Bharath
INSTITUTE OF HIGHER EDUCATION AND RESEARCH
(Declared as Deemed-to-be University under section 3 of UGC Act, 1956)
(Vide Notification No. F.9-5/2000 - U.3, Ministry of Human Resource Development, Govt. of India, dated 4th July 2002)
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Chennai - 600 073. Tamil Nadu.

Ref No.SMS-2018-O-07

Date: 17/04/2019

TO

Mrs. S. Pothumani,

Asst. Professor/CSE,

BIHER.

Thro: Concern Head of the Department

Greetings!!!

We are happy to announce that the Research Advisory Committee has approved your proposal for Seed Money Scheme-2018 which was presented by you. You are requested to complete the proposal and send the progress report to the Dean Research in the prescribed time period.

Title of the Project: Privacy Risk Reduction using Data sharing Mechanism in Big Data

Seed Money Amount: Rs.1, 00,000/- (Rupees One Lakh Only)

Approved on: 17/04/2019

Payment details:

Voucher No.07 **Dated: 19/04/2019**

With Regards

Dean-Research 19/04/19

Bharath University

SELAIYUR, CHENNAI - 600 073, TAMIL NADU, INDIA.

CASH / PAYMENT VOUCHER

Date 19/04/19

V.No. 07

Debit _____ Amount

Rs. 1,00,000/-

PAID TO Mrs. S. Pothumani

RUPEES One Lakh only.

TOWARDS Seed Money Scheme-2018.

Authorised by **Finance Manager** **Cashier/Accountant** **Payee's Signature**

S. Pothu

PROPOSAL SUBMISSION

1. **Details of Principal Investigator**

Name	: Mrs.S.Pothumani
Designation	: Assistant Professor
Highest Qualifications	: M.E
Department	: Computer Science and Engineering
E-mail	: pothumani@gmail.com
Contact no	: 9843099677
Date of Joining	: 11.08.2011

2. **Details of Co - Principal Investigator**

Name	: Dr.AR.Arunachalam
Designation	: Associate Professor
Highest Qualifications	: Ph.D.
Department	: Computer Science and Engineering
E-mail	: ararunachalam78@gmail.com
Contact no	: 9790965412
Date of Joining	: 02.09.2009

Technical Details

1. Introduction

In Computer science, cloud computing describes a type of outsourcing of computer services, similar to the way in which electricity supply is outsourced. Users can simply use it. They do not need to worry where the electricity is from, how it is made, or transported. Every month, they pay for what they consumed. The idea behind cloud computing is similar: The user can simply use storage, computing power, or specially crafted development environments, without having to worry how these work internally. Cloud computing is usually Internet- based computing. The cloud is a metaphor for the Internet based on how the internet is described in computer network diagrams; which means it is an abstraction hiding the complex infrastructure of the internet.

The development of cloud computing technology with the explosive growth of unstructured data, cloud storage technology gets more attention and better development. The cloud provider does not have suggestions regarding the information and the cloud data stored and maintained globally anywhere in the cloud. The privacy protection schemes are usually based on encryption technology. There are many privacy preserving methods in the side to prevent data in cloud. Here, a three-layer storage framework based on fog computing. The proposed framework can both take full advantage of cloud storage and protect the privacy of data. Here we are using Hash-Solomon code algorithm is designed to divide data into different parts. If the one data part missing, then entire data will loss. This framework uses bucket concept based algorithms and secure the data information and then it can show the security and efficiency in our scheme. Moreover, based on computational intelligence, this algorithm can compute the distribution proportion stored in cloud, fog, and local machine, respectively Software as a Service (SaaS): Client releases their application on a hosting environment which can be accessed through network from various clients by application users. The client does not manage or control the underlying cloud infrastructure with the possible exception of limited user- specific application configuration settings.

