

Secure Tender Quotation in AWS

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Abstract - Privacy and Security of information (Data) are the foremost necessary things while storing the data in the cloud services. Storing the information(data) on cloud make it more manipulation of data content and tamper attack. As the data comes from various organizations and individuals. In this paper we have use an encryption techniques and different types of algorithms like AES (Advanced Encryption Standard) and SHA-256 (Secure Hash Algorithm) algorithm to secure the data, the data is encrypted using AES & SHA algorithm and encrypted data will be written to the QR Code image and stored in AWS (Amazon Web Services) cloud based on S3 services and dynamically creates a folder structure with respect to data content by organization, individuals.

Key Words: AWS, AES Rijndael algorithm, SHA algorithm
QR Code Image.

1. INTRODUCTION

Distributed computing is a huge and quickly arising innovation. It might have various implications for various people yet the normal trademark that unites various people is the high accessibility of information whenever and at any spot. Distributed computing lessens the part of nearby PCs as well as makes registering more coordinated. Then again, putting away the information on cloud can convey it more inclined to intimidations and assaults. In this manner, the need of safety and protection of information is of most extreme significance. The word 'Distributed computing' comes from two words, that is Cloud that alludes to the web and 'Processing' which suggests innovation upheld PCs. Here, Internet is capacity or distribution center where the virtualized assets are put away which then, at that point are given as administrations. From working through starting ideas to the genuine sending, distributed computing has been extending. These days there are numerous associations from little to medium are having the chance to understand the upsides of having their application and their information on the cloud. By adjusting to the distributed computing procedures, the development in business advancement will be more proficient and information safer.

Security and privacy of data is most important to exchange the data in cloud services for the purposes of project implementation, we are taking a tender quotation detail. Where we implemented the system by using AES Rijndael and SHA algorithm data content is encrypted and encrypted data is written in QR code image to avoid tamper and

manipulation. The QR code image stored in AWS cloud based on S3 services and dynamically creates a folder structure with respect to data content by organization, individuals and data privacy is maintained in such a way that data request is logged, and OTP verification base provide access to data content from AWS Cloud, QR code image data is extracted and decrypt data using AES Rijndael and SHA algorithm.

2. RELATED WORK

Distributed computing is most normal these days as an ever-increasing number of people groups are adding into the cloud climate this leads towards the security issues of the information. In this paper they have given the concise conversation about the information security, information trust and information uprightness. Also, they proposed a model which discusses three level confirmation instruments for further developing security to the information when contrasted with the old conventional framework [1].

In this [2] paper they have given the advance secure sharing of data i.e., in the form of QR code image. If the authorized person has the encryption key then only they can get can download the QR code image and view the data inside the QR code Image [2].

The author provides the information about the multiple encryption technique and the also talks about what nature of assaults and issues may emerge that may ruin the information; subsequently, it is vital for utilize compelling encryption techniques to broaden information security. The have carried out the model for the improvement of information protection in distributed computing [3].

3. METHODOLOGY

The proposed system is to develop a windows application which will help to secure the various organizations and individual's sector. The organizations and individual's data collects and stores it in the cloud database. All data content is encrypted by using AES Rijndael algorithm, SHA algorithm, encrypted data written to QR code image & stored in the AWS cloud & data details stored in cloud database. To view the data content, then OTP is sent to the respective person email for verification. Once OTP verify, extract encrypted data from QR code image from AWS cloud & decrypt data

using key. This enables privacy and security and prevents from third-party access.

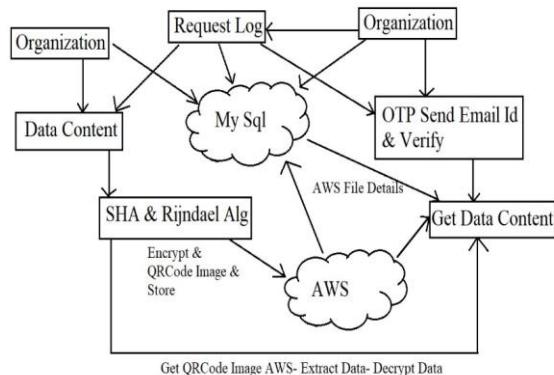


Fig -1: Proposed System for Secure Tender Quotation

3.1 AES Algorithm

The Advance Encryption Standard algorithm rule is found a minimum of six times quicker than the Data Encryption Standard algorithm (DES). Therefore, we are using AES algorithm for the security purpose.

