

Cloud Computing Process Model in Supply Chain

¹Kavita, ²Dr. U. S. Pandey, ³Sanjay Batra

¹Jagannath University Jaipur, India

²School of Open Learning Delhi University, India

³Hansraj College, Delhi university, India

Abstract

At present, the technology of cloud computing will solve the problems that exist in business e-commerce applications and also e-commerce model will have a thoughtful effect on the global country and organization. This paper represents the cloud computing working process model in supply chain management through various steps of process model and also representing the data distribution and data protection using this computing process model. This model transfers the information and message across the cloud supply chain.

Keywords

Cloud Computing, Supply Chain, Process Model

I. Introduction

In cloud computing concept computer system, mobile Internet device, or mobile phone are accessing the network of networks to do everything from check email to compose a message, document, applications can be stored and manage remotely an e-commerce business and accessed over the internet through the web browser. So with the cloud computing users can be able to access their business information over the internet through the cloud. The cloud computing more low-cost portable devices supports more mobile and remote working carry out process or practice.

The term cloud actually refers to the all kinds of computing center distributed in the internet which containing millions of computers systems or servers. Faster than purchase of high-performance hardware or the development of various features of the software, users can use any Internet-connected devices to connection the "cloud", and processing and storing and managing data in the "cloud" by using the software or services it provided.

The another factor is network security, in the background of cloud computing, both of the data privacy, the data distribution or the location privacy in the location service, the protection of user's personal information is very important. The below diagram describing the cloud computing resources with the distribution of different cloud middle wares

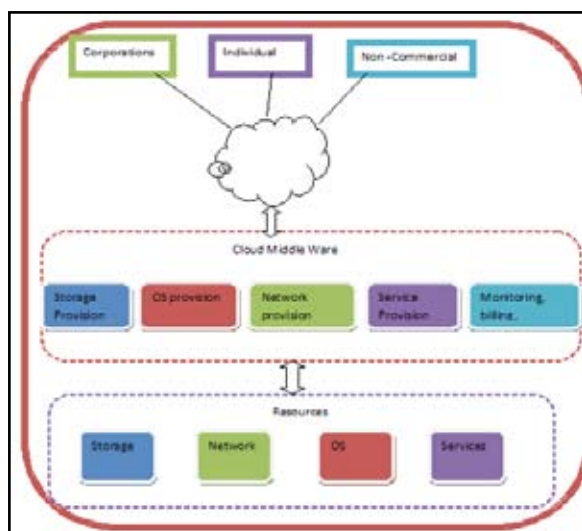


Fig. 1: Cloud Computing Resources

II. Cloud System Architecture Model

Cloud computing system architecture presents the task to large-scale computing centers that shared by all users on internet which fully shares the resources of computer hardware, software and other computing resources, and service resources like installation, configuration and maintenance for those resources.

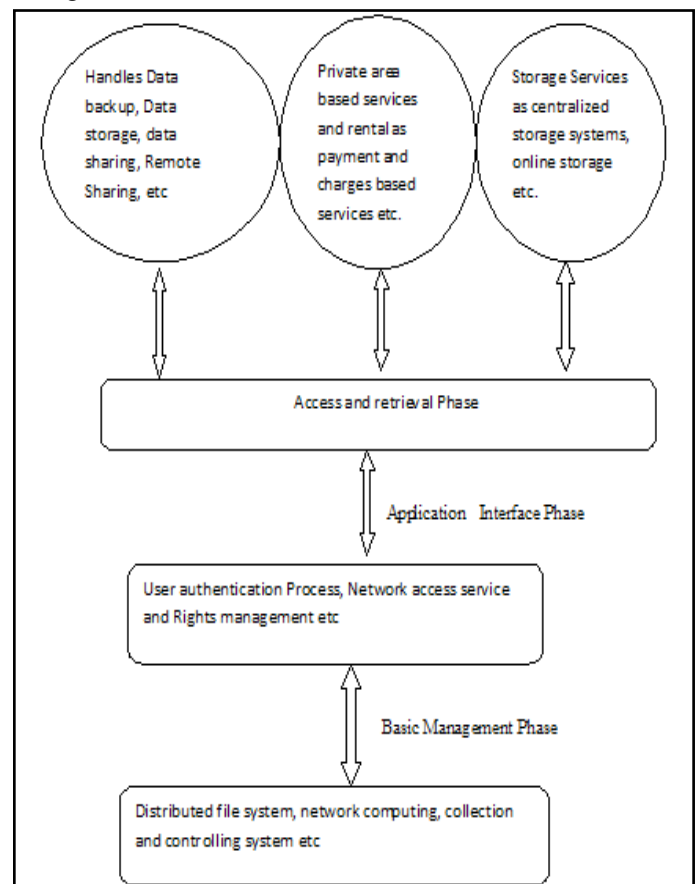


Fig. 2: Cloud Computing System Architecture Model

Cloud computing also allows developers to utilize the web services in cloud means currently using various all features based developed software as Google's Google Maps and Google Earth are cloud computing examples.

