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TheLiterature Review on CustomerRelationship Management Based on Software as a Service

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ABSTRACT

The rapid advancement in IT technologies meant that the majority of the organizations areattempting to find the optimalapproach to upgrade their business process. In today's competitive marketplace, most organizationspay more attention to the customer demands; hence customer relationship management (CRM) becomes extremely important. One of the key evolutionary developments in technological systems is the customer relationship management (CRM) whichcan be applied the Software as a Service (SaaS) technology. CRM-based SaaS is an application which is accessible by the Internet, customer can accessan application using a simple web based application. Furthermore, the SaaS platform is the key ideain the fulfillment of the ever-changing customer requirements. Software as a Service (SaaS) cloud based customer relationship management (CRM) is a desirable application for both small and medium size organizations whenever they need as compared with the traditional CRM. Traditional CRM is too complex and expensive to implement for the expect return on investment, in comparing withCRM based SaaS whichallows companies of all sizes to implement CRM products and services asan element of the cost, time and effort.The present paper is a literature review of previous studiesfinding factors beneficial to the performance of an organization to meet customerdemands and enhance their business process more flexible and improving their work so efficiently.It is hoped that the results will help the organizations toidentifythe influence of SaaS on their operational expenses.
KEYWORDS: Customer Relationship Management (CRM), Software as a Service (SaaS), Cloud Computing (CC)

1. INTRODUCTION

The Customer Relationship Management (CRM) is a systematic way that is considered to help companies to develop and manage their relationship with the customer in a structural way. The new model is called " e-CRM" that customers are able access to applications throughout the Internet. In a traditional CRM based system, the relation was face-to-face or phone contract, but by the advent of the Internet,the majority of the CRM application had moved an online, in order to meet the customer needs.As the organizations are investing a lot of money to implement CRM or other information systems , the emergence of cloud applications such as SaaS, can have a huge impact on this application. Recently, with the cloud computing concept, CRM system are used Software as a service (SaaS) platform. Hence, Cloud computing was adapted to develop and achieve a CRM systemto migrate from traditional systems to software as a service (SaaS) , which has an influence in cost and implementation of CRM. Now SaaS is the platform that offers common delivery model as a basic technology to deliver services to clients. According to [1] SaaS is the delivery model that makes available and provide easy access to clients by subscription-based model through the Internet. TheSaaS model meets the information management of the organizations absolutely inside the organization who are using this application. Though, SaaS can be suitable for both small and medium size organizations.

Since The organizations aim to control the operational expenses and efficiency in the competitive market, SaaS model can assist them efficiently in time. Through adopting SaaS the organizations don't need to buy the software licenses, They can choose the favorite application service base on the requirements, with no upfront capital investments from users. Moreover there are other factors in SaaS that can improve the efficiency of the organization who are using CRM . This leading to reduced costs, eliminate the risk of the organizations of buying the software and helps organizations to be cost-effective [2]. The main aim of this paper is to have a complete survey of the previous studies to understand the important benefits of CRM on SaaS.There are a few studies which are focusing specifically on the benefits of CRM based on SaaS. The main research method used was a literature review, researching academic articles related to customer relationship management and cloud computing with a focus on SaaS. The literature review was conducted by using research article databases provided by IEEE Explore, Elsevire and using the academic search engine Google Scholar for an easier access to specifically defined information inside documents.

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The main goal of this study is to prepare a complete overview of the past literatures about CRM based on SaaS. For this reason we tried out to review around twenty of past related papers .Then we will present a complete backgrounds of the benefits of SaaS, which can be a good guideline for the future scholars. In addition, through finding these benefits, the organizations can have a better view to move toward CRM based on SaaS.

Besides the amount of research and studies on SaaS based on CRM applications, with some improvement toward empirical validation[2], there is a fundamental need for researchers to focus more on CRM based on SaaS . Also, there are few studies that have focused on the survey literature reviewto show the significance of the SaaS software in the organizations.Therefore, in addition to the lack of previous studies around SaaS relations with CRM in dealing with organizations, this paper focuses more on the significance of the SaaS services in the organizations to improve the flexibility and convenience.

