Research Article

A Comprehensive Survey on Stake Cloud Computing

Ms. R. Aishwarya[1], Dr. G. Mathivanan[2]

Research Scholar
Department of CSESathyabama Institute of Science and Technology
Professor
Department of ITSathyabama Institute of Science and Technology

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Abstract: In recent years the development of devices in both smart and intelligent are unlimited. Because of this, many new applications are trending such as Smart house, Smart cities, Virtual reality, Augmented reality, Smart services and so on. The basic and important requirement of the above services and technologies are storage and computation. The cloud computing called centralized server plays a major role for storage and computation in all over the world. Because of the development of technologies, the centralized database is facing difficulties to manage the needs of these types of upgrading technologies. To enhance and fulfil the service gap faced by the cloud, many network computers models or stake cloud computing are raised such as grid computing, edge computing, utility computing, green computing, fog computing and dew computing have been created and developed by the scholastic and assiduity group. With that they develop many various types of usage to enhance the basic concept of cloud computing. The main target is to take a cloud computing approach to reach the end user such as a local or edge server to overcome the difficulties faced by the cloud computing and give the best performance to the end user or customer experience. In this survey paper, we theoretically and technologically analyzed the stake cloud computing including grid computing, fog computing, dew computing, edge computing, utility computing and green computing via several aspects and examples with cloud computing. Finally, we concluded this paper with the stake cloud computing development promise to help the society in various fields from various authors perspective.

Keywords: Cloud computing, Grid computing, Fog computing, Dew computing, Edge computing, Utility computing, Green computing.

1. Introduction

Cloud Computing development is robustly done by many multinational and large trending companies such as Amazon, IBM and so on. The Cloud Computing technique was first promoted by the company called IBM in the year of 2007. In the modern development years, cloud systems play a major role in many companies to support them in various applications by providing many services. The rapid development of cloud services can be visible showing. For example, the current trade curb of amazon company is expecting to reach revenue of $71 Billion. If we take IBM the cloud revenue is about $21.2 billion. Nowadays the technology and the computer are developing fast, which gives the development of cloud computing. But also, it may have many flaws and some paucities are happening which are associated with the cloud computing platform[1]. From this the survey needs to check the status of the cloud computing network paradigm.Initially the technology raise happens such as developing the usage of intelligent smart devices called smart mobile. The mobile users are dramatically increasing day by day. So, it exceeds the shipment of personal computers from the year 1983 to 2014. The most used mobiles in the world place goes to Samsung followed Apple in the USA. Some of the mobiles have a higher powerful fastest processor than some old pc's. Also, in the recent world everything comes under the word called SMART. It is also known as Smart Connected Thing or Products (SCOT or SCOP). Many wearable devices are launching day by day[2]. For example, Smart band, Smart glass, Smart watch and so on.Also developing the intelligent devices called Sophia is the most famous robot. From the above thing all the smart and intelligent devices are in different systems, varies in size, varies in storage, varies in operation, varies in sense etc., Because of the development of technology, the centralizeddatabase is facing difficulties to manage the needs of these type upgrading technologies. It is also not possible to carry the cloud computing method to these types of devices and intelligent devices.Later in all over the place different networks methods have been increased and installed day by day. Many wireless technologies also came across the world from 1G-LTE to 4G- LTE. After the 5G-LTE came across the world they are trying to enhance the 5G-LTE to 6G-LTE in the upcoming years. The main user demand is about speed. So that they deliver 5G-LTE and device to device communication. But it should be a new challenge to cloud computing. Same time big data, software defined networking and network function virtualization technology have improved the speed of process and the storage of memory to the end user by using the edge network concept to make users more comfortable and fulfilling their requirements.Extraordinary raise of pervasive intelligent devices and smart devices in IOT, IOV, IOE such as smart city, smart plant, smart car,

smart house and so on. Day-by-day the real time virtual/augmented reality, no driver vehicles and many other innovative network applications, resources are growing day- by-day. This also gives other challenges to cloud computing– what is the requirement of meeting all the new network services and applications, how to manage it in the centralized system. For this above reason, in the year of 2011 the new enhancement of cloud computing. Support has been launched called stake cloud computing. Many computing supports such as Grid computing, Fog computing, Dew computing, Edge computing, Utility computing, Green computing have been proposed. So, in our survey paper the details of a new emerging stake cloud computing paradigm to encourage the research and development in this field[45,46].

