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The Advantages from Cloud Computing Application Towards Small Micro Medium Enterprise

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Abstract- Small Micro Medium Enterprises (SMME) is one of the business enterprises that has a prime role in the development of economic growth in Indonesia. The SMME also not only reduces the number of jobless but also improve the community's standard of living. Nonetheless, in this globalization era where the technology reaches its peak in every field, some SMME entrepreneurs have not taken advantage of IT-based business yet. On the other hand, the utilization of IT in the business field has many profitable benefits. This could make the SMME faced trouble and hard to survive in the tight competition with other bigger enterprises that had applied IT in the future. The main reason that SMME entrepreneur has not applied the IT system is that they lack fund. Moreover, cloud computing is a technology that can be used for every SMME entrepreneur without any costs. The advantages of this system utilization are to improve competitiveness, increase its flexibility, reduce costs, and to improve both agility and scalability. This research is based on a literature study that describes research's aim that is to seek advantages from cloud computing implementation towards SMME in Indonesia so they can compete with international enterprises with a bigger scale. The researcher expects that SMME entrepreneurs in Indonesia can utilize Information technology particularly cloud computing, to support their business.

***Keywords*- Cloud-computing, SMME, IT**

I. INTRODUCTION

Small Micro Medium Enterprises (SMME) is one of the factors that influence the economy of one country. In Indonesia, the SMME has an important role related to socio-economy. In the economy, SMME gives some opportunity to export goods that are from local resources. Meanwhile, in a social filed, the SMME also contributes to reducing jobless issues in Indonesia by giving a chance to get a salary in the community. Besides its advantages that given to the country, the SMME itself still far from big-scale company standards. The SMME in Indonesia faced some obstacle occurrence; some of them are the lack of company funding and less-utilized information technology and also minus of online marketing[1], [2].

As from the Delloite Access Economics that revealed some of the digital activity involving inter-SMME in Indonesia could increase economic growth of annual country income about 2%, they also stated that more than half of SMME in Indonesia (36%) is still offline, and the other (37%) has only very basic online capabilities such as computer or broadband access. Moreover, few of them (9%) have intermediate online (web or social media), and less than ten percent (9%) is an advanced online business with e-commerce capability[1]–[3].

In addition, the ASEAN Economic Society that held in 2015 that caused foreign products are easy to expand in Indonesian territory, which becomes a threat to a domestic enterprise. Foreign product that has good quality and price under domestic standard impacted local consumers to select those products. This means a trade war so that the SMME entrepreneur should utilize technology for their business development, improve the quality of the product innovatively to survive in the competition with other enterprises [4].

With many of the obstacles that challenge the SMME entrepreneur, cloud computing is one of the technologies that could support to optimize the SMME[2]. The National Institute of Standards and Technology (NIST) stated that cloud computing as a paid model as well as using pay-per-use scheme in its computing resource (network, server, storage, application and service) that always available, easy to access and depends on an accessed network by users that released with minimum effort of management[5], [6].

Cloud computing is a brand new paradigm that is the high performance of its accessed computing process that in the simplicity of mechanism so that user can configure specifically[7]–[10].

Moreover, cloud computing is also defined as a mechanism where a bunch of limitless inter-connected IT resources both infrastructure and application are owned and organized fully by the third party so that the customer can use the resources on-demand through an adequate network in a private web or a public one[11]. Cloud computing has three categories of services[1], [5], they are:

1. Software as a Service (SaaS)
   This means the software as a service. SaaS is the place of computer application that accessed through the internet, and it is clear that is not installed to local computer software. As for the example, social network such as Instagram and Facebook, message applications

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such are Line and Whatsapp, photo edit applications such are Pixlr or another app such as Google Docs, Google Sheet, Aviary, Jacobs and many more. The excellency of this SaaS it is free or paid mechanism depends on the subscribe and it could be accessed from a variety of computer and enable multitasking inter-user. The weakness of this SaaS system is general application is not suitable to a business user.

2. Platform as a Service (PaaS)
   Platform Is the software environment that its function is to develop and run the application. For example, Microsoft Windows is a platform to run Microsoft Excel application. Vendor from PaaS provides an online platform that can be accessed by the user so that the user can use this platform to develop an online application (SaaS) of themselves. The examples from PaaS are Microsoft Azure and Google App Engine. The excellency of PaaS is the rapid development with affordable costs that make the possibility of private or public spread. The weakness of PaaS is the user is limited by certain language programs and tools provided by the PaaS provider.
3. Infrastructure as a Service (IaaS)
   The infrastructure as the PaaS provider that provides storage online infrastructure to develop and run the application as desired. IaaS has four categories, and they are a private cloud, dedicated hosting, hybrid hosting, and cloud hosting. The examples of IaaS providers are Amazon Web Services and IBM.