Contribution the results of this study would be a good guideline for the researchers to have a complete overview about CRM based on SaaS. Also , it will be shown that organizations can obtain a lot of benefits such as cost reduction throughout using CRM based on SaaS. This paper will assist research to find the importance of CRM based on SaaS to acquire a good background for future studies. This paper will also helps organizations to have a complete view about SaaS.

The remainder of the paper is organized as follows: in section two, the customer relationship management, cloud Computing, SaaS and its benefits, CRM based on SaaS, and why cloud computing is suitable for CRM are discussed. In section three, related works are discussed on CRM based SaaS and how enterprises can use the SaaS benefits. Finally the conclusion is presented in section four.

2. LITERATURE REVIEW

2.1. CustomerRelationship Management (CRM)

The Customer Relationship Management has been apparent since the early 1990s. CRM is the greatest business trading and the finest solution of the information system with the purpose of understanding and organizing the customer in the long term very well [3]. According to [4] CRM is considered as an all procedures and technologies that used in organizations and enterprises to attract, recognize, retain and meet customer needs. The aim of CRM is to allow organizations in order to provide better services to customers and consolidate them and computerized customer service procedures.according to prior researches of CRM , there are some definitions of CRM. According to [5] The CRM is not only technology and information system, but is also focused on customer understanding and based on anticipating the requirements of current and future customers of the enterprise. Osterle defines CRM such an alternative that increases the profit of the enterprise through the integration of all business contacts with its supplier [6]. CRM is the process of addressing, maintaining and further developing relationships with profitable customers [7]. Another definition of CRM is defined as all the processes and technologies that are used in companies and organizations to recognize, motivate, extend, retain and give service to customers[4]. Finally CRM is a strategic approach that integrates people, business and technology to understand the customers demands to be more satisfied. Customers are the vital key for each business and company to help them to grow [8].In this study we apply CRM as a better solution of the organizations to attract and organizing the customer very well in the long time. Then, in the next part we will discuss about cloud computing and SaaS, and how the organization will assist with the helps of SaaS in CRM.

2.2 Cloud Computing (CC)

Cloud Computing (CC) is viewed as a technology which enable individuals, businesses and organizations to gain more facilities such as data storage and software services via the Internet [9]. In fact, users rather than investing a large amount of money in purchasing servers and applications, are able to rent the computing resources based on their actual demands and on a pay-as-you-go pricing model "*Cloud computing is often offered with a pricing model that lets you pay as you go and for just the services that you need. For example, if you need an additional 1,000 computing instances for an hour, you pay just for these 1,000 computing instances and just for the hour that you use them*"[10][11].Cloud Computing provides many specifications and abilities to use IT infrastructures, and these specifications are based on high quality services with low prices.[12]

Cloud computing uses a pricing model called pay-as-you-go. Infrastructure investment to achieve advantage of cloud computing is not essential for service providers because they can hire resources from the cloud in accord with its own requirements and pay for the usage. Several service providers can quickly allocate and deallocates resources in a Cloud environment. Hence, large amount of saving is possible in this matter due to service demand is low. Large amount of resources is pulled by infrastructure providers from data canter's and cause them to be easily

accessible in order to manage fast growth in service demands, a service provider is able to easily broaden its service to great scales [13].

The concept of CC can dramatically decrease the cost of entrance for both small and medium organizations. Also a lot of third worldcountry that has been left behind the IT revolution until now can be advantageous of CC. Another issue of CC is adoptable infrastructure that can be shared with diverse end users. Everyone can use the Cloud in different ways, even the users be separated from each other. Beside of them, CC can decrease the limitation of IT to innovations; it is obvious from the several hopeful startups, and from the widespread applications which are online like YouTube and Facebook to the greater concentration application [14].

According to another study that has beenin this regard that CC has four main advantages, first, Secure Data Storage and the teams of the backend Cloud are so professional that manage data also protect them from different attacks of viruses and cracks. Second,manyapplications can be supported with CC. Third, easy sharing of data and applications and finally thousands of servers exist in the same Cloud having strong storage and powerful computing abilities. [15].

