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Experimental Study of SaaS, Its Categories and Contribution in Cloud Computing

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Abstract

SaaS is software as a service. In previous days when the concept of providing the facility of distributed system from where information can be shared was introduced then the concept of Application service provider came into the picture. The idea was to provide application-based services to the companies using client server techniques. It became popular. SaaS is introduced to provide software also as a service which is upgraded version of the ASP. In this paper SaaS will be discussed in detail. There are two main types of SaaS. The challenges in implementation of SaaS will also be discussed.

Keywords: - SaaS, Categories, Advantages, Challenges.

Introduction: - In old traditional methods of sharing the data and the information, there was need for clients and dedicated servers through which all the communication was done. In this model all the necessary data was available and stored in one remote server and the clients use to access those data and information using various commands and requests etc. Based upon the commands the server use to respond with the data needed. This technique of sharing information was popular but had its own challenges. It uses to increase the cost of implementation of such client server data bases as there were lot of components involved like hardware, software, routers, switches etc. Therefore, the engineers came up with new technology which is called as SaaS-Software as a service. It is the method of providing access to the applications over the internet as a service. There will be specific service providers of the applications who provides all the services online. This makes the process easy as there will not be need to hardware, software devices to install link between the two ends of the communication. This also makes sure that the availability, security, scalability of the applications provided as a service over the internet is higher than the old traditional methods. The scope of the SaaS technology is to provide the access of application on internet and it can facilitate any type of services based upon the users need. It implements the concept of cloud computing where all the data and services will be present in a cloud present in the internet which can be accessed by the authorised user of that particular service based on their requirements.

Types of SaaS: - [1]

- Horizontal SaaS: - This category of SaaS targets large industries which are branded and has various business requirements. These types of big industries will have many types of applications which they

will need to meet their business requirements and achieve their goals. Horizontal SaaS approach provides software solutions to such big companies like Salesforce etc to meet their specifications.

- Vertical SaaS: - This category of SaaS deals with small organisations and helps them to provide solutions as per their daily requirements. These types of industries will be small or as a start up which needs to access small number of applications and needs vendor who can provide that online. Vertical SaaS will be implemented in such organisations so that they can meet their business goals in less time.

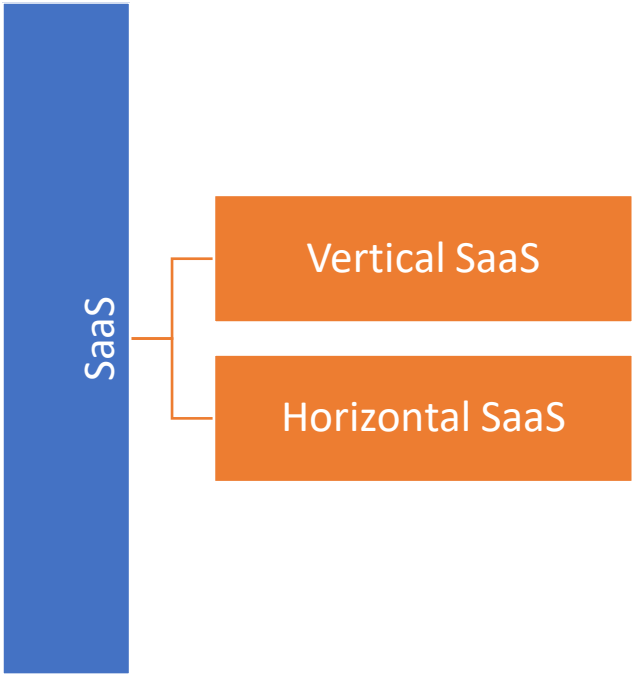

Figure 1 SaaS Methods.

