Cloud Computing Applications in Business Development

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Article Info

ABSTRACT

A crucial technology with significant consequences for company growth is cloud computing. This magazine examines how cloud computing is used in the context of company expansion and assesses how it affects several facets of organizational development. This study offers important insights into the advantages, difficulties, and best practices related to incorporating cloud computing in corporate development processes by completing an extensive literature review and looking at actual case studies. The research technique comprises a thorough examination of the body of knowledge regarding cloud computing and its function in organizational transformation. In order to pinpoint useful applications and results, case studies of businesses that effectively incorporated cloud computing into their operations are also looked at. The results reveal a number of significant benefits of using cloud computing for corporate growth. First off, cloud computing makes it simple for businesses to access a vast collection of computational resources, enabling them to grow their operations effectively and shorten the time it takes to market goods and services. With less upfront investment required for infrastructure and hardware, organizations may more efficiently allocate resources and concentrate on their core capabilities. Second, cloud computing's elasticity and scalability allow businesses to adapt swiftly to changing demand, assuring efficient resource use and low costs. Businesses may take advantage of market opportunities, adjust to shifting trends, and experience sustainable growth because to this agility. Additionally, better data security features including encryption, access controls, and data backup systems are provided by cloud computing. And finally, the use of cloud computing for corporate growth results in significant cost reductions.

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1. INTRODUCTION

Cloud computing has significantly transformed the business landscape in recent years[1]. This technology offers great advantages in terms of flexibility, scalability, and operational efficiency[2]. One area where cloud computing plays a crucial role is in business development. In today's digital era, cloud computing applications play a vital role in accelerating business growth and success[3]. Cloud computing refers to the provision of computing resources such as servers, data storage, networking, and software over the internet[4]. In the context of business development, cloud computing enables companies to access cloud-based applications and services that provide solutions for various business needs[5].

One of the main benefits offered by cloud computing applications in business development is increased accessibility[6]. By utilizing cloud-based applications, employees can access data and business systems anytime and anywhere through the internet[7]. This enables better team collaboration and provides flexibility for remote or distributed workers. Additionally,[8] cloud computing applications also offer improved scalability[9]. Companies can easily adjust their computing resources according to business demands[10]. For example, if there is a surge in web application traffic, cloud computing allows companies to quickly scale up server capacity to handle the increased workload[11]. This prevents business losses due to infrastructure's inability to handle high workloads[12]. Furthermore, cloud computing applications reduce the capital expenditure that companies have to incur[13].

In the traditional model, companies need to invest significant funds in building their own IT infrastructure, including servers, storage devices, and software[14]. By using cloud computing applications, companies can avoid these upfront costs and pay only for the resources they use based on subscription or usage-based payment models. Ultimately, the use of cloud computing applications in business development can help companies achieve higher efficiency levels[15]. These applications often come equipped with strong analytics and monitoring features, enabling companies to collect and analyze real-time data[16]. With better insights into business performance, companies can make smarter decisions and identify opportunities to improve operational efficiency and enhance customer experiences[17]. Overall, cloud computing applications have opened new doors for business development[18]. With increased accessibility, scalability, efficiency, and lower costs, companies can leverage this technology to enhance productivity, expand markets, and achieve success in today's competitive business landscape[19].

2. LITERATURE REVIEW

The phrase "cloud computing" was created to characterize a sophisticated computer service in response to client demand. Formerly provided by such service providers as Amazon, Google, and Microsoft as a commercial product[20]. The cloud or "cloud" is the general name for the computing infrastructure used in cloud computing.is where users of cloud services can access either app from individuals or business organizations from anywhere. The cloud symbol is used in accordance with each network diagram. The symbol cloud is used to represent the internet[21].

Visualization infrastructure, which provides and maintains virtual servers that can be scaled up and down as needed, is the primary component of cloud computing[22]. Request. Developments in hardware, internet technology, distributed computing, and systems administration are the foundations of cloud computing, as shown in figure 2, which depicts how a convergence of technological advances led to the development of cloud computing[23].

Using the Cloud	
Virtualized Hardware Multi-Core Chips	Hardware
Computing Grids and Utilities	Computerized Distrinution
SOA Web 2.0 Web Services Mashups	Technology on the Internet
Automation in Autonomic Computing Data Centers	System Administration

Tabel 1. Shows the convergence of several leading innovations the development of cloud computing

