A QUALITY EVALUATION MODEL FOR SAAS IN CLOUD COMPUTING: SAAS CLOUD QUAL

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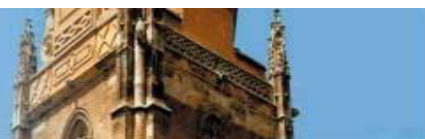
A QUALITY EVALUATION MODEL FOR SAAS IN CLOUD COMPUTING: SAAS CLOUD QUAL

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ABSTRACT: Organizations rely on cloud computing to share and store their data. The term "Everything as a Service" (XaaS) describes a collection of services that anybody can use. Many people believe that cloud computing couldn't exist without SaaS, or software as a service. Some services do not necessitate the installation of any kind of app on users' personal devices. Also, you can't afford to ignore the advantages that SaaS provides. The importance of quality is rising as a result of the rising popularity of SaaS. This study presents a new way to assess the quality of SaaS by zeroing in on its essential features. When compared to more conventional software, SaaS excels due to its many distinctive qualities.

KEYWORDS:*Cloudcomputing ·Software-As-A-Service(SAAS) ·Servicequality ·Softwarequality.*

1.INTRODUCTION
Through cloud computing, an enhanced approach to data management, everyone with a web browser and an internet connection can access pooled computer resources from any location. These tools are highly versatile and often used in virtualized environments. Hardware, software, networks, and platforms are the building blocks of cloud computing. Businesses operating in the cloud make advantage of SaaS.

An rise in demand for a service is good for the bottom line for all service providers. The quality of cloud-based Software as a Service (SaaS) products is crucial to understand and appreciate their appeal. This quality management strategy makes it easy to keep an eye on the highest standard of quality as it is based on test results.

When it comes to capturing the unique qualities of software services, our current quality models fall short. In the first part of this research, we look at software and service quality standards from a different angle. The next section of the paper goes into more depth on the proposed paradigm. A discussion and analysis of the data are included in the study's subsequent section. The majority of individuals think that the future growth potential is the most important factor.

2. PROPOSEDQUALITYMODEL
In this study, we create a new way to measure the value of cloud services. This research presents a fresh method for testing software as a service in the cloud. It takes a look at a lot of quality metrics. The PERFUME Software Quality Model (also known as 25010) is a popular method for assessing software reliability and quality. Quality of outcome and quality of use are the two main categories of ISO/IEC quality models.

A product can be classified as having internal or exterior qualities, depending on whether they change over time or stay constant. It is essential to think about an object's intended usage while trying to figure out where it should go.

After making some additional adjustments to the ISO/IEC Standard quality model, the 25010 quality model was born. Software integration is another metric that will be utilized to assess its design. In this model, related sub-traits and overall quality traits (both internal and external) are treated equally. Many different approaches are available for completing exams and quality evaluations. Nobody uses the term "low grade" anymore. Six distinct methods, all grounded in the ISO/IEC 9126 standards, exist for evaluating software quality.

Software quality is evaluated based on six main variables and twenty-four secondary components. Software quality assessment according to the ISO/IEC 9126 standard is the focus of this research. Its distinctive characteristics are shown in Figure 1.
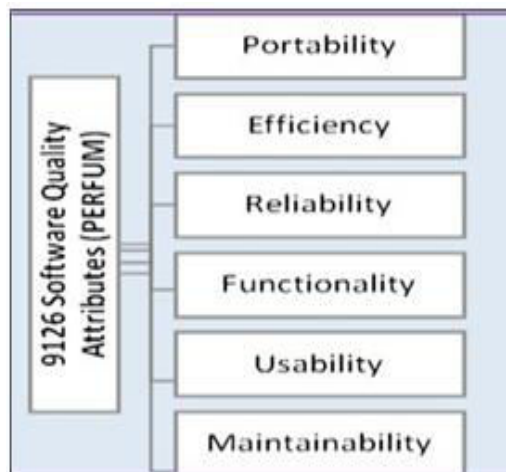

Fig. 1ISO/IEC9126 qualitymodel

Since software as a service (SaaS) is so different from conventional computing, quality metrics based on ISO 9126 cannot be applied to it. Right now, we don't have the tools or knowledge to quickly and accurately grade the most obvious aspects of cloud computing quality. a program that can ascertain the present significance of SaaS needs in the cloud. Because of this, a lot of effort is going into creating the quality model needed to test SaaS products that are hosted in the cloud.

ServiceQualityModel:(RATER)

It is common practice to evaluate services using a quality model created in 1988 by Parasuraman and colleagues. This method can be used by individuals to evaluate the quality of healthcare they get. There were five main parts to the strategy we were talking about. One way to measure service quality is via SERVEQUAL, which has garnered a lot of attention from academics. Figure 2 shows that the most important thing is a service's ability to understand, respond, reassure, rely on, and be touched. Globally, companies are placing a greater emphasis on customer happiness. Careful evaluation of the service and SaaS quality was required.