III. Cloud Computing Model in Supply Chain

After the understanding the cloud computing system architecture the question arise that how the cloud computing works in supply chain. The below designed cloud supply chain model representing a network of interconnected business in the cloud computing area involved end cloud service to customers. The cloud computing model has designed for the purpose of managing and coordinating the execution of supply chain by different activities. This model transfers the information and message across the cloud supply chain. The mechanism of cloud model in supply chain is performed by these followings steps

A. First Step

In this cloud model information model contains the information of Monitoring of transactions management system, also providing details of running operations, monitor accounting and billing system between the client and requester. Service provider actually performs several roles within the cloud supply chain.

B. Second Step

Infrastructure, platform and software are directly connected with end customer.

C. Third Step

Cloud supply chain process of product delivery to the end customer.

D. Fourth Step

This process between the consumer and requester which is supported by data service provider and consumer outsources encrypted data to the cloud data service provider which is denoted by point 3 (DSP) in below model and issues access delegation to the cloud ACSP that will handle data utilization request from the requester.

E. Fifth Step

Requester user audits all messages and it access request by the cloud access control Service provider and cloud service provider provides the access authorization as user name and password for security purpose means cloud DSP indicate requester had been authenticated and permitted to access the consumer data The cloud ASCF get available message to the requester. Cloud access control service provider denoted by point 2 (ACSP) in below fig.

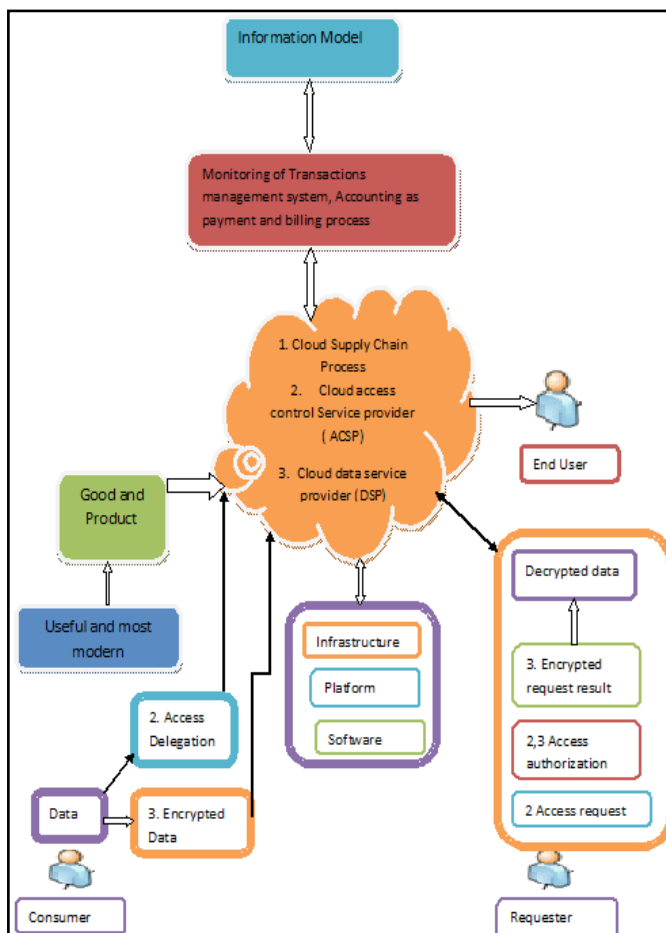


Fig. 3: Cloud Computing Model in Supply Chain

Requester does not go directly to the cloud DSP for the privacy protection which does not hold the encryption key. So requester must contact to the cloud ACSP.

F. Six Step

The final step is authorization message would also contain a decryption key for the released data defines the completion of the process that is consumer and end user satisfactions.

There is various significance of using cloud computing because cloud computing also reduced the hardware and software requirements cost and current costs - maintenance and other software and system upgrades can be managed off-site by the cloud computing service provider.

Cloud computing allows for business environment that it can be easily maintained in situation of upscale or downscale according to requirements when it is required.

Cloud computing can help ensure that user can always access to the latest developed technology.

Cloud computing allows to users and employees to be more flexible in both condition in and out of the office or place of work.

Users can access files using web-enabled devices such as laptops and notebooks and smart phones. The ability to simultaneously share documents and other files over the internet can also help support both internal and external collaboration.

Cloud computing provides confirmation regarding to data protection and cloud computing can provide the facility of business access to professionally managed back-up for all of business information.

Cloud computing is also used for data protection is risk measurement So there are some main data protection risks for business are loss of data by third-party service providers, unauthorized access to data, malicious activities targeting your service provider as hacking or viruses and last one may be poor internal security features compromising data protection.

