Payment Tracking System

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DOI: https://doi.org/10.34256/irjmt1925

ABSTRACT

Payment Tracking System is a web-based application for tracking and managing the payments for various vendors. It provides a single point of contact that consolidates payment requests from the accounts department to the top management to deliver the supplier payments on time, using integrated best practices to manage operations and services. It offers integrated Transaction Management capabilities like Ledger view and Hold/Release Payments. It ensures visibility, insight, isolation and faster resolution of Payment related issues for any type of organization by providing the right information at the right time as required by the user. For both models, we design incentive resource allocation mechanisms to maximize the social welfare. Theoretically analysis shows that the proposed mechanisms are truthful for general monotonic profit functions and the worst-case performance on the social welfare are well-bounded within a constant factor of the optimal solution for linear profit functions. Simulation results also demonstrate that the performances of the proposed mechanisms are very close to the optimal solution, in terms of maximizing the social welfare.

Keywords: Payment, Incentives, Approximation, Cloud computing, Resource allocation.

1. INTRODUCTION

Payment Tracking System is a web-based application for tracking and managing the payments for various vendors. It provides a single point of contact that consolidates payment requests from the accounts department to the top management to deliver the supplier payments on time, using integrated best practices to manage operations and services. It offers integrated Transaction Management capabilities like Ledger view and Hold/Release Payments. It ensures visibility, insight, isolation and faster resolution of Payment related issues for any type of organization by providing the right information at the right time as required by the user. The purpose of the project will be a Web-based system for tracking the payments made to the suppliers and keep a hold on the upcoming cheques (PDC) which is issued to the suppliers towards the receipt of invoice. The system also provides the solution for discrepancies in the payment made; the enhanced Ledger Module will provide the clear view of the entire transactions.

This project uses PHP with HTML and CSS as front end and it has the following features. The primary aim of this software is to provide an improved design methodology, which envisages the future expansion, and modification, which is necessary for a core sector like manufacturing industries. This necessitates the design to be expandable and modifiable and so a modular approach is used in developing the software. The software has been developed using the most

powerful and secure backend MySQL and the most widely accepted web oriented PHP. The software is meant to overcome the drawbacks of the manual system.

2. RELATED WORK

The three jobs of the first user are ready to be executed in the first round and need 2,4,3 units of resource respectively. The three jobs of the second user require 5,6,7 units of resource respectively. Suppose that the provider allocates the resource according to RR-rule (Round Robin) or WSPT-rule (weighted shortest processing time first). When the first user truthfully reveals all her jobs at the beginning, one of her jobs is finished within [1,t1] while other jobs are finished later. If the first user strategically unreveals the job with 3 required units of resource at the first round of bidding and postpones the revealing in later rounds, then the first user finishes one more job in interval [1,t1] and gains more utility from the selfish bidding by under-reporting her job. The intuition behind such a phenomena lies in the fact that, through hiding/delaying behaviors, the users successfully manipulate the system and change the processing priority (determined by the system) of her jobs, and hence improves her own utility. Moreover, the untruthful behavior of the first user may hinder the profit of other users. In the literature, lots of research efforts have been conducted on designing truthful mechanisms in cloud systems[13],[18],[20]–[23].

