and the rising demand from all walks of life for the dependence of the remote control information deepening, which produced a large number of information data, the data storage and management of the present technology is difficult to meet, to that end, grasp the opportunities of The Times, promote the innovation and improvement of data storage and management technology, not only provide more convenience for people's life, but also lay a solid technical foundation for our country infrastructure, the promotion of the competitiveness of the social market in China [5].

3.1. Distributed file system technology
Distributed file system technology aims to design the computer storage and management system, so that files can be stored in the corresponding computer nodes, relying on a large number of computer nodes, the formation of an effective computer cluster, so as to improve the efficiency of the computer storage and management system. Under the background of remote-control information age, distributed file system technology is mainly based on HDFS. HDFS can effectively classify and store redundant data, and improve the transmission rate of information data on the premise of ensuring data security [6].

3.2. Distributed database technology
Distributed database technology is designed to store semi-structured data and unstructured data through the construction of distributed database HBase. The characteristics of this database include high security and strong performance, and it belongs to a kind of extensible distributed database. The advantage of HBase database is that it supports different types of access interfaces, so it can realize data access in a
variety of situations. According to the situation, specific access forms can be selected, which greatly improves the efficiency of the database. In addition, compared with the traditional database, the design model of HBase database is simpler, and the security performance is higher. The transmission and storage process of information data is to convert the data into a specific string, which is difficult for non-management designers to crack, so the security of data information storage is greatly improved [7].

![Figure 2](image.png)

**Figure 2.** Application of distributed database technology in intelligent terminal

3.3. **NoSQL database technology**

NoSQL database technology as an important part of data storage and management technology, NoSQL database is a non-relational model, does not have a fixed table structure, operation mode does not have continuity, but also does not follow the characteristics of atomicity and consistency. However, compared with traditional database technology, the use of NoSQL database is more flexible and extensible. Therefore, NoSQL database technology can effectively combine with cloud computing technology, creating more possibilities for data storage and data analysis and other fields, and also greatly improving the utilization rate of information data.

3.4. **Cloud database technology**

As one of the core components of cloud computing technology, cloud database technology has a direct impact on cloud computing technology. The existence of cloud computing library makes the virtualization work possible, the information storage capacity has been greatly improved, but also effectively avoid a lot of repeated configuration work, save a lot of manpower and material resources, such as personnel configuration and computer hardware, software configuration. Therefore, cloud database technology provides a good background storage and management function for cloud computing technology, and provides a good technical support for cloud computing virtualization function [8].

4. **Data storage strategy for remote control information**

4.1. **Data storage demand analysis**

4.1.1. **Data storage characteristics.** Remote control information data in the new era has a wide range of sources, and has the following four characteristics: mass, a networked camera monitoring, generally once every three minutes, through the sensor to collect information and transmit to the cloud, a day produced by more than one thousand pieces of information data; Real-time, relying on the high-speed transmission network, the information sensor can effectively transfer the collected information data to the information data management system in the first time, and the implementation of feedback to the customer or the administrator; Timing and structurization, according to the required data collection frequency and cycle, the triggered external events are recorded through the information sensor, so each set time point will produce a new information data; With limited periodicity, the collected data and information will generally be retained in the management system for several months or even more than a year, so as to open more storage space for the data storage and management system to improve the use efficiency.
Figure 3. Data storage applications for the smart kitchen

4.1.2. **Data storage requirements**. Remote control information data comes from a variety of information sensors. Therefore, the limited development of information sensors itself limits the development of remote-control information to a great extent. Remote control information equipment due to the limitation of hardware devices, most of the function only has two aspects: information awareness and information communication, at present, the sensor can't support the implementation of the information data acquisition, processing, storage and computing integration function, therefore, data storage and management also need to rely on computer network of high-speed transmission, need the background system provides an information data is connected with the outside world data reception [9].

4.2. **Data classification**
Different information sensors can collect different kinds of information data, so the format of information data collection is also different. The classification of data can be divided into two categories: structured data, which usually has a unified data model and is generally stored using relational databases; Unstructured data without a unified data model is generally stored in non-relational databases or file systems, and is generally dominated by pictures, videos and texts [10].

4.3. **Overall design of remote-control information data storage model**
The design of remote-control information data storage model mainly considers several factors such as security, practicability, efficiency, storage efficiency, event processing efficiency, conversion efficiency, caching strategy and load. Therefore, the design of data storage model needs to build storage layer, service layer and application layer.

4.4. **Structured quantitative storage of remote-control information**
Traditional remote control information data storage is mainly stored in centralized relational database, so there are defects in data reading and writing, function expansion and conversion efficiency, and it is difficult to meet the current explosive growth of data storage. Distributed relational database compared to centralized relational database is extensible, the advantages of low cost, high performance and high availability, currently on the market widely used distributed relational database for no (type of distributed database, to the requirement of PC server is not high, to improve the system by means of forming computer cluster storage and storage efficiency, in terms of cost price and the use of performance factors, under the influence of distributed database is gradually replacing relational database.

5. **Conclusion**
The development of remote-control information brings great convenience to people's work and life, but at the same time, many physical details need to be clear and understood, which lays a good foundation
for the development of remote-control information in the new era. It is worth noting that more and more network platforms have built information and data storage cloud, such as Acidulous, 360 cloud disks, etc. Users can store information and data according to their own needs, so as to ensure the authenticity of the data.

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