2. Review of status of Research and Development in the subject

Privacy-preserving security solution for cloud services

L. Malina, J. Hajny, P. Dzurenda and V. Zeman

A novel privacy-preserving security solution for cloud services. Our solution is based on an efficient nonbilinear group signature scheme providing the anonymous access to cloud services and shared storage servers. The novel solution offers anonymous authentication for registered users. Thus, users' personal attributes (age, valid registration, successful payment) can be proven without revealing users' identity, and users can use cloud services without any threat of profiling their behaviour. However, if a user breaks provider's rules, his access right is revoked. Our solution provides anonymous access, unlinkability and the confidentiality of transmitted data. We implement our solution as a proof of concept application and present the experimental results. Further, we analyse current privacy preserving solutions for cloud services and group signature schemes as basic parts of privacy enhancing solutions in cloud services. We compare the performance of our solution with the related solutions and schemes.

A Secure data privacy preservation for on-demand cloud service

ChandramohanDhasarathan ,VengattaramanThirumal,

DhavachelvanPonnurangam

This paper spotlights privacy and its obfuscation issues of intellectual, confidential information owned by insurance and finance sectors. Privacy risk in business era if authoritarians misuse secret information.Software interruptions in steeling digital data in the name of third party services. Liability in digital secrecy for the business continuity isolation, mishandling causing privacy breaching the vicinity and its preventive phenomenon is scrupulous in the cloud, where a huge amount of data is stored and maintained enormously. In this developing IT-world toward cloud, users privacy protection is becoming a big question , albeit cloud computing made changes in the computing field by increasing its effectiveness, efficiency and optimization of the service environment etc., cloud users data and their identity, reliability, maintainability and privacy may vary for different Cps (cloud providers). CP ensures that the user's proprietary information is maintained more secretly with current technologies. More remarkable occurrence is even the cloud provider does not have suggestions regarding the information and the digital data stored and maintained

globally anywhere in the cloud. The proposed system is one of the obligatory research issues in cloud computing. We came forward by proposing the Privacy Preserving Model to Prevent Digital Data Loss in the Cloud (PPM–DDLC). This proposal helps the CR (cloud requester/users) to trust their proprietary information and data stored in the cloud.

A Survey on Secure Storage Services in Cloud Computing

Ms.B.Tejaswi, Dr.L.V.Reddy&Ms.M.Leelavathi

Cloud computing is an emerging technology and it is purely based on internet and its environment. It provides different services to users such as Software-as-a-Service (SaaS), PaaS, IaaS, Storage-as-a-service (SaaS). Using Storage-as-a-Service, users and organizations can store their data remotely which poses new security risks towards the correctness of data in cloud. In order to achieve secure cloud storage, there exists different techniques such as flexible distributed storage integrity auditing mechanism, distributed erasure-coded data, Merkle Hash Tree(MHT) construction etc. These techniques support secure and efficient dynamic data storage in the cloud. This paper also deals with architectures for security and privacy management in the cloud storage environment.

On a Relation Between Verifiable Secret Sharing Schemes and a class of Error-Correcting Codes

VentzislavNikov and SvetlaNikova

We try to shed a new insight on Verifiable Secret Sharing Schemes (VSS). We first define a new "metric" (with slightly different properties than the standard Hamming metric). Using this metric we define a very particular class of codes that we call error-set correcting codes, based on a set of forbidden distances which is a monotone decreasing set. Next we redefine the packing problem for the new settings and generalize the notion of error correcting capability of the error-set correcting codes accordingly (taking into account the new metric and the new packing). Then we consider burst-error interleaving codes proposing an efficient burst-error correcting technique, which is in fact the well-known VSS and Distributed Commitments (DC) pair-wise checking protocol and we prove the error-correcting capability of the error-set correcting interleaving codes.

A Secure Cloud-assisted Urban Data Sharing Framework for Ubiquitous-cities

JianShena,b,c,_, DengzhiLiuc, Jun Shenc, Qi Liua,c, XingmingSuna,c

With the accelerated process of urbanization, more and more people tend to live in cities. In order to deal with the big data that are generated by citizens and public city departments, new information and communication technologies are utilized to process the urban data, which makes it moreeasier to manage. Cloud computing is a novel computation technology. After cloud computing was commercialized, there have been lot of cloud-based applications. Since the cloud service is provided by the third party, the cloud is semi-trusted. Due to the features of cloud computing, there are many security issues in cloud computing. Attribute-based encryption (ABE) is a promising cryptography technique which can be used in the cloud to solve many security issues. In this paper, we propose a framework for urban data sharing by exploiting the attribute-based cryptography. In order to fit the real world ubiquitous-cities utilization, we extend our scheme to support dynamic operations. In particular, from the part of performance analysis, it can be concluded that our scheme is secure and can resist possible attacks. Moreover, experimental results and comparisons show that our scheme is more efficient in terms of computation.

