CLOUD COMPUTING CUSTOMER RELATIONSHIP MANAGEMENT FOR SMALL AND MEDIUM ENTERPRISES

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Summary: The aim of this paper is to present the benefits and risks to small and medium enterprises of using Customer Relationship Management systems in Cloud Computing. The paper contains short description of Cloud Computing and its service models, deployment models and main characteristics. Selected Customer Relationship Management systems features like Content Management, Sales Force Automation and Contact Center are considered.

Keywords: small and medium enterprises, Customer Relationship Management, Cloud Computing, Software as a Service.

1. Introduction

Increase the competitiveness of the market requires from the management of small and medium-sized enterprises [SME] seeking solutions to support their work and becoming better than others. One of the key issues is to maintain a solid relationship with the client and meet their expectations. Information systems like Customer Relationship Management [CRM] enable to quickly increase productivity and are a wise investment for any business. Technological progress increases the possibility of searching for solutions better suited to the needs of the SMEs. The increase of the number of companies using applications available on the Internet suggest consideration of the benefits and risks given by the online services.

The paper is organized as follows. In Section 2, short description of Customer Relationship Management systems, its common features and the difference between on-premise and on-demand model. In Section 3, description of Cloud Computing technology (service and deployment models, characteristics). In Section 4, given are questions with are considered in the paper. In Section 5, description of selected cloud-based Customer Relationship Management systems functionalities. In Section 6, the conclusions are written down.

2. Customer Relationship Management systems

Customer Relationship Management systems support companies for tracking, organizing and analyzing all the communication that is made with current and potential customers. CRM allows SMEs to improve the way to market products or services to customers and establish relationships with customers that will have longevity and profitability. CRM helps businesses to maintain customer information such as purchase trends, determine what and when products sell. Such capabilities reduce the potential of losing important customers and provides opportunity to be much more efficient in managing marketing campaigns. The most popular CRM features are (e.g.):

- Contact Management,

- Project Management,
- Sales Force Automation,
- Contact Center,
- Help Desk.

2.1 On-premise and on-demand software

What is the difference between on-premise and on-demand software? In on-premise model servers, connections, access and data are all controlled by the company. In on-demand model applications are available via the web where servers and data are housed by the application vendor. The most related term with on-demand software providing model is Cloud Computing.

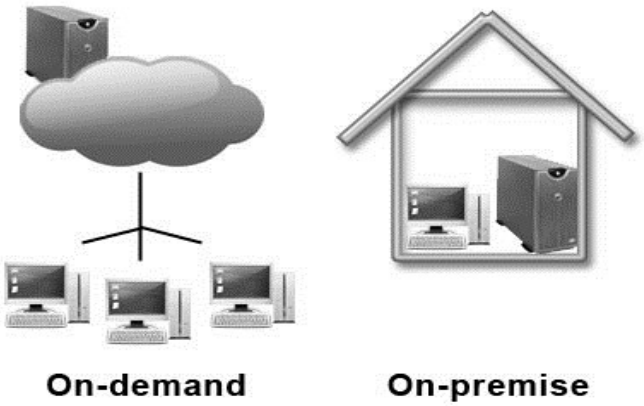

Fig. 1. On-demand and on-premise software access models

3. Cloud Computing

Cloud Computing [CC] refers to applications and services offered over the Internet. These services are offered from data centers all over the world, which generally are referred to as the "cloud". The idea of Cloud Computing simplifies many network connections and computer systems involved in online services. Users with an Internet connection can access the cloud and the services it provides. Since these services are often connected, users can share information between multiple systems and with other users. Cloud Computing includes (e.g.):

- online backup,
- social services,
- personal data services,
- online applications,
- hardware services,
- mirrored websites.

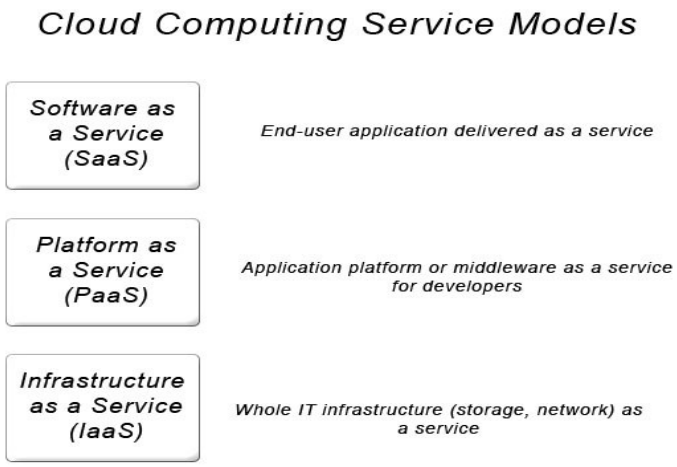

Fig 2. Cloud Computing service models

Cloud Computing contains service models, deployment models and five essential characteristics. Three CC service models:

- Software as a Service [SaaS] - cloud users could access an applications through network, not requiring installation and running software on their computers,
- Platform as a Service - for cloud developers to rent hardware, operating systems, storage and network capacity, allows the customer to rent virtualized servers and associated services for running existing or developing applications and testing new ones,
- Infrastructure as a Service - is a model in which the cloud provider rents the IT equipment like storage, hardware, servers and networking components.

