APPLICATION OF CLOUD COMPUTING FOR THE DEVELOPMENT OF KNOWLEDGE MANAGEMENT SYSTEM WEB BASED NETWORK

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ABSTRACT

Developing Knowledge Management System using cloud computing is a concept that integrates knowledge management (KM), with the process of finding, selecting, seeking, organizing and presenting data or information. KMS Network is a system that provides web-based content (contains data, information, & knowledge) as an increase in knowledge mastery, to help the needs of users or users who have difficulty when looking for sources of information. Kms is developed through the adoption of cloud computing (CC) technology, which has large amounts of data storage using web servers or cloud servers online. In the research application of cloud computing for the development of knowledge management system web-based network, has a speed in accessing the average article data 0.7833 seconds / page, with the average page load memory 2.0 MB, search articles using the method "Sequential Search Or Sequential Searching ".

Keywords: *Cloud Computing, Knowledge Management System Network, Sequential Searching.*

1. INTRODUCTION

Currently a lot of sites provider data and information from the internet that is Individuals such as blog articles, personal web, groups or large organizations such as: academia.edu, wikipedia.com, pintarkomputer.org, and much more. Where in the presentation provides information in a scattered, the actual information has a purpose and content or weight of the same, only different from the presentation and delivery of explanations. This is what causes information or data can not fully be easily understood by users or data seekers.

1.1. Background

Currently Knowledge Management System (KMS) is one way of information management that utilizes knowledge in an easy and effective way, KMS aims to find, select, collect, organize, search, and provide information that can improve insight and knowledge and facilitate in search Sources of data and information collected into a knowledge with more detailed and complete information. Helped using cloud computing technology to simplify the process of data storage using a server consisting of database server, web server (using min.2 server) and application server with assisted cloud from google video (youtube).

Therefore, in this final project conducted a research entitled "Application of Cloud Computing for Development Knowledge Management System Web Based Network". In this research is expected to provide new solutions in development and management Network knowledge. The process of the KMS itself includes data collection, sorting or sorting of data information, then verifying the truth through the structure of the index that will be created, in accordance with the information to be presented, which aims to facilitate access to data information articles easily and quickly.

1.2. Formulation of the problem

Some of the main issues related to the research are as follows:

1. How to apply cloud computing technology in the development of Knowledge Management System Web-based Network?
2. How to make the information system application easily accessible and have large data storage, by utilizing web server assisted by cloud from Google Video (Youtube)?

1.3. Scope of problem

Limitations of the problems in this study are as follows:

1. Data collection through good materials from the internet, online paper refrence or seminar results papers
2. The data storage of the article using server consists of database server, web server (using min.2 server) and application server with assisted cloud from google video (youtube)
3. The data generated in the form of information from all materials about the utilization and development of the network.

1.4. Research purposes

The purpose of this study is to produce a presentation of knowledge that can be accessed quickly, precisely, and easily developed. Provides convenience to the user in finding information with the application of cloud computing technology, which can be accessed online anywhere and anytime, facilitate access and storage of data that is scalability.

1.5. Research methodology

The research was conducted by using V-model method. One of the advantages of the V-Model is that the v-model is flexible, each process of searching the data to be entered into the system, must be through the testing first, in Figure 1 the V-Model method is described the relationship between the software development stage with the testing phase as follows :
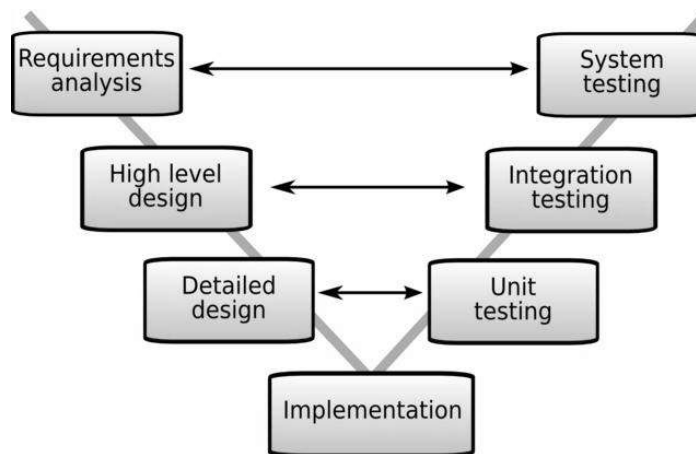

Figure 1 V-Model Method

2. THEORETICAL BASIS

Theoretical basis contains the theories that support in making research and system.