2.1 International Status: NIL

2.2 National Status: NIL

3. Progress/achievement so far,

a) Reference papers were collected.

b) Literature survey was studied.

c) Proposal work has been started in Bigdata based on Data Sharing Mechanism

4. Work Plan:

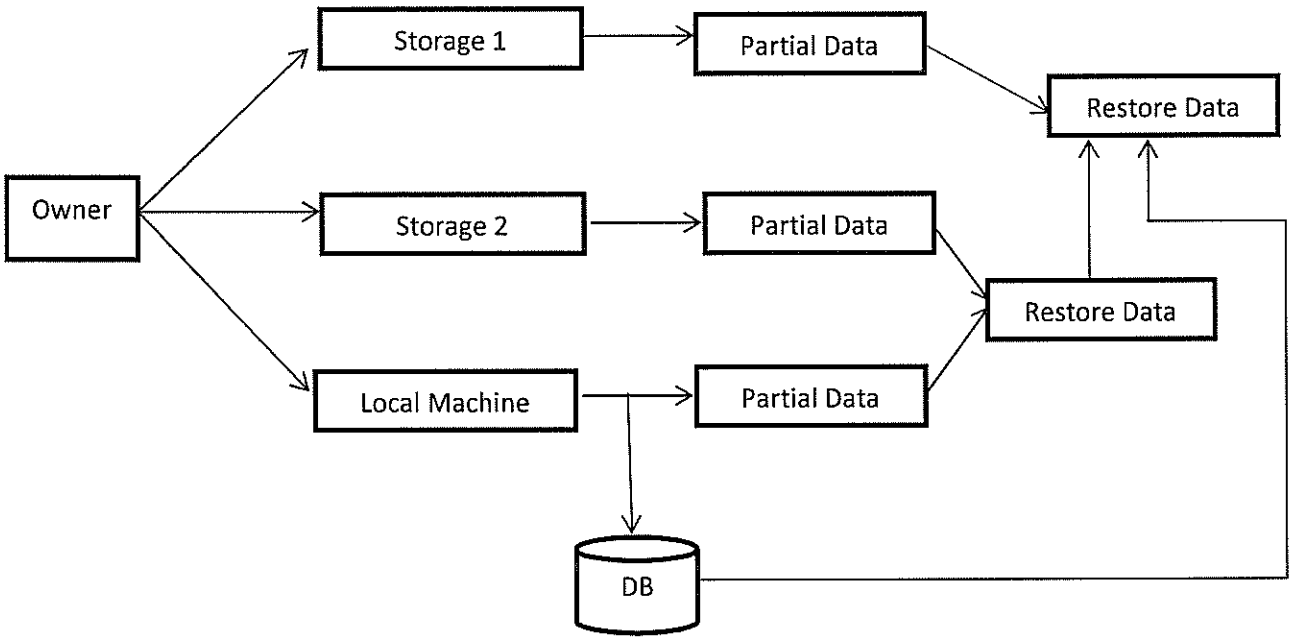
4.1 Methodology:

The main Objectives of the proposed work are as follows,

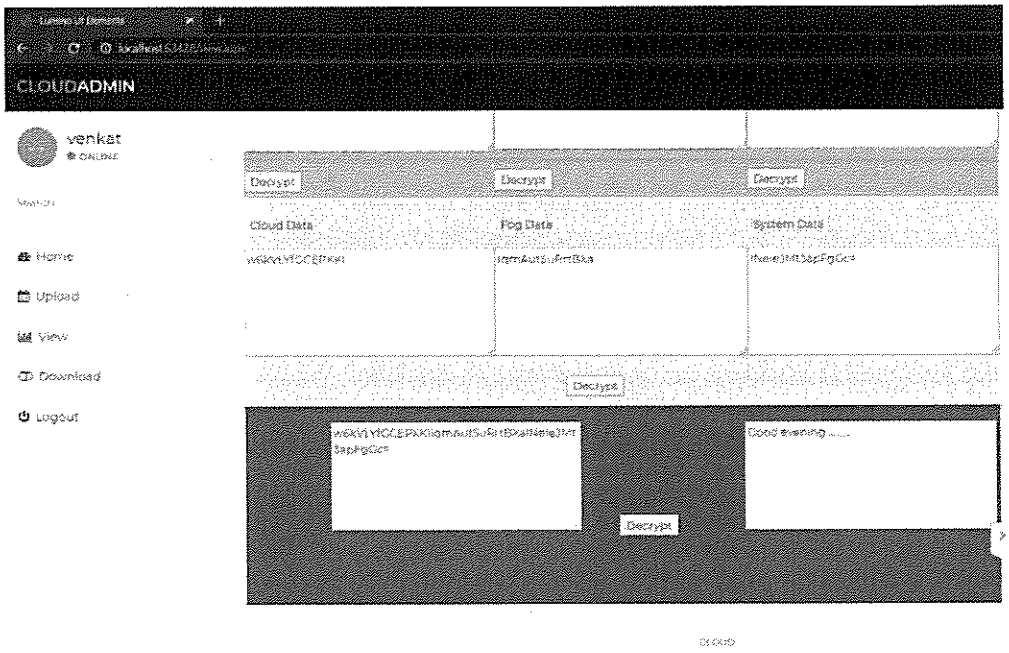
- To design three layer (Fog layer, Cloud Layer, Local machine) cloud storage which stores the three different parts of data parts to ensure that if the one data part missing, theninformation will loss.
- To design the Bucket Access Controls resource represents the Access Control Lists (ACLs) for buckets within Google Cloud Storage.
- To use the ACL which specify who has access to your data and its extents.
- To apply the Bucket concept based algorithms to form a large class of powerful random error-correcting cyclic codes.

- To analyse binary BCH codes and protect the data.
- To take control of full cloud storage for protects the privacy of data.

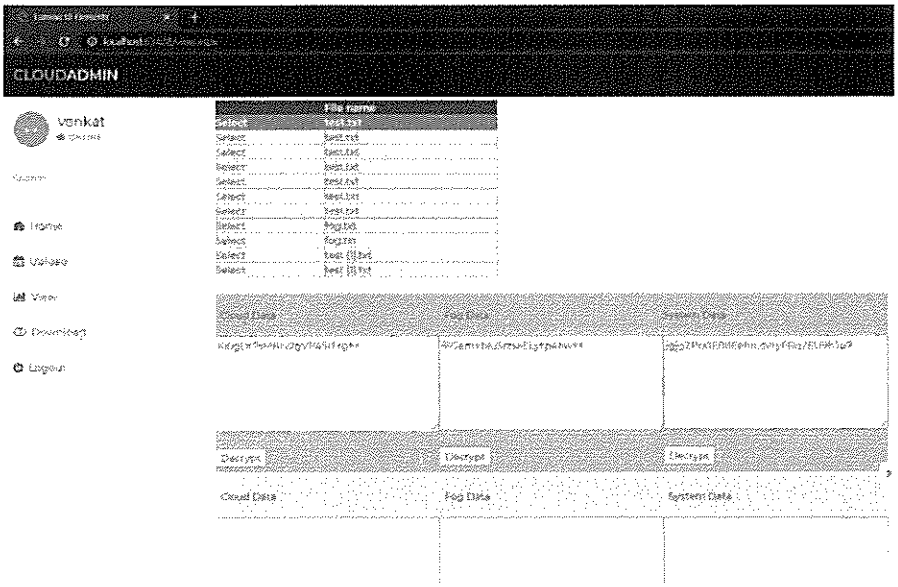
Block Diagram:



Data Encryption of Fog, Cloud and Local Machine

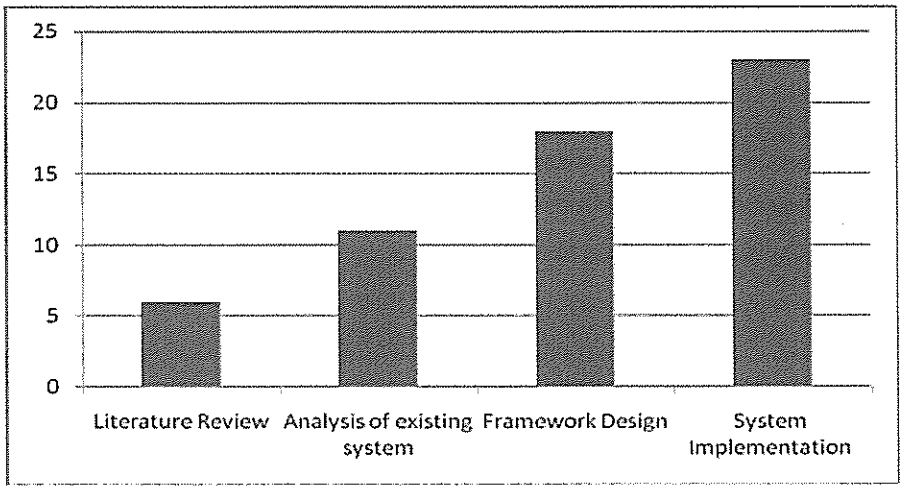


Data Decryption of Fog, Cloud and Local Machine



4.2 Time Schedule of activities giving milestones through BAR diagram. Work plan (including detailed methodology and time schedule)

Sl.No	Activity Milestone	1rd Year		2nd Year	
1.	Literature Review	1-6			
2.	Analysis of existing system		7-12		
3.	Framework Design			13-18	
4.	System Implementation				19-24



4.3 Expected outcome within the time period of Seed Money Scheme

a) Prototypeframeworkdesign can be implemented within the time period of Seed Money Scheme.

b)Real time implementation of proposed work can be done within the time period of Seed Money Scheme.

5. Suggested Plan of action stating the name of funding agency where theproject will be communicated for financial support within the time period ofproject.

Nil

6. Bibliography: Nil

7. List of Projects submitted/implemented by the Investigators (Separate for PI and Co-PI)

Nil

7.1 Details of Projects submitted to various funding agencies:

Sl.No	Title	Cost in Lakhs	Month of Submission	Role as PI/Co-PI	Agency	Status
	NA	NA	NA	NA	NA	NA

7.2 Details of Projects under implementation:

Sl.No	Title	Cost in Lakhs	Duration	Role as PI/Co-PI	Agency
	NA	NA	NA	NA	NA

7.3 Details of Projects completed during the last 5 years

Sl.No	Title	Cost in Lakhs	Duration	Role as PI/Co-PI	Agency
	NA	NA	NA	NA	NA

8. List of publications published by the investigators, if any:

a) Co-Principal Investigator

S.No	Author names	Title of paper	Name of Journal	Vol (issue)	Page no.	Year
1.	C Nalini, AR Arunachalam	A study on privacy preserving techniques in big data analytics	International Journal of Pure and Applied Mathematics	116(10)	281-286	2017
2.	G Michael, AR Arunachalam, S Srigowthem	Ecommerce transaction security challenges and prevention methods-new approach	International Journal of Pure and Applied Mathematics	116(10)	281-286	2017
3.	AR Arunachalam	Bringing out the effective learning process by analyzing of e-learning methodologies	Indian Journal of Science and Technology	7	41-46	2016
4.	Arunachalam, A.R., Chandrasekar, A.	An effective waste tracking system for hospitals	Journal of Chemical and Pharmaceutical Sciences	9(2)	318-320	2016
5.	Arunachalam, D Kumar, A Ranjan	Shared Authority Based Privacy-Preserving Authentication Protocol In Cloud Computing	Compusoft	4(4)	1602-1607	2015
6.	G Micheal, AR Arunachalam	EAACK: Enhanced adaptive acknowledgment for MANET	Middle-East Journal of Scientific Research	19(9)	1205-1208	2014
7.	MD Meena, AR Arunachalam, T Nalini	Confidential Data Sharing With Anonymous Id Assignment Using Central Authority	International Journal of Inventions in Computer Science and Engineering	1(2)	1100-1104	2014