As shown in Figure 3, a cloud computing system is made up of a number of components, including clients, data centers, and distributed servers[24]. A client computer is one that cloud computing users use. In addition to computers, clients can also include laptops, tablets, PDAs, and other devices. The client's application and customer-distributed servers are housed in the data center, which is a group of servers[25]. However, in cloud computing, distributed servers are essentially in neighboring locations that provide profit if one site experiences problems, rather than all being located at the same place. The other websites can still function if it fails[26].
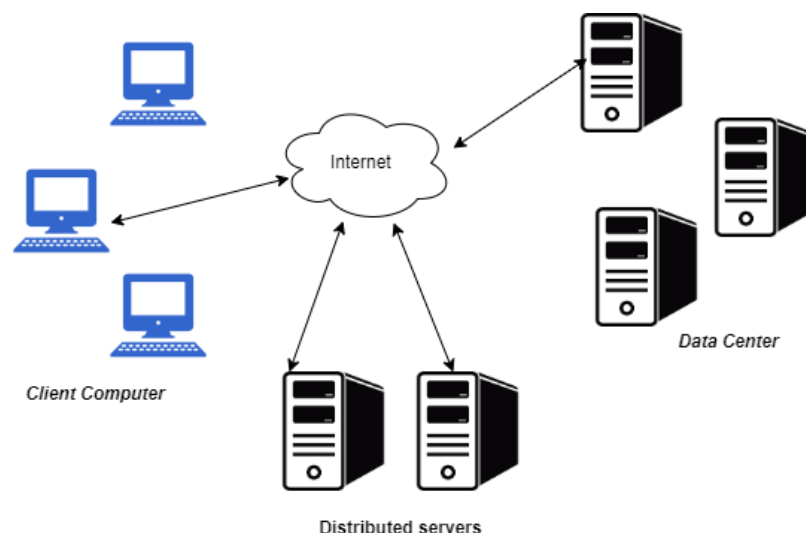

Figure 2. The fundamental three elements of cloud computing

Services-oriented architectures (SOA)[27]. In a SOA system, end users can demand and schedule information technology services with a predetermined level of functional quality and capacity.

The general public uses a variety of cloud services, each of which is used in accordance with specific needs. These services include:

1. Is public clouds

With an internet connection and access to cloud space[28], many users can access the cloud. The term "public cloud" can also apply to a cloud that is accessed by the general public and is paid for as it is used, sometimes known as a "pay as you go" model[29].

2. Personal Cloud

Only these groups or organizations are allowed access to the cloud, which is only established for them[30]. Where cloud computing isn't available to the general public, internal data centers of a group or organization can greatly benefit from using it.

3. Neighborhood Cloud

Two or more organizations that share the same interest in using the cloud use and share it. Community clouds may be run by an organization or a third party, and they may or may not be located in the same place.

4. Hybrid Cloud

Cloud, which is essentially a mashup of two clouds and may combine community, private, and public clouds. With a hybrid cloud, we can quickly migrate to a public or community cloud for more capacity if we run out of space in our private cloud. The service and delivery model are depicted in Figure 4. Any of the service modes can be used to deliver all services.
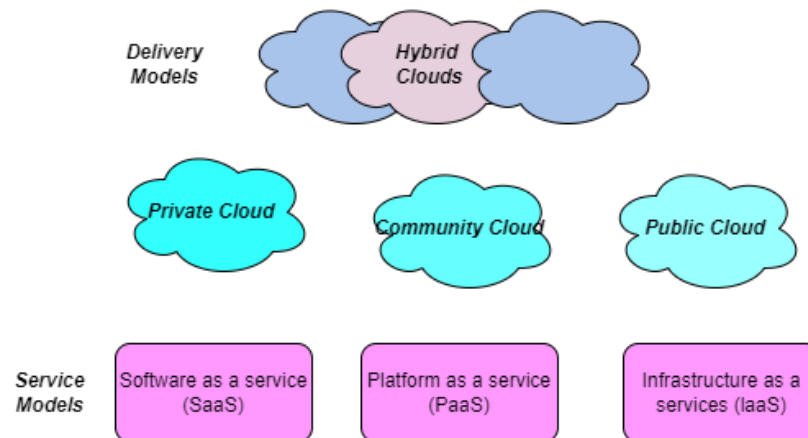

Figure 3. The three fundamental parts of cloud computing

In cloud computing, the concept of "service" refers to the ability to perform reusable, fine-grained components in a vendor network, often known as "as a service."
In cloud computing, services include Infrastructure as a Service (IaaS), Platform as a Service (Platform as a Service), and Software as a Service.

Service Class	Main Access Management Tool	Sevice Content
	Web Browser	**Cloud Appication** social Networks, Office Suites, CRM, Video Processing
	Cloud Developmant Envinroment	**Cloud Platform** Programming Languages , FrameWorks , Mashups Editors,structured data
	Virtual Infrastructure manager	Cloud Infrastructure Compute Serves, Data Stroge, Firewall, Load balancer

Figure 4: Service layer for cloud computing

1. Infrastructure as a Service (IaaS)

It is a cloud computing service that offers virtualization resources to give computation, storage, and communication services to customers as needed. These services typically provide virtual servers that may be utilized by one or more CPUs and can execute a variety of system options operations and software. They also typically provide facilities for data storage and communication. Dependable communication and storage facilities. One company that provides IaaS services is Amazon, which gives consumers the ability to configure firewalls, install software, and perform other tasks on the server.