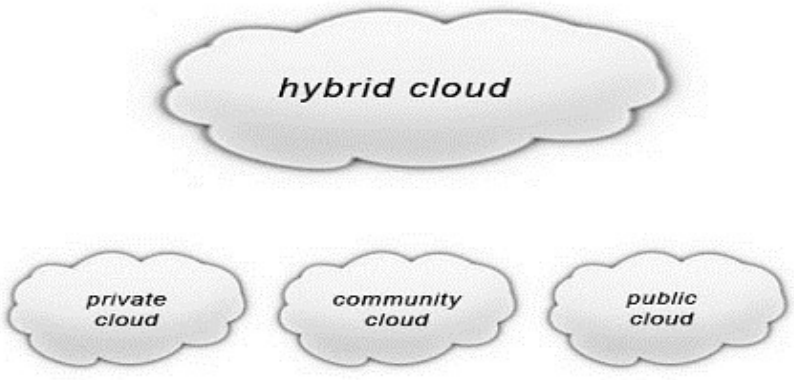

Fig 3. Cloud Computing deployment models

Deployment models of CC:

- private cloud - infrastructure is operated solely for an organization and it may be managed by the organization,
- community cloud - infrastructure is shared by several organizations and supports a specific community that has shared concerns,
- public cloud - infrastructure is available to the general public or a large industry group and is owned by an organization selling cloud services,
- hybrid cloud - infrastructure is a composition of two or more clouds (private, community, or public).

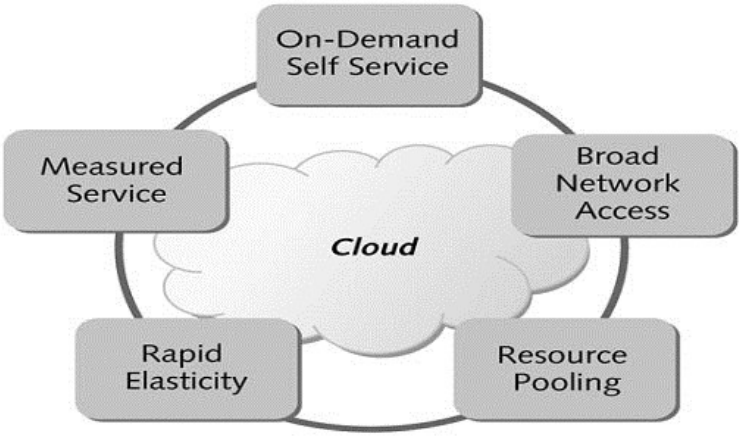

Fig 4. Cloud Computing characteristics

Five essential characteristics of Cloud Computing:

- on-demand self-service - CC clients can self-control computing capabilities, such as server time or network storage,
- broad network access - capabilities are available over the network and accessed through standard mechanisms like client applications,
- rapid elasticity - capabilities can be rapidly and elastically provisioned (in some cases automatically) to quickly scale out and rapidly released to quickly scale in, depending of customer requirements,
- resource pooling - the provider's computing resources are pooled to serve multiple consumers. Different physical and virtual resources are dynamically assigned and reassigned according to consumer's demand,
- measured service - cloud systems automatically control and optimize resource use by leveraging a metering capability.

4. Problem statement

Given are a SMEs, that want to support relationship with their customers by a CRM system. The following questions are considered:

- Are there a cloud-based Customer Relationship Management systems functionalities that could support small and medium enterprises?

- If yes:
- What are the benefits of using cloud-based functionalities?
- What are the risks of using on-demand solutions?
- How Cloud Computing deployment models affect on these functionalities?

In the next Section selected features of cloud-based CRM systems are considered.

5. Customer Relationship Management in Cloud Computing

To ask the questions mentioned in Section 4 few of the most common CRM systems provided on-premise and on-demand features are selected. Selected functions are Contact Manager, Contact Center and Sales Force Automation.

5.1 Contact Manager

Contact Manager keeps track of people and related activities. Contact Manager is specialized for sales and service representatives who make repetitive contact with prospects and customers. The foundation of a Contact Manager is a name and address database, from which phone calls, meetings or to-do lists are scheduled. Contact Manager may also link each record to related e-mail messages and text documents.

