An Analysis of Optimization Design of Distributed Computer Network Based on Artificial Intelligent Algorithm

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Abstract. Along with the rapid development of science and technology as well as popularization of computer network technology, people have higher demands for computer information applications and processing, thus optimization of distributed computer has become a focus paid attention by more and more people. Network sharing is an important symbol of contemporary network, and how to realize network information transmission and management have become important study objects in computer industries. The development focus of computer science and technology should be also on related studies of artificial intelligent algorithm, and the core element of computer is artificial intelligence, thus artificial intelligent algorithm is of great significance to the optimization of distributed computer network. Therefore, this paper makes an analysis of optimization design of distributed computer network based on artificial intelligent algorithm, and there are five parts of this paper. The first part of this paper gives a general introduction of the whole paper. The second part of this paper is an overview of artificial intelligent algorithm including its definition, advantages and development. The third part of this paper is makes an analysis of distributed computer network including its characteristics, performance indexes as well as advantages and disadvantages. The fourth part of this paper proposes some optimization strategies of design of distributed computer network based on artificial intelligent algorithm, and a general conclusion in given in the last part of this paper.

1. Introduction

Along with constant deepening and development of computer network technology, people have higher demands of computer in daily life and work, and higher requirements are also proposed for computer network structures. Computers have realized resource sharing, and it is an inevitable trend of the optimization of computer structures in the process of development, thus distributed computer network system came into being under such circumstances. With rapid development of computer technology, the application of computers becomes broader, and it also develops toward a trend of information intelligence. Many scholars began to pay attention to artificial intelligent algorithm from computer application systems since the emergence of high speed computers. Distributed computer system is widely used due to its safety, compatibility and expansibility, and it has become main trend of development of computer network in the future. Basically, distributed computer network systems can simplify complex logical structures of host computers, thus it can be widely used in automatic industrial manufacturing production and enterprise management. Therefore, studies of strengthening optimization of distributed computer network are of important significance. At the same time, there are also some problems existing in present distributed computer network, and there are also some disadvantages or weaknesses in distributed computer network, thus it is necessary to optimize distributed computer network system based on artificial algorithm. This can not only meet the

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demands of network development, but also it is the key factor to guarantee network's completion of tasks in a safe and effective way.

2. Overview of artificial intelligent algorithm

The following part of this paper reviews artificial intelligence including its definition, advantages and development.

2.1 Definition of artificial intelligence

Different scholars have different understandings of definition of artificial intelligence for a long time, and American professor Nilson once gave a definition of artificial intelligence like this: "artificial intelligence is a discipline about knowledge, namely it is a kind of discipline to express knowledge and show how to gain as well as use knowledge". This definition tends to be theoretical, and it is difficult for people to understand, and domestic professor Wen Sudun's understanding of definition of artificial intelligence is more lively and vivid. He defined artificial intelligence as studies of how to use computers to do intelligent work that only can be done by human. Simply speaking, artificial intelligence is also called machine intelligence, it is a kind newly emerged technology and science by integrating theories, methods, technologies and applications as a whole, and it is mainly used to study, develop and imitate human intelligence.

2.2 Advantages of artificial intelligence

It is believed that human intelligence is the most supreme and complicated natural intelligence, but numerous examples have shown that human intelligence also have certain constraints, and this is embodied in the following aspects. Firstly, the efficiency of processing information is not high. Secondly, there is a limited shortage of human brains, and its accuracy also needs to be improved at the same time. Thirdly, the functions of human brains also restricted. Last but not the least, human beings are easily to be influenced by psychological state, physical conditions and outside environment in the process of work. However, artificial intelligence can not only work as human thinking, but also it can overcome constraints of human brains, thus this is huge advantage of artificial intelligence compared with human brains.

2.3 Development history of artificial intelligence

The development history of artificial intelligence can be divided into three stages since the emergence of computers. The first stage is the formation process of artificial intelligence, and Xiangnong invented a kind of tree structure program, and this program can search branches which are closet to correct answers when it is operating, thus this program marks the real beginning of artificial intelligence. The second stage is development stage, and artificial intelligence changed from pure theoretical exploration to application studies in this stage. After that important technologies such as expert systems, automatic programming design and language comprehension came into being. The third stage is rapid development of artificial intelligence, and machine translation was in full recovery at this time. Hundreds of companies have begun studies of artificial intelligence, and artificial intelligence is also constantly updated, thus intelligent robots and fifth generation of computers have been generated.

3. An analysis of distributed computer network

The following part of this paper makes an analysis of distributed computer network including its characteristics, performance indexes as well as advantages and disadvantages.

