Research on the Application of Cloud Computing in Medical Treatment

Na Wu

Nanchang institute of science & technology, Nanchang, China

Abstract: Cloud computing is changing most industries in the world, and the medical field, as the foundation of people's livelihood, also benefits from it. Limited by the limitations of medical business model, cloud computing applications are gradually going deep into the medical field through the reform of single sector business. Among them, remote medical treatment based on cloud video conference is highly recognized by the market. In addition, electronic medical records based on cloud computing technology remote escort and other applications are also important directions in the future! Starting with the current situation of cloud computing development in China, this paper analyzes the three advantages of cloud computing in medical clinical application, and finally lists the application of cloud computing in medical treatment.

Keywords: Cloud Computing; Medical; Application

1. Introduction

With the improvement of living standards and living conditions, a healthy lifestyle is more and more respected by people. With the change of people's ideas, paying attention to health care has become the pursuit of many people. The application of cloud computing in the medical industry has accelerated the development of China's medical and health undertakings to a new level.

The application of cloud computing and other technologies in the medical industry has injected a new vitality into the whole medical industry. At this stage, China's medical industry is in a period of rapid development, and the service level of the whole industry needs to be improved.

2. Current Situation of Cloud Computing Development in China

At a time when artificial intelligence is widely concerned, technologies such as big data, cloud computing and the Internet of things continue to mature, which provides strong technical support for the development of relevant industries around the world. Among them, the cloud computing market has a huge scale and good development prospects. The so-called cloud computing is a kind of high-performance computing, or even a synthesis of various high-performance computing. The best application of cloud computing is the analysis of big data.

According to the latest report released by Gartner, a well-known market research company, the global cloud service market continues to show a rapid development trend. In 2017, the global public cloud service market reached US $260.2 billion, a year-on-year increase of 18.5%. It is expected that the strong development momentum of cloud services is expected to continue in the next five to seven years, and it is expected that the scale of the global cloud computing market will reach US $411.4 billion by 2020.

With such a strong development momentum of global cloud computing, China's cloud computing has actively integrated into the general trend of the development of the whole industry, showing a hot scene. On the whole, although China's share in the global market is not as high as that of developed countries such as Europe and the United States, in recent years, the development of China's cloud computing market has been supported by relevant national policies and explored by people in the industry, showing an overall upward development trend.[3]

3. Three Advantages of Cloud Computing in Medical Clinical Application

The pace of people's livelihood construction in China is accelerating, and the support for education,

medical treatment and other undertakings is expanding. China's medical and health undertakings are proceeding in an orderly manner, and the medical services people enjoy are becoming more and more humanized and efficient. Application platforms based on cloud computing can be seen everywhere. Although it sounded like a fad in the past, cloud applications have been deeply integrated into many health apps. Although doctors are still worried about whether their work will be arranged by the server, it is inevitable that "cloud" has its unique advantages.

3.1 Cost Advantage

Cloud applications can save a lot of medical expenses, especially for minor diseases. Many cloud applications treat common ailments in the mode of "free consultation" or "reward", so patients need to pay very little upfront fees.

Many small program developers attach great importance to the expenses incurred by consumers when using the platform. They are willing to minimize the expenses of patients and reduce the profit margin of the platform to survive in the market. In contrast, traditional applications are very expensive because they include expensive servers and maintenance costs for technicians.

As platform providers provide specialized technical services, doctors can focus on medical work. Due to the use of cloud services, doctors can be liberated from a large number of administrative affairs, which can improve the overall efficiency and improve the responsiveness of doctors to patients.

In addition, through cloud applications, it will be easier and less expensive to repair lost files. Patient records are stored in a large remote server, which is much safer than storing them in a hospital computer or a small server in the office. [1]

3.2 Availability of Clinical Data

The important advantage of cloud application is that it can access clinical data at any time, which is not only very helpful to the medical decision-making process itself, but also can promote the improvement of community medical level. The medical data that doctors can access can help improve the medical level. Not only doctors can immediately consult the patient's records, but other participants in medical services can also better provide corresponding services.

Connect with the outside, such as external resource library and external hospital, and call the patient's medication history, which will help us treat patients more effectively and quickly. Cloud application not only reduces the huge administrative work, but also can update the patient's clinical data faster, so that we can work more effectively.

Data availability is not only available to medical service providers, but also allows patients to more quickly access their own health information and actively understand the hospitals and teams providing medical services - this process will improve patients' own participation, and then improve the curative effect of patients' treatment in the future.