2. Progress and Dispute of Cloud Computing

2.1. Cloud Computing

Cloud computing is an emerging technology nowadays. It provides many services to the user. The user may be individual or the organization. "Pay for what you use" method is technically provided by the cloud service provider. Cloud computing is also known as virtual computing. Because the output and result should be in the user screen and all other operation takes place virtually to the cloud environment. Most of the organization and MNC are having tie-up with the cloud services. They are working under virtual platform such as Google cloud, IBM cloud, Amazon web service[42,43].

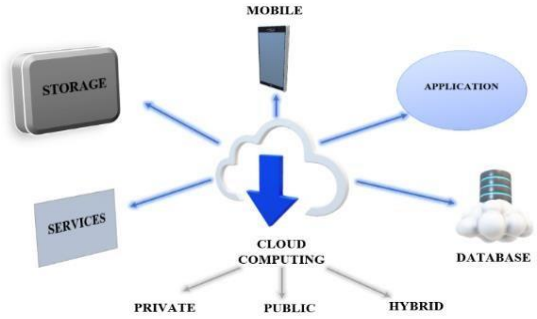

Figure 1. Cloud Computing Service Architecture

2.2. Progress of Cloud Computing

The market of Cloud computing globally will reach up to more than $150 billion dollars in the upcoming year. Out of 100%, 58% the adoption of cloud is hybrid cloud. By seeing this 90% of the companies all over the world run under the cloud technology. The above evaluation shows that the virtual/cloud data center will perform 94% of the workload in 2021. The below estimation fig. 2 shows that the mark wide of cloud computing from 2008 – 2019 from insight website. The X axis indicates the year of using cloud from 2008 to 2019 and Y axis revenue spent in US dollars. And also, about the difference made in each and every year denoted in the variable called Z1. The fig. 3prediction shows that the prediction of upcoming years by using the existing data of 2008 to 2019 in various services. In this X axis indicates the upcoming cloud usage from 2020 to 2027 and Y axis represents the US dollar in billions.

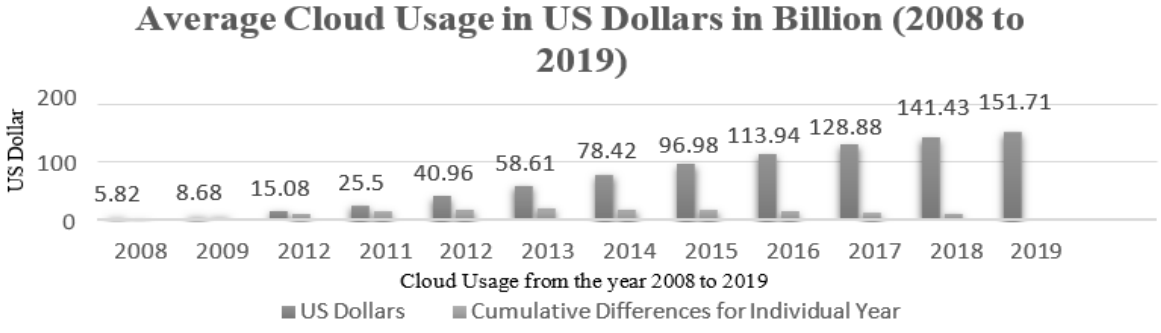

Figure 2. Estimation of Average Cloud Usage and Cumulative differences in US Dollars (Billion)

The above prediction is calculated by taking the last 8 years of cumulative difference sum with 2019th data of US Dollars to get the approximate value of estimating upcoming 8 years denoted in the variable called Z2. aa represents 20th century year value from 11 to 19 and bb represents f 20th century year value from 20 to 27 (future prediction). When aa is 11 the value of bb becomes 20, when aa = 12, bb = 21 and vice versa.

$$Z1(2019) + \Phi(Z1(20aa)) = Z2(20bb)$$

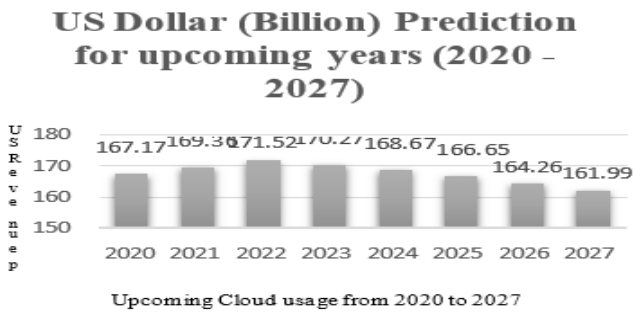

Figure 3. Prediction of Cloud Usage for the year 2020 to 2027 in US Billion Dollars