3.1 Characteristics of distributed computer network

The first characteristic of distributed computer network is that there is a high reliability. Decentralized management control method is mainly used in distributed computer network structures, thus other independent sub regions of computer network cannot be influenced if there is a mistake or problem in a certain link in the process of operating, and the whole network can be still in a state of stable and sate operation. Therefore, distributed computer network has the characteristics of high operation efficiency and good reliability. Secondly, there is a high transmission rate of distributed computer network. There are many independent sub regions in distributed computer network, and they have direct relations with central server, thus highest speed of data transmission can be realized, and this can save time cost by information transformation. Thirdly, there is also a high efficiency of resource sharing of distributed computer network, because sub regions have direct relationships with central server. Therefore, every region can also gain information from other regions, and this is beneficial to the mutual communications among them.

3.2 Performance indexes

Performance indexes of distributed computer network refers to standard indexes of computer practicality, and the optimization of performance indexes of distributed computer network is the key factor of the optimization of distributed computer network. Performance indexes of distributed mainly include network throughout rate every unit time into computer systems, network utilization rate of measuring the entire network load balance as well as network reliability. The reliability of network should be affirmed through numbers of network paths in the process of network operation, and analysis should be also made for computer network links.

3.3 Advantages and disadvantages of distributed computer network

Distributed computer network is a kind of network which links computer in different places together through lines, and it is a kind of advanced system established based on computer network, thus it also made further development in functions of computers. Distributed computer systems are constantly updated in functions of communication architectures, network operation systems and distributed operation systems, so that it can realize information sharing and bring convenience for people's communications, which can improve safety and practicality of computer network.

Distributed computer network structures have obvious advantages. Firstly, they have high reliability, namely that decentralized control is used in distributed computer network, thus other computers will be not influenced if there is problem in part of them, and the work of entire network will be not disturbed at the same time. Secondly, it can promote information sharing in the scope of whole network, namely that all links of distributed computer network can establish data links, thus this is easier for exchanges of information.

At the same time, distributed computer network structures also have some disadvantages. Firstly, long cables will be used in distributed computer network, thus there will be high costs of establishment of distributed computer networks. Secondly, management of network software is complex, thus it is not easy for people to be controlled. Last but not the least, there will be also obstacles in the process of real operation, and incalculable consequences will be resulted due to the problems. Since manage of distributed computer network is difficult, there will be "single point failures" in the process of operation, and the whole network will be paralyzed if there is single point failure in distributed computer network structure of one company.

4. Optimization strategies of distributed computer network based on artificial intelligent algorithm

Specific optimization strategies of distributed computer network can be proposed through analysis of characteristics, performance indexes as well as advantages and disadvantages of distributed computer network based on artificial intelligent algorithm. The main purpose of optimization of distributed

computer network is to meet the demands of users and better serve users, and they are also fundamental requirements of optimization of distributed computer network based on artificial intelligent algorithm.

4.1 Unified management of equipments

Management of software of distributed computer network is complex, thus related equipments of the entire network should be regarded as whole, and unified management of these equipments is the key of effective management. Unified management of equipments can realize various optimizations, and this can also reduce the difficulty of management of software and equipments of distributed computer network based on artificial intelligent algorithm.

4.2 Optimization of single point failure problem

Single point failures are easily to emerge in the process of operation of distributed computer network, and this will result paralysis of the whole network. General way of solving this problem is the application of link bonding technology, and the quality of the entire network can be improved through mutual relations of central network and edge equipments. Besides, equipment replacement can also be achieved through this way, and this can also reduce the influenced caused by equipment problems. Moreover, every module has their unique exchange array, thus relative independence can be realized in operation, and single point failures can be avoided to a great extent.

4.3 Reasonable and balanced distribution of data traffic

Reasonable and balanced distribution of data traffic can also realize the optimization of distributed network based on artificial intelligent algorithm, because all computer equipments are independent, and they can distribute all load equilibriums in a balanced way, thus the functions of network packets can be improved to the greatest extent. In addition, the application of switches can also provide service for host server which is directly linked and other switches, hence the optimization of distributed computer network based on artificial intelligent algorithm can be realized.

5. Conclusion

In conclusion, along with the rapid development of science and technology as well as popularization of computer network technology, people have higher demands for computer information applications and processing, thus optimization of distributed computer has become a focus paid attention by more and more people. Network sharing is an important symbol of contemporary network, and how to realize network information transmission and management have become important study objects in computer industries. The development focus of computer science and technology should be also on related studies of artificial intelligent algorithm, and the core element of computer is artificial intelligence, thus artificial intelligent algorithm is of great significance to the optimization of distributed computer network.

All in all, this paper makes an analysis of optimization design of distributed computer network based on artificial intelligent algorithm, and there are five parts of this paper. The first part of this paper gives a general introduction of the whole paper. The second part of this paper is an overview of artificial intelligent algorithm including its definition, advantages and development. The third part of this paper is makes an analysis of distributed computer network including its characteristics, performance indexes as well as advantages and disadvantages. The fourth part of this paper proposes some optimization strategies of design of distributed computer network based on artificial intelligent algorithm, and a general conclusion in given in the last part of this paper. This can not only meet the demands of network development, but also it is the key factor to guarantee network's completion of tasks in a safe and effective way.

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