Development of Remote Rural Areas through Cloud Computing Based Model

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Abstract: Most of India's population resides in the villages and hence the future of India's lies in the uplifment of rural India . Cloud Computing is the revolution in computing domain where the cloud resources are made available whenever needed and they are charged on pay-as-you-go basis. Cloud Computing allows software applications, processing and data storage to deliver as a utility. Benefits of cloud computing like reduced capital costs and improved accessibility for the user can plays a key role in the upliftment of rural India. The facts like widespread use of advanced smartphones by rural people and the increasing number of rural Internet users are making the way simple to implement cloud. This paper discusses how the cloud computing technology can be used for the overall development of rural India enabling better decision making, online activities and improved livelihood of rural population, and also proposed specifically designed for rural remote areas, where the resources are very minimum and not easily available, most of the feature are included in this model which are not easily available in rural remote areas .connectivity and implementation of the model and challenges.

Keywords: Rural development, Proposed model, layered structure, cloud services.

I INTRODUCTION

India is a very big and divers country by nature as well as its geographically conditions and it has its particular problem to solve some parts are very advanced cities like delhi mubbai etc , and some parts are very remote where internet and basic facilities are very low or none. According to the report of untcsd most of the population in developing countries doesn't have the use of basic technology[1] to overcame these huge differences cloud computing could be the optimal solution cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management Computing is being transformed to a model consisting of services that are commoditized and delivered in a manner similar to traditional utilities such as water, electricity, gas, and telephony.In such a model, users access services based on their requirements without regard to where the services are hosted or how they are delivered. Several computing paradigms have promised to deliver this utility computing vision and these include cluster computing, Grid computing, and more recently Cloud computing. The latter term denotes the infrastructure as a "Cloud" from which businesses and users are able to access applications from anywhere in the world on demand. Thus, the computing world is rapidly transforming towards developing software for millions to consume as a service, rather than to run on their individual computers.[2] this paper is organized as follows section II discussed the study related to rural development III discussed the proposed platform, section IV discusses about Layered platform, section V discusses benefits of the system discusses conclusions.

II Study Related To Rural Development

Only very limited work has been done for the rural areas development and these technology are mostly used in developed countries' Just extremely constrained work has been improved the situation the provincial regions advancement and these innovation are generally utilized in built up nations' Hori et al. [3] proposed the cloud show and layered structure of cloud administrations Bo et al [4] utilization of Cloud Computing and The Internet of Things on horticulture and ranger service Nandi et al [5] diverse parts of giving last mile provincial media transmission access for example meddling components innovation choices and organization patterns for rural development Pade et al, (Placeholder1) express that supportability is the key factor that makes the country ICT ventures compelling [6] There are various issues that should be tended to so as to make supportable of

provincial ICT ventures The principle issues looked by the rural ICT ventures incorporate restricted access to foundation restricted formal instruction deficient preparing and limit building budgetary and political limitations and social/social difficulties The manageability issues of provincial ICT tasks can be assembled into five primary gatherings for example social and social institutional monetary/money related political and mechanical elements In this paper we fundamentally focus on the innovative factors Best and Kumar researched the manageability disappointments of country telecentres in Tamil Nadu India [7] They found that most of the telecentres worked by private administrators shut down inside a brief timeframe while alternate ones financed or worked by NGOs in a similar region had a more drawn out operational life time The primary purpose behind this was the plans of action embraced by the gatherings The private administrators were increasingly centered around benefits charging the clients while the NGOs worked ones had benefactor subsidizing helping them to concentrate on administrations The specialized explanations behind the disappointments included absence of voice communication offices terrible client bolster from the system supplier absence of earlier PC preparing and the unacceptable web network Ogbomo and Ogbomo have done an examination on the elements influencing the accessibility and openness of ICT in country networks inside the Delta territory of Nigeria as a contextual investigation [8] They have discovered a few critical imperatives for effective utilization of ICT in provincial networks The most critical requirements recognized incorporate staggering expense of offices inaccessibility or absence of foundation absence of aptitudes and mindfulness absence of data strategy and its usage dialect hindrances almost no administration bolster and political instability According to Rao the essential target of e government ventures is to enhance the achieve improve the base limit the preparing costs increment straightforwardness and lessen the process durations [9] He likewise express that so as to accomplish these destinations the rural e government applications must be gone for offering simple access to native administrations and enhanced preparing of government to resident exchanges The imperative focuses to note here is that from the specialized perspective it is critical to diminish handling cost and process duration and giving simple access to the administrations Notwithstanding the abovementioned he has additionally recognized the determination of suitable advances as far as steadfastness viability and cost adequacy for provincial availability and data handling arrangements and the speed of usage assume an essential job in accomplishment of the these tasks The execution show distinguished by him incorporates a few servers facilitated by individual divisions for offering the recognized administrations These serversare associated through Intranet/LAN to the conveyance server where the e government gateway is facilitated This model has a few weaknesses regarding execution and upkeep A central server is made the aggregate combined cost of equipment and different assets turn out to be high Every division needs to has its very own mastery for dealing with the frameworks and furthermore the repetitive cost associated with keeping up and dealing with the frameworks including power utilization and consumables will likewise be high Notwithstanding the cost the execution time for every framework needs to experience the total cycle beginning from particular recognizable proof buy establishment to testing Likewise it is fundamental to take note of that the use of these servers would be low and the greater part of the stage they would simply sit squandering the valuable assets and speculations It has been recognized that even in expansive business server farms the normal server usage lies somewhere in the range of 4 and 18 percent [10] The likely answer to decrease the expense and time of executing and keeping up the frameworks while expanding the use is to unite and co find every one of the servers in a solitary data center with the main goal that they can share a considerable lot of the assets and expenses