CC can present the three main services, first, Infrastructure as a Service (IaaS), Computing services such as service storages offered via the Internet based on user demands. For example, Amazon EC2 offers IaaS services of the same computing capabilities at different pricing for different regions. Second, Platform as a Service (PaaS), Compared to the traditional computing model where each application managed way, required hardware, an operating system, a database, middleware, web servers, and other software. With cloud computing, these services are now provided remotely by cloud providers for instance, the Google App Engine (GAE). Third, Software as a Service (Saas), Under this layer, applications are delivered through the medium of the Internet as a service. Instead of installing and maintaining software, users simply access it via the Internet, freeing themselves from complex software and hardware management, such as Customer Relationship Management (CRM) [16]

The main advantages of CC take into account reduce cost, storage space, automated, more mobility, and flexibility.As cloud computing is paid per use of the service or the length it is easier to keep cost reduced and under control.There is the possibility to have more storage space than on the computers because of the storage provided through the cloud. The IT is always up to date and with the latest release, also it is managed by the provider so the IT department can focus on other tasks .The employees and other people connected can gain access to data wherever they are and with many different sources like tablets, Smartphones and laptops .The cloud does the IT flexible and obtainable through different sources and also makes it easier to work with [17]

2.2 Sotware as a Service

SaaS is a new model of software, one of the most clear feature of the software as services are easily accessible on the Internet. Users, instead of paying money for software and utilizing resources, they can utilize all the resources by the simple browser anytime [2] The benefits of SaaS is that it permits organization users to apply software services with minimum cost, low risk way [18]. According to [19] SaaS is a model of software delivery that permits organizations to provide solutions to its clients in a hosted situation over the Internet. Furthermore, the service providers have responsibility for the maintenance, day-to-day technical operation and care of the applications. Table 2 illustrates some definitions of SaaS in different contexts.

Table 1: SaaS Benefits

No	Author	SaaS benefits
1	[20]	• Low implementation initial cost • Low upfront investment
2	[21]	• Simplicity of distribution and management • Lower cost • Forecast cost of software • Low up-front expenses of CRM services
3	[22]	• SaaS can reduce the price • Customers pay just for the usage not for IT infrastructure
4	[23]	• No cost for purchasing • Free of maintenance • Accessibility through the internet • High availability
5	[24]	• Lower initial cost • Accessible anywhere and anytime • Ease of maintenance

6	[25]	• No software installation and maintenance • No need software expertise • Emphasis on core business • No necessity for Human resource management of IT staff • Access to software without upfront investment
7	[26]	• Low implementation cost • Fast sales cycle and deployment • Flexible pricing
8	[27]	• Lower operating/maintenance cost • Easy deployment (web browser) • Upgrades application no IT staff necessary t keep running
9	[28]	• Cost saving • Another , Savings can be obtained by eliminating the need for additional hardware and equipment • The installation cost of new software is eliminated. • The SaaS model makes remote access easy and simple with internet access.
10	[29]	• No Maintenance : Software offered by the SaaS provider needs no maintenance. • Lower Cost of purchase : In SaaS customer needs to pay only for those services that he is going to use. • No extra Fee • No Infrastructure required • Upgraded Version of the software • Service Level Agreement (SLA) • Freedom of choice
11	[30]	• Low cost of entry • The onus is on the vendor • The Authority of the vendors • Less risky investment
12	[31]	• Immediacy • Pay As You Go or Subscription Pricing Model • Superior IT Infrastructure • Software Maintenance • Mobile Computing
13	[32]	• Low cost • Usage based pay as you go model • Provide features to build and deploy applications instantly anywhere globally
14	[33]	• Deployment Speed and Agility • Minimal Expense • Lower Organizational Burden • Location and Resource Independence
15	[34]	• Low initial investment cost of software, hardware, and staff • SaaS solutions offered as much as a 64% savings over 4 years for a comparable on premise solution
16	[35]	• Pay-per-use • Updates • Cloud providers are able to manage their software from inside their company
17	[36]	• Enabling fast deployment • Better user adoption • Reduced support needs
18	[37]	• Low cost of entry • Easy to implement • Freedom of Choice • Zero Infrastructure - Reduced Overheads • Cost-effective Infinite Scalability
19	[38]	• Falling the sustainable costs • Expanding the SaaS software application • Enhancing market competitiveness • Avoiding software piracy
20	[39]	• Less risk: • A more attractive price structure • Faster and cheaper deployment • Easierupgrades
21	[40]	• Low price • Easy to deploy, easy to deliver • Online purchase, online support • Immediateneed

