

INTERNATIONAL CONFERENCE



The Second International Conference on
Engineering and Technology Development

2nd ICETD 2013

27, 28, 29 August 2013, Bandar Lampung, Indonesia



PROCEEDINGS



In
Cooperations
With :



الجامعة الإسلامية العالمية
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA
بوتنيو وسنغافورة والقطر والبحرين



Hosted by :

Faculty of Engineering and Faculty of Computer Science,
Bandar Lampung University (UBL), Indonesia

2nd ICETD 2013

THE SECOND INTERNATIONAL CONFERENCE
ON ENGINEERING AND TECHNOLOGY DEVELOPMENT

28 -30 January 2013
Bandar Lampung University (UBL)
Lampung, Indonesia

PROCEEDINGS

Organized by:



Faculty of Computer Science and Faculty of Engineering
Bandar Lampung University (UBL)
Jl. Zainal Abidin Pagar Alam No.89 Labuhan Ratu, Bandar Lampung, Indonesia
Phone: +62 721 36 666 25, Fax: +62 721 701 467
website : www.ubl.ac.id

PREFACE

The Activities of the International Conference is in line and very appropriate with the vision and mission of Bandar Lampung University (UBL) to promote training and education as well as research in these areas.

On behalf of the Second International Conference on Engineering and Technology Development (2nd ICETD 2013) organizing committee, we are very pleased with the very good response especially from the keynote speaker and from the participans. It is noteworthy to point out that about 80 technical papers were received for this conference.

The participants of the conference come from many well known universities, among others : University Kebangsaan Malaysia – Malaysia, APTIKOM – Indonesia, Institut Teknologi sepuluh November – Indonesia, Surya Institute – Indonesia, International Islamic University – Malaysia, STMIK Mitra Lampung – lampung, Bandung Institut of Technology – Bandung, Lecture of The Malahayati University, B2TP – BPPT Researcher – lampung, Starch Technology Center – Lampung, Universitas Islam Indonesia – Indonesia, Politeknik Negeri Malang – Malang, University of Kitakyushu – Japan, Gadjah Mada University – Indonesia, Universitas Malahayati – Lampung, Lampung University – lampung, Starch Technology Center – Lampung, Universitas Riau – Riau, Hasanuddin University – Indonesia, Diponegoro University – Indonesia, King Abdulaziz University – Saudi Arabia, Parahyangan Catholic University – Indonesia , National Taiwan University– Taiwan, Surakarta Christian University – Indonesia, Sugijapranata Catholic University – Indonesia, Semarang University – Indonesia, University of Brawijaya – Indonesia, PPKIA Tarakanita Rahmawati – Indonesia, Kyushu University, Fukuoka – Japan, Science and Technology Beijing – China, Institut Teknologi Sepuluh Nopember – Surabaya, Researcher of Starch Technology Center, Universitas Muhammadiyah Metro – Metro, National University of Malaysia – Malaysia.

I would like to express my deepest gratitude to the International Advisory Board members, sponsor and also to all keynote speakers and all participants. I am also gratefull to all organizing committee and all of the reviewers who contribute to the high standard of the conference. Also I would like to express my deepest gratitude to the Rector of Bandar Lampung University (UBL) who give us endless support to these activities, so that the conference can be administrated on time

Bandar Lampung, 29 August 2013-08-26

Mustofa Usman, Ph.D
2nd ICETD Chairman

PROCEEDINGS

2nd ICETD 2013

The Second International Conference
On Engineering And Technology Development

28 -30 January 2013

INTERNATIONAL ADVISORY BOARD

Y. M Barusman, Indonesia
Ahmad F. Ismail, Malaysia
Mustofa Usman, Indonesia
Moses L. Singgih, Indonesia
Andreas Dress, Germany
Faiz A.M Elfaki, Malaysia
Warsono, Indonesia
Raihan Othman, Malaysia
Zeng Bing Zen, China
Tjin Swee Chuan, Singapore
Khomsahrial R, Indonesia
Rony Purba, Indonesia
Alex Tribuana S, Indonesia
Hon Wei Leong, Singapore
Imad Khamis, USA
Rozlan Alias, Malaysia
Rudi Irawan, Indonesia
Gusri Ibrahim, Indonesia
Jamal I Daoud, Malaysia
Riza Muhida, Indonesia
Heri Riyanto, Indonesia
Agus Wahyudi, Indonesia
Lilies Widojoko, Indonesia