3.3 Multi-Platform Support

The Internet era has been developing rapidly, and the devices of mobile terminals are constantly updated and popularized. The future medical information system platform will gradually develop into a new type of intelligent system with leaps and bounds. Cloud computing technology attaches great importance to cloud development, which can ensure the unity and compatibility between various platforms. In this way, patients can use the Internet to ask about their disease and drug related information anytime and anywhere, which is very convenient.

There are a large number of providers in the market, so it is very important to find a suitable cloud service provider. Masucci provides a suggestion for selecting the most suitable supplier. "Technology partners are our best alliance. Of course, this partner must be just right. Get rid of the idea that the larger the organization, the better the service, and look for cloud service providers with less cost and more flexibility."

4. Application of Cloud Computing in Medical Treatment

4.1 Telemedicine

In the early days, people proposed telemedicine solutions based on video conference system, mainly to solve the problems of popularization of basic medical care and uneven distribution of high-end medical care. Due to economic and technical factors, early telemedicine did not achieve the desired goal.

Technological progress is constantly promoting the realization of telemedicine. For example, audio and video communication technology, which plays an important role in telemedicine, was borne by traditional video conference system equipment in the early stage, but its hardware is expensive, its stability is not high, and the equipment is relatively bulky, which makes it inconvenient to use. The cloud horizon cloud video conference, born in the development of cloud computing technology, solves the problems left by early telemedicine at the technical level, achieves a good improvement in interactivity and stability, and is cheaper in cost. In the early stage, the main cost of building telemedicine in hospitals was hardware procurement cost and maintenance cost, but cloud video conferencing was mostly purchased on demand, which significantly reduced the cost compared with hardware.

In 2018, Shanghai experts quickly launched a hot search on remote and accurate guidance of minimally invasive surgery for children with congenital heart disease in Xinjiang, which benefited from the convenience brought by the mature application of cloud computing technology. However, telemedicine still faces many problems, such as risk estimation and data management, which need the joint efforts of the industry. [2]

4.2 Remote Escort

Telemedicine escort is also an important application direction of cloud computing in the medical industry. Integrating audio and video communication of cloud video conference and cooperating with current AI face recognition, intelligent robot and other technologies, telemedicine escort plays a great role in the medical industry. The demand market for medical escort has always existed, mainly concentrated in two parts. The first is the visiting problem of families with special diseases, the second is the monitoring and management of patients by hospital doctors on duty.

The problem of visiting patients with special diseases is mainly focused on the family members. Due to the high environmental requirements of some medical scenes, the family members cannot visit the patients in close distance. At this time, remote visiting tools are introduced, so that the family can understand the situation of the patients through pictures and voice, effectively avoiding the pollution of visiting to the medical environment.

Doctors have limited resources. In daily work, doctors need multiple wards to monitor and care for patients. Their work is complicated and messy. When patients have emergencies, they can't timely and effectively view the situation and make decisions quickly. The introduction of remote monitoring function is to improve doctors' remote monitoring ability through information function.

4.3 Electronic Medical Record

Medical record information sharing will greatly save the resources of medical institutions and accelerate the speed of medical diagnosis, but a large amount of medical record information will bring massive data. How to store the data? Cloud storage based on cloud computing technology has been commercialized on a large scale in the market and can also be applied in the medical industry. Through cloud storage technology, medical record information sharing between different medical institutions can be realized, so that diagnostic doctors can pass the authentication of both sides, add or change medical record information in the system, and realize multi-party adoption. It has high value for hospitals and patients.

However, there are still many problems such as data security, information management authority, data supervision and application, which need to be solved by the industry!

5. Conclusion

The application scenarios of cloud computing technology in the medical industry are extremely rich. The effective use of cloud computing technology can solve many problems in data management and

telemedicine in the medical industry. However, at present, due to the limitations of the unique business model of the medical industry, people still need to constantly explore and explore, but it is formal to explore step by step, In order to better integrate cloud computing technology with the medical industry and serve the society. [4]

Acknowledgements

References

[1] Liu Feng, Qiang Kai, Li Zhenye. Application of computer cloud computing technology in hospital informatization [J]. Henan Science and Technology, 2021, 40(30):15-17.
[2] Li Jianguo. Application of artificial intelligence in medical field [J]. Application of IC, 2021, 38(08): 48-50.
[3] Wu Guixiu. Innovative application of big data in medical insurance services [J]. China Insurance, 2021(06):40-42.
[4] Hao Dan. Discussion on the development and application of cloud computing technology [J]. China Informatization, 2021(04):50-51.