Nevertheless, most of them introducing the payment function or money transfer between users and the cloud provider. Specifically, the payment function effectively helps in stimulating the truthfulness, since technically it is equivalent to introduce powerful and flexible complementary functions for each user to compensate for the user's utility function. However, the implementation of payment function resorts to the support of money transfer between the users and the provider, and a virtual payment scheme is not that effective to attract the users in practice. Thus, a natural and practical concern arises that, how should the cloud provider design mechanisms to incentivize the truthful participation of users without resorting to payment, especially in scenarios without money transfer, e.g. in the private clouds inside the enterprises. Different from the existing work, this paper conducts the first theoretical work on the non-payment truthful mechanism design for resource allocation in cloud computing. Actually, without payment, it is quite challenging to achieve the local objectives of truthfulness for all users and the system objective of good social welfare in general domains, asstated in the impossibility results of Gibbard-Satterthwaite theorem [14]. Existing works on non-payment mechanism design are restricted in limited fields, like facility location[17], social choices[5], assignment problem on bi partite graphs [7]. To the best of our knowledge, no prior works have addressed the payment mechanism design resource allocation in cloud computing. What is more, existing works for the truthful mechanism design are mainly restricted to the scenario that users request their resource for only one job [12], [21], [25], [26]. However, as we mentioned earlier, a user who has multiple jobs can under-report his jobs in one round/bid in order to get more utility, which could offer a new way for users to manipulate the resource allocation scheduler and calls for truthful mechanism design against such untruthful behaviors. Moreover, the untruthful of the first user may hinder the profit of other users. For example, when one job of the first user is postponed to be revealed, the third user finishes less jobs in [1,t2] in the coming round. To avoid the untruthful reporting of job list, an incentive mechanism, which adopts the concept of Nash Equilibrium (NE) [14], [4], [24] to regulate the untruthful behaviors of the users, is strongly necessary. The proposed mechanisms generally follow a two-step framework, consisting of a virtual allocation and correspondingly a randomized rounding procedure, where the allocation strategies and rounding methods can be adaptive to the allocation constraints in different models. In general, the virtual allocation aims to achieve a good social welfare at the first step, and the rounding procedure aims to incentivize the truthfulness for every user while preserving the performance on social welfare. Our work moves a step forward towards the payment incentive mechanism design in cloud resource allocation.

3. EXISTING SOLUTION

In order to justify and appreciate the need of the system, we have to study the existing system. There was no software available for tracking, hold and release the payments. The company use to maintain all their transaction details manually. Even though Software like Tally has similar features like Payment Tracking which includes Company, Supplier, Employee Management with Ledger and other advanced options. But there is no software available yet for tracking of supplier payment with option to hold and release issued cheque. Note that the proposed mechanisms in later sections will also follow such a two-step framework (consisting of a virtual allocation and arounding procedure).However, different allocation/rounding methods should be derived to address different allocation constraints in different models. Besides the truthful requirement for the users, the other critical requirement is the performance on the social welfare which is measured by the worst-case approximation ratio defined as follows.We aim at designing a non-payment mechanism that is polynomial time tractable to stimulate the users to behave truthfully and maximize the social welfare. The purpose is to simplify the payment processing method and to keep a hold on all the post dated cheques issued to the suppliers which decreases the discrepancy in the transactions also improve efficiency of the workers. Other reasons for implementation include better security and integration of system, user-friendliness and standardization of operations. The truthfulness of a non-payment mechanism is defined as follows, which is an outcome satisfying the equilibrium and economic incentives. The payment truthful mechanism with a constant approximation. We will first prepare a basic mechanism, named Basic-Mech, for a simplified case in Section III-A and then develop a mechanism for the migration-admissible model in SectionIII-B by adopting Basic-Mech as a building block.

4. PROBLEM IN EXISTING SYSTEM

The purpose of this project will be a Web based system for the company to keep track of the payments made to their suppliers. This system will be designed to satisfy the growing needs of the company which has over five hundred regular suppliers. The purpose is to simplify the payment processing method and to keep a hold on all the post datedcheques issued to the suppliers which decreases the discrepancy in the transactions also improve efficiency of the workers. Other reasons for implementation include better security and integration of system, user-friendliness and standardization of operations. The implementations are lengthy by nature and require due diligence in accurate to the documentation of requirements, process blueprinting and organizational change management. The purpose of the project will be a Web-based system for tracking the payments made to the suppliers and keep a hold on the upcoming cheques (PDC) which is issued to the suppliers towards the receipt of invoice. The system also provides the solution for discrepancies in the payment made; the enhanced Ledger Module will provide the clear view of the entire transactions.the beginning, one of her jobs is finished within [1,t1] while other jobs are finished later. If the first user strategically unreveals the job with 3 required units of resource at the first round of bidding and postpones the revealing in later rounds, then the first user finishes one more job in interval [1,t1] and gains more utility from the selfish bidding by under-reporting her job. The intuition behind such a phenomena lies in the fact that, through hiding/delaying behaviors, the users successfully manipulate the system and change the processing priority (determined by the system) of her jobs, and hence improves her own utility.