2.1. Knowledge Management System

One of the definitions of knowledge management is the process of finding, selecting, organizing, searching and presenting information data in a particular way that can increase the mastery of knowledge in a specific field of study. Have a goal, namely facilitate the flow of knowledge to be able to support & facilitate information for the better.

2.2. Cloud Computing

The definition of cloud computing to provide computing services, data storage, and applications can be accessed through Internet media from a centralized data center. For Internet application developers, cloud computing is a scalable Internet-based application development platform.

3. ANALYSIS AND DESIGNING
3.1. System analysis

Stages of system analysis have a purpose to find, identify, evaluate problems, system bottlenecks. So that can be repaired. The data used in the writing of this final task is to refer to online refrensi either in the form of online local paper journal throughout Indonesia, and international, documents in the form of papers from the results of national seminars.

3.2. System planning
3.2.1 System Flowchart

Flowchart is a graphical representation that connects between a process instructions with other processes in a program that will be created. Flowchart article search As in the picture 2 below:

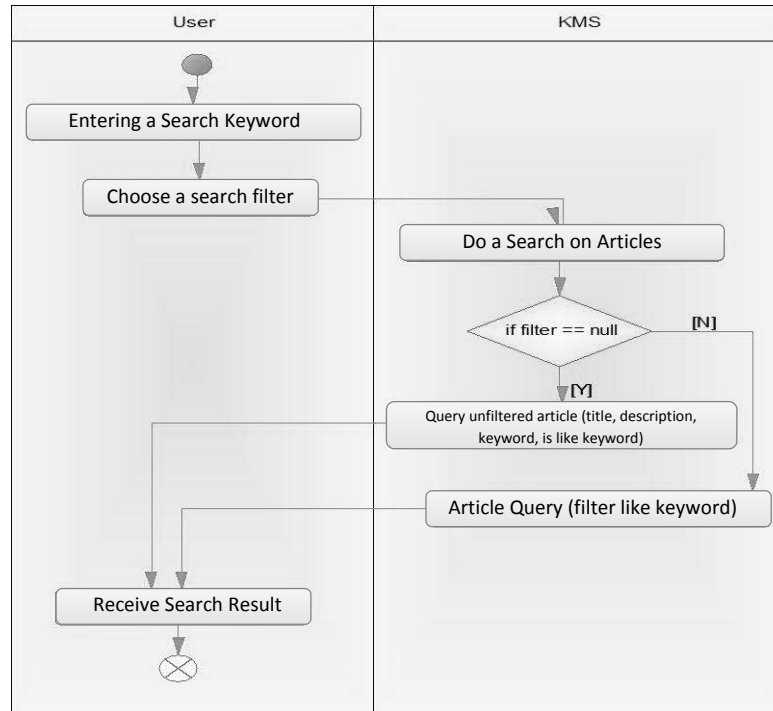1) Flowchart Application Search Or Search Data Articles On System

Figure 2 Flowchart Search Article Data
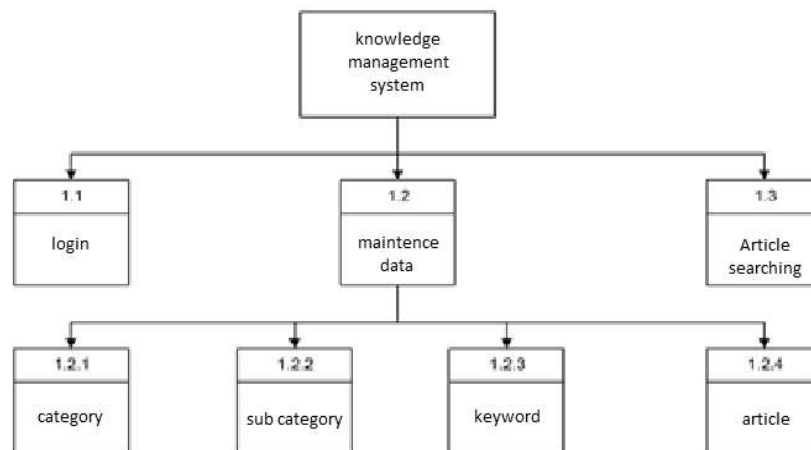
3.2.2 Tiered Diagrams

