Merits and Demerits of Cloud Computing for Business

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Abstract:- In today's world, cloud computing has become a new way of thinking about technology that promises many benefits to businesses. Businesses can cut down on capital costs, improve agility, and better use their resources by using virtualized and scalable computing resources provided over the Internet. Moving to the Cloud, however, brings new problems and risks that must be carefully considered. The article carefully considers the pros and cons of using the Cloud for businesses from a strategic point of view. We put together key benefits like lowering costs, growing, and being flexible in business by looking at literature from different areas, like management, computer science, and information systems. At the same time, we look at the most common risks, such as security issues, being locked into one vendor, following the rules, and losing control over data and systems. It also suggests a decision strategy that businesses can use to systematically figure out if cloud computing is a good fit for their specific operations. Our study adds to the body of academic knowledge by promoting a more complete understanding of the strategic effects of cloud computing. It also gives practitioners a strong analytical lens to help them understand the complexities of this paradigm shift.

Keywords:- Cloud Computing, Strategic Advantages, Scalability, Security Risks, Vendor Lock-In, Business Agility, Cost Optimization, Compliance Challenges.

I. INTRODUCTION

The rise of cloud computing has marked a significant turning point in information technology's (IT) history. Cloud computing is an entirely new way to get computing power. It abstracts hardware, software, and data resources into virtualized, on-demand services provided over the Internet (Mell & Grance, 2011). Businesses can now get flexible, utility-based IT services without spending much money building their infrastructure (Marston et al., 2011). Industry and academia are interested in this disruptive technology because it can change how businesses work, spur innovation, and give them a competitive edge. It is possible to see how cloud computing fits into the more extensive history of computing models, which have changed from single-computer mainframes to client-server architectures and, more recently, to distributed and virtualized systems (Buyya et al., 2009). Cloud computing is the result of all of these technological advances. It lets computing resources be delivered over the Internet as scalable, on-demand services, similar to how electricity and water are distributed (Armbrust et al., 2010).

There are three main types of service models in cloud computing: Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS) (Mell & Grance, 2011). IaaS offers virtualized computing resources like storage, networking, and processing power, which lets businesses set up and run their operating systems and apps. PaaS provides a higher abstraction level, allowing developers to create and launch apps on cloud-based platforms without dealing with the infrastructure underneath. As Tsai et al. (2010) say, SaaS is the most complete cloud service model because software applications are provided as web-based services, so there is no need for installation or maintenance on-site. This range of service models, along with deployment options such as public clouds run by outside service providers and private clouds hosted within an organization's firewall, gives businesses more freedom than ever to change their IT infrastructure to meet changing business needs (Subashini & Kavitha, 2011). Cloud computing is appealing because it can ease standard IT provisioning models' financial and operational burdens. This lets businesses focus on what they do best and encourages innovation more effectively (Khajeh-Hosseini et al., 2010). However, using the Cloud has strategic effects beyond just thinking about technology. When organizations move to cloud environments, they must completely change their strategies, processes, and governance systems (Khajeh-Hosseini et al., 2010). The supposed benefits of cloud computing, like lowering costs, being flexible, and being able to grow, are appealing. Still, businesses also have to deal with many risks and problems. Concerns about data security, following rules, being locked into one provider, and losing control over essential systems and data are some of the main issues that could hurt the strategic value proposition of cloud computing (Subashini & Kavitha, 2011).

Within this context, businesses need to look at the pros and cons of cloud computing from a broad viewpoint. Moving to the Cloud should be based on something other than technological needs or cost concerns. Instead, the decision should be based on a complete analysis of the strategic implications in many areas, such as operational, financial, regulatory, and security (Khajeh-Hosseini et al., 2012). This piece aims to give an in-depth look at the pros and cons of using cloud computing for businesses from a strategic point of view. We put together a list of the main pros and cons of cloud computing by looking at research

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from fields like management, computer science, and information systems. We also suggest a decision strategy that businesses can use to systematically figure out if cloud computing is a good fit for their specific operations. Our study adds to the body of academic knowledge by promoting a more complete understanding of the strategic effects of cloud computing. It also gives practitioners a strong analytical lens to help them understand the complexities of this paradigm shift.

II. CLOUD COMPUTING FOR BUSINESSES

Cloud computing originated in the 1960s when MIT obtained funds from DARPA to enable numerous users to access a computer concurrently, an early virtualization type (Foote, 2021). During the 1970s, virtualization evolved to involve the creation of virtual machines that simulate real computers (Foote, 2021). During the 1990s, virtualization gained popularity as firms started providing virtual private networks as services for rent (Foote, 2021). Amazon was an early adopter of cloud computing in 2002 to optimize its computer capacity. Amazon introduced Amazon Web Services (AWS) in 2006 to provide online services like storage, computing, and human intelligence resources to other businesses (Foote, 2021). The same year, Google introduced Google Docs services developed from Google Spreadsheets and Writely. This allowed users to produce, modify, and distribute documents online (Foote, 2021). Early services emphasized the advantages for businesses of on-demand software accessed through the Internet without requiring local program installations (Foote, 2021). In the late 2000s, open-source systems such as Eucalyptus and OpenNebula were developed to construct private clouds. In 2011, hybrid clouds were introduced, enabling the transfer of workloads between private and public clouds (Foote, 2021). IBM, Apple, Microsoft, and Oracle launched their cloud computing services, which raised public awareness of cloud technology at this time (Foote, 2021). In 2014, fundamental cloud functionalities had advanced, although

