



## RFID Based E-Document Verification Using Cloud

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### ABSTRACT

The project named 'RFID Based E-Document Verification Using Cloud' proposes to make the E-Document Verification the new technology to reduce the human efforts for getting the documents from certain institutes and even from Government offices. It provides an easy access to the document generation even if the document is lost or misplaced. Radio Frequency Identification is the hardware concept to provide small RFID tags to the user with the electromagnetic waves and produce the signals to it and then access the data. In this project we have implemented the concept of Networking using java and the web application. The project aims at making the document verification and accessing very easy and saving a lot of time and energy and commotion among users.

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### Introduction

Document gaining is the lengthy and complicated process. There are bunch of documents you have to carry and you need bunch of documents to get another one. Mostly people from remote areas or rural areas are unaware of this process and find it difficult to gain the documents. Therefore our system makes it easy to gain the documents online and with very ease and flexibility. Our main objective is to reduce the human efforts and time and make it efficient and fast process of document gaining. The people of India can access their documents from any part of the country very easily. No need to carry files and bunch of documents; and no fear of losing any document; if lost also you can get it very easily.[2]

Our aim is to develop an e-documentation system based on RFID using cloud storage. The environment of cloud storage is very secure which can store large amount of data over the cloud. Cloud computing provides the main resource sharing over the network and provided the ease of networking within very less time and resources. At the basic of cloud computing is the larger concept of resource sharing and networking which gives user flexibility. Cloud also mainly focuses on the network sharing speed and capabilities. It provides a good interface for the user. Cloud storage can be shared from any place over the globe by using internet by any user having the cloud account. This can work for allocating resources to users. This approach should maximize the use of computing power thus reducing environmental damage as well since less power, air conditioning, rack space, etc. are required for a variety of functions. Multiple users can access a single server to retrieve and update their data without purchasing licenses for different applications, using cloud computing.

The main technology for the cloud is the virtualization. Virtualization allows a physical computing device to be electronically separated into one or more "virtual" devices, each of which can be easily used and managed to perform computing tasks. Virtualization provides the concept of allocating work to the idle systems over the network and assign some work to them to make them busy. Virtualization provides the agility required to speed up IT operations, and reduces cost by increasing

infrastructure utilization. This computing has the ability to automate the process through which the user can provision resources on-demand. Due to this, automation increases the speed of the process, reduces labour costs and reduces the possibility of human errors.

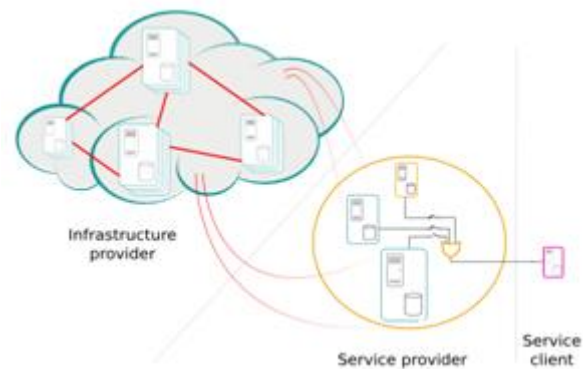


Figure 1. Cloud Computing Services

### Literature survey

Cloud computing is the process of sharing of resources to achieve economies of scale, similar to a utility over a network. The foundation of cloud computing is the larger concept of shared services.

Cloud computing, or the short form "the cloud", even focuses on increasing the effectiveness of the shared resources. Cloud resources are usually not only shared by multiple users but are also dynamically reallocated per demand. This works for allocating resources automatically to users. This approach always maximize the use of computing power thus reducing environmental damage as well since less power, maintaining temperature by air conditioning, etc. are required for a variety of functions. With the help of cloud computing, multiple users are possible over a single server to retrieve and update their data without purchasing any legal licenses.

The main enabling technology for cloud computing is virtualization. Virtualization software allows a physical computing device to be electronically separated into one or more "virtual" devices, each of which can be easily used and managed

to perform computing tasks. With operating system-level virtualization essentially creating a scalable system of multiple independent computing devices, idle computing resources can be allocated and used more efficiently. Virtualization provides the agility required to speed up IT operations, and reduces cost by increasing infrastructure utilization. Autonomic computing automates the process through which the user can provision resources on-demand. By minimizing user involvement, automation speeds up the process, reduces labour costs and reduces the possibility of human errors.