Figure 3 Tiered Diagram of KMS System Explanation The tiered diagram in Figure 3 follows:

From Figure 3 Tiered diagram of KMS system, aims to know the flow system. System in kms is divided into 3 processes, namely login, data maintenance, and article search. Login admin, maintenance data to know the course of information / data based on categories, sub categories, keywords, and articles, while the search for articles intended for the user.
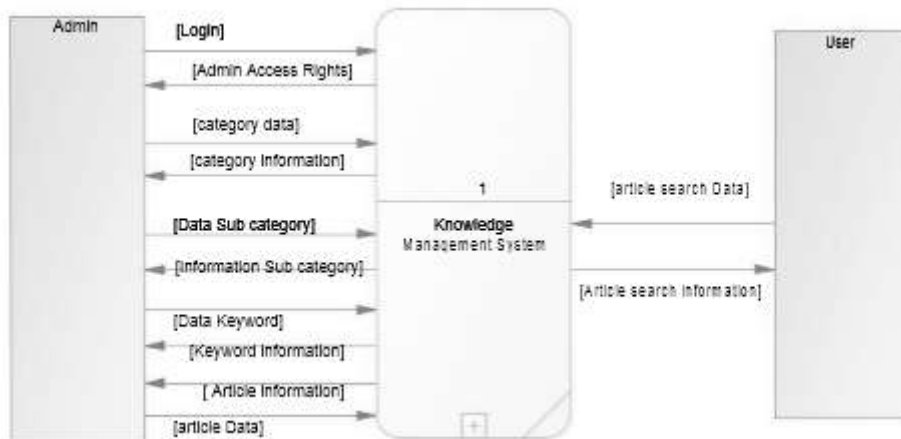
3.2.3 Data Flow Diagram Level 0

Figure 4 Data Flow Diagram Level 0

Explanation The diagram is tiered in Figure 3 below:

From Figure 4 Data Flow Diagram level 0, Admin can use Login, served as a system controller, the main task of input data / information after the data selection process is complete. Admin is also responsible for updating all data consisting of: Category, Sub Category, Keyword, and Articles. Knowledge Management System will receive input search data from the user, and will provide the results of information search articles from the user. Users perform search data on the system, the system will process and the system will display the results of article search information from the user.
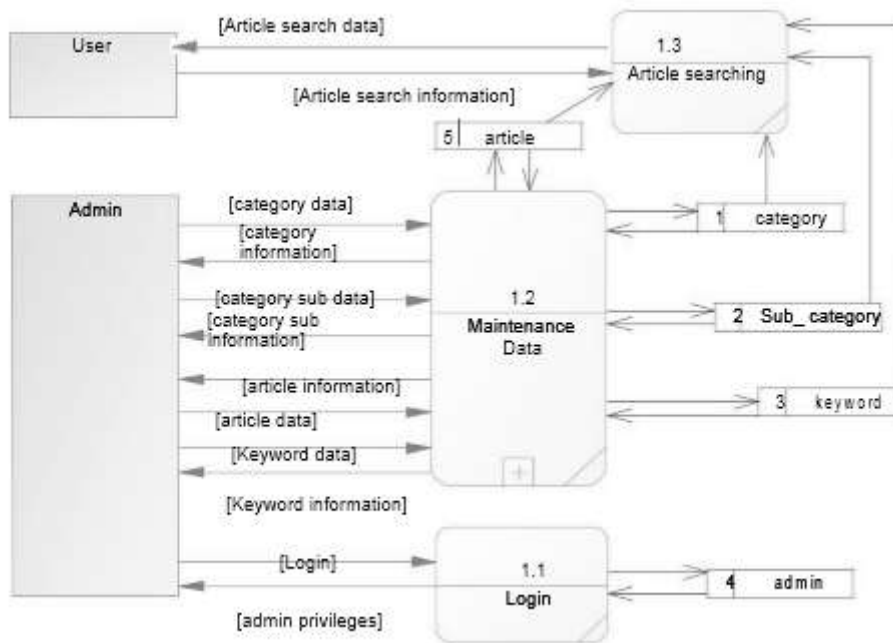
3.2.4 Data Flow Diagram Level 1