2.3. Dispute of Cloud Computing

2.3.1Centralized

Cloud computing is a single server and large computation power. Being centralized to all other users it may be individual or organization. It is very difficult to provide flexible services in some techniques. For example, nowadays many intelligent and non-intelligent devices are rising day by day. The number of sensors which are dramatically showing growth in their performance. Every sensor and the devices are in different shapes, sizes, requirements of memory andalso the performance operations are different. Mainly the size of the sensors which are decreasing. Even though its performances are more powerful than before. The sensed information is sent/gathered through GPS. Here the cloud computing is simply used to permit the interaction between the human and computer. Because of this reason the utilization of resources, devices, storages are very less in the cloud platform. All these leads to the usage of cloud services decreasing[15].Although the collection of globally sensed data needs a very large volume of storage. In the cloud, it is very easy to store any amount of data. But due to the single server i.e., centralized server, it will take more time to update the data within the small period of time. Nowadays long-term evolution LTE also increased. Currently 5G cellular network came. In future it may lead to a 6G network. So, the capability of the service provider level is not much expected in cloud.

2.3.2Long Distance Network

Cloud platform is virtually placed somewhere. It is considered placed at a longer distance from the cloud customer/user. So, all the cloud customer, sensor, cloud- based devices are placed far away from the cloud platform. Each technique and device use different networks. Because of this shortage of performance may happen sometime. Due to network routing the delay of the process is approximately 32 to 102ms. It may lead to poor performance. Due to long distance networks the malicious acts also will happen by the attacker who is the middle party between the user and the cloud platform[3]. The network attack such as incomplete data deletion, flooding attack, SQL injection attack etc., To avoid this cloud computing will be ready to be available with strong security shows in fig.4.

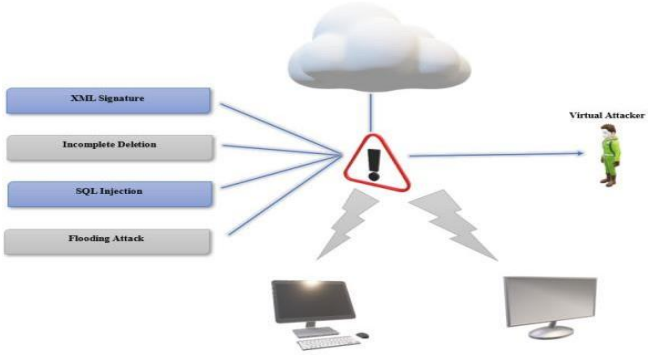

Figure 4. Long Distance Attack Opportunities Cloud Architecture

2.3.3 Dealing with new application

With the recent rapid development of smart devices, heterogeneous devices, wireless technology are more complicated than the existing devices. Because of their processing speed, network types and system requirements. For example, two challenges are given below,

2.3.3.1 Cloud with enhanced IoT

Internet of things with more challenging application such as internet of vehicles, smart garden, smart car, smart kitchen etc.[42,43], This thing is not at all easy for the paradigms of cloud computing because of the following given condition below,

- Support for mobility
- Real time System
- Latency should be low and so on.

2.3.3.2 Cloud with 5G LTE

Upcoming 5G techniques is a very big challenge to cloud computing. Normally for the network, itneeds to cover some areas that have some bandwidth and delay in millisecond. But 5G networks need a wide range of cover area or distance with strong bandwidth and less in delay.

- Essential Content distribution
- Peer to Peer Association

3. Stake of Cloud Computing Prototype

The centralized services called cloud computing does not fulfil the requirements of present and upcoming technology. To solve this problem many organizations, industry and in the research, side conduct many inquiries. Finally, the first step forward came by the company called CISCO in the year 2011. They created the distributed service called fog computing / dew computing. Later many organizations came forward and create many types of services such as,

(1) IBM creates grid computing
(2) Akamai launched CON – Edge computing
(3) US Energy start
(4) HP introduced utility data center

All the above computing is considered as stake cloud computing. The main target of the stake cloud computing is to get the cloud placed near to the end user. So that we can fulfil some of the issues faced by cloud computing.

- Bottle Neck
- Speed Processor
- Mobility high

In the following sections will discuss the above various stake cloud computing one by one.

4. Grid Computing

The grid computing is a distributed service provider. It was created in the 1990's. It makes very simple to use in the electric power grid unlike the other computing.