Characteristics of SaaS: - [2]

1. Easy Access: - Since the services are provided over internet, hence it makes it easy for the end user to access the data as per their needs from any place at any point of time. It is faster and gives better access solutions.
2. Easy to Modify: - The type of services provided by SaaS depends upon the requirements and specifications of the business. So, it is unique to a specific organisation. Therefore, it makes it easy to modify. The business can let the servicer provider about the services he needs or also the services which are not required any more. The customization can be done anytime.
3. No Separate infrastructure is required: -Whenever a business approaches SaaS provider than the SaaS provider will take care of everything. There is not need of separate infrastructure in order to implement SaaS. The provider will understand all the business goals and then provides solutions to all the applications needed by the organisation online.
4. Faster Response: - The SaaS service vendor provides all the software services solutions at same place which is unique to that particular organisation due to which the access and time taken to respond to the employee's query will be much faster as compared to the old methods of data sharing.
5. Data Analysis and Reporting: - Since the services provided will be unique and based on paid subscription so there will not be chances of unauthorised access. The employees of the business can use the data for studying the market trends and use it for data analysis and reporting.

Implementation Process of SaaS: -
Like any other model, the implementation of SaaS will have certain steps to be followed in order to create efficient SaaS. Each step should be followed by the designer of the SaaS in order to achieve maximum efficiency. [3]

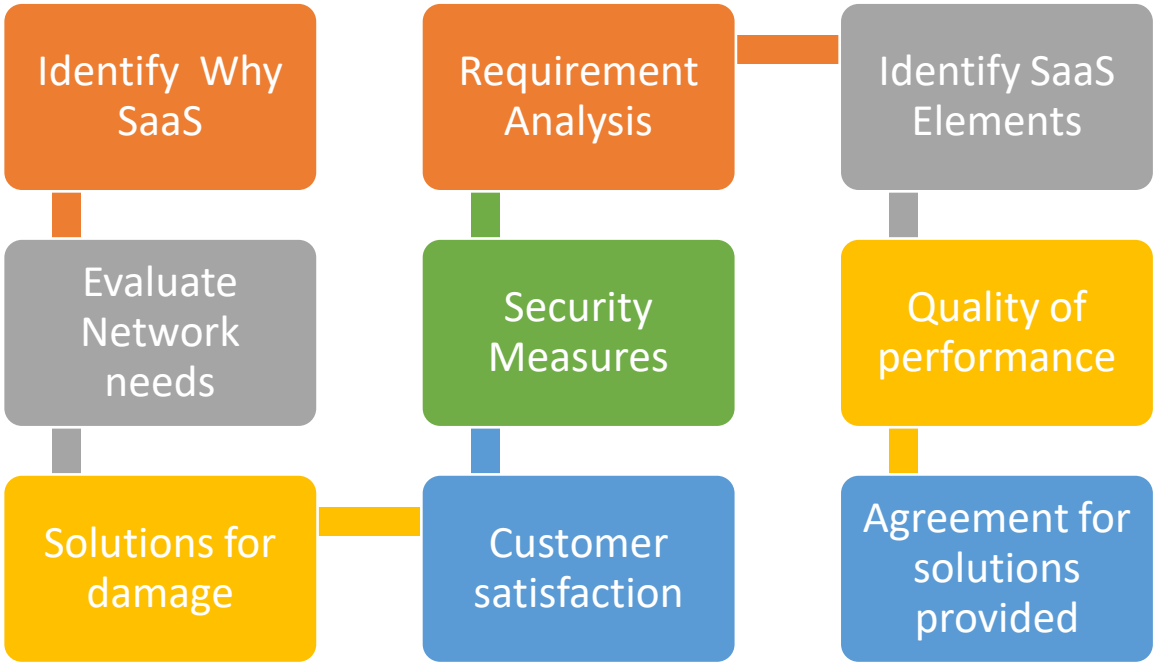

Figure 2 SaaS Implementation Process.

1. Identify the need for SaaS: - In order to implement the SaaS and before approaching any vendor the business will identify whether it really needs SaaS for its company. They will consider all the factors like cost for implementation of SaaS, security issues, storage capacity, feasibility etc before reaching out to the vendor. They will also compare the subscription cost provided by different SaaS vendors and will reach out to the vendor whose services are reliable according to their budget.
2. Requirement Analysis: - In this stage the business will understand the specifications of its clients and then checks whether they are able to provide solutions to its clients. Then they will reach out to the vendors. The vendors also will first of all understand all the requirements, business goals and aims in order to provide best possible SaaS solutions to the business. Without the proper understanding of the goals and aims, nothing can be developed efficiently.
3. Designing the infrastructure of SaaS: -Once the requirement analysis is done, the designer will go through it and starts the designing process. He will decide what type of platform he will chose. The main purpose of this step is to identify proper storage tools needed, how the application will be monitored, evaluation of the cost for the implementation of the SaaS etc. Once it is decided then the proper designing will start once the SLA is signed between both the parties.
4. Obtaining of Components of SaaS: - Once the designing of the infrastructure of SaaS is done, then in this phase it is identified from where to buy elements. The material is procured based on the reliability and functioning of the material. Good quality components should be procured so that efficient model can be made.