2. Platform as a Service (PaaS)

PaaS services provide more than just data storage; they also give users a location to develop and deploy apps without having to figure out how much processing power or memory they'll need. Additionally, provide specialized services for new applications, such as data access, authentication, and payment. Google is an illustration of a PaaS service.
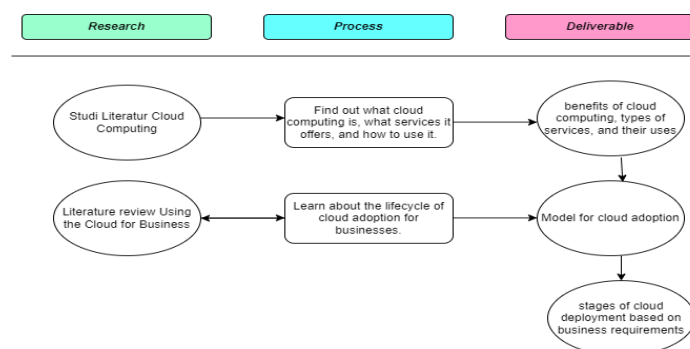

Figure 5. Research Framework Web application development and hosting services are provided by AppEngine.

3. SaaS applications

The top layer of cloud computing is where this kind of service is located. Consumer services started to transition from computer programs to internet software. The benefit of this service may be to lessen the customer's software maintenance burden as well as make software development and testing easier. For instance, Salesforce.com and Google Apps both provide business applications on their servers for customers to access as needed.

Utilizing cloud computing to create business servers There are various benefits over others:

1. Low cost since there is no need to purchase a server; instead, costs are met as they arise.
2. High capacity, as a result of the cloud's abundant bandwidth for data storage.
3. Versatile, as users of the cloud can quickly [add and remove servers and databases, increase capacity in other places as needed, and integrate with third-party services.
4. Maintenance is inexpensive because the user doesn't have to consider the configuration or administrative system again.

3.   METHOD

This research is qualitative and was conducted by reading articles from books and journals. also submitted in the framework were scientific articles and thoughts on figure 5. Among the literature reviews included in this study are:

1. A literature review of cloud computing
Understanding cloud computing in order to comprehend its terminologies, concepts, components, types of usage, types of services, and other aspects.

2. Research into the literature on cloud computing in business
Following knowledge and comprehension of the cloud the following computing is a literature review of cloud computing's application in the business world, with the goal of learning more about the cloud's life cycle and finding the best approach to adopt it in accordance with business requirements.

Figure 6: Lifecycle Model for Cloud Computing Adoption

The primary stages of the life cycle model for cloud computing adoption and supporting stages for cloud adoption lifecycle model are divided into two stages on the cloud computing adoption life cycle model shown in figure 6. The elements of the main stage are:
1. Phase of cloud project concept/pilot. From this point on, knowing about the cloud will lead to planning and implementing business cloud computing. a series of events
This proof of concept (POC) includes experiments with cloud implementation, learning, and evaluation as well as suggestions for cloud strategy and a determination of whether to continue the cloud program.

2. The stage of strategy and mapping in the cloud adoption cycle. Create a cloud computing usage strategy and its aftercare. Activity
This phase involves investigation and evaluation.

4. RESULTS AND DISCUSSION
4.1. Utilize the cloud
The usage of cloud computing in business starts with understanding and applying the cloud lifecycle, with the goal of allowing users to increase cloud computing capabilities more quickly by embracing adopted models and by utilizing the advice provided at each stage. The nine stages of the cloud lifecycle computing are as follows: cloud, strategy, and cloud transition planning, as well as cloud mapping and mobilization the cloud lifecycle's

model and adoption phases. aims to provide a paradigm and implementation process for cloud computing.

This stage involves the following activities: cloud modeling, reference cloud computing model, cloud model application, governance and operation of the cloud model (quality service, security, and planning), and reference cloud architecture. Stage four of cloud planning is implementation. Is the technology selection planning stage appropriate for the cloud? Activity This stage involves evaluating and choosing cloud service providers, deploying and planning cloud procurement, governing and planning cloud life cycles, and deciding whether to resume a program.