KeyFeaturesofSoftware-As-A-Service(SaaS)

Customer service and the SaaS products are top-notch. Discussing the main characteristics of a SaaS service is essential for evaluating its overall quality. The seven most important parts of software as a service are shown in Figure 3.

There are a lot of individuals living in this area right now. The term "multi-tenant" can have positive effects on many different types of people. People generally agree that software as a service is the way to go when dealing with multitenancy. That means a lot of people can use the program at the same time. Every customer has the same expectations regarding the service's foundational features. Factors affecting Quality of Service (QoS) in complicated situations include response time, data transfer speed, and system responsiveness.
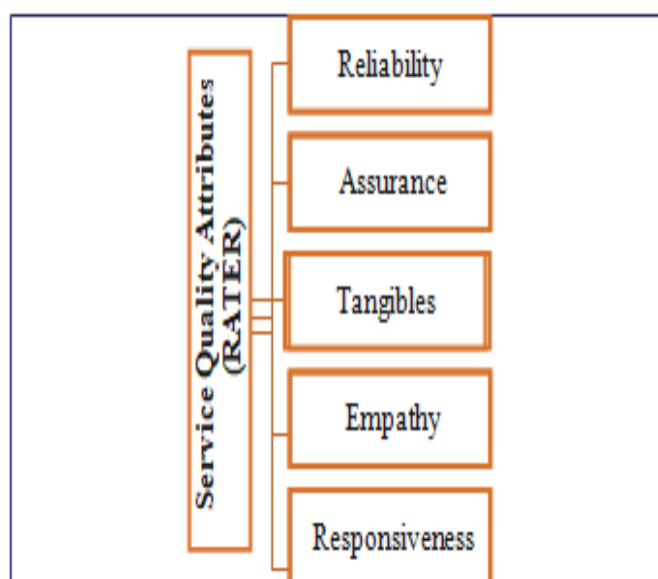
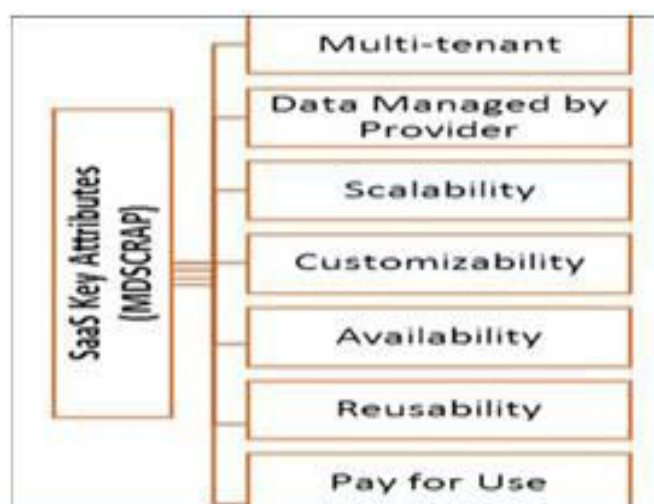Fig.2This individual exemplifies how to treat consumers well

Fig.3The key features that distinguish software as a service (SaaS) are

DataMaintained by Service Provider: Any time a customer uses a SaaS model, they can ask the service provider for access privileges. Data setup and monitoring will thus be handled by service providers. This method safeguards a substantial amount of customer data stored at the provider's data center.

Scalability: Customers think this is an essential part of cloud services. The capacity of a computer system to handle multiple tasks at once is known as its scalability. The service's internal resources cannot be changed by users. Companies with an emphasis on delivering services can more easily innovate new goods to meet the ever-changing demands of their customers.

Customizability: Consequently, more people will utilize them because transferring between providers is now easier.

Availability: The Cloud SaaS system is compatible with any device that has an internet connection, including desktop computers, mobile phones, and tablets. On the flip side, SaaS is available to people who aren't entrepreneurs. Because of this, using the service provider's tools is essential for the app to work. Application as a Service (SaaS) offers many nebulous benefits.

Reusability:

In this part, we'll take a look at how new programs are made utilizing software that is already popular. In order for cloud computing to work, a wide variety of Internet services are needed. The term "software as a service" (SaaS) used to describe cloud computing is vague and hard to pin down.

Software as a service (SaaS) is characterized by a fixed fee per use, independent of the frequency of use. What matters is not the frequency of the service's offering but the frequency of its usage.

