



Role of Edge Computing In Smart Health Care System

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ABSTRACT

Today, patients are demanding a newer and more refined health care system, one that is more personalized and matches the speed of modern life. So, today's healthcare systems are using various fifth Generation IT tools and Techniques such as smart patient care devices, concept of Robotics, Client server architecture supported Data Warehousing, Natural Language Processing and Artificial Intelligence included Neuron Science. Every individual node generates data at every moment to share among each node. Integration with IoT / smart Devices, the most popular cloud based architecture will provide great support for sharing of data among every concern member. Edge Computing will be a great facilitator for sharing up such generated data rapidly due to near of its client node. Edge-based solutions move the data processing closer to the network edge, which allows for faster response times and increased energy efficiency. Instead of constantly moving data to the cloud for computing operations, which accounts for the energy costs, data can be mined and processed on edge devices and servers closer to the user. The experiments show that the Edge computing based healthcare system provides a better user experience and optimizes the computing resources reasonably, as well as significantly improving in the survival rates of patients in a sudden emergency.

INTRODUCTION TO HEALTH CARE SYSTEM

Healthcare system is playing a vital role in Human life. By the Rapid Enforcement of Information Technology enabled System, various smart Health Care Systems are consistently involved in Human Life Science like Smart Health Care System. However, entire traditional healthcare systems have not provided its usability in any emergency of patients, and unable to provide customized health services.

Government healthcare facilities are absolutely free for every Indian resident. The Indian health sector encompasses 18% of total out-patient care and 44% of total in-patient care. Middle and upper class persons living in India tend to use public healthcare less than those with a lower standard of living. Indian health care sector becomes leader in terms of employment and revenue due to its quality affordable healthcare facility. India's healthcare delivery system is classified into two major sectors i.e., public health care sector and private health care sector.

INTRODUCTION TO EDGE COMPUTING

Basically Edge computing is Networking Oriented Concept. Edge Computing concept is very similar concept to Cloud Computing. It is mainly used at where the data is generated. The basic difference between Edge computing and cloud computing is Data Travelling Time. In Cloud Computing data travelling rate is quite high as compared to Edge Computing. Due to data travelling time difference processing of program becomes differ. Edge computing performs all operations like data storing, data analysis and data processing near to the client besides availing centralized data storage mechanism. The main area of application of Edge Computing is in Real Time Computing Systems, In last few years millions of Real Time Computing Systems are working with Edge Computing Concept instead of Cloud Computing System. Edge computing is fastest growing and upcoming Trending Concept in collaboration with (Internet of Things-IoT) Devices. Most of the IoT Devices are getting data from their near Edge Servers.

Edge computing can play a big role for many Real Time Applications dues to providing fast processing speed. Due to its Data storage Concept, Edge Computing could be more relevant in future. As we know usage of IoT based Machines are used in most of the Industries and these all machines are dependent on Internet speed to access relevant data from data server by Using Cloud Computing Concept, while using Cloud Sharing bandwidth load becomes high and latency rate becomes low. So, in above view Edge Computing can more relevant as Cloud Computing for data access through data server.

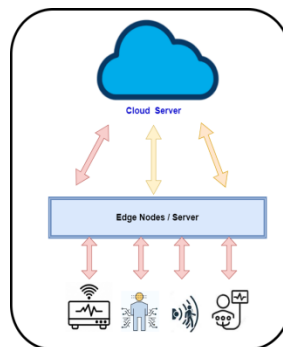


Fig 1: Edge Computing

BENEFITS OF EDGE COMPUTING IN SMART HEALTH CARE SYSTEM

By using Edge Computing, Data processing and Data Storing can be accomplished more rapidly. Edge Computing Concept is more relevant in Self Driving Cars, Smart City Project and many Metro City Based Projects. **Edge Computing** reducing the Need for Data to Be Processed in a Remote Data Server Center It reduces bandwidth cost and data storage cost. ML evaluated responds is being deployed for utilization in the Smart Medical Devices. Facilitate data processing and data storage at local area server.

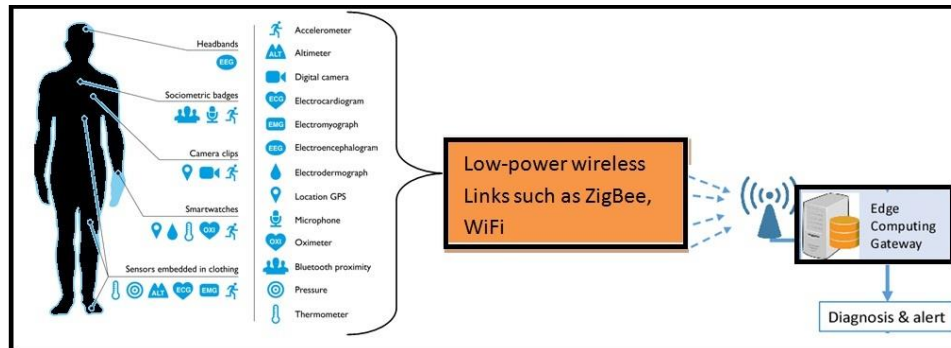


Fig 2: Benefits of Edge Computing in Smart Health care system

CHALLENGES OF EDGE COMPUTING IN SMART HEALTH CARE SYSTEM

5G Network enabled smart health care devices required to communicate with one another among thousands of healthcare professionals. Every device will generate massive amount of data must be filtered for specific domain. Endpoints of smart healthcare devices in distributed networks like 5G are more difficult to trace every endpoint of every user in concern of network security. Data security is biggest issue with edge computing. Various Cyber security implications may encountered during use of Edge Computing enabled architectures like Potential vulnerabilities, Denial of Service Attacks(DoS), Distributed Denial of Service Attack (DDoS),Exploit-(Attack possibilities).

Transitioning issues in edge computing is another big issue with compatibility of older one generation's networks. Transforming to Edge computing requires the upgrading or addition of newly build entire network equipments and also require updated software capability.

CONCLUSION

So, Edge Computing offers Decentralized Network architecture. This mechanism offers many opportunities for various organizations' work operation much faster than previous one. Edge computing is Different type of new upcoming powerful technique for data sharing and data processing along with Data Storage. Edge Computing interfaces between Smart Devices (IoT) and Shared Data Server.

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