PROCEEDINGS

2nd ICETD 2013

The Second International Conference
On Engineering And Technology Development

28 -30 January 2013

STEERING COMMITTEE

Executive Advisors

Dr. M. Yusuf S. Barusman
Andala R. P. Barusman, MA.Ec

Chairman

Mustofa Usman, Ph.D

Co-Chairman

Dr. Ir. Hery Riyanto, MT
Ahmad Cucus, S.Kom., M.Kom

Secretary

Marzuki, S.Kom., M.Kom
Maria Shusanti Febrianti, S.Kom., M.Kom

Technical Committee

Indyah Kumoro, ST. IAI
Ardiansyah, ST., MT
Sofiah Islamiah, ST. MT
Taqwan Thamrin, ST., MSc
Dina Ika Wahyuningsih, S.Kom
Agus Sukoco, M.Kom
Hj. Susilowati, ST. MT
Haris Murwadi, ST, MT
Robby Yuli Endra, S.Kom., M.Kom
Fenty Ariani, S.Kom., M.Kom

Treasure

Samsul Bahri, SE
Dian Agustina, SE

PROCEEDINGS

2nd ICETD 2013

The Second International Conference
On Engineering And Technology Development

28 -30 January 2013

ORGANIZING COMMITTEE

Chair Person

Dr. Ir. Hery Riyanto, MT

Vice Chair Person

Yuthsi Aprilinda, S.Kom., M.Kom

Treasure

Dian Agustina, S.E

Secretary

Aprizal, ST. MT

Ir. Tjejeng Sofyan, MM

Ir. Muhammad Zein, MT

Ir. Bambang Pratowo, MT

Special Events

Ir. Juniardi, MT

Ir. Indra Surya, MT

Ir. Sugito, MT

DR. Baginda Simaibang, M.Ed

Berry Salatar, S.Pd

Yanuar Dwi Prasetyo, S.Pd.I., M.A

Receptionist

Ir. Najamudin, MT

Kunarto, ST. MT

IB. Ilham Malik, ST. MT

Ir.A Ikhsan Karim, MT

Ir. Asikin, MT

Usman Rizal, ST., M.MSi

Transportation and Acomodation

Irawati, SE

Desi Puspita Sari, S.E

Tanto Lailam, S.H

Ilyas Sadad, S.T., M.T

Publication and Documentation

Ir. Indriati Agustina Gultom, M.M

Noning Verawati, S.Sos

Hesti, S.H

Rifandi Ritonga, SH

Violita, S.I.Kom

Cosumption

Dra. Yulfriwini, M.T

Wiwin Susanty, S.Kom., M.Kom

Fenty Ariani, S.Kom., M.Kom

Reni Nursyanti, S.Kom., M.Kom

Erlangga, S.Kom

Arnes Yuli Vandika, S.Kom

Facility and Decoration

Siti Rahma Wati, SE

Dina Ika Wahyuningsih, S.Kom

Zainal Abidin, SE

Ahyar Saleh, SE

Eko Suhardiyanto

Wagino

Sugimin

Table Of Content

Organizing Committee	i
Table Of Content.....	v
Keynote Speaker	
1. Recent Advances in Biofuel Cell and Emerging Hybrid System Abdul Aziz Ahmad and Raihan Othman	1
2. Waste Utilization Study Tailing Gold Mine in Way Linggo-Lampung, as Fine Aggregate Materials for Producing Mortar Materials based on concept of Green Technology Lilies Widodojoko & Susilawati	8
3. Infrastructure Health Monitoring System (SHM) Development, a Necessity for Maintance and Investigation Prof. Dr. Priyo Suprobo, Faimun, Arie Febry	17
4. Four Phases Quality Function Deployment (Qfd) By Considering Kano Concept, Time And Manufacturing Cost Prof. Dr. Moses L Singgih, Dyah L. Trenggonowati, Putu D. Karningsih	22