security was still a worry, leading to an increased need for private clouds (Foote, 2021). Containers and orchestration platforms such as Docker and Kubernetes have simplified cloud deployment for developers (Foote, 2021). The epidemic hastened the adoption of cloud services for distant work and e-commerce. In the future, automated data governance is expected to expand to comply with Internet regulations.

Over the past decade, cloud computing has revolutionized how businesses operate and manage their IT infrastructure. As Sayegh (2021) described, the Cloud has empowered global enterprises and startups by providing scalable and flexible computing resources without massive capital investments. This has catalyzed innovation, allowed rapid scaling, and created a more level playing field in the business landscape. One of the most pivotal outcomes of cloud computing has been enabling the emergence of companies that are "born in the cloud" (Sayegh, 2021). Without legacy IT systems, these businesses can build their technology stack and operations entirely in the Cloud from inception. Prominent examples like Uber and Airbnb leveraged the agility and scalability of cloud platforms to grow and disrupt established industries quickly. For all types of businesses, cloud computing has brought unprecedented agility and flexibility to operations and workload management. The ability to dynamically provision infrastructure resources based on real-time demand has allowed organizations to respond faster to market changes and opportunities. As Sayegh (2021) notes, hybrid and multi-cloud approaches have given companies even more options to optimize performance, resilience, and costs. The interplay between cloud computing and emerging technologies like artificial intelligence (AI) underscores the transformational impact of the Cloud. As shown in Figure 1, AI leverages massive datasets and intensive computation enabled by cloud platforms. The Cloud's unlimited storage and processing power has catalyzed the rapid evolution of data-driven innovations.

Fig 1: The Rise of Artificial Intelligence
Source: https://www.analyticssteps.com/blogs/how-ai-revolutionizing-cloud-computing

Quantitatively, the adoption of cloud services has skyrocketed in recent years, as highlighted in Table 1. According to Gartner (2021), global spending on public cloud services grew from $182.4 billion in 2018 to $257.5 billion in 2020. This rapid growth is expected to continue, projecting over 40% growth from 2020 to 2022 based on current trends.
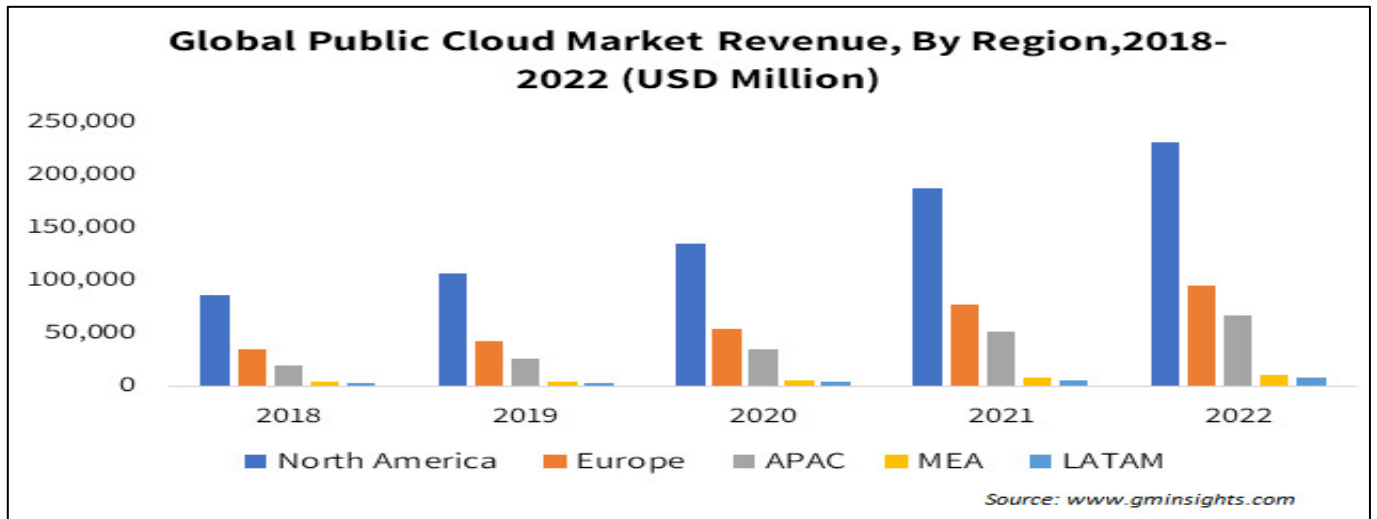

Fig 2: Global Public Cloud Service Revenue 2018-2022
Source: Global Market Insights, https://www.gminsights.com/industry-analysis/public-cloud-market

The numerous benefits it offers are driving this surge in cloud adoption compared to traditional on-premises IT infrastructure, especially for small and medium businesses (SMEs). As Sayegh (2021) discussed, cloud computing provides significant cost savings in terms of capital expenditure on hardware/software and ongoing operating expenses for maintenance and upgrades. By leveraging cloud services, SMEs can access advanced computing capabilities without high upfront infrastructure investments.