Figure 5 Data Flow Diagram Level 1

Explanation The diagram is tiered in Figure 4 below:

From Figure 5 Data Flow Diagram level 1, Users make the process of information search data, users can search the data as needed by looking by category, sub_kategori, and keywords from the article information. Admin

has access privileges to login, and is tasked with inputting data categories to be processed by system maintenance data, and entering automatically to category data in search of articles, as well as data sub categories, article data, and keyword data. Maintenance data will perform the requested process by searching articles from users, and generate information that can be accessed by the user.
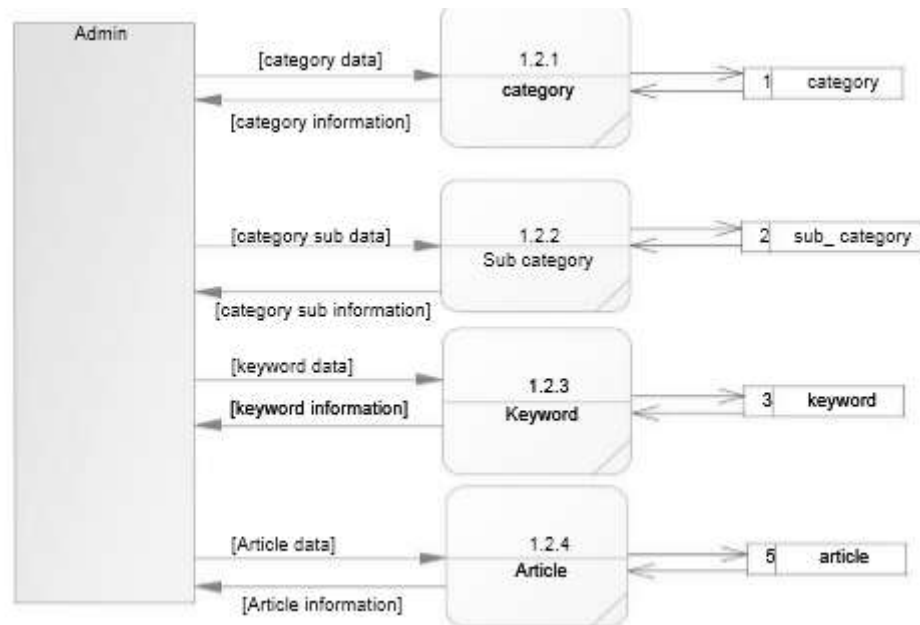
3.2.5 Data Flow Diagram Level 2

Figure 6 Data Flow Diagram Level 2

Explanation The diagram is tiered in Figure 4 below:

From Figure 6 Data Flow Diagram level 2, In this data flow diagram level 2 there are 4 advanced process of category, sub-category, keyword, and article. From the sub category admin can enter data sub categories and then stored in the database, which will generate sub category information. The next process is the keyword, from the admin can input keyword data, the data will be saved to the next database can generate keyword information on the admin. Articles, admins entering data articles and then stored into the database, the system can generate information articles on the admin.

4. RESULT & DISCUSSION

After testing the data from the search words that have been done, the results obtained is the number of data articles, as well as the contents of articles such as data document, pdf, ppt or even video, has an important role in the process of loading the page data and load memory that affect the speed Access when opening the article page. Because in each article data has a large amount of different data capacity, system testing is done, the category of articles that most often appear or much in the search by the user is the article "Network", with the proof of search results from network and network keywords on testing System, data network and network articles most articles found

Based on the results of the test, it was concluded that in the study of cloud computing application for the development of knowledge management system web-based network, has a speed in accessing the article data averaged 0.7833 seconds / page, with the average page loading memory of 2.0 MB, with Articles that are displayed randomly or erratically, following the input that users do in the search field.

