

# Highly Secured ARTI-Q Based Binary Encoded Data Swapping And Transmission System

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**ABSTRACT** - The commercial business in the present decade are obviously turning into computerized system process for betterment to the management as well as to facilitate the customers. In order to gather the regular business sales data, the management have designed their customized software or third part software from accessing anywhere with the help of internet support. The problem is carrying their own commercial data information via internet in a highly unsecured mode gateway server. This will obviously lend the data hackers to retrieve the business transactions data for their mishandling purposes. Even though many researches done in the existing times by various researchers but still the problem is residing everywhere. In order to overcome the existing problem, the proposed approach include the Arti-Q System method with encrypted Binary Data Transmission which has been termed as BDT Arti-Q System. The commercial data will apply the arti-Q system for base data receiving and prioritizing purposes. Then the received data will be processed inside the server and the retrieved data will be spitted into various packets and the splitted packets will be converted into binary formats. Then the binary formats will be swapped in a non-uniform sequential key as Swap Key. Then the collected binary formats will be travelled via available network in a random assignment. The composing server will receive the binary data from the client system and from the server side, the data will be decrypted and reach the destination point through base station networks. In the receiving station, the data will be re-assembled after all the binary data assembled and re-union using swap key. The proposed system will give assurance about the highly secured and reliability of better data transmission for commercial business.

**Keywords:** ARTI-Q, BDT, Binary Data Transmission.

## I. INTRODUCTION

Misapprehension comes with human nature and its invasive characteristic will make it penetrate through data that is mammoth and that which involves calculations and processing. Highly secured Arti-Q based binary encoded data swapping and transmission system is a term coined to eradicate the human error by superseding the manual system. This package effectuates the potent performance of the commercial company based real time application softwares. The aspired system uses "ARTIGENCE" (ARTificial intelliGENCE) which gives the machines the potency to think for themselves to take the the company in an impregnable lofty growth without the intervention of human being. OBEX (OBject EXchange) is devised in a way that it is compatible with devices like W220i model of Sony Ericson. With wireless connection, the asynchronous transmission takes control of the database from a remote location. Antecedent to this, mobile devices were connected to PC using data cable which are in turn connected to SIM card like Airtel, Jio, Vodafone etc.,

The project has several modules like Artigence Configuration in the server system, Authentication settings to the management access, Syntax Creation and function

controlling, connecting live database to the syntax, query merger and the artigence result window in order to collect the data prompt and accurate with Artigence by posting mobile syntax through base station networks and the database design is integrated and is maintained in a centralized database.

With Artigence Control, the information about the live software data is maintained in a centralized database. The Artigence control is embedded into the software with the help of wireless device where all the request nodes from management side can respond through base station support. A timer is inbuilt with Artigence that refreshes every 1000 milliseconds to check the inbox of the wireless device and make sure that the information has reached. All information that comes to the inbox is split into two sections. The first section carries the destination number as to who is requesting that particular mobile's information and second section carries the message and checks whether the message is relevant to the mobile syntax. Once conformed that the message and the person are authentic a response message is sent from the Artigence to the requested management side. It prevents the human errors which has its second nature as penetrating into the mammoth data and calculations and processing. This software effectuates the

potency of the company's live information and carries out the operations effectively and efficiently.

This system integrates all and functions across a company who operates this software onto a centralized database that assists all those departments with their particular needs. Each department has their own customized computer system designed in alignment with how the department works. But this system integrates all of them together and runs a single database easing the communication and sharing of information. Since security being the second nature in running an organization, this software is robust enough to prevent illegal users from viewing the unauthorized information.

### 1.1 PROBLEM DEFINITION

- High control overhead
- Limited battery and low bandwidth
- Fixed infrastructure since internet server is used.
- Anonymous
- No security
- Lack of scalability
- Complicated

### 1.2 PROJECT OBJECTIVE

- Transferring packets without Internet Connection from Source to Destination and vice versa.
- Packets will be communicating only through base stations support in which it transmits as Unicode transmission.
- High transmission baud rate 115200 is set to increase the transmission.
- Accessing information from any location without internet facility from source and destination.
- Multicast services are provided
- Information is carried through base stations networks.
- Packet by Packet each class stream is send to Destination.
- Send one packet in each small round.
- High priority is initialized by providing Unicode transmission in packet, so that the packets are delivered to the content in the form of FLASH message.
- Reducing burst generation at the output port from the same traffic stream.
- Maintaining fair bandwidth allocation for competing network streams.
- Minimizing delay.
- Giving opportunity to other classes to access the bandwidth.
- To reduce packet inter transmission time from same stream.

