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# IMPACT OF DATA STORAGE AND PROCESSING TECHNOLOGIES ON BUSINESS PROCESSES

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**ABSTRACT**
The article examines the function that contemporary data processing and storage technologies play in information security while also providing an overview of these technologies. The fundamental ideas behind technology, their benefits and drawbacks, and the potential for interdependence and integration are also taken into account. It focuses on the ways in which fog, edge, and cloud computing combine to create new possibilities for contemporary data processing and administration.

**Keywords:** Integration, IoT, provisioning, backup, access control, social engineering, phishing, auditing.

## INTRODUCTION

In particular, the fields of data processing and storage always need fresh developments and advancements in the present technological world. As the amount of data grows and real-time processing becomes more necessary, so do these needs. The technologies that were created to address these demands—cloud computing, edge computing, and fog computing—have expanded around the globe as solutions.

The flexibility and worldwide accessibility of cloud computing technologies have completely changed how data is processed and stored. High levels of processing power, storage capacity, and software services are made available to consumers, allowing enterprises to effectively handle massive amounts of data. Technologies related to cloud computing simplify the process of streamlining company operations, cutting expenses, and utilizing services globally [1].

Fast data processing, however, is necessary for many modern systems and applications, and cloud computing alone may not always be able to provide this. As a result, edge computing and fog technologies emerged. Data is processed by edge computing devices locally, or in close proximity to the data source. Fast real-time replies are ensured and network latency is decreased as a result. Fog computing speeds up systems and minimizes network traffic by processing and storing data closer to the user [2].

## MATERIALS AND METHODS

Current technologies for data processing and storage adapt to significant commercial and technological developments and enable efficient data management and analysis. In this regard, the volume of data and the need for analysis or verification mean that current data processing and storage technologies are always changing [3]

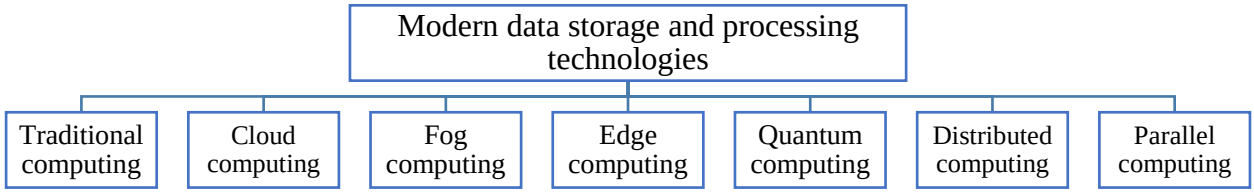


**Figure 1. Modern data storage and processing technologies**

**Traditional computing** refers to the most traditional and well-known uses of computers and related technology. Conventional computing involves the local storage and use of software and data on a PC or server. In this instance, the computer is mostly used for the calculating procedures. Users and organizations employ physical computers, servers, storage devices, and other information technology infrastructures [4].

A technique known as "**cloud computing**" uses the Internet to offer data, software, and computer resources as a service. Rather than keeping your data and applications on your PC or local server, cloud computing enables you to store and access them through cloud services. Resources may be used anywhere thanks to technology, which also makes it simple to scale up or down and integrate with a variety of applications and systems. Additionally, the technology itself incorporates security and contemporary data backups. This makes resource management more efficient and cost-effective.

**Fog computing** is a technology that, in contrast to central cloud computing, offers processing and storage resources at the periphery of a network. Data processing at edge points, or close to the data source, is made possible by fog computing, which also enhances real-time performance, lowers network strain, and improves data management [4].

The placement of data and computational resources at the network's edge points is guaranteed by the technology known as **edge computing**. This technology processes data at edge locations, or in close proximity to the data source, as opposed to transferring it to a central cloud. Applications needing low latency and real-time processing may find edge computing to be a particularly effective option [5].

The data processing and storage architectures of Edge Computing and Fog Computing technologies differ from one another. With fog computing, data is processed at every tier, from the network edge to the central cloud, providing a more comprehensive and multi-layered approach. Processing and storing data locally at edge locations is the primary goal of edge computing. Though their applications and topologies are different, both technologies aid in enhancing real-time performance and streamlining network management [5].