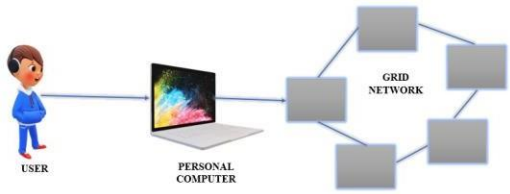

Figure 5. One-unit Grid computing Architecture

Grid computing allows people to participate in a moment where they can contribute their computing systems so that the aggregated system can do a better job. Normally computers come under different administrative domains. For example, there is a big task allocated to complete for two mutual colleges. So, they are connected through a network called grid computing[16]. In the above diagram, the user on the left side and the pc represents any system. These two are connected to other machines at different locations and different institutions. This group of machines which are coming from different machines but act as a one unit called a grid shows in fig.5.

5. Fog Computing

Fog computing is the extension of cloud computing or also called a tiny cloud. It acts as the intermediate between the cloud server and cloud user. Fog computing is a wide range of connected devices[4]. The device is called ubiquitous devices such as apple watches, smart bulbs, smart lock, smart tv and so on. It is decentralized wide spread distributed services.

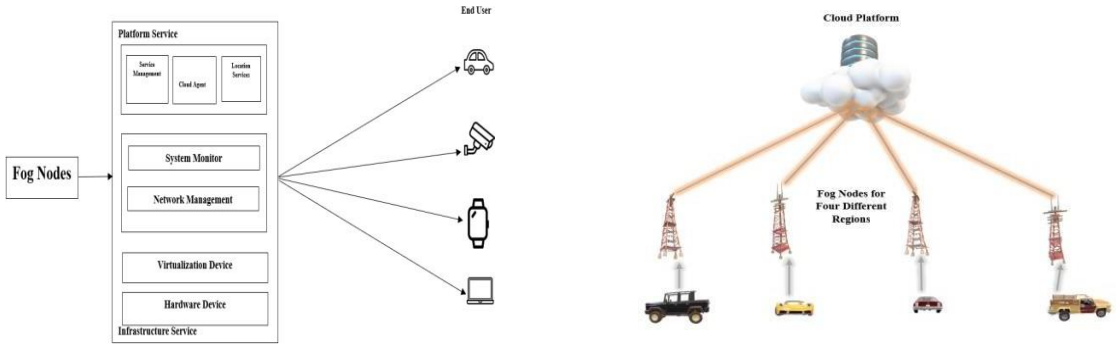

Figure 6 & 7. Major Components role in Fog Computing and Monitoring road surface using Fog computing

The most important components used in fog computing platforms are virtual machine, service management, cloud agent, location services, system monitor, network management and so on. For example, if the highway department wants to check the road surface monitoring for the vast area[5,6]. They can keep the fog node in four different regions such as north, south, west and east zone. From that they can track all the data and send to the centralized database to get the quick result and also have the location awareness and mobility support for all collected data's shows in fig. 7.

6. Dew Computing

To get the services from the cloud server the user needs continuous network connection all the time. So always the user is dependent on the internet. The dew computing consists of two types such as independence and collaboration. The role independence in dew computing is providing an independent soft system to the user and the role of collaboration is synchronizing of local and remote data. The dew computing needs only the minimal storage and action management [13]. The main performance is to provide a pool of fresh data furnished with illusory data in offline mode, peer to peer using pervasive, convenient and ubiquitous devices shown in fig.8 dew computing architecture. Some of the basic characters followed by the dew computing are given in below table I.

Table 1. Few Properties of Dew Computing

Properties	**Definition**
Rule Based Collection of Data	Users' personal data storing
Synchronization	Distributed Environment Integrity
Scalability	Maintain Bandwidth
Replication and Data Transmission	Multiple copies of data in various devices
Data Availability	With or Without internet
Recover	Data can be recovering anytime

Some of the services provided by dew computing such as,

(1) Infrastructure as dew called iCloud. It represents local device data that can be stored in remote data.

(2) Software in dew called play store. It means that the same account type can use different devices to download the software.

(3) Platform in dew called GitHub. It shows that users can use it for backups, software updates and so on.

(4) Storage in dew called google drive. So initially in drive they provided 2Gb free space without any cost.

(5) Web in dew called offline search service provider[14].