SaaSCloudQualityModel

  If you want to know how good a SaaS provider is, look at both their software and their service. In order to work well, SaaS must devote a lot of attention to quality control. In order to establish the quality of software goods and services, this model compares their key properties to those of other models. You may verify the accuracy of the data you receive via SaaS in a number of ways. Figure 4 shows the steps of the model.
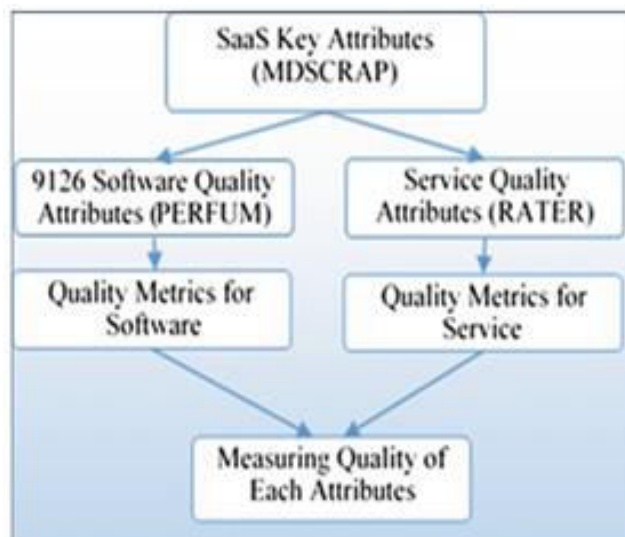

Fig. 4 Several people have stated that the procedure can be used to assess quality

3. RESULTSANDDISCUSSION
MappingSoftwareQualityAttributes

The offered quality model bridges the gap between the SaaS foundational elements and the software product quality requirements of ISO/IEC 9126 standards. Figure 5 shows the main SAAS components that meet the quality standards of ISO 9126. This strategy sets a standard for the excellence of SaaS service delivery by making the most important parts of the service more useful. Figure 7 shows the relationship between the main features of SaaS and each quality component in the software product quality model. Also, all the materials needed to look at these links have been collected. You now have access to the pricing information for all of the SaaS options.
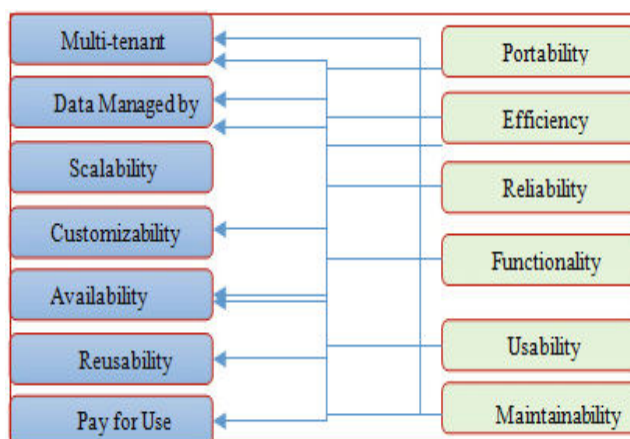

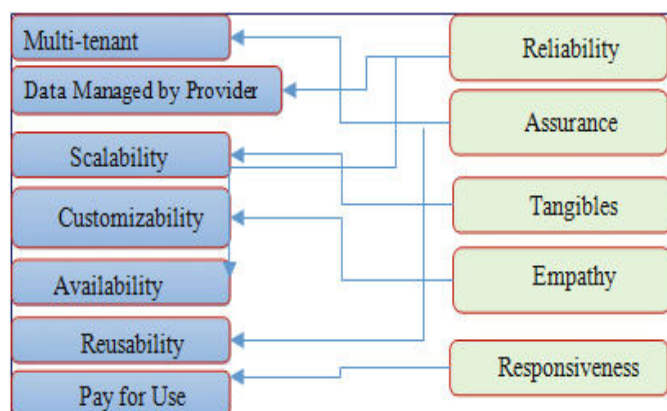Fig.5The purpose of this study is to create a qualitative map of software attributes

Fig.6Describe the characteristics that make a firm successful

MappingServiceQualityAttributes

The wide feature set of SERVQUAL makes it a popular choice for rating cloud service quality. In Figure 6, we can see how the SaaS components relate to the SERVQUAL attributes.

Derived Metrics

➢ For the sake of this mapping exercise, I would like to isolate the most important aspects of SaaS and link them to the important performance measures. Once the associated metrics are set up and all major SaaS attributes are linked to a quality attribute in the service quality model, the result will not change. This claim goes into more detail. This makes it possible to test SaaS by letting you test each part separately and then all at once. See Figure 7 for a breakdown of the many indicators used to evaluate SaaS solution quality.

➢ The number of times that program fails to function.

➢ The term "interoperability" describes how well two software systems can share information with one another.

➢ To what extent does software accomplish its stated goal is what the term "appropriateness" refers to. successfully completing internal procedures in a timely manner.