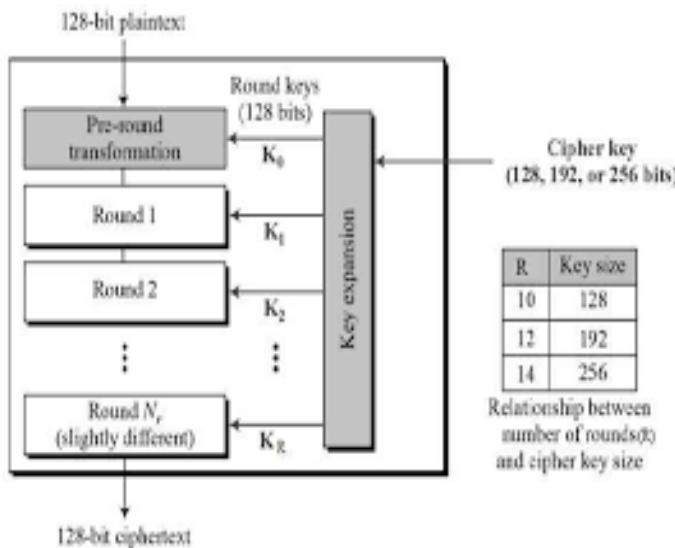


Fig -2: Operation of AES

a) Encryption Process: The encryption interaction happens as far as rounds and each round has four sub-measures. The underneath outline will show how the four sub-measures work.

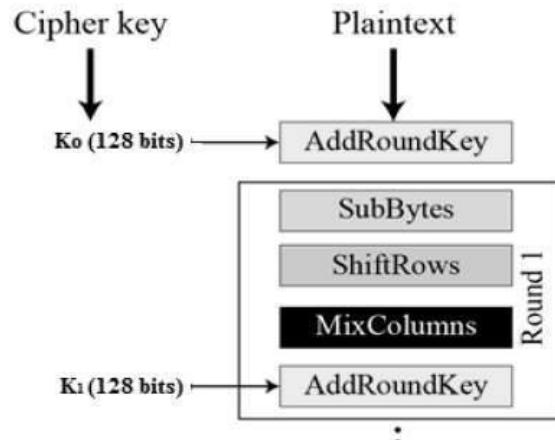


Fig -3: Working of 4 Sub-processes

Fig (3) shows clarifies around 4 subprocesses in the AES encryption calculation. These 4 subprocesses work in a nonstop circle beginning from adding the round key, getting the sub bytes, accomplishing the shift pushes, and dealing with the blend sections. In the wake of dealing with the blend sections, the cycle again drives itself into the circle starting from the primary stage (Add round key) etc.

b) Decryption process: In the decryption process the technique of deciphering of AES is like the cryptography interaction anyway inside the opposite request.

3.2 Hash Function

Function that's wants to map information(data) of an arbitrary size to return information(data) of fixed size. During this hash function we have different types of hash functions like SHA1, SHA2, SHA3. The most used for common purposes now is SHA-256, which produce 256-bit hashes. SHA-256 it's a member of the SHA-2 cryptologic hash functions that is designed by the National Security Agency.

4. PROPOSED WORK

In this paper we are trying to secure the tender quotation in AWS by using AES and SHA 256 Algorithm by using windows application. Firstly, we need to consider the three companies such as Tender company, Bidder and Client company.

Module 1: Login to the application

All the three companies which we are divided based on the required module first needs to get registered by email id as shown in Fig 4.

The form is titled "Login Authentication". It contains three input fields: "Select User Type" (dropdown), "Enter User Id" (text), and "Enter Password" (text). Below the fields is a green "LOG IN" button with a double arrow icon. At the bottom is a blue "New Registration" link.