### 1.3 RELATED WORKS

An extensive review of literature relevant to the implementation of Virtual Private Network protocols,

particularly IPsec, on embedded systems was conducted. Papers relevant to the AES and SHA-1 algorithms, relevant multithreaded and embedded design issues and past work on network processors were also considered for inclusion in this review. Extensive literature exists on the theoretical aspects of the algorithms and techniques used for design and implementation of the project. Very little literature exists, however, on practical and theoretical aspects of designing and developing applications for network processors.

## II. SYSTEM ANALYSIS

The object of exercise of the system analysis is to get the clear understanding of the needs of the clients and the users. What exactly is the need from the software and what are the constraints on the solution. Analysis leads to the actual specification.

### 2.1 EXISTING SYSTEM

By analyzing the existing system, there is no remote accessing facilities made so far in the offline softwares to check the upto date database entry then and there. In order to access the database, the application should be designed in an online software mode and for more user friendliness, the application has been designed additionally with the mobile application integration. But when it comes to offline softwares, the management presence should be inside the work premises or else the management has to enquire the present working staffs in the work premises to gather the data immediately.

In technical aspect, there is no option available to check the remote data without internet connection. Even if the database of the live software is connected online, the data security is very important while transmitting the data from source to destination. Eventhough there are various existing data scheduling and forwarding algorithms available but still there remains no proper security yet.

### 2.2 PROPOSED SYSTEM

With proposed system taking over, the new concept of power admin comes in. The main goal of the power admin is to make a great control over the existing process. The power admin mainly does two processes, which are Authentication and ARTI-Q Remote Controlling. High priority is initialized by providing Unicode transmission in packet, so that the packets are delivered to the content in the form of FLASH message. Here an option is included for power admin to retrieve the document through SMTP. It's the power administrator's choice to block a request or to send the required data requested by the client. If the company's supervisor wants to update their day to day business details to the manager or to the client or to the overall authority of the management, then by using syntax, the user can easily send it using his ordinary mobile phone without internet. For each roles the work of power admin is

to provide them the necessitate authentication. In the previous system, any anonymous person who types the code will retrieve the details. So, it completely lags in security. The present BDT Arti-Q system has been designed with authentication and authorization security walls. The priority term is maintained to use this system effectively. High level control is given. It Reduces burst generation at the output port from the same traffic stream. It maintains a fair bandwidth allocation for competing network streams and minimizing delay.

The main advantage of the proposed system is increasing the complacency of the management, data tampering is reduced, provides security that protect data from intruders, reduces cost of operations, Brings down number of man power processing. Once the management composes any one of the above Mobile Syntax and message to the server, the server first checks whether the requested number is authenticated and if it is, the particular details are composed and sent to the management number with the help of PDU converter.

Proposed system	Existing system
No internet connection is used.	Internet connection is used.
It's not like Round Robin and First In First Out.	It uses Round Robin and First In First Out.
It uses Proxy Based Servers.	It uses simple servers.
90% of the server is used and the rest Proxy based servers are used.	Entire server is utilized.
The bandwidth assigned in proposed system is 115200 baud rate, thus guarantee the transfer of message.	Here the bandwidth is only 9600 baud rate. Transfer of message is not guaranteed.
Multi Constraints based secured data transmission has been followed.	No Security concept for data transmission

### III. RESEARCH METHODOLOGY

#### 3.1 SYSTEM PARAMETERS

The Proposed System superseding the existing system is a graphical user interface with the good interactions with the database. It is primarily application oriented which could be enabled in the future. To overcome the company side drawbacks, the entire system is embedded with Artigence in order to boost the management side by automatically sensing the management query and response to the query. The Query for the management is as follows *AttendDaily (Retrieve Daily Staff AttendanceDetails), DailySales (Retrieve Daily Sales Details), DailyPurchase (Retrieve Daily Purchase details), DailyProfit (Retrieve Daily Profit Details) and so on.* To develop user friendly software that meets the user needs any time. Information can be created and altered by power admin. In the proposed system the customer is provided an access to the product catalogs of the organization. Here the Proposed system is a complete automation of the company side real time commercial software by using Binary Data Transmission (BDT) Arti-Q System.

#### 3.2 ALGORITHM - Binary Data Transmission (BDT) ARTI-Q :

**Step 1:** Create a two 2-dimensional array and named it as External proxy  $E_p(i, j)$  and internal proxy  $I_p(i, j)$ ,

where 'i' represents Queue Number and 'j' represents requested data which includes syntax, destination mobile number.