The intrinsic scalability and agility of cloud platforms are another critical advantage. As shown in Figure 2, companies can scale allocated resources up or down based on real-time demand fluctuations. This ensures optimal utilization while allowing businesses to remain responsive to changing market conditions.

Fig 3: The scalability of cloud computing allows dynamic resource allocation.
Source: MEGA International. *https://www.mega.com/blog/what-is-scalability-in-cloud-computing*

The rise of cloud computing over the past decade has had a tremendously disruptive impact across the business landscape. It has leveled the playing field between established enterprises and startups, fueled data-driven innovations like AI, and introduced unprecedented agility into IT operations and workload management. As highlighted by surging adoption and spending, cloud computing has revolutionized how businesses leverage technology for competitive advantage.

These days, cloud computing is used in almost every business and field. Banks like JPMorgan Chase and Capital One use cloud computing, from risk management and data analytics to customer-facing apps like mobile and online banking. Cloud services have helped stores like Walmart, Target, and Best Buy improve their e-commerce systems and supply chain. More and more hybrid and multi cloud models are being noted. It is one of the most crucial trends in Cloud Computing. Most business runs their IT infrastructures through public or private clouds which makes their platforms efficient. They do so by using several cloud providers in order to make sure that they won't be locked into only one vendor and increase the reliability and redundancy. Also, the development of AI, on the cloud, and ML services is becoming easier and cheaper, so businesses can now create more and use them. However, with cloud computing constantly evolving, new technologies such as edge computing, serverless architectures, and computing through containers, will make it easier for organizations to develop new ideas and enable better workflow.

A. Cloud Computing Advantages for the Businesses

The then digital transition is faster thus cloud services become an important tool that assists business entities in being flexible, reduction of cost and finding new ways to enhance productivity. The world spent a total of $482 billion on public cloud services, according to a Gartner report published just recently. This amount points to the increase of 21.7% in the market compared to 2021, (Gartner, 2022). The high level of popularity of cloud computing proves just how much the process is changing the way businesses work these days. Cost-efficiency is the primary driving element of this model shift. Switching over to the Cloud offers companies options to get rid of standard models that require much capital and to implement pay-and-use strategies (Armbrust et al., 2010). This is particularly convenient for small and medium enterprises (SMEs) due to the fact that they can order entropy-level hardware/software tools while paying for them all at once. The question that Deloitte asked in its study of small companies was: 'Why are you moving to?'

B. The Merits of Cloud Computing for Businesses

Cloud services, being an integral part of digital transition and being faster than ever, has helped businesses become more flexible, cut costs, and introduce new opportunities to make things work more effectively. The latest study from Gartner has shown that the overall amount of spending on public cloud services worldwide last year in 2022 reached $482 billion, which was a 21.7% increase since 2021 (Gartner, 2022). The fact that the use of cloud computing nowadays has become so widespread clearly indicates how this technology is revolutionizing the way businesses are handled. Affordability stands at the crux of this paradigm change. Companies can switch from standard models that require much capital to flexible, pay-as-you-go pricing structures when they move to the Cloud (Armbrust et al., 2010). This is especially helpful for small and medium-sized businesses (SMEs) since they can use enterprise-level computing tools without buying a lot of

hardware and software all at once. When Deloitte asked small companies why they were moving to management, and customer analytics. The National Institutes of Health (NIH) and the UK's National Health Service (NHS) are two healthcare groups that use cloud computing to store and process vast amounts of patient data safely. This lets them do advanced research and analytics. the Cloud, 82% said it was to save money (Deloitte, 2021). However, cloud computing has many benefits that go far beyond just saving money. In today's fast-paced digital world, agility and flexibility are essential to stand out. Businesses can quickly add or remove computing resources, storage, and bandwidth with cloud services to meet changing market needs (Etro, 2009). This flexibility benefits businesses in fast-paced fields like e-commerce, where workloads can vary significantly depending on the time of year or special events. The world COVID-19 pandemic has also shown how important it is to collaborate from home. Microsoft Office 365, Google Workspace, and other cloud-based productivity packages have become necessary for distributed teams to work together efficiently, no matter where they are (Alawadhi et al., 2020). There has been several demands for cloud-based customer relationship management (CRM) solutions from global companies like Salesforce. This is because businesses want to improve customer interaction and streamline operations in the face of pandemic-related problems (Salesforce, 2021). Cloud computing has become a critical must as companies try to figure out how to handle the challenges of going digital. Cloud adoption offers many benefits, such as lower costs, greater flexibility, scale, teamwork, and safer data. It helps businesses stay competitive and respond quickly in a world market that is changing swiftly (Etro, 2009; Alawadhi et al., 2020; Meena & Wadhwa, 2021). Many companies are using cloud services, which shows that taking advantage of these benefits is no longer a choice but a must for companies that want to do well in the digital age.