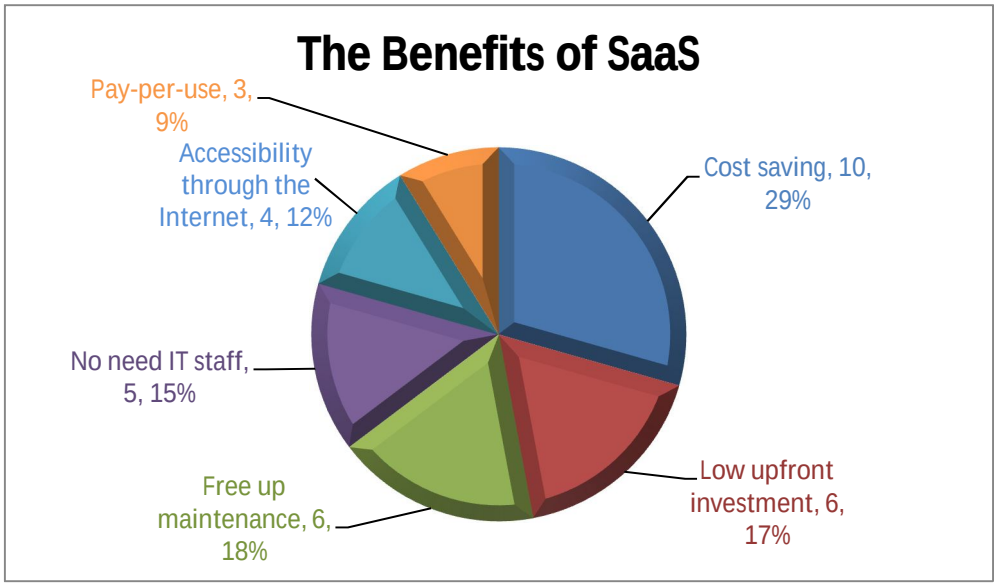

Figure 1: The benefits of SaaS

Figure 1 gives information about the benefits of SaaS in different context according twenty one prior studies. It can be seen that cost saving is a major key in acceptance of SaaS with highest amount 29% in comparison to others. There were also other items such as Free up maintenance and Low upfront investment that cause most of the companies migrate to SaaS in their activity. In sum up, the organizations in the competitive market should be control the operational expenses, therefore, SaaS is so suitable for small and medium size of the organization.

2.3. CRM Based on SaaS

Customer relationship management (CRM) is considered as a business strategy with the aim to gain new customers and retaining existing customers to rise competitive advantages . CRM is a software system which discusses the analysis of sales, marketing, customer service and application support. Its purpose is to decrease the sales cycle and expenses of the marketing, increase income, improve customer value, customer pleasure, loyalty and benefits [41]. CRM is suitable for large size of the organizations now, the majority of the people think that CRM can encounter the requirements of the small and medium organizations definitely. Truly, such big and complete CRM is not appropriate for small and medium organizations and it does not apt with their application features. Small and medium organizations need plain, practical and cost effective CRM. In addition, WEB-based CRM is necessary for small and medium enterprises and these software systems should adapt custom made organizations applications. Furthermore, the implementation and maintenance of the software are easy for small and medium organization, they don't need an expert. Small and medium enterprises are intense to have a minimum implementation budget, high value-added, high- quality consulting services CRM solution [2]. In comparing with traditional CRM, the new function of CRM based on SaaS consist of the basic function modules such as customer management, contact management, time management, sales management, customer service, and so on. The SaaS frequently faces a numeric organization that each organization has its own features. Some of the organizations perhaps apply just a few modules because of the operations restrictions, and some of the enterprises need the whole module's functions. SaaS based CRM presents a diverse interface for customers, due to different requirements of the user interface. The SaaS-based CRM also offers the service that diverse business logic exists and use in the similar module, users can arrange and change the business logic in the client. SaaS based CRM Offer an online development platform. The technology of the on-line development platform is a natural extension of customized technology, often integrated into the SaaS-based CRM.