Fig -4: Login page

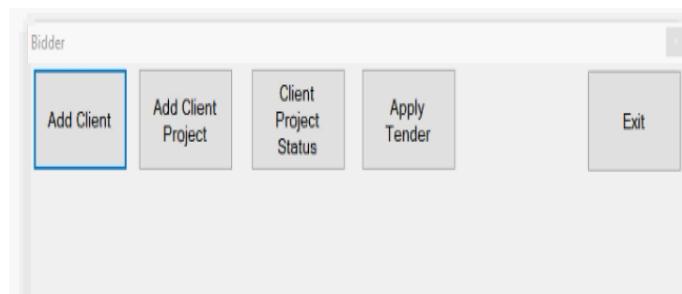
Module 2: Login as Tender company

In the Tender company it must be get registered by unique Id and password which has been sent to the mail Id. Then Registered company will login in by using id and password in which he/she will create a tender category like Building, Road, Water pipe etc.... and enter the details about the tender ,manages the approval of the tender by checking the tender quotation using SHA and AES Rijndael Algorithm and all this information will be written in the QR code image and stored in the AWS cloud and they can also view the Bidder company Profile and their previous works feedback/ratings evaluated for the tender approval.


Fig -5: Tender company home page

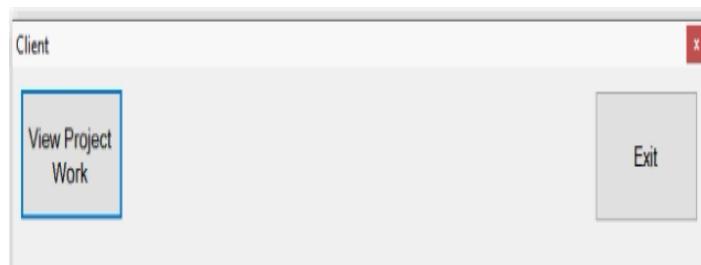
Module 3: Login as Bidder Company

Then coming to the Bidder company here also they want to first register by using Id and password. Manages the client company works like project details and the selects the tender category which they want to bid to tender using SHA and AES Rijndael Algorithm and all this information will be written in the QR code image and stored in the AWS cloud. Then they can view the tender status like approved /rejected.


Fig -6: Bidder company home page

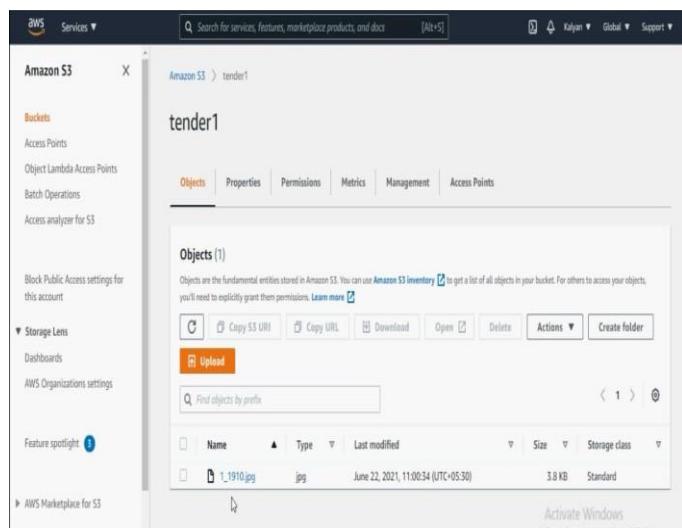
Module 4: Login as Client Company

The Client company login using Id and password. In which they will manage the client details, view the project details, and post the comments if the project status is completed.


Fig -7: Client company home page

5. RESULT

For the data security and privacy purpose we are storing the encrypted data i.e., tender quotation details are written to the QR Code image, and this image is stored in AWS cloud based on S3 services which creates the folders dynamically to avoid tamper and manipulation as shown in the fig 8.


Fig -8: Folder created in AWS using S3 services

6. CONCLUSIONS

To secure the Tender Quotation is a major part when bidder wants to apply to a tender. So, securing the Tender Quotation using Rijndael algorithm with SHA algorithm, QR code Image and AWS service. The Tender Quotation detail will be exchange between bidder company & Tender company in a secure and authenticated way. The application is tampered proof and helpful for future tender approval. In this paper Tender Quotation is highly secured using Rijndael algorithm with SHA algorithm, QR code Image and AWS service.

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