Research Status and Future Prospects of 5G Network Technology Based on Computer Technology

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Abstract: At present, 5G network has fully penetrated into people's daily work and life, and this technology has a very broad development space because it not only realizes modern transmission of information data but also guarantees information transmission security to the maximum extent by virtue of high-quality information transmission mode and transmission speed. Based on this, this paper briefly analyzes the current situation of 5G network technology research based on computer technology, and discusses the future development prospects of 5G technology for reference.

Keywords: 5G Network Technology; Research Status; Future Development Prospects

Introduction

With the advent of the network era, modern mobile network technology, Internet of Things technology and other information technologies continue to develop and progress, completely changing the traditional communication model, while also putting forward higher requirements for cloud platforms, cloud computing social networking platform communication systems. Under the continuous development and research of relevant personnel 5G technology is developing rapidly, but in terms of the current research status, the technology still has a lot of room for development.

1. Research status of 5G network technology based on computer technology

1.1 High frequency band transmission technology

In the modern 5G technology development process, the most critical thing is how to speed up the data information transmission speed and transmission efficiency, in terms of the current mobile communication network, the information transmission rate of the system band is usually lower than 3GHz, which can not meet the development needs of modern mobile communication, and with the continuous development of smart phones and other mobile hardware, people use smart phones as the main work equipment more and more With the continuous development of mobile hardware such as smart phones, people are using smart phones as their main work device, which also puts forward higher requirements on mobile traffic and wireless communication, and also causes an extreme shortage of spectrum resources. To truly solve the communication disadvantages caused by such problems, the actual study of the technology must be properly adjusted and improved in the original information transmission technology, and thus significantly improve the overall transmission efficiency. In reality, the relevant personnel will often optimize the original communication network by increasing the antenna device, during this period the additional antenna equipment in the manufacture will be laid in the internal part of the special material, so that it forms a new communication linkage network, the region data information all together to build a new transmission system, in order to improve the overall data transmission effect. As the speed of data and information transmission is accelerated, the overall communication system can complete a large amount of complex data transmission work in a short period of time, and enhance the overall communication efficiency while reducing the information conflict between users. In addition, through the reasonable use of high-band transmission technology, the antenna device can give full play to the effect of the application of beam empowerment technology, and constantly expand the network coverage, and with its excellent computing performance and smart phones and other mobile communication devices, so as to meet the

modern mobile network communication information transmission needs, as shown in Figure 1[1] .

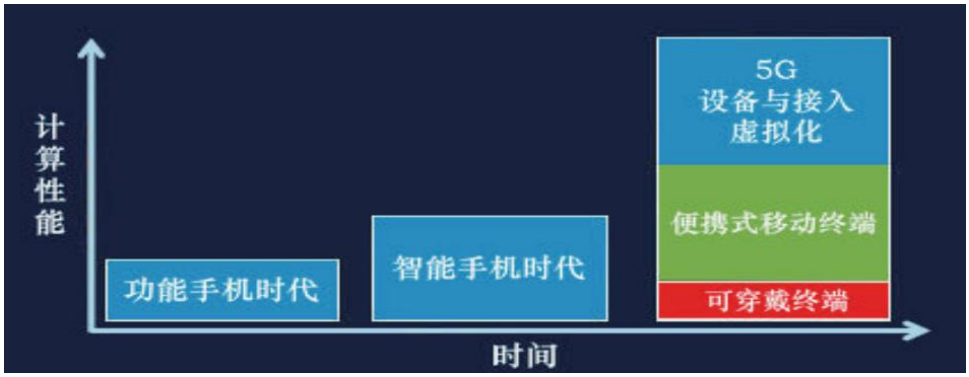

Figure 1 Convergence and development of 5G technology computing performance and mobile communication devices

1.2 Direct communication technology

With the continuous improvement of related technology, direct communication technology has developed from the traditional one-to-one communication mode to the present multi-user different information transmission mode, and this multi-user communication transmission mode can enable users to implement information transmission using various communication equipment devices, thus greatly reducing the user information communication operation time on the basis of reducing the waste of resources. In addition, by using this technology, the information data transmission speed and transmission flow can be further increased to meet the needs of users with relatively large amounts of information transmission. However, the information data transmission speed can be too fast, making the overall data interaction of users generate a lot of redundant data information traffic, and to solve such problems, it is necessary to properly combine some dense network-related technologies to expand the communication space, and the application of dense network technology will be highlighted in the following literature.