C. Data Control

Data control has emerged as a critical advantage driving cloud adoption across industries worldwide. With modern businesses' exponential growth of data, safeguarding this valuable asset has become paramount. Cloud computing offers robust data control and security capabilities increasingly appealing to organizations globally, representing a significant evolution from traditional on-premises data management approaches. Before the rise of cloud computing, data was primarily stored and managed within local on-premises infrastructure, such as servers, storage devices, and backup systems. This approach presented several challenges in terms of data control and security. Table 1 highlights some of the critical limitations of traditional on-premises data management:

Table 1: Demerits(Limitations) of Traditional on-Premises Data Management

Limitation	Description
Single Point of Failure	Data stored locally is vulnerable to hardware failures, natural disasters, or cyber-attacks that could lead to permanent data loss.
Limited Scalability	On-premises storage and compute resources have a finite capacity, making it challenging to scale data infrastructure in response to rapid growth.
Fragmented Access Controls	Implementing granular access controls and detailed logging across multiple on-premises systems is complex and resource-intensive.
Regulatory Compliance Challenges	Compliance with data protection regulations like GDPR and HIPAA is more difficult when data is distributed across local systems.

They, to a great extent, lead businesses to a position that they have to resort to the highly priced options such as multitudes of storage systems, external backup facilities, and manual methods of access control and reporting. This approach increased operations expenses and made it more difficult to maintain the same level of data protection and security in all regions of operation. With cloud computing data is dramatically changed as it provided safe, centralized and scalable computing and storage resources. Figure 1 shows how cloud services have changed the way people can control their data: Figure 1 shows how cloud services have changed the way people can control their data:
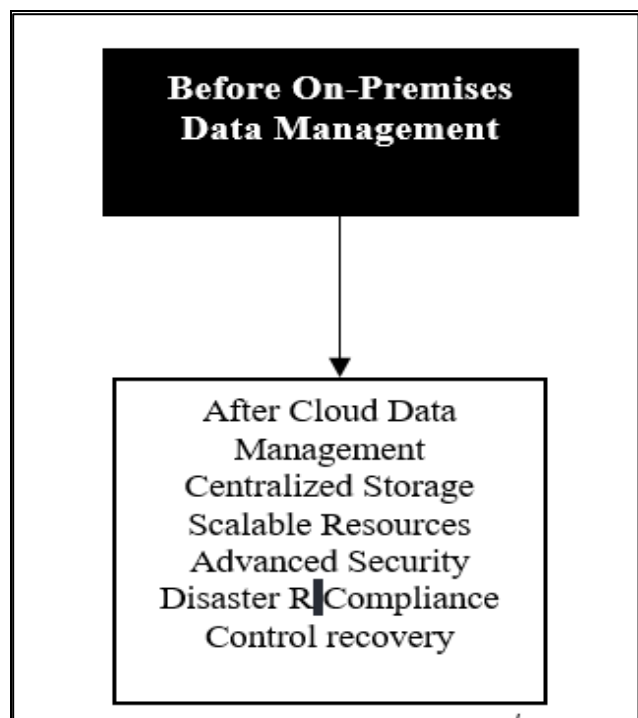

Fig 3: Shift in Data Control Capabilities –
Before and After Cloud Computing
Source; Author

As depicted in Figure 1, cloud computing has introduced several enhancements in data control compared to traditional on-premises approaches:

- Centralized Storage: Cloud providers provide fault-tolerant, highly available, and reliable storage solutions using the centralized model, to prevent a single point of failure. This guarantees that data can be queried regardless of hardware failures or local disasters at the storage site.

- Scalable Resources: Cloud storage and computational resources can be easily scaled up or down based on the demand, letting organizations to effortlessly handle the data increase without the limit of the fixed on-premise capacity.

- Advanced Security: Leading cloud providers like AWS, Azure, and GCP spend a lot of money on security and privacy of their user's data, using such tools as advanced encryption, strong access controls, continuous monitoring and threat detection. The inherent protective nature of these applications normally exceeds what individual businesses could implement in their own on-premises environments.

- Disaster Recovery: With the rapid growth of cloud-based disaster recovery and business continuity solutions, organizations are able to build on strategies to minimize data loss. Another study IDC did shows that 90% of companies have either implemented or considered implementing cloud-based backup and disaster recovery solutions (IDC, 2020).

- Compliance Controls: Cloud providers with fine-grained controls, detailed logging and auditing, and data encryption ensure that businesses keep complete control on their data assets, guaranteeing industry regulations compliance and protection laws.