Moreover, the untruthful behavior of the first user may hinder the profit of other users. For example, when one job of the first user is postponed to be revealed, the third user finishes less jobs in [1,t2] in the coming round. To avoid the untruthful reporting of job list, an incentive mechanism, which adopts the concept of Nash Equilibrium (NE) [14], [4], [24] to regulate the untruthful behaviors of the users, is strongly necessary. We further consider the non-migration model where jobs can only be executed at one server at a time and over time. To deal with the

non-migration constraints, we adopt the traditional list scheduling as the virtual allocation and develop a novel matching scheme and a charging scheme to analyze the performance of the mechanism. Our proposed mechanism achieves the truthfulness for general monotonic profit functions and meanwhile a constant approximation on the social welfare for linear profit functions. Even regardless of the truthfulness, computing the optimal allocation to maximize the social welfare in this model is NP-hard. This can be verified by setting T =2 with linear profit function where the social welfare in such a setting equals the total weight of jobs that are satisfied in the first time slot with resource capacity Q, which corresponds to the well-known knapsack problem that is NP-hard [27]. Therefore, we should derive a polynomial-time tractable algorithm to simultaneously achieve a good social welfare and the truthfulness.

5. PROPOSED SYSTEM

The main aim of Payment Tracking System is to keep track of the payments made to the suppliers and set a pay limit for each day. If there exists any discrepancy in the payment made, the enhanced Ledger Module will provide the clear view of the entire transactions. It has options for Holding and Releasing the Cheque payment to Suppliers and also options for Advanced Payment and Part Payment. A feasibility study is an evaluation and analysis of the potential of the proposed project which is based on extensive investigation and research to give full comfort to the decisions makers feasibility studies aim to objectively and rationally uncover the strengths and weaknesses of an existing business or proposed venture, opportunities and threats as presented by the environment, the resources required to carry through, and ultimately the prospects for success. In its simplest terms, the two criteria to judge feasibility are cost required and value to be attained As such, a well-designed feasibility study should provide a historical background of the business or project, description of the product or service, accounting statements, details of the operations and management, marketing research and policies, financial data, legal requirements and tax obligations Generally, feasibility studies precede technical development and project implementation.

If project risk is great, the feasibility of producing quality software is reduced. During product engineering, however we concentrate our attention on four primary area of interest. Measures of how beneficial or practical the development of an information system will be to an organization. Three key considerations involved in the feasibility analysis.Economic feasibility is the most frequently used method for evaluating the effectiveness of the system that is proposed system, more commonly used as cost-benefit analysis. The system being developed is economic with respect to business application point of view. It is cost effective. The development cost and operation cost is incurred by the project is feasible. The proposed system is available at internet level so that the different types of end users are involved in the system. Its purpose is to facilitate the flow of informationbetween all functions inside the boundaries of the organization and manage the database.

The technical feasibility deals with the analysis of technical consideration for the development of the project. In this the system we look between the requirements of the company, this can enter a large amount of data in effective time. The analysis was done in the project and it was successful. It is customized software which is developed as per the requirements of the company who does their monthly transaction in crores. They are running multiple businesses and have around five hundred suppliers.

6. ARCHITECTURE OF SYSTEM

6.1 FRONT END

The PHP programming language is a server-side HTML embedded scripting language. The PHP language runs on the server-side. This means that the execution (read starting) of the scripts is done on the server where the web application is hosted. PHP files are returned to the browser as plain HTML. PHP supports many databases like MySQL, Sybase, Oracle, etc and it is platform independent.