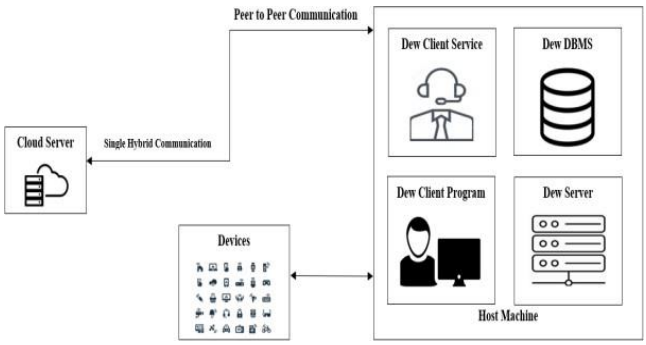

Figure 8. Dew Computing Architecture

7. Edge Computing

Edge computing plays most convenient and comfortable service provider to the user or customer. It is a distributed andplacing workload closer to the edge user. The edge is nothing but where the data and action are taken. In that data is created only by the human through some equipment for performing some tasks. In this network plays a major role to perform computing[7,43]. So 5G opens up the opportunity for clients to communicate into the premises where work is performed. There are two different kinds of edge computing in the environments such as,

(1) Edge Server
(2) Edge Devices

The above-mentioned edge server is for the purpose of IT equipment's and for IT workloads. And the edge devices are the first and foremost thing to bring the device closer to the user. Mainly its target is to have enough capacity for compute. Because of increasing the usage of devices, the workload also be increased in the cloud side. It needs to perform services for enormous amount of data. But the location awareness and the physical distance function are not performed as per user expected. So here the edge computing plays a major role to solve a gap faced by the cloud computing[8,9]. For example, the web browser is used by all over the world. It may be industry purpose or individual purpose. 95% of the user using web browsing for everyday life such as watching videos, downloading data's, communication purpose and so on. NTT Nippon telegraph and telephone public corporation works for website. In fig. 9 shows that the comparison of cloud service provider through network and cloud service provider through edge network. So that it brings the network close to the user with cloud offline service for few applications. Also, it may not lead to latency issue.

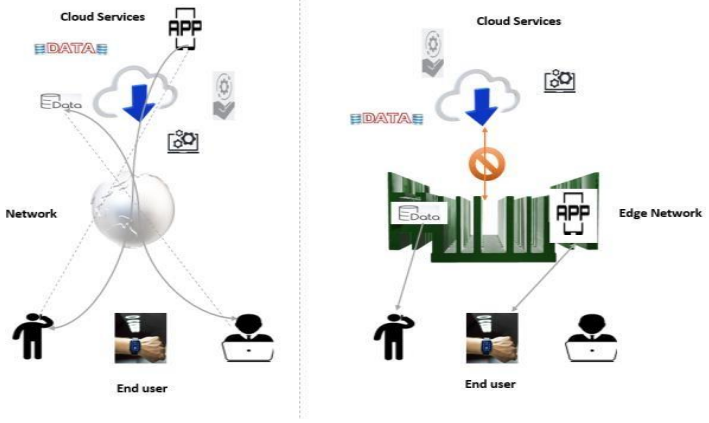

Figure 9. Reducing Latency Issue using Edge Network

8. Green Computing

The main target of green computing is to use the resources in an efficient manner. Mainly it should not impact the environment in any manner such as designing, disposing computer data, manufacturing and so on. The necessity of green computing is,

- Energy of computer wasted particularly switched on when not in use
- Printing a document for a backup is also wasteful instead of taking multiple softcopies

Benefits of using Green Computing such as Environment sustainability, Proper utilization of the resource, Better branding, Saving cost[10].

