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Cloud & Distributed

Analysis using Hadoop

Secret Splitting over Cloud

Highlights

Secure Data Distribution

Internet Traffic Flow Analysis

Discovering Thoughts, Inventing Future

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Internet Traffic Flow Analysis using Hadoop

By Sudipa Biswas & Subhradeep Biswas

Abstract- The internet traffic analysis elucidates the network administrator for monitoring the ongoing operation in the network and to understand the network so that the behavior could be examined and large problem can be examined. Flow analysis assists in traffic management, allocation of resources and fault tolerance. Due to the fast increase in internet user simultaneously the network usage has also escalated rapidly. The major problem of this fast growth in network is the traffic management, storing of traffic data and analysis this enormous amount of data in a single machine. To resolve this issue hadoop has been implemented to scan multiple input data and produce output for traffic identification and clustering flow. In this paper internet traffic flow analysis has been done using hadoop. In this proposed method system accepts packet data as input from network and this input is appended to hadoop distributed file system (HDFS) and at last processing is done through MapReduce. Once the output has been generated the network administrator analyses the internet traffic and troubleshoot any problem if necessary.

Keywords: HDFS, traffic analysis, traffic identification, traffic clustering, mapreduce, and hadoop framework.

GJCST-B Classification: C.2.5

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I. Introduction

Internet is inclusive system which connects numbers of computer with each other. It uses TCP/IP to get connect this devices which contains packets getting from source to destination computer. This computer network is usually administered by [1] software defined network (SDN).This assist the network in by decoupling that drive the outcome about the traffic is remitted. To implement the traffic analysis of the big data the collection needs to be done in order to measure the data for Varity sources. The huge amount of data which can be of any form like 3d data, audio, video, text and many more which cannot be processed by any traditional way but by the big data approach we can measure and analyze the data to be further analyzed for resolving network related issues. Hadoop[2] is implemented that uses basic programming to process large amount of data sets. The main intention of this paper is to design and implement a system to for network traffic analyze utilizing hadoop clusters [3]. Once the input is given the detailed measuring and analyze is done on the input and output is derived on the basis of the input given to the system.

II. Proposed System

a) Hadoop Framework

Hadoop is literally open source which is java based programming that will support analyzing processing and storage for large data set in a computing environment. Hadoop makes possible on the application on system with thousands of commodity hardware nodes and handling terabytes of data. Its file system which is distributed and facilities rapid data transfer rates among nodes and continue operating a nodes failure. Hadoop has emerged as big data foundation and scientific analytics, business and planning.

b) System Description

The process of flow analysis consists of mainly three main factors. Firstly the data exchange, secondly the analysis and thirdly the user interface. In the data exchange process the HDFS [4] is implemented to store the information or the data to be used as an input in analyzing. In the analysis process the data is analyzed and managed and other factors such as node, link, and flow analysis are also implemented in this process. In the user interface the user interface the system and graphical display is displayed to enhance the user understands the analysis flow. The API [5] and GUI [6] tool is also implemented which enhances the communication. The network gives the input to the system. Below in Fig1 component analysis flow architecture is given.

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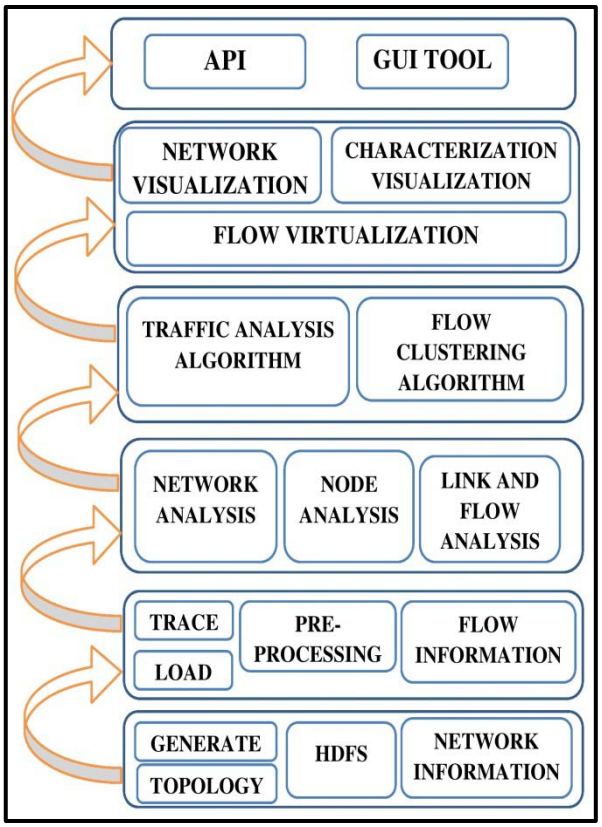

Fig.1: Component analysis flow architecture

The input is actually data packet following from network. All the information is actually stored in HBASE. After that the system executes HDFs and MapReduce[7] function on the input data packet. After the function gets implemented and packets are stored the flow mechanism is implemented. The statistical view of the data can be viewed by the user. The different platform like Windows, Linux, and Mac OS/X are all on written in java platform. The specified format of the input helps in parsing of the input data. The sorting of the input file becomes necessary if the required format is done available. Parsing of the input is based on source IP address [8], types of packet, destination IP address, source port address and destination port address. The input which has same source port and destination port will form and stored together and input from the same source IP address and same destination IP address is clustered and stored as unstructured data in the database. In Fig2 block diagram of flow system analysis.

