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1 Cloud Computing-Based Information System as an Effort for Developing Tourism Village

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1 ABSTRACT

Cloud computing-based information system is an effective way for regional development. By utilizing the existing potential dan supported by good management, the area can be used as the development of surrounding resources. Information management based on Cloud Computing can be used as a promotional medium that can improve various sectors of the region. This study aims to explain an information system based on Cloud Computing as an effort to develop a tourist village. This research is literature study. Data collection is done by reviewing and also exploring several journals, articles, data sources, as well as various information that is considered relevant to the research. The results of this study indicate that Cloud Computing in tourist villages makes the data owned can be stored on a centralized server and also has a high security guarantee. Cloud Computing is able to store data virtually, making it easier for users without having to provide storage devices such as hard drives. In addition, the tourism potential owned by the village can be better known by the wider community by the existence of the Cloud Computing-based information system. Therefore, it can be said that Cloud Computing in tourist villages is an effective, efficient and innovative step to introduce the potential of the village to the wider community. Cloud computing is very easy for tourists, because media information about village tourism can be accessed anytime and anywhere.

Keywords: Information System, Cloud Computing, Tourist Village

1. INTRODUCTION

Indonesia is a country that has a diversity of tribes, cultures, languages, races, and religions. In addition, each region also has potential that can be excelled in the economic, cultural, and natural sectors. It can be an opportunity to be used as a tourist and recreational place by utilizing the potential of the area itself.

Each region has different tourism sites and one of them is favored or becomes an icon of that area. One of the leading forms of regional tourism that is very popularly developed is the tourist village[1]. According to [2], nowadays the development of tourist villages has

become an alternative to local economic development that has been applied in various regions.

By having the development of tourist villages, it can increase the economy's community. A tourism village is a village managed by the community or village community that interacts with each other in managing care, has the awareness to play a joint role according to the skills and abilities of each individual in developing the potential of the village in a conducive manner for the growth and development of tourism in the area [3,4].

One of the ways to develop a tourist village can be through information technology. By having Information Technology (IT), the information of tourist village can be easily accessed by the public. Information Technology (IT) currently has been adopted by various aspects of life; this condition occurs because IT can collaborate with many other fields of knowledge [5]. In the development of the tourist village, it will be developed by implementing a cloud computing-based information service system. The application of cloud computing-based information systems makes people easier to manage the development of tourist villages into places that are easily visited by tourists because they have more complete information.

Cloud computing is a computing method by utilizing the internet as the main gateway to manage software, be storage media, and can be used to be infrastructure as a form of service (6). By having a cloud computing, people can easily dig up information about an area. Cloud computing service users can access files in real time through the internet without needing to install a local computer [7]. Therefore, the public can find out accurate information about the conditions that occurred at that time.

Cloud computing is a flexible internet usage model, convenient, on demand, fast access with configuration and integrated systems (for example, networks, servers, storage, applications, and services) that can quickly store and provide data for service centers [8]. By using computing, cloud computing system can store and share easily with several customers through different devices or networks, for example with computers, laptops, cellphones, and so on [9,10].

Cloud computing is not a new technology but it is a combination of grid contribution, distributed system added with some new ideas so that resulting in a high level of operation and service to users[7]. The use of cloud computing can provide benefits for both parties; for visitors can provide clearer and easier access to information and for business owners in the tourist village can manage their own business in the cloud computing.

Cloud computing is the right method to develop a tourist village. Therefore, by using cloud computing, it can make it easier for managers to promote tourism in their area. Based on the description above, the researcher

gives the title "Cloud Computing-based Information System as an Effort for Developing Tourism Village"

2. LITERATURE REVIEW

Rapid technological advances require us to keep up with existing technological developments. Computers are one of the technologies that have a major influence on human life, especially in terms of work. New inventions always appear to update the system. Like cloud computing, it is a technology that combines and develops internet-based computer technology. By having technology, all data from the server is stored on the internet as well as software stored on the internet server. Based on research [11], related to a cloud computing-based information system to improve performance efficiency in places of worship that can be accessed by the internet, this system is used with the aim of overcoming problems regarding the management of places of worship, such as the number of congregation registrations. This system makes it easier for pilgrims to register independently through the application.

