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Research Article

Analysis of Network Slicing for Management of 5G Networks Using Machine Learning Techniques

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Consumer expectations and demands for quality of service (QoS) from network service providers have risen as a result of the proliferation of devices, applications, and services. An exceptional study is being conducted by network design and optimization experts. But despite this, the constantly changing network environment continues to provide new issues that today's networks must be dealt with effectively. Increased capacity and coverage are achieved by joining existing networks. Mobility management, according to the researchers, is now being investigated in order to make the previous paradigm more flexible, user-centered, and service-centric. Additionally, 5G networks provide higher availability, extremely high capacity, increased stability, and improved connection, in addition to quicker speeds and less latency. In addition to being able to fulfil stringent application requirements, the network infrastructure must be more dynamic and adaptive than ever before. Network slicing may be able to meet the present stringent application requirements for network design, if done correctly. The current study makes use of sophisticated fuzzy logic to create algorithms for mobility and traffic management that are as flexible as possible while yet maintaining high performance. Ultimately, the purpose of this research is to improve the quality of service provided by current mobility management systems while also optimizing the use of available network resources. Building SDN (Software-Defined Networking) and NFV (Network Function Virtualization) technologies is essential. Network slicing is an architectural framework for 5G networks that is intended to accommodate a variety of different networks. In order to fully meet the needs of various use cases on the network, network slicing is becoming more important due to the increasing demand for data rates, bandwidth capacity, and low latency.

1. Introduction

Network slicing is a smart application idea for the Internet of Things that is becoming more popular. There are a variety of factors that affect network slicing [1], including resource levels and physical infrastructures, critical enablers, and security. Edge computing, cloud computing, the Internet of Things, virtualization, Software-Defined Networking, and smart services are just a few examples of the technology that has emerged in recent decades. The many logical and physical network infrastructure needs that exist make it feasible to slice networks for smart services. When intelligent transportation technologies are deployed, automobile accidents involving autonomous driving may be recorded in VANET