5. Analysis of Network requirements: - As the SaaS, is the software services over internet, after the material is procured the next step is to identify all the network requirements as how much bandwidth will be needed to implement the SaaS infrastructure.
6. Security Measures: - As the services are provided over internet so there is threat to the security of the information being saved on the internet. It is the responsibility of the vendors to follow all the security measures to make sure that the services provided over internet and the data stored is safe. It is role of the vendor to provide best possible security solutions and give confidence to the end user that the data is safe and secure.
7. Quality of performance: - The business would want SaaS in such a way that the performance of their business improves. As a result of this the vendor should have the capability to provide SaaS in such a way that the performance increases. The performance of the infrastructure depends upon various factors like bandwidth of the network, how the data is delivered, how reliable is the solution provided and the accuracy rate of the data.
8. Solutions for damage: - The vendor should also provide best possible solutions in case of any damage to the platform. The vendor should also implement back up plans and have means to provide alternate solutions in case of data loss.
9. Customer Satisfaction: - Once the vendor provides the SaaS implementation solutions, it is also necessary that they also provide customer support services which in turn will result in customer satisfaction. The vendor can provide customer support via ticket system, email support, on call support etc.
10. Tracking events: - The vendor can also provide the facility to track and monitor each event taking place during the access of the services. This can help to avoid possible damages that might occur in the future. The performance quality also increases if there is separate monitoring of the events taking place.
11. Signing of SLA agreement: - This is also one of the important steps in the process of implementation of SaaS. It is very important that all the details should be documented and then signed by both the parties to avoid future issues. The document is called SLA (Service Level agreement). This will have all the details like what all are the services provided, type of elements used, subscription plans etc.

Challenges in the Implementation of SaaS: - [4]

- Higher cost: - The cost of implementation of the SaaS is higher as compared to the old traditional methods. It will need highly skilled and professional designers. The budget of hiring such skilled professional will increase. It is very important to hire proficient designers so that efficient SaaS infrastructure can be implemented. If the designer is not experienced then there are chances of future failure of the whole applications in future.
- Initial implementation takes time: - The process of implementation of all the services used by the business using SaaS technology is time consuming. Hence the business needs to have patience so that the designers can convert the on-premises services of the organisation into SaaS technology.
- Similar Access control over services: - The main challenge of SaaS is that the admins of the organisation will not have access control similar to which they had in their on-premisses services. They can not control as which user can access which service.

- Non-Compatibility: - The issue of non-compatibility may arise as the software services of business may not be compatible with the services provided by the SaaS vendor. In the implementation of SaaS, there can be issues to integrate the software services of the organisation in services provided over internet.

Advantages of SaaS: -

- Cost effective: - The cost of implementation of SaaS is less as compared to individually using the software on-premise.
- Easy modification: - The SaaS can be easily modified; the business just needs to inform the vendor about all the new services which they need as per their requirements and can also ask the vendors to remove particular service which they no longer need. The subscription plan will change as per the modifications done.
- Automatic updating of the services: - The business does not need to bother about the regular updating of the software from time to time as it all can be done by the vendor's team.

Conclusion: - Software as a service is in demand these days and is highly used by the business to meet their aims and goals. It is in demand in CRM, Banking, accounting, etc. It is in high demand as the business inform other vendors and let them know their specification and leave everything on the vendors to facilitate the implementation of the SaaS. This saves a lot of time and effort of the organisation which can be used in carrying out other tasks. Like any other technology SaaS also has its own set of challenges like they need highly skilled professional who can help in the implanting process.

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