1.3 Full-duplex communication technology

Full-duplex communication technology is mainly between peripheral devices and microprocessors, using the independent deployment of information receiving lines and information sending lines to achieve multi-channel information interaction between the information sender and information receiver users. In the process of traditional communication technology application, the information combined with the receiving end users often need the other side of the information sent after the second information transmission, the information received and sent transmission similar to the single-line transmission mode can not be synchronized, and in the overall data transmission is often affected by the regional network signal and equipment, can not be timely and accurate transmission to the other side of the communication equipment, but also very likely to cause information loss, thus seriously affecting the timeliness of information transmission. This seriously affects the timeliness and integrity of information transmission. Full-duplex communication technology can be used in communication projects to give full play to the effect of the application of spectrum technology inside the communication device, so that the information receiver and the information sender can achieve delay-free two-way information exchange in the same place and communication channel, thus enhancing the utilization of wireless resources transmission channel space to the maximum extent. Although the full-duplex communication technology has certain application advantages, but there are also certain technical defects, that is, the technology in the process of information communication signal anti-interference ability is relatively weak, still need to continue to improve and improve in the future related technology development research.

1.4 Ultra-dense heterogeneous network technology

Heterogeneous network technology mainly refers to a comprehensive heterogeneous technology formed by various production network devices, computer systems and hardware. In the actual application process, the communication terminal can be connected to different networks through multi-mode application functions, so the overall network information

transmission process usually involves a variety of network connections. If the switching frequency of various network information cannot be reasonably adjusted, the network transmission speed between different information will definitely be reduced, which will affect the overall communication effect. The ultra-dense heterogeneous network technology can well regulate the overall network information transmission network deployment, based on data transmission characteristics and information nature to deploy network switching ports, so as to avoid data transmission caused by network problems and information delays. In the actual technology application process, the radius distance of each network structure key point can be shortened by using cell splitting network deployment method, thus changing the overall information transmission space capacity. In addition, network nodes can be added according to specific needs to increase the spatial capacity of information transmission.

2. The future prospects of 5G network technology based on computer technology

2.1 Build system architecture

The 5G network technology mechanism architecture has a higher overall information transmission efficiency compared to traditional network communication technology, which enables all types of users to quickly access the desired data and information resources in a very short period of time. Because of the influence of the fourth generation of network technology applications, in the practical application of modern 5G technology can meet the higher level of data and information throughput, but to a certain extent affect the data transmission speed, so it is necessary to make the relevant technical applications in the future development with the corresponding balance, so as to improve the data transmission speed on the basis of the development of more communication application functions. For example, based on the planar transmission system for the corresponding technical design, update the traditional communication functions and reasonably divided into various functional planes, the use of control plane to generate a variety of operating instructions, the application of access plane to complete the execution of various instructions, etc.[2] .

2.2 Internet of Everything

Although traditional communication technology has certain information dissemination effectiveness, it has never been able to truly realize the information interconnection of all walks of life, and with the emergence of 5G network technology, the original unattainable "Internet of Everything" is no longer out of reach. If we can design and develop business information between enterprises and build a public platform that can connect multiple enterprises' business operation and development information networks, we can realize the "Internet of Everything" between multiple enterprises and the public. Although there are some differences in the openness of information between modern enterprises and the general public, there is still hope that can truly realize barrier-free information interaction based on 5G technology for the part of information disclosure between enterprises and the public.

2.3 Cloud-based information

High-speed information transmission as the main characteristics of modern 5G network, when most network users information dissemination to a certain speed, and will make people gradually give up the information data into the hard disk device, but replace the cloud network storage. With the continuous development and progress of modern communication technology, the application of intelligent devices is becoming more and more extensive, and the overall cloud network information processing volume is also increasing, if you want to protect the information processing efficiency must make full use of advanced communication technology to implement. For the mobile communication industry, it can be based on wireless network with modern 5G technology as an important carrier to provide users with more convenient network information related services and enrich network information communication business functions, so that network information can be stored from the central cloud and can be transferred to the edge cloud storage, while also according to the specific needs of the lower transfer to the corresponding device cloud. In this mode of operation, users can use, store and delete all kinds of data and information anytime and anywhere, thus truly realizing cloud-based management of information, which is

also an important development goal of 5G technology in the future development.

Conclusion

In conclusion, based on the actual application of modern 5G network technology in various industries and types of technology, comprehensive analysis of the development status of network technology in various types of modern communication projects, in-depth study of the development prospects and development trend of this technology in the future network era, so as to continuously improve the level of modern network communication technology research and development and accelerate the development process of network communication technology.

References

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