Edge Computing Multi-service Fusion Architecture and MEC Health Maintenance key Design Methods

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Abstract. In the huge network world, if all the data need to be processed in the core area, then the computing power required will be infinite, and our current technology can not reach this level. If the data generated at the edge of the network is directly handed over to the edge nodes of the network for processing, then this problem will be properly solved. Data generated in daily production and life do not need to be directly uploaded to the cloud computing server for calculation, analysis and processing. Data types can be classified. Cloud computing only needs to carry out some important analysis and processing, and build a model of edge computing for edge computing to process some less important data. Therefore, the establishment of edge computing model can solve the problem of insufficient core computing power to a large extent. MEC technology is the effective integration of the wireless network and the Internet, adding computing, storage, data processing and other functions in the wireless network, forming a variety of data processing methods based on the Internet, so as to improve the efficiency of data transmission and reduce communication delay. Starting from the edge computing and taking MEC technology as the core, this paper analyzes and interprets deeply the application of MEC technology in network communication.

Keywords: Edge Calculation, MEC Health Care, Edge Compute

1. An introduction to edge computing

The concept of cloud computing has been around for many years, and the technology of cloud computing has developed significantly since it was first proposed. So far, development has penetrated into many areas of our lives. The rapid development of Internet of things lets us quickly into the cloud era, so also in our daily life will produce a large number of data, if pure will upload and processing these data directly, so will form huge load of network, network communication also can cause...
congestion, thus making data processing delays.

The idea of edge computing solves this problem formally [1]. In the huge network world, if all the data need to be processed in the core area, then the computing power required will be infinite, and our current technology is not able to reach this level. If the data generated at the edge of the network is directly handed over to the edge nodes of the network for processing, then this problem will be properly solved. Data generated in daily production and life do not need to be directly uploaded to the cloud computing server for calculation, analysis and processing. Data types can be classified. Cloud computing only needs to carry out some important analysis and processing, and build a model of edge computing for edge computing to process some less important data. Therefore, the establishment of edge computing model can solve the problem of insufficient core computing power to a large extent.

2. The advantages of edge computing

The establishment of edge computing model has great advantages in cloud computing (Figure 1).

![Advantages of edge computing](image)

**Figure 1.** Advantages of edge computing

2.1. Promote cloud computing services

The server of cloud computing has extremely powerful data processing capacity, which can process and analyze large quantities of data. But, in this process there is a crucial process, it is need to upload a large amount of data to the cloud server, transmitting speed limit, combined with the cloud computing it takes time to process the data, which creates a cloud servers can't timely analysis of the data processing, causing the user the use of the poor [2-3]. The emergence of edge computing model can replace the computing processing of cloud service and carry out edge processing of some detailed data, thus improving the computing efficiency of cloud center.

2.2. Promote the use of the Internet of Things

In today's society, almost all of us have all kinds of terminal, and we are in the use of the terminal can appear a large amount of data, these data are needed for processing analysis, the traditional calculation model need to upload the data to the server, through the cloud computing is force to deal with the data analysis, and then analysis the result of the feedback to the terminal, this process seems very simple,
but due to the large data size and speed limit, cloud computing is often can't timely will be feedback process after the analysis of data [4]. Edge computing can process and analyze these data in real time, without the need to upload and feedback the data, which makes the terminal to receive feedback with high timeliness.

2.3. Improve the practicability of terminal equipment

Most of the data generated in our daily production and life is generated by the use of software in the terminal in our hands. Previous cases, the terminal of data need to be uploaded to the server for processing data and then we can receive the feedback information, and now we are using terminal, data can be generated by the analysis of real-time processing, rapid results show in front of our eyes, the timeliness is very high.

3. Development background of MEC

The rapid development of mobile network allows us to move traffic over the past decade has rapid growth, and is accompanied by many intelligent terminal put into use in the production and living of all walks of life for network transmission speed and delayed has a higher request, at the same time, the burden of network data has been increased [5-7]. In order to be able to timely meet the user's rigid demand for the network, the future network technology will move toward a faster, more convenient direction. The emergence of MEC technology officially meets the needs of this development, the so-called MEC technology refers to the mobile communication edge computing technology.