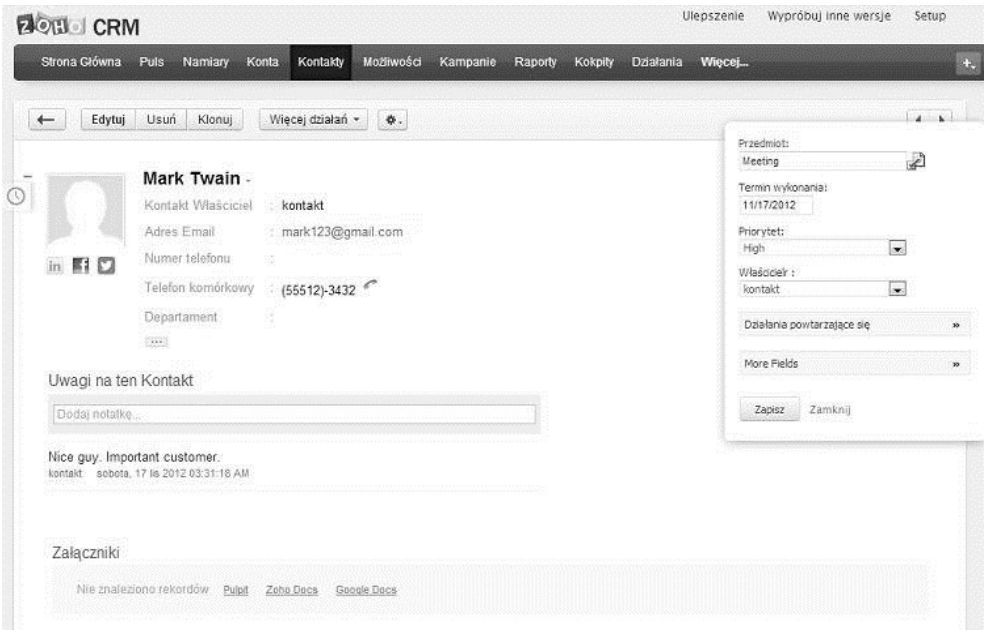

Fig 5. Zoho CRM Contact Manager

Using Contact Manager in the cloud expands business beyond the office. All of the information needed to do business is located in the cloud and the only thing need to access is an Internet browser. Users can be anywhere in the world and access their information from wireless device, such as smartphones and tablets.

The main disadvantage of using cloud-based Contact Manager is not enough security level given by cloud-based CRM provider. SMEs executives are wary of transferring data

about their customers to public cloud, where the data isn't located in one place . One of the solution is building own data center (private cloud) and manage data by own IT staff. It is more expensive way and the data security depends on IT employees knowledge and competences. The other solution is to buy private cloud from provider with all the data located in one place. Uploaded data into a cloud-based CRM may not be easy to export into a format that is useful elsewhere. When cloud vendor go out of business SMEs need to be able to run their CRM elsewhere, with data that has been generated or modified by their system. To secure their business, SMEs need to notice data transfer options when the agreement between enterprise and cloud provider is concluding.

5.2 Contact Center

Contact Center is a central point from which all customer contacts are managed. The contact center includes call centers, but may include other types of customer contact, for example e-mail newsletters, Web site inquiries and chats. CRM systems uses Voice over Internet Protocol [VoIP] technology to make and receive calls. When a customer telephones company the information relating to this customer (e.g. photo, customer details, notes) can be displayed on the computer screen. CRM user immediately see who the customer is and read about any unresolved issues.

Fig 6. Cloud-based VoIP

SMEs using cloud-based telephony are seeing advantages over on-premises solutions: lower operating costs, easier implementation, automatic updates, built-in disaster recovery, and a scalable pay-as-you-grow model that provides flexibility for businesses.

5.3 Sales Force Automation

Sales Force Automation [SFA] automates the business tasks of sales, including order processing, information sharing, inventory monitoring and control, order tracking, customer management, sales forecast analysis and employee performance evaluation.

SFA in SaaS model enables sales representatives to connect to information that might otherwise have been difficult to gather, especially while traveling. Integration between all departments (sales, marketing, production) is one of the major advantages of SFA through

the cloud. Customized applications can improve sales representatives productivity, streamline processes, and provide access to key information. Because sales people are able to update data immediately, marketing and sales initiatives can be more responsive.

Like with the Contact Manager, on-demand SFA risks are the not enough security level and data loss.

6. Summary

Contact Management, Sales Force Automation and Contact Center are just few of the many features offered by the CRM systems. The benefits of using cloud-based CRM systems for SMEs are common for different types of functionalities. The main advantage is reducing startup costs, with is very important for the newly founded enterprises, that don't have enough funds to buy expensive IT infrastructure. Cloud-based systems have predictable operating expenses. Software licenses are rented monthly, so it is easy for the company to forecast and budget the operation of the CRM system. Cloud-based systems have a limited need for technical support. Since the data is managed and retrieved from the cloud, the company does not have to worry about technical support. The all-time availability of data in Software as a Service solutions gives SMEs the opportunity to be more efficient in business. SMEs agents, supervisors, and executives can access the same data in real time. The risks of using on-demand CRM features are not enough security level from service provider, data loss and downtime. Different cloud deployment models gives SMEs more solutions to implement their CRM systems in the way they need.

Each SMEs executives that want to use the CRM systems in their companies, need to consider the impact from using cloud-based applications. Then decide what model of software (on-demand or on-premise) is the best solution for their needs.

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