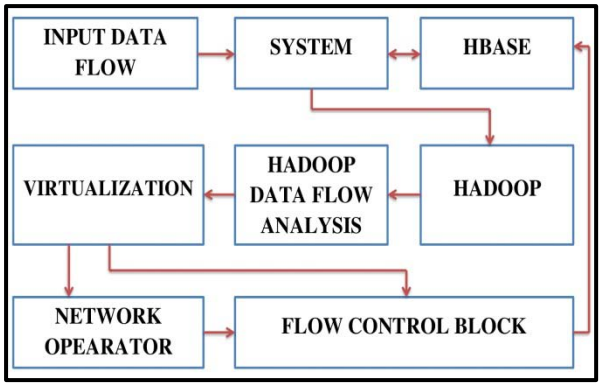

Fig. 2: Block diagram of flow system analysis

III. Conclusion

In this paper we have done the flow analysis and identification on hadoop platform. We have provided detailed analyses of the input data packet and classification of the type. This paper shows the methodology for analyzing packet file and statistical analysis of the original input packet and flow. The future work of this paper can be worked on the various problems like more networks makes more congestion troubleshooting the problem using the hadoop technology.

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Secure Data Distribution using Secret Splitting Over Cloud

By Sagar P. Jaikar, Ramkrushna C. Maheshwar, Sameer P. Mamadapure & Anand A. Bhosle
International Institute of Information Technology

Abstract- Developments are important to ride the unavoidable tide of progress. A large portion of undertakings are endeavoring to lessen their processing cost through the method of virtualization. This interest of diminishing the computing cost has induced the development of Cloud Computing. Cloud computing provides set of services to the customers over the network on rented basis which can be scaled up or down as per customers requirements. Typically cloud computing administrations are conveyed by an outsider supplier who possesses the foundation. In this paper we are focusing on secure data distribution over cloud using secret splitting. This will help us to achieve data confidentiality, integrity & availability with less overhead. We proposed a secure data distribution scheme using secret splitting to ensure data owners that their data are distributed securely over the cloud.

Keywords: cloud computing; distributed computing; secret splitting; data confidentiality; integrity.

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Secure Data Distribution using Secret Splitting Over Cloud

Sagar P. Jaikar [α], Ramkrushna C. Maheshwar [σ], Sameer P. Mamadapure [ρ] & Anand A. Bhosle [ω]

Abstract- **Developments are important to ride the unavoidable tide of progress. A large portion of undertakings are endeavoring to lessen their processing cost through the method of virtualization. This interest of diminishing the computing cost has induced the development of Cloud Computing. Cloud computing provides set of services to the customers over the network on rented basis which can be scaled up or down as per customers requirements. Typically cloud computing administrations are conveyed by an outsider supplier who possesses the foundation. In this paper we are focusing on secure data distribution over cloud using secret splitting. This will help us to achieve data confidentiality, integrity & availability with less overhead. We proposed a secure data distribution scheme using secret splitting to ensure data owners that their data are distributed securely over the cloud.**

Keywords: cloud computing; distributed computing; secret splitting; data confidentiality; integrity.

I. Introduction

Cloud computing offers huge advantages to its adopters, however it additionally accompanies its arrangement of issues and inefficiencies of which security is the greatest concern. Keeping in mind the end goal to influence a remote cloud based foundation; an organization basically gives away private information and data that may be delicate and classified. Secret splitting plans are utilized to confine access to such delicate and classified information. In cloud computing, security is considered to be a critical viewpoint because of the noteworthiness of data put away in the cloud. The information can be private and to a great degree delicate. Thus, the information administration ought to be totally dependable. It is important that the data in the cloud is shielded from various assaults. Security acquires attentiveness toward secrecy, integrity and accessibility of information. Unapproved access to data results in loss of information secrecy. Information integrity and accessibility suffers due to outages of services provided by cloud service providers (CSP's).

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Cloud computing is the technique of using a network of remote computing resources hosted on the network, rather than on a local server. This moves user's data from local storage to cloud servers which are placed in third party premises. As advancement in computing technology, now day's user's believes in anytime anywhere computing. They often access documents without knowing where they are stored & how they are stored. They store documents with unknown providers, especially in distributed processing situations. This gives several crucial advantages to users. Firstly they don't need to worry about storage management for the data, second, they can have anytime anywhere access to their data, third, they can avoid expenditure on hardware & software infrastructure. These appealing benefits make cloud fancier to their users but as the data is outsourced into cloud they are no longer in control of data, so it posses threats to data integrity & confidentiality.

Other than this there were several incidents of service outages & security breaches from CSP's. Amazon's data storage service was down for several hours recently[12], Gmail's mass email deletion occurrence[13] are some recent examples of it. This kind of outages causes violation of data availability to corresponding users[12]. Also there are various motivations for CSP's to behave unfairly with clients with respect to outsourced data such as hiding the data loss incidents, deleting infrequent data. It means that though we are uploading the data into cloud, we are held at the mercy of CSP's for data confidentiality, data integrity & data availability. In this paper, we will be discussing the data distribution technique which will allow us to distribute the data among various users without violating data confidentiality & data integrity. Despite of distributing data over cloud we will not be depending on CSP for data confidentiality as with secret splitting we are not disclosing original data into cloud. It will definitely add some input/output overhead but here we are mainly focusing on secure data distribution only.

II. Related Work

Though cloud computing is very attractive to its users it poses many security challenges due to numerous reasons. As users are outsourcing their data to third party servers, they are not in control of it. It means standard cryptographic techniques will not be enough to protect the data. Also cloud is not just data

warehouse, frequent changes will be made to data, so data should be in consistent state.

Therefore, we need to depend upon security policies applied by cloud service provider. Considering different kind of data for different users & the demand for data safety as well as of storage correctness within the cloud becomes more difficult. So we can broadly classify the security concerns in three parameters namely Confidentiality, Integrity & Availability. Confidentiality is a security requirement in which the message must be correctly interpreted by the intended user. To do this, unauthorized access and usage must be prevented. Integrity security requirement can be subdivided as origin & data integrity, where we are concerned about source authenticity & data correctness. Availability requirement is data must be available to all legitimate users of the system.