Speaker

1. Comparative Analysis for The Multi Period Degree Minimum Spanning Tree Problem
Wamiliana, Amanto, and Mustofa Usman..... 39
2. Choosing The Right Software In Supporting The Successful of Enterprise ERP Implementation
Yodhie Yuniarthe, Idris Asmuni..... 44
3. Climate Adaptive Technology In Maintaining Vernacularism Of Urban Kampong Case study: Kampung Adat (Indiginous) Mahmud, Bandung District, West Java
Marcus Gartiwa..... 50
4. The Prospect Of Diesohol In Facing Fossil Fuel Crissis
M.C. Tri Atmodjo..... 63
5. The Potential Of Agriculture And Forestry Biomass Wastes As Source Of Bioenergy
Hardoyo..... 66
6. The Importance of Education Facility as Sustainable Urban Generation Tool
Fritz Akhmad Nuzir, Haris Murwadi and Bart Julien Dewancker 71
7. The implementation of Secton Method for Solving Systems of Non Linear Equations
Nur Rokhman 80
8. Quality Control Analysis Into Decrease The Level Defects On Coffee Product
Heri Wibowo, Sulastri and Emy Khikmawati 85
9. Public Transpotion Crisis In Bandar Lampung
Ida Bagus Ilham Malik 89
10. Geospatial Analysis of Land Use Change in Way Kuripan Watershed, Bandar Lampung City
Candra Hakim Van Rafi'1., Dyah Indriana Kusumastuti2., Dwi Jokowinarno..... 99
11. Material Utilization Technology Of Agriculture And Forestry Waste
Hardoyo..... 105
12. The Supply Chain System Of Cassava On The Tapioca Industry
Hardoyo..... 108
13. Glass Technology In Natural Light Glasses On Aperture Element In The Architecture World
Muhammad Rija & MT Pedia Aldy 113

14. An Eksperimental Permeable Asphalt Pavement Using Local Material Domato Stone On Quality Of Porous Asphalt Firdaus Chairuddin, Wihardi Tjaronge, Muhammad Ramli, Johannes Patanduk	117
15. Coordination Of Architectural Concepts And Construction Systems Eddy Hermanto.	129
16. Seismic Assessment of RC Building Using Pushover Analysis Riza Ainul Hakim.	136
17. Viscosity and Liquidity Index Relation for Elucidating Mudflow Behavior Budijanto Widjaja and Shannon Hsien-Heng Lee.	143
18. The Use of Pozzolanic Material for Improving Quality of Strontium Liquid Waste Cementation in Saline Environment during Nuclear Waste Immobilization Process Muhammad Yusuf, HayuTyasUtami, Tri SulistiyoHariNugroho, SusetyoHarioPutero	148
19. Geospatial Analysis Of Land Use And Land Cover Changes For Discharge At Way Kualagaruntang Watershed In Bandar Lampung Fieni Yuniarti, Dyah Indriana K, Dwi Joko Winarno.	153
20. Wifi Network Design For High Performance Heru Nurwarsito, , KasyfulAmron,BektiWidyaningsih	161
21. Studi on The Efficiency Using Nature Materials in The Structural Elements of Reinforced Concrete Beam Yasser , Herman Parung , M. Wihardi Tjaronge, Rudy Djamaluddin.	167
22. The Research Of Slow Release Nitrogen Fertilizer Applied In Sugarcane (Saccharum Officinarum) For Green Energy Bioethanol M.C. Tri Atmodjo, Agus Eko T. Nurul Rusdi, Sigit Setiadi, and Rina.	179
23. Energy Utilization Technology Of Agriculture And Forestry Waste Hardoyo.	185
24. Implementation Of Fuzzy Inference System With Tsukamoto Method For Study Programme Selection Fenty Ariani and Robby Yuli Endra.	189
25. The Analysis of Video Conference With ITU Standarization (International Telecommunication Union) That Joining in Inherent At Bandar Lampung University Maria Shusanti F, Happy Reksa	201