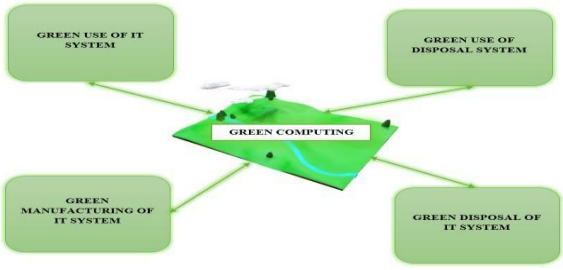

Figure 10. Functions of Green Computing

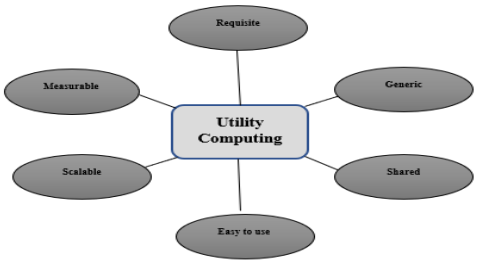

Figure 11. Role of Utility Computing

9. Utility Computing

Utility Computing is a model used to provide the resources to the customer based on their request and requirements. Instead of flat rate the provider charges only for their service provided. The relationship between the cloud computing and utility computing is nothing but the cloud computing providing many services (i.e.) computing to everyone in the society. In order to produce the kind of operation and supply to all the end users for that it uses the model called utility computing. Utility also supports grid computing[20].Whenever the resources are needed by the large number of customers or end users in the society it produces the large quantity and sells it into the retail market. The idea is to apply to computing or competing organizations to produce the computing needed in the data center and provide that to the end user using the Internet. For that it will charge a specific usage rate than a flat rate. For example, electricity consumes in terms of units then according to the usage the service provider will charge. Mainly the utility computing is used to eliminate the data redundancy.Utility computing is a business model whereas cloud computing is the cloud-based service provider model. In utility computing as an end user's, they can purchase or get for rent (hardware/software). Some of the new field of utility computing such as,

- Microsoft
- IBM
- HP

Table 2. Cloud Computing Vs Stake Cloud Computing

Properties	**Cloud Computing**	**GridComputing**	**EdgeComputing**	**Green Computing**	**Utility Computing**	**FogComputing**	**DewComputing**
Year	1960's – MODEM2006	1990'S	1990'sCDN launcher	Mid1990's	1995-2001	2014CISCO	2015
ServiceType	Iaas, Paas,Saas,Faas	SoftwareandSpecialEquipment[17]	NextWaveService	Recyclingofelectronic,Virtualtechnologydeploying[11]	BulkofSystemResources(NotaFlatRate)	NetworkServicesandComputeStorage	OnPremisesCloudComputingServices
Availability	HighAvailability	Redundant	Redundant	Redundant	Redundant	Volatile	Volatile
LocationAwareness	No	No	Yes	No	No	Yes	Yes
Mobility	No	Yes	Yes	No	No	Yes	Yes
ControlMode	SingleServerwithmultiplelayers	DistributedServerwithmultiplelayers	DistributedServerwithfewlayers	EnergyManagementinmultiplesites	ServiceProvisionalmodelindistributedserver	DistributedServerwithfewlayers	DistributedServerwithfewlayers
Latency	High	Low	Low	Dependsupon themachine	High	Low	Low
Distance	Farawayfromthecustomer(MultipleHops)	WithinaNetwork	Closertoheenduser	OneorMorehops	OneorMorehops	Closertoheenduser	Closertoheenduser
Targetuser	InternetUser	InternetUser	MobileUser	InternetUser	BothInternetandMobileUse	MobileUser	MobileUser

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AccessType	Both wiredand wireless	Both wiredand wireless	Mostl ywirel ess	Mostly wireddevices	Both wiredand wireless	Mostl ywirel ess	Mostl ywirel ess
Compa nySup port	Liquid Web,Goo gleCloud, Microsoft Azure,Ali babaClou d	Atos, DarkTrac e, GigaSpac es, LO3Energ y, GridGain System	Cisco,Cle ar blade,Dell Technolog y,EdgeCon neX	Dell, IBM,Cisco ,Adobe,Ap ple	Amazon, Rackspa ce,IBM, VMware	ShieldAI, Drofika labs,SON M,App Fog	Few CellPhone Companies (Infrastruct ureasaDew)
Merits	Norequire mentof hardwarest orage, Costas per usage,Flex ibility,Easi lyAccessib le[19]	Balancing resources, Making useof fishedreso urces,Para llel CPUcapac ity[18]	Processi ngmaxi mument erprised ata,Dedi cativeha rdware	Infinites calability inatomic, Costeffecti ve[12]	Single servicefore ntireorgani zation,Co mpatibility	Closertot heend user,Low latencyan d nobandwi dthproble m	Unlimited customeri ntendsserv iceprovide r
Demerits	User dataprivа cy andsecuri ty, Farawayf romtheen duser.	MandatoryofFast networkco nnection	Only Localareac overage,N eedofmany localhardw are's	DataAna lysesonl y takenpla ce, HighCos t	Reliability	High powercon sumption	Multiples ervers inoffline mode