With cloud computing, the internet user consisting of individuals, communities until the company can use the application without installing it on the local computer. Accessing private files in any computers, wherever and whenever through internet access. Cloud computing has the excellency that reduces cost, improving storage capacity, flexibility, effective and efficient. Furthermore, with those benefits that appropriate with SMME implementation. Based on the previously mentioned description, the purposes of this research are to provide a discussion regarding the advantages of cloud computing application towards SMME in Indonesia so they can compete internationally. Moreover, this research tends to inform the SMME entrepreneurs that technology utilization, particularly cloud computing, is suitable to run their business[12].

Hendri (2015) in his journal "Cloud Computing adoption to SMME in Jambi province Stated that cloud computing nowadays is one of the smart solutions to SMME in which their needs can cover by digital platforms [13]. The cloud computing provides easiness to SMME entrepreneurs so that they should not have to buy storage devices because their data are kept safely in the cloud storage; this means it reduces SMME budget[13]. The cloud computing adoption to SMME entrepreneur in Jambi province that referred to some of the framework (TAM/ Technology Acceptance Model dan ROCCA) that tends all the process of adoption from planning to implementation could be well-organized as well as in Indonesia circumstances, especially in Jambi province. The research produces strategical phases of cloud computing adoption to SMME. There are five phases in this strategy, and they are early learning, analysis, planning, adoption, migration, and management.

Rahardian, R, Linawati, dan Sudarma, M, (2018) in their journal entitled "The implementation service of Cloud Computing Software As a Service to Small Micro Medium Enterprises" revealed the cloud computing application seems suitable for SMME that has lack of funding, human resources, and information technology. The implementation of cloud computing software as a service to SMME is functioned as expected so that users do not have to invest in bigger value but pay as well as desired. Furthermore, the black box test is conducted and satisfactory of system user testing that obtained B value which means this system has reached standard and well-accepted[14].

Purwanto, I (2013) In his research entitled "Cloud Computing Technology Role in the Strategy of SMME Business" stated that cloud computing implementation is a solution for IT needs that has more complex with its effectivity and efficiency that cloud computing had. Cloud computing is also had a better prospect for every industrial stakeholder because it can be a trend in the future. The SMME needs proper strategy one of them is to understand cloud computing technology in order to improve the SMME. From an economic perspective, cloud computing technology is beneficial to SMME while attempt to optimize cloud computing technology still faces every obstacle such as lack of resources, funding, facility and supported infrastructure [15].

II. METHOD

This research is qualitative research by using a literature study research method. The obtained data in this research are from both national and international journals such are an e-book, paper, article and other literature related to this research. This approach method can be as knowledge refers to the reader and also to all SMME entrepreneurs regarding the utilization of cloud computing as a tool to support business activity.

III. RESULTS AND DISCUSSION

Many of SMME that have not to utilize the information technology optimally and less-handled information technology support and computer service to their business. Meanwhile, information technology is the support of competitive skills to improve the business. One of the main reasons that SMME has not to implement the information technology is because of a lack of funding. Cloud computing is one of the technologies that can be a solution to SMME which provides access transfer infrastructure technology to the third party (cloud computing provider) as well as the part of management, scalability and the development of this infrastructure.

A. Cloud Computing Characteristics

The National Institute of Standards and Technology (NIST) has determined five prime characteristics to the cloud computing system[6], those are:

1. Service on-demand
   Service could be provided automatically as well as the requirements by a user without human interaction such as server time, web application and storage.
2. Wide Network Access
   Users can access a resource from cloud computing through the internet without limited space and time. The data that accessed from a variety of devices such are a laptop, handphone, and PDA (Personal digital assistant). This feature is one of the reasons that made cloud computing is highly beneficial that user can move their devices such as office PC, Home PC or laptop and tablet without moving or transferring data. The user also has access to their files with the newest version.
3. Resource Collaboration
   Physical and virtual resources are collaborated to cloud using a multi-tenant model where physicians can use to serve many users in different places as their desired. In general, users do not have control and knowledge regarding the detailed location and available resources. It is usually the information that is not specific but only as country or server forms. For example, its storage, processing, memory, and network bandwidth.
4. Fast Elasticity
   The computing resource as fast and its elasticity is available and release as users demand. The user also can adjust the resource capability as desired. For example, server performance and storage can adjust to how much its sizes and its storage capacity.
5. Measured Service
   The system provides services that paid by the user based on the number of used resources, for example, the number of storages, processing, bandwidth and number of active user's accounts. The utilization of resources can be traced, controlled and reported to give some transparency to the service provider. Another characteristic of cloud computing are:
   a. Task-Centered
      The cloud computing is mainly task-centered because of its model based on what users attempt to accomplish; it is not based on hardware, software or certain network infrastructure. The users should not have to buy anything before using cloud computing resources. The users also need not pay for maintenance as long as not consume any resource
   b. Collaboration
      The cloud computing (PaaS) is enabled to the collaboration process because it can access from one user at the same time. For the record, the user should have an internet network.
   c. Environmental-Friendly
      For the reason of cloud computing that reduces in use of hardware, so the electricity consumption is less and users have to pay for all used resources. This is made the user is just trying to use the resource as much as necessary.
   d. Suitable
      Cloud is a re-configurated environment that can be adjusted according to the user's demand regarding infrastructure and application.