Industry surveys and records show that these improvements have had an effect. Thales' 2021 Cloud Data Security report says that 40% of business data is now stored in the Cloud, up from 36% in 2020. Also, 51% of respondents planned to move more data to the Cloud in the next 12 to 24 months (Thales, 2021). This trend is caused by the idea that cloud environments are safer than standard on-premises infrastructure. Cybersecurity Insiders polled that 61% of companies think cloud services are safer than on-premises settings for backing up and storing data (Cybersecurity Insiders, 2021). Statistics from the industry back up this view. In 2021, only 8% of data breaches involved cloud assets, while 92% involved on-premises systems (Verizon, 2022). Cloud computing has changed how companies manage and protect their data. Cloud services have fixed the problems with traditional on-premises data management by offering centralized, scalable, and safe computer and storage resources and robust disaster recovery and compliance tools. Industry surveys and data constantly show that people think cloud environments are safer and

easier to manage. This shows how vital data control is for encouraging many businesses to use cloud computing.

D. Flexibility and Scalability

Many people agree that cloud computing's main benefits are its flexibility and growth, two main reasons businesses worldwide use it. In today's fast-paced business world, being able to quickly change computing resources to meet changing needs and smoothly scale operations has become a critical competitive edge. Recent global data and industry research show how important flexibility and scalability are as factors that lead to cloud adoption. The traditional approach for on-premises IT infrastructure is flexible and must be changed easily. To prepare for expected growth, businesses must figure out their computing needs for a long time and spend money on gear, software, and data center resources. This method usually ends up providing too many resources or not using them enough, which wastes money and makes operations less efficient. When businesses use cloud computing, on the other hand, they can use a flexible, pay-as-you-go approach that lets them add or remove resources as needed. Deloitte did a survey and found that scalability was essential to 92% of businesses when they decided to move to the Cloud (Deloitte, 2021). Table 1 shows that cloud computing is more flexible and scalable than standard on-premises infrastructure.

Table 2: Flexibility and Scalability Advantages of Cloud Computing

Advantage	On-Premises	Cloud Computing
Resource Provisioning	Requires substantial upfront capital investments and lead times for procuring and deploying new hardware and software	Enables rapid provisioning of computing resources (e.g., virtual machines, storage, and networking) on-demand, often within minutes
Scalability	Limited by physical infrastructure constraints, making it challenging to scale resources up or down rapidly	Allows seamless scaling of resources up or down based on changing workload requirements, ensuring optimal utilization and cost efficiency
Flexibility	Rigid infrastructure that is difficult and costly to modify or reconfigure to accommodate evolving business needs	Provides a flexible, software-defined infrastructure that can be easily reconfigured and adapted to support new use cases, applications, and workloads
Pricing Model	Requires significant upfront capital expenditures (CapEx) and ongoing operational expenses (OpEx)	Follows a pay-as-you-go, consumption-based pricing model, aligning costs with actual resource usage and minimizing upfront investments

The impact of these advantages is reflected in industry data and adoption trends. According to a report by Markets and Markets, the global cloud computing market size is expected to grow from $445.3 billion in 2021 to $1,240.9 billion by 2027 at a Compound Annual Growth Rate (CAGR) of 17.9% (Markets and Markets, 2022). This rapid growth is driven by enterprises' increasing adoption of cloud-based solutions, the proliferation of cloud-native applications, and the scalability and flexibility offered by cloud computing.

Furthermore, the ability to scale computing resources dynamically has become particularly important in industries with highly variable demand patterns, such as e-commerce, media streaming, and online gaming. For example, during the COVID-19 pandemic, many businesses experienced significant spikes in demand for online services and digital engagement. Cloud computing enabled these organizations to rapidly scale their infrastructure to handle the increased workloads without disrupting customer experiences or incurring substantial upfront costs (Flexera, 2021). By allowing rapid resource provisioning, seamless scalability, and a flexible, software-defined infrastructure with a pay-as-you-go pricing model, cloud computing has empowered organizations to optimize resource utilization, reduce operational costs, and respond agilely to dynamic market conditions. Industry data and adoption trends highlight the strategic value of these advantages, positioning flexibility and scalability as essential factors in the decision to embrace cloud computing as a cornerstone of modern business strategies.

E. More Effective Collaboration

One of the best things about cloud computing for companies is that it makes it easier for team members, partners, and stakeholders to collaborate and share information, no matter where they are located. Practical teamwork tools have become even more critical as remote work and distributed teams have grown. Cloud computing has become a key enabler in this area. Recent global data, industry analysis, and academic studies show that cloud-based collaboration tools are helpful for businesses today. Traditional on-premises collaboration tools often needed help with security, version control, and who could see what when working in different places or with outside partners. These problems are no longer a problem thanks to cloud computing, which offers centralized platforms and services that make working together, sharing documents, and talking possible in real-time, from anywhere with an internet link. Cloud office tools like Microsoft Office 365 and Google Workspace have become very popular, according to a study by Gartner. Between 2018 and 2022, their use will grow 25.7% yearly (Gartner, 2022). Table 1 shows the main benefits of cloud-based collaboration tools over standard solutions that are installed on-site.