The stage of cloud implementation. is a stage in the implementation of cloud computing. Activities are broken down into stages, with the first step being a reference to the cloud implementation, which consists of a reference cloud computing model, reference cloud computing architecture, and reference cloud computing implementation. The following activities include cloud governance, planning, security, and management, cloud oversight, operations, and support, as well as activities to evaluate user feedback and cloud-based strategy. While the following describes the supporting stage for the cycle model of cloud computing adoption:

1. stage of cloud development. This level can be completed with the development of hybrid and public clouds.
2. The phase in which the cloud is combined and run. This stage foresees the requirement for combining cloud capabilities and ensuring the cloud's smooth operation.
3. stage of cloud cooperation. This phase focuses on the requirements that result from cross-cloud collaboration and cloud application composition.
4. Strong cloud stage

4.2. Stage of cloud deployment

The stages of the cloud [18] implementation strategy can be outlined in accordance with business needs using computing previously described and modified for Indonesian business conditions, including:

1. Learning Level

Business people must learn and comprehend the benefits of using cloud computing, as well as the results attained after implementation and its effects on businesses and organizations. This determines whether or not to continue adopting cloud computing.

2. Analytical Phase

The analysis is conducted in a number of steps, including:

A. Needs Evaluation
   In order to grow the business, it is necessary to identify and analyze the needs of business organizations, particularly those that are related to information technology needs. Examples include the need for a larger server, network requirements for convenient information dissemination in business organizations, and the need for convenience in promotion and service.

B. Analysis of organizational preparedness and capability Business
   This analysis aims to balance the fulfillment of business organizational capabilities with the need for information technology in business organization development. These demands in addition, at this point, organizational readiness for implementing cloud-based information technology computing must be analyzed.

C. Investigate the advantages and effects of implementing cloud computing.

In this stage, it is determined both the advantages of cloud computing deployment as well as the effects that result from its use. Business organizations can use this analysis to foresee negative effects of the adoption of cloud computing.

3. Stage of Planning and Modeling

Plan the type of cloud computing services based on an analysis of the needs, capabilities, and readiness of the business organization. You should also consider the benefits and impacts of implementing the cloud. Finally, you should design the model and architecture for using cloud services in technology information that will be used by the business organization.

4. Stage of Adoption and Implementation

Depending on the demand for cloud services that have been planned at an earlier stage, choose the appropriate vendor at this point. Setting up the cloud computing adoption process with ready data and other configurations for the cloud service to be adopted comes after choosing the best vendor. After everything else is ready for migration to cloud computing, the implementation is completed by signing up with the chosen vendor and integrating the infrastructure, applications, and data into the cloud system.

5. Stage of Management

Management is carried out to ensure that cloud services are used as intended and to control how cloud computing is implemented and used within the IT infrastructure. In addition, the management stage is helpful for assessing performance outcomes and advantages following cloud deployment computing.

6. Level of Development

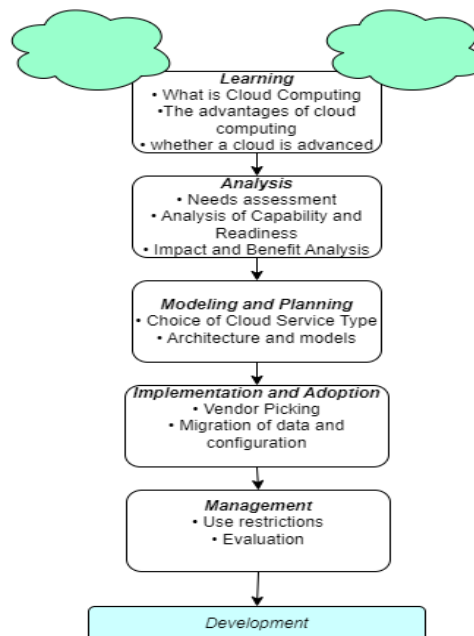The development stage is used to create cloud systems and to create new business requirements.

Figure 7. Stage of Cloud Implementation

5. CONCLUSION

One can infer from the findings and debate the following are some implications for the use of cloud computing in corporate development:

1. Cloud computing is a service that allows users to customize how much storage is used in virtual data centers.

2. Private clouds, public clouds, community clouds, and hybrid clouds are the different types of clouds that can be used. While IaaS, PaaS, and SaaS are the services available.

3. The ability to purchase IT infrastructure at the lowest cost possible and maintain IT infrastructure at the lowest cost are two benefits of [using cloud computing. Additionally, the cloud's storage capacity is extremely large and adaptable to the needs of its users.

4. The use of cloud computing in the development industry can be accomplished through cyclical cloud adoption.

5. At the cloud implementation stages, how to use the proper cloud computing Analyze the requirements of the business organization and adjust the type of service and cloud usage as necessary for business development.

6. The evolution of cloud computing to be mobile cloud for business and more particular applications between large and medium sized enterprises below, as in Small and Medium Enterprises, are suggestions that can be made in this research as a consideration for further research (SMES).

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