Secret Sharing approaches are one of the vital strategies used for data distribution over third party servers. Two standard secret sharing schemes are the Shamir's Secret Sharing algorithm and Rabin's information Dispersal Algorithm (IDA)[11]. In Shamir's algorithm to distribute a file *F,* we need to cut it into *n* constituents *F1, F2, F3..Fn.* Here, every file *Fi,* $i \leq n$, is padded with some dummy bits to make it exactly of equal size of that original *F*. To obtain the original file *F* we need *k* out of *n* constituents or else we will not be able to obtain it. Shamir calls this as *threshold (k,n scheme)*[1]. But here we are distributing original file via constituents/shares which is different from secret splitting where we are not distributing original file. Rabin proposed Information Dispersal Algorithm where we can split secret *S* into *n* different pieces in such way that to regenerate the secret we require *x* pieces, where *x* is threshold & $x<n$. Though this algorithm will reduce storage complexity it has limitation if the pieces exhibit some pattern then attacker may obtain the secret[2].

Zage et al. developed an alternative to secret split archives was in which an algebraic-based encoding solution, Matrix Block Chaining (MBC).It is used for maintaining data security when encoding large files. The design of MBC is done accordingly to allow encoding of multiple partitions of the original data in parallel as subsequent encoding operations are independent of the output of previous encoding steps. Their technique was designed specifically for cloud storage, however, and as such cannot maintain data availability in a compromised environment[3]. Huchton et al. presented an approach for sensitive data sharing across mobile devices in a front-line environment. Here they used a similar approach as a way to protect sensitive digital data among troops in the field[4].

There are various cryptographic techniques used in the distributed storage system such as data encipherment, homomorphic encryptions[5], secret sharing & splitting algorithms and Private Information Retrieval[6]. Even though PIR and homomorphic encryption can ensure the confidentiality of data, they induced computational costs. In addition, adversaries can affect both throughput and latency. Furthermore, data encryption is insufficient to ensure the security of data, because it is still threatened by lost, theft or damage making it unavailable[10].

The basic idea of secret sharing scheme proposed by Blakley, is that an administrator dispatches a piece of shares about the secret to each participant such that a group of participants have privileges to recover the secret, but unprivileged group of participants cannot obtain any information about the secret[7].

Secret splitting schemes provide both data availability and a certain degree of data confidentiality, with low computational and storage costs compared with other cryptography techniques[9].

III. Overall System Design

a) Secret Splitting

In our proposed system we are using secret splitting to distribute the data securely over a cloud. In secret splitting, the message is shared among multiple users without breaking the original message into pieces. There are ways to take a message and divide it up into pieces. Each piece by itself means nothing, but when we put them together, the complete message appears.

If each user has a piece of message, then only together they can make the complete message. If any user vanishes with his single piece of the message, his information is useless by itself.

The simplest sharing scheme splits a message between two people. Here's a protocol in which Owner O can split a message between User 1 and User 2:

Step 1: Owner generates a random-bit string, *R*, the same length as the message, *M*.

Step 2: Owner XORs *M* with *R* to generate *S*.

$$M \bullet R = S$$

Step 3: Owner gives *R* to User 1 and *S* to User 2. To reconstruct the message, User 1 and User 2 need their respective pieces:

Step 4: User 1 and User 2 XOR their pieces together to reconstruct the message:

$$R \bullet S = F$$

This technique, if done properly, is absolutely secure. Each piece, by itself, is absolutely worthless. Essentially, Owner is encrypting the message with a one-time pad and giving the cipher text to one person and the pad to the other person[8].

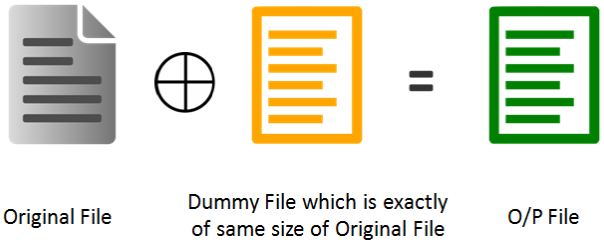

Fig.1: Secret Splitting

As shown in Fig. 1. In secret splitting we have to XOR Original file with dummy file which is exactly of same size of original file. The resultant XOR'ed file & dummy file is shared with two different users. Both the users need to come together with their shares to regenerate original file.

Secret splitting will allow us to achieve confidentiality. But we need to handle the integrity concerns separately. As we are aware if somebody (attacker) modifies the shares of users which we are putting in cloud, there is a possibility that users will not be able to generate the correct file from their respective shares. To guard against such integrity violations we are using SHA-1 hashing algorithm.

b) System Architecture

The data distribution architecture over cloud using secret splitting is illustrated in Fig.2. We are assuming two entities namely data owner & data user. Data owner will distribute their data securely through cloud and different users will get there corresponding shares. To regenerate the secret they need to combine their respective shares. Different entities are mentioned below:

1. *Owner:* These are the entities which will use actual secret splitting technique to upload the file for distribution over a cloud. Owner may choose to update & replace previously updated files.
2. *User:* Users, with whom owner have to share the data over the cloud. They will get their own share from the cloud service provider as they download it from cloud. The users need to come together to regenerate the original file. If anyone of the share is missing they cannot regenerate the original file.
3. *Cloud Service Provider (CSP):* CSP's are those enterprises who have large amount of resources to fulfill clients requirements for storage, processing, platforms etc. They are having their own infrastructure to handle client's data as well as applications. CSP's have the capabilities to scale up/down the resources as per clients needs.

Data owner will take the hash of original file F and encrypt the file with a shared secret key between owner & corresponding user. Owner will also encrypt the hash value using the same key. After encrypting original file & hash value, owner will attach a user id of corresponding user with whom owner wants to share the file. All the three parts are attached together & will be uploaded in cloud. Now the respective user needs to download his corresponding file from the cloud. Also user can verify the correctness of the file by recalculating hash on the file and matching it with attached hash value. Data owner will take a dummy file which is exactly of same size of the original file that owner wants to distribute among users. The Owner then XOR original file F, with dummy file D, producing an output file. The Output file S & Dummy file D is shared with two different users. As number of user's increases, we need to add more dummy files so that everyone will get their own shares.