2 The use of cloud computing systems in government service systems is designed to facilitate and be able to perform service activities quickly and cheaply. As explained by [12], some of the uses of cloud computing for government: a) cloud computing works quickly, integrates data easily and provides timely feedback, b) cloud computing also helps the government to store data with large capacity, c) because of its speed, government performance becomes effective, d) this system also easily distributes data to various providers quickly, e) low cost, making it easier for the government to allocate its budget [12,13]. The work of cloud computing systems in the government is as illustrated below:

Current E-Government	Government Cloud
<ul style="list-style-type: none"> • Limited services • Information island • Network isolation • Rigid configuration • Respective management • Respective deployment • High cost, Low RI 	<ul style="list-style-type: none"> • Ubiquitous services • Standard APIs • Business Collaboration • Dynamic distribution • Professional teams • Unified Supervision • Low Cost, High RI

Figure 1 Comparison of e-government and government cloud [12]

According to [14,15], the information system provided to the community is more emphasized on the potential of tourist villages. A good strategy can be done by promoting tourism villages using information and communication technology. This is because all fields are dependent on the internet so that media promotion can be done using the website. The purpose of using the website as a promotional media is to make it easier for local and foreign tourists to be able to access the location. The information menu on the website also varies, including the name of tourist objects, homestays, culinary, and transportation. The website is presented using the waterfall method, which is a type of application development that is included in the classic life cycle which is described as a waterfall, where each stage is done from top to bottom.

Based on research [6], cloud computing on the website makes it easy to access at any time. The use of cloud computing also makes it easier for owners or admins to publish more widely. The information presented on the website has been created by a system that will make it easier for visitors to make reservations at tourist attractions. By using technology, it will be easier for visitors to save time for reservations without having to come first. The application of software as a service computing is a service provider that utilizes infrastructure and platforms. This study also uses a system analysis method which is carried out after interviews with informants who have already managed using cloud computing. System architecture design is also used in this study, because it is an illustration of how the reservation will be planned.

Research conducted by [16] states that developing tourist villages that do not yet have any type of information system. The development of information systems through the web is carried out with POKDARWIS (Tourism Awareness Group). This tourist village does not yet have adequate information and communication technology, even though for now the tourism village promotion media is very much needed to get to know the facilities provided by the tourist village. By implementing of this web-based information system, it will make it easier for time management and human resources as a tourist village manager. The first thing to do in implementing this information system is conducting surveys and observations related to the number of human resources, facilities and infrastructure, institutions, and products of cluster members. Furthermore, the formulation and analysis of the needs of the tourist village is carried out.

The next stage is implementation assistance. The last stage of this program is implementation. At this stage, the village information system must be good enough to be promoted to the community. This system can be used as a means of monitoring group businesses and as a data center.

Based on research [15], cloud computing as a village public service assistant becomes more integrated because the stored data becomes more secure. This study uses a smart village application that helps the community to make it easier for village administration and transparency in the management of BUMDes (village-owned enterprises). This cloud computing-based smart village is applied in the form of an android platform and the data management is directly into cloud computing, so the data stored can be a lot because this system is able to accommodate a large space.

3. METHOD

This research is library research. Library research is a reference that is used as research material obtained as a reference in a research to collect and evaluate research on the topic of discussion [17]. The library research in this study was used by researchers to obtain relevant information related to the topic of discussion, while in data collection was carried out by reviewing and using previous research to obtain data sources. The sources of literature used in this research are within the last five years, and there are novelties to these journals. Literature data processing is carried out with Nvivo 12 Plus software using the clustered by word similarity feature [18,19].

Library research is used in this research because the data presented are fixed, easy to find, and can be accounted for because they have gone through research procedures. The purpose of using a library research is to provide information to readers related to other research related to current research which includes a summary, evaluation of previous research and as a review made by the author from several library sources that have been read through articles, information from the internet and books [20].

4. RESULTS AND DISCUSSION

Based on a search on the number of internet users in Indonesia, by early 2021 it had reached 202.6 million people. This number has increased by 15.5% or 27 people compared to the beginning of 2020. Of course, this number will continue to increase from year to year.

From this phenomenon, it is hoped that the Indonesian people will not only become consumptive internet users but also be able to become news producers. Today many people have used the internet as a medium for improving one's economy. In fact, not only for personal economic interests, but many people have succeeded in opening job vacancies for others by utilizing internet technology. The internet has made all aspects of life easier. By using internet, people will communicate more quickly with anyone even though they are thousands of kilometers away. For this reason, it is necessary to introduce a technology called *cloud computing* so that the use of technology is more beneficial for personal life, government agencies, and the general public [13,21]. Seeing that more and more villages in our country are smart in utilizing their potential, cloud computing is very necessary to be introduced to the general public.