26. The E-internal audit iso 9001:2008 based on accreditation form assessment matrix in study program for effectiveness of monitoring accreditation
Marzuki, Maria Shusanti F. 207
27. The Developing Of e-Consultations For Effectiveness of Mentoring Academy
Ahmad Cucus, Endang K 214
28. The Evaluation of information system performance in higher education case study with EUCS model at bandar lampung university
Reni Nursyanti, Erlangga. 221
29. The Analysis Of History Collection System Based On AndroidSmartphone With Qr Code Using Qr CodeCase Study: Museum Lampung
Usman Rizal, Wiwin Susanty, Sutrisno...... 230
30. Application of Complaint Handling by Approach Model of ISO 10002 : 2004 to Increase Complaint Services
Agus Sukoco and Yuthsi Aprilinda. 235
31. Towards Indonesian Cloud Campus
Taqwan Thamrin, Iing Lukman, Dina Ika Wahyuningsih 252
32. Bridging Router to ADSL Modem for Stability Network Connection
Arnes Yuli Vandika and Ruri Koesliandana...... 257
33. The Effect of Use Styrofoam for Flexural Characteristics of Reinforced Concrete Beams
Yasser , Herman Parung, M. Wihardi Tjaronge, Rudy Djamaluddin 261
34. The Estimation Of Bioethanol Yield From Some Cassava Variety
M.C. Tri Atmodjo..... 273
35. Effect of Superficial Velocity of Pressure Difference on The Separation of Oil And Water by Using The T-Pipe Junctionl
Kms. Ridhuan and Indarto...... 277
36. The use of CRM for Customer Management at Cellular Telecommunications Industry
Ayu Kartika Puspa...... 293
37. Indonesian Puslit (Centre Of IT Solution) Website Analysis Using Webqual For Measuring Website Quality
Maria Shusanti Febrianti and Nurhayati. 297
38. The E-internal audit iso 9001:2008 based on accreditation form assessment matrix in study program for effectiveness of monitoring accreditation
Marzuki, Maria Shusanti F. 307

39. Enhancing Quality Software Through CMMI-ISO 9001:2008 and ISO 9126 Agus Sukoco	320
40. Value Analysis Of Passenger Car Equivalent Motorcycle (Case Study Kartini Road Bandar Lampung) Juniardi, Aflah Efendi	337
41. Alternative Analysis Of Flood Control Downstream Of Way Sekampung River Sugito, Maulana Febramsyah.	347
42. Analysis Of Fitness Facilities And Effective Use Of Crossing Road Juniardi, Edi Haryanto.	353
43. Study On Regional Development Work Environment Panjang Port Lands In Support Bandar Lampung City As A Service And Trade Ir. A. Karim Iksan, MT, Yohn Ferry.	359
44. Analytical And Experimental Study Bamboo Beam Concrete Hery Riyanto, Sugito, Juli	370
45. Comparative Analysis Of Load Factor Method Static And Dynamic Method (Case Study Akdp Bus Route Rajabasa - Bakauheni) A. Ikhsan Karim, MT., Ahmad Zulkily.	378
46. Optimization Utilization Of Water Resources dam Batutegei Using Method Of Linear Program Aprizal, Hery Fitriyansyah	386
47. Characteristics Generation Traffic Patterns And Movement In Residential Area (Case Study Way Kandis Residential Bandar Lampung) Fery Hendi Jaya, Juniardi,	392
48. Use Study On Slight Beam Reinforced Concrete Floor Plate in Lieu Of Secondary Beam Hery Riyanto, Sugito, Lilies Widodjoko, Sjamsu Iskandar	399
49. Observation Of The Effect Of Static Magnetic Field 0.1 Mt On A-Amylase Activity In Legume Germination Rochmah Agustrina, Tundjung T. Handayani, and Sumardi.	405
50. Effectiveness Analysis Of Applications Netsupport School 10 Based Iso / Iec 9126-4 Metrics Effectiveness Ahmad Cucus, Nelcy Novelia	413
51. Comparative Performance Analysis Of Banking For Implementing Internet Banking Reza Kurniawan	418

Towards Indonesian Cloud Campus

Taqwan Thamrin^{#1}, Iing Lukman^{*2}, Dina Ika Wahyuningsih^{#3}

[#]Faculty of Computer Science

University of Bandar Lampung

Jl. ZA. Pagar Alam No. 26 Labuhan Ratu Kedaton

Bandarlampung 35142 Indonesia

¹taqwanthamrin@ubl.ac.id

³dina@ubl.ac.id

^{*}University of Malahayati

Jl. Pramuka No. 27

Bandarlampung 35153 Indonesia

²ilukman371@gmail.com

Abstract- Nowadays, Cloud Computing is most discussed term in business and academic environment.

Cloud campus has many benefits such as accessing the file storages, e-mails, databases, educational resources, research applications and tools anywhere for faculty, administrators, staff, students and other users in university, on demand. Furthermore, cloud campus reduces universities' IT complexity and cost.