6.2 WEB SERVER

XAMPP is a free and open source cross platform web server solution stack package, consisting mainly of the Apache HTTP Server, MySQL database, and interpreters for scripts written in the PHP and Perl programming languages. XAMPP's designers intended it for use only as a development tool, to allow website designers and programmers to test their work on their own computers without any access to the Internet. To make this as easy as possible, many important security features are disabled by default. In practice, however, XAMPP is sometimes used to actually serve web pages on the World Wide Web. A special tool is provided to password-protect the most important parts of the package. XAMPP also provides support for creating and manipulating databases in MySQL and SQLite among others. Once XAMPP is installed, it is possible to treat a localhost like a remote host by connecting using an FTP client.

6.3 UI FRAMEWORK

Bootstrap makes front-end web development faster and easier. It's made for folks of all skill levels, devices of all shapes, and projects of all sizes. Bootstrap ships with vanilla CSS, but its source code utilizes the two most popular CSS preprocessors, Less and Sass. Quickly get started with precompiled CSS or build on the source. Bootstrap easily and efficiently scales the web sites and applications with a single code base, from phones to tablets to desktops with CSS media queries. It also provides extensive and beautiful documentation for common HTML elements, dozens of custom HTML and CSS components, and awesome jQuery plugins. The company and suppliers are associated with hold transaction; it can be an Individual or an organization. A should transaction both authorizes and settles the requested amount against the payment method indicated. Through settlement, the hold request holds the payment of particular supplier. It Contains the Menu Name and Level of Menus where each user created in User Master should have a mapping with this role name. It reduces the complexity of creating new user with specific access rights; it is similar to the Groups in Active Directory. This area is dedicated for Safety purpose like backup and restore, User Tracking and for future expansions.the payment incentive mechanism design on resource allocation in cloud computing. We propose randomized mechanisms to stimulate users' truthfulness and maximize the social welfare (the overall profit gained from the users). The proposed mechanisms generally follow a two-step framework, consisting of a virtual allocation and correspondingly a randomized rounding procedure, where the allocation strategies and rounding methods can be adaptive to the allocation constraints in different models. Ingeneral, the virtual allocation aims to achieve a good social welfare at the first step, and the rounding procedure aims to incentivize the truthfulness for every user while preserving the performance on social welfare.

Our work moves a step forward towards the nonpayment incentive mechanism design in cloud resource allocation. The intuition behind such a phenomena lies in the fact that, through hiding/delaying behaviors, the users successfully manipulate the system and change the processing priority (determined by the system) of her jobs, and hence improves her own utility. Moreover, the untruthful behavior of the first user may hinder the profit of other users. Input design is one of the most important phases of the system design. Input design is the process of connecting the user-originated inputs into a computer to used formats. The aim of the input design

is to ensure the maximum possible levels of accuracy and also ensures that the input is accessible that understood by the user. The input design is the part of overall system design, which requires very careful attention. If the data going into the system is incorrect then the processing and output will magnify the errors. Input design features can ensure the reliability of the system and produce result from accurate data or they can result in the production of erroneous information.