4.1. RESULT OF DATA TESTING ANALYSIS

Table 1 List of Analysis of Data Testing Table

No	Search word	Load Time	Load Memory	Number of Articles
1	Network	0,0568 Second	2,11 MB	155
2	Subnetting	0,0545 Second	1,12 MB	25
3	TCP	0,0524 Second	1,24 MB	29
4	Routing	0,0513 Second	1,39 MB	50
5	SNMP	0,0525 Second	1,2 MB	23
6	Wireless	0,0533 Second	1,71 MB	98
7	Network	0,0736 Second	2,22 MB	172
8	Computer	0,0662 Second	1,6 MB	81
9	Network Analysis	0,0515 Second	1,09 MB	6
10	Microtic	0,0540 Second	1,15 MB	16
11	Topology	0,0500 Second	1,14 MB	14
12	Network Architecture	0,0470 Second	1,09 MB	7
13	IP Address	0,0535 Second	1,39 MB	51
14	Router	0,0531 Second	1,47 MB	63

| 15 | VLAN | 0,0548 Second | 1,19 MB | 21 |

From table 1 the list of data testing above, can be obtained the following explanation:

1. The first data analysis using the keyword "Network", can be obtained page load time about 0.0568 seconds, requires load memory as much as 2.11MB, with the number of articles as many as 155 articles.
2. Testing the second data using the keyword "Subnetting", can be obtained page load time 0.0545 seconds, requires 1.12 MB of memory load, with the number of articles appearing as many as 25 articles. And so on through the same process.

Comparison of data analysis results:

From some of the test results above table, can be seen in table 2 comparison of data, of the many keywords entered in the search, the most widely featured article is the first keyword "Network", the second "Network", the following data comparison:

Table 2 Comparative Data Table

Category	Network	Network	Number of Differences
Load Time	0,0736 Second	0,0568 Second	0,168 Second
Load Memory	2,22 MB	2,11 MB	0,11 MB
Number of Articles	172 Articles	155 Articles	17 Articles

Basically, the system on the load memory of each sub category, there are several possible factors that occur when testing data, take place, including the factor of internet access that may be unstable, the article data of each sub category is not complete or not yet reach data That is enough, articles that have more video content have a greater load of memory than articles that do not have video, pay attention to the input of search words done, such as word spelling, capital letters also affect the results of articles to be displayed.

5. CONCLUSIONS & SUGGESTIONS

5.1. Conclusion

Based on the results of the test, it was concluded that in the study of cloud computing application for the development of knowledge management system web-based network, has a speed in accessing the article data averaged 0.7833 seconds / page, with the average page loading memory of 2.0 MB, with Articles that are displayed randomly or erratically, following the input that users do in the search field. The article category that most often appears or much in the search by the user is the article "Network", with the verification of search results 7 Of network and network keywords on system testing, network and network article data most articles found.

5.2. Suggestion

In the development of cloud computing itself, the access speed of the system is very influential on internet access used. Because cloud-based servers are connected, system errors such as errors or slow access in loading pages can occur, if the server is experiencing trouble or maintenance. Input data article system still using manual system that requires admin to enter categories and sub categories manually, hopefully the next research can develop the input data article that can manage articles directly in order to automatically grouping articles based on their respective categories.

6. REFERENCES

[1] Akbar Iin, (2013), Cloud Computing Implementation Web Based Eyeos At Musi Rawa University, Thesis, Informatics Engineering, University of Bina Dharma, Palembang

[2] Agung Rico Firmansyah, (2013), Design of Learning Content Management System Integration In Cloud-Base School Information System as Improved Excellence Competitiveness, Thesis, College of Information and Computer Management (STMIK AMIKOM), Yogyakarta.

[3] Al Fatta Hanif, Marco Robert (2015), Development Analysis And Information System Design Academic Smart-Based Cloud Computing At State High School (Smun) At Yogyakarta Special Region, College of Information and Computer Management (STMIK AMIKOM), Yogyakarta.

[4] Dzikrullah Fahmi, Sulistyo Selo, Akhmad Setiawan Noor, (2015), Based Intrusion Detection System

[5] Mobile Agent In Cloud Computing (Cloud Computing), Department of Information Technology University of Gadjah Mada, Yogyakarta.

[6] Fachrurrozi.M, S.Si, M.T. (2011), Webos Development as One of the Implementation of Concepts Cloud Computing, NO. 509e / UN9.1.9 / PL / 2011, Faculty of Computer Science, University Sriwijaya.

[7] Cloud Computing. (2012, January 16). Cloud Computing. Retrieved 13 December 2012, http: // rahman-Uii.blogspot.com/2012/01/cloud-computing_16.html.

[8] Understanding and Development of Cloud Computing (2012, March 23). Cloud Computing? What is that? Retrieved 13 December 2012, http://achmad.glclearningcenter.com/2009/04/21/cloud- Computing-what-is