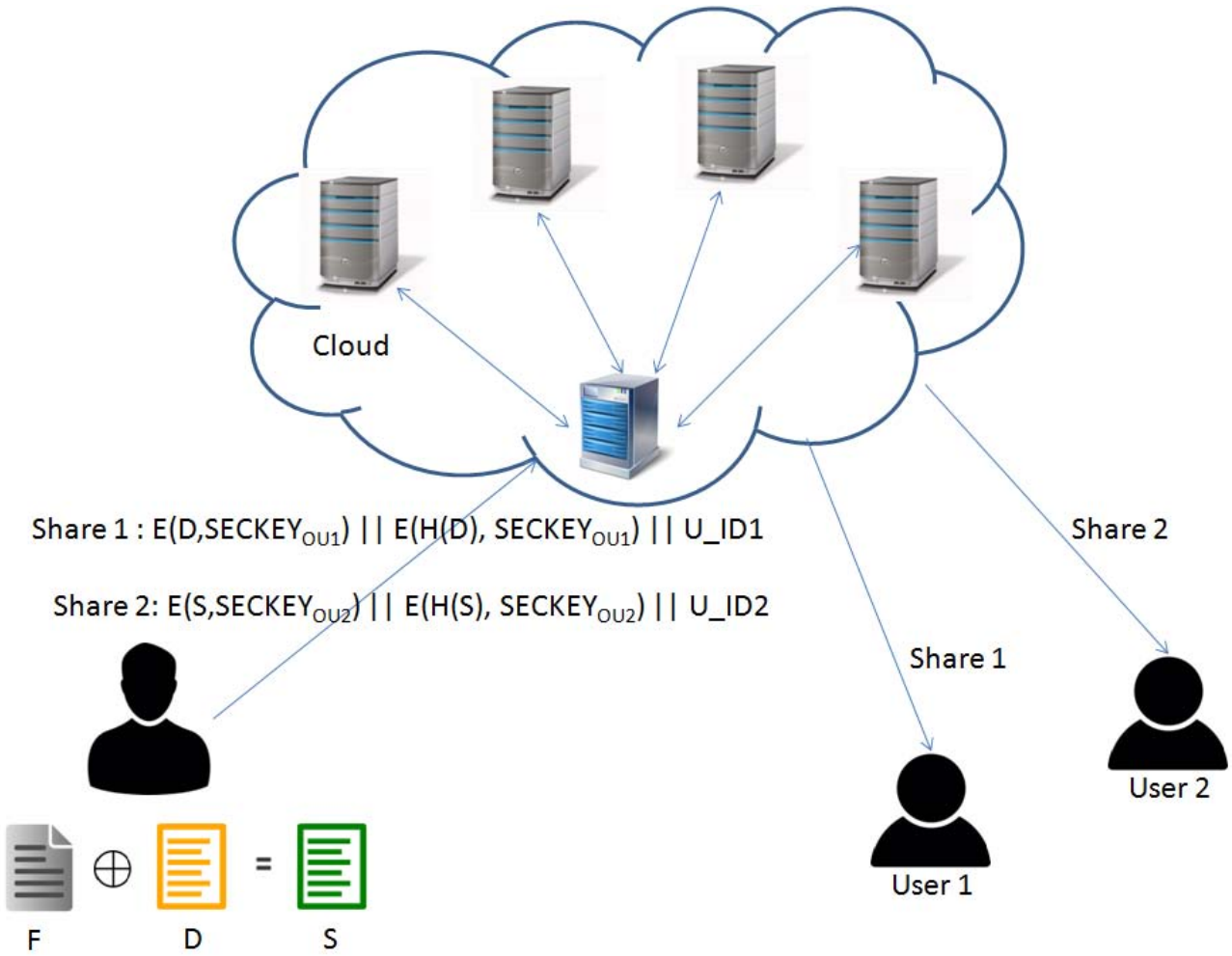

Fig.2: Data Distribution Architecture over Cloud using Secret Splitting

c) Notation & Preliminaries

- F – The original data file to be distributed. We are denoting F as a data matrix of m x n vectors.
- D – The dispersal matrix of x n vectors used as dummy file.
- S – Data matrix constructed using XOR of F & D
- H(file) – Hash value of file.
- SECKEYOU – Share d Secret Key between data owner & data user
- SECKEYOC – Shared Secret Key between data owner & cloud.
- User_ id- Corresponding user id.

In our approach owner will choose the number of dummy files which are exactly less by one than the number of users. We are denoting original file F as a data matrix of m *x n* vectors. Here we are assuming only two users in the system, but it can be used for more number of users also. So we are taking only one dummy file. Dummy file is exactly of same size of original file *F.* The dummy file is represented in a matrix *D* as dispersal matrix.

After *XORing F & D,* the resultant matrix *S* is generated. These matrixes *D & S* are nothing but the shares that are distributed over cloud. As we cannot send it clear over cloud, Data owner need to encrypt it using a secret key shared between him & corresponding user i.e. $SECKEY_{OU}$. Before encrypting it, owner needs to take hash of the particular matrix. i.e *H(file)*. After this both the parts are attached together along with the corresponding *User_ id* & dispatched into cloud. If attacker compromises cloud servers & tries to retrieve original file, the attempt will be thwarted as they are stored in encrypted format.

File Distribution Algorithm:

1. *Begin*
2. *Choose file F to upload & Dispersal matrix D. i.e dummy file.*
3. *Generate Matrix S = F XOR D.*
4. *Compute the hash on H(S) & H(D). Encrypt both S & D using AES algorithm.*

5. *Encrypt the hash values H(S) & H(D) using corresponding $SECKEY_{OU}$ i.e Shared Secret Key between data user & data owner.*
6. *Attach E(S, $SECKEY_{OU}$) || H(S) || $USER_{ID}$ and attach E(D, $SECKEY_{OU}$) || H(D) || $USER_{ID}$. Dispatch one part to User 1 & other part to User 2.*
7. *End*

In above algorithm we are assuming that there are two users in the system & data owner & users have a shared secret key among them.