From the above discussion, it can be seen that there are several factors affecting the accomplishment of rural ICT implementations. These factors can be summarized as follows: High cost of facilities.

- Lack of human resources for managing facilities.
- Lack of human resources for innovative application development.
- Lack of resources (no. of computers) at telecentres.
- High implementation and maintenance cost.
- Inadequate performance.
- Lack of English knowledge of users.
- Lack of computer skills for users.
- Lack of service agreements.

- Lack of network capacity.
- Lack of income

III Proposed model

In this proposed model, mobile computing web based interface and Digital Resourcce Center are in perspective to overcome to all this challenges that we have discussed above we have proposed Cloud Based Model.
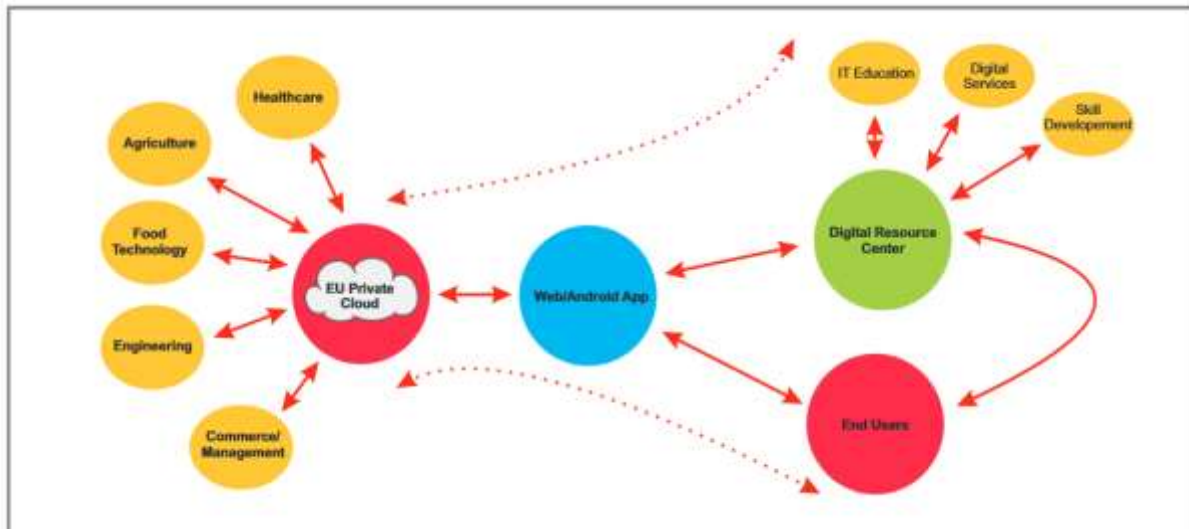

Fig1: Cloud Based Model for Remote Rural Areas

Cloud based model for remote rural areas As shown in the fig1 the proposed model is specially designed for rural remote areas where maximum of the facilities are not available or very limited in use. With implementation of this model we can overcome the rural remote areas challenges and limitation. In this model all the facilities provided under one umbrella.Where everyone can access the services and resources. In this proposed system, Mobile cloud computing in perspective of farmers, students and working personal provides Software as a Service (SaaS) and Information as a Service (IaaS), platform as a service (Paas) used for education and awarenenes agriculture and cultivation[11]. These cloud services are well customized, simple and flexible that anyone can handle and use.

