International Journal of Innovative Research in Computerand Communication Engineering

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | Impact Factor: 7.194 |

||Volume 8, Issue 4, April 2020||

Design and Implementation of Server and Storage in Cloud Environment

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ABSTRACT: These days, small businesses increasingly need access to their data on the go, with no overhead for storage maintenance and no hardware maintenance costs. Cloud storage provides an efficient solution and is rapidly gaining in popularity. A cloud service is an apex model of doing business. this model of business makes IT implementation possible in even small firms who cannot invest on IT, but can allocate budget from the operational revenues.[4] This project is for designing hybrid IT strategy utilizing cloud offering in market for an engineering firm with multiple offices.Cloud service means that someone else owns/ operates the IT asset at remote data centres locations where the clients and customers can access them via the internet.This project Provides all storage n servers services that are available for also small business n IT firms.

KEYWORDS: Lower Ongoing Costs, Improve Scalability, Security and Compliance, High Availability, Disaster Recovery.

I. INTRODUCTION

Cloud Computing is the use of hardware and software to deliver a service over a network. With cloud computing, users can access files and use applications from any device that can access the Internet. Cloud storage is a cloud computing model in which data is stored on remote servers accessed from the internet, or "cloud." It is maintained, operated and managed by a cloud storage service provider on a storage-servers that are built on virtualization techniques.[1] Cloud implementation models vary from Software. As service to Infrastructure As service. Various cloud models available in the market are as under.

- Software as a service
- Desktop as a service
- Servers as a service
- Infrastructure as a service
- Platform as a service
- Remote infra monitoring as a service

Cloud implementation depends on specific customer requirements such as business model, growth strategies etc.
The proposed software product is liable to meet the required security needs of data centre of cloud. Blowfish used for the encryption of file slices takes minimum time and has maximum throughput for encryption and decryption from other symmetric algorithms.[1] The idea of splitting and merging adds on to meet the principle of data security. The hybrid approach when deployed in cloud environment makes the remote server more secure and thus, helps the cloud providers to fetch more trust of their users. For data security and privacy protection issues, the fundamental challenge of separation of sensitive data and access control is fulfilled.[2]

II. RELATED WORK

In [2] Cloud management automatically controls the use and optimization of resources. It also provides monitoring, reporting and cost accounting/charging for resource usage.[6] One or more metering models and their associated metering parameters may be offered by the service provider(s). Different models may be in play simultaneously, depending on which deployment models are in use (hybrid, demand spill-over to public cloud services, bursting, etc.).

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provides for overall management of cloud-based infrastructure to deliver its inherent benefits, including dynamic load balancing, rapid elasticity, scalability, capacity on-demand, provisioning/deprovisioning of resources, scheduling, monitoring and tracking of virtual and physical resource performance,
In addition to having a virtual firewall attached directly to a virtual server, other security services can also be moved off the switch, deployed right at the Network Interface Card (NIC). For example, traffic can be inspected at a higher level (e.g. application)

III. OBJECTIVES

1. Our main objective is to maintain the data of the fetched data from the server which will be stored in the cloud which can be accessed from anywhere at anytime according to the need.
2. Second main objective is to provide customer satisfaction by providing them a option to enter up their device id respectively.
3. Identify, design, configure &implement appropriate cloud model for an engineering firm and IT businesses. with following characteristics:
4. Scalable - Cloud infrastructure scales on demand to support fluctuating workloads.[3]
5. Flexible - Users can scale services to fit their needs, customize applications and access cloud services from anywhere with an internet connection.
6. Cost effective - The Cloud allows to use resources, networking and security solutions without infrastructure cost or high initial investments.
7. Asset reusable - The reusability of the cloud component is the most popular way to enhance the productivity and improve the quality and reliability of the new software systems by reducing the development costs.
8. Security - Virtual private cloud, [6] encryption and API keys help keep data secure.

IV. EXISTING AND PROPOSED SYSTEM

According to the survey we have found some existing system such used in cloud computing for Data storage system which is not efficient for the customers and has high cost for representation as well as inspection of data, which leads to customers displeasure. Therefore such systems does not support growth to the technology.[2]

In proposed system, we are going to eliminate the drawbacks of the existing system and thus provide the better user interface using some IT services or Strategies

IT Service Management

The adoption of ITIL V3, IT Service Management Framework for incident, problem, change, release, capacity and configuration management disciplines.[2]

Service Delivery through Online Portal

The architecture must support the development and implementation of a service catalogue and service portfolio management function.

Service Monitoring/Reporting

The architecture must support the capability to establish standardized metrics and to measure performance against Key Performance Indicators (KPIs) to help improve service quality through monitoring and reporting.

Security

The architecture must support a confidentiality/integrity/availability

Scalability

Infrastructure must be capable of scaling (up and out) the availability of IT resources (compute, network, storage) to support graduated workload demands.[2]

High Availability

The infrastructure should provide high availability (99.9%) access to IT systems, applications and information (24x7x365) and provide

Storage

The architecture must provide access to large storage repositories to support data warehousing, business intelligence and analytical activities.

