THE CONTROL AND COMMUNICATION MANAGEMENT FOR ULTRA DENSE CLOUD SYSTEM USING FAST FOURIER ALGORITHM

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Abstract

In general, software as a service (SAAS) is a model for the distribution of software that customers have access to on the Internet. In SAAS, a service provider hosts the application in its data center and a client accesses it via a standard web browser. The SAAS is a natural evolution of software. For many years the old model was the only realistic solution for obtaining physical DVD's and installing them on local servers. In fact, the client-server model requires many more displays. In recent years, several developments have allowed the sauce to become a staple. A factor frequency; The Internet is faster than it was a decade ago. Other important factors include the virtualization of big data and the evolution of both tools. All of these improvements have made it much easier for providers to measure and manage their own infrastructure, thus providing SAAS solutions. In this paper, an improved algorithm was proposed to control and communicate an ultra-dense cloud system. This proposed model used in many common business areas, including customer relationship management (CRM), document management, accounting, human resources (HR) management, service desk management, content management, and collaboration.

Keywords:

Software as a Service, Control and Communication, Ultra Dense Cloud, CRM, Service Desk Management

1. INTRODUCTION

The Cloud computing is the process of getting that service over the Internet without having to install the application we need on our computer during everyday computer use [1]. If you use internet services like Gmail, Google Calendar, Yahoo then you know that you are also using Cloud Computing. All of these are based on cloud computing service [2-3]. When you receive these services, you are integrating with a server computer module located somewhere in the world.

Take email for example. There are two types of email: pop mail and web mail. We need to install special software on our computer to access the popup mail [4]. It can only be accessed from our computer. But you do not need to install any special software to access webmail services like Gmail and Yahoo [5]. We make it accessible from any web-connected computer through the web browser from anywhere in the world [6].

The Software as a service or SaaS is a form of subscription-based business model that is growing rapidly in many parts of the world [7]. The idea is simple: users can access the software through a specific contract or scroll agreement, depending on the options offered by the provider [8]. This is very different from how software has been approached in the past: through a complete purchase. One of the most popular examples of Sass is the very popular entertainment service Netflix [9]. The reason why SaaS business models enjoy such high success is because of the benefits they bring not only to businesses but also to users [10]. The advantage for users is that they can avoid the cost of purchasing software that is only needed for a task or for a short period of time. For businesses, using cloud hosting can greatly reduce overhead costs [11]. Loosely defined, the cloud can be used as an object of the Internet if the Internet is defined as the global Internet of Things [12]. Connections to the Internet (cable television, fiber-optic cables, DSL or wireless) that connect businesses and consumers (resources, email, websites, Twitter feeds) stored on servers create the cloud [13]. SaaS, on the other hand, relies on cloud plumbing (wireless, fiber-optic cables) and hardware (routers, servers) to provide services to customers through rental or free software [14]. So, although Sauce is different from the cloud, it would not exist without the services provided by the cloud. Therefore, the sauce can be described as a subset of the cloud [15].

Providers typically price SaaS products based on certain types of usage parameters. For example, they may charge based on the number of people using the app, the number of transactions, or any other use. Users can generally access applications using a web browser; in some companies, they may even use a thin client terminal. Most SaaS offers are based on a multifaceted framework in which a single version of an application is used by all service provider customers. The Companies that use SaaS applications can modify configuration settings and customize the software to meet their specific needs, within specific parameters. But enterprise software that is installed locally on users' computers or provided from their own datacenters can sometimes not customize its code or features to the extent possible.

SaaS is based on cloud computing; it saves companies from having to install and run their own computers. It eliminates or reduces the associated costs of hardware purchasing and maintenance and software and support. The initial setup cost for a SaaS application is generally lower than that of equivalent enterprise software purchased with a site license. In some cases, the use of SaaS may reduce the long-term costs of software licensing, although it depends on the pricing model and application methods of the individual SaaS provider. In fact, SaaS costs more than traditional software licenses. This is an area that IT companies need to explore carefully. The SaaS also provides companies with inherent flexibility with cloud services: instead of purchasing software licenses and installing software on multiple computers, they can subscribe to the SaaS offer. The savings can be substantial in the case of applications that require the purchase of new hardware to support the software.

