

Cloud Computing – Health Applications & Security

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Abstract— Cloud computing is based on service-level agreements that are established between the service providers and consumers. Cloud Computing opens up many new possibilities for application developers. Cloud Computing moves databases to be data centre where the management of the data and services may not be fully trustworthy and it poses many security challenges which have not been well understood.

I. SYSTEM DESIGN

The Cloud services should be in the form of queues. The cloud platform is a Graphical user interface which acts as the front end controller for the application. Cloud infrastructures are distributed, applications can be Deployed in different geographic locations and the chosen distribution impacts the performance for users who are far from the data centre. Below is the overview of the cloud service providers. Components of the service provider are:

- Cloud Agent
- Account Manager
- Resource Sharer
- Service Register
- Service Manager
- Resource Monitor
- Performance Evaluation

A. Cloud Agent

Cloud Agent is the customers who securely access information from the cloud environment.

B. Account Manager

The role of the Cloud Account Manager will be to drive business results and growth by working closely with the assigned cloud partner to establish key application and operator partnerships that leads to increased revenue through the mobile cloud while leveraging the unique capabilities of the product suite.

C. Resource Sharer

This component provides desirable execution environment based on user requirements and providing necessary disk images and required information for running the application.

D. Service Register

It allows providers to advertise their virtual units. The advertisement of virtual unit contains descriptions of their features, costs, and the validity time of the advertisement.

E. Service Manager

A monitoring system is provided by this component for fairly determining to which extent a facilitating procedure taken by a user is received. Third party monitoring results can be similar to what the Cloud Status service reports.

F. Resource Monitor

Administrators can drill down into detailed performance data from disk latency to network traffic to application-specific parameters.

G. Performance Evaluation

The performance of the cloud environment is being evaluated using some algorithm and the techniques specified and some optimizing techniques is also been specified in the cloud environment.

II. CLOUD COMPUTING AND HEALTHCARE

Cloud computing has the strength to face the demands in the health field. The feature of a good health service includes:

- Successful and judicious contact between the particulates.

III. HEALTH ARCHITECTURE

The health care architecture contains three layers.

- Access Channel Layer
- Content Layer
- Infrastructure Layer

A. Access Channel Layer

This is responsible for handling all the interactions between various users with the cloud based healthcare applications and provides the users with a rich interface.

B. Content Layer

It mainly consists of cloud based contents, such as web file systems, database systems, web services, and so on. This layer exposes the standard interfaces and APIs of contents for higher layers

C. Infrastructure Layer

This acts as the resource pool of cloudBased healthcare system. This infrastructure is managed by cloud computing platform.

The health care architecture contains three modules

- Monitoring module
- Policy Module
- Arbitration module
- Provision module

D. Monitoring module

Monitoring module keeps track of the Executions of requests, the real-time configuration information, resource utilization, the health of CPU, memory, I/O.

E. Policy module

Policy module establishes and maintains the healthcare strategies, the run-time and resource scheduling strategies.

F. Arbitration module

Arbitration module adjusts, and improves the resource allocation and management. It also establishes usage modes for different kinds of users based on the health conditions.

G. Provision module

Provision module starts the execution of resource allocation solutions set by the policy module and arbitration module,

and deploys resources referred to users automatically in a short time.

IV. ADVANTAGES OF THE CLOUD SYSTEM WITH RESPECT TO HEALTHCARE

- Regular updates of the diagnosis will be supplied to the user through mobile methods.
- In case if medicine, home delivery can be done.
- Any kind of person can use this feature.
- The interface adapted is fully Graphical
- This system provides increased accuracy, efficiency and better communication among
- It has minimum errors
- The information is well secured

V. DATA ABUSE

Data protection and data abuse prevention is traditionally handled using authorization, strong access control. By using Intrusion Detection and Data Leakage Prevention systems to the security is ensured. However, for reasons, the users of the clients must access a remote cloud using secure connections, making the use of existing systems difficult. Depending on the type of access solutions that can record the actions of the users should be adapted. Some of the data problems in cloud computing technology are:

- Deletion/alteration of records without a backup
- unlinking a record from a larger context may make it unrecoverable,
- Loss of an encoding key result in destruction.
- Unauthorised parties may be allowed to access to sensitive data.

Data damage done by a malicious insider, such as a system administrator can be extremely rare but devastating than in a regular computing environment. Therefore, special precautions must be taken to prevent such damage. These precautions should include strong authentication and authorization, such as multifactor and 4-eyes solutions, and the rigorous recording and monitoring of the actions of the cloud administrators.

REFERENCES

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