Table 3: Advantages of Cloud-Based Collaboration Tools

Advantage	Traditional On-Premises	Cloud-Based
Accessibility	Limited to local network or VPN access	Accessible from any device with an internet connection
Version Control	Challenges in managing multiple versions of documents	Centralized document storage with real-time updates and version history
Security	Sharing documents with external parties poses security risks	Secure sharing and granular access controls with end-to-end encryption
Scalability	Limited by local infrastructure capacity	Seamless scalability to accommodate growing team sizes and data volumes
Integration	Difficult to integrate with external systems and workflows	Seamless integration with other cloud services and third-party applications

Industry statistics and adoption trends show how these benefits have changed things. MarketsandMarkets predict that the global cloud collaboration market will grow at 17.4% per year, rising from $37.2 billion in 2020 to $97.7 billion by 2026. This growth is caused by more people working from home, the need to work together in real-time, and the fact that cloud communication tools are now built into more business apps.

Scholarly study has also examined the advantages of cloud-based collaboration tools for companies. Cloud collaboration tools (according to a survey by Alkhaldi et al. (2021)) brought down the complexity for teams to work together, talk and share files and information within organizations. Cloud computing teamwork was favorable to project management, as per the study done by Alhammadi et al. (2020), because it made the task of coordinating, checking progress, and distributing the transition of resources more manageable. Besides making people more productive, cloud-based teamwork has been shown to make customers happier and more engaged. 88% of customers surveyed by Salesforce said they expect companies to share information and collaborate easily across teams and channels (Salesforce, 2022). Cloud-based customer relationship management (CRM) and service platforms are critical for companies to ensure their customers have consistent and well-coordinated experiences. Therefore, better teamwork has become one of the main reasons businesses worldwide are adopting cloud computing. Cloud-based tools let teams that work in different places easily collaborate, share documents, and talk to each other in real-time. These tools are safe, easy to get, and centralized. This makes it easier to share knowledge, be productive, and connect with customers. Industry data, adoption trends, and academic studies show that cloud-based collaboration tools are strategically valuable. This is one of the crucial factors that makes cloud computing become an essential part of modern business strategies.

F. Greater Accessibility

The increased accessibility of cloud computing has become an important factor contributing to its widespread acceptance in businesses worldwide. Accessing essential business apps, data, and resources from any location, at any time, and on any device is crucial in today's mobile and remote worker environment. Cloud computing has transformed accessibility, facilitating smooth collaboration, productivity, and business continuity, irrespective of geographical constraints. Conventional on-premises software and data storage solutions typically limited access to a specific place or necessitated intricate remote access setups like virtual private networks (VPNs). Cloud-based applications and services are accessible from any location with an internet connection, offering a uniform experience on various platforms such as desktops, laptops, tablets, and smartphones. According to a study conducted by Flexera in 2021, 92% of organizations utilize a multi-cloud approach, incorporating both public and private cloud services. Table 1 outlines the primary accessibility benefits of cloud computing compared to traditional on-premises solutions.

Table 4: Accessibility Advantages of Cloud Computing

Advantage	Traditional On-Premises	Cloud-Based
Remote Access	Limited to VPN or remote desktop solutions	Native accessibility from any internet-connected device
Device Compatibility	Software and data tied to specific hardware or operating systems	Platform-agnostic access, ensuring consistent user experience across devices
Mobility	Restricted to on-site or VPN-connected access	Seamless access from any location, enabling mobile productivity and remote work
Scalability	Limited by local infrastructure capacity	Ability to scale resources dynamically to accommodate increased access demands

The use of these accessibility benefits is apparent from industry data and adoption rate. The Global Public Cloud Spending in 2022 was $484.6 billion, representing a 37.4% rise from the previous year consequently, as Gartner reported in 2023. To some large extent, these factors namely the growing use cloud-based apps, the need for remote access and collaboration, and the scalability and accessibility offered by cloud computing are responsible for the huge acceleration. There are many scholarly works have been documented explaining the benefits of cloud computing for businesses through its accessibility. Cloud-based applications significantly increased teamwork and collaboration as demonstrated by Alkhaldi et al. (2020) through the easy access to the shared databases and instant

messaging. Alharthi et al. (2015) in their study on the facilitating role of cloud computing for business continuity. It ensures that the company keeps to the mode of operations and is able to retrieve the critical data even in the wake of disasters such as natural catastrophes or pandemics.