MEC technology is the effective integration of the wireless network and the Internet, adding computing, storage, data processing and other functions in the wireless network, forming a variety of data processing methods based on the Internet, so as to improve the efficiency of data transmission and reduce communication delay.

The key technology of MEC

MEC technology can provide program developers and data providers with meta-computing ability and service environment of edge network, so as to achieve the purpose of improving the efficiency of data transmission and reducing communication delay, among which there are the following key technologies : (Figure 2)
Figure 2. Key technologies for MEC

(1) Wireless network storage

MEC technology can directly connect the server with the relevant system, so as to obtain the data packets in the system for storage and analysis, and then send the analyzed data to the end user.

(2) Network diversion

When the user uses the terminal to access the network, the user can access the network directly through the MEC platform. [8] The data packet generated by the network access does not need to go through the core server, but is directly analyzed and processed by the MEC platform and fed back to the user, thus reducing the access delay caused by the data packet uploading to the core server.

(3) Optimization of data processing

The data generated by the user can be analyzed in real time on the relevant information of the wireless network through the MEC server on the side of the wireless network, and the data can be systematically analyzed from the network situation obtained by the server, so as to select the appropriate strategy for feedback.

4. Application of MEC technology

4.1. Main application directions

At present, as long as the application of MEC technology includes the use of location, the release of terminal content, the optimization of wireless network packet processing, etc., the main problem of MEC technology is to reduce the latency of network use, improve the user experience, and optimize the way of data processing so as to give feedback quickly.

4.2. Local content forwarding

The forwarding of local content refers to the storage of a huge amount of data on the side of the wireless network and then sending it to the user, which is particularly prominent in the aspect of
network broadcast.

Users broadcast live on the watch, need is real-time content to send, and in many cases, the Angle of live is not fixed, that is to say, the user can be arbitrary switching lenses and keep live real-time, if this is a traditional way to use through the core server, users may be unable to watch the real-time images, or images caton would happen.[9-10] By using MEC, the data during the live broadcast can be processed at the edge of the MEC server without passing through the core server, thus improving the transmission rate of data stream and enabling users to watch the high-definition live broadcast in real time.

4.3. Application of video surveillance

There are two kinds of data processing methods used in current video surveillance. One is data processing at the camera, and the other is data uploading to the server for processing. Both of these two methods have certain limitations. The first method requires the camera to have the function of data analysis and processing, which will increase the cost of monitoring. The second one does not need to replace the camera, but because the large volume of data packets generated by the surveillance video needs to be analyzed and processed by the core server, it is impossible to achieve real-time performance. Moreover, the large volume of data packets of the surveillance video will increase the load on the core server. Use MEC technology does not need to replace the camera to monitor video produced under the condition of calculation and processing of packets in MEC server directly, so as to achieve real-time monitoring, and MEC server can also be a large number of monitoring data is stored, in the later call also can at any time of the data is taken out.

5. Conclusion

MEC technology can introduce the virtual server platform into the wireless network, make use of the particularity of the edge node to make the platform run normally, and make the data content generated locally on the edge node be located. In this way, the processing capacity of data can be improved, the delay caused by data processing can be reduced and the user experience can be increased. MEC technology also has great potential in network communication. After third-party authorization, it can quickly process and store and distribute local content in real time, thus improving the overall environment of wireless network and allowing users to have a higher quality experience when using the network. At present, MEC technology has not been deeply researched and developed in many fields. According to the current development trend and the size of the market, MEC technology can make achievements in many fields. With the continuous improvement of Internet technology, it is believed that this day will come soon. Starting from the edge computing and taking MEC technology as the core, this paper analyzes and interprets deeply the application of MEC technology in network communication.

Acknowledgments

Research on key technologies and standards of health care based on edge computing framework

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