This paper discuss the implementation of Indonesian cloud campus and various opportunities and benefits of cloud services for universities. And suggested cloud infrastructure prototype towards cloud campus

Keywords— cloud computing, information technology, cloud campus, infrastructure.

Introduction

The concept of cloud computing dates back to 1960, when John McCarthy opined that “computation may someday be organized as a public utility”. The term ‘cloud computing’ is confusing to many people as the term can be used to mean almost anything. ‘Cloud’ is used as a metaphor for Internet and its main objective is customization and user defined experience. In other words cloud computing provides shared resources, software and information through Internet as a PAYGO (Pay-as-you-go) basis [2].

In the recent years, where educational institutes, campus, universities, industries are giving their full contribution in transforming the society and entire world economy. Various researches are carried out to update the present IT infrastructure especially in the area of education. Cloud computing can be a welcomed option in the universities, campus and educational institutes for higher studies. It gives a better choice and flexibility to the IT departments by building multipurpose computational infrastructure once and then uses it for several purposes for several times.

Google is one of the most famous cloud computing providers. Many people are using the google’s cloud services, such as Gmail, Docs, Maps, and so on. With the help of cloud computing the platform and application the user uses can be on-campus or off-campus or combination of both depending on the institutions need.

At present, as many campuses are trying to update their IT infrastructure and data, but they are facing few challenges which can be solved by cloud computing. The challenges are [8];

- 1) **Cost:** choose the subscription or PAYGO plan.

- 2) **Flexibility:** cloud computing allows to dynamically scale the investment in infrastructures as demand fluctuate.
- 3) **Accessibility:** making the data and services available publicly without losing the sensitive information

As [4] explained, Cloud computing refers to those the applications delivered as services over the Internet and the hardware and system software in the data centres that provide the services. The data centres hardware and software is what called the cloud.

In Deployment models there are:

- 1.Private Cloud
- 2.Community Cloud
- 3.Public Cloud
- 4.Hybrid Cloud.

VII. SERVICES OF CLOUD

To use the cloud services the campuses or universities and the institutions has to first define their requirements and has to take a special attention for the privacy and critical issues. There are several cloud services as follows; [5]

- 1) **Infrastructure as a Service (IaaS):** can be used to satisfy the infrastructure needs of the students, faculties or researcher globally or locally with some specific hardware configuration for a specific task.
- 2) **Platform as a Service (PaaS):** certain providers are opening up application platforms to permit customers to build their own application without the cost and complexity of buying and managing the underlying hardware and software layers.
- 3) **Software as a Service (SaaS):** the application service provider is hosting the application which runs and interacts through web browser, hosted desktop or remote client. It eliminates the need to install and run

the application on customer own computer and simplifying maintenance and support.

- 4) **Computing as a Service (CaaS):** providers offer access to raw computing power on virtual server such as Amazons, EC2 service.

Following the figure shows the university using the services of cloud computing, [6]

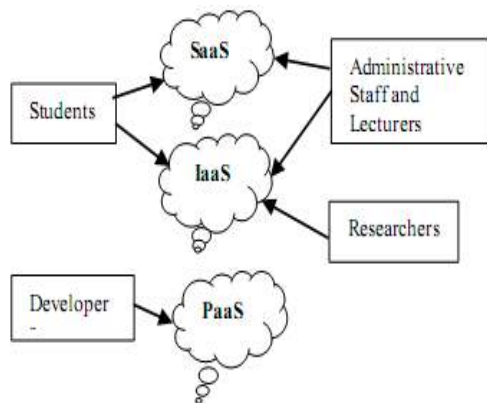


Fig.1 University using the services of cloud computing

VIII. CLOUD CAMPUS ARCHITECTURE

Due to higher accessibility, availability, and efficiency of cloud services many campuses, business are trying to make use of these services. Today's cloud computing providers are offering higher education, the opportunity to substitute their data and information in the cloud for campus/universities with existing data centers, servers, and application replacing these traditional campus machines.