**Step 2:** Create an Arti-Q Timer Control 'T' in  $I_p(i, j)$  with and interval set to 0.5 seconds.

**Step 3:** Initialize predefined syntax  $P_s$

**Step 4:** For every 'T' hits 0.5 second

Read  $E_p(i, j)$

$I_p(i, j) \leftarrow I_p(i, j) + E_p(i, j)$

$E_p(i, j) = 0$  (Reset External proxy counter to zero)

**Step 5:** For each  $\sum_n I_p(i, j)$

Initialize S, DM

Where 'S' represents 'Requested syntax' and

DM represents 'Requested Destination Mobile Number'

$S \leftarrow \text{Filtersyntax}(I_p(i, j))$

$DM \leftarrow \text{FilterDestinatormobile}(I_p(i, j))$

If  $S = \sum_n I_p(i, j)$  then

$RD \leftarrow \text{Call function}(P_s)$

Initialize Z=0 as integer, K=0 as integer, PQ[] as array

For z=0 to  $\sum_n I_p(i, j)$

If  $I_p(i, j) = S$  then

PQ [k]: k=k+1

End if

Next z

End if

**Step 6:** Divide RD into packets

Initialize M;

for m=0 to k-1

Convert Packets into Binary

Split Binary Packets with Swap Key

Convert the Received Binary Packets in Server Side

Send decrypted packets from server to destination

(PQ[M], RD)

replace  $I_p(m, j) = 0$

Next m

Delete row  $\sum_n (I_p(m, j))$  where  $I_p(m, j) \in 0$

**Step 7 :** repeat Step 3.

#### 3.3 PHASES OF THE SYSTEM

The architecture of the system has been designed with four phases

1. Data Authentication and Receiving Phase
2. Data Analyzing and processing
3. Data Gathering and Packet splitter
4. Data Re-assembling and transmission



### 1. Data Authentication and Receiving Phase

The data authentication receives the incoming request in the external proxy first and checks with the authentication rights given to the user who requested. If the user has authentication rights, then the requested query will be passed to the internal proxy. In the internal proxy, the system checks the requested syntax matching with the pre-defined syntax which has been already stored in the server. If the requested syntax matches with the pre-defined syntax, then the requested message and the user details will be added to the queue and move to the next phase.

### 2. Data Analyzing and processing

In the Data analyzing and processing phase, the complete list of user requested query with the user details are maintained in a cluster based queue. The clusters are formed based on the user requested query on same and their expected answers are same. So, in order to avoid duplication in the process, the system allow the users to cluster and stand in the queue. Luckily, if the user has come late in the queue and if the user query matches with the person who stand first in the queue, then the last user will be moved to the first position and join with the first user in a cluster form. The server executes the user requested query to the server and retrieve the resulted data and move to third phase.

### 3. Data Gathering and packet splitter

The retrieved resulted data are gathered here and the data has been splitted with a standard thresold size define in the server. The data has been splitted into various packets in a binary format. Each data contains a master key and every packets contains sequence number connected with the master key. Then the sequence number has been shuffled and started moving to the server system in order to protect the data.

### 4. Data Re-assembling and transmission

In the data re-assembling and transmission, the splitted un-uniformed sequence number packets are re-assembled with the help of master key and the combined data will be decrypted from binary format to original format. The original format will be delivered to the user's recipient number who are in the cluster.

## IV. CONCLUSION

The proposed system has been designed in a highly Secured manner by using Arti-Q techniques which includes binary encoded data swapping and transmission system. In the current scenario, many new business are getting into the field and compare to the previous decades, the management of the entire company are not in the work premises most of the time. This is due to the situation of simultaneously

handling multiple business under one head. The company heads are in need to know what is happening inside the business premises about daily staff attendance, monitoring sales and purchase details, calculating daily profit details and so on. Most of the companies have converted their business transaction application into online as well as mobile app based platform. But due to server maintenance charges, micro, small and medium enterprises companies preferring the offline softwares which are in-expensive and also data has been safeguarded from online threats. But in this situation, if the management is in need to view their company data in remote, then the problem has been arising due to the missing features of online facility inside the offline software. By considering this, the proposed system enhances a technique called Binary Data Transmission system using Arti-Q technique. With the help of this proposed system, the management can request the offline system with the help of connected wireless device in the offline server. So, the management push the request through wireless device connected in the server system to retrieve the company details. The main server receive the client request and connects the local server system and retrieve the data from the local server to the main server by using Binary Data transmission with secured swap key system. And then, all the data are reassembled in the main server and from there, the server pushes the results to the destination as a wireless message. In conclusion, the proposed system has been designed with multiple constraints of data transmission from local to the main server with all the help of Arti-Q system support and send the data from the main server to the destination through conneced base station networks. The system is highly efficient when compare to the existing system and also maintain a very good speed of query response to the destinator who stays anywhere in worldwide.

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