In Table 2. The enhancement of cloud computing by various stake cloud computing to overcome the issues faced by the cloud computing in this rapid growth of internet. Some of the parameters are compared with stake cloud computing such as location awareness, mobility, distance, latency, company type, access type, company type, target user and so on.About stake cloud computing features are explained by various authors are given below in table 3

Table 3.A Study of Stake Cloud Computing

AuthorReference	**Core Domai n**	**Year**	**Definition**	**Technique**	**Application**	**FutureEn hancement**
Mengistuet.al[21]	CloudC omputing	2017	Cloud Computing isbased on holder of datacenter where thousandsof resource servers isplaced to operate thecloudserviceprovi der	The technique calledopportunistic system incloud computing based oncredit model which makecloud computing with nodatacenterapproach	Unusedcom putingresou rcesavailabl e in aclientorga nization	Developing the strongmeasure in securityfrom malicious attackduring cloud processcanbedevelo ped
Prajapatiet.al[22]		2018	Cloud Computing is amultitask/multiser viceprovider from a singlesourceofserve r	Open Stack cloudplatformin public	Strong storagesecurit y thantraditional methodofstora ge	Reducing Man powerand automatic updatesof every services bysimply login thesystem server can beprocessed

Samvatsaret.al[23]		2019	CloudComputingexplores all themechanisms depends onthe data such as storage,processing andproducing results. Itplays a major role of alltypesofdatacomputation	Utilization of resources inthe form of node cluster,Mechanism of handlingdata's in the form ofclusters of data, SecurityMechanismintheformof	Finding theproblemstatement andhighlighting thegap forfutureprobability	Load minimization,Sharing, Handlingand Securing the datacanbeimproved
Martinezet.al[24]		2020	Fog Computing is analternative technique forcloud.Also,forthepurpose of low latencyand closer to the enduser.	IdentificationofSimulation and EmulationToolkit	Identify thelatency, EnergyConsumption anOperational Cost	Smart City Supportthrough local IOTsystemcanbedeveloped
Mouradianet.al[25]	FogComputing	2017	Fog Computing is not areplacementofcloud but to avoid the issuesfacing by the cloud suchas scalability, elasticity,distancebetweentheend user and cloudserver.	InternetofTactile	LowScalability,Closertotheenduser	Security issues facingby the fog computingcanbeconsider
Mukherjeeet.al[26]		2018	Fog Computing is notanothercloud.Fog Computing is a serviceprovider like a cloudcomputing with lowenergy computation andlowlatency	Model Building, RulerMap, RulerDeploy	Development ofsustainableSmartIOT	SMARTIOT challenges can beevaluated
Liu,Y.et.al[27]		2020	Edge Computing will becompatible with allkindsofupcominggeneration like 5G withmultipleaccess	SDN, Cloud Computing,NFV	AugmentedReality, VirtualReality	5G network energyconsumption can bediscussed
Tadapaneniet.al[28]	EdgeComputing	2016	Cloud Computing is acentralized systemwhere all the data isclustered to gather andprovide services. Due tothis lack of storage andcomputationalpower	Edge computing providessome of the servicesprocessing by the cloudcomputing	It will reducethe storage andcomputationalpowerlack	Make edge computingwill work in off loadcomputation to getbetter performance bytheedgecomputation