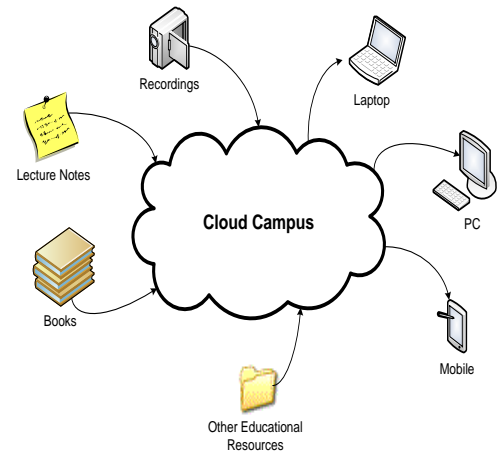


Fig.2. (a) Cloud Campus Stuff

The Cloud Computing trend of replacing software traditionally installed on campus computers (and the computers themselves) with applications delivered via the internet is driven by aims of reducing universities' IT complexity and cost [9]. Cloud Computing could be a technological innovation that both reduces IT costs for the college and eliminates many of the time-related constraints for students, making learning tools accessible for a larger number of students. There are many benefits of cloud computing for educational institute and below are listed a few of them [1];

- 1) With cloud computing, universities can open their technology infrastructures to businesses and industries for research advancements.
- 2) The efficiencies of cloud computing can help universities keep pace with ever-growing resource requirements and energy costs.
- 3) The extended reach of cloud computing enables institutions to teach students in new, different ways and help them manage projects and massive workloads.
- 4) When students enter the global workforce they will better understand the value of new technologies [16].
- 5) Cloud computing allows students and lecturer to use applications without

installing them on their computers and also allows access to saved files from any computer with an Internet connection [17].

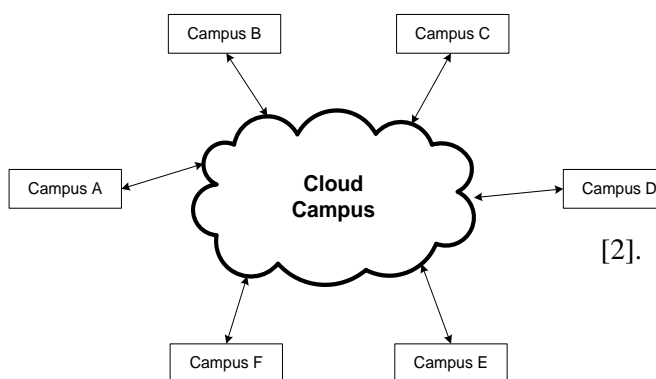


Fig.2. (b) Cloud Campus Architecture

Fig. 2. (a) and (b) shows the cloud stuff and cloud campus architecture. Universities can develop their own cloud by making use of their existing resources or multiple universities can come together and can develop cloud campus, in which they can share all the resources from the various universities.

IX. CONCLUSIONS

Cloud computing is an emerging computing paradigm and next generation platform that can provide tremendous value of information of any size. The shift towards cloud campus would enable the universities and educational institutions to save money and take benefit of the developing technology. Furthermore, using cloud campus could be shared and distributed the educational resources such as books, lecture notes, and other educational resources to any kind of devices and platforms. This means that, the students are able to access to the cloud content by using computer tablet, smartphone, computer notebook, etc.