Performance Monitoring

The architecture must provide performance monitoring and reporting capability on architectural elements, including platform components, application performance, user response time and custom metrics.[3]

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Disaster Recovery- Geographically separate DCs will provide disaster recovery services for the locally paired regional DCs.

Virtualization

The architecture will utilize virtualization capabilities to enable provisioning and reduction of hardware/software resources, enable workload portability, and improve availability, service level and service quality.

Process Inputs

- Customer interaction to understand the requirements
- Work flow study of all application

Process outputs

- Cloud enablers identified
- Cloud strategy implemented
- Individual services hosting decided
- Cloud partner identified
- Expectation from vendors defined.
- Cloud strategy implemented

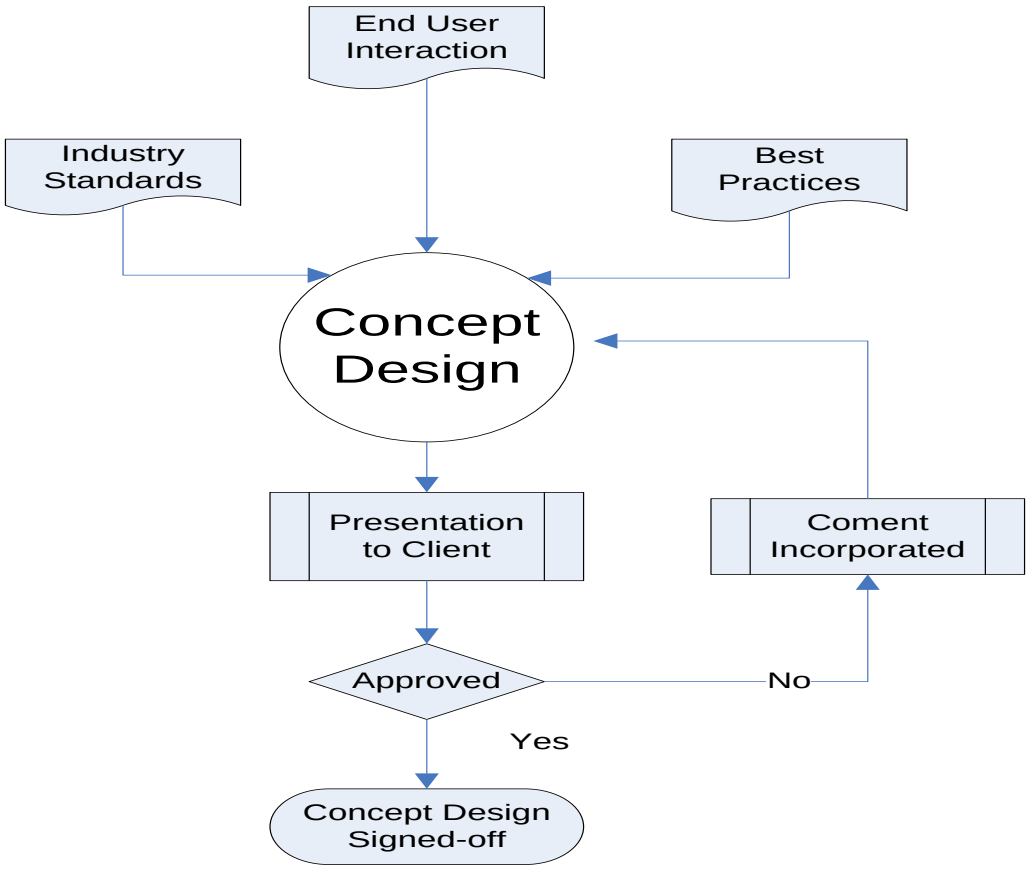

Fig1: Concept Design

V. PROXMOX VE

- Proxmox VE is a virtualization platform that tightly integrates compute, storage and networking resources, manages highly available clusters, backup/restore as well as disaster recovery. All components are software defined and compatible with one another.
- Therefore it is possible to administrate them like a single system via the centralized web management interface. These capabilities make Proxmox VE an ideal choice to deploy and manage an open source **H**yper **C**onverged **I**nfrastructure

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- **HCI** is useful for deployments in which a high infrastructure demand meets a low administration budget, for distributed setups such as remote and branch office environments or for virtual private and public clouds.[5] HCI provides the following advantages:
  - Scalability: seamless expansion of compute, network and storage devices (i.e. scale up servers andstorage quickly and independently from each other).
  - Low cost: open source and integrates all components you need such as compute, storage networking, backup, and management centre. It can replace an expensive compute/storage infrastructure.
  - Data protection and efficiency: services such as backup and disaster recovery are integrated.
  - Simplicity: easy configuration and centralized administration.
  - Open Source: No vendor lock-in. GNU AfferO General Public License, version 3.
  - Deploy and manage the storage technologies (ceph & ZFS) by using the Webinterface.