IV COUD BASED LAYERD PLATFORM

These cloud layerd platform provide separate interface for individual technology where usercan select his choice of platform for example if any user have any enquiry related to health he can directly login in healthcare section a separate dashboard will appear to him where he can have his enquiry related to health same as with the farmer he can upload his question through this platform and answer to his question. This platform is in a valid arty mode. It should be flexible and more modules can be added to this platform. And according to the need the changes can be made to this platform.This platform worked as
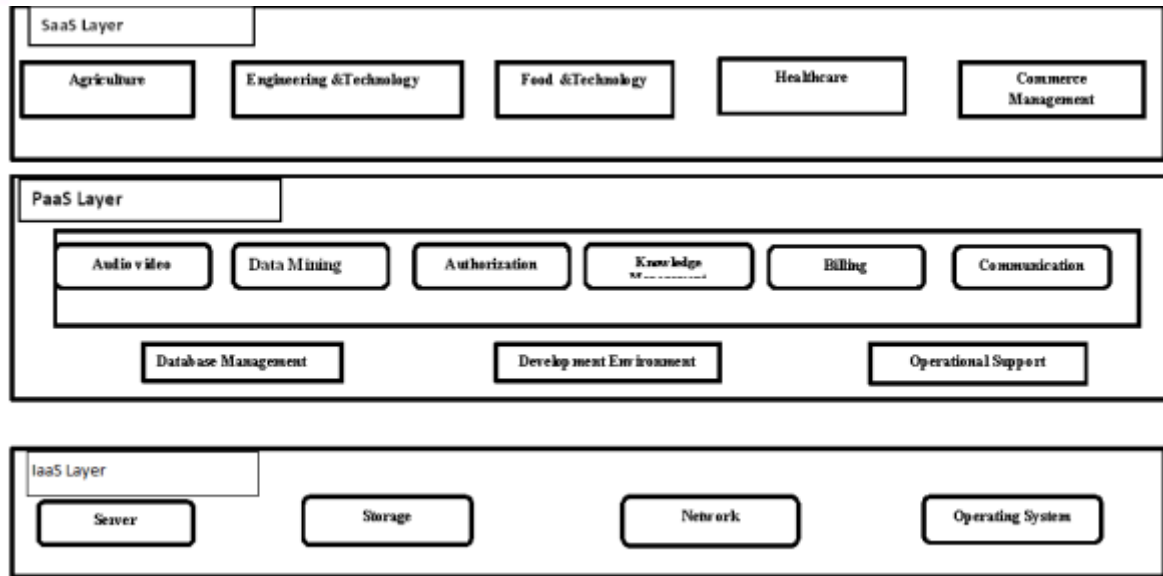
Fig.2 Layered Structure of Cloud Services

V BENEFITS OF PROPOSED MODEL

Less or extremely restricted on setting up IT framework as these is a private and in house created show with the act of open source innovation Widows or Linux Server by just indicating how much processor and capacity limit is required over the web at a truly sensible cost.

- On-Demand open doors for information sharing, information gathering and accumulation process which is exceptionally critical for by and large innovative work.
- Rapid provisioned and released feature takes into account the effective utilization of assets.
- Cloud computing versatility makes it to process vast database effectively which thusly can make the productive inventory network the executives of assets
- Measured Service would make it feasible for the farmers, students and other client to utilize the cloud benefits simply like some other utility.
- Knowledge Management: With the assistance of cell phone applications user can easily contribute in database by transferring the question related to pictures, recordings and some other critical data.
- Software-as-a-Service model of Cloud computing enable tools without installation without establishment on machines which require capital venture.

- Since the vast majority of the clients are not IT specialists it makes them less demanding to learn rapidly and effectively. As appeared in the figure.1, the cloud can offer a brought together knowelede bank which can be utilized to store all the data identified with farmers, students, patients and other users. This data bank will be accessible to the clients at wherever and at whenever.
- For instance the database for climate related data stores the area explicit climate data and furthermore the climate gauge for an explicit day and age. It will help the agriculturists in making proper arrangements and afterward take choices as needs be. Another use of Cloud computing can be the database for the harvest related data, understudies related data, understanding related data's which stores data related with all the conceivable products developed in a specific area and at a specific season which will help the agriculturists in related basic leadership. Another noteworthy

application can be ask the master database which will give answers for basic issues that farmer came across.

VI CONCLUSIONS

In this paper we have discussed why the most of the project in rural remote areas are not so much successful because there are several factors which should be considered before implementing any project, poor connectivity, population density, geographical constraints, and less revenue generation organizations are not interested in establishing infrastructure in remote rural areas . we have proposed a cloud based model which can solve this problem.. Cloud computing can be used to overcome this type of challenges. This model uses the university resources to provide the facility to faraway rural areas where the university expertise and resources can be utilized in efficient way.

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