File Download & Integrity Check:

1. *Begin*
2. *Download the corresponding User share. i.e. E(S, $SECKEY_{OU}$) || H(S) || $USER_{ID}$ or attach E(D, $SECKEY_{OU}$) || H(D) || $USER_{ID}$*
3. *Decrypt S or D using $SECKEY_{OU.}$ Calculate H(S') or H(D') & compare it with attached H(S) or D(S).*
4. *If match*
   data is intact & distributed properly.
   Else
   redistribute.
5. *End.*

After downloading the corresponding shares users can come together with their shares and they can reconstruct the original file. This approach is very secure as no attacker can get original file if he breaks into a cloud server. As every share is encrypted with shared secret key between corresponding user and data owner, only user possessing the valid key can open the share. The main advantage of this scheme is that the data owner doesn't require sending the original file into the third party cloud. As we have observed in data uploading process, owner is not uploading an original file, rather uploading dummy file & XOR'ed output file. So owner's data remains at his premises only, minimizing the risk of data compromise.

IV. Conclusion

We have investigated the information security worries in cloud information storage/distribution, which is a very significant issue. We proposed a secure data distribution scheme to ensure owners that their data will be distributed securely among the users over the cloud. In this approach, there is no need to calculate the tokens as there is no challenge response protocol to verify the data integrity of owner's data because in reality owners are not uploading their original files/data into the third party cloud rather they are uploading shares calculated using XOR operations. Still in this scheme we tried to ensure confidentiality & integrity of owner's files/data by using AES & SHA-1 algorithm respectively. As compared to secret sharing approaches, secret splitting technique will definitely have some input/output overheads which will cost on bandwidth usage as well as on storage utilization, but on the other hand it will allow us to distribute data more securely. Despite of all this we still believe that information security in Cloud is a zone brimming with difficulties and of vital significance.

V. Future Work

This scheme suffers from a drawback where we need to have all the shares to regenerate the original file. If a single share is lost then we cannot regenerate the original file. So we need to take at most care to bring all shares together. Also significant data overhead maybe caused as number of users increases, because in that case we need to upload that much shares. But looking at security benefits we can afford that much data overhead. We can enhance this approach & eliminate the need of bringing all shares together to regenerate original file by using secret sharing threshold scheme. In such schemes we need to set threshold such that out of m shares, n needed to come together to regenerate the original file. Also we can improve this approach by adding verifiable secret sharing where users can verify their shares that they have received from owner are correct & not the false shares.

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Web Technologies and User-Centered Interfaces

By Richard Scroggins
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Introduction- The internet is a vast interconnected network that facilitates, not only the connecting of many people and devices, but also the use of many protocols and technologies. Many people confuse the concept of the internet and that of the World Wide Web. Technically speaking, the internet is the infrastructure that support multiple communication technologies, ports and protocols, while the World Wide Web is a specific subset of those technologies, ports, and protocols that facilitate one overarching function. In other words, the SMTP or Simple Mail Transfer Protocol has no direct relationship to the functioning of World Wide Web, but rather it runs parallel on the same hardware. Wagstaff (2014), defines the internet as "a "network of networks." It is the infrastructure that connects networks across the world, including both the hardware (computers, servers, cables and more) and the software." (p. 1). He, Wagstaff (2014), also defines the World Wide Web as "another avenue for transmitting data over the Internet, in this case by entering a string of characters called a uniform resource locator (URL) into a browser." (p. 1).

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I. Introduction

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So the first task in assessing Web technologies is to either make the assumption that the term web is a misnomer used in place of the word internet, or to assume that the analysis should be limited to only those technologies that pertain to the World Wide information space and the limited set of technologies, ports, and protocols that directly relate to it. This falls to the researcher to make this choice and define terms and the scope of the research. As the researcher and given that the discussion instructions make reference to the internet multiple time, I am making my own assumptions about the topic and choosing to include all technologies, ports, and protocols associated with the internet and not just the information space of the World Wide Web. To ensure that the topic is research deeply enough, three technologies will be evaluated in this literature review. These technologies are: software as a service, cloud storage, and web based CRM software.

II. Software as a Service

Software as a service, or SAAS, is a popular trend right now and represents a business strategy far more than an actual technology. Software as a service has many benefits for companies that lack the resources to host their own solution. The resources that they lack could be money, time, staff, etc. Finch (2006) writes, "SAAS is where one rents Web-based software hosted at the provider's site. For many companies large and small, SAAS is the best way to rollout new technology." (p. 25).With software as a service, it is the same software, just hosted or offered with an update service. My company uses the cloud version of the Adobe suit, because it is required to get the new version of the software. However, the product is not any different, they just use the cloud to host your licensing info so that they can disable the software is you do not renew every year. So in reality it is a way to take a product that you used to own outright and turn it into a lease. In other words it is really a scam, although it is very lucrative as a business strategy. Now this is completely different from selling a hosted service to an organization that is too small to have their own environment. But even in this scenario the software is the same, it is the service of hosting that you are paying for. Adobe is not the only large software company that is moving to the software as a service model. Microsoft is moving office customers to office 365, a cloud or subscription based alternative to the traditional office software suit. This theoretically reduces administrative overhead, but also forces small companies to spend extra money to stay licensed and able to use the software, even if they do not need or want the new versions or features. Microsoft is also moving the Windows operating system to a subscription based service. Windows 10, which was initially a free upgrade will soon cost $10 per month per computer. Kelly (2015) writes, "Windows 10 will be the last numbered version of the OS and going forward it will simply become a 'Windows' subscription service." (p. 1).

III. Cloud Storage

Cloud storage, or storage that hosted and accessible through an internet connection, is a powerful and complicated technology. The uses of cloud based storage range from providing remote and secure storage for organizations, to applications like Dropbox that sync files between locations, to the hosting of pirated movies on sites like the Pirate Bay. As with any technology, there are many uses and applications. Cloud storage is also a technology area that is growing. Marko (2012) writes, "The cloud is where your end users want to back up and share their digital content. They

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already use iTunes and Dropbox, and cloud services make sense for mobility initiatives and where non-mission-critical data is involved. Cloud storage used to mean simple disk drive replacements like SkyDrive and iDisk, but today there are dozens of product categories." (p. 30). There are many reasons to move to the cloud for storage and hosting. Marko (2012) provides the following list:

1) No capital expense.
2) Good support for mobile workers.
3) Monthly, usage-based pricing.
4) Easily expandable capacity.
5) The ability to off-load hardware and software management.