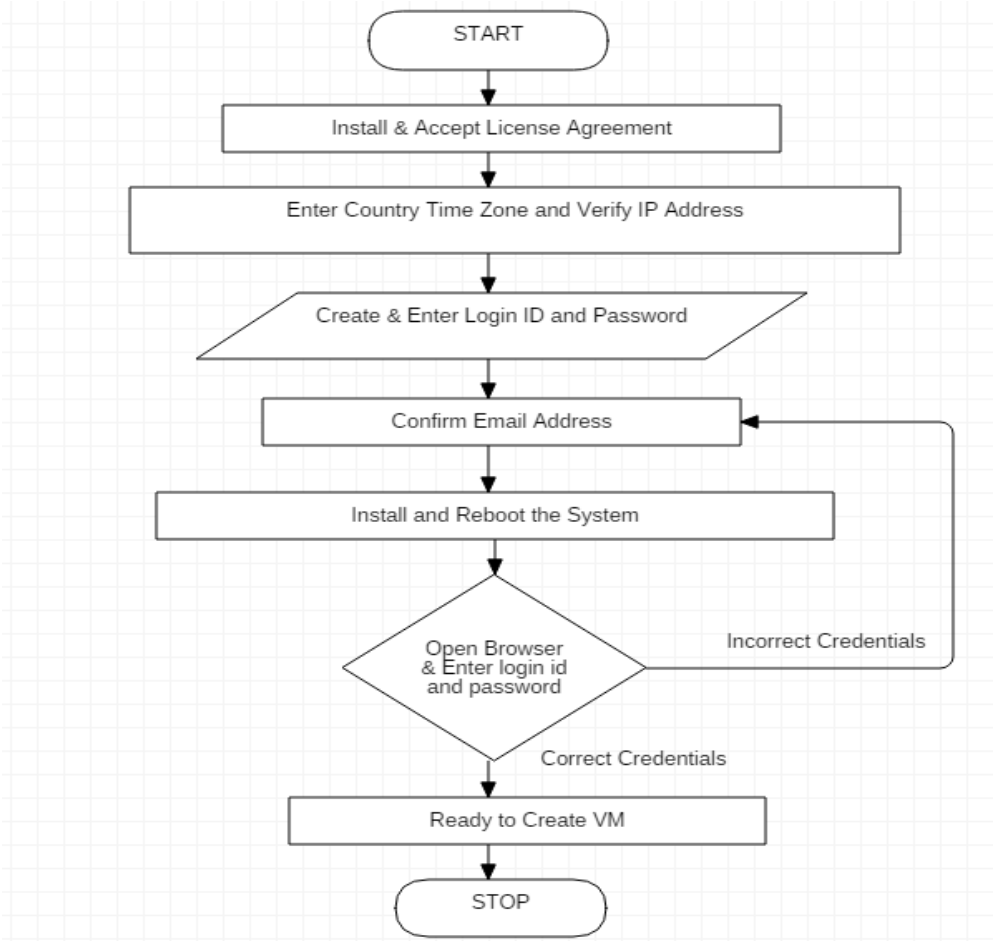

Fig2: Proxmox Flowchart

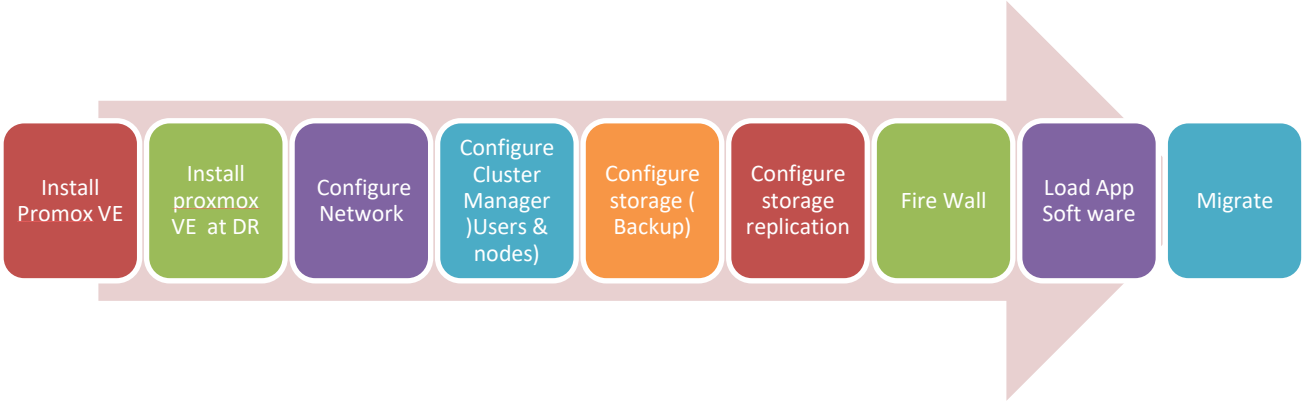

Fig3: Project Process Flow

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VI. CONCLUSION

We have acquired a depth knowledge in data centre system and able to go deep into the hybrid IT strategy utilizing in cloud market. According to user requirement we are going to design hybrid IT strategy which will be feasible, flexible and scalable in all region it will be highly secure for user data.

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