2.5. Why the Cloud Computing is Suitable for CRM?

The SaaS model is considered as a a complete and improve the model of Cloud Computing that offer whole functionality to ship enterprises requirement. Hence, SaaS model is known recently as a best method to automation for CRM systems. The users of the CRM can access the full functionality of that just with web browser, even when they are in travelling, they can use with mobile device. The cloud computing advantages are lower costs. CRM

based Cloud Computing is accessible on the internet. Consumers using CRM software just through the web browser, they don't know how the program works, because it's not installed and stored in users' computers. In this regards, principal cost saving are archived for the asset into software and hardware. Besides of that is cost saving in system maintenance, training of staff and IT staff. Actually , enterprises don't need to buy and install CRM application on each computer in the office. Indeed , they rent software from the web browser, and pay just for capacity and storage that they actually used. Better customer service , easy , fast option to enable CRM and cost saving are the most advantageous of the CRM based Cloud computing [42].

3. RELATED WORK

Most of the people think that CRM can meet the requirements of the small and medium organizations surely. In fact, such CRM not suitable for small and medium organizations. Actually, the simple business system of small and medium enterprises need the simple practical and cost operative CRM. They are keen to have a minimum cost, high quality consulting services CRM solutions the aims of this study is to open New functions of CRM based SaaS. This paper is based on a conceptual discussion of SaaS as applied to the small and medium organizations. A detailed literature review is undertaken to identify SaaS and propose the architecture diagram of SaaS in order to solve the security problem. Enterprises acquire more effective information mode with the growth of the SaaS. SaaS based CRM as a new model of the enterprise customer relationship management that provides. a simple and a useful technology platform for small and medium organization by focusing on the marketing, sales, customers, and service businesses. [2]

The aims of[42]research is to ask the management of the organization doing business in the Czech Republic with the helps of CRM implementation and determined whether are using CRM software as a part of cloud computing services technology or not. The first statementis the small and medium size organizations have a tendency to buy CRM Solution. The second statement is the large size of the companies that have a tendency to use CRM software in terms of Cloud Computing Services. In this specific project is part of in this research that focused on comparing selected companies, which the respondent of the questionnaire that CRM have implemented and another companies which the respondent of the questionnaire that CRM not implemented yet.consequently with consulting the management of the organizations to implemented CRM it was investigated whether the organizations are using the CRM through the Cloud Computing or whether they purchased and install software with the completed CRM solution. The results of these questionnaires among the diverse companies shows that small and medium organizations have a tendency to purchase and use complete CRM solutions. In the large organization size the results of the questionnaire were showing that they have a tendency rather to use the CRM within complex IT services through cloud computing technology.

The purpose of this study [43] is trying to look at the for suitable providers of CRMservice system. It is most important factor for organization to raise customer satisfaction by providing appropriate service. The expences of the information system is high for more SMEs. So , some of them takes advantages from cloud computing to eliminate unnecessary expense. This study identifies the some important insight into how consumers demans of CRM can affect in business process. And with the helps of Cloud Computing in enterprise that will become most significant for consumer and CRM services system provider.

The purpose of this paper [44] is to present the SaaS for CRM of a real state company. Using SaaS within the company cut down the expenditure. SaaS provides better service to meet the demands of any software consumer. This paper adopted model for CRM solution used architecture of SaaS level 2 and distributed data base. According the system objective, they developed modular solution for solving the CRM and also e-marketing via real estate company. According this study the concern is about the role of data that store in e-marketing, and then present a dynamic SaaS prototype. This proposal is based on the SaaS level 2 that offering for real estate. It allowing users to accept the information according their needs. Also in terms of the model that present it enables more customers to usage separate cases of same application codes for each e-marketing operation. numerous requests of the customers can simply be answered by developing availability and performance modules.

The purpose of this research [45] is to build a practical monitor to get a clear understanding around the implementation process of Customer Relationship Management in the cloud in Small. It also defines the different concepts that are Customer Relationship Management, Cloud computing and CRM in the cloud, especially related to the SMEs, in Order to have a great vision that gives the chance to implement successfully this Pattern. In this study qualitative method was chosen. Interviews were conducted for data collection. Documents collected and analyzed to support the interview guide. Moreover it gathered a prioritization practical guide from Salesforce in order to compare their results. They have a related theoretical framework by Consulting many databases and documents.

This paper present at the strategy of how a Small Medium organization can achieve to plan and succeed its immigration in the cloud for its CRM solution.