Figure 1 - Marko (2012)

Despite the many advantages of cloud storage, there are hurdles in moving to the technology, and many organizations have not moved to the technology yet. As a result of this, many cloud storage vendors are investing their time in education CIO's and IT managers of the various options so that their respective management members can understand the benefits. Cloud store also in not the solution for every scenario, for example block level data storage. It is however very appropriate for large data, data backup, archiving, and disaster recovery. While adoption is slow, it is increasing. (King, 2009)

IV. Web Based CRM

In defining Customer Relationship Management, or CRM, Venturini and Benito (2015) write, "CRM is a set of business activities supported by both technology and processes that is directed by strategy and is designed to improve business performance in an area of customer management." (p. 856). CRM software is software designed to manage the CRM process. In turn, web based CRM software is CRM software that is simply web based. There are several popular web based CRM software services like Highrise, Pipeline Deals, and Salesforce.com. CRM software represents a broad set of applications that help an organization manage data related to customers, like names, contact info, sales information, or contact notes. Many enterprise level organizations use CRM applications that are part of even larger Enterprise Resource Planning system like those provided by Oracle or SAP. Web based CRM software is scalable to the point that it is suitable for virtually any size business.

In looking at features, I chose to evaluate Salesforce.com. In defining what Salesforce.com are, their website states, "We're the innovative company behind the world's #1 CRM platform that employees can access entirely over the Internet — there's no infrastructure to buy, set up, or manage — you just log in and get to work. And now our new Lightning Platform gives you the fastest, most complete way to put your customers at the center of everything you do." (Salesforce.com, 2016)Salesforce.com divides the primary web based software features into the following categories: sales, service, marketing, community, analytics, apps, and IoT Cloud. All of the offerings within these categories are web and cloud based, although some web applications within the suites connect with programs like Microsoft Outlook or offline relational databases. Salesforce.com also has several different domains associated with their suite applications like data.com, force.com, and desk.com.

V. Summary

The use of the internet and the World Wide Web for both home and business users greatly adds to the software options available, whether for a single application, or for an entire enterprise operation. There is also the availability to have hosted hardware for any of the same purposes as local hardware would be used for. In reality, the options are only limited by the end user or the technology manager for an organization. From this perspective, the main idea behind web or internet based technologies is scalability. The scalability allows an organization to buy only what they need in terms of hardware and software and are not burdened by large up front technology investments at a time when the organization is struggling financially to get off the ground and profitable. As an organization grows, they can choose when and how much to invest in expanding their web based footprint. For some organizations, even at the enterprise level, using web based technologies is a type of outsourcing that might be temporary or permanent. Additionally, there should be an investigation into the web technology vendor to make sure that they are using best practices in terms of hardware, software, updates, programming, and staffing. Williams (2009) sums up both the advantage and hesitation of using web based technology in writing, "Use of web-based applications allows for outsourcing of specialized business functions to technological experts without draining an internal resource - giving staff SH&E professionals more time to focus on core competencies. Included in that philosophy is the expectation that the provider employs IT experts who focus on single-application development and associated upgrades and maintenance, resulting in a more sophisticated application than most in-house IT personnel could develop." (p. 20).

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Threats and Problems of Cloud Computing and Ways of Providing Security

By Dr. Yasser Elmalik Ahmed Seleman & Niema Abdelhamid Abdelwahab
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Abstract- Cloud computing electronic is a collection of servers and storage spaces, operating systems and software platforms and applications of different, application that resides on the Internet and you are able to use it without having to know any details of the technique with him, all you need to know in order to take advantage of the services it provides is the knowledge of the user name and password your own.

These services many advantages, they face many of the threats and risks that could affect seriously the data and information used if it is seriously keen to understand and put the right solutions to avoid them.

Cloud computing is the security and protection of the data subject. Despite that these clouds may be more defensible from a personal device, but the possibility of data loss is a problem. The goal of research to identify the cloud computing and the advantages and disadvantages, and you must know the gaps and weaknesses and how to identify solutions.

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I. Introduction

Cloud computing is a technology that relies on the transfer and processing of computer storage space for the so-called cloud, hardware servers are accessed via the Internet. To turn programs from products to services. And allow users to access them via the Internet without the need to acquire knowledge and experience and control with material. Rely on advanced cloud computing data centers, which provide large storage space for users, as some programs as services available to users. Renowned for cloud computing by providing special services made it easier for users of their business, reduced costs, increased efficiency and made them focus on their goals and leave the technical things for service providers, so I went big companies to cloud computing, it became easier for new companies to start its full relying on cloud computing. Cloud computing faces many threats and risks that could affect seriously the work of the companies that use them if you do not seriously keen to understand and put the right solutions to avoid them. After clarifying the meaning of cloud computing can be done cloud computing summarized in three main sections based upon all of the above services and a variety of applications.

1. Software as a service
2. Platform as a service
3. Platform as a service

These three sections representing all the different cloud computing services.

