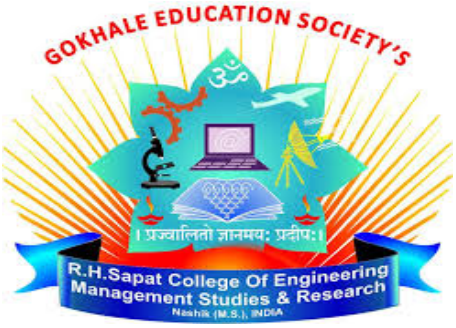

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Seminar Title: Comprehensive Analysis of Cyber Security in Cloud Computing.

Seminar Guide : Mrs. V.S.Nikam

Area of the Seminar: Cyber Security/Computer Security

Abstract

Cloud computing has gained immense traction as a cost-effective solution, enhancing service quality and ensuring robust security measures. This has piqued the interest of IT professionals, technocrats, and business leaders alike, owing to its demonstrated potential. The emergence of database outsourcing, considered a forthcoming benefit of cloud computing, further amplifies its appeal. However, with its rapid surge in popularity, a surge of security concerns has emerged, prompting the need for corresponding solutions. This paper aims to offer a comprehensive insight into the security landscape within the realm of cloud computing, shedding light on the current state of security measures. Beginning with an exploration of various cloud computing models and deployment strategies, it will delve into critical security issues and the challenges associated with granting permissions across diverse platforms.

Keywords: Cloud Computing; Challenges; Database Outsourcing; Deployment Models; Secure Computing.

Introduction

Introduction:

Cloud computing, as defined by the National Institute of Standards and Technology (NIST), has become an integral part of daily life for individuals seeking internet-based services like networks, storage, servers, and applications. It offers flexibility and cost-effective performance. This technology allows for the expansion or reduction of storage capacity without the need for new infrastructure investments. Cloud storage involves four layers: the storage layer housing data in cloud data centers, the management layer ensuring privacy and security, the application interface layer providing a platform for cloud services, and the cloud access layer granting user accessibility. Cloud models encompass Infrastructure as a Service (IaaS), providing customized on-demand infrastructure; Platform as a Service (PaaS), offering a platform and environment for cloud service and application development; and Software as a Service (SaaS), running its own software on a cloud infrastructure. In SaaS, users do not need to oversee the cloud infrastructure, including storage, operating systems, services, networks, and applications. This approach minimizes the requirement for computers, servers, storage, and management. Despite the exponential growth of data in cloud computing, concerns persist regarding data security. The transfer of data to cloud data centers raises security issues, leading to a loss of control for data owners. Ensuring the security and privacy of cloud-stored data remains an unresolved challenge, encompassing issues like unauthorized access, data leaks, and the exposure of sensitive information.

Method/Algorithm

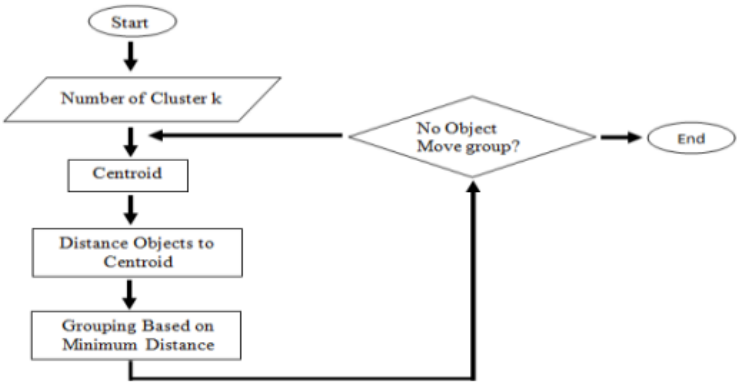
A. Generic Algorithm

The Genetic Algorithm (GA) is an exploratory approach utilized for finding solutions, either approximate or precise, to optimization and search problems. It achieves this by transforming the problem from its original domain into a model using chromosomes. The process begins with a random selection of a population of chromosomes, which are then converted into either binary bits or numerical values based on the specific problem. Through successive iterations, the GA refines and advances natural rules, particularly in the context of network traffic, enabling differentiation between regular and exceptional traffic. The algorithm can be summarized with the following pseudocode:

1. - Initialize the initial populations.
2. - Iterate through the following steps:
3. - Evaluate the fitness of a significant portion of the population.
4. - Select the best-scoring individuals for reproduction.
5. - Apply crossover and mutation operators.
6. - Repeat the process until the termination condition is met.

B. K-Mean Algorithm

K-propose is an appropriate set of guidelines for the partitioning approach for clustering evaluation. The purpose of this set of rules is to reduce a goal function referred to as the square mistakes feature.



Where Ki shows the number of data points in ith cluster

- Find a new cluster centre by using re-computation of the distance between all data points

Bayes' Theorem

$$P(\overline{\ }) = \left| \prod P(Mi / n) \right| P(n)$$

$P(\frac{n}{m})$ is the posterior probability

$P(n)$ is prior probability

$P(\frac{m}{n})$ is likelihood which is probability of predictor

$P(m)$ is the prior probability of predictor

References

1. C. Wang, Q, Wan, K. Ren nd Wenjing Lou, ”Privacy-Preserving Public Auditing for Data StorageSecurity in Cloud Computing”, *Infocom, Proceedings IEEE*, 2010, pp.1-9.

2. R. Choubey, R. Dubey, and J. Bhattacharjee, “A survey on cloud computing security, challenges and threats,” Int. J. Comput. Sci. Eng., vol. 3, no. 3, pp. 1227–1231, 2011

3. International Research Journal of Engineering and Technology (IRJET)
An Analysis Of Cloud Security.
Volume:09 Issue: 02 | Feb 2022
https://www.researchgate.net/publication/358499909_An_Analysis_of_Cloud_Security

4. K. Ren, C. Wang and Q. Wang, ”Security Challenges for the Public Cloud”, Internet Computing, IEEE, vol.16, no.1, pp.69-73, Jan/Feb 2012.