6.4 ER DIAGRAM
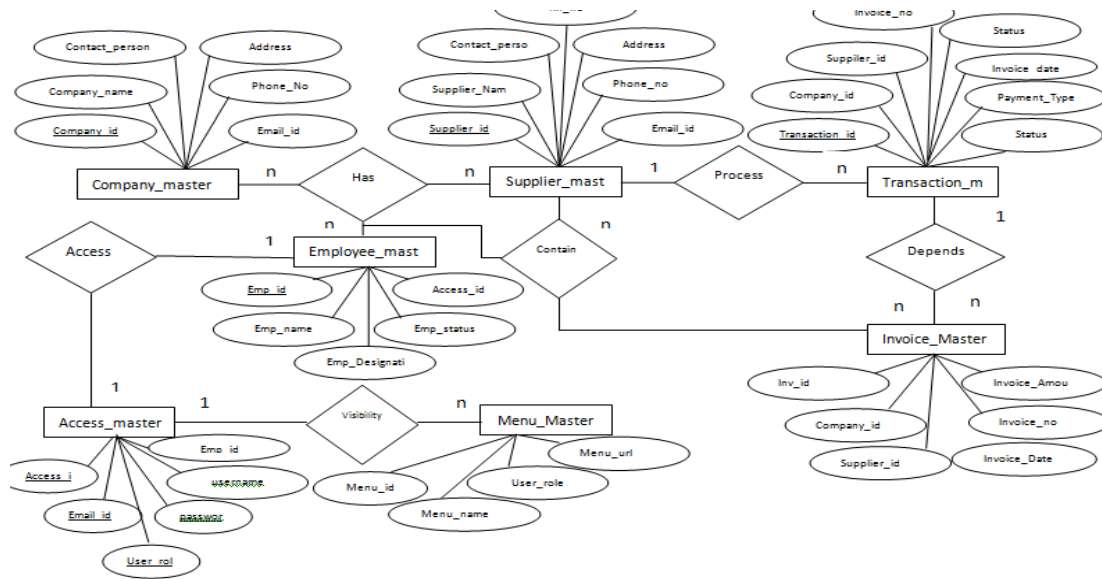
6.5 PROCESS FLOW DIAGRAM
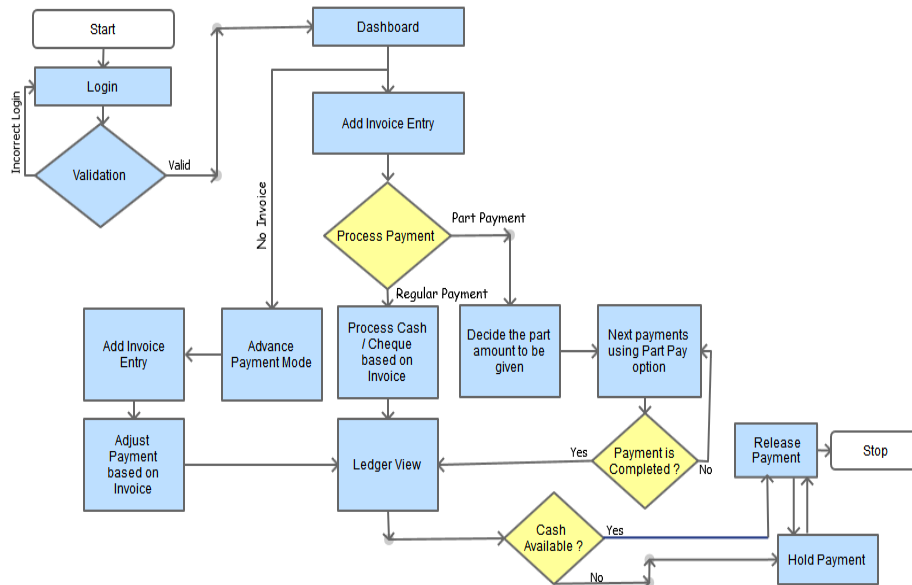
7. CONCLUSION

We have discussed about implementation, results and analysis.The System requires only a web-browser and it is developed as an open-source application. The Supplier details and invoice has to be described correctly, and then the invoice gets reflected in process payment screen. The Payment can be of any type like normal, advance or part. Based on the requirements specified, the ledger view and calendar view are available for sorting out the discrepancies and for ease of use.This system can either reside on a centralized server or be distributed across modular hardware and software units that provide "services" and communicate on a local area network. Present system is built using PHP and HTML as front end and MySQL as back end.Further expansion of the system also can be done in future if the company wanted to do so. The database and the information can be updated to the latest forthcoming versions. There are also possibilities for enhancing and further developing the project with developing an android app. Thus the system can be altered in accordance with the future requirements and advancements. As per users requirement whole program is designed. Additional constraints can be added to the project. Experimental results prove the dominance of our proposed schemes as compared to counterparts.

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Conflict of Interest

None of the authors have any conflicts of interest to declare.

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