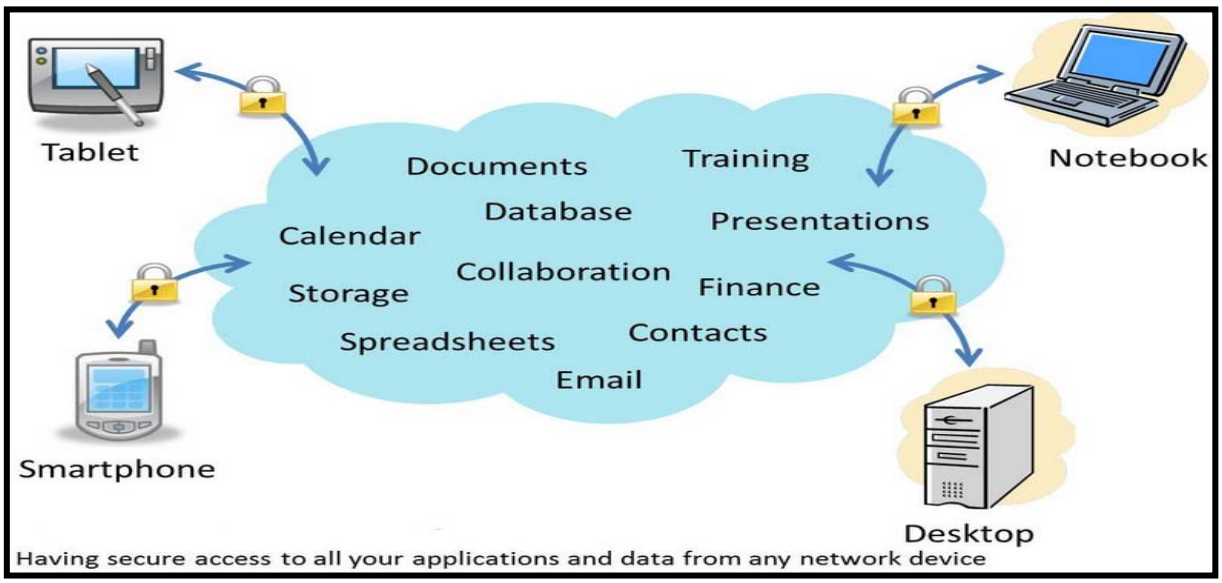

Figure 1: Shows the uses of cloud computing

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II. The Importance of Research

The importance of the paper that the security of computing information cloud e is very important from many points of view and the point of view that the information not be safe only when management of the internal network, while others believe that cloud computing e can provide the necessary security to ensure the maintenance of information and safety. That the information security problems in the electronic clouds come from two sides: Service Provider, Customer But the main problem in the service provider, to provide a strong infrastructure, tools and secure storage warehouses.

Researchers interested in identifying threats and problems and find out weaknesses and how the solutions to the problems of cloud computing.

III. Research Questions

1. What are the threats and problems facing cloud computing to provide services?
2. Methods and ways to address solutions and cloud computing problems.
3. What are the reality and the future of cloud computing technology?

IV. Research Objectives

Objectives of this study are concentrated in the following:

1. Identify new concept known as cloud computing and the various applications and advantages and disadvantages.
2. Disclosure of the possibilities offered by cloud computing and how to utilize them in the provision of information services.
3. Identify threats in cloud computing applications.

V. Weaknesses and Risks and Threats in Cloud Computing

From the viewpoint of researchers, users should know the disadvantages and risks of cloud computing services in addition to its advantages, and think about where researchers reviewed some weaknesses, threats and explained points are also know the solutions. Month's threats to cloud computing where she classifies them into the following nine categories:

1. Data Breaches Break through and steal data of the worst things, this also applies to customers' confidential or sensitive files.
2. Data Loss Loss of data due to problems with the service provider, or mistakes, or because of a hack either penetrate the service provider or even a user penetration, can lead to a big problem, a lot retains important files on cloud computing.
3. Hijacking Account or Service Traffic Multiple ways to steal and efficient data entry, whether it is done using tricks to fish fraud, or by taking advantage of applications and systems that deal with the user in organs gaps. When a hacker gets in any way they can then spying, manipulation of data sent and received data.
4. Insecure Interfaces and APIs The user typically controls their statements on the clouds across the interface linking services / applications provided by the service provider that, whether linking their systems own or through third-party systems. These interfaces must be safe to use against errors or malicious uses. The user must be careful when using these interfaces to follow the best ways to ensure the utmost security, in contrast to the service provider must be careful to provide maximum safety and control levels to ensure users' data.
5. Shared Technology Vulnerabilities Cloud computing services provider to share their network resources among users depends. A gap or a mistake in one of the settings in the accounts may lead to a full expose the network to the danger.

Secure cloud computing of the most important challenges we will look at the security gaps and try to reach solutions to the roads and not the pirates of computing that expand the possibilities of penetration to enable For example, a breakthrough passwords, and authentication tools to exploit SSL protocol on Debi an is also working on cloud computing, it is also working on a network of users. Collective attacks are still effective; of fraud attempts are persuading Amazon cloud network users to the implementation of malicious portrait of a Default.

Researchers from the figure illustrates the most important weaknesses and gaps in cloud computing low risk or at least not according to availability of features and availability.