Because applications provided through SaaS are available on the Internet, users can generally access the software from any devices and locations with an Internet connection [21]. The ability to run on both mobile devices and computers contrasts with the fact that many traditional enterprise applications are only available on the computer. SaaS offers support for MacOS, iOS and Android, running on all major browsers, not just Windows.

2. LITERATURE REVIEW

In the [1] discussed about the easy access, SaaS model software delivery has become commonplace for a wide variety of business applications, and is integrated into the distribution strategies of many enterprise software vendors. The [2] expressed the SaaS companies provide a variety of business applications, including email and collaboration, customer relationship management (CRM), billing processing, sales management, human resource management, financial management, database management, enterprise resource planning (ERP)

Unlike other cloud services, companies typically pay for SaaS applications with a subscription fee on a monthly or annual basis [3]. This contrasts with the traditional model of paying for software with a permanent license, with an upfront cost and a preferred current support fee. Unlike other cloud services, SaaS users can enable their service providers at all times and access applications as needed. They rely on providers to ensure that the software is up-to-date on the basis of new features, security connections and other changes [4]. The discussed [5] SaaS providers take the best measures to ensure consistent working hours and availability, even the largest vendors may experience unexpected interruptions in service. Companies that use SaaS can generally expect to lose some control when it comes to access to one of the transactions of cloud computing in general. The expressed even if a service provider accepts a newer version of the application and a company is not willing to make such a change or does not want to incur the cost of educating users on the new version, this loss of control may spread to other areas [6]. If companies decide to switch to a new SaaS provider, they may face the daunting task of moving large files over the Internet to a new provider. Conversely, changing software used locally usually does not change the location of the files, which will be in the company own data center [7].

3. PROPOSED SYSTEM

The SaaS plays a very important role in cloud computing. Ordinary computer users use a service called SaaS. We do not need to install any applications on the SaaS service on our computer. They are installed on the enterprise server system that provides that service. The proposed Fast Fourier algorithm for communication management (FFACM) shown in the following Fig.1.

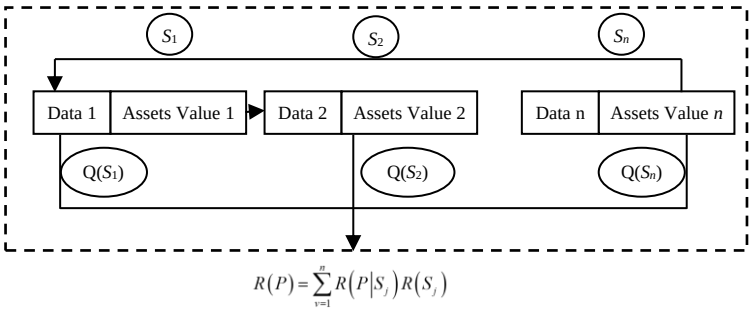

Fig.1. Proposed Fast Fourier transform

Due to this you can run the required application from anywhere if you have a computer and internet connection. This means that the application software in everyday use can be run on the Internet with a web browser. The process of the inter subnets polynomial-based equations shown in the below,

$$f(a)=\sum_{b=0}^{n-1} c_b a^j \quad (1)$$

where, b = the numeral of information that compose the subnet and c_b = Vector elements in the polynomial

The vector a that comprise the polynomial phrase of the subnet is intended as exposed by Eq.(2) where c_{n-1} refers to the constituent that compose the vector shown in Fig.2.

$$c= c_0,c_1,c_2\ldots\ c_{n-1} \text{ where } n=0,1,\ldots\ n\text{-}1 \quad (2)$$

Assumed that the user who wants to receive the SaaS service is X as in Eq.(3). The user Y_i that detects and receives the correct data from the server among the X users Y who want to receive the big data service is like as in Eq.(4).

$$Y=\{y_1,y_2\ldots y_n\}\ a\in[1,X] \quad (3)$$

$$Y_a=\left\{Y_a\subseteq Y\middle|a\in[1,X]\right\} \quad (4)$$

Now the incoming users has some datasets, then the data was sampled

$$Z=\{z_1,z_2\ldots z_n\}\ a\in[1,X] \quad (5)$$

$$Z_a=\left\{Z_a\subseteq Z\middle|a\in[1,X]\right\} \quad (6)$$

where, Z_a = user's wished services on time

The Files created with this SaaS service can also be stored in the sky, called Online Storage No more CDs, no pen drives to hack your files. You can load all your personal files as office files in the cloud and build a style for any city. You can finish office chores from home without going to the office. In recent times many businesses have changed their business operations to be web based. They have also started to move to the sky instead of installing server computers exclusively for their business needs. This reduces the cost of maintaining them and protecting the information contained in them, as well as providing the facility to provide quick and satisfactory services to customers.

4. RESULTS AND DISCUSSION

The general Systems like Cloud and SaaS may seem similar, but they are really different. It would be helpful to think of the cloud as an interstate and Sauce as a delivery truck that relies entirely on states to provide services to its customers. Interstate (cloud) is independent of the delivery service, while the delivery service cannot be without Interstate. The proposed Fast Fourier algorithm for communication management (FFACM) was compared with the existing A Probability Based subnet selection method (PBSSM), real valued fast Fourier transform algorithms (RFFTA), Dynamic trust model for federated identity management (DTM) and Compression processing estimation method (CPEM)

Because SaaS applications run from web browsers, users can access them from any device with Internet access. The prime software installed on the office computers, on the other hand.

Users can access the SaaS software from any operating system, which eliminates compatibility issues.

Table 1: Comparison of Information Access

SaaS Input	PBSSM	RFFTA	DTM	CPEM	FFACM
100	60.09	75.31	72.63	68.50	94.44
200	59.76	73.81	72.04	66.63	93.43
300	58.42	72.70	71.06	65.80	93.27
400	57.28	72.32	69.85	64.89	92.31
500	56.23	71.31	68.71	63.97	92.74
600	55.52	70.38	67.60	62.64	91.54
700	54.22	69.38	66.90	61.77	91.39

With SASS, businesses can easily adjust the fluctuations of users. For example, a company does not need to buy much hardware or waste hardware if their user base grows or shrinks. Instead, they can adjust their service level agreement with the SaaS provider.

Table 2: Comparison of User Management

SaaS Input	PBSSM	RFFTA	DTM	CPEM	FFACM
100	62.39	77.61	69.23	65.76	95.35
200	62.06	76.11	68.64	63.89	94.31
300	60.72	75.00	67.66	63.06	94.18
400	59.58	74.62	66.45	62.15	93.22
500	58.53	73.61	65.31	61.23	93.65
600	57.82	72.68	64.20	59.90	92.41
700	56.52	71.68	63.50	59.03	92.30

SaaS Cloud applications protect data from power outages and other hardware failures that could cause a business to lose data or disrupt their workflow.

Table 3: Comparison of Data protection

SaaS Input	PBSSM	RFFTA	DTM	CPEM	FFACM
100	61.13	85.35	76.79	74.20	94.61
200	59.50	83.61	75.21	72.78	93.32
300	59.02	81.27	73.01	71.52	92.31
400	57.73	80.46	71.38	69.53	91.42
500	55.62	78.17	70.24	67.06	91.05
600	54.13	76.24	68.04	65.62	90.41
700	52.32	74.51	66.89	63.90	90.04

Software updates in advance can create costly idle time and expose users to security vulnerabilities. SaaS vendors may centrally test and update their software before giving users automatic access to updates, patches, and new features.

Table 4: Comparison of Various updates

SaaS Input	PBSSM	RFFTA	DTM	CPEM	FFACM
100	57.98	75.75	80.60	68.79	89.84
200	58.31	77.25	81.19	70.66	90.88
300	59.65	78.36	82.17	71.49	91.01
400	60.79	78.74	83.38	72.40	91.97
500	61.84	79.75	84.52	73.32	91.54
600	62.55	80.68	85.63	74.65	93.78
700	63.85	81.68	86.33	75.52	93.89

Set up an existing shared drive for the files. You can insert it into a port on the DMZ or on your router that is open to the whole Internet. To keep your data secure and private you need to set security and access permissions. It can be done, but it is included in the cloud. Specific criteria with OS updates and SLAs for patch management are being taken more seriously to meet recommendations. One of the main non-human reasons for cloud security computer violations is that companies do not keep their servers up to date with security connections. Cloud security for the company may be in line with a corporate policy or regulatory plan

Table 5: Comparison of Cloud Security

SaaS Input	PBSSM	RFFTA	DTM	CPEM	FFACM
100	72.12	78.12	63.52	63.98	91.60
200	73.79	79.25	66.45	65.24	94.07
300	75.74	79.60	67.99	67.13	94.87
400	77.73	81.55	70.02	68.33	96.07
500	80.31	82.32	70.92	59.89	96.71
600	82.30	82.70	72.89	71.64	97.97
700	84.32	83.83	74.36	72.57	98.97

5. CONCLUSION

In general, human resources are the backbone of any business. The cloud supports them with availability, usability and scalability. This is even more important in a world where supporting a collective distance worker provides a competitive advantage. To receive your goods, you must have an active internet connection. Depending on the internet service you have, this may be a factor restricting data access. The second possible drawback of the cloud may be the volume data that needs to be converted. The advantages of the currently proposed method include reduced cost, security, flexibility, scalability, regular upgrades, robust security and disaster recovery.

REFERENCES

[1] H. Steyskal, R.A. Shore and R.L. Haupt, “Methods for Null Control and their Effects on the Radiation Pattern”, *IEEE Transactions on Antennas and Propagation*, Vol. 34, No. 3, pp.404-409, 1986.

[2] M.H. Er., “Linear Antenna Array Pattern Synthesis with Prescribed Broad Nulls”, *IEEE Transactions on Antennas and Propagation*, Vol. 38, No. 9, pp.1496-1498, 1990.

[3] H.M. Ibrahim, “Null Steering by Real-Weight Control - A Method of Decoupling the Weights”, *IEEE Transactions on Antennas and Propagation*, Vol. 39, No. 11, pp. 1648-1650, 1991.

[4] R.A. Shore, "Nulling a Symmetric Pattern Location with Phase-Only Weight Control", *IEEE Transactions on Antennas and Propagation*, Vol. 32, No. 5, pp. 530-533, 1984.

[5] R.L. Haupt, "Phase-Only Adaptive Nulling with a Genetic Algorithm", *IEEE Transactions on Antennas and Propagation*, Vol. 45, No. 6, pp.1009-1015, 1997.

[6] T.H. Ismail and M.M. Dawoud, "Null Steering in Phased Arrays by Controlling the Element Positions", *IEEE Transactions on Antennas and Propagation*, Vol. 39, No.11, pp.1561-1566, 1991.

[7] E. Chu and A. George, "*Inside the FFT Black Box: Serial and Parallel Fast Fourier Transform Algorithms*", CRC Press, 2000.

[8] Y.N. Chang and K.K. Parhi, "An Efficient Pipelined FFT Architecture", *IEEE Transactions on Circuits System II*, Vol. 50, No. 6, pp. 322-325, 2003.

[9] G.U. Devi and G. Supriya, "Encryption of Big Data in Cloud using De-duplication Technique", *Research Journal of Pharmaceutical Biological and Chemical Sciences*, Vol. 8, No. 3, pp. 1103-1108, 2017.

[10] D. Harnik, B. Pinkas and A. Shulman-Peleg, "Side Channels in Cloud Services: De-Duplication in Cloud Storage", *IEEE Security and Privacy*, Vol. 8, No. 6, pp. 40-47, 2010.

[11] S. Bharat and B.R. Mandre, "A Secured and Authorized Data De-Duplication in the Hybrid Cloud with Public Auditing", *International Journal of Computer Applications*, Vol. 120, No. 16, pp. 1-8, 2015.

[12] J. Hur, D. Koo, Y. Shin and K. Kang, "Secure Data DeDuplication with Dynamic Ownership Management in Cloud Storage", *IEEE Transactions on Knowledge and Data Engineering*, Vol. 28, No. 11, pp. 3113-3125, 2016.

[13] J. Stanek, A. Sorniotti, E. Androulaki and L. Kencl, "A Secure Data De-Duplication Scheme for Cloud Storage", *Proceedings of International Conference on Financial Cryptography and Data Security*, pp. 99-118, 2014.

[14] K. Akhila, A. Ganesh and C. Sunitha, "A Study on DeDuplication Techniques over Encrypted Data", *Procedia Computer Science*, Vol. 87, pp. 38-43, 2016.

[15] B. Harish and K. Harshitha, "Data De-Duplication in Cloud", *International Journal of Pure and Applied Mathematics*, Vol. 115, No. 8, pp. 353-358, 2017.