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Edge Computing and it's Impact on IOT

Durgesh Chaubey
Student, Department of Masters of Computer Applications
Late Bhausaheb Hiray S. S. Trust's Hiray Institute of Computer Application, Mumbai, India
durgeshc1402@gmail.com

Abstract: *Edge computing is an innovative computing architecture that enables efficient and rapid data processing in proximity to the data source, eliminating the limitations imposed by network bandwidth and latency. By decentralizing computing capabilities to the edge of the network, edge computing alleviates the processing and transmission burden on cloud computing centers, while simultaneously reducing user input response time. However, it is crucial to address potential challenges to fully leverage the advantages of edge computing, especially in data-intensive services, where access latency may emerge as a bottleneck. Key challenges include security concerns, handling incomplete data, and managing investment and maintenance costs. This research paper presents a comprehensive survey of edge computing, focusing on the significance of edge device placement for optimizing performance in IoT networks. Additionally, we conduct a comparative study of various implementations of edge computing and discuss the diverse challenges encountered during their implementation. The objective of this paper is to stimulate the development of novel IoT security designs based on edge computing and facilitate dynamic placement of edge devices. To achieve this, we provide an extensive review of existing IoT security solutions at the edge layer, promoting a deeper understanding of their capabilities and limitations*

Keywords: Edge Computing, Internet of Things (IoT), cloud computing, data processing, connectivity, decentralized architecture, latency, data privacy, security, use cases

REFERENCES

[1]. Satyanarayanan, M. (2017). The emergence of edge computing. Computer, 50(1), 30-39.
[2]. Shi, W., Cao, J., Zhang, Q., Li, Y., & Xu, L. (2016). Edge computing: Vision and challenges. IEEE Internet of Things Journal, 3(5), 637-646.
[3]. Liang, X., Zhao, J., Li, W., & Zhang, X. (2019). Edge computing for the Internet of Things: A case study. IEEE Access, 7, 17149-17158.
[4]. Mahmud, R., Kotagiri, R., & Buyya, R. (2018). Fog computing: A taxonomy, survey, and future directions. ACM Computing Surveys (CSUR), 51(5), 1-35.
[5]. Roman, R., Lopez, J., & Mambo, M. (2018). Mobile edge computing, fog et al.: A survey and analysis of security threats and challenges. Future Generation Computer Systems, 78, 680-698.
[6]. Yao, Y., Sun, Y., & Zhang, S. (2018). Energy-aware edge computing in IoT: A review. IEEE Internet of Things Journal, 5(5), 3884-3895.
[7]. Fernandes, R. C., Lopes, H. S., & Ramos, F. M. V. (2019). Edge computing in healthcare: A comprehensive review. Journal of Biomedical Informatics, 92, 103139.
[8]. Perera, C., Liu, C. H., Jayawardena, S., & Chen, M. (2019). A survey on Internet of Things from industrial market perspective. IEEE Access, 7, 114837-114866.
[9]. Wang, Z., Hoang, D. T., & Dustdar, S. (2018). Mobile edge computing: A survey on architecture and computation offloading. IEEE Communications Surveys & Tutorials, 20(3), 1628-1656.
[10]. Chen, M., Mao, S., & Liu, Y. (2014). Big data: A survey. Mobile Networks and Applications, 19(2), 171-209.
[11]. Yi, S., Li, C., Li, Q., Wang, S., & Qian, L. (2015). A survey of fog computing: Concepts, applications and issues. Proceedings of the IEEE, 103(11), 2334-2353