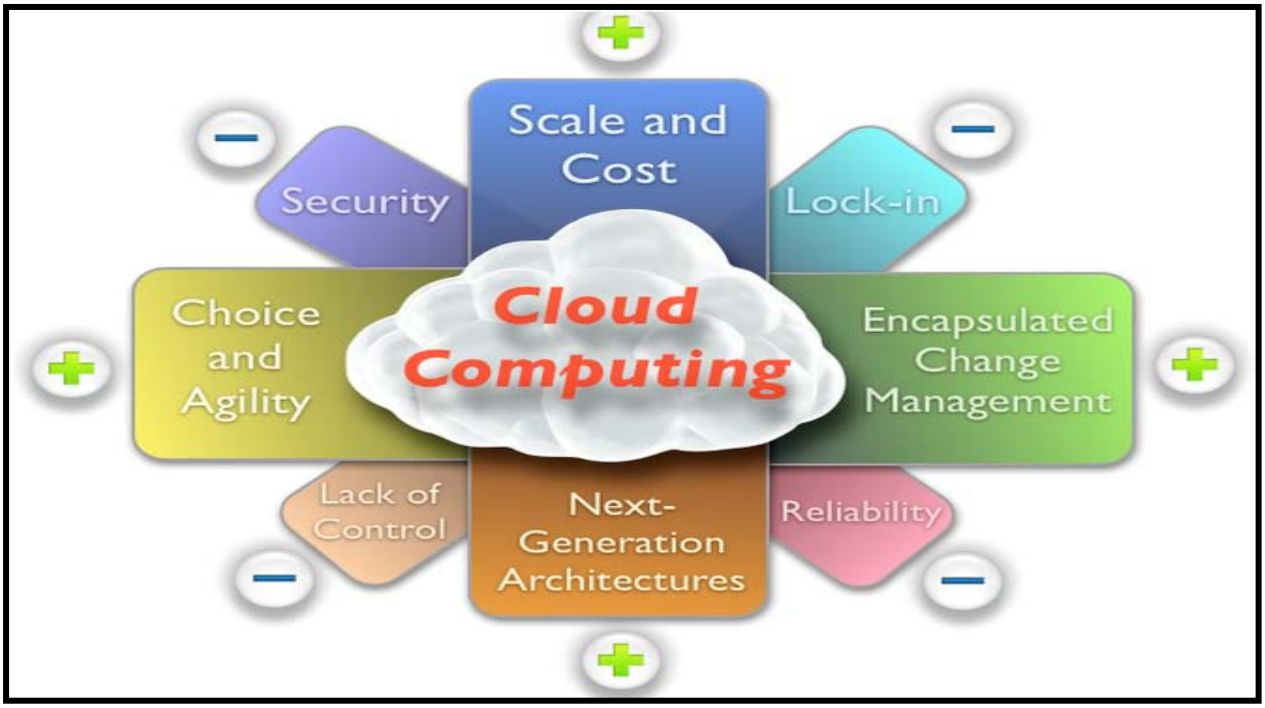

Figure 2: Shows the reasons breakthroughs cloud computing

VI. Conclusions

About the security of electronic clouds differ in the two destinations of view, that the information not be safe only when managed in an internal network. The point of view that the electronic clouds can provide the necessary security to ensure the conservation and integrity of information.

Researchers found a set of conclusions are summarized in the following:

- That cloud computing has become a very important day, with the increasing use of the cloud increases the risk to data.
- That the information security problems in the electronic clouds come from two sides: the client and the service provider, but always the greatest load is the responsibility of the service provider, it is mandatory to provide a strong infrastructure and tools and storage depots are safe.
- There are many security standards by which to maintain the confidentiality and security of information in the cloud.

VII. Recommendations

1. Cloud computing need for further studies and research with respect to security aspects (weaknesses in their applications).
2. Keep abreast of developments in the areas of computing and give more attention to information security to cloud computing, there will come a time where all the governments, institutions and corporate data become associated with cloud computing and will switch all operating systems with speeds of cloud systems and very large capacities in the future.
3. The adoption of security standards facilitates secure cloud computing

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2. Ethical Guidelines,

3. Submission of Manuscripts,

4. Manuscript's Category,

5. Structure and Format of Manuscript,

6. After Acceptance.

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- Center on shortening results - bound background information to a verdict or two, if completely necessary
- What you account in an conceptual must be regular with what you reported in the manuscript
- Exact spelling, clearness of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else

Introduction:

The **Introduction** should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable to comprehend and calculate the purpose of your study without having to submit to other works. The basis for the study should be offered. Give most important references but shun difficult to make a comprehensive appraisal of the topic. In the introduction, describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will have no attention in your result. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here. Following approach can create a valuable beginning:

- Explain the value (significance) of the study
- Shield the model - why did you employ this particular system or method? What is its compensation? You strength remark on its appropriateness from a abstract point of vision as well as point out sensible reasons for using it.
- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
- Very for a short time explain the tentative propose and how it skilled the declared objectives.

Approach:

- Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done.
- Sort out your thoughts; manufacture one key point with every section. If you make the four points listed above, you will need a least of four paragraphs.

- Present surroundings information only as desirable in order hold up a situation. The reviewer does not desire to read the whole thing you know about a topic.
- Shape the theory/purpose specifically - do not take a broad view.
- As always, give awareness to spelling, simplicity and correctness of sentences and phrases.

Procedures (Methods and Materials):

This part is supposed to be the easiest to carve if you have good skills. A sound written Procedures segment allows a capable scientist to replacement your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt for the least amount of information that would permit another capable scientist to spare your outcome but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section. When a technique is used that has been well described in another object, mention the specific item describing a way but draw the basic principle while stating the situation. The purpose is to text all particular resources and broad procedures, so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step by step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

- Explain materials individually only if the study is so complex that it saves liberty this way.
- Embrace particular materials, and any tools or provisions that are not frequently found in laboratories.
- Do not take in frequently found.
- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

Methods:

- Report the method (not particulars of each process that engaged the same methodology)
- Describe the method entirely
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures
- Simplify - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

Approach:

- It is embarrassed or not possible to use vigorous voice when documenting methods with no using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result when script up the methods most authors use third person passive voice.
- Use standard style in this and in every other part of the paper - avoid familiar lists, and use full sentences.

What to keep away from

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings - save it for the argument.
- Leave out information that is immaterial to a third party.

Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently.You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.

Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

What to stay away from

- Do not discuss or infer your outcome, report surroundings information, or try to explain anything.
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- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

Approach

- As forever, use past tense when you submit to your results, and put the whole thing in a reasonable order.
- Put figures and tables, appropriately numbered, in order at the end of the report
- If you desire, you may place your figures and tables properly within the text of your results part.

Figures and tables

- If you put figures and tables at the end of the details, make certain that they are visibly distinguished from any attach appendix materials, such as raw facts
- Despite of position, each figure must be numbered one after the other and complete with subtitle
- In spite of position, each table must be titled, numbered one after the other and complete with heading
- All figure and table must be adequately complete that it could situate on its own, divide from text

Discussion:

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- Make a decision if each premise is supported, discarded, or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."
- Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work
- You may propose future guidelines, such as how the experiment might be personalized to accomplish a new idea.
- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.
- One research will not counter an overall question, so maintain the large picture in mind, where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

- When you refer to information, differentiate data generated by your own studies from available information
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Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

INDEX

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