B. The Advantages of Cloud Computing Utilization in Business

Nowadays, cloud computing has the main role in every field, one of them is business. Cloud computing is a technology that supports the organization to keep as competitive as possible. This system can give some advantages to the business, such as improving new skills that cannot provide by any other traditional information technology. Here are some following advantages from cloud computing in business:

1. Fleksibilitas
   One of the reasons that caused many companies using this cloud computing is to improve business flexibility. The employees that are out of town can still be accessing data through any devices as long as they have an internet connection. Cloud computing is also accessed for more than one user at the same time. The employees can get the latest update to their file. So that the business CEO needs no to gather in one location to access data of the organization.
2. Reduce cost
   The organization is only paying according to what they use at the time they use cloud computing service. According to Smith, A. Bhogal, J. & Sharma, M. (2014) cloud computing paid services to help the organization to reduce operational cost [16]. The technical task is usually handled by the cloud computing service provider, and that also reduces the workload to IT staff, and it can help the organization to reduce training costs for IT staff.
3. Agility
   According to Jafar, S. et al. (2013) One of the things that make one organization different from others is the capability to respond to any user fluctuate demand [11]. Cloud provides the capability to process suitability, on-time process, product, and service. Cloud computing is also improving the agility of the organization to adapt in responding to business environment change. The server of the cloud needs time one minute to procurement and supply. Meanwhile, the physical server usually takes days.

4. Scalability
   Cloud computing provides users with adjusted resources according to business requirements. The service scalability in the cloud can help the organization to solve the problem and improve customer satisfaction. According to Michael, A. et al., 2010 cloud computing give more profits especially to the smaller organization that can broaden their necessary resources[17]. Based on Charu, A (2011) the cloud computing is also providing users to analyze the huge numbers of data in a minute because of its strength of processing time[18].

C. Cloud Computing Adoption Phase

(Rumetna,M. ,2018) here is the following phase to adopt cloud computing[19]:

1. Analysis
   Users should conduct a SWOT analysis (Strengths, Weaknesses Opportunities, Threats) in order to determine the project and the user demand is comprehended by the system. For example, law and risk management.
2. Planning
   This phase is needed to select the platform in cloud service, infrastructure and required an application to the organization then elaborate with the organization's budget. Before cloud computing is official adopted, the researcher assumes that it needs the pilot project to recognize the risk that might appear.
3. Adoption
   This is a phase where the preparation for moving/migrate to infrastructure and cloud computing is prepared. In this phase, this integration application is conducted to ensure the candidates that will function with an internal application are not move to the cloud and another cloud infrastructure. Then, the broaden plan is executed with conducting cloud system integration to do outsourcing (handled the task) to design the Service Level Agreement and the last is the memorandum of understanding with the service provider.
4. Migration
   In this phase, the preparation to migrate to the cloud is if the application and data migration can proceed. The support of the user during migration process is available, and the project control is provided to ensure the success of the migration.
5. Project Management
   In this phase, the agreed contract held by is needed user and service provider has ensured the satisfaction of both stakeholders so that this project is assumed to have done. Then the projects are documented such as the process after implementation, for example, performance evaluation and maintenance due to cloud computing installation which included in this phase.

IV. CONCLUSION

The SMME in Indonesia has still faced some problems, obstacles and some of them is lack funding, less information technology utilization and minus online marketing. Cloud computing is key to every problem faced by the SMME to utilize IT without a lot of costs so that it can improve SMME's competitive skills. Besides that, cloud computing is also providing some of the advantages to the SMME such are improving flexibility, agility, and scalability and reducing cost. The cloud computing adaptation has some phases that are analysis, planning, adoption, migration and project management. Based on this research, the SMME entrepreneurs are suggested to use cloud computing in the business process because they're a lot of advantages from its installation.

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