b) Principal Investigator

S.No	Author names	Title of paper	Name of Journal	Vol (issue)	Page no.	Year
1.	Pothumani, S., Sridhar, J., Sriram, M.	Various schemes for database encryption-a survey	Journal of Chemical and Pharmaceuti	9(3)	103-106	2016

			cal Sciences			
2.	Pothumani, S., Sridhar, J., Sriram, M.	A novel economic framework for cloud and grid computing	Journal of Chemical and Pharmaceuti cal Sciences	9(3)	29-31	2016
3.	Needhu, C., Pothumani, S.	An emblematic study of privacy preserving data mining using cryptographic techniques	International Journal of Applied Engineering Research	9(12)	5833-5840	2014
4.	IndiraPriya, P., Pothumani, S.	Mining user mobile access patterns for social network using location based services	International Journal of Applied Engineering Research	9(12)	5937-5943	2014
5.	Pothumani, S.	A new method for data mining in multimedia environment	Middle - East Journal of Scientific Research	13(12)	1556-1558	2013
6.	Pothumani, S.	A novel approach to distribute virtual machines in cloud environment	Middle - East Journal of Scientific Research	13(12)	1623-1626	2013

9. Budget

Sl.No	Equipment	Quantity	Amount inINR
1	Storage tools (cloud, Fog, Local Machine)	5	50,000
2	Consumables(Book, CD,USB, Paper, Stationeries, Research Journals)	As per requirement	30,000
3	Travel support for the purpose of research work.	-	5,000
4	Contingency	-	2,500
5	Others	-	2,500
	Total		**1,00,000**

10. Name of at least two subject experts from the Institute and one from the outside Institute with their contact details

a) Dr.KP.Kaliyamurthie– Professor, Dept of CSE, BIHER, Chennai- 600073
b) Dr.AntonyDas - Professor, Dept of CSE, Hindustan Institute of Science and Technology, Chennai- 603103

CERTIFICATE FROM THE INVESTIGATOR

Project Title: **Privacy Risk Reduction using Datasharing Mechanism in BigData**

It is certified that

1. I do hereby agree to submit a complete proposal for financial support to theexternal funding agency within the time period of SMS-2018
2. I undertake that spare time on equipment procured in the project will be madeavailable to other users.
3. I agree to submit a certificate from Institutional Biosafety Committee, if theproject involves the utilization of genetically engineered organisms. I also declarethat while conducting experiments, the Biosafety Guidelines of Department ofBiotechnology, Department of Health Research, GOI would be followed in to.
4. I agree to submit ethical clearance certificate from the concerned ethicaltrails/experiments/exchange ofcommittee, if the project involves field specimens,human & animal materials etc.
5. I agree to abide by the terms and conditions of SMS-2018, BIHER, and Chennai.

S. Patt

Name and signature of
Principal Investigator

Name and signature of
Co-Principal Investigator

Date: 04.12.2018
Place: Chennai - 73

Forwarded by Head of the Department

Signature of the Head

PROJECT EVALUATION FORMAT

Recommendation Sheet

Name of the Principal Investigator	S.Pothumani
Name of the Co-Investigator	Dr.AR.Arunachalam
Name of the Department	CSE
Title of the Project	Privacy Risk Reduction using Datasharing Mechanism in BigData
Recommendation of the evaluation committee	– Recommended –
Financial allocation recommended	Rs. 1,00,000 –

Sl.No	Equipment	Quantity	Amount in INR
1	Storage tools (cloud, Fog, Local Machine)	5	50,000
2	Consumables(Book, CD,USB, Paper, Stationeries, Research Journals)	As per requirement	30,000
3	Travel support for the purpose of research work.	-	5,000
4	Contingency	-	2,500
5	Others	-	2,500
	Total		1,00,000

Name and Signature of the Research Advisory Committee members with date

(Dr. P. Naveenchandran)

IQAC