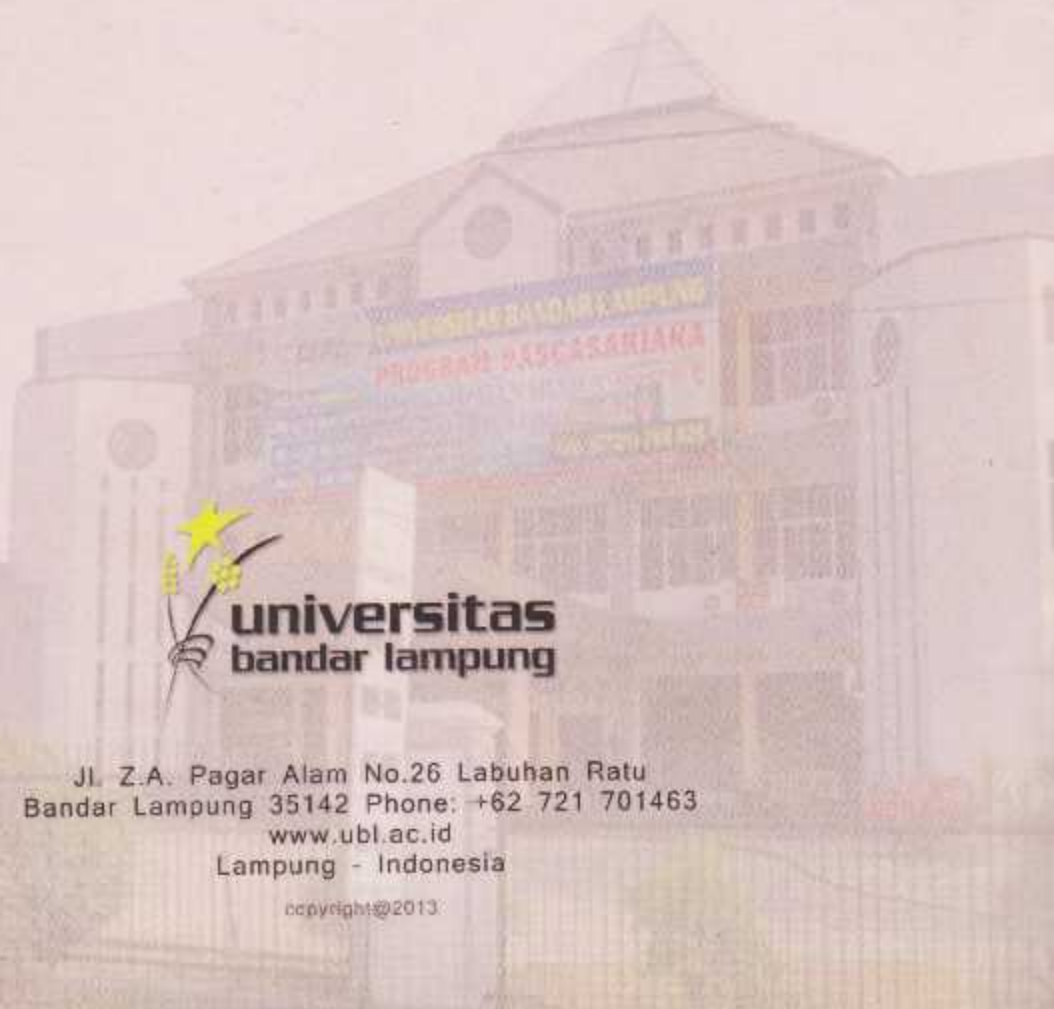
The main objective of this paper was to identify the essential of cloud campus which can be considered as a new era to the campus education and has the full potential to make a revolution in the

field of education and technology in Indonesia.

REFERENCES

- [1]. M. F. Erkoc., S. B. Kert. *Cloud Computing for Distributed University Campus: A prototype Suggestion*. International Conference the Future of Education 2010, Available at http://conference.pixel-online.net/edu_future/common/download/Paper_pdf/ENT30-Erkoc.pdf
- [2]. S. Mathew. *Implementation of Cloud Computing in Education – A Revolution*. International Journal of Computer Theory and Engineering. Vol. 4. No. 3, June 2012.
- [3]. M. Mireea and A. I. Andreescu, *Using Cloud Computing in Higher Education: A Strategy to Improve Agility in Current Financial Crisis*. IBIMA Publishing, 2011.
- [4]. T. Thamrin, Marzuki, R. Nursyanti, and A. Cucus, *Cloud Computing: Current and Future*. Proceeding International Conference on Engineering and Technology Development, ICETD 2012.
- [5]. A. S. Dutta, *Use of Cloud Computing in Education*.
- [6]. N. Sultan, *Cloud Computing for Education: A New Dawn*, International Journal of Information Management. [Online]. Available: http://www.elsevier.com/locate/ijinfo_mgt
- [7]. R. Katz, P. Goldstein, and R. Yanosky, *Cloud Computing in Higher Education*, Educause. [Online]. 2010. Available: http://net.educause.edu/section_parameters/conf/CCW10/highered.pdf
- [8]. J. L. Nicholson. *Cloud Computing: Top Issues for Higher Education*. [online]. Available: <http://www.universitybusiness.com/article/cloud-computing-top-issues-higher-education/page/0/3>
- [9]. Sasikala, S., & Prema, S. (2010). *Massive Centralized Cloud Computing (MCCC) Exploration in Higher Education*. Advances in

Computational Sciences and
Technology.



**universitas
bandar lampung**

Jl. Z.A. Pagar Alam No.26 Labuhan Ratu
Bandar Lampung 35142 Phone: +62 721 701463
www.ubl.ac.id
Lampung - Indonesia

copyright © 2013