➢ A system's recoverability can be defined as how readily it can be restarted in the case of an error while preserving all of its components, data, and links.

➢ When a basic system consistently works, it's easy to understand and explain.

➢ Looking at how easily a script can be modified might give you a good idea of how much work goes into it. This response demonstrates a few potential problems that may occur during the installation of the program.
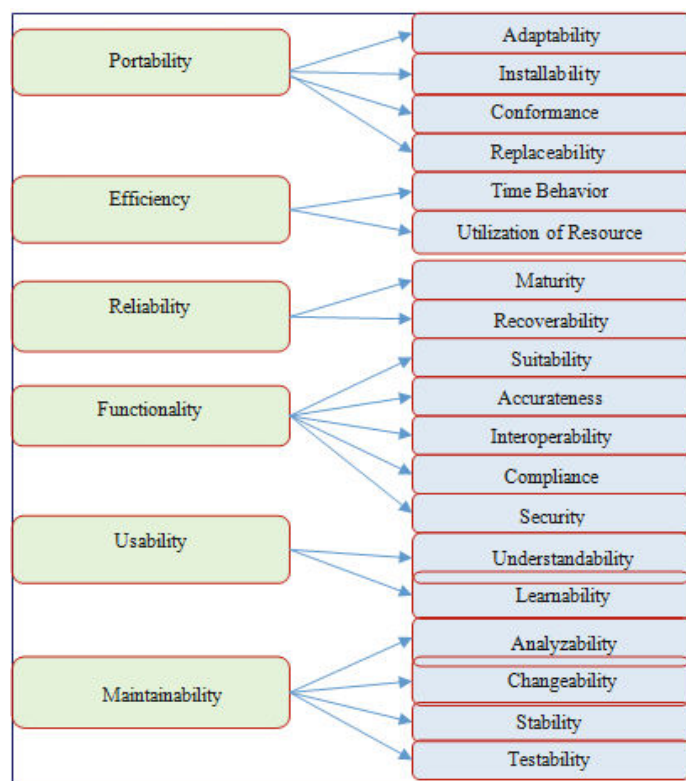
Fig.7An objective metric was utilized to determine what characteristics make software good.

4.CONCLUSION AND FUTURE SCOPE

Using the building blocks of SaaS, the innovative method was showcased. With integration, vital functionalities may now be shared across all software products and services. Using mapping techniques, we were able to generate an arbitrary number that may be used to evaluate the utility of SaaS. A lot of people think this way of judging SaaS quality will help push automation forward.

REFERENCES

1. J.W.J.Y.Lee,"AQualityModelforEvaluatingSoftware-as-a-ServiceinCloudComputing," inSoftwareEngineeringResearch,ManagementandApplications,2009.SERA'09.7thACISInternationalConferenceon,2009,pp.261–266.
2. J.-M.Desharnais,"AnalysisofISO/IEC9126and25010,"2009.
3. P. X. Wen and L. Dong, "Quality Model for Evaluating SaaS Service," in 2013 FourthInternationalConferenceonEmergingIntelligentDataandWebTechnologies,2013,pp.83–87.
4. Gajah, S. N. R. Sankranti, S. A. Wahab, N. J. A. Y. Norazira Abas, and S. N. A. M. Rodzi,"AdaptiveofSERVQUALModelinMeasuringCustomerSatisfactiontowardsServiceQuality Provided by Bank Islam Malaysia Berhad (BIMB) in Malaysia," Int. J. Bus. Soc. Sci.,vol.4,no.10,pp.189–198,2013.
5. AParasuraman,V.AZeithaml,andL.L.Berry,SERQUAL:AMultiple-ItemscaleforMeasuringConsumerPerceptionsofServiceQuality,vol.64.1988,p.28.
6. DhanammaJagli,Dr.SeemaPurohit,DrN.SubhashChandra"SAASQUAL:AQualityModelforEvaluatingSaaSonTheCloud,"pp.1–6,2015.
7. Q.He,J.Han,Y.Yang,J.Grundy,andH.Jin,"QoS-drivenserviceselectionformultitenantSaaS,"Proc.-2012IEEE5thInt.Conf.Z.Wang,N.Jiang,andP.Zhou,"QualityModelofMaintenanceServiceforCloudComputing,"2015IEEE17thInt.Conf.HighPerform.Comput.Commun.(HPCC),2015
8. IEEE7thInt.Symp.Cybersp.Saf.Secur.(CSS),2015IEEE12thInt.ConfEm-bed.Software.pp.1460–1465,2015.
9. IEEEComputerSociety,"IEEEStandardforaSoftwareQualityMetricsMethodology-IEEEStd1061TM-1998(R2009),"vol.1998,2009.