According to [46] the cloud computing plays and important role in the organizations. CRM and cloud computing application procedures that assists to detect and target their greatest customers, generate quality sales leads, and plan and implement marketing operations with clear goals and objectives. This paper introduced the term of CRM-customer relationship management and cloud computing. Also , discussed about CRM and cloud computing and examine some reasons that make the organization interesting to adopt this philosophy.

This white paper [47] Implemented a SaaS-based CRM system that brings numerous benefits to the enterprise, from high scalability, to multi-tenancy and greater flexibility, which permit the business to react quickly to market demands while fronting a major decrease of resources in the internal support organization. When applying a 'rapid development' approach SaaS-based systems are greatly faster and less expensive to deploy and maintain. This new selling approach brings a lot of facilities such as flexibility, fast and much less expensive with implementing SaaS it brings a lot of benefits for enterprises.

This paper [48], presented literature of existing research work on CRM, the issues in the existing approaches and motivation of the study. This paper presents a new conceptual framework and practical solution for Customer Relationship Management (CRM) and E-Loyalty programs for cutting edge M-Commerce.

According to [49]SaaS CRM solution is more attractive than traditional on-promise complex CRM application. Solving integration problems with either of these software-based approaches produces results that contradict the benefits expected by companies when they choose a SaaS CRM. Unlike traditional on-premise CRM applications, SaaS CRM solutions offer tremendous benefits including rapid implementations, ease-of-use, low IT requirements, subscription pricing and ease of change. As SaaS adoption increases, the need to integrate between such products and backend applications is critical to rapidly realizing the full benefits of the solution.

The emerging of cloud computing has brought about new hope for efficient adoption and use of computer based information system. Software as a Service allows online customers to use applications on the Internet on a pay as-you-go basis without Investing in new infrastructure or software license. However, the current SaaS delivery model brings challenge to online customers in communities with poor financial services like online bank-transaction or credit cards. This study proposes Mobile-SaaS delivery model to facilitate online charging and credit-recharging mechanisms for SaaS application. The model uses mobile-phone monetary services (M-banking) to support online charging, and adopts threshold-based credit recharge technique to support credit recharging. [50]

Software as a Service (SaaS) is an emerging business model that delivers software applications to users through Web-based technology. Adopting SaaS applications allow companies to save their information technology cost. This paper discussed the implications of services,SaaS outsourcing, and economic perspectives of running the SaaS business model. The results of this study can provide IT professionals certain expectations in delivering outsourcing method and also keeping IT jobs on board. Further research should focus on detailed economic analyses and case studies. [51]

Software-as-a-Service (SaaS) helps organizations avoid capital expenditure and pay for the functionality as an operational expenditure. Though enterprises are unlikely to use a SaaS model for all their information systems needs, certain business functionalities such as Sales Force Automation (SFA), are more seen to be implemented using the SaaS model. Such demand has prompted quite a few vendors to offer SFA functionality as SaaS. Enterprises need to adopt an objective approach to ensure they select the most appropriate SaaS product. [52]

According theseprior literature reviews the CRM based SaaS and how Software-as-a-Service (SaaS) helps organizations to Avoid capital costs and pay for the functionality as an operational expense. Also , with using CRM based SaaS within the company they can cut down the expenditure. SaaS provides better service to meet the demands of any software consumer.

4. CONCLUSION

In this paper we have reviewed about more than 30 articles about CRM, SaaS, Cloud Computing and CRM based onSaaS. Then we showed the benefits of the SaaS in a figure. The result shows SaaS provides a faster and more cost-effective alternative for enterprises to achieve their business objectives.For this reason companies are using Customer Relationship Management (CRM) based on CloudComputing asa new approach to use it as their advantage.Better customer service , easy , fast option to enable CRM and cost saving are the most advantageous of the CRM based Cloud computing. By emerging of the SaaS model, it offered a suite of software that the user chooses according to the requirements of a company's business strategy. This method of CRM allows companies to pay a monthly fee and therefore it is cost effective. Cost reduction, flexibility and convenience are often the key factors that lead the companies to CRM and other software applications moved into the Cloud Computing. Software

as a Service (SaaS) cloud based customer relationship management (CRM) is a desirable application for both small and medium size organizations whenever they need as compared with the traditional CRM.

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