4.1 The Effectiveness of Cloud Computing in Tourism Villages

Nowadays, tourist villages have become a special concern with the presence of new innovations. In tourist villages, cloud computing comes with many benefits and advantages. *Cloud computing* utilizing internet-based computing technology without using additional devices such as hard drives. In addition, the cost is affordable, as well as unlimited storage. In this case, cloud computing can act as a medium for promotion and storing data about tourist villages. Cloud computing has become a promotional medium for tourist villages, so how does it work? It works using a website owned by a tourist village. This website contains a list of all tourism potentials, both culinary and entertainment. In addition, the website can provide complete tourist attractions in the village. The website can also provide opening and closing hours, tourist facilities, photos of tourist attractions, menu lists for culinary tours, and can even order food or make reservations through the website.

The use of cloud computing in tourist village services makes data stored in a centralized server. Therefore, people don't have to worry about where to store their data because the data is guaranteed to be safe on one server. This is the advantage of cloud computing, which must be adopted by the tourist village community so that they can do *branding* and tourism promotion can be maximized. This of course can make tourist village destinations widely known by the general public. Of

course, this website is very effective to implement, because by using the website people are able to access it easily, anywhere and anytime(5). Cloud computing is a technology that has the ability to share resources in the form of storage memory so that all people are able to access them. By using this method, of course, cloud computing is very effective and efficient used in tourist village because it can save time and costs.

There are so many advantages that can be obtained from the application of cloud computing in tourist villages, namely the growing and increasingly independent tourist villages. The speed of ordering at one of the destinations in a tourist village, for example, as well as the speed of service provided to tourists who place an order is certainly very time-saving. If we know most of vendors Cloud computing does not require hardware infrastructure but uses software. The software used in cloud computing can move and even change the website according to the needs of the user. This is what makes cloud computing designated as a development tool in tourist villages because it can be easily changed and moved. In addition, the amount of cloud computing storage can be determined by each vendor [14]. In this case, of course, each tourist spot vendor does not need to update the storage to a larger size. The use of cloud computing information systems can be a promotional medium and as an information provider that provides complete and specific information about tourist villages[5].

4.2 Implementation of Cloud Computing in Tourism Village Development

The development of a tourist village requires a promotional media that shows that the village has a decent potential to be known by the public. By using cloud computing, it is easier to manage time, finances, the number of human resources and develop the tourist village. Cloud computing has a large enough capacity to store data. By using cloud computing, the stored data can include many and all forms of data to support the development of tourist villages, namely promotional media both from photos and videos. In this implementation process, of course, it also involves the community in terms of participation. Community participation in the implementation of cloud computing is needed to support the development of tourist villages in digital information systems.

The Ministry of communication and information technology as one of the focuses in terms of technology has implemented this system since 2013 [22]. Information delivery through cloud computing servers can be reached by the entire community of internet users. In the era of 4.0 the use of information technology is growing rapidly and is required to be able to follow it. The first thing before implementation is conducting a survey of the condition of the tourist village, related to the facilities and infrastructure needed in the development of the tourist village. The next step is cloud computing security governance. It is important to do because to make sure that the data uploaded on the server is secure. The next stage is monitoring the cloud computing system. The last stage is system evaluation to find out the constraints during the implementation process.



Figure 2 Items clustered by word similarity by Nvivo 12 Plus

Weaknesses in the process of implementing cloud computing in the development of tourist villages is in terms of human resources [23,24]. This is due to the lack of experts who can operate information technology or use the internet for the elderly. The second obstacle is security [24,25]. In Indonesia, people still think that data will be safe if it is stored in hardware or physical form, while cloud computing does not store data in physical form. The third obstacle is internet speed. This happens if the cloud computing is done in the village, it will be constrained by the network. The use of cloud computing requires a strong and stable internet connection [6].

5. CONCLUSION

Based on the results of the research above, it can be concluded that the use of cloud computing in the development of tourist villages is very effective and efficient. Cloud computing is able to store data on one server without using additional tools such as hard drives. By using cloud computing, tourist village destinations can be easily recognized by the wider community.

Vendors in tourist villages can also take advantage of cloud computing as a branding media and promotional media for their tourist villages. However, it should be understood that in village development using cloud computing also has obstacles; they are human resources who are not skilled in technology, lack of public trust in data security, and the last is network speed which is sometimes unstable and less strong.

AUTHORS' CONTRIBUTIONS

The study was written by 5 authors. The first writer designed the research design, implemented and analysed the research. The second and third writers guided the writing of the article. The fourth and fifth writers helped the implementation of the research.

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