### Proposed System

#### Introduction

In project proposed cloud computing architecture framework towards the direction of the scalable RFID systems. This system promises to increase the computational speed and also the user flexibility for enhancing the networking concept over the cloud computing. Virtual resources are used over the RFID system to provide document enhancing and to provide the coherence of the system and to increase the computing of the system. It will act as a prototype for the future developing scalable RFID systems because it is itself developed under the light of the cloud computing technology.[5]

#### Architecture

##### The Front End

The front end of the proposed architecture is comprised of the networked RFID Tags and Readers, computers with data storage and processing capabilities and all the applications which provides access to the cloud computing system. The working of the front end starts up with the initial scanning of RFID tags over the RFID reader as a result of communication over the network. After this the data is generated as and when a RFID tag appears in the checking level off the RFID reader. The assumption that here the RFID system under consideration is the RFID system will produce the data over the network and be reliable after checking the authorization and the password over the RFID Tags and the user authentication. The RFID system will scan only the legal or authorized tags and will discard the out dated or false tags provided by the user. [4]

##### The Back End

The back end of the proposed architecture is comprised of data storage infrastructure application, services and servers. In this application over the cloud, the RFID data is systematically filtered after following a specific application of which is needed, by using its relative platform and infrastructure over the network and then stored on a specific server. Some protocols are used in the cloud computing system here. A server administers the system and traffic. The protocols allow the networked resources to communicate to each other. Here, in this system architecture, the cloud computing needs huge amounts of storage space which is required to store all the data of the RFID clients' information over the network. It also makes a duplicate copy of all the RFID information and stores it on the another place.[4]

#### Algorithm

- 1) Start
- 2) Scan the tag on RFID
- 3) Enter the password
- 4) Verify the tag
- 5) Check for the documents
- 6) Provide the documents needed
- 7) Logout the user
- 8) Stop

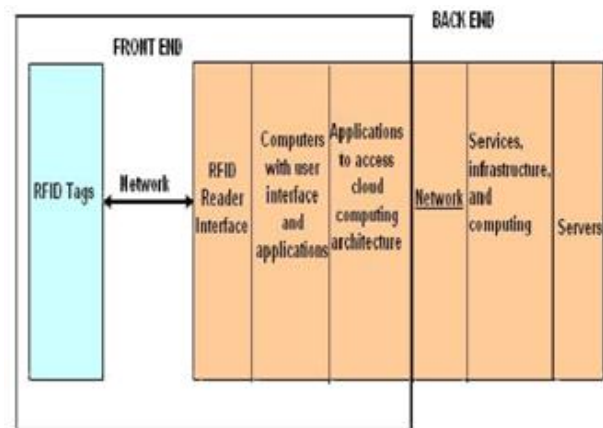


Figure 2. System Architecture

#### Advantages

- 1) User has no need to carry bunch of documents anywhere.
- 2) Even if the document is lost, you can make it available easily.
- 3) All the documents will be provided at a central place.
- 4) The efforts of being in a queue and wait for the documents for a long period of time has been reduced.
- 5) People from any part of the country can take advantage of this technology.
- 6) It also saves lot of paper resources which is also beneficial to the environment.

#### Disadvantages

- 1) A tolling booth must available nearest to you, if not you may have to travel a little.
- 2) If the RFID tag is lost you have take little efforts for gaining it back.
- 3) Tag card may be misused if the other person knows your password.

#### Applications

- 1) The Government Offices such as Tahsil Karyalay, Samaj Kalyan Offices, Judicial Courts, RTO Offices, Commissioner Offices, etc.
- 2) The various schools can adopt it for the documents and certificates distribution.
- 3) The ARC process can adopt it as to make the admission process easy and instant.
- 4) The various competitions or the sports institution can also adopt it for the distribution of certificates and awards.

#### Conclusion

This paper proposes a cloud computing architecture framework which provides a direction towards the scalable RFID systems. It involves the commitment of the existing cloud computing systems to enhance the computational capabilities and wide adoption of the RFID systems on the cloud. Here, in the proposed architecture framework, virtualized resources as services over the network are melded with the RFID technology with limited resources.

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