The COVID-19 epidemic has highlighted the significance of accessibility in cloud computing. Cloud-based solutions were critical in facilitating company continuity and allowing employees to access necessary apps and data from home as firms quickly shifted to remote work and online operations (Salesforce, 2020). The increased accessibility of cloud computing has become a critical factor in its widespread acceptance by enterprises worldwide. Cloud computing allows enterprises to function successfully in a distributed and mobile workforce environment by offering platform-agnostic, location-independent access to programs, data, and resources, facilitating seamless collaboration, mobile productivity, and business continuity. Industry data, adoption patterns, and scholarly studies continuously emphasize the strategic importance of cloud computing's accessibility, establishing it as a crucial element in adopting cloud computing as a fundamental aspect of contemporary corporate strategies.

III. THE DEMERITS OF CLOUD COMPUTING FOR BUSINESSES

A. Security

Check Point reports that 94% of organizations have a high level of worry over cloud security (Chkadmin, 2024). When sharing valuable data with a third party, worries arise due to the reduced control and visibility. How can you ensure your data is being safeguarded? Primary security issues related to cloud-based services involve misconfiguration and data breaches. Proper configuration of security settings is essential for maximizing the security features of your cloud services. The Cloud's infrastructure facilitates data sharing, but enterprises may need more familiarity with safeguarding it, leading to potential security oversights and attack vulnerability. Studies have demonstrated that 99% of misconfigurations remain undetected, making them considerably more hazardous. It is crucial to remember that insider threats are still prevalent, with 61% of organizations facing 20 insider attacks annually.

Remote employees may feel unsupervised and be free to act as they choose. Therefore, it is crucial to effectively monitor and control access and activity inside your cloud services to prevent insider assaults, regardless of the size of your organization. One must compare the data security status stored on a local server. Cloud services typically implement biometric security measures to access data centers and have many additional security controls. In contrast, on-premise data may be left unsecured on a desk in an office corner or in a poorly protected server room. Your cloud service provider will employ security measures that surpass what most small and medium-sized enterprises could achieve to prevent data loss incidents. Although your cloud service provider is responsible for securing the cloud infrastructure, you still have some responsibilities for your data protection, and additional security measures may be necessary. Various solutions are specifically designed for cloud service providers to address any deficiencies in cloud security. Begin by utilizing data loss protection technologies and managed threat detection services. Cloud computing offers easy accessibility through an internet connection, which can also increase the risk of unauthorized access to your data and systems. Improper settings or weak password security can result in accounts being taken over and intruders obtaining entry into your organization, frequently without your awareness.

Fig 4: Cloud Computing Security Risks
Source: Veritas; https://www.veritis.com/blog/what-is-cloud-computing-security/

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B. Limited Control and Visibility

Adopting cloud services has benefits like lower costs and more adaptability, but some researchers say it can make it harder for businesses to see and control what is happening. A study by T.S.H. Teo and S.C. Srivastava says that when a company uses public cloud infrastructure, it "gives up direct control over many aspects of security" to the provider (Teo & Srivastava, 2014). The business relies on the cloud provider's rules, procedures, and safety measures. Because there is no direct control, it can be harder to ensure that internal governance and business rules are followed (Teo & Srivastava, 2014).

A literature study on how businesses use the Cloud showed that "the lack of transparency within the public cloud is an inhibitor" for many of them (Alharbi et al., 2016). The complicated structure of cloud platforms hides backend layers, making it harder to see things like where data is stored. It is easier for companies to monitor and audit processes more openly (Alharbi et al., 2016). The authors say that governance standards are improving, and new ways to improve visibility through logging, alerts, and configuration choices appear.

Adopting cloud services means giving up some fine-grained control and complete transparency, but experts stress that it can benefit businesses. The pros of efficiency, cost savings, and freedom outweigh the cons if you research and use the available visibility tools (Teo & Srivastava, 2014). When moving apps or data to the Cloud, businesses must consider how much risk they are willing to take and what they need.

C. Reliability

Relation could be a problem when businesses use cloud computer services. Cloud services offer benefits like saving money and giving you more options, but if you use an outside provider, you give up some control and could experience service interruptions. Recent events have brought attention to the possible dependability risks. In 2020, the Journal of Cloud Computing released a study examining the reliability of cloud services by looking at old data from Amazon Web Services (AWS), Microsoft Azure, and Google Cloud. The research found that between 2 and 6 percent of critical infrastructure services, such as computing, storage, and networking, failed annually on average across all three providers from 2014 to 2019 (Alkharashi et al., 2020). These failure rates may not seem very high, but the study authors say that "even this level of failure results in many hours of downtime per month" for customer applications that depend on them (Alkharashi et al., 2020). Many firms could really suffer huge losses and also tarnish their good reputations in case their cloud services encounter outages or be down. Citing the case of AWS outage in 2017, the company was down for several hours and this affected up to 150000 websites and apps that use AWS. This included well-known services like Slack, Trello, and GitLab. It was down for more than 4 hours and was said to have cost S&P 500 companies an average of $100,000 each (Brandom, 2017). Fastly, a cloud services company had an outage in June 2021, making accessing websites like Amazon, CNN,

PayPal, and Reddit impossible for almost an hour (Porter, 2021). This is an example of how businesses that use third-party cloud technology can still experience downtime when something goes wrong. While cloud services offer benefits like growing as needed and saving money, they also come with risks, such as brief service outages that can significantly affect a business. As the recent Fastly outage shows, even big companies can have problems that make customers depend on them. Maintaining dependability still needs to be solved for people who use the Cloud.