Cao,K.et.al[29]		2020	Dramatic developmentin the IoE world due tothislargescaleofdata is developing day byday. It leads to poorperformance in-terms ofsecurity,maintenanceandprocessingspeed	Intelligent InternetServices and ContentDeliveryNetwork	FewComputation in-termsofedgecomputingi) AppropriateSituation: Localii) Real time /Ontime: Lowiii) Computation Mode:Small ScaleAnalysis	Hot topic in researchwill helps to enhancethe futuredevelopment ofindustries
Harmon, R. R.et.al[30]		2009	Sustainable InformationTechnology (SIT) willbe maintained only bygreen computing toreducethecostofpowerconsumption in overallindustries.	Various strategies will befollowed to implementgreen computing in an efficient way such as datacenter, PowerandThermal management,Hardware/SoftwareVirtualization.	Reduce costs inoverall metrices. Because nowadaysIT ispaying50%of investment formaintaining energy andpower.	Future research in-termsofgreencomputing should bein Customer/Clientvalue, Social/Societyvalue andIndustry/Businessvalue.
Farhan,L.et.al[31]	GreenComputing	2018	GreencomputinginIoTshould maintain theenergy efficient in allsensorswhichis usedby both industry oracademic	Shortest Path & Low Linkis the techniques used toschedule the message andprovide a pathfortravelling.	Low levelpowerconsumptionpath makes theusage of energyin efficientmanner	Green computing willbe implemented byrule-based model forenhancing energyefficient in sensor-basedservices
Ojo,A.O.et.al[32]		2019	Green Technology helpstoimprovetheproduction,consumption, utilizationand disposal in durablemanner	BAF – Belief ActionFramework Outcometechniques	Avoiding ITwaste usingGreenInformationTechnology(GIT)	The future scope willbe implementing GITin terms of individual,economicandsocial
Ray,P.P.et.al[33]		2017	Dew Computingaddresses the challengesfaced by the cloud,edge,gridandfogcomputing (All dependsoninternetconnectivity).DewComputingwillworkwithout rely on internetconnectivity	Two servers on both thesides (End to End) i.e.,Singlesuperhybridconnectivity	Client/Customercan computethedata any timewith the localserverintroduced bythe dewcomputing	Dewwillbeimplemented in alltypesofservice organization withenhanced efficientpowerconsumption
Cristescu, G.et.al[34]	DewComputing	2019	Dew services orcomponentsplaced inbetween the edge andfog to overcome thedrawbacks faced by theedge-fogcomputing.	Consensusalgorithmfor improvingtheenergydistributed networkstronger.	Compare to thetraditional methoddynamicdistribution withmicro grid helpsto give benefitsmanagement	Avoidthedemandofsupply during theservices in highbandwidth

Rindos,A.et.al[35]		2016	Dew computing serviceplaysamajor rolemainly for the on-premisescomputerapplication services.	WirelessDewwithlocaldomain namesystem.	Withthehelpofdew computingtheon-premisescomputer willgetefficientservices.	Fastest service shouldbe implemented toimprove the responsetime and reduce thelatency.
Wang, L. et.al[36]		2018	Group of networkedcomputers connectedand performs for highdataanalysisvirtually.	Cluster of servers withdistributedresources	Ithelpstoperformcomputation on-vast amounts ofdata.	Security concerns should be maintained.
Sungkar, A.et.al[37]	GridComputing	2020	Single huge network invirtual way to maintainpower and data storagecapacity.	HourglassModel	Localandinternal jobs aregetting highperformanceandlow latency	Lot of dispute in gridcomputing is still intermsofOS.
Ali,W.et.al[38]		2020	Load balancing duringhuge data computationwill be implementedusinggridcomputing.	JavaDevelopmentAgentFramework	Reduce latencyand Fastprocessing	Due to communityservices variouscompanies that worktogether in variousdistributed locationsshouldbe monitored.
Nickolov. Pet.al[39]		2013	Anothernameforproviding services inenterprises level calledutilitycomputing	On-Demand utilitycomputingresources.	Fulfillingcustomer needsinspiteofservice, storageandcomputation.	Rapid growth ininternet technologyand customer needsshould be more responsiveandsecure.
BiranYet.al[40]	UtilityComputing	2019	Utility computing isalso known as federatedcloudand hasmanyparameters to improvebusiness in an efficientmanner such as energy,load distribution andsecurity.	Less Semantic DataBreach detection toimprove the securitymeasure.	Services sharingand economicscale maintenance.	Large public cloudservice providersmaintain parallelcomputing.
SharmaMet.al[41]		2017	Fully depends on theusage of client andservice providingindustries.	Cloudlikeinfrastructure	Same softwarewill be used fordifferent kindsof serviceconsumption.	Reliability, Financial,instrument problemsshouldbereduced.

Conclusion

In this paper, I have presented the detailed concept about the comparison of cloud and post/stake cloud computing. To enhance and fulfil the service gap faced by the cloud, many network computers models or stake cloud computing are raised such as grid computing, edge computing, utility computing, green computing, fog computing and dew computing have been created and developed by the scholastic and assiduity group. With that

they develop many various types of usage to enhance the basic concept of cloud computing. The main target is to take a cloud computing approach to reach the end user such as a local or edge server to overcome the difficulties faced by the cloud computing and give the best performance to the end user or customer experience. In this survey paper, we theoretically and technologically analyzed the stake cloud computing including grid computing, fog computing, dew computing, edge computing, utility computing and green computing via several aspects and examples with cloud computing. In social perspective the stake cloud computing helps in various fields such as industries, organization, government sectors such as police department, civil service department, military department and so on. Also helps in various private sectors such as schools, colleges, hospitals and so on.

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