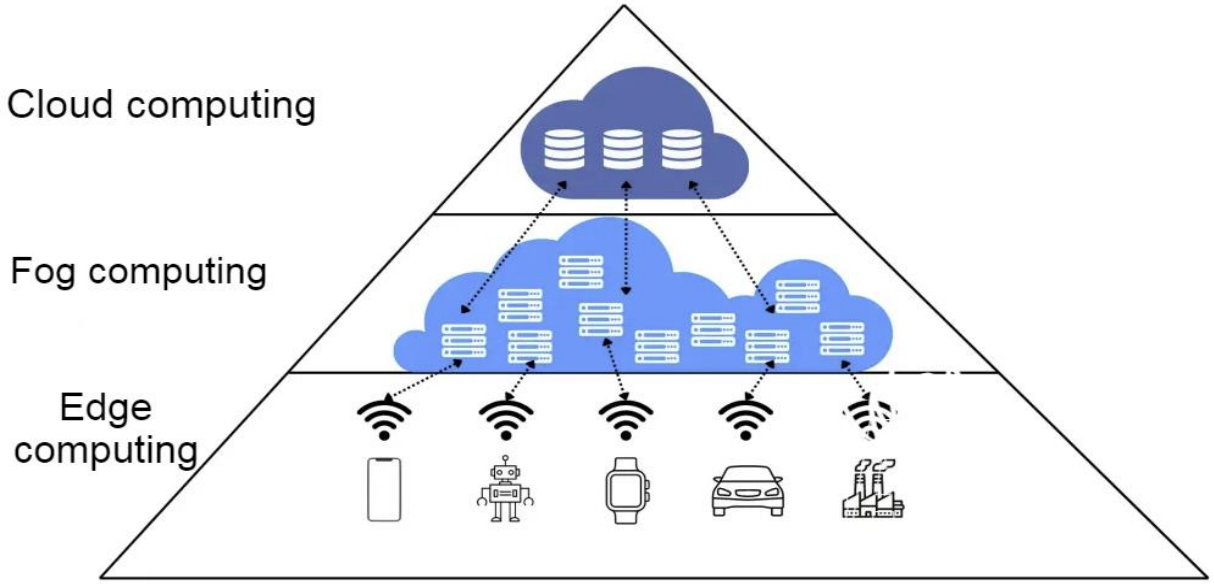


**Image 1. Architecture of cloud computing, edge computing and fog computing technologies.**

**Quantum comping**, as opposed to classical transformations, is a representation of data that has been reloaded in terms of quantum mechanics models. Using quantum computers, data may be stored in quantum bits. raising the quantum technologies' production capability.

The technique of **distributed computing** combines many specialized computer units to handle data and manage production. Big data, cloud computing, and the Internet of Things (IoT) are all heavily reliant on distributed technologies, which are the foundation of contemporary applications and support.

The updating of content creation by several processors or other devices using the same software is known as **parallel comping**. This technique adds to the efficiency restoration and process acceleration. Parallel Technologies has many uses in modern life, ranging from scientific research to business and finance, making it a significant company for support and applications. It is hard to fathom managing the evolving business operations of today without computing tools. Production, marketing, and service industries have all seen significant transformation due to modern computer technologies[6].

**ADVANTAGES**

With the help of computing technology, several jobs have been automated, labor costs have decreased, and process speeds have increased. This made it feasible to manufacture goods and services rapidly and effectively, lower costs, and boost profits[7].

It has enabled better communication between companies, staff members, and clients. The upshot is a chance to boost client happiness and loyalty while offering quicker and more effective customer care and assistance. Digital marketing methods enable the reach of larger audiences. This enhanced the efficacy of marketing initiatives by enabling businesses to more effectively target certain client categories[7].

Data can be gathered and examined more quickly and precisely. Better decision-making, more success, and profitability are made possible by this.

The usage of computer technology in modern information security has risen in order to safeguard client privacy and shield data from dangers.

Data analysts and software engineers are among the numerous career prospects in the business sector brought about by computing technology. It also led to a demand for workers with specialized knowledge and abilities in these fields.

In the commercial sector, rivalry has intensified due to computing technology. It is possible for people who embrace new technology to acquire a competitive edge over others who are unable to adapt to them[8].

## BEST PRACTICES

These technologies are commonly used in developed nations for marketing, banking, and healthcare. Computing technologies are employed, for instance, in the USA for telemedicine and real-time healthcare system monitoring services, as well as for quick and effective data processing for smart homes and automobiles. Within the context of China's manufacturing process optimization and smart cities concept, the importance of computer technology in traffic management and security systems is unparalleled. Energy resource management and monitoring are conducted in various European nations through the use of computer technology. Additionally, IoT devices are employed in Indian agriculture to gather and analyze data using computational technology [9].

These days, most modern systems make extensive use of computational technologies. These solutions streamline the procedures involved in working remotely, exchanging ideas, and analyzing data. For instance, the Microsoft Azure and Amazon Web Services (AWS) platforms are used to compute, analyze, and build a variety of services fast and effectively. Computing technologies are used by Tableau and Apache Hadoop systems to store, analyze, and show large amounts of data. Computing technologies are used by the Palo Alto Networks and CrowdStrike platforms to fight cyber attacks and improve network security and threat detection. Utilizing computer technology, the Slack and Trello software manages projects and assigns tasks to teams in order to promote collaboration and communication [9].

## CONCLUSION

Business is greatly impacted by computing technology, which makes it possible for companies to increase productivity, enhance marketing and communication, and make better judgments. Businesses need to take cybersecurity precautions to safeguard their data and customers' privacy in addition to keeping up with the newest computer technology if they want to be competitive in today's market. In summary, businesses may leverage computer technology to enhance their business operations by utilizing international experiences, best practices, and creative ways. Utilizing computer technology will guarantee economic growth and contribute to the creation of a welcoming atmosphere for clients.

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