IV. CONCLUSION

Cloud computing has become a new way of thinking about technology that can change how businesses work. It has tremendous strategic benefits and possible risks for businesses in various fields. Cloud platforms offer inherent freedom, scalability, collaboration tools, and robust data control that help companies cut costs, quickly develop new ideas, and become more agile. Concerns about security, dependability, exposure, and loss of power have also come up as reasons why people do not use the Cloud.

Because cloud infrastructure is flexible and can be scaled up or down on demand, businesses can easily match their technology resources to their changing needs. Cloud computing enables you to scale up or down based on real-time changes in demand because it uses a pay-as-you-go approach and does not require significant upfront investments. This provides the best use while letting people respond quickly to changes in the market. During the COVID-19 pandemic, businesses took advantage of the Cloud's ability to grow as needed to handle the massive increase in website traffic. One strategic benefit of cloud-based efficiency and communication tools is that they make working together easier. Centralized access, seamless integration, granular controls, and real-time updates make it easier for teams working in different places and outside partners to work together. This better teamwork means that employees are more productive, workflows are more streamlined, and customers have better experiences. Studies show that the Cloud can improve the success rate of projects and the performance of organizations by making it easier for people to work together and share information. In addition, cloud systems often have better management and security tools for data assets than on-premises environments. Businesses can keep a closer eye on and protect private data better with centralized storage, flexible computing, advanced security controls, and built-in disaster recovery facilities. By making it easier to follow industry rules, cloud computing lowers the chances that critical business data will be lost or seen by people who should not be able to.

Even with these benefits, some businesses have yet to switch to cloud computing because they are worried about security, dependability, openness, and losing control. When you put sensitive data and work in a third-party cloud setting, you must give up some power to the provider. This makes people worry about hackers, outages, getting in without permission, and being unable to see where data storage is kept. Even though the best cloud service providers have strict

security controls, customers often need to set them up correctly, making safety less effective. Significant players like AWS, Microsoft Azure, and Google Cloud have had failures that have gotten much attention. This shows how hard it is to be reliable. So, moving business-critical data and systems to the Cloud requires carefully weighing the pros and cons from more than just a cost-savings point of view. Cloud computing is a paradigm shift that affects how businesses plan their strategies, run their operations, handle risks, and run their governments. Underestimating how hard it will be can make the supposed rewards less critical.

On the other hand, avoiding the Cloud because of what you think are its risks can keep you from using its vast potential. The study emphasizes that cloud computing can be very valuable for businesses' long-term goals if it is planned after reviewing readiness, cost-benefit analyses, and governance planning. For most companies, the best way to move forward is to carefully use mixed or multi-cloud strategies that balance the benefits of the Cloud with their unique needs. Moving parts of the technology stack to the Cloud can pay off hugely if done correctly and carefully. Cloud computing has become essential to modern business plans across all fields. However, when a business decides to use cloud-based tools, it should look at all the effects on the company.

RECOMMENDATION

After carefully considering the pros and cons listed above, businesses that are thinking about moving to the Cloud should take the following steps:

First, look closely at the current IT infrastructure, systems, data stores, and on-premises application processes. Making a map of the current environment is necessary to see if migration is possible and to plan for the best cloud setups. To do this, list all the apps, data, and connections to find problems that might arise.

Second, do a cost-benefit study of the current infrastructure's ongoing costs and the expected costs of moving to and working in the Cloud. Consider all the expenses, such as subscriptions, network usage, and the time needed for management and maintenance. Include big-picture benefits like expected business growth, new ideas in the works, better customer experiences, and standing out from the competition.

Third, ensure you know the security, compliance, privacy, and legal standards for your systems and data. Check to see which type of cloud model will help you handle risk the best: public, private, or hybrid. Look at tools like monitoring, logging, encryption, access controls, and firewall rules that can help you see and control more in cloud environments. Fourth, develop a complete plan for adopting the Cloud that aligns with specific business goals beyond lowering costs. Goals should be set for adaptability, expansion, teamwork, data consolidation, business insights, and anything else cloud computing can help. Priorities,

deployment models, and governance protocols should all be spelled out in this plan.

Lastly, make sure that there are strict programs for managing change and teaching employees. Moving to the Cloud changes how the company works, how people do things, and how technologies are used. For a smooth change, getting buy-in from stakeholders and building up their skills is essential. Encourage people to work together to get the most out of the Cloud. In today's digital business world, it is vital to use cloud software to stay ahead of the competition. Adopting cloud-based platforms, on the other hand, needs careful planning and execution based on a complete picture of costs, benefits, risks, and strategic effects.

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