It is location Independence so computing service in a cloud can be used from wherever you are, whereas most of the physical infrastructures will tie to user down to one place.

IV. Cloud Computing Security Factors in Supply Chain Management

The cloud computing comes to Security then arises some security issues. The seller for cloud must make sure that the customer does not face any problem such as loss of data or data stolen. There is also a possibility where a mean user can go through the cloud by impersonating a legitimate user, there by infecting the entire cloud thus affecting many customers who are sharing the infected cloud.

A. Step 1

This process is between the sender and receiver so firstly it have production schedule information are updated and documents sent to supplier from the cloud schedule and data send to producer place. Here we can apply the security level between step 1 and step 2 so here we apply encryption and decryption security features for getting the original product from producer to receiver side.

B. Step 2

This process has the Supplier receives, release and schedules to make a schedule.

C. Step 3

Supplier transport products and receiving acknowledgement to Producer Company to cloud

D. Step 4

This step contains the details regarding Product received and matched to transport notice

On this step we can also apply the security between step 4 and step 5 by using the encryption and decryption security on supply chain payment system for that there will be no any disclose or out the payment status or details of the product for the privacy process.

E. Step 5

The last step performs the task of receiving notice sent supplier and cash payment process when it get confirmed product from producer.

So through these steps can explain the cloud security in supply chain.

The following diagram shows the cloud security in supply chain management using various steps

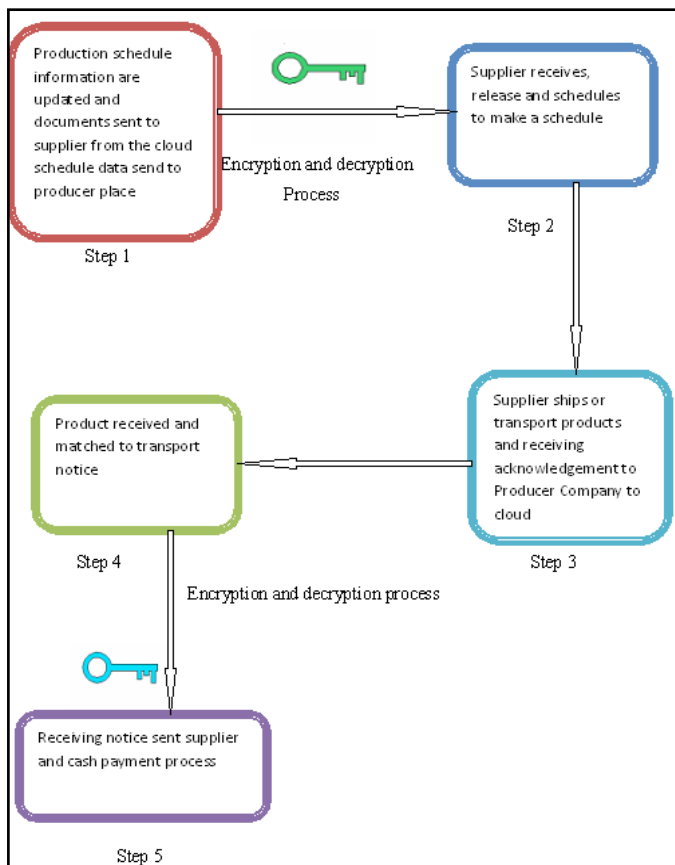


Fig. 4: Cloud Computing Security in Supply Chain Management

V. Conclusion

At present the cloud computing concept is emerging technology for e-commerce. So a safe and secure cloud is always a reliable source of information thus protecting the cloud is a very important task for security experts who are in charge of the cloud. Cloud computing provides confirmation regarding to data protection and cloud computing can provide the facility of business access to professionally managed back-up for all of business information. Sellers or merchants must provide a support system for the customer then customer should be able to recover any loss of data in the cloud.

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Dr. U S Pandey, Ph.D (Computer Science) is an Associate Professor in School of Open Learning, University of Delhi, Delhi. He has Twenty years of teaching experience in the field of Computer Science and supervising many research scholars in the field of Mobile Commerce, Artificial Intelligence, Expert System, Data Warehouse, Data Mining, e-learning and e-governance.

Dr. Pandey has got published two books and diverse a range of research papers to his credit in the 'National and International Journals' of repute. Dr. Pandey has worked as Professor & Director of VIPS affiliated to GGSIP University Delhi.



Kavita (Ph.D Thesis submitted in computer science) and she has received her M.C.A degree in computer science from Modi Institute of technology and Science Lakshmanagarh (Sikar). she is an Assistant Professor in Jagan Nath University Jaipur . She has Five years of teaching experience in the field of Computer Science. Kavita has got published of many research